Violation and Elimination - Finetex, Inc., 418 Falmouth Avenue, E. Paterson, N.J.
August 14, 1972 (J. Perrapato)

Mr. A. Fuenning of E. Paterson called the PVSC that Fleischer's Brook had a white substance in it. Mr. W. Fleming and Inspector J. Perrapato at 3:05 P.M. traced the white material to Finetex Inc. of E. Paterson.

The plant manager, Mr. T. Scaza, Jr., was made aware of the pollution at 3:30 P.M. A check in the plant revealed that a coil in one of their 550 gallon vats had a leak and a synthetic sperm oil was being carried to Fleischer's Brook through their floor drain. The coil was shut off and removed for repair. Follow-up-check revealed stream clear on Tuesday, August 15, 1972.

# Appendix
8

Total
4 Pages

7 Kirby -
Your comments
Please -
BB

Mr. Neil Edsall
NJDEP Enforcement
327 E. Ridgewood Ave.
Paramus, New Jersey 07652

September 25, 2000

Dear Mr. Edsall

In response to your request we are pleased to provide you with our planned ~~correcti~~ve action to hopefully eliminate reoccurrence of the incident experienced at our Elmwood Park facility September 14, 2000.

As best as we can determine we believe the incident was caused by operator error resulting in a build up of pressure in the respective unit. Under this circumstance and according to design, the pressure was released through an emergency release mechanism.

Planned corrective action includes re- enforcing our existing training and process controls. Additionally, we are investigating installation of automatic pressure sensor switches. In the event unacceptable pressure builds up, the pressure sensor switch will automatically shut down the unit. This new device will be in addition to the original design safety pressure release mechanism device.

A commitment to the automatic pressure switch will be made after engineering data is reviewed and we are confident the automatic system will work as intended. I will keep you informed.

FINETEX INC., P.O. BOX 216, ELMWOOD PARK, NEW JERSEY 07407 (201) 797-4686 FAX: (201) 797-6558
P.O. BOX 164, SPENCER, NORTH CAROLINA 28159 (704) 633-8028 FAX: (704) 633-3746

We have not had any such incident in decades and appreciate your very professional assistance in dealing with this incident.

Finetex looks forward to you and your staff's visit to our Elmwood Park plant. Danny Menchan, Plant Manager, will assist you in setting appropriate times for the tour.

Bob Scala,

Bob Scala

Vice President
Finetex Inc.

# BERGEN COUNTY PROSECUTOR'S OFFICE
## REPORTING FORM

Date of Incident 09/14/2000

Time 0242 [✓ A.M.] P.M.

1. Location (If business--name of company and type of business)
Finetex
418 Falmouth Ave. Elmwood Park

2. Type of call (spill, dump, etc.)
Spill

3. Accidental ☑
4. Deliberate ☐
5. Undetermined ☐
6 Suspected substance involved Neodol → Final Product - Finsolv

| 7 Agencies Notified | | Responded | | | |
|---|---|---|---|---|---|
| Local Police Department | ☑ | Yes | ☑ | No | ☐ |
| Local Fire Department | ☑ | Yes | ☑ | No | ☐ |
| HAZMAT | ☑ | Yes | ☑ | No | ☐ |
| DEP | ☑ | Yes | ☐ | No | ☐ |
| EPA | ☐ | Yes | ☐ | No | ☐ |
| OSHA | ☐ | Yes | ☐ | No | ☐ |
| Local Health | ☐ | Yes | ☐ | No | ☐ |
| County Health | ☐ | Yes | ☐ | No | ☐ |
| Prosecutor's Office | ☐ | Yes | ☐ | No | ☐ |
| 8. Other Agencies | ☐ | Yes | ☐ | No | ☐ |

Name

Ptlm. Joseph Barone
Person Making Report

Elmwood Park Police 2000-10872
Agency & File #

B.C.P.O. USE ONLY

EP# 00-09-14-03-23-02 MISC#

REFERAAL#

Please make your check payable to:

**H.M.H.T.T.C. Response Team, Inc.**
**PO Box 5215**
**Parsippany,NJ 07054**
**Tax ID#:22-3326-215**

Voice: 973-335-6696
Fax: 973-335-7758

# Invoice

Invoice Number:
R-5705
Invoice Date:
Sep 28, 2000
Page:
1

Sold To:
Finetex
PO Box 164
Spencer, NC 28159

Incident Date: Thurs., Sept. 14, 2000
Job Report: NJ 1285
Shift Rate: Shift1 & 2
Incident Ref: NJ-00-0190

Customer ID: Finetex07407

| Customer PO | Payment Terms | Due Date | Sales Rep ID |
|---|---|---|---|
|  | 1% 10, Net 30 Days | 10/28/00 |  |

| Quantity | Item | Description | Unit Price | Extension |
|---|---|---|---|---|
|  |  | Location: Elmwood Park, NJ. |  |  |
|  |  | Respond to chemical reactor explosion with product on roof and ground. The roof was washed with hot water and soap. All waste was drummed for disposal. |  |  |
|  |  | Contact: Kirbey Atwood |  |  |
|  |  | SHIFT 1 |  |  |
| 5.50 | EC | Emergency Response Haz-Mat Coordinator, (Supervisor) | 60.00 | 330.0 |
| 5.50 | ER | Emergency Response Technician | 41.00 | 225.5 |
| 5.50 | ER | Emergency Response Technician | 41.00 | 225.5 |
| 5.50 | ER | Emergency Response Technician | 41.00 | 225.5 |
| 5.50 | ER | Emergency Response Technician | 41.00 | 225.5 |
|  |  | SHIFT 2 |  |  |
| 1.50 | ECOT | Emergency Response Haz-Mat Coordinator, (Supervisor) OT | 90.00 | 135.0 |
| 1.50 | EROT | Emergency Response Technician OT | 61.50 | 92.2 |
| 1.50 | ER | Emergency Response Technician | 41.00 | 61.5 |
| 1.50 | ER | Emergency Response Technician | 41.00 | 61.5 |
| 7.00 | 100 | Emergency Response, First Line | 60.00 | 420.0 |

We will add finance charges on invoices more than 30 days old.

**Transportation & Disposal invoice to follow - if applicable**

Check No:

**Port of Elizabeth**

|  |  |
|---|---|
| Subtotal | Continued |
| Sales Tax | Continued |
| Total Invoice Amount | Continued |
| Payment Received |  |
| **TOTAL** | Continued |

Please make your check payable to:

**H.M.H.T.T.C. Response Team, Inc.**
**PO Box 5215**
**Parsippany,NJ 07054**
**Tax ID#:22-3326-215**

Voice: 973-335-6696
Fax: 973-335-7758

# Invoice

Invoice Number:
R-5705
Invoice Date:
Sep 28, 2000
Page:
2

Sold To:
Finetex
PO Box 164
Spencer, NC 28159

Incident Date: Thurs., Sept. 14, 2000
Job Report: NJ 1285
Shift Rate: Shift1 & 2
Incident Ref: NJ-00-0190

Customer ID: Finetex07407

| Customer PO | Payment Terms | Due Date | Sales Rep ID |
|---|---|---|---|
| | 1% 10, Net 30 Days | 10/28/00 | |

| Quantity | Item | Description | Unit Price | Extension |
|---|---|---|---|---|
| | | Vehicle | | |
| 7.00 | 500 | Emergency Response Box Truck with Lift Gate | 45.00 | 315.0 |
| 1.00 | 500A | Standard Box Truck with Lift Gate | 200.00 | 200.0 |
| 1.00 | E-09 | Drum Vacuum System - Replacement | 350.00 | 350.0 |
| 1.00 | S-01 | #100/#200 Sorbent Pads | 83.00 | 83.0 |
| 15.00 | S-09 | Speedy Dry | 8.50 | 127.5 |
| 7.00 | S-10 | Drum, 17H (Open Head) 55 Gallon | 48.00 | 336.0 |
| 4.00 | R-20 | Chemical Resistant Overboots | 14.00 | 56.0 |
| | | Friday, Sept. 15, 2000 | | |
| | | Return to site to continue excavation of contaminated soil and to stock pile. Decon roof. | | |
| 7.00 | EC | Emergency Response Haz-Mat Coordinator, (Supervisor) | 60.00 | 420.0 |
| 7.00 | GT | General Technician | 38.00 | 266.0 |
| 7.00 | GT | General Technician | 38.00 | 266.0 |
| 1.00 | 300 | Standard Pick-up Truck | 100.00 | 100.0 |
| 1.00 | 500A | Standard Box Truck with Lift Gate | 200.00 | 200.0 |
| 1.00 | C-01 | Mobile Phone Communications | 30.00 | 30.0 |
| 1.00 | 2700 | Mini-Excavator Crawler (Delivery Additional) | 450.00 | 450.0 |
| 1.00 | S-07 | Polyethylene Film (6 Mil, 28 X 100) | 105.00 | 105.0 |
| | | Monday, Sept. 18, 2000 | | |
| | | Return and load roll off box and decon | | |

We will add finance charges on invoices more than 30 days old.

**Transportation & Disposal invoice to follow - if applicable**

| | |
|---|---|
| Subtotal | Continued |
| Sales Tax | Continued |
| Total Invoice Amount | Continued |
| Payment Received | |
| **TOTAL** | Continued |

Check No:

**Port of Elizabeth**

Please make your check payable to:

**H.M.H.T.T.C. Response Team, Inc.**
**PO Box 5215**
**Parsippany,NJ 07054**
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Voice: 973-335-6696
Fax: 973-335-7758

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R-5705
Invoice Date:
Sep 28, 2000
Page:
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Finetex
PO Box 164
Spencer, NC 28159

Incident Date: Thurs., Sept. 14, 2000
Job Report: NJ 1285
Shift Rate: Shift1 & 2
Incident Ref: NJ-00-0190

Customer ID: Finetex07407

| Customer PO | Payment Terms | Due Date | Sales Rep ID |
|---|---|---|---|
| | 1% 10, Net 30 Days | 10/28/00 | |

| Quantity | Item | Description | Unit Price | Extension |
|---|---|---|---|---|
| | | driveway. | | |
| 6.00 | EC | Emergency Response Haz-Mat Coordinator, (Supervisor) | 60.00 | 360.00 |
| 6.00 | GT | General Technician | 38.00 | 228.00 |
| 6.00 | GT | General Technician | 38.00 | 228.00 |
| 1.00 | 300 | Standard Pick-up Truck | 100.00 | 100.00 |
| 1.00 | 500A | Standard Box Truck with Lift Gate | 200.00 | 200.00 |
| 1.00 | 2700 | Mini-Excavator Crawler (Delivery Additional) | 450.00 | 450.00 |
| 1.00 | FS | * NOTE: Temporary Fuel Surcharge of 5% on Fuel Consuming Equipment | 121.75 | 121.75 |

We will add finance charges on invoices more than 30 days old.

**Transportation & Disposal invoice to follow - if applicable**

Check No:

**Port of Elizabeth**

| | |
|---|---|
| Subtotal | 6,994.50 |
| Sales Tax | 411.57 |
| Total Invoice Amount | 7,406.07 |
| Payment Received | |
| **TOTAL** | 7,406.07 |

Appendix
10a

the front of this
of Form 381

State of New Jersey
Department of Environmental Protection
Northern Bureau of Water Compliance and Enforcement
1259 Route 46, Building 2
Parsippany, New Jersey 07054-4191
Telephone (973) 299-7592 Fax (973) 299-7719

Christine Todd Whitman
*Governor*

Robert C. Shinn, Jr.
*Commissioner*

May 18, 1999

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Kirby Atwood, Compliance Coordinator
Finetex
PO Box 164
Spencer, North Carolina 28159

Re: Settlement Agreement
Finetex
NJPDES No. NJ0003573
Elmwood Park/Bergen County

Dear Mr. Atwood:

Enclosed is a Settlement Agreement ("Agreement") which was prepared by the New Jersey Department of Environmental Protection ("NJDEP" or "the Department") in order to resolve penalty liability accrued by Finetex for a permit effluent violation which occurred at your facility in Elmwood Park, New Jersey during October 1, 1998 through October 31, 1998 monitoring period.

I have signed the attached copies. Both Settlement Agreement originals should be executed by a duly authorized representative of Finetex and one signed original returned to the Northern Bureau of Water Compliance and Enforcement within fourteen (14) calendar days of your receipt of this letter. Written certification that the person signing the Agreement is authorized to do so by Finetex must be submitted with the signed original. Your payment of $1,000 in settlement of the violation shall be submitted within the time period specified in the Settlement Agreement along with the specified portion of the attached penalty invoice to the following address:

Division of Revenue
New Jersey Department of Treasury
P.O. Box 417
Trenton, New Jersey 08625-0417

Should Finetex not execute and return this Settlement Agreement within the time specified above, or make payment within the time specified in the Settlement Agreement, this offer shall be null and void. If you have any questions regarding this Agreement, please contact Rebecca J. Manis of my staff at (973) 299-7592 or by letter through this Bureau.

Very truly yours,

Joseph M. Mikulka, Chief
Northern Bureau of Water
Compliance and Enforcement

E16
Enclosure

c: Administrator James K. Hamilton, Water Compliance and
Enforcement Element
Director Dennis Hart, Division of Water Quality
Bureau of Revenue

State of New Jersey
Department of Environmental Protection
Northern Bureau of Water Compliance and Enforcement
1259 Route 46, Building 2
Parsippany, New Jersey 07054-4191
Telephone (973) 299-7592 Fax (973) 299-7719

Christine Todd Whitman
*Governor*

Robert C. Shinn, Jr.
*Commissioner*

IN THE MATTER OF : SETTLEMENT AGREEMENT

FINETEX :

The following Settlement Agreement is entered into pursuant to the authority vested in the Commissioner of the New Jersey Department of Environmental Protection (hereinafter "NJDEP" or "Department") by N.J.S.A. 13:1D-1 et seq. and duly delegated to the Bureau Chief of the Northern Bureau of Water Compliance and Enforcement.

WHEREAS Finetex located at 418 Falmouth Avenue in Elmwood Park, Bergen County, New Jersey, Lot 803, Block 15, possesses a New Jersey Pollutant Discharge Elimination System (NJPDES) Permit No. NJ0003573; and,

WHEREAS Finetex has submitted monthly Discharge Monitoring Reports ("DMR's) to the Department in accordance with the NJPDES Permit; and,

WHEREAS a review of the DMR, shows that Finetex discharged pollutants to the waters of this State in excess of the discharge limitations contained in Part III – B/C of the permit, for the period of October 1, 1998 through October 31, 1998 as indicated below:

| MONIT PERIOD END DATE | VIOL | DSN NO. | PARAMETER | CONC LOAD | MIN AVG MAX | LIMITS | UNITS | DATA |
|---|---|---|---|---|---|---|---|---|
| 10/31/98 | E94 | 001 | PHC | CONC | AVG | 10 | mg/L | 12.67 |

The following abbreviations were used above:

E94 – Monthly Average, Concentration

State of New Jersey
Department of Environmental Protection
Northern Bureau of Water Compliance and Enforcement
1259 Route 46, Building 2
Parsippany, New Jersey 07054-4191
Telephone (973) 299-7592 Fax (973) 299-7719

Christine Todd Whitman
*Governor*

Robert C. Shinn, Jr.
*Commissioner*

May 18, 1999

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Kirby Atwood, Compliance Coordinator
Finetex
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Spencer, North Carolina 28159

Re: Settlement Agreement
Finetex
NJPDES No. NJ0003573
Elmwood Park/Bergen County

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New Jersey Department of Treasury
P.O. Box 417
Trenton, New Jersey 08625-0417

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Very truly yours,

Joseph M. Mikulka, Chief
Northern Bureau of Water
Compliance and Enforcement

E16
Enclosure

c: Administrator James K. Hamilton, Water Compliance and Enforcement Element
Director Dennis Hart, Division of Water Quality
Bureau of Revenue

State of New Jersey
Department of Environmental Protection
Northern Bureau of Water Compliance and Enforcement
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Christine Todd Whitman
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WHEREAS a review of the DMR, shows that Finetex discharged pollutants to the waters of this State in excess of the discharge limitations contained in Part III – B/C of the permit, for the period of October 1, 1998 through October 31, 1998 as indicated below:

| MONIT PERIOD END DATE | VIOL | DSN NO. | PARAMETER | CONC LOAD | MIN AVG MAX | LIMITS | UNITS | DATA |
|---|---|---|---|---|---|---|---|---|
| 10/31/98 | E94 | 001 | PHC | CONC | AVG | 10 | mg/L | 12.67 |

The following abbreviations were used above:

E94 – Monthly Average, Concentration

# FINETEX INC.

**418 Falmouth Ave**
**Elmwood Park, NJ**

## Appendix 12

## Environmental Sampling Reports

April 12, 2003

**BRENNAN ENVIRONMENTAL, INC.**
*Environmental Consulting Services*

T. 973.781.1801
F. 973.781.1804
www.bei-env.com

8 Great Meadow Lane / Unit D
East Hanover, NJ 07936-1703

Sent Via 1st Class Mail

January 13, 2003

Ms. Jeannette Cleary
NJDEP, DRPSR, Bureau of Field Operations
Initial Notice Section
401 E State Street
CN 435
Trenton, NJ 08625-0435

Re: Finetex, Inc.
410, 416 & 418 Falmouth Ave
Elmwood Park, Bergen County, NJ
BEI Job # 99704
ISRA Case # E20010242

Dear Ms. Cleary:

As per Brennan Environmental Inc.'s January 3, 2003 letter, please find attached a copy of the Site Investigation Report (SIR) prepared on behalf of Finetex, Inc. In the SIR, additional soil and ground water delineation has been recommended for the subject property.

If you have any questions concerning this matter, please call me at (973) 781-1801.

Sincerely,

J. M. Brennan

John M. Brennan, President
**Brennan Environmental, Inc.**

Cc: Roger Porter
Bob Scala
Lawrence Jacobs, Esq.

G:\Brennan Envt'l\cjobs\2001\99704, Finetex Inc\njdepnoticeltr.doc

BRENNAN ENVIRONMENTAL, INC.
ENVIRONMENTAL CONSULTING SERVICES

# REPORT CERTIFICATION PAGE

**Brennan Environmental, Inc.**
Environmental Consulting Services

# Site Investigation Report

PER N.J.A.C. 7:26E-4.8

Finetex, Inc.
418 (includes 410 & 416) Falmouth Avenue
Block 803, Lots 14, 15
Elmwood Park, Bergen County, New Jersey
ISRA Case #E2001242
January 13, 2003
BEI Job #99704

| Prepared for: | Prepared by: |
|---|---|
| Finetex Inc.<br>418 Falmouth Avenue<br>Elmwood Park, NJ 07407 | Brennan Environmental Inc.<br>8D Great Meadow Lane<br>East Hanover, New Jersey 07936 |

# TABLE OF CONTENTS

# TABLE OF CONTENTS

## TABLES

## FIGURES

## APPENDICES

## 1.0) INTRODUCTION

Brennan Environmental, Inc. (BEI) was retained by Finetex, Inc. (Finetex) to prepare this Site Investigation Report (SIR) for the facility located at 418 Falmouth Avenue, Block 803 Lots 14 and 15, Elmwood Park, Bergen County, New Jersey (subject property). The site location is indicated on Figure #1. The purpose of this report is to detail the actions implemented in response to NJDEP's March 7, 2002 letter.

According to NJDEP's March 7, 2002 letter, based on the information submitted in the Preliminary Assessment Report (PAR) dated November 15, 2001 and UST Closure/SIR dated November 8, 2001, one historic area of environmental concern required further investigation. BEI was required to address the location of the six (6) former USTs (AOC #4). These tanks were removed in 1988. The March 7, 2002 letter directed Finetex to collect one soil sample through the former UST excavation and have it analyzed for volatile organic compounds plus a forward library search (VO+10), base/neutral compounds plus a forward library search (BN+15) and total petroleum hydrocarbons (TPHC).

BEI is certified by the New Jersey Department of Environmental Protection (NJDEP) to perform UST closures and subsurface evaluations pursuant to N.J.S.A. 58:10A-24 (Certification #US00779).

This report was prepared in accordance with NJDEP's Technical Requirements for Site Remediation (TRSR) (N.J.A.C. 7:26E et.-seq) and details additional soil and ground water investigation activities conducted at the property located at 418 Falmouth Avenue, Block 803 Lots 14 and 15, Elmwood Park, Bergen County, New Jersey.

## 2.0) HISTORICAL INFORMATION

A Preliminary Assessment Report was conducted for the Finetex property, pursuant to ISRA Case No. E2001242, dated November 15, 2001. The PAR identified two areas of environmental concern that warranted additional investigation. Specifically, an inactive 550-gallon #2 heating oil UST and an area of a former 1,000-gallon #2 heating oil UST were targeted (AOC 5 & 6).

BEI prepared a UST Closure/Site Investigation Report (SIR) to detail the tank closure process and post-excavation soil sampling activities, soil boring investigation, and BEI's evaluation of the post-excavation soil sampling data, which was compared to the then current applicable NJDEP soil cleanup criteria. The total aggregate volume of the two former USTs was less than 2,000 gallons. Therefore, the USTs were not subject to the underground Storage of Hazardous Substances Act (N.J.S.A. 58:10A-21), and a closure plan was not required. BEI proposed no further action (NFA) for the subject property. NJDEP approved no further action for the AOC 5 & 6 but required additional investigation of AOC 4 as detailed above.

## 3.0) PHYSICAL SETTING

### 3.1) Site Geology

The subject property is located in the Piedmont Physiographic Province of New Jersey. According to the USGS Bedrock Geologic Map of Northern New Jersey dated 1996, the bedrock in this section of the Piedmont Province of New Jersey is described as the Passaic Formation, which is Lower Jurassic and Upper Triassic in age and composed predominantly of conglomeratic sandstone with some shale. This sandstone is described as interbedded grayish-red to brownish-red, medium to fine grained and medium to thick bedded.

According to the Rutgers University Engineering Soil Survey of New Jersey (Report No. 4, Bergen and Hudson Counties) the overburden materials at the site are mapped as "GS12ig". The "GS" portion of the symbol signifies that the area is underlain by glacial stratified drift, composed of non-residual materials deposited during the Wisconsin glaciation. The general characteristic of the moraine is assorted, homogeneous materials, consisting predominantly of sand sizes, with varying amounts of silt, gravel, and occasionally clay. The "ig" indicates imperfect to good internal drainage conditions. Depth to the top of bedrock is expected to be greater than 10 feet. Bedrock was not encountered during soil or groundwater investigation activities.

The overburden soils encountered during monitoring well installation activities consisted predominantly of sands used to backfill the excavation. However, soils encountered in the former UST excavation area correlated well with the above description and were as follows:

| | |
|---|---|
| 0-3' | Light brown SILT, little Clay, some coarse Gravel and organic material |
| 3-8.5' | Dark brown CLAY, little coarse Gravel |
| 8.5-15.0' | Gray brown CLAY, little Silt, trace fine Sand |

### 3.2) Site Hydrogeology

According to the Rutgers University Engineering Soil Survey of New Jersey, the drainage conditions for areas mapped as "GS-12ig" are described as imperfect to good. During well installation activities, ground water stabilized at 6.24 feet bsg. According to site topography, groundwater is expected to flow in a southern direction. The recharge rate of the monitoring well is fair to poor.

### 3.3) Site Topography & Surrounding Land Use

The facility location is shown on an excerpt from the U.S.G.S. 7.5' Hackensack, Topographic Quadrangle Map (see Figure #2). According to the topographic quadrangle map, the site is located approximately 49 feet above mean sea level.

### 3.4) 1,000 Foot Radius Land Use

Based on visits to the site and the topographic map, land use within a 1,000 foot radius of the site appears to be a mixture of commercial, residential and heavy industrial.

The local land usage is zoned as heavy industrial and residential. The property is bounded by heavy industrial on three sides, city streets, a railroad line, and vacant land followed by a cemetery.

### 3.5) Surface Water Body Assessment

The closest surface body of water to the site is the Fleischer Brook, which is located approximately 755 feet west of the subject site. Pursuant to the New Jersey Surface Water Quality Standards (N.J.A.C. 7:9-4 et. seq.) the Fleischer Brook has not been assigned a designation. The brook is not a tributary to the Passaic River. Based on the distance of the brook from the subject property, the brook is not believed to be a receptor of concern.

### 3.6) Baseline Ecological Assessment and Receptor Assessment

***Wellhead Assessment:*** According to our review of NJ Geological Survey's computer program PSW 2000, there are six public potable wells within a 2,000-foot radius of the subject property. The wells are owned by the Garfield Water Department. A copy of the printout from the PSW 2000 software can be found in Appendix 7 of the November 8, 2001 UST Closure/SI Report.

***Surface Water Body Assessment:*** The closest body of water to the site is the Fleischer Brook, located approximately 755 feet west of the subject property. Fleischer Brook appears to run southeast from the subject property. Fleischer Brook is not classified in NJDEP's surface water quality standards, nor is it a formal tributary of the Passaic River. Due to the distance between the subject property and Fleischer Brook, the Fleischer Brook is not considered a receptor of concern.

***Wetland Assessment:*** Review of the 1991 New Jersey Wetlands Inventory Map for the Hackensack southwest quarter quadrangle, which is compiled by the NJDEP, indicates no wetland / state open water areas on or adjacent to the subject property. The subject property and surrounding area are designated as "Upland." A copy of the Wetland Inventory Map is included as Figure #3 of this report.

***Baseline Ecological Assessment:*** In line with N.J.A.C. 7:26E-3.11, BEI performed a baseline ecological assessment for the subject property. The results are as follows:

> *Contaminants of Potential Ecological Concern*: Analytical results of the soil samples obtained from the subject tank area at the property, indicate benzene and chlorobenzene

detected above NJDEP's Impact to Groundwater Criteria. Ground water analytical results indicate several other compounds abouve NJDEP Ground Water Quality Standards.

*Environmentally Sensitive Areas (ESA)*: After a site inspection and review of the NJDEP wetlands map and a surface water body assessment, no ESAs were found on or adjacent to the subject property. Therefore, ESAs are not considered to be a concern.

*Potential Migration Pathways*: Ground water was encountered during monitoring well installation activities at a depth of 6.25 feet bsg and is a potential migration pathway. There were no buried utilities in the areas of the former USTs that could have acted as a migration pathway.

Since the baseline ecological assessment indicates that the three criteria above do not co-occur at the subject property, no further ecological investigation is warranted.

## 4.0) TECHNICAL OVERVIEW

### 4.1) Reliability of Analytical Data

BEI's sampling activities were performed in accordance with the requirements outlined in the *NJDEP Field Sampling Procedures Manual* dated May 1992, as well as the Alternative Ground Water Sampling Techniques Guide dated July 1994. The soils encountered during investigative activities were classified in the field according to the Bermeister Soil Classification System (BSCS). The samples were placed in precleaned amber glass bottles with Teflon lined caps and placed in a cooler maintained at 4°C in order to ensure proper preservation. Proper chain of custody documentation was maintained until delivery of the samples to the laboratory.

All samples were analyzed by Integrated Analytical Laboratories, Inc. (IAL) of Randolph, New Jersey, a New Jersey certified laboratory (NJDEP Certification #14751). The data quality assurance deliverables conform to the Non-USEPA CLP Method as specified in the N.J.A.C. 7:26E - Technical Requirements for Site Remediation - Appendix A - Section IV. Please note that pursuant to NJDEP's letter dated March 7, 2002, the initial soil boring sample collected on May 23, 2002 was analyzed for VO+10, BN+15, and TPHC. The only contaminant found above standard during the May 23, 2002 sampling event was chlorobenzene. Subsequent soil samples were analyzed for VO+10 only.

All soil samples discussed herein were compared to the NJDEP's Soil Cleanup Criteria last revised on May 12, 1999. The Residential Direct Impact Soil Cleanup Criteria was used throughout the soil column. However, in csases where the Impact to Ground Water Criteria was lower, the strictest criteria were used throughout the soil column. The minimum detection limits (MDLs) for the May 23, 2002 sampling event did not exceed the applicable soil cleanup criteria. However, the MDL for chlorobenzene in MW-1A for the November 2, 2002 soil sampling event exceeded applicable NJDEP Soil Cleanup Criteria. However, since the analytical results for chlorobenzene is over applicable Soil Cleanup Criteria, the elevated MDL is not of concern.

All ground water samples collected were analyzed for VO+10 and BN+15. All ground water sample results discussed herein, were compared to the current NJDEP Class IIa Ground Water Quality Standards (GWQS). The MDLs for vinyl chloride and benzene for the November 18, 2002 ground water sampling event exceeded applicable NJDEP GWQS. Since the analytical result for benzene is over the applicable GWQS, the elevated MDL is not of concern. The presence of vinyl chloride in the ground water samples is discussed further in section 5.1B.

A summary of analytical methods and quality assurance is included in the Analysis Conformance/Nonconformance Summary pages in the laboratory packages. All locations of the soil samples and the monitoring well are shown in the Figures section of this report.

The following "Key" provides the explanations necessary to understand the sampling result summary tables listed in the following report sections.

ABBREVIATION KEY

TVOCC - Indicates Total Volatile Organic Contaminant Concentration.
TOCC - Indicates Total Organic Contaminant Concentration.
MDL - Indicates Method Detection Limit / PQL - Indicates Practical Qualitative Limits.
C - Indicates common laboratory and/or bottle contaminant.
NA - Indicates compound was Not Analyzed for in the analysis.
ND - Indicates compound was analyzed for but not detected at the MDL.
B - Indicates compound was detected in the blank and the sample.
~ - Indicates no listed value.
J - Indicates compound was detected at a value below MDL and greater than 0.
Bold & Underlined - Indicate that compound was detected above NJDEP standard.
ppm - Indicates parts per million.
ppb - Indicates parts per billion.
All other compounds analyzed in the particular scan were not detected, therefore they are not listed in the summary table.

## 4.2) Site Contamination Summary

The information outlined in Section 5.1 summarizes the area of environmental concern (AOC) at the site that was investigated to comply with the TRSR, N.J.A.C. 7:26E. Based on NJDEP's March 7, 2002 letter, BEI installed one soil boring in AOC 4. As per NJDEP's letter, the soil sample was analyzed for VO+10, BN+15, and TPHC. Analytical results revealed chlorobenzene concentrations slightly above NJDEP's Impact to Groundwater Standard of 1 ppm. Therefore Finetex installed one (1) monitoring well within the former UST excavation to determine the potential impact on ground water quality. During well installation activitieds, soil samples were taken to vertically delineate the impacted soil.

### 4.3) Significant Events and/or Seasonal Variations Influencing the Investigation

There were no seasonal variations observed by BEI during the course of the site investigation that influenced the investigation, sampling procedures, or analytical results.

## 5.0) FINDINGS/RECOMMENDATIONS

### 5.1) Specific Areas of Concern Discussion

### 5.1.A) Impacted Soil

In order to satisfy the request in NJDEP's March 7, 2002 letter, BEI was onsite on May 23, 2002 to install one soil boring in AOC#4. BEI installed the boring via hand-held Portaprobe direct push technology. The Portaprobe is an electric pneumatic hammer that drives a narrow diameter 3.0-foot long macrocore. The macrocore is similar to the Geoprobe macrocore with dedicated acetate liners. New liners were used for each 3.0 feet of recovery.

Samples for laboratory analysis were field screened with a PID at 1-foot intervals. The PID used to field screen the borings was calibrated with isobutylene span gas and equipped with a 10.6 eV UV lamp. Soil boring logs are contained in Appendix #2.

The soil boring was advanced, taking three-foot macrocore samples, to a depth of 6 feet bsg. A soil sample was collected designated SB-01, that corresponds to a level 0-6" below the base of former USTs.

Sample SB-01 was stored in a cooler and transported to IAL for analysis. Pursuant to NJDEP's letter dated March 7, 2002, the soil sample was analyzed for VO+10, BN+15, and TPHC. All soil samples were preserved using the NJDEP methanol preservation method. A trip blank was generated as a measure of quality assurance/quality control.

The laboratory analytical results of SB-01 indicated the presence of chlorobenzene in concentrations slightly above NJDEP's Impact to Groundwater Standard. A summary of the soil sample results is provided in Table #1 and the complete laboratory analytical package is provided in Appendix #5.

## Table 1– Summary Of May 23, 2002 Soil Analytical Results

| **Sample ID:** | **SB-01** | **RDCC/ NRDCC/ IGWCC** |
|---|---|---|
| **Lab ID:** | **E02-3831** | |
| **Sample Date:** | **5/25/2002** | |
| **Sample Matrix:** | **Soil** | |
| **Sample Depth:** | **6.0-6.5'** | |
| **Parameter** | | |
| *Volatiles (ppb)* | | |
| Benzene | 0.385 J | 3/13/1 |
| Chlorobenzene | *7.95* | 37/680/1 |
| Ethylbenzene | 1.08 | 1000/1000/100 |
| Total Xylenes | 5.42 | 410/1000/67 |
| 1,3-Dichlorobenzene | 4.66 | 5100/10000/100 |
| 1,4-Dichlorobenzene | 28.80 | 570/10000/100 |
| 1,2-Dichlorobenzene | 8.01 | 5100/10000/50 |
| Total Targeted VO's | 49.096 J | |
| Total VO TIC's | 20.24 | |
| Total VO's | 69.336 J | 1000 |
| *Semivolatiles (ppb)* | | |
| 1,3-Dichlorobenzene | 0.603 | 5100/10000/100 |
| 1,4-Dichlorobenzene | 4.48 | 570/10000/100 |
| 1,2-Dichlorobenzene | 0.123 | 5100/10000/50 |
| Naphthalene | 3.27 | 230/4200/100 |
| 2-Methylnaphthalene | 2.14 | ~ |
| Phenanthrene | 1.87 J | ~ |
| Fluoranthene | 0.081 J | 2300/10000/100 |
| Bis(2-Ethylhexyl)phthalate | 0.092 J | 49/210/100 |
| Total Targeted BN's | 12.730 J | |
| Total BN TIC's | 128.81 | |
| Total BN's | 141.54 | |
| TPHC | 892 | 10000 |

J= concentration was detected at a value below the MDL

Since analytical results revealed concentrations of chlorobenzene slightly above NJDEP's Impact to Groundwater Criteria, BEI, on behalf of Finetex, installed one (1) monitoring well on the subject property to evaluate ground water.

During the November 2, 2002 monitoring well installation activities, BEI collected 3 soil samples designated MW-1A, MW-1B and MW-1C. A Geoprobe 66DT with direct push technology was used to collect samples and install the well. Samples were collected with a five-foot stainless-steel macrocore with dedicated acetate liners. New liners were used for each 5.0 feet of recovery.

The boring was field-screened using the same methodology as described earlier in this section. BEI collected samples from 0-6" above ground water and at the soil horizon levels exhibiting the highest recorded PID readings from both the May 23, 2002 and November 2, 2002 site activities. All soil samples were preserved using the NJDEP methanol preservation method.

The location of the samples and corresponding PID results can be found on the well construction logs included as Appendix #3. Analytical results for the samples are provided in Table #2 and the complete laboratory analytical package is provided in Appendix #6.

**Table 2– Summary Of November 2, 2002 Soil Analytical Results**

| **Sample ID:** | **MW-1A** | **MW-1B** | **MW-1C** | **RDCC/ NRDCC/ IGWCC** |
|---|---|---|---|---|
| **Lab ID:** | **8630-001** | **8630-002** | **8630-003** | |
| **Sample Date:** | **11/02/02** | **11/02/02** | **11/02/02** | |
| **Sample Matrix:** | **Soil** | **Soil** | **Soil** | |
| **Sample Depth:** | **3.0-3.5'** | **4.5-5.0'** | **5.5-6.0'** | |
| **Parameter** | | | | |
| *Volatiles (ppb)* | | | | |
| Benzene | *1.56* | 0.649 J | 0.29 J | 3/13/1 |
| Chlorobenzene | *51.2 D* | *40.5* | *3.82* | 37/680/1 |
| Ethylbenzene | 3.4 | 4.3 | 0.386 J | 1000/1000/100 |
| Total Xylenes | 13 | 18.4 | 1.97 | 410/1000/67 |
| 1,3-Dichlorobenzene* | 20.8 | 31.4 | 1.64 | 5100/10000/100 |
| 1,4-Dichlorobenzene* | 43.2 | 23.5 D | 10.9 | 570/10000/100 |
| 1,2-Dichlorobenzene* | 3.77 | 6.35 | 0.347 J | 5100/10000/50 |
| Total Targeted VO's | 136.93 | 125.099 J | 19.353 J | |
| Total VO TIC's | 12.4 | 142.67 | 14.02 | |
| Total VO's | 149.33 | 267.769 J | 33.373 J | 1000 |

D= the compound was reported from the diluted analysis
J= concentration was detected at a value below the MDL
*= analyte was measured in both BN and VO results; as per IAL, B/N analysis is a more accurate measure of these compounds.

### 5.1.B) Ground Water Monitoring Well Installation and Sampling

BEI, at the request of Finetex, was on-site on November 2, 2002, with a drill crew from S&S Subsurface Investigation, Inc. to install one (1) ground water monitoring well on site. A six-inch diameter auger attachment was used to install the well in the area of the former USTs. The well, (designated MW-1), was installed as an unconsolidated well.

The well was constructed according to NJDEP Standard Unconsolidated Well Specifications using two-inch diameter, Schedule 40 PVC. Machine slot PVC well screen (.010 inch slot size) was placed from 3-15 ft bsg; moist soils were encountered at approximately 4.5' and groundwater stabilized at approximately 6.0' bsg. A solid schedule 40, PVC riser completed the upper part of the well. The connection between screen and riser were flush-joint screw type (no adhesive required). The wells were filter packed with clean (<10% fines), #2 uniformity coefficient sand from the bottom of the well to two feet above the top of the screen level.

Following this, the well was grouted using a mixture of Portland Type 2 cement. The well installed at the site was of the "flushmount" lockable type with a locking cap inside. Specific stratigraphy and well construction logs were recorded in Well Certification Forms "A" and "B" for each of the wells (Appendix #3). The well location for the site is depicted in the Figures section of the report.

After a two week stabilization period, a representative from BEI was on site on November 18, 2002 to collect a ground water sample from MW-1. The ground water sample was collected in accordance with the NJDEP's May 1992 FSPM. The sample collected from the monitoring well was packed in a cooler and transported to IAL for analysis for VO+10 and BN+15. Analytical parameters for ground water were chosen based upon the soil parameters required by NJDEPs March 7, 2002 letter.

Static water level measurements were recorded with a Sinco Slope Indicator by BEI upon arrival at the site, following well purging, and after sample collection. The monitoring well purge guide is included as Appendix #4. Prior to, and following monitoring well purging, a ground water sample was obtained with a dedicated clear bailer to check for free-phase floating product and product sheen. BEI noted neither sheen nor free-phase floating product on the samples collected from MW-1 for both sampling events.

Additionally, dissolved oxygen, pH, water temperature, and specific conductivity were recorded prior to and following well purging and after sample collection. Trip blanks were generated as a measure of quality control/quality assurance for each sampling event.

The monitoring well sample results are found in the following table and the full analytical data package is contained as Appendix #7 of this report.

## Table 3– Summary Of November 18, 2002 Ground Water Analytical Results

| **Sample ID:** | **MW-1** | **NJDEP GWQS** |
|---|---|---|
| **Lab ID:** | **9109-001** | |
| **Sample Date:** | **11/18/2002** | |
| **Sample Matrix:** | **Aqueous** | |
| **Parameter** | | |
| *Volatiles (ppb)* | | |
| Vinyl Chloride | ***46.8*** | 5 |
| Trans-1,2-Dichloroethene | 37.8 | 100 |
| Benzene | ***1030*** | 1 |
| Toluene | 76.9 | 1000 |
| Chlorobenzene | ***2320 D*** | 50 |
| Ethylbenzene | 498 | 700 |
| Total Xylenes | ***2320*** | 1000 |
| 1,3-Dichlorobenzene | ***1130*** | 600 |
| 1,4-Dichlorobenzene | ***9370 D*** | 75 |
| 1,2-Dichlorobenzene | 428 | 600 |
| Total VO's | 17257.5 | ~ |
| Total TIC's | ***1364*** | 100/500 |
| Total VO's & TIC's | ***18621.5*** | 100/500 |
| *Semivolatiles (ppb)* | | |
| 1,3-Dichlorobenzene | 190 | 600 |
| 1,4-Dichlorobenzene | ***1650*** | 75 |
| 1,2-Dichlorobenzene | 100 | 600 |
| 1,2,4-Trichlorobenzene | ***46.8*** | 9 |
| Naphthalene | 136 | 300 |
| 2-Methlynaphthalene | 12.8 | ns |
| Total BN's | 2135.6 | ~ |
| Total TIC's | ***380*** | 100/500 |
| Total BN's & TIC's | ***2515.6*** | 100/500 |

D= the compound was reported from the diluted analysis
ns= no standard
J= concentration was detected at a value below the MDL
*= analyte was measured in both BN and VO results; as per IAL, B/N analysis is a more accurate measure of these compounds.

Ground Water sample analytical results from the November 18, 2002 sampling event detected several compounds above NJDEP Ground Water Quality Standards. Most of the compounds are similar to those found in the soil investigation. However, vinyl chloride and cis-1,2-dichloroethene (in TICs) were found as well. These compounds are not related to contaminant compounds found in the soils, nor are they associated with the contents of any of the former USTs located at the subject property.

## 5.2) Significance of Tentatively Identified Compounds

Total VO and BN TICs for all soil samples were below the NJDEP Soil Cleanup Criteria of 1000 ppm. Total VO and BN TICs noted in the ground water analysis for MW-1 exceeded the NJDEP Class IIA Ground Water Quality Standards criteria of 100/500 ppb. Therefore, TICs in ground water are of concern.

## 6.0) RECOMMENDATIONS FOR AREAS OF CONCERN

Based on the analytical results, soil and ground water have been impacted with chlorobenzene and its derivatives at the subject site. Further soil and ground water delineation activities should be limited to these compounds (e.g. chlorobenzene, dichlorobenzene, benzene et al.).

BEI proposes delineation of the extent of impacted soils and ground water of chlorobenzene and like compounds. A proposed schedule for future delineation activities will follow this report.

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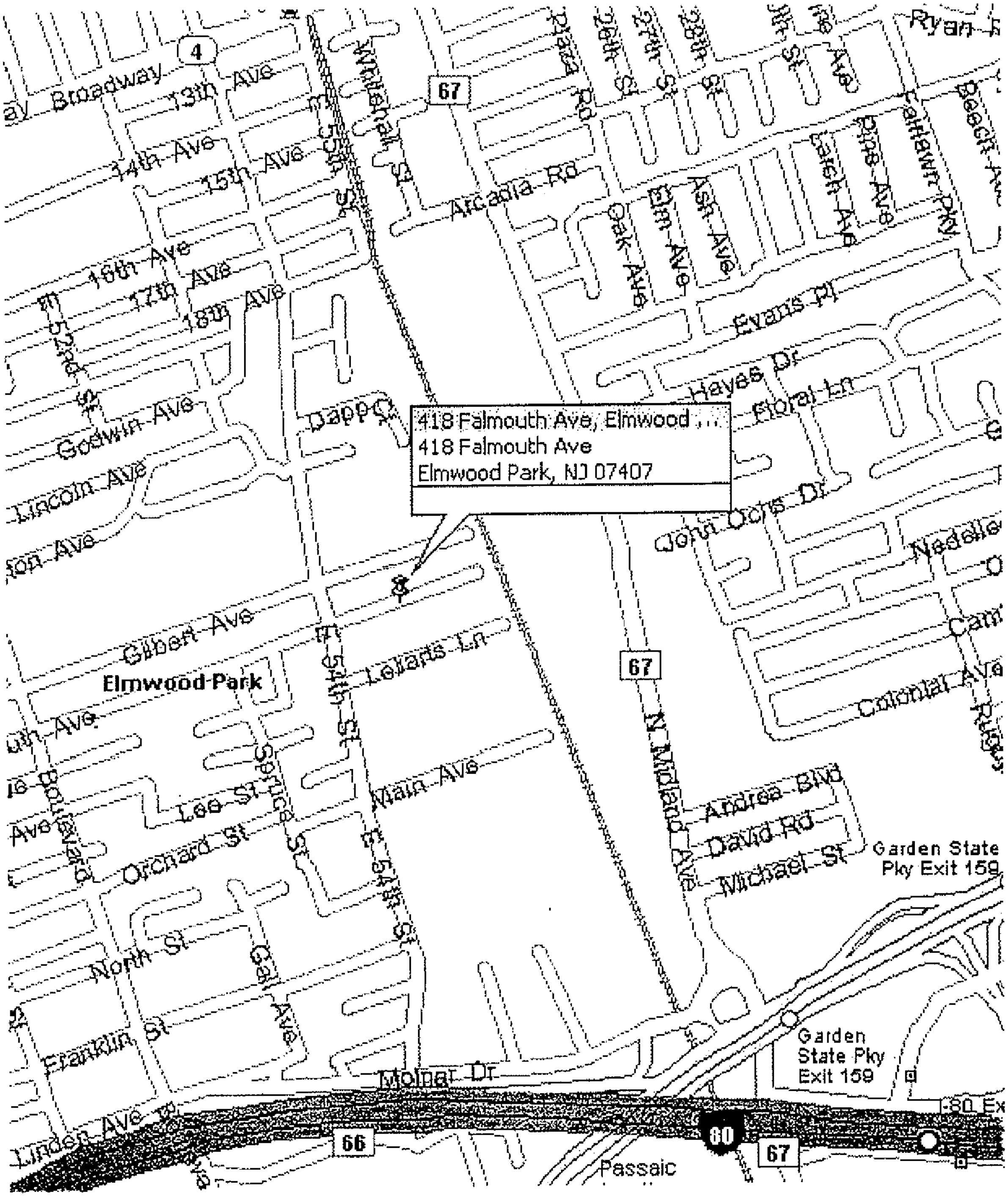
ENVIRONMENTAL CONSULTING SERVICES

# FIGURES



418 Falmouth Ave, Elmwood ...
418 Falmouth Ave
Elmwood Park, NJ 07407

**FIGURE:** **1**

Site Location Map

418 Falmouth Avenue
Elmwood Park, Bergen County, NJ

Scale: scale as shown
Drawn/Checked By: JCH/JB
Date: 12/11/02
Project # 99704

**Brennan Environmental, Inc.**
8D Great Meadow Lane, E. Hanover, NJ 07936 973.781.1801

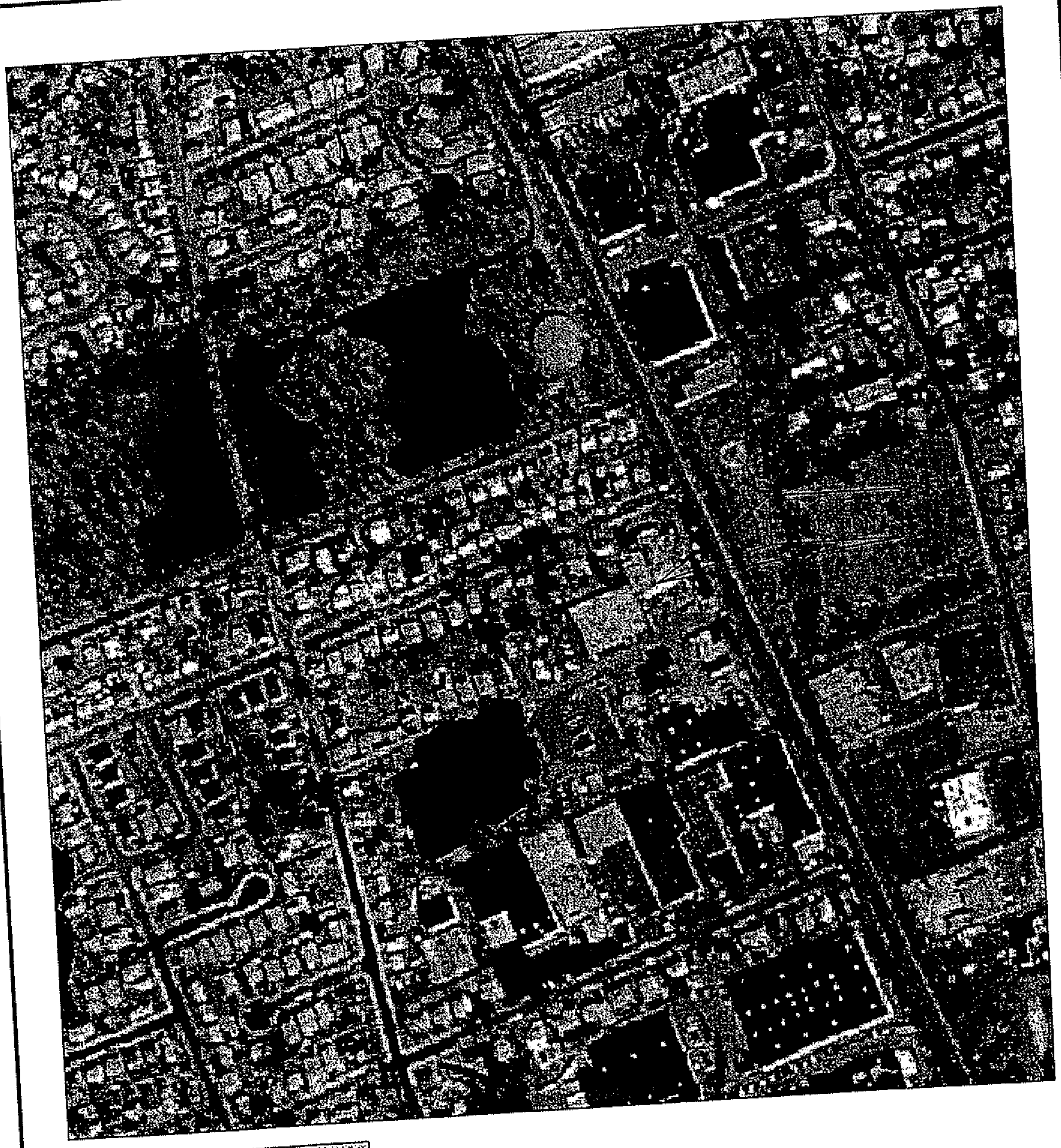
**FIGURE:** 2

USGS Topo Quad Map
(based on Hackensack, NJ Topo Quad)

418 Falmouth Avenue
Elmwood Park, Bergen County, NJ

Scale: scale as shown
Drawn/Checked By: JCH/JB
Date: 12/11/02
Project # 99704

**Brennan Environmental, Inc.**
8D Great Meadow Lane, E. Hanover, NJ 07936 973.781.1801



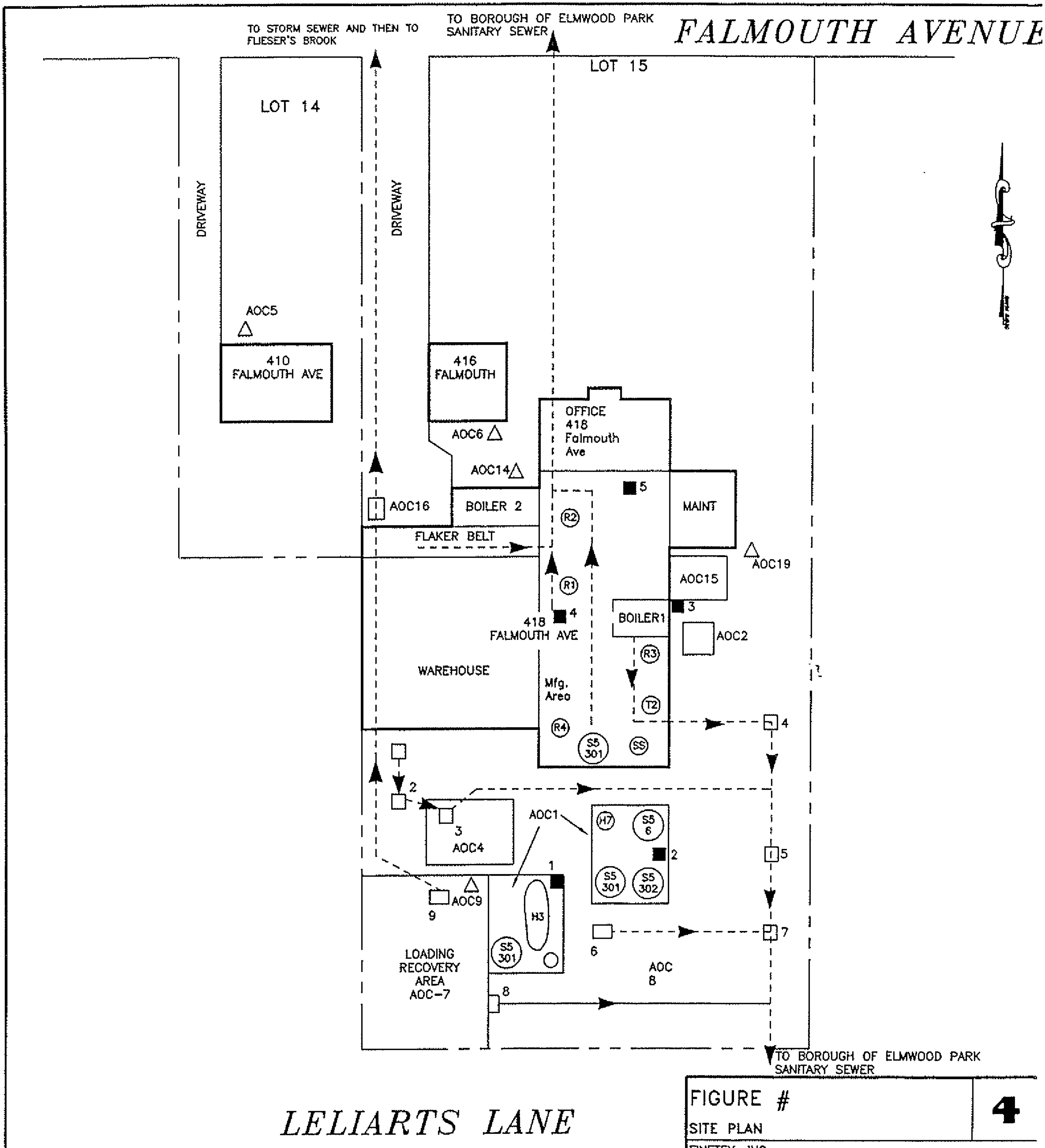
SOUTHWEST QUARTERQUAD
OF THE HACKENSACK
TOPOGRAPHIC MAP

**FIGURE:** **3**
NJDEP GIS Information Map
(source: NJDEP GIS Website)

418 Falmouth Avenue
Elmwood Park, Bergen County, NJ

Scale: scale as shown
Date: 12/11/02
Drawn/Checked By: JCH/JB
Project # 99704

**Brennan Environmental, Inc.**
BD Great Meadow Lane, E. Hanover, NJ 07936 973.781.1801



## LEGEND:

■ – SUMP

○ – ABOVE GROUND STORAGE TANK

▭ – FLOOR DRAIN / CATCH BASIN

△ – AOC

| FIGURE # | 4 |
|---|---|
| SITE PLAN | |

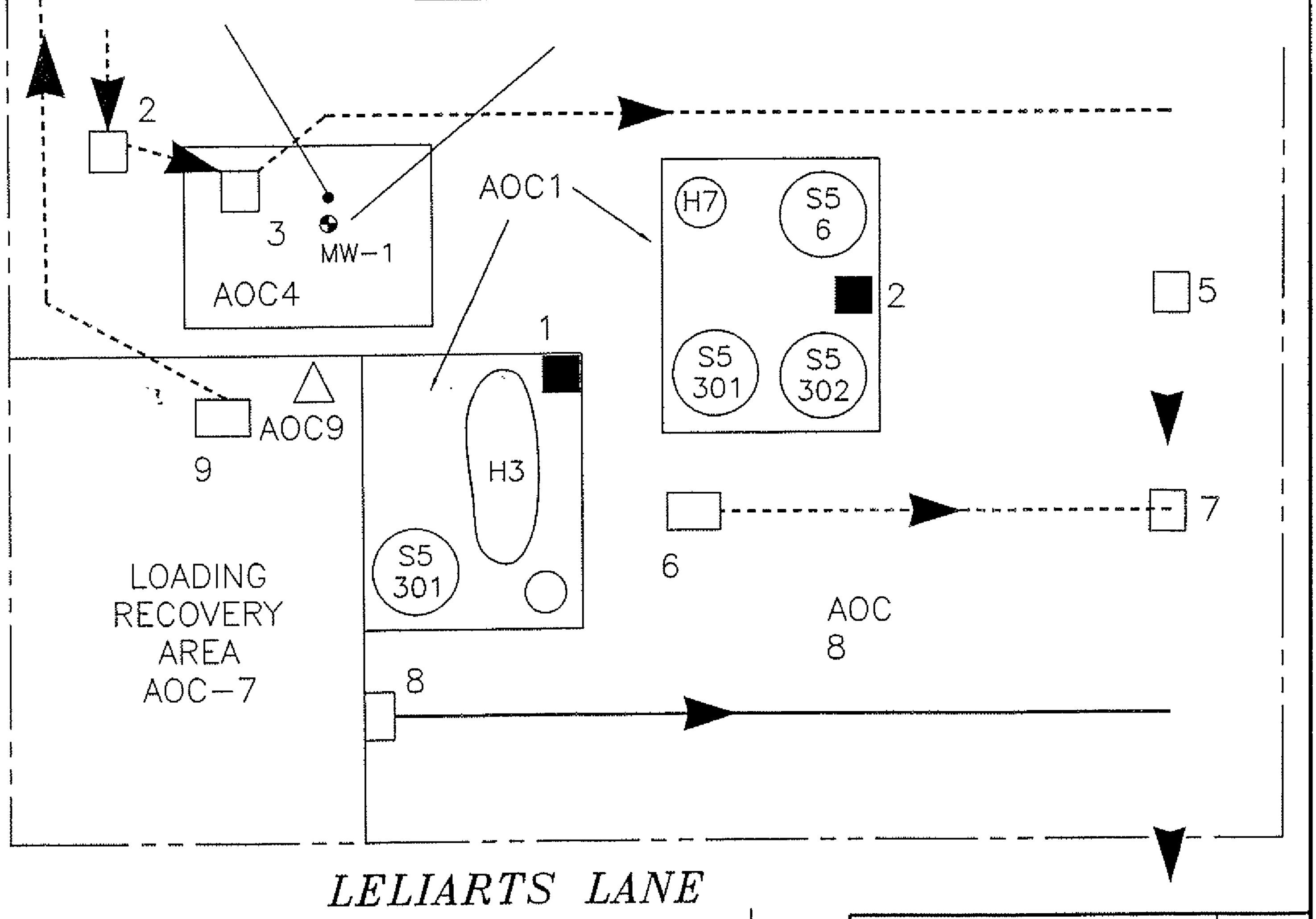
FINETEX, INC.
418 FALMOUTH AVENUE
ELMWOOD PARK, NEW JERSEY

| | |
|---|---|
| Scale: 1"=40' | Drawn By: AP |
| Date: 11/12/2001 | Project # 99704 |

BEI BRENNAN ENVIRONMENTAL, INC.
8 Great Meadow Lane E. Hanover, NJ 07936
Tel: (973)781-1801

*GW results in ppb, all others in ppm

|  |  |  |  | GW |
|---|---|---|---|---|
| **SB-01** | **MW-1A** | **MW-1B** | **MW-1C** | **MW-1** |
| 7.95 | 51.2 | 40.5 | 3.82 | 2320 |
| 0.385 | 1.56 | 0.649 | 0.29 | 1030 |
| 5.42 | 13 | 18.4 | 1.97 | 2320 |
| 4.66 | 20.8 | 31.4 | 1.64 | 1130 |
| 28.80 | 43.2 | 23.5 | 10.9 | 9370 |
| ND | ND | ND | ND | 46.8 |



| **SB-01** | Sample Identification |
|---|---|
| 1.0 | Chlorobenzene |
| 1.0 | Benzene |
| 1.0 | Xylenes |
| 1.0 | 1,3 Dichlorobenzene |
| 1.0 | 1,4 Dichlorobenzene |
| 1.0 | Vinyl Chloride |

LEGEND:

■ – SUMP

○ – ABOVE GROUND STORAGE TANK

☐ – FLOOR DRAIN / CATCH BASIN

△ – AOC

FIGURE # **5**

SITE PLAN

FINETEX, INC.
418 FALMOUTH AVENUE
ELMWOOD PARK, NEW JERSEY

Scale: not to scale | Drawn By: JCH
Date: 12/11/02 | Project # 99704

BRENNAN ENVIRONMENTAL, INC.
8 Great Meadow Lane E. Hanover, NJ 07936
Tel: (973)781-1801

# APPENDICES

BRENNAN ENVIRONMENTAL, INC.
ENVIRONMENTAL CONSULTING SERVICES

# APPENDIX 1

## NJDEP CORRESPONDENCE

State of New Jersey
Department of Environmental Protection
Bureau of Field Operations
401 East State Street
PO Box 435
Trenton NJ 08625-0435

James E. McGreevey
*Governor*

Bradley M. Campbell
*Acting Commissioner*

MAR 7 - 2002

John M. Brennan
Brennan Environmental, Inc.
8D Great Meadow Lane
East Hanover NJ 07936

Re: Finetex Incorporated
410, 416 & 418 Falmouth Avenue Elmwood Park Boro, Bergen County
ISRA Case # E20010242

This is to advise you, as authorized agent, of the status of the investigation initiated under the provisions of the Industrial Site Recovery Act (N.J.S.A 13:1K-6 et seq.) Based upon our review of the most recent information provided, the status of the submissions are:

| | |
|---|---|
| General Information Notice | Complete |
| Preliminary Assessment & Site Investigation Report | Received |

Based on the information provided in your Preliminary Assessment and Site Investigation Report, one historic area of environmental concern requires further investigation, specifically the former (6) underground storage tanks' (UST) excavation in which the tanks were removed in 1988. Please take one sample through the former UST excavation and have this sample analyzed for VOC+10, B/N+15 and TPHC and submit the results, when available to me, the case manager.

Kindly refer to the referenced case name and number in all future correspondence. Any questions you may have on this case should be directed to me the assigned case manager at (609) 633-1428.

Sincerely,

Jeannette Cleary

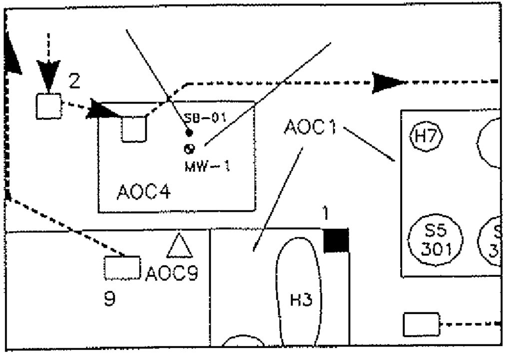
Jeannette Cleary
Bureau of Field Operations

BRENNAN ENVIRONMENTAL, INC.
ENVIRONMENTAL CONSULTING SERVICES

# APPENDIX 2

## SOIL BORING LOGS

**Site Sketch For SB-01**



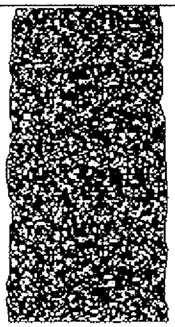
# Soil Boring Log for: SB-01

**BEI Job #** 99704
**Site Name:** Finetex
**Boring Install Date:** May 24, 2002
**Type of Bit:** na
**Sample:** 3.0' macrocore sampler
**Geologist:** A. Biskupski

**Project:** ISRA
**Site Location:** 418 Falmouth Ave., Elmwood Park, NJ
**Boring Location:** Former UST Area
**Drilling Company:** BEI
**Drill Rig:** Port-A-Probe
**Driller:** Andrew Biskupski

| Depth (ft.) | Sample ID and Depth | PID (MU) | Recovery (feet) | Soil/Geologic Description |
|---|---|---|---|---|
| 1<br>2<br>3 | | 0.0<br>0.0<br>3.0<br>1.0 | 1.5 | 0 - 3.0' Concrete to 0.5'.<br>Brown CLAY w/ fine - medium Gravel.<br>(dry) |
| 4<br>5<br>6 | SB-01 | 75.0<br>33.0<br>34.0<br>12.0<br>25.0<br>5.0 | 2 | 3.0 - 6.0' Brown SAND w/ fine Gravel.<br>(moist 4 - 5 feet) |
| 7<br>8<br>9<br>10<br>11<br>12<br>13<br>14<br>15<br>16<br>17<br>18<br>19<br>20<br>21<br>22<br>23<br>24<br>25 | | | | Boring advanced to 6 feet below grade.<br>Sample collected at 5.5 - 6 feet below grade.<br>No evident ground water encountered.<br>Soils moist at 4 to 5 feet below grade. |

**Boring Diagram and Details**



*Page1 of 1*

**BRENNAN ENVIRONMENTAL, INC.**
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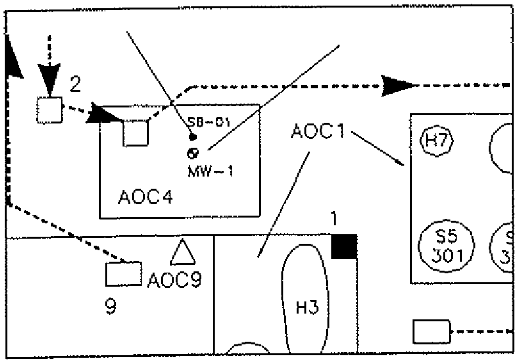
# APPENDIX 3

## MONITORING WELL INSTALLATION FORMS

**Site Sketch for MW-1**



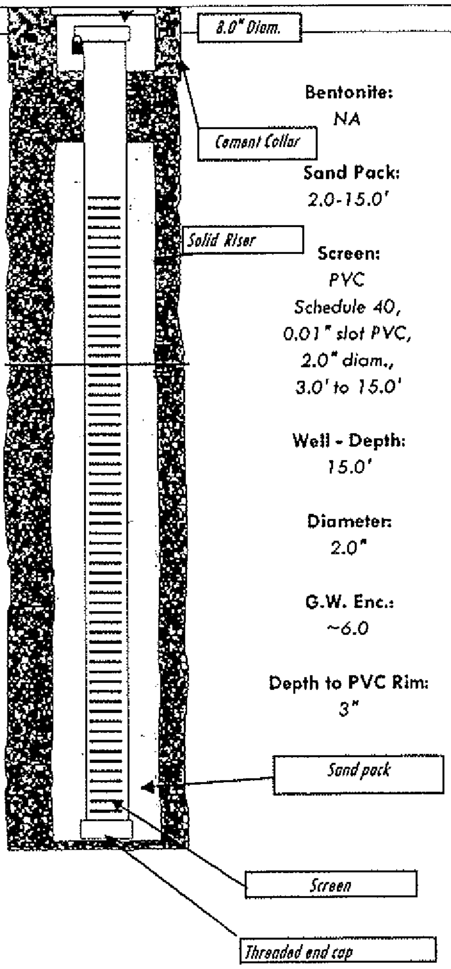
# Permanent Well Soil Log and Well Construction for: MW-1

**BEI Job #:** 99704
**Site Name:** Finetex, Inc
**Well Permit #:** 26-65907
**Well Install Date:** November 2, 2002
**Well Removal Date:** na
**Type of Bit:** na
**Sample:** 5.0' stainless steel macrocore
**Auger Type:** 6"

**Project:** monitoring well and boring installation
**Site Location:** former tank area (AOC #4)
**Well Location:** southwest portion of property
**Well Driller:** S&S Subsruface Investigations, Inc
**Well Install Rig:** Geoprobe 66DT
**Driller/Helper:** Art Salvatore/Pete Dudley
**Geologist:** John Hernandez

| Depth (ft.) | Sample ID and Depth | PID (MU) | Recovery (inches) | Soil/Geologic Description | Depth (ft.) |
|---|---|---|---|---|---|
| | | | 3.8 | 0.0-0.5 Concrete and Gravel | |
| 1 | | | | 0.5-2.0 Brown SAND, some Silt (dr) | 1 |
| | | 0.0 | | | |
| 2 | | | | | 2 |
| | | 0.0 | | 2.0-5.0 Brown-gray SILT, some Clay, some fine Sand (moist) | |
| 3 | | | | | 3 |
| | MW1-a | 148.3 | | | |
| 4 | | 212.3 | | | 4 |
| | | 176.8 | | | |
| 5 | MW1-b | 220.4 | | | 5 |
| | | 70.6 | 4.5 | 5.0-7.0 Brown gray SILT, some Clay, little fine Sand (wet at ~6.0 ft) | |
| 6 | MW1-c | 22.0 | | | 6 |
| | | 20.0 | | | |
| 7 | | 18.0 | | | 7 |
| | | 16.0 | | 7.0-10.0 Brown gray SILT, some Clay, trace fine Sand (wet) | |
| 8 | | 21.4 | | | 8 |
| | | 22.0 | | | |
| 9 | | 21.0 | | | 9 |
| | | 22.3 | | | |
| 10 | | 24.0 | | | 10 |
| | | 9.6 | 4.5 | 10.0-15.0 Gray brown CLAY and SILT, trace fine Sand | |
| 11 | | 6.3 | | | 11 |
| | | 5.0 | | | |
| 12 | | 6.0 | | | 12 |
| | | 9.5 | | | |
| 13 | | 28.1 | | | 13 |
| | | 40.2 | | | |
| 14 | | 33.0 | | | 14 |
| | | 15.6 | | | |
| 15 | | 18.0 | | | 15 |
| 16 | | | | Well completed at 15.0 feet bsg<br>Ground water encountered at ~6.0' | 16 |
| 17 | | | | | 17 |
| 18 | | | | | 18 |
| 19 | | | | | 19 |
| 20 | | | | | 20 |
| 21 | | | | | 21 |
| 22 | | | | | 22 |
| 23 | | | | | 23 |
| 24 | | | | | 24 |
| 25 | | | | | 25 |

## Well Diagram and Details



**Bentonite:**
NA

**Sand Pack:**
2.0-15.0'

**Screen:**
PVC
Schedule 40,
0.01" slot PVC,
2.0" diam.,
3.0' to 15.0'

**Well - Depth:**
15.0'

**Diameter:**
2.0"

**G.W. Enc.:**
~6.0

**Depth to PVC Rim:**
3"

# MONITORING WELL CERTIFICATION - FORM A - AS BUILT CERTIFICATION

(One form must be completed for each well)

**Name of Owner:** Finetex, Inc.
**Name of Facility:** Finetex, Inc.
**Location:** 418 (includes 410 & 416) Falmouth Avenue
**ISRA Case #** E2001242

## CERTIFICATION

**Well Permit Number:** 26-65907
**Owner's Well Number (As shown on the applicationor plans):** MW-1
**Well Completion Date:** 11/2/2002
**Distance from Top of Casing (cap off) to Ground Surface (one-hundredth of a foot):** 0.25
**Total Depth of Well to the nearest 1/2 foot:** 15.0
**Depth to Top of Screen (or Top of Open Hole) From Top of Casing (one-hundredth of a foot):** 3.00
**Screen Length (or length of open hole) in feet:** 12.0
**Screen or Slot Size:** 0.02
**Screen or Slot Material:** PVC
**Casing Material: (PVC, Steel or Other-Specify):** PVC
**Casing Diameter (inches):** 2.0
**Static Water Level From Top of Casing at the Time of installation (one-hundredth of a foot):** 6.44
**Yield (gallons per minute):** 0.5 g.p.m.
**Development Technique (Specify):** submersible pump
**Length of Time Well is Developed/** 0 Hour(s) 30 Minute(s)
**Pumped or Bailed:** Pumped
**Lithologic Log:** Attached

Authentication

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

John Brennan
Name (Type or Print)

JoM. Brennan
Signature

NJDEP license # 0010045
Certification or License No.

Certification by Executive Officer or Duly Authorized Representative

Name (Type or Print)

Signature

Title

Date

DWR-138 M
8/00

New Jersey Department of Environmental Protection
Bureau of Water Allocation

# MONITORING WELL RECORD

Well Permit No. 26 - 65907

Atlas Sheet Coordinates 26 : 03 : 181

OWNER IDENTIFICATION - Owner FINETEX INC
Address 418 FALMOUTH AVE
City ELMWOOD PARK State NJ Zip Code

WELL LOCATION - If not the same as owner please give address. Owner's Well No.
County BERGEN Municipality ELMWOOD PARK BO Lot No. 14 & 15 Block No. 803
Address 418 FALMOUTH AVE
DATE WELL STARTED 11 / 2 / 02
DATE WELL COMPLETED 11 / 2 / 02

TYPE OF WELL (as per Well Permit Categories) MONITORING
Regulatory Program Requiring Well Case I.D.#

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) Brennan Environmental Tele. (973)781-1801

WELL CONSTRUCTION

Total depth drilled 15.5 ft.
Well finished to 15.5 ft.

Borehole diameter:
Top 12 in.
Bottom 12 in.

Well was finished: ☐ above grade ☑ flush mounted

If finished above grade, casing height (stick up) above land surface ft.

Was steel protective casing installed?
☐ Yes ☑ No

Static water level after drilling 6.5 ft.

Water level was measured using tape

Well was developed for .5 hours at 2 gpm

| Note: Measure all depths from land surface | Depth to Top (ft.) | Depth to Bottom (ft.) | Diameter (inches) | Material | Wgt./Rating (lbs/sch no.) |
|---|---|---|---|---|---|
| Single/Inner Casing | .5 | 3.5 | 2 | PVC | sch 40 |
| Middle Casing (for triple cased wells only) | | | | | |
| Outer Casing (largest diameter) | | | | | |
| Open Hole or Screen (No. Used .010 ) | 3.5 | 15.5 | 2 | PVC | sch40 |
| Blank Casings (No. Used ) | | | | | |
| Tail Piece | | | | | |
| Gravel Pack | 2.5 | 15.5 | | #1 Gravel | |
| Grout | .5 | 2.5 | | Neat Cement<br>Bentonite | 94 lbs.<br>5 lbs. |

Grouting Method HSA
Drilling Method Pressure / Tremie

Method of development 12V Pump

Was permanent pumping equipment installed? ☐ Yes ☑ No

Pump capacity ——— gpm

Pump type: ———

Drilling Fluid ——— Type of Rig Geoprobe 66

Health and Safety Plan submitted? ☑ Yes ☐ No

Level of Protection used on site (circle one) None [✓ D] C B A

*I certify that I have constructed the above referenced well in accordance with all well permit requirements and applicable State rules and regulations.*

Drilling Company S & S SUBSURFACE INVEST.

Well Driller (Print) Arthur Salvatore

Driller's Signature Arthur Salvatore

Registration No. HD1264 Date 11 / 5 / 02

## GEOLOGIC LOG

Note each depth where water was encountered in consolidated formations.

0'-5' fill
5'-15.5' SP

## AS-BUILT WELL LOCATION
## (NAD 83 HORIZONTAL DATUM)

NJ STATE PLANE COORDINATE IN US SURVEY FEET

NORTHING: ______ EASTING: ______

OR

LATITUDE: __ ° __ ' __ . __ " LONGITUDE: __ ° __ ' __ . __ "

*COPIES: White - DEP Canary - Driller Pink - Owner Goldenrod - Health Dept.*

DWR-133M
11/01

# STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
TRENTON, NJ

## MONITORING WELL PERMIT 11

Permit No. 2665907

*VALID ONLY AFTER APPROVAL BY THE D.E.P.*

Mail To:
NJDEP
BUREAU OF WATER ALLOCATION
PO BOX 426
TRENTON, NJ 08625-0426

COORD #: 26.03.6.81

Owner Finetex, Inc.
Address 418 Falmouth Ave.
Elmwood Park, NJ

Driller S+S Subsurface Investigations, Inc
Address 936 Atlantic Ave.
Pt. Pleasant, NJ 08742

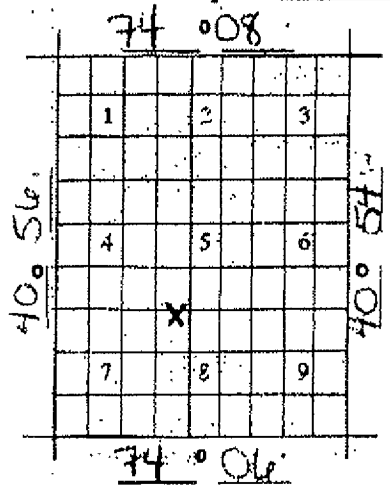
Name of Facility (same)
Address

| | | | |
|---|---|---|---|
| Diameter of Well(s) | 2 Inches | Proposed Depth of Well(s) | 25 Feet |
| # of Wells Applied for (max. 10) | 1 | Will pumping equipment be utilized? | YES ☐ NO ☑ |
| Type of Well (see reverse) | Monitoring | If Yes, give pump capacity | cumulative GPM |

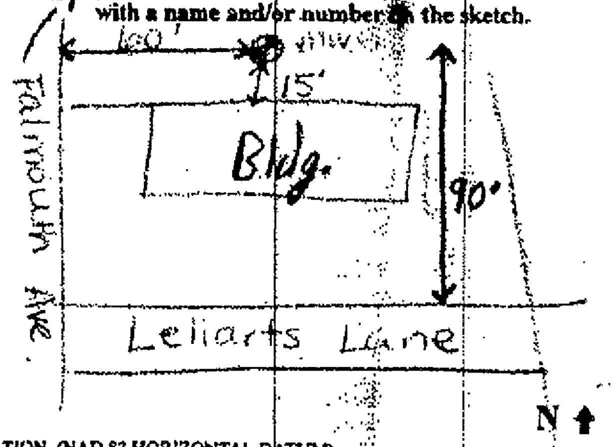
### LOCATION OF WELL(S)

| Lot # | Block # | Municipality | County |
|---|---|---|---|
| 14 + 15 | 803 | Elmwood Park | Bergen |

State Atlas Map No. 26



Draw sketch of well(s) nearest roads, buildings, etc. with marked distances in feet. Each well MUST be labeled with a name and/or number on the sketch.



PROPOSED WELL LOCATION (NAD 83 HORIZONTAL DATUM)
NJ STATE PLANE COORDINATE IN US SURVEY FEET

NORTHING: ______ EASTING: ______
OR
LATITUDE: ° ' " LONGITUDE: ° ' "

FOR MONITORING WELLS, RECOVERY WELLS, OR PIEZOMETERS, THE FOLLOWING MUST BE COMPLETED BY THE APPLICANT. PLEASE INDICATE WHY THE WELL(S) ARE BEING INSTALLED:

☐ RCRA Site
☐ Underground Storage Tank Site
☐ Operational Ground Water Permit Site
☐ Pretreatment and Residuals Site
☐ Water and Hazardous Waste Enforcement Case
☐ Water Supply Aquifer Test Observation Well
☐ Other (explain)

☐ Spill Site
☒ ISRA Site
☐ CERCLA (Superfund) Site

CASE I.D. Number ISRA # [illegible]

02 OCT -3 AM 3:12

This Space for Approval Stamp

WELL PERMIT APPROVED
N.J.D.E.P.
OCT 7 2002
BUREAU OF WATER ALLOCATION

FOR D.E.P. USE
☐ Issuance of this permit is subject to the conditions attached. (see next page) ☒ For monitoring purposes only
☐

SEE REVERSE SIDE FOR IMPORTANT PROVISIONS PERTAINING TO THIS PERMIT.
In compliance with N.J.S.A. 58:4A-14, application is made for a permit to drill a well as described above.

Date 10/1/02

Signature of Driller

Registration No. MD12104

Signature of Property Owner Karen D. Bizzoni for Bob Scala of Finetex, Inc.

**BRENNAN ENVIRONMENTAL, INC.**
ENVIRONMENTAL CONSULTING SERVICES

# APPENDIX 4

## PURGE GUIDE

# Ground Water Sampling Field Measurement Guide

**Site Name:** Finetex, Inc.
**Address:** 418 Falmouth Avenue, Elmwood Park, NJ
**BEI Case No.:** 99704

**Date/Time:** 11/18/2002
**Weather** P. Cloudy, windy, 45
**Tech(s):** JH

| **Well ID#:** | **MW-1** | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Pre-Purge Data:** | | | | | | | | |
| PID/FID Reading (mu): | 67.4 | | | | | | | |
| Product Thickness (ft): | NA | | | | | | | |
| Well Diameter (Inches) | 2 | | | | | | | |
| Total Depth of Well (ft): | 13.81 | | | | | | | |
| Top of casing | 49 | | | | | | | |
| Depth to Water (ft): | 5.06 | | | | | | | |
| Volume of water in well (gal): | 1.4 | | | | | | | |
| pH: | 8.9 | | | | | | | |
| Dissolved oxygen (mg/L): | 3.3 | | | | | | | |
| Temperature (°C): | 11.4 | | | | | | | |
| Specific conductivity (uS): | 2.6 | | | | | | | |
| **Post-Purge Data:** | | | | | | | | |
| Purge Start Time: | 9:54 | | | | | | | |
| Purge Stop Time: | 10:07 | | | | | | | |
| Purge Method: | pump | | | | | | | |
| Purge Rate (gpm): | <1 | | | | | | | |
| Total Volume Purged (gal): | 5.4 | | | | | | | |
| Depth to Water (ft): | 9.08 | | | | | | | |
| pH: | 7.69 | | | | | | | |
| Dissolved oxygen (mg/L): | 2.3 | | | | | | | |
| Temperature (°C): | 14.4 | | | | | | | |
| Specific conductivity (uS): | 2.22 | | | | | | | |
| **Before Sampling Data:** | | | | | | | | |
| Depth to Water (ft): | 8.86 | | | | | | | |
| Sampling Start Time: | 10:10 | | | | | | | |
| **After Sampling Data:** | | | | | | | | |
| Sampling End Time: | 10:16 | | | | | | | |
| pH: | 7.6 | | | | | | | |
| Dissolved oxygen (mg/L): | 2.2 | | | | | | | |
| Temperature (°C): | 14 | | | | | | | |
| Specific conductivity (uS): | 2.3 | | | | | | | |
| Sample Method: | bailer | | | | | | | |
| **Field Observations** | | | | | | | | |
| Recharge Rate (gpm) | slow | | | | | | | |
| Sheen | none | | | | | | | |
| Odor | trace | | | | | | | |
| Turbidity | minor | | | | | | | |
| **Notes:** | | | | | | | | |

Pump = The purge device used was a peristaltic pump with dedicated tubing.
Bailer = The sampling device used was a disposable, dedicated bailer.
mu = Meter units

BEI

# APPENDIX 5

LABORATORY ANALYTICAL SOIL DATA REPORT (LAB CASE #E02-3831)

IAL
Integrated Analytical Laboratories LLC

# *ANALYTICAL DATA REPORT*

Brennan Environmental, Inc.
8 Great Meadow Lane
Unit D
East Hanover, NJ 07936

Project Name: **FINETEX - 99704**
IAL Case Number: **E02-3831**

These data have been reviewed and accepted by:

Michael Leftin

Michael H. Leftin, Ph.D.
Laboratory Director

273 Franklin Road
Randolph, NJ 07869
Phone: 973 361 4252
Fax: 973 989 5288

# Sample Summary

**Case No.** E02-3831

**Project Name** FINETEX - 99704

**Customer** Brennan Environmental, Inc.

**Received On** 5/28/2002@11:15

| Lab ID | Client Sample ID | Depth Top / Bottom | Sampling Time | Matrix | # of Cont. |
|---|---|---|---|---|---|
| 3831-001 | SB-01 | n/a | 5/25/2002@10:21 | Soil | 2 |

Printed on: 5/31/2002

## INTEGRATED ANALYTICAL LABORATORIES, LLC.

### TABLE OF CONTENTS

* Methodology is included in the IAL Project Information Page

# INTEGRATED ANALYTICAL LABORATORIES, LLC.

## MATRIX QUALIFIERS

A - Indicates the sample is an Aqueous matrix.

O - Indicates the sample is an Oil matrix.

S - Indicates the sample is a Soil, Sludge or Sediment matrix.

X - Indicates the sample is an Other matrix as indicated by Client Chain of Custody.

## DATA QUALIFIERS

B - Indicates the analyte was found in the Blank and in the sample. It indicates possible sample contamination and warns the data user to use caution when applying the results of the analyte.

C - Common Laboratory Contaminant.

D - The compound was reported from the Diluted analysis.

D.F. - Dilution Factor.

E - Estimated concentration, reported results are outside the calibrated range of the instrument.

J - Indicates an estimated value. The compound was detected at a value below the method detection limit but greater than zero. For GC/MS procedures, the mass spectral data meets the criteria required to identify the target compound.

MDL - Method Detection Limit.

MI - Indicates compound concentration could not be determined due to Matrix Interferences.

NA - Not Applicable.

ND - Indicates the compound was analyzed for but Not Detected at the MDL.

## REPORT QUALIFIERS

All solid sample analyses are reported on a dry weight basis.

All solid sample values are corrected for original sample size and percent solids.

# INTEGRATED ANALYTICAL LABORATORIES, LLC.

## CONFORMANCE / NONCONFORMANCE SUMMARY

Integrated Analytical Laboratories, LLC. received one (1) soil sample(s) from Brennan Environmental, Inc. (Project: FINETEX - 99704) on May 28, 2002 for the analysis of:

(1) PP VOA + 10
(1) BN + 15
(1) TPHC

A review of the QA/QC measures for the analysis of the sample(s) contained in this report has been performed by:

Reviewed by

6/6/02
Date

# INTEGRATED ANALYTICAL LABORATORIES, LLC.

## LABORATORY DELIVERABLES CHECK LIST

Lab Case Number: E02-3831

| | | Check If Complete |
|---|---|---|
| 1. | Cover Page, Title Page listing Lab Certification #, facility name & address and date of report preparation. | ✓ |
| 2. | Table of Contents. | ✓ |
| 3. | Summary Sheets listing analytical results for all targeted and non-targeted compounds. | ✓ |
| 4. | Summary Table cross-referencing Field ID's vs. Lab ID's. | ✓ |
| 5. | Document bound, paginated and legible. | ✓ |
| 6. | Chain of Custody. | ✓ |
| 7. | Methodology Summary. | ✓ |
| 8. | Laboratory Chronicle and Holding Time Check. | ✓ |
| 9. | Results submitted on a dry weight basis (if applicable). | ✓ |
| 10. | Method Detection Limits. | ✓ |
| 11. | Lab certified by NJDEP for parameters or appropriate category of parameters or a member of the USEPA CLP. | ✓ |
| 12. | NonConformance Summary. | ✓ |

QC Reviewed by

6/6/02
Date

# INTEGRATED ANALYTICAL LABORATORIES
# CONFORMANCE/NONCONFORMANCE SUMMARY
## GC/MS VOLATILE ANALYSIS

Lab Case Number: E02 - 383

| | No | Yes |
|---|---|---|
| 1. Chromatograms Labeled/Compounds Identified (Field Samples and Method Blanks). | | ✓ |
| 2. GC/MS Tuning Specifications:<br>a. BFB Passed | | ✓ |
| 3. GC/MS Tuning Frequency - Performed every 24 hours for 600 series, 12 hours for 8000 series and 8 hours for 500 series. | | ✓ |
| 4. GC/MS Calibration - Initial calibration performed within 30 days before sample analysis and continuing calibration performed within 24 hours before sample analysis for 600 series, 12 hours for 8000 series | | ✓ |
| 5. GC/MS Calibration Requirements:<br>a. Calibration Check Compounds | | ✓ |
| b. System Performance Check Compounds | | ✓ |
| 6. Blank Contamination - If yes, list compounds and concentrations in each blank: | ✓ | |
| 7. Surrogate Recoveries Meet Criteria (If not met, list those compounds and their recoveries which fall outside the acceptable range) | | ✓ |
| If not met, were the calculations checked and the results qualified as "estimated"? | | N/A |
| 8. Matrix Spike/Matrix Spike Duplicate meet criteria (if not, list those compounds and their recoveries/% differences which fall outside the acceptable range) | | ✓ |
| 9. Internal Standard Area/Retention Time Shift meet criteria | | ✓ |
| 10. Extraction Holding Time Met<br>If not met, list number of days exceeded for each sample: | | N/A |
| 11. Analysis Holding Time Met<br>If not met, list number of days exceeded for each sample: | | ✓ |
| 12. Sample Dilution Performed | ✓ | |

| High Target Compounds | High Nontarget Compounds | Matrix Interference | Other |
|---|---|---|---|
| ☐ | ☐ | ☐ | ☐ |

13. Comments:

Organics Manager

Date 5/30/02

rev 01/02

# INTEGRATED ANALYTICAL LABORATORIES
# CONFORMANCE/NONCONFORMANCE SUMMARY
# GC/MS SEMIVOLATILE ANALYSIS

Lab Case Number: E02 - 3831

| | No | Yes |
|---|---|---|
| 1. Chromatograms Labeled/Compounds Identified (Field Samples and Method Blanks). | | ✓ |
| 2. GC/MS Tuning Specifications:<br>a. DFTPP Passed | | ✓ |
| 3. GC/MS Tuning Frequency - Performed every 24 hours for 600 series, 12 hours for 8000 series. | | ✓ |
| 4. GC/MS Calibration - Initial calibration performed within 30 days before sample analysis and continuing calibration performed within 24 hours before sample analysis for 600 series. | | ✓ |
| 5. GC/MS Calibration Requirements: | | |
| a. Calibration Check Compounds | | ✓ |
| b. System Performance Check Compounds | | ✓ |
| 6. Blank Contamination - If yes, list compounds and concentrations in each blank: | ✓ | |
| a. B/N Fraction ______ | | |
| b. Acid Fraction ______ | | |
| 7. Surrogate Recoveries Meet Criteria (If not met, list those compounds and their recoveries which fall outside the acceptable range) | | ✓ |
| a. B/N Fraction ______ | | |
| b. Acid Fraction ______ | | |
| If not met, were the calculations checked and the results qualified as "estimated"? | | na |
| 8. Matrix Spike/Matrix Spike Duplicate meet criteria (if not, list those compounds and their recoveries/% differences which fall outside the acceptable range) | | ✓ |
| a. B/N Fraction ______ | | |
| b. Acid Fraction ______ | | |
| 9. Internal Standard Area/Retention Time Shift meet criteria | | ✓ |
| 10. Extraction Holding Time Met<br>If not met, list number of days exceeded for each sample: | | ✓ |
| 11. Analysis Holding Time Met<br>If not met, list number of days exceeded for each sample: | | ✓ |
| 12. Sample Dilution Performed | ✓ | |

High Target Compounds ☐ High Nontarget Compounds ☐ Matrix Interference ☐ Other ☐

13. Comments:

Organics Manager

5/31/02
Date

rev 01/02

# INTEGRATED ANALYTICAL LABORATORIES
# CONFORMANCE/NONCONFORMANCE SUMMARY
# PHC ANALYSIS

Lab Case Number: E02 - 3831

| | No | Yes |
|---|---|---|
| 1. Blank contamination<br>If yes, list the sample and the concentration in each blank: | ✓ | |
| 2. Matrix Spike/Matrix Spike Duplicate Recoveries Meet Criteria (If not met, list the samples and corresponding recovery which falls outside the acceptable range) | | ✓ |
| 3. IR spectra submitted for all standards, blanks & samples (as required). | | ✓ |
| 4. Chromatograms submitted for all standards, blanks & samples if GC fingerprinting was conducted. | | NA |
| 5. Extraction Holding Time Met<br>If not met, list number of days exceeded for each sample: | | ✓ |
| 6. Analysis Holding Time Met<br>If not met, list number of days exceeded for each sample: | | ✓ |

Additional Comments:

Gail Camista
Dept. Supervisor

5-29-02
Date

rev 01/02

## SUMMARY REPORT
Client: Brennan Environmental, Inc.
Project: FINETEX - 99704
Lab Case No.: E02-3831

| | | | |
|---|---|---|---|
| Lab ID: | 3831-001 | | |
| Client ID: | SB-01 | | |
| Matrix: | Soil | | |
| Sampled Date: | 5/25/2002 | | |
| PARAMETER(Units) | Conc | Q | MDL |
| **Volatiles (ppb)** | | | |
| Benzene | 385 | J | 793 |
| Chlorobenzene | 7950 | | 793 |
| Ethylbenzene | 1080 | | 793 |
| Total Xylenes | 5420 | | 793 |
| 1,3-Dichlorobenzene | 4660 | | 793 |
| 1,4-Dichlorobenzene | 28800 | | 793 |
| 1,2-Dichlorobenzene | 801 | | 793 |
| **TOTAL VO's:** | 49096 | J | |
| **TOTAL TIC's:** | 20240 | | |
| **TOTAL VO's & TIC's:** | 69336 | J | |
| **Semivolatiles - BN (ppb)** | | | |
| 1,3-Dichlorobenzene | 603 | | 107 |
| 1,4-Dichlorobenzene | 4480 | | 107 |
| 1,2-Dichlorobenzene | 123 | | 107 |
| 1,2,4-Trichlorobenzene | 3270 | | 107 |
| Naphthalene | 2140 | | 107 |
| 2-Methylnaphthalene | 1870 | | 107 |
| Phenanthrene | 80.6 | J | 107 |
| Fluoranthene | 71.8 | J | 107 |
| bis(2-Ethylhexyl)phthalate | 92.1 | J | 107 |
| **TOTAL BN'S:** | 12730.5 | J | |
| **TOTAL TIC's:** | 128810 | | |
| **TOTAL BN'S & TIC's:** | 141541 | J | |
| **General Analytical** | | | |
| Total Petroleum Hydrocarbons (ppm) | 892 | | 25.0 |

ND = Analyzed for but Not Detected at the MDL
J = The concentration was detected at a value below the MDL
All qualifiers on individual Volatiles & Semivolatiles are carried down through summation.

**BRENNAN ENVIRONMENTAL, INC.**
ENVIRONMENTAL CONSULTING SERVICES

# UST Closure / Site Investigation Report

Finetex, Inc.
418 (includes 410 & 416 Falmouth Avenue)
Block 803, Lots 14, 15
Elmwood Park, Bergen County, New Jersey
ISRA Case #E2001242

November 8, 2001
BEI Job No. 99704

Prepared for:
Finetex Inc.
418 Falmouth Avenue
Elmwood Park, NJ 07407

Prepared by:
Brennan Environmental Inc.
8D Great Meadow Lane
East Hanover, NJ 07936

Prepared by:

John M. Brennan, President
NJDEP License Number 0010045

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## TABLE

## FIGURES

## APPENDICES

## 1.) INTRODUCTION

Brennan Environmental, Inc. (BEI) was retained by Finetex, Inc. (Finetex) to prepare this Site Investigation Report (SIR) for the facility located at 418 Falmouth Avenue, Block 803 Lots 14 and 15, Elmwood Park, Bergen County, New Jersey. The site location is indicated on Figure #1. The purpose of this report is to detail the actions that were implemented at the above referenced site in order to close by removal, one 550-gallon heating oil UST and to evaluate the soils around a former UST on the adjacent property (416 Falmouth Ave). This report was prepared in accordance with New Jersey Department of Environmental Protection's (NJDEP's) Technical Requirements for Site Remediation (N.J.A.C. 7:26E et.-seq.). BEI is certified by the NJDEP to perform UST closures and subsurface evaluations pursuant to N.J.S.A. 58:10A-24, (Certification #US00779).

### 1.1) Historical Information

A Preliminary Assessment Report conducted for the Finetex site, pursuant to ISRA Case No. E2001242, identified two areas of environmental concern that warranted additional investigation. This site investigation was directed at the two areas of environmental concern. Specifically the focus of concern was an inactive 550- gallon underground #2 heating oil tank system (AOC 6), and an area where a former 1,000 underground #2 heating oil tank was located (AOC 5).

This report was prepared in accordance with New Jersey Department of Environmental Protection's (NJDEP's) Technical Requirements for Site Remediation. This UST Closure/Site Investigation Report (SIR), details the tank closure process and post-excavation soil sampling activities, soil boring investigation, and BEI's evaluation of the post-excavation soil sampling data, which was compared to the current applicable NJDEP soil cleanup criteria. The total aggregate volume of the two former USTs was less than 2,000 gallons. therefore, the USTs are not subject to the underground Storage of Hazardous Substances Act (N.J.S.A. 58:10A-21), and a closure plan was not required.

## 2.0) PHYSICAL SETTING

### 2.1) Site Geology

The subject site is located in the Piedmont Physiographic Province of New Jersey. According to the USGS Bedrock Geologic Map of Northern New Jersey dated 1996, the bedrock in this section of the Piedmont Province of New Jersey is described as the Passaic Formation, which is Lower Jurassic and Upper Triassic in age and composed predominantly of conglomeratic sandstone with some shale. This sandstone is described as interbedded grayish-red to brownish-red, medium to fine grained and medium to thick bedded.

According to the Rutgers University Engineering Soil Survey of New Jersey (Report No. 4, Bergen and Hudson Counties) the overburden materials at the site are mapped as "GS12ig". The "GS" portion of the symbol signifies that the area is underlain by glacial stratified drift, composed of non-residual materials deposited during the Wisconsin glaciation. The general characteristic of the moraine is assorted, homogeneous materials, consisting predominantly of sand sizes, with varying amounts of silt, gravel, and occasionally clay. The "ig" indicates imperfect to good internal drainage conditions. Depth to the top of bedrock is expected to be greater than 10 feet.

The overburden soils encountered during the UST closure activities correlated well with the above description. Soils encountered in UST excavation area were as follows:

- 0-3' Light brown SILT, little clay, some coarse gravel and organic material
- 3-8.5' Dark brown CLAY, little coarse gravel

### 2.2) Site Hydrogeology

According to the Rutgers University Engineering Soil Survey of New Jersey, the drainage conditions for areas mapped as "GS12ig" are described as imperfect to good. During UST removal activities, no ground water was encountered by BEI in the excavation, which extended to a depth of 8.5 feet below site grade. According to site topography, groundwater is expected to flow in a southern direction.

### 2.3) Site Topography & Surrounding Land Use

The facility location is shown on an excerpt from the U.S.G.S. 7.5' Hackensack, Topographic Quadrangle Map (see Figure #2). According to the topographic quadrangle map, the site is located approximately 49 feet above mean sea level. Land use is a mixture of commercial and residential.

### 2.4) Baseline Ecological Assessment and Receptor Assessment

*Wellhead Assessment:* According to our review of NJ Geological Survey's computer program PSW 2000, there are six public potable wells within a 2,000-foot radius of the subject site. The wells are owned by the Garfield Water Department. A copy of the printout from the PSW 2000 software is provided as an attachment in Appendix 7 of this report.

*Surface Water Body Assessment:* The closest body of water to the site is the Fleischer Brook, located approximately 755 feet west of the subject property. Fleischer Brook appears to run southeast from the subject property. Fleischer Brook is not classified in NJDEP's surface water quality standards. Since no contaminants were detected above applicable NJDEP cleanup criteria, The Fleischer Brook is not considered a receptor of concern.

***Wetland Assessment:*** Review of the 1991 New Jersey Wetlands Inventory Map for the Hackensack southwest quarter quadrangle, which is compiled by the NJDEP, indicates no wetland / state open water areas on or adjacent to the subject property. The subject site and surrounding area are designated as "Upland." A copy of the Wetland Inventory Map is included as Figure #3 of this report.

***Baseline Ecological Assessment:*** In line with N.J.A.C. 7:26E-3.11, BEI performed a baseline ecological assessment for the subject site. The results are as follows:

- *Contaminants of Potential Ecological Concern*: Analytical results of the soil samples obtained from the subject tank areas at the property, indicate all contaminants were detected well below applicable NJDEP Soil Cleanup Criteria. Therefore, there are no contaminants of potential environmental concern.

- *Environmentally Sensitive Areas (ESA)*: After a site inspection and review of the NJDEP wetlands map and a surface water body assessment, no ESAs were found on or adjacent to the subject site. Therefore, ESAs are not considered to be a concern.

- *Potential Migration Pathways*: Ground water was not encountered beneath the subject UST. Therefore, groundwater is not considered a potential migration pathway.

Since the baseline ecological assessment indicates that the three criteria above do not co-occur at the subject site, no further ecological investigation is warranted.

## 3.0) TECHNICAL OVERVIEW

### 3.1) Reliability of Analytical Data

This report details environmental services performed or monitored by BEI at the subject property. These services at the property included the removal of the UST system at AOC 6, collection of post-excavation soil samples, and collection of soil samples from a former tank area at AOC 5.

BEI's sampling activities were performed in accordance with the requirements outlined in the *NJDEP Field Sampling Procedures Manual* dated May 1992 and BEI's QA/QC methodology contained in Appendix #6. The soils encountered during removal activities were classified in the field according to the Unified Soil Classification System (USCS). All soil samples were collected using dedicated polyethylene plastic hand trowels. All soil samples were placed in precleaned amber glass bottles with Teflon lined caps and placed in a cooler maintained at 4°C in order to ensure proper preservation. Proper chain of custody documentation was maintained until delivery of the samples to the New Jersey certified laboratory. All samples were analyzed by Integrated Analytical Laboratories, L.L.C. (IAL) of Randolph, NJ, a New Jersey certified laboratory (NJDEP Certification #14751). The data quality assurance deliverables conform with the Non-USEPA CLP Method as specified in the N.J.A.C. 7:26E - Technical Requirements for Site Remediation - Appendix A - Section IV. Minimum detection limits (MDL) for all compounds analyzed in the soil samples were below the current most restrictive NJDEP Soil Cleanup Criteria.

