FINAL REPORT

EPA Region 5 Records Ctr.
256710

ECC

# Ground Water Investigation Report

## *Environmental Conservation and Chemical Corporation Site Zionsville, Indiana*

*VOLUME 1 OF 2*

December 1997

Project No. 91112

**Environmental Resources Management**
704 N. Deerpath Drive
Vernon Hills, Illinois 60061

ERM®

*ATTACHMENT C*

*ANALYTICAL RESULTS FROM*
*HERITAGE ENVIRONMENTAL SERVICES*

**HERITAGE ENVIRONMENTAL SERVICES, INC.**

7901 West Morris Street
Indianapolis, IN 46231
Phone: 317/243-0811
FAX: 317/486-5085
Internet: http://www.heritage-enviro.com

# QUALITY ASSURANCE REPORT PACKAGE # 5342 & 5347

for ERM - North Central

Paul Kopydlowski
ERM North Central Inc.
704 Deerpath Drive
Vernon Hills, IL 60061
(847)680 - 6868

**Sample Numbers: A416935-937 and A417040-041**

Prepared by: Heritage Environmental Services, Inc.
Commercial Laboratory Operations
7901 West Morris Street
Indianapolis, IN 46231
(317) 243 - 8304

Approved By: Kurt Maines 9/8/97
Project Chemist

Recycled Paper

CONTENTS

TABLE OF CONTENTS 1

CHAIN OF CUSTODY/ CASE NARRATIVE 2

METALS QA/QC REPORT 3

GENERAL INORGANIC CHEMISTRY QA/QC REPORT 4

GC/MS QA/QC REPORT 5

LIMS CERTIFICATE OF ANALYSIS REPORT 6

LIMS QUALITY ASSURANCE REPORT 7

8

**HERITAGE ENVIRONMENTAL SERVICES, INC.**

7901 West Morris Street
Indianapolis, IN 46231
Phone: 317/243-0811
FAX: 317/486-5085

## CASE NARRATIVE
## SHIPPING & RECEIVING

The samples A416935-A416937 and A417040-A417041 were intact at the time of receipt on 14-Aug-97 and 15-Aug-97 respectively. The samples were logged in and distributed to the appropriate groups for the requested testing.

Chirstopher B Boyle

Recycled Paper

TO ENSURE PROPER HANDLING OF SA. ES PLEASE COMPLETE THIS ENTIRE FORM

# HERITAGE ENVIRONMENTAL SERVICES

## COMMERCIAL LABORATORY OPERATIONS

7901 West Morris Street
Indianapolis, Indiana 46231 (317) 243-0811 Fax (317) 486-5095

I-[illegible]

Co. Name: ERM-NORTH CENTRAL

Project Name: ECC

Quote No.:

PO No.: 91112RH

ENVIRONMENTAL PROGRAM:

CWA NPDES ____ IWP ____ SLUDGE ____

RCRA MW ____ SW ____ DISPOSAL ____

SDWA ____ CERCLA/SUPERFUND X OTHER ____

Sampled by:

Analyses Requested (Note special detection limits or methods)

Report To:
Co: ERM-NORTH CENTRAL
Add: 540 LAKE COOK ROAD #300
DEERFIELD, IL 60015
Attn: PAUL KOPYDLOWSKI
Phone: (847) 940-7200

Accelerated Turnaround Requested 48 HR (Subject to Additional Charge)

Result Request by: 8 / 18 / 97 (Mo / Day / Yr)

(Date must be Accepted and Approved by Lab)

| Client ID: | Date: | Time: | Comp | Grab | Sample Description | Sample Type (Matrix): DW, GW, WW, Soil, Oil, Sludge, Other | No. of Containers | Site Specific VOCs | Site Specific Metals | Cyanide | Chromium VI | | | | | | | Remarks: | LAB Sample No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 8/14/97 | 1200 AM PM | | X | ECC1TIW | GW | 18 | 9 | 3 | 3 | 3 | Extra Volume for MS/MSD | | | | | | • COOLED WITH ICE | A41635 |
| | 8/14/97 | 1200 AM PM | | X | ECC1TIWD | GW | 6 | 3 | 1 | 1 | 1 | | | | | | | • VOC SAMPLES PRESERVED WITH HCl | 936 |
| | 8/14/97 | 1500 AM PM | | X | ECC1TB1W | GW | 2 | 2 | | | | | | | | | | | 937 |
| | | AM PM | | | | | | | | | | | | | | | | | |
| | | AM PM | | | • RUSH ANALYSIS REQUESTED 48 HR | | | | | | | | | | | | | • METALS SAMPLE WERE FIELD FILTERED AND PRESERVED W/ HNO3 | |
| | | AM PM | | | | | | | | | | | | | | | | • CYANIDE SAMPLES PRESERVED W/ NaOH | |
| | | AM PM | | | • CLP-LIKE (EQUIVALENT) DATA PACKAGE REQUIRED (TO FOLLOW) | | | | | | | | | | | | | | |
| | | AM PM | | | | | | | | | | | | | | | | | |
| | | AM PM | | | • ADDITIONAL SAMPLE TO BE DELIVERED TOMORROW. | | | | | | | | | | | | | | |

| Relinquished by: (Signature) | Date/Time | Received by: (Signature) | Relinquished by: (Signature) | Date/Time | Received by: (Signature) |
|---|---|---|---|---|---|
| Paul J. Kopydlowski | 8/14/97 15 | | | / | |
| Relinquished by: (Signature) | Date/Time | Received by: (Signature) | Relinquished by: (Signature) | Date/Time | Received by: (Signature) |
| | / | | | / | |
| Relinquished by: (Signature) | Date/Time | Received for Lab by: (Signature) | Date/Time | Remarks | |
| | / | Victor Hunter | 8/14/97 3:35pm | | |

Properly Preserved ____

Broken Bottles ____

Distribution: White original and Yellow copy to accompany sample to laborat[illegible]
Pink copy to h[illegible]ained by client.

Rev 6/95

TO ENSURE PROPER HANDLING OF SA .ES PLEASE COMPLETE THIS ENTIRE FORM

# HERITAGE ENVIRONMENTAL SERVICES

## COMMERCIAL LABORATORY OPERATIONS

7901 West Morris Street
Indianapolis, Indiana 46231 (317) 243-0811 Fax (317) 486-5095

I-

Co. Name: ERM-NORTH CENTRAL
Project Name: ECC
Quote No.:
PO No.: 91112 RH

ENVIRONMENTAL PROGRAM:
CWA NPDES ____ IWP ____ SLUDGE ____
RCRA MW ____ SW ____ DISPOSAL ____
SDWA ____ CERCLA/SUPERFUND X OTHER ____

Sampled by:

Analyses Requested (Note special detection limits or methods)

Report To:
Co: ERM-NORTH CENTRAL
Add: 540 LAKE COOK RD
SUITE 300
DEERFIELD, IL 60015
Attn: PAUL KOPYDLOWSKI
Phone: (847) 940-7200

Accelerated Turnaround Requested (Subject to Additional Charge) 48HR

Result Request by: 8 / 18 / 97 (Mo / Day / Yr)

(Date must be Accepted and Approved by Lab)

| Client ID: | Date: | Time: | Comp | Grab | Sample Description | Sample Type (Matrix): DW, GW, WW, Soil, Oil, Sludge, Other | No. of Containers | S.A. Specific VOCs | S.A. Specific Metals | Cyanide | Chromium VI | Remarks: | LAB Sample No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 8/15/97 | 0830 AM PM | | X | ECCITSW | LW | 4 | 3 | 1 | 1 | 1 | • Cooled w/ ice | A417040 |
| | 8/15/97 | AM PM | | X | ECCITB2W | LW | 2 | | | | 1/2 l. | | A417041 |
| | | AM PM | | | | | | | | | | • VOC samples Preserved w/ HCl | |
| | | AM PM | | | | | | | | | | | |
| | | AM PM | | | | | | | | | | | |
| | | AM PM | | | • RUSH ANALYSIS REQUIRED 48 HR | | | | | | | • Metals Samples were Field-Filtered and Preserved w/ $HNO_3$ | |
| | | AM PM | | | | | | | | | | | |
| | | AM PM | | | • CLP-LIKE (EQUIVALENT) DATA PACKAGE REQUIRED | | | | | | | | |
| | | AM PM | | | | | | | | | | • ~~Cyanide Samples Preserved w/ NaOH~~ | |
| | | AM PM | | | | | | | | | | | |
| | | AM PM | | | • SAMPLING COMPLETE | | | | | | | | |

| Relinquished by: (Signature) | Date/Time | Received by: (Signature) | Relinquished by: (Signature) | Date/Time | Received by: (Signature) |
|---|---|---|---|---|---|
| Paul J. Kopydlowski | 8/15/97 | | | / | |
| Relinquished by: (Signature) | Date/Time | Received by: (Signature) | Relinquished by: (Signature) | Date/Time | Received by: (Signature) |
| | / | | | / | |
| Relinquished by: (Signature) | Date/Time | Received for Lab by: (Signature) | Date/Time | Remarks | |
| | / | Victor Martin | 8/15/97 10:55 | | |

Properly Preserved ____
Broken Bottles ____

Distribution: White original and Yellow copy to accompany sample to laboratory.
Pink copy to br ained by client.