All post-excavation soil samples were compared to the NJDEP's Soil Cleanup Criteria last revised on May 12, 1999. The Residential Direct Contact Criteria was used throughout the soil column. However, in cases where the Impact to Ground Water Criteria was lower, the strictest criteria was used throughout the soil column. All locations of the samples and the USTs are shown on Figure #5 of this report.

### 3.2) Site Contamination Summary

Based on the results of the soil sampling, all samples revealed either not detected (ND) or levels of contaminants below the NJDEP strictest Soil Cleanup Criteria. Therefore, no further action is proposed.

### 3.3) Significant Events and/or Seasonal Variation Influencing the Investigation

There were no significant events and/or seasonal variation observed by BEI during the course of the closure activities that would influence the investigation, sampling procedures or analytical results.

## 4.0) FINDINGS/RECOMMENDATIONS

### 4.1) Areas of Concern Site Investigation Results

A construction permit was obtained from the City of Elmwood Park Building Department and a utility markout was ordered for both UST closures. All soil sample results revealed concentrations of targeted contaminants below the NJDEP strictest soil cleanup criteria or they were not detected. All specific tank closure activities and sample results are discussed in the following report sections.

## 4.2) Specific Areas of Concern Discussion

### 4.2.1) Detailed Description of Each Area of Concern

On October 11, 2001, a BEI representative was on site to supervise the removal of one 550-gallon #2 heating oil UST (AOC-6) and to install soil borings around an area of a former 1,000 gallon #2 heating oil tank (AOC-5). A site map indicating the location of the UST is provided in Figure #4.

### 4.2.2) UST Closure and Site Investigation (550 gallon UST AOC-6)

The tank removal contractor, Joe Royce, Inc. of Paterson, New Jersey, excavated soil exposing the top of the tank. All piping associated with the tank was drained back into the tank; the tank was pumped out following the American Petroleum Institute's recommended Practice for the Abandonment or Removal of Used Underground Service Station Tanks, and the New Jersey Uniform Construction Code (N.J.A.C. 5:23).

The top of the tank was uncovered and the tank was opened. The tank contents were removed by All State O.R.C. of West Milford, New Jersey, a licensed waste removal service (DEP #S 50015/JA-389) and the residual contents were squeegeed clean. A copy of the tank waste removal receipt is included in Appendix #2 for documentation purposes.

Upon removal, the tank was thoroughly inspected by BEI. The UST appeared to be in good condition with no holes. The Elmwood Park Building Inspector inspected the tank and confirmed that there were no signs of a release or discharge from the UST and gave approval to backfill the excavation. A copy of the certification is attached in Appendix 1.

The following observations were noted during the closure activities:

| UST | Dimensions | Capacity | Construction | Condition | Contents |
|---|---|---|---|---|---|
| 1 | 4' dia. x 5'8" len. | 550 gals. | Steel | Good | #2 Heating Oil |

- No petroleum odor, elevated PID readings, or soil staining were noted in the soil samples obtained from below the tank.
- The UST was observed to be in good condition with no holes.
- Neither ground water nor bedrock was encountered during the closure activities.

After post-excavation sampling was completed, (which is described in the following section of this report), the excavation was filled to grade with NJDEP approved fill material from Braen Stone Industries, Inc. A copy of the clean fill receipt is contained in Appendix 3.

### 4.2.3) UST Closure and Site Investigation Former 1,000 Gallon UST (AOC-5)

The tank removal contractor, Joe Royce, Inc. of Paterson, New Jersey, excavated soil exposing the top of the tank on October 2, 2000. All piping associated with the tank was drained back into the tank; the tank was pumped out following the American Petroleum Institute's recommended Practice for the Abandonment or Removal of Used Underground Service Station Tanks, and the New Jersey Uniform Construction Code (N.J.A.C. 5:23).

The top of the tank was uncovered and the tank was opened. The tank contents were removed by All State O.R.C. of West Milford, New Jersey, a licensed waste removal service (DEP #S 50015/JA-389) and the residual contents were squeegeed clean. A copy of the tank waste removal receipt is included in Appendix #2 for documentation purposes.

Upon removal, the tank was inspected by the Elmwood Park Building Inspector who confirmed that there were no signs of a release or discharge from the UST and gave approval to backfill the excavation. A copy of the certification is attached in Appendix 1.

As described below, since post-excavation soil samples were not collected, BEI performed soil borings around the tank area to confirm subsurface conditions.

### 4.2.4) Areas with Specific Changes in Sampling Protocol Due to Field Conditions

There were no significant events or seasonal variations that required changes in sampling protocol. The exact location of the former UST was indicated to BEI by the Finetex plant manager. Therefore, post-excavation sampling activities for AOC-6 were as follows: Two soil samples labeled "6S-1" and "6S-2" were collected at a frequency of one sample for every five linear feet along the center line of the UST. The samples were collected from 0"-6" below the base of the UST which corresponded to 6.0'-6.5' below site grade. An additional sample (6P-1) was collected from the 0"-6" interval below the piping, which corresponded to 2-2.5' below site grade. Since there was less than 15 linear feet of piping, only one sample was collected.

Post-excavation sampling activities for AOC-5 were as follows: Soil borings were advanced with 1.5" outside diameter augers and samples were taken with a 7/8" diameter soil probe. Three soil borings labeled "5-S1" through "5-S3" were taken along the centerline of the former UST at a frequency of one sample for every five linear feet along the center line of the UST. The samples were collected from a depth of 6.0'-6.5' below site grade which corresponded to 0"-6" below the base of the former UST. A piping sample was taken at a depth of 2-2.5', which corresponded to 0-6" below the base of the former piping. Since there was less than 15 linear feet of piping, only one sample was collected.

When the UST was closed in October 2000 the backfill used to fill the UST void was not certified clean fill. Therefore, a soil sample was also collected from the backfill material and designated sample 5-F1. The sample was collected in accordance with N.J.A.C. 7:26E-6.4(d) and analyzed for PP+40 to document the quality of the backfilled material.

All post-excavation soil samples were stored in a cooler and transported to IAL for analysis. The soil samples were analyzed for total petroleum hydrocarbons (TPHCs) via EPA method 418.1 modified for soils with conditional analysis for volatile organics (VO+10). All VO +10 soil samples were preserved using the NJDEP methanol preservation method.

Laboratory analytical results for AOC-6 indicated that a TPHC concentration was detected in sample "6-S1" at 168 ppm and was detected at a level of 3,820 ppm in "6-S2". The piping sample "6-P1" indicated a TPHC level of 170 ppm. Since the soil sample result from "6-S2" was above 1,000 ppm, conditional analysis for volatile organics (VO+10) was required on that sample. The analytical results indicated that no volatile organics were detected above applicable NJDEP Cleanup Criteria and the total volatile organic contaminant concentration (TVOCC) was 21.93, significantly below the soil cleanup criteria of 1,000 ppm for TVOCC.

**Table 1:**
**Summary of Soil Sample Results (AOC-6)**

| Sample ID: | 6-S1 | 6-S2 | 6-P1 | TB | NJDEP Residential Soil Cleanup Criteria |
|---|---|---|---|---|---|
| Lab ID: | 7040-004 | 7040-005 | 7040-006 | 7040-007 | |
| Sample Date: | 10/11/2001 | 10/11/2001 | 10/11/2001 | 10/11/2001 | |
| Sample Matrix: | Soil | Soil | Soil | Soil | |
| Sample Depth: | 6-6.5' | 6-6.5' | 2-2.5' | NA | |
| Total Xylenes | ~ | 0.863 | ~ | ND | 410 |
| Total VOs | ~ | 0.863 | ~ | ND | ~ |
| Total TICs | ~ | 21.07 | ~ | ~ | ~ |
| Total VOs and TICs | ~ | 21.93 | ~ | ND | 1,000 |
| TPHC (ppm): | 168 | 3,820 | 170 | ~ | 1,000/<br>10,000 |

**Notes: ND – Not detected,** ~ Not analyzed

Laboratory analytical results for AOC-5 indicated that a TPHC concentration was detected at a level of 516 ppm in sample "5-S1". TPHC's were not detected in samples "5-S2", "5-S3", or "5-P1". The analytical results of the backfilled material also indicated that no contaminants were detected above applicable NJDEP cleanup criteria. Summarized analytical results are depicted in Table 2 and 3, and the complete laboratory analytical data package for the post-excavation sampling is contained Appendix #8.

**Table 2:**
**Summary of Soil Sample Results (AOC# 5)**

| Sample ID: | 5-S-1 | 5-S-2 | 5-S-3 | 5-P1 | NJDEP Residential Soil Cleanup Criteria |
|---|---|---|---|---|---|
| Lab ID: | 7040-001 | 7040-002 | 7040-003 | 7040-008 | |
| Sample Date: | 10/11/2001 | 10/11/2001 | 10/11/2001 | 10/11/2001 | |
| Sample Matrix: | Soil | Soil | Soil | Soil | |
| Sample Depth: | 6-6.5' | 6-6.5' | 6-6.5' | 2-2.5' | |
| TPHC (ppm): | 516 | ND | ND | ND | 1,000/<br>10,000 |

Table 3:
Summary of Soil Sample Results (AOC-5) cont.

| Sample ID: | 5-F1 | NJDEP Residential Soil Cleanup Criteria |
|---|---|---|
| Lab ID: | 7041-001 | |
| Sample Date: | 10/11/2001 | |
| Sample Matrix: | Soil | |
| Sample Depth: | 2-2.5' | |
| Parameters: | | |
| Volatiles (ppm) | | |
| Total VOs | ND | 1,000 |
| Total TICs | 4.43 | ~ |
| Total VOs & TICs | 4.43 | ~ |
| Semivolatiles (ppm) | | |
| Total BNAs | ND | ~ |
| Total TICs | ND | ~ |
| Total BNA's & TICs | ND | ~ |
| PCBs | ND | 0.49 |
| Pesticides (ppm) | ND | |
| Metals (ppm) | | |
| Antimony | ND | 14 |
| Arsenic | 1.70 | 20 |
| Beryllium | ND | 2 |
| Cadmium | ND | 39 |
| Chromium | 9.00 | 120,000 |
| Copper | 13.1 | 600 |
| Lead | 14.4 | 50 |
| Mercury | 0.02 | 14 |
| Nickel | 8.48 | 250 |
| Selenium | ND | 63 |
| Silver | ND | 110 |
| Thallium | ND | 2 |
| Zinc | 26.1 | 1500 |

Notes: ND -- Not detected
~ Not analyzed

### 4.2.5) Significance of Tentatively Identified Compounds

Based on laboratory data, the tentatively identified compounds which totaled 21.07 ppm are below NJDEP standards and therefore not of concern. The TICs consisted of two unknown alkanes, a substituted benzene, undecane, unknown cyclic hydrocarbon, and dodecane.

### 4.2.6) Recommendations for Areas of Concern

*Former tank area AOC-5:* The former 1,000-gallon UST was removed on October 2, 2000. Since the UST was not subject to the Underground Storage of Hazardous Substances Act, no post-excavation soil samples were collected at the time of closure. As detailed in this report, the UST was closed by Joe Royce Excavating. Documentation confirming the proper closure of the

UST is contained in this report. Since there was no evidence of a discharge when the UST was closed, as confirmed by the Elmwood Park municipal official and since all site investigation soil sample results were below the NJDEP's Cleanup Criteria of 10,000 ppm for #2 fuel oil, BEI recommends no further action for this area of concern.

***Former UST AOC-6***: As detailed in this report, the 550 gallon UST was closed by Joe Royce Excavating. Documentation confirming the proper closure of the UST is contained in this report. Since there was no evidence of a discharge when the UST was closed, as confirmed by BEI and the Elmwood Park municipal official, and since all post-excavation soil sample results were below the NJDEP's most restrictive soil cleanup criteria, BEI recommends no further action for this area of concern.

## 5.0 CERTIFICATIONS:

A. The following certification shall be signed by the highest ranking individual at the site with overall responsibility for that site or activity. Where there is no individual at the site with overall responsibility for that site or activity, this certification shall be signed by the individual having responsibility for the overall operation of the site or activity.

I certify under penalty of law that the information provided in this document is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information, and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties.

Typed/Printed Name Robert H. Scala Title V.P.

Signature Date 11/17/01

Sworn to and Subscribed Before Me on this 17th Date of ~~November~~ 20 01

Camille Robinson

Notary

"OFFICIAL SEAL"
Camille Robinson
My Commission Expires March 20, 2005

SIGN HERE

B. The following certification shall be signed as follows:

1. For a corporation, by a principal executive officer of at least the level of vice president;
2. For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or
3. For a municipality, State, Federal or other public agency, by either a principal executive officer or ranking elected official; or
4. For persons other than 1-3 above, by the person with the legal responsibility for the site.

Sign as Finetex

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein and all attached documents, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information, and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute I am personally liable for the penalties.

Typed/Printed Name Robert H. Scala Title V.P.

Signature , V.P. Finetex Date 11/17/01

Sworn to and Subscribed Before Me on this ______ Date of ______________ 20 01

~~, V.P. Finetex, Inc.~~

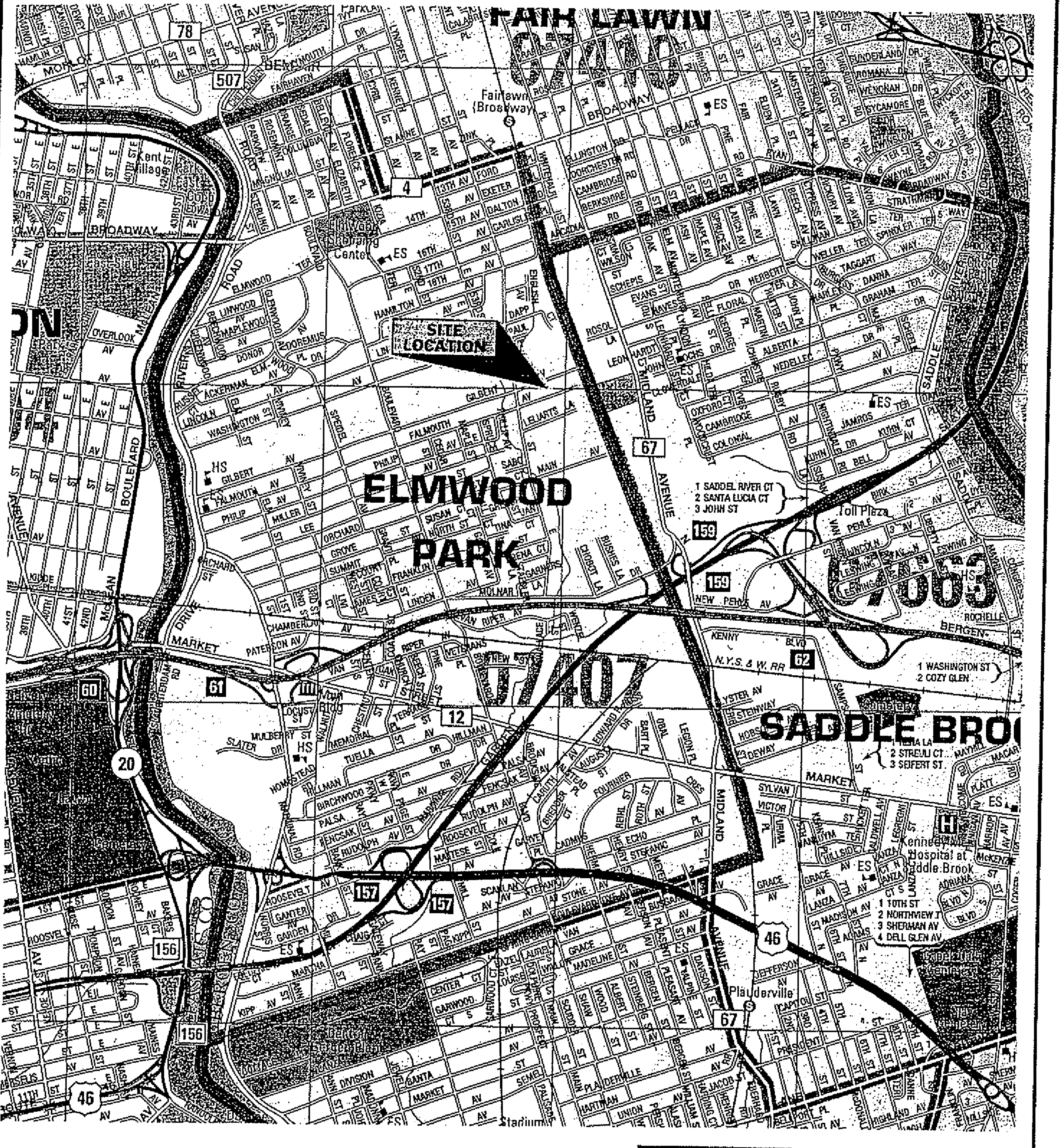
Notary Camille Robinson

SIGN HERE

Sign as Finetex

"OFFICIAL SEAL"
Camille Robinson
My Commission Expires March 20, 2005

# FIGURES



**SOURCE MAP**

Bergen County, NJ Hagstrom Street Map

**FIGURE:**

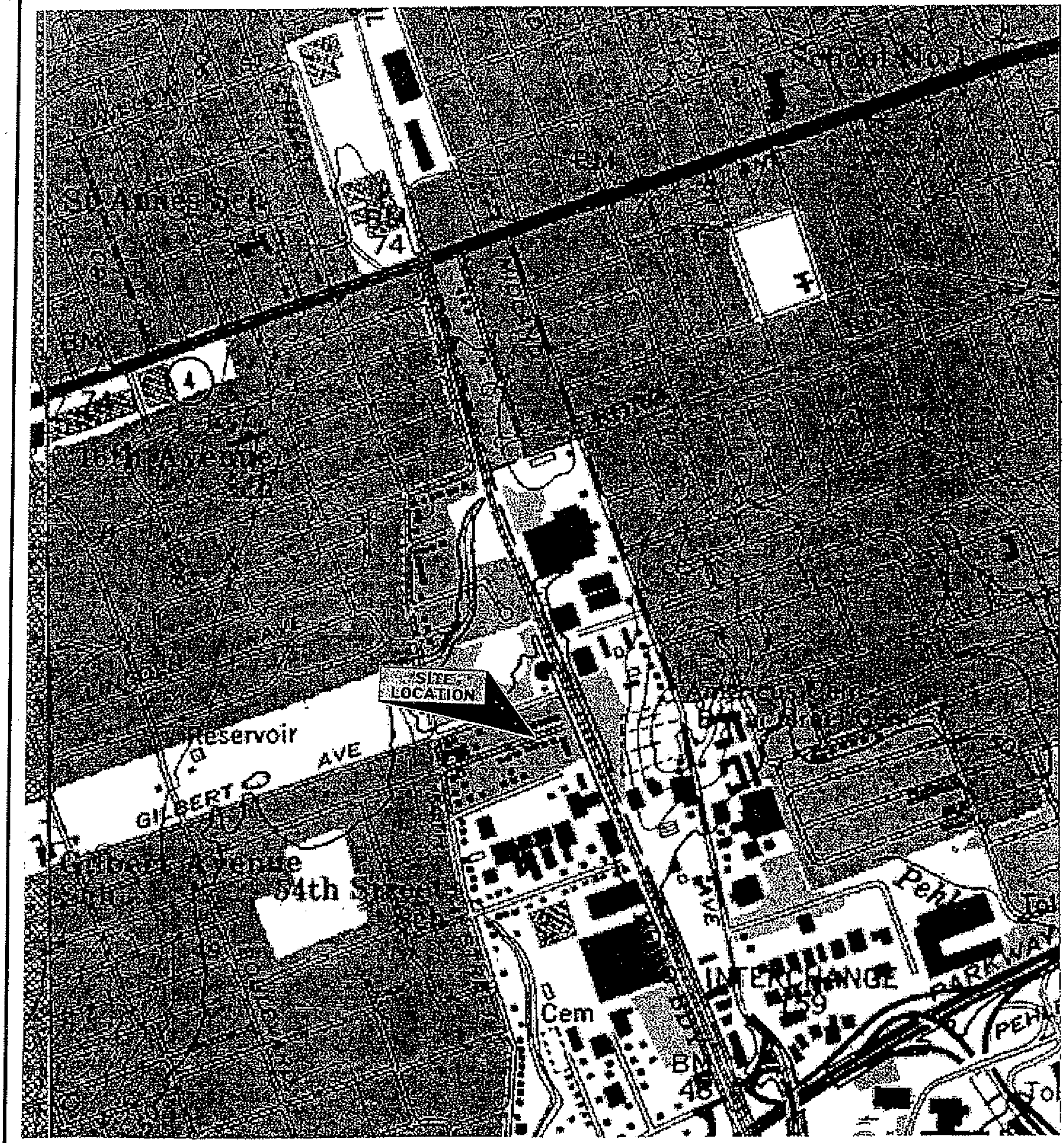
Site Location Map

**1**

418 Falmouth Avenue
Elwood Park, Bergen County, NJ

Scale: As Shown
Drawn/Checked By: JPP/JMB
Date: 11/02/01
Project #: 99704

BEI
**Brennan Environmental, Inc.**
80 Great Meadow Lane, E. Hanover, NJ 07936 973.781.1801



**SOURCE MAP**

USGS TOPOGRAPHIC QUADRANGLE
HACKENSACK, NJ
7.5'SERIES
CONTOUR INTERVAL: 10'

SITE COORDINATES
40° 54' 44.28" N, 74°06' 46.02" W

| | |
|---|---|
| **FIGURE:**<br>Topographic Map | **2** |
| 418 Falmouth Avenue<br>Elwood Park, Bergen County, NJ | |
| Scale: As Shown | Drawn/Checked By: JPP/JMB |
| Date: 11/02/01 | Project #: 99704 |

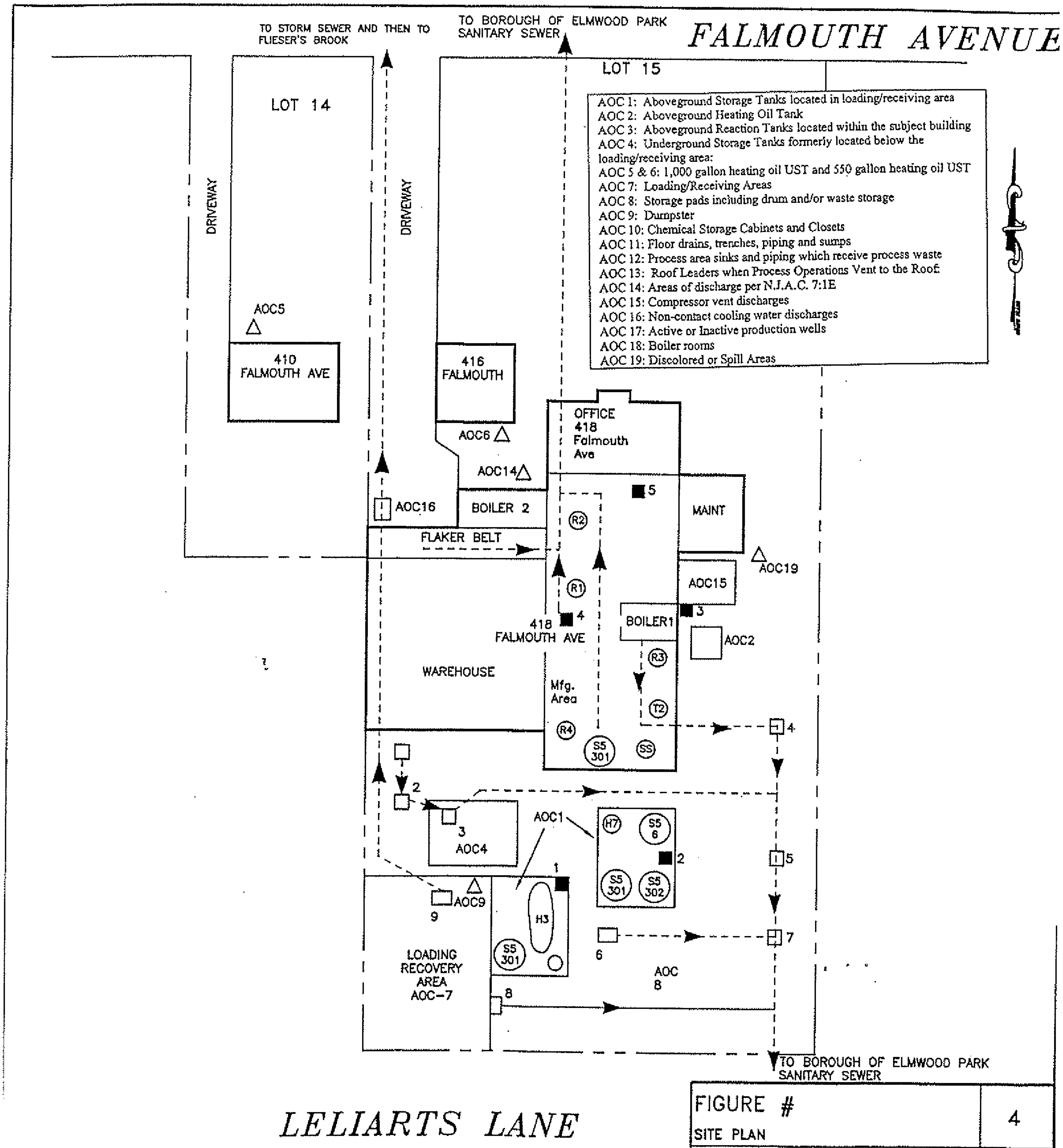
**Brennan Environmental, Inc.**
8D Great Meadow Lane, E. Hanover, NJ 07936 973.781.1801

**SOURCE MAP**

NJDEP WETLANDS MAP BASED ON
HACKENSACK, NJ SW QUARTERQUADRANGLE

| | |
|---|---|
| **FIGURE:**<br>Wetlands Inventory Map | **3** |
| 418 Falmouth Avenue<br>Elwood Park, Bergen County, NJ | |
| Scale: As Shown | Drawn/Checked By: JPP/JMB |
| Date: 11/02/01 | Project #: 99704 |

**Brennan Environmental, Inc.**
8D Great Meadow Lane, E. Hanover, NJ 07936 973.781.1801



AOC 1: Aboveground Storage Tanks located in loading/receiving area
AOC 2: Aboveground Heating Oil Tank
AOC 3: Aboveground Reaction Tanks located within the subject building
AOC 4: Underground Storage Tanks formerly located below the loading/receiving area:
AOC 5 & 6: 1,000 gallon heating oil UST and 550 gallon heating oil UST
AOC 7: Loading/Receiving Areas
AOC 8: Storage pads including drum and/or waste storage
AOC 9: Dumpster
AOC 10: Chemical Storage Cabinets and Closets
AOC 11: Floor drains, trenches, piping and sumps
AOC 12: Process area sinks and piping which receive process waste
AOC 13: Roof Leaders when Process Operations Vent to the Roof
AOC 14: Areas of discharge per N.J.A.C. 7:1E
AOC 15: Compressor vent discharges
AOC 16: Non-contact cooling water discharges
AOC 17: Active or Inactive production wells
AOC 18: Boiler rooms
AOC 19: Discolored or Spill Areas

**LEGEND:**

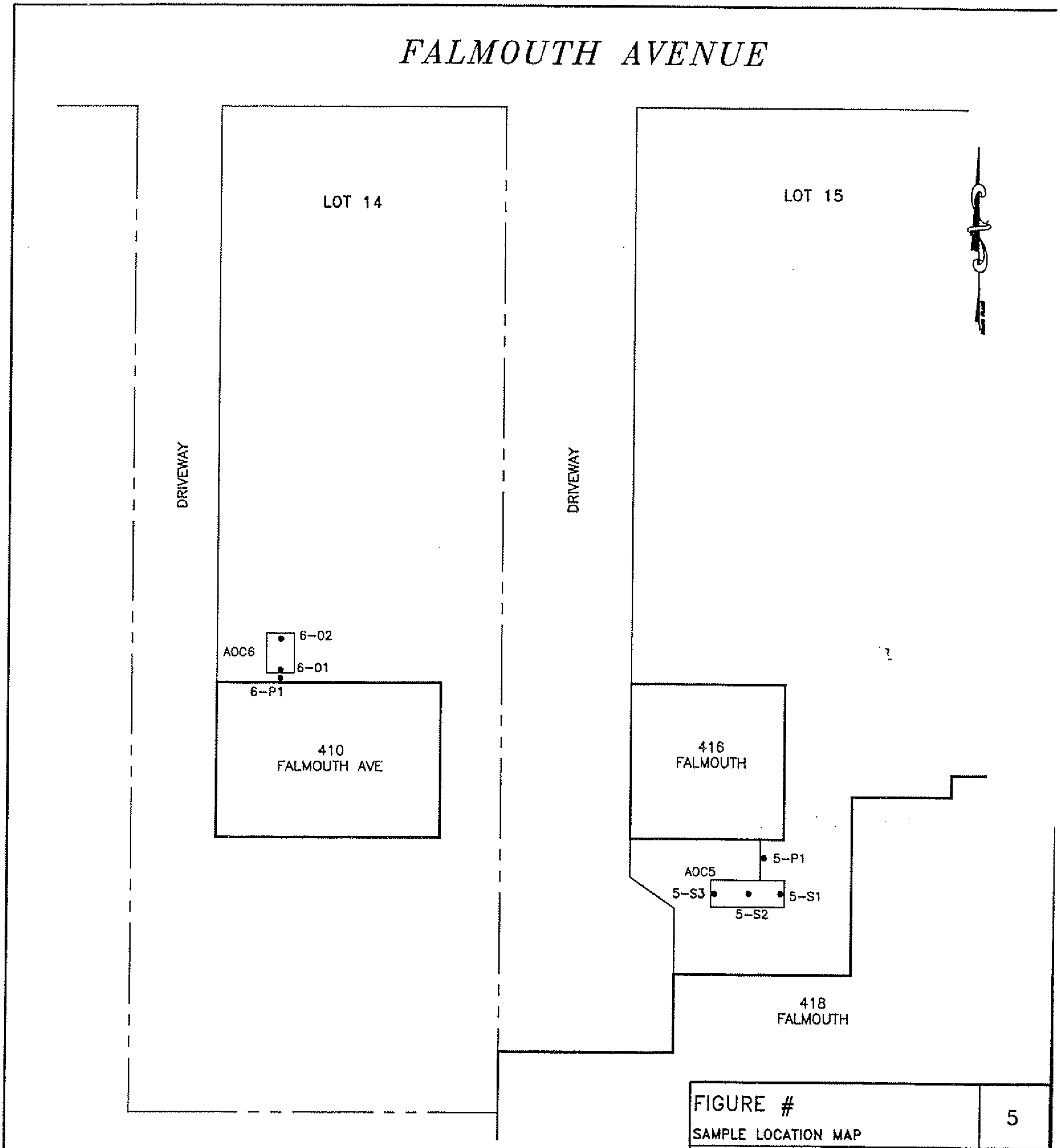
■ – SUMP
○ – ABOVE GROUND STORAGE TANK
▭ – FLOOR DRAIN / CATCH BASIN
△ – AOC

| | |
|---|---|
| FIGURE # | 4 |
| SITE PLAN | |

FINETEX, INC.
418 FALMOUTH AVENUE
ELMWOOD PARK, NEW JERSEY

| | |
|---|---|
| Scale: 1"=40' | Drawn By: AP |
| Date: 11/12/2001 | Project # 99704 |

BRENNAN ENVIRONMENTAL, INC.
8 Great Meadow Lane E. Hanover, NJ 07936
Tel: (973)781-1801



LEGEND:

● – SAMPLE LOCATION

FIGURE # 5

SAMPLE LOCATION MAP

FINETEX, INC.
418 FALMAOUTH AVENUE
ELMWOOD PARK, NEW JERSEY

| | |
|---|---|
| Scale: 1"=20' | Drawn By: AP |
| Date: 11/12/2001 | Project # 99704 |

BEI BRENNAN ENVIRONMENTAL, INC.
8 Great Meadow Lane E. Hanover, NJ 07936
Tel: (973)781-1801

# APPENDICES

# APPENDIX 1

## Copy of Local Construction Permits and Inspection Approval Tickets

# BUILDING SUBCODE
## TECHNICAL SECTION

Date Received [illegible]
Date Issued
Control #
Permit #

**A. IDENTIFICATION—APPLICANT: COMPLETE ALL APPLICABLE INFORMATION. WHEN CHANGING CONTRACTORS, NOTIFY THIS OFFICE. CALL UTILITY DIG NO: 1-800-272-1000.**

Block [illegible] Lot [illegible]
Work Site Location [illegible]
Owner In Fee [illegible]
Address [illegible]
[illegible] N.J. 07[illegible]
Tele. ([illegible]) 797 4156
Contractor [illegible]
Address [illegible]
[illegible] N.J. 07[illegible]
Tele. (973) 284 7425 Fax (973) 242 7929
Lic. No. or Bldrs. Reg. No.
Federal Emp. No. 22 1392 141[illegible]

**C. CERTIFICATION IN LIEU OF OATH**

I hereby certify that I am the (agent of) owner of record and am authorized to make this application.

Signature

**D. TECHNICAL SITE DATA**

**DESCRIPTION OF WORK**

Removal of 1,000 Gal Heating oil Tank

**JOB SUMMARY (Office Use Only)**

| PLAN REVIEW | Date | Initial |
|---|---|---|
| [✓] No Plans Required | [illegible] | [illegible] |
| [ ] All | | |
| [ ] Footing | | |
| [ ] Foundation | | |
| [ ] Frame | | |
| [ ] Other | | |

Joint Plan Review Required:
[ ] Elec. [ ] Plumb. [ ] Fire [ ] Elevator
SUBCODE APPROVAL
[ ] CO [ ] CCO [ ] CA
Date:
Approved by:

| INSPECTIONS Type: | Failure | Dates (Month/Day) Failure | Approval | Initial |
|---|---|---|---|---|
| Footing | | | | |
| Foundation | | | | |
| Slab | | | | |
| Frame | | | | |
| Barrier-Free | | | | |
| Insulation | | | | |
| Finishes | | | | |
| Energy | | | | |
| Mechanical | | | | |
| TCO | | | | |
| Other | | | | |
| Final | | | | |
| Barrier-Free | | | | |

**TYPE OF WORK:**
[ ] New Building
[ ] Addition
[ ] Alteration
  [ ] Roofing
  [ ] Siding
  [ ] Fence ________ Height (exceeds 6')
  [ ] Sign ________ Sq. Ft.
  [ ] Pool
  [ ] Asbestos Abatement Subchapter 8
  [ ] Lead Haz. Abatement NJAC 5:17
  [ ] Other ________
[✓] Demolition

**FEE (Office Use Only)**
$

Administrative Surcharge $
Minimum Fee $
DCA Training Fee $
TOTAL FEE $ [illegible]

**B. BUILDING CHARACTERISTICS**

Use Group Present ________ Proposed ________
Constr. Class Present ________ Proposed ________
No. of Stories ________
Height of Structure ________ Ft.
Area — Largest Floor ________ Sq. Ft.
New Bldg. Area/All Floors ________ Sq. Ft.
Volume of New Structure ________ Cu. Ft.
Total Land Area Disturbed ________ Sq. Ft.

**Est. Cost of Bldg. Work:**
1. New Bldg. $
2. Alteration $ [illegible]
3. Total (1+ 2) $

U.C.C. F110
(rev. 3/96)

1 White = Inspector Copy
2 Canary = Office Copy
3 Pink = Office Copy
4 Gold = Applicant Copy

# CONSTRUCTION PERMIT

New Jersey Uniform Construction Code

Date Issued
Control #
Permit # 01-632

IDENTIFICATION Block 803 Lot 14
Work Site Location 410 [illegible] Ave
[illegible]
Owner in Fee [illegible]
Address
Tel. ( ) [illegible]

Contractor [illegible] Inc
Address [illegible]
[illegible]
Tel. ( )
Lic. No. or Bldrs. Reg. No. [illegible]

Is hereby granted permission to perform the following work:

☑ BUILDING
☐ ELECTRICAL
☐ ELEVATOR DEVICES
☐ PLUMBING
☐ FIRE PROTECTION
☐ ASBESTOS ABATEMENT (Subchapter 8 only)
☐ LEAD HAZARD ABATEMENT
☐ DEMOLITION
☐ OTHER

DESCRIPTION OF WORK:
[illegible] 1000 gal
Heating Oil Tank

NOTE: If construction does not commence within one (1) year of date of issuance, or if construction ceases for a period of six (6) months, this permit is void.

Estimated Cost of Work $

Construction Official

10/9/01
Date

**PAYMENTS (Office Use Only)**

Building 50
Electrical
Plumbing
Fire Protection
Elevator Devices
Other
DCA Training Fee
Cert. of Occupancy
Other
Total 50
Check No. [illegible]
Cash
Collected by

U.C.C. F170
(rev. 5/2K)

1 WHITE—INSPECTOR 2 CANARY—OFFICE 3 PINK—TAX ASSESSOR 4 GOLD—APPLICANT

(see reverse side)

# BUILDING SUBCODE
## TECHNICAL SECTION

Date Received
Date Issued
Control #
Permit #

[illegible]

**A. IDENTIFICATION—APPLICANT: COMPLETE ALL APPLICABLE INFORMATION. WHEN CHANGING CONTRACTORS, NOTIFY THIS OFFICE. CALL UTILITY DIG NO: 1-800-272-1000.**

Block [illegible] Lot [illegible]
Work Site Location 41[illegible]
[illegible]
Owner in Fee [illegible]
Address [illegible]
[illegible]
Tele. ([illegible]) [illegible]
Contractor [illegible]
Address [illegible]
Paterson N.J. 07503
Tele. (973) [illegible] Fax (973) [illegible]
Lic. No. or Bldrs. Reg. No.
Federal Emp. No. [illegible]

**C. CERTIFICATION IN LIEU OF OATH**

I hereby certify that I am the (agent of) owner of record and am authorized to make this application.

Signature

**D. TECHNICAL SITE DATA**

DESCRIPTION OF WORK

1,000 Gal Heating Oil
Tank Removal

**JOB SUMMARY (Office Use Only)**

| PLAN REVIEW | Date | Initial |
|---|---|---|
| [ ] No Plans Required | [illegible] | [illegible] |
| [✓] All | | |
| [ ] Footing | | |
| [ ] Foundation | | |
| [ ] Frame | | |
| [ ] Other [illegible] | | |

Joint Plan Review Required:
[ ] Elec. [ ] Plumb. [ ] Fire [ ] Elevator
SUBCODE APPROVAL
[ ] CO [ ] CCO [ ] CA
Date:
Approved by:

| INSPECTIONS Type: | Failure | Dates (Month/Day) Failure | Approval | Initial |
|---|---|---|---|---|
| Footing | | | | |
| Foundation | | | | |
| Slab | | | | |
| Frame | | | | |
| Barrier-Free | | | | |
| Insulation | | | | |
| Finishes | | | | |
| Energy | | | | |
| Mechanical | | | | |
| TCO | | | | |
| Other | | | | |
| Final | | | | |
| Barrier-Free | | [illegible] | | |

TYPE OF WORK:
[ ] New Building
[ ] Addition
[ ] Alteration
- [ ] Roofing
- [ ] Siding
- [ ] Fence ______ Height (exceeds 6')
- [ ] Sign ______ Sq. Ft.
- [ ] Pool
- [ ] Asbestos Abatement Subchapter 8
- [ ] Lead Haz. Abatement NJAC 5:17
- [ ] Other ______

[X] Demolition

**B. BUILDING CHARACTERISTICS**

Use Group Present ______ Proposed ______
Constr. Class Present ______ Proposed ______
No. of Stories ______
Height of Structure ______ Ft.
Area — Largest Floor ______ Sq. Ft.
New Bldg. Area/All Floors ______ Sq. Ft.
Volume of New Structure ______ Cu. Ft.
Total Land Area Disturbed ______ Sq. Ft.

**Est. Cost of Bldg. Work:**
1. New Bldg. $
2. Alteration $ [illegible]
3. Total (1+ 2) $

FEE (Office Use Only)
$

Administrative Surcharge $
Minimum Fee $
DCA Training Fee $
TOTAL FEE $

U.C.C. F110
(rev. 3/06)

1 White = Inspector Copy
2 Canary = Office Copy
3 Pink = Office Copy
4 Gold = Applicant Copy

NEW JERSEY UNIFORM CONSTRUCTION CODE

# CONSTRUCTION PERMIT

Date Issued
Control #
Permit # [illegible] 665

IDENTIFICATION Block 86 Lot 15
Work Site Location 418 [illegible]
[illegible]

Owner in Fee [illegible]
Address [illegible] 3rd St [illegible]
[illegible] N.J. 07011 [illegible]
Tel. (201) [illegible]

Contractor [illegible] Inc
Address [illegible]
[illegible]
Tel. ( )
Lic. No. or Bldrs. Reg. No. 23199 2140

Is hereby granted permission to perform the following work:

☒ BUILDING ☐ PLUMBING ☐ LEAD HAZARD ABATEMENT
☐ ELECTRICAL ☐ FIRE PROTECTION ☐ DEMOLITION
☐ ELEVATOR DEVICES ☐ ASBESTOS ABATEMENT (Subchapter 8 only) ☐ OTHER

DESCRIPTION OF WORK: [illegible] Oil Tank Removal

**NOTE: If construction does not commence within one (1) year of date of issuance, or if construction ceases for a period of six (6) months, this permit is void.**

**Estimated Cost of Work** $ [illegible]

Construction Official

Date

| | |
|---|---|
| **PAYMENTS (Office Use Only)** | |
| Building | 25 |
| Electrical | |
| Plumbing | |
| Fire Protection | |
| Elevator Devices | |
| Other | |
| DCA Training Fee | |
| Cert. of Occupancy | |
| Other | |
| Total | 25 |
| Check No | 25888 |
| Cash | |
| Collected by | |

U.C.C. F170 (rev. 5/2K)

1 WHITE—INSPECTOR 2 CANARY—OFFICE 3 PINK—TAX ASSESSOR 4 GOLD—APPLICANT (see reverse side)

For Information Call:

Permit No. 00668

# APPROVAL FOR BUILDING

| | Date | Inspector |
|---|---|---|
| [ ] Footing | | |
| [ ] Foundation | | |
| [ ] Frame | | |
| [ ] Insulation | | |
| [ ] Mechanical | | |
| [ ] Other Tank | 10/2/00 | L.H. |
| [ ] Other | | |
| [ ] Final | | |

U.C.C. F221
(rev. 3/96)

**BRENNAN ENVIRONMENTAL, INC.**
ENVIRONMENTAL CONSULTING SERVICES

# APPENDIX 2

## Tank Contents Waste Disposal Documentation

(973) 696-3122

PA/AH/0564/ CT-HW-658
DEP # - S50015/JA-389
EPA # - NJD 986588630

ALL STATE
O.R.C.

5612

All State O.R.C. Inc.
473 Hamburg Tpke.
West Milford, N.J. 0748

CUSTOMER'S ORDER NO.
PHONE
DATE 10-11-01

NAME JOE ROYCE

ADDRESS 410 FALMOUTH AVE.
ELMWOOD PARK N.J.

YARD TIME OUT
YARD TIME IN

| IN | OUT | DESCRIPTION | CHECK # | AMOUNT DUE |
|---|---|---|---|---|
| | | GENERATOR # | | |
| | | MANIFEST # | | |
| | | DRIVER NAME RON | | |
| | | #103 | | |
| | | #104 VAC TR. | | |
| | | # 105 RACK TRUCK | | |
| | | #107 | | |
| 10:28 | | #108 | | |
| | | #110 VACTOR | | |
| | | #111 CARRIER | | |
| | | #112 CARRIER | | |
| | | WASTE DESCRIPTION #2 oil Gallons - H2O | | |
| | | GALLONS # 174 | | |
| | | VACUUM out 17" in Ground Tank | | |
| | | 2" water | | |
| | | | | |
| | | | TAX | |
| RECEIVED BY | | | TOTAL | |

W. SAUNDERS PRINTING • 239-1398
CEDAR GROVE, NJ 141712-BT

CLC 4070-S

SM 11/00

Thank You

(973) 696-3122

3176

PA/AH/0564/ CT-HW-658
DEP # - S50015/JA-389
EPA # - NJD 986588630

ALL STATE
O.R.C.

All State O.R.C. Inc
473 Hamburg Tpke
West Milford, N.J. 0

CUSTOMER'S ORDER NO.
PHONE
DATE 10-2-00

NAME Joe Royce
ADDRESS 416 Falmouth AVE
ELMWOOD PARK, N.J.

| SOLD BY | CASH | C.O.D. | CHARGE | ON ACCT. | MDSE. RET'D | PAID OUT |
|---|---|---|---|---|---|---|
| | | | | | | |

| QTY. | DESCRIPTION | PRICE | AMOUNT |
|---|---|---|---|
| | GENERATOR # Vacuum out Bottoms of | | |
| | MANIFEST # 1000 gal TANK | | |
| | X721 196 H2O | | |
| | X722 11:00 - 11:30 | | 244 ga |
| | X723 | | |
| | X724 Ron & Ricky | | |
| | X725 | | |
| | X726 L.H. | | |
| | FUEL | | |
| | SERVICE CHARGE | | |
| | I hereby certify that my Hazardous waste streams total less than 220 pounds (100 kg) for this calender month and that I am not required to obtain an EPA Identification number | | |
| RECEIVED BY | | TAX | |
| | | TOTAL | |

W. SAUNDERS PRINTING - 239-1366
CEDAR GROVE, NJ 216671-BQ

CLC 4070-S

All claims and returned goods
MUST be accompanied by this bill.

Thank You

COPY

**Brennan Environmental, Inc.**
Environmental Consulting Services

# APPENDIX 3

## Clean Fill Material Documentation

**BRAEN STONE INDUSTRIES, INC**

P.O. Box 8310
Haledon, NJ 07538
973.595.6250
Fax: 973.595.7087
www.braenstone.com

DATE: 10/11/01
TIME: 09:22
PLANT: COMP:
SCALE: 1

P.O. BOX 8310 HALEDON N.J.
973-595-6250 FAX#973-595-7087

TICKET #: 25088
PO #:
FOREMAN #:

CUST: 000091
JOE ROYCE, INC.
JOB: 91-1

TRUCK ID: ROYCE27
LICENSES:
CARRIER: JOE ROYCE INC
LOCATION: JOE ROYCE

PROD: 339
QUARRY PROCESS

WE MAKE DELIVERIES INSIDE CURB LINE AND ON THE LOT AT CUSTOMER'S RISK ONLY AND ACCEPT NO RESPONSIBILITY WHATSOEVER FOR DAMAGE RESULTING FROM SUCH DELIVERIES.

| | | | | |
|---|---|---|---|---|
| 09:22 | GROSS: | 23980 Lb | 11.99 Tn | 10.875 |
| 09:18 | TARE: | 14960 Lb | 7.48 Tn | 06.785 |
| | NET: | 9020 Lb | 4.51 Tn | 04.091 |

| JOB TOTALS | LOADS | POUNDS | TONS | Mg |
|---|---|---|---|---|
| 9999 | 0001 | 9020 | 4.51 | 4.090 |
| | 0000 | | | |
| | 0000 | | | |
| | 0000 | | | |
| | 0000 | | | |
| | 0000 | | | |

PRICE/TON
SUB-TOTAL
DELV RATE
STATE TAX

DELV CHRGE
TOTAL AMT

RECEIVED BY:
INSPECTED BY:

TEMPERATURE:
WEIGHMASTER: U.S.A.#1

DELIVERY TICKET
TRUCKER

**BRENNAN ENVIRONMENTAL, INC.**
ENVIRONMENTAL CONSULTING SERVICES

# APPENDIX 4

## UST Disposal Documentation

LOT 31673

# invoice

CIRELLO IRON & STEEL CO., INC.
416 LANZA AVENUE
SADDLE BROOK, NEW JERSEY 07662

Invoice Date 10-11-01

TO Royce

Shipped To

| Your Order No. | Date Shipped | Shipped Via | F.O.B. | Terms | Salesman |
|---|---|---|---|---|---|
| | | | | | |

| QUANTITY | DESCRIPTION | PRICE | AMOUNT |
|---|---|---|---|
| | 1-550 Gallon Cut & Cleaned | | |
| | No Value | | |

Fold

CIRELLO IRON & STEEL CO., INC.
416 LANZA AVENUE
SADDLE BROOK, NEW JERSEY 07662

# invoice

TO JOE ROYCE

Invoice Date 10.2.00

Shipped To

Fold

| Your Order No. | Date Shipped | Shipped Via | F.O.B. | Terms | Salesman |
|---|---|---|---|---|---|
| | | | | | |

| QUANTITY | DESCRIPTION | PRICE | AMOUNT |
|---|---|---|---|
| ① | 1,000 gallon Tank<br>W/ Valve | | |

Reorder from Business Envelope Manufacturers, Pearl River, N.Y. 10965 • Item

COPY

**Brennan Environmental, Inc.**
Environmental Consulting Services

# APPENDIX 5

## Photograghic Log

# Photolog

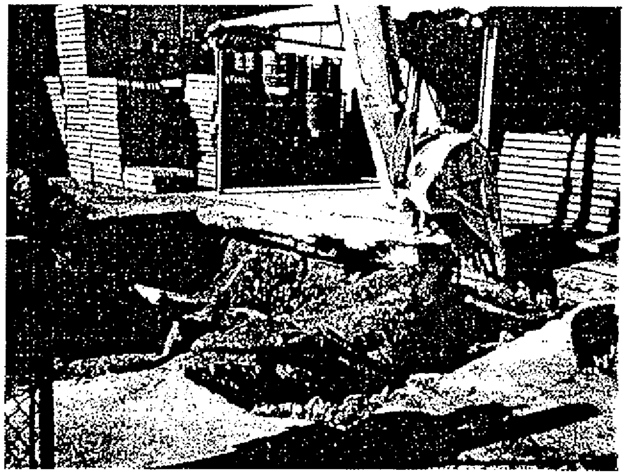


Photo: 9 AOC 19 Discolored concrete

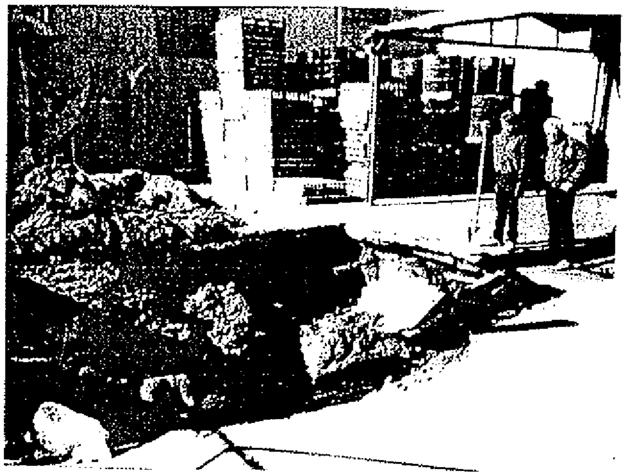


Photo: 9 AOC 19 Discolored concrete

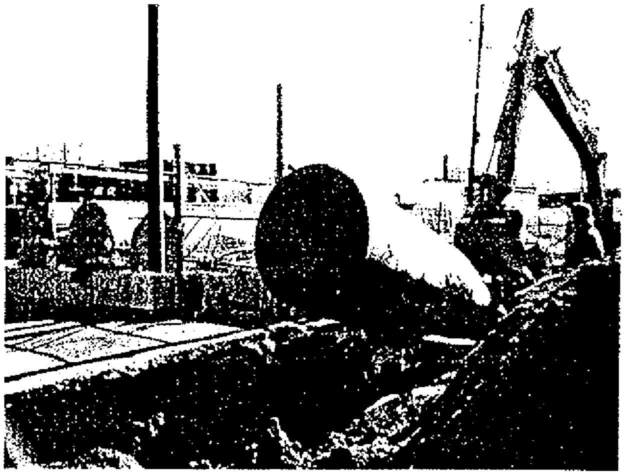


Photo: 9 AOC 19 Discolored concrete

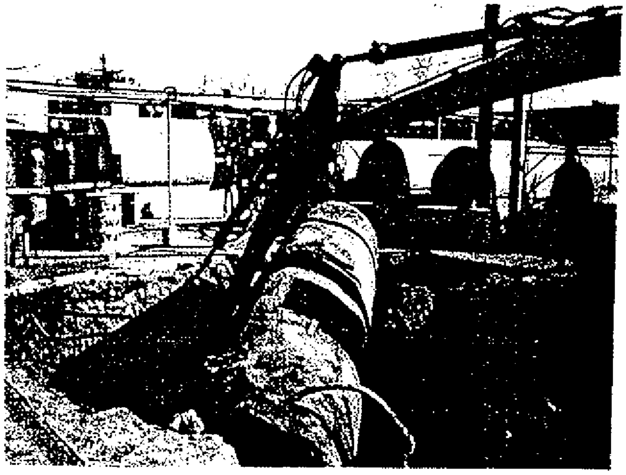


Photo: 9 AOC 19 Discolored concrete

# Photolog

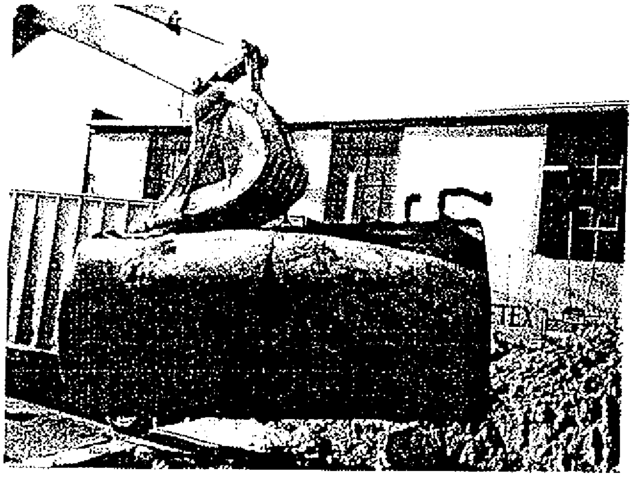


Photo: 9 AOC 19 Discolored concrete

Photo: 9 AOC 19 Discolored concrete

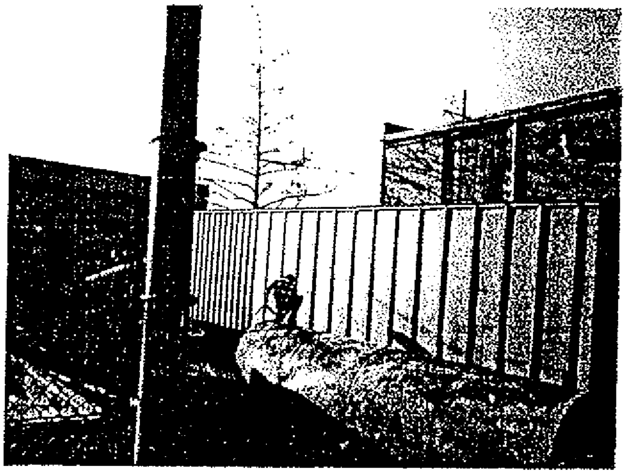


Photo: 9 AOC 19 Discolored concrete

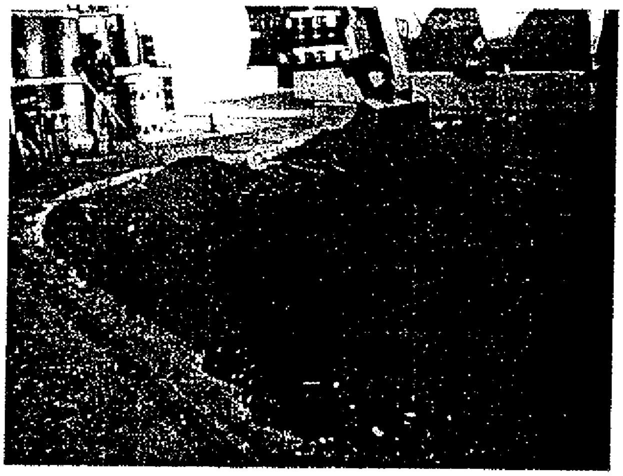


Photo: 9 AOC 19 Discolored concrete

BEI

**BRENNAN ENVIRONMENTAL, INC.**
ENVIRONMENTAL CONSULTING SERVICES

# APPENDIX 6

## BEI's Standard QA/QC Plan

# TABLE OF CONTENTS

## THE SAMPLING PLAN

There are a wide variety of reasons for collecting samples and various sampling strategies for different situations. It is important that the purpose of the sampling and associated data quality objectives be identified before field work begins. For example, samples may be collected to determine the existence and/or to define the extent of contamination at a site, to allow waste characterization and classification for disposal or recovery, or to determine compliance with existing regulations. Once the objective is known, decisions about analytical parameter selection, NJ certified laboratory selection, quality control samples, sample location and frequency, etc., can be made more confidently. Defining these sampling and data quality objectives is important to assure that the sampling plan is complete. Environmental sampling is often conducted to gather data that will be the basis for remedial decisions. Because of the potential threat to health and environment and high costs usually associated with site remediation, strict adherence to quality assurance measures are strongly recommended. In such a case, the object of the sampling helps to dictate what should be prescribed in the sampling plan.

An integral part of any sampling program is planning. Before a plan can be written site-specific information must be gathered to insure that the plan is logical, will meet the required objectives, and the course of action laid out is achievable.

The purpose of developing a sampling plan is to detail a "plan of action". The person writing the plan must be very familiar with the site specific conditions and those implementing the plan must be very familiar with the plan's contents. A properly prepared sampling plan that is correctly implemented will allow the sampling objective to be met, help avoid confusion in the field, preserve health and safety, and ultimately save time and money. In the development of the sampling plan other pre-sampling activities must be heavily relied upon. Some factors to be taken into account include the following.

### *A.* *Site History-Evaluating Existing Data/File Information*

The first step in a site investigation should be the gathering of background information. Information concerning the history of activity at a site (including locations and age of buildings, drainage pathways, contours, building layout, foundations, septic systems, tanks, etc.; processes and materials for manufacture, storage and disposal both past and present) can be extremely useful in planning sampling events. A file search may reveal areas of a site used for specific processes (aerial site history, site plans, area land use may also be useful) and will help in the logical placement of sampling locations. By revealing what materials were handled on site, a file search may provide guidance in choosing which parameters to include for analysis. Additionally, while caution must still be used, judgments regarding health and safety requirements can be made. When no information is available, field personnel must consider that worst case conditions may exist and take proper precautions to insure safety.

The following is a list of federal, state, local and other agencies or sources where additional information regarding site history may be obtained. Addresses and phone numbers can be found in the Blue Pages of Governmental Listings provided in New Jersey Bell's yellow pages.

U.S. Government

U.S. Department of Justice
U.S. Geological Survey
U.S. DOA - Soil Conservation Service
U.S. DOA - Forest Service
U.S. DOI - Fish and Wildlife Agencies
U.S. Army Corps of Engineers
Federal Emergency Management Agency
National Oceanic and Atmospheric Administration
U.S. Environmental Protection Agency

State of New Jersey

NJ State Library
NJ State Attorney General Office
NJ Geological Survey
NJ Department of Transportation
NJ Department of Agriculture
NJ Department of Health
NJ Department of Environmental Protection:
    Regional Enforcement (Northern, Central, Metro, and Southern)
    Bureau of Federal Case Management
    Bureau of State Case Management
    Bureau of Community Relations
    Bureau of Site Management
    Bureau of Air Pollution Control
    Bureau of Emergency Response
    Bureau of Environmental Evaluation and Responsibility Assessment (ECRA)
    Bureau of Environmental Evaluation and Risk Assessment
    Bureau of Site Assessment
    Bureau of Environmental Measurements and Quality Assurance
    Information Resource Center
    Office of Environmental Analysis (Aerial Maps)
    Radiation Protection Programs
    Pesticide Control Program

Local Government

County Health Department
Local Health Department
Tax Assessors Office
Economic Development Officer
Local Planning Board
Town Engineer
Local Chamber of Commerce
Local Airport
Local Library
Local Well Drillers

Other Sources

Facility Records
Employee Records
Citizens residing nearby
Local and regional waste haulers and generators

### *B. Defining The Physical Environment*

Equal in importance to finding out what may be on site is determining where it is most likely to be located. A pre-sampling site visit should be conducted to gather additional background information. Labels and DOT numbers on drums and tanks may be useful. Files found on-site may include information about materials that were manufactured, stored or disposed of on-site. Product names may be determined from shipping labels or manifests. Any and all information will be useful in sampling plan preparation, and in formulating a site-specific Health and Safety Plan (see Chapters 6, 15 and 16 of this Manual).

The fate of environmental contaminants is dictated by the source, the characteristics of the contaminant itself, (i.e., persistency and toxicity) and perhaps most importantly, by the physical environmental system into which it is released. Contaminants move at varying rates and to varying degrees when released into different kinds of matrices. Defining what kind of environmental system the site is a part of is extremely important to the success of achieving the sampling objectives. An investigation into the local geology, hydrology (including flow rates of nearby surface waters, average depth to ground water and flow direction, identification of areas of recharge, etc.). and climatology is necessary. The biological system should also be assessed. The flora and fauna of the area (including identification of sensitive environments and/or species, stressed vegetation, potential for bioaccumulation and biotransformation in the plant and animal life, especially agricultural) are definite factors to be taken into account. Stressed vegetation may serve as an indicator for contaminant migration to a particular area. Overall, by defining the physical environment, the fate of contaminants can be predicted. Migration pathways should also be identified assuring that samples will be collected in the most appropriate area.

The factors addressed above offer an overview of considerations that must be evaluated for a sampling plan to be complete. The more information that is obtained, the more that will be known about the source, movement, and concentrations of contaminants in the media to be sampled. With this knowledge, it will be easier to write a complete, site specific sampling plan.

Along with the historical and physical information needed prior to sampling plan development, the following topical areas of basic information are necessary components for an inclusive sampling plan.

### *C. Sample Locations And Numbers*

The objective of the sampling event is important when choosing the location of sampling points. Samples are sometimes collected to characterize a site for which limited background information is available and/or obvious contaminated areas do not exist. In such a case, a random sampling scheme may be useful. Random sampling depends on the theory of random chance probabilities to choose the most representative sample.

This process is utilized when there are numerous available sampling locations and there are no satisfactory reasons for choosing one location over another.

Tables of random numbers are readily available from many sources and should be used to eliminate any possible bias generated by those collecting the sample, assuming a random approach is used.

Also important when choosing sample locations is consideration of the site's physical environmental setting and how these factors can influence the concentration and movement of the material of concern. Sampling at hazardous waste sites is usually conducted in an attempt to discover contamination and to define its extent and variability. With such an objective, it is most logical to choose sample locations that will yield the most information about site conditions. Here, judgment (or biased) sampling should be employed. Biased samples are those collected at locations that were chosen based on historical information, knowledge about the location and behavior of the contaminant(s), and/or knowledge about the effects of the physical system on the contaminants' fate.

Both biased and random sampling techniques can be used together to thoroughly address an entire site. Some samples may be biased to potentially contaminated areas (e.g., stained soil, former process or disposal areas) or potentially impacted areas (e.g., areas of stressed vegetation, sediment downstream from discharge pipe). In areas less likely to be contaminated or areas with little available background information, random samples may be used to allow adequate assessment of the entire site.

There are six factors in determining the number of samples required for site characterization and these are:

1. exposure pathways
2. statistical performance objectives
3. quality assurance objectives
4. background samples
5. sampling objectives
6. site specific conditions.

For example, if the objective of the event is to determine whether the site is contaminated, a limited number of samples, from properly chosen locations, will yield useful information. If, however, the site is known to be contaminated, and delineation of the contamination is the objective, a greater number of samples may be needed. In many cases statistical considerations can be helpful in determining sampling strategy (see Chapter 3. "Statistical Considerations").

## *D. Sample Methodology and Matrix*

Once the appropriate numbers and locations have been chosen, consideration must be given to what collection method will be used to assure that representative samples of site conditions are obtained. The selected sampling methodology will be matrix dependent. In some instances, there may be several acceptable options available for collecting a sample. In other instances, site specific conditions may dictate that only one approach will work, even though that method may not be the preferred method. In all cases, the construction material of the sampling device, its design, decontamination, and proper use are critical factors and should be included in the proposed sampling plan.

Use of a device constructed of undesirable material may compromised sample quality by the material leaching into the sample or absorbing materials from the sample after repeated use and decontamination. Sampler design is also important. For example, a ground water sampling device that aerates the sample during collection may yield a sample that is not representative of actual aquifer conditions. Finally, even the most well designed, constructed and cleaned sampling device will yield a non-representative sample if used improperly. All personnel involved in sample collection must receive training on the use, care and limitations of different sampling equipment.

Further, decontamination of the chose device must be considered. The sampling device must be resistant to the decontamination solutions and should be constructed to allow ease of cleaning and assure thorough decontamination. (See Chapter 2. "Quality Assurance", for decontamination procedures).

## *E. Laboratory Selection*

For regulatory samples collected under the Safe Drinking Water Act, the National Pollution Discharge Elimination System and the Radon Act, the laboratory must have current certification for that contaminant or parameter covered by the "Regulations Governing

Laboratory Certification and Standards of Performance", N.J.A.C. 7:18. When additional certifications for other contaminants and parameters and other matrices are offered under amendments to N.J.A.C. 7:18, the laboratory must have current certified status before performing these analysis.

In addition, the following laboratory capabilities may be applicable depending upon the specific regulatory program that sample analysis is being conducted:

1. For the analysis of aqueous samples, the laboratory shall be a New Jersey certified Laboratory for all parameters of appropriate category of parameters for which analysis will be performed and for which certification exists pursuant to N.J.A.C. 7:18 et seq.;
2. For the analysis of aqueous and non-aqueous samples for applicable organics and inorganics including polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans, the laboratory should be a participant in good standing in the EPA Contract Laboratory Program (CLP) for the applicable Statement of Work protocol as described in the version of the EPA CLP "Invitation for Bid" (IFB) contract documents in effect as of the date on which the laboratory is performing the analysis;
3. For the analysis of aqueous and non-aqueous samples for applicable organic and inorganic, the laboratory should be a contract awardee able to perform sample analyses in the applicable analytical task under the version of the Professional Laboratory Analytical Service contract issued by the New Jersey Department of Treasury, Division of Purchase and Property in effect as of the date on which the laboratory is performing the analysis.
4. For the analysis of non-aqueous samples for selected organics and inorganics using methods contained in the EPA Publication SW-846 "Test Methods for Evaluating Solid Waste", in effect as of the date on which the laboratory is performing analysis, the laboratory shall be a N.J.A.C. 7:18 certified laboratory for those parameters.

### *F.* *Quality Assurance Considerations*

Quality assurance measures must be associated with each sampling and analysis event as an additional measure of control to assure that the sample delivered to the lab for analysis is representative of site conditions. The sampling plan should outline how the representative quality of the samples will be assured. This will include, but not be limited to: laboratory SOP, field SOP, sample bottle preparation, equipment decontamination, trip blanks, field blanks, duplicates, split samples, performance evaluation samples, sample preservation and handling, chain of custody, analysis request, analytical methods, parameters, and deliverables (See Chapter 2. for further quality assurance information).

### *G.* *Health And Safety Concerns*

Health and safety measures must be incorporated in the sampling plan and may address the following areas: Organizational responsibilities, risk analysis, employee training, personnel protection, medical surveillance, air surveillance, site control, decontamination, site standard operating procedures, contingency planning, confined space operations, and spill containment. Some of these concern areas may not be applicable for your sampling episode. (See Chapter 15 for more information on Personnel Protection).

### *H.* *Schedule*

Scheduling information may or may not be applicable for your particular sampling plan development. If it is necessary, the type of information to include would be time frames for various milestone sampling episodes.

## QUALITY ASSURANCE

### *A.* *Introduction*

This section of the manual provides the user with quality assurance requirements and procedures for conducting environmental measurement sampling episodes. In order to generate analytical data of known and defensible quality, adherence to established quality assurance protocol is necessary. Quality assurance measures coupled with a statistically based sampling plan will improve sample collection while maintaining the integrity of the samples prior to analysis. NJDEP has established standard operating procedures to maintain consistency in sample collection and handling. The standard operating procedures may vary among the specific regulatory programs (i.e. CERCLA, RCRA, NJPDES).

To help ensure that environmental monitoring data is of known quality, monitoring projects for the NJPDES and Safe Drinking Water Act Programs are based on an approved Quality Assurance Project Plan (QAPjP) prepared by using a standard reference, "Guidance for Preparation of Combined Work/Quality Assurance Project Plans for Environmental Monitoring" (OWRS QA-1). The above referenced document was developed in conformance with QASMS-005/80, "Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans". All QAPjPs must conform with these guidelines. A QAPjP is a single document incorporating QA/QC controls which encompass both field and laboratory issues associated with the information of NJPDES permit requirements.

Another example of the application of these protocols is the Field Sampling Plan-Quality Assurance Project Plan (FSP-QAPP). To develop reliable site investigation data for NJDEP lead, publicly funded CERCLA (Superfund) sites, the prime consultant/contractor awarded a term contract for the Remedial Investigation/Feasibility Study (RI/FS) or Engineering Design work has the responsibility to develop and implement a FSP-QAPP. This document must present the organization, functional activities and specific QA/QC activities needed to attain specific project goals and data quality objectives.

The core components of a FSP-QAPP are the Field Sampling Plan and the Quality Assurance Plan. Other essential elements included in the document are the project description, project organization/responsibilities, and schedules. Regardless of a document title or "deliverable" name (e.g. QAPjP, FSP-QAPP), it is recommended that all sampling and quality assurance protocols associated with a site specific investigation/remediation be contained in a stand alone document.

Quality Assurance Programs

The procedures established to control the collection and handling of samples are an integral part of the Quality Assurance Program operating within NJDEP. The importance of the environmental sample collection process and associated analytical data is demonstrated through integration of this information into the decision making process. All phases of this process rely on the provision of accurate, precise, comparable and complete analytical data.

Sample collection, preservation and handling methods that are required by the code of Federal Regulation must be used for samples covered by the Safe Drinking Water Act and Water Pollution Control Act. Those requirements are published annually in 40 CFR Parts 141 and 136, respectively.

The following quality assurance requirements have been established to maintain sample integrity. Their prime objectives are to maintain the physical form and chemical composition of the sample and to prevent contamination from other sources or changes in contaminant concentration. To meet these objectives, there must be a measure of control over all sample handling procedures beginning with sample container cleaning procedures and ending with laboratory analysis. This chapter focuses on the first half of the control process: the procedures leading up to and ending with sample packaging and transport to the laboratory.

## *B.* *Sample Containers*

Prior to the collection of a sample, consideration must be given to the type of container that will be used to store and transport the sample. The party requesting the analysis is responsible for requesting the proper sample containers. Their selection is based on the sample matrix, potential contaminants to be encountered, analytical methods requested, and the laboratory's internal quality assurance requirements. Selection of appropriate sample containers should also be based upon review of the criteria listed below, as well as the information provided in Appendix 2-1.

### 1. Reactivity of Container Material with Sample

Choosing the proper composition of sample containers will help to ensure that the chemical and physical integrity of the sample is maintained. For sampling potentially hazardous material, glass is the recommended container type because it is chemically inert to most substances. Plastic containers are not recommended for most hazardous wastes because the potential exists for contaminants to adsorb to the surface of the plastic or for the plasticizers to leach into the sample.

In some instances, the sample characteristics or analytes of interest may dictate that plastic containers be used instead of glass. Because some metals species will adhere to the sides of glass. Because some metals species will adhere to the sides of glass containers in an aqueous matrix, plastic bottles must be used for samples collected for metals analysis. In the case of a strong alkali waste or hydrofluoric solution, plastic containers may be more suitable because glass containers may be etched by these compounds creating adsorptive site on the container surface.

## 2. Volume of the Container

The volume of sample to be collected will be dictated by the analytical method and the sample matrix. The laboratory must supply bottles of sufficient volume to perform the required analysis. Appendix 2-1 of this chapter indicates the container volumes required for the various parameters. In most cases, the methodology dictates the volume of sample material required to complete the analysis. However, individual labs may provide larger volume containers for various analytes to ensure sufficient quantities for replicates or other quality control checks.

## 3. Color of Container

Whenever possible, amber glass containers should be used to prevent photodegradation of the sample, except when samples are being collected for metals analysis. If amber containers are not available, containers holding samples should be protected from light. However, 40ml clear glass vials are often provided by laboratories for VOA/aqueous analysis and are acceptable for use.

## 4. Container Closures

Container closures should form a leak-proof seal (i.e., screw caps or ground glass stoppers). Closures must be constructed of a material which is inert with respect to the sampled material, such as PTFE (e.g., Teflon$^R$). Alternately, the closure may be separated from the sample by a closure liner that is inert to the sample material such as PTFE liner or septum.

## 5. Decontamination of Sample Containers and Chain of Custody

Sample containers must be laboratory cleaned, preferably by the laboratory performing the analysis. The cleaning procedure is dictated by the specific analysis to be performed on the sample (see Appendix 2-1 of this Chapter). The sample bottles should be prepared for shipment accompanied by a chain of custody and the cooler or shuttle containing them should be custody sealed. The chain of custody must also accompany the bottles during transportation to the field, sample collection, transportation back to the lab, during analysis and identify final disposal of the sample container. When collecting a sample, sampling personnel should record the seal number associated with each sample shuttle or cooler and record whether the seal was intact upon arrival in the field. This assures that the sample containers were not tampered with in the time between their preparation and their arrival in the field. After sample collection, the bottles again should be sealed into the shuttle or cooler and the seal number should be recorded in the field log book. Upon arrival at the lab, the person receiving the sample should note the number and condition of the custody seal. Refer to Chapter 13, Documentation, for additional information on Chain of Custody.

### 6. Sample Bottle Storage and Transport

No matter where the sample bottles are, whether at the lab waiting to be packed for shipment or in the field waiting to be packed for shipment or in the field waiting to be filled with sample, care must be taken to avoid contamination. Sample shuttles, and clean sampling equipment must never be stored near solvents, gasoline, or other equipment that is a potential source of contamination. When under chain of custody, sample bottles must be secured in locked vehicles, custody sealed in shuttles or in the presence of authorized personnel.

## C. *Decontamination of Sampling Equipment*

An important aspect of quality control is the decontamination of field sampling equipment. Improperly cleaned and prepared sampling equipment can lead to misinterpretation of environmental data due to interference caused by cross-contamination.

The following sampling equipment cleaning procedures (ASTM D-5088-90, "Decontamination of Equipment") are standard requirements of the NJDEP. Also included are procedures for cleaning heavy equipment and disposal of decontamination fluids and drill cuttings. Exception to the following procedures may be evaluated and approved by NJDEP on a case-by-case basis if justifications to do so involving site specific issues or conditions are presented and verified beforehand.

### 1. Laboratory Decontamination

In certain instances laboratory decontamination can serve as a viable alternative to field decontamination when sampling a non-aqueous matrix. Some advantages include: 1.) decontamination takes place in a controlled environment; 2.) reduced need to transport, handle or dispose cleaning solvents, acids or wash water; 3.) more attention can be focused upon sampling with field decontamination labor reduced or eliminated; 4.) reduced probability of cross-contamination due to improperly field decontaminated equipment; and 5.) laboratory documentation of cleaning procedures and materials used. Disadvantages may include: 1.) relative cost to scope of sampling event; 2.) constraints meeting demands in emergency situations; and 3.) logistics.

While the option to sue, or not use, laboratory decontaminated field sampling equipment for non-aqueous sampling and certain aqueous sampling equipment exists (i.e., foot check valves, filtering equipment, stainless steel clamps, automatic wastewater composite samplers), there is no option available when sampling ground water with bailers. GROUND WATER SAMPLING DEVICES are required to be laboratory cleaned, packaged and dedicated for exclusive use at one sample location for that day's sampling (see definition of "laboratory cleaned" in the glossary). Field decontamination of bailers elevates the potential of cross-contamination to unacceptable levels. The possibility of contaminating a clean well is also of concern when using improperly cleaned sampling devices.

It is recommended that extra sampling devices be available on-site in the event problems occur which prohibit the use of a particular instrument. When samples are returned to the laboratory, the bailers are also returned so they can be cleaned and prepared for the next sampling event. It is preferred that the lab performing the analysis be the same lab that prepared the sampling equipment. This cannot always be arranged; therefore, make certain the laboratory analyzing the samples will accept samples collected with field equipment not prepared at their laboratory. Also, the cleaning procedure of the laboratory preparing the sampling equipment must be in accordance with NJDEP requirements. The procedure for laboratory decontamination of dedicated field sampling equipment can be found in Table 2-1.

After this procedure has been completed, the sampling device should be wrapped in cleaned and oven baked aluminum foil (see Chapter 2 footnote #4) or equivalent material and custody sealed for identification. A record should be kept of the date and time and this information should be labeled on the sampling device.

Sampling equipment should remain in the wrapped material until it is used in the field. It should be handled as little as possible prior to use and disposable gloves must be worn at all times when handling cleaned sampling equipment. Sampling equipment must never be stored near solvents, gasoline, exhaust emissions, or other equipment and/or materials that may impact the integrity of prepared sampling instruments.

## 2. Field Decontamination

In the event that laboratory cleaning is not an option or not feasible, a field cleaning procedure must be used in order to reduce the chances of cross-contamination between sample locations. Several criteria are used to judge whether field decontamination procedures are appropriate. These are:

- Large number of sample locations may be scheduled in a one-day sampling event.
- Matrix of sample: Dedicated sampling equipment is always the preferred option for all matrices, however, it may not be practical for soil sampling equipment such as split spoons and hand augers. (Ground water sampling equipment must be laboratory cleaned and dedicated to a sampling point per day of sampling.)

- Episode logistics: It may be impractical to lab clean and dedicate sampling equipment in a short-term emergency situation because of time and administrative constraints.

Selection of a location for a field equipment decontamination station is also important. It should be located away from any on-site source of contamination so as not to adversely impact the decontamination procedure and close enough to the sampling teams to keep equipment handling to a minimum. The decontamination station must also be set up in such a way as to not adversely impact a clean environment.

Utilization of several units of one type of sampler will allow decontamination teams to rotate equipment more effectively. Tables 2-1 and 2-2 detail the procedures for field decontamination of aqueous and non-aqueous sampling equipment respectively.

The decontamination procedures (Tables 2-1 and 2-2) developed by the NJDEP, have the concurrence of USEPA, Region II Monitoring Management Branch and follow ASTM D-5088-90 methods. The first step, a detergent and water wash, is to remove all visible particulate matter and residual oils and grease. (This may be preceded by a steam or high pressure water wash to facilitate residual removal). This is followed by a generous tap water rinse and a distilled and deionized water rinse to remove the detergent. If aqueous sampling is to be performed, the following additional steps must be completed. An acid rinse, included if metals samples are to be collected, provides a low pH media for trace metals removal. It is followed by another distilled and deionized water rinse. If the sample is not to be analyzed for metals, the acid rinse and water rinse can be omitted. Next, a high purity solvent rinse is designated for trace organics removal. Acetone has been chosen because it is an excellent solvent, miscible in water and is not a targeted analyte in Priority Pollutant Analysis. If acetone is know to be a contaminant at a given site or Target Compound List analysis is to be performed, Methanol or another solvent may be substituted on a case by case basis with approval from NJDEP. Note, methanol can not be used when sampling gasoline and its' by products. The solvent must be allowed to evaporate and then a final distilled and deionized water rinse is performed. This rinse removes any residual traces of the solvent.

All equipment utilized for sampling use must be decontaminated using distilled and deionized water. Through distillation, all ionized solids and a broad range of organic constituents will be removed, thus making it an ideal solvent for use when sampling for organic parameters. Deionized water is water that has been effectively freed from any existing ionic impurities. Deionized water should be used when sampling for inorganic parameters. The use of distilled and deionized water, commonly available from commercial vendors, is acceptable provided that the lot number and the associated analysis is available upon request to the NJDEP.

Whenever sampling, regardless of how equipment has been cleaned, always start sampling in the area of the site with the lowest contaminant probability and proceed to the areas of highest known or suspected contamination. Following this procedure will add another measure of quality control keeping cross contamination interference to a minimum.

### 3. Decontamination of Pumps

When submersible pumps are used to evacuate stagnant ground water in the well casing, they must be cleaned and flushed prior to and between each use. This cleaning process consists of an external laboratory grade glassware detergent wash and tap water rinse, or steam cleaning of pump casing, hose and cables followed by a 20 gallon flush of potable water through the pump. This flushing can be accomplished by the use of a clean plastic overpack drum or a plastic garbage can filled with potable water. This must be followed by a distilled and deionized rinse of the outside of the pump. For submersible pumps smaller than four inches in diameter, the recommended number of gallons required for flushing may be proportionately reduced (i.e. three inch - 15 gallons, two inch - 10 gallons).If the evacuation hose is not changed between locations, it must also be decontaminated in the same manner as the pump. Exercise caution to avoid contact with the pump casing and water in the drum while the pump is running (do not use metal drums or garbage cans) to avoid electric shock. Always disconnect the pump from power source before handling. Surface pumps (centrifugal and diaphragm) used for well evacuation need not be cleaned between well locations only if a check valve is used. New ASTM drinking water grade polyethylene tubing must be used for each well and discarded after use. The submersible pump and tubing should always be placed on clean polyethylene sheeting to avoid contact with the ground surface. All tubing must be rinsed/wiped with distilled and deionized water to remove any residual material before entering the well (Refer to ASTM D-5088-90, "Decontamination of Equipment").

### 4. Decontamination of Heavy Equipment

Other equipment and material associated with sampling episodes are required to be cleaned prior to usage. Items such as drill rigs, well casing, auger flights, and backhoes all present potential sources of interference to environmental samples. These items may come in contact with the materials adjacent to the matrix being sampled or may be attached to actual sampling equipment which has been cleaned in accordance with procedures set forth in Table 2-2. Heavy equipment may potentially retain contaminants from other sources such as roadways or storage areas or have soil material from previous job sites that have not been removed. For these reasons it is most important that these items be cleaned prior to usage during a site investigation (Refer to ASTM D-5088-90).

Two options are available to accomplish cleaning of heavy equipment: steam cleaning and manual scrubbing. The use of a stream generator can remove visible debris and has several advantages. Steam generators using potable water provide a high pressure medium which is very effective for residuals removal. They are also efficient in terms of ease of handling and generate low volumes of wash solutions.

Potential disadvantages include the need for a fixed or portable power source and they may not be cost effective for use on small pieces of equipment or for one day sampling events.

A second option involves manual scrubbing of equipment using a laboratory grade glassware detergent solution followed by a thorough water rinse. This procedure can be as effective as steam cleaning or preferred in situations where steam cleaning fails to remove visible materials. Disadvantages to manual scrubbing are that it is labor intensive and it generates large volumes of wash and rinse solutions.

The following requirements for cleaning heavy equipment should be incorporated into Field Sampling - Quality Assurance Project Plans where applicable.

## 5. Decontamination of Backhoes/Drill Rigs

These items should be thoroughly steam cleaned or manually scrubbed upon initial arrival on-site and between drilling or excavation locations. After the initial washing, cleaning may be reduced to those areas that are in close proximity to materials being sampled. The backhoe bucket and extension arm should be cleaned between each individual sample depth and between each test pit excavation. Drill rig items such as auger flights, drill rods, and drill bits must be cleaned between sample locations. Even when Shelby tubes or split spoons are used to collect samples that will <u>not</u> undergo chemical analysis, they must also be steam cleaned or scrubbed between each sample point (Refer to ASTM D-5088-90).

## 6. Decontamination of Monitor Well Casing and Screen

Before installation, field cleaning of well casing must consist of a manual scrubbing to remove foreign material and steam cleaning, inside and out, until all traces of oil and grease are removed. Special attention to threaded joints may be necessary to remove cutting oil or weld burn residues. The casing should then be handled and stored in such a manner so as to prevent cross contamination prior to installation.

## 7. Cleaning Location

It is preferred, given site specific conditions, that cleaning of all heavy equipment take place in one central location on site. A designated area or decontamination pad should be established to conduct all cleaning and provisions for containment of wash solutions must be made. All equipment such as drill rigs, backhoes, and other mobile equipment should receive an initial cleaning prior to use at a site. The frequency of subsequent cleanings while on-site will depend on how the equipment is actually used in relation to taking environmental samples. Unless otherwise specified and approved, all wash/rinse solutions should be collected and contained on-site. The actual fate of this material will be determined after review of analytical data generated from samples and on site discharge impacts have been evaluated.

## 8. Disposal of Drill Cuttings

During the routine course of site investigation, where materials are known (via field instrumentation or observation) or suspected (historic information) to be contaminated, sampling activity (i.e., soil boring or installation of monitoring wells) will produce waste intrinsic to the site. The disposition of this material must be carried out in a manner such as not to contribute further environmental degradation or pose a threat to public health or safety.

This material may be disposed of on-site provided: 1) the surface soils in areas of disposal are known or expected to be contaminated at levels above NJDEP soil standards in effect at that time; 2) the disposed soil/water will not erode/flow either off-site or on-site onto uncontaminated areas; 3) no potential to contaminate an uncontaminated aquifer exists, and; 4) the potential to create a health hazard to adjoining property owners through airborne exposure is non-existent. In addition, the requirements of the New Jersey Pollution Discharge Elimination System (NJPDES) must be followed for discharges to ground or surface waters.

If any of the above conditions cannot be met on-site, the materials must be placed in containers (drums, rolloffs, etc.) and stored in a secure area of the site (fenced or access by unauthorized persons prevented) or transported to a central secured location. The need to perform analyses of the secured material will be determined by NJDEP. The material will be retained for remediation or disposal in accordance with regulations as part of the selected site remedy.

When test pits are utilized for investigation, material excavated may be returned to the hole, but, excavation below the water table is not allowed. Holes produced from soil borings are to be grouted in accordance with NJDEP's Water Monitoring Management Program regulations unless NJDEP determines the material can be returned to the hole. Holes not grouted will be filled with sufficient quantities of material to make up for amount of soil sampled and account for settling thus allowing the hole to return to natural grade.

When materials of a noncontaminated nature are to be disposed of on-site, the following guidelines must be considered: 1.) disposed cuttings, soil or water will not erode or flow off-site; 2) disposed water will not flow through an area of contamination and thereby spread it to a clean area; or 3) NJDEP approves the disposal procedures.

Finally, at off-site (i.e. background) locations where no contamination is expected, the primary consideration is the wish of the property owner. If acceptable to the property owner, drill cuttings and muds from well installation may be raked into adjacent soils. If the property owner requests the uncontaminated material be removed from the site, it is to be properly contained and removed to the site under investigation and disposed of or stored per decision of the NJDEP. If drill cuttings and/or development water are expected to be contaminated, they are to be removed from the off-site location to a secure on-site location and retained for remediation or disposed of per applicable regulations.

## 9. Disposal of Development, Purge, Pump Test and Decon Waters

Similar to drill cuttings, an initial determination whether these waste waters should be considered contaminated should be made by evaluating field instrumentation readings or by previous analytical information. Additional field tests to assist in that determination (e.g. pH, color, other physical or chemical characterizations) must be utilized to the maximum extent possible.

Essentially, water generated that is not considered to be contaminated may be re-applied directly to the ground surface and permitted to percolate back into the groundwater system. Care should be taken, however, to avoid nuisance situations where the discharge may cause undue concern on the part of property owners or the community. In such cases, it is advisable to dispose of the water into a local stormwater or sanitary sewer system, or collect and discharge the water slowly to avoid such a condition. Please note that all discharges to surface water and/or the sanitary sewer are subject to the permit requirements contained in the NJPDES regulations.

Where the water is considered to be contaminated, the water generated may be re-applied to the ground surface provided all the following conditions are met:

1. The water is not permitted to migrate off-site.
2. There is no potential for contaminating a previously uncontaminated aquifer (for example, the discharge will not be permissible if a lower aquifer is being tested and is contaminated while the upper aquifer is not).
3. The discharge will not cause an increase to ground surface soil contamination.

If the above conditions cannot be met, the water shall be collected and secured at a single location (preferably the primary site under investigation). Collected water may be subsequently re-applied to ground surface only if, based on analytical results, there are indications that the above conditions can be met. If not, arrangements for proper disposal must be accomplished prior to the event.

In addition to the above considerations, the requirements of the NJPDES must be followed for all discharge to ground water and stormwater. The NJPDES Program requires the issuance of a permit for these discharges.

It is preferable to complete discharges of development, purge, and decon waters at a single, known contaminated area on-site. This area will be selected by the NJDEP. In cases where such an area cannot be located, as with contaminated well field projects, discharges will occur as close to the well or sampling location as reasonably possible.

## *D. Procedures for Quality Assurance and Quality Control (QA/QC)*

QA/QC samples are intended to provide control over the collection of environmental measurements and subsequent validation, review, and interpretation of generated analytical data. The various types of blank samples currently used by the NJDEP and related QA/QC concerns such as packaging, handling, preparation and actual procurement of samples from field locations are discussed below.

The trip blank is used exclusively for volatile organic analysis (aqueous sampling only) and its purpose is to measure possible cross contamination of samples during shipping to and from the site. The trip blank is never opened and travels to the site <u>with</u> the empty sample bottles and back from the site <u>with</u> the collected samples in an effort to simulate sampling handling conditions. Contaminated trip blanks may also indicate inadequate bottle cleaning or blank water of questionable quality.

The primary purpose of this type of blank is to detect additional sources of contamination that might potentially influence contaminant values reported in actual samples both quantitatively and qualitatively. The following have been identified as potential sources of contamination.

- Laboratory reagent water
- Sample containers
- Cross contamination in shipment, bottle handling and storage
- Ambient air or contact with analytical instrumentation during preparation and analysis at the laboratory
- Laboratory reagents used in analytical procedures

The purpose of a field blank is to place a mechanism of control on sample equipment handling, preparation, storage, and shipment. The field blank travels and is stored with the sample bottles, and is also representative of bottle shipment effects on sample quality. By being opened in the field and transferred over a cleaned sampling device (where applicable), the field blank is indicative of ambient conditions and/or equipment conditions that may potentially affect the quality of the associated samples.

The primary purpose of this type of blank is to provide an additional check on possible sources of contamination beyond that which is intended for trip blanks. A field blank serves a similar purpose as a trip blank regarding blank water quality and sample bottle preparation. However, it is primarily used to indicate potential contamination from ambient air as well as from sampling instruments used to collect and transfer samples from point of collection into sample containers (it may also be referred to as the field rinsate blank).

The following is a breakdown by matrix of blank sample requirements:

### 1. Non-Aqueous Matrix

*a.* ***Field Blanks***

i. Description - The performance of field blanks requires two (2) sets of identical bottles; one set filled with demonstrated analyte free water provided by the laboratory performing the sample analysis, and one empty set of bottles. The bottles should also be identical to those provided for aqueous sample collection. Note: Since field blanks are aqueous, the lab must provide water for volatile analysis in 40 ml septum vials. Although for soil VOA sample collection the lab may provide 4 oz wide mouth bottles. At the field location, in an area suspected to be contaminated, the water is passed from the full set of bottles through the dedicated or field decontaminated sampling device(s) and into the empty set of bottles. This will constitute identical bottle to bottle transfer. Field blanks must be preserved in the same manner as samples and only need to be collected and analyzed for volatile organics when volatile organics constitute a parameter being investigated. On a site specific basis, QA parameter requirements may be amended at the discretion of NJDEP. Note: for logistical purposes it is recommended that the lab provide at least one extra full 40 ml vial to perform the field blank.

ii. Frequency - For sampling events lasting more than one day, field blanks for the non-aqueous matrix should be performed at a rate of 10% of the total number of samples collected throughout the event. If, for example, 40 samples were to be collected over a six day period, then only four field blanks would be required. For one-day sampling events, with the total number of samples collected being less than 10, it is required that one field blank be collected. On a site specific basis, QA frequency requirements may be amended at the discretion of NJDEP. However, it is not necessary to collect more than one field blank per day.

*b.* ***Trip Blanks***

TRIP BLANKS ARE NOT REQUIRED FOR THE NON-AQUEOUS MATRIX unless specifically requested for Special Analytical Services (SAS) by NJDEP.

### 2. Aqueous Matrix

*a.* ***Field Blanks***

i. Description - Same as a.1. above with one exception: Field blanks must be analyzed for all the same parameters as samples collected that day.

ii. Field Blanks are generally not required for potable well sampling events or when a sample is collected directly from a source into a sampling container.

iii. Field Blanks <u>may</u> be required to detect cross contamination from ambient air during potable sampling events if known sources of contamination are within close proximity or monitoring instruments indicate the presence of contamination above background levels.

iv. Frequency - Field blanks for the aqueous matrix must be performed at a rate of one per day.

### *b.* *<u>Trip Blanks</u>*

i. Description - Trip blanks are required for aqueous sampling events. They consist of a set of sample bottles filled at the laboratory with laboratory demonstrated analyte free water. These samples then accompany the bottles that are prepared at the lab into the field and back to the laboratory, along with the collected samples for analysis. These bottles are never opened in the field. Trip blanks must return to the lab with the same set of bottles they accompanied to the field. At a minimum trip blanks must be analyzed for volatile organic parameters. The inclusion of additional parameters or amendments to the requirements for trip blanks and associated samples shall not be held on site for more than two (2) calendar days.

ii. Frequency - Trip blanks must be included at a rate of one per sample shipment (not to exceed two (2) consecutive field days).

## 3. Air Matrix

Trip and field blank procedures and frequencies for the various air sampling methods available should follow the specifications of the individual analytical method utilized. QA sample requirements may be amended at the discretion of NJDEP.

## 4. Blank Water Quality

The demonstrated analyte free water used in the field and trip blanks must originate from one common source and physical location within the laboratory and must be the same as the method blank water used by the laboratory performing the specific analysis. The use of commercially prepared water or water not originating from the laboratory analyzing the samples <u>is not</u> permitted. An exception to this requirement is allowable if:

1. it is the same water used for method blank analysis,.
2. the laboratory has analyzed that water and generated data from a specific batch/lot of containers
3. the blank sample is drawn from an unopened container from the same batch/lot thus documenting the water is free of contaminants (demonstrated analyte free).

The laboratory performing the analysis may be required to provide documentation that trip and field blank water was demonstrated analyte free if contamination is detected in blanks, or at NJDEP's discretion. This would be verified by analytical results of method blanks run by the laboratory on the day of trip and field blank preparation and shipment. This does not, however, change requirements for the analysis of method blanks on the day of sample analysis at the laboratory.

A method blank is blank water which is carried through the entire sample preparation procedure and analysis at the laboratory. It is utilized as a check on laboratory procedures as well as possible contamination from laboratory equipment (i.e. reagents, glassware, etc.). The use of solid method blanks for volatiles and extractable organics is unacceptable to both USEPA, Region II and NJDEP. Method blanks associated with non-aqueous samples should consist of laboratory demonstrated analyte free water (documentation available upon request) which is prepared and analyzed in the same manner as the samples.

## 5. Sample Handling and Holding Times

### *a.* *Handling Time*

Field and trip blank samples must travel with sample containers and must arrive on-site within one day of their preparation in the lab. Blanks and their associated samples may be held on-site for no longer than two calendar days, and must arrive back in the lab within one day of shipment from the field. This constitutes a maximum of a four (4) day handling time. Blanks and all samples must be maintained at 4°C while stored on-site and during shipment. Sample bottles and blanks must be handled in the same manner prior to their return to the laboratory.

The only acceptable exception to handling time requirements is when sampling stormwater runoff. The spontaneity of storm conditions precludes any possibility for preplanning sample bottle shipment. Therefore, due to these obvious logistical constraints, trip and field blanks are not normally required..

While the exception is understandable, the storage of these sample bottles must be carefully controlled to ensure the possibility of cross contamination is kept to an absolute minimum.

### *b.* *Maximum Holding Time*

The clock governing holding times for samples and blanks analyzed by Contract Laboratory Program (CLP) methodologies begins when the sample is received in the laboratory as documented on the lab's chain of custody form verified time of sample receipt (VTSR). Holding times for individual parameters are dictated by the specific analytical method being used. The holding time clock for samples and blanks analyzed by SW-846 or 40 CFR, Parts

136 and 141, begins at the time of sample collection. For NJPDES, the holding times are those cited in 40 CFR 136.3.

## 6. Special Analytical Services (SAS)

It is important to note that both trip and field blanks are only capable of determining that contamination of samples may have occurred from additional sources other than the actual environmental matrix being investigated and cannot identify, but may suggest, possible sources of additional contaminant contribution to the reported analytical values. NJDEP may also implement additional types of QA/QC blanks (Special Analytical Services - SAS) when initial sampling episodes produce blank contamination that cause the generated data to become suspect. SAS has been developed to help identify the specific source(s) of blank contamination in a particular analytical fraction to aid in the assessment of reported analytical values. To date its primary purpose has been to confirm or eliminate laboratory contaminant sources in blank samples.

An example of special analytical services may be the inclusion of additional blank samples that are prepared at the same time and in the same manner as the trip and field blanks, but are designated for placement in laboratory storage areas, sample preparation areas or perhaps at ambient air ventilators or other field locations. These additional blanks are then subject to the same analysis as the samples to determine if location specific cross contamination during handling/storage may be occurring. SAS may also include the use of alternate analytical methodologies for unique, site specific parameters of concern.

## 7. Additional QA/QC Samples

Additional parameter blanks may be required in specific cases. NJDEP may make such a determination during review of the site specific sampling portion of a project plan.

### *a. <u>Duplicate Samples Obtained in the Field</u>*

Collection of duplicate samples provides for the evaluation of the laboratory's performance by comparing analytical results of two samples from the same location. Duplicate samples are to be included for each matrix at a minimum rate of one for every twenty samples (5% of total) and be submitted to the lab as "blind" samples. If less than twenty samples are collected during a particular sampling episode, one duplicate should be performed. Duplicate requirements may be waived or expanded depending on the particular regulatory program or remedial phase involved.

#### i. Aqueous Matrix Duplicates

Duplicates of water samples (potable well, monitor well, surface water) should be obtained by alternately filling sample containers from the same sampling device for each parameter. Samples for volatile organics analysis from monitor wells should be filled from the same bailer full of water whenever possible and be the first set of containers filled. When other sampling devices are used, the vials for volatile organics should be alternately filled. If heterogeneity is suspected, separate samples of each phase should be collected as the nature of phased liquids precludes homogenization. It is generally not necessary to homogenize groundwater or surface water samples.

ii. Non-Aqueous Matrix Duplicates

Obtaining duplicate samples in a soil or sediment matrix requires homogenization of the sample aliquot prior to filling sample containers. Regardless, volatile organic samples must always be taken from discrete locations or intervals without compositing or mixing. This practice is necessary to prevent loss of volatile constituents and to preserve, to the extent practicable, the physical integrity of the volatile fraction (see Chapter 7. "Sample Collection", Section B. "Soils" for further information on the procedures for collecting volatile organics). Homogenization of the sample for remaining parameters is necessary to generate two equally representative samples. Note that enough samples must be collected at one time in order to fill all the necessary sample containers. It may be necessary to co-locate or depth integrate collection so enough sample volume is available. A description of this process should be provided in the sampling plan. Moisture content, particle size, and adsorption properties of various oils, sediments, and waste materials may inhibit the ability to achieve complete mixing prior to filling sample containers.

Homogenization should be accomplished by filling a properly decontaminated stainless steel tray or bowl with the sample and mixing it with a decontaminated stainless steel or Teflon$^R$ instrument. The extent of mixing required will depend on the nature of the sample and should be done to achieve a consistent physical appearance prior to filling sample containers.

Once mixing is completed the sample should be divided in half and containers should be filled by scooping sample material alternately from each half.

Several laboratory methodologies for compositing samples published by the American Society for Testing and Materials (ASTM) have been suggested for use in the field; however, they were not specifically designed for homogenization of known or suspected hazardous materials and often must be "modified" to be useful. They tend to assume a uniform sample exists to begin with and their intent may be to calculate average grain size, predict weight to volume ratios, or to reduce the size of a sample to one more convenient for handling and analysis. They also tend to assume a much larger volume of material will be subject to the particular methodology. Therefore, these methods are not recommended for generating duplicate samples in the field.

### *b. Splitting Samples with Responsible Parties*

When various sites are under investigation, property owners and other interested parties may desire to obtain samples for analysis which are duplicates of those obtained by NJDEP personnel or contractors. If this becomes necessary, procedures for obtaining duplicate samples described above should be followed.

In order to maintain the integrity of any sample "split" between interested parties, the following procedures shall be followed:

i. Personnel authorized by NJDEP (e.g. contractors or treatment facilities) using approved NJDEP sampling methods shall be permitted to obtain all sample aliquots.

ii. Other interested parties must provide their own sample containers, blank samples, preservatives, sample shuttles, chain of custody forms, etc.

iii. Sampling procedures shall be witnessed by NJDEP personnel to verify consistent handling and packaging of each set of samples.

iv. Analytical data generated by responsible parties which is submitted for purposes of challenging NJDEP results or for informational purposes only shall first be subject to standard NJDEP "Quality Assurance Data an Validation of Analytical Sample Deliverables" procedures prior to being evaluated and considered for inclusion in the site evaluation process.

v. Duplicate samples, trip blanks and field blanks must be included as part of those samples which are split between the two or more parties involved..

vi. All interested parties desiring to obtain split samples during planned sampling episodes must provide the Department with a minimum of two weeks notice. This is essential for planning purposes and to avoid confusion or delays in the field.

### *c. Performance Evaluation Samples (PE)*

In certain instances when a laboratory's quality assurance performance is in question, splitting samples may not prove as useful as providing blind performance evaluation samples to a laboratory since analytical performance and accuracy differs from laboratory to laboratory. One laboratory cannot be considered a "referee" whose performance can be considered the standard against which another's can be measured. Performance evaluation samples provide information on a laboratory's performance based upon analysis of that sample which contains parameters of a known and defined concentration. Therefore, at the discretion of NJDEP, PE samples may be required as a QA/QC check on laboratory performance for a particular sampling event or site investigation.

PE samples can be employed in two ways. First, the PE sample can be used to pre-qualify a laboratory. Since the current NJDEP Laboratory Certification procedures apply only to aqueous samples, a soil PE sample is useful in pre-qualifying a laboratory for soil or sediment evaluation projects. Second, a PE sample submitted blind with a sample lot to a contract laboratory is an available method for evaluating the quality of the analytical data.

PE samples consist of pre-measured, pre-determined samples of known origin and concentration which are submitted for analysis along with a sample shipment from the field. The PE samples are provided by NJDEP, and the contractor is responsible for their delivery to the laboratory performing the analysis along with other samples submitted for analysis that day. Data generated from the analysis of a PE sample is then compared to known concentrations as a measure of laboratory performance. Deviations from known concentrations may indicate improper calibration or other laboratory error that may have influenced the results reported for those samples collected in the field.

NJDEP maintains a bank of PE samples that may be drawn upon for individual sampling events. Dioxin PE samples are the most frequently utilized. Others include PCBs, BNAs, VOAs and Pesticides in soil Metals in sediment; and EPA prepared PE samples in an aqueous matrix. The particular concentration and species as well as assigned code numbers remain confidential until data is reviewed and validated.

### *d.* *Matrix Spike/Matrix Spike Duplicate Analyses*

When performing Contract Laboratory Program (CLP) organic extractable analysis, the laboratory must be supplied with triple sample volume for each Sample Delivery Group (SDG) in order to perform matrix spike and matrix spike duplicate analyses. This does not include field or trip blanks. Blanks do not require separate matrix spike or duplicate analyses regardless of their matrix.

As stated in the CLP Statement of Work (SOW), the limits on an SDG are:

- each case of field samples, or
- each 20 field samples within a Case, or
- each 14 calendar day period during which field samples in a Case are received (said period beginning with the receipt of the first sample in the SDG), whichever comes first.

### *e.* *Background Samples*

When background samples are required for comparison of site conditions to the surrounding environment they should be collected and handled in the same manner as all other samples. Requirements for inclusion of background samples are determined on a program specific and/or case by case basis.

### *f.* *Dioxin and Furans (PCDDS/PCDFs)*

When dioxin or dioxin/furan sampling is performed, quality control samples may be required to accompany environmental samples regardless of the laboratory's status in the Contract Laboratory Program.

The quality control requirements for:

- each case of field samples received or
- each 20 field samples within a Case or
- each 14 calendar day period during which field samples in a case are received (beginning with the receipt of the first sample),

whichever is the most frequent, are usually defined by the method of analysis chosen.

The NJDEP reserves the right to choose one or more of the following quality control samples for incorporation into a sampling event. The quality control samples may be fortified field blanks, field duplicates, matrix spike/matrix spike duplicates, a fortified sample for each matrix, and/or a Performance Evaluation sample (PE).

A PE sample may be:

- a sample obtained by the NJDEP from the Environmental Measurement Soil Laboratory - Las Vegas (EMSL - LV) fortified with a known amount of native 2,3,7,8-substituted PCDDs/PCDFs or other PCDD/PCDF congeners (concentration unknown to the laboratory) or
- an uncontaminated sample obtained by the NJDEP from EMSL - LV which is to be analyzed by the laboratory for the appropriate PCDDs/PCDFs (concentration unknown to the laboratory) or
- a known blank obtained by the NJDEP from EMSL - LV that is to be fortified with a known amount of native material (Typically, a resultant concentration of 1 ug/Kg is used for soils/sediments and 10 ng/L is used for water).1

## *E.* *Sample Preservation Requirements*

Certain analytical methodologies for specific analytes require chemical additives in order to stabilize and maintain sample integrity. Generally this is accomplished under two scenarios:

- Preservative may be added to the sampling bottles by the laboratory prior to shipment into the field or,
- Preservatives are added in the field immediately after the samples are collected.

Many laboratories provide pre-preserved bottles as a matter of convenience and to help ensure that samples will be preserved immediately upon collection. A problem associated with this method arises if not enough sample is collected, resulting in too much preservative

# TABLE 2-1 AQUEOUS SAMPLING EQUIPMENT DECONTAMINATION (LABORATORY AND FIELD)

A. All field sampling equipment must be laboratory cleaned, wrapped, and dedicated to a particular sampling point or location during a sampling episode. In instances where this is not feasible, permission for field cleaning must be obtained from the NJDEP prior to the collection of any samples and be referenced in the approved site specific field sampling quality assurance project plan.

B. The field sampling equipment cleaning and decontamination procedures are as follows:

1. Laboratory grade glassware detergent plus tap water wash
2. Generous tap water rinse
3. Distilled and deionized (ASTM Type II) water rinse
4. 10% nitric acid rinse* (trace metal or higher grade HNO3 diluted with Distilled and deionized (ASTM Type II) $H_2O$)
5. Distilled and deionized (ASTM Type II) water rinse*
6. Acetone (pesticide grade) rinse**
7. Total air dry or pure nitrogen blow out**
8. Distilled and deionized (ASTM Type II) water rinse**

* Only if sample is to be analyzed for metals.
** Only if sample is to be analyzed for organics.

C. Wherever possible, sampling devices should be numbered in a manner that will not affect their integrity and wrapped in a material (e.g., aluminum foil) that has been cleaned and oven baked at 105° C or cleaned or cleaned in the same manner as the equipment (see footnote #4, Appendix 2-1). Equipment should be custody sealed and information concerning decontamination methodology, date, time, and personnel should be recorded in the field log book.

D. The use of distilled and deionized water commonly available from commercial vendors may be acceptable for sampling equipment decontamination. NJDEP may require specific lot numbers from containers or analytical verification that the distilled and deionized water meets ASTM Type II specifications.

E. Hexane is not a necessary solvent for dioxin, PCB, or other chlorinated organic sampling. The cleaning procedure outlined above is adequate for all sampling episodes.

F. In those instances where acetone is a parameter of concern, another solvent may be used.

G. Decontamination should be carried out over a container and the material properly disposed off-site. Decontamination wastes must be disposed of properly.

# TABLE 2-2 NON-AQUEOUS SAMPLING EQUIPMENT DECONTAMINATION

(Laboratory and Field)

A. While it is preferred that all non-aqueous field sampling equipment be laboratory cleaned, wrapped, and dedicated to a particular sampling point or location during a sampling episode, field cleaning may be more practical.

B. The field sampling equipment cleaning and decontamination procedures are as follows:

1. Laboratory grade glassware detergent and tap water scrub to remove visual contamination
2. Generous tap water rinse
3. Distilled and deionized (ASTM Type II) water rinse

<u>**NOTE**</u>: If visual contamination persists, or gross contamination is suspected, the full eight step decontamination procedure found in Table 2-1 is recommended.

C. Wherever possible, sampling devices should be numbered in a manner that will not affect their integrity and wrapped in material (e.g., aluminum foil) that has been cleaned and oven baked at 105°C or cleaned in the same manner as the equipment (see footnote #4), Appendix 2-1). Equipment should be custody sealed and information concerning decontamination methodology, date, time, and personnel should be recorded in the field log book.

D. The use of distilled and deionized water commonly available from commercial vendors may be acceptable for sampling equipment decontamination. NJDEP may require specific lot numbers from containers or analytical verification that the distilled and deionized water meets ASTM Type II specifications.

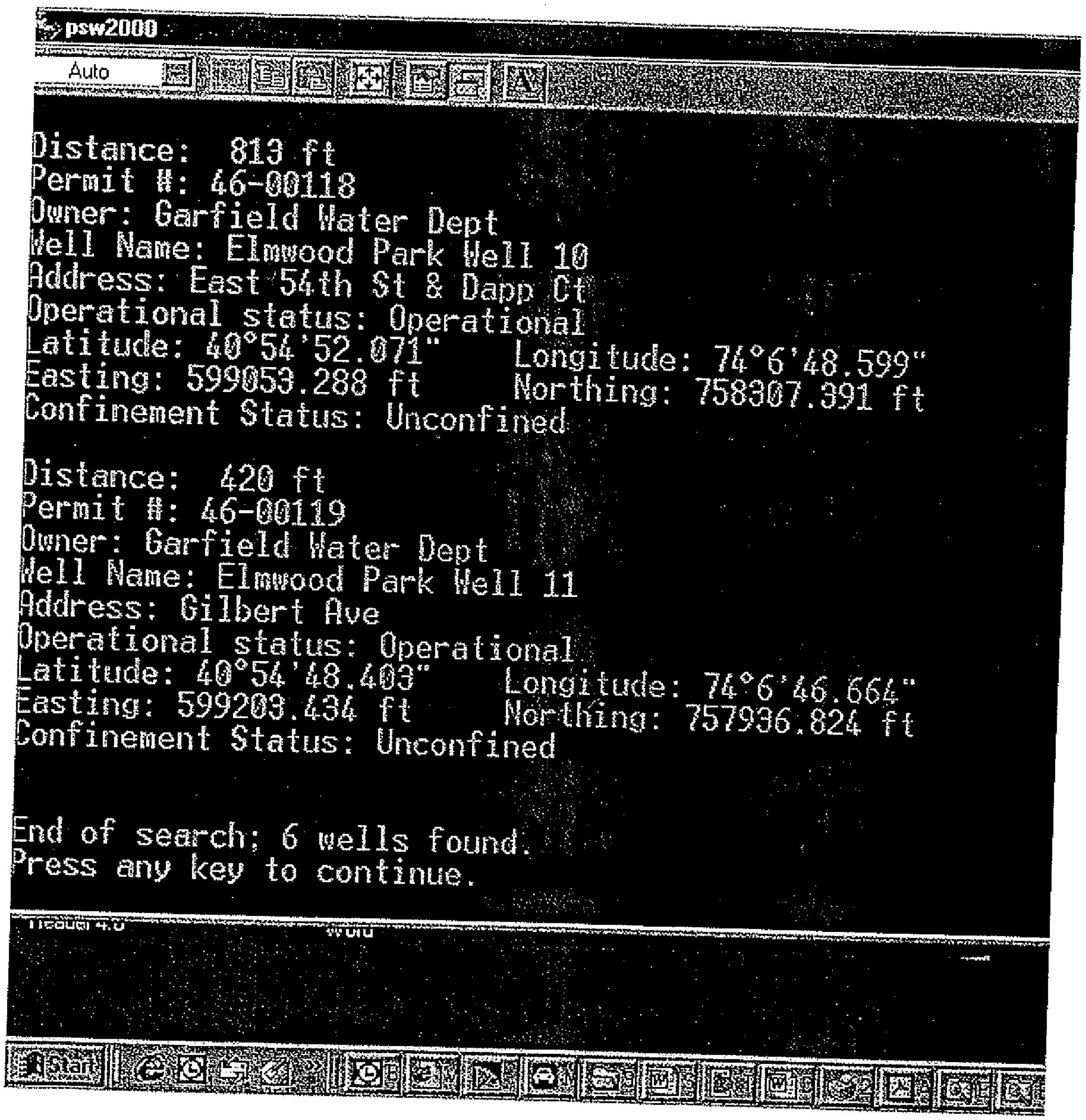
E. Decontamination should be carried out over a container and the residual liquid material must be properly disposed. Decontamination wastes must be disposed in accordance with current NJDEP policy (see Chapter 2, Section C.9).

F. When analysis for metals is required, it may be necessary to use carbon steel split spoon sampling devices instead of stainless steel. If this is the case and it is necessary to utilize the acid rinse for removal of visible contamination, the nitric acid rinse may be lowered to a concentration of 1% instead of 10% so as to reduce the possibility of leaching metals from the spoon itself.

**BRENNAN ENVIRONMENTAL, INC.**
ENVIRONMENTAL CONSULTING SERVICES

# APPENDIX 7

## PSW 2000



```
Distance:  813 ft
Permit #: 46-00118
Owner: Garfield Water Dept
Well Name: Elmwood Park Well 10
Address: East 54th St & Dapp Ct
Operational status: Operational
Latitude: 40°54'52.071"     Longitude: 74°6'48.599"
Easting: 599053.288 ft      Northing: 758307.391 ft
Confinement Status: Unconfined

Distance:  420 ft
Permit #: 46-00119
Owner: Garfield Water Dept
Well Name: Elmwood Park Well 11
Address: Gilbert Ave
Operational status: Operational
Latitude: 40°54'48.403"     Longitude: 74°6'46.664"
Easting: 599203.434 ft      Northing: 757936.824 ft
Confinement Status: Unconfined


End of search; 6 wells found.
Press any key to continue.
```

**BRENNAN ENVIRONMENTAL, INC.**
ENVIRONMENTAL CONSULTING SERVICES

# APPENDIX 8

## Laboratory Analytical Data Report

Integrated Analytical Labs

**Integrated Analytical Laboratories, LLC.**

273 Franklin Road
Randolph, N.J. 07869

Phone: 973 361-4252
Fax: 973 989-5288

# ANALYTICAL DATA REPORT

for
Brennan Environmental, Inc.
8 Great Meadow Lane
Unit D
East Hanover,NJ 07936

Project: 99704 FINETEX
Lab Case Number: E01-7040
Date Report Prepared: October 17, 2001

| CLIENT SAMPLE ID | LABORATORY SAMPLE ID |
|---|---|
| 5-S1 | 7040-001 |
| 5-S2 | 7040-002 |
| 5-S3 | 7040-003 |
| 6-S1 | 7040-004 |
| 6-S2 | 7040-005 |
| 6-P1 | 7040-006 |
| TB | 7040-007 |
| 5-P1 | 7040-008 |

All required protocols were followed during analyses. These data have been reviewed and accepted by

Michael Leftin RR
Michael H. Leftin, Ph.D.
Laboratory Director

**The liability of Integrated Analytical Laboratories, LLC. is limited to the actual cost of the analyses performed.**

nelac

**IAL is a NELAC Certified Lab # 14751 and maintains certification in Connecticut # PH-0699, New York # 11402 and Florida # E87670**

# INTEGRATED ANALYTICAL LABORATORIES, LLC.

## TABLE OF CONTENTS

# INTEGRATED ANALYTICAL LABORATORIES, LLC.

## MATRIX QUALIFIERS

A - Indicates the sample is an Aqueous matrix.

O - Indicates the sample is an Oil matrix.

S - Indicates the sample is a Soil, Sludge or Sediment matrix.

X - Indicates the sample is an Other matrix as indicated by Client Chain of Custody.

## DATA QUALIFIERS

B - Indicates the analyte was found in the Blank and in the sample. It indicates possible sample contamination and warns the data user to use caution when applying the results of the analyte.

C - Common Laboratory Contaminant.

D - The compound was reported from the Diluted analysis.

D.F. - Dilution Factor.

E - Estimated concentration, reported results are outside the calibrated range of the instrument.

J - Indicates an estimated value. The compound was detected at a value below the method detection limit but greater than zero. For GC/MS procedures, the mass spectral data meets the criteria required to identify the target compound.

MDL - Method Detection Limit.

MI - Indicates compound concentration could not be determined due to Matrix Interferences.

NA - Not Applicable.

ND - Indicates the compound was analyzed for but Not Detected at the MDL.

## REPORT QUALIFIERS

All solid sample analyses are reported on a dry weight basis.

All solid sample values are corrected for original sample size and percent solids.

# INTEGRATED ANALYTICAL LABORATORIES, LLC.

## CONFORMANCE / NONCONFORMANCE SUMMARY

Integrated Analytical Laboratories, LLC. received eight (8) soil sample(s) from Brennan Environmental, Inc. (Project: 99704 FINETEX) on October 11, 2001 for the analysis of:

(1) Volatiles + 10
(1) Volatiles
(7) Total Petroleum Hydrocarbons

A review of the QA/QC measures for the analysis of the sample(s) contained in this report has been performed by:

Reviewed by

10/17/01
Date

## INTEGRATED ANALYTICAL LABORATORIES, LLC.

## LABORATORY DELIVERABLES CHECK LIST

Lab Case Number: E01-7040

| | | Check If Complete |
|---|---|---|
| 1. | Cover Page, Title Page listing Lab Certification #, facility name & address and date of report preparation. | ✓ |
| 2. | Table of Contents. | ✓ |
| 3. | Summary Sheets listing analytical results for all targeted and non-targeted compounds. | ✓ |
| 4. | Summary Table cross-referencing Field ID's vs. Lab ID's. | ✓ |
| 5. | Document bound, paginated and legible. | ✓ |
| 6. | Chain of Custody. | ✓ |
| 7. | Methodology Summary. | ✓ |
| 8. | Laboratory Chronicle and Holding Time Check. | ✓ |
| 9. | Results submitted on a dry weight basis (if applicable). | ✓ |
| 10. | Method Detection Limits. | ✓ |
| 11. | Lab certified by NJDEP for parameters or appropriate category of parameters or a member of the USEPA CLP. | ✓ |
| 12. | NonConformance Summary. | ✓ |

QC Reviewed by

6/17/07
Date

# INTEGRATED ANALYTICAL LABORATORIES
# CONFORMANCE/NONCONFORMANCE SUMMARY
# GC/MS VOLATILE ANALYSIS

Lab Case Number: E01 - 2040

| | No | Yes |
|---|---|---|
| 1. Chromatograms Labeled/Compounds Identified (Field Samples and Method Blanks). | | ✓ |
| 2. GC/MS Tuning Specifications:<br>a. BFB Passed | | ✓ |
| 3. GC/MS Tuning Frequency - Performed every 24 hours for 600 series, 12 hours for 8000 series and 8 hours for 500 series. | | ✓ |
| 4. GC/MS Calibration - Initial calibration performed within 30 days before sample analysis and continuing calibration performed within 24 hours before sample analysis for 600 series, 12 hours for 8000 series | | ✓ |
| 5. GC/MS Calibration Requirements: | | |
| a. Calibration Check Compounds | | ✓ |
| b. System Performance Check Compounds | | ✓ |
| 6. Blank Contamination - If yes, list compounds and concentrations in each blank: | ✓ | |
| 7. Surrogate Recoveries Meet Criteria (If not met, list those compounds and their recoveries which fall outside the acceptable range) | | ✓ |
| If not met, were the calculations checked and the results qualified as "estimated"? | | na |
| 8. Matrix Spike/Matrix Spike Duplicate meet criteria (if not, list those compounds and their recoveries/% differences which fall outside the acceptable range) | | ✓ |
| 9. Internal Standard Area/Retention Time Shift meet criteria | | ✓ |
| 10. Extraction Holding Time Met<br>If not met, list number of days exceeded for each sample: | | n/a |
| 11. Analysis Holding Time Met<br>If not met, list number of days exceeded for each sample: | | ✓ |
| 12. Sample Dilution Performed | ✓ | |

| High Target Compounds | High Nontarget Compounds | Matrix Interference | Other |
|---|---|---|---|
| ☐ | ☐ | ☐ | ☐ |

13. Comments:

Organics Manager

Date 10/19/01

rev 12/00

# INTEGRATED ANALYTICAL LABORATORIES

## PHC ANALYSIS CONFORMANCE/NONCONFORMANCE SUMMARY

Lab Case Number: E01 - 7040

| | No | Yes |
|---|---|---|
| 1. Blank contamination<br>If yes, list the sample and the concentration in each blank: | ✓ | |
| 2. Matrix Spike/Matrix Spike Duplicate Recoveries Meet Criteria (If not met, list the samples and corresponding recovery which falls outside the acceptable range) | | ✓ |
| 3. IR spectra submitted for all standards, blanks & samples (as required). | | ✓ |
| 4. Chromatograms submitted for all standards, blanks & samples if GC fingerprinting was conducted. | | NA |
| 5. Extraction Holding Time Met<br>If not met, list number of days exceeded for each sample: | | ✓ |
| 6. Analysis Holding Time Met<br>If not met, list number of days exceeded for each sample: | | ✓ |

Additional Comments:

Dept. Supervisor

10/15/01
Date

0005

INTEGRATED ANALYTICAL LABORATORIES, LLC.

## SUMMARY REPORT

Client: Brennan Environmental, Inc.
Project: 99704 FINETEX
Lab Case No.: E01-7040

| Lab ID: | 7040-001 | | | 7040-002 | | | 7040-003 | | | 7040-004 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | 5-S1 | | | 5-S2 | | | 5-S3 | | | 6-S1 | | |
| Matrix: | Soil | | | Soil | | | Soil | | | Soil | | |
| Sampled Date: | 10/11/2001 | | | 10/11/2001 | | | 10/11/2001 | | | 10/11/2001 | | |
| PARAMETER(Units) | Conc | Q | MDL | Conc | Q | MDL | Conc | Q | MDL | Conc | Q | MDL |
| General Analytical | | | | | | | | | | | | |
| Total Petroleum Hydrocarbons (ppm) | 516 | | 25.0 | ND | | 25.0 | ND | | 25.0 | 168 | | 25.0 |

| Lab ID: | 7040-005 | | | 7040-006 | | | 7040-007 | | | 7040-008 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | 6-S2 | | | 6-P1 | | | TB | | | 5-P1 | | |
| Matrix: | Soil | | | Soil | | | Soil | | | Soil | | |
| Sampled Date: | 10/11/2001 | | | 10/11/2001 | | | 10/11/2001 | | | 10/11/2001 | | |
| PARAMETER(Units) | Conc | Q | MDL | Conc | Q | MDL | Conc | Q | MDL | Conc | Q | MDL |
| Volatiles (ppb) | | | | | | | | | | | | |
| Total Xylenes | 863 | J | 1560 | ~ | | ~ | ND | | 625 | ~ | | ~ |
| TOTAL VO's: | 863 | J | | ~ | | | ND | | | ~ | | |
| TOTAL TIC's: | 21070 | | | ~ | | ~ | ~ | | | ~ | | ~ |
| TOTAL VO's & TIC's: | 21933 | J | | ~ | | ~ | NA | | | ~ | | ~ |
| General Analytical | | | | | | | | | | | | |
| Total Petroleum Hydrocarbons (ppm) | 3820 | | 119 | 170 | | 25.0 | ~ | | ~ | ND | | 25.0 |

~ = Sample not analyzed for
ND = Analyzed for but Not Detected at the MDL
J = The concentration was detected at a value below the MDL
All qualifiers on individual Volatiles are carried down through summation.

# INTEGRATED ANALYTICAL LABORATORIES

## VOLATILE ORGANICS

Client/Project: BRENNAN/99704 FINETEX

| | |
|---|---|
| Lab ID: 7040-005 | GC/MS Column: DB-624 |
| Client ID: 6-S2 | Sample wt/vol: 0.019g |
| Date Received: 10/11/2001 | Matrix-Units: Soil-$\mu$g/Kg (ppb) |
| Date Analyzed: 10/17/2001 | Dilution Factor: 2 |
| Data file: I1953.D | % Moisture: 15.8 |

| Compound | Concentration | Q | MDL |
|---|---|---|---|
| Chloromethane | ND | | 1560 |
| Vinyl Chloride | ND | | 1560 |
| Bromomethane | ND | | 1560 |
| Chloroethane | ND | | 1560 |
| Trichlorofluoromethane | ND | | 1560 |
| Acrolein | ND | | 3130 |
| 1,1-Dichloroethene | ND | | 1560 |
| Methylene Chloride | ND | | 1560 |
| Acrylonitrile | ND | | 3130 |
| trans-1,2-Dichloroethene | ND | | 1560 |
| 1,1-Dichloroethane | ND | | 1560 |
| Chloroform | ND | | 1560 |
| 1,1,1-Trichloroethane | ND | | 1560 |
| Carbon Tetrachloride | ND | | 1560 |
| 1,2-Dichloroethane(EDC) | ND | | 1560 |
| Benzene | ND | | 1560 |
| Trichloroethene | ND | | 1560 |
| 1,2-Dichloropropane | ND | | 1560 |
| Bromodichloromethane | ND | | 1560 |
| 2-Chloroethylvinyl Ether | ND | | 1560 |
| cis-1,3-Dichloropropene | ND | | 1560 |
| Toluene | ND | | 1560 |
| trans-1,3-Dichloropropene | ND | | 1560 |
| 1,1,2-Trichloroethane | ND | | 1560 |
| Tetrachloroethene | ND | | 1560 |
| Dibromochloromethane | ND | | 1560 |
| Chlorobenzene | ND | | 1560 |
| Ethylbenzene | ND | | 1560 |
| Total Xylenes | 863 | J | 1560 |
| Bromoform | ND | | 1560 |
| 1,1,2,2-Tetrachloroethane | ND | | 1560 |
| 1,3-Dichlorobenzene | ND | | 1560 |
| 1,4-Dichlorobenzene | ND | | 1560 |
| 1,2-Dichlorobenzene | ND | | 1560 |

Total Target Compounds: 863 J

# INTEGRATED ANALYTICAL LABORATORIES

## VOLATILE ORGANICS
### Tentatively Identified Compounds

Client/Project: BRENNAN/99704 FINETEX

| | |
|---|---|
| Lab ID: 7040-005 | GC/MS Column: DB-624 |
| Client ID: 6-S2 | Sample wt/vol: 0.019g |
| Date Received: 10/11/2001 | Matrix-Units: Soil-$\mu$g/Kg (ppb) |
| Date Analyzed: 10/17/2001 | Dilution Factor: 2 |
| Date File: I1953.D | % Moisture: 15.8 |

| CAS # | Compound | Estimated Concentration | Retention Time |
|---|---|---|---|
| | Unknown alkane | 5500 | 18.76 |
| | Unknown alkane | 1660 | 19.31 |
| | Substituted benzene | 1880 | 19.44 |
| 001120-21-4 | Undecane | 6910 | 20.96 |
| | Unknown cyclic hydrocarbon | 1840 | 22.10 |
| 000112-40-3 | Dodecane | 3280 | 23.01 |

Total TICs = 21070

# INTEGRATED ANALYTICAL LABORATORIES

## VOLATILE ORGANICS

Client/Project: BRENNAN/99704 FINETEX

Lab ID: 7040-007
Client ID: TB
Date Received: 10/11/2001
Date Analyzed: 10/17/2001
Data file: I1950.D

GC/MS Column: DB-624
Sample wt/vol: 0.040g
Matrix-Units: Soil-μg/Kg (ppb)
Dilution Factor: 1
% Moisture: 0

| Compound | Concentration | Q | MDL |
|---|---|---|---|
| Chloromethane | ND | | 625 |
| Vinyl Chloride | ND | | 625 |
| Bromomethane | ND | | 625 |
| Chloroethane | ND | | 625 |
| Trichlorofluoromethane | ND | | 625 |
| Acrolein | ND | | 1250 |
| 1,1-Dichloroethene | ND | | 625 |
| Methylene Chloride | ND | | 625 |
| Acrylonitrile | ND | | 1250 |
| trans-1,2-Dichloroethene | ND | | 625 |
| 1,1-Dichloroethane | ND | | 625 |
| Chloroform | ND | | 625 |
| 1,1,1-Trichloroethane | ND | | 625 |
| Carbon Tetrachloride | ND | | 625 |
| 1,2-Dichloroethane(EDC) | ND | | 625 |
| Benzene | ND | | 625 |
| Trichloroethene | ND | | 625 |
| 1,2-Dichloropropane | ND | | 625 |
| Bromodichloromethane | ND | | 625 |
| 2-Chloroethylvinyl Ether | ND | | 625 |
| cis-1,3-Dichloropropene | ND | | 625 |
| Toluene | ND | | 625 |
| trans-1,3-Dichloropropene | ND | | 625 |
| 1,1,2-Trichloroethane | ND | | 625 |
| Tetrachloroethene | ND | | 625 |
| Dibromochloromethane | ND | | 625 |
| Chlorobenzene | ND | | 625 |
| Ethylbenzene | ND | | 625 |
| Total Xylenes | ND | | 625 |
| Bromoform | ND | | 625 |
| 1,1,2,2-Tetrachloroethane | ND | | 625 |
| 1,3-Dichlorobenzene | ND | | 625 |
| 1,4-Dichlorobenzene | ND | | 625 |
| 1,2-Dichlorobenzene | ND | | 625 |

Total Target Compounds: 0

# INTEGRATED ANALYTICAL LABORATORIES, LLC.

## TOTAL PETROLEUM HYDROCARBONS

Client/Project: BRENNAN/99704 FINETEX

Date Received: 10/11/01

| Lab ID | Client ID | Result | Q | DF | Matrix-Units | MDL | % Solid | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| 7040-001 | 5-S1 | 516 | | 1 | Soil-mg/kg | 25.0 | 84.9 | 10/15/2001 |
| 7040-002 | 5-S2 | ND | | 1 | Soil-mg/kg | 25.0 | 82.3 | 10/15/2001 |
| 7040-003 | 5-S3 | ND | | 1 | Soil-mg/kg | 25.0 | 81.3 | 10/15/2001 |
| 7040-004 | 6-S1 | 168 | | 1 | Soil-mg/kg | 25.0 | 84.8 | 10/15/2001 |
| 7040-005 | 6-S2 | 3820 | | 5 | Soil-mg/kg | 119 | 84.2 | 10/15/2001 |
| 7040-006 | 6-P1 | 170 | | 1 | Soil-mg/kg | 25.0 | 85.4 | 10/15/2001 |
| 7040-008 | 5-P1 | ND | | 1 | Soil-mg/kg | 25.0 | 88.5 | 10/15/2001 |

## METHODOLOGY SUMMARY

| Analytical Parameter | Aqueous Samples Method # | Soil/Other Samples Method # |
|---|---|---|
| Volatiles | NA | EPA 8260B |
| Total Petroleum Hydrocarbons | NA | EPA 418.1 M |

# VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

Lab File ID: I1746.D

BFB Injection Date: 10/10/2001

Inst ID: MSD_I

BFB Injection Time: 9:22

| m/z | Ion Abudance Criteria | %Relative Abundance | |
|---|---|---|---|
| 50 | 15 - 40.0% of mass 95 | 31.5 | |
| 75 | 30.0 - 60.0% of mass 95 | 57.3 | |
| 95 | Base peak, 100% relative abundance | 100.0 | |
| 96 | 5.0 - 9.0% of mass 95 | 6.4 | |
| 173 | Less than 2.0% of mass 174 | 0.0 | ( 0.0 )1 |
| 174 | Great than 50.0% of mass 95 | 69.3 | |
| 175 | 5.0 - 9.0% of mass 174 | 5.9 | ( 8.5 )1 |
| 176 | 95.0 - 101.0% of mass 174 | 68.7 | ( 99.1 )1 |
| 177 | 5.0 - 9.0% of mass 176 | 4.5 | ( 6.5 )2 |

1-Value is % mass 174 2-Value is % mass 176

This check applies to the following SAMPLES, MS, MSD, BLANKS and STANDARDS:

| Client ID | Lab Sample ID | File ID | Date Analyzed | Time Analyzed |
|---|---|---|---|---|
| 100 | 100_PPB_STD | I1747.D | 10/10/2001 | 9:34 |
| 200 | 200_PPB_STD | I1748.D | 10/10/2001 | 10:08 |
| 150 | 150_PPB_STD | I1749.D | 10/10/2001 | 10:48 |
| 50 | 50_PPB_STD | I1750.D | 10/10/2001 | 11:22 |
| 20 | 20_PPB_STD | I1751.D | 10/10/2001 | 12:01 |
| N/A | METHOD_BLK | I1752.D | 10/10/2001 | 12:34 |
| LCS | BLK_SPK | I1753.D | 10/10/2001 | 13:07 |
| TB | 6805-017 | I1754.D | 10/10/2001 | 13:41 |
| 9B-2-V_3-3.5' | 6805-002 | I1755.D | 10/10/2001 | 14:14 |
| 9B-2-VB_15.5-16' | 6805-003 | I1756.D | 10/10/2001 | 14:48 |
| 9B-3-V_1.5-2' | 6805-005 | I1757.D | 10/10/2001 | 15:22 |
| 9B-4_0-0.5' | 6805-006 | I1758.D | 10/10/2001 | 15:56 |
| 9B-4-B_19.5-20' | 6805-007 | I1759.D | 10/10/2001 | 16:29 |
| 9B-5-V_8.5-9' | 6805-009 | I1760.D | 10/10/2001 | 17:03 |
| 9B-5B_11.5-12' | 6805-010 | I1761.D | 10/10/2001 | 17:36 |
| 9B-1-V_9-9.5' | 6805-012 | I1762.D | 10/10/2001 | 18:10 |
| 9B-1-B_13.5-14' | 6805-013 | I1763.D | 10/10/2001 | 18:43 |
| 9B-6-V_8.5-9' | 6805-015 | I1764.D | 10/10/2001 | 19:17 |
| 9B-6-B_11.5-12' | 6805-016 | I1765.D | 10/10/2001 | 19:50 |
| MS | 6805-016MS | I1766.D | 10/10/2001 | 20:24 |

# VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

Lab File ID: I1746.D BFB Injection Date : 10/10/200

Inst ID: MSD I BFB Injection Time: 9:22

| m/z | Ion Abudance Criteria | %Relative Abundance | | | |
|---|---|---|---|---|---|
| 50 | 15 - 40.0% of mass 95 | 31.5 | | | |
| 75 | 30.0 - 60.0% of mass 95 | 57.3 | | | |
| 95 | Base peak, 100% relative abundance | 100.0 | | | |
| 96 | 5.0 - 9.0% of mass 95 | 6.4 | | | |
| 173 | Less than 2.0% of mass 174 | 0.0 | ( | 0.0 | )1 |
| 174 | Great than 50.0% of mass 95 | 69.3 | | | |
| 175 | 5.0 - 9.0% of mass 174 | 5.9 | ( | 8.5 | )1 |
| 176 | 95.0 - 101.0% of mass 174 | 68.7 | ( | 99.1 | )1 |
| 177 | 5.0 - 9.0% of mass 176 | 4.5 | ( | 6.5 | )2 |

1-Value is % mass 174 2-Value is % mass 176

This check applies to the following SAMPLES, MS, MSD, BLANKS and STANDARDS:

| Client ID | Lab Sample ID | File ID | Date Analyzed | Time Analyzed |
|---|---|---|---|---|
| MSD | 6805-016MSD | I1767.D | 10/10/2001 | 20:57 |

# VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

Lab File ID: I1944.D BFB Injection Date: 10/17/2001

Inst ID: MSD_I BFB Injection Time: 1:55

| m/z | Ion Abudance Criteria | %Relative Abundance | |
|---|---|---|---|
| 50 | 15 - 40.0% of mass 95 | 31.7 | |
| 75 | 30.0 - 60.0% of mass 95 | 59.1 | |
| 95 | Base peak, 100% relative abundance | 100.0 | |
| 96 | 5.0 - 9.0% of mass 95 | 8.0 | |
| 173 | Less than 2.0% of mass 174 | 0.0 | ( 0.0 )1 |
| 174 | Great than 50.0% of mass 95 | 81.8 | |
| 175 | 5.0 - 9.0% of mass 174 | 4.1 | ( 5.0 )1 |
| 176 | 95.0 - 101.0% of mass 174 | 80.0 | ( 97.8 )1 |
| 177 | 5.0 - 9.0% of mass 176 | 5.8 | ( 7.2 )2 |

1-Value is % mass 174 2-Value is % mass 176

This check applies to the following SAMPLES, MS, MSD, BLANKS and STANDARDS:

| Client ID | Lab Sample ID | File ID | Date Analyzed | Time Analyzed |
|---|---|---|---|---|
| 100 | 100_PPB_STD | I1946.D | 10/17/2001 | 2:56 |
| N/A | METHOD_BLK | I1948.D | 10/17/2001 | 4:02 |
| LCS | BLK_SPK | I1949.D | 10/17/2001 | 4:35 |
| TB | 7040-007 | I1950.D | 10/17/2001 | 5:09 |
| TRIP_BLANK | 6996-010 | I1951.D | 10/17/2001 | 5:42 |
| 31-E-FILL_MAT_0 | 6996-017 | I1952.D | 10/17/2001 | 6:15 |
| 6-S2 | 7040-005 | I1953.D | 10/17/2001 | 6:48 |
| 26D-1-B/2H-C-2-B | 7090-003 | I1955.D | 10/17/2001 | 7:55 |
| 5R-3_0-0.5' | 7090-005 | I1956.D | 10/17/2001 | 8:28 |
| 23A-3_0-0.5' | 7090-008 | I1957.D | 10/17/2001 | 9:01 |
| 23A-4_0-0.5' | 7090-009 | I1958.D | 10/17/2001 | 9:35 |
| 7B-1-V_1.5-2' | 7090-010 | I1959.D | 10/17/2001 | 10:09 |
| 22G-3_0-0.5' | 7090-012 | I1960.D | 10/17/2001 | 10:43 |
| MS | 7090-012MS | I1961.D | 10/17/2001 | 11:17 |
| MSD | 7090-012MSD | I1962.D | 10/17/2001 | 11:50 |
| SB-43B_5-5.5 | 7085-005 | I1963.D | 10/17/2001 | 12:23 |
| SB-43C_13.5-14 | 7085-006 | I1964.D | 10/17/2001 | 12:57 |

0014

# VOLATILE METHOD BLANK SUMMARY

Lab File ID: I1948.D

Instrument ID: MSD I

Date Analyzed: 10/17/2001

Time Analyzed: 04:02

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS & MSD:

| Client ID | Lab Sample ID | Date Analyzed | Time Analyzed |
|---|---|---|---|
| LCS | BLK_SPK | 10/17/2001 | 4:35 |
| TB | 7040-007 | 10/17/2001 | 5:09 |
| TRIP_BLANK | 6996-010 | 10/17/2001 | 5:42 |
| 31-E-FILL_MAT_0-9 | 6996-017 | 10/17/2001 | 6:15 |
| 6-S2 | 7040-005 | 10/17/2001 | 6:48 |
| 26D-1-B/2H-C-2-B | 7090-003 | 10/17/2001 | 7:55 |
| 5R-3_0-0.5' | 7090-005 | 10/17/2001 | 8:28 |
| 23A-3_0-0.5' | 7090-008 | 10/17/2001 | 9:01 |
| 23A-4_0-0.5' | 7090-009 | 10/17/2001 | 9:35 |
| 7B-1-V_1.5-2' | 7090-010 | 10/17/2001 | 10:09 |
| 22G-3_0-0.5' | 7090-012 | 10/17/2001 | 10:43 |
| MS | 7090-012MS | 10/17/2001 | 11:17 |
| MSD | 7090-012MSD | 10/17/2001 | 11:50 |
| SB-43B_5-5.5 | 7085-005 | 10/17/2001 | 12:23 |
| SB-43C_13.5-14 | 7085-006 | 10/17/2001 | 12:57 |

## INTEGRATED ANALYTICAL LABORATORIES

## VOLATILE ORGANICS

Client/Project: N/A

Lab ID: METHOD_BLK
Client ID: N/A
Date Received: N/A
Date Analyzed: 10/17/2001
Data file: I1948.D

GC/MS Column: DB-624
Sample wt/vol: 0.1g
Matrix-Units: Soil-μg/Kg (ppb)
Dilution Factor: 50
% Moisture: 0.0

| Compound | Concentration | Q | MDL |
|---|---|---|---|
| Chloromethane | ND | | 250 |
| Vinyl Chloride | ND | | 250 |
| Bromomethane | ND | | 250 |
| Chloroethane | ND | | 250 |
| Trichlorofluoromethane | ND | | 250 |
| Acrolein | ND | | 500 |
| 1,1-Dichloroethene | ND | | 250 |
| Methylene Chloride | ND | | 250 |
| Acrylonitrile | ND | | 500 |
| trans-1,2-Dichloroethene | ND | | 250 |
| 1,1-Dichloroethane | ND | | 250 |
| Chloroform | ND | | 250 |
| 1,1,1-Trichloroethane | ND | | 250 |
| Carbon Tetrachloride | ND | | 250 |
| 1,2-Dichloroethane(EDC) | ND | | 250 |
| Benzene | ND | | 250 |
| Trichloroethene | ND | | 250 |
| 1,2-Dichloropropane | ND | | 250 |
| Bromodichloromethane | ND | | 250 |
| 2-Chloroethylvinyl Ether | ND | | 250 |
| cis-1,3-Dichloropropene | ND | | 250 |
| Toluene | ND | | 250 |
| trans-1,3-Dichloropropene | ND | | 250 |
| 1,1,2-Trichloroethane | ND | | 250 |
| Tetrachloroethene | ND | | 250 |
| Dibromochloromethane | ND | | 250 |
| Chlorobenzene | ND | | 250 |
| Ethylbenzene | ND | | 250 |
| Total Xylenes | ND | | 250 |
| Styrene | ND | | 250 |
| Bromoform | ND | | 250 |
| 1,1,2,2-Tetrachloroethane | ND | | 250 |
| 1,3-Dichlorobenzene | ND | | 250 |
| 1,4-Dichlorobenzene | ND | | 250 |
| 1,2-Dichlorobenzene | ND | | 250 |
| Naphthalene | ND | | 250 |

Total Target Compounds: 0

# INTEGRATED ANALYTICAL LABORATORIES

## VOLATILE ORGANICS

### Tentatively Identified Compounds

Client/Project: N/A

| | |
|---|---|
| Lab ID: METHOD_BLK | GC/MS Column: DB-624 |
| Client ID: N/A | Sample wt/vol: 0.1g |
| Date Received: N/A | Matrix-Units: Soil-μg/Kg (ppb) |
| Date Analyzed: 10/17/2001 | Dilution Factor: 50 |
| Data file: I1948.D | % Moisture: 0.0 |

| **CAS #** | **Compound** | **Estimated Concentration** | **Retention Time** |
|---|---|---|---|
| | No peaks detected | | |

Total TICs = 0

0017

```
                    Response Factor Report  5970 - In

Method          : C:\HPCHEM\1\METHODS\IME1010.M (RTE Integrator)
Title           : VOLATILE ORGANICS BY EPA METHOD 8260B
Last Update     : Wed Oct 10 12:41:09 2001
Response via    : Initial Calibration

Calibration Files
20      =I1751.D      50      =I1750.D      100     =I1747.D
150     =I1749.D      200     =I1748.D

        Compound                 20    50    100   150   200   Avg     %RSD
--------------------------------------------------------------------------------

 1) I   Pentafluorobenzene      ----------------ISTD---------------------
 2) T   Dichlorodifluorometha 0.315 0.311 0.294 0.284 0.290 0.299    4.58
 3) P   Chloromethane         0.229 0.244 0.248 0.228 0.231 0.236    3.91
 4) C   Vinyl Chloride        0.209 0.216 0.219 0.208 0.209 0.212    2.36
 5) T   Bromomethane          0.289 0.265 0.233 0.219 0.223 0.246   12.24
 6) T   Chloroethane          0.163 0.164 0.168 0.159 0.161 0.163    1.99
 7) T   Trichlorofluoromethan 0.866 0.828 0.778 0.784 0.769 0.805    5.11
 8) T   Acrolein              0.009 0.009 0.007 0.007 0.009 0.008   14.00
 9) MC  1,1-Dichloroethene    0.274 0.278 0.279 0.260 0.263 0.271    3.26
10) T   Acetone               0.065 0.087 0.093 0.070 0.065 0.076   17.35
11) T   Carbon Disulfide      0.789 0.756 0.783 0.770 0.754 0.770    2.04
12) T   Vinyl Acetate         0.997 1.052 0.915 0.935 0.877 0.955    7.24
13) T   Methylene Chloride    0.310 0.316 0.301 0.300 0.284 0.302    3.95
14) T   Acrylonitrile         0.032 0.035 0.034 0.032 0.036 0.034    5.40
15) T   t-Butyl Alcohol(TBA)  0.018 0.016 0.019 0.020 0.016 0.018    9.22
16) T   trans-1,2-Dichloroeth 0.332 0.340 0.346 0.326 0.315 0.332    3.65
17) T   Methyl-t-Butyl Ether( 0.833 0.872 0.737 0.799 0.717 0.792    8.17
18) P   1,1-Dichloroethane    0.765 0.790 0.758 0.738 0.719 0.754    3.57
19) T   Diisopropyl Ether(DIP 1.467 1.485 1.351 1.382 1.319 1.401    5.18
20) T   cis-1,2-Dichloroethen 0.360 0.358 0.363 0.349 0.340 0.354    2.62
21) T   2,2-Dichloropropane   0.646 0.646 0.643 0.629 0.614 0.636    2.23
22) T   2-Butanone(MEK)       0.108 0.106 0.073 0.083 0.073 0.089   19.37
23) T   Bromochloromethane    0.229 0.236 0.220 0.221 0.208 0.223    4.72
25) C   Chloroform            1.040 1.014 1.000 0.975 0.959 0.998    3.21
26) T   1,1,1-Trichloroethane 0.950 0.950 0.911 0.920 0.885 0.923    3.02
27) T   Carbon Tetrachloride  0.708 0.775 0.666 0.734 0.685 0.714    5.97
28) T   1,1-Dichloropropene   0.542 0.544 0.519 0.524 0.509 0.527    2.83
29) T   1,2-Dichloroethane(ED 0.717 0.742 0.665 0.692 0.634 0.690    6.15
30) S   1,2-Dichloroethane-d4 0.592 0.649 0.607 0.660 0.651 0.632    4.77

31) I   1,4-Difluorobenzene   ----------------ISTD---------------------
32) M   Benzene               0.698 0.703 0.706 0.675 0.648 0.686    3.54
33) M   Trichloroethene       0.476 0.460 0.454 0.430 0.414 0.447    5.48
34) C   1,2-Dichloropropane   0.353 0.342 0.332 0.322 0.314 0.333    4.69
35) T   Dibromomethane        0.304 0.319 0.282 0.278 0.256 0.288    8.45
37) T   Bromodichloromethane  0.809 0.807 0.755 0.788 0.708 0.773    5.47
38) T   2-Chloroethylvinyl Et 0.145 0.160 0.139 0.149 0.136 0.146    6.60
39) T   cis-1,3-Dichloroprope 0.478 0.503 0.476 0.461 0.435 0.471    5.32
40) T   4-Methyl-2-pentanone( 0.226 0.240 0.177 0.205 0.178 0.205   13.74
41) S   Toluene-d8            0.780 0.788 0.783 0.770 0.796 0.784    1.21
42) MC  Toluene               0.476 0.489 0.462 0.444 0.436 0.461    4.77
43) T   trans-1,3-Dichloropro 0.435 0.448 0.399 0.403 0.376 0.412    7.08
44) T   1,1,2-Trichloroethane 0.212 0.223 0.189 0.205 0.185 0.203    7.75
45) T   Tetrachloroethene     0.390 0.375 0.357 0.344 0.334 0.360    6.29
46) T   1,3-Dichloropropane   0.395 0.407 0.360 0.367 0.332 0.372    7.97
47) T   2-Hexanone            0.158 0.163 0.123 0.137 0.120 0.140   14.11
48) T   Dibromochloromethane  0.492 0.521 0.435 0.456 0.423 0.465    8.78
49) T   1,2-Dibromoethane(EDB 0.350 0.335 0.297 0.308 0.289 0.316    8.22
```

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 50) I    Chlorobenzene-d5       ----------------ISTD--------------------
 51) MP   Chlorobenzene          0.822 0.827 0.782 0.761 0.760 0.790    4.09
 52) T    1,1,1,2-Tetrachloroet  0.532 0.545 0.480 0.524 0.491 0.514    5.37
 53) C    Ethylbenzene           1.286 1.301 1.200 1.217 1.170 1.235    4.56
 54) T    m,p-Xylene             0.436 0.437 0.413 0.415 0.398 0.420    3.97
 55) T    o-Xylene               0.461 0.440 0.397 0.405 0.398 0.420    6.94
 56) T    Styrene                0.697 0.737 0.654 0.705 0.680 0.695    4.47
 57) P    Bromoform              0.371 0.399 0.342 0.382 0.346 0.368    6.52
 58) T    Isopropylbenzene       1.141 1.076 1.078 1.069 1.036 1.080    3.55
 59) S    Bromofluorobenzene     0.895 0.905 0.847 0.881 0.883 0.882    2.51
 60) P    1,1,2,2-Tetrachloroet  0.337 0.349 0.276 0.314 0.287 0.313   10.06
 61) T    Bromobenzene           0.452 0.403 0.382 0.400 0.390 0.405    6.72
 62) T    1,2,3-Trichloropropan  0.422 0.388 0.322 0.334 0.318 0.357   12.89
 63) T    n-Propylbenzene        1.332 1.269 1.275 1.195 1.207 1.255    4.45
 64) T    2-Chlorotoluene        1.039 1.006 0.931 0.991 0.942 0.982    4.57
 65) T    1,3,5-Trimethylbenzen  0.991 0.938 0.880 0.926 0.897 0.926    4.59
 66) T    4-Chlorotoluene        1.215 1.200 1.120 1.178 1.085 1.160    4.76
 67) T    tert-Butylbenzene      0.884 0.843 0.835 0.792 0.822 0.835    4.02
 68) T    1,2,4-Trimethylbenzen  0.995 0.986 0.946 0.971 0.911 0.962    3.51
 69) T    sec-Butylbenzene       0.994 0.958 0.906 0.925 0.900 0.937    4.18
 70) T    1,3-Dichlorobenzene    0.658 0.683 0.573 0.616 0.580 0.622    7.73
 71) T    4-Isopropyltoluene     0.879 0.824 0.817 0.769 0.777 0.813    5.42
 72) T    1,4-Dichlorobenzene    0.658 0.683 0.573 0.616 0.580 0.622    7.73
 73) T    n-Butylbenzene         0.850 0.805 0.796 0.754 0.757 0.792    4.95
 74) T    1,2-Dichlorobenzene    0.586 0.569 0.477 0.516 0.468 0.523   10.18
 75) T    1,2-Dibromo-3-chlorop  0.109 0.104 0.063 0.080 0.069 0.085   24.49
 76) T    1,2,4-Trichlorobenzen  0.194 0.188 0.131 0.229 0.173 0.183   19.49
 77) T    Hexachlorobutadiene    0.176 0.127 0.135 0.112 0.117 0.133   19.12
 78) T    Naphthalene            0.249 0.315 0.194 0.361 0.241 0.272   24.19
 79) T    1,2,3-Trichlorobenzen  0.167 0.196 0.094 0.171 0.115 0.149   28.61
 80) T    1,1,2-Trichloro-1,2,2  0.489 0.460 0.415 0.402 0.409 0.435    8.68
 81) T    Methyl Acetate         0.173 0.175 0.134 0.159 0.155 0.159   10.39
 82) T    Cyclohexane            0.323 0.295 0.266 0.265 0.264 0.283    9.19
 83) T    Methylcyclohexane      0.212 0.208 0.180 0.178 0.184 0.192    8.39
----------------------------------------------------------------------------
(#) = Out of Range

         IME1010.M        Wed Oct 10 12:41:37 2001    MSD_I
```

Instrument ID: MSD_I
Method ID: SOIL1003.M
Date: 10/03/2001

Average %RSD = 10.22

Refer to SW846 Method 8000B Section 7.5.1.

0020

```
                 Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\10-16-01\I1946.D              Vial: 29
Acq On    : 17 Oct 2001   2:56                          Operator: DP
Sample    : 100,100_PPB_STD,W,5mL,100                   Inst    : 5970 - In
Misc      : N/A,N/A,N/A                                 Multiplr: 1.00
MS Integration Params: rteint.p

Method        : C:\HPCHEM\1\METHODS\IME1010.M (RTE Integrator)
Title         : VOLATILE ORGANICS BY EPA METHOD 8260B
Last Update   : Thu Oct 11 09:23:20 2001
Response via  : Multiple Level Calibration

Min. RRF      :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev  :  30%     Max. Rel. Area : 200%

       Compound                          AvgRF    CCRF        %Dev Area% Dev(min)
-----------------------------------------------------------------------------
 1 I   Pentafluorobenzene                1.000    1.000        0.0  167   -0.03
 2 T   Dichlorodifluoromethane           0.299    0.337      -12.7  192   -0.02
 3 P   Chloromethane                     0.236    0.187       20.8  127   -0.01
 4 C   Vinyl Chloride                    0.212    0.181       14.6  139   -0.03
 5 T   Bromomethane                      0.246    0.249       -1.2  179   -0.02
 6 T   Chloroethane                      0.163    0.152        6.7  152   -0.02
 7 T   Trichlorofluoromethane            0.805    0.616       23.5  132   -0.04
 8 T   Acrolein                          0.008    0.007       12.5  183   -0.03
 9 MC  1,1-Dichloroethene                0.271    0.266        1.8  160   -0.03
10 T   Acetone                           0.076    0.071        6.6  128   -0.05
11 T   Carbon Disulfide                  0.770    0.720        6.5  154   -0.02
12 T   Vinyl Acetate                     0.955    0.956       -0.1  175   -0.04
13 T   Methylene Chloride                0.302    0.304       -0.7  169   -0.03
14 T   Acrylonitrile                     0.034    0.031        8.8  154   -0.05
15 T   t-Butyl Alcohol(TBA)              0.018    0.014       22.2  122   -0.05
16 T   trans-1,2-Dichloroethene          0.332    0.340       -2.4  164   -0.05
17 T   Methyl-t-Butyl Ether(MTBE)        0.792    0.734        7.3  167   -0.04
18 P   1,1-Dichloroethane                0.754    0.713        5.4  158   -0.03
19 T   Diisopropyl Ether(DIPE)           1.401    1.309        6.6  162   -0.03
20 T   cis-1,2-Dichloroethene            0.354    0.361       -2.0  166   -0.04
21 T   2,2-Dichloropropane               0.636    0.519       18.4  135   -0.04
22 T   2-Butanone(MEK)                   0.089    0.077       13.5  176   -0.04
23 T   Bromochloromethane                0.223    0.220        1.3  167   -0.03
25 C   Chloroform                        0.998    0.902        9.6  151   -0.04
26 T   1,1,1-Trichloroethane             0.923    0.748       19.0  137   -0.03
27 T   Carbon Tetrachloride              0.714    0.577       19.2  145   -0.02
28 T   1,1-Dichloropropene               0.527    0.498        5.5  161   -0.03
29 T   1,2-Dichloroethane(EDC)           0.690    0.594       13.9  149   -0.04
30 S   1,2-Dichloroethane-d4             0.632    0.536       15.2  148   -0.02

31 I   1,4-Difluorobenzene               1.000    1.000        0.0  177   -0.04
32 M   Benzene                           0.686    0.698       -1.7  175   -0.04
33 M   Trichloroethene                   0.447    0.400       10.5  156   -0.03
34 C   1,2-Dichloropropane               0.333    0.305        8.4  163   -0.03
35 T   Dibromomethane                    0.288    0.235       18.4  148   -0.03
37 T   Bromodichloromethane              0.773    0.647       16.3  152   -0.04
38 T   2-Chloroethylvinyl Ether          0.146    0.121       17.1  154   -0.03
39 T   cis-1,3-Dichloropropene           0.471    0.423       10.2  157   -0.03
40 T   4-Methyl-2-pentanone(MIBK)        0.205    0.170       17.1  170   -0.02
41 S   Toluene-d8                        0.784    0.795       -1.4  180   -0.03
42 MC  Toluene                           0.461    0.462       -0.2  177   -0.03
43 T   trans-1,3-Dichloropropene         0.412    0.348       15.5  155   -0.03
44 T   1,1,2-Trichloroethane             0.203    0.192        5.4  180   -0.03
45 T   Tetrachloroethene                 0.360    0.318       11.7  158   -0.02
46 T   1,3-Dichloropropane               0.372    0.328       11.8  161   -0.02
```

```
 47 T    2-Hexanone                        0.140    0.126        10.0  182   -0.02
 48 T    Dibromochloromethane              0.465    0.381        18.1  155   -0.03
 49 T    1,2-Dibromoethane(EDB)            0.316    0.271        14.2  162   -0.02

 50 I    Chlorobenzene-d5                  1.000    1.000         0.0  183   -0.03
 51 MP   Chlorobenzene                     0.790    0.722         8.6  169   -0.02
 52 T    1,1,1,2-Tetrachloroethane         0.514    0.417        18.9  159   -0.03
 53 C    Ethylbenzene                      1.235    1.099        11.0  167   -0.03
 54 T    m,p-Xylene                        0.420    0.394         6.2  174   -0.02
 55 T    o-Xylene                          0.420    0.380         9.5  175   -0.02
 56 T    Styrene                           0.695    0.637         8.3  178   -0.02
 57 P    Bromoform                         0.368    0.277        24.7  148   -0.03
 58 T    Isopropylbenzene                  1.080    0.919        14.9  156    0.00
 59 S    Bromofluorobenzene                0.882    0.809         8.3  175   -0.01
 60 P    1,1,2,2-Tetrachloroethane         0.313    0.257        17.9  171   -0.02
 61 T    Bromobenzene                      0.405    0.346        14.6  165   -0.02
 62 T    1,2,3-Trichloropropane            0.357    0.253        29.1  144    0.00
 63 T    n-Propylbenzene                   1.255    1.022        18.6  147   -0.03
 64 T    2-Chlorotoluene                   0.982    0.840        14.5  165   -0.03
 65 T    1,3,5-Trimethylbenzene            0.926    0.783        15.4  163    0.00
 66 T    4-Chlorotoluene                   1.160    0.947        18.4  155   -0.02
 67 T    tert-Butylbenzene                 0.835    0.686        17.8  150   -0.03
 68 T    1,2,4-Trimethylbenzene            0.962    0.799        16.9  155   -0.01
 69 T    sec-Butylbenzene                  0.937    0.809        13.7  163    0.00
 70 T    1,3-Dichlorobenzene               0.622    0.503        19.1  161   -0.01
 71 T    4-Isopropyltoluene                0.813    0.643        20.9  144   -0.01
 72 T    1,4-Dichlorobenzene               0.622    0.503        19.1  161   -0.01
 73 T    n-Butylbenzene                    0.792    0.617        22.1  142   -0.01
 74 T    1,2-Dichlorobenzene               0.523    0.402        23.1  154   -0.03
 75 T    1,2-Dibromo-3-chloropropane       0.085    0.065        23.5  190    0.00
 76 T    1,2,4-Trichlorobenzene            0.183    0.146        20.2  205   -0.02
 77 T    Hexachlorobutadiene               0.133    0.077        42.1  105    0.00
 78 T    Naphthalene                       0.272    0.210        22.8  198    0.00
 79 T    1,2,3-Trichlorobenzene            0.149    0.098        34.2  191   -0.02
 80 T    1,1,2-Trichloro-1,2,2-trifl       0.435    0.430         1.1  190   -0.03
 81 T    Methyl Acetate                    0.159    0.132        17.0  180   -0.05
 82 T    Cyclohexane                       0.283    0.237        16.3  163   -0.03
 83 T    Methylcyclohexane                 0.192    0.154        19.8  156   -0.03
-------------------------------------------------------------------------------------

    (#) = Out of Range                 SPCC's out = 0   CCC's out = 0
     I1747.D     IME1010.M          Thu Oct 18 13:35:20 2001    MSD_I
```

# VOLATILE SURROGATE PERCENT RECOVERY SUMMARY

**Date Analyzed:** 10/17/2001

| Lab Sample ID | Matrix | File ID | SMC1 | # | SMC2 | # | SMC3 | # |
|---|---|---|---|---|---|---|---|---|
| METHOD_BLK | SOIL | I1948.D | 81 | | 100 | | 91 | |
| BLK_SPK | SOIL | I1949.D | 76 | | 100 | | 87 | |
| 7040-007 | MEOH | I1950.D | 85 | | 97 | | 77 | |
| 6996-010 | MEOH | I1951.D | 83 | | 91 | | 76 | |
| 6996-017 | MEOH | I1952.D | 81 | | 77 | | 72 | |
| 7040-005 | MEOH | I1953.D | 84 | | 98 | | 74 | |
| 7090-003 | MEOH | I1955.D | 71 | | 73 | | 61 | |
| 7090-005 | MEOH | I1956.D | 74 | | 80 | | 65 | |
| 7090-008 | MEOH | I1957.D | 79 | | 84 | | 66 | |
| 7090-009 | MEOH | I1958.D | 77 | | 88 | | 66 | |
| 7090-010 | MEOH | I1959.D | 78 | | 77 | | 63 | |
| 7090-012 | MEOH | I1960.D | 79 | | 82 | | 66 | |
| 7090-012MS | MEOH | I1961.D | 86 | | 88 | | 75 | |
| 7090-012MSD | MEOH | I1962.D | 82 | | 86 | | 69 | |
| 7085-005 | MEOH | I1963.D | 100 | | 100 | | 100 | |
| 7085-006 | MEOH | I1964.D | 80 | | 90 | | 70 | |

| | Concentration | Aqueous/Meoh | Soil |
|---|---|---|---|
| SMC1 = 1,2-Dichloroethane-d4 | 50 ppb | 48-125 | 51-118 |
| SMC2 = Toluene-d8 | 50 ppb | 54-123 | 89-109 |
| SMC3 = Bromofluorobenzene | 50 ppb | 46-118 | 80-111 |

# Column to be used to flag recovery values

# MEOH VOLATILE MATRIX SPIKE/SPIKE DUPLICATE RECOVERY

Matrix spike Lab sample ID: 7090-012

Batch No.: IM0233

| Compound | SPIKE ADDED (ug/Kg) | SAMPLE CONC. (ug/Kg) | MS CONC. (ug/Kg) | MS % REC # | QC LIMITS REC. |
|---|---|---|---|---|---|
| **1,1-Dichloroethene** | 50.0 | 0.0 | 48.6 | 97 | 48 - 149 |
| **Benzene** | 50.0 | 0.0 | 47.4 | 95 | 59 - 149 |
| **Trichloroethene** | 50.0 | 0.0 | 39.9 | 80 | 55 - 143 |
| **Toluene** | 50.0 | 0.0 | 45.5 | 91 | 54 - 150 |
| **Chlorobenzene** | 50.0 | 0.0 | 47.3 | 95 | 55 - 144 |

| Compound | SAMPLE CONC. (ug/Kg) | MSD CONC. (ug/Kg) | MSD % # REC | % RPD # | QC LIMITS RPD | REC. |
|---|---|---|---|---|---|---|
| **1,1-Dichloroethene** | 0.0 | 49.8 | 100 | 3 | 17 | 48 - 149 |
| **Benzene** | 0.0 | 46.3 | 93 | 2 | 15 | 59 - 149 |
| **Trichloroethene** | 0.0 | 38.5 | 77 | 4 | 15 | 55 - 143 |
| **Toluene** | 0.0 | 45.6 | 91 | 0 | 16 | 54 - 150 |
| **Chlorobenzene** | 0.0 | 48.4 | 97 | 2 | 15 | 55 - 144 |

# Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

NC Non calculable

RPD: __0___ out of __5__ outside limits

Spike Recovery: __0___ out of __10__ outside limits

0024

# SOIL VOLATILE LABORATORY CONTROL SAMPLE RECOVERY

Matrix spike Lab sample ID: BLK SPK

Batch No.: IM0233

| Compound | SPIKE ADDED (ug/Kg) | SAMPLE CONC. (ug/Kg) | MS CONC. (ug/Kg) | MS % REC # | QC LIMITS REC. |
|---|---|---|---|---|---|
| **1,1-Dichloroethene** | 50.0 | 0.0 | 55.8 | 112 | 70 - 130 |
| **Benzene** | 50.0 | 0.0 | 51.5 | 103 | 70 - 130 |
| **Trichloroethene** | 50.0 | 0.0 | 43.7 | 87 | 70 - 130 |
| **Toluene** | 50.0 | 0.0 | 52.0 | 104 | 70 - 130 |
| **Chlorobenzene** | 50.0 | 0.0 | 47.3 | 95 | 70 - 130 |

# Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

NC Non calculable

Spike Recovery: __0___ out of __5__ outside limits

0025

# VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab File ID (Standard): I1747.D

Date Analyzed: 10/10/2001

Instrument ID: MSD_I

Time Analyzed: 9:34

| | 50UG/L | IS1 AREA # | RT # | IS2 AREA # | RT # | IS3 AREA # | RT # |
|---|---|---|---|---|---|---|---|
| | 12 HOUR STD | 653387 | 9.73 | 784077 | 10.95 | 634368 | 15.90 |
| | UPPER LIMIT | 1306774 | 10.23 | 1568154 | 11.45 | 1268736 | 16.40 |
| | LOWER LIMIT | 326693.5 | 9.23 | 392038.5 | 10.45 | 317184 | 15.40 |
| | LAB SAMPLE ID | | | | | | |
| 01 | 200_PPB_STD | 647856 | 9.70 | 798050 | 10.90 | 615497 | 15.84 |
| 02 | 150_PPB_STD | 656854 | 9.65 | 814005 | 10.87 | 640682 | 15.82 |
| 03 | 50_PPB_STD | 675342 | 9.65 | 821122 | 10.84 | 635952 | 15.80 |
| 04 | 20_PPB_STD | 674167 | 9.65 | 799529 | 10.87 | 623610 | 15.82 |
| 05 | METHOD_BLK | 648350 | 9.64 | 792486 | 10.86 | 668256 | 15.81 |
| 06 | BLK_SPK | 656491 | 9.64 | 789960 | 10.86 | 643953 | 15.82 |
| 07 | 6805-017 | 694488 | 9.63 | 832579 | 10.85 | 592975 | 15.82 |
| 08 | 6805-002 | 700505 | 9.65 | 828125 | 10.87 | 586715 | 15.83 |
| 09 | 6805-003 | 708272 | 9.65 | 845648 | 10.88 | 603174 | 15.83 |
| 10 | 6805-005 | 770218 | 9.65 | 860282 | 10.85 | 626482 | 15.82 |
| 11 | 6805-006 | 758939 | 9.63 | 860569 | 10.85 | 628899 | 15.82 |
| 12 | 6805-007 | 779707 | 9.64 | 875607 | 10.86 | 633294 | 15.82 |
| 13 | 6805-009 | 734189 | 9.65 | 892746 | 10.87 | 624207 | 15.82 |
| 14 | 6805-010 | 775090 | 9.66 | 914234 | 10.86 | 684844 | 15.81 |
| 15 | 6805-012 | 787746 | 9.63 | 907557 | 10.85 | 657037 | 15.80 |
| 16 | 6805-013 | 788950 | 9.63 | 913993 | 10.85 | 642244 | 15.80 |
| 17 | 6805-015 | 795434 | 9.62 | 941670 | 10.85 | 663946 | 15.81 |
| 18 | 6805-016 | 803676 | 9.63 | 945405 | 10.86 | 671447 | 15.81 |
| 19 | 6805-016MS | 813939 | 9.65 | 941658 | 10.86 | 677527 | 15.81 |
| 20 | 6805-016MSD | 795946 | 9.66 | 950448 | 10.87 | 668293 | 15.83 |
| 21 | | | | | | | |
| 22 | | | | | | | |

IS1 = PENTAFLUOROBENZENE
IS2 = 1,4-DIFLUOROBENZENE
IS3 = CHLOROBENZENE-D5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

# Column used to flag values outside QC limits with an asterisk
* Values outside of QC limits.

FORM 8

# VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab File ID (Standard): I1946.D

Instrument ID: MSD_I

Date Analyzed: 10/17/2001

Time Analyzed: 2:56

| | 50UG/L | IS1 AREA # | RT # | IS2 AREA # | RT # | IS3 AREA # | RT # |
|---|---|---|---|---|---|---|---|
| | 12 HOUR STD | 1093433 | 9.70 | 1389694 | 10.92 | 1160240 | 15.86 |
| | UPPER LIMIT | 2186866 | 10.20 | 2779388 | 11.42 | 2320480 | 16.36 |
| | LOWER LIMIT | 546716.5 | 9.20 | 694847 | 10.42 | 580120 | 15.36 |
| | LAB SAMPLE ID | | | | | | |
| 01 | METHOD_BLK | 1047735 | 9.71 | 1387504 | 10.92 | 1182634 | 15.87 |
| 02 | BLK_SPK | 1069109 | 9.71 | 1381684 | 10.92 | 1165754 | 15.88 |
| 03 | 7040-007 | 1063650 | 9.70 | 1430560 | 10.92 | 1160991 | 15.87 |
| 04 | 6996-010 | 1092890 | 9.71 | 1407551 | 10.92 | 1169632 | 15.88 |
| 05 | 6996-017 | 1174540 | 9.71 | 1498070 | 10.91 | 1071222 | 15.88 |
| 06 | 7040-005 | 1186341 | 9.71 | 1443196 | 10.93 | 1087576 | 15.88 |
| 07 | 7090-003 | 1216331 | 9.72 | 1542878 | 10.93 | 1105934 | 15.88 |
| 08 | 7090-005 | 1235988 | 9.71 | 1497297 | 10.91 | 1101262 | 15.88 |
| 09 | 7090-008 | 1188178 | 9.68 | 1480973 | 10.90 | 1116937 | 15.85 |
| 10 | 7090-009 | 1208938 | 9.67 | 1461196 | 10.90 | 1146334 | 15.84 |
| 11 | 7090-010 | 1185468 | 9.67 | 1434970 | 10.87 | 1111598 | 15.83 |
| 12 | 7090-012 | 1211880 | 9.64 | 1493263 | 10.86 | 1110437 | 15.80 |
| 13 | 7090-012MS | 1176326 | 9.61 | 1476249 | 10.83 | 1089950 | 15.78 |
| 14 | 7090-012MSD | 1161925 | 9.61 | 1477952 | 10.82 | 1100599 | 15.78 |
| 15 | 7085-005 | 1168648 | 9.63 | 1391800 | 10.85 | 1070052 | 15.82 |
| 16 | 7085-006 | 1155584 | 9.62 | 1387096 | 10.84 | 1071641 | 15.79 |
| 17 | | | | | | | |
| 18 | | | | | | | |
| 19 | | | | | | | |
| 20 | | | | | | | |
| 21 | | | | | | | |
| 22 | | | | | | | |

IS1 = PENTAFLUOROBENZENE
IS2 = 1,4-DIFLUOROBENZENE
IS3 = CHLOROBENZENE-D5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

# Column used to flag values outside QC limits with an asterisk
* Values outside of QC limits.

FORM 8

# VOLATILE METHANOL PRESERVATION CONTAINER SUMMARY

| Sample ID | Client ID | Bottle ID | Date Prepared | Inital Wgt.(g) | Final Wgt.(g) | Sample Wgt.(g) | MeOH Lot # | Surrogate Lot # |
|---|---|---|---|---|---|---|---|---|
| 7040-005 | 6-S2 | 111765 | 10/9/01 | 106.6 | 116.2 | 9.6 | cc226 | ls224 |
| 7040-007 | TB | 111772 | 10/9/01 | 107.3 | 117.3 | 10.0 | cc226 | ls224 |

Limits : Sample Weight = 8 to 12 grams, * = Outside limits

Comments : ______________________________

Sample weight is reported on a wet weight basis

```
                      Quantitation Report     (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\10-16-01\I1953.D             Vial: 46
Acq On    : 17 Oct 2001   6:48                        Operator: DP
Sample    : 6-S2,7040-005,M,0.019g                    Inst    : 5970 - In
Misc      : BRENNAN/99704_FINETEX,10/11/01,10/11/01,  Multiplr: 1.00
MS Integration Params: rteint.p
 Quant Time: Oct 17 14:31 2001               Quant Results File: IME1010.RES

Quant Method  : C:\HPCHEM\1\METHODS\IME1010.M (RTE Integrator)
Title         : VOLATILE ORGANICS BY EPA METHOD 8260B
Last Update   : Thu Oct 11 09:23:20 2001
Response via  : Initial Calibration
DataAcq Meth  : VOAI

 Internal Standards                    R.T.  QIon  Response  Conc Units Dev(Min)
 -----------------------------------------------------------------------------
   1) Pentafluorobenzene               9.71   168  1186341    50.00 UG     -0.02
  31) 1,4-Difluorobenzene             10.93   114  1443196    50.00 UG     -0.03
  50) Chlorobenzene-d5                15.88   117  1087576    50.00 UG     -0.02

 System Monitoring Compounds
  30) 1,2-Dichloroethane-d4           10.19    65   314976    21.01 UG     -0.02
   Spiked Amount       50.000     Range  36 - 115    Recovery   =   42.02%
  41) Toluene-d8                      13.40    98   551061    24.36 UG     -0.02
   Spiked Amount       50.000     Range  35 - 117    Recovery   =   48.72%
  59) Bromofluorobenzene              17.96    95   352943    18.39 UG      0.00
   Spiked Amount       50.000     Range  47 - 115    Recovery   =   36.78%#

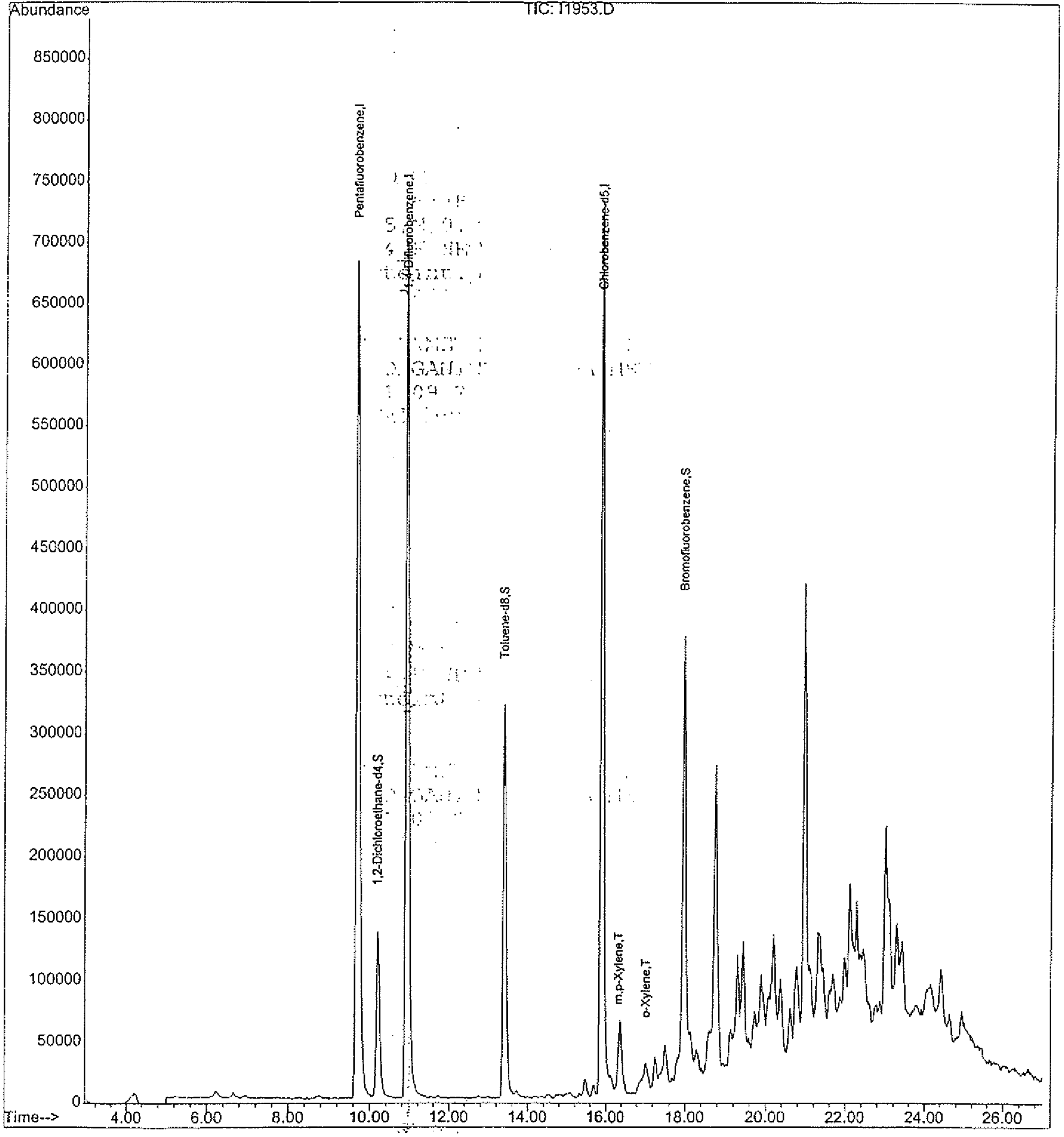
 Target Compounds                                                      Qvalue
  54) m,p-Xylene                      16.32   106    14795     1.62 UG        88
  55) o-Xylene                        17.03   106    10447m    1.14 UG


 ----------------------------------------------------------------------------
 (#) = qualifier out of range (m) = manual integration
```

# Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\10-16-01\I1953.D              Vial: 46
Acq On    : 17 Oct 2001   6:48                          Operator: DP
Sample    : 6-S2,7040-005,M,0.019g                      Inst    : 5970 - In
Misc      : BRENNAN/99704_FINETEX,10/11/01,10/11/01,  Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Oct 17 14:31 2001                  Quant Results File: IME1010.RES

Method         : C:\HPCHEM\1\METHODS\IME1010.M (RTE Integrator)
Title          : VOLATILE ORGANICS BY EPA METHOD 8260B
Last Update    : Thu Oct 11 09:23:20 2001
Response via   : Initial Calibration
```



0030

```
                        LSC Area Percent Report

  Data File : C:\HPCHEM\1\DATA\10-16-01\I1953.D            Vial: 46
  Acq On    : 17 Oct 2001   6:48                       Operator: DP
  Sample    : 6-S2,7040-005,M,0.019g                   Inst    : 5970 - In
  Misc      : BRENNAN/99704_FINETEX,10/11/01,10/11/01, Multiplr: 1.00
  MS Integration Params: LSCINT.P

  Method    : C:\HPCHEM\1\METHODS\IME1010.M (RTE Integrator)
  Title     : VOLATILE ORGANICS BY EPA METHOD 8260B
  Smoothing : ON                           Filtering: 5
  Sampling  : 1                             Min Area: 3 % of largest Peak
  Start Thrs: 0.2                          Max Peaks: 100
  Stop Thrs : 0.15                     Peak Location: TOP

  If leading or trailing edge < 100 prefer < Baseline drop else tangent >
  Peak separation: 5

  Signal    : TIC

 peak  R.T. first  max last  PK   peak       corr.   corr.    % of
   #   min   scan scan scan  TY  height      area   % max.   total
 ---  ----- ----- ---- ---- --- -------   ------- ------   -------
   1   9.698   438  446  463 rBV   681776   4339268 100.00%  16.185%
   2  10.188   471  478  491 rBV   134567    823820  18.99%   3.073%
   3  10.926   518  526  542 rBV   697178   4186998  96.49%  15.617%
   4  13.400   679  687  699 rBV2  319109   1782140  41.07%   6.647%
   5  15.466   815  821  830 rVB5   14520     87314   2.01%   0.326%

   6  15.697   830  836  842 rBV3    9980     52320   1.21%   0.195%
   7  15.881   842  848  860 rBV   728690   4075980  93.93%  15.203%
   8  16.367   872  880  894 rVB3   60290    445524  10.27%   1.662%
   9  16.922   907  916  917 rBV6   13230     77089   1.78%   0.288%
  10  17.029   920  923  931 rVB6   20578    114776   2.65%   0.428%

  11  17.243   933  937  943 rBV3   25195    130999   3.02%   0.489%
  12  17.488   947  953  963 rVB5   31120    201165   4.64%   0.750%
  13  17.810   968  974  976 rBV6   19414     97677   2.25%   0.364%
  14  17.962   976  984  993 rBV   342767   1908436  43.98%   7.118%
  15  18.613  1019 1027 1029 rBV3   33394    207365   4.78%   0.773%

  16  18.764  1031 1037 1047 rVB   245392   1434870  33.07%   5.352%
  17  19.142  1057 1062 1065 rBV5   30777    174136   4.01%   0.650%
  18  19.307  1068 1073 1077 rVV    82436    431277   9.94%   1.609%
  19  19.441  1077 1082 1091 rVB2   84813    487951  11.25%   1.820%
  20  19.740  1096 1102 1105 rBV7   30911    162173   3.74%   0.605%

  21  19.890  1108 1112 1120 rVB5   43467    233650   5.38%   0.872%
  22  20.056  1120 1123 1125 rBV3   24393     86702   2.00%   0.323%
  23  20.205  1129 1133 1140 rVB3   69543    329940   7.60%   1.231%
  24  20.372  1140 1144 1154 rVB4   60817    346971   8.00%   1.294%
  25  20.615  1154 1160 1164 rBV3   37210    198870   4.58%   0.742%

  26  20.766  1164 1170 1177 rBV6   58921    399895   9.22%   1.492%
  27  20.962  1177 1183 1190 rBV   356337   1805487  41.61%   6.734%
  28  21.307  1201 1206 1207 rBV3   60930    190535   4.39%   0.711%
  29  21.607  1221 1226 1227 rBV4   23906     89607   2.07%   0.334%
  30  21.965  1247 1250 1255 rBV4   36153    171851   3.96%   0.641%

  31  22.099  1255 1259 1266 rVV3   84872    482775  11.13%   1.801%
```

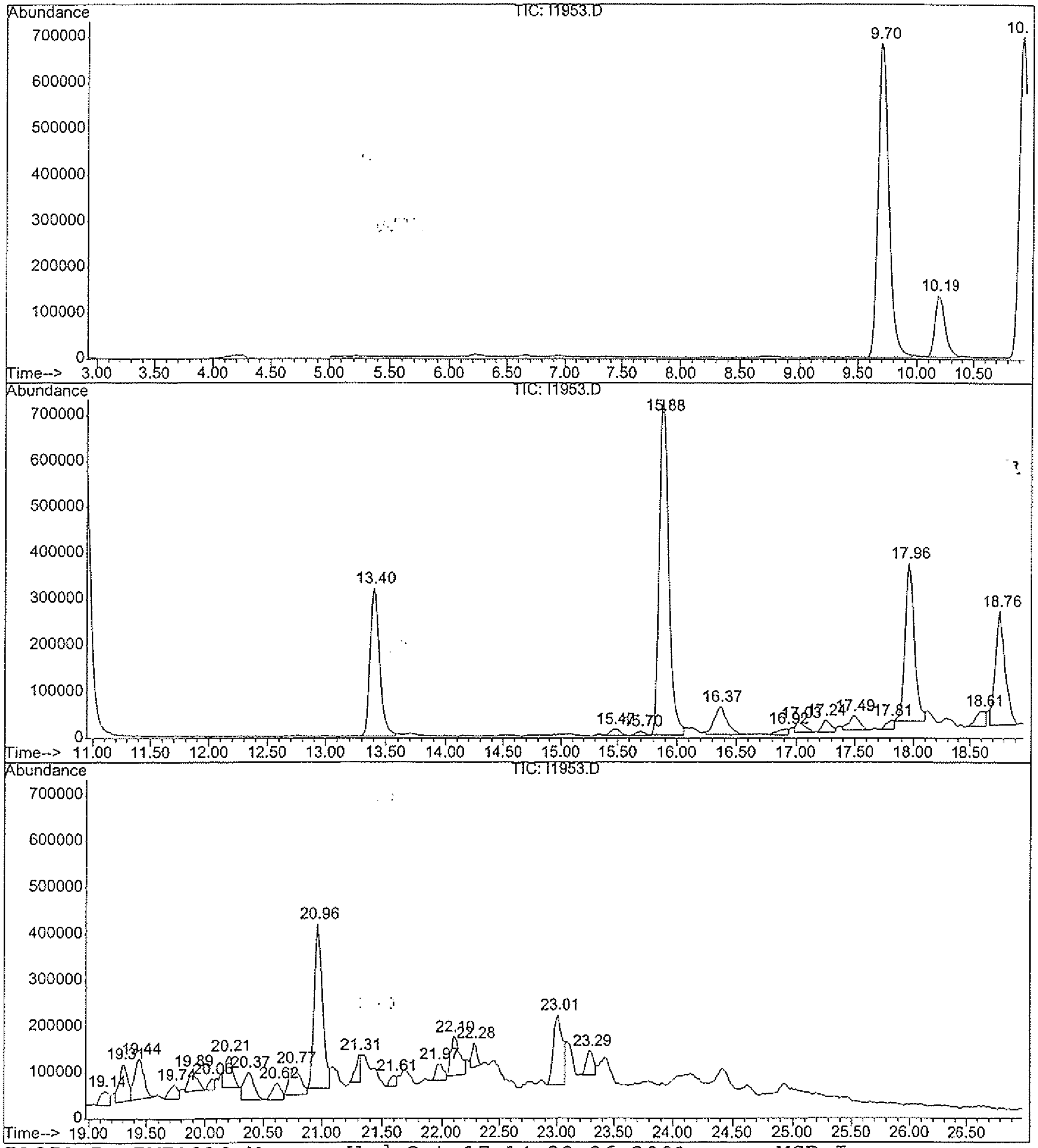
```
32  22.278   1269 1271 1275 rVB     49273       146348    3.37%    0.546%
33  23.009   1314 1320 1324 rBV    152892       858336   19.78%    3.202%
34  23.293   1334 1339 1342 rBV3    53554       247812    5.71%    0.924%

                          Sum of corrected areas:     26810057

 I1953.D   IME1010.M       Wed Oct 17 14:32:25 2001    MSD_I
```

# LSC Report - Integrated Chromatogram

```
File        : C:\HPCHEM\1\DATA\10-16-01\I1953.D
Operator    : DP
Acquired    : 17 Oct 2001   6:48     using AcqMethod VOAI
Instrument  :   5970 - In
Sample Name: 6-S2,7040-005,M,0.019g
Misc Info   : BRENNAN/99704_FINETEX,10/11/01,10/11/01,2
Vial Number: 46
Quant File :IME1010.RES (RTE Integrator)
```



```
I1953.D  IME1010.M       Wed Oct 17 14:32:26 2001        MSD_I
```

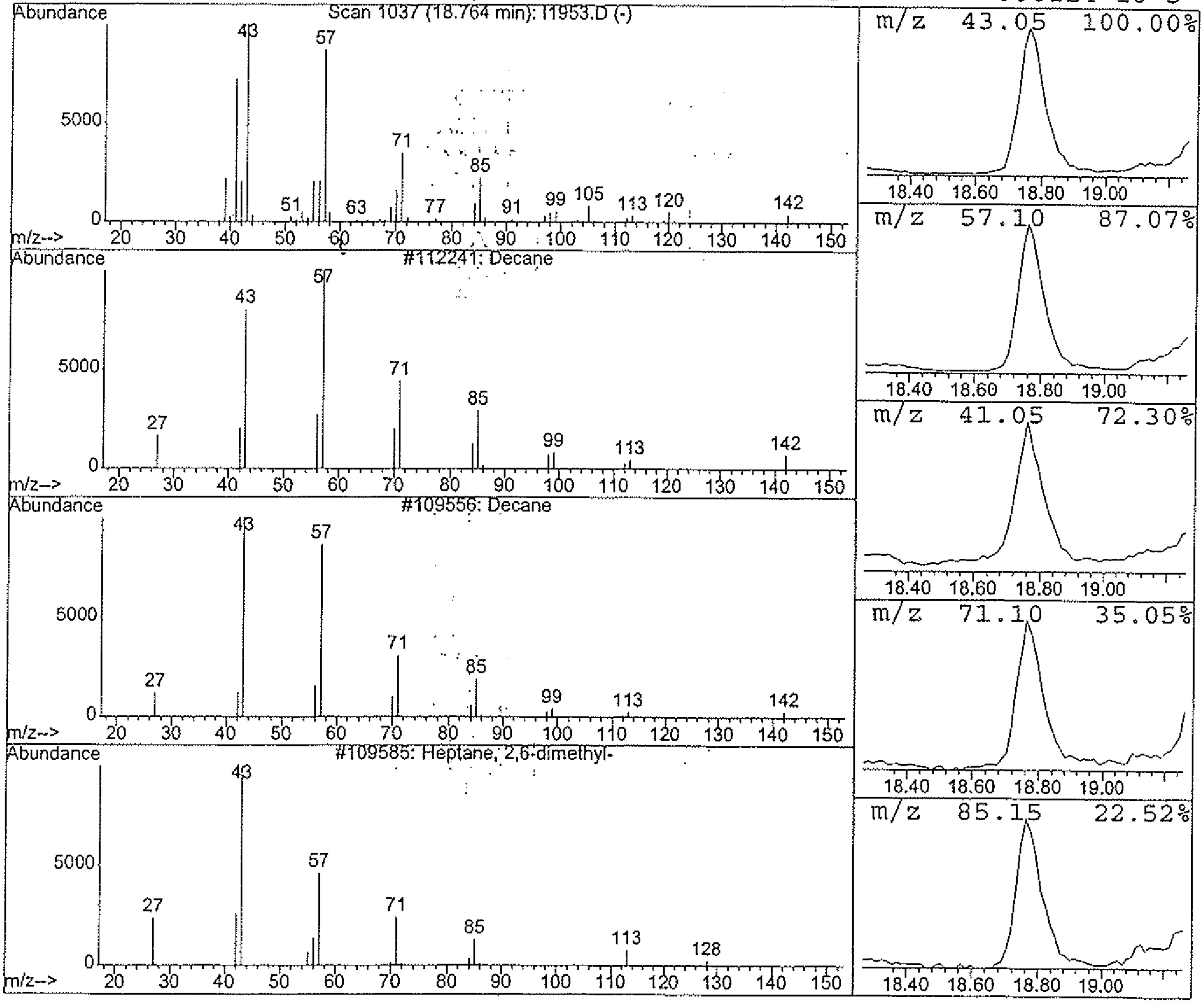
```
                    Library Search Compound Report

     Data File : C:\HPCHEM\1\DATA\10-16-01\I1953.D              Vial: 46
     Acq On    : 17 Oct 2001   6:48                          Operator: DP
     Sample    : 6-S2,7040-005,M,0.019g                      Inst    : 5970 - In
     Misc      : BRENNAN/99704_FINETEX,10/11/01,10/11/01,  Multiplr: 1.00
     MS Integration Params: LSCINT.P

     Quant Method : C:\HPCHEM\1\METHODS\IME1010.M (RTE Integrator)
     Title        : VOLATILE ORGANICS BY EPA METHOD 8260B
     Library      : C:\DATABASE\NIST98.L
**********************************************************************
Peak Number  1  Unknown alkane                    Concentration Rank  2

   R.T.    EstConc            Area       Relative to ISTD         R.T.
----------------------------------------------------------------------
  18.76    17.60 UG         1434870    Chlorobenzene-d5           15.88

  Hit# of  5     Tentative ID               MW  MolForm       CAS#       Qual
----------------------------------------------------------------------
  1 Decane                                 142 C10H22       000124-18-5 95
  2 Decane                                 142 C10H22       000124-18-5 87
  3 Heptane, 2,6-dimethyl-                 128 C9H20        001072-05-5 80
  4 Decane                                 142 C10H22       000124-18-5 74
```



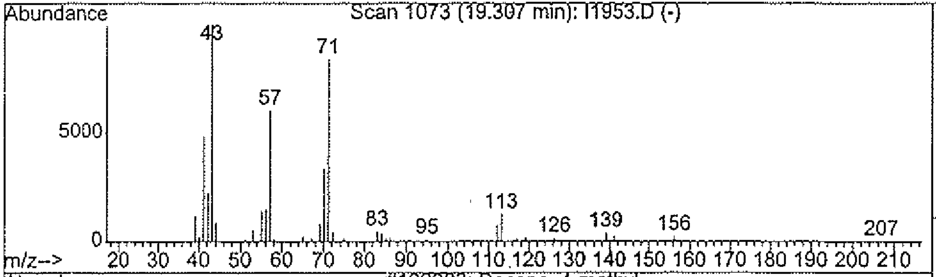
```
                    Library Search Compound Report

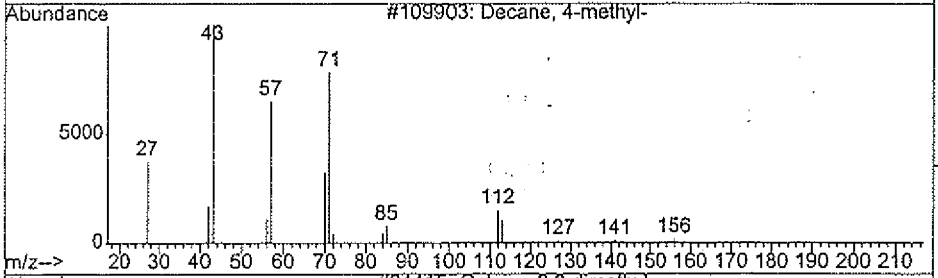
  Data File : C:\HPCHEM\1\DATA\10-16-01\I1953.D            Vial: 46
  Acq On    : 17 Oct 2001    6:48                      Operator: DP
  Sample    : 6-S2,7040-005,M,0.019g                   Inst    : 5970 - In
  Misc      : BRENNAN/99704_FINETEX,10/11/01,10/11/01, Multiplr: 1.00
  MS Integration Params: LSCINT.P

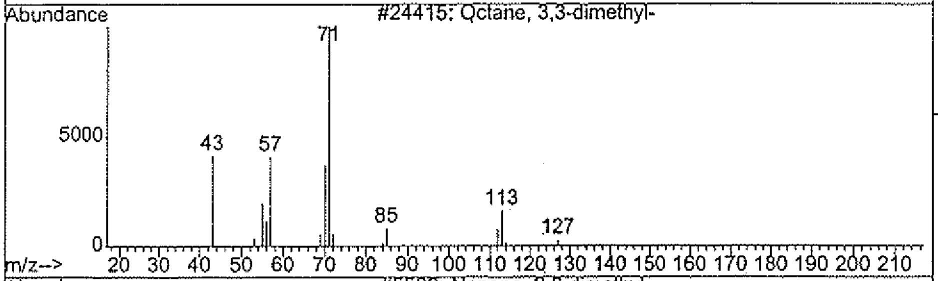
  Quant Method : C:\HPCHEM\1\METHODS\IME1010.M (RTE Integrator)
  Title        : VOLATILE ORGANICS BY EPA METHOD 8260B
  Library      : C:\DATABASE\NIST98.L
*********************************************************************
Peak Number  2  Unknown alkane                  Concentration Rank  6

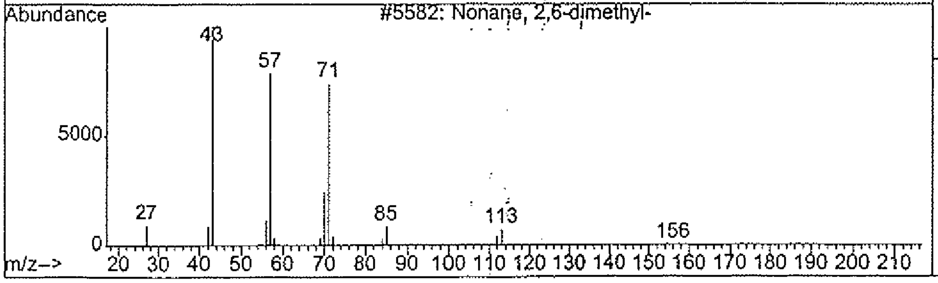
  R.T.   EstConc           Area       Relative to ISTD           R.T.
---------------------------------------------------------------------
 19.31    5.29 UG          431277    Chlorobenzene-d5           15.88

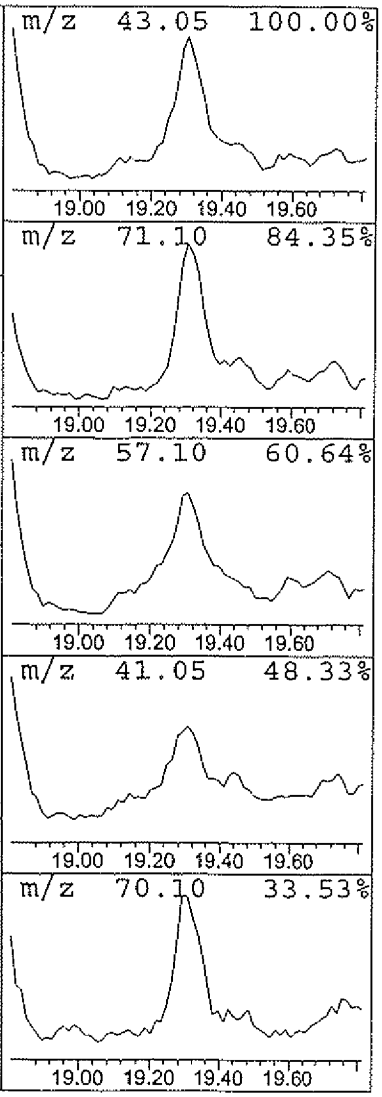
 Hit# of  5     Tentative ID                MW  MolForm        CAS#        Qual
---------------------------------------------------------------------
 1 Decane, 4-methyl-                        156 C11H24         002847-72-5 90
 2 Octane, 3,3-dimethyl-                    142 C10H22         004110-44-5 72
 3 Nonane, 2,6-dimethyl-                    156 C11H24         017302-28-2 72
 4 Octane, 2-bromo-                         192 C8H17Br        000557-35-7 59
```











0035

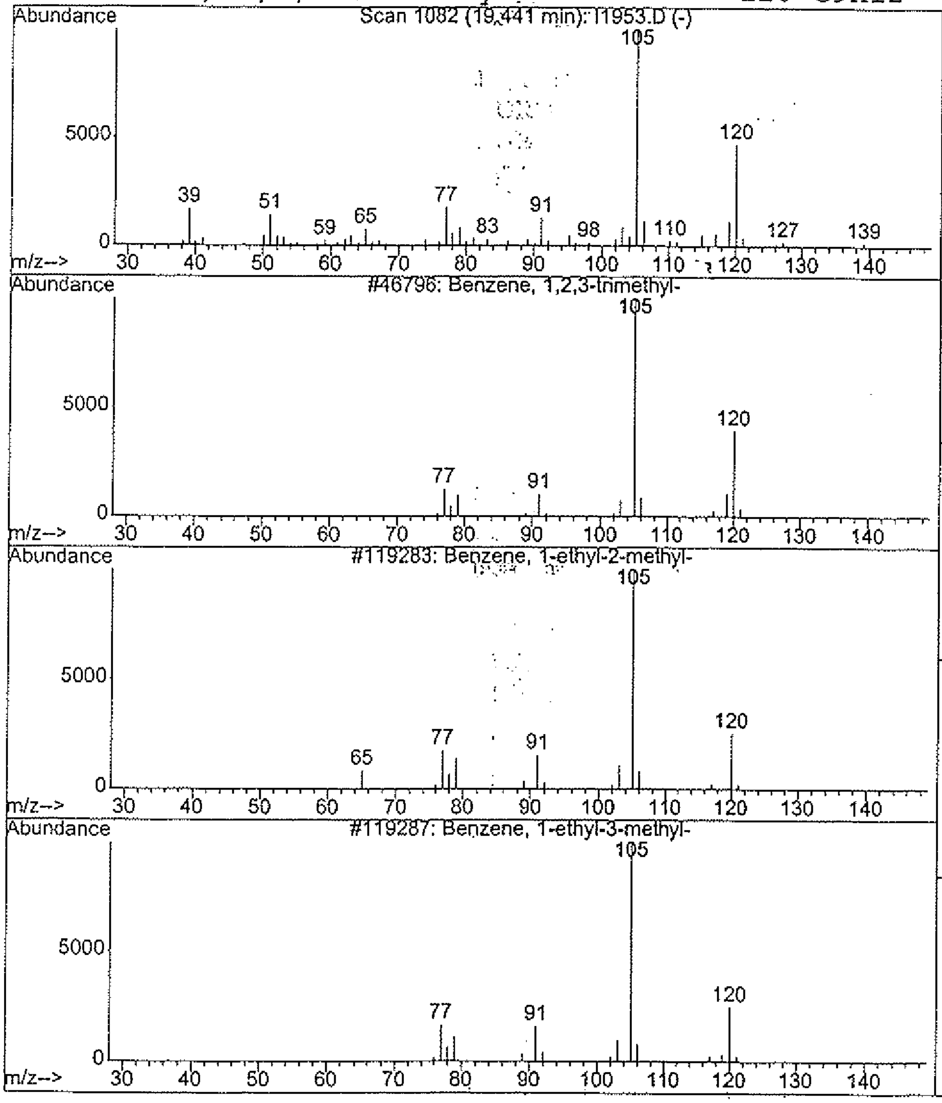
Library Search Compound Report

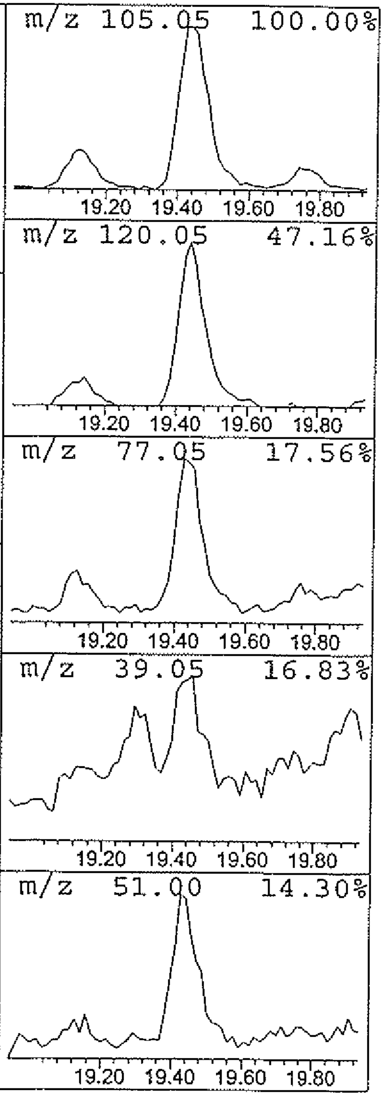
```
  Data File : C:\HPCHEM\1\DATA\10-16-01\I1953.D                    Vial: 46
  Acq On    : 17 Oct 2001   6:48                             Operator: DP
  Sample    : 6-S2,7040-005,M,0.019g                         Inst    : 5970 - In
  Misc      : BRENNAN/99704_FINETEX,10/11/01,10/11/01,       Multiplr: 1.00
  MS Integration Params: LSCINT.P

  Quant Method : C:\HPCHEM\1\METHODS\IME1010.M (RTE Integrator)
  Title        : VOLATILE ORGANICS BY EPA METHOD 8260B
  Library      : C:\DATABASE\NIST98.L
*************************************************************************
Peak Number  3  Substituted benzene                  Concentration Rank  4

  R.T.   EstConc          Area       Relative to ISTD              R.T.
-------------------------------------------------------------------------
 19.44    5.99 UG        487951    Chlorobenzene-d5               15.88

 Hit# of  5     Tentative ID                 MW  MolForm        CAS#      Qual
-------------------------------------------------------------------------
 1 Benzene, 1,2,3-trimethyl-                 120 C9H12        000526-73-8 94
 2 Benzene, 1-ethyl-2-methyl-                120 C9H12        000611-14-3 94
 3 Benzene, 1-ethyl-3-methyl-                120 C9H12        000620-14-4 94
 4 Benzene, 1,2,3-trimethyl-                 120 C9H12        000526-73-8 93
```