Rev. 6/95

**HERITAGE ENVIRONMENTAL SERVICES, INC.**

7901 West Morris Street
Indianapolis, IN 46231
Phone: 317/243-0811
FAX: 317/486-5095

# CASE NARRATIVE

## METALS SECTION

SAMPLE # A416935-936; A417040

These samples were analyzed using the normal procedures with no modifications.

Steven J Endersen 8-20-97

Steven J Endersen, Senior Chemist

2

Recycle Paper

August 20, 1997

m 104

m 104

U. S. EPA -CLP

# COVER PAGE - INORGANIC ANALYSIS DATA PACKAGE

Lab Name : Heritage

Contract : ERM-NC - CLP

Lab Code: Metals

Case No. : _____

SAS No. : _____

SDG No.: _____

Instrument ID Number : _____

Method : _____

| EPA Sample No. | Lab Sample No. |
|---|---|
| | A416935 |
| | 936 |
| | A417040 |

water

Were ICP interelement corrections applied? Yes/No __ yes

Were ICP background corrections applied? Yes/No __ yes

If yes-were raw data generated before application of background corrections? Yes/No __ no

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature : _____

Name : _____

Title : _____

**HERITAGE ENVIRONMENTAL SERVICES, INC.**

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Indianapolis, IN 46231
Phone: 317/243-0811
FAX: 317/486-5095

# CASE NARRATIVE

## METALS SECTION

SAMPLE # A416935-936; A417040

These samples were analyzed using the normal procedures with no modifications.

Steven J Endersen 8-20-97

Steven J Endersen, Senior Chemist

2

Recycled Paper

U. S. EPA -CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Heritage Contract : _____

Lab Code: _____ Case No. : _____ SAS No. : _____ SDG No.: _____

Initial Calibration Source : Perkin-Elmer

Continuing Calibration Source : Inorganic Ventures

Concentration Units: uG/L

| Analyte | Initial Calibration True | Initial Calibration Found | Initial Calibration % R (1) | Continuing Calibration True | Continuing Calibration Found | Continuing Calibration % R (1) | Found | % R (1) | | M |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 233327 | | 156 | | | |
| Antimony | 1000 | 1010 | 101 | 1000 | 982 | 98.2 | 960 | 96 | | P |
| Arsenic | 50 | 429 | 95.8 | 100 | 94.5 | 94.5 | 929 | 92.9 | | P |
| Barium | 1000 | 995 | 99.5 | 5000 | 4860 | 97.2 | 4880 | 97.6 | | P |
| Beryllium | 50 | 48.0 | 96.0 | 100 | 94.8 | 94.8 | 94.3 | 94.3 | | P |
| Cadmium | 1000 | 1020 | 102 | 5000 | 4760 | 95.2 | 4780 | 95.6 | | P |
| Lead | 1000 | 1020 | 102 | 5000 | 4810 | 96.2 | 4810 | 96.2 | | P |
| Manganese | 1000 | 1010 | 101 | 5000 | 4810 | 96.2 | 4820 | 96.4 | | P |
| Nickel | 1000 | 1010 | 101 | 5000 | 4760 | 95.2 | 4780 | 95.6 | | P |
| Silver | 500 | 519 | 104 | 1000 | 956 | 95.6 | 954 | 95.4 | | P |
| Tin | 2000 | 2130 | 107 | 5000 | 4660 | 93.2 | 4660 | 93.2 | | P |
| Vanadium | 1000 | 1000 | 100 | 5000 | 4830 | 96.6 | 4850 | 97 | | P |
| Zinc | 1000 | 1010 | 101 | 5000 | 4830 | 96.6 | 4830 | 96.6 | | P |

*ICP Analytical Run Time* (1) Control Limits: Mercury 80-120: Other Metals 90-110: Cyanide 85-115.

FORM II (Part 1) - IN

U. S. EPA -CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: HES - Commercial Laboratories Contract : _____

Lab Code: _____ Case No. : _____ SAS No. : _____ SDG No.: _____

Initial Calibration Source : Perkin-Elmer

Continuing Calibration Source : Inorganic Ventures

Concentration Units: uG/L

| Analyte | Initial Calibration True | Initial Calibration Found | Initial Calibration % R (1) | Continuing Calibration True | Continuing Calibration Found | Continuing Calibration % R (1) | Found | % R (1) | | M |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 14400 | | | | | |
| Antimony | | | | 1000 | 978 | 97.8 | | | | P |
| Arsenic | | | | 100 | 920 | 92.0 | 96.3 | 96.3 | | P |
| Barium | | | | 5000 | 4860 | 97.2 | | | | P |
| Beryllium | | | | 100 | 93.6 | 93.6 | 96.6 | 96.6 | | P |
| Cadmium | | | | 5000 | 4760 | 95.2 | | | | P |
| Lead | | | | 5000 | 4820 | 96.4 | | | | P |
| Manganese | | | | 5000 | 4790 | 95.8 | | | | P |
| Nickel | | | | 5000 | 4780 | 95.6 | | | | P |
| Silver | | | | 1000 | 961 | 96.1 | | | | P |
| Tin | | | | 5000 | 4770 | 95.4 | | | | P |
| Vanadium | | | | 5000 | 4840 | 96.8 | | | | P |
| Zinc | | | | 5000 | 4870 | 97.4 | | | | P |

*ICP Analytical Run Time*

(1) Control Limits: Mercury 80-120: Other Metals 90-110: Cyanide 85-115.

FORM II (Part 1) - IN

U. S. EPA -CLP

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: Heritage Contract : _____

Lab Code: _____ Case No. : _____ SAS No. : _____ SDG No.: __

AA CRDL Calibration Source : Inorganic Ventures

ICP CRDL Calibration Source : Inorganic Ventures

Concentration Units: uG/L

| Analyte | CRDL Standard for AA | | | CRDL Standard for ICP | | | | | | M |
|---|---|---|---|---|---|---|---|---|---|---|
| | True | Found | % R | True | Initial Found 232218 | % R | Final Found 13631 | % R | | |
| Antimony | | | | 120 | 129 | 108 | 117 | 97.5 | | P |
| Arsenic | | | | 20 | 18.7 | 93.5 | 17.1 | 85.5 | | P |
| Barium | | | | NA | | | | | | |
| Beryllium | | | | 10 | 9.33 | 93.3 | 9.60 | 96.0 | | P |
| Cadmium | | | | 10 | 7.74 | 77.4 | 8.45 | 84.5 | | P |
| Lead | | | | 100 | 87.7 | 87.7 | 92.9 | 92.9 | | P |
| Manganese | | | | 30 | 29.2 | 97.3 | 28.1 | 93.7 | | P |
| Nickel | | | | 80 | 82.2 | 103 | 81.3 | 102 | | P |
| Silver | | | | 20 | 16.6 | 83 | 22.3 | 112 | | P |
| Tin | | | | NA | | | | | | |
| Vanadium | | | | 100 | 101 | 101 | 98.6 | 98.6 | | P |
| Zinc | | | | 40 | 37.4 | 93.5 | 36.4 | 91 | | P |

U. S. EPA -CLP

3

BLANKS

Lab Name: Heritage Contract : _____

Lab Code: _____ Case No. : ___ SAS No. : ___ SDG No.: _____

Preparation Blank Matrix : Water

Preparation Blank Concentration Units (uG/L or mG/kG) : uG/L

| Analyte | Initial Calibration Blank (uG/L) | C | Continuing Calibration Blank (uG/L) 1 | C | 2 | C | 3 | C | Preparation Blank | C | M |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 230647 | | 231643 | | 233615 | | 425 | | 233844 | | |
| Antimony | 15 | U | 15 | U | 16 | B | 15 | U | 15 | U | P |
| Arsenic | 3.4 | U | 3.4 | U | 3.4 | U | 3.4 | U | 3.4 | U | P |
| Barium | 1.6 | B | 0.86 | U | 0.97 | B | 2.3 | B | 0.86 | U | P |
| Beryllium | 0.068 | U | 0.068 | U | 0.068 | U | 0.090 | B | 0.23 | B | P |
| Cadmium | 6.7 | B | 2 | U | 3.4 | B | 6.2 | B | 2 | U | P |
| Lead | 17 | U | 17 | U | 17 | U | 17 | U | 17 | U | P |
| Manganese | 1.2 | U | -1.5 | B | 1.2 | U | 1.2 | U | 1.2 | U | P |
| Nickel | 4.6 | U | 4.6 | U | 4.6 | U | 4.7 | B | 4.6 | U | P |
| Silver | 4.6 | U | 4.6 | U | 4.6 | U | 4.6 | U | 4.6 | U | P |
| Tin | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U | P |
| Vanadium | 2 | B | 1.9 | U | 1.9 | U | 2.8 | B | 1.9 | U | P |
| Zinc | 22 | B | 2 | U | 12 | B | 9.3 | B | 16 | B | P |