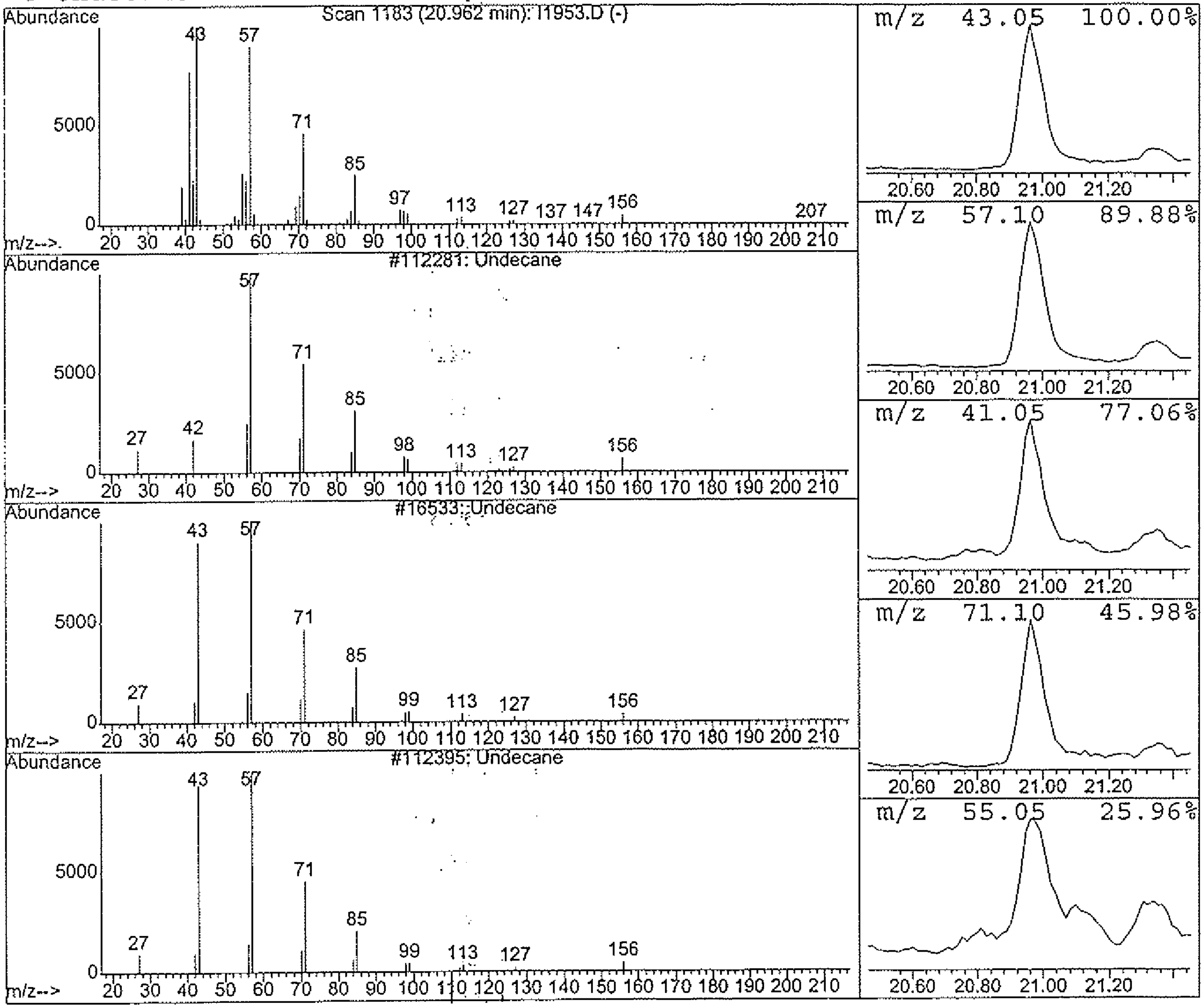
```
                    Library Search Compound Report

   Data File : C:\HPCHEM\1\DATA\10-16-01\I1953.D              Vial: 46
   Acq On    : 17 Oct 2001    6:48                        Operator: DP
   Sample    : 6-S2,7040-005,M,0.019g                     Inst    : 5970 - In
   Misc      : BRENNAN/99704_FINETEX,10/11/01,10/11/01,  Multiplr: 1.00
   MS Integration Params: LSCINT.P

   Quant Method : C:\HPCHEM\1\METHODS\IME1010.M (RTE Integrator)
   Title        : VOLATILE ORGANICS BY EPA METHOD 8260B
   Library      : C:\DATABASE\NIST98.L
*************************************************************************
Peak Number  4  Undecane                            Concentration Rank  1

   R.T.   EstConc          Area       Relative to ISTD          R.T.
------------------------------------------------------------------------
  20.96   22.15 UG        1805490    Chlorobenzene-d5           15.88

  Hit# of  5     Tentative ID              MW  MolForm        CAS#      Qual
------------------------------------------------------------------------
  1 Undecane                              156 C11H24        001120-21-4 94
  2 Undecane                              156 C11H24        001120-21-4 93
  3 Undecane                              156 C11H24        001120-21-4 81
  4 Undecane                              156 C11H24        001120-21-4 81
```



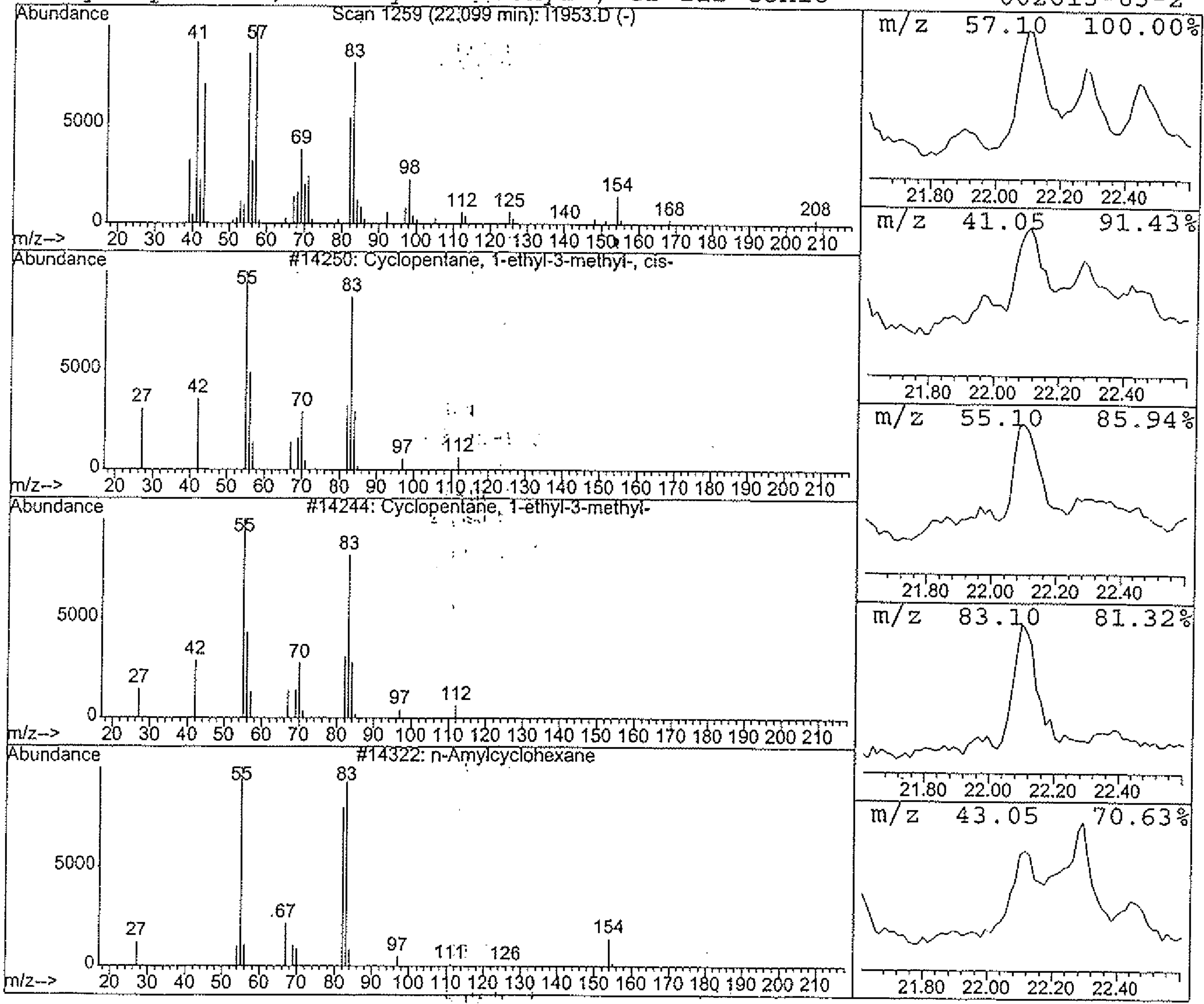
```
                    Library Search Compound Report

     Data File : C:\HPCHEM\1\DATA\10-16-01\I1953.D                Vial: 46
     Acq On    : 17 Oct 2001    6:48                          Operator: DP
     Sample    : 6-S2,7040-005,M,0.019g                       Inst     : 5970 - In
     Misc      : BRENNAN/99704_FINETEX,10/11/01,10/11/01,    Multiplr: 1.00
     MS Integration Params: LSCINT.P

     Quant Method : C:\HPCHEM\1\METHODS\IME1010.M (RTE Integrator)
     Title        : VOLATILE ORGANICS BY EPA METHOD 8260B
     Library      : C:\DATABASE\NIST98.L
   **********************************************************************
   Peak Number  5  Unknown cyclic hydrocarbon       Concentration Rank  5

     R.T.   EstConc            Area       Relative to ISTD          R.T.
   ----------------------------------------------------------------------
    22.10    5.92 UG          482775    Chlorobenzene-d5           15.88

    Hit# of  5     Tentative ID               MW  MolForm        CAS#      Qual
   ----------------------------------------------------------------------
    1 Cyclopentane, 1-ethyl-3-methyl-, ci 112 C8H16          002613-66-3 52
    2 Cyclopentane, 1-ethyl-3-methyl-     112 C8H16          003726-47-4 52
    3 n-Amylcyclohexane                   154 C11H22         029949-27-7 49
    4 Cyclopentane, 1-ethyl-3-methyl-, tr 112 C8H16          002613-65-2 49
```



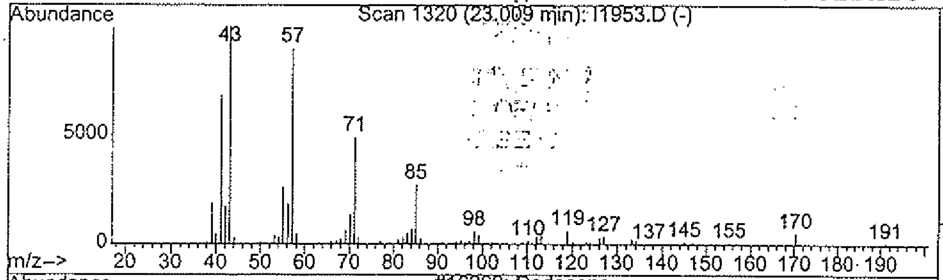
## Library Search Compound Report

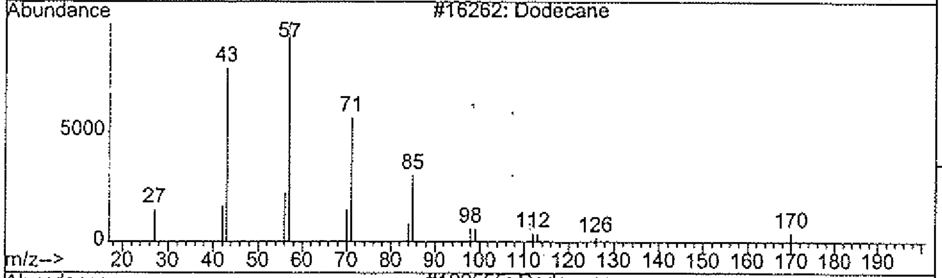
```
Data File : C:\HPCHEM\1\DATA\10-16-01\I1953.D              Vial: 46
Acq On    : 17 Oct 2001    6:48                         Operator: DP
Sample    : 6-S2,7040-005,M,0.019g                      Inst    : 5970 - In
Misc      : BRENNAN/99704_FINETEX,10/11/01,10/11/01,   Multiplr: 1.00
MS Integration Params: LSCINT.P

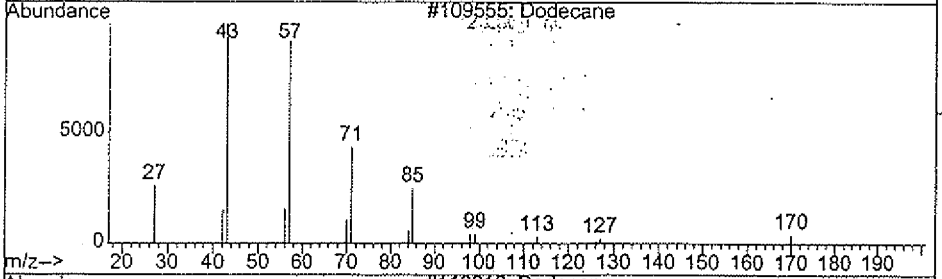
Quant Method : C:\HPCHEM\1\METHODS\IME1010.M (RTE Integrator)
Title        : VOLATILE ORGANICS BY EPA METHOD 8260B
Library      : C:\DATABASE\NIST98.L
*******************************************************************
Peak Number  6   Dodecane                      Concentration Rank  3

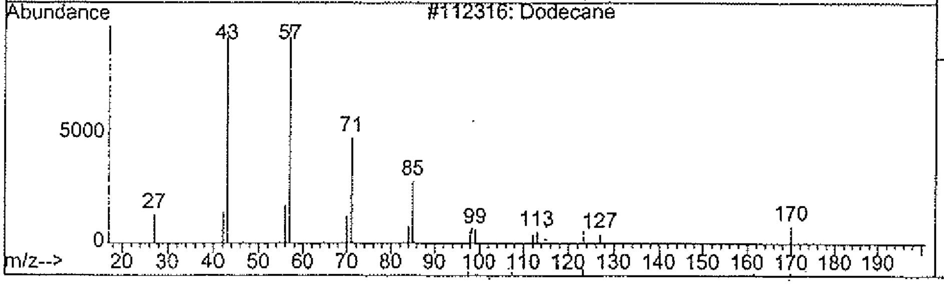
  R.T.   EstConc          Area       Relative to ISTD          R.T.
-------------------------------------------------------------------
 23.01   10.53 UG         858336    Chlorobenzene-d5          15.88

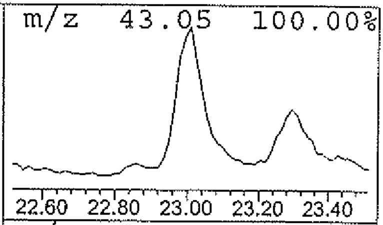
 Hit# of  5    Tentative ID           MW  MolForm       CAS#        Qual
-------------------------------------------------------------------
 1 Dodecane                          170  C12H26     000112-40-3  94
 2 Dodecane                          170  C12H26     000112-40-3  94
 3 Dodecane                          170  C12H26     000112-40-3  93
 4 Dodecane                          170  C12H26     000112-40-3  91
```

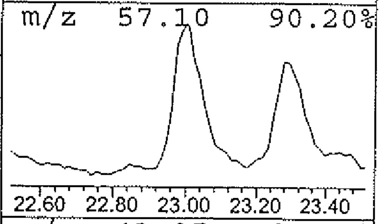


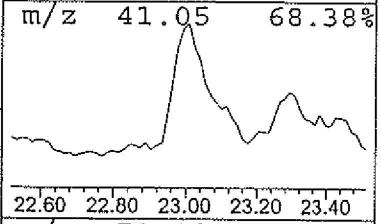


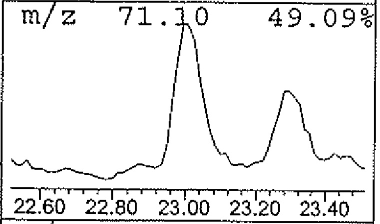


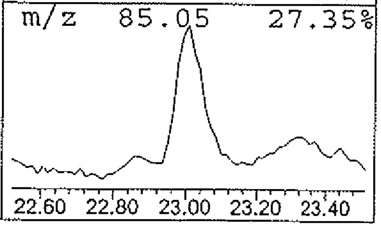












```
                           Quantitation Report    (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\10-16-01\I1950.D            Vial: 33
Acq On    : 17 Oct 2001   5:09                       Operator: DP
Sample    : TB,7040-007,M,0.040g                     Inst    : 5970 - In
Misc      : BRENNAN/99704_FINETEX,10/11/01,10/11/01  Multiplr: 1.00
MS Integration Params: rteint.p
 Quant Time: Oct 17 14:30 2001               Quant Results File: IME1010.RES

Quant Method : C:\HPCHEM\1\METHODS\IME1010.M (RTE Integrator)
Title        : VOLATILE ORGANICS BY EPA METHOD 8260B
Last Update  : Thu Oct 11 09:23:20 2001
Response via : Initial Calibration
DataAcq Meth : VOAI

 Internal Standards                  R.T. QIon  Response  Conc Units Dev(Min)
 -----------------------------------------------------------------------------
   1) Pentafluorobenzene             9.70  168  1063650    50.00 UG     -0.04
  31) 1,4-Difluorobenzene           10.92  114  1430560    50.00 UG     -0.03
  50) Chlorobenzene-d5              15.87  117  1160991    50.00 UG     -0.02

System Monitoring Compounds
  30) 1,2-Dichloroethane-d4         10.19   65  1143712    85.09 UG     -0.02
   Spiked Amount       50.000   Range  36 - 115    Recovery    =  170.18%#
  41) Toluene-d8                    13.40   98  2182417    97.34 UG     -0.02
   Spiked Amount       50.000   Range  35 - 117    Recovery    =  194.68%#
  59) Bromofluorobenzene            17.95   95  1572944    76.78 UG      0.00
   Spiked Amount       50.000   Range  47 - 115    Recovery    =  153.56%#

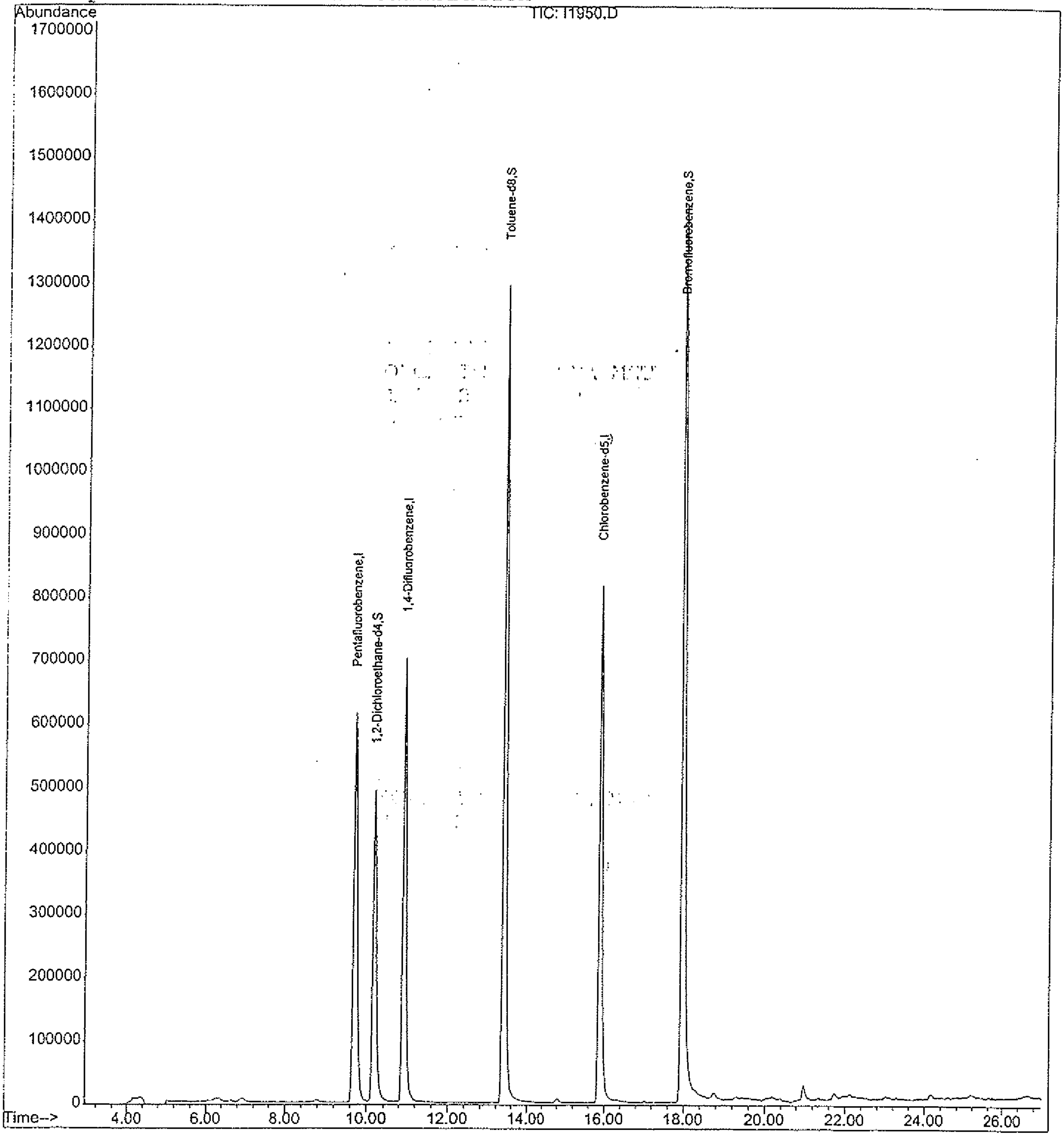
Target Compounds                                                       Qvalue

-----------------------------------------------------------------------------
(#) = qualifier out of range (m) = manual integration
I1950.D  IME1010.M     Wed Oct 17 14:30:42 2001      MSD_I          Page 1
```

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\10-16-01\I1950.D                Vial: 33
Acq On    : 17 Oct 2001   5:09                           Operator: DP
Sample    : TB,7040-007,M,0.040g                         Inst    : 5970 - In
Misc      : BRENNAN/99704_FINETEX,10/11/01,10/11/01      Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Oct 17 14:30 2001                    Quant Results File: IME1010.RES

Method         : C:\HPCHEM\1\METHODS\IME1010.M (RTE Integrator)
Title          : VOLATILE ORGANICS BY EPA METHOD 8260B
Last Update    : Thu Oct 11 09:23:20 2001
Response via   : Initial Calibration
```



0041

```
                            Quantitation Report    (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\10-16-01\I1948.D               Vial: 31
Acq On    : 17 Oct 2001    4:02                         Operator: DP
Sample    : N/A,METHOD_BLK,S,0.1g,0.0                   Inst    : 5970 - In
Misc      : N/A,N/A,N/A                                 Multiplr: 1.00
MS Integration Params: rteint.p
 Quant Time: Oct 18 13:36 2001              Quant Results File: IME1010.RES

Quant Method : C:\HPCHEM\1\METHODS\IME1010.M (RTE Integrator)
Title        : VOLATILE ORGANICS BY EPA METHOD 8260B
Last Update  : Thu Oct 11 09:23:20 2001
Response via : Initial Calibration
DataAcq Meth : VOAI

 Internal Standards                 R.T. QIon  Response  Conc Units Dev(Min)
-----------------------------------------------------------------------------
  1) Pentafluorobenzene             9.71  168  1047735    50.00 UG     -0.02
 31) 1,4-Difluorobenzene           10.92  114  1387504    50.00 UG     -0.03
 50) Chlorobenzene-d5              15.87  117  1182634    50.00 UG     -0.02

System Monitoring Compounds
 30) 1,2-Dichloroethane-d4         10.20   65   533676    40.31 UG      0.00
  Spiked Amount     50.000    Range  36 - 115   Recovery   =   80.62%
 41) Toluene-d8                    13.40   98  1090226    50.14 UG     -0.02
  Spiked Amount     50.000    Range  35 - 117   Recovery   =  100.28%
 59) Bromofluorobenzene            17.96   95   944331    45.25 UG      0.00
  Spiked Amount     50.000    Range  47 - 115   Recovery   =   90.50%

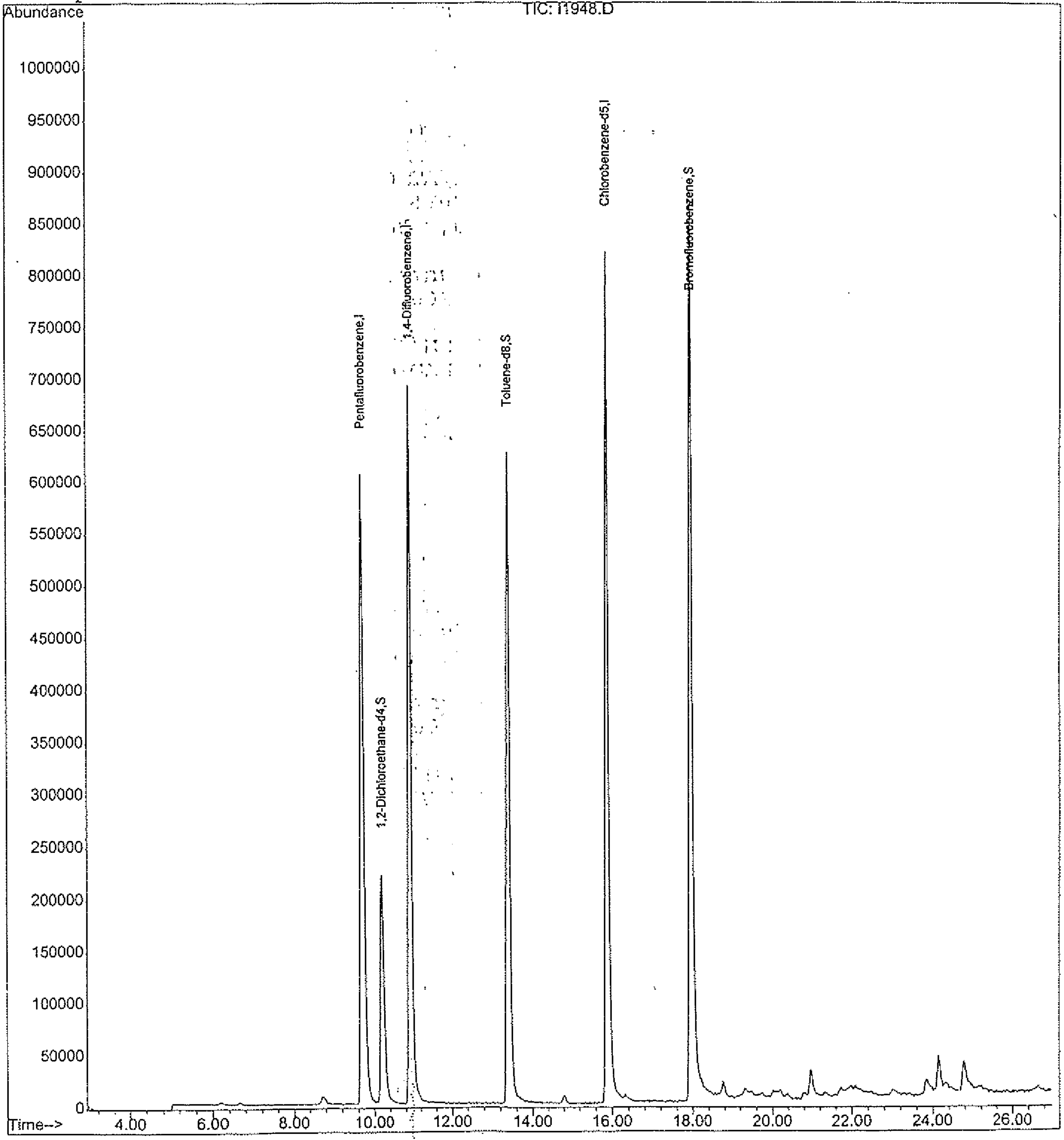
Target Compounds                                                   Qvalue

-----------------------------------------------------------------------------
(#) = qualifier out of range (m) = manual integration
I1948.D  IME1010.M      Thu Oct 18 13:36:49 2001      MSD_I          Page 1
```

## Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\10-16-01\I1948.D              Vial: 31
Acq On    : 17 Oct 2001   4:02                          Operator: DP
Sample    : N/A,METHOD_BLK,S,0.1g,0.0                   Inst    : 5970 - In
Misc      : N/A,N/A,N/A                                 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Oct 18 13:36 2001                Quant Results File: IME1010.RES

Method         : C:\HPCHEM\1\METHODS\IME1010.M (RTE Integrator)
Title          : VOLATILE ORGANICS BY EPA METHOD 8260B
Last Update    : Thu Oct 11 09:23:20 2001
Response via   : Initial Calibration
```



```
                      LSC Area Percent Report

  Data File : C:\HPCHEM\1\DATA\10-16-01\I1948.D              Vial: 31
  Acq On    : 17 Oct 2001    4:02                        Operator: DP
  Sample    : N/A,METHOD_BLK,S,0.1g,0.0                  Inst    : 5970 - In
  Misc      : N/A,N/A,N/A                                Multiplr: 1.00
  MS Integration Params: LSCINT.P

  Method    : C:\HPCHEM\1\METHODS\IME1010.M (RTE Integrator)
  Title     : VOLATILE ORGANICS BY EPA METHOD 8260B
  Smoothing : OFF                             Filtering: 5
  Sampling  : 1                                Min Area: 1 % of largest Peak
  Start Thrs: 0.2                             Max Peaks: 100
  Stop Thrs : 0                           Peak Location: TOP

  If leading or trailing edge < 100 prefer < Baseline drop else tangent >
  Peak separation: 5

  Signal    : TIC

peak  R.T. first  max last  PK   peak      corr.    corr.    % of
 #    min  scan  scan scan  TY  height     area    % max.   total
---  ----- ----- ---- ---- --- -------- ------- ------  -------
 1   9.711   438  447  462 rBV  604591   3830995  75.35%  16.546%
 2  10.201   471  479  491 rBV  218025   1363833  26.82%   5.890%
 3  10.923   518  526  550 rBV  689956   4065116  79.95%  17.557%
 4  13.399   679  687  700 rBV  625464   3560689  70.03%  15.379%
 5  15.871   841  848  865 rBV  818788   4556628  89.62%  19.680%

 6  17.958   977  984 1000 rBV  866079   5084454 100.00%  21.960%
 7  18.751  1032 1036 1041 rVB5  12835     53258   1.05%   0.230%
 8  20.969  1174 1180 1189 rVV3  25691    165419   3.25%   0.714%
 9  23.851  1361 1367 1373 rBV8  14062    101750   2.00%   0.439%
10  24.143  1380 1386 1393 rBV10  32926    173906   3.42%   0.751%

11  24.769  1420 1427 1434 rBV4  28846    197383   3.88%   0.853%

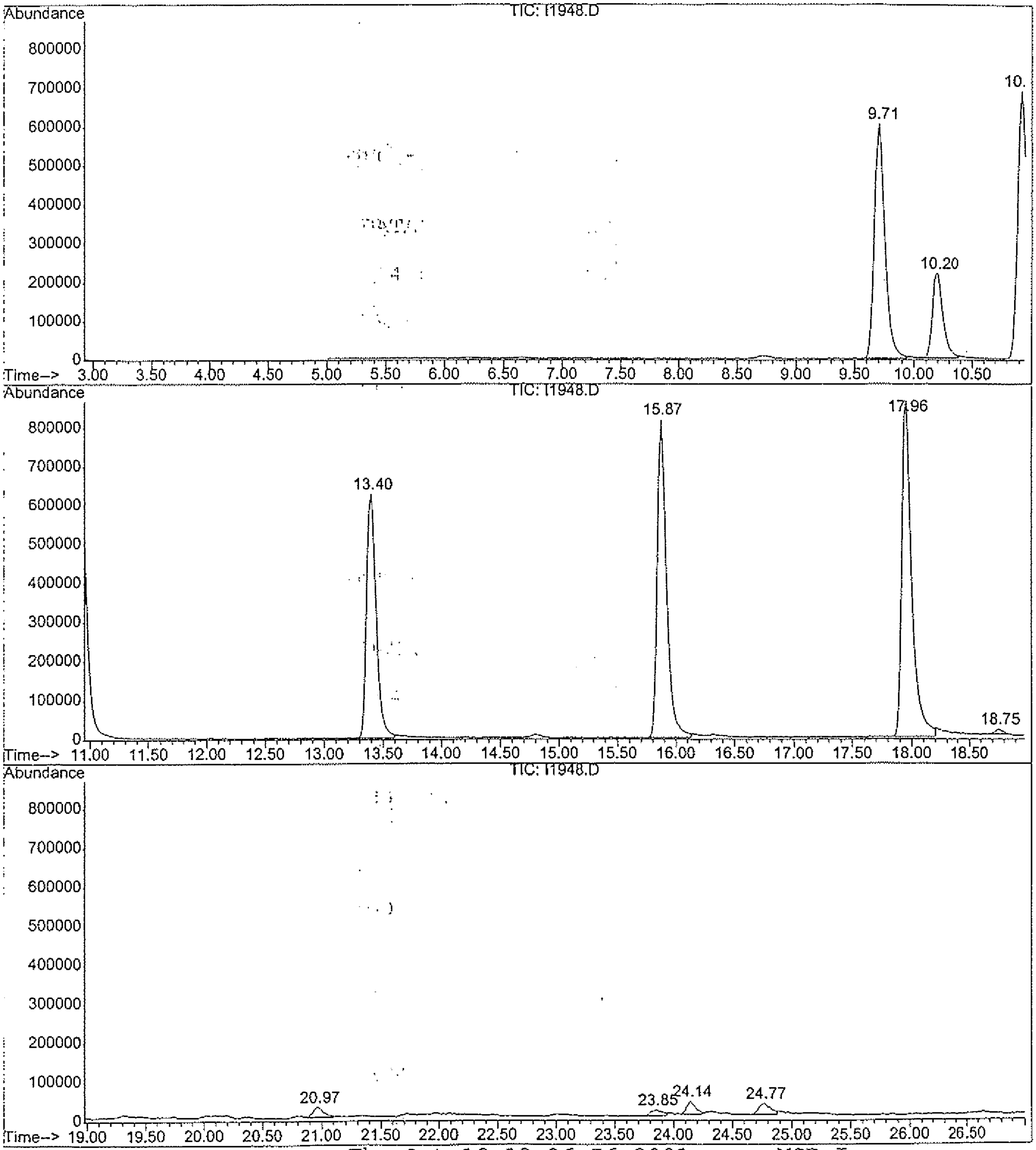

                    Sum of corrected areas:     23153431

  I1948.D  IME1010.M      Thu Oct 18 13:36:56 2001    MSD_I
```

0044

# LSC Report - Integrated Chromatogram

```
File        : C:\HPCHEM\1\DATA\10-16-01\I1948.D
Operator    : DP
Acquired    : 17 Oct 2001   4:02      using AcqMethod VOAI
Instrument  :   5970 - In
Sample Name: N/A,METHOD_BLK,S,0.1g,0.0
Misc Info   : N/A,N/A,N/A
Vial Number: 31
Quant File :IME1010.RES (RTE Integrator)
```



```
I1948.D  IME1010.M       Thu Oct 18 13:36:56 2001       MSD_I
```

0045

# General Chemistry Quality Control

Matrix Soil
Units: S-mg/kg

Batch ID: AP040-0474

## Blank

| Parameter | Method Blank | MDL | Analysis Date |
|---|---|---|---|
| TPHC | ND | 25.0 | 10/15/01 |

## Duplicate Recovery

| Parameter | QC Sample | Result | Duplicate Result | RPD | RPD Limits |
|---|---|---|---|---|---|
| TPHC | 7048-001 | 162 | 164 | 1 | 20.0 |

## Spike Recovery

| Parameter | QC Sample | Result | Spike Added | Spike Result | %Spike Recovery | %Rec. Limits |
|---|---|---|---|---|---|---|
| TPHC | 7048-001 | 162 | 533 | 664 | 94.2 | 75 - 125 |

The above blank results applies to the following samples E01

LCS-001-1015
7048-001
7048-001D
7048-001S
7048-002
7048-003
7048-004
7048-005
7048-006
7048-007
7048-008
7048-009
7048-010
7048-011
7048-012
7040-001
7040-002
7040-003
7040-004
7040-005
7040-006
7040-008
7027-001

++ = No Flash - Sample boiled at 100C
NA = Not Applicable
ND = Not Detected
NC = Non calculable RPD due to value less than the detection limit
No = Does Not Ignite
Yes = Sample Ignites

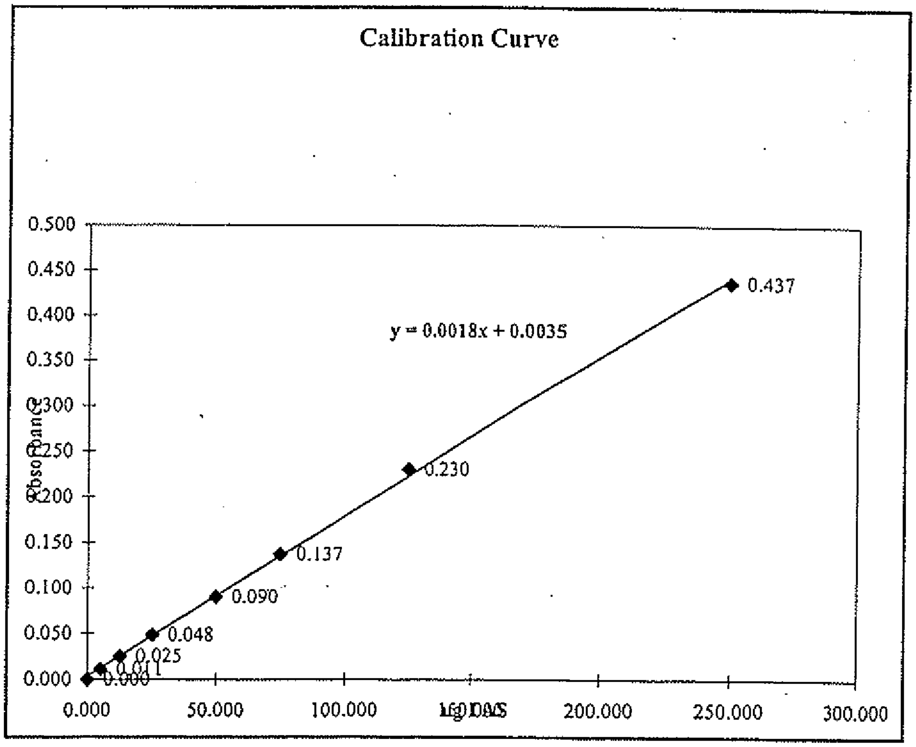
Integrated Analytical Laboratories

# TPH

| | |
|---|---|
| Date: | 26-Jul-01 |
| Method: | 418.1 |
| Matrix: | S/A |
| Analyst: | EDC |

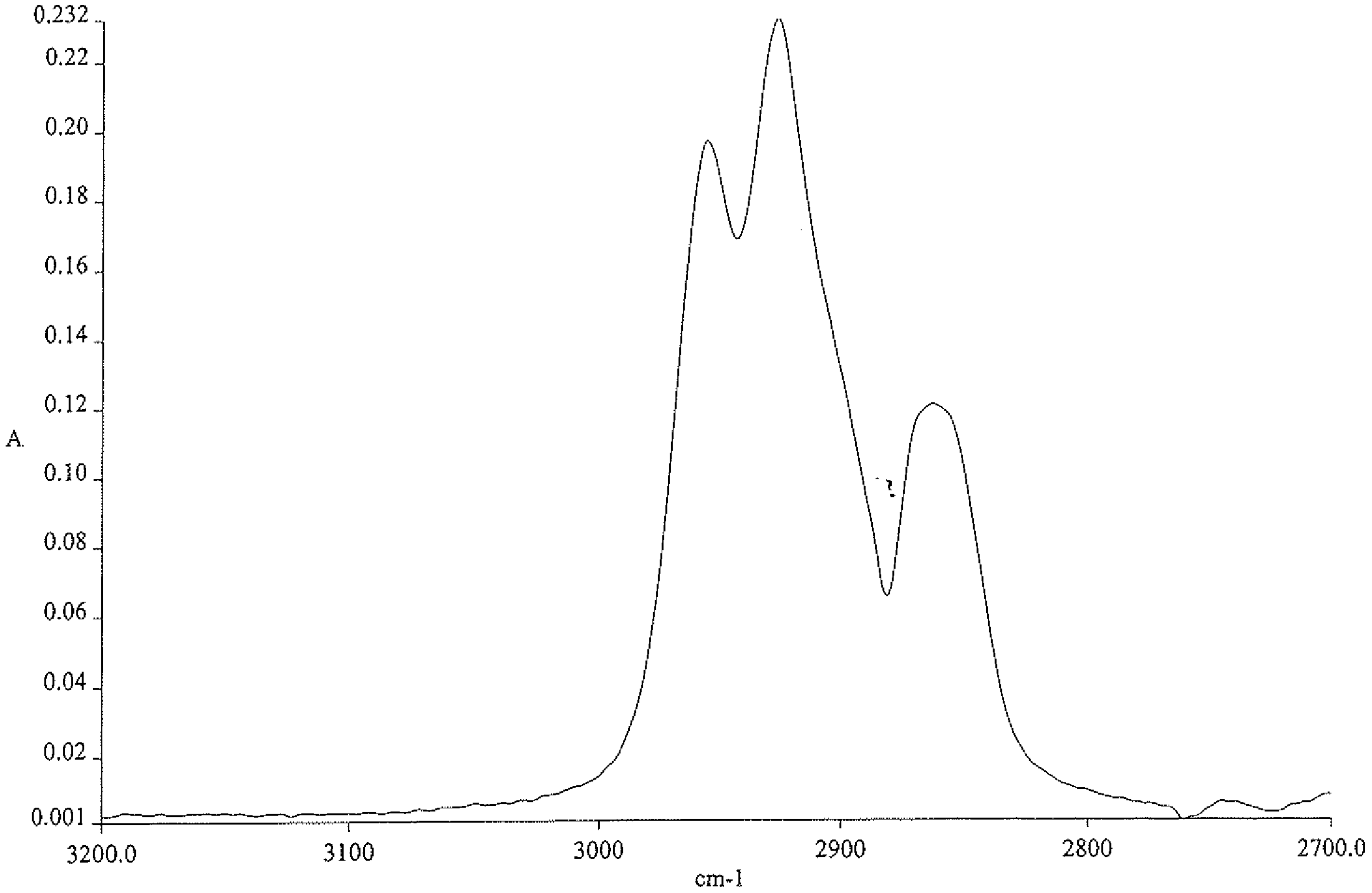
| ug | Abs. |
|---|---|
| 0.000 | 0.000 |
| 5.000 | 0.011 |
| 12.500 | 0.025 |
| 25.000 | 0.048 |
| 50.000 | 0.090 |
| 75.000 | 0.137 |
| 125.000 | 0.230 |
| 250.000 | 0.437 |
| | |
| | |

| | |
|---|---|
| $R^2$= | 0.999686985 |
| Slope= | 0.00175 |
| Intercept= | 0.00351 |

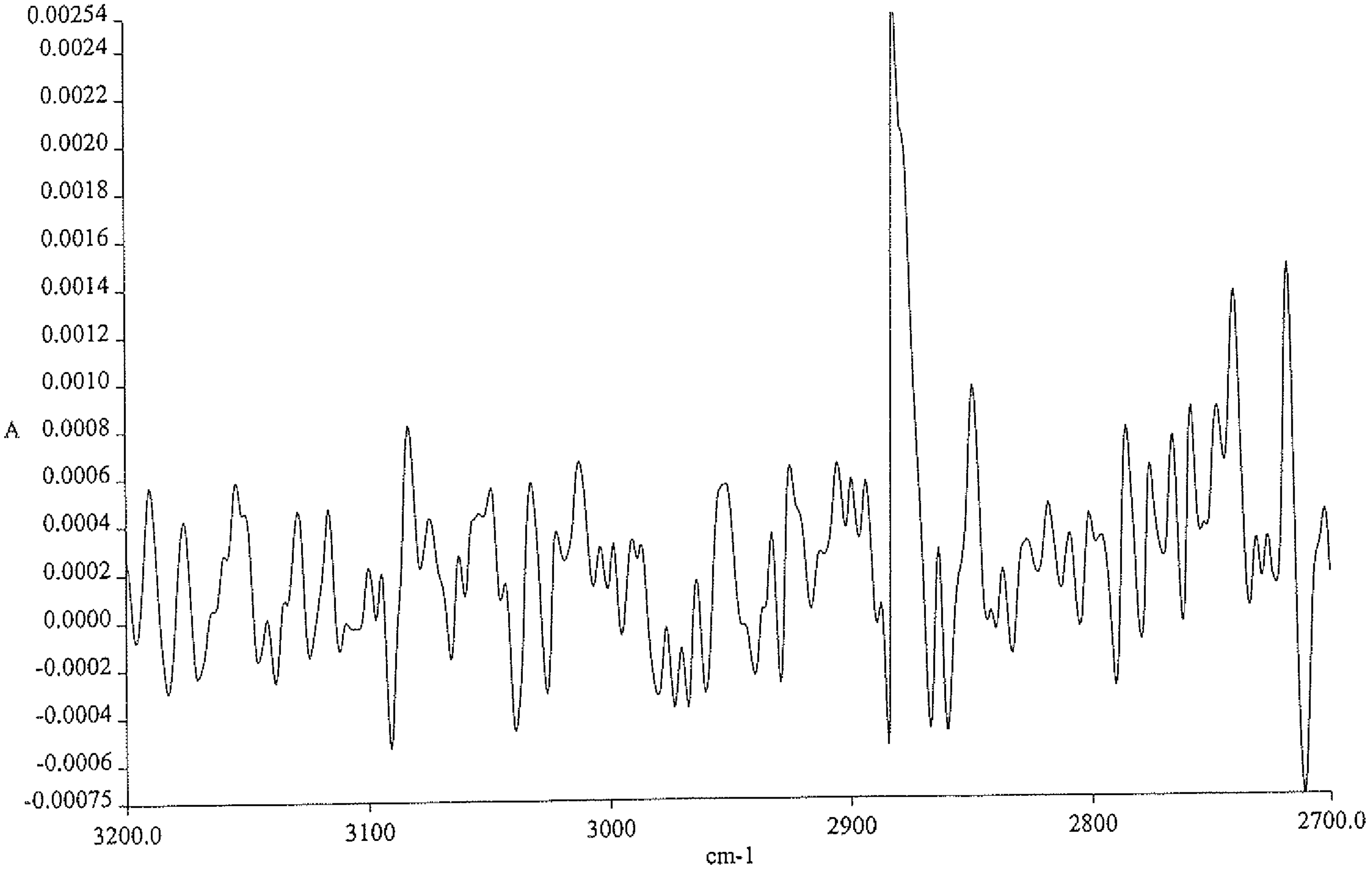


Comments:

0047



```
Monday, October 15, 2001;   09:32:41 ,
C:\PEL_DATA\SPECTRA\7027-001.SP, 2 scans, 4 cm-1
b-1015-1.sp
```



Monday, October 15, 2001;   09:04:40 ,
C:\PEL_DATA\SPECTRA\BLANK\B-1015-1.SP, 2 scans, 4 cm-1

0049

Phone # (973) 361-4252
Fax # (973) 989-5288

# INTEGRATED ANALYTICAL LABORATORIES
## CHAIN OF CUSTODY

273 Franklin Rd
Randolph, NJ 07869

### CLIENT & PROJECT

Company Name: Brennan Environmental (BEI)
Address: 8 Great Meadow Lane
East Hanover NJ
Telephone #: (973) 781-1801
Fax #: 781-1804
Project Name: 99704 Finetex
Project Manager: John Brennan
Reference ID#: 99704 PO#:

### REPORTING

Fax to: BEI
Fax #:
Report to: BEI
Address:
Invoice to: BEI
Address:

### Turnaround Time

**Conditional / TPHC**
[✓ 24 hr*] 48 hr 72 hr 1 wk NA Other:

**Verbal/Fax**
[✓ 24 hr*] 48 hr* 72 hr* 1 wk* 2 wk Other:

**Hard Copy**
72 hr* 1 wk* 2 wk* 3 wk Other: Std

*Prior to sample arrival, Lab notification is required.

### Report Format

Results Only
[✓ Reduced]
Regulatory
SRP Disk** [✓ dbf] or wk1
Other:

### ANALYTICAL PARAMETERS / PRESERVATIVES

** Circle format required

Preservatives
1. HCL 3. HNO₃
2. NaOH 4. H₂SO₄
[✓ 5. MeOH] 6. Other

COOLER TEMP. 4 °C

### SAMPLE INFORMATION

SAMPLE MATRIX
W - Waste SL - Sludge A - Aqueous
O - Oil X - Other S - Soil
GW - Groundwater SOL - Solid

| | | Sampling | | | | | | | 1 2 3 4 5 6 | 1 2 3 4 5 6 | 1 2 3 4 5 6 | 1 2 3 4 5 6 | 1 2 3 4 5 6 | 1 2 3 4 5 6 | 1 2 3 4 5 6 | 1 2 3 4 5 6 | 1 2 3 4 5 6 | 1 2 3 4 5 6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | Sample Description | Date | Time | am | pm | Matrix | # of Containers | Lab ID | TPH conditional VO+10 * | VO | TPH | | | | | | | | Comments |
| 5-S1 | Soil | 10/11/01 | 9:58 | ✓ | | S | 2 | 1 | X | | | | | | | | | | |
| RD ~~[illegible]~~ | ~~fill material~~ | ~~10/11/01~~ | ~~[illegible]~~ | | | ~~S~~ | ~~2~~ | | | | | | | | | | | | |
| 5-S2 | Soil | 10/11/01 | 12:49 | | ✓ | S | 2 | 2 | X | | | | | | | | | | |
| 5-S3 | Soil | 10/11/01 | 1:23 | | ✓ | S | 2 | 3 | X | | | | | | | | | | |
| 6-S1 | Soil | 10/11/01 | 10:58 | ✓ | | S | 2 | 4 | X | | | | | | | | | | |
| 6-S2 | Soil | 10/11/01 | 11:08 | ✓ | | S | 2 | 5 | X | | | | | | | | | | |
| 6-P1 | Piping | 10/11/01 | 9:08 | ✓ | | S | 2 | 6 | X | | | | | | | | | | |
| TB | trip blank | 10/11/01 | 9:00 | ✓ | | A | 1 | 7 | | X | | | | | | | | | |
| 5-P1 | piping | 10/11/01 | 1:32 | | ✓ | S | 1 | 8 | | | X | | | | | | | | |

Please print legibly and fill out completely. Samples cannot be processed and the turnaround time will not start until any ambiguities have been resolved.

Concentrations Expected
LOW MED HIGH

Known Hazard: yes no
Describe:

### CUSTODY LOG

| | Signature | Date | Time | | Signature |
|---|---|---|---|---|---|
| Relinquished by: | Robert Vodge | 10/11/01 | 1830 | Received by: | Jim Lowell |
| Relinquished by: | Jim Lowell | 10/11/01 | 1910 | Received by: | |
| Relinquished by: | | | | Received by: | |
| Relinquished by: | | | | Received by: | |
| Relinquished by: | | | | Received by: | |

Comments: * Conditional VO+10 analysis on 25% of the highest samples with TPH results greater than 1,000 ppm

Lab Case # 7040

PAGE: 1 OF 1

LAB COPIES - WHITE & YELLOW; CLIENT COPY - PINK

# CHAIN OF CUSTODY

Case No.: E01-7040 P.O. #:
Project : 99704 FINETEX
Client/Project: BRENNAN/99704 FINETEX

Client Address:
Brennan Environmental, Inc.
8 Great Meadow Lane
Unit D
East Hanover, NJ 07936

Billing Address:
Brennan Environmental, Inc.
8 Great Meadow Lane
Unit D
East Hanover, NJ 07936

Date Received: 10/11/01
Time Received: 19:10
Report Format: Reduced
Verbal Due: Oct 26
Report Due: Nov 2

| | | | | | | |
|---|---|---|---|---|---|---|
| # of Containers | 2 | 2 | 2 | 2 | 2 | 2 |
| IAL ID # | 7040-001 | 7040-002 | 7040-003 | 7040-004 | 7040-005 | 7040-006 |
| Client ID # | 5-S1 | 5-S2 | 5-S3 | 6-S1 | 6-S2 | 6-P1 |
| | | | | | | |
| | | | | | | |
| Matrix | Soil | Soil | Soil | Soil | Soil | Soil |
| Sample Date | 10/11/01 | 10/11/01 | 10/11/01 | 10/11/01 | 10/11/01 | 10/11/01 |
| Sample Time | 09:58 | 12:49 | 13:23 | 10:58 | 11:08 | 09:08 |
| Methanol Kit | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| VO + 10, PP MP | C | C | C | C | ✓ | C |
| % Solids | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| TPHC-24hr TAT | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Electronic Del. | ✓ | | | | | |

Comments: NOTE 1: VO DEPENDENT ON TPHC.
REV 01: AS PER BOB DOOLEY 10/16/01, RUN SAMPLES #5 & FOR VOA+10 AND SAMPLE #7 FOR PP VOA DUE 10/17/01. CANCEL OTHERS ON HOLD. mrf

# CHAIN OF CUSTODY

Case No.: E01-7040
Project : 99704 FINETEX
Client/Project: BRENNAN/99704 FINETEX

P.O. #:

Client Address:
Brennan Environmental, Inc.
8 Great Meadow Lane
Unit D
East Hanover, NJ 07936

Billing Address:
Brennan Environmental, Inc.
8 Great Meadow Lane
Unit D
East Hanover, NJ 07936

Date Received: 10/11/01
Time Received: 19:10
Report Format: Reduced

Verbal Due: Oct 26
Report Due: Nov 2

| | | |
|---|---|---|
| # of Containers | 1 | 1 |
| IAL ID # | 7040-007 | 7040-008 |
| Client ID # | TB | 5-P1 |
| | | |
| | | |
| Matrix | Soil | Soil |
| Sample Date | 10/11/01 | 10/11/01 |
| Sample Time | : | 13:32 |
| Methanol Kit | √ | |
| VO MP, PP | √ | |
| % Solids | | √ |
| TPHC-24hr TAT | | √ |

Comments: NOTE 1: VO DEPENDENT ON TPHC.
REV 01: AS PER BOB DOOLEY 10/16/01, RUN SAMPLES #5 & FOR VOA+10 AND SAMPLE #7 FOR PP VOA DUE 10/17/01. CANCEL OTHERS ON HOLD. mrf

# INTEGRATED ANALYTICAL LABORATORIES, LLC

## SAMPLE RECEIPT VERIFICATION

CASE NO: 7040 CLIENT: BEI

COOLER TEMPERATURE: 2° - 6°C: ✓ ( See Chain of Custody)

CHAIN OF CUSTODY: [✓ COMPLETE] / INCOMPLETE Comments:

Sample Bottles Intact: ✓ Comments:
Sample Labels Intact/ Correct: ✓
Sufficient Sample Volume: ✓
Correct bottles/ preservative: ✓
Samples received in holding time/ prep time: ✓
Headspace/ bubbles in voa samples: ✕
Samples to be subcontracted: $\bigcirc\!\!\!\checkmark$

Preserved Sample pH checked: $\bigcirc\!\!\!\checkmark$
(Excluding voa samples)

KEY

| | |
|---|---|
| ✓ | = YES |
| ✕ | = NO |
| $\bigcirc\!\!\!\checkmark$ | = N/A |

ADDITIONAL COMMENTS:

SAMPLE(S) VERIFIED BY: INITIAL RC DATE 10/11/01

**CORRECTIVE ACTION REQUIRED:** YES ☐ (SEE BELOW) NO ☐

CLIENT NOTIFIED: YES ☐ Date/ Time: NO ☐

PROJECT CONTACT:

SUBCONTRACTED LAB:

DATE SHIPPED:

ADDITIONAL COMMENTS:

VERIFIED/TAKEN BY: INITIAL Dm DATE

0053

REV 10/00

Integrated Analytical Laboratories, LLC.

## Laboratory Custody Chronicle

Case No : E01-7040
Client : Brennan Environmental, Inc.
Project : 99704 FINETEX

| | GC/MS V | | EXTRACT | | | ANALYSIS | | |
|---|---|---|---|---|---|---|---|---|
| | | | DATE | TIME | INITIAL | DATE | TIME | INITIAL |
| Methanol Kit | 7040-001 | S | | | | 10/17 | | DP |
| | 7040-002 | S | | | | | | |
| | 7040-003 | S | | | | | | |
| | 7040-004 | S | | | | | | |
| | 7040-005 | S | | | | | | |
| | 7040-006 | S | | | | | | |
| | 7040-007 | S | | | | | | |
| VO + 10, PP MP | 7040-005 | S | | | | | | |
| | 7040-007 | S | | | | | | |
| | 7040 | S | | | | | | |
| | 7040 | S | | | | | | |
| | 7040 | S | | | | | | |
| | 7040 | S | | | | | | |
| VO MP, PP | 7040 | S | | | | | | |
| | WETCHEM | | | | | | | |
| % Solids | 7040-001 | S | 10/12 | | KC | | | |
| | 7040-002 | S | | | | | | |
| | 7040-003 | S | | | | | | |
| | 7040-004 | S | | | | | | |
| | 7040-005 | S | | | | | | |
| | 7040-006 | S | | | | | | |
| | 7040-008 | S | | | | | | |
| TPHC-24hr TAT | 7040-001 | S | 10/12 | 1430 | DM | 10/15 | 900 | GM |
| | 7040-002 | S | | | | | | |
| | 7040-003 | S | | | | | | |
| | 7040-004 | S | | | | | | |
| | 7040-005 | S | | | | | | |
| | 7040-006 | S | | | | | | |
| | 7040-008 | S | | | | | | |
| | AIR | | | | | | | |
| Electronic Del. | 7040-001 | S | — | | | — | | |

REVIEW & APPROVAL:
REMARKS :

Integrated
Analytical
Labs

**Integrated Analytical Laboratories, LLC.**

273 Franklin Road
Randolph, N.J. 07869

Phone: 973 361-4252
Fax: 973 989-5288

# ANALYTICAL DATA REPORT

for
Brennan Environmental, Inc.
8 Great Meadow Lane
Unit D
East Hanover,NJ 07936

Project: 99704 FINETEX
Lab Case Number: E01-7041
Date Report Prepared: October 26, 2001

| CLIENT SAMPLE ID | LABORATORY SAMPLE ID |
|---|---|
| 5-F1 | 7041-001 |

All required protocols were followed during analyses. These data have been reviewed and accepted by

Michael H. Leftin, Ph.D.
Laboratory Director

# INTEGRATED ANALYTICAL LABORATORIES, LLC.

## TABLE OF CONTENTS

## INTEGRATED ANALYTICAL LABORATORIES, LLC.

### TABLE OF CONTENTS

# INTEGRATED ANALYTICAL LABORATORIES, LLC.

## MATRIX QUALIFIERS

**A** - Indicates the sample is an Aqueous matrix.

**O** - Indicates the sample is an Oil matrix.

**S** - Indicates the sample is a Soil, Sludge or Sediment matrix.

**X** - Indicates the sample is an Other matrix as indicated by Client Chain of Custody.

## DATA QUALIFIERS

**B** - Indicates the analyte was found in the Blank and in the sample. It indicates possible sample contamination and warns the data user to use caution when applying the results of the analyte.

**C** - Common Laboratory Contaminant.

**D** - The compound was reported from the Diluted analysis.

**D.F.** - Dilution Factor.

**E** - Estimated concentration, reported results are outside the calibrated range of the instrument.

**J** - Indicates an estimated value. The compound was detected at a value below the method detection limit but greater than zero. For GC/MS procedures, the mass spectral data meets the criteria required to identify the target compound.

**MDL** - Method Detection Limit.

**MI** - Indicates compound concentration could not be determined due to Matrix Interferences.

**NA** - Not Applicable.

**ND** - Indicates the compound was analyzed for but Not Detected at the MDL.

## REPORT QUALIFIERS

All solid sample analyses are reported on a dry weight basis.

All solid sample values are corrected for original sample size and percent solids.

# INTEGRATED ANALYTICAL LABORATORIES, LLC.

## CONFORMANCE / NONCONFORMANCE SUMMARY

Integrated Analytical Laboratories, LLC. received one (1) soil sample(s) from Brennan Environmental, Inc. (Project: 99704 FINETEX) on October 11, 2001 for the analysis of:

(1) Volatiles + 15
(1) Semivolatiles - BNA + 25
(1) PCB's
(1) Pesticides
(1) PP Metals
(1) Cyanide, Total
(1) Total Recoverable Phenols

A review of the QA/QC measures for the analysis of the sample(s) contained in this report has been performed by:

Reviewed by

10/26/01
Date

# INTEGRATED ANALYTICAL LABORATORIES, LLC.

## LABORATORY DELIVERABLES CHECK LIST

Lab Case Number: E01-7041

| | | Check If Complete |
|---|---|---|
| 1. | Cover Page, Title Page listing Lab Certification #, facility name & address and date of report preparation. | ✓ |
| 2. | Table of Contents. | ✓ |
| 3. | Summary Sheets listing analytical results for all targeted and non-targeted compounds. | ✓ |
| 4. | Summary Table cross-referencing Field ID's vs. Lab ID's. | ✓ |
| 5. | Document bound, paginated and legible. | ✓ |
| 6. | Chain of Custody. | ✓ |
| 7. | Methodology Summary. | ✓ |
| 8. | Laboratory Chronicle and Holding Time Check. | ✓ |
| 9. | Results submitted on a dry weight basis (if applicable). | ✓ |
| 10. | Method Detection Limits. | ✓ |
| 11. | Lab certified by NJDEP for parameters or appropriate category of parameters or a member of the USEPA CLP. | ✓ |
| 12. | NonConformance Summary. | ✓ |

QC Reviewed by

10/26/01
Date

# INTEGRATED ANALYTICAL LABORATORIES
# CONFORMANCE/NONCONFORMANCE SUMMARY
# GC/MS VOLATILE ANALYSIS

Lab Case Number: E01 - 7041

| | No | Yes |
|---|---|---|
| 1. Chromatograms Labeled/Compounds Identified (Field Samples and Method Blanks). | | ✓ |
| 2. GC/MS Tuning Specifications:<br>a. BFB Passed | | ✓ |
| 3. GC/MS Tuning Frequency - Performed every 24 hours for 600 series, 12 hours for 8000 series and 8 hours for 500 series. | | ✓ |
| 4. GC/MS Calibration - Initial calibration performed within 30 days before sample analysis and continuing calibration performed within 24 hours before sample analysis for 600 series, 12 hours for 8000 series | | ✓ |
| 5. GC/MS Calibration Requirements: | | |
| a. Calibration Check Compounds | | ✓ |
| b. System Performance Check Compounds | | ✓ |
| 6. Blank Contamination - If yes, list compounds and concentrations in each blank: | ✓ | |
| 7. Surrogate Recoveries Meet Criteria (If not met, list those compounds and their recoveries which fall outside the acceptable range) | | ✓ |
| If not met, were the calculations checked and the results qualified as "estimated"? | | na |
| 8. Matrix Spike/Matrix Spike Duplicate meet criteria (if not, list those compounds and their recoveries/% differences which fall outside the acceptable range) | | ✓ |
| 9. Internal Standard Area/Retention Time Shift meet criteria | | ✓ |
| 10. Extraction Holding Time Met<br>If not met, list number of days exceeded for each sample: | | N/A |
| 11. Analysis Holding Time Met<br>If not met, list number of days exceeded for each sample: | | ✓ |
| 12. Sample Dilution Performed | ✓ | |

| High Target Compounds | High Nontarget Compounds | Matrix Interference | Other |
|---|---|---|---|
| ☐ | ☐ | ☐ | ☐ |

13. Comments:

Organics Manager

Date 10/19/01

rev 12/00

# INTEGRATED ANALYTICAL LABORATORIES
# CONFORMANCE/NONCONFORMANCE SUMMARY
# GC/MS SEMIVOLATILE ANALYSIS

Lab Case Number: E01 - 7041

| | No | Yes |
|---|---|---|
| 1. Chromatograms Labeled/Compounds Identified (Field Samples and Method Blanks). | | ✓ |
| 2. GC/MS Tuning Specifications:<br>a. DFTPP Passed | | ✓ |
| 3. GC/MS Tuning Frequency - Performed every 24 hours for 600 series, 12 hours for 8000 series. | | ✓ |
| 4. GC/MS Calibration - Initial calibration performed within 30 days before sample analysis and continuing calibration performed within 24 hours before sample analysis for 600 series. | | ✓ |
| 5. GC/MS Calibration Requirements: | | |
| a. Calibration Check Compounds | | ✓ |
| b. System Performance Check Compounds | | ✓ |
| 6. Blank Contamination - If yes, list compounds and concentrations in each blank:<br>a. B/N Fraction ________<br>b. Acid Fraction ________ | ✓ | |
| 7. Surrogate Recoveries Meet Criteria (If not met, list those compounds and their recoveries which fall outside the acceptable range)<br>a. B/N Fraction ________<br>b. Acid Fraction ________ | | ✓ |
| If not met, were the calculations checked and the results qualified as "estimated"? | | na |
| 8. Matrix Spike/Matrix Spike Duplicate meet criteria (if not, list those compounds and their recoveries/% differences which fall outside the acceptable range)<br>a. B/N Fraction ________<br>b. Acid Fraction ________ | | ✓ |
| 9. Internal Standard Area/Retention Time Shift meet criteria | | ✓ |
| 10. Extraction Holding Time Met<br>If not met, list number of days exceeded for each sample: | | ✓ |
| 11. Analysis Holding Time Met<br>If not met, list number of days exceeded for each sample: | | ✓ |
| 12. Sample Dilution Performed | ✓ | |

| High Target Compounds | High Nontarget Compounds | Matrix Interference | Other |
|---|---|---|---|
| ☐ | ☐ | ☐ | ☐ |

13. Comments:

Organics Manager

10/16/01
Date

# INTEGRATED ANALYTICAL LABORATORIES
# CONFORMANCE/NONCONFORMANCE SUMMARY
## GC ANALYSIS - PCB'S, PESTICIDES, HERBICIDES

Lab Case Number: E01 - 9041

| | | No | Yes |
|---|---|---|---|
| 1. | Chromatograms Labeled/Compounds Identified (Field Samples and Method Blanks). | | ✓ |
| 2. | Standards Summary submitted. | | ✓ |
| 3. | Calibration - Initial calibration performed within 30 days before sample analysis and continuing calibration performed within 12 hrs of the sample analysis. | | ✓ |
| 4. | Blank Contamination - If yes, list compounds and concentrations in each blank: | ✓ | |
| | a. PCB's | | |
| | b. Pesticides | | |
| | c. Herbicides | | |
| 5. | Surrogate Recoveries meet criteria (if applicable). If not met, list those compounds and their recoveries which fall outside the acceptable range: | | ✓ |
| | a. PCB's | | |
| | b. Pesticides | | |
| | c. Herbicides | | |
| 6. | Matrix Spike/Matrix Spike Duplicate meet criteria (if not, list those compounds and their recoveries/% differences which fall outside the acceptable range) acceptable range: | | ✓ |
| | a. PCB's | | |
| | b. Pesticides | | |
| | c. Herbicides | | |
| 7. | Retention Time Shift Meet Criteria (if applicable). | | ✓ |
| 8. | Extraction Holding Time Met. If not met, list number of days exceeded for each sample: | | ✓ |
| 9. | Analysis Holding Time Met. If not met, list number of days exceeded for each sample: | | ✓ |

Comments:

Organic Manager

10.17. 2001
Date

## INTEGRATED ANALYTICAL LABORATORIES

## METAL ANALYSIS CONFORMANCE/NONCONFORMANCE SUMMARY

Lab Case Number: E01 - 7041

| | No | Yes |
|---|---|---|
| 1. Calibration Summary Meet Criteria. | | ✓ |
| 2. ICP Interference Check Sample Results Meets Criteria (if applicable) | | ✓ |
| 3. Serial Dilution Summary Submitted (if applicable) / Meets Criteria | | ✓ |
| 4. Internal Standards Meet Criteria (if applicable) | | ✓ |
| 5. Laboratory Control Sample Summary Submitted (if applicable)/Meets Criteria | | ✓ |
| 6. Blank Contamination: If yes, list compounds and concentrations in each blank: | ✓ | |
| 7. Matrix Spike/Matrix Spike Duplicate Recoveries Meet Criteria. (If not, list those compounds and their recoveries which fall outside the acceptable range). | | ✓ |
| 8. Extraction Holding Time Met. If not, list number of days exceeded for each sample: | | ✓ |
| 9. Analysis Holding Time Met. If not, list number of days exceeded for each sample: | | ✓ |

Additional Comments:

H. Falk-Jorgensen
Inorganics Manager

10/16/01
Date

# INTEGRATED ANALYTICAL LABORATORIES, LLC.

## SUMMARY REPORT
**Client: Brennan Environmental, Inc.**
**Project: 99704 FINETEX**
**Lab Case No.: E01-7041**

| | | | |
|---|---|---|---|
| **Lab ID:** | **7041-001** | | |
| **Client ID:** | **5-F1** | | |
| **Matrix:** | **Soil** | | |
| **Sampled Date:** | **10/11/2001** | | |
| **PARAMETER(Units)** | Conc | Q | MDL |
| **Volatiles (ppb)** | | | |
| **TOTAL VO's:** | ND | | 690 |
| **TOTAL TIC's:** | 4430 | | |
| **TOTAL VO's & TIC's:** | 4430 | | |
| **Semivolatiles - BNA (ppb)** | | | |
| **TOTAL BNA'S:** | ND | | 106 |
| **TOTAL TIC's:** | ND | | |
| **TOTAL BNA'S & TIC's:** | ND | | |
| **PCB's (ppb)** | | | |
| Aroclor-1016 | ND | | 154 |
| Aroclor-1221 | ND | | 154 |
| Aroclor-1232 | ND | | 154 |
| Aroclor-1242 | ND | | 154 |
| Aroclor-1248 | ND | | 154 |
| Aroclor-1254 | ND | | 154 |
| Aroclor-1260 | ND | | 154 |
| **Pesticides (ppb)** | | | |
| alpha-BHC | ND | | 3.87 |
| beta-BHC | ND | | 3.87 |
| gamma-BHC | ND | | 3.87 |
| delta-BHC | ND | | 3.87 |
| Heptachlor | ND | | 3.87 |
| Aldrin | ND | | 3.87 |
| Heptachlor epoxide | ND | | 3.87 |
| Endosulfan I | ND | | 3.87 |
| 4,4'-DDE | ND | | 3.87 |
| Dieldrin | ND | | 3.87 |
| Endrin | ND | | 3.87 |
| Endosulfan II | ND | | 3.87 |
| 4,4'-DDD | ND | | 3.87 |
| Endrin aldehyde | ND | | 3.87 |
| Endosulfan sulfate | ND | | 3.87 |
| 4,4'-DDT | ND | | 3.87 |
| Chlordane | ND | | 19.4 |
| Toxaphene | ND | | 19.4 |

ND = Analyzed for but Not Detected at the MDL
All qualifiers on individual Volatiles & Semivolatiles are carried down through summation.

## SUMMARY REPORT

**Client: Brennan Environmental, Inc.**
**Project: 99704 FINETEX**
**Lab Case No.: E01-7041**

| | | | |
|---|---|---|---|
| **Lab ID:** | 7041-001 | | |
| **Client ID:** | 5-F1 | | |
| **Matrix:** | Soil | | |
| **Sampled Date:** | 10/11/2001 | | |
| **PARAMETER(Units)** | Conc | Q | MDL |
| **Metals (ppm)** | | | |
| Antimony | ND | | 1.09 |
| Arsenic | 1.70 | | 1.09 |
| Beryllium | ND | | 0.546 |
| Cadmium | ND | | 0.273 |
| Chromium | 9.00 | | 2.18 |
| Copper | 13.1 | | 2.18 |
| Lead | 14.4 | | 0.546 |
| Mercury | 0.0201 | | 0.0138 |
| Nickel | 8.48 | | 1.09 |
| Selenium | ND | | 2.18 |
| Silver | ND | | 0.546 |
| Thallium | ND | | 0.109 |
| Zinc | 26.1 | | 2.18 |
| **General Analytical** | | | |
| Cyanide, Total (ppm) | ND | | 1.10 |
| Total Recoverable Phenols (ppm) | ND | | 2.76 |

ND = Analyzed for but Not Detected at the MDL
All qualifiers on individual Volatiles & Semivolatiles are carried down through summation.

# INTEGRATED ANALYTICAL LABORATORIES

## VOLATILE ORGANICS

Client/Project: BRENNAN/99704 FINETEX

| | |
|---|---|
| Lab ID: 7041-001 | GC/MS Column: DB-624 |
| Client ID: 5-F1 | Sample wt/vol: 0.040g |
| Date Received: 10/11/2001 | Matrix-Units: Soil-μg/Kg (ppb) |
| Date Analyzed: 10/18/2001 | Dilution Factor: 1 |
| Data file: I1989.D | % Moisture: 9.4 |

| Compound | Concentration | Q | MDL |
|---|---|---|---|
| Chloromethane | ND | | 690 |
| Vinyl Chloride | ND | | 690 |
| Bromomethane | ND | | 690 |
| Chloroethane | ND | | 690 |
| Trichlorofluoromethane | ND | | 690 |
| Acrolein | ND | | 1380 |
| 1,1-Dichloroethene | ND | | 690 |
| Methylene Chloride | ND | | 690 |
| Acrylonitrile | ND | | 1380 |
| trans-1,2-Dichloroethene | ND | | 690 |
| 1,1-Dichloroethane | ND | | 690 |
| Chloroform | ND | | 690 |
| 1,1,1-Trichloroethane | ND | | 690 |
| Carbon Tetrachloride | ND | | 690 |
| 1,2-Dichloroethane(EDC) | ND | | 690 |
| Benzene | ND | | 690 |
| Trichloroethene | ND | | 690 |
| 1,2-Dichloropropane | ND | | 690 |
| Bromodichloromethane | ND | | 690 |
| 2-Chloroethylvinyl Ether | ND | | 690 |
| cis-1,3-Dichloropropene | ND | | 690 |
| Toluene | ND | | 690 |
| trans-1,3-Dichloropropene | ND | | 690 |
| 1,1,2-Trichloroethane | ND | | 690 |
| Tetrachloroethene | ND | | 690 |
| Dibromochloromethane | ND | | 690 |
| Chlorobenzene | ND | | 690 |
| Ethylbenzene | ND | | 690 |
| Total Xylenes | ND | | 690 |
| Bromoform | ND | | 690 |
| 1,1,2,2-Tetrachloroethane | ND | | 690 |
| 1,3-Dichlorobenzene | ND | | 690 |
| 1,4-Dichlorobenzene | ND | | 690 |
| 1,2-Dichlorobenzene | ND | | 690 |

Total Target Compounds: 0

## INTEGRATED ANALYTICAL LABORATORIES

### VOLATILE ORGANICS

### Tentatively Identified Compounds

Client/Project: BRENNAN/99704 FINETEX

Lab ID: 7041-001
Client ID: 5-F1
Date Received: 10/11/2001
Date Analyzed: 10/18/2001
Date File: I1989.D

GC/MS Column: DB-624
Sample wt/vol: 0.040g
Matrix-Units: Soil-μg/Kg (ppb)
Dilution Factor: 1
% Moisture: 9.4

| CAS # | Compound | Estimated Concentration | Retention Time |
|---|---|---|---|
| | Unknown alkane | 869 | 18.68 |
| 001120-21-4 | Undecane | 1120 | 20.87 |
| | Unknown alkane | 800 | 22.01 |
| 000112-40-3 | Dodecane | 924 | 22.90 |
| | Unknown alkane | 717 | 24.81 |

Total TICs = 4430

# INTEGRATED ANALYTICAL LABORATORIES

## SEMIVOLATILE ORGANICS

Client/Project: BRENNAN/99704 FINETEX

Lab ID: 7041-001
Client ID: 5-F1
Date Received: 10/11/2001
Date Extracted: 10/15/2001
Date Analyzed: 10/15/2001
Data file: B6861.D

GC/MS Column: DB-5
Sample wt/vol: 10.39g
Matrix-Units: Soil-$\mu$g/Kg (ppb)
Dilution Factor: 1
% Moisture: 9.40

| Compound | Concentration | Q | MDL |
|---|---|---|---|
| N-Nitrosodimethylamine | ND | | 106 |
| Phenol | ND | | 106 |
| Aniline | ND | | 106 |
| bis(2-Chloroethyl)ether | ND | | 106 |
| 2-Chlorophenol | ND | | 106 |
| 1,3-Dichlorobenzene | ND | | 106 |
| 1,4-Dichlorobenzene | ND | | 106 |
| Benzyl alcohol | ND | | 106 |
| 1,2-Dichlorobenzene | ND | | 106 |
| 2-Methylphenol | ND | | 106 |
| bis(2-chloroisopropyl)ether | ND | | 106 |
| 4-Methylphenol | ND | | 106 |
| N-Nitroso-di-n-propylamine | ND | | 106 |
| Hexachloroethane | ND | | 106 |
| Nitrobenzene | ND | | 106 |
| Isophorone | ND | | 106 |
| 2-Nitrophenol | ND | | 106 |
| 2,4-Dimethylphenol | ND | | 106 |
| bis(2-Chloroethoxy)methane | ND | | 106 |
| Benzoic acid | ND | | 106 |
| 2,4-Dichlorophenol | ND | | 106 |
| 1,2,4-Trichlorobenzene | ND | | 106 |
| Naphthalene | ND | | 106 |
| 4-Chloroaniline | ND | | 106 |
| Hexachlorobutadiene | ND | | 106 |
| 4-Chloro-3-methylphenol | ND | | 106 |
| 2-Methylnaphthalene | ND | | 106 |
| Hexachlorocyclopentadiene | ND | | 106 |
| 2,4,6-Trichlorophenol | ND | | 106 |
| 2,4,5-Trichlorophenol | ND | | 106 |
| 2-Chloronaphthalene | ND | | 106 |
| 2-Nitroaniline | ND | | 106 |
| Dimethylphthalate | ND | | 106 |
| 2,6-Dinitrotoluene | ND | | 106 |
| Acenaphthylene | ND | | 106 |

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# INTEGRATED ANALYTICAL LABORATORIES

## SEMIVOLATILE ORGANICS

Client/Project: BRENNAN/99704 FINETEX

Lab ID: 7041-001
Client ID: 5-F1
Date Received: 10/11/2001
Date Extracted: 10/15/2001
Date Analyzed: 10/15/2001
Data file: B6861.D

GC/MS Column: DB-5
Sample wt/vol: 10.39g
Matrix-Units: Soil-µg/Kg (ppb)
Dilution Factor: 1
% Moisture: 9.40

| Compound | Concentration | Q | MDL |
|---|---|---|---|
| 3-Nitroaniline | ND | | 106 |
| Acenaphthene | ND | | 106 |
| 2,4-Dinitrophenol | ND | | 106 |
| 4-Nitrophenol | ND | | 106 |
| 2,4-Dinitrotoluene | ND | | 106 |
| Dibenzofuran | ND | | 106 |
| Diethylphthalate | ND | | 106 |
| Fluorene | ND | | 106 |
| 4-Chlorophenyl-phenylether | ND | | 106 |
| 4-Nitroaniline | ND | | 106 |
| 4,6-Dinitro-2-methylphenol | ND | | 106 |
| N-Nitrosodiphenylamine | ND | | 106 |
| 1,2-Diphenylhydrazine/Azobenzene | ND | | 106 |
| 4-Bromophenyl-phenylether | ND | | 106 |
| Hexachlorobenzene | ND | | 106 |
| Pentachlorophenol | ND | | 106 |
| Phenanthrene | ND | | 106 |
| Anthracene | ND | | 106 |
| Carbazole | ND | | 106 |
| Di-n-butylphthalate | ND | | 106 |
| Fluoranthene | ND | | 106 |
| Benzidine | ND | | 106 |
| Pyrene | ND | | 106 |
| 3,3'-Dimethylbenzidine | ND | | 106 |
| Butylbenzylphthalate | ND | | 106 |
| 3,3'-Dichlorobenzidine | ND | | 106 |
| Benzo[a]anthracene | ND | | 106 |
| Chrysene | ND | | 106 |
| bis(2-Ethylhexyl)phthalate | ND | | 106 |
| Di-n-octylphthalate | ND | | 106 |
| Benzo[b]fluoranthene | ND | | 106 |
| Benzo[k]fluoranthene | ND | | 106 |
| Benzo[a]pyrene | ND | | 106 |
| Indeno[1,2,3-cd]pyrene | ND | | 106 |
| Dibenz[a,h]anthracene | ND | | 106 |
| Benzo[g,h,i]perylene | ND | | 106 |

Total Target Compounds: 0

# INTEGRATED ANALYTICAL LABORATORIES

## SEMIVOLATILE ORGANICS
### Tentatively Identified Compounds

Client/Project: BRENNAN/99704 FINETEX

Lab ID: 7041-001
Client ID: 5-F1
Date Received: 10/11/2001
Date Extracted: 10/15/2001
Date Analyzed: 10/15/2001
Data file: B6861.D

GC/MS Column: DB-5
Sample wt/vol: 10.39g
Matrix-Units: Soil-μg/Kg (ppb)
Dilution Factor: 1
% Moisture: 9.40

| CAS # | Compound | Estimated Concentration | Retention Time |
|---|---|---|---|
| | No peaks detected | | |

Total TICs = 0

# INTEGRATED ANALYTICAL LABORATORIES

## PCB's

Client/Project: BRENNAN/99704_FINETEX

Lab ID: 7041-001
Client ID: 5-F1
Date Received: 10/11/2001
Date Extracted: 10/15/2001
Date Analyzed: 10/16/2001
Data file: V6530.D

GC Column: DB-5/DB1701P
Sample wt/vol: 5.72g
Matrix-Units: Soil-µg/Kg (ppb)
Dilution Factor: 1
% Moisture: 9.47

| Compound | Concentration | Q | MDL |
|---|---|---|---|
| Aroclor-1016 | ND | | 154 |
| Aroclor-1221 | ND | | 154 |
| Aroclor-1232 | ND | | 154 |
| Aroclor-1242 | ND | | 154 |
| Aroclor-1248 | ND | | 154 |
| Aroclor-1254 | ND | | 154 |
| Aroclor-1260 | ND | | 154 |

## INTEGRATED ANALYTICAL LABORATORIES

## PESTICIDES

Client/Project: BRENNAN/99704 FINETEX

| | |
|---|---|
| Lab ID: 7041-001 | GC Column: DB-5/DB1701P |
| Client ID: 5-F1 | Sample wt/vol: 5.7g |
| Date Received: 10/11/2001 | Matrix-Units: Soil-μg/Kg (ppb) |
| Date Extracted: 10/15/2001 | Dilution Factor: 1 |
| Date Analyzed: 10/16/2001 | % Moisture: 9.4 |
| Data file: W8928.D | |

| Compound | Concentration | Q | MDL |
|---|---|---|---|
| alpha-BHC | ND | | 3.87 |
| beta-BHC | ND | | 3.87 |
| gamma-BHC | ND | | 3.87 |
| delta-BHC | ND | | 3.87 |
| Heptachlor | ND | | 3.87 |
| Aldrin | ND | | 3.87 |
| Heptachlor epoxide | ND | | 3.87 |
| Endosulfan I | ND | | 3.87 |
| 4,4'-DDE | ND | | 3.87 |
| Dieldrin | ND | | 3.87 |
| Endrin | ND | | 3.87 |
| Endosulfan II | ND | | 3.87 |
| 4,4'-DDD | ND | | 3.87 |
| Endrin aldehyde | ND | | 3.87 |
| Endosulfan sulfate | ND | | 3.87 |
| 4,4'-DDT | ND | | 3.87 |
| Chlordane | ND | | 19.4 |
| Toxaphene | ND | | 19.4 |

## INTEGRATED ANALYTICAL LABORATORIES, LLC.

## METALS

Client/Project: BRENNAN/99704 FINETEX

Lab ID: 7041-001
Client ID: 5-F1
Date Received: 10/11/01
Matrix-Units: Soil mg/Kg (ppm)
% Moisture: 9.4
Batch #: 260

| Compound | Result | Q | DF | MDL | Date Analyzed | Method |
|---|---|---|---|---|---|---|
| Antimony | ND | | 1 | 1.09 | 10/15/01 | 6020 |
| Arsenic | 1.70 | | 1 | 1.09 | 10/15/01 | 6020 |
| Beryllium | ND | | 1 | 0.546 | 10/15/01 | 6020 |
| Cadmium | ND | | 1 | 0.273 | 10/15/01 | 6020 |
| Chromium | 9.00 | | 1 | 2.18 | 10/15/01 | 6020 |
| Copper | 13.1 | | 1 | 2.18 | 10/15/01 | 6020 |
| Lead | 14.4 | | 1 | 0.546 | 10/15/01 | 6020 |
| Mercury | 0.0201 | | 1 | 0.0138 | 10/15/01 | 7471 A |
| Nickel | 8.48 | | 1 | 1.09 | 10/15/01 | 6020 |
| Selenium | ND | | 1 | 2.18 | 10/15/01 | 6020 |
| Silver | ND | | 1 | 0.546 | 10/15/01 | 6020 |
| Thallium | ND | | 1 | 0.109 | 10/15/01 | 6020 |
| Zinc | 26.1 | | 1 | 2.18 | 10/15/01 | 6020 |

## INTEGRATED ANALYTICAL LABORATORIES, LLC.

### Total Recoverable Phenols

Client/Project: BRENNAN/99704 FINETEX

Date Received: 10/11/01

| Lab ID | Client ID | Result | Q | DF | Matrix-Units | MDL | % Solids | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| 7041-001 | 5-F1 | ND |  | 1 | S-mg/Kg | 2.76 | 90.6 | 0/12/2001 |

# INTEGRATED ANALYTICAL LABORATORIES, LLC.

## Total Cyanide

Client/Project: BRENNAN/99704 FINETEX

Date Received: 10/11/01

| Lab ID | Client ID | Result | Q | DF | Matrix-Units | MDL | % Solids | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| 7041-001 | 5-F1 | ND |  | 1 | S-mg/Kg | 1.10 | 90.6 | 0/23/2001 |

# INTEGRATED ANALYTICAL LABORATORIES, LLC.

## METHODOLOGY SUMMARY

| Analytical Parameter | Aqueous Samples Method # | Soil/Other Samples Method # |
|---|---|---|
| Volatiles + 15 | NA | EPA 8260B |
| Semivolatiles - BNA + 25 | NA | EPA 8270C |
| PCB's | NA | EPA 8082 |
| Pesticides | NA | EPA 8081A |
| P.P. Metals | NA | EPA 6020 |
| Metals (Mercury) | NA | EPA 7471A |
| Cyanide, Total | NA | EPA 9012 A |
| Total Recoverable Phenols | NA | EPA 9066 |

# VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

Lab File ID: I1746.D BFB Injection Date: 10/10/2001

Inst ID: MSD I BFB Injection Time: 9:22

| m/z | Ion Abudance Criteria | %Relative Abundance | | | | |
|---|---|---|---|---|---|---|
| 50 | 15 - 40.0% of mass 95 | 31.5 | | | | |
| 75 | 30.0 - 60.0% of mass 95 | 57.3 | | | | |
| 95 | Base peak, 100% relative abundance | 100.0 | | | | |
| 96 | 5.0 - 9.0% of mass 95 | 6.4 | | | | |
| 173 | Less than 2.0% of mass 174 | 0.0 | ( | 0.0 | ) | 1 |
| 174 | Great than 50.0% of mass 95 | 69.3 | | | | |
| 175 | 5.0 - 9.0% of mass 174 | 5.9 | ( | 8.5 | ) | 1 |
| 176 | 95.0 - 101.0% of mass 174 | 68.7 | ( | 99.1 | ) | 1 |
| 177 | 5.0 - 9.0% of mass 176 | 4.5 | ( | 6.5 | ) | 2 |

1-Value is % mass 174 2-Value is % mass 176

This check applies to the following SAMPLES, MS, MSD, BLANKS and STANDARDS:

| Client ID | Lab Sample ID | File ID | Date Analyzed | Time Analyzed |
|---|---|---|---|---|
| 100 | 100_PPB_STD | I1747.D | 10/10/2001 | 9:34 |
| 200 | 200_PPB_STD | I1748.D | 10/10/2001 | 10:08 |
| 150 | 150_PPB_STD | I1749.D | 10/10/2001 | 10:48 |
| 50 | 50_PPB_STD | I1750.D | 10/10/2001 | 11:22 |
| 20 | 20_PPB_STD | I1751.D | 10/10/2001 | 12:01 |
| N/A | METHOD_BLK | I1752.D | 10/10/2001 | 12:34 |
| LCS | BLK_SPK | I1753.D | 10/10/2001 | 13:07 |
| TB | 6805-017 | I1754.D | 10/10/2001 | 13:41 |
| 9B-2-V_3-3.5' | 6805-002 | I1755.D | 10/10/2001 | 14:14 |
| 9B-2-VB_15.5-16' | 6805-003 | I1756.D | 10/10/2001 | 14:48 |
| 9B-3-V_1.5-2' | 6805-005 | I1757.D | 10/10/2001 | 15:22 |
| 9B-4_0-0.5' | 6805-006 | I1758.D | 10/10/2001 | 15:56 |
| 9B-4-B_19.5-20' | 6805-007 | I1759.D | 10/10/2001 | 16:29 |
| 9B-5-V_8.5-9' | 6805-009 | I1760.D | 10/10/2001 | 17:03 |
| 9B-5B_11.5-12' | 6805-010 | I1761.D | 10/10/2001 | 17:36 |
| 9B-1-V_9-9.5' | 6805-012 | I1762.D | 10/10/2001 | 18:10 |
| 9B-1-B_13.5-14' | 6805-013 | I1763.D | 10/10/2001 | 18:43 |
| 9B-6-V_8.5-9' | 6805-015 | I1764.D | 10/10/2001 | 19:17 |
| 9B-6-B_11.5-12' | 6805-016 | I1765.D | 10/10/2001 | 19:50 |
| MS | 6805-016MS | I1766.D | 10/10/2001 | 20:24 |

# VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

Lab File ID: I1746.D

Inst ID: MSD I

BFB Injection Date : 10/10/200

BFB Injection Time: 9:22

| m/z | Ion Abudance Criteria | %Relative Abundance | | | | |
|---|---|---|---|---|---|---|
| 50 | 15 - 40.0% of mass 95 | 31.5 | | | | |
| 75 | 30.0 - 60.0% of mass 95 | 57.3 | | | | |
| 95 | Base peak, 100% relative abundance | 100.0 | | | | |
| 96 | 5.0 - 9.0% of mass 95 | 6.4 | | | | |
| 173 | Less than 2.0% of mass 174 | 0.0 | ( | 0.0 | )1 | |
| 174 | Great than 50.0% of mass 95 | 69.3 | | | | |
| 175 | 5.0 - 9.0% of mass 174 | 5.9 | ( | 8.5 | )1 | |
| 176 | 95.0 - 101.0% of mass 174 | 68.7 | ( | 99.1 | )1 | |
| 177 | 5.0 - 9.0% of mass 176 | 4.5 | ( | 6.5 | )2 | |

1-Value is % mass 174    2-Value is % mass 176

This check applies to the following SAMPLES, MS, MSD, BLANKS and STANDARDS:

| Client ID | Lab Sample ID | File ID | Date Analyzed | Time Analyzed |
|---|---|---|---|---|
| MSD | 6805-016MSD | I1767.D | 10/10/2001 | 20:57 |

# VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

Lab File ID: I1944.D

BFB Injection Date: 10/17/2001

Inst ID: MSD_I

BFB Injection Time: 1:55

| m/z | Ion Abudance Criteria | %Relative Abundance | |
|---|---|---|---|
| 50 | 15 - 40.0% of mass 95 | 31.7 | |
| 75 | 30.0 - 60.0% of mass 95 | 59.1 | |
| 95 | Base peak, 100% relative abundance | 100.0 | |
| 96 | 5.0 - 9.0% of mass 95 | 8.0 | |
| 173 | Less than 2.0% of mass 174 | 0.0 | ( 0.0 )1 |
| 174 | Great than 50.0% of mass 95 | 81.8 | |
| 175 | 5.0 - 9.0% of mass 174 | 4.1 | ( 5.0 )1 |
| 176 | 95.0 - 101.0% of mass 174 | 80.0 | ( 97.8 )1 |
| 177 | 5.0 - 9.0% of mass 176 | 5.8 | ( 7.2 )2 |

1-Value is % mass 174 2-Value is % mass 176

This check applies to the following SAMPLES, MS, MSD, BLANKS and STANDARDS:

| Client ID | Lab Sample ID | File ID | Date Analyzed | Time Analyzed |
|---|---|---|---|---|
| 100 | 100_PPB_STD | I1946.D | 10/17/2001 | 2:56 |
| N/A | METHOD_BLK | I1948.D | 10/17/2001 | 4:02 |
| LCS | BLK_SPK | I1949.D | 10/17/2001 | 4:35 |
| TB | 7040-007 | I1950.D | 10/17/2001 | 5:09 |
| TRIP_BLANK | 6996-010 | I1951.D | 10/17/2001 | 5:42 |
| 31-E-FILL_MAT_0 | 6996-017 | I1952.D | 10/17/2001 | 6:15 |
| 6-S2 | 7040-005 | I1953.D | 10/17/2001 | 6:48 |
| 26D-1-B/2H-C-2-B | 7090-003 | I1955.D | 10/17/2001 | 7:55 |
| 5R-3_0-0.5' | 7090-005 | I1956.D | 10/17/2001 | 8:28 |
| 23A-3_0-0.5' | 7090-008 | I1957.D | 10/17/2001 | 9:01 |
| 23A-4_0-0.5' | 7090-009 | I1958.D | 10/17/2001 | 9:35 |
| 7B-1-V_1.5-2' | 7090-010 | I1959.D | 10/17/2001 | 10:09 |
| 22G-3_0-0.5' | 7090-012 | I1960.D | 10/17/2001 | 10:43 |
| MS | 7090-012MS | I1961.D | 10/17/2001 | 11:17 |
| MSD | 7090-012MSD | I1962.D | 10/17/2001 | 11:50 |
| SB-43B_5-5.5 | 7085-005 | I1963.D | 10/17/2001 | 12:23 |
| SB-43C_13.5-14 | 7085-006 | I1964.D | 10/17/2001 | 12:57 |

# VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

Lab File ID: I1980.D BFB Injection Date: 10/18/2001

Inst ID: MSD I BFB Injection Time: 9:51

| m/z | Ion Abudance Criteria | %Relative Abundance | |
|---|---|---|---|
| 50 | 15 - 40.0% of mass 95 | 30.0 | |
| 75 | 30.0 - 60.0% of mass 95 | 57.8 | |
| 95 | Base peak, 100% relative abundance | 100.0 | |
| 96 | 5.0 - 9.0% of mass 95 | 8.8 | |
| 173 | Less than 2.0% of mass 174 | 0.0 | ( 0.0 )1 |
| 174 | Great than 50.0% of mass 95 | 72.8 | |
| 175 | 5.0 - 9.0% of mass 174 | 5.6 | ( 7.7 )1 |
| 176 | 95.0 - 101.0% of mass 174 | 70.0 | ( 96.2 )1 |
| 177 | 5.0 - 9.0% of mass 176 | 5.7 | ( 8.1 )2 |

1-Value is % mass 174 2-Value is % mass 176

This check applies to the following SAMPLES, MS, MSD, BLANKS and STANDARDS:

| Client ID | Lab Sample ID | File ID | Date Analyzed | Time Analyzed |
|---|---|---|---|---|
| 100 | 100_PPB_STD | I1981.D | 10/18/2001 | 10:04 |
| N/A | METHOD_BLK | I1983.D | 10/18/2001 | 11:10 |
| LCS | BLK_SPK | I1984.D | 10/18/2001 | 11:44 |
| SB-40B_5-5.5 | 7151-002 | I1985.D | 10/18/2001 | 12:18 |
| SB-44B_9.5-10 | 7151-007 | I1986.D | 10/18/2001 | 12:52 |
| SB-44C_13.75-14.2 | 7151-008 | I1987.D | 10/18/2001 | 13:26 |
| SB-44D_18-18.5 | 7151-009 | I1988.D | 10/18/2001 | 14:00 |
| 5-F1 | 7041-001 | I1989.D | 10/18/2001 | 14:34 |
| 5A-3-V_7-7.5' | 6996-002 | I1990.D | 10/18/2001 | 15:08 |
| 5A-4-V_13-13.5' | 6996-012 | I1991.D | 10/18/2001 | 15:41 |
| 5R-8-V_10-10.5' | 6996-015 | I1992.D | 10/18/2001 | 16:15 |
| IJ_WIPE | 7061-001 | I1993.D | 10/18/2001 | 16:49 |
| SB-1A | 6924-004 | I1996.D | 10/18/2001 | 18:29 |
| SB-1C | 6924-006 | I1997.D | 10/18/2001 | 19:03 |
| SB-43E_21.7-22.2 | 7085-008 | I1998.D | 10/18/2001 | 19:37 |
| SB-43D_15.5-16 | 7085-007 | I1999.D | 10/18/2001 | 20:10 |
| SB-43C_13.5-14 | 7085-006 | I2000.D | 10/18/2001 | 20:43 |

FORM 5

# VOLATILE METHOD BLANK SUMMARY

Lab File ID: I1948.D

Instrument ID: MSD_I

Date Analyzed: 10/17/2001

Time Analyzed: 04:02

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS & MSD:

| **Client ID** | **Lab Sample ID** | **Date Analyzed** | **Time Analyzed** |
|---|---|---|---|
| LCS | BLK_SPK | 10/17/2001 | 4:35 |
| TB | 7040-007 | 10/17/2001 | 5:09 |
| TRIP_BLANK | 6996-010 | 10/17/2001 | 5:42 |
| 31-E-FILL_MAT_0-9 | 6996-017 | 10/17/2001 | 6:15 |
| 6-S2 | 7040-005 | 10/17/2001 | 6:48 |
| 26D-1-B/2H-C-2-B | 7090-003 | 10/17/2001 | 7:55 |
| 5R-3_0-0.5' | 7090-005 | 10/17/2001 | 8:28 |
| 23A-3_0-0.5' | 7090-008 | 10/17/2001 | 9:01 |
| 23A-4_0-0.5' | 7090-009 | 10/17/2001 | 9:35 |
| 7B-1-V_1.5-2' | 7090-010 | 10/17/2001 | 10:09 |
| 22G-3_0-0.5' | 7090-012 | 10/17/2001 | 10:43 |
| MS | 7090-012MS | 10/17/2001 | 11:17 |
| MSD | 7090-012MSD | 10/17/2001 | 11:50 |
| SB-43B_5-5.5 | 7085-005 | 10/17/2001 | 12:23 |
| SB-43C_13.5-14 | 7085-006 | 10/17/2001 | 12:57 |

## INTEGRATED ANALYTICAL LABORATORIES

## VOLATILE ORGANICS

Client/Project: N/A

| | |
|---|---|
| Lab ID: METHOD_BLK | GC/MS Column: DB-624 |
| Client ID: N/A | Sample wt/vol: 0.1g |
| Date Received: N/A | Matrix-Units: Soil-μg/Kg (ppb) |
| Date Analyzed: 10/17/2001 | Dilution Factor: 50 |
| Data file: I1948.D | % Moisture: 0.0 |

| Compound | Concentration | Q | MDL |
|---|---|---|---|
| Chloromethane | ND | | 250 |
| Vinyl Chloride | ND | | 250 |
| Bromomethane | ND | | 250 |
| Chloroethane | ND | | 250 |
| Trichlorofluoromethane | ND | | 250 |
| Acrolein | ND | | 500 |
| 1,1-Dichloroethene | ND | | 250 |
| Methylene Chloride | ND | | 250 |
| Acrylonitrile | ND | | 500 |
| trans-1,2-Dichloroethene | ND | | 250 |
| 1,1-Dichloroethane | ND | | 250 |
| Chloroform | ND | | 250 |
| 1,1,1-Trichloroethane | ND | | 250 |
| Carbon Tetrachloride | ND | | 250 |
| 1,2-Dichloroethane(EDC) | ND | | 250 |
| Benzene | ND | | 250 |
| Trichloroethene | ND | | 250 |
| 1,2-Dichloropropane | ND | | 250 |
| Bromodichloromethane | ND | | 250 |
| 2-Chloroethylvinyl Ether | ND | | 250 |
| cis-1,3-Dichloropropene | ND | | 250 |
| Toluene | ND | | 250 |
| trans-1,3-Dichloropropene | ND | | 250 |
| 1,1,2-Trichloroethane | ND | | 250 |
| Tetrachloroethene | ND | | 250 |
| Dibromochloromethane | ND | | 250 |
| Chlorobenzene | ND | | 250 |
| Ethylbenzene | ND | | 250 |
| Total Xylenes | ND | | 250 |
| Styrene | ND | | 250 |
| Bromoform | ND | | 250 |
| 1,1,2,2-Tetrachloroethane | ND | | 250 |
| 1,3-Dichlorobenzene | ND | | 250 |
| 1,4-Dichlorobenzene | ND | | 250 |
| 1,2-Dichlorobenzene | ND | | 250 |
| Naphthalene | ND | | 250 |

Total Target Compounds: 0

# INTEGRATED ANALYTICAL LABORATORIES

## VOLATILE ORGANICS

### Tentatively Identified Compounds

Client/Project: N/A

Lab ID: METHOD_BLK
Client ID: N/A
Date Received: N/A
Date Analyzed: 10/17/2001
Data file: I1948.D

GC/MS Column: DB-624
Sample wt/vol: 0.1g
Matrix-Units: Soil-µg/Kg (ppb)
Dilution Factor: 50
% Moisture: 0.0

| CAS # | Compound | Estimated Concentration | Retention Time |
|---|---|---|---|
| | No peaks detected | | |

Total TICs = 0

## VOLATILE METHOD BLANK SUMMARY

Lab File ID: I1983.D

Instrument ID: MSD I

Date Analyzed: 10/18/2001

Time Analyzed: 11:10

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS & MSD:

| Client ID | Lab Sample ID | Date Analyzed | Time Analyzed |
|---|---|---|---|
| LCS | BLK_SPK | 10/18/2001 | 11:44 |
| SB-40B_5-5.5 | 7151-002 | 10/18/2001 | 12:18 |
| SB-44B_9.5-10 | 7151-007 | 10/18/2001 | 12:52 |
| SB-44C_13.75-14.2 | 7151-008 | 10/18/2001 | 13:26 |
| SB-44D_18-18.5 | 7151-009 | 10/18/2001 | 14:00 |
| 5-F1 | 7041-001 | 10/18/2001 | 14:34 |
| 5A-3-V_7-7.5' | 6996-002 | 10/18/2001 | 15:08 |
| 5A-4-V_13-13.5' | 6996-012 | 10/18/2001 | 15:41 |
| 5R-8-V_10-10.5' | 6996-015 | 10/18/2001 | 16:15 |
| IJ_WIPE | 7061-001 | 10/18/2001 | 16:49 |
| SB-1A | 6924-004 | 10/18/2001 | 18:29 |
| SB-1C | 6924-006 | 10/18/2001 | 19:03 |
| SB-43E_21.7-22.2 | 7085-008 | 10/18/2001 | 19:37 |
| SB-43D_15.5-16 | 7085-007 | 10/18/2001 | 20:10 |
| SB-43C_13.5-14 | 7085-006 | 10/18/2001 | 20:43 |

FORM 4

# INTEGRATED ANALYTICAL LABORATORIES

## VOLATILE ORGANICS

Client/Project: N/A

Lab ID: METHOD_BLK
Client ID: N/A
Date Received: N/A
Date Analyzed: 10/18/2001
Data file: I1983.D

GC/MS Column: DB-624
Sample wt/vol: 0.1g
Matrix-Units: Soil-µg/Kg (ppb)
Dilution Factor: 50
% Moisture: 0.0

| Compound | Concentration | Q | MDL |
|---|---|---|---|
| Chloromethane | ND | | 250 |
| Vinyl Chloride | ND | | 250 |
| Bromomethane | ND | | 250 |
| Chloroethane | ND | | 250 |
| Trichlorofluoromethane | ND | | 250 |
| Acrolein | ND | | 500 |
| 1,1-Dichloroethene | ND | | 250 |
| Methylene Chloride | ND | | 250 |
| Acrylonitrile | ND | | 500 |
| trans-1,2-Dichloroethene | ND | | 250 |
| 1,1-Dichloroethane | ND | | 250 |
| Chloroform | ND | | 250 |
| 1,1,1-Trichloroethane | ND | | 250 |
| Carbon Tetrachloride | ND | | 250 |
| 1,2-Dichloroethane(EDC) | ND | | 250 |
| Benzene | ND | | 250 |
| Trichloroethene | ND | | 250 |
| 1,2-Dichloropropane | ND | | 250 |
| Bromodichloromethane | ND | | 250 |
| 2-Chloroethylvinyl Ether | ND | | 250 |
| cis-1,3-Dichloropropene | ND | | 250 |
| Toluene | ND | | 250 |
| trans-1,3-Dichloropropene | ND | | 250 |
| 1,1,2-Trichloroethane | ND | | 250 |
| Tetrachloroethene | ND | | 250 |
| Dibromochloromethane | ND | | 250 |
| Chlorobenzene | ND | | 250 |
| Ethylbenzene | ND | | 250 |
| Total Xylenes | ND | | 250 |
| Bromoform | ND | | 250 |
| 1,1,2,2-Tetrachloroethane | ND | | 250 |
| 1,3-Dichlorobenzene | ND | | 250 |
| 1,4-Dichlorobenzene | ND | | 250 |
| 1,2-Dichlorobenzene | ND | | 250 |

Total Target Compounds: 0

## INTEGRATED ANALYTICAL LABORATORIES

## VOLATILE ORGANICS

### Tentatively Identified Compounds

Client/Project: N/A

Lab ID: METHOD_BLK
Client ID: N/A
Date Received: N/A
Date Analyzed: 10/18/2001
Data file: I1983.D

GC/MS Column: DB-624
Sample wt/vol: 0.1g
Matrix-Units: Soil-μg/Kg (ppb)
Dilution Factor: 50
% Moisture: 0.0

| CAS # | Compound | Estimated Concentration | Retention Time |
|---|---|---|---|
| | No peaks detected | | |

Total TICs = 0

```
                          Response Factor Report  5970 - In

   Method          : C:\HPCHEM\1\METHODS\IME1010.M (RTE Integrator)
   Title           : VOLATILE ORGANICS BY EPA METHOD 8260B
   Last Update     : Wed Oct 10 12:41:09 2001
   Response via    : Initial Calibration

   Calibration Files
   20      =I1751.D        50      =I1750.D        100     =I1747.D
   150     =I1749.D        200     =I1748.D

           Compound                     20    50    100   150   200   Avg    %RSD
   -------------------------------------------------------------------------------

    1) I   Pentafluorobenzene         ----------------ISTD--------------------
    2) T   Dichlorodifluorometha 0.315 0.311 0.294 0.284 0.290 0.299    4.58
    3) P   Chloromethane         0.229 0.244 0.248 0.228 0.231 0.236    3.91
    4) C   Vinyl Chloride        0.209 0.216 0.219 0.208 0.209 0.212    2.36
    5) T   Bromomethane          0.289 0.265 0.233 0.219 0.223 0.246   12.24
    6) T   Chloroethane          0.163 0.164 0.168 0.159 0.161 0.163    1.99
    7) T   Trichlorofluoromethan 0.866 0.828 0.778 0.784 0.769 0.805    5.11
    8) T   Acrolein              0.009 0.009 0.007 0.007 0.009 0.008   14.00
    9) MC  1,1-Dichloroethene    0.274 0.278 0.279 0.260 0.263 0.271    3.26
   10) T   Acetone               0.065 0.087 0.093 0.070 0.065 0.076   17.35
   11) T   Carbon Disulfide      0.789 0.756 0.783 0.770 0.754 0.770    2.04
   12) T   Vinyl Acetate         0.997 1.052 0.915 0.935 0.877 0.955    7.24
   13) T   Methylene Chloride    0.310 0.316 0.301 0.300 0.284 0.302    3.95
   14) T   Acrylonitrile         0.032 0.035 0.034 0.032 0.036 0.034    5.40
   15) T   t-Butyl Alcohol(TBA)  0.018 0.016 0.019 0.020 0.016 0.018    9.22
   16) T   trans-1,2-Dichloroeth 0.332 0.340 0.346 0.326 0.315 0.332    3.65
   17) T   Methyl-t-Butyl Ether( 0.833 0.872 0.737 0.799 0.717 0.792    8.17
   18) P   1,1-Dichloroethane    0.765 0.790 0.758 0.738 0.719 0.754    3.57
   19) T   Diisopropyl Ether(DIP 1.467 1.485 1.351 1.382 1.319 1.401    5.18
   20) T   cis-1,2-Dichloroethen 0.360 0.358 0.363 0.349 0.340 0.354    2.62
   21) T   2,2-Dichloropropane   0.646 0.646 0.643 0.629 0.614 0.636    2.23
   22) T   2-Butanone(MEK)       0.108 0.106 0.073 0.083 0.073 0.089   19.37
   23) T   Bromochloromethane    0.229 0.236 0.220 0.221 0.208 0.223    4.72
   25) C   Chloroform            1.040 1.014 1.000 0.975 0.959 0.998    3.21
   26) T   1,1,1-Trichloroethane 0.950 0.950 0.911 0.920 0.885 0.923    3.02
   27) T   Carbon Tetrachloride  0.708 0.775 0.666 0.734 0.685 0.714    5.97
   28) T   1,1-Dichloropropene   0.542 0.544 0.519 0.524 0.509 0.527    2.83
   29) T   1,2-Dichloroethane(ED 0.717 0.742 0.665 0.692 0.634 0.690    6.15
   30) S   1,2-Dichloroethane-d4 0.592 0.649 0.607 0.660 0.651 0.632    4.77

   31) I   1,4-Difluorobenzene        ----------------ISTD--------------------
   32) M   Benzene               0.698 0.703 0.706 0.675 0.648 0.686    3.54
   33) M   Trichloroethene       0.476 0.460 0.454 0.430 0.414 0.447    5.48
   34) C   1,2-Dichloropropane   0.353 0.342 0.332 0.322 0.314 0.333    4.69
   35) T   Dibromomethane        0.304 0.319 0.282 0.278 0.256 0.288    8.45
   37) T   Bromodichloromethane  0.809 0.807 0.755 0.788 0.708 0.773    5.47
   38) T   2-Chloroethylvinyl Et 0.145 0.160 0.139 0.149 0.136 0.146    6.60
   39) T   cis-1,3-Dichloroprope 0.478 0.503 0.476 0.461 0.435 0.471    5.32
   40) T   4-Methyl-2-pentanone( 0.226 0.240 0.177 0.205 0.178 0.205   13.74
   41) S   Toluene-d8            0.780 0.788 0.783 0.770 0.796 0.784    1.21
   42) MC  Toluene               0.476 0.489 0.462 0.444 0.436 0.461    4.77
   43) T   trans-1,3-Dichloropro 0.435 0.448 0.399 0.403 0.376 0.412    7.08
   44) T   1,1,2-Trichloroethane 0.212 0.223 0.189 0.205 0.185 0.203    7.75
   45) T   Tetrachloroethene     0.390 0.375 0.357 0.344 0.334 0.360    6.29
   46) T   1,3-Dichloropropane   0.395 0.407 0.360 0.367 0.332 0.372    7.97
   47) T   2-Hexanone            0.158 0.163 0.123 0.137 0.120 0.140   14.11
   48) T   Dibromochloromethane  0.492 0.521 0.435 0.456 0.423 0.465    8.78
   49) T   1,2-Dibromoethane(EDB 0.350 0.335 0.297 0.308 0.289 0.316    8.22
```

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50) I   Chlorobenzene-d5         ----------------ISTD---------------------
51) MP  Chlorobenzene            0.822 0.827 0.782 0.761 0.760 0.790    4.09
52) T   1,1,1,2-Tetrachloroet    0.532 0.545 0.480 0.524 0.491 0.514    5.37
53) C   Ethylbenzene             1.286 1.301 1.200 1.217 1.170 1.235    4.56
54) T   m,p-Xylene               0.436 0.437 0.413 0.415 0.398 0.420    3.97
55) T   o-Xylene                 0.461 0.440 0.397 0.405 0.398 0.420    6.94
56) T   Styrene                  0.697 0.737 0.654 0.705 0.680 0.695    4.47
57) P   Bromoform                0.371 0.399 0.342 0.382 0.346 0.368    6.52
58) T   Isopropylbenzene         1.141 1.076 1.078 1.069 1.036 1.080    3.55
59) S   Bromofluorobenzene       0.895 0.905 0.847 0.881 0.883 0.882    2.51
60) P   1,1,2,2-Tetrachloroet    0.337 0.349 0.276 0.314 0.287 0.313   10.06
61) T   Bromobenzene             0.452 0.403 0.382 0.400 0.390 0.405    6.72
62) T   1,2,3-Trichloropropan    0.422 0.388 0.322 0.334 0.318 0.357   12.89
63) T   n-Propylbenzene          1.332 1.269 1.275 1.195 1.207 1.255    4.45
64) T   2-Chlorotoluene          1.039 1.006 0.931 0.991 0.942 0.982    4.57
65) T   1,3,5-Trimethylbenzen    0.991 0.938 0.880 0.926 0.897 0.926    4.59
66) T   4-Chlorotoluene          1.215 1.200 1.120 1.178 1.085 1.160    4.76
67) T   tert-Butylbenzene        0.884 0.843 0.835 0.792 0.822 0.835    4.02
68) T   1,2,4-Trimethylbenzen    0.995 0.986 0.946 0.971 0.911 0.962    3.51
69) T   sec-Butylbenzene         0.994 0.958 0.906 0.925 0.900 0.937    4.18
70) T   1,3-Dichlorobenzene      0.658 0.683 0.573 0.616 0.580 0.622    7.73
71) T   4-Isopropyltoluene       0.879 0.824 0.817 0.769 0.777 0.813    5.42
72) T   1,4-Dichlorobenzene      0.658 0.683 0.573 0.616 0.580 0.622    7.73
73) T   n-Butylbenzene           0.850 0.805 0.796 0.754 0.757 0.792    4.95
74) T   1,2-Dichlorobenzene      0.586 0.569 0.477 0.516 0.468 0.523   10.18
75) T   1,2-Dibromo-3-chlorop    0.109 0.104 0.063 0.080 0.069 0.085   24.49
76) T   1,2,4-Trichlorobenzen    0.194 0.188 0.131 0.229 0.173 0.183   19.49
77) T   Hexachlorobutadiene      0.176 0.127 0.135 0.112 0.117 0.133   19.12
78) T   Naphthalene              0.249 0.315 0.194 0.361 0.241 0.272   24.19
79) T   1,2,3-Trichlorobenzen    0.167 0.196 0.094 0.171 0.115 0.149   28.61
80) T   1,1,2-Trichloro-1,2,2    0.489 0.460 0.415 0.402 0.409 0.435    8.68
81) T   Methyl Acetate           0.173 0.175 0.134 0.159 0.155 0.159   10.39
82) T   Cyclohexane              0.323 0.295 0.266 0.265 0.264 0.283    9.19
83) T   Methylcyclohexane        0.212 0.208 0.180 0.178 0.184 0.192    8.39
----------------------------------------------------------------------------
(#) = Out of Range

        IME1010.M        Wed Oct 10 12:41:37 2001    MSD_I
```

Instrument ID: MSD_I
Method ID: SOIL1003.M
Date: 10/03/2001

Average %RSD = 10.22

Refer to SW846 Method 8000B Section 7.5.1.

```
                    Evaluate Continuing Calibration Report

 Data File : C:\HPCHEM\1\DATA\10-16-01\I1946.D               Vial: 29
 Acq On    : 17 Oct 2001   2:56                          Operator: DP
 Sample    : 100,100_PPB_STD,W,5mL,100                   Inst    : 5970 - In
 Misc      : N/A,N/A,N/A                                 Multiplr: 1.00
 MS Integration Params: rteint.p

 Method        : C:\HPCHEM\1\METHODS\IME1010.M (RTE Integrator)
 Title         : VOLATILE ORGANICS BY EPA METHOD 8260B
 Last Update   : Thu Oct 11 09:23:20 2001
 Response via  : Multiple Level Calibration

 Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
 Max. RRF Dev :  30%     Max. Rel. Area : 200%

          Compound                          AvgRF   CCRF      %Dev Area% Dev(min)
-----------------------------------------------------------------------------
  1 I     Pentafluorobenzene                1.000   1.000      0.0  167  -0.03
  2 T     Dichlorodifluoromethane           0.299   0.337    -12.7  192  -0.02
  3 P     Chloromethane                     0.236   0.187     20.8  127  -0.01
  4 C     Vinyl Chloride                    0.212   0.181     14.6  139  -0.03
  5 T     Bromomethane                      0.246   0.249     -1.2  179  -0.02
  6 T     Chloroethane                      0.163   0.152      6.7  152  -0.02
  7 T     Trichlorofluoromethane            0.805   0.616     23.5  132  -0.04
  8 T     Acrolein                          0.008   0.007     12.5  183  -0.03
  9 MC    1,1-Dichloroethene                0.271   0.266      1.8  160  -0.03
 10 T     Acetone                           0.076   0.071      6.6  128  -0.05
 11 T     Carbon Disulfide                  0.770   0.720      6.5  154  -0.02
 12 T     Vinyl Acetate                     0.955   0.956     -0.1  175  -0.04
 13 T     Methylene Chloride                0.302   0.304     -0.7  169  -0.03
 14 T     Acrylonitrile                     0.034   0.031      8.8  154  -0.05
 15 T     t-Butyl Alcohol(TBA)              0.018   0.014     22.2  122  -0.05
 16 T     trans-1,2-Dichloroethene          0.332   0.340     -2.4  164  -0.05
 17 T     Methyl-t-Butyl Ether(MTBE)        0.792   0.734      7.3  167  -0.04
 18 P     1,1-Dichloroethane                0.754   0.713      5.4  158  -0.03
 19 T     Diisopropyl Ether(DIPE)           1.401   1.309      6.6  162  -0.03
 20 T     cis-1,2-Dichloroethene            0.354   0.361     -2.0  166  -0.04
 21 T     2,2-Dichloropropane               0.636   0.519     18.4  135  -0.04
 22 T     2-Butanone(MEK)                   0.089   0.077     13.5  176  -0.04
 23 T     Bromochloromethane                0.223   0.220      1.3  167  -0.03
 25 C     Chloroform                        0.998   0.902      9.6  151  -0.04
 26 T     1,1,1-Trichloroethane             0.923   0.748     19.0  137  -0.03
 27 T     Carbon Tetrachloride              0.714   0.577     19.2  145  -0.02
 28 T     1,1-Dichloropropene               0.527   0.498      5.5  161  -0.03
 29 T     1,2-Dichloroethane(EDC)           0.690   0.594     13.9  149  -0.04
 30 S     1,2-Dichloroethane-d4             0.632   0.536     15.2  148  -0.02

 31 I     1,4-Difluorobenzene               1.000   1.000      0.0  177  -0.04
 32 M     Benzene                           0.686   0.698     -1.7  175  -0.04
 33 M     Trichloroethene                   0.447   0.400     10.5  156  -0.03
 34 C     1,2-Dichloropropane               0.333   0.305      8.4  163  -0.03
 35 T     Dibromomethane                    0.288   0.235     18.4  148  -0.03
 37 T     Bromodichloromethane              0.773   0.647     16.3  152  -0.04
 38 T     2-Chloroethylvinyl Ether          0.146   0.121     17.1  154  -0.03
 39 T     cis-1,3-Dichloropropene           0.471   0.423     10.2  157  -0.03
 40 T     4-Methyl-2-pentanone(MIBK)        0.205   0.170     17.1  170  -0.02
 41 S     Toluene-d8                        0.784   0.795     -1.4  180  -0.03
 42 MC    Toluene                           0.461   0.462     -0.2  177  -0.03
 43 T     trans-1,3-Dichloropropene         0.412   0.348     15.5  155  -0.03
 44 T     1,1,2-Trichloroethane             0.203   0.192      5.4  180  -0.03
 45 T     Tetrachloroethene                 0.360   0.318     11.7  158  -0.02
 46 T     1,3-Dichloropropane               0.372   0.328     11.8  161  -0.02
```

```
47 T     2-Hexanone                        0.140    0.126        10.0  182  -0.02
48 T     Dibromochloromethane              0.465    0.381        18.1  155  -0.03
49 T     1,2-Dibromoethane(EDB)            0.316    0.271        14.2  162  -0.02

50 I     Chlorobenzene-d5                  1.000    1.000         0.0  183  -0.03
51 MP    Chlorobenzene                     0.790    0.722         8.6  169  -0.02
52 T     1,1,1,2-Tetrachloroethane         0.514    0.417        18.9  159  -0.03
53 C     Ethylbenzene                      1.235    1.099        11.0  167  -0.03
54 T     m,p-Xylene                        0.420    0.394         6.2  174  -0.02
55 T     o-Xylene                          0.420    0.380         9.5  175  -0.02
56 T     Styrene                           0.695    0.637         8.3  178  -0.02
57 P     Bromoform                         0.368    0.277        24.7  148  -0.03
58 T     Isopropylbenzene                  1.080    0.919        14.9  156   0.00
59 S     Bromofluorobenzene                0.882    0.809         8.3  175  -0.01
60 P     1,1,2,2-Tetrachloroethane         0.313    0.257        17.9  171  -0.02
61 T     Bromobenzene                      0.405    0.346        14.6  165  -0.02
62 T     1,2,3-Trichloropropane            0.357    0.253        29.1  144   0.00
63 T     n-Propylbenzene                   1.255    1.022        18.6  147  -0.03
64 T     2-Chlorotoluene                   0.982    0.840        14.5  165  -0.03
65 T     1,3,5-Trimethylbenzene            0.926    0.783        15.4  163   0.00
66 T     4-Chlorotoluene                   1.160    0.947        18.4  155  -0.02
67 T     tert-Butylbenzene                 0.835    0.686        17.8  150  -0.03
68 T     1,2,4-Trimethylbenzene            0.962    0.799        16.9  155  -0.01
69 T     sec-Butylbenzene                  0.937    0.809        13.7  163   0.00
70 T     1,3-Dichlorobenzene               0.622    0.503        19.1  161  -0.01
71 T     4-Isopropyltoluene                0.813    0.643        20.9  144  -0.01
72 T     1,4-Dichlorobenzene               0.622    0.503        19.1  161  -0.01
73 T     n-Butylbenzene                    0.792    0.617        22.1  142  -0.01
74 T     1,2-Dichlorobenzene               0.523    0.402        23.1  154  -0.03
75 T     1,2-Dibromo-3-chloropropane       0.085    0.065        23.5  190   0.00
76 T     1,2,4-Trichlorobenzene            0.183    0.146        20.2  205  -0.02
77 T     Hexachlorobutadiene               0.133    0.077        42.1  105   0.00
78 T     Naphthalene                       0.272    0.210        22.8  198   0.00
79 T     1,2,3-Trichlorobenzene            0.149    0.098        34.2  191  -0.02
80 T     1,1,2-Trichloro-1,2,2-trifl       0.435    0.430         1.1  190  -0.03
81 T     Methyl Acetate                    0.159    0.132        17.0  180  -0.05
82 T     Cyclohexane                       0.283    0.237        16.3  163  -0.03
83 T     Methylcyclohexane                 0.192    0.154        19.8  156  -0.03
-------------------------------------------------------------------------------

   (#) = Out of Range                   SPCC's out = 0  CCC's out = 0
    I1747.D    IME1010.M          Thu Oct 18 13:35:20 2001    MSD_I
```

```
                Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\10-18-01\I1981.D              Vial: 1
Acq On    : 18 Oct 2001  10:04                           Operator: DP
Sample    : 100,100_PPB_STD,W,5mL,100                    Inst     : 5970 - In
Misc      : N/A,N/A,N/A                                  Multiplr: 1.00
MS Integration Params: rteint.p

Method         : C:\HPCHEM\1\METHODS\IME1010.M (RTE Integrator)
Title          : VOLATILE ORGANICS BY EPA METHOD 8260B
Last Update    : Thu Oct 11 09:23:20 2001
Response via   : Multiple Level Calibration

Min. RRF     :    0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :   30%     Max. Rel. Area : 200%

      Compound                              AvgRF   CCRF      %Dev Area% Dev(min)
------------------------------------------------------------------------------
 1 I    Pentafluorobenzene                  1.000   1.000      0.0  165  -0.02
 2 T    Dichlorodifluoromethane             0.299   0.238     20.4  133  -0.01
 3 P    Chloromethane                       0.236   0.251     -6.4  167  -0.01
 4 C    Vinyl Chloride                      0.212   0.226     -6.6  170  -0.01
 5 T    Bromomethane                        0.246   0.242      1.6  171  -0.03
 6 T    Chloroethane                        0.163   0.149      8.6  146  -0.09
 7 T    Trichlorofluoromethane              0.805   0.675     16.1  143  -0.08
 8 T    Acrolein                            0.008   0.006     25.0  139  -0.03
 9 MC   1,1-Dichloroethene                  0.271   0.293     -8.1  173  -0.04
10 T    Acetone                             0.076   0.056     26.3  100  -0.02
11 T    Carbon Disulfide                    0.770   0.847    -10.0  178  -0.03
12 T    Vinyl Acetate                       0.955   0.803     15.9  144  -0.01
13 T    Methylene Chloride                  0.302   0.311     -3.0  170   0.00
14 T    Acrylonitrile                       0.034   0.025     26.5  120   0.00
15 T    t-Butyl Alcohol(TBA)                0.018   0.016     11.1  144   0.04
16 T    trans-1,2-Dichloroethene            0.332   0.375    -13.0  178  -0.04
17 T    Methyl-t-Butyl Ether(MTBE)          0.792   0.663     16.3  148  -0.04
18 P    1,1-Dichloroethane                  0.754   0.760     -0.8  165  -0.02
19 T    Diisopropyl Ether(DIPE)             1.401   1.287      8.1  157  -0.01
20 T    cis-1,2-Dichloroethene              0.354   0.365     -3.1  166  -0.02
21 T    2,2-Dichloropropane                 0.636   0.535     15.9  137   0.00
22 T    2-Butanone(MEK)                     0.089   0.073     18.0  164   0.00
23 T    Bromochloromethane                  0.223   0.199     10.8  149   0.00
25 C    Chloroform                          0.998   0.893     10.5  147  -0.02
26 T    1,1,1-Trichloroethane               0.923   0.784     15.1  142  -0.02
27 T    Carbon Tetrachloride                0.714   0.606     15.1  150   0.00
28 T    1,1-Dichloropropene                 0.527   0.512      2.8  162  -0.01
29 T    1,2-Dichloroethane(EDC)             0.690   0.518     24.9  128  -0.03
30 S    1,2-Dichloroethane-d4               0.632   0.577      8.7  157  -0.01

31 I    1,4-Difluorobenzene                 1.000   1.000      0.0  178  -0.02
32 M    Benzene                             0.686   0.681      0.7  172  -0.03
33 M    Trichloroethene                     0.447   0.413      7.6  162   0.00
34 C    1,2-Dichloropropane                 0.333   0.284     14.7  152  -0.02
35 T    Dibromomethane                      0.288   0.209     27.4  132  -0.02
37 T    Bromodichloromethane                0.773   0.613     20.7  144   0.00
38 T    2-Chloroethylvinyl Ether            0.146   0.114     21.9  146  -0.01
39 T    cis-1,3-Dichloropropene             0.471   0.384     18.5  144  -0.02
40 T    4-Methyl-2-pentanone(MIBK)          0.205   0.167     18.5  169   0.00
41 S    Toluene-d8                          0.784   0.816     -4.1  185  -0.01
42 MC   Toluene                             0.461   0.463     -0.4  178   0.00
43 T    trans-1,3-Dichloropropene           0.412   0.303     26.5  135   0.00
44 T    1,1,2-Trichloroethane               0.203   0.160     21.2  150   0.00
45 T    Tetrachloroethene                   0.360   0.326      9.4  162   0.00
46 T    1,3-Dichloropropane                 0.372   0.285     23.4  141   0.00
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 47 T     2-Hexanone                          0.140    0.113       19.3  163    0.01
 48 T     Dibromochloromethane                0.465    0.343       26.2  140    0.00
 49 T     1,2-Dibromoethane(EDB)              0.316    0.230       27.2  138    0.01

 50 I     Chlorobenzene-d5                    1.000    1.000        0.0  180    0.00
 51 MP    Chlorobenzene                       0.790    0.712        9.9  164    0.00
 52 T     1,1,1,2-Tetrachloroethane           0.514    0.413       19.6  155    0.00
 53 C     Ethylbenzene                        1.235    1.112       10.0  167    0.00
 54 T     m,p-Xylene                          0.420    0.385        8.3  168    0.00
 55 T     o-Xylene                            0.420    0.388        7.6  176    0.02
 56 T     Styrene                             0.695    0.612       11.9  169    0.02
 57 P     Bromoform                           0.368    0.269       26.9  142    0.00
 58 T     Isopropylbenzene                    1.080    0.962       10.9  161    0.01
 59 S     Bromofluorobenzene                  0.882    0.957       -8.5  204    0.01
 60 P     1,1,2,2-Tetrachloroethane           0.313    0.259       17.3  169    0.01
 61 T     Bromobenzene                        0.405    0.322       20.5  152    0.01
 62 T     1,2,3-Trichloropropane              0.357    0.290       18.8  162    0.01
 63 T     n-Propylbenzene                     1.255    1.069       14.8  151    0.00
 64 T     2-Chlorotoluene                     0.982    0.845       14.0  164    0.00
 65 T     1,3,5-Trimethylbenzene              0.926    0.802       13.4  164    0.00
 66 T     4-Chlorotoluene                     1.160    0.987       14.9  159    0.00
 67 T     tert-Butylbenzene                   0.835    0.730       12.6  158    0.02
 68 T     1,2,4-Trimethylbenzene              0.962    0.828       13.9  158    0.00
 69 T     sec-Butylbenzene                    0.937    0.868        7.4  173    0.01
 70 T     1,3-Dichlorobenzene                 0.622    0.509       18.2  160    0.00
 71 T     4-Isopropyltoluene                  0.813    0.716       11.9  158    0.01
 72 T     1,4-Dichlorobenzene                 0.622    0.509       18.2  160    0.00
 73 T     n-Butylbenzene                      0.792    0.676       14.6  153    0.00
 74 T     1,2-Dichlorobenzene                 0.523    0.418       20.1  158    0.00
 75 T     1,2-Dibromo-3-chloropropane         0.085    0.066       22.4  187    0.01
 76 T     1,2,4-Trichlorobenzene              0.183    0.134       26.8  185    0.00
 77 T     Hexachlorobutadiene                 0.133    0.097       27.1  129    0.02
 78 T     Naphthalene                         0.272    0.199       26.8  185    0.02
 79 T     1,2,3-Trichlorobenzene              0.149    0.103       30.9  199    0.00
 80 T     1,1,2-Trichloro-1,2,2-trifl         0.435    0.328       24.6  142   -0.05
 81 T     Methyl Acetate                      0.159    0.144        9.4  193   -0.02
 82 T     Cyclohexane                         0.283    0.234       17.3  159   -0.03
 83 T     Methylcyclohexane                   0.192    0.177        7.8  177    0.00
-------------------------------------------------------------------------------------

    (#) = Out of Range                  SPCC's out = 0  CCC's out = 0
     I1747.D     IME1010.M          Thu Oct 18 12:06:18 2001    MSD_I
```

# VOLATILE SURROGATE PERCENT RECOVERY SUMMARY

**Date Analyzed:** 10/17/2001

| Lab Sample ID | Matrix | File ID | SMC1 | # | SMC2 | # | SMC3 | # |
|---|---|---|---|---|---|---|---|---|
| METHOD_BLK | SOIL | I1948.D | 81 | | 100 | | 91 | |
| BLK_SPK | SOIL | I1949.D | 76 | | 100 | | 87 | |
| 7040-007 | MEOH | I1950.D | 85 | | 97 | | 77 | |
| 6996-010 | MEOH | I1951.D | 83 | | 91 | | 76 | |
| 6996-017 | MEOH | I1952.D | 81 | | 77 | | 72 | |
| 7040-005 | MEOH | I1953.D | 84 | | 98 | | 74 | |
| 7090-003 | MEOH | I1955.D | 71 | | 73 | | 61 | |
| 7090-005 | MEOH | I1956.D | 74 | | 80 | | 65 | |
| 7090-008 | MEOH | I1957.D | 79 | | 84 | | 66 | |
| 7090-009 | MEOH | I1958.D | 77 | | 88 | | 66 | |
| 7090-010 | MEOH | I1959.D | 78 | | 77 | | 63 | |
| 7090-012 | MEOH | I1960.D | 79 | | 82 | | 66 | |
| 7090-012MS | MEOH | I1961.D | 86 | | 88 | | 75 | |
| 7090-012MSD | MEOH | I1962.D | 82 | | 86 | | 69 | |
| 7085-005 | MEOH | I1963.D | 100 | | 100 | | 100 | |
| 7085-006 | MEOH | I1964.D | 80 | | 90 | | 70 | |

| | Concentration | Aqueous/Meoh | Soil |
|---|---|---|---|
| SMC1 = 1,2-Dichloroethane-d4 | 50 ppb | 48-125 | 51-118 |
| SMC2 = Toluene-d8 | 50 ppb | 54-123 | 89-109 |
| SMC3 = Bromofluorobenzene | 50 ppb | 46-118 | 80-111 |

# Column to be used to flag recovery values

# VOLATILE SURROGATE PERCENT RECOVERY SUMMARY

**Date Analyzed:** 10/18/2001

| **Lab Sample ID** | **Matrix** | **File ID** | **SMC1** | **#** | **SMC2** | **#** | **SMC3** | **#** |
|---|---|---|---|---|---|---|---|---|
| METHOD_BLK | SOIL | I1983.D | 81 | | 97 | | 93 | |
| BLK_SPK | SOIL | I1984.D | 84 | | 103 | | 93 | |
| 7151-002 | MEOH | I1985.D | 64 | | 70 | | 58 | |
| 7151-007 | MEOH | I1986.D | 74 | | 85 | | 74 | |
| 7151-008 | MEOH | I1987.D | 68 | | 72 | | 62 | |
| 7151-009 | MEOH | I1988.D | 90 | | 85 | | 80 | |
| 7041-001 | MEOH | I1989.D | 76 | | 75 | | 71 | |
| 6996-002 | MEOH | I1990.D | 86 | | 88 | | 86 | |
| 6996-012 | MEOH | I1991.D | N/A | | N/A | | N/A | |
| 6996-015 | MEOH | I1992.D | 100 | | 100 | | 100 | |
| 7061-001 | MEOH | I1993.D | 77 | | 80 | | 73 | |
| 6924-004 | MEOH | I1996.D | 80 | | 90 | | 80 | |
| 6924-006 | MEOH | I1997.D | 80 | | 100 | | 90 | |
| 7085-008 | MEOH | I1998.D | 66 | | 76 | | 63 | |
| 7085-007 | MEOH | I1999.D | 59 | | 71 | | 57 | |
| 7085-006 | MEOH | I2000.D | 56 | | 67 | | 51 | |

| | Concentration | Aqueous/Meoh | Soil |
|---|---|---|---|
| SMC1 = 1,2-Dichloroethane-d4 | 50 ppb | 48-125 | 51-118 |
| SMC2 = Toluene-d8 | 50 ppb | 54-123 | 89-109 |
| SMC3 = Bromofluorobenzene | 50 ppb | 46-118 | 80-111 |

# Column to be used to flag recovery values

# MEOH VOLATILE MATRIX SPIKE/SPIKE DUPLICATE RECOVERY

Matrix spike Lab sample ID: 7090-012

Batch No.: IM0233

| Compound | SPIKE ADDED (ug/Kg) | SAMPLE CONC. (ug/Kg) | MS CONC. (ug/Kg) | MS % REC # | QC LIMITS REC. |
|---|---|---|---|---|---|
| **1,1-Dichloroethene** | 50.0 | 0.0 | 48.6 | 97 | 48 - 149 |
| **Benzene** | 50.0 | 0.0 | 47.4 | 95 | 59 - 149 |
| **Trichloroethene** | 50.0 | 0.0 | 39.9 | 80 | 55 - 143 |
| **Toluene** | 50.0 | 0.0 | 45.5 | 91 | 54 - 150 |
| **Chlorobenzene** | 50.0 | 0.0 | 47.3 | 95 | 55 - 144 |

| Compound | SAMPLE CONC. (ug/Kg) | MSD CONC. (ug/Kg) | # | MSD % REC | % RPD # | QC LIMITS RPD | QC LIMITS REC. |
|---|---|---|---|---|---|---|---|
| **1,1-Dichloroethene** | 0.0 | 49.8 | | 100 | 3 | 17 | 48 - 149 |
| **Benzene** | 0.0 | 46.3 | | 93 | 2 | 15 | 59 - 149 |
| **Trichloroethene** | 0.0 | 38.5 | | 77 | 4 | 15 | 55 - 143 |
| **Toluene** | 0.0 | 45.6 | | 91 | 0 | 16 | 54 - 150 |
| **Chlorobenzene** | 0.0 | 48.4 | | 97 | 2 | 15 | 55 - 144 |

\# Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

NC Non calculable

RPD: __0___ out of __5__ outside limits

Spike Recovery: __0___ out of __10__ outside limits

# SOIL VOLATILE LABORATORY CONTROL SAMPLE RECOVERY

Matrix spike Lab sample ID: BLK SPK

Batch No.: IM0233

| Compound | SPIKE ADDED (ug/Kg) | SAMPLE CONC. (ug/Kg) | MS CONC. (ug/Kg) | MS % REC # | QC LIMITS REC. |
|---|---|---|---|---|---|
| **1,1-Dichloroethene** | 50.0 | 0.0 | 55.8 | 112 | 70 - 130 |
| **Benzene** | 50.0 | 0.0 | 51.5 | 103 | 70 - 130 |
| **Trichloroethene** | 50.0 | 0.0 | 43.7 | 87 | 70 - 130 |
| **Toluene** | 50.0 | 0.0 | 52.0 | 104 | 70 - 130 |
| **Chlorobenzene** | 50.0 | 0.0 | 47.3 | 95 | 70 - 130 |

\# Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

NC Non calculable

Spike Recovery: __0___ out of __5__ outside limits

# SOIL VOLATILE LABORATORY CONTROL SAMPLE RECOVERY

Matrix spike Lab sample ID: BLK SPK

Batch No.: IM0235

| Compound | SPIKE ADDED (ug/Kg) | SAMPLE CONC. (ug/Kg) | MS CONC. (ug/Kg) | MS % REC # | QC LIMITS REC. |
|---|---|---|---|---|---|
| **1,1-Dichloroethene** | 50.0 | 0.0 | 59.9 | 120 | 70 - 130 |
| **Benzene** | 50.0 | 0.0 | 54.9 | 110 | 70 - 130 |
| **Trichloroethene** | 50.0 | 0.0 | 45.5 | 91 | 70 - 130 |
| **Toluene** | 50.0 | 0.0 | 53.1 | 106 | 70 - 130 |
| **Chlorobenzene** | 50.0 | 0.0 | 46.3 | 93 | 70 - 130 |

# Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

NC Non calculable

Spike Recovery: __0___ out of __5__ outside limits

# VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab File ID (Standard): I1747.D

Instrument ID: MSD_I

Date Analyzed: 10/10/2001

Time Analyzed: 9:34

| | 50UG/L | IS1<br>AREA # | RT # | IS2<br>AREA # | RT # | IS3<br>AREA # | RT # |
|---|---|---|---|---|---|---|---|
| | 12 HOUR STD | 653387 | 9.73 | 784077 | 10.95 | 634368 | 15.90 |
| | UPPER LIMIT | 1306774 | 10.23 | 1568154 | 11.45 | 1268736 | 16.40 |
| | LOWER LIMIT | 326693.5 | 9.23 | 392038.5 | 10.45 | 317184 | 15.40 |
| | LAB SAMPLE ID | | | | | | |
| 01 | 200_PPB_STD | 647856 | 9.70 | 798050 | 10.90 | 615497 | 15.84 |
| 02 | 150_PPB_STD | 656854 | 9.65 | 814005 | 10.87 | 640682 | 15.82 |
| 03 | 50_PPB_STD | 675342 | 9.65 | 821122 | 10.84 | 635952 | 15.80 |
| 04 | 20_PPB_STD | 674167 | 9.65 | 799529 | 10.87 | 623610 | 15.82 |
| 05 | METHOD_BLK | 648350 | 9.64 | 792486 | 10.86 | 668256 | 15.81 |
| 06 | BLK_SPK | 656491 | 9.64 | 789960 | 10.86 | 643953 | 15.82 |
| 07 | 6805-017 | 694488 | 9.63 | 832579 | 10.85 | 592975 | 15.82 |
| 08 | 6805-002 | 700505 | 9.65 | 828125 | 10.87 | 586715 | 15.83 |
| 09 | 6805-003 | 708272 | 9.65 | 845648 | 10.88 | 603174 | 15.83 |
| 10 | 6805-005 | 770218 | 9.65 | 860282 | 10.85 | 626482 | 15.82 |
| 11 | 6805-006 | 758939 | 9.63 | 860569 | 10.85 | 628899 | 15.82 |
| 12 | 6805-007 | 779707 | 9.64 | 875607 | 10.86 | 633294 | 15.82 |
| 13 | 6805-009 | 734189 | 9.65 | 892746 | 10.87 | 624207 | 15.82 |
| 14 | 6805-010 | 775090 | 9.66 | 914234 | 10.86 | 684844 | 15.81 |
| 15 | 6805-012 | 787746 | 9.63 | 907557 | 10.85 | 657037 | 15.80 |
| 16 | 6805-013 | 788950 | 9.63 | 913993 | 10.85 | 642244 | 15.80 |
| 17 | 6805-015 | 795434 | 9.62 | 941670 | 10.85 | 663946 | 15.81 |
| 18 | 6805-016 | 803676 | 9.63 | 945405 | 10.86 | 671447 | 15.81 |
| 19 | 6805-016MS | 813939 | 9.65 | 941658 | 10.86 | 677527 | 15.81 |
| 20 | 6805-016MSD | 795946 | 9.66 | 950448 | 10.87 | 668293 | 15.83 |
| 21 | | | | | | | |
| 22 | | | | | | | |

IS1 = PENTAFLUOROBENZENE

IS2 = 1,4-DIFLUOROBENZENE

IS3 = CHLOROBENZENE-D5

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = -50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

# Column used to flag values outside QC limits with an asterisk

* Values outside of QC limits.

FORM 8

# VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab File ID (Standard): I1946.D
Instrument ID: MSD_I
Date Analyzed: 10/17/2001
Time Analyzed: 2:56

| | 50UG/L | IS1 AREA # | RT # | IS2 AREA # | RT # | IS3 AREA # | RT # |
|---|---|---|---|---|---|---|---|
| | 12 HOUR STD | 1093433 | 9.70 | 1389694 | 10.92 | 1160240 | 15.86 |
| | UPPER LIMIT | 2186866 | 10.20 | 2779388 | 11.42 | 2320480 | 16.36 |
| | LOWER LIMIT | 546716.5 | 9.20 | 694847 | 10.42 | 580120 | 15.36 |
| | LAB SAMPLE ID | | | | | | |
| 01 | METHOD_BLK | 1047735 | 9.71 | 1387504 | 10.92 | 1182634 | 15.87 |
| 02 | BLK_SPK | 1069109 | 9.71 | 1381684 | 10.92 | 1165754 | 15.88 |
| 03 | 7040-007 | 1063650 | 9.70 | 1430560 | 10.92 | 1160991 | 15.87 |
| 04 | 6996-010 | 1092890 | 9.71 | 1407551 | 10.92 | 1169632 | 15.88 |
| 05 | 6996-017 | 1174540 | 9.71 | 1498070 | 10.91 | 1071222 | 15.88 |
| 06 | 7040-005 | 1186341 | 9.71 | 1443196 | 10.93 | 1087576 | 15.88 |
| 07 | 7090-003 | 1216331 | 9.72 | 1542878 | 10.93 | 1105934 | 15.88 |
| 08 | 7090-005 | 1235988 | 9.71 | 1497297 | 10.91 | 1101262 | 15.88 |
| 09 | 7090-008 | 1188178 | 9.68 | 1480973 | 10.90 | 1116937 | 15.85 |
| 10 | 7090-009 | 1208938 | 9.67 | 1461196 | 10.90 | 1146334 | 15.84 |
| 11 | 7090-010 | 1185468 | 9.67 | 1434970 | 10.87 | 1111598 | 15.83 |
| 12 | 7090-012 | 1211880 | 9.64 | 1493263 | 10.86 | 1110437 | 15.80 |
| 13 | 7090-012MS | 1176326 | 9.61 | 1476249 | 10.83 | 1089950 | 15.78 |
| 14 | 7090-012MSD | 1161925 | 9.61 | 1477952 | 10.82 | 1100599 | 15.78 |
| 15 | 7085-005 | 1168648 | 9.63 | 1391800 | 10.85 | 1070052 | 15.82 |
| 16 | 7085-006 | 1155584 | 9.62 | 1387096 | 10.84 | 1071641 | 15.79 |
| 17 | | | | | | | |
| 18 | | | | | | | |
| 19 | | | | | | | |
| 20 | | | | | | | |
| 21 | | | | | | | |
| 22 | | | | | | | |

IS1 = PENTAFLUOROBENZENE
IS2 = 1,4-DIFLUOROBENZENE
IS3 = CHLOROBENZENE-D5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

# Column used to flag values outside QC limits with an asterisk
* Values outside of QC limits.

FORM 8

# VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab File ID (Standard): I1981.D

Date Analyzed: 10/18/2001

Instrument ID: MSD_I

Time Analyzed: 10:04

| | 50UG/L | IS1 AREA # | RT # | IS2 AREA # | RT # | IS3 AREA # | RT # |
|---|---|---|---|---|---|---|---|
| | 12 HOUR STD | 1076012 | 9.72 | 1395275 | 10.93 | 1144071 | 15.89 |
| | UPPER LIMIT | 2152024 | 10.22 | 2790550 | 11.43 | 2288142 | 16.39 |
| | LOWER LIMIT | 538006 | 9.22 | 697637.5 | 10.43 | 572035.5 | 15.39 |
| | LAB SAMPLE ID | | | | | | |
| 01 | METHOD_BLK | 979871 | 9.70 | 1328900 | 10.91 | 1166256 | 15.86 |
| 02 | BLK_SPK | 978347 | 9.69 | 1295224 | 10.89 | 1141282 | 15.86 |
| 03 | 7151-002 | 1259618 | 9.66 | 1525394 | 10.88 | 1048419 | 15.84 |
| 04 | 7151-007 | 1265139 | 9.67 | 1505730 | 10.87 | 1051577 | 15.83 |
| 05 | 7151-008 | 1232713 | 9.65 | 1530886 | 10.86 | 1061118 | 15.82 |
| 06 | 7151-009 | 1223793 | 9.63 | 1518847 | 10.85 | 1053581 | 15.80 |
| 07 | 7041-001 | 1240241 | 9.61 | 1508275 | 10.82 | 1042060 | 15.79 |
| 08 | 6996-002 | 1219108 | 9.60 | 1498709 | 10.83 | 1031945 | 15.78 |
| 09 | 6996-012 | 1199375 | 9.63 | 1478935 | 10.83 | 1042233 | 15.80 |
| 10 | 6996-015 | 1206901 | 9.63 | 1448399 | 10.85 | 1032766 | 15.81 |
| 11 | 7061-001 | 1222390 | 9.60 | 1499117 | 10.83 | 1042421 | 15.79 |
| 12 | 6924-004 | 1215307 | 9.65 | 1456996 | 10.87 | 995608 | 15.83 |
| 13 | 6924-006 | 1197069 | 9.68 | 1406644 | 10.90 | 988620 | 15.87 |
| 14 | 7085-008 | 1185234 | 9.69 | 1453316 | 10.92 | 1000206 | 15.88 |
| 15 | 7085-007 | 1196154 | 9.72 | 1417971 | 10.95 | 961446 | 15.90 |
| 16 | 7085-006 | 1173725 | 9.76 | 1434631 | 10.96 | 955522 | 15.93 |
| 17 | | | | | | | |
| 18 | | | | | | | |
| 19 | | | | | | | |
| 20 | | | | | | | |
| 21 | | | | | | | |
| 22 | | | | | | | |

IS1 = PENTAFLUOROBENZENE

IS2 = 1,4-DIFLUOROBENZENE

IS3 = CHLOROBENZENE-D5

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = -50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

# Column used to flag values outside QC limits with an asterisk

* Values outside of QC limits.

FORM 8

# VOLATILE METHANOL PRESERVATION CONTAINER SUMMARY

| Sample ID | Client ID | Bottle ID | Date Prepared | Inital Wgt.(g) | Final Wgt.(g) | Sample Wgt.(g) | MeOH Lot # | Surrogate Lot # |
|---|---|---|---|---|---|---|---|---|
| 7041-001 | 5-F1 | 111769 | 10/9/01 | 107.3 | 117.2 | 9.9 | cc226 | ls224 |

Limits : Sample Weight = 8 to 12 grams, * = Outside limits

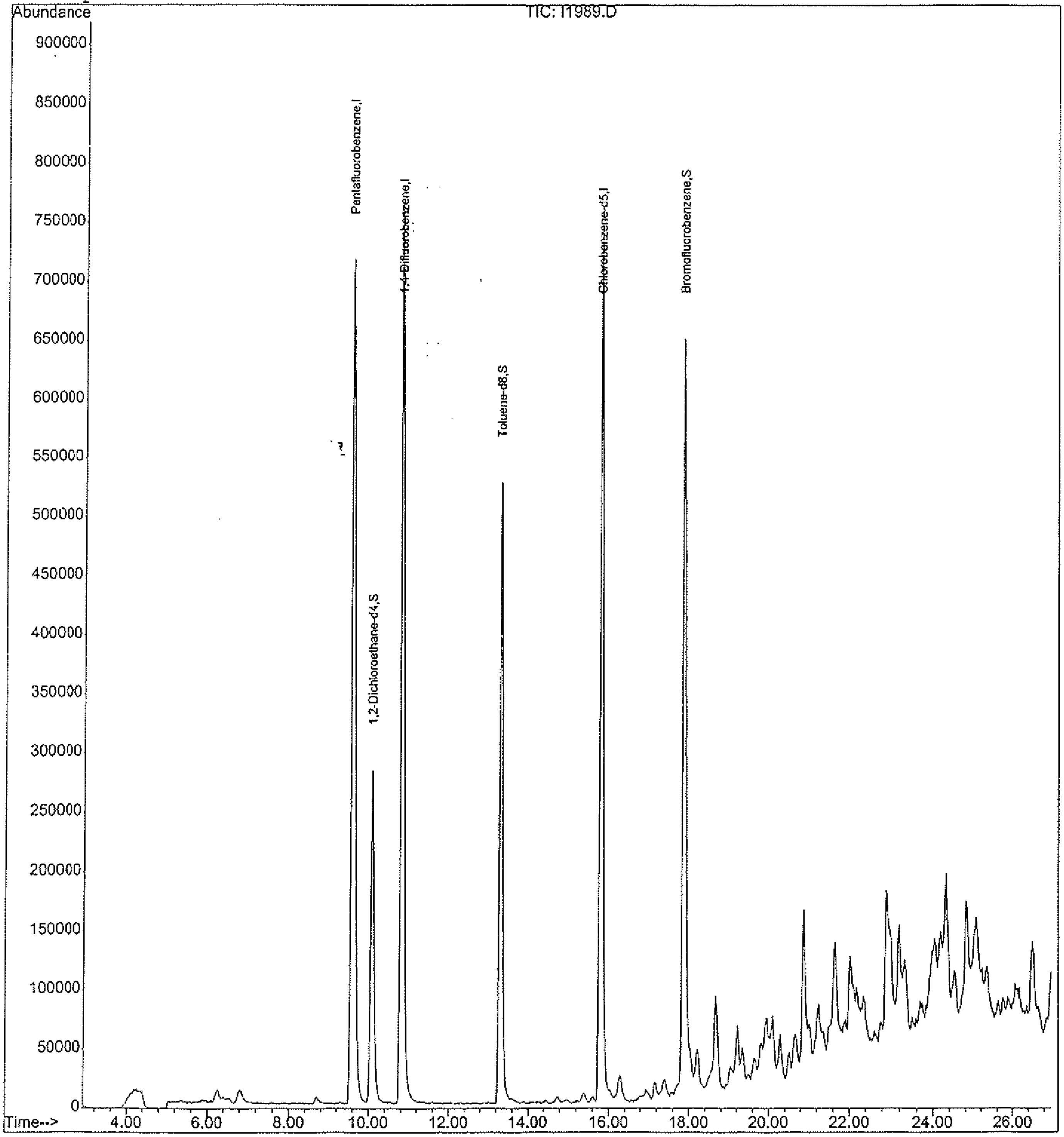
Comments : ______________________________

Sample weight is reported on a wet weight basis

```
                          Quantitation Report    (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\10-18-01\I1989.D          Vial: 9
Acq On    : 18 Oct 2001  14:34                     Operator: DP
Sample    : 5-F1,7041-001,M,0.040g                 Inst    : 5970 - In
Misc      : BRENNAN/99704_FINETEX,10/11/01,10/11/01 Multiplr: 1.00
MS Integration Params: rteint.p
 Quant Time: Oct 19 12:20 2001             Quant Results File: IME1010.RES

Quant Method : C:\HPCHEM\1\METHODS\IME1010.M (RTE Integrator)
Title        : VOLATILE ORGANICS BY EPA METHOD 8260B
Last Update  : Thu Oct 11 09:23:20 2001
Response via : Initial Calibration
DataAcq Meth : VOAI

 Internal Standards                    R.T. QIon  Response  Conc Units Dev(Min)
 -----------------------------------------------------------------------------
  1) Pentafluorobenzene                9.61  168  1240241    50.00 UG     -0.12
 31) 1,4-Difluorobenzene              10.82  114  1508275    50.00 UG     -0.13
 50) Chlorobenzene-d5                 15.79  117  1042060    50.00 UG     -0.11

 System Monitoring Compounds
 30) 1,2-Dichloroethane-d4            10.09   65   598259    38.17 UG     -0.12
  Spiked Amount      50.000   Range  36 - 115   Recovery   =   76.34%
 41) Toluene-d8                       13.30   98   888900    37.60 UG     -0.11
  Spiked Amount      50.000   Range  35 - 117   Recovery   =   75.20%
 59) Bromofluorobenzene               17.87   95   651897    35.45 UG     -0.08
  Spiked Amount      50.000   Range  47 - 115   Recovery   =   70.90%

 Target Compounds                                                    Qvalue

 -----------------------------------------------------------------------------
 (#) = qualifier out of range (m) = manual integration
 I1989.D  IME1010.M      Fri Oct 19 12:20:44 2001      MSD_I          Page 1
```

# Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\10-18-01\I1989.D          Vial: 9
Acq On    : 18 Oct 2001  14:34                       Operator: DP
Sample    : 5-F1,7041-001,M,0.040g                   Inst    : 5970 - In
Misc      : BRENNAN/99704_FINETEX,10/11/01,10/11/01  Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Oct 19 12:20 2001               Quant Results File: IME1010.RES

Method         : C:\HPCHEM\1\METHODS\IME1010.M (RTE Integrator)
Title          : VOLATILE ORGANICS BY EPA METHOD 8260B
Last Update    : Thu Oct 11 09:23:20 2001
Response via   : Initial Calibration
```

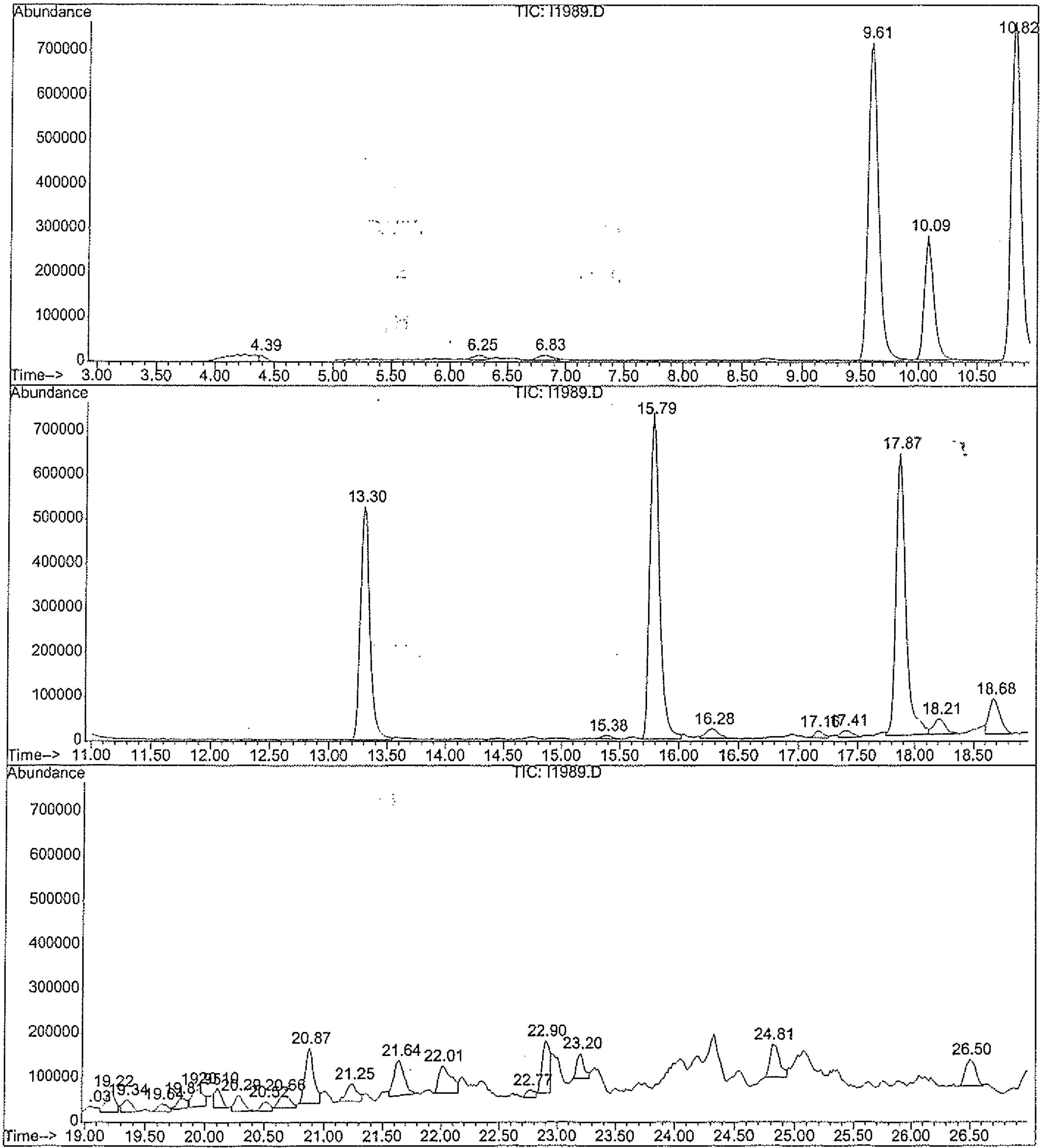


```
                         LSC Area Percent Report

 Data File : C:\HPCHEM\1\DATA\10-18-01\I1989.D              Vial: 9
 Acq On    : 18 Oct 2001  14:34                         Operator: DP
 Sample    : 5-F1,7041-001,M,0.040g                     Inst     : 5970 - In
 Misc      : BRENNAN/99704_FINETEX,10/11/01,10/11/01   Multiplr: 1.00
 MS Integration Params: LSCINT.P

 Method    : C:\HPCHEM\1\METHODS\IME1010.M (RTE Integrator)
 Title     : VOLATILE ORGANICS BY EPA METHOD 8260B
 Smoothing : ON                              Filtering: 5
 Sampling  : 1                                Min Area: 3 % of largest Peak
 Start Thrs: 0.2                             Max Peaks: 100
 Stop Thrs : 0.15                        Peak Location: TOP

 If leading or trailing edge < 100 prefer < Baseline drop else tangent >
 Peak separation: 5

 Signal     : TIC

peak  R.T. first  max last  PK   peak       corr.   corr.    % of
  #   min   scan scan scan  TY  height      area   % max.   total
---  ----- ----- ---- ---- ---  -------   -------  ------  -------
 1   4.395    99  101  110 rVB5   14602     52586   1.14%   0.189%
 2   6.248   215  223  229 rBV2   10871     75991   1.65%   0.273%
 3   6.835   251  261  269 rBV4   11758     99639   2.16%   0.357%
 4   9.609   432  441  458 rBV   715254   4610355 100.00%  16.534%
 5  10.086   464  472  486 rBV   279407   1554866  33.73%   5.576%

 6  10.824   512  520  541 rBV   761634   4462644  96.80%  16.004%
 7  13.304   673  681  697 rBV2  526009   2943790  63.85%  10.557%
 8  15.385   810  816  823 rVB6    7798     49333   1.07%   0.177%
 9  15.786   835  842  857 rBV   737600   4015038  87.09%  14.399%
10  16.282   867  874  885 rVB6   21474    156060   3.38%   0.560%

11  17.163   925  931  937 rBV3   14494     85703   1.86%   0.307%
12  17.409   942  947  955 rVB6   15823    103586   2.25%   0.371%
13  17.873   969  977  993 rVV   637064   3725518  80.81%  13.360%
14  18.214   993  999 1010 rVB8   33603    237954   5.16%   0.853%
15  18.676  1024 1029 1039 rVB2   79121    506847  10.99%   1.818%

16  19.034  1047 1052 1058 rBV8   16204    113202   2.46%   0.406%
17  19.220  1058 1064 1068 rVV2   47170    261050   5.66%   0.936%
18  19.345  1069 1072 1078 rVB6   27043    135610   2.94%   0.486%
19  19.639  1086 1091 1096 rBV7   17793    107793   2.34%   0.387%
20  19.810  1097 1102 1105 rVV4   24948    129804   2.82%   0.466%

21  19.949  1106 1111 1115 rVV3   41565    259304   5.62%   0.930%
22  20.103  1119 1121 1127 rVB3   44376    165398   3.59%   0.593%
23  20.288  1129 1133 1141 rVB3   37897    195685   4.24%   0.702%
24  20.521  1142 1148 1151 rBV6   21820    113130   2.45%   0.406%
25  20.659  1151 1157 1164 rBV6   29157    197546   4.28%   0.708%

26  20.874  1165 1171 1177 rBV2  125398    652590  14.15%   2.340%
27  21.246  1187 1195 1200 rBV5   39719    259875   5.64%   0.932%
28  21.645  1215 1221 1230 rVB    78464    497236  10.79%   1.783%
29  22.010  1241 1245 1254 rBV9   62042    463657  10.06%   1.663%
30  22.775  1291 1295 1298 rBV6   17137     87117   1.89%   0.312%

31  22.896  1298 1303 1306 rBV2  117988    542024  11.76%   1.944%
```

```
 32  23.200   1319 1323 1328 rBV2    55505     233348    5.06%    0.837%
 33  24.815   1426 1430 1438 rBV2    74096     420986    9.13%    1.510%
 34  26.500   1537 1542 1550 rBV5    60094     369523    8.02%    1.325%

                           Sum of corrected areas:    27884788

  I1989.D  IME1010.M      Fri Oct 19 12:31:24 2001   MSD_I
```

LSC Report - Integrated Chromatogram

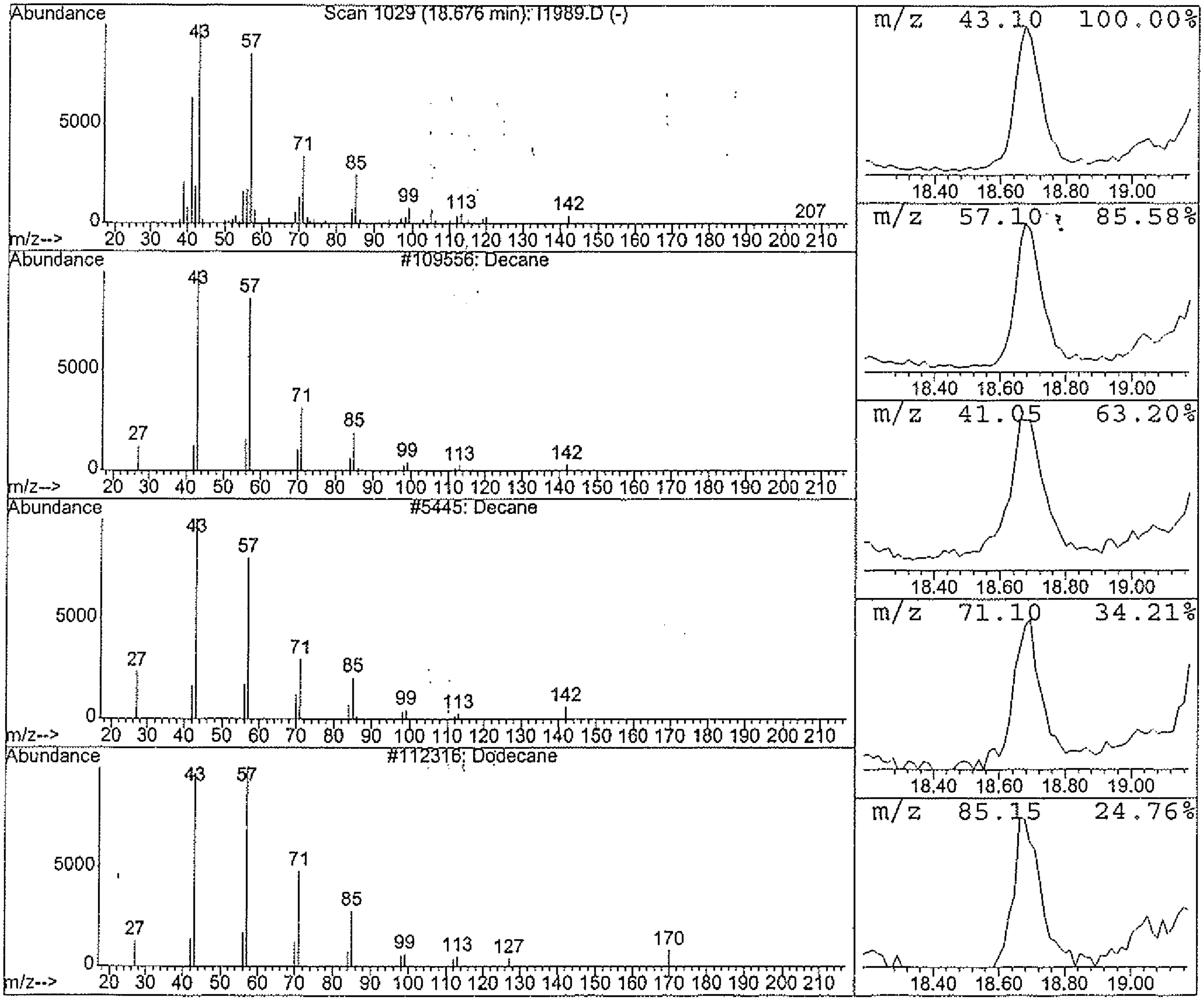
```
File        : C:\HPCHEM\1\DATA\10-18-01\I1989.D
Operator    : DP
Acquired    : 18 Oct 2001  14:34     using AcqMethod VOAI
Instrument  :   5970 - In
Sample Name: 5-F1,7041-001,M,0.040g
Misc Info   : BRENNAN/99704_FINETEX,10/11/01,10/11/01
Vial Number: 9
Quant File :IME1010.RES (RTE Integrator)
```



```
I1989.D   IME1010.M         Fri Oct 19 12:31:24 2001         MSD_I
```

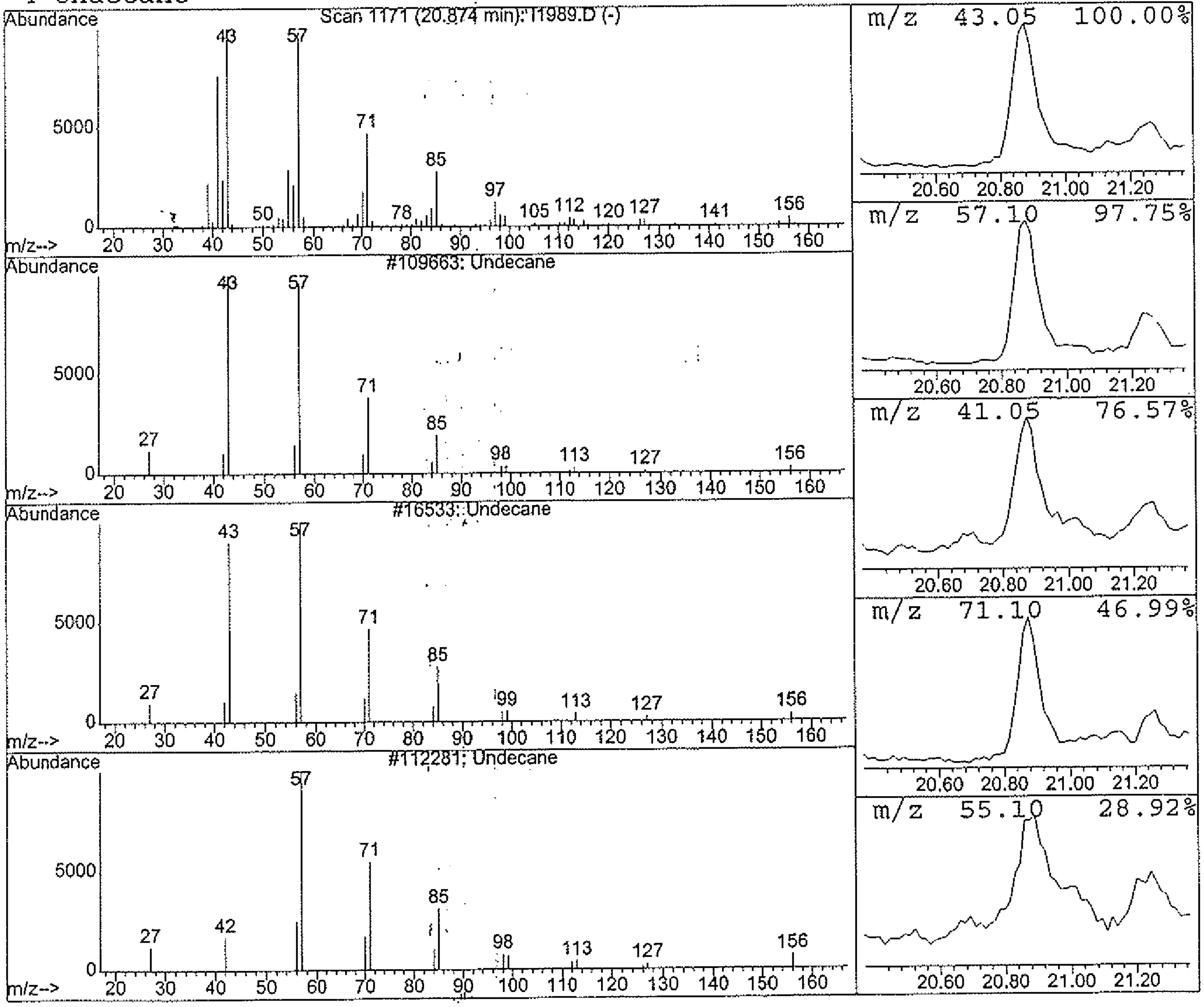
## Library Search Compound Report

```
Data File : C:\HPCHEM\1\DATA\10-18-01\I1989.D              Vial: 9
Acq On    : 18 Oct 2001  14:34                          Operator: DP
Sample    : 5-F1,7041-001,M,0.040g                      Inst    : 5970 - In
Misc      : BRENNAN/99704_FINETEX,10/11/01,10/11/01     Multiplr: 1.00
MS Integration Params: LSCINT.P

Quant Method : C:\HPCHEM\1\METHODS\IME1010.M (RTE Integrator)
Title        : VOLATILE ORGANICS BY EPA METHOD 8260B
Library      : C:\DATABASE\NIST98.L
***********************************************************************
Peak Number  1  Unknown alkane                     Concentration Rank  3

 R.T.   EstConc             Area       Relative to ISTD          R.T.
-----------------------------------------------------------------------
 18.68   6.31 UG            506847    Chlorobenzene-d5           15.79

 Hit# of  5     Tentative ID                MW  MolForm        CAS#        Qual
-----------------------------------------------------------------------
 1 Decane                                  142 C10H22      000124-18-5 87
 2 Decane                                  142 C10H22      000124-18-5 72
 3 Dodecane                                170 C12H26      000112-40-3 64
 4 Tridecane                               184 C13H28      000629-50-5 64
```



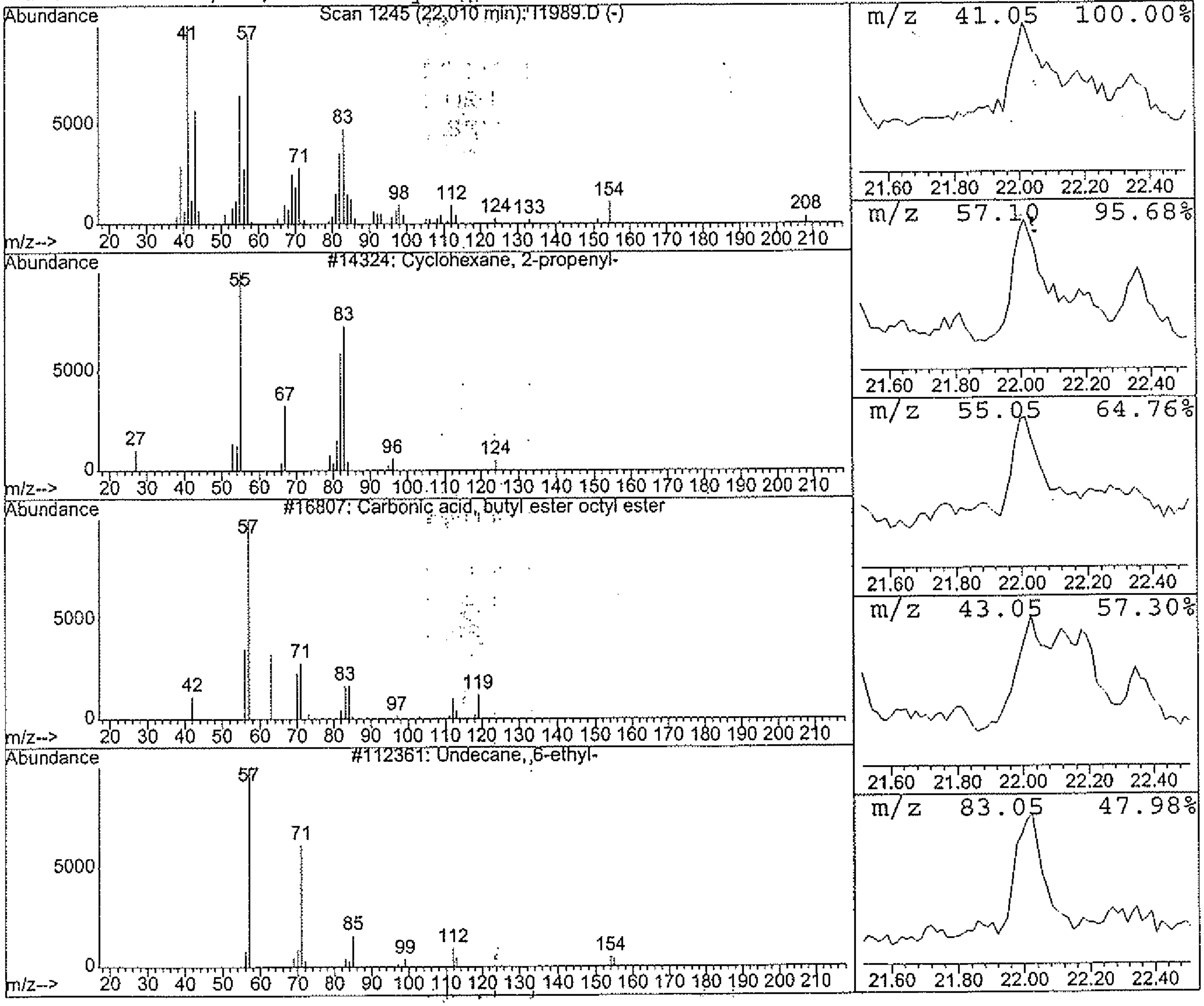
## Library Search Compound Report

```
Data File : C:\HPCHEM\1\DATA\10-18-01\I1989.D                Vial: 9
Acq On    : 18 Oct 2001  14:34                             Operator: DP
Sample    : 5-F1,7041-001,M,0.040g                         Inst    : 5970 - In
Misc      : BRENNAN/99704_FINETEX,10/11/01,10/11/01        Multiplr: 1.00
MS Integration Params: LSCINT.P

 Quant Method : C:\HPCHEM\1\METHODS\IME1010.M (RTE Integrator)
 Title        : VOLATILE ORGANICS BY EPA METHOD 8260B
 Library      : C:\DATABASE\NIST98.L
*****************************************************************
Peak Number  2  Undecane                    Concentration Rank  1

 R.T.   EstConc          Area      Relative to ISTD        R.T.
-----------------------------------------------------------------
20.87    8.13 UG        652590    Chlorobenzene-d5         15.79

 Hit# of  5    Tentative ID            MW  MolForm     CAS#       Qual
-----------------------------------------------------------------
 1 Undecane                            156 C11H24      001120-21-4 87
 2 Undecane                            156 C11H24      001120-21-4 87
 3 Undecane                            156 C11H24      001120-21-4 87
 4 Undecane                            156 C11H24      001120-21-4 81
```



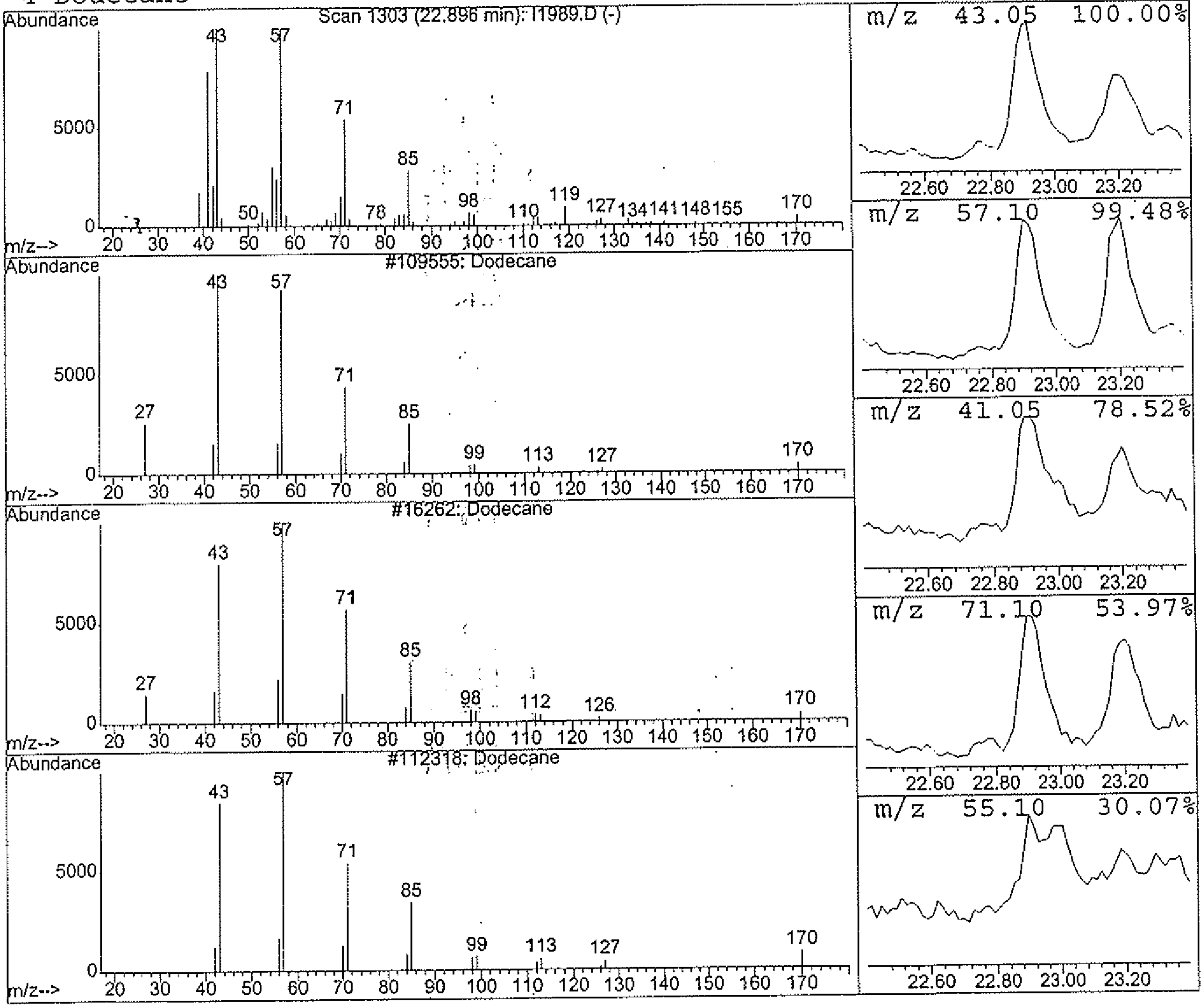
0053

```
                    Library Search Compound Report

   Data File : C:\HPCHEM\1\DATA\10-18-01\I1989.D            Vial: 9
   Acq On    : 18 Oct 2001  14:34                       Operator: DP
   Sample    : 5-F1,7041-001,M,0.040g                   Inst    : 5970 - In
   Misc      : BRENNAN/99704_FINETEX,10/11/01,10/11/01  Multiplr: 1.00
   MS Integration Params: LSCINT.P

   Quant Method : C:\HPCHEM\1\METHODS\IME1010.M (RTE Integrator)
   Title        : VOLATILE ORGANICS BY EPA METHOD 8260B
   Library      : C:\DATABASE\NIST98.L
**********************************************************************
Peak Number  3  Unknown alkane                    Concentration Rank  5

  R.T.   EstConc           Area        Relative to ISTD          R.T.
----------------------------------------------------------------------
 22.01    5.77 UG          463657     Chlorobenzene-d5            15.79

 Hit# of  5     Tentative ID                 MW  MolForm       CAS#       Qual
----------------------------------------------------------------------
 1 Cyclohexane, 2-propenyl-                 124 C9H16        002114-42-3 38
 2 Carbonic acid, butyl ester octyl es      230 C13H26O3     1000190-11-5 38
 3 Undecane, 6-ethyl-                       184 C13H28       017312-60-6 35
 4 1-Pentene, 4,4-dimethyl-                  98 C7H14        000762-62-9 35
```



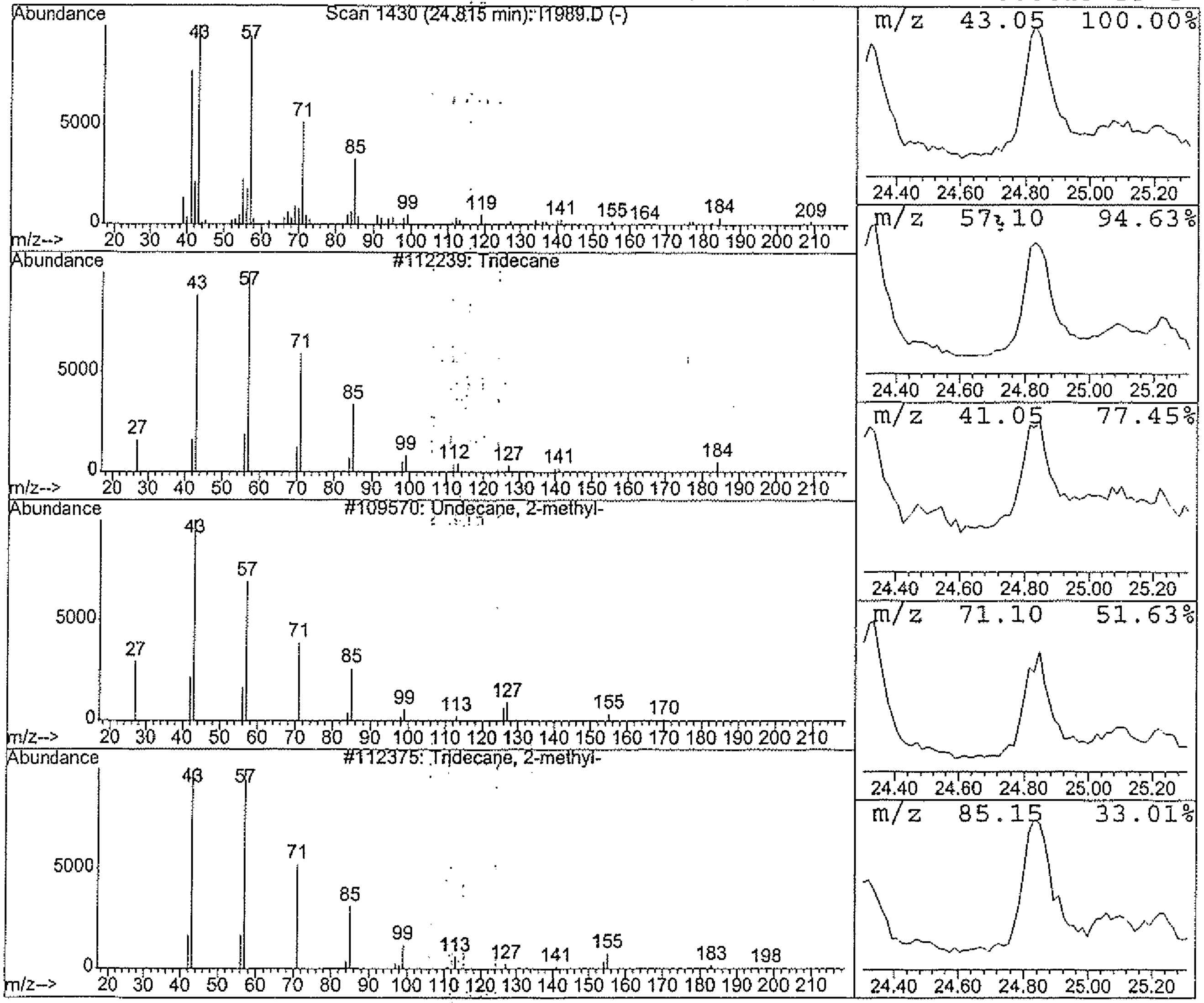
0054

```
                    Library Search Compound Report

     Data File : C:\HPCHEM\1\DATA\10-18-01\I1989.D              Vial: 9
     Acq On    : 18 Oct 2001  14:34                          Operator: DP
     Sample    : 5-F1,7041-001,M,0.040g                      Inst    : 5970 - In
     Misc      : BRENNAN/99704_FINETEX,10/11/01,10/11/01     Multiplr: 1.00
     MS Integration Params: LSCINT.P

     Quant Method : C:\HPCHEM\1\METHODS\IME1010.M (RTE Integrator)
     Title        : VOLATILE ORGANICS BY EPA METHOD 8260B
     Library      : C:\DATABASE\NIST98.L
   ***************************************************************************
   Peak Number  4  Dodecane                           Concentration Rank  2

     R.T.   EstConc          Area      Relative to ISTD           R.T.
   ---------------------------------------------------------------------------
    22.90    6.75 UG        542024    Chlorobenzene-d5           15.79

    Hit# of  5    Tentative ID                MW  MolForm        CAS#        Qual
   ---------------------------------------------------------------------------
    1 Dodecane                               170 C12H26       000112-40-3  94
    2 Dodecane                               170 C12H26       000112-40-3  93
    3 Dodecane                               170 C12H26       000112-40-3  81
    4 Dodecane                               170 C12H26       000112-40-3  81
```



0055

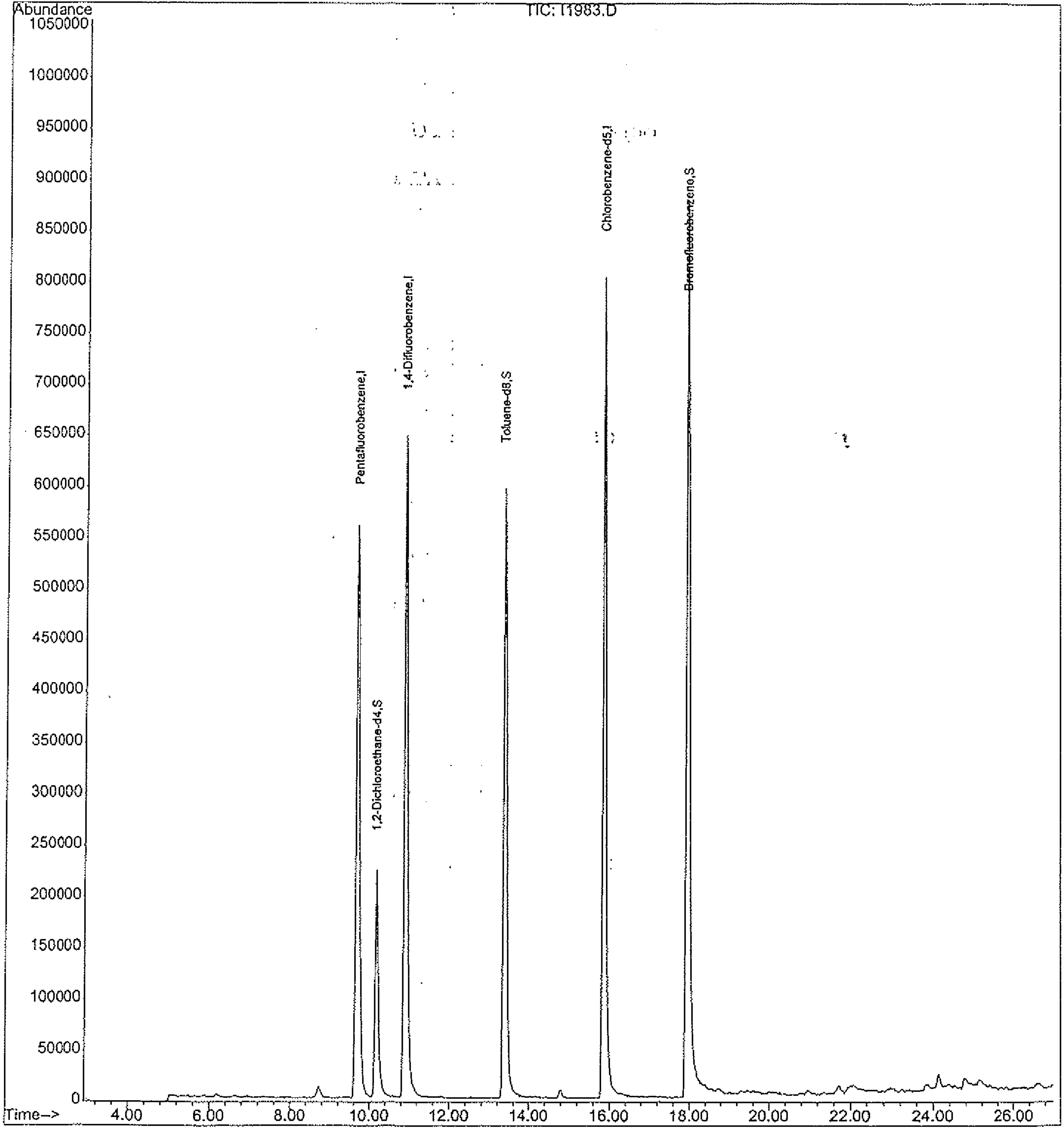
```
                    Library Search Compound Report

  Data File : C:\HPCHEM\1\DATA\10-18-01\I1989.D              Vial: 9
  Acq On    : 18 Oct 2001  14:34                         Operator: DP
  Sample    : 5-F1,7041-001,M,0.040g                     Inst    : 5970 - In
  Misc      : BRENNAN/99704_FINETEX,10/11/01,10/11/01    Multiplr: 1.00
  MS Integration Params: LSCINT.P

  Quant Method : C:\HPCHEM\1\METHODS\IME1010.M (RTE Integrator)
  Title        : VOLATILE ORGANICS BY EPA METHOD 8260B
  Library      : C:\DATABASE\NIST98.L
*********************************************************************
Peak Number  5  Unknown alkane                  Concentration Rank  6

 R.T.   EstConc            Area      Relative to ISTD          R.T.
---------------------------------------------------------------------
 24.81    5.24 UG          420986    Chlorobenzene-d5          15.79

 Hit# of  5    Tentative ID              MW  MolForm     CAS#         Qual
---------------------------------------------------------------------
 1 Tridecane                             184 C13H28      000629-50-5 80
 2 Undecane, 2-methyl-                   170 C12H26      007045-71-8 72
 3 Tridecane, 2-methyl-                  198 C14H30      001560-96-9 64
 4 Tetradecane                           198 C14H30      000629-59-4 64
```



```
                    Quantitation Report    (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\10-18-01\I1983.D            Vial: 3
Acq On    : 18 Oct 2001  11:10                        Operator: DP
Sample    : N/A,METHOD_BLK,S,0.1g,0.0                 Inst    : 5970 - In
Misc      : N/A,N/A,N/A                               Multiplr: 1.00
MS Integration Params: rteint.p
 Quant Time: Oct 18 12:13 2001               Quant Results File: IME1010.RES

Quant Method : C:\HPCHEM\1\METHODS\IME1010.M (RTE Integrator)
Title        : VOLATILE ORGANICS BY EPA METHOD 8260B
Last Update  : Thu Oct 11 09:23:20 2001
Response via : Initial Calibration
DataAcq Meth : VOAI

 Internal Standards                R.T. QIon  Response  Conc Units Dev(Min)
-----------------------------------------------------------------------------
  1) Pentafluorobenzene            9.70  168   979871    50.00 UG     -0.03
 31) 1,4-Difluorobenzene          10.91  114  1328900    50.00 UG     -0.04
 50) Chlorobenzene-d5             15.86  117  1166256    50.00 UG     -0.03

System Monitoring Compounds
 30) 1,2-Dichloroethane-d4        10.17   65   502721    40.60 UG     -0.04
  Spiked Amount      50.000   Range  36 - 115    Recovery   =   81.20%
 41) Toluene-d8                   13.38   98  1014573    48.71 UG     -0.04
  Spiked Amount      50.000   Range  35 - 117    Recovery   =   97.42%
 59) Bromofluorobenzene           17.93   95   958544    46.58 UG     -0.02
  Spiked Amount      50.000   Range  47 - 115    Recovery   =   93.16%

Target Compounds                                                    Qvalue




-----------------------------------------------------------------------------
(#) = qualifier out of range (m) = manual integration
I1983.D  IME1010.M      Thu Oct 18 12:13:38 2001      MSD_I          Page 1
```

# Quantitation Report

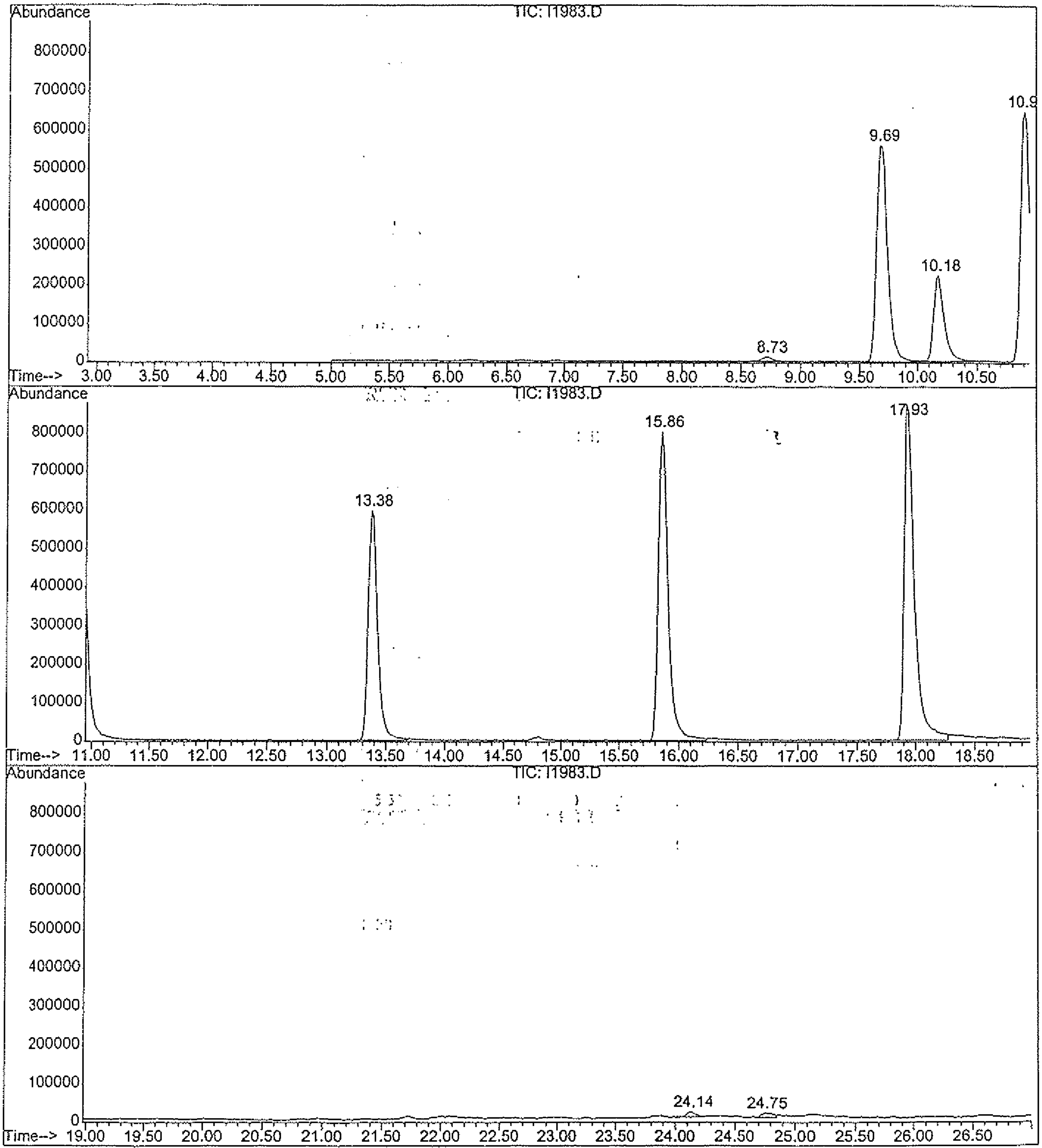
```
Data File : C:\HPCHEM\1\DATA\10-18-01\I1983.D            Vial: 3
Acq On    : 18 Oct 2001  11:10                        Operator: DP
Sample    : N/A,METHOD_BLK,S,0.1g,0.0                 Inst    : 5970 - In
Misc      : N/A,N/A,N/A                               Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Oct 18 12:13 2001                Quant Results File: IME1010.RES

Method        : C:\HPCHEM\1\METHODS\IME1010.M (RTE Integrator)
Title         : VOLATILE ORGANICS BY EPA METHOD 8260B
Last Update   : Thu Oct 11 09:23:20 2001
Response via  : Initial Calibration
```



```
                         LSC Area Percent Report

  Data File : C:\HPCHEM\1\DATA\10-18-01\I1983.D                Vial: 3
  Acq On    : 18 Oct 2001  11:10                           Operator: DP
  Sample    : N/A,METHOD_BLK,S,0.1g,0.0                    Inst     : 5970 - In
  Misc      : N/A,N/A,N/A                                  Multiplr: 1.00
  MS Integration Params: LSCINT.P

  Method    : C:\HPCHEM\1\METHODS\IME1010.M (RTE Integrator)
  Title     : VOLATILE ORGANICS BY EPA METHOD 8260B
  Smoothing : OFF                                     Filtering: 5
  Sampling  : 1                                        Min Area: 1 % of largest Peak
  Start Thrs: 0.2                                     Max Peaks: 100
  Stop Thrs : 0                                   Peak Location: TOP

  If leading or trailing edge < 100 prefer < Baseline drop else tangent >
  Peak separation: 5

  Signal    : TIC

 peak  R.T. first  max last  PK   peak      corr.    corr.    % of
   #   min   scan scan scan  TY  height     area    % max.   total
 --- ------ ----- ---- ---- ---- ------   ------- ------   -------
  1   8.730   376  383  392 rVB2   11148     73237   1.39%   0.329%
  2   9.688   436  445  467 rBV   559178   3623461  68.94%  16.274%
  3  10.182   469  477  499 rVB   222125   1345861  25.61%   6.045%
  4  10.909   516  524  549 rBV   646623   3903418  74.27%  17.532%
  5  13.378   677  684  704 rBV   594937   3362054  63.97%  15.100%

  6  15.863   838  845  869 rBV   803087   4554965  86.66%  20.458%
  7  17.934   973  979 1001 rBV   875690   5255861 100.00%  23.606%
  8  24.136  1375 1380 1386 rBV8   13319     64079   1.22%   0.288%
  9  24.754  1415 1420 1426 rBV9   11723     81786   1.56%   0.367%

                           Sum of corrected areas:    22264722

  I1983.D  IME1010.M      Thu Oct 18 12:13:45 2001    MSD_I
```