*ICP Analytical Run Time*

FORM III -IN

3
BLANKS

Lab Name: HES - Commercial Laboratories Contract : _____

Lab Code: _____ Case No. : ___ SAS No. : ___ SDG No.: _____

Preparation Blank Matrix : _____

Preparation Blank Concentration Units (uG/L or mG/kG) : _____

| Analyte | Initial Calibration Blank (uG/L) | C | Continuing Calibration Blank (uG/L) 4 14630 | C | 5 | C | 6 | C | Preparation Blank | C | M |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | | | 15 | U | | | | | | | P |
| Arsenic | | | 3.4 | U | | | | | | | P |
| Barium | | | 1.4 | B | | | | | | | P |
| Beryllium | | | 0.17 | B | | | | | | | P |
| Cadmium | | | 2 | U | | | | | | | P |
| Lead | | | 17 | U | | | | | | | P |
| Manganese | | | 1.2 | U | | | | | | | P |
| Nickel | | | 4.6 | U | | | | | | | P |
| Silver | | | 4.6 | U | | | | | | | P |
| Tin | | | 10 | U | | | | | | | P |
| Vanadium | | | 1.9 | U | | | | | | | P |
| Zinc | | | 2.3 | B | | | | | | | P |

*ICP Analytical Run Time*

FORM III -IN

U. S. EPA -CLP

4

ICP INTERFERENCE CHECK SAMPLE

Lab Name: Heritage Contract : _____

Lab Code: _____ Case No. : _____ SAS No. : _____ SDG No.: ___

ICP ID Number : 32 ICS Source : Perkin-Elmer

Date of Analysis : 18-Aug-97

Concentration Units: uG/L

| Analyte | True Sol. A | True Sol. AB | Initial Found Sol. A | Initial Found Sol. AB | Initial Found % R | Final Found Sol. A | Final Found Sol. AB | Final Found % R |
|---|---|---|---|---|---|---|---|---|
| Aluminum | | 500,000 | | 502,000 | 100 | | 496,000 | 99.2 |
| Antimony | | 600 | | 612 | 102 | | 578 | 96.3 |
| Arsenic | | 100 | | | | | | |
| Barium | | 500 | | 499 | 99.8 | | 494 | 98.8 |
| Beryllium | | 500 | | 459 | 91.8 | | 459 | 91.8 |
| Cadmium | | 1,000 | | 890 | 89 | | 886 | 88.6 |
| Calcium | | 500,000 | | 474,000 | 94.8 | | 473,000 | 94.6 |
| Chromium | | 500 | | 452 | 90.4 | | 449 | 89.8 |
| Cobalt | | 500 | | 455 | 91 | | 454 | 90.8 |
| Copper | | 500 | | 488 | 97.6 | | 467 | 93.4 |
| Iron | | 200,000 | | 178,000 | 89 | | 178,000 | 89 |
| Lead | | 1,000 | | 938 | 93.8 | | 933 | 93.3 |
| Magnesium | | 500,000 | | 500,000 | 100 | | 496,000 | 99.2 |
| Manganese | | 500 | | 466 | 93.2 | | 461 | 92.2 |
| Mercury | | | | | | | | |
| Nickel | | 1,000 | | 874 | 87.4 | | 872 | 87.2 |
| Potassium | | | | | | | | |
| Selenium | | 50 | | | | | | |
| Silver | | 200 | | 206 | 103 | | 203 | 102 |
| Sodium | | | | | | | | |
| Thallium | | 100 | | | | | | |
| Vanadium | | 500 | | 470 | 94 | | 468 | 93.6 |
| Zinc | | 1,000 | | 961 | 96.1 | | 951 | 95.1 |
| | | | | | | | | |

FORM IV - IN

U. S. EPA -CLP

4

# ICP INTERFERENCE CHECK SAMPLE

Lab Name: Heritage Contract : _____

Lab Code: _____ Case No. : _____ SAS No. : _____ SDG No.: ___

ICP ID Number : Trace ICS Source : Perkin-Elmer

Date of Analysis : 19-Aug-97

Concentration Units: uG/L

| Analyte | True Sol. A | True Sol. AB | Initial Found Sol. A | Initial Found Sol. AB | Initial Found % R | Final Found Sol. A | Final Found Sol. AB | Final Found % R |
|---|---|---|---|---|---|---|---|---|
| Aluminum | | 500,000 | | 496,000 | 99.2 | | 505,000 | 101 |
| Antimony | | 600 | | 614 | 102 | | 620 | 103 |
| Arsenic | | 100 | | 96.2 | 96.2 | | 98.4 | 98.4 |
| Barium | | | | | | | | |
| Beryllium | | 500 | | 498 | 99.6 | | 506 | 101 |
| Cadmium | | 1,000 | | 920 | 92 | | 929 | 92.9 |
| Calcium | | 500,000 | | 499,000 | 99.8 | | 504,000 | 101 |
| Chromium | | 500 | | 473 | 94.6 | | 479 | 95.8 |
| Cobalt | | 500 | | 447 | 89.4 | | 451 | 90.2 |
| Copper | | | | | | | | |
| Iron | | 200,000 | | 200,000 | 100 | | 202,000 | 101 |
| Lead | | 1,000 | | 47.0 | 4.7 | | 43.4 | 4.34 |
| Magnesium | | 500,000 | | 504,000 | 101 | | 505,000 | 101 |
| Manganese | | 500 | | 460 | 92 | | 464 | 92.8 |
| Mercury | | | | | | | | |
| Nickel | | | | | | | | |
| Potassium | | | | | | | | |
| Selenium | | 50 | | 47.9 | 95.8 | | 42.6 | 85.2 |
| Silver | | 200 | | 199 | 99.5 | | 203 | 102 |
| Sodium | | | | | | | | |
| Thallium | | 100 | | 96.9 | 96.9 | | 99.9 | 99.9 |
| Vanadium | | 500 | | 471 | 94.2 | | 479 | 95.8 |
| Zinc | | | | | | | | |
| | | | | | | | | |

FORM IV - IN

9

U. S. EPA -CLP

5A

SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

A416935

Lab Name: Heritage  Contract : _____

Lab Code: _____  Case No. : _____  SAS No. : _____  SDG No.: _____

Matrix (soil/water) : Water  Level (low/med): _____

Initial Wt/Vol : 50 mL

% Solids for Sample : _____  Final Volume : 50 mL

Dilution : 1

Concentration Units (uG/L or mG/kG dry weight) : uG/L

| Analyte | Control Limit %R | Q730254 Spiked Sample (SSR) | C | Sample Result (SR) | C | Spike Added (SA) | %R | Q | M |
|---|---|---|---|---|---|---|---|---|---|
| Antimony | 75 - 125 | 526 | | 15 | U | 500 | 105 | | P |
| Arsenic | 75 - 125 | 2110 | | 3.4 | U | 2,000 | 106 | | P |
| Barium | 75 - 125 | 2320 | | 323 | | 2,000 | 99.9 | | P |
| Beryllium | 75 - 125 | 50.8 | | 0.20 | B | 50 | 101 | | P |
| Cadmium | 75 - 125 | 47.1 | | 2 | U | 50 | 94.2 | | P |
| Lead | 75 - 125 | 525 | | 23.5 | B | 500 | 100 | | P |
| Manganese | 75 - 125 | 605 | | 115 | | 500 | 98 | | P |
| Nickel | 75 - 125 | 483 | | 4.6 | U | 500 | 96.6 | | P |
| Silver | 75 - 125 | 46.6 | | 4.6 | U | 50 | 93.2 | | P |
| Tin | 75 - 125 | 3800 | | 10 | U | 4,000 | 95 | | P |
| Vanadium | 75 - 125 | 488 | | 1.9 | U | 500 | 97.6 | | P |
| Zinc | 75 - 125 | 513 | | 14.4 | B | 500 | 99.7 | | P |

FORM V (Part 1) - IN

icp_clp.xlw Rev. 1/95

U. S. EPA -CLP

5A

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

EPA SAMPLE NO.

A416935

Lab Name: HES - Commercial Laboratories  Contract : _____

Lab Code: _____  Case No. : _____  SAS No. : _____  SDG No.: _____

Matrix (soil/water) : Water  Level (low/med): _____

Initial Wt/Vol : 50 mL

% Solids for Sample : _____  Final Volume : 50 mL

Dilution : 1

Concentration Units (uG/L or mG/kG dry weight) : uG/L

| Analyte | Sample Result (SR) | Q730254 Spiked Sample (SSR) | C | 0 Spiked Duplicate Sample (SDS) | C | Spike Added (SA) | % RPD | Q | M |
|---|---|---|---|---|---|---|---|---|---|
| Antimony | 15 | 105 | | 106 | | 500 | 0.948 | | P |
| Arsenic | 3.4 | 106 | | 109 | | 2,000 | 2.79 | | P |
| Barium | 320 | 99.9 | | 101 | | 2,000 | 1.1 | | P |
| Beryllium | 0.20 | 101 | | 104 | | 50 | 2.93 | | P |
| Cadmium | 2 | 94.2 | | 95.4 | | 50 | 1.27 | | P |
| Lead | 24 | 100 | | 101 | | 500 | 0.995 | | P |
| Manganese | 120 | 98 | | 99.2 | | 500 | 1.22 | | P |
| Nickel | 4.6 | 96.6 | | 97.6 | | 500 | 1.03 | | P |
| Silver | 4.6 | 93.2 | | 105 | | 50 | 11.9 | | P |
| Tin | 10 | 95 | | 101 | | 4,000 | 6.12 | | P |
| Vanadium | 1.9 | 97.6 | | 98.4 | | 500 | 0.816 | | P |
| Zinc | 14 | 99.7 | | 101 | | 500 | 1.3 | | P |