LSC Report - Integrated Chromatogram

```
File        : C:\HPCHEM\1\DATA\10-18-01\I1983.D
Operator    : DP
Acquired    : 18 Oct 2001  11:10     using AcqMethod VOAI
Instrument :   5970 - In
Sample Name: N/A,METHOD_BLK,S,0.1g,0.0
Misc Info   : N/A,N/A,N/A
Vial Number: 3
Quant File :IME1010.RES (RTE Integrator)
```

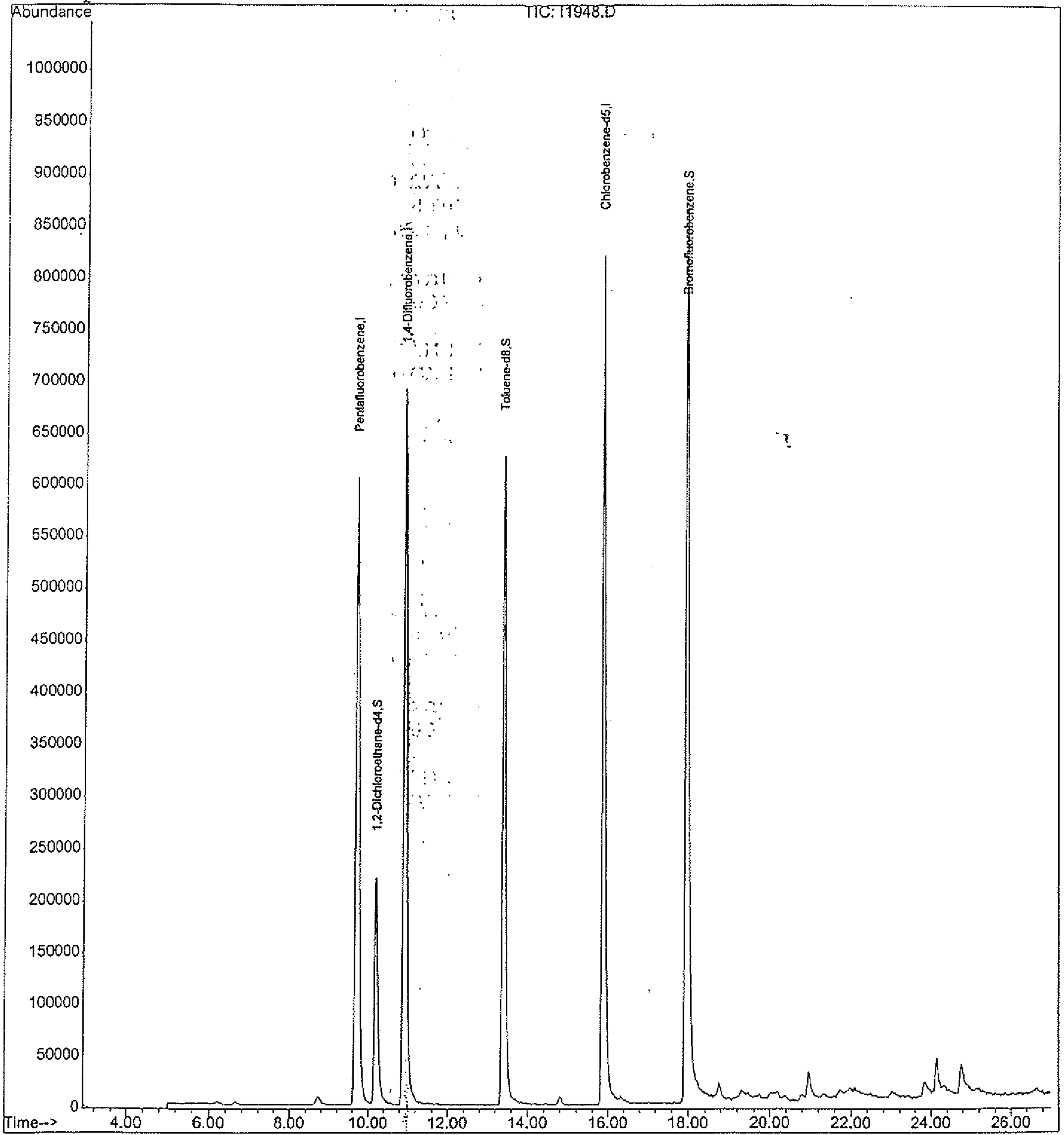


I1983.D   IME1010.M        Thu Oct 18 12:13:45 2001        MSD_I

```
                         Quantitation Report    (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\10-16-01\I1948.D              Vial: 31
Acq On    : 17 Oct 2001   4:02                          Operator: DP
Sample    : N/A,METHOD_BLK,S,0.1g,0.0                   Inst     : 5970 - In
Misc      : N/A,N/A,N/A                                 Multiplr: 1.00
MS Integration Params: rteint.p
 Quant Time: Oct 18 13:36 2001               Quant Results File: IME1010.RES

Quant Method : C:\HPCHEM\1\METHODS\IME1010.M (RTE Integrator)
Title        : VOLATILE ORGANICS BY EPA METHOD 8260B
Last Update  : Thu Oct 11 09:23:20 2001
Response via : Initial Calibration
DataAcq Meth : VOAI

 Internal Standards                R.T. QIon  Response  Conc Units Dev(Min)
 ------------------------------------------------------------------------
   1) Pentafluorobenzene           9.71  168  1047735    50.00 UG    -0.02
  31) 1,4-Difluorobenzene         10.92  114  1387504    50.00 UG    -0.03
  50) Chlorobenzene-d5            15.87  117  1182634    50.00 UG    -0.02

 System Monitoring Compounds
  30) 1,2-Dichloroethane-d4       10.20   65   533676    40.31 UG     0.00
   Spiked Amount     50.000   Range  36 - 115    Recovery   =   80.62%
  41) Toluene-d8                  13.40   98  1090226    50.14 UG    -0.02
   Spiked Amount     50.000   Range  35 - 117    Recovery   =  100.28%
  59) Bromofluorobenzene          17.96   95   944331    45.25 UG     0.00
   Spiked Amount     50.000   Range  47 - 115    Recovery   =   90.50%

 Target Compounds                                                 Qvalue

 ------------------------------------------------------------------------
 (#) = qualifier out of range (m) = manual integration
```

Quantitation Report

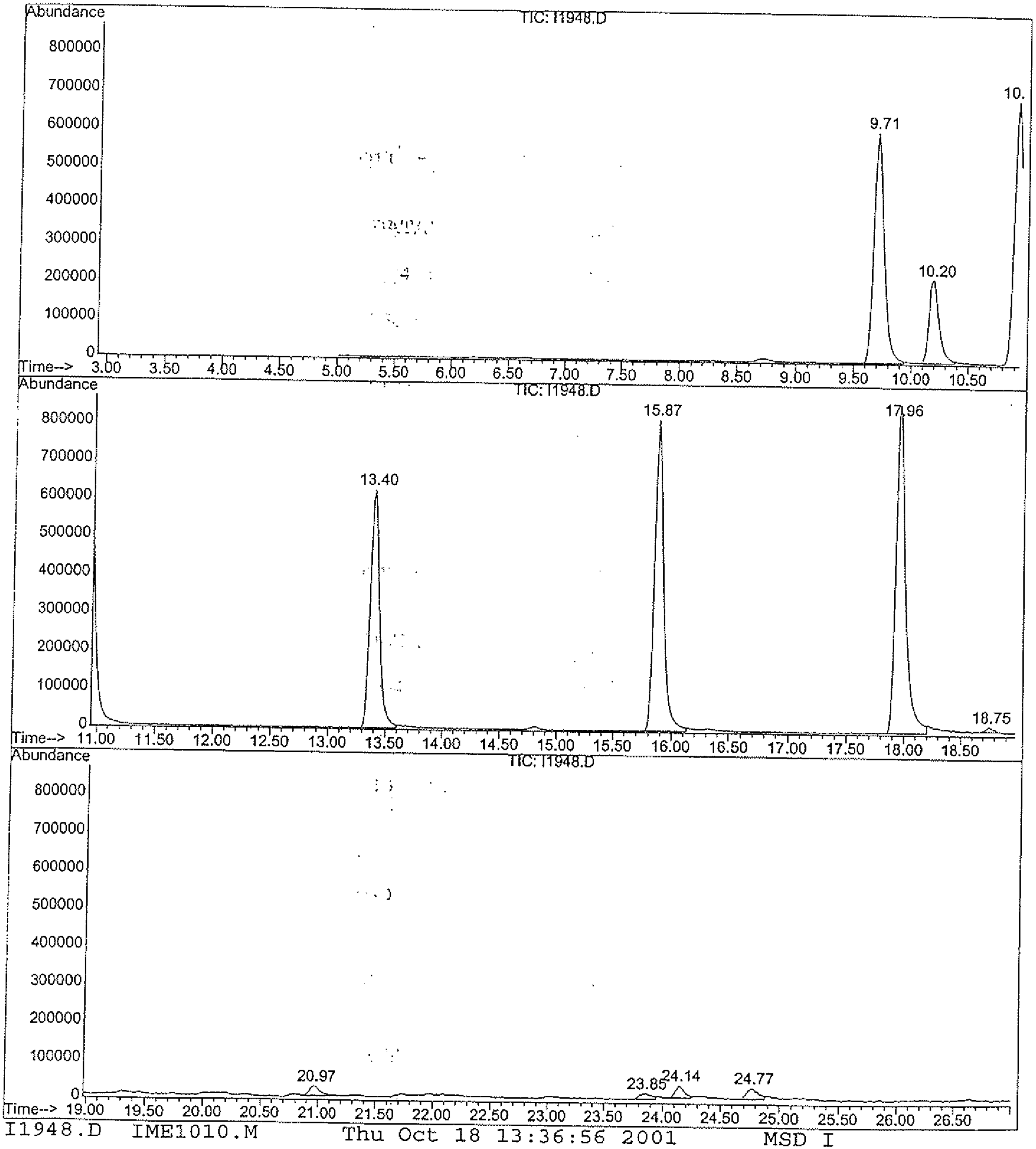
```
Data File : C:\HPCHEM\1\DATA\10-16-01\I1948.D                Vial: 31
Acq On    : 17 Oct 2001   4:02                          Operator: DP
Sample    : N/A,METHOD_BLK,S,0.1g,0.0                   Inst    : 5970 - In
Misc      : N/A,N/A,N/A                                 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Oct 18 13:36 2001                     Quant Results File: IME1010.RES

Method         : C:\HPCHEM\1\METHODS\IME1010.M (RTE Integrator)
Title          : VOLATILE ORGANICS BY EPA METHOD 8260B
Last Update    : Thu Oct 11 09:23:20 2001
Response via   : Initial Calibration
```



```
                          LSC Area Percent Report

   Data File : C:\HPCHEM\1\DATA\10-16-01\I1948.D                  Vial: 31
   Acq On    : 17 Oct 2001   4:02                              Operator: DP
   Sample    : N/A,METHOD_BLK,S,0.1g,0.0                       Inst    : 5970 - In
   Misc      : N/A,N/A,N/A                                     Multiplr: 1.00
   MS Integration Params: LSCINT.P

   Method    : C:\HPCHEM\1\METHODS\IME1010.M (RTE Integrator)
   Title     : VOLATILE ORGANICS BY EPA METHOD 8260B
   Smoothing : OFF                                Filtering: 5
   Sampling  : 1                                   Min Area: 1 % of largest Peak
   Start Thrs: 0.2                                Max Peaks: 100
   Stop Thrs : 0                              Peak Location: TOP

   If leading or trailing edge < 100 prefer < Baseline drop else tangent >
   Peak separation: 5

   Signal    : TIC

  peak  R.T. first  max last  PK   peak       corr.    corr.    % of
   #    min  scan  scan scan  TY  height      area    % max.    total
  ---  ----- ----- ---- ----  --- -------   -------  ------   -------
   1   9.711   438  447  462 rBV   604591   3830995  75.35%   16.546%
   2  10.201   471  479  491 rBV   218025   1363833  26.82%    5.890%
   3  10.923   518  526  550 rBV   689956   4065116  79.95%   17.557%
   4  13.399   679  687  700 rBV   625464   3560689  70.03%   15.379%
   5  15.871   841  848  865 rBV   818788   4556628  89.62%   19.680%

   6  17.958   977  984 1000 rBV   866079   5084454 100.00%   21.960%
   7  18.751  1032 1036 1041 rVB5   12835     53258   1.05%    0.230%
   8  20.969  1174 1180 1189 rVV3   25691    165419   3.25%    0.714%
   9  23.851  1361 1367 1373 rBV8   14062    101750   2.00%    0.439%
  10  24.143  1380 1386 1393 rBV10   32926    173906   3.42%    0.751%

  11  24.769  1420 1427 1434 rBV4   28846    197383   3.88%    0.853%


                            Sum of corrected areas:     23153431

  I1948.D  IME1010.M      Thu Oct 18 13:36:56 2001    MSD_I
```

# LSC Report - Integrated Chromatogram

```
File         : C:\HPCHEM\1\DATA\10-16-01\I1948.D
Operator     : DP
Acquired     : 17 Oct 2001   4:02     using AcqMethod VOAI
Instrument :    5970 - In
Sample Name: N/A,METHOD_BLK,S,0.1g,0.0
Misc Info   : N/A,N/A,N/A
Vial Number: 31
Quant File :IME1010.RES (RTE Integrator)
```



I1948.D   IME1010.M   Thu Oct 18 13:36:56 2001   MSD_I

# SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

Lab File ID: B6618.D
DFTPP Injection Date : 10/08/2001
Inst ID: MSDB
DFTPP Injection Time: 07:29

| m/z | Ion Abudance Criteria | %Relative Abundance | |
|---|---|---|---|
| 51 | 30.0 - 60.0% of mass 198 | 44.1 | |
| 68 | Less than 2.0% of mass 69 | 0.0 | ( 0.0 )1 |
| 69 | Mass 69 relative abundance | 43.3 | |
| 70 | Less than 2.0% of mass 69 | 0.0 | ( 0.0 )1 |
| 127 | 40.0 - 60.0% of mass 198 | 53.0 | |
| 197 | Less than 1.0% of mass 198 | 0.0 | |
| 198 | Base peak, 100% relative abundance | 100.0 | |
| 199 | 5.0 - 9.0% of mass 198 | 5.9 | |
| 275 | 10.0 - 30.0% of mass 198 | 28.3 | |
| 365 | Greater than 1.0% of mass 198 | 4.8 | |
| 441 | Present, but less than mass 443 | 7.33 | ( 49.4 )3 |
| 442 | 40.0 - 100.0% of mass 198 | 70.0 | |
| 443 | 17.0 - 23.0% of mass 442 | 14.8 | ( 21.2 )2 |

1-Value is % mass 69 2-Value is % mass 442 3-Value is % mass 443

This check applies to the following SAMPLES, MS, MSD, BLANKS and STANDARDS:

| Client ID | Lab Sample ID | File ID | Date Analyzed | Time Analyzed |
|---|---|---|---|---|
| . | 80-bna-STD-INJ-F | B6619.D | 10/08/2001 | 07:54 |
| . | 20-bna-STD-INJ-F | B6620.D | 10/08/2001 | 08:26 |
| . | 50-bna-STD-INJ-F | B6621.D | 10/08/2001 | 08:41 |
| . | 120-bna-STD-INJ- | B6622.D | 10/08/2001 | 09:03 |
| . | 160-bna-STD-INJ- | B6623.D | 10/08/2001 | 09:19 |
| . | 80-OLMO4-STD-IN | B6624.D | 10/08/2001 | 09:34 |
| . | 20-OLMO4-STD-IN | B6625.D | 10/08/2001 | 09:54 |
| . | 50-OLMO4-STD-IN | B6626.D | 10/08/2001 | 10:09 |
| . | 120-OLMO4-STD- | B6627.D | 10/08/2001 | 10:24 |
| . | 160-OLMO4-STD- | B6628.D | 10/08/2001 | 10:39 |
| . | 80-OLMO4-STD-IN | B6629.D | 10/08/2001 | 10:54 |
| 4A-1 | 6683-003 | B6630.D | 10/08/2001 | 11:09 |
| T3B_4-4.5 | 6677-003 | B6631.D | 10/08/2001 | 11:25 |
| T4B_4-4.5 | 6677-004 | B6632.D | 10/08/2001 | 11:40 |
| . | METHOD-BLK | B6633.D | 10/08/2001 | 11:56 |
| T4B_4-4.5 | 6677-004MS | B6634.D | 10/08/2001 | 12:19 |
| T4B_4-4.5 | 6677-004MSD | B6635.D | 10/08/2001 | 12:34 |
| . | LCS | B6636.D | 10/08/2001 | 12:49 |
| . | METHOD-BLK | B6637.D | 10/08/2001 | 13:05 |
| 18-1_0-0.5 | 6764-002 | B6638.D | 10/08/2001 | 13:20 |
| 30N-1_0-0.5 | 6764-004 | B6639.D | 10/08/2001 | 13:35 |
| 5S-1_0-0.5 | 6764-005 | B6640.D | 10/08/2001 | 13:50 |
| 9F-3_0-0.5 | 6764-006 | B6641.D | 10/08/2001 | 14:06 |

# SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

Lab File ID: B6618.D DFTPP Injection Date : 10/08/2001

Inst ID: MSDB DFTPP Injection Time: 07:29

| m/z | Ion Abudance Criteria | %Relative Abundance | | | |
|---|---|---|---|---|---|
| 51 | 30.0 - 60.0% of mass 198 | 44.1 | | | |
| 68 | Less than 2.0% of mass 69 | 0.0 | ( | 0.0 | )1 |
| 69 | Mass 69 relative abundance | 43.3 | | | |
| 70 | Less than 2.0% of mass 69 | 0.0 | ( | 0.0 | )1 |
| 127 | 40.0 - 60.0% of mass 198 | 53.0 | | | |
| 197 | Less than 1.0% of mass 198 | 0.0 | | | |
| 198 | Base peak, 100% relative abundance | 100.0 | | | |
| 199 | 5.0 - 9.0% of mass 198 | 5.9 | | | |
| 275 | 10.0 - 30.0% of mass 198 | 28.3 | | | |
| 365 | Greater than 1.0% of mass 198 | 4.8 | | | |
| 441 | Present, but less than mass 443 | 7.3 | ( | 49.4 | )3 |
| 442 | 40.0 - 100.0% of mass 198 | 70.0 | | | |
| 443 | 17.0 - 23.0% of mass 442 | 14.8 | ( | 21.2 | )2 |

1-Value is % mass 69 2-Value is % mass 442 3-Value is % mass 443

This check applies to the following SAMPLES, MS, MSD, BLANKS and STANDARDS:

| Client ID | Lab Sample ID | File ID | Date Analyzed | Time Analyzed |
|---|---|---|---|---|
| 9F-1_2-2.5 | 6764-007 | B6642.D | 10/08/2001 | 14:21 |
| 1G-3_0-0.5 | 6764-008 | B6643.D | 10/08/2001 | 14:36 |
| OS-SED-1 | 6442-001 | B6644.D | 10/08/2001 | 14:51 |
| B-1 | 6793-001 | B6645.D | 10/08/2001 | 15:06 |
| B-2A | 6793-002 | B6646.D | 10/08/2001 | 15:22 |
| B-2B | 6793-003 | B6647.D | 10/08/2001 | 15:37 |
| B-4 | 6793-005 | B6648.D | 10/08/2001 | 15:52 |
| B-6 | 6793-007 | B6649.D | 10/08/2001 | 16:07 |
| B-7 | 6793-008 | B6650.D | 10/08/2001 | 16:22 |
| B-7 | 6793-008MS | B6651.D | 10/08/2001 | 16:38 |
| B-7 | 6793-008MSD | B6652.D | 10/08/2001 | 16:53 |
| | LCS | B6653.D | 10/08/2001 | 17:08 |
| SW1D1_0-0.5 | 6666-021 | B6654.D | 10/08/2001 | 17:23 |
| SW1D2_0-0.5 | 6666-022 | B6655.D | 10/08/2001 | 17:39 |
| SW1D3_0-0.5 | 6666-023 | B6656.D | 10/08/2001 | 17:54 |

# SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

Lab File ID: B6834.D    DFTPP Injection Date : 10/15/2001

Inst ID: MSDB    DFTPP Injection Time: 08:23

| m/z | Ion Abudance Criteria | %Relative Abundance | | | |
|---|---|---|---|---|---|
| 51 | 30.0 - 60.0% of mass 198 | 38.5 | | | |
| 68 | Less than 2.0% of mass 69 | 0.0 | ( | 0.0 | )1 |
| 69 | Mass 69 relative abundance | 45.8 | | | |
| 70 | Less than 2.0% of mass 69 | 0.0 | ( | 0.0 | )1 |
| 127 | 40.0 - 60.0% of mass 198 | 52.1 | | | |
| 197 | Less than 1.0% of mass 198 | 0.0 | | | |
| 198 | Base peak, 100% relative abundance | 100.0 | | | |
| 199 | 5.0 - 9.0% of mass 198 | 6.5 | | | |
| 275 | 10.0 - 30.0% of mass 198 | 24.8 | | | |
| 365 | Greater than 1.0% of mass 198 | 4.3 | | | |
| 441 | Present, but less than mass 443 | 14.61 | ( | 72.0 | )3 |
| 442 | 40.0 - 100.0% of mass 198 | 93.5 | | | |
| 443 | 17.0 - 23.0% of mass 442 | 20.3 | ( | 21.7 | )2 |

1-Value is % mass 69    2-Value is % mass 442    3-Value is % mass 443

This check applies to the following SAMPLES, MS, MSD, BLANKS and STANDARDS:

| Client ID | Lab Sample ID | File ID | Date Analyzed | Time Analyzed |
|---|---|---|---|---|
| . | 80-bna-STD-INJ-F | B6835.D | 10/15/2001 | 08:56 |
| . | 80-OLMO4-STD-IN | B6836.D | 10/15/2001 | 09:11 |
| S-9B | 6844-003 | B6837.D | 10/15/2001 | 09:26 |
| S-9_2-2.5 | 6844-001 | B6838.D | 10/15/2001 | 09:42 |
| S-10_2-2.5 | 6844-005 | B6839.D | 10/15/2001 | 09:57 |
| S-9C | 6844-004 | B6840.D | 10/15/2001 | 10:13 |
| S-10C | 6844-008 | B6841.D | 10/15/2001 | 10:34 |
| . | METHOD-BLK | B6842.D | 10/15/2001 | 11:07 |
| PX-1 | 7058-001 | B6843.D | 10/15/2001 | 11:22 |
| PX-2 | 7058-002 | B6844.D | 10/15/2001 | 11:38 |
| PX-3 | 7058-003 | B6845.D | 10/15/2001 | 11:53 |
| PX-4 | 7058-004 | B6846.D | 10/15/2001 | 12:08 |
| PX-5 | 7058-005 | B6847.D | 10/15/2001 | 12:24 |
| PX-6 | 7058-006 | B6848.D | 10/15/2001 | 12:39 |
| PX-7 | 7058-007 | B6849.D | 10/15/2001 | 12:54 |
| PX-8 | 7058-008 | B6850.D | 10/15/2001 | 13:10 |
| PX-9 | 7058-009 | B6851.D | 10/15/2001 | 13:25 |
| PX-10 | 7058-010 | B6852.D | 10/15/2001 | 13:41 |
| PX-11 | 7058-011 | B6853.D | 10/15/2001 | 13:56 |
| PX-12 | 7058-012 | B6854.D | 10/15/2001 | 14:11 |
| SB-43A_3.5-4 | 7085-004 | B6855.D | 10/15/2001 | 14:27 |
| SB-43B_5-5.5 | 7085-005 | B6856.D | 10/15/2001 | 14:58 |
| SB-43C_13.5-14 | 7085-006 | B6857.D | 10/15/2001 | 15:14 |

FORM V SV

# SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

Lab File ID: B6834.D  DFTPP Injection Date : 10/15/2001

Inst ID: MSDB  DFTPP Injection Time: 08:23

| m/z | Ion Abudance Criteria | %Relative Abundance | |
|---|---|---|---|
| 51 | 30.0 - 60.0% of mass 198 | 38.5 | |
| 68 | Less than 2.0% of mass 69 | 0.0 | ( 0.0 )1 |
| 69 | Mass 69 relative abundance | 45.8 | |
| 70 | Less than 2.0% of mass 69 | 0.0 | ( 0.0 )1 |
| 127 | 40.0 - 60.0% of mass 198 | 52.1 | |
| 197 | Less than 1.0% of mass 198 | 0.0 | |
| 198 | Base peak, 100% relative abundance | 100.0 | |
| 199 | 5.0 - 9.0% of mass 198 | 6.5 | |
| 275 | 10.0 - 30.0% of mass 198 | 24.8 | |
| 365 | Greater than 1.0% of mass 198 | 4.3 | |
| 441 | Present, but less than mass 443 | 14.6 | ( 72.0 )3 |
| 442 | 40.0 - 100.0% of mass 198 | 93.5 | |
| 443 | 17.0 - 23.0% of mass 442 | 20.3 | ( 21.7 )2 |

1-Value is % mass 69  2-Value is % mass 442  3-Value is % mass 443

This check applies to the following SAMPLES, MS, MSD, BLANKS and STANDARDS:

| Client ID | Lab Sample ID | File ID | Date Analyzed | Time Analyzed |
|---|---|---|---|---|
| SB-43D_15.5-16 | 7085-007 | B6858.D | 10/15/2001 | 15:29 |
| SB-43E_21.7-22.2 | 7085-008 | B6859.D | 10/15/2001 | 15:44 |
| ABSEGAMI | 7035-001 | B6860.D | 10/15/2001 | 15:59 |
| 5-F1 | 7041-001 | B6861.D | 10/15/2001 | 16:15 |
| IJ-WIPE | 7061-001 | B6862.D | 10/15/2001 | 16:30 |
| PX-1 | 7058-001MS | B6863.D | 10/15/2001 | 16:48 |
| PX-1 | 7058-001MSD | B6864.D | 10/15/2001 | 17:03 |
| | LCS | B6865.D | 10/15/2001 | 17:20 |

# SEMIVOLATILE METHOD BLANK SUMMARY

Lab File ID: B6842.D

Instrument ID: MSDB

Date Extracted: 10/15/01

Matrix: SOIL

Date Analyzed: 10/15/2001

Time Analyzed: 11:07

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS & MSD:

| Client ID | Lab Sample ID | Date Analyzed | Time Analyzed |
|---|---|---|---|
| PX-1 | 7058-001 | 10/15/2001 | 11:22 |
| PX-2 | 7058-002 | 10/15/2001 | 11:38 |
| PX-3 | 7058-003 | 10/15/2001 | 11:53 |
| PX-4 | 7058-004 | 10/15/2001 | 12:08 |
| PX-5 | 7058-005 | 10/15/2001 | 12:24 |
| PX-6 | 7058-006 | 10/15/2001 | 12:39 |
| PX-7 | 7058-007 | 10/15/2001 | 12:54 |
| PX-8 | 7058-008 | 10/15/2001 | 13:10 |
| PX-9 | 7058-009 | 10/15/2001 | 13:25 |
| PX-10 | 7058-010 | 10/15/2001 | 13:41 |
| PX-11 | 7058-011 | 10/15/2001 | 13:56 |
| PX-12 | 7058-012 | 10/15/2001 | 14:11 |
| SB-43A_3.5-4 | 7085-004 | 10/15/2001 | 14:27 |
| SB-43B_5-5.5 | 7085-005 | 10/15/2001 | 14:58 |
| SB-43C_13.5-14 | 7085-006 | 10/15/2001 | 15:14 |
| SB-43D_15.5-16 | 7085-007 | 10/15/2001 | 15:29 |
| SB-43E_21.7-22. | 7085-008 | 10/15/2001 | 15:44 |
| ABSEGAMI | 7035-001 | 10/15/2001 | 15:59 |
| 5-F1 | 7041-001 | 10/15/2001 | 16:15 |
| IJ-WIPE | 7061-001 | 10/15/2001 | 16:30 |
| PX-1 | 7058-001MS | 10/15/2001 | 16:48 |
| PX-1 | 7058-001MSD | 10/15/2001 | 17:03 |
|  | LCS | 10/15/2001 | 17:20 |

FORM IV SV

# INTEGRATED ANALYTICAL LABORATORIES

## SEMIVOLATILE ORGANICS

Client/Project: N/A

Lab ID: METHOD-BLK
Client ID: 
Date Received: N/A
Date Extracted: 10/15/2001
Date Analyzed: 10/15/2001
Data file: B6842.D

GC/MS Column: DB-5
Sample wt/vol: 30.0g
Matrix-Units: Soil-μg/Kg (ppb)
Dilution Factor: 1
% Moisture: 0.0

| Compound | Concentration | Q | MDL |
|---|---|---|---|
| N-Nitrosodimethylamine | ND | | 33.3 |
| Benzaldehyde | ND | | 33.3 |
| Phenol | ND | | 33.3 |
| Aniline | ND | | 33.3 |
| bis(2-Chloroethyl)ether | ND | | 33.3 |
| 2-Chlorophenol | ND | | 33.3 |
| 1,3-Dichlorobenzene | ND | | 33.3 |
| 1,4-Dichlorobenzene | ND | | 33.3 |
| Benzyl alcohol | ND | | 33.3 |
| 1,2-Dichlorobenzene | ND | | 33.3 |
| 2-Methylphenol | ND | | 33.3 |
| bis(2-chloroisopropyl)ether | ND | | 33.3 |
| 4-Methylphenol | ND | | 33.3 |
| N-Nitroso-di-n-propylamine | ND | | 33.3 |
| Acetophenone | ND | | 33.3 |
| Hexachloroethane | ND | | 33.3 |
| Nitrobenzene | ND | | 33.3 |
| Isophorone | ND | | 33.3 |
| 2-Nitrophenol | ND | | 33.3 |
| 2,4-Dimethylphenol | ND | | 33.3 |
| bis(2-Chloroethoxy)methane | ND | | 33.3 |
| Benzoic acid | ND | | 33.3 |
| 2,4-Dichlorophenol | ND | | 33.3 |
| 1,2,4-Trichlorobenzene | ND | | 33.3 |
| Naphthalene | ND | | 33.3 |
| 4-Chloroaniline | ND | | 33.3 |
| Hexachlorobutadiene | ND | | 33.3 |
| Caprolactam | ND | | 33.3 |
| 4-Chloro-3-methylphenol | ND | | 33.3 |
| 2-Methylnaphthalene | ND | | 33.3 |
| Hexachlorocyclopentadiene | ND | | 33.3 |
| 2,4,6-Trichlorophenol | ND | | 33.3 |
| 2,4,5-Trichlorophenol | ND | | 33.3 |
| 1-1'-Biphenyl | ND | | 33.3 |
| 2-Chloronaphthalene | ND | | 33.3 |
| 2-Nitroaniline | ND | | 33.3 |
| Dimethylphthalate | ND | | 33.3 |
| 2,6-Dinitrotoluene | ND | | 33.3 |
| Acenaphthylene | ND | | 33.3 |

## INTEGRATED ANALYTICAL LABORATORIES

## SEMIVOLATILE ORGANICS

Client/Project: N/A

Lab ID: METHOD-BLK
Client ID: .
Date Received: N/A
Date Extracted: 10/15/2001
Date Analyzed: 10/15/2001
Data file: B6842.D

GC/MS Column: DB-5
Sample wt/vol: 30.0g
Matrix-Units: Soil-µg/Kg (ppb)
Dilution Factor: 1
% Moisture: 0.0

| Compound | Concentration | Q | MDL |
|---|---|---|---|
| 3-Nitroaniline | ND | | 33.3 |
| Acenaphthene | ND | | 33.3 |
| 2,4-Dinitrophenol | ND | | 33.3 |
| 4-Nitrophenol | ND | | 33.3 |
| 2,4-Dinitrotoluene | ND | | 33.3 |
| Dibenzofuran | ND | | 33.3 |
| Diethylphthalate | ND | | 33.3 |
| Fluorene | ND | | 33.3 |
| 4-Chlorophenyl-phenylether | ND | | 33.3 |
| 4-Nitroaniline | ND | | 33.3 |
| 4,6-Dinitro-2-methylphenol | ND | | 33.3 |
| N-Nitrosodiphenylamine | ND | | 33.3 |
| 1,2-Diphenylhydrazine/Azobenzene | ND | | 33.3 |
| 4-Bromophenyl-phenylether | ND | | 33.3 |
| Hexachlorobenzene | ND | | 33.3 |
| Atrazine | ND | | 33.3 |
| Pentachlorophenol | ND | | 33.3 |
| Phenanthrene | ND | | 33.3 |
| Anthracene | ND | | 33.3 |
| Carbazole | ND | | 33.3 |
| Di-n-butylphthalate | ND | | 33.3 |
| Fluoranthene | ND | | 33.3 |
| Benzidine | ND | | 33.3 |
| Pyrene | ND | | 33.3 |
| 3,3'-Dimethylbenzidine | ND | | 33.3 |
| Butylbenzylphthalate | ND | | 33.3 |
| 3,3'-Dichlorobenzidine | ND | | 33.3 |
| Benzo[a]anthracene | ND | | 33.3 |
| Chrysene | ND | | 33.3 |
| bis(2-Ethylhexyl)phthalate | ND | | 33.3 |
| Di-n-octylphthalate | ND | | 33.3 |
| Benzo[b]fluoranthene | ND | | 33.3 |
| Benzo[k]fluoranthene | ND | | 33.3 |
| Benzo[a]pyrene | ND | | 33.3 |
| Indeno[1,2,3-cd]pyrene | ND | | 33.3 |
| Dibenz[a,h]anthracene | ND | | 33.3 |
| Benzo[g,h,i]perylene | ND | | 33.3 |

Total Target Compounds: 0

## INTEGRATED ANALYTICAL LABORATORIES

## SEMIVOLATILE ORGANICS
Tentatively Identified Compounds

Client/Project: N/A

Lab ID: METHOD-BLK
Client ID: .
Date Received: N/A
Date Extracted: 10/15/2001
Date Analyzed: 10/15/2001
Data file: B6842.D

GC/MS Column: DB-5
Sample wt/vol: 30.0g
Matrix-Units: Soil-$\mu$g/Kg (ppb)
Dilution Factor: 1
% Moisture: 0.0

| CAS # | Compound | Estimated Concentration | Retention Time |
|---|---|---|---|
| | No peaks detected | | |

Total TICs = 0

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                         Response Factor Report  MSD_B

Method         : C:\MSDCHEM\1\METHODS\BS2301.M (RTE Integrator)
Title          :  BNA CALIBRATION METHOD
Last Update    : Mon Oct 08 11:06:23 2001
Response via   : Initial Calibration

Calibration Files
160     =B6623.D       80     =B6619.D       50      =B6621.D
20      =B6620.D       120    =B6622.D

         Compound                      160    80    50     20     120   Avg        %RSD
-----------------------------------------------------------------------------------------

  1) I   1,4-Dichlorobenzene-d  ---------------ISTD--------------------
  2) T   N-Nitrosodimethylam    0.729 0.683 0.626 0.581 0.633 0.650       8.78
  3) T   Pyridine               0.670 0.691 0.553 0.648 0.656 0.643       8.28
  4) S   2-Fluorophenol         0.979 1.051 1.005 1.157 1.044 1.047       6.49
  5) T   Benzaldehyde           2.378 1.884 2.198 2.206 2.694 2.272      13.01
  6) S   Phenol-d5              1.404 1.324 1.353 1.440 1.375 1.379       3.26
  7) MC  Phenol                 1.332 1.271 1.208 1.289 1.232 1.267       3.84
  8) T   Aniline                0.497 0.494 0.472 0.530 0.529 0.505       4.92
  9) T   bis(2-Chloroethyl)e    0.689 0.643 0.640 0.687 0.683 0.669       3.65
 10) M   2-Chlorophenol         1.138 0.984 0.944 1.005 1.102 1.035       7.90
 11) T   1,3-Dichlorobenzene    1.562 1.354 1.196 1.214 1.381 1.341      11.05
 12) MC  1,4-Dichlorobenzene    1.639 1.425 1.277 1.354 1.511 1.441       9.75
 13) T   Benzyl alcohol         0.616 0.538 0.544 0.551 0.604 0.571       6.38
 14) T   1,2-Dichlorobenzene    1.416 1.224 1.083 1.140 1.338 1.240      11.09
 15) T   2-Methylphenol         1.025 0.876 0.848 0.914 0.948 0.922       7.47
 16) T   bis(2-chloroisoprop    1.132 1.135 1.156 1.265 1.154 1.168       4.69
 17) T   4-Methylphenol         1.069 0.859 0.817 0.834 1.032 0.922      12.88
 18) MP  N-Nitroso-di-n-prop    0.664 0.650 0.610 0.642 0.680 0.649       4.06
 19) T   Acetophenone           1.632 1.500 1.375 1.450 1.598 1.511       6.98
 20) T   2-Aminotoluene +4-A    1.872 1.818 1.638 1.707 1.882 1.784       5.99
 21) T   Hexachloroethane       0.521 0.456 0.406 0.446 0.491 0.464       9.51

 22) I   Naphthalene-d8         ---------------ISTD--------------------
 23) S   Nitrobenzene-d5        0.438 0.430 0.469 0.452 0.436 0.445       3.52
 24) T   Nitrobenzene           0.281 0.255 0.266 0.255 0.270 0.265       4.16
 25) T   Isophorone             0.478 0.460 0.468 0.447 0.456 0.462       2.50
 26) TC  2-Nitrophenol          0.169 0.138 0.134 0.104 0.165 0.142      18.61
 27) T   2,4-Dimethylphenol     0.292 0.277 0.242 0.208 0.272 0.258      12.87
 28) T   bis(2-Chloroethoxy)    0.335 0.310 0.306 0.283 0.325 0.312       6.38
 29) T   Benzoic acid           0.067 0.041 0.049 0.036 0.054 0.049      24.33
 30) T   2,4-Dimethylaniline    0.346 0.324 0.280 0.263 0.333 0.309      11.55
 31) TC  2,4-Dichlorophenol     0.289 0.231 0.203 0.187 0.242 0.231      17.06
 32) M   1,2,4-Trichlorobenz    0.347 0.305 0.266 0.234 0.322 0.295      15.36
 33) T   Naphthalene            0.997 1.021 0.872 0.828 1.014 0.946       9.49
 34) T   4-Chloroaniline        0.503 0.460 0.304 0.290 0.480 0.407      25.03
 35) TC  Hexachlorobutadiene    0.229 0.190 0.163 0.139 0.209 0.186      19.35
 36) T   Caprolactam            0.087 0.080 0.081 0.073 0.084 0.081       6.66
 37) MC  4-Chloro-3-methylph    0.205 0.173 0.171 0.154 0.196 0.180      11.46
 38) T   2-Methylnaphthalene    0.689 0.681 0.567 0.514 0.622 0.615      12.21

 39) I   Acenaphthene-d10       ---------------ISTD--------------------
 40) TP  Hexachlorocyclopent    0.168 0.072 0.105 0.053 0.121 0.104      43.18
 41) TC  2,4,6-Trichlorophen    0.332 0.251 0.239 0.201 0.317 0.268      20.55
 42) T   2,4,5-Trichlorophen    0.394 0.310 0.332 0.278 0.366 0.336      13.60
 43) S   2-Fluorobiphenyl       2.228 1.999 1.941 1.821 2.164 2.031       8.15
 44) T   1-1'-Biphenyl          1.737 1.521 1.489 1.194 1.817 1.551      15.71
 45) T   2-Chloronaphthalene    1.184 1.101 0.938 0.808 1.103 1.027      14.76
 46) T   2-Nitroaniline
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 48) T    2,6-Dinitrotoluene      0.251 0.199 0.206 0.175 0.254 0.217     15.92
 49) T    Acenaphthylene          1.984 1.707 1.458 1.254 1.714 1.623     17.13
 50) T    3-Nitroaniline          0.365 0.281 0.274 0.246 0.334 0.300     16.14
 51) MC   Acenaphthene            1.321 1.029 0.973 0.790 1.206 1.064     19.41
 52) T    2,4-Dinitrophenol       0.068 0.038 0.036 0.026 0.055 0.045     36.88
 53) MP   4-Nitrophenol           0.069 0.075 0.095 0.067 0.057 0.073     18.96
 54) M    2,4-Dinitrotoluene      0.384 0.314 0.300 0.219 0.400 0.323     22.41
 55) T    Dibenzofuran            1.930 1.530 1.439 1.155 1.843 1.580     19.88
 56) T    Diethylphthalate        1.264 0.971 0.903 0.787 1.061 0.997     17.99
 57) T    Fluorene                1.372 1.112 1.098 0.900 1.340 1.164     16.67
 58) T    4-Chlorophenyl-phen     0.651 0.592 0.530 0.418 0.629 0.564     16.58
 59) T    4-Nitroaniline          0.257 0.212 0.207 0.163 0.230 0.214     15.99

 60) I    Phenanthrene-d10      ---------------ISTD--------------------
 61) T    4,6-Dinitro-2-methy     0.104 0.054 0.048 0.035 0.075 0.063     42.46
 62) TC   N-Nitrosodiphenylam     0.541 0.443 0.391 0.374 0.474 0.445     15.04
 63) T    1,2-Diphenylhydrazi     0.689 0.606 0.580 0.529 0.686 0.618     11.20
 64) S    2,4,6-Tribromopheno     0.111 0.098 0.117 0.100 0.107 0.107      7.55
 65) T    4-Bromophenyl-pheny     0.260 0.235 0.180 0.157 0.235 0.213     20.15
 66) T    Hexachlorobenzene       0.326 0.283 0.219 0.197 0.297 0.264     20.56
 67) T    Atrazine                0.199 0.146 0.133 0.133 0.164 0.155     17.83
 68) MC   Pentachlorophenol       0.063 0.058 0.060 0.039 0.056 0.055     17.03
 69) T    Phenanthrene            1.166 0.962 0.834 0.784 1.054 0.960     16.29
 70) T    Anthracene              1.231 1.001 0.815 0.730 1.053 0.966     20.54
 71) T    Carbazole               0.829 0.699 0.666 0.615 0.750 0.712     11.51
 72) T    Di-n-butylphthalate     1.015 0.829 0.779 0.662 0.923 0.842     16.05
 73) TC   Fluoranthene            0.846 0.789 0.716 0.624 0.834 0.762     12.15
 74) T    Benzidine               0.107 0.067 0.079 0.062 0.096 0.082     23.01

 75) I    Chrysene-d12          ---------------ISTD--------------------
 76) M    Pyrene                  1.260 1.171 1.123 1.009 1.197 1.152      8.15
 77) S    Terphenyl-d14           0.937 1.031 1.085 1.110 0.932 1.019      8.06
 78) T    3,3'-Dimethylbenzid     0.101 0.067 0.100 0.130 0.094 0.098     22.62
 79) T    Butylbenzylphthalat     0.486 0.357 0.371 0.306 0.431 0.390     17.81
 80) T    3,3'-Dichlorobenzid     0.262 0.214 0.243 0.215 0.250 0.237      9.05
 81) T    Benzo[a]anthracene      0.933 0.858 0.811 0.762 0.886 0.850      7.79
 82) T    Chrysene                0.873 0.827 0.780 0.786 0.852 0.823      4.92
 83) T    bis(2-Ethylhexyl)ph     0.628 0.471 0.498 0.417 0.581 0.519     16.32

 84) I    Perylene-d12          ---------------ISTD--------------------
 85) TC   Di-n-octylphthalate     0.914 0.670 0.749 0.653 0.828 0.763     14.35
 86) T    Benzo[b]fluoranthen     0.959 0.714 0.778 0.648 1.038 0.827     19.97
 87) T    Benzo[k]fluoranthen     1.142 1.161 1.086 1.063 1.192 1.129      4.74
 88) TC   Benzo[a]pyrene          0.957 0.841 0.817 0.792 0.908 0.863      7.89
 89) T    Indeno[1,2,3-cd]pyr     1.228 1.051 0.974 0.867 1.178 1.059     13.93
 90) T    Dibenz[a,h]anthrace     1.069 0.883 0.847 0.722 1.018 0.908     15.27
 91) T    Benzo[g,h,i]perylen     0.985 0.894 0.807 0.695 0.935 0.863     13.25
---------------------------------------------------------------------------
(#) = Out of Range

        BS2301.M          Mon Oct 08 11:06:33 2001     MSD_B
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Instrument ID: MSD_B
Method ID: BS2301.M
Date: 10/08/2001

Average %RSD = 14.37

Refer to SW846 Method 8000B Section 7.5.1.

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                 Evaluate Continuing Calibration Report

  Data File : C:\MSDCHEM\1\DATA\10-15-01\B6835.D           Vial: 2
  Acq On    : 15 Oct 2001   8:56                       Operator: JC
  Sample    :  .,80-bna-STD-INJ-FOR-10/12/01           Inst    : MSD_B
  Misc      :                                          Multiplr: 1.00
  MS Integration Params: rteint.p

  Method         : C:\MSDCHEM\1\METHODS\BS2301.M (RTE Integrator)
  Title          :  BNA CALIBRATION METHOD
  Last Update    : Mon Oct 08 11:06:23 2001
  Response via   : Multiple Level Calibration

         Compound                         AvgRF    CCRF      %Dev Area% Dev(min)
 -------------------------------------------------------------------------------
  1 I    1,4-Dichlorobenzene-d4           1.000    1.000      0.0  151    0.00
  2 T    N-Nitrosodimethylamine           0.650    0.745    -14.6  165    0.02
  3 T    Pyridine                         0.643    0.740    -15.1  162    0.02
  4 S    2-Fluorophenol                   1.047    1.187    -13.4  171    0.00
  5 T    Benzaldehyde                     2.272    2.299     -1.2  130    0.00
  6 S    Phenol-d5                        1.379    1.318      4.4  151    0.00
  7 MC   Phenol                           1.267    1.442    -13.8  172    0.00
  8 T    Aniline                          0.505    0.474      6.1  145    0.00
  9 T    bis(2-Chloroethyl)ether          0.669    0.695     -3.9  163    0.00
 10 M    2-Chlorophenol                   1.035    1.054     -1.8  162    0.00
 11 T    1,3-Dichlorobenzene              1.341    1.362     -1.6  152    0.00
 12 MC   1,4-Dichlorobenzene              1.441    1.325      8.0  141    0.00
 13 T    Benzyl alcohol                   0.571    0.578     -1.2  163    0.00
 14 T    1,2-Dichlorobenzene              1.240    1.172      5.5  145    0.00
 15 T    2-Methylphenol                   0.922    0.889      3.6  154    0.00
 16 T    bis(2-chloroisopropyl)ether      1.168    1.228     -5.1  164    0.00
 17 T    4-Methylphenol                   0.922    0.971     -5.3  171    0.00
 18 MP   N-Nitroso-di-n-propylamine       0.649    0.594      8.5  138    0.00
 19 T    Acetophenone                     1.511    1.359     10.1  137    0.00
 20 T    2-Aminotoluene +4-Aminotolu      1.784    1.530     14.2  127    0.00
 21 T    Hexachloroethane                 0.464    0.485     -4.5  161    0.00

 22 I    Naphthalene-d8                   1.000    1.000      0.0  141    0.00
 23 S    Nitrobenzene-d5                  0.445    0.520    -16.9  171    0.00
 24 T    Nitrobenzene                     0.265    0.279     -5.3  155    0.00
 25 T    Isophorone                       0.462    0.469     -1.5  144    0.00
 26 TC   2-Nitrophenol                    0.142    0.161    -13.4  166    0.00
 27 T    2,4-Dimethylphenol               0.258    0.269     -4.3  137    0.00
 28 T    bis(2-Chloroethoxy)methane       0.312    0.307      1.6  140    0.00
 29 T    Benzoic acid                     0.049    0.045      8.2  154    0.02
 30 T    2,4-Dimethylaniline              0.309    0.283      8.4  123    0.00
 31 TC   2,4-Dichlorophenol               0.231    0.218      5.6  133    0.00
 32 M    1,2,4-Trichlorobenzene           0.295    0.273      7.5  127    0.00
 33 T    Naphthalene                      0.946    0.983     -3.9  136    0.00
 34 T    4-Chloroaniline                  0.407    0.284     30.2   88    0.00
 35 TC   Hexachlorobutadiene              0.186    0.185      0.5  138    0.00
 36 T    Caprolactam                      0.081    0.091    -12.3  161    0.02
 37 MC   4-Chloro-3-methylphenol          0.180    0.180      0.0  147    0.00
 38 T    2-Methylnaphthalene              0.615    0.584      5.0  121    0.00

 39 I    Acenaphthene-d10                 1.000    1.000      0.0  112    0.00
 40 TP   Hexachlorocyclopentadiene        0.104    0.085     18.3  132    0.00
 41 TC   2,4,6-Trichlorophenol            0.268    0.262      2.2  117    0.00
 42 T    2,4,5-Trichlorophenol            0.336    0.376    -11.9  136    0.00
 43 S    2-Fluorobiphenyl                 2.031    2.043     -0.6  115    0.00
 44 T    1-1'-Biphenyl                    1.551    1.810    -16.7  133    0.00
 45 T    2-Chloronaphthalene              1.027    1.177    -14.6  120    0.00
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 46 T    2-Nitroaniline                    0.204     0.241       -18.1  139    0.01
 47 T    Dimethylphthalate                 1.020     1.092        -7.1  129    0.00
 48 T    2,6-Dinitrotoluene                0.217     0.225        -3.7  127    0.00
 49 T    Acenaphthylene                    1.623     1.647        -1.5  108    0.00
 50 T    3-Nitroaniline                    0.300     0.334       -11.3  133    0.00
 51 MC   Acenaphthene                      1.064     1.157        -8.7  126    0.00
 52 T    2,4-Dinitrophenol                 0.045     0.049        -8.9  146    0.00
 53 MP   4-Nitrophenol                     0.073     0.065        11.0   97    0.01
 54 M    2,4-Dinitrotoluene                0.323     0.322         0.3  115    0.00
 55 T    Dibenzofuran                      1.580     1.634        -3.4  120    0.00
 56 T    Diethylphthalate                  0.997     0.973         2.4  112    0.00
 57 T    Fluorene                          1.164     1.180        -1.4  119    0.00
 58 T    4-Chlorophenyl-phenylether        0.564     0.551         2.3  104    0.00
 59 T    4-Nitroaniline                    0.214     0.198         7.5  104    0.01

 60 I    Phenanthrene-d10                  1.000     1.000         0.0  109    0.00
 61 T    4,6-Dinitro-2-methylphenol        0.063     0.061         3.2  124    0.01
 62 TC   N-Nitrosodiphenylamine            0.445     0.468        -5.2  115    0.01
 63 T    1,2-Diphenylhydrazine/Azobe       0.618     0.709       -14.7  127    0.00
 64 S    2,4,6-Tribromophenol              0.107     0.125       -16.8  139    0.00
 65 T    4-Bromophenyl-phenylether         0.213     0.205         3.8   95    0.00
 66 T    Hexachlorobenzene                 0.264     0.277        -4.9  106    0.00
 67 T    Atrazine                          0.155     0.134        13.5  100    0.01
 68 MC   Pentachlorophenol                 0.055     0.061       -10.9  115    0.01
 69 T    Phenanthrene                      0.960     0.911         5.1  103    0.00
 70 T    Anthracene                        0.966     0.959         0.7  104    0.01
 71 T    Carbazole                         0.712     0.675         5.2  105    0.00
 72 T    Di-n-butylphthalate               0.842     0.901        -7.0  118    0.00
 73 TC   Fluoranthene                      0.762     0.733         3.8  101    0.01
 74 T    Benzidine                         0.082     0.067        18.3  108    0.00

 75 I    Chrysene-d12                      1.000     1.000         0.0   92    0.02
 76 M    Pyrene                            1.152     1.218        -5.7   96    0.01
 77 S    Terphenyl-d14                     1.019     1.057        -3.7   94    0.01
 78 T    3,3'-Dimethylbenzidine            0.098     0.096         2.0  132    0.00
 79 T    Butylbenzylphthalate              0.390     0.373         4.4   96    0.01
 80 T    3,3'-Dichlorobenzidine            0.237     0.266       -12.2  114    0.01
 81 T    Benzo[a]anthracene                0.850     0.899        -5.8   96    0.01
 82 T    Chrysene                          0.823     0.848        -3.0   94    0.02
 83 T    bis(2-Ethylhexyl)phthalate        0.519     0.477         8.1   93    0.01

 84 I    Perylene-d12                      1.000     1.000         0.0  103    0.02
 85 TC   Di-n-octylphthalate               0.763     0.805        -5.5  124    0.01
 86 T    Benzo[b]fluoranthene              0.827     0.886        -7.1  128    0.02
 87 T    Benzo[k]fluoranthene              1.129     1.051         6.9   93    0.03
 88 TC   Benzo[a]pyrene                    0.863     0.881        -2.1  108    0.02
 89 T    Indeno[1,2,3-cd]pyrene            1.059     1.164        -9.9  114    0.07
 90 T    Dibenz[a,h]anthracene             0.908     1.028       -13.2  120    0.06
 91 T    Benzo[g,h,i]perylene              0.863     0.907        -5.1  105    0.08
-------------------------------------------------------------------------------------

   (#) = Out of Range                  SPCC's out = 0   CCC's out = 0
    B6619.D      BS2301.M          Mon Oct 15 11:24:17 2001    MSD_B
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# SEMIVOLATILE SURROGATE PERCENT RECOVERY SUMMARY

**Date Analyzed:** 10/15/2001

| Lab Sample ID | Matrix | File ID | S1 | S2 | S3 | S4 | S5 | S6 |
|---|---|---|---|---|---|---|---|---|
| 6844-003 | SOIL | B6837.D | N/A | N/A | 55 | 75 | N/A | 77 |
| 6844-001 | SOIL | B6838.D | N/A | N/A | 96 | 84 | N/A | 82 |
| 6844-005 | SOIL | B6839.D | N/A | N/A | 48 | 71 | N/A | 69 |
| 6844-004 | SOIL | B6840.D | N/A | N/A | 98 | 77 | N/A | 77 |
| 6844-008 | SOIL | B6841.D | N/A | N/A | 93 | 75 | N/A | 71 |
| METHOD-BLK | SOIL | B6842.D | 77 | 85 | 84 | 65 | 101 | 91 |
| 7058-001 | SOIL | B6843.D | N/A | N/A | 66 | 47 | N/A | 78 |
| 7058-002 | SOIL | B6844.D | N/A | N/A | 63 | 45 | N/A | 77 |
| 7058-003 | SOIL | B6845.D | N/A | N/A | 67 | 45 | N/A | 76 |
| 7058-004 | SOIL | B6846.D | N/A | N/A | 66 | 46 | N/A | 71 |
| 7058-005 | SOIL | B6847.D | N/A | N/A | 64 | 45 | N/A | 77 |
| 7058-006 | SOIL | B6848.D | N/A | N/A | 60 | 41 | N/A | 67 |
| 7058-007 | SOIL | B6849.D | N/A | N/A | 63 | 44 | N/A | 70 |
| 7058-008 | SOIL | B6850.D | N/A | N/A | 64 | 45 | N/A | 71 |
| 7058-009 | SOIL | B6851.D | N/A | N/A | 69 | 48 | N/A | 77 |
| 7058-010 | SOIL | B6852.D | N/A | N/A | 69 | 49 | N/A | 79 |
| 7058-011 | SOIL | B6853.D | N/A | N/A | 75 | 51 | N/A | 80 |
| 7058-012 | SOIL | B6854.D | N/A | N/A | 72 | 51 | N/A | 80 |
| 7085-004 | SOIL | B6855.D | N/A | N/A | 62 | 44 | N/A | 80 |
| 7085-005 | SOIL | B6856.D | N/A | N/A | 58 | 47 | N/A | 61 |
| 7085-006 | SOIL | B6857.D | N/A | N/A | 71 | 49 | N/A | 73 |
| 7085-007 | SOIL | B6858.D | N/A | N/A | 72 | 50 | N/A | 74 |
| 7085-008 | SOIL | B6859.D | N/A | N/A | 62 | 44 | N/A | 71 |

|  | Soil | Aqueous |
|---|---|---|
| S1 (2FP) = 2-Fluorophenol | 28-100 | 47-93 |
| S2 (PHL) = Phenol-d5 | 28-102 | 46-110 |
| S3 (NBZ) = Nitrobenzene-d5 | 35-101 | 42-120 |
| S4 (FBP) = 2-Fluorobiphenyl | 37-103 | 55-109 |
| S5 (TBP) = 2,4,6-Tribromophenol | 44-121 | 46-119 |
| S6 (TPH) = Terphenyl-d14 | 40-120 | 51-118 |

* Column to be used to flag recovery values

FORM II SV

# SEMIVOLATILE SURROGATE PERCENT RECOVERY SUMMARY

Date Analyzed: 10/15/2001

| Lab Sample ID | Matrix | File ID | S1 | S2 | S3 | S4 | S5 | S6 |
|---|---|---|---|---|---|---|---|---|
| 7035-001 | SOIL | B6860.D | 65 | 74 | 70 | 49 | 88 | 66 |
| 7041-001 | SOIL | B6861.D | 70 | 72 | 65 | 46 | 94 | 70 |
| 7061-001 |  | B6862.D | 76 | 77 | 75 | 53 | 98 | 68 |
| 7058-001MS | SOIL | B6863.D | 82 | 86 | 71 | 56 | 107 | 83 |
| 7058-001MSD | SOIL | B6864.D | 80 | 89 | 77 | 59 | 112 | 85 |
| LCS | SOIL | B6865.D | 72 | 79 | 71 | 51 | 96 | 78 |

|  | Soil | Aqueous |
|---|---|---|
| S1 (2FP) = 2-Fluorophenol | 28-100 | 47-93 |
| S2 (PHL) = Phenol-d5 | 28-102 | 46-110 |
| S3 (NBZ) = Nitrobenzene-d5 | 35-101 | 42-120 |
| S4 (FBP) = 2-Fluorobiphenyl | 37-103 | 55-109 |
| S5 (TBP) = 2,4,6-Tribromophenol | 44-121 | 46-119 |
| S6 (TPH) = Terphenyl-d14 | 40-120 | 51-118 |

* Column to be used to flag recovery values

FORM II SV

# SOIL SEMIVOLATILE MATRIX SPIKE/SPIKE DUPLICATE RECOVERY

Matrix spike Lab sample ID: 7058-001 Batch No.: B101501S1

| Compound | SPIKE ADDED (ug/Kg) | SAMPLE CONC. (ug/Kg) | MS CONC. (ug/Kg) | MS % REC # | QC LIMITS REC. |
|---|---|---|---|---|---|
| Phenol | 100.0 | 0.0 | 80.9 | 81 | 26 - 90 |
| 2-Chlorophenol | 100.0 | 0.0 | 80.6 | 81 | 25 - 102 |
| 1,4-Dichlorobenzene | 50.0 | 0.0 | 29.6 | 59 | 28 - 104 |
| N-Nitroso-di-n-propylamine | 50.0 | 0.0 | 36.4 | 73 | 41 - 126 |
| 1,2,4-Trichlorobenzene | 50.0 | 0.0 | 28.6 | 57 | 38 - 107 |
| 4-Chloro-3-methylphenol | 100.0 | 0.0 | 82.1 | 82 | 26 - 103 |
| Acenaphthene | 50.0 | 0.0 | 33.7 | 67 | 31 - 137 |
| 4-Nitrophenol | 100.0 | 0.0 | 100.6 | 101 | 11 - 114 |
| 2,4-Dinitrotoluene | 50.0 | 0.0 | 30.1 | 60 | 28 - 89 |
| Pentachlorophenol | 100.0 | 0.0 | 108.4 | 108 | 17 - 109 |
| Pyrene | 50.0 | 0.0 | 37.7 | 75 | 35 - 142 |

| Compound | SAMPLE CONC. (ug/Kg) | MSD CONC. (ug/Kg) | # | MSD % REC | % RPD # | QC LIMITS RPD | QC LIMITS REC. |
|---|---|---|---|---|---|---|---|
| Phenol | 0.0 | 89.1 | | 89 | 9 | 42 | 26 - 90 |
| 2-Chlorophenol | 0.0 | 84.3 | | 84 | 4 | 40 | 25 - 102 |
| 1,4-Dichlorobenzene | 0.0 | 30.1 | | 60 | 2 | 28 | 28 - 104 |
| N-Nitroso-di-n-propylamine | 0.0 | 36.0 | | 72 | 1 | 38 | 41 - 126 |
| 1,2,4-Trichlorobenzene | 0.0 | 29.5 | | 59 | 3 | 28 | 38 - 107 |
| 4-Chloro-3-methylphenol | 0.0 | 91.0 | | 91 | 10 | 42 | 26 - 103 |
| Acenaphthene | 0.0 | 33.2 | | 66 | 2 | 31 | 31 - 137 |
| 4-Nitrophenol | 0.0 | 111.4 | | 111 | 9 | 50 | 11 - 114 |
| 2,4-Dinitrotoluene | 0.0 | 29.6 | | 59 | 2 | 38 | 28 - 89 |
| Pentachlorophenol | 0.0 | 107.7 | | 108 | 0 | 50 | 17 - 109 |
| Pyrene | 0.0 | 36.4 | | 73 | 3 | 31 | 35 - 142 |

# Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

NC Non calculable

RPD: __0___ out of __11__ outside limits

Spike Recovery: __0___ out of __22__ outside limits

# SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab File ID (Standard): B6619.D

Date Analyzed: 10/08/2001

Instrument ID: MSDB

Time Analyzed: 07:54

| | 40UG/L | IS1 AREA # | RT # | IS2 AREA # | RT # | IS3 AREA # | RT # |
|---|---|---|---|---|---|---|---|
| | 12 HOUR STD | 112820 | 2.42 | 381902 | 3.06 | 209421 | 3.95 |
| | UPPER LIMIT | 225640 | 2.92 | 763804 | 3.56 | 418842 | 4.45 |
| | LOWER LIMIT | 56410 | 1.92 | 190951 | 2.56 | 104711 | 3.45 |
| | LAB SAMPLE ID | | | | | | |
| 01 | 20-bna-STD-INJ-FOR | 113341 | 2.42 | 446092 | 3.05 | 249915 | 3.95 |
| 02 | 50-bna-STD-INJ-FOR | 116736 | 2.42 | 390650 | 3.05 | 209832 | 3.95 |
| 03 | 120-bna-STD-INJ-FOR | 105206 | 2.42 | 358996 | 3.05 | 182330 | 3.95 |
| 04 | 160-bna-STD-INJ-FOR | 102526 | 2.42 | 345683 | 3.05 | 171216 | 3.95 |
| 05 | 80-OLMO4-STD-INJ-F | 100195 | 2.42 | 379090 | 3.05 | 208299 | 3.94 |
| 06 | 20-OLMO4-STD-INJ-F | 88491 | 2.42 | 338641 | 3.05 | 178258 | 3.95 |
| 07 | 50-OLMO4-STD-INJ-F | 91447 | 2.42 | 348173 | 3.05 | 178202 | 3.94 |
| 08 | 120-OLMO4-STD-INJ | 95175 | 2.42 | 358986 | 3.05 | 181169 | 3.94 |
| 09 | 160-OLMO4-STD-INJ | 92636 | 2.42 | 332914 | 3.05 | 169316 | 3.94 |
| 10 | 80-OLMO4-STD-INJ-F | 109023 | 2.42 | 414066 | 3.05 | 206190 | 3.94 |
| 11 | 6683-003 | 158020 | 2.42 | 603319 | 3.05 | 337180 | 3.95 |
| 12 | 6677-003 | 98728 | 2.42 | 371543 | 3.05 | 195218 | 3.94 |
| 13 | 6677-004 | 98027 | 2.42 | 379471 | 3.05 | 195318 | 3.94 |
| 14 | METHOD-BLK | 96903 | 2.42 | 361718 | 3.05 | 195443 | 3.94 |
| 15 | 6677-004MS | 103725 | 2.42 | 389058 | 3.05 | 205814 | 3.94 |
| 16 | 6677-004MSD | 108853 | 2.42 | 401605 | 3.05 | 220417 | 3.94 |
| 17 | LCS | 115042 | 2.42 | 425439 | 3.05 | 247915 | 3.94 |
| 18 | METHOD-BLK | 106903 | 2.42 | 403747 | 3.05 | 220494 | 3.94 |
| 19 | 6764-002 | 115275 | 2.42 | 435434 | 3.05 | 228705 | 3.94 |
| 20 | 6764-004 | 108919 | 2.42 | 419440 | 3.05 | 220136 | 3.94 |
| 21 | 6764-005 | 119730 | 2.42 | 459951 | 3.05 | 227995 | 3.94 |
| 22 | 6764-006 | 117056 | 2.42 | 447436 | 3.05 | 224717 | 3.94 |

IS1 = 1,4-Dichlorobenzene-d4
IS2 = Naphthalene-d8
IS3 = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

# Column used to flag values outside QC limits with an asterisk
* Values outside of QC limits.

## SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab File ID (Standard): B6619.D

Date Analyzed: 10/08/2001

Instrument ID: MSDB

Time Analyzed: 07:54

| | 40UG/L | IS1 AREA # | RT # | IS2 AREA # | RT # | IS3 AREA # | RT # |
|---|---|---|---|---|---|---|---|
| | 12 HOUR STD | 112820 | 2.42 | 381902 | 3.06 | 209421 | 3.95 |
| | UPPER LIMIT | 225640 | 2.92 | 763804 | 3.56 | 418842 | 4.45 |
| | LOWER LIMIT | 56410 | 1.92 | 190951 | 2.56 | 104711 | 3.45 |
| | LAB SAMPLE ID | | | | | | |
| 01 | 6764-007 | 111284 | 2.42 | 414019 | 3.05 | 214932 | 3.94 |
| 02 | 6764-008 | 111661 | 2.42 | 404600 | 3.05 | 196976 | 3.94 |
| 03 | 6442-001 | 102797 | 2.42 | 394159 | 3.05 | 200548 | 3.94 |
| 04 | 6793-001 | 99211 | 2.42 | 383927 | 3.05 | 197655 | 3.94 |
| 05 | 6793-002 | 99239 | 2.42 | 386399 | 3.05 | 191389 | 3.94 |
| 06 | 6793-003 | 99633 | 2.42 | 369219 | 3.05 | 186975 | 3.94 |
| 07 | 6793-005 | 101382 | 2.42 | 385854 | 3.05 | 195345 | 3.94 |
| 08 | 6793-007 | 105049 | 2.42 | 396574 | 3.05 | 201700 | 3.94 |
| 09 | 6793-008 | 100979 | 2.42 | 382501 | 3.05 | 191904 | 3.94 |
| 10 | 6793-008MS | 113088 | 2.42 | 415449 | 3.05 | 210670 | 3.94 |
| 11 | 6793-008MSD | 115444 | 2.42 | 421207 | 3.05 | 212728 | 3.94 |
| 12 | LCS | 111972 | 2.42 | 406208 | 3.05 | 208789 | 3.94 |
| 13 | 6666-021 | 99362 | 2.42 | 368508 | 3.05 | 184248 | 3.94 |
| 14 | 6666-022 | 88843 | 2.42 | 325473 | 3.05 | 156859 | 3.94 |
| 15 | 6666-023 | 82212 | 2.43 | 311258 | 3.05 | 154538 | 3.94 |
| 16 | | | | | | | |
| 17 | | | | | | | |
| 18 | | | | | | | |
| 19 | | | | | | | |
| 20 | | | | | | | |
| 21 | | | | | | | |
| 22 | | | | | | | |

IS1 = 1,4-Dichlorobenzene-d4
IS2 = Naphthalene-d8
IS3 = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

# Column used to flag values outside QC limits with an asterisk
* Values outside of QC limits.

FORM VIII SV-1

# SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab File ID (Standard): B6619.D

Date Analyzed: 10/08/2001

Instrument ID: MSDB

Time Analyzed: 07:54

| | 40UG/L | IS4 AREA # | RT # | IS5 AREA # | RT # | IS6 AREA # | RT # |
|---|---|---|---|---|---|---|---|
| | 12 HOUR STD | 309992 | 4.74 | 191236 | 6.56 | 165723 | 7.77 |
| | UPPER LIMIT | 619984 | 5.24 | 382472 | 7.06 | 331446 | 8.27 |
| | LOWER LIMIT | 154996 | 4.24 | 95618 | 6.06 | 82862 | 7.27 |
| | LAB SAMPLE ID | | | | | | |
| 01 | 20-bna-STD-INJ-FOR | 391589 | 4.74 | 216719 | 6.56 | 171810 | 7.78 |
| 02 | 50-bna-STD-INJ-FOR | 338588 | 4.73 | 204527 | 6.55 | 165251 | 7.79 |
| 03 | 120-bna-STD-INJ-FOR | 288896 | 4.74 | 187424 | 6.56 | 167415 | 7.77 |
| 04 | 160-bna-STD-INJ-FOR | 277815 | 4.74 | 186632 | 6.56 | 169910 | 7.77 |
| 05 | 80-OLMO4-STD-INJ-F | 347153 | 4.73 | 220214 | 6.55 | 142782 | 7.80 |
| 06 | 20-OLMO4-STD-INJ-F | 308909 | 4.73 | 194066 | 6.57 | 148446 | 7.78 |
| 07 | 50-OLMO4-STD-INJ-F | 300793 | 4.73 | 189688 | 6.56 | 141414 | 7.78 |
| 08 | 120-OLMO4-STD-INJ | 318154 | 4.73 | 197817 | 6.56 | 142552 | 7.78 |
| 09 | 160-OLMO4-STD-INJ | 287156 | 4.73 | 185241 | 6.56 | 140109 | 7.78 |
| 10 | 80-OLMO4-STD-INJ-F | 347744 | 4.73 | 212022 | 6.55 | 158546 | 7.80 |
| 11 | 6683-003 | 562886 | 4.73 | 327593 | 6.55 | 206466 | 7.79 |
| 12 | 6677-003 | 302705 | 4.73 | 181059 | 6.56 | 94899 | 7.77 |
| 13 | 6677-004 | 319218 | 4.73 | 176311 | 6.55 | 112730 | 7.79 |
| 14 | METHOD-BLK | 318797 | 4.73 | 202850 | 6.55 | 163970 | 7.80 |
| 15 | 6677-004MS | 319909 | 4.73 | 176514 | 6.55 | 114176 | 7.80 |
| 16 | 6677-004MSD | 343266 | 4.73 | 183593 | 6.55 | 124466 | 7.79 |
| 17 | LCS | 376093 | 4.73 | 225564 | 6.55 | 181484 | 7.79 |
| 18 | METHOD-BLK | 367222 | 4.73 | 224553 | 6.55 | 170792 | 7.80 |
| 19 | 6764-002 | 360652 | 4.73 | 211351 | 6.55 | 181629 | 7.77 |
| 20 | 6764-004 | 357856 | 4.73 | 216974 | 6.55 | 174569 | 7.79 |
| 21 | 6764-005 | 357891 | 4.73 | 208526 | 6.55 | 181476 | 7.79 |
| 22 | 6764-006 | 349740 | 4.73 | 208506 | 6.55 | 174924 | 7.79 |

IS4 = Phenanthrene-d10
IS5 = Chrysene-d12
IS6 = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

# Column used to flag values outside QC limits with an asterisk
* Values outside of QC limits.

# SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab File ID (Standard): B6619.D

Date Analyzed: 10/08/2001

Instrument ID: MSDB

Time Analyzed: 07:54

| | 50UG/L | IS4 AREA # | RT # | IS5 AREA # | RT # | IS6 AREA # | RT # |
|---|---|---|---|---|---|---|---|
| | 12 HOUR STD | 309992 | 4.74 | 191236 | 6.56 | 165723 | 7.77 |
| | UPPER LIMIT | 619984 | 5.24 | 382472 | 7.06 | 331446 | 8.27 |
| | LOWER LIMIT | 154996 | 4.24 | 95618 | 6.06 | 82862 | 7.27 |
| | LAB SAMPLE ID | | | | | | |
| 01 | 6764-007 | 328899 | 4.73 | 200880 | 6.55 | 165209 | 7.79 |
| 02 | 6764-008 | 298250 | 4.73 | 183299 | 6.55 | 174245 | 7.79 |
| 03 | 6442-001 | 301303 | 4.73 | 173962 | 6.55 | 169315 | 7.79 |
| 04 | 6793-001 | 307010 | 4.73 | 191723 | 6.56 | 183181 | 7.77 |
| 05 | 6793-002 | 304025 | 4.73 | 194087 | 6.56 | 182430 | 7.77 |
| 06 | 6793-003 | 290374 | 4.73 | 191967 | 6.55 | 171146 | 7.79 |
| 07 | 6793-005 | 303483 | 4.73 | 195428 | 6.55 | 170108 | 7.79 |
| 08 | 6793-007 | 306226 | 4.73 | 198108 | 6.55 | 174939 | 7.79 |
| 09 | 6793-008 | 285087 | 4.73 | 193103 | 6.55 | 169219 | 7.79 |
| 10 | 6793-008MS | 320419 | 4.73 | 194205 | 6.55 | 170526 | 7.79 |
| 11 | 6793-008MSD | 312650 | 4.73 | 191462 | 6.55 | 170581 | 7.79 |
| 12 | LCS | 306186 | 4.73 | 191734 | 6.55 | 163934 | 7.79 |
| 13 | 6666-021 | 275462 | 4.73 | 214376 | 6.56 | 206910 | 7.77 |
| 14 | 6666-022 | 237928 | 4.73 | 199717 | 6.55 | 200010 | 7.79 |
| 15 | 6666-023 | 244462 | 4.73 | 203495 | 6.55 | 204690 | 7.79 |
| 16 | | | | | | | |
| 17 | | | | | | | |
| 18 | | | | | | | |
| 19 | | | | | | | |
| 20 | | | | | | | |
| 21 | | | | | | | |
| 22 | | | | | | | |

IS4 = Phenanthrene-d10
IS5 = Chrysene-d12
IS6 = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

\# Column used to flag values outside QC limits with an asterisk
* Values outside of QC limits.

**FORM VIII SV-2**

# SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab File ID (Standard): B6835.D

Date Analyzed: 10/15/2001

Instrument ID: MSDB

Time Analyzed: 08:56

| | 40UG/L | IS1<br>AREA # | RT # | IS2<br>AREA # | RT # | IS3<br>AREA # | RT # |
|---|---|---|---|---|---|---|---|
| | 12 HOUR STD | 170820 | 2.42 | 540031 | 3.05 | 234737 | 3.95 |
| | UPPER LIMIT | 341640 | 2.92 | 1080062 | 3.55 | 469474 | 4.45 |
| | LOWER LIMIT | 85410 | 1.92 | 270016 | 2.55 | 117369 | 3.45 |
| | LAB SAMPLE ID | | | | | | |
| 01 | 80-OLMO4-STD-INJ-F | 145164 | 2.42 | 532928 | 3.05 | 258341 | 3.95 |
| 02 | 6844-003 | 137556 | 2.42 | 527685 | 3.05 | 243743 | 3.95 |
| 03 | 6844-001 | 133443 | 2.42 | 514084 | 3.05 | 236748 | 3.94 |
| 04 | 6844-005 | 114740 | 2.42 | 426478 | 3.05 | 199276 | 3.94 |
| 05 | 6844-004 | 137096 | 2.42 | 492491 | 3.05 | 218545 | 3.94 |
| 06 | 6844-008 | 113518 | 2.42 | 436050 | 3.05 | 201707 | 3.95 |
| 07 | METHOD-BLK | 159276 | 2.42 | 593009 | 3.05 | 278510 | 3.95 |
| 08 | 7058-001 | 124056 | 2.42 | 479147 | 3.05 | 216681 | 3.94 |
| 09 | 7058-002 | 111637 | 2.42 | 434508 | 3.05 | 210160 | 3.95 |
| 10 | 7058-003 | 122758 | 2.42 | 462740 | 3.05 | 215323 | 3.94 |
| 11 | 7058-004 | 110101 | 2.42 | 405709 | 3.05 | 191557 | 3.94 |
| 12 | 7058-005 | 132913 | 2.42 | 483639 | 3.05 | 225774 | 3.94 |
| 13 | 7058-006 | 115183 | 2.42 | 452274 | 3.05 | 217492 | 3.94 |
| 14 | 7058-007 | 120454 | 2.42 | 452145 | 3.05 | 207275 | 3.94 |
| 15 | 7058-008 | 122651 | 2.42 | 461511 | 3.05 | 219453 | 3.94 |
| 16 | 7058-009 | 124654 | 2.42 | 458096 | 3.05 | 214928 | 3.94 |
| 17 | 7058-010 | 139805 | 2.42 | 510113 | 3.05 | 232073 | 3.94 |
| 18 | 7058-011 | 127418 | 2.42 | 479372 | 3.05 | 228707 | 3.94 |
| 19 | 7058-012 | 131950 | 2.42 | 478363 | 3.05 | 223040 | 3.94 |
| 20 | 7085-004 | 130010 | 2.42 | 481717 | 3.05 | 221081 | 3.94 |
| 21 | 7085-005 | 130997 | 2.42 | 514187 | 3.05 | 191035 | 3.95 |
| 22 | 7085-006 | 119084 | 2.42 | 445148 | 3.05 | 207631 | 3.94 |

IS1 = 1,4-Dichlorobenzene-d4
IS2 = Naphthalene-d8
IS3 = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

# Column used to flag values outside QC limits with an asterisk
* Values outside of QC limits.

**FORM VIII SV-1**

# SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab File ID (Standard): B6835.D

Date Analyzed: 10/15/2001

Instrument ID: MSDB

Time Analyzed: 08:56

| | 40UG/L | IS1 AREA # | RT # | IS2 AREA # | RT # | IS3 AREA # | RT # |
|---|---|---|---|---|---|---|---|
| | 12 HOUR STD | 170820 | 2.42 | 540031 | 3.05 | 234737 | 3.95 |
| | UPPER LIMIT | 341640 | 2.92 | 1080062 | 3.55 | 469474 | 4.45 |
| | LOWER LIMIT | 85410 | 1.92 | 270016 | 2.55 | 117369 | 3.45 |
| | LAB SAMPLE ID | | | | | | |
| 01 | 7085-007 | 131139 | 2.42 | 482651 | 3.05 | 214241 | 3.94 |
| 02 | 7085-008 | 133387 | 2.42 | 483836 | 3.05 | 212698 | 3.94 |
| 03 | 7035-001 | 116692 | 2.42 | 406851 | 3.05 | 184700 | 3.94 |
| 04 | 7041-001 | 141047 | 2.42 | 483709 | 3.05 | 212144 | 3.94 |
| 05 | 7061-001 | 113456 | 2.42 | 382353 | 3.05 | 168893 | 3.94 |
| 06 | 7058-001MS | 126837 | 2.42 | 452948 | 3.05 | 199926 | 3.95 |
| 07 | 7058-001MSD | 110206 | 2.42 | 382844 | 3.05 | 172248 | 3.94 |
| 08 | LCS | 118493 | 2.42 | 399297 | 3.05 | 180213 | 3.94 |
| 09 | | | | | | | |
| 10 | | | | | | | |
| 11 | | | | | | | |
| 12 | | | | | | | |
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| 18 | | | | | | | |
| 19 | | | | | | | |
| 20 | | | | | | | |
| 21 | | | | | | | |
| 22 | | | | | | | |

IS1 = 1,4-Dichlorobenzene-d4
IS2 = Naphthalene-d8
IS3 = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

# Column used to flag values outside QC limits with an asterisk
* Values outside of QC limits.

**FORM VIII SV-1**

# SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab File ID (Standard): B6835.D

Date Analyzed: 10/15/2001

Instrument ID: MSDB

Time Analyzed: 08:56

| | 40UG/L | IS4<br>AREA # | RT # | IS5<br>AREA # | RT # | IS6<br>AREA # | RT # |
|---|---|---|---|---|---|---|---|
| | 12 HOUR STD | 336494 | 4.73 | 175811 | 6.56 | 171148 | 7.81 |
| | UPPER LIMIT | 672988 | 5.23 | 351622 | 7.06 | 342296 | 8.31 |
| | LOWER LIMIT | 168247 | 4.23 | 87906 | 6.06 | 85574 | 7.31 |
| | LAB SAMPLE ID | | | | | | |
| 01 | 80-OLMO4-STD-INJ-F | 401005 | 4.73 | 205295 | 6.56 | 148277 | 7.80 |
| 02 | 6844-003 | 344905 | 4.73 | 181240 | 6.55 | 182307 | 7.80 |
| 03 | 6844-001 | 334918 | 4.73 | 193744 | 6.55 | 208479 | 7.80 |
| 04 | 6844-005 | 289056 | 4.73 | 171299 | 6.56 | 180849 | 7.78 |
| 05 | 6844-004 | 303447 | 4.73 | 181800 | 6.55 | 188776 | 7.80 |
| 06 | 6844-008 | 280742 | 4.73 | 186128 | 6.56 | 194065 | 7.80 |
| 07 | METHOD-BLK | 376072 | 4.73 | 230179 | 6.55 | 247210 | 7.80 |
| 08 | 7058-001 | 285812 | 4.73 | 175390 | 6.55 | 196024 | 7.80 |
| 09 | 7058-002 | 292416 | 4.73 | 179353 | 6.55 | 203681 | 7.79 |
| 10 | 7058-003 | 279112 | 4.73 | 164036 | 6.55 | 185281 | 7.79 |
| 11 | 7058-004 | 263960 | 4.74 | 166920 | 6.56 | 186463 | 7.78 |
| 12 | 7058-005 | 293387 | 4.73 | 166775 | 6.55 | 191878 | 7.79 |
| 13 | 7058-006 | 294042 | 4.73 | 172471 | 6.55 | 191038 | 7.79 |
| 14 | 7058-007 | 276055 | 4.73 | 166802 | 6.55 | 188063 | 7.80 |
| 15 | 7058-008 | 295095 | 4.73 | 169909 | 6.55 | 188028 | 7.80 |
| 16 | 7058-009 | 288212 | 4.73 | 175426 | 6.55 | 196673 | 7.79 |
| 17 | 7058-010 | 294349 | 4.73 | 171853 | 6.55 | 191451 | 7.80 |
| 18 | 7058-011 | 294573 | 4.73 | 169421 | 6.55 | 191961 | 7.79 |
| 19 | 7058-012 | 285287 | 4.73 | 167931 | 6.55 | 186777 | 7.80 |
| 20 | 7085-004 | 280616 | 4.73 | 164406 | 6.55 | 189039 | 7.80 |
| 21 | 7085-005 | 243476 | 4.74 | 151591 | 6.57 | 179228 | 7.78 |
| 22 | 7085-006 | 282828 | 4.73 | 173844 | 6.56 | 190625 | 7.78 |

IS4 = Phenanthrene-d10
IS5 = Chrysene-d12
IS6 = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

# Column used to flag values outside QC limits with an asterisk
* Values outside of QC limits.

**FORM VIII SV-2**

# SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab File ID (Standard): B6835.D

Date Analyzed: 10/15/2001

Instrument ID: MSDB

Time Analyzed: 08:56

| | 50UG/L | IS4 AREA # | RT # | IS5 AREA # | RT # | IS6 AREA # | RT # |
|---|---|---|---|---|---|---|---|
| | 12 HOUR STD | 336494 | 4.73 | 175811 | 6.56 | 171148 | 7.81 |
| | UPPER LIMIT | 672988 | 5.23 | 351622 | 7.06 | 342296 | 8.31 |
| | LOWER LIMIT | 168247 | 4.23 | 87906 | 6.06 | 85574 | 7.31 |
| | LAB SAMPLE ID | | | | | | |
| 01 | 7085-007 | 275767 | 4.73 | 171175 | 6.55 | 189403 | 7.8 |
| 02 | 7085-008 | 267387 | 4.74 | 176454 | 6.56 | 197769 | 7.77 |
| 03 | 7035-001 | 253757 | 4.73 | 169856 | 6.55 | 196953 | 7.8 |
| 04 | 7041-001 | 270562 | 4.73 | 175124 | 6.56 | 197006 | 7.78 |
| 05 | 7061-001 | 211834 | 4.73 | 133934 | 6.55 | 154696 | 7.8 |
| 06 | 7058-001MS | 248461 | 4.73 | 151555 | 6.56 | 175142 | 7.81 |
| 07 | 7058-001MSD | 226523 | 4.73 | 147096 | 6.56 | 170042 | 7.8 |
| 08 | LCS | 233247 | 4.73 | 148313 | 6.56 | 174372 | 7.8 |
| 09 | | | | | | | |
| 10 | | | | | | | |
| 11 | | | | | | | |
| 12 | | | | | | | |
| 13 | | | | | | | |
| 14 | | | | | | | |
| 15 | | | | | | | |
| 16 | | | | | | | |
| 17 | | | | | | | |
| 18 | | | | | | | |
| 19 | | | | | | | |
| 20 | | | | | | | |
| 21 | | | | | | | |
| 22 | | | | | | | |

IS4 = Phenanthrene-d10
IS5 = Chrysene-d12
IS6 = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

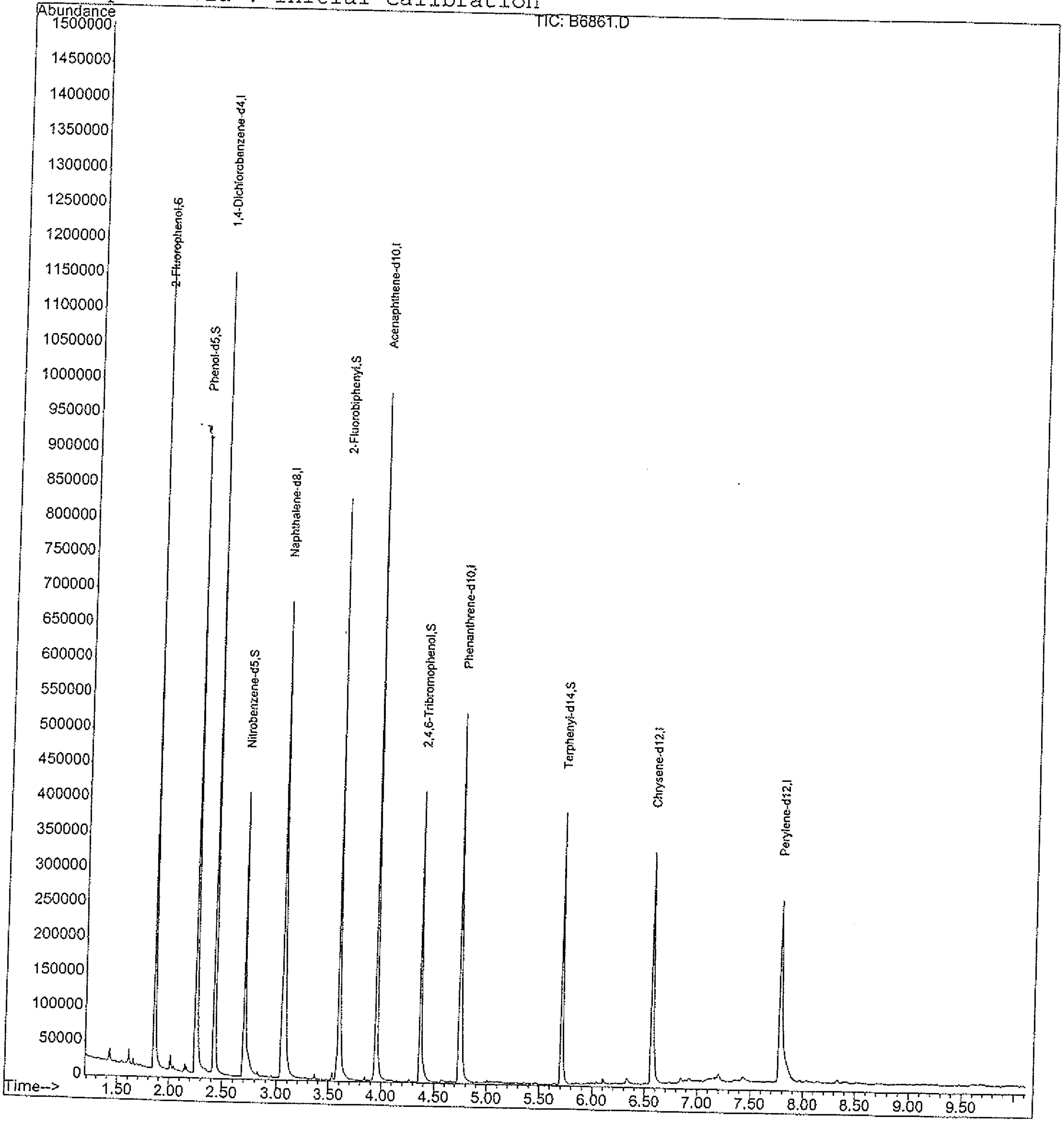
# Column used to flag values outside QC limits with an asterisk
* Values outside of QC limits.