FORM V (Part 1) - IN

U. S. EPA -CLP
7

LABORATORY CONTROL SAMPLE

Q730252

Lab Name: Heritage Contract : _____

Lab Code: _____ Case No. : _____ SAS No. : _____ SDG No.: _____

Solid LCS Source : _____

Aqueous LCS Source : SPEX

| Analyte | Aqueous (uG/L) True | Found | %R | True | Found | C | Limits | | %R |
|---|---|---|---|---|---|---|---|---|---|
| Antimony | 5000 | 4,820 | 96.4 | | | | | | |
| Arsenic | 500 | 454 | 90.8 | | | | | | |
| Barium | 20000 | 18,900 | 94.5 | | | | | | |
| Beryllium | 500 | 463 | 92.6 | | | | | | |
| Cadmium | 500 | 448 | 89.6 | | | | | | |
| Lead | 5000 | 4,600 | 92 | | | | | | |
| Manganese | 5000 | 4,600 | 92 | | | | | | |
| Nickel | 5000 | 4,510 | 90.2 | | | | | | |
| Silver | 500 | 471 | 94.2 | | | | | | |
| Tin | 4000 | 3,930 | 98.25 | | | | | | |
| Vanadium | 5000 | 4,590 | 91.8 | | | | | | |
| Zinc | 5000 | 4,660 | 93.2 | | | | | | |

FORM VII - IN

U. S. EPA -CLP

9

ICP SERIAL DILUTION

EPA SAMPLE NO.

A416935

Lab Name: Heritage  Contract : _____

Lab Code: _____  Case No. : _____  SAS No. : _____  SDG No.: _____

Matrix (soil/water) : Water  Level (low/med): _____

Concentration Units (uG/L) : uG/L  Dilution 1: 5

| Analyte | Initial Sample Result (I) | C | Serial Dilution Result (S) | C | % Difference | Q (1) | M |
|---|---|---|---|---|---|---|---|
| Antimony | 15 | U | 82.8 | B | | | P |
| Arsenic | 3.4 | U | 3.4 | U | | | P |
| Barium | 323 | | 348 | | 7.7 | | P |
| Beryllium | 0.20 | B | 0.75 | B | | | P |
| Cadmium | 2 | U | 2 | U | | | P |
| Lead | 23.5 | B | 17 | U | | | P |
| Manganese | 115 | | 117 | | 1.7 | | P |
| Nickel | 4.6 | U | 4.6 | U | | | P |
| Silver | 4.6 | U | 4.6 | U | | | P |
| Tin | 10 | U | 51 | B | | | P |
| Vanadium | 1.9 | U | 9.95 | B | | | P |
| Zinc | 14.4 | B | 79.1 | B | | | P |

(1) - % Difference criteria 10%, if concentration > 50*IDL.

FORM IX - IN

U. S. EPA - CLP
17
STANDARD SOLUTIONS SOURCES

Lab Name: Heritage Labotatories, Inc. Contract_____

| | CALIBRATION | | | | | MATRIX | | |
|---|---|---|---|---|---|---|---|---|
| Analyte | STANDARD | ICV | TRACE CCV | CCV | CRDL | SPIKE | ICS | Method |
| Aluminum | INV | PE | | INV | | SPEX | PE | P |
| Antimony | INV | PE | SPEX | INV | PE | INV | | P |
| Arsenic | INV | PE | SPEX | INV | PE | SPEX | | P |
| Barium | INV | PE | | INV | | SPEX | PE | P |
| Beryllium | INV | PE | SPEX | INV | PE | SPEX | PE | P |
| Cadmium | INV | PE | SPEX | INV | PE | SPEX | PE | P |
| Calcium | INV | PE | | INV | | SPEX | PE | P |
| Chromium | INV | PE | SPEX | INV | PE | SPEX | PE | P |
| Cobalt | INV | PE | SPEX | INV | PE | SPEX | PE | P |
| Copper | INV | PE | | INV | PE | SPEX | PE | P |
| Iron | INV | PE | | INV | | SPEX | PE | P |
| Lead | INV | PE | SPEX | INV | PE | SPEX | PE | P |
| Magnesium | INV | PE | | INV | | SPEX | PE | P |
| Manganese | INV | PE | SPEX | INV | PE | SPEX | PE | P |
| Mercury | INV | NIST | | FISHER | FISHER | FISHER | | CV |
| Nickel | INV | PE | | INV | PE | SPEX | PE | P |
| Potassium | INV | PE | | INV | | SPEX | | P |
| Selenium | INV | PE | SPEX | INV | PE | SPEX | | P |
| Silver | INV | PE | PE | INV | PE | SPEX | PE | P |
| Sodium | INV | PE | | INV | | SPEX | | P |
| Thallium | INV | PE | SPEX | INV | PE | SPEX | | P |
| Vanadium | INV | PE | SPEX | INV | PE | SPEX | PE | P |
| Zinc | INV | PE | | INV | PE | SPEX | PE | P |
| Titanium | INV | PE | | INV | | SPEX | | P |
| Strontium | INV | PE | | INV | | SPEX | | P |
| Molybdenum | INV | PE | | INV | | SPEX | | P |
| Boron | INV | PE | | INV | | SPEX | | P |
| Tin | INV | PE | | INV | | INV | | P |
| Zirconium | INV | FISHER | | INV | | SPEX | | P |
| Lithium | INV | PE | | INV | | SPEX | | P |
| Silicon | INV | PE | | INV | | INV | | P |
| Bismuth | INV | PE | | INV | | SPEX | | P |
| Yttrium | INV | PE | | INV | | SPEX | | P |
| | | | | | | | | |

PE = Perkin Elmer Pure
INV = Inorganic Ventures

U. S. EPA -CLP

12

ICP LINEAR RANGES (QUARTERLY)

Lab Name: Heritage Laboratories, Inc. Contract : _____

Lab Code: _____ Case No. : _____ SAS No. : _____

ICP ID Number : ICP#32 Date : Aug 01, 1997

| Analyte | Integ. Time (Sec.) | Concentration (uG/L) | M |
|---|---|---|---|
| Aluminum | 10 | 500,000 | P |
| Antimony | 10 | 100,000 | P |
| Arsenic | 10 | 200,000 | P |
| Barium | 10 | 500,000 | P |
| Beryllium | 10 | 100,000 | P |
| Cadmium | 10 | 500,000 | P |
| Calcium | 10 | 700,000 | P |
| Chromium | 10 | 700,000 | P |
| Cobalt | 10 | 800,000 | P |
| Copper | 10 | 200,000 | P |
| Iron | 10 | 400,000 | P |
| Lead | 10 | 300,000 | P |
| Magnesium | 10 | 700,000 | P |
| Manganese | 10 | 200,000 | P |
| Mercury | | | CV |
| Nickel | 10 | 400,000 | P |
| Potassium | 10 | 500,000 | P |
| Selenium | 10 | 200,000 | P |
| Silver | 10 | 10,000 | P |
| Sodium | 10 | 500,000 | P |
| Thallium | 10 | 400,000 | P |
| Vanadium | 10 | 200,000 | P |
| Zinc | 10 | 200,000 | P |
| Boron | 10 | 300,000 | P |
| Bismuth | 10 | 200,000 | P |
| Lithium | 10 | 200,000 | P |
| Molybdenum | 10 | 300,000 | P |
| Titanium | 10 | 300,000 | P |
| Tin | 10 | 500,000 | P |
| Silicon | 10 | 500,000 | P |
| Strontium | 10 | 100,000 | P |
| Yttrium | 10 | 200,000 | P |
| Zirconium | 10 | 500,000 | P |

nments: _____

15

FORM XII - IN

U. S. EPA -CLP

12

ICP LINEAR RANGES (QUARTERLY)

Lab Name: Heritage Laboratories, Inc. Contract :

Lab Code: Case No. : SAS No. :

ICP ID Number : TRACE Date : Jun 19, 1997

| Analyte | Integ. Time (Sec.) | Concentration (uG/L) | M |
|---|---|---|---|
| Aluminum | 15 | 500,000 | P |
| Antimony | 15 | 10,000 | P |
| Arsenic | 15 | 10,000 | P |
| Barium | | | |
| Beryllium | 15 | 1,000 | P |
| Cadmium | 15 | 1,000 | P |
| Calcium | 15 | 500,000 | P |
| Chromium | 15 | 10,000 | P |
| Cobalt | 15 | 5,000 | P |
| Copper | | | |
| Iron | 15 | 200,000 | P |
| Lead | 15 | 10,000 | P |
| Magnesium | 15 | 500,000 | P |
| Manganese | 15 | 1,000 | P |
| Mercury | | | |
| Nickel | | | |
| Potassium | | | |
| Selenium | 15 | 5,000 | P |
| Silver | 15 | 1,000 | P |
| Sodium | | | |
| Thallium | 15 | 5,000 | P |
| Vanadium | 15 | 10,000 | P |
| Zinc | | | |

Comments:

FORM XII - IN

U. S. EPA -CLP

11A

ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Heritage Laboratories, Inc. Contract :

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

ICP ID Number : ICP#32 Date : Jul 21, 1997

| Analyte | Wavelength (nm) | Interelement Correction Factors for: Al | Ba | Ca | Co | Cr | Cu | Fe | Mg |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 308.2 | | | 0.000154 | 0.000141 | | | | |
| Antimony | 206.8 | | | | 0.000075 | 0.015145 | | 0.000248 | -4.5E-05 |
| Arsenic | 193.6 | 0.003007 | 0.000214 | | 0.001142 | 0.001357 | | | |
| Barium | 493.4 | | | | | | | | |
| Beryllium | 313.0 | | | | | | | | |
| Cadmium | 226.5 | -3.5E-05 | | | 0.000163 | 0.000486 | | -0.00034 | |
| Calcium | 315.8 | | | | | | | | |
| Chromium | 267.7 | | | | | | 0.000053 | | |
| Cobalt | 228.6 | | 0.000204 | | | 0.000098 | | | |
| Copper | 324.7 | | -0.00015 | | -0.00157 | 0.000076 | | -0.00028 | |
| Iron | 259.9 | | | | | | | | |
| ead | 220.3 | 0.000886 | | | -0.00117 | | -0.00188 | | |
| Magnesium | 383.2 | | | | | 0.00182 | | 0.001498 | |
| Manganese | 257.6 | | | | -0.0005 | 0.000041 | -5.9E-05 | | |
| Mercury | | | | | | | | | |
| Nickel | 231.6 | | | | -5.9E-05 | -2.5E-05 | | | |
| Potassium | 766.4 | | | | | | | | |
| Selenium | 196.0 | -0.00029 | | | | | | -0.01052 | |
| Silver | 328.0 | | | | | | | | |
| Sodium | 589.0 | | | | | | | | |
| Thallium | 190.8 | | | | 0.001569 | 0.02523 | | | -0.00312 |
| Vanadium | 292.4 | | | | | -0.00491 | -0.00006 | -0.00003 | |
| Zinc | 213.8 | | | | -6.5E-05 | | 0.001241 | 0.000066 | |
| Bismuth | 223.0 | | | | -0.00047 | -0.00152 | -0.40418 | | |
| Boron | 249.7 | | | | 0.00206 | 0.000175 | | | |
| Molybdenum | 202.0 | | | | | 0.001625 | | -3.3E-05 | |
| Silicon | 288.1 | | | | | -0.01432 | | | |
| Strontium | 421.5 | | 0.000494 | | | | | | |
| Tin | 189.9 | | | | | | | 0.000143 | |
| Titanium | 337.3 | | | | -0.00016 | | | | |
| Zirconium | 339.2 | | | | | -0.00031 | | | |

Comments:

FORM XI (Part 1) - IN

17

U. S. EPA -CLP

11A

ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Heritage Laboratories, Inc. Contract :

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

ICP ID Number : ICP#32 Date : Jul 21, 1997

| Analyte | Wavelength (nm) | Interelement Correction Factors for: Mn | Mo | Ni | Ti | V | Zn | Zr |
|---|---|---|---|---|---|---|---|---|
| Aluminum | 308.2 | 0.001202 | 0.016722 | | -0.00091 | 0.017174 | | -0.00256 |
| Antimony | 206.8 | | -0.00236 | -0.00142 | 0.001495 | -0.00869 | -0.00033 | |
| Arsenic | 193.6 | | | 0.000379 | | 0.006805 | | 0.006618 |
| Barium | 493.4 | | | | | | | |
| Beryllium | 313.0 | | | | -0.0019 | 0.000973 | | |
| Cadmium | 226.5 | | -0.00097 | -0.00458 | | 0.000027 | | |
| Calcium | 315.8 | | | | | | | |
| Chromium | 267.7 | 0.000254 | | | | 0.000471 | | |
| Cobalt | 228.6 | | | 0.000401 | 0.001798 | | | |
| Copper | 324.7 | | | | 0.000237 | -0.00012 | | -0.00019 |
| Iron | 259.9 | -0.00503 | | | | 0.000379 | | |
| Lead | 220.3 | | -0.00062 | 0.045707 | 0.000521 | | | |
| Magnesium | 383.2 | | 0.005707 | | | | | |
| Manganese | 257.6 | | | | | | | |
| Mercury | | | | | | | | |
| Nickel | 231.6 | -9.5E-05 | -0.00206 | | | -0.00011 | 0.000222 | |
| Potassium | 766.4 | | | | | | | |
| Selenium | 196.0 | | -0.00532 | | | | | |
| Silver | 328.0 | 0.000144 | | | | -0.00714 | | 0.006048 |
| Sodium | 589.0 | | | | | | | |
| Thallium | 190.8 | | 0.010656 | | -0.01777 | -0.02781 | | |
| Vanadium | 292.4 | -0.00013 | -0.00191 | | 0.000411 | | | |
| Zinc | 213.8 | | | 0.003946 | | | | |
| Bismuth | 223.0 | -0.00068 | -0.00371 | 0.000406 | 0.001467 | -0.00192 | | |
| Boron | 249.7 | | | | | | | |
| Lithium | 670.8 | | | 0.00003 | 0.000123 | | 0.00007 | |
| Molybdenum | 202.0 | | | | | | 0.000135 | |
| Silicon | 288.1 | | -0.00468 | | 0.034982 | | | |
| Tin | 189.9 | | -0.00135 | | -0.00135 | | | |
| Titanium | 337.3 | | -0.00026 | | | | | |
| Zirconium | 339.2 | | | | | | | |

Comments:

FORM XI (Part 2) - IN

U. S. EPA -CLP

11A

ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Heritage Laboratories, Inc. Contract :

Lab Code: Case No. : SAS No. :

ICP ID Number : TRACE Date : Mar 24, 1997

| Analyte | Wave-length (nm) | Interelement Correction Factors for: Co | Fe | Mg | Al | Mn | V | Cr |
|---|---|---|---|---|---|---|---|---|
| Aluminum | 308.2 | | | | | | | |
| Antimony | 206.8 | 0.001071 | 0.000049 | | 0.000007 | | -0.000515 | 0.005281 |
| Arsenic | 189.0 | | | | | | | -0.00[illegible]2 |
| Barium | | | | | | | | |
| Beryllium | 313.0 | 0.000075 | 0.000002 | 0.000001 | 0.000001 | 0.000061 | 0.002155 | 0.000051 |
| Cadmium-1 | 226.5 | 0.000148 | 0.000145 | 0.000001 | 0.000008 | 0.000048 | 0.000053 | 0.000074 |
| Calcium | 317.9 | | | | | | | |
| Chromium | 267.7 | -0.000155 | | 0.000005 | | | -0.014862 | |
| Cobalt | 228.6 | | 0.000007 | | -9E-06 | | | 0.000181 |
| Copper | | | | | | | | |
| Iron | 271.4 | | | | | | | |
| ead-1 | 220.3 | -0.007124 | 0.000126 | 0.000011 | 0.000531 | | | |
| Magnesium | 279.0 | | | | | | | |
| Manganese | 257.6 | | -0.000105 | 0.000018 | 0.000009 | | -0.000079 | |
| Mercury | | | | | | | | |
| Nickel | | | | | | | | |
| Potassium | | | | | | | | |
| Selenium-1 | 196.0 | | -0.000067 | | 0.000017 | 0.000511 | | |
| Silver | 328.0 | | -0.000086 | | | 0.000166 | -0.007308 | |
| Sodium | | | | | | | | |
| Thallium | 190.8 | 0.005012 | -0.00006 | | | -0.000994 | 0.00305 | 0.00087 |
| Vanadium | 292.4 | | -0.000206 | 0.000004 | | -0.000101 | | -0.002458 |
| Cadmium-2 | 226.5 | -0.00012 | 0.000136 | | -4E-06 | 0.000022 | 0.00002 | 0.000021 |
| Lead-2 | 220.3 | | 0.000056 | 0.000008 | -0.00033 | -0.000352 | -0.000383 | |
| Selenium-2 | 196.0 | | -0.0003 | -0.000013 | -1.3E-05 | | | |

Comments: Al and Fe IECs are generally run on a daily basis.