**FORM VIII SV-2**

```
                    Quantitation Report     (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\10-15-01\B6861.D          Vial: 28
Acq On    : 15 Oct 2001  16:15                       Operator: JC
Sample    : 5-F1,7041-001,S,10.39g,9.40,10/15/01     Inst    : MSD_B
Misc      : BRENNAN/99704 FINETEX,10/11/01,10/11/01, Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Oct 15 16:25:30 2001           Quant Results File: BS2301.RES

Quant Method : C:\MSDCHEM\1\METHODS\BS2301.M (RTE Integrator)
Title        : BNA CALIBRATION METHOD
Last Update  : Mon Oct 08 11:06:23 2001
Response via : Initial Calibration
DataAcq Meth : BS2301

 Internal Standards                 R.T. QIon  Response  Conc Units Dev(Min)
---------------------------------------------------------------------------
  1) 1,4-Dichlorobenzene-d4         2.42  152    141047    40.00 UG      0.00
 22) Naphthalene-d8                 3.05  136    483709    40.00 UG      0.00
 39) Acenaphthene-d10               3.94  164    212144    40.00 UG      0.00
 60) Phenanthrene-d10               4.73  188    270562    40.00 UG      0.00
 75) Chrysene-d12                   6.56  240    175124    40.00 UG      0.02
 84) Perylene-d12                   7.78  264    197006    40.00 UG     -0.02

 System Monitoring Compounds
  4) 2-Fluorophenol                 1.85  112    256734    69.52 UG      0.00
  Spiked Amount    100.000   Range  28 - 100    Recovery   =   69.52%
  6) Phenol-d5                      2.24   99    350311    72.03 UG      0.00
  Spiked Amount    100.000   Range  28 - 102    Recovery   =   72.03%
 23) Nitrobenzene-d5                2.70   82    175840    32.68 UG      0.00
  Spiked Amount     50.000   Range  35 - 101    Recovery   =   65.36%
 43) 2-Fluorobiphenyl               3.59  172    248670    23.09 UG      0.00
  Spiked Amount     50.000   Range  37 - 103    Recovery   =   46.18%
 64) 2,4,6-Tribromophenol           4.36  330     67445    93.54 UG      0.00
  Spiked Amount    100.000   Range  44 - 121    Recovery   =   93.54%
 77) Terphenyl-d14                  5.70  244    156517    35.09 UG      0.02
  Spiked Amount     50.000   Range  40 - 120    Recovery   =   70.18%

 Target Compounds                                                 Qvalue




---------------------------------------------------------------------------
(#) = qualifier out of range (m) = manual integration
```

Quantitation Report (QT Reviewed)

```
Data File : C:\MSDCHEM\1\DATA\10-15-01\B6861.D                  Vial: 28
Acq On    : 15 Oct 2001  16:15                              Operator: JC
Sample    : 5-F1,7041-001,S,10.39g,9.40,10/15/01            Inst     : MSD_B
Misc      : BRENNAN/99704 FINETEX,10/11/01,10/11/01,   Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Oct 16  8:18 2001                      Quant Results File: BS2301.RES

Method         : C:\MSDCHEM\1\METHODS\BS2301.M (RTE Integrator)
Title          :  BNA CALIBRATION METHOD
Last Update    : Mon Oct 08 11:06:23 2001
Response via   : Initial Calibration
```



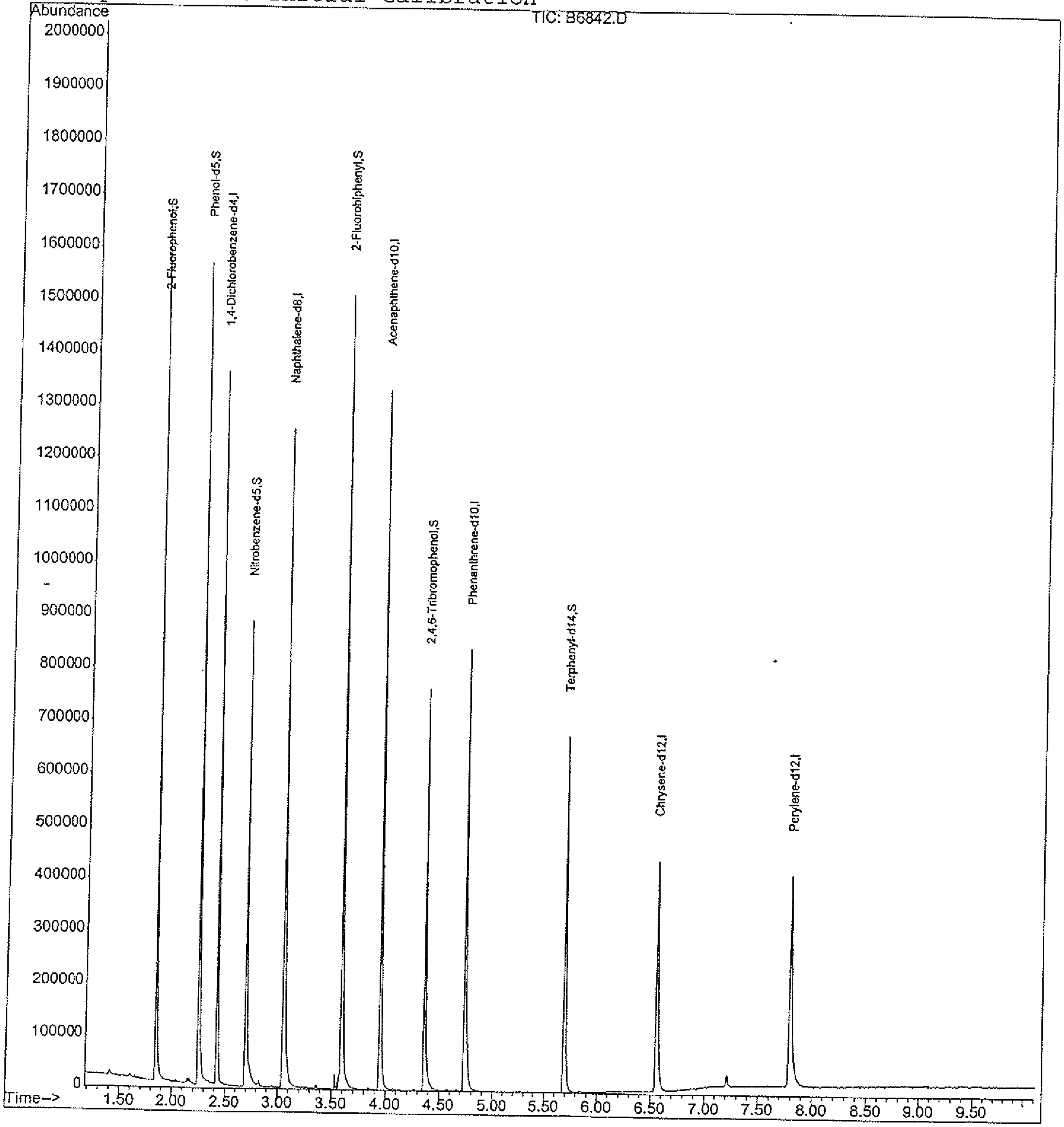
B6861.D  BS2301.M    Tue Oct 16 08:24:54 2001    MSD_B    Page 2

```
                    Library Search Compound Report
Data File : C:\MSDCHEM\1\DATA\10-15-01\B6861.D
Acq On    : 15 Oct 2001  16:15                                Vial: 28
Sample    : 5-F1,7041-001,S,10.39g,9.40,10/15/01           Operator: JC
Misc      : BRENNAN/99704 FINETEX,10/11/01,10/11/01,       Inst    : MSD_B
MS Integration Params: LSCINT.P                            Multiplr: 1.00
Quant Method : C:\MSDCHEM\1\METHODS\BS2301.M (RTE Integrator)
Title        : BNA CALIBRATION METHOD
Library      : C:\DATABASE\NIST98.L

No Library Search Compounds Detected



**************************************************************************
B6861.D  BS2301.M     Tue Oct 16 09:26:36 2001   MSD_B
```

```
                         Quantitation Report    (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\10-15-01\B6842.D              Vial: 9
Acq On    : 15 Oct 2001  11:07                           Operator: JC
Sample    : .,METHOD-BLK,S,30.0g,0.0,10/15/01            Inst    : MSD_B
Misc      : N/A,N/A,N/A,1                                Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Oct 15 11:17:36 2001                Quant Results File: BS2301.RES

Quant Method : C:\MSDCHEM\1\METHODS\BS2301.M (RTE Integrator)
Title        : BNA CALIBRATION METHOD
Last Update  : Mon Oct 08 11:06:23 2001
Response via : Initial Calibration
DataAcq Meth : BS2301

 Internal Standards                   R.T. QIon  Response  Conc Units Dev(Min)
------------------------------------------------------------------------------
  1) 1,4-Dichlorobenzene-d4           2.42  152    159276    40.00 UG      0.00
 22) Naphthalene-d8                   3.05  136    593009    40.00 UG      0.00
 39) Acenaphthene-d10                 3.95  164    278510    40.00 UG      0.00
 60) Phenanthrene-d10                 4.73  188    376072    40.00 UG      0.00
 75) Chrysene-d12                     6.55  240    230179    40.00 UG      0.00
 84) Perylene-d12                     7.80  264    247210    40.00 UG      0.00

System Monitoring Compounds
  4) 2-Fluorophenol                   1.84  112    323163    77.49 UG      0.00
   Spiked Amount   100.000    Range  28 - 100   Recovery   =   77.49%
  6) Phenol-d5                        2.24   99    465410    84.74 UG      0.00
   Spiked Amount   100.000    Range  28 - 102   Recovery   =   84.74%
 23) Nitrobenzene-d5                  2.70   82    278635    42.24 UG      0.00
   Spiked Amount    50.000    Range  35 - 101   Recovery   =   84.48%
 43) 2-Fluorobiphenyl                 3.58  172    460403    32.56 UG      0.00
   Spiked Amount    50.000    Range  37 - 103   Recovery   =   65.12%
 64) 2,4,6-Tribromophenol             4.36  330    101440   101.22 UG      0.00
   Spiked Amount   100.000    Range  44 - 121   Recovery   =  101.22%
 77) Terphenyl-d14                    5.69  244    265516    45.28 UG      0.00
   Spiked Amount    50.000    Range  40 - 120   Recovery   =   90.56%

Target Compounds                                                        Qvalue




------------------------------------------------------------------------------
(#) = qualifier out of range (m) = manual integration
```

Quantitation Report (QT Reviewed)

```
Data File : C:\MSDCHEM\1\DATA\10-15-01\B6842.D           Vial: 9
Acq On    : 15 Oct 2001  11:07                          Operator: JC
Sample    : .,METHOD-BLK,S,30.0g,0.0,10/15/01           Inst    : MSD_B
Misc      : N/A,N/A,N/A,1                               Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Oct 16 10:00 2001                Quant Results File: BS2301.RES

Method          : C:\MSDCHEM\1\METHODS\BS2301.M (RTE Integrator)
Title           :  BNA CALIBRATION METHOD
Last Update     : Mon Oct 08 11:06:23 2001
Response via    : Initial Calibration
```



```
                      Library Search Compound Report

Data File : C:\MSDCHEM\1\DATA\10-15-01\B6842.D              Vial: 9
Acq On    : 15 Oct 2001  11:07                          Operator: JC
Sample    : .,METHOD-BLK,S,30.0g,0.0,10/15/01           Inst     : MSD_B
Misc      : N/A,N/A,N/A,1                               Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Method : C:\MSDCHEM\1\METHODS\BS2301.M (RTE Integrator)
Title        : BNA CALIBRATION METHOD
Library      : C:\DATABASE\NIST98.L

No Library Search Compounds Detected



**********************************************************************
B6842.D  BS2301.M    Tue Oct 16 09:24:22 2001   MSD_B
```

# PCB METHOD BLANK SUMMARY

Lab File ID: V6528.D

Instrument ID: GC-V

Date Extracted: 10/15/01,4

Matrix: SOIL

Date Analyzed: 10/16/2001

Time Analyzed: 13:06

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS & MSD:

| Client ID | Lab Sample ID | Date Analyzed | Time Analyzed |
|---|---|---|---|
| ABSEGAMI | 7035-001 | 10/16/2001 | 13:38 |
| 5-F1 | 7041-001 | 10/16/2001 | 14:10 |
| UG-1_10-10.5 | 7023-001 | 10/16/2001 | 14:42 |
| UG-2_9-9.5 | 7023-002 | 10/16/2001 | 15:14 |
| FO-1_6-6.5 | 7023-004 | 10/16/2001 | 15:46 |
| DF-1_10-10.5 | 7023-005 | 10/16/2001 | 16:18 |
| DF-2_6-6.5 | 7023-006 | 10/16/2001 | 16:50 |
| SANDBLAST_GR | 7055-001 | 10/16/2001 | 17:23 |
| PMK101001 | 7070-001 | 10/16/2001 | 17:55 |
| DF-3_10-10.5 | 7023-007 | 10/16/2001 | 18:27 |
| DF-4_8.5-9 | 7023-008 | 10/16/2001 | 18:59 |
| DW-1_5-5.5 | 7023-010 | 10/16/2001 | 19:31 |
| DW-2_8-8.5 | 7023-011 | 10/16/2001 | 20:03 |
| PCB | 7041-001-MS1 | 10/16/2001 | 20:35 |
| PCB | 7041-001-MSD1 | 10/16/2001 | 21:07 |
| PCB | PBS1015-MS1 | 10/16/2001 | 21:39 |

# INTEGRATED ANALYTICAL LABORATORIES

## PCB's

Client/Project: NA

Lab ID: 1015-BLK1
Client ID: (7023..7055)
Date Received: NA
Date Extracted: 10/15/2001
Date Analyzed: 10/16/2001
Data file: V6528.D

GC Column: DB-5/DB1701P
Sample wt/vol: 5.93g
Matrix-Units: Soil-µg/Kg (ppb)
Dilution Factor: 1
% Moisture: 0

| Compound | Concentration | Q | MDL |
|---|---|---|---|
| Aroclor-1016 | ND | | 135 |
| Aroclor-1221 | ND | | 135 |
| Aroclor-1232 | ND | | 135 |
| Aroclor-1242 | ND | | 135 |
| Aroclor-1248 | ND | | 135 |
| Aroclor-1254 | ND | | 135 |
| Aroclor-1260 | ND | | 135 |

# PCB INITIAL CALIBRATION SUMMARY

Date Analyzed: 10/15/2001

Instrument ID: Varian 3400

GC Column (1st): DB-5

Data File: V6519.D V6520.D V6521.D V6522.D V6523.D

| Compound | RT OF STANDARDS | | | | | MEAN RT | RT WINDOW | |
|---|---|---|---|---|---|---|---|---|
| | 200 | 500 | 1000 | 2000 | 4000 | | FROM | TO |
| Aroclor-1016 | 5.75 | 5.76 | 5.75 | 5.75 | 5.75 | 5.75 | 5.68 | 5.82 |
| Aroclor-1016 {2} | 7.28 | 7.29 | 7.28 | 7.28 | 7.28 | 7.28 | 7.21 | 7.35 |
| Aroclor-1016 {3} | 8.30 | 8.31 | 8.30 | 8.30 | 8.30 | 8.30 | 8.23 | 8.37 |
| Aroclor-1016 {4} | 9.15 | 9.16 | 9.15 | 9.15 | 9.15 | 9.15 | 9.08 | 9.22 |
| Aroclor-1016 {5} | 9.63 | 9.64 | 9.63 | 9.62 | 9.63 | 9.63 | 9.56 | 9.70 |
| Aroclor-1221 | | | 3.78 | | | | 3.71 | 3.85 |
| Aroclor-1221 {2} | | | 5.39 | | | | 5.32 | 5.46 |
| Aroclor-1221 {3} | | | 5.62 | | | | 5.55 | 5.69 |
| Aroclor-1221 {4} | | | 5.75 | | | | 5.68 | 5.82 |
| Aroclor-1221 {5} | | | 6.85 | | | | 6.78 | 6.92 |
| Aroclor-1232 | | | 5.75 | | | | 5.68 | 5.82 |
| Aroclor-1232 {2} | | | 6.84 | | | | 6.77 | 6.91 |
| Aroclor-1232 {3} | | | 8.30 | | | | 8.23 | 8.37 |
| Aroclor-1232 {4} | | | 9.15 | | | | 9.08 | 9.22 |
| Aroclor-1232 {5} | | | 9.99 | | | | 9.92 | 10.06 |
| Aroclor-1242 | | | 7.28 | | | | 7.21 | 7.35 |
| Aroclor-1242 {2} | | | 9.15 | | | | 9.08 | 9.22 |
| Aroclor-1242 {3} | | | 9.73 | | | | 9.66 | 9.80 |
| Aroclor-1242 {4} | | | 10.94 | | | | 10.87 | 11.01 |
| Aroclor-1242 {5} | | | 11.46 | | | | 11.39 | 11.53 |
| Aroclor-1248 | | | 8.03 | | | | 7.96 | 8.10 |
| Aroclor-1248 {2} | | | 9.15 | | | | 9.08 | 9.22 |
| Aroclor-1248 {3} | | | 9.73 | | | | 9.66 | 9.80 |
| Aroclor-1248 {4} | | | 10.94 | | | | 10.87 | 11.01 |
| Aroclor-1248 {5} | | | 11.46 | | | | 11.39 | 11.53 |
| Aroclor-1254 | | | 11.69 | | | | 11.62 | 11.76 |
| Aroclor-1254 {2} | | | 12.52 | | | | 12.45 | 12.59 |
| Aroclor-1254 {3} | | | 13.67 | | | | 13.60 | 13.74 |
| Aroclor-1254 {4} | | | 14.50 | | | | 14.43 | 14.57 |
| Aroclor-1254 {5} | | | 15.28 | | | | 15.21 | 15.35 |
| Aroclor-1260 | 15.27 | 15.29 | 15.28 | 15.27 | 15.27 | 15.28 | 15.21 | 15.35 |
| Aroclor-1260 {2} | 15.83 | 15.85 | 15.84 | 15.83 | 15.84 | 15.84 | 15.77 | 15.91 |
| Aroclor-1260 {3} | 17.48 | 17.49 | 17.48 | 17.48 | 17.48 | 17.48 | 17.41 | 17.55 |
| Aroclor-1260 {4} | 18.40 | 18.42 | 18.41 | 18.40 | 18.40 | 18.41 | 18.34 | 18.48 |
| Aroclor-1260 {5} | 20.45 | 20.46 | 20.45 | 20.45 | 20.45 | 20.45 | 20.38 | 20.52 |

# PCB INITIAL CALIBRATION SUMMARY

**Date Analyzed:** 10/15/2001

**Instrument ID:** Varian 3400

**GC Column (1st):** DB-5

**Data File:** V6519.D V6520.D V6521.D V6522.D V6523.D

| Compound | CALIBRATION FACTORS | | | | | MEAN | %RSD |
|---|---|---|---|---|---|---|---|
| | 200 | 500 | 1000 | 2000 | 4000 | | |
| Aroclor-1016 | 6010 | 5723 | 5347 | 5045 | 5013 | 5428 | 7.98 |
| Aroclor-1016 {2} | 8005 | 7573 | 7153 | 6738 | 6680 | 7230 | 7.79 |
| Aroclor-1016 {3} | 10608 | 9990 | 9661 | 9074 | 9076 | 9682 | 6.72 |
| Aroclor-1016 {4} | 4780 | 4371 | 4178 | 4004 | 3998 | 4266 | 7.62 |
| Aroclor-1016 {5} | 6590 | 6190 | 5904 | 5562 | 5511 | 5952 | 7.58 |
| Aroclor-1221 | | | 1335 | | | | |
| Aroclor-1221 {2} | | | 2380 | | | | |
| Aroclor-1221 {3} | | | 2225 | | | | |
| Aroclor-1221 {4} | | | 6180 | | | | |
| Aroclor-1221 {5} | | | 752 | | | | |
| Aroclor-1232 | | | 3900 | | | | |
| Aroclor-1232 {2} | | | 1361 | | | | |
| Aroclor-1232 {3} | | | 2845 | | | | |
| Aroclor-1232 {4} | | | 1281 | | | | |
| Aroclor-1232 {5} | | | 2826 | | | | |
| Aroclor-1242 | | | 4274 | | | | |
| Aroclor-1242 {2} | | | 2426 | | | | |
| Aroclor-1242 {3} | | | 2938 | | | | |
| Aroclor-1242 {4} | | | 5617 | | | | |
| Aroclor-1242 {5} | | | 5779 | | | | |
| Aroclor-1248 | | | 10876 | | | | |
| Aroclor-1248 {2} | | | 3633 | | | | |
| Aroclor-1248 {3} | | | 3191 | | | | |
| Aroclor-1248 {4} | | | 9738 | | | | |
| Aroclor-1248 {5} | | | 9817 | | | | |
| Aroclor-1254 | | | 9207 | | | | |
| Aroclor-1254 {2} | | | 7727 | | | | |
| Aroclor-1254 {3} | | | 15225 | | | | |
| Aroclor-1254 {4} | | | 10213 | | | | |
| Aroclor-1254 {5} | | | 16486 | | | | |
| Aroclor-1260 | 29270 | 26701 | 25208 | 23760 | 24046 | 25797 | 8.76 |
| Aroclor-1260 {2} | 26811 | 25693 | 24396 | 23191 | 23499 | 24718 | 6.15 |
| Aroclor-1260 {3} | 56196 | 53607 | 51256 | 49892 | 54487 | 53088 | 4.75 |
| Aroclor-1260 {4} | 24861 | 24398 | 23301 | 22127 | 22185 | 23374 | 5.34 |
| Aroclor-1260 {5} | 13926 | 13585 | 13271 | 12670 | 12582 | 13207 | 4.39 |
| | | | | | | Average %RSD | 6.71 |

# PCB INITIAL CALIBRATION SUMMARY

**Date Analyzed:** 10/15/2001

**Instrument ID:** Varian 3400
**GC Column (2nd):** DB-1701P

**Data File:** V6519.C V6520.C V6521.C V6522.C V6523.C

| Compound | RT OF STANDARDS | | | | | MEAN RT | RT WINDOW | |
|---|---|---|---|---|---|---|---|---|
| | 200 | 500 | 1000 | 2000 | 4000 | | FROM | TO |
| Aroclor-1016 | 6.24 | 6.25 | 6.24 | 6.24 | 6.24 | 6.24 | 6.17 | 6.31 |
| Aroclor-1016 {2} | 7.30 | 7.31 | 7.30 | 7.30 | 7.30 | 7.30 | 7.23 | 7.37 |
| Aroclor-1016 {3} | 8.65 | 8.66 | 8.65 | 8.65 | 8.65 | 8.65 | 8.58 | 8.72 |
| Aroclor-1016 {4} | 9.03 | 9.04 | 9.03 | 9.03 | 9.03 | 9.03 | 8.96 | 9.10 |
| Aroclor-1016 {5} | 9.35 | 9.36 | 9.35 | 9.35 | 9.35 | 9.35 | 9.28 | 9.42 |
| Aroclor-1221 | | | 4.00 | | | | 3.93 | 4.07 |
| Aroclor-1221 {2} | | | 5.68 | | | | 5.61 | 5.75 |
| Aroclor-1221 {3} | | | 6.09 | | | | 6.02 | 6.16 |
| Aroclor-1221 {4} | | | 6.25 | | | | 6.18 | 6.32 |
| Aroclor-1221 {5} | | | 7.30 | | | | 7.23 | 7.37 |
| Aroclor-1232 | | | 6.24 | | | | 6.17 | 6.31 |
| Aroclor-1232 {2} | | | 7.30 | | | | 7.23 | 7.37 |
| Aroclor-1232 {3} | | | 8.65 | | | | 8.58 | 8.72 |
| Aroclor-1232 {4} | | | 9.35 | | | | 9.28 | 9.42 |
| Aroclor-1232 {5} | | | 10.45 | | | | 10.38 | 10.52 |
| Aroclor-1242 | | | 7.98 | | | | 7.91 | 8.05 |
| Aroclor-1242 {2} | | | 9.35 | | | | 9.28 | 9.42 |
| Aroclor-1242 {3} | | | 10.74 | | | | 10.67 | 10.81 |
| Aroclor-1242 {4} | | | 11.78 | | | | 11.71 | 11.85 |
| Aroclor-1242 {5} | | | 12.51 | | | | 12.44 | 12.58 |
| Aroclor-1248 | | | 8.66 | | | | 8.59 | 8.73 |
| Aroclor-1248 {2} | | | 9.74 | | | | 9.67 | 9.81 |
| Aroclor-1248 {3} | | | 10.46 | | | | 10.39 | 10.53 |
| Aroclor-1248 {4} | | | 10.74 | | | | 10.67 | 10.81 |
| Aroclor-1248 {5} | | | 11.40 | | | | 11.33 | 11.47 |
| Aroclor-1254 | | | 12.40 | | | | 12.33 | 12.47 |
| Aroclor-1254 {2} | | | 13.50 | | | | 13.43 | 13.57 |
| Aroclor-1254 {3} | | | 14.58 | | | | 14.51 | 14.65 |
| Aroclor-1254 {4} | | | 15.02 | | | | 14.95 | 15.09 |
| Aroclor-1254 {5} | | | 16.15 | | | | 16.08 | 16.22 |
| Aroclor-1260 | 15.01 | 15.03 | 15.02 | 15.02 | 15.02 | 15.02 | 14.95 | 15.09 |
| Aroclor-1260 {2} | 16.27 | 16.28 | 16.28 | 16.27 | 16.27 | 16.27 | 16.20 | 16.34 |
| Aroclor-1260 {3} | 17.28 | 17.29 | 17.28 | 17.28 | 17.28 | 17.28 | 17.21 | 17.35 |
| Aroclor-1260 {4} | 18.24 | 18.26 | 18.25 | 18.24 | 18.24 | 18.25 | 18.18 | 18.32 |
| Aroclor-1260 {5} | 20.52 | 20.53 | 20.53 | 20.52 | 20.52 | 20.52 | 20.45 | 20.59 |

# PCB INITIAL CALIBRATION SUMMARY

**Date Analyzed:** 10/15/2001

**Instrument ID:** Varian 3400
**GC Column (2nd):** DB-1701P

**Data File:** V6519.C V6520.C V6521.C V6522.C V6523.C

| Compound | CALIBRATION FACTORS | | | | | MEAN | %RSD |
|---|---|---|---|---|---|---|---|
| | 200 | 500 | 1000 | 2000 | 4000 | | |
| Aroclor-1016 | 7725 | 7195 | 6865 | 6524 | 6461 | 6954 | 7.50 |
| Aroclor-1016 {2} | 13823 | 13059 | 12161 | 11199 | 11193 | 12287 | 9.41 |
| Aroclor-1016 {3} | 33040 | 30365 | 28477 | 27146 | 28608 | 29527 | 7.70 |
| Aroclor-1016 {4} | 9511 | 10683 | 10129 | 9574 | 9543 | 9888 | 5.18 |
| Aroclor-1016 {5} | 11668 | 11102 | 10433 | 9889 | 9851 | 10589 | 7.45 |
| Aroclor-1221 | | | 1560 | | | | |
| Aroclor-1221 {2} | | | 2849 | | | | |
| Aroclor-1221 {3} | | | 1905 | | | | |
| Aroclor-1221 {4} | | | 6990 | | | | |
| Aroclor-1221 {5} | | | 548 | | | | |
| Aroclor-1232 | | | 4543 | | | | |
| Aroclor-1232 {2} | | | 3389 | | | | |
| Aroclor-1232 {3} | | | 7986 | | | | |
| Aroclor-1232 {4} | | | 2966 | | | | |
| Aroclor-1232 {5} | | | 3845 | | | | |
| Aroclor-1242 | | | 3111 | | | | |
| Aroclor-1242 {2} | | | 5904 | | | | |
| Aroclor-1242 {3} | | | 6625 | | | | |
| Aroclor-1242 {4} | | | 6278 | | | | |
| Aroclor-1242 {5} | | | 4513 | | | | |
| Aroclor-1248 | | | 13189 | | | | |
| Aroclor-1248 {2} | | | 8752 | | | | |
| Aroclor-1248 {3} | | | 10273 | | | | |
| Aroclor-1248 {4} | | | 10237 | | | | |
| Aroclor-1248 {5} | | | 6192 | | | | |
| Aroclor-1254 | | | 4327 | | | | |
| Aroclor-1254 {2} | | | 3489 | | | | |
| Aroclor-1254 {3} | | | 12313 | | | | |
| Aroclor-1254 {4} | | | 7254 | | | | |
| Aroclor-1254 {5} | | | 15662 | | | | |
| Aroclor-1260 | 22810 | 21041 | 19598 | 18256 | 18216 | 19984 | 9.81 |
| Aroclor-1260 {2} | 19016 | 17933 | 16743 | 15586 | 15348 | 16925 | 9.20 |
| Aroclor-1260 {3} | 21335 | 19745 | 18498 | 17214 | 17052 | 18769 | 9.60 |
| Aroclor-1260 {4} | 54073 | 51411 | 48541 | 46628 | 49255 | 49981 | 5.71 |
| Aroclor-1260 {5} | 6567 | 6401 | 6295 | 6026 | 5963 | 6250 | 4.06 |

Average %RSD 7.56

# PCB CALIBRATION VERIFICATION SUMMARY

Date/Time Analyzed: 10/16/2001

Instrument ID: Varian 3400

Data File: V6527.D

GC Column (1st): DB-5

| Compound | RT | RT WI NDOW |  | Avg CF | CC CF | %D |
|---|---|---|---|---|---|---|
|  |  | FROM | TO |  |  |  |
| Aroclor-1016 | 5.76 | 5.69 | 5.83 | 5428 | 5626 | 3.65 |
| Aroclor-1016 {2} | 7.29 | 7.22 | 7.36 | 7230 | 7499 | 3.72 |
| Aroclor-1016 {3} | 8.31 | 8.24 | 8.38 | 9682 | 10200 | 5.36 |
| Aroclor-1016 {4} | 9.16 | 9.09 | 9.23 | 4266 | 4403 | 3.21 |
| Aroclor-1016 {5} | 9.64 | 9.57 | 9.71 | 5952 | 6160 | 3.51 |
| Aroclor-1260 | 15.29 | 15.22 | 15.36 | 25797 | 26314 | 2.00 |
| Aroclor-1260 {2} | 15.85 | 15.78 | 15.92 | 24718 | 25495 | 3.14 |
| Aroclor-1260 {3} | 17.49 | 17.42 | 17.56 | 53088 | 53290 | 0.38 |
| Aroclor-1260 {4} | 18.42 | 18.35 | 18.49 | 23374 | 24317 | 4.03 |
| Aroclor-1260 {5} | 20.46 | 20.39 | 20.53 | 13207 | 13808 | 4.55 |
|  |  |  |  |  | Average %D | 3.36 |

Data File: V6527.C

GC Column (2nd): DB-1701P

| Compound | RT | RT WI NDOW |  | Avg CF | CC CF | %D |
|---|---|---|---|---|---|---|
|  |  | FROM | TO |  |  |  |
| Aroclor-1016 | 6.25 | 6.18 | 6.32 | 6954 | 6449 | 7.25 |
| Aroclor-1016 {2} | 7.31 | 7.24 | 7.38 | 12287 | 11457 | 6.76 |
| Aroclor-1016 {3} | 8.66 | 8.59 | 8.73 | 29527 | 26812 | 9.20 |
| Aroclor-1016 {4} | 9.04 | 8.97 | 9.11 | 9888 | 9553 | 3.39 |
| Aroclor-1016 {5} | 9.36 | 9.29 | 9.43 | 10589 | 9867 | 6.82 |
| Aroclor-1260 | 15.03 | 14.96 | 15.10 | 19984 | 18613 | 6.86 |
| Aroclor-1260 {2} | 16.28 | 16.21 | 16.35 | 16925 | 15862 | 6.28 |
| Aroclor-1260 {3} | 17.29 | 17.22 | 17.36 | 18769 | 17538 | 6.56 |
| Aroclor-1260 {4} | 18.26 | 18.19 | 18.33 | 49981 | 45545 | 8.88 |
| Aroclor-1260 {5} | 20.53 | 20.46 | 20.60 | 6250 | 5929 | 5.14 |
|  |  |  |  |  | Average %D | 6.71 |

# PCB CALIBRATION VERIFICATION SUMMARY

**Date/Time Analyzed:** 10/16/2001 **Instrument ID:** Varian 3400

**Data File:** V6545.D **GC Column (1st):** DB-5

| | | RT WINDOW | | | | |
|---|---|---|---|---|---|---|
| **Compound** | **RT** | **FROM** | **TO** | **Avg CF** | **CC CF** | **%D** |
| Aroclor-1016 | 5.76 | 5.69 | 5.83 | 5428 | 5431 | 0.06 |
| Aroclor-1016 {2} | 7.29 | 7.22 | 7.36 | 7230 | 7323 | 1.29 |
| Aroclor-1016 {3} | 8.31 | 8.24 | 8.38 | 9682 | 9903 | 2.29 |
| Aroclor-1016 {4} | 9.16 | 9.09 | 9.23 | 4266 | 4285 | 0.44 |
| Aroclor-1016 {5} | 9.63 | 9.56 | 9.70 | 5952 | 5997 | 0.77 |
| Aroclor-1260 | 15.29 | 15.22 | 15.36 | 25797 | 25764 | 0.13 |
| Aroclor-1260 {2} | 15.85 | 15.78 | 15.92 | 24718 | 24870 | 0.62 |
| Aroclor-1260 {3} | 17.49 | 17.42 | 17.56 | 53088 | 52324 | 1.44 |
| Aroclor-1260 {4} | 18.42 | 18.35 | 18.49 | 23374 | 24031 | 2.81 |
| Aroclor-1260 {5} | 20.46 | 20.39 | 20.53 | 13207 | 13717 | 3.86 |

Average %D 1.37

**Data File:** V6545.C **GC Column (2nd):** DB-1701P

| | | RT WINDOW | | | | |
|---|---|---|---|---|---|---|
| **Compound** | **RT** | **FROM** | **TO** | **Avg CF** | **CC CF** | **%D** |
| Aroclor-1016 | 6.25 | 6.18 | 6.32 | 6954 | 7409 | 6.54 |
| Aroclor-1016 {2} | 7.31 | 7.24 | 7.38 | 12287 | 13103 | 6.64 |
| Aroclor-1016 {3} | 8.66 | 8.59 | 8.73 | 29527 | 30690 | 3.94 |
| Aroclor-1016 {4} | 9.04 | 8.97 | 9.11 | 9888 | 10926 | 10.49 |
| Aroclor-1016 {5} | 9.36 | 9.29 | 9.43 | 10589 | 11279 | 6.52 |
| Aroclor-1260 | 15.03 | 14.96 | 15.10 | 19984 | 21174 | 5.95 |
| Aroclor-1260 {2} | 16.28 | 16.21 | 16.35 | 16925 | 18080 | 6.83 |
| Aroclor-1260 {3} | 17.29 | 17.22 | 17.36 | 18769 | 20008 | 6.60 |
| Aroclor-1260 {4} | 18.26 | 18.19 | 18.33 | 49981 | 52658 | 5.35 |
| Aroclor-1260 {5} | 20.53 | 20.46 | 20.60 | 6250 | 6874 | 9.98 |

Average %D 6.88

# PCB SURROGATE PERCENT RECOVERY SUMMARY

**Date Analyzed:** 10/16/2001

| | Lab | | TCMX 1 | | DCB 1 | | TCMX 2 | | DCB 2 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID | Sample ID | Matrix | % rec | # | % rec | # | % rec | # | % rec | # |
| (7023..7055) | 1015-BLK1 | SOIL | 103 | | 98 | | 97 | | 92 | |
| ABSEGAMI | 7035-001 | SOIL | 100 | | 94 | | 96 | | 89 | |
| 5-F1 | 7041-001 | SOIL | 102 | | 96 | | 100 | | 93 | |
| UG-1_10-10.5 | 7023-001 | SOIL | 104 | | 98 | | 104 | | 96 | |
| UG-2_9-9.5 | 7023-002 | SOIL | 100 | | 100 | | 101 | | 98 | |
| FO-1_6-6.5 | 7023-004 | SOIL | 99 | | 100 | | 120 | | 99 | |
| DF-1_10-10.5 | 7023-005 | SOIL | 100 | | 97 | | 102 | | 97 | |
| DF-2_6-6.5 | 7023-006 | SOIL | 100 | | 102 | | 143 | | 103 | |
| SANDBLAST_GR | 7055-001 | SOIL | 104 | | 99 | | 108 | | 100 | |
| PMK101001 | 7070-001 | SOIL | 101 | | 102 | | 106 | | 104 | |
| DF-3_10-10.5 | 7023-007 | SOIL | 87 | | 92 | | 92 | | 94 | |
| DF-4_8.5-9 | 7023-008 | SOIL | 90 | | 95 | | 99 | | 98 | |
| DW-1_5-5.5 | 7023-010 | SOIL | 100 | | 95 | | 111 | | 97 | |
| DW-2_8-8.5 | 7023-011 | SOIL | 82 | | 93 | | 88 | | 96 | |
| PCB | 7041-001-MS1 | SOIL | 101 | | 103 | | 109 | | 106 | |
| PCB | 7041-001-MSD1 | SOIL | 101 | | 99 | | 109 | | 103 | |
| PCB | PBS1015-MS1 | SOIL | 100 | | 102 | | 109 | | 107 | |

| Surrogate QC Limits | Soil | Aqueous |
|---|---|---|
| TCMX = Tetrachloro-m-xylene | 39-147 | 39-151 |
| DCB = Decachlorobiphenyl | 33-179 | 30-150 |

\# Column to be used to flag recovery values
* Values outside of QC limits
D Surrogate diluted out
M Matrix interference

# SOIL PCB MATRIX SPIKE/SPIKE DUPLICATE RECOVERY

Matrix spike Lab sample ID: 7041-001-MSD1

| Compound | SPIKE ADDED (ug/Kg) | SAMPLE CONC. (ug/Kg) | MS CONC. (ug/Kg) | MS % REC # | QC LIMITS REC. |
|---|---|---|---|---|---|
| **Aroclor-1016** | 5.0 | 0.0 | 3.8 | 76 | 58 - 140 |
| **Aroclor-1260** | 5.0 | 0.0 | 3.8 | 76 | 56 - 161 |

| Compound | SAMPLE CONC. (ug/Kg) | MSD CONC. (ug/Kg) | MSD % # REC | % RPD # | QC LIMITS | |
|---|---|---|---|---|---|---|
| | | | | | RPD | REC. |
| **Aroclor-1016** | 0.0 | 3.9 | 78 | 3 | 14 | 58 - 140 |
| **Aroclor-1260** | 0.0 | 3.8 | 76 | 0 | 18 | 56 - 161 |

\# Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
NC Non calculable

RPD: __0___ out of __2__ outside limits

Spike Recovery: __0___ out of __4__ outside limits

# SOIL PCB BLANK SPIKE RECOVERY

Matrix spike Lab sample ID: PBS1015-MS1

| Compound | SPIKE ADDED (ug/Kg) | SAMPLE CONC. (ug/Kg) | MS CONC. (ug/Kg) | MS % REC # | QC LIMITS REC. |
|---|---|---|---|---|---|
| **Aroclor-1016** | 5.0 | 0.0 | 3.9 | 78 | 58 - 140 |
| **Aroclor-1260** | 5.0 | 0.0 | 4.0 | 80 | 56 - 161 |

\# Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
NC Non calculable

Spike Recovery: __0___ out of __2__ outside limits

# PCB RETENTION TIME SHIFT SUMMARY

**Instrument ID:** GC-V **Column:** DB-5/DB-1701P

Surrogate RT from initial calibration :

TCMX 1 4.92 DCB 1 22.58 TCMX 2 4.76 DCB 2 22.63

| Client ID | Lab Sample ID | Date Analyzed | Time Analyzed | TCMX 1 RT | # | DCB 1 RT | # | TCMX 2 RT | # | DCB 2 RT | # |
|---|---|---|---|---|---|---|---|---|---|---|---|
| (7023..7055) | 1015-BLK1 | 10/16/2001 | 13:06 | 4.92 | | 22.58 | | 4.76 | | 22.63 | |
| ABSEGAMI | 7035-001 | 10/16/2001 | 13:38 | 4.92 | | 22.58 | | 4.76 | | 22.64 | |
| 5-F1 | 7041-001 | 10/16/2001 | 14:10 | 4.92 | | 22.57 | | 4.75 | | 22.63 | |
| UG-1_10-10.5 | 7023-001 | 10/16/2001 | 14:42 | 4.92 | | 22.57 | | 4.75 | | 22.62 | |
| UG-2_9-9.5 | 7023-002 | 10/16/2001 | 15:14 | 4.92 | | 22.57 | | 4.75 | | 22.63 | |
| FO-1_6-6.5 | 7023-004 | 10/16/2001 | 15:46 | 4.92 | | 22.58 | | 4.76 | | 22.63 | |
| DF-1_10-10.5 | 7023-005 | 10/16/2001 | 16:18 | 4.92 | | 22.58 | | 4.76 | | 22.64 | |
| DF-2_6-6.5 | 7023-006 | 10/16/2001 | 16:50 | 4.92 | | 22.57 | | 4.75 | | 22.63 | |
| SANDBLAST_GR | 7055-001 | 10/16/2001 | 17:23 | 4.92 | | 22.57 | | 4.76 | | 22.63 | |
| PMK101001 | 7070-001 | 10/16/2001 | 17:55 | 4.92 | | 22.57 | | 4.75 | | 22.63 | |
| DF-3_10-10.5 | 7023-007 | 10/16/2001 | 18:27 | 4.92 | | 22.58 | | 4.76 | | 22.64 | |
| DF-4_8.5-9 | 7023-008 | 10/16/2001 | 18:59 | 4.92 | | 22.57 | | 4.76 | | 22.63 | |
| DW-1_5-5.5 | 7023-010 | 10/16/2001 | 19:31 | 4.92 | | 22.58 | | 4.76 | | 22.64 | |
| DW-2_8-8.5 | 7023-011 | 10/16/2001 | 20:03 | 4.93 | | 22.59 | | 4.76 | | 22.64 | |
| PCB | 7041-001-MS1 | 10/16/2001 | 20:35 | 4.92 | | 22.58 | | 4.76 | | 22.64 | |
| PCB | 7041-001-MSD1 | 10/16/2001 | 21:07 | 4.92 | | 22.57 | | 4.75 | | 22.63 | |
| PCB | PBS1015-MS1 | 10/16/2001 | 21:39 | 4.93 | | 22.58 | | 4.76 | | 22.64 | |

Surrogate QC Limits

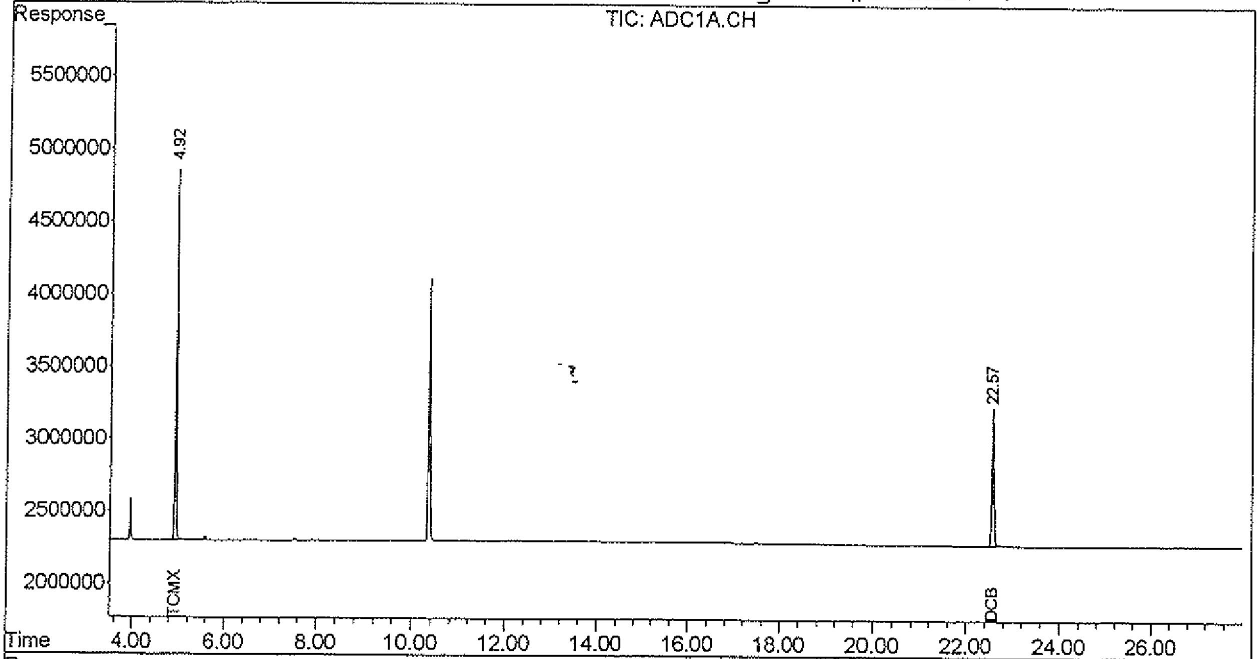
TCMX = Tetrachloro-m-xylene ( ± 0.05 Minutes )

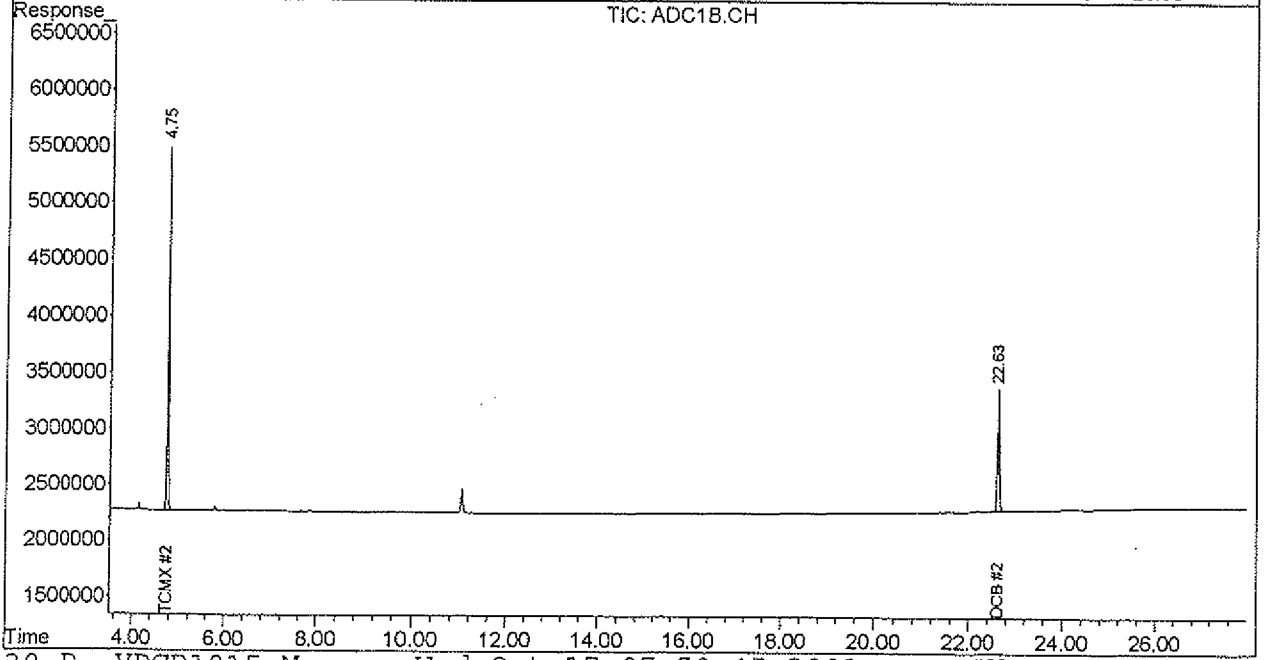
DCB = Decachlorobiphenyl ( ± 0.05 Minutes )

# Column to be used to flag recovery values
* Values outside of QC limits
D Surrogate diluted out
M Matrix interference

```
                    Quantitation Report    (QT Reviewed)

       Signal #1 : C:\MSDCHEM\1\DATA\10-16-01\V6530.D\ADC1A.CH  Vial: 3
       Signal #2 : C:\MSDCHEM\1\DATA\10-16-01\V6530.D\ADC1B.CH
       Acq On    : 16 Oct 2001  14:10
       Sample    : 5-F1,7041-001,S,5.72g,9.47,10/15/01,4     Operator: MJ
       Misc      : BRENNAN/99704_FINETEX,10/11/01,10/11/01,  Inst    : V_3400
                                                             Multiplr: 1.00
       IntFile Signal #1: events.e     IntFile Signal #2: events2.e
       Quant Time: Oct 17 07:22:15 2001  Quant Results File: VPCB1015.RES

       Quant Method : C:\MSDCHEM\1\METHODS\VPCB1015.M (Chemstation Integrator)
       Title        :
       Last Update  : Tue Oct 16 12:18:24 2001
       Response via : Initial Calibration
       DataAcq Meth : VPCB1015.M

       Volume Inj.      :
       Signal #1 Phase  :                  Signal #2 Phase:
       Signal #1 Info   :                  Signal #2 Info  :

        Compound              RT#1   RT#2    Resp#1    Resp#2      ng#1      ng#2
     ---------------------------------------------------------------------------------

     System Monitoring Compounds
  1) S   TCMX                 4.92   4.75   47042755 57818402   102.166   100.011
   Spiked Amount   100.000                   Recovery     =     102.17%   100.01%
  2) S   DCB                 22.57  22.63   30320478 35265059    95.977    92.635
   Spiked Amount   100.000                   Recovery     =      95.98%    92.64%

     Target Compounds
       Sum Aroclor-1016                          0         0    N.D.      N.D.
   Average Aroclor-1016                                          0.000     0.000

       Sum Aroclor-1221                          0         0    N.D.      N.D.
   Average Aroclor-1221                                          0.000     0.000

       Sum Aroclor-1232                          0         0    N.D.      N.D.
    verage Aroclor-1232                                          0.000     0.000

       Sum Aroclor-1242                          0         0    N.D.      N.D.
    verage Aroclor-1242                                          0.000     0.000

       Sum Aroclor-1248                          0         0    N.D.      N.D.
    verage Aroclor-1248                                          0.000     0.000

       Sum Aroclor-1254                          0         0    N.D.      N.D.
    verage Aroclor-1254                                          0.000     0.000

       Sum Aroclor-1260                          0         0    N.D.      N.D.
    verage Aroclor-1260                                          0.000     0.000




 ------------------------------------------------------------------------------------
 (f)=RT Delta > 1/2 Window  (#)=Amounts differ by > 25%   (m)=manual int.
 V6530.D  VPCB1015.M       Wed Oct 17 07:50:43 2001        V3400      Page 1
```

```
                    Quantitation Report     (QT Reviewed)

   Signal #1 : C:\MSDCHEM\1\DATA\10-16-01\V6530.D\ADC1A.CH  Vial: 3
   Signal #2 : C:\MSDCHEM\1\DATA\10-16-01\V6530.D\ADC1B.CH
   Acq On    : 16 Oct 2001  14:10                       Operator: MJ
   Sample    : 5-F1,7041-001,S,5.72g,9.47,10/15/01,4    Inst    : V_3400
   Misc      : BRENNAN/99704_FINETEX,10/11/01,10/11/01, Multiplr: 1.00
   IntFile Signal #1: events.e     IntFile Signal #2: events2.e
   Quant Time: Oct 17  7:28 2001  Quant Results File: VPCB1015.RES

   Quant Method : C:\MSDCHEM\1\METHODS\VPCB1015.M (Chemstation Integrator)
   Title        :
   Last Update  : Tue Oct 16 12:18:24 2001
   Response via : Multiple Level Calibration
   DataAcq Meth : VPCB1015.M

   Volume Inj.       :
   Signal #1 Phase   :                  Signal #2 Phase:
   Signal #1 Info    :                  Signal #2 Info :
```

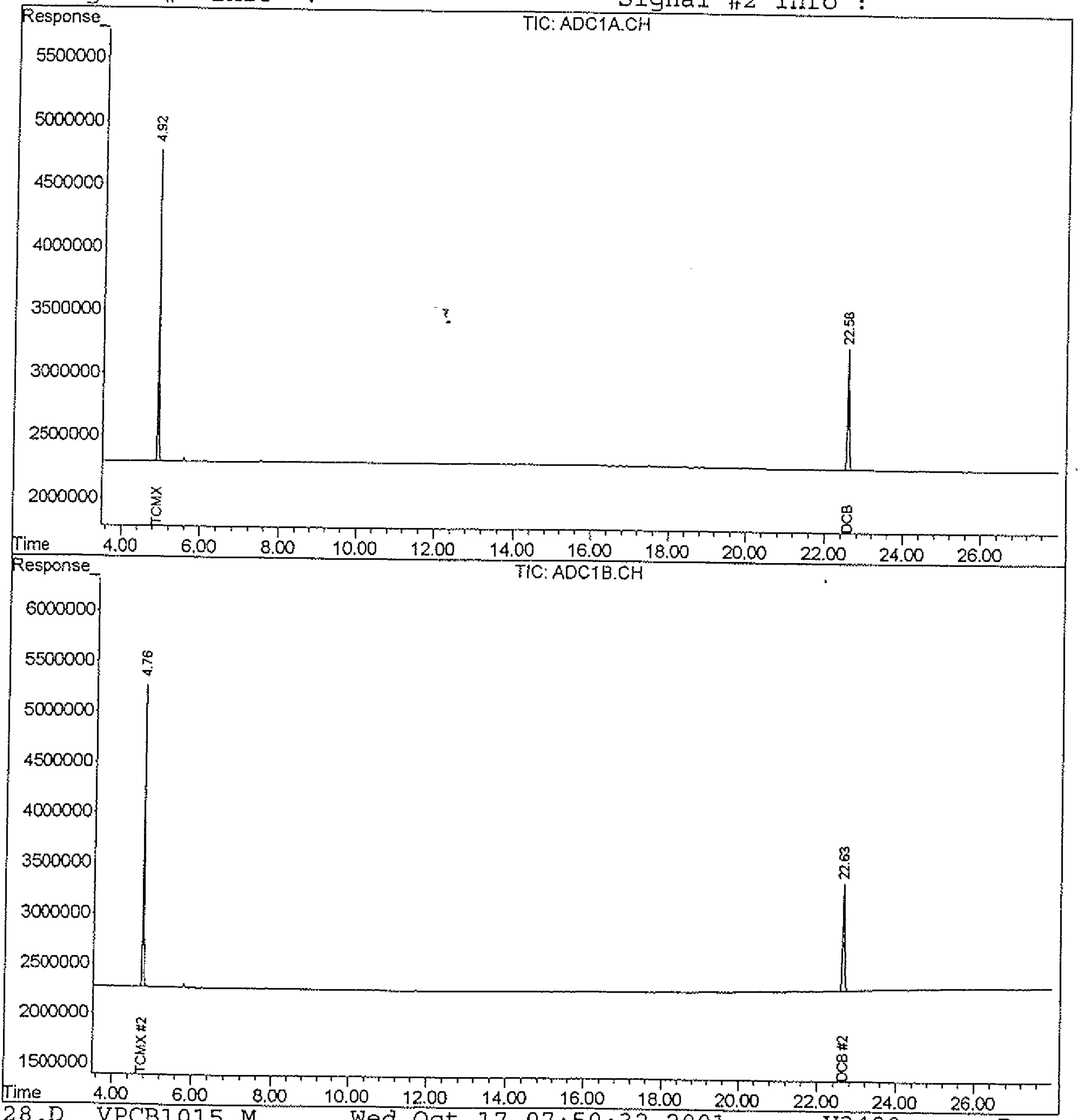




```
                    Quantitation Report    (QT Reviewed)

      Signal #1 : C:\MSDCHEM\1\DATA\10-16-01\V6528.D\ADC1A.CH  Vial: 1
      Signal #2 : C:\MSDCHEM\1\DATA\10-16-01\V6528.D\ADC1B.CH
      Acq On    : 16 Oct 2001  13:06                         Operator: MJ
      Sample    : (7023..7055),1015-BLK1,S,5.93g,0,10/15/0 Inst     : V_3400
      Misc      : NA,NA,NA,1                                 Multiplr: 1.00
      IntFile Signal #1: events.e     IntFile Signal #2: events2.e
      Quant Time: Oct 17 07:22:05 2001  Quant Results File: VPCB1015.RES

      Quant Method : C:\MSDCHEM\1\METHODS\VPCB1015.M (Chemstation Integrator)
      Title        :
      Last Update  : Tue Oct 16 12:18:24 2001
      Response via : Initial Calibration
      DataAcq Meth : VPCB1015.M

      Volume Inj.      :
      Signal #1 Phase :                    Signal #2 Phase:
      Signal #1 Info  :                    Signal #2 Info :

       Compound             RT#1   RT#2    Resp#1   Resp#2     ng#1      ng#2
    ---------------------------------------------------------------------------

     System Monitoring Compounds
  1) S   TCMX                4.92   4.76  47293817 56164306  102.711    97.150
   Spiked Amount   100.000                   Recovery     =  102.71%    97.15%
  2) S   DCB                22.58  22.63  30868105 35020161   97.710    91.991
   Spiked Amount   100.000                   Recovery     =   97.71%    91.99%

     Target Compounds
    Sum Aroclor-1016                               0        0   N.D.      N.D.
Average Aroclor-1016                                            0.000     0.000

    Sum Aroclor-1221                               0        0   N.D.      N.D.
Average Aroclor-1221                                            0.000     0.000

    Sum Aroclor-1232                               0        0   N.D.      N.D.
Average Aroclor-1232                                            0.000     0.000

    Sum Aroclor-1242                               0        0   N.D.      N.D.
Average Aroclor-1242                                            0.000     0.000

    Sum Aroclor-1248                               0        0   N.D.      N.D.
Average Aroclor-1248                                            0.000     0.000

    Sum Aroclor-1254                               0        0   N.D.      N.D.
Average Aroclor-1254                                            0.000     0.000

    Sum Aroclor-1260                               0        0   N.D.      N.D.
Average Aroclor-1260                                            0.000     0.000

   --------------------------------------------------------------------------
   (f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25%  (m)=manual int.
   V6528.D  VPCB1015.M      Wed Oct 17 07:50:30 2001      V3400      Page 1
```

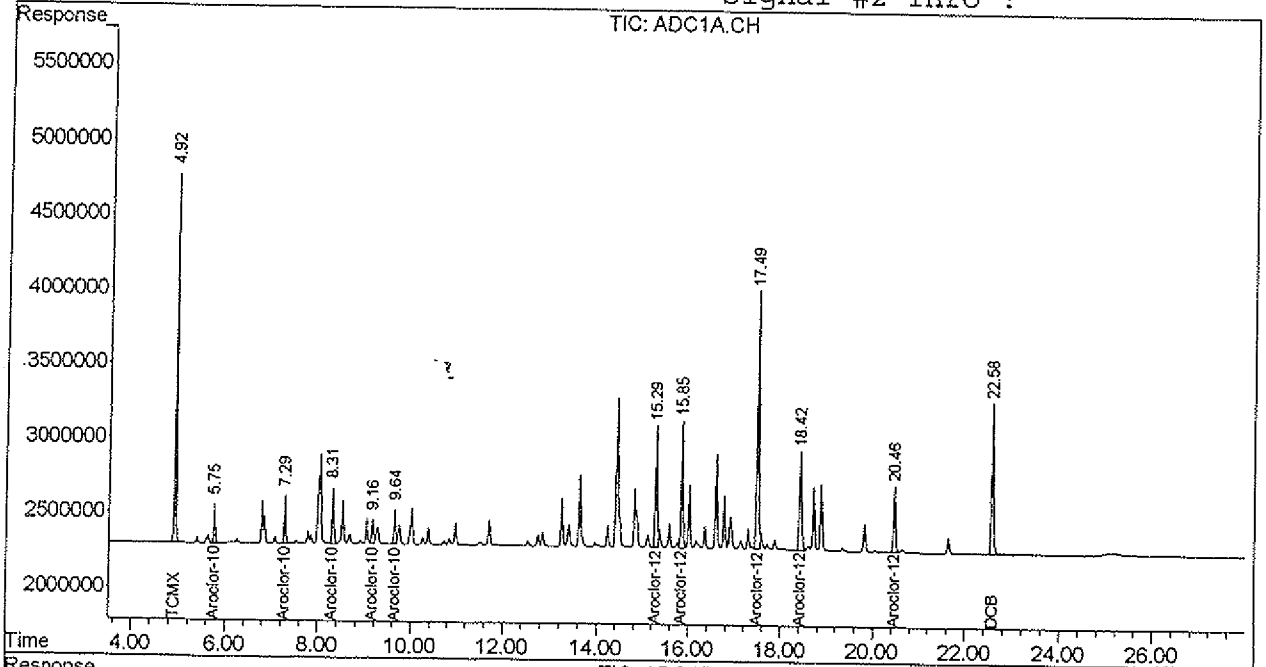
Quantitation Report     (QT Reviewed)

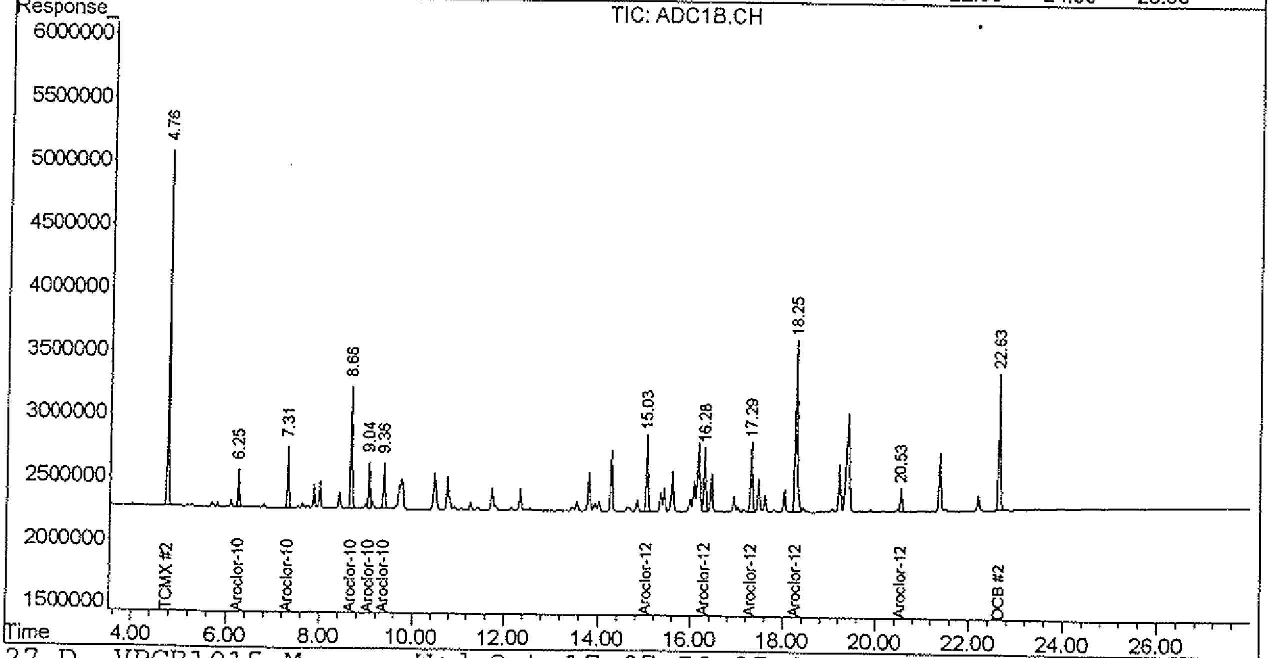
```
Signal #1 : C:\MSDCHEM\1\DATA\10-16-01\V6528.D\ADC1A.CH   Vial: 1
Signal #2 : C:\MSDCHEM\1\DATA\10-16-01\V6528.D\ADC1B.CH
Acq On    : 16 Oct 2001  13:06                          Operator: MJ
Sample    : (7023..7055),1015-BLK1,S,5.93g,0,10/15/0 Inst     : V_3400
Misc      : NA,NA,NA,1                                  Multiplr: 1.00
IntFile Signal #1: events.e     IntFile Signal #2: events2.e
Quant Time: Oct 17  7:27 2001  Quant Results File: VPCB1015.RES

Quant Method : C:\MSDCHEM\1\METHODS\VPCB1015.M (Chemstation Integrator)
Title        :
Last Update  : Tue Oct 16 12:18:24 2001
Response via : Multiple Level Calibration
DataAcq Meth : VPCB1015.M

Volume Inj.      :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :
```



```
                    Quantitation Report    (Not Reviewed)

      Signal #1 : C:\MSDCHEM\1\DATA\10-16-01\V6527.D\ADC1A.CH  Vial: 14
      Signal #2 : C:\MSDCHEM\1\DATA\10-16-01\V6527.D\ADC1B.CH
      Acq On    : 16 Oct 2001  12:02                     Operator: MJ
      Sample    : 8082_C_IAS1574,1_PPM                   Inst     : V_3400
      Misc      : NA,NA,NA,1                             Multiplr: 1.00
      IntFile Signal #1: events.e     IntFile Signal #2: events2.e
      Quant Time: Oct 17 07:21:58 2001  Quant Results File: VPCB1015.RES

      Quant Method : C:\MSDCHEM\1\METHODS\VPCB1015.M (Chemstation Integrator)
      Title        :
      Last Update  : Tue Oct 16 12:18:24 2001
      Response via : Initial Calibration
      DataAcq Meth : VPCB1015.M

      Volume Inj.      :
      Signal #1 Phase :                   Signal #2 Phase:
      Signal #1 Info  :                   Signal #2 Info  :

       Compound              RT#1   RT#2    Resp#1   Resp#2      ng#1       ng#2
    ------------------------------------------------------------------------------

     System Monitoring Compounds
  1) S   TCMX                4.92   4.76  45088682 50229407   97.922     86.884
   Spiked Amount    100.000                  Recovery     =   97.92%     86.88%
  2) S   DCB                22.58  22.63  31760958 34329163  100.536     90.176
   Spiked Amount    100.000                  Recovery     =  100.54%     90.18%

     Target Compounds
  3) L2  Aroclor-1016        5.76   6.25   5625942  6449490 1036.527    927.461
  4) L2  Aroclor-1016 {2}    7.29   7.31   7498730 11456522 1037.221    932.422
  5) L2  Aroclor-1016 {3}    8.31   8.66  10200325 26811558 1053.562    908.023
  6) L2  Aroclor-1016 {4}    9.16   9.04   4403027  9552570 1032.078    966.064
  7) L2  Aroclor-1016 {5}    9.64   9.36   6160315  9866811 1035.072    931.823
     Sum Aroclor-1016                     33888338 64136951 5194.460   4665.794
 Average Aroclor-1016                                       1038.892    933.159

     Sum Aroclor-1221                            0        0    N.D.       N.D.
 Average Aroclor-1221                                          0.000      0.000

     Sum Aroclor-1232                            0        0    N.D.       N.D.
 Average Aroclor-1232                                          0.000      0.000

     Sum Aroclor-1242                            0        0    N.D.       N.D.
 Average Aroclor-1242                                          0.000      0.000

     Sum Aroclor-1248                            0        0    N.D.       N.D.
 Average Aroclor-1248                                          0.000      0.000

     Sum Aroclor-1254                            0        0    N.D.       N.D.
 Average Aroclor-1254                                          0.000      0.000

 3) L8   Aroclor-1260       15.29  15.03  26314389 18613389 1020.046    931.403
 4) L8   Aroclor-1260 {2}   15.85  16.28  25494609 15861652 1031.425    937.167
 5) L8   Aroclor-1260 {3}   17.49  17.29  53289695 17537726 1003.805    934.412
 6) L8   Aroclor-1260 {4}   18.42  18.26  24316750 45544712 1040.312    911.234
 7) L8   Aroclor-1260 {5}   20.46  20.53  13808162  5929257 1045.522    948.640
    Sum Aroclor-1260                      143.2E6  103.5E6  5141.111   4662.856
 verage Aroclor-1260                                        1028.222    932.571
 -----------------------------------------------------------------------------
  (f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25%  (m)=manual int.
  V6527.D  VPCB1015.M      Wed Oct 17 07:50:22 2001      V3400        Page 1
```

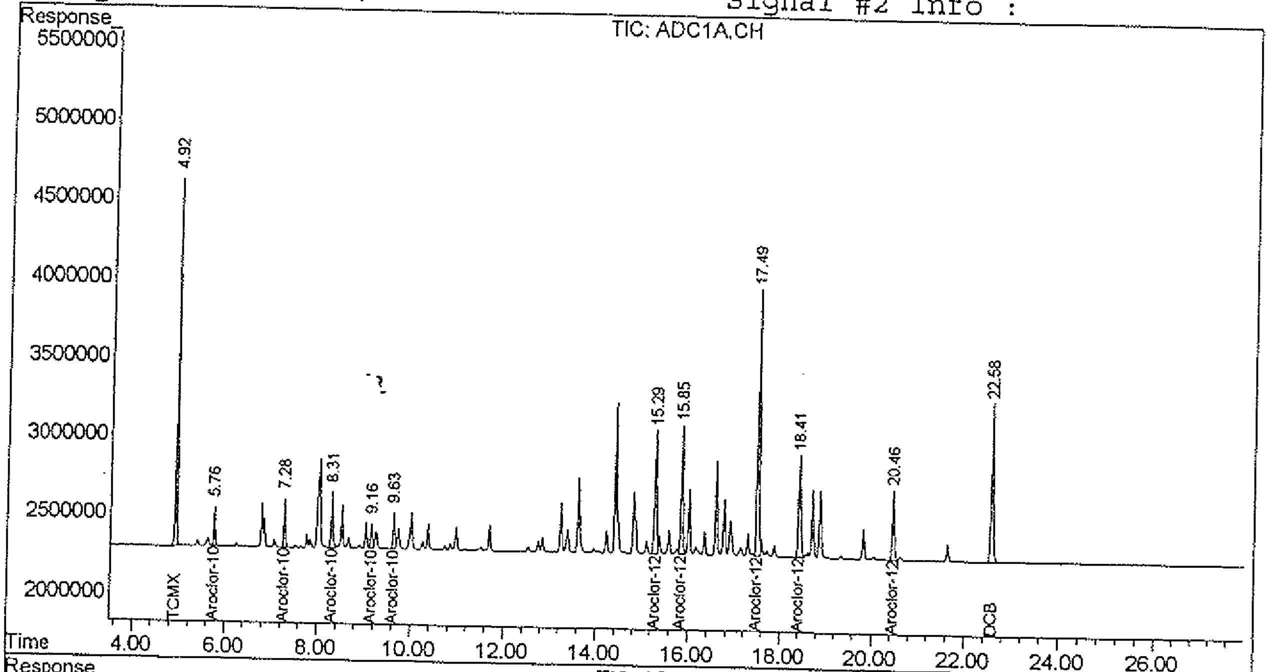
```
                 Quantitation Report    (Not Reviewed)

Signal #1 : C:\MSDCHEM\1\DATA\10-16-01\V6527.D\ADC1A.CH   Vial: 14
Signal #2 : C:\MSDCHEM\1\DATA\10-16-01\V6527.D\ADC1B.CH
Acq On    : 16 Oct 2001  12:02                          Operator: MJ
Sample    : 8082_C_IAS1574,1_PPM                        Inst    : V_3400
Misc      : NA,NA,NA,1                                  Multiplr: 1.00
IntFile Signal #1: events.e      IntFile Signal #2: events2.e
Quant Time: Oct 17  7:27 2001   Quant Results File: VPCB1015.RES

Quant Method : C:\MSDCHEM\1\METHODS\VPCB1015.M (Chemstation Integrator)
Title        :
Last Update  : Tue Oct 16 12:18:24 2001
Response via : Multiple Level Calibration
DataAcq Meth : VPCB1015.M

Volume Inj.     :
Signal #1 Phase :                      Signal #2 Phase:
Signal #1 Info  :                      Signal #2 Info :
```

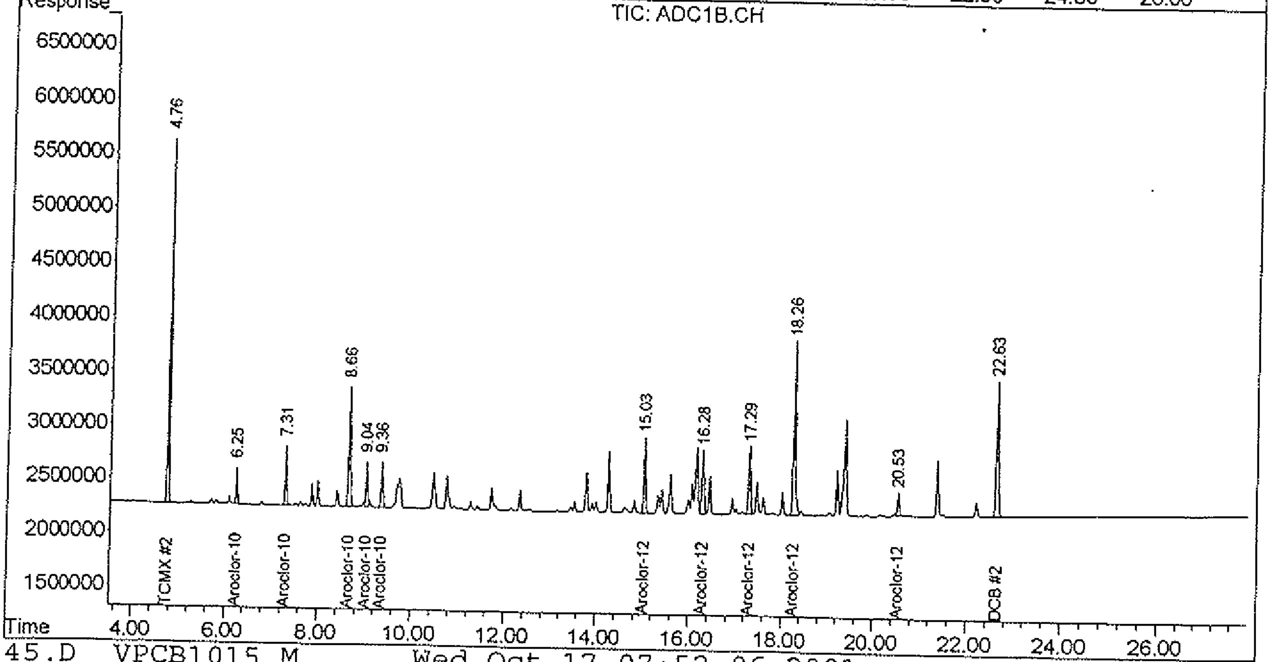




```
                    Quantitation Report    (QT Reviewed)

      Signal #1 : C:\MSDCHEM\1\DATA\10-16-01\V6545.D\ADC1A.CH   Vial: 14
      Signal #2 : C:\MSDCHEM\1\DATA\10-16-01\V6545.D\ADC1B.CH
      Acq On    : 16 Oct 2001  22:11                     Operator: MJ
      Sample    : 8082_C_IAS1574,1_PPM                   Inst    : V_3400
      Misc      : NA,NA,NA,1                             Multiplr: 1.00
      IntFile Signal #1: events.e     IntFile Signal #2: events2.e
      Quant Time: Oct 17 07:23:46 2001  Quant Results File: VPCB1015.RES

      Quant Method : C:\MSDCHEM\1\METHODS\VPCB1015.M (Chemstation Integrator)
      Title        :
      Last Update  : Tue Oct 16 12:18:24 2001
      Response via : Initial Calibration
      DataAcq Meth : VPCB1015.M

      Volume Inj.      :
      Signal #1 Phase :                Signal #2 Phase:
      Signal #1 Info  :                Signal #2 Info :

       Compound               RT#1   RT#2    Resp#1   Resp#2     ng#1      ng#2
     -------------------------------------------------------------------------------

     System Monitoring Compounds
  1) S   TCMX                4.92   4.76  43353813 59320484   94.154   102.609
   Spiked Amount   100.000                  Recovery    =   94.15%   102.61%
  2) S   DCB                22.58  22.64  31975698 40101198  101.216   105.338
   Spiked Amount   100.000                  Recovery    =  101.22%   105.34%

     Target Compounds
  3) L2  Aroclor-1016         5.76   6.25   5431076  7408986 1000.625  1065.441
  4) L2  Aroclor-1016 {2}     7.29   7.31   7323125 13102559 1012.931  1066.389
  5) L2  Aroclor-1016 {3}     8.31   8.66   9903276 30689978 1022.881  1039.372
  6) L2  Aroclor-1016 {4}     9.16   9.04   4284872 10925767 1004.383  1104.938
  7) L2  Aroclor-1016 {5}     9.63   9.36   5997486 11279229 1007.713  1065.212
      Sum Aroclor-1016                     32939835 73406519 5048.532  5341.352
 Average Aroclor-1016                                        1009.706  1068.270

      Sum Aroclor-1221                            0        0   N.D.      N.D.
 Average Aroclor-1221                                          0.000     0.000

      Sum Aroclor-1232                            0        0   N.D.      N.D.
 Average Aroclor-1232                                          0.000     0.000

      Sum Aroclor-1242                            0        0   N.D.      N.D.
 Average Aroclor-1242                                          0.000     0.000

      Sum Aroclor-1248                            0        0   N.D.      N.D.
 Average Aroclor-1248                                          0.000     0.000

      Sum Aroclor-1254                            0        0   N.D.      N.D.
 Average Aroclor-1254                                          0.000     0.000

 33) L8  Aroclor-1260       15.29  15.03  25764332 21173867  998.723  1059.528
 34) L8  Aroclor-1260 {2}   15.85  16.28  24870436 18080488 1006.173  1068.264
 35) L8  Aroclor-1260 {3}   17.49  17.29  52324078 20007904  985.616  1066.024
 36) L8  Aroclor-1260 {4}   18.42  18.26  24030754 52657760 1028.077  1053.548
 37) L8  Aroclor-1260 {5}   20.46  20.53  13717396  6873789 1038.650  1099.759
      Sum Aroclor-1260                       140.7E6  118.8E6 5057.240  5347.122
 Average Aroclor-1260                                        1011.448  1069.424
 -------------------------------------------------------------------------------
 (f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25%   (m)=manual int.
 V6545.D  VPCB1015.M      Wed Oct 17 07:52:02 2001       V3400       Page 1
```

```
                    Quantitation Report      (QT Reviewed)
Signal #1 : C:\MSDCHEM\1\DATA\10-16-01\V6545.D\ADC1A.CH   Vial: 14
Signal #2 : C:\MSDCHEM\1\DATA\10-16-01\V6545.D\ADC1B.CH
Acq On    : 16 Oct 2001  22:11                          Operator: MJ
Sample    : 8082_C_IAS1574,1_PPM                        Inst    : V_3400
Misc      : NA,NA,NA,1                                  Multiplr: 1.00
IntFile Signal #1: events.e      IntFile Signal #2: events2.e
Quant Time: Oct 17  7:38 2001   Quant Results File: VPCB1015.RES

Quant Method : C:\MSDCHEM\1\METHODS\VPCB1015.M (Chemstation Integrator)
Title        :
Last Update  : Tue Oct 16 12:18:24 2001
Response via : Multiple Level Calibration
DataAcq Meth : VPCB1015.M

Volume Inj.     :
Signal #1 Phase :                            Signal #2 Phase:
Signal #1 Info  :                            Signal #2 Info :
```





# PESTICIDE METHOD BLANK SUMMARY

Lab File ID: W8926.D

Instrument ID: GC-W

Date Extracted: 10/15/2001

Matrix: SOIL

Date Analyzed: 10/16/2001

Time Analyzed: 14:33

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS & MSD:

| Client ID | Lab Sample ID | Date Analyzed | Time Analyzed |
|---|---|---|---|
| ABSEGAMI | 7035-001 | 10/16/2001 | 14:58 |
| 5-F1 | 7041-001 | 10/16/2001 | 15:33 |
| UG-1_10-10.5 | 7023-001 | 10/16/2001 | 15:58 |
| UG-2_9-9.5 | 7023-002 | 10/16/2001 | 16:23 |
| FO-1_6-6.5 | 7023-004 | 10/16/2001 | 16:48 |
| DF-1_10-10.5 | 7023-005 | 10/16/2001 | 17:13 |
| DF-2_6-6.5 | 7023-006 | 10/16/2001 | 17:38 |
| DF-3_10-10.5 | 7023-007 | 10/16/2001 | 18:03 |
| DF-4_8.5-9 | 7023-008 | 10/16/2001 | 18:28 |
| DW-1_5-5.5 | 7023-010 | 10/16/2001 | 18:53 |
| DW-2_8-8.5 | 7023-011 | 10/16/2001 | 19:18 |
| PEST | 7041-001-MS1 | 10/16/2001 | 19:43 |
| PEST | 7041-001-MSD1 | 10/16/2001 | 20:08 |
| PEST | PBS1015-MS1 | 10/16/2001 | 20:33 |

# INTEGRATED ANALYTICAL LABORATORIES

## PESTICIDES

Client/Project: NA

Lab ID: 1015-BK1
Client ID: (7023.7041)
Date Received: NA
Date Extracted: 10/15/2001
Date Analyzed: 10/16/2001
Data file: W8926.D

GC Column: DB-5/DB1701P
Sample wt/vol: 5.9g
Matrix-Units: Soil-µg/Kg (ppb)
Dilution Factor: 1
% Moisture: 0.0

| Compound | Concentration | Q | MDL |
|---|---|---|---|
| alpha-BHC | ND | | 3.39 |
| beta-BHC | ND | | 3.39 |
| gamma-BHC | ND | | 3.39 |
| delta-BHC | ND | | 3.39 |
| Heptachlor | ND | | 3.39 |
| Aldrin | ND | | 3.39 |
| Heptachlor epoxide | ND | | 3.39 |
| Endosulfan I | ND | | 3.39 |
| 4,4'-DDE | ND | | 3.39 |
| Dieldrin | ND | | 3.39 |
| Endrin | ND | | 3.39 |
| Endosulfan II | ND | | 3.39 |
| 4,4'-DDD | ND | | 3.39 |
| Endrin aldehyde | ND | | 3.39 |
| Endosulfan sulfate | ND | | 3.39 |
| 4,4'-DDT | ND | | 3.39 |
| Chlordane | ND | | 17 |
| Toxaphene | ND | | 17 |

# PESTICIDE INITIAL CALIBRATION SUMMARY

Date Analyzed: 10/03/2001

Instrument ID: GC-W

GC Column (1st): DB-5

Data File: W8772.D W8771.D W8770.D W8769.D W8768.D

| Compound | RT OF STANDARDS | | | | | MEAN RT | RT WINDOW | |
|---|---|---|---|---|---|---|---|---|
| | 10 | 50 | 100 | 200 | 300 | | FROM | TO |
| alpha-BHC | 4.36 | 4.36 | 4.36 | 4.36 | 4.35 | 4.36 | 4.29 | 4.43 |
| beta-BHC | 4.84 | 4.85 | 4.85 | 4.84 | 4.83 | 4.84 | 4.77 | 4.91 |
| gamma-BHC | 4.97 | 4.97 | 4.97 | 4.97 | 4.96 | 4.97 | 4.90 | 5.04 |
| delta-BHC | 5.44 | 5.44 | 5.44 | 5.44 | 5.43 | 5.44 | 5.37 | 5.51 |
| Heptachlor | 6.52 | 6.52 | 6.52 | 6.52 | 6.51 | 6.52 | 6.45 | 6.59 |
| Aldrin | 7.33 | 7.33 | 7.33 | 7.33 | 7.32 | 7.33 | 7.26 | 7.40 |
| Heptachlor epoxide | 8.33 | 8.33 | 8.33 | 8.33 | 8.32 | 8.33 | 8.26 | 8.40 |
| Endosulfan I | 9.23 | 9.24 | 9.24 | 9.24 | 9.23 | 9.23 | 9.16 | 9.30 |
| 4,4'-DDE | 10.00 | 10.00 | 10.01 | 10.00 | 10.00 | 10.00 | 9.93 | 10.07 |
| Dieldrin | 9.92 | 9.92 | 9.92 | 9.92 | 9.92 | 9.92 | 9.85 | 9.99 |
| Endrin | 10.47 | 10.47 | 10.47 | 10.47 | 10.46 | 10.47 | 10.40 | 10.54 |
| Endosulfan II | 10.73 | 10.73 | 10.73 | 10.72 | 10.72 | 10.72 | 10.65 | 10.79 |
| 4,4'-DDD | 11.11 | 11.11 | 11.11 | 11.11 | 11.10 | 11.11 | 11.04 | 11.18 |
| Endrin aldehyde | 11.25 | 11.25 | 11.25 | 11.25 | 11.24 | 11.25 | 11.18 | 11.32 |
| Endosulfan sulfate | 11.90 | 11.90 | 11.90 | 11.90 | 11.89 | 11.90 | 11.83 | 11.97 |
| 4,4'-DDT | 12.13 | 12.13 | 12.13 | 12.13 | 12.12 | 12.13 | 12.06 | 12.20 |
| Endrin ketone | 13.09 | 13.10 | 13.10 | 13.10 | 13.09 | 13.09 | 13.02 | 13.16 |
| Methoxychlor | 13.80 | 13.80 | 13.80 | 13.80 | 13.80 | 13.80 | 13.73 | 13.87 |
| alpha-Chlordane | 9.34 | 9.34 | 9.34 | 9.34 | 9.33 | 9.34 | 9.27 | 9.41 |
| gamma-Chlordane | 8.94 | 8.94 | 8.94 | 8.94 | 8.93 | 8.93 | 8.86 | 9.00 |
| Chlordane 500 ppb | | | 8.94 | | | | 8.87 | 9.01 |
| Chlordane {2} | | | 9.14 | | | | 9.07 | 9.21 |
| Chlordane {3} | | | 9.34 | | | | 9.27 | 9.41 |
| Chlordane {4} | | | 9.49 | | | | 9.42 | 9.56 |
| Chlordane {5} | | | 11.32 | | | | 11.25 | 11.39 |
| Toxaphene 500 ppb | | | 11.67 | | | | 11.60 | 11.74 |
| Toxaphene {2} | | | 12.18 | | | | 12.11 | 12.25 |
| Toxaphene {3} | | | 13.03 | | | | 12.96 | 13.10 |
| Toxaphene {4} | | | 13.25 | | | | 13.18 | 13.32 |
| Toxaphene {5} | | | 14.27 | | | | 14.20 | 14.34 |

# PESTICIDE INITIAL CALIBRATION SUMMARY

**Date Analyzed:** 10/03/2001

**Instrument ID:** GC-W

**GC Column (1st):** DB-5

**Data File:** W8772.D W8771.D W8770.D W8769.D W8768.D

| Compound | CALIBRATION FACTORS | | | | | MEAN | %RSD |
|---|---|---|---|---|---|---|---|
| | 10 | 50 | 100 | 200 | 300 | | |
| alpha-BHC | 41735923 | 47428777 | 48592042 | 48074152 | 49053223 | 46976823 | 6.37 |
| beta-BHC | 18079867 | 17559304 | 17330508 | 17050118 | 17264821 | 17456924 | 2.25 |
| gamma-BHC | 38461694 | 42150505 | 42520097 | 42456746 | 42756006 | 41669009 | 4.33 |
| delta-BHC | 37345093 | 42531667 | 42938864 | 43182033 | 44174232 | 42034378 | 6.40 |
| Heptachlor | 32526297 | 35958364 | 36204423 | 35259571 | 34724085 | 34934548 | 4.20 |
| Aldrin | 37072827 | 40724640 | 40709504 | 39533769 | 39208840 | 39449916 | 3.79 |
| Heptachlor epoxide | 34494618 | 36236063 | 35464363 | 33460908 | 32581608 | 34447512 | 4.28 |
| Endosulfan I | 32808899 | 34243194 | 33399666 | 31565782 | 30810948 | 32565698 | 4.25 |
| 4,4'-DDE | 32821078 | 36560871 | 36744403 | 35877059 | 35923476 | 35585378 | 4.47 |
| Dieldrin | 34167758 | 36995894 | 36554297 | 34892507 | 34059424 | 35333976 | 3.86 |
| Endrin | 29077991 | 31686476 | 30617693 | 30073232 | 29696874 | 30230453 | 3.27 |
| Endosulfan II | 30981860 | 32241740 | 31422974 | 29974691 | 29259748 | 30776202 | 3.83 |
| 4,4'-DDD | 29987289 | 32054022 | 31080325 | 30692766 | 30214058 | 30805692 | 2.65 |
| Endrin aldehyde | 22442860 | 23056745 | 22052336 | 20947595 | 20811242 | 21862156 | 4.42 |
| Endosulfan sulfate | 27673717 | 29067543 | 28322094 | 27109035 | 26862766 | 27807031 | 3.24 |
| 4,4'-DDT | 14951120 | 19636203 | 21620620 | 22394924 | 23690007 | 20458575 | 16.67 |
| Endrin ketone | 35263764 | 35766336 | 34223870 | 31790272 | 30651531 | 33539155 | 6.63 |
| Methoxychlor | 8983698 | 10543821 | 10828881 | 10726104 | 10780163 | 10372533 | 7.56 |
| alpha-Chlordane | 34618561 | 36634036 | 36622976 | 35939999 | 36066893 | 35976493 | 2.29 |
| gamma-Chlordane | 34900440 | 38496765 | 38824701 | 38228482 | 38310425 | 37752163 | 4.27 |
| Chlordane 500 ppb | | | 4171440 | | | | |
| Chlordane {2} | | | 887533 | | | | |
| Chlordane {3} | | | 3922407 | | | | |
| Chlordane {4} | | | 2442430 | | | | |
| Chlordane {5} | | | 1050809 | | | | |
| Toxaphene 500 ppb | | | 485936 | | | | |
| Toxaphene {2} | | | 822837 | | | | |
| Toxaphene {3} | | | 917851 | | | | |
| Toxaphene {4} | | | 763741 | | | | |
| Toxaphene {5} | | | 479631 | | | | |

# PESTICIDE INITIAL CALIBRATION SUMMARY

Date Analyzed: 10/03/2001

**Instrument ID:** GC-W

GC Column (2nd): DB-1701P

Data File: W8772.C W8771.C W8770.C W8769.C W8768.C

| Compound | RT OF STANDARDS | | | | | MEAN RT | RT WINDOW | |
|---|---|---|---|---|---|---|---|---|
| | 10 | 50 | 100 | 200 | 300 | | FROM | TO |
| alpha-BHC | 5.18 | 5.19 | 5.19 | 5.19 | 5.18 | 5.18 | 5.11 | 5.25 |
| beta-BHC | 8.16 | 8.16 | 8.16 | 8.16 | 8.16 | 8.16 | 8.09 | 8.23 |
| gamma-BHC | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.03 | 6.17 |
| delta-BHC | 8.70 | 8.71 | 8.70 | 8.70 | 8.70 | 8.70 | 8.63 | 8.77 |
| Heptachlor | 6.56 | 6.56 | 6.56 | 6.56 | 6.55 | 6.56 | 6.49 | 6.63 |
| Aldrin | 7.20 | 7.20 | 7.20 | 7.20 | 7.20 | 7.20 | 7.13 | 7.27 |
| Heptachlor epoxide | 9.01 | 9.01 | 9.01 | 9.01 | 9.01 | 9.01 | 8.94 | 9.08 |
| Endosulfan I | 9.68 | 9.68 | 9.68 | 9.68 | 9.68 | 9.68 | 9.61 | 9.75 |
| 4,4'-DDE | 10.46 | 10.46 | 10.46 | 10.46 | 10.46 | 10.46 | 10.39 | 10.53 |
| Dieldrin | 10.70 | 10.70 | 10.70 | 10.70 | 10.70 | 10.70 | 10.63 | 10.77 |
| Endrin | 11.21 | 11.21 | 11.21 | 11.21 | 11.21 | 11.21 | 11.14 | 11.28 |
| Endosulfan II | 12.64 | 12.64 | 12.64 | 12.64 | 12.64 | 12.64 | 12.57 | 12.71 |
| 4,4'-DDD | 12.69 | 12.69 | 12.69 | 12.69 | 12.69 | 12.69 | 12.62 | 12.76 |
| Endrin aldehyde | 13.78 | 13.78 | 13.78 | 13.78 | 13.78 | 13.78 | 13.71 | 13.85 |
| Endosulfan sulfate | 14.68 | 14.68 | 14.68 | 14.68 | 14.68 | 14.68 | 14.61 | 14.75 |
| 4,4'-DDT | 13.11 | 13.11 | 13.11 | 13.12 | 13.11 | 13.11 | 13.04 | 13.18 |
| Endrin ketone | 15.68 | 15.68 | 15.68 | 15.68 | 15.68 | 15.68 | 15.61 | 15.75 |
| Methoxychlor | 14.98 | 14.98 | 14.98 | 14.98 | 14.98 | 14.98 | 14.91 | 15.05 |
| alpha-Chlordane | 10.07 | 10.07 | 10.07 | 10.07 | 10.07 | 10.07 | 10.00 | 10.14 |
| gamma-Chlordane | 9.92 | 9.92 | 9.92 | 9.92 | 9.92 | 9.92 | 9.85 | 9.99 |
| Chlordane 500 ppb | | | 7.88 | | | | 7.81 | 7.95 |
| Chlordane {2} | | | 9.53 | | | | 9.46 | 9.60 |
| Chlordane {3} | | | 9.92 | | | | 9.85 | 9.99 |
| Chlordane {4} | | | 10.07 | | | | 10.00 | 10.14 |
| Chlordane {5} | | | 10.13 | | | | 10.06 | 10.20 |
| Toxaphene 500 ppb | | | 12.71 | | | | 12.64 | 12.78 |
| Toxaphene {2} | | | 13.42 | | | | 13.35 | 13.49 |
| Toxaphene {3} | | | 14.41 | | | | 14.34 | 14.48 |
| Toxaphene {4} | | | 14.60 | | | | 14.53 | 14.67 |
| Toxaphene {5} | | | 15.04 | | | | 14.97 | 15.11 |

# PESTICIDE INITIAL CALIBRATION SUMMARY

Date Analyzed: 10/03/2001

**Instrument ID:** GC-W

GC Column (2nd): DB-1701P

Data File: W8772.C W8771.C W8770.C W8769.C W8768.C

| Compound | CALIBRATION FACTORS | | | | | | |
|---|---|---|---|---|---|---|---|
| | 10 | 50 | 100 | 200 | 300 | MEAN | %RSD |
| alpha-BHC | 12385165 | 14791668 | 15426108 | 15714013 | 15821036 | 14827598 | 9.60 |
| beta-BHC | 6336455 | 6088434 | 6075295 | 6000261 | 5985710 | 6097231 | 2.31 |
| gamma-BHC | 11681418 | 13542169 | 13996884 | 14224266 | 14289408 | 13546829 | 8.00 |
| delta-BHC | 11372621 | 13285253 | 13761392 | 14045936 | 14143642 | 13321769 | 8.55 |
| Heptachlor | 10889392 | 12154587 | 12529820 | 12570865 | 12456521 | 12120237 | 5.83 |
| Aldrin | 10994720 | 12428148 | 12866154 | 12872917 | 12788406 | 12390069 | 6.47 |
| Heptachlor epoxide | 10614434 | 11389226 | 11497101 | 11365746 | 11221822 | 11217666 | 3.13 |
| Endosulfan I | 9804666 | 10610519 | 10834070 | 10637802 | 10555166 | 10488445 | 3.78 |
| 4,4'-DDE | 9746868 | 11233236 | 11647128 | 11802215 | 11845030 | 11254895 | 7.79 |
| Dieldrin | 10328290 | 11504511 | 11776248 | 11775902 | 11714108 | 11419812 | 5.43 |
| Endrin | 9580852 | 10782043 | 10790090 | 11007670 | 10998107 | 10631753 | 5.62 |
| Endosulfan II | 9659839 | 10058289 | 10111595 | 10300761 | 10234850 | 10073067 | 2.48 |
| 4,4'-DDD | 9193669 | 10221000 | 10291838 | 9978695 | 9793268 | 9895694 | 4.44 |
| Endrin aldehyde | 7038357 | 6556987 | 7029676 | 7007187 | 7109833 | 6948408 | 3.20 |
| Endosulfan sulfate | 8496880 | 8955067 | 9004746 | 9005302 | 9029495 | 8898298 | 2.54 |
| 4,4'-DDT | 4937829 | 6721398 | 7449230 | 7921891 | 8384717 | 7083013 | 19.03 |
| Endrin ketone | 10387205 | 10966109 | 10964387 | 10736416 | 10602968 | 10731417 | 2.30 |
| Methoxychlor | 3271752 | 3813643 | 3909466 | 3957344 | 4051896 | 3800820 | 8.10 |
| alpha-Chlordane | 10701120 | 11490133 | 11746399 | 11775383 | 11769701 | 11496547 | 4.00 |
| gamma-Chlordane | 10610298 | 11704350 | 12058834 | 12190322 | 12225209 | 11757803 | 5.73 |
| Chlordane 500 ppb | | | 214161 | | | | |
| Chlordane {2} | | | 286639 | | | | |
| Chlordane {3} | | | 1309951 | | | | |
| Chlordane {4} | | | 1142675 | | | | |
| Chlordane {5} | | | 723821 | | | | |
| Toxaphene 500 ppb | | | 298191 | | | | |
| Toxaphene {2} | | | 281068 | | | | |
| Toxaphene {3} | | | 291954 | | | | |
| Toxaphene {4} | | | 143654 | | | | |
| Toxaphene {5} | | | 147283 | | | | |

# PESTICIDE CALIBRATION VERIFICATION SUMMARY

**Date Analyzed:** 10/16/01 **Instrument ID:** GC-W

**Data File:** W8923.D GC Column (1st): DB-5

| Compound | RT | RT WINDOW | | Avg CF | CC CF | %D |
|---|---|---|---|---|---|---|
| | | FROM | TO | | | |
| alpha-BHC | 4.35 | 4.28 | 4.42 | 46976823 | 44523067 | 5.22 |
| beta-BHC | 4.84 | 4.77 | 4.91 | 17456924 | 15860580 | 9.14 |
| gamma-BHC | 4.97 | 4.90 | 5.04 | 41669009 | 39600256 | 4.96 |
| delta-BHC | 5.44 | 5.37 | 5.51 | 42034378 | 40019176 | 4.79 |
| Heptachlor | 6.52 | 6.45 | 6.59 | 34934548 | 35589155 | 1.87 |
| Aldrin | 7.33 | 7.26 | 7.40 | 39449916 | 37100385 | 5.96 |
| Heptachlor epoxide | 8.33 | 8.26 | 8.40 | 34447512 | 32957215 | 4.33 |
| Endosulfan I | 9.23 | 9.16 | 9.30 | 32565698 | 30735097 | 5.62 |
| 4,4'-DDE | 10.00 | 9.93 | 10.07 | 35585378 | 32874162 | 7.62 |
| Dieldrin | 9.92 | 9.85 | 9.99 | 35333976 | 33753531 | 4.47 |
| Endrin | 10.47 | 10.40 | 10.54 | 30230453 | 30439365 | 0.69 |
| Endosulfan II | 10.72 | 10.65 | 10.79 | 30776202 | 28447037 | 7.57 |
| 4,4'-DDD | 11.11 | 11.04 | 11.18 | 30805692 | 27524042 | 10.65 |
| Endrin aldehyde | 11.24 | 11.17 | 11.31 | 21862156 | 21275811 | 2.68 |
| Endosulfan sulfate | 11.90 | 11.83 | 11.97 | 27807031 | 26557424 | 4.49 |
| 4,4'-DDT | 12.13 | 12.06 | 12.20 | 20458575 | 22236926 | 8.69 |
| Endrin ketone | 13.10 | 13.03 | 13.17 | 33539155 | 28565119 | 14.83 |
| Methoxychlor | 13.80 | 13.73 | 13.87 | 10372533 | 10767745 | 3.81 |
| alpha-Chlordane | 9.34 | 9.27 | 9.41 | 35976493 | 32894183 | 8.57 |
| gamma-Chlordane | 8.93 | 8.86 | 9.00 | 37752163 | 34752231 | 7.95 |
| | | | | | Average %D | 6.20 |
| Chlordane 500 ppb | 8.94 | 8.87 | 9.01 | 4171440 | 3923841 | 5.94 |
| Chlordane {2} | 9.13 | 9.06 | 9.20 | 887533 | 848649 | 4.38 |
| Chlordane {3} | 9.34 | 9.27 | 9.41 | 3922407 | 3767105 | 3.96 |
| Chlordane {4} | 9.48 | 9.41 | 9.55 | 2442430 | 2257732 | 7.56 |
| Chlordane {5} | 11.32 | 11.25 | 11.39 | 1050809 | 1048469 | 0.22 |
| Toxaphene 500 ppb | 11.67 | 11.60 | 11.74 | 485936 | 533852 | 9.86 |
| Toxaphene {2} | 12.18 | 12.11 | 12.25 | 822837 | 803456 | 2.36 |
| Toxaphene {3} | 13.03 | 12.96 | 13.10 | 917851 | 777246 | 15.32 |
| Toxaphene {4} | 13.25 | 13.18 | 13.32 | 763741 | 755590 | 1.07 |
| Toxaphene {5} | 14.28 | 14.21 | 14.35 | 479631 | 477121 | 0.52 |
| | | | | | Average %D | 5.12 |

# PESTICIDE CALIBRATION VERIFICATION SUMMARY

**Date Analyzed:** 10/16/01 **Instrument ID:** GC-W

**Data File:** W8923.C **GC Column (2nd):** DB-1701P

| Compound | RT | RT WI NDOW | | Avg CF | CC CF | %D |
|---|---|---|---|---|---|---|
| | | FROM | TO | | | |
| alpha-BHC | 5.18 | 5.11 | 5.25 | 14827598 | 15469447 | 4.33 |
| beta-BHC | 8.16 | 8.09 | 8.23 | 6097231 | 6066596 | 0.50 |
| gamma-BHC | 6.10 | 6.03 | 6.17 | 13546829 | 14187021 | 4.73 |
| delta-BHC | 8.70 | 8.63 | 8.77 | 13321769 | 13966681 | 4.84 |
| Heptachlor | 6.56 | 6.49 | 6.63 | 12120237 | 13181412 | 8.76 |
| Aldrin | 7.20 | 7.13 | 7.27 | 12390069 | 13026534 | 5.14 |
| Heptachlor epoxide | 9.01 | 8.94 | 9.08 | 11217666 | 11631074 | 3.69 |
| Endosulfan I | 9.68 | 9.61 | 9.75 | 10488445 | 10773521 | 2.72 |
| 4,4'-DDE | 10.46 | 10.39 | 10.53 | 11254895 | 11399185 | 1.28 |
| Dieldrin | 10.70 | 10.63 | 10.77 | 11419812 | 11751939 | 2.91 |
| Endrin | 11.21 | 11.14 | 11.28 | 10631753 | 11217130 | 5.51 |
| Endosulfan II | 12.64 | 12.57 | 12.71 | 10073067 | 10081928 | 0.09 |
| 4,4'-DDD | 12.69 | 12.62 | 12.76 | 9895694 | 9237954 | 6.65 |
| Endrin aldehyde | 13.78 | 13.71 | 13.85 | 6948408 | 6739933 | 3.00 |
| Endosulfan sulfate | 14.68 | 14.61 | 14.75 | 8898298 | 8866614 | 0.36 |
| 4,4'-DDT | 13.11 | 13.04 | 13.18 | 7083013 | 6812720 | 3.82 |
| Endrin ketone | 15.68 | 15.61 | 15.75 | 10731417 | 10161140 | 5.31 |
| Methoxychlor | 14.98 | 14.91 | 15.05 | 3800820 | 4099976 | 7.87 |
| alpha-Chlordane | 10.07 | 10.00 | 10.14 | 11496547 | 11551923 | 0.48 |
| gamma-Chlordane | 9.92 | 9.85 | 9.99 | 11757803 | 11919945 | 1.38 |
| | | | | Average %D | | 3.67 |
| Chlordane 500 ppb | 7.88 | 7.81 | 7.95 | 214161 | 218768 | 2.15 |
| Chlordane {2} | 9.53 | 9.46 | 9.60 | 286639 | 293843 | 2.51 |
| Chlordane {3} | 9.92 | 9.85 | 9.99 | 1309951 | 1342124 | 2.46 |
| Chlordane {4} | 10.07 | 10.00 | 10.14 | 1142675 | 1165236 | 1.97 |
| Chlordane {5} | 10.13 | 10.06 | 10.20 | 723821 | 737938 | 1.95 |
| Toxaphene 500 ppb | 12.72 | 12.65 | 12.79 | 298191 | 298847 | 0.22 |
| Toxaphene {2} | 13.42 | 13.35 | 13.49 | 281068 | 265851 | 5.41 |
| Toxaphene {3} | 14.41 | 14.34 | 14.48 | 291954 | 267957 | 8.22 |
| Toxaphene {4} | 14.60 | 14.53 | 14.67 | 143654 | 131903 | 8.18 |
| Toxaphene {5} | 15.04 | 14.97 | 15.11 | 147283 | 134305 | 8.81 |
| | | | | Average %D | | 4.19 |

# PESTICIDE CALIBRATION VERIFICATION SUMMARY

Date Analyzed: 10/16/01

Instrument ID: GC-W

Data File: W8941.D

GC Column (1st): DB-5

| Compound | RT | RT WINDOW | | Avg CF | CC CF | %D |
|---|---|---|---|---|---|---|
| | | FROM | TO | | | |
| alpha-BHC | 4.36 | 4.29 | 4.43 | 46976823 | 50389675 | 7.26 |
| beta-BHC | 4.84 | 4.77 | 4.91 | 17456924 | 17905035 | 2.57 |
| gamma-BHC | 4.97 | 4.90 | 5.04 | 41669009 | 44180960 | 6.03 |
| delta-BHC | 5.44 | 5.37 | 5.51 | 42034378 | 45631651 | 8.56 |
| Heptachlor | 6.52 | 6.45 | 6.59 | 34934548 | 38088745 | 9.03 |
| Aldrin | 7.33 | 7.26 | 7.40 | 39449916 | 41917543 | 6.26 |
| Heptachlor epoxide | 8.33 | 8.26 | 8.40 | 34447512 | 37022831 | 7.48 |
| Endosulfan I | 9.24 | 9.17 | 9.31 | 32565698 | 34696256 | 6.54 |
| 4,4'-DDE | 10.00 | 9.93 | 10.07 | 35585378 | 37606821 | 5.68 |
| Dieldrin | 9.92 | 9.85 | 9.99 | 35333976 | 38261464 | 8.29 |
| Endrin | 10.47 | 10.40 | 10.54 | 30230453 | 31863003 | 5.40 |
| Endosulfan II | 10.73 | 10.66 | 10.80 | 30776202 | 32487619 | 5.56 |
| 4,4'-DDD | 11.11 | 11.04 | 11.18 | 30805692 | 31918069 | 3.61 |
| Endrin aldehyde | 11.25 | 11.18 | 11.32 | 21862156 | 23747233 | 8.62 |
| Endosulfan sulfate | 11.90 | 11.83 | 11.97 | 27807031 | 30018216 | 7.95 |
| 4,4'-DDT | 12.13 | 12.06 | 12.20 | 20458575 | 24200771 | 18.29 |
| Endrin ketone | 13.10 | 13.03 | 13.17 | 33539155 | 35556458 | 6.01 |
| Methoxychlor | 13.81 | 13.74 | 13.88 | 10372533 | 12008260 | 15.77 |
| alpha-Chlordane | 9.34 | 9.27 | 9.41 | 35976493 | 37683983 | 4.75 |
| gamma-Chlordane | 8.94 | 8.87 | 9.01 | 37752163 | 39863792 | 5.59 |
| | | | | | Average %D | 7.46 |

# PESTICIDE CALIBRATION VERIFICATION SUMMARY

**Date Analyzed:** 10/16/01 **Instrument ID:** GC-W

**Data File:** W8941.C **GC Column (2nd):** DB-1701P

| Compound | RT | RT WINDOW | | Avg CF | CC CF | %D |
|---|---|---|---|---|---|---|
| | | FROM | TO | | | |
| alpha-BHC | 5.18 | 5.11 | 5.25 | 14827598 | 16519318 | 11.41 |
| beta-BHC | 8.16 | 8.09 | 8.23 | 6097231 | 6480915 | 6.29 |
| gamma-BHC | 6.10 | 6.03 | 6.17 | 13546829 | 15063967 | 11.20 |
| delta-BHC | 8.70 | 8.63 | 8.77 | 13321769 | 15112169 | 13.44 |
| Heptachlor | 6.56 | 6.49 | 6.63 | 12120237 | 13608581 | 12.28 |
| Aldrin | 7.20 | 7.13 | 7.27 | 12390069 | 13730616 | 10.82 |
| Heptachlor epoxide | 9.01 | 8.94 | 9.08 | 11217666 | 12330256 | 9.92 |
| Endosulfan I | 9.68 | 9.61 | 9.75 | 10488445 | 11456875 | 9.23 |
| 4,4'-DDE | 10.46 | 10.39 | 10.53 | 11254895 | 12344824 | 9.68 |
| Dieldrin | 10.70 | 10.63 | 10.77 | 11419812 | 12596225 | 10.30 |
| Endrin | 11.21 | 11.14 | 11.28 | 10631753 | 11259849 | 5.91 |
| Endosulfan II | 12.64 | 12.57 | 12.71 | 10073067 | 11001291 | 9.21 |
| 4,4'-DDD | 12.69 | 12.62 | 12.76 | 9895694 | 10387267 | 4.97 |
| Endrin aldehyde | 13.78 | 13.71 | 13.85 | 6948408 | 7577796 | 9.06 |
| Endosulfan sulfate | 14.68 | 14.61 | 14.75 | 8898298 | 9754556 | 9.62 |
| 4,4'-DDT | 13.11 | 13.04 | 13.18 | 7083013 | 8153197 | 15.11 |
| Endrin ketone | 15.68 | 15.61 | 15.75 | 10731417 | 11674239 | 8.79 |
| Methoxychlor | 14.98 | 14.91 | 15.05 | 3800820 | 4357271 | 14.64 |
| alpha-Chlordane | 10.07 | 10.00 | 10.14 | 11496547 | 12512231 | 8.83 |
| gamma-Chlordane | 9.92 | 9.85 | 9.99 | 11757803 | 12858065 | 9.36 |
| | | | | | Average %D | 10.00 |