As on Cr: 0.002244 As on Cd-1: 0.000099

As on Mn: 0.00021 As on Pb-2: -0.000255

FORM XI (Part 1) - IN

# WATER METHOD DETECTION LIMITS, uG/L
## Heritage

| Element | ICAP-61 | ICAP-61 | ICAP-61 | CVAA | GFAA | GFAA | GFAA | ICP |
|---|---|---|---|---|---|---|---|---|
| | #32 | #242 | TRACE | PE-FIMS | PE5100-A | PE5100-B | PE3030 | P - 40 |
| Complete: | 2/14/97 | 7/16/97 | 2/7/97 | 2/2/97 | 2/17/97 | 2/12/97 | 3/30/97 | 7/3/97 |
| Al | 37 | 16 | | | | | | |
| B | 55 | | | | | | | |
| Sb | 10 | 9.5 | 4.4 | | | 2.0 | | |
| As | 28 | 30 | 3.5 | | | 1.2 | | |
| Ba | 1.7 | 0.44 | | | | | | |
| Be | 1.1 | 0.22 | 0.18 | | | 0.18 | | |
| Bi | 40 | | | | | | | |
| Cd | 3.2 | 2.2 | 0.33 | | 0.24 | 0.24 | 0.25 | |
| Ca | 22 | 56 | | | | | | |
| Cr | 2.3 | 2.8 | 1.3 | | | | 1.8 | |
| Co | 3.0 | 2.5 | 0.87 | | | | | |
| Cu | 9.8 | 5.7 | | | | | 0.98 | |
| Fe | 24 | 16 | | | | | | |
| Pb | 12 | 32 | 2.4 | | 3.0 | 2.3 | 3.6 | |
| Hg | | 99 | | 0.022 | | | | |
| Mg | 120 | 8.7 | | | | | | |
| Mn | 1.3 | 0.74 | 0.17 | | | | | |
| Mo | 3.8 | | | | | | | |
| Ni | 4.8 | 5.5 | | | | 2.5 | | |
| K | 200 | 65 | | | | | | |
| Li | 4.8 | | | | | | | |
| Se | 26 | 42 | 4.2 | | 1.9 | 1.6 | | |
| Si | 200 | | | | | | | |
| Sr | 1.2 | 0.51 | | | | | | |
| Sn | 14 | | | | | | | |
| Ag | 5.0 | 2.4 | 1.0 | | | 0.099 | 0.42 | |
| Na | 80 | 74 | | | | | | |
| Ti | 2.6 | | | | | | | |
| Tl | 83 | 42 | 2.0 | | 1.9 | 1.5 | | |
| U | | | | | | | | 0.115 |
| V | 2.2 | 2.3 | 0.42 | | 1.7 | | | |
| Y | 1.1 | | | | | | | |
| Zn | 8.8 | 10 | | | | | | |
| Zr | 1.9 | | | | | | | |
| As prep | | | | | | 1.1 | | |
| Se prep | | | | | 2.0 | | | |
| | | | | | | | *7/16/97* | |

# SOIL METHOD DETECTION LIMITS, mg/kg
## Heritage

| Element | ICAP-61 | ICAP-61 | ICAP-61 | CVAA |
|---|---|---|---|---|
| | #32 | #242 | TRACE | PE-FIMS |
| Complete: | 6/27/97 | 7/16/97 | 8/7/97 | 6/30/97 |
| Al | 13 | 11 | | |
| B | 1.1 | | | |
| Sb | 2.5 | 2.6 | 0.43 | |
| As | 3.4 | 5.5 | 0.34 | |
| Ba | 0.28 | 0.24 | | |
| Be | 0.12 | 0.043 | 0.040 | |
| Cd | 0.26 | 0.26 | 0.031 | |
| Ca | 5.1 | 3.9 | | |
| Cr | 0.32 | 0.31 | 0.14* | |
| Co | 0.23 | 0.36 | 0.17 | |
| Cu | 0.77 | 0.68 | | |
| Fe | 19 | 21 | | |
| Pb | 1.8 | 3.7 | 0.24 | |
| Hg | | | | 0.029 |
| Mg | 19 | 5.8 | | |
| Mn | 1.2 | 1.4 | 0.052* | |
| Mo | 0.26 | | | |
| Ni | 0.32 | 0.89 | | |
| K | 17 | 16 | | |
| Li | 0.81 | | | |
| Se | 4.1 | 2.4 | 0.40 | |
| Si | 20 | | | |
| Sr | 0.86 | 0.82 | | |
| Sn | 1.3 | | | |
| Ag | 0.29 | 0.26 | 0.13 | |
| Na | 8.7 | 9.1 | | |
| Ti | 0.43 | | | |
| Tl | 8.9 | 7.1 | 0.41 | |
| V | 0.21 | 0.24 | 0.086* | |
| Zn | 1.1 | 0.94 | | |

*IDL x 100: unable to determine an MDL from a soil matrix

*8/7/97*

21

U. S. EPA -CLP

10
INSTRUMENT DETECTION LIMITS (QUARTERLY)

Lab Name: Heritage Laboratories, Inc. Contract : _____

Lab Code: _____ Case No. : _____ SAS No. : _____ SDG No. _____

ICP ID Number : ICP#32 Date : Aug 01, 1997
Flame AA ID Number : PE FIMS-CVAA
Furnace AA ID Number : _____

| Analyte | Wave-length (nm) | Back-ground | USEPA CRDL (uG/L) | Laboratory Reporting Limits | | IDL (uG/L) | M |
|---|---|---|---|---|---|---|---|
| Aluminum | 308.2 | | 200 | 50 | | 28 | P |
| Antimony | 206.8 | | 60 | 30 | | 15 | P |
| Arsenic | 193.6 | | 10 | 100 | | 37 | P |
| Barium | 493.4 | | 200 | 10 | | 0.86 | P |
| Beryllium | 313.0 | | 5 | 4 | | 0.49 | P |
| Cadmium | 226.5 | | 5 | 5 | | 2.0 | P |
| Calcium | 315.8 | | 5000 | 200 | | 15 | P |
| Chromium | 267.7 | | 10 | 10 | | 2.5 | P |
| Cobalt | 228.6 | | 50 | 10 | | 2.5 | P |
| Copper | 324.7 | | 25 | 20 | | 6.5 | P |
| Iron | 259.9 | | 100 | 25 | | 3.3 | P |
| Lead | 220.3 | | 3 | 50 | | 17 | P |
| Magnesium | 383.2 | | 5000 | 200 | | 45 | P |
| Manganese | 257.6 | | 15 | 10 | | 1.2 | P |
| Mercury | 253.7 | | 0.2 | 0.2 | | 0.039 | CV |
| Nickel | 231.6 | | 40 | 10 | | 4.6 | P |
| Potassium | 766.4 | | 5000 | 200 | | 110 | P |
| Selenium | 196.0 | | 5 | 100 | | 27 | P |
| Silver | 328.0 | | 10 | 10 | | 4.6 | P |
| Sodium | 589.5 | | 5000 | 200 | | 26 | P |
| Thallium | 190.8 | | 10 | 300 | | 130 | P |
| Vanadium | 292.4 | | 50 | 10 | | 1.9 | P |
| Zinc | 213.8 | | 20 | 20 | | 2.0 | P |
| Bismuth | 223.0 | | | 10 | | 22 | P |
| Boron | 249.6 | | | 50 | | 6.7 | P |
| Lithium | 670.7 | | | 10 | | 1.8 | P |
| Molybdenum | 202.0 | | | 10 | | 3.6 | P |
| Silicon | 288.1 | | | 200 | | 13 | P |
| Strontium | 421.5 | | | 10 | | 0.66 | P |
| Tin | 189.9 | | | 50 | | 10 | P |
| Titanium | 337.2 | | | 10 | | 1.9 | P |
| Yttrium | 371.0 | | | 10 | | 0.72 | P |
| Zirconium | 339.1 | | | 10 | | 2.0 | P |

Comments: _____

FORM X - IN

U. S. EPA -CLP

10
INSTRUMENT DETECTION LIMITS (QUARTERLY)

Lab Name: Heritage Laboratories, Inc. Contract : _____

Lab Code: _____ Case No. : _____ SAS No. : _____ SDG No. _____

ICP ID Number : TRACE Date : 5-23-97
Flame AA ID Number : _____
Furnace AA ID Number : _____

| Analyte | Wave-length (nm) | Back-ground | USEPA CRDL (uG/L) | Laboratory Reporting Limits | | IDL (uG/L) | M |
|---|---|---|---|---|---|---|---|
| Aluminum | 308.2 | | | | | 10 | |
| Antimony | 206.8 | | 5.0 | 5.0 | | 2.7 | |
| Arsenic | 189.0 | | 10 | 5.0 | | 3.4 | |
| Barium | | | | | | | |
| Beryllium | 313.0 | | | 1.0 | | 0.068 | |
| Cadmium | 226.5 | | 5.0 | 1.0 | | 0.15 | |
| Calcium | 317.9 | | | | | 13 | |
| Chromium | 267.7 | | | 1.0 | | 1.4 | |
| Cobalt | 228.6 | | | 1.0 | | 0.69 | |
| Copper | | | | | | | |
| Iron | 271.4 | | | | | 15 | |
| Lead | 220.3 | | 3.0 | 5.0 | | 1.6 | |
| Magnesium | 279.0 | | | | | 6.2 | |
| Manganese | 257.6 | | | 1.0 | | 0.52 | |
| Mercury | | | | | | | |
| Nickel | | | | | | | |
| Potassium | | | | | | | |
| Selenium | 196.0 | | 5.0 | 5.0 | | 3.2 | |
| Silver | 328.0 | | | 1.0 | | 0.97 | |
| Sodium | | | | | | | |
| Thallium | 190.8 | | 10 | 10 | | 2.3 | |
| Vanadium | 292.4 | | | 1.0 | | 0.86 | |
| Zinc | | | | | | | |

Comments: _____

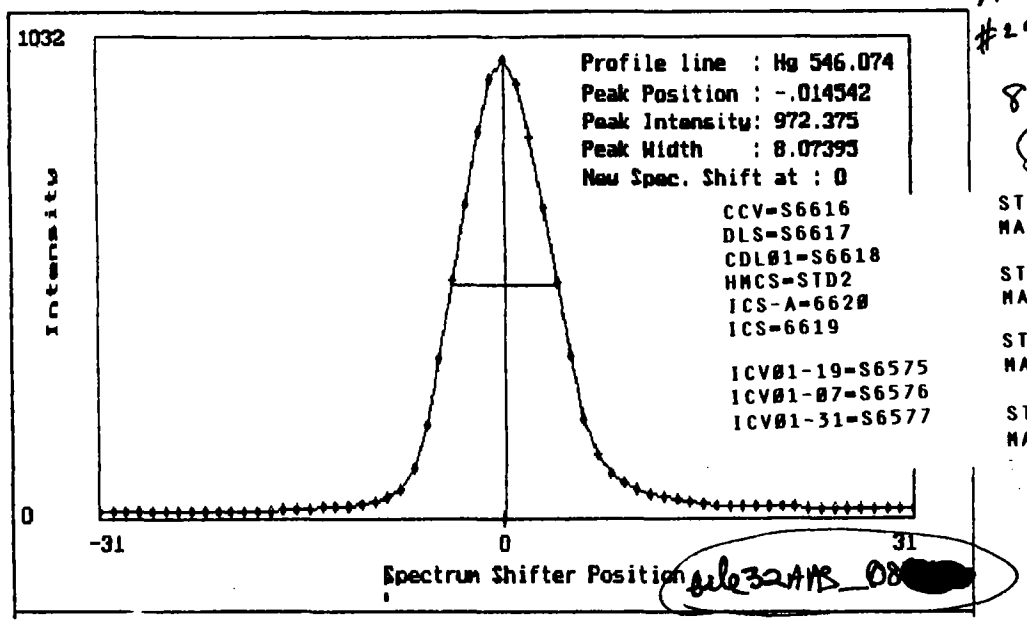
FORM X - IN

23

AAS #2012 ICP #32

8/18/97 II

(1)




STD2=S6613
MADE 07\28\97

STD3=S6614
MADE 07\28\97

STD4=S6615
MADE 07\28\97

STD5=S5590
MADE 10\28\96

A417040; A416935-936
Ag Ba Cd Mn Ni Pb Sb V Zn Sn

A415574-581 (R0 total) Ca, [redacted] K
SOES-19-97

A416942-950 (R1 dissolved) Ag B Ba Be Ca Cr Cu Fe K
Mg Mn Ni Sb Sr Zn

Method: EMS Standard: STD4

| Elem | Mo2020 | Sb2068 | Si2881 | Sn1899 | Ti3372 |
|---|---|---|---|---|---|
| Avge | .5063 | .1308 | 1.393 | 1.042 | 3.846 |
| SDev | .0015 | .0011 | .006 | .010 | .021 |
| %RSD | .2968 | .8112 | .4252 | .9412 | .5561 |
| #1 | .5074 | .1315 | 1.397 | 1.049 | 3.861 |
| #2 | .5052 | .1300 | 1.388 | 1.036 | 3.831 |

Method: EMS Standard: STD2

| Elem | Ag3280 | Al3082 | As1936 | B_2496 | Ba4934 | Be3130 | Bi2230 |
|---|---|---|---|---|---|---|---|
| Avge | .3743 | 1.445 | 2.769 | 1.342 | 3.196 | 2.047 | .1337 |
| SDev | .0006 | .006 | .007 | .004 | .007 | .005 | .0004 |
| %RSD | .1653 | .4405 | .2522 | .3096 | .2185 | .2202 | .3306 |
| #1 | .3747 | 1.449 | 2.764 | 1.345 | 3.201 | 2.051 | .1340 |
| #2 | .3739 | 1.440 | 2.774 | 1.339 | 3.191 | 2.044 | .1334 |

| Elem | Cd2265 | Co2286 | Cr2677 | Cu3247 | Fe2599 | Li6707 | Mn2576 |
|---|---|---|---|---|---|---|---|
| Avge | 2.607 | 2.433 | 1.753 | 2.465 | 1.507 | 7.886 | 1.717 |
| SDev | .002 | .002 | .002 | .001 | .002 | .021 | .003 |
| %RSD | .0949 | .0763 | .1109 | .0430 | .1290 | .2656 | .2007 |
| #1 | 2.609 | 2.434 | 1.754 | 2.466 | 1.508 | 7.901 | 1.720 |
| #2 | 2.605 | 2.432 | 1.752 | 2.464 | 1.506 | 7.872 | 1.715 |

| Elem | Ni2316 | Pb2203 | Se1960 | Sr4215 | Tl1908 | V_2924 | Zn2138 |
|---|---|---|---|---|---|---|---|
| Avge | 2.118 | .6397 | .1547 | 4.797 | 1.073 | 3.801 | 1.352 |
| SDev | .004 | .0008 | .0003 | .011 | .008 | .007 | .002 |
| %RSD | .2045 | .1244 | .1714 | .2248 | .7909 | .1814 | .1700 |
| #1 | 2.121 | .6391 | .1549 | 4.805 | 1.067 | 3.805 | 1.353 |
| #2 | 2.115 | .6403 | .1545 | 4.790 | 1.079 | 3.796 | 1.350 |

| Elem | Zr3391 |
|---|---|
| Avge | 2.061 |
| SDev | .002 |
| %RSD | .0729 |
| #1 | 2.062 |
| #2 | 2.059 |

Method: EMS Standard: STD3

| Elem | Ca3158 | K_7664 | Mg3832 | Na5895 |
|---|---|---|---|---|
| Avge | 4.183 | .1842 | .1756 | .3159 |
| SDev | .007 | .0013 | .0002 | .0011 |
| %RSD | .1627 | .7198 | .1007 | .3637 |
| #1 | 4.178 | .1832 | .1755 | .3151 |
| #2 | 4.187 | .1851 | .175[illegible] | .3167 |

25

Method: EMS Standard: STD1-Blank

| Elem | Ag3280 | Al3082 | As1936 | B_2496 | Ba4934 | Be3130 | Bi2230 |
|---|---|---|---|---|---|---|---|
| Avge | -.0171 | -.0099 | .0002 | .0015 | .0000 | .0009 | .0009 |
| SDev | .0004 | .0004 | .0012 | .0002 | .0000 | .0000 | .0003 |
| %RSD | 2.590 | 4.447 | 495.0 | 11.79 | .0000 | .0000 | 28.28 |
| #1 | -.0174 | -.0096 | -.0006 | .0014 | .0000 | .0009 | .0011 |
| #2 | -.0168 | -.0103 | .0011 | .0016 | .0000 | .0009 | .0008 |

| Elem | Ca3158 | Cd2265 | Co2286 | Cr2677 | Cu3247 | Fe2599 | K_7664 |
|---|---|---|---|---|---|---|---|
| Avge | .2886 | -.0011 | -.0012 | .0004 | .0043 | .0004 | .0021 |
| SDev | .0003 | .0003 | .0008 | .0001 | .0001 | .0002 | .0004 |
| %RSD | .0919 | 24.96 | 66.99 | 20.20 | 2.050 | 47.14 | 21.43 |
| #1 | .2884 | -.0012 | -.0018 | .0004 | .0044 | .0003 | .0018 |
| #2 | .2887 | -.0009 | -.0006 | .0005 | .0043 | .0005 | .0024 |

| Elem | Li6707 | Mg3832 | Mn2576 | Mo2020 | Na5895 | Ni2316 | Pb2203 |
|---|---|---|---|---|---|---|---|
| Avge | .1706 | .0684 | .0012 | .0032 | .0010 | .0041 | .0037 |
| SDev | .0006 | .0000 | .0000 | .0003 | .0007 | .0003 | .0001 |
| %RSD | .3628 | .0000 | .0000 | 8.319 | 70.71 | 6.527 | 2.397 |
| #1 | .1710 | .0684 | .0012 | .0030 | .0005 | .0039 | .0037 |
| #2 | .1701 | .0684 | .0012 | .0034 | .0015 | .0043 | .0036 |

| Elem | Sb2068 | Se1960 | Si2881 | Sn1899 | Sr4215 | Ti3372 | Tl1908 |
|---|---|---|---|---|---|---|---|
| Avge | -.0004 | .0000 | .0103 | -.0005 | .0002 | -.0021 | .0636 |
| SDev | .0008 | .0000 | .0003 | .0002 | .0001 | .0001 | .0046 |
| %RSD | 181.8 | .0000 | 3.449 | 35.36 | 47.14 | 4.285 | 7.224 |
| #1 | -.0010 | .0000 | .0105 | -.0006 | .0001 | -.0020 | .0604 |
| #2 | .0001 | .0000 | .0100 | -.0004 | .0003 | -.0021 | .0669 |

| Elem | V_2924 | Zn2138 | Zr3391 |
|---|---|---|---|
| Avge | .0004 | .0031 | -.0004 |
| SDev | .0001 | .0000 | .0001 |
| %RSD | 20.20 | .0000 | 20.20 |
| #1 | .0005 | .0031 | -.0005 |
| #2 | .0004 | .0031 | -.0004 |