# PESTICIDE SURROGATE PERCENT RECOVERY SUMMARY

**Date Analyzed:** 10/16/2001

| | Lab | | TCMX 1 | | DCB 1 | | TCMX 2 | | DCB 2 | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Client ID** | **Sample ID** | **Matrix** | **% rec** | **#** | **% rec** | **#** | **% rec** | **#** | **% rec** | **#** |
| (7023.7041) | 1015-BK1 | SOIL | 94 | | 66 | | 103 | | 76 | |
| ABSEGAMI | 7035-001 | SOIL | 90 | | 63 | | 98 | | 72 | |
| 5-F1 | 7041-001 | SOIL | 96 | | 66 | | 103 | | 76 | |
| UG-1_10-10.5 | 7023-001 | SOIL | 98 | | 69 | | 107 | | 79 | |
| UG-2_9-9.5 | 7023-002 | SOIL | 94 | | 66 | | 102 | | 76 | |
| FO-1_6-6.5 | 7023-004 | SOIL | 63 | | 64 | | 81 | | 75 | |
| DF-1_10-10.5 | 7023-005 | SOIL | 97 | | 68 | | 103 | | 74 | |
| DF-2_6-6.5 | 7023-006 | SOIL | 83 | | 63 | | 96 | | 75 | |
| DF-3_10-10.5 | 7023-007 | SOIL | 84 | | 65 | | 88 | | 72 | |
| DF-4_8.5-9 | 7023-008 | SOIL | 84 | | 64 | | 91 | | 74 | |
| DW-1_5-5.5 | 7023-010 | SOIL | 62 | | 67 | | 81 | | 74 | |
| DW-2_8-8.5 | 7023-011 | SOIL | 71 | | 68 | | 79 | | 74 | |
| PEST | 7041-001-MS1 | SOIL | 97 | | 72 | | 100 | | 77 | |
| PEST | 7041-001-MSD1 | SOIL | 101 | | 75 | | 103 | | 80 | |
| PEST | PBS1015-MS1 | SOIL | 102 | | 77 | | 105 | | 82 | |

| Surrogate QC Limits | Soil | Aqueous |
|---|---|---|
| **TCMX = Tetrachloro-m-xylene** | 39-147 | 39-151 |
| **DCB = Decachlorobiphenyl** | 33-179 | 30-150 |

\# Column to be used to flag recovery values
* Values outside of QC limits
D Surrogate diluted out
M Matrix interference

# SOIL PESTICIDES MATRIX SPIKE/SPIKE DUPLICATE RECOVERY

Matrix spike Lab sample ID: 7041-001-MSD1

| Compound | SPIKE ADDED (ug/Kg) | SAMPLE CONC. (ug/Kg) | MS CONC. (ug/Kg) | MS % REC # | QC LIMITS REC. |
|---|---|---|---|---|---|
| **gamma-BHC** | 100.0 | 0.0 | 113.2 | 113 | 44 - 149 |
| **Heptachlor** | 100.0 | 0.0 | 111.2 | 111 | 50 - 157 |
| **Aldrin** | 100.0 | 0.0 | 114.0 | 114 | 40 - 150 |
| **Dieldrin** | 100.0 | 0.0 | 112.9 | 113 | 56 - 134 |
| **Endrin** | 100.0 | 0.0 | 118.9 | 119 | 65 - 148 |
| **4,4'-DDT** | 100.0 | 0.0 | 112.7 | 113 | 42 - 175 |

| Compound | SAMPLE CONC. (ug/Kg) | MSD CONC. (ug/Kg) | MSD % # REC | % RPD # | QC LIMITS RPD | QC LIMITS REC. |
|---|---|---|---|---|---|---|
| **gamma-BHC** | 0.0 | 115.5 | 116 | 3 | 18 | 44 - 149 |
| **Heptachlor** | 0.0 | 115.8 | 116 | 4 | 18 | 50 - 157 |
| **Aldrin** | 0.0 | 116.3 | 116 | 2 | 18 | 40 - 150 |
| **Dieldrin** | 0.0 | 114.8 | 115 | 2 | 13 | 56 - 134 |
| **Endrin** | 0.0 | 120.7 | 121 | 2 | 14 | 65 - 148 |
| **4,4'-DDT** | 0.0 | 116.9 | 117 | 3 | 27 | 42 - 175 |

\# Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
NC Non calculable

RPD: __0___ out of __6__ outside limits

Spike Recovery: __0___ out of __12__ outside limits

# SOIL PESTICIDES BLANK SPIKE RECOVERY

Matrix spike Lab sample ID: PBS1015-MS1

| Compound | SPIKE ADDED (ug/Kg) | SAMPLE CONC. (ug/Kg) | MS CONC. (ug/Kg) | MS % REC # | QC LIMITS REC. |
|---|---|---|---|---|---|
| **gamma-BHC** | 100.0 | 0.0 | 116.9 | 117 | 44 - 149 |
| **Heptachlor** | 100.0 | 0.0 | 121.7 | 122 | 50 - 157 |
| **Aldrin** | 100.0 | 0.0 | 121.4 | 121 | 40 - 150 |
| **Dieldrin** | 100.0 | 0.0 | 118.8 | 119 | 56 - 134 |
| **Endrin** | 100.0 | 0.0 | 119.5 | 120 | 65 - 148 |
| **4,4'-DDT** | 100.0 | 0.0 | 124.1 | 124 | 42 - 175 |

\# Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
NC Non calculable

Spike Recovery: __0___ out of __6__ outside limits

# PESTICIDE RETENTION TIME SHIFT SUMMARY

**Instrument ID:** GC-W **Column:** DB-5/DB-1701P

Surrogate RT from initial calibration :

TCMX 1 3.67 DCB 1 18.40 TCMX 2 3.38 DCB 2 18.02

| Client ID | Lab Sample ID | Date Analyzed | Time Analyzed | TCMX 1 RT | # | DCB 1 RT | # | TCMX 2 RT | # | DCB 2 RT | # |
|---|---|---|---|---|---|---|---|---|---|---|---|
| (7023.7041) | 1015-BK1 | 10/16/2001 | 14:33 | 3.67 | | 18.40 | | 3.38 | | 18.02 | |
| ABSEGAMI | 7035-001 | 10/16/2001 | 14:58 | 3.69 | | 18.41 | | 3.38 | | 18.02 | |
| 5-F1 | 7041-001 | 10/16/2001 | 15:33 | 3.68 | | 18.40 | | 3.38 | | 18.02 | |
| UG-1_10-10.5 | 7023-001 | 10/16/2001 | 15:58 | 3.69 | | 18.41 | | 3.38 | | 18.02 | |
| UG-2_9-9.5 | 7023-002 | 10/16/2001 | 16:23 | 3.69 | | 18.41 | | 3.38 | | 18.02 | |
| FO-1_6-6.5 | 7023-004 | 10/16/2001 | 16:48 | 3.69 | | 18.41 | | 3.38 | | 18.02 | |
| DF-1_10-10.5 | 7023-005 | 10/16/2001 | 17:13 | 3.69 | | 18.41 | | 3.38 | | 18.02 | |
| DF-2_6-6.5 | 7023-006 | 10/16/2001 | 17:38 | 3.69 | | 18.40 | | 3.39 | | 18.02 | |
| DF-3_10-10.5 | 7023-007 | 10/16/2001 | 18:03 | 3.69 | | 18.41 | | 3.38 | | 18.02 | |
| DF-4_8.5-9 | 7023-008 | 10/16/2001 | 18:28 | 3.68 | | 18.41 | | 3.38 | | 18.02 | |
| DW-1_5-5.5 | 7023-010 | 10/16/2001 | 18:53 | 3.69 | | 18.41 | | 3.38 | | 18.02 | |
| DW-2_8-8.5 | 7023-011 | 10/16/2001 | 19:18 | 3.69 | | 18.41 | | 3.38 | | 18.02 | |
| PEST | 7041-001-MS1 | 10/16/2001 | 19:43 | 3.69 | | 18.41 | | 3.38 | | 18.02 | |
| PEST | 7041-001-MSD1 | 10/16/2001 | 20:08 | 3.69 | | 18.41 | | 3.38 | | 18.02 | |
| PEST | PBS1015-MS1 | 10/16/2001 | 20:33 | 3.69 | | 18.41 | | 3.38 | | 18.02 | |

Surrogate QC Limits

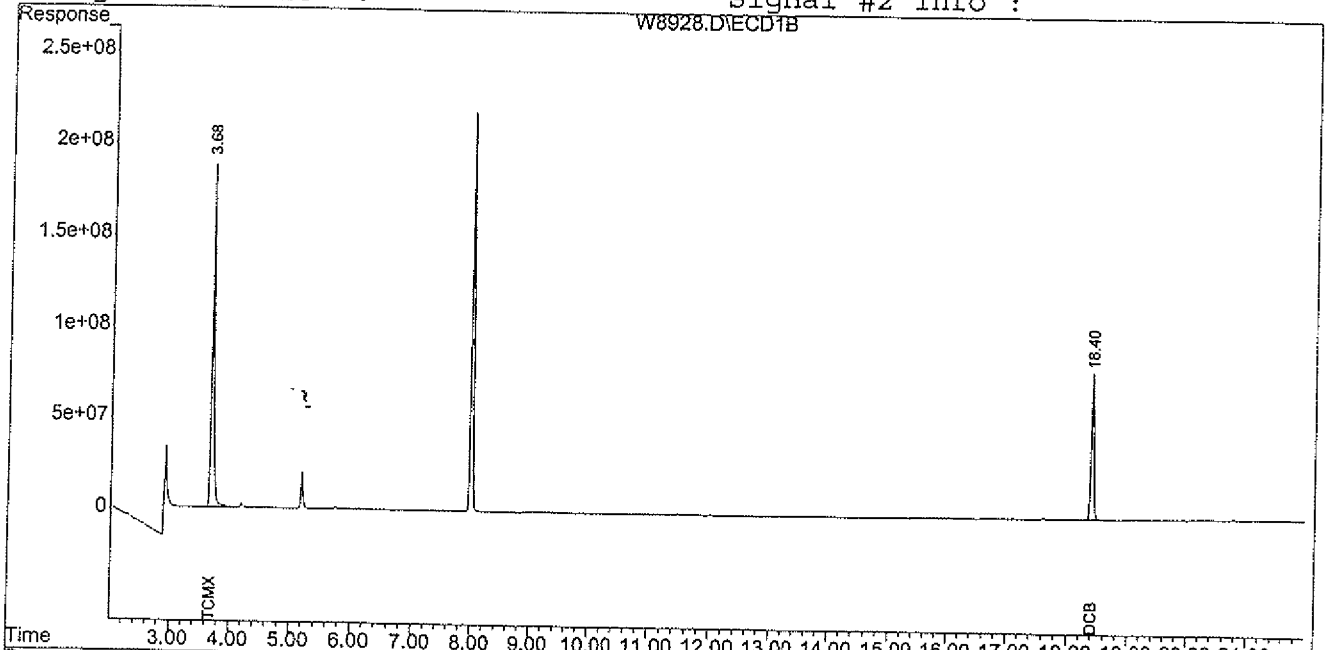
**TCMX = Tetrachloro-m-xylene** ( ± 0.05 Minutes )

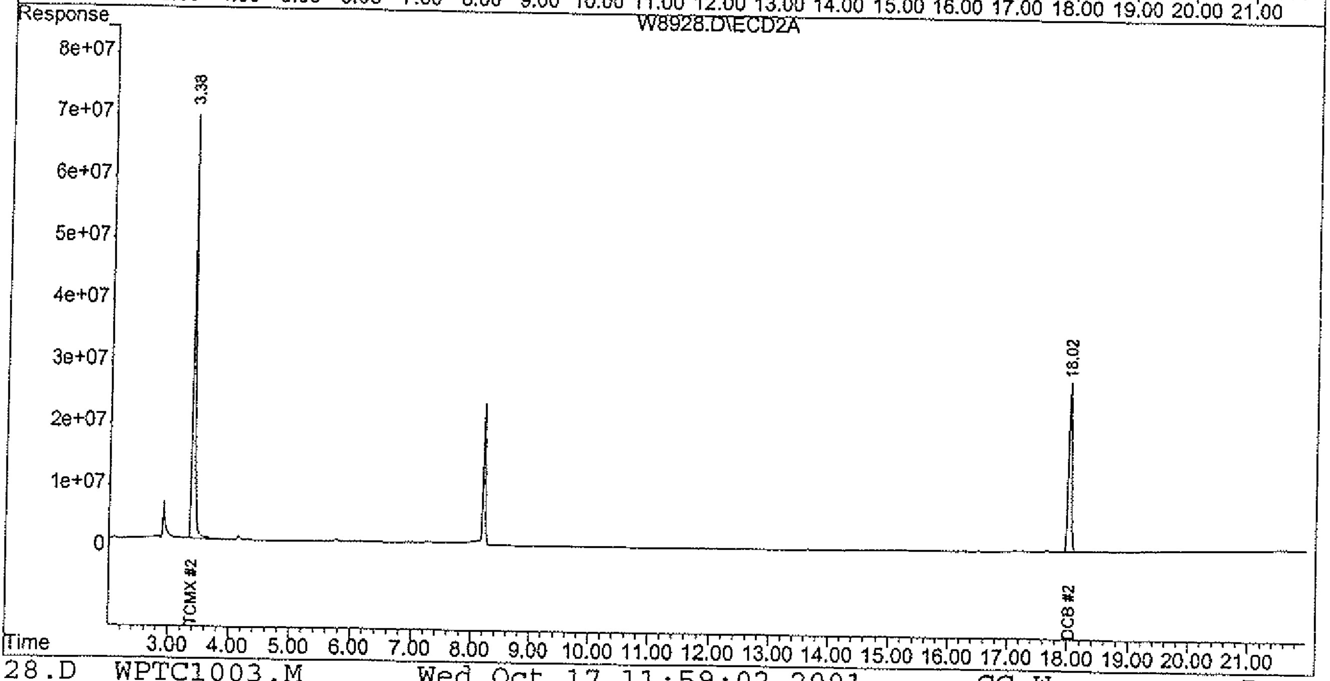
**DCB = Decachlorobiphenyl** ( ± 0.05 Minutes )

# Column to be used to flag recovery values
* Values outside of QC limits
D Surrogate diluted out
M Matrix interference

```
                                   Quantitation Report     (QT Reviewed)

        Signal #1 : C:\HPCHEM\1\DATA\10-16-01\W8928.D\ECD1B.CH    Vial: 7
        Signal #2 : C:\HPCHEM\1\DATA\10-16-01\W8928.D\ECD2A.CH
        Acq On    : 10-16-01 15:33:18                          Operator: LAG
        Sample    : 5-F1,7041-001,S,5.7g,9.4,10/15/01,4        Inst     : GC_W
        Misc      : BRENNAN/99704_FINETEX,10/11/01,10/11/01, Multiplr: 1.00
        IntFile Signal #1: autoint1.e     IntFile Signal #2: autoint2.e
        Quant Time: Oct 17 11:30 2001  Quant Results File: WPTC1003.RES

        Quant Method : C:\HPCHEM\1\METHODS\WPTC1003.M (Chemstation Integrator)
        Title        :
        Last Update  : Thu Oct 04 10:37:06 2001
        Response via : Initial Calibration
        DataAcq Meth : WPTC1003.M

        Volume Inj.       :
        Signal #1 Phase :                        Signal #2 Phase:
        Signal #1 Info  :                        Signal #2 Info :

         Compound              RT#1   RT#2    Resp#1   Resp#2      ng#1       ng#2
      -------------------------------------------------------------------------------

      System Monitoring Compounds
   1) S   TCMX                 3.68   3.38  5256.6E6 1903.6E6    95.529    102.464
    Spiked Amount    100.000                  Recovery     =     95.53%    102.46%
   2) S   DCB                 18.40  18.02  2664.5E6  968.4E6    66.190     75.691
    Spiked Amount    100.000                  Recovery     =     66.19%     75.69%

      Target Compounds
     Sum Chlordane                                 0        0    N.D.       N.D.
  Average Chlordane                                              0.000      0.000

     Sum Toxaphene                                 0        0    N.D.       N.D.
  Average Toxaphene                                              0.000      0.000

 ----------------------------------------------------------------------------------
 (f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25%  (m)=manual int.
 W8928.D  WPTC1003.M      Wed Oct 17 11:58:59 2001       GC_W          Page 1
```

```
                              Quantitation Report    (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\10-16-01\W8928.D\ECD1B.CH   Vial: 7
Signal #2 : C:\HPCHEM\1\DATA\10-16-01\W8928.D\ECD2A.CH
Acq On    : 10-16-01 15:33:18                          Operator: LAG
Sample    : 5-F1,7041-001,S,5.7g,9.4,10/15/01,4        Inst    : GC_W
Misc      : BRENNAN/99704_FINETEX,10/11/01,10/11/01,   Multiplr: 1.00
IntFile Signal #1: autoint1.e     IntFile Signal #2: autoint2.e
Quant Time: Oct 17 11:30 2001  Quant Results File: WPTC1003.RES

Quant Method : C:\HPCHEM\1\METHODS\WPTC1003.M (Chemstation Integrator)
Title        :
Last Update  : Thu Oct 04 10:37:06 2001
Response via : Multiple Level Calibration
DataAcq Meth : WPTC1003.M

Volume Inj.       :
Signal #1 Phase   :                   Signal #2 Phase:
Signal #1 Info    :                   Signal #2 Info :
```

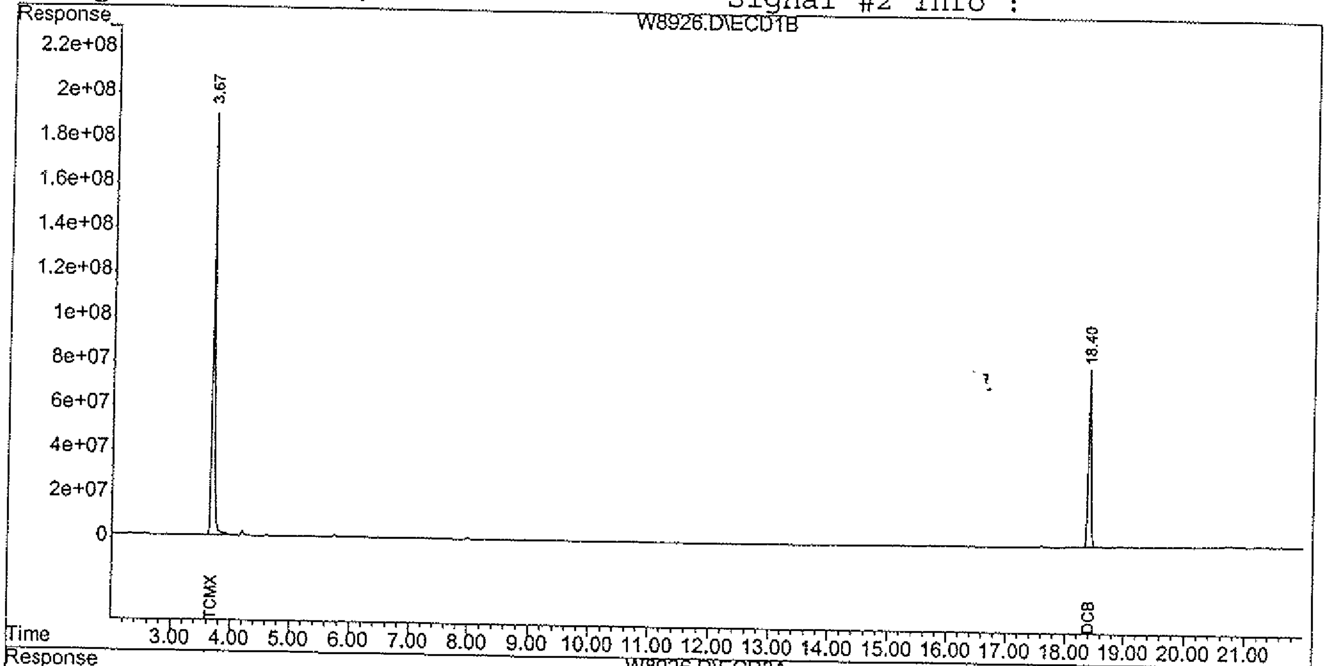


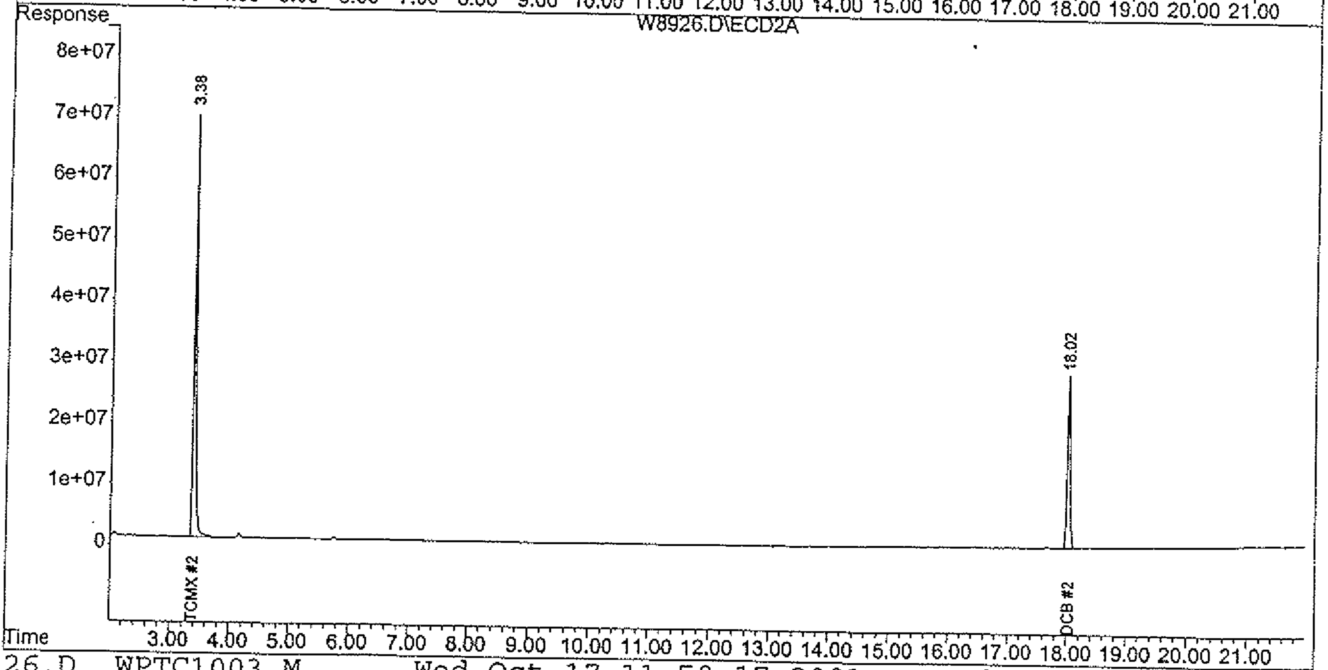


```
                          Quantitation Report     (QT Reviewed)

     Signal #1 : C:\HPCHEM\1\DATA\10-16-01\W8926.D\ECD1B.CH    Vial: 5
     Signal #2 : C:\HPCHEM\1\DATA\10-16-01\W8926.D\ECD2A.CH
     Acq On    : 10-16-01 14:33:45                           Operator: LAG
     Sample    : (7023.7041),1015-BK1,S,5.9g,0.0,10/15/01 Inst     : GC_W
     Misc      : NA,NA,NA,1                                  Multiplr: 1.00
     IntFile Signal #1: autoint1.e     IntFile Signal #2: autoint2.e
     Quant Time: Oct 17 11:30 2001  Quant Results File: WPTC1003.RES

     Quant Method : C:\HPCHEM\1\METHODS\WPTC1003.M (Chemstation Integrator)
     Title        :
     Last Update  : Thu Oct 04 10:37:06 2001
     Response via : Initial Calibration
     DataAcq Meth : WPTC1003.M

     Volume Inj.      :
     Signal #1 Phase  :                     Signal #2 Phase:
     Signal #1 Info   :                     Signal #2 Info :

      Compound              RT#1   RT#2    Resp#1    Resp#2      ng#1       ng#2
    ----------------------------------------------------------------------------

    System Monitoring Compounds
 1) S   TCMX                 3.67   3.38  5182.6E6 1910.8E6    94.184    102.855
  Spiked Amount    100.000                 Recovery     =      94.18%    102.86%
 2) S   DCB                 18.40  18.02  2670.3E6  972.7E6    66.333     76.029
  Spiked Amount    100.000                 Recovery     =      66.33%     76.03%

    Target Compounds
   Sum Chlordane                                 0        0    N.D.       N.D.
Average Chlordane                                               0.000      0.000

   Sum Toxaphene                                 0        0    N.D.       N.D.
Average Toxaphene                                               0.000      0.000

---------------------------------------------------------------------------------
 (f)=RT Delta > 1/2 Window  (#)=Amounts differ by > 25%   (m)=manual int.
```

Quantitation Report (QT Reviewed)

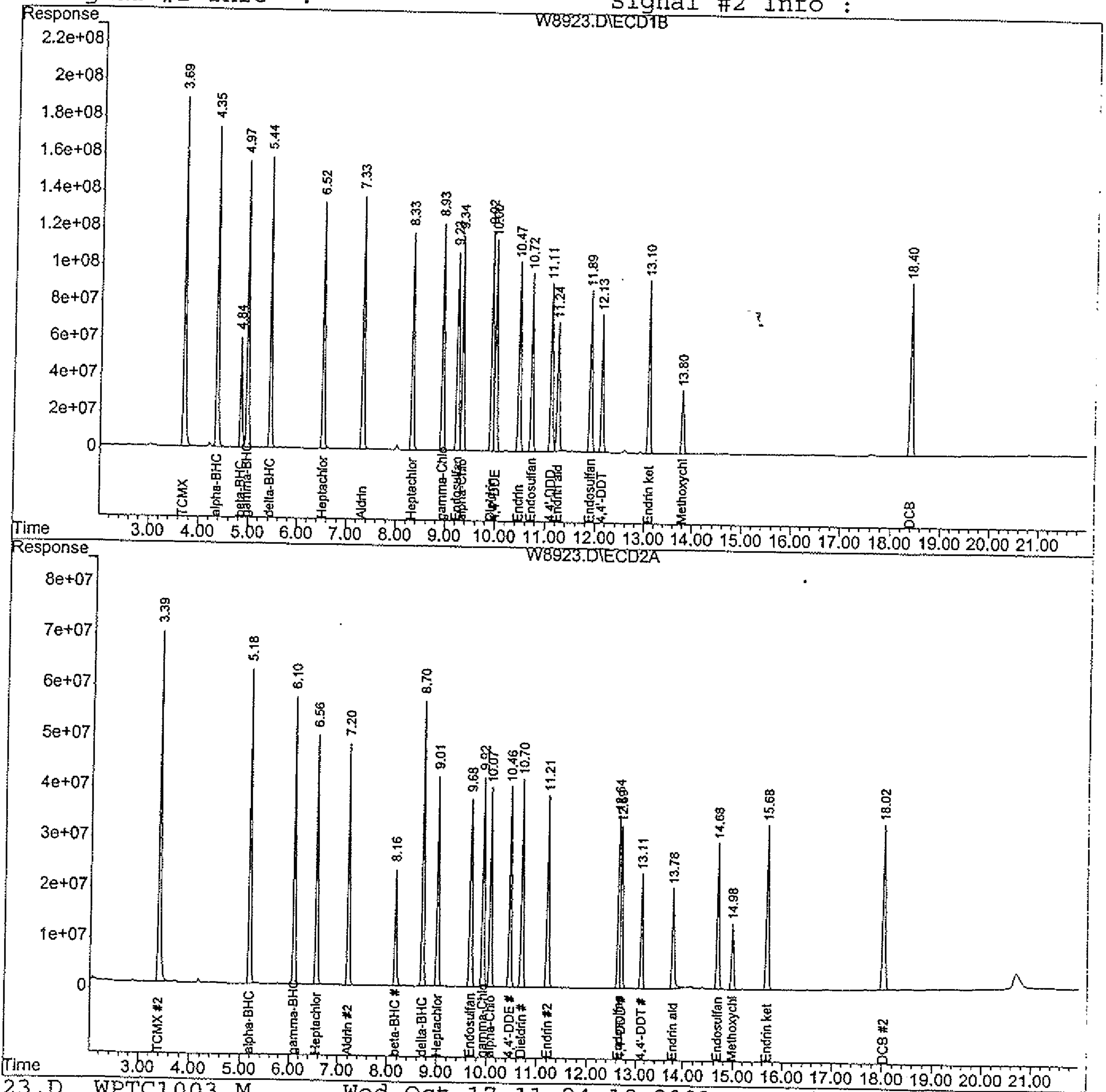
```
Signal #1 : C:\HPCHEM\1\DATA\10-16-01\W8926.D\ECD1B.CH   Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\10-16-01\W8926.D\ECD2A.CH
Acq On    : 10-16-01 14:33:45                            Operator: LAG
Sample    : (7023.7041),1015-BK1,S,5.9g,0.0,10/15/01     Inst    : GC_W
Misc      : NA,NA,NA,1                                   Multiplr: 1.00
IntFile Signal #1: autoint1.e     IntFile Signal #2: autoint2.e
Quant Time: Oct 17 11:30 2001   Quant Results File: WPTC1003.RES

Quant Method : C:\HPCHEM\1\METHODS\WPTC1003.M (Chemstation Integrator)
Title        :
Last Update  : Thu Oct 04 10:37:06 2001
Response via : Multiple Level Calibration
DataAcq Meth : WPTC1003.M

Volume Inj.       :
Signal #1 Phase   :                     Signal #2 Phase:
Signal #1 Info    :                     Signal #2 Info  :
```





```
                         Quantitation Report    (QT Reviewed)

  Signal #1 : C:\HPCHEM\1\DATA\10-16-01\W8923.D\ECD1B.CH    Vial: 2
  Signal #2 : C:\HPCHEM\1\DATA\10-16-01\W8923.D\ECD2A.CH
  Acq On    : 10-16-01 12:46:04                          Operator: LAG
  Sample    : PEST_C_IAS_1554,100_PPB                    Inst    : GC_W
  Misc      : NA,NA,NA,1                                 Multiplr: 1.00
  IntFile Signal #1: autoint1.e     IntFile Signal #2: autoint2.e
  Quant Time: Oct 16 14:28 2001  Quant Results File: WPTC1003.RES

  Quant Method : C:\HPCHEM\1\METHODS\WPTC1003.M (Chemstation Integrator)
  Title        :
  Last Update  : Thu Oct 04 10:37:06 2001
  Response via : Initial Calibration
  DataAcq Meth : WPTC1003.M

  Volume Inj.     :
  Signal #1 Phase :                      Signal #2 Phase:
  Signal #1 Info  :                      Signal #2 Info :

   Compound              RT#1    RT#2    Resp#1   Resp#2      ng#1      ng#2
-----------------------------------------------------------------------------

 System Monitoring Compounds
 1) S   TCMX              3.69    3.39  5141.1E6 1909.4E6    93.430   102.776
  Spiked Amount   100.000                Recovery     =    93.43%   102.78%
 2) S   DCB              18.40   18.02  3100.4E6 1137.9E6    77.018    88.943
  Spiked Amount   100.000                Recovery     =    77.02%    88.94%

 Target Compounds
 3) T   alpha-BHC         4.35    5.18  4452.3E6 1546.9E6    94.777   104.329
 4) T   beta-BHC          4.84    8.16  1586.1E6  606.7E6    90.856    99.498
 5) T   gamma-BHC         4.97    6.10  3960.0E6 1418.7E6    95.035   104.726
 6) T   delta-BHC         5.44    8.70  4001.9E6 1396.7E6    95.206   104.841
 7) T   Heptachlor        6.52    6.56  3558.9E6 1318.1E6   101.874   108.755
 8) T   Aldrin            7.33    7.20  3710.0E6 1302.7E6    94.044   105.137
 9) T   Heptachlor epoxi  8.33    9.01  3295.7E6 1163.1E6    95.674   103.685
10) T   Endosulfan I      9.23    9.68  3073.5E6 1077.4E6    94.379   102.718
11) T   4,4'-DDE         10.00   10.46  3287.4E6 1139.9E6    92.381   101.282
12) T   Dieldrin          9.92   10.70  3375.4E6 1175.2E6    95.527   102.908
13) T   Endrin           10.47   11.21  3043.9E6 1121.7E6   100.691   105.506
14) T   Endosulfan II    10.72   12.64  2844.7E6 1008.2E6    92.432   100.088
15) T   4,4'-DDD         11.11   12.69  2752.4E6  923.8E6    89.347    93.353
16) T   Endrin aldehyde  11.24   13.78  2127.6E6  674.0E6    97.318    97.000
17) T   Endosulfan sulfa 11.90   14.68  2655.7E6  886.7E6    95.506    99.644
18) T   4,4'-DDT         12.13   13.11  2223.7E6  681.3E6   108.692    96.184
19) T   Endrin ketone    13.10   15.68  2856.5E6 1016.1E6    85.169    94.686
20) T   Methoxychlor     13.80   14.98  1076.8E6  410.0E6   103.810   107.871
21) T   alpha-Chlordane   9.34   10.07  3289.4E6 1155.2E6    91.432   100.482
22) T   gamma-Chlordane   8.93    9.92  3475.2E6 1192.0E6    92.054   101.379
    Sum Chlordane                              0        0      N.D.      N.D.
Average Chlordane                                             0.000     0.000

    Sum Toxaphene                              0        0      N.D.      N.D.
Average Toxaphene                                             0.000     0.000



-----------------------------------------------------------------------------
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25%  (m)=manual int.
W8923.D  WPTC1003.M      Wed Oct 17 11:24:17 2001      GC_W          Page 1
```

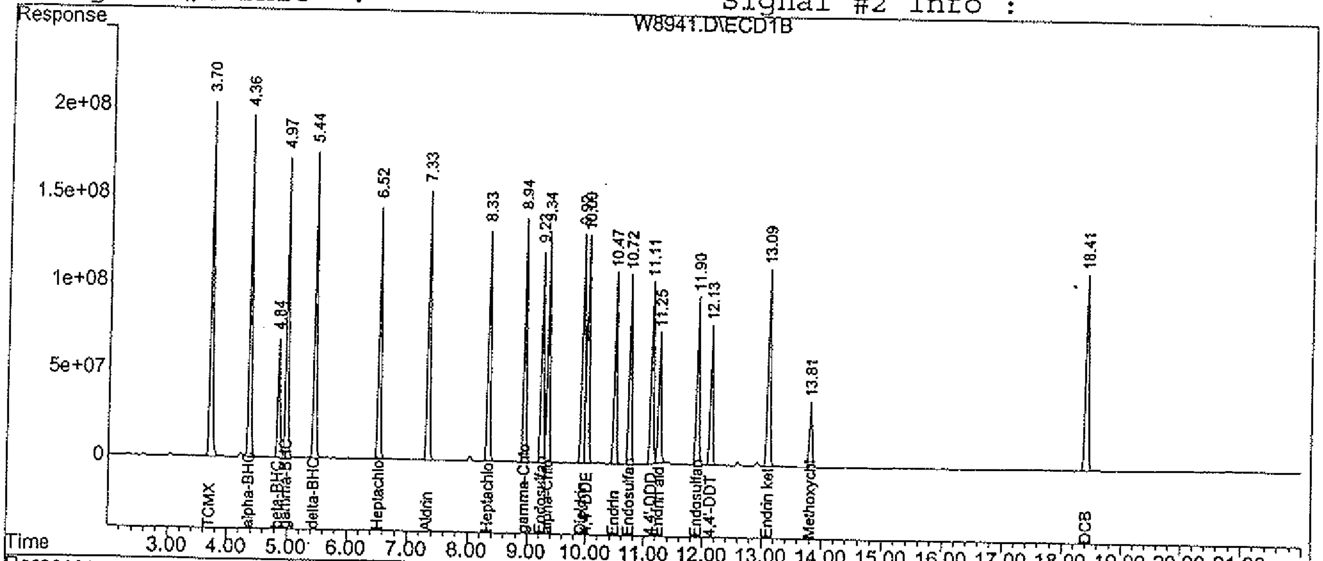
```
                    Quantitation Report    (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\10-16-01\W8923.D\ECD1B.CH    Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\10-16-01\W8923.D\ECD2A.CH
Acq On    : 10-16-01 12:46:04                          Operator: LAG
Sample    : PEST_C_IAS_1554,100_PPB                    Inst    : GC_W
Misc      : NA,NA,NA,1                                 Multiplr: 1.00
IntFile Signal #1: autoint1.e     IntFile Signal #2: autoint2.e
Quant Time: Oct 16 14:28 2001   Quant Results File: WPTC1003.RES

Quant Method  : C:\HPCHEM\1\METHODS\WPTC1003.M (Chemstation Integrator)
Title         :
Last Update   : Thu Oct 04 10:37:06 2001
Response via  : Multiple Level Calibration
DataAcq Meth  : WPTC1003.M

Volume Inj.        :
Signal #1 Phase    :                   Signal #2 Phase:
Signal #1 Info     :                   Signal #2 Info :
```

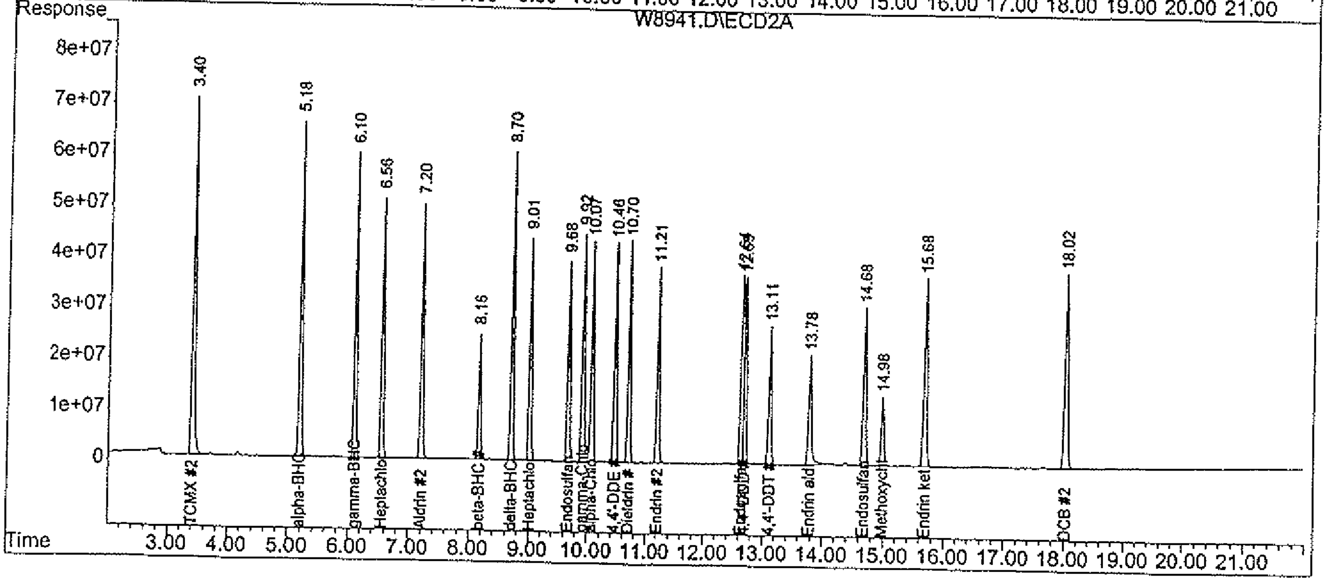


```
                         Quantitation Report    (QT Reviewed)

      Data File : C:\HPCHEM\1\DATA\10-16-01\W8941.D\ECD1B.CH    Vial: 20
      Acq On    : 10-16-01 20:58:34                          Operator: LAG
      Sample    : PEST_C_IAS_1554,100_PPB                    Inst    : GC_W
      Misc      : NA,NA,NA,1                                 Multiplr: 1.00
      IntFile   : autoint1.e

      Data File : C:\HPCHEM\1\DATA\10-16-01\W8941.D\ECD2A.CH    Vial: 20
      Acq On    : 10-16-01 20:58:34                          Operator: LAG
      Sample    : PEST_C_IAS_1554,100_PPB                    Inst    : GC_W
      Misc      : NA,NA,NA,1                                 Multiplr: 1.00
      IntFile   : autoint2.e
      Quant Time: Oct 17  9:29 2001  Quant Results File: WPTC1003.RES

      Quant Method : C:\HPCHEM\1\METHODS\WPTC1003.M (Chemstation Integrator)
      Title        :
      Last Update  : Thu Oct 04 10:37:06 2001
      Response via : Initial Calibration
      DataAcq Meth : WPTC1003.M

      Volume Inj.     :
      Signal #1 Phase :                    Signal #2 Phase:
      Signal #1 Info  :                    Signal #2 Info :

       Compound               RT#1   RT#2    Resp#1   Resp#2      ng#1       ng#2
    ---------------------------------------------------------------------------------

     System Monitoring Compounds
  1) S    TCMX                3.70   3.40  5687.7E6 1988.0E6   103.362    107.010
   Spiked Amount   100.000                  Recovery     =   103.36%    107.01%
  2) S    DCB                18.41  18.02  3807.1E6 1298.6E6    94.573    101.500
   Spiked Amount   100.000                  Recovery     =    94.57%    101.50%

     Target Compounds
  3) T    alpha-BHC           4.36   5.18  5039.0E6 1651.9E6   107.265    111.409
  4) T    beta-BHC            4.84   8.16  1790.5E6  648.1E6   102.567    106.293
  5) T    gamma-BHC           4.97   6.10  4418.1E6 1506.4E6   106.028    111.199
  6) T    delta-BHC           5.44   8.70  4563.2E6 1511.2E6   108.558    113.440
  7) T    Heptachlor          6.52   6.56  3808.9E6 1360.9E6   109.029    112.280
  8) T    Aldrin              7.33   7.20  4191.8E6 1373.1E6   106.255    110.820
  9) T    Heptachlor epoxi    8.33   9.01  3702.3E6 1233.0E6   107.476    109.918
 10) T    Endosulfan I        9.24   9.68  3469.6E6 1145.7E6   106.542    109.233
 11) T    4,4'-DDE           10.00  10.46  3760.7E6 1234.5E6   105.681    109.684
 12) T    Dieldrin            9.92  10.70  3826.1E6 1259.6E6   108.285    110.302
 13) T    Endrin             10.47  11.21  3186.3E6 1126.0E6   105.400    105.908
 14) T    Endosulfan II      10.73  12.64  3248.8E6 1100.1E6   105.561    109.215
 15) T    4,4'-DDD           11.11  12.69  3191.8E6 1038.7E6   103.611    104.968
 16) T    Endrin aldehyde    11.25  13.78  2374.7E6  757.8E6   108.623    109.058
 17) T    Endosulfan sulfa   11.90  14.68  3001.8E6  975.5E6   107.952    109.623
 18) T    4,4'-DDT           12.13  13.11  2420.1E6  815.3E6   118.292    115.109
 19) T    Endrin ketone      13.10  15.68  3555.6E6 1167.4E6   106.015    108.786
 20) T    Methoxychlor       13.81  14.98  1200.8E6  435.7E6   115.770    114.640
 21) T    alpha-Chlordane     9.34  10.07  3768.4E6 1251.2E6   104.746    108.835
 22) T    gamma-Chlordane     8.94   9.92  3986.4E6 1285.8E6   105.593    109.358
     Sum Chlordane                                0        0     N.D.       N.D.
 Average Chlordane                                                0.000      0.000

     Sum Toxaphene                                0        0     N.D.       N.D.
 Average Toxaphene                                                0.000      0.000
 ---------------------------------------------------------------------------------
  (f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25%  (m)=manual int.
  W8941.D  WPTC1003.M      Wed Oct 17 11:57:07 2001      GC_W         Page 1
```

```
                         Quantitation Report    (QT Reviewed)
  Data File : C:\HPCHEM\1\DATA\10-16-01\W8941.D\ECD1B.CH   Vial: 20
  Acq On    : 10-16-01 20:58:34                         Operator: LAG
  Sample    : PEST_C_IAS_1554,100_PPB                   Inst    : GC_W
  Misc      : NA,NA,NA,1                                Multiplr: 1.00
  IntFile   : autoint1.e

  Data File : C:\HPCHEM\1\DATA\10-16-01\W8941.D\ECD2A.CH   Vial: 20
  Acq On    : 10-16-01 20:58:34                         Operator: LAG
  Sample    : PEST_C_IAS_1554,100_PPB                   Inst    : GC_W
  Misc      : NA,NA,NA,1                                Multiplr: 1.00
  IntFile   : autoint2.e
  Quant Time: Oct 17  9:29 2001  Quant Results File: WPTC1003.RES

  Quant Method : C:\HPCHEM\1\METHODS\WPTC1003.M (Chemstation Integrator)
  Title        :
  Last Update  : Thu Oct 04 10:37:06 2001
  Response via : Initial Calibration
  DataAcq Meth : WPTC1003.M

  Volume Inj.      :
  Signal #1 Phase :                  Signal #2 Phase:
  Signal #1 Info  :                  Signal #2 Info :

   Compound            RT#1   RT#2    Resp#1    Resp#2     ng#1      ng#2
-------------------------------------------------------------------------



-------------------------------------------------------------------------
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25%  (m)=manual int.
```

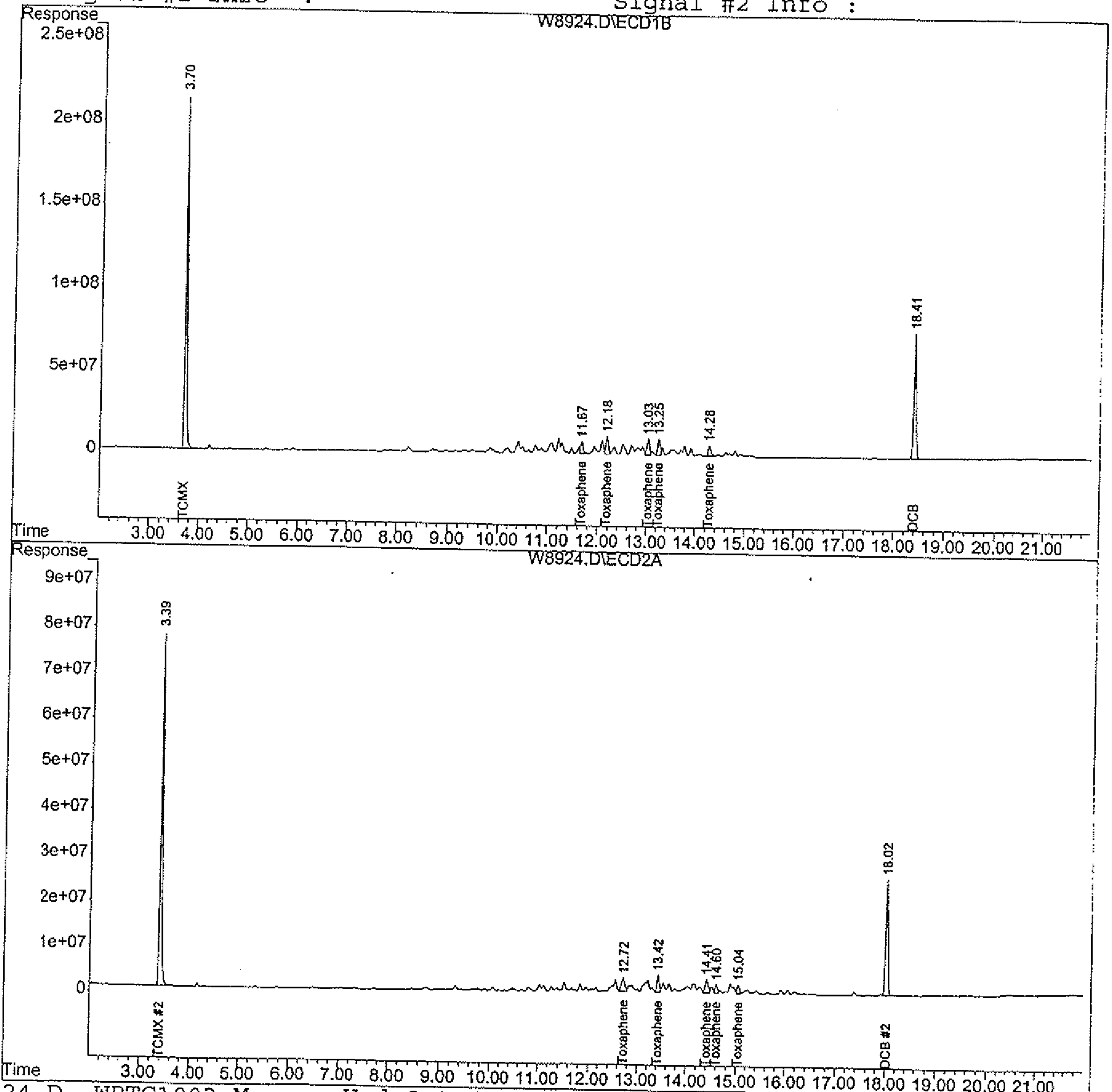
```
                       Quantitation Report    (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\10-16-01\W8941.D\ECD1B.CH   Vial: 20
Acq On    : 10-16-01 20:58:34                          Operator: LAG
Sample    : PEST_C_IAS_1554,100_PPB                    Inst    : GC_W
Misc      : NA,NA,NA,1                                 Multiplr: 1.00
IntFile   : autoint1.e

Data File : C:\HPCHEM\1\DATA\10-16-01\W8941.D\ECD2A.CH   Vial: 20
Acq On    : 10-16-01 20:58:34                          Operator: LAG
Sample    : PEST_C_IAS_1554,100_PPB                    Inst    : GC_W
Misc      : NA,NA,NA,1                                 Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: Oct 17  9:29 2001   Quant Results File: WPTC1003.RES

Quant Method : C:\HPCHEM\1\METHODS\WPTC1003.M (Chemstation Integrator)
Title        :
Last Update  : Thu Oct 04 10:37:06 2001
Response via : Multiple Level Calibration
DataAcq Meth : WPTC1003.M

Volume Inj.       :
Signal #1 Phase   :                   Signal #2 Phase:
Signal #1 Info    :                   Signal #2 Info :
```





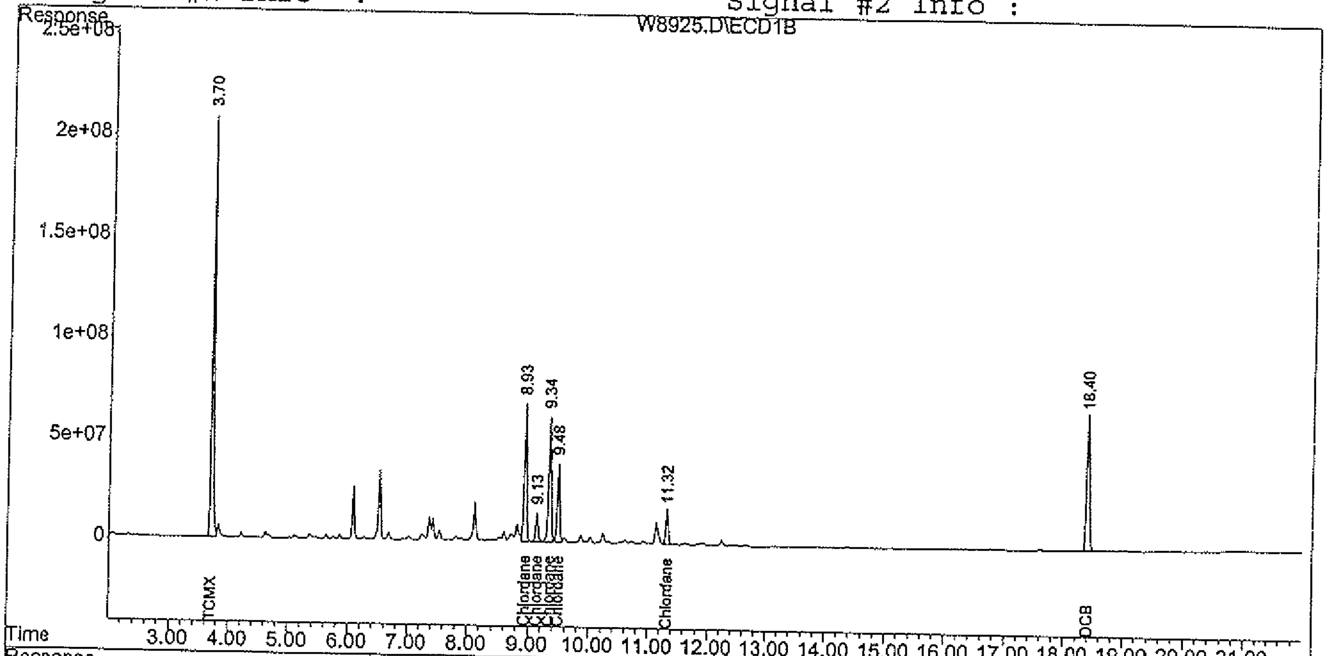
```
                         Quantitation Report    (QT Reviewed)

  Signal #1 : C:\HPCHEM\1\DATA\10-16-01\W8924.D\ECD1B.CH   Vial: 3
  Signal #2 : C:\HPCHEM\1\DATA\10-16-01\W8924.D\ECD2A.CH
  Acq On    : 10-16-01 13:11:08                          Operator: LAG
  Sample    : TOX_C_IAS_1533,0.5_PPM                      Inst    : GC_W
  Misc      : NA,NA,NA,1                                  Multiplr: 1.00
  IntFile Signal #1: autoint1.e     IntFile Signal #2: autoint2.e
  Quant Time: Oct 17 11:25 2001  Quant Results File: WPTC1003.RES

  Quant Method : C:\HPCHEM\1\METHODS\WPTC1003.M (Chemstation Integrator)
  Title        :
  Last Update  : Thu Oct 04 10:37:06 2001
  Response via : Initial Calibration
  DataAcq Meth : WPTC1003.M

  Volume Inj.     :
  Signal #1 Phase :                     Signal #2 Phase:
  Signal #1 Info  :                     Signal #2 Info :

   Compound             RT#1   RT#2    Resp#1   Resp#2      ng#1      ng#2
-----------------------------------------------------------------------------

  System Monitoring Compounds
 1) S   TCMX              3.70   3.39  5562.3E6 2029.4E6  101.085   109.238
  Spiked Amount   100.000                 Recovery    =  101.09%   109.24%
 2) S   DCB              18.41  18.02  2500.0E6  884.0E6   62.103   69.094m
  Spiked Amount   100.000                 Recovery    =   62.10%    69.09%

   Target Compounds
    Sum Chlordane                              0        0    N.D.      N.D.
Average Chlordane                                            0.000     0.000

28) L2   Toxaphene       11.67  12.72   266.9E6  149.4E6  549.302m  501.099
29) L2   Toxaphene {2}   12.18  13.42   401.7E6  132.9E6  488.223   472.930
30) L2   Toxaphene {3}   13.03  14.41   388.6E6  134.0E6  423.405   458.902
31) L2   Toxaphene {4}   13.25  14.60   377.8E6 65951530  494.663   459.100
32) L2   Toxaphene {5}   14.28  15.04   238.6E6 67152370  497.384   455.941
   Sum Toxaphene                       1673.6E6  549.4E6 2452.978  2347.973
Average Toxaphene                                         490.596   469.595

-----------------------------------------------------------------------------
 (f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25%   (m)=manual int.
 W8924.D  WPTC1003.M     Wed Oct 17 11:28:34 2001      GC_W         Page 1
```

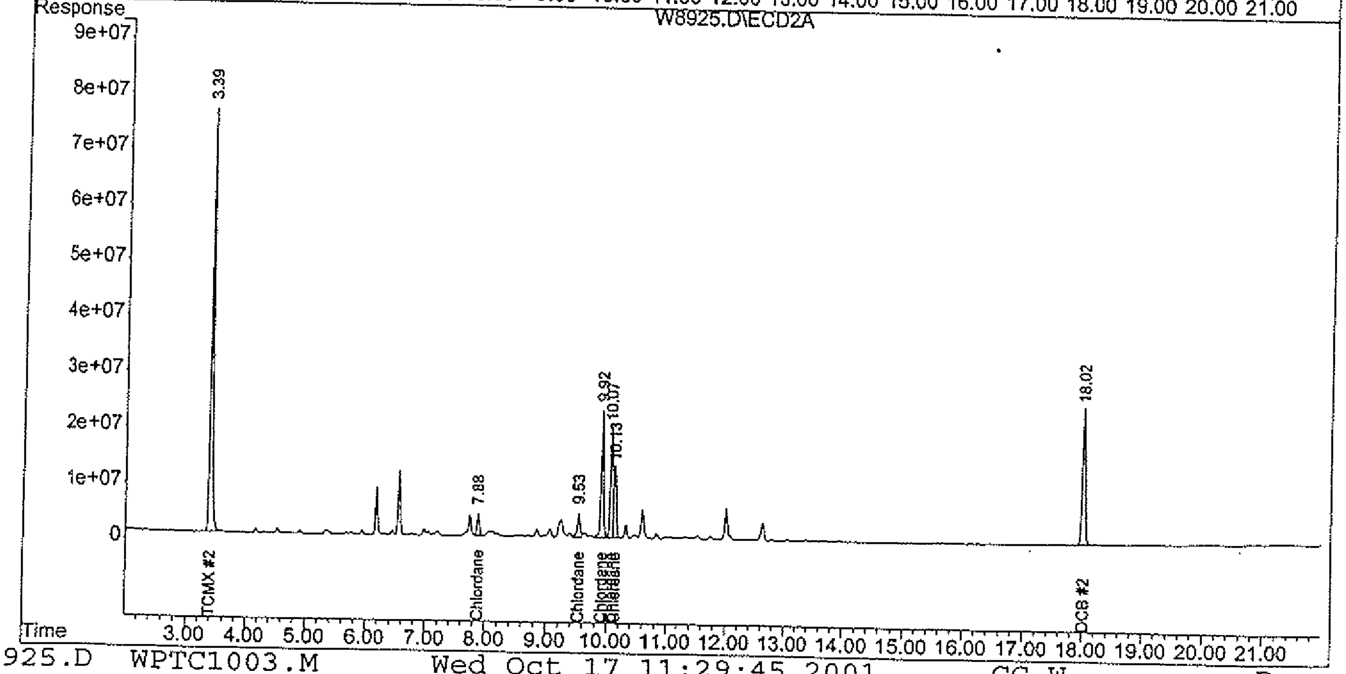
```
                         Quantitation Report     (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\10-16-01\W8924.D\ECD1B.CH    Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\10-16-01\W8924.D\ECD2A.CH
Acq On    : 10-16-01 13:11:08                          Operator: LAG
Sample    : TOX_C_IAS_1533,0.5_PPM                     Inst    : GC_W
Misc      : NA,NA,NA,1                                 Multiplr: 1.00
IntFile Signal #1: autoint1.e      IntFile Signal #2: autoint2.e
Quant Time: Oct 17 11:25 2001   Quant Results File: WPTC1003.RES

Quant Method : C:\HPCHEM\1\METHODS\WPTC1003.M (Chemstation Integrator)
Title        :
Last Update  : Thu Oct 04 10:37:06 2001
Response via : Multiple Level Calibration
DataAcq Meth : WPTC1003.M

Volume Inj.     :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :
```



```
                         Quantitation Report     (QT Reviewed)

  Signal #1 : C:\HPCHEM\1\DATA\10-16-01\W8925.D\ECD1B.CH   Vial: 4
  Signal #2 : C:\HPCHEM\1\DATA\10-16-01\W8925.D\ECD2A.CH
  Acq On    : 10-16-01 13:36:22                         Operator: LAG
  Sample    : CHLOR_C_IAS_1534,0.5_PPM                  Inst    : GC_W
  Misc      : NA,NA,NA,1                                Multiplr: 1.00
  IntFile Signal #1: autoint1.e      IntFile Signal #2: autoint2.e
  Quant Time: Oct 17 11:29 2001  Quant Results File: WPTC1003.RES

  Quant Method  : C:\HPCHEM\1\METHODS\WPTC1003.M (Chemstation Integrator)
  Title         :
  Last Update   : Thu Oct 04 10:37:06 2001
  Response via  : Initial Calibration
  DataAcq Meth  : WPTC1003.M

  Volume Inj.       :
  Signal #1 Phase   :                     Signal #2 Phase:
  Signal #1 Info    :                     Signal #2 Info :

    Compound               RT#1   RT#2    Resp#1   Resp#2      ng#1       ng#2
 ------------------------------------------------------------------------------

   System Monitoring Compounds
 1) S   TCMX               3.70   3.39  5232.2E6 1948.4E6    95.085    104.880
  Spiked Amount    100.000                  Recovery    =     95.08%    104.88%
 2) S   DCB               18.41  18.02  2311.9E6  864.0E6    57.430     67.533
  Spiked Amount    100.000                  Recovery    =     57.43%     67.53%

   Target Compounds
23) L1  Chlordane          8.94   7.88  1961.9E6  109.4E6   470.322    510.757
24) L1  Chlordane {2}      9.13   9.53   424.3E6  146.9E6   478.094    512.567
25) L1  Chlordane {3}      9.34   9.92  1883.6E6  671.1E6   480.203    512.280
26) L1  Chlordane {4}      9.48  10.07  1128.9E6  582.6E6   462.190    509.872
27) L1  Chlordane {5}     11.32  10.13   524.2E6  369.0E6   498.887    509.752
    Sum Chlordane                       5922.9E6 1879.0E6  2389.696   2555.228
Average Chlordane                                           477.939    511.046

    Sum Toxaphene                              0        0    N.D.       N.D.
Average Toxaphene                                            0.000      0.000



 ------------------------------------------------------------------------------
 (f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25%  (m)=manual int.
 W8925.D  WPTC1003.M       Wed Oct 17 11:29:41 2001       GC_W        Page 1
```

```
                    Quantitation Report     (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\10-16-01\W8925.D\ECD1B.CH    Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\10-16-01\W8925.D\ECD2A.CH
Acq On    : 10-16-01 13:36:22                           Operator: LAG
Sample    : CHLOR_C_IAS_1534,0.5_PPM                    Inst    : GC_W
Misc      : NA,NA,NA,1                                  Multiplr: 1.00
IntFile Signal #1: autoint1.e     IntFile Signal #2: autoint2.e
Quant Time: Oct 17 11:29 2001  Quant Results File: WPTC1003.RES

Quant Method : C:\HPCHEM\1\METHODS\WPTC1003.M (Chemstation Integrator)
Title        :
Last Update  : Thu Oct 04 10:37:06 2001
Response via : Multiple Level Calibration
DataAcq Meth : WPTC1003.M

Volume Inj.     :
Signal #1 Phase :                     Signal #2 Phase:
Signal #1 Info  :                     Signal #2 Info :
```





# *INTEGRATED ANALYTICAL LABORATORIES*

## METALS QUALITY CONTROL

## BLANK RESULTS SUMMARY

Lab Case Number: E01- 6879, 6942, 6953, 6967, 6968, 6969, 6996, 7022, 7034, 7035, 7041
7051, 7056, 7083, 7085

Matrix: Soil Concentration/Units: ppm (mg/kg)

| ANALYTE | INITIAL CALIBRATION | CONTINUING CALIBRATION | | INST. MDL | REAGENT BLANK | MDL | IDL |
|---|---|---|---|---|---|---|---|
| | | 1 | 2 | | | | |
| Aluminum | ND | ND | ND | 0.010 | ND | 10.0 | |
| Antimony | ND | ND | ND | 0.001 | ND | 1.00 | |
| Arsenic | ND | ND | ND | 0.001 | ND | 1.00 | |
| Barium | ND | ND | ND | 0.010 | ND | 10.0 | |
| Beryllium | ND | ND | ND | 0.0005 | ND | 0.500 | |
| Cadmium | ND | ND | ND | 0.00025 | ND | 0.250 | |
| Calcium | ND | ND | ND | 0.050 | ND | 50.0 | |
| Chromium | ND | ND | ND | 0.002 | ND | 2.00 | |
| Cobalt | ND | ND | ND | 0.002 | ND | 2.00 | |
| Copper | ND | ND | ND | 0.002 | ND | 2.00 | |
| Iron | ND | ND | ND | 0.025 | ND | 25.0 | |
| Lead | ND | ND | ND | 0.0005 | ND | 0.500 | |
| Magnesium | ND | ND | ND | 0.050 | ND | 50.0 | |
| Manganese | ND | ND | ND | 0.005 | ND | 5.00 | |
| Mercury | ND | ND | ND | 0.00025 | ND | 0.013 | |
| Nickel | ND | ND | ND | 0.001 | ND | 1.00 | |
| Potassium | ND | ND | ND | 0.050 | ND | 50.0 | |
| Selenium | ND | ND | ND | 0.002 | ND | 2.00 | |
| Silver | ND | ND | ND | 0.0005 | ND | 0.500 | |
| Sodium | ND | ND | ND | 0.100 | ND | 100 | |
| Thallium | ND | ND | ND | 0.0001 | ND | 0.100 | |
| Vanadium | ND | ND | ND | 0.002 | ND | 2.00 | |
| Zinc | ND | ND | ND | 0.002 | ND | 2.00 | |

This QC Blank applies to the following samples:

6879-1, 3, 5, 7, 9; 6942-1~4; 6967-1; 6968-1; 6969-1
6953-1, 4, 7, 9, 11, 13, 15, 18, 27, 29; 7022-1~4; 7035-1
6996-1, 4, 7, 11, 14, 17; 7034-1~3, 6, 9, 12; 7041-1
7056-1; 7083-1~8; 7085-3; 7051-1

# *INTEGRATED ANALYTICAL LABORATORIES*

## METALS QUALITY CONTROL

## INITIAL & CONTINUING CALIBRATION VERIFICATION

Lab Case Number: E01- 6879, 6942, 6953, 6967, 6968, 6969, 6996, 7022, 7034, 7035, 7041
7051, 7056, 7083, 7085

Concentration/Units: ppb (μg/L)

| ANALYTE | INITIAL CALIBRATION | | | CONTINUING CALIBRATION | | | | | MDL | IDL |
|---|---|---|---|---|---|---|---|---|---|---|
| | TRUE | FOUND | %R (1) | TRUE | FOUND | %R (1) | FOUND | %R (1) | | |
| Aluminum | 400 | 436 | 109 | 400 | 428 | 107 | 416 | 104 | 10.0 | |
| Antimony | 120 | 132 | 110 | 120 | 131 | 109 | 114 | 95.0 | 1.00 | |
| Arsenic | 20.0 | 20.3 | 102 | 20.0 | 20.1 | 101 | 19.8 | 99.0 | 1.00 | |
| Barium | 400 | 421 | 105 | 400 | 427 | 107 | 365 | 91.3 | 10.0 | |
| Beryllium | 10.0 | 10.6 | 106 | 10.0 | 10.3 | 103 | 9.32 | 93.2 | 0.500 | |
| Cadmium | 10.0 | 10.2 | 102 | 10.0 | 10.2 | 102 | 10.1 | 101 | 0.250 | |
| Calcium | 10000 | 10300 | 103 | 10000 | 10400 | 104 | 10100 | 101 | 50.0 | |
| Chromium | 20.0 | 21.2 | 106 | 20.0 | 21.4 | 107 | 21.2 | 106 | 2.00 | |
| Cobalt | 100 | 102 | 102 | 100 | 103 | 103 | 102 | 102 | 2.00 | |
| Copper | 50.0 | 51.8 | 104 | 50.0 | 51.4 | 103 | 51.4 | 103 | 2.00 | |
| Iron | 200 | 208 | 104 | 200 | 214 | 107 | 183 | 91.5 | 25.0 | |
| Lead | 10.0 | 10.6 | 106 | 10.0 | 10.6 | 106 | 10.4 | 104 | 0.500 | |
| Magnesium | 10000 | 9920 | 99.2 | 10000 | 10100 | 101 | 10900 | 109 | 50.0 | |
| Manganese | 30.0 | 31.7 | 106 | 30.0 | 32.1 | 107 | 32.9 | 110 | 5.00 | |
| Mercury | 5.00 | 5.11 | 102 | 5.00 | 5.21 | 104 | 4.81 | 96.2 | 0.250 | |
| Nickel | 80.0 | 83.8 | 105 | 80.0 | 83.5 | 104 | 83.8 | 105 | 1.00 | |
| Potassium | 10000 | 10400 | 104 | 10000 | 10500 | 105 | 11000 | 110 | 50.0 | |
| Selenium | 10.0 | 10.5 | 105 | 10.0 | 10.6 | 106 | 11.0 | 110 | 2.00 | |
| Silver | 20.0 | 20.1 | 101 | 20.0 | 20.1 | 101 | 19.0 | 95.0 | 0.500 | |
| Sodium | 10000 | 10500 | 105 | 10000 | 10300 | 103 | 10900 | 109 | 100 | |
| Thallium | 20.0 | 21.1 | 106 | 20.0 | 21.5 | 108 | 20.9 | 105 | 0.100 | |
| Vanadium | 100 | 108 | 108 | 100 | 110 | 110 | 99.7 | 99.7 | 2.00 | |
| Zinc | 40.0 | 43.1 | 108 | 40.0 | 42.3 | 106 | 42.4 | 106 | 2.00 | |

(1) Control Limits: Mercury 80-120, Other Metals 90-110

# *INTEGRATED ANALYTICAL LABORATORIES*

## METALS QUALITY CONTROL

## ICP-MS ICSAB RESULTS SUMMARY

Lab Case Number: E01- 6879, 6942, 6953, 6967, 6968, 6969, 6996, 7022, 7034, 7035, 7041
7051, 7056, 7083, 7085

Matrix: Aqueous Concentration/Units: ppb(ug/L)

| ANALYTE / MASS | INITIAL | | |
|---|---|---|---|
| | SOL A | SOL AB | %R |
| Arsenic / 75 | 0.48 | 9.49 | 90.1 |
| Cobalt / 59 | 0.30 | 9.66 | 93.6 |
| Copper / 65 | 2.08 | 11.3 | 92.2 |
| Manganese / 55 | 3.61 | 12.9 | 92.9 |
| Nickel / 60 | 1.33 | 10.2 | 88.7 |
| Zinc / 66 | 8.14 | 16.9 | 87.6 |

| FINAL | | |
|---|---|---|
| SOL A | SOL AB | %R |
| 0.56 | 9.28 | 87.2 |
| 0.31 | 9.36 | 90.5 |
| 2.01 | 10.8 | 87.9 |
| 3.56 | 12.6 | 90.4 |
| 1.44 | 10.6 | 91.6 |
| 7.94 | 16.2 | 82.6 |

TRUE VALUE SOLN. B = 10 ppb

THERE ARE NO CONTROL LIMITS FOR SOLUTION AB

# *INTEGRATED ANALYTICAL LABORATORIES*

## METALS QUALITY CONTROL

## SPIKE SAMPLE RECOVERY

Lab Case Number: E01- 6879, 6942, 6953, 6967, 6968, 6969, 6996, 7022, 7034, 7035, 7041
7051, 7056, 7083, 7085

Matrix: Soil

Concentration/Units: ppm (mg/kg)

| ANALYTE | SSR1 | SR1 | %R1 | SA1 | SSR2 | SR2 | %R2 | SA2 | CONTROL LIMIT %R |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 3850 | 3370 | NC | 214 | 12500 | 11500 | NC | 216 | 70-130 |
| Antimony | 50.9 | ND | 119 | 42.8 | 50.6 | ND | 117 | 43.2 | 70-130 |
| Arsenic | 44.7 | ND | 104 | 42.8 | 44.4 | 1.37 | 99.6 | 43.2 | 70-130 |
| Barium | 65.7 | 19.4 | 108 | 42.8 | 105 | 60.0 | 104 | 43.2 | 70-130 |
| Beryllium | 41.2 | ND | 96.3 | 42.8 | 42.3 | 0.770 | 96.1 | 43.2 | 70-130 |
| Cadmium | 41.8 | ND | 97.7 | 42.8 | 40.0 | ND | 92.6 | 43.2 | 70-130 |
| Calcium | 1380 | 1110 | NC | 214 | 6150 | 5730 | NC | 216 | 70-130 |
| Chromium | 49.9 | 5.73 | 103 | 42.8 | 53.1 | 9.25 | 102 | 43.2 | 70-130 |
| Cobalt | 45.4 | 2.76 | 99.6 | 42.8 | 48.9 | 6.59 | 97.9 | 43.2 | 70-130 |
| Copper | 51.1 | 8.56 | 99.4 | 42.8 | 57.1 | 13.9 | 100 | 43.2 | 70-130 |
| Iron | 6120 | 5660 | NC | 214 | 17700 | 16900 | NC | 216 | 70-130 |
| Lead | 50.1 | 3.12 | 110 | 42.8 | 49.1 | 3.62 | 105 | 43.2 | 70-130 |
| Magnesium | 1930 | 1520 | NC | 214 | 4380 | 3980 | NC | 216 | 70-130 |
| Manganese | 211 | 164 | 110 | 42.8 | 471 | 424 | 109 | 43.2 | 70-130 |
| Mercury | 0.272 | ND | 101 | 0.268 | 0.274 | ND | 101 | 0.270 | 75-125 |
| Nickel | 50.5 | 6.29 | 103 | 42.8 | 50.1 | 6.46 | 101 | 43.2 | 70-130 |
| Potassium | 1190 | 956 | 109 | 214 | 1020 | 767 | 117 | 216 | 70-130 |
| Selenium | 45.2 | ND | 106 | 42.8 | 44.3 | ND | 103 | 43.2 | 70-130 |
| Silver | 42.1 | ND | 98.4 | 42.8 | 40.6 | ND | 94.0 | 43.2 | 70-130 |
| Sodium | 368 | 113 | 119 | 214 | 483 | 231 | 117 | 216 | 70-130 |
| Thallium | 43.9 | ND | 103 | 42.8 | 43.2 | ND | 100 | 43.2 | 70-130 |
| Vanadium | 52.1 | 7.71 | 104 | 42.8 | 62.6 | 18.6 | 102 | 43.2 | 70-130 |
| Zinc | 57.7 | 15.2 | 99.3 | 42.8 | 86.5 | 44.8 | 96.5 | 43.2 | 70-130 |

SSR = Spike Sample Result
SA = Spike Added

SR = Sample Result
%R = Percent Recovery

NC = Non-calculable % R; Sample concentration > 4 x Spike Concentration.

QC Sample 1 6953-029

QC Sample 2 6942-001

QC Sample 1 for following samples:
6879-1, 3, 5, 7, 9; 6942-1~4; 6967-1; 6968-1; 6969-1
6953-1, 4, 7, 9, 11, 13, 15, 18, 27, 29; 7022-1~4; 7035-1
6996-1, 4, 7, 11, 14, 17; 7034-1~3, 6, 9, 12; 7041-1
7056-1; 7083-1~8; 7085-3; 7051-1

QC Sample 2 for following samples:
6879-1, 3, 5, 7, 9; 6942-1~4; 6967-1; 6968-1; 6969-1
6953-1, 4, 7, 9, 11, 13, 15, 18, 27, 29; 7022-1~4; 7035-1
6996-1, 4, 7, 11, 14, 17; 7034-1~3, 6, 9, 12; 7041-1
7056-1; 7083-1~8; 7085-3; 7051-1

# *INTEGRATED ANALYTICAL LABORATORIES*

## METALS QUALITY CONTROL

## SPIKE SAMPLE RECOVERY

Lab Case Number: E01- 6879, 6942, 6953, 6967, 6968, 6969, 6996, 7022, 7034, 7035, 7041
7051, 7056, 7083, 7085

Matrix: Soil

Concentration/Units: ppm (mg/kg)

| ANALYTE | SSR3 | SR3 | %R3 | SA3 | SSR4 | SR4 | %R4 | SA4 | CONTROL LIMIT %R |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 4430 | 4100 | NC | 224 | | | | | 70-130 |
| Antimony | 51.7 | ND | 115 | 44.8 | | | | | 70-130 |
| Arsenic | 45.8 | ND | 102 | 44.8 | | | | | 70-130 |
| Barium | 64.8 | 19.5 | 101 | 44.8 | | | | | 70-130 |
| Beryllium | 40.0 | ND | 89.3 | 44.8 | | | | | 70-130 |
| Cadmium | 42.2 | ND | 94.2 | 44.8 | | | | | 70-130 |
| Calcium | 2920 | 2650 | 121 | 224 | | | | | 70-130 |
| Chromium | 52.7 | 6.92 | 102 | 44.8 | | | | | 70-130 |
| Cobalt | 47.6 | 3.19 | 99.1 | 44.8 | | | | | 70-130 |
| Copper | 53.8 | 10.8 | 96.0 | 44.8 | | | | | 70-130 |
| Iron | 6970 | 6800 | 75.9 | 224 | | | | | 70-130 |
| Lead | 50.9 | 3.80 | 105 | 44.8 | | | | | 70-130 |
| Magnesium | 2140 | 1880 | 116 | 224 | | | | | 70-130 |
| Manganese | 129 | 82.0 | 105 | 44.8 | | | | | 70-130 |
| Nickel | 52.2 | 7.10 | 101 | 44.8 | | | | | 70-130 |
| Potassium | 1360 | 1110 | 112 | 224 | | | | | 70-130 |
| Selenium | 45.7 | ND | 102 | 44.8 | | | | | 70-130 |
| Silver | 43.0 | ND | 96.0 | 44.8 | | | | | 70-130 |
| Sodium | 450 | 209 | 108 | 224 | | | | | 70-130 |
| Thallium | 44.5 | ND | 99.3 | 44.8 | | | | | 70-130 |
| Vanadium | 55.0 | 9.53 | 101 | 44.8 | | | | | 70-130 |
| Zinc | 62.2 | 18.5 | 97.5 | 44.8 | | | | | 70-130 |

SSR = Spike Sample Result
SA = Spike Added

SR = Sample Result
%R = Percent Recovery

NC = Non-calculable % R; Sample concentration > 4 x Spike Concentration.

QC Sample 3 6996-014

QC Sample 4 ______

QC Sample 3 for following samples:
6879-1, 3, 5, 7, 9; 6942-1¯4; 6967-1; 6968-1; 6969-1
6953-1, 4, 7, 9, 11, 13, 15, 18, 27, 29; 7022-1¯4; 7035-1
6996-1, 4, 7, 11, 14, 17; 7034-1¯3, 6, 9, 12; 7041-1
7056-1; 7083-1¯8; 7085-3; 7051-1

QC Sample 4 for following samples:

# *INTEGRATED ANALYTICAL LABORATORIES*

## METALS QUALITY CONTROL

## DUPLICATE SAMPLE RECOVERY

Lab Case Number: E01- 6879, 6942, 6953, 6967, 6968, 6969, 6996, 7022, 7034, 7035, 7041
7051, 7056, 7083, 7085

Matrix: Soil Concentration/Units: ppm (mg/kg)

| ANALYTE | CONTROL LIMIT 1 | S1 | D1 | RPD1 | CONTROL LIMIT 2 | S2 | D2 | RPD2 |
|---|---|---|---|---|---|---|---|---|
| Aluminum | 20 | 3370 | 3420 | 1.47 | 20 | 11500 | 11500 | 0 |
| Antimony | NA | ND | ND | NC | NA | ND | ND | NC |
| Arsenic | NA | ND | ND | NC | 20 | 1.37 | 1.34 | 2.21 |
| Barium | 20 | 19.4 | 20.3 | 4.53 | 20 | 60.0 | 59.0 | 1.68 |
| Beryllium | NA | ND | ND | NC | 20 | 0.770 | 0.782 | 1.55 |
| Cadmium | NA | ND | ND | NC | NA | ND | ND | NC |
| Calcium | 20 | 1110 | 1140 | 2.67 | 20 | 5730 | 5500 | 4.10 |
| Chromium | 20 | 5.73 | 5.87 | 2.41 | 20 | 9.25 | 9.39 | 1.50 |
| Cobalt | 20 | 2.76 | 2.78 | 0.722 | 20 | 6.59 | 5.55 | 17.1 |
| Copper | 20 | 8.56 | 8.47 | 1.06 | 20 | 13.9 | 14.6 | 4.91 |
| Iron | 20 | 5660 | 5880 | 3.81 | 20 | 16900 | 17300 | 2.34 |
| Lead | 20 | 3.12 | 3.28 | 5.00 | 20 | 3.62 | 3.56 | 1.67 |
| Magnesium | 20 | 1520 | 1570 | 3.24 | 20 | 3980 | 4210 | 5.62 |
| Manganese | 20 | 164 | 167 | 1.81 | 20 | 424 | 420 | 0.948 |
| Mercury | NA | ND | ND | NC | NA | ND | ND | NC |
| Nickel | 20 | 6.29 | 6.49 | 3.13 | 20 | 6.46 | 6.55 | 1.38 |
| Potassium | 20 | 956 | 1010 | 5.49 | 20 | 767 | 870 | 12.6 |
| Selenium | NA | ND | ND | NC | NA | ND | ND | NC |
| Silver | NA | ND | ND | NC | NA | ND | ND | NC |
| Sodium | 20 | 113 | 129 | 13.2 | 20 | 231 | 257 | 10.7 |
| Thallium | NA | ND | ND | NC | NA | ND | ND | NC |
| Vanadium | 20 | 7.71 | 7.68 | 0.390 | 20 | 18.6 | 19.6 | 5.24 |
| Zinc | 20 | 15.2 | 15.7 | 3.24 | 20 | 44.8 | 45.3 | 1.11 |

S1 = Sample 1
D1 = Duplicate 1

S2 = Sample 2
D2 = Duplicate 2

NA = Not Applicable
NC = Non-calculable RPD due to result (s) less than the detection limit.

QC Sample 1 6953-029

QC Sample 2 6942-001

QC Sample 1 for following samples:
6879-1, 3, 5, 7, 9; 6942-1¯4; 6967-1; 6968-1; 6969-1
6953-1, 4, 7, 9, 11, 13, 15, 18, 27, 29; 7022-1¯4; 7035-1
6996-1, 4, 7, 11, 14, 17; 7034-1¯3, 6, 9, 12; 7041-1
7056-1; 7083-1¯8; 7085-3; 7051-1

QC Sample 2 for following samples:
6879-1, 3, 5, 7, 9; 6942-1¯4; 6967-1; 6968-1; 6969-1
6953-1, 4, 7, 9, 11, 13, 15, 18, 27, 29; 7022-1¯4; 7035-1
6996-1, 4, 7, 11, 14, 17; 7034-1¯3, 6, 9, 12; 7041-1
7056-1; 7083-1¯8; 7085-3; 7051-1

## METALS QUALITY CONTROL

## DUPLICATE SAMPLE RECOVERY

Lab Case Number: E01- 6879, 6942, 6953, 6967, 6968, 6969, 6996, 7022, 7034, 7035, 7041
7051, 7056, 7083, 7085

Matrix: Soil Concentration/Units: ppm (mg/kg)

| ANALYTE | CONTROL LIMIT 3 | S3 | D3 | RPD3 | CONTROL LIMIT 4 | S4 | D4 | RPD4 |
|---|---|---|---|---|---|---|---|---|
| Aluminum | 20 | 4100 | 4280 | 4.30 | | | | |
| Antimony | NA | ND | ND | NC | | | | |
| Arsenic | NA | ND | ND | NC | | | | |
| Barium | 20 | 19.5 | 20.5 | 5.00 | | | | |
| Beryllium | NA | ND | ND | NC | | | | |
| Cadmium | NA | ND | ND | NC | | | | |
| Calcium | 20 | 2650 | 2610 | 1.52 | | | | |
| Chromium | 20 | 6.92 | 7.10 | 2.57 | | | | |
| Cobalt | 20 | 3.19 | 3.15 | 1.26 | | | | |
| Copper | 20 | 10.8 | 10.9 | 0.922 | | | | |
| Iron | 20 | 6800 | 6910 | 1.60 | | | | |
| Lead | 20 | 3.80 | 3.97 | 4.38 | | | | |
| Magnesium | 20 | 1880 | 1860 | 1.07 | | | | |
| Manganese | 20 | 82.0 | 83.8 | 2.17 | | | | |
| Nickel | 20 | 7.10 | 7.08 | 0.282 | | | | |
| Potassium | 20 | 1110 | 1190 | 6.96 | | | | |
| Selenium | NA | ND | ND | NC | | | | |
| Silver | NA | ND | ND | NC | | | | |
| Sodium | 20 | 209 | 219 | 4.67 | | | | |
| Thallium | NA | ND | ND | NC | | | | |
| Vanadium | 20 | 9.53 | 9.75 | 2.28 | | | | |
| Zinc | 20 | 18.5 | 18.8 | 1.61 | | | | |

S3 = Sample 3
D3 = Duplicate 3

S4 = Sample 4
D4 = Duplicate 4

NA = Not Applicable
NC = Non-calculable RPD due to result (s) less than the detection limit.

QC Sample 3 6996-014

QC Sample 4 ______

QC Sample 3 for following samples:
6879-1, 3, 5, 7, 9; 6942-1-4; 6967-1; 6968-1; 6969-1
6953-1, 4, 7, 9, 11, 13, 15, 18, 27, 29; 7022-1-4; 7035-1
6996-1, 4, 7, 11, 14, 17; 7034-1-3, 6, 9, 12; 7041-1
7056-1; 7083-1-8; 7085-3; 7051-1

QC Sample 4 for following samples:

# *INTEGRATED ANALYTICAL LABORATORIES*

## METALS QUALITY CONTROL

## LABORATORY CONTROL SAMPLE

Lab Case Number: E01- 6879, 6942, 6953, 6967, 6968, 6969, 6996, 7022, 7034, 7035, 7041
7051, 7056, 7083, 7085

| ANALYTE | AQUEOUS (ug/L) | | | SOLID (mg/kg) | | | |
|---|---|---|---|---|---|---|---|
| | TRUE | FOUND | %R(1) | TRUE | FOUND | LIMITS | %R(2) |
| Aluminum | | | | 5760 | 6060 | 3750-7760 | 105 |
| Antimony | | | | 26.2 | 7.92 | D.L.-53.1 | 30.2 |
| Arsenic | | | | 36.2 | 38.2 | 26.9-45.4 | 106 |
| Barium | | | | 117 | 123 | 90.2-144 | 105 |
| Beryllium | | | | 59.4 | 74.3 | 60.4-93.7 | 125 |
| Cadmium | | | | 35.6 | 33.9 | 27.4-43.8 | 95.2 |
| Calcium | | | | 1320 | 1300 | 989-1660 | 98.5 |
| Chromium | | | | 108 | 108 | 79.2-137 | 100 |
| Cobalt | | | | 67.2 | 60.8 | 53.4-80.9 | 90.5 |
| Copper | | | | 63.7 | 60.9 | 52.2-75.2 | 95.6 |
| Iron | | | | 7540 | 6850 | 4290-10800 | 90.8 |
| Lead | | | | 52.4 | 54.0 | 37.3-67.6 | 103 |
| Magnesium | | | | 1190 | 1200 | 815-1570 | 101 |
| Manganese | | | | 151 | 151 | 128-189 | 100 |
| Mercury | | | | 1.00 | 1.03 | .614-1.39 | 103 |
| Nickel | | | | 49.8 | 49.3 | 39-60.6 | 99.0 |
| Potassium | | | | 2130 | 1910 | 1660-2600 | 89.7 |
| Selenium | | | | 56.8 | 47.3 | 41-72.6 | 83.3 |
| Silver | | | | 34.1 | 36.3 | 25.4-42.9 | 106 |
| Sodium | | | | 487 | 651 | 354-911 | 134 |
| Thallium | | | | 68.2 | 69.4 | 39-97.3 | 102 |
| Vanadium | | | | 80.0 | 78.6 | 54.6-105 | 98.3 |
| Zinc | | | | 151 | 137 | 117-185 | 90.7 |

(1) Control Limits = 90-110%

(2)Manufacture's Recomended Limits

Aqueous LCS Source: MV Laboratories

Solid LCS Source: Environmental Resource Associates: PriorityPollutnT/CLP Inorganics Soils

# *INTEGRATED ANALYTICAL LABORATORIES*

## METALS QUALITY CONTROL

## SERIAL DILUTIONS & POST SPIKES

Lab Case Number: E01- 6879, 6942, 6953, 6967, 6968, 6969, 6996, 7022, 7034, 7035, 7041
7051, 7056, 7083, 7085

Matrix: Soil

Concentration/Units: ppm (mg/kg)

| ANALYTE | SERIAL DILUTION |  | % Difference | POST SPIKE |  | % Recovery |
|---|---|---|---|---|---|---|
|  | SR | SDR |  | SPR | SA |  |
| Aluminum | 3370 | 3600 | 6.60 |  |  |  |
| Antimony | ND |  |  | 41.5 | 42.8 | 97.0 |
| Arsenic | ND |  |  | 41.8 | 42.8 | 97.7 |
| Barium | 19.4 | 19.5 | 0.514 |  |  |  |
| Beryllium | ND |  |  | 42.6 | 42.8 | 99.5 |
| Cadmium | ND |  |  | 40.8 | 42.8 | 95.3 |
| Calcium | 1110 | 1150 | 3.54 |  |  |  |
| Chromium | 5.73 | 5.53 | 3.55 |  |  |  |
| Cobalt | 2.76 | 2.82 | 2.15 |  |  |  |
| Copper | 8.56 | 8.35 | 2.48 |  |  |  |
| Iron | 5660 | 5700 | 0.704 |  |  |  |
| Lead | 3.12 | 3.01 | 3.59 |  |  |  |
| Magnesium | 1520 | 1630 | 6.98 |  |  |  |
| Manganese | 164 | 166 | 1.21 |  |  |  |
| Mercury | ND |  |  | 0.276 | 0.268 | 103 |
| Nickel | 6.29 | 6.46 | 2.67 |  |  |  |
| Potassium | 956 | 916 | 4.27 |  |  |  |
| Selenium | ND |  |  | 40.9 | 42.8 | 95.6 |
| Silver | ND |  |  | 42.3 | 42.8 | 98.8 |
| Sodium | 113 |  |  | 944 | 856 | 97.1 |
| Thallium | ND |  |  | 44.0 | 42.8 | 103 |
| Vanadium | 7.71 | 7.70 | 0.130 |  |  |  |
| Zinc | 15.2 | 15.2 | 0 |  |  |  |

SR = Sample Result
SDR = Sample Dilution Result

SPR = Sample Post Spike Result
SA = Spike Added

Control Limits: (+) or (-) 10% Difference or 85 - 115% Recovery

QC Sample : 6953-029

QC Sample for following samples:
6879-1, 3, 5, 7, 9; 6942-1¯4; 6967-1; 6968-1; 6969-1
6953-1, 4, 7, 9, 11, 13, 15, 18, 27, 29; 7022-1¯4; 7035-1
6996-1, 4, 7, 11, 14, 17; 7034-1¯3, 6, 9, 12; 7041-1
7056-1; 7083-1¯8; 7085-3; 7051-1

Integrated Analytical Labs
273 Franklin Road
Randolph, NJ 07869
10/15/01

Certified for NJDEP, NY(DOH)
NJ ID#14751
NY ID#11402

# General Chemistry Quality Control

**Matrix:** Soil
**Units:** S-mg/Kg

**Batch ID:** AP024-0114

## Blank

| Parameter | Method Blank | MDL | Analysis Date |
|---|---|---|---|
| Total Recoverable Phenols | ND | 2.50 | 10/12/01 |

## Duplicate Recovery

| Parameter | QC Sample | Result | Duplicate Result | RPD | RPD Limits |
|---|---|---|---|---|---|
| Total Recoverable Phenols | 7034-001S | 53.7 | 53.3 | 1 | 20 |

## Spike Recovery

| Parameter | QC Sample | Result | Spike Added | Spike Result | %Spike Recovery | %Rec. Limits |
|---|---|---|---|---|---|---|
| Total Recoverable Phenols | 7034-001 | ND | 55.2 | 53.7 | 97.3 | 75 - 125 |

The above blank result applies to the follow samples E01-

7034-001
7034-001D
7034-001S
7034-001SD
7034-002
7034-003
7034-006
7034-009
7034-012
7023-001
7023-002
7023-004
7023-005
7023-006
7023-007
7023-008
7023-010
7023-011
7023-013
7023-014
7023-015
7023-016
7041-001

++ = No Flash - Sample boiled at 100C
NA = Not Applicable
ND = Not Detected
NC = Non calculable RPD due to value less than the detection limit
No = Does Not Ignite
Yes = Sample Ignites

Integrated Analytical Labs
273 Franklin Road
Randolph, NJ 07869
10/24/01

Certified for NJDEP, NY(DOH)
NJ ID#14751
NY ID#11402

# General Chemistry Quality Control

Matrix: Soil
Units: S-mg/Kg

Batch ID: AP013-0098

## Blank

| Parameter | Method Blank | MDL | Analysis Date |
|---|---|---|---|
| Total Cyanide | ND | 1.00 | 10/23/01 |

## Duplicate Recovery

| Parameter | QC Sample | Result | Duplicate Result | RPD | RPD Limits |
|---|---|---|---|---|---|
| Total Cyanide | 7041-001S | 15.5 | 15.2 | 2 | 20 |

## Spike Recovery

| Parameter | QC Sample | Result | Spike Added | Spike Result | %Spike Recovery | %Rec. Limits |
|---|---|---|---|---|---|---|
| Total Cyanide | 7041-001 | ND | 0 | 15.5 | 112 | 75 - 125 |

The above blank result applies to the follow samples E01-

7041-001
7041-001D
7041-001S
7041-001SD
7129-001
7213-001
7288-001
7288-002
7289-001
7289-002
7320-001
7320-006
7314-001
7314-002
7314-003
7314-004
7314-005
7314-006

++ = No Flash - Sample boiled at 100C
NA = Not Applicable
ND = Not Detected
NC = Non calculable RPD due to value less than the detection limit
No = Does Not Ignite
Yes = Sample Ignites

Fax # (973) 989-5288

# INTEGRATED ANALYTICAL LABORATORIES
# CHAIN OF CUSTODY

273 Franklin Rd
Randolph, NJ 07869

## CLIENT & PROJECT

Company Name: Brenn Environmental (BEZ)
Address: 8 Great Meadow Lane
East Hanover NJ
Telephone #: (973) 781-1801
Fax #: 781-1804
Project Name: 97704 Firetex
Project Manager: John Brennan
Reference ID#: 97704 PO#:

## REPORTING

Fax to: BEZ
Fax #:
Report to: BEZ
Address:
Invoice to: BEZ
Address:

## Turnaround Time

**Conditional / TPHC**
24 hr* 48 hr 72 hr 1 wk NA Other: Std

**Verbal/Fax**
24 hr* 48 hr* 72 hr* 1 wk* 2 wk Other: Std

**Hard Copy**
72 hr* 1 wk* 2 wk* 3 wk Other: Std

*Prior to sample arrival, Lab notification is required.

## Report Format

Results Only
[✓ Reduced]
Regulatory
SRP Disk** [✓ dbf] or wkl
Other:

## ANALYTICAL PARAMETERS / PRESERVATIVES

** Circle format required

Preservatives:
1. HCL 3. HNO$_3$
2. NaOH 4. H$_2$SO$_4$
[✓ 5. MeOH] 6. Other

COOLER TEMP. 4 °C

## SAMPLE INFORMATION

SAMPLE MATRIX
W - Waste SL - Sludge A - Aqueous
O - Oil X - Other S - Soil
GW - Groundwater SOL - Solid

| Sample ID | Sample Description | Sampling Date | Sampling Time | am | pm | Matrix | # of Containers | Lab ID | ~~TPH~~ VO+10* <br> 1 2 3 4 5 6 | PP+40 <br> 1 2 3 4 5 6 | 1 2 3 4 5 6 | 1 2 3 4 5 6 | 1 2 3 4 5 6 | 1 2 3 4 5 6 | 1 2 3 4 5 6 | 1 2 3 4 5 6 | 1 2 3 4 5 6 | 1 2 3 4 5 6 | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5-F1 | fill material | 10/11/01 | 10:17 | ✓ | | S | 2 | 1 | X | X | | | | | | | | | |

Please print legibly and fill out completely. Samples cannot be processed and the turnaround time will not start until any ambiguities have been resolved.

Concentrations Expected: [✓ LOW] MED HIGH
Known Hazard: yes no
Describe:

## CUSTODY LOG

| | Signature | Date | Time | | Signature |
|---|---|---|---|---|---|
| Relinquished by: | | 10/11/01 | 1830 | Received by: | |
| Relinquished by: | | 10/11/01 | 1910 | Received by: | |
| Relinquished by: | | | | Received by: | |
| Relinquished by: | | | | Received by: | |
| Relinquished by: | | | | Received by: | |

Comments: * Conditional VO+10 analysis on 25% of the highest samples with TPH results greater than 1,000ppm

Lab Case # 7041

PAGE: 1 OF 1

LAB COPIES - WHITE & YELLOW; CLIENT COPY - PINK

# CHAIN OF CUSTODY

Case No.: E01-7041
Project : 99704 FINETEX
Client/Project: BRENNAN/99704 FINETEX
Client Address:
Brennan Environmental, Inc.
8 Great Meadow Lane
Unit D
East Hanover, NJ 07936
Date Received: 10/11/01
Time Received: 19:10
Report Format: Reduced

P.O. #: ____________________
Billing Address:
Brennan Environmental, Inc.
8 Great Meadow Lane
Unit D
East Hanover, NJ 07936
Verbal Due: Oct 26
Report Due: Nov 2

| | |
|---|---|
| # of Containers | 2 |
| IAL ID # | 7041-001 |
| Client ID # | 5-F1 |
| | |
| | |
| Matrix | Soil |
| Sample Date | 10/11/01 |
| Sample Time | 10:17 |
| Methanol Kit | √ |
| VO+15, PP MP | √ |
| Pesticides | √ |
| PCB | √ |
| BNA + 25 | √ |
| PP Metals-HIGH | √ |
| Cyanide, Total | √ |
| Ttl Rec Phenols | √ |
| % Solids | √ |
| Electronic Del. | √ |

omments:

# INTEGRATED ANALYTICAL LABORATORIES, LLC

## SAMPLE RECEIPT VERIFICATION

CASE NO: 7041 CLIENT: BEI

COOLER TEMPERATURE: 2° - 6°C: ✓ ( See Chain of Custody)

CHAIN OF CUSTODY: [✓ COMPLETE] / INCOMPLETE Comments:

Sample Bottles Intact: ✓ Comments:
Sample Labels Intact/ Correct: ✓
Sufficient Sample Volume: ✓
Correct bottles/ preservative: ✓
Samples received in holding time/ prep time: ✓
Headspace/ bubbles in voa samples:
Samples to be subcontracted: (✓)

Preserved Sample pH checked: (✓)
(Excluding voa samples)

**KEY**
✓ = YES
✗ = NO
(✓) = N/A

ADDITIONAL COMMENTS:

SAMPLE(S) VERIFIED BY: INITIAL RK DATE 10/11/06

**CORRECTIVE ACTION REQUIRED:** **YES** ☐ (SEE BELOW) **NO** ☐

---

CLIENT NOTIFIED: YES ☐ Date/ Time: NO ☐

PROJECT CONTACT:

SUBCONTRACTED LAB:

DATE SHIPPED:

ADDITIONAL COMMENTS:

VERIFIED/TAKEN BY: INITIAL DATE ☐

Integrated Analytical Laboratories, LLC.

## Laboratory Custody Chronicle

Case No : E01-7041
Client : Brennan Environmental, Inc.
Project : 99704 FINETEX

| | | | EXTRACT | | | ANALYSIS | | |
|---|---|---|---|---|---|---|---|---|
| | | | DATE | TIME | INITIAL | DATE | TIME | INITIAL |
| | GC/MS V | | | | | | | |
| Methanol Kit | 7041-001 | S | | | | 10/16 | | DR |
| VO+15, PP MP | 7041-001 | S | | | | | | |
| | GC EX | | | | | | | |
| Pesticides | 7041-001 | S | 10/15 | 900 | EDM2 | 10.16 | 330 | VG |
| PCB | 7041-001 | S | | | | 10.16 | 400 | M |
| | GC/MS X | | | | | | | |
| BNA + 25 | 7041-001 | S | 10/15 | 700.30 | DC | 10/15 | | JC |
| | METALS | | | | | | | |
| PP Metals-HIGH | 7041-001 | S | 10/15/01 | 9 | [illegible] | 10/15 | 1200 | K |
| | WETCHEM | | | | | | | |
| Cyanide, Total | 7041-001 | S | 10/22 | 800 | JB | 10/23 | 1215 | MK |
| Ttl Rec Phenols | 7041-001 | S | 10/12 | 800 | DM | 10/18 | 1300 | MK |
| % Solids | 7041-001 | S | 10/12 | | KC | | | |
| | AIR | | | | | | | |
| Electronic Del. | 7041-001 | S | — | | | — | | |

REVIEW & APPROVAL: Cindy Nguyen
REMARKS :