Method: EMS Sample Name: CCV Operator: AAS
Run Time: 08/18/97 23:01:52
Comment:
Mode: CONC Corr. Factor: 1

| Elem | Ag3280 | Al3082 | As1936 | B_2496 | Ba4934 | Be3130 | Bi2230 |
|---|---|---|---|---|---|---|---|
| Avge | .9622 | 4.870 | 4.897 | 4.840 | 4.843 | 4.774 | 4.743 |
| SDev | .0045 | .039 | .036 | .042 | .056 | .045 | .064 |
| %RSD | .4719 | .8055 | .7399 | .8581 | 1.159 | .9517 | 1.351 |
| #1 | .9590 | 4.842 | 4.871 | 4.811 | 4.804 | 4.742 | 4.697 |
| #2 | .9654 | 4.898 | 4.922 | 4.870 | 4.883 | 4.806 | 4.788 |

| Elem | Ca3158 | Cd2265 | Co2286 | Cr2677 | Cu3247 | Fe2599 | K_7664 |
|---|---|---|---|---|---|---|---|
| Avge | 48.53 | 4.724 | 4.765 | 4.785 | 4.884 | 4.801 | 49.06 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| SDev | .40 | .038 | .044 | .041 | .051 | .046 | .45 |
| %RSD | .8209 | .8115 | .9201 | .8642 | 1.044 | 1.002 | .9052 |
| #1 | 48.25 | 4.697 | 4.734 | 4.756 | 4.848 | 4.767 | 49.54 |
| #2 | 48.81 | 4.751 | 4.796 | 4.814 | 4.920 | 4.835 | 50.18 |

| Elem | Li6707 | Mg3832 | Mn2576 | Mo2020 | Na5895 | Ni2316 | Pb2203 |
|---|---|---|---|---|---|---|---|
| Avge | 4.956 | 49.23 | 4.775 | .9614 | 50.33 | 4.746 | 4.770 |
| SDev | .044 | .50 | .046 | .0084 | .55 | .044 | .018 |
| %RSD | .8782 | 1.021 | .9600 | .8695 | 1.093 | .9344 | .3851 |
| #1 | 4.925 | 48.87 | 4.743 | .9555 | 49.94 | 4.715 | 4.757 |
| #2 | 4.987 | 49.58 | 4.808 | .9673 | 50.72 | 4.777 | 4.783 |

| Elem | Sb2068 | Se1960 | Si2881 | Sn1899 | Sr4215 | Ti3372 | Tl1908 |
|---|---|---|---|---|---|---|---|
| Avge | .9665 | 4.817 | 5.155 | 4.757 | 4.827 | 4.876 | 4.685 |
| SDev | .0134 | .063 | .046 | .003 | .053 | .048 | .053 |
| %RSD | 1.382 | 1.303 | .8906 | .0693 | 1.092 | .9751 | 1.129 |
| #1 | .9570 | 4.773 | 5.122 | 4.755 | 4.790 | 4.843 | 4.723 |
| #2 | .9759 | 4.861 | 5.187 | 4.760 | 4.864 | 4.910 | 4.648 |

| Elem | V_2924 | Zn2138 | Zr3391 |
|---|---|---|---|
| Avge | 4.813 | 4.829 | 4.837 |
| SDev | .046 | .051 | .046 |
| %RSD | .9659 | 1.059 | .9575 |
| #1 | 4.780 | 4.793 | 4.804 |
| #2 | 4.846 | 4.865 | 4.870 |

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Method: EMS Sample Name: BLA01 Operator: AAS
Run Time: 08/18/97 23:04:22
Comment:
Mode: CONC Corr. Factor: 1

| Elem | Ag3280 | Al3082 | As1936 | B_2496 | Ba4934 | Be3130 | Bi2230 |
|---|---|---|---|---|---|---|---|
| Avge | -.0019 | .0117 | .0206 | .0131 | .0016 | .0018 | .0124 |
| SDev | .0004 | .0074 | .0150 | .0026 | .0000 | .0000 | .0032 |
| %RSD | 23.37 | 63.49 | 72.43 | 20.21 | .0000 | .0343 | 26.03 |
| #1 | -.0022 | .0064 | .0101 | .0149 | .0016 | .0018 | .0101 |
| #2 | -.0016 | .0169 | .0312 | .0112 | .0016 | .0018 | .0146 |

| Elem | Ca3158 | Cd2265 | Co2286 | Cr2677 | Cu3247 | Fe2599 | K_7664 |
|---|---|---|---|---|---|---|---|
| Avge | .0156 | H.0067 | .0018 | .0032 | .0167 | .0021 | -.0069 |
| SDev | .0004 | .0003 | .0000 | .0000 | .0018 | .0006 | .0534 |
| %RSD | 2.916 | 5.048 | .0692 | .0091 | 10.71 | 28.41 | 777.8 |
| #1 | .0152 | H.0065 | .0018 | .0032 | .0180 | .0017 | -.0446 |
| #2 | .0159 | H.0069 | .0018 | .0032 | .0155 | .0025 | .0309 |

| Elem | Li6707 | Mg3832 | Mn2576 | Mo2020 | Na5895 | Ni2316 | Pb2203 |
|---|---|---|---|---|---|---|---|
| Avge | .0046 | .0641 | .0004 | .0042 | .0318 | .0021 | .0020 |
| SDev | .0011 | .0082 | .0005 | .0000 | .0112 | .0000 | .0101 |
| %RSD | 24.84 | 12.86 | 140[illegible] | .0525 | 35.36 | .1782 | 511.7 |

27

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| #1 | .0054 | .0699 | .0000 | .0042 | .0397 | .0021 | -.0052 |
| #2 | .0038 | .0582 | .0007 | .0042 | .0238 | .0021 | .0092 |

| Elem | Sb2068 | Se1960 | Si2881 | Sn1899 | Sr4215 | Ti3372 | Tl1908 |
|---|---|---|---|---|---|---|---|
| Avge | .0057 | .0400 | .0247 | -.0036 | .0005 | .0029 | .0385 |
| SDev | .0041 | .0340 | .0020 | .0085 | .0006 | .0007 | .0419 |
| %RSD | 70.87 | 84.78 | 7.922 | 235.6 | 106.2 | 23.56 | 109.0 |
| #1 | .0029 | .0160 | .0261 | .0024 | .0009 | .0034 | .0088 |
| #2 | .0086 | .0641 | .0234 | -.0096 | .0001 | .0024 | .0682 |

| Elem | V_2924 | Zn2138 | Zr3391 |
|---|---|---|---|
| Avge | .0020 | H.0219 | .0015 |
| SDev | .0007 | .0165 | .0000 |
| %RSD | 34.92 | 75.33 | .0000 |
| #1 | .0025 | .0102 | .0015 |
| #2 | .0015 | H.0335 | .0015 |

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Method: EMS Sample Name: ICV01-19 Operator: AAS..
Run Time: 08/18/97 23:06:51
Comment:
Mode: CONC Corr. Factor: 1

| Elem | Ag3280 | Al3082 | As1936 | B_2496 | Ba4934 | Be3130 | Bi2230 |
|---|---|---|---|---|---|---|---|
| Avge | -.0053 | .0125 | .9909 | .0071 | .0014 | .9803 | .0462 |
| SDev | .0009 | .0162 | .0314 | .0013 | .0003 | .0069 | .0125 |
| %RSD | 17.19 | 130.2 | 3.163 | 19.04 | 20.20 | .7065 | 26.99 |
| #1 | -.0046 | .0010 | .9688 | .0080 | .0016 | .9754 | .0550 |
| #2 | -.0059 | .0240 | 1.013 | .0061 | .0012 | .9852 | .0374 |

| Elem | Ca3158 | Cd2265 | Co2286 | Cr2677 | Cu3247 | Fe2599 | K_7664 |
|---|---|---|---|---|---|---|---|
| Avge | 1.078 | 1.024 | 1.025 | 1.016 | 1.015 | 1.003 | .0206 |
| SDev | .008 | .009 | .010 | .009 | .008 | .008 | .0049 |
| %RSD | .7579 | .8301 | .9549 | .8440 | .7787 | .7629 | 23.57 |
| #1 | 1.072 | 1.018 | 1.018 | 1.010 | 1.009 | .9972 | .0172 |
| #2 | 1.084 | 1.030 | 1.032 | 1.022 | 1.020 | 1.008 | .0240 |

| Elem | Li6707 | Mg3832 | Mn2576 | Mo2020 | Na5895 | Ni2316 | Pb2203 |
|---|---|---|---|---|---|---|---|
| Avge | .9957 | 1.069 | 1.012 | 1.010 | .0000 | 1.006 | 1.020 |
| SDev | .0095 | .025 | .012 | .017 | .0000 | .011 | .024 |
| %RSD | .9547 | 2.324 | 1.222 | 1.668 | .0000 | 1.126 | 2.369 |
| #1 | .9890 | 1.087 | 1.003 | .9983 | .0000 | .9977 | 1.002 |
| #2 | 1.002 | 1.051 | 1.021 | 1.022 | .0000 | 1.014 | 1.037 |

| Elem | Sb2068 | Se1960 | Si2881 | Sn1899 | Sr4215 | Ti3372 | Tl1908 |
|---|---|---|---|---|---|---|---|
| Avge | 1.014 | .9793 | -.0220 | -.0075 | 1.012 | 1.001 | .9723 |
| SDev | .003 | .0511 | .0018 | .0008 | .013 | .010 | .1251 |
| %RSD | .2674 | 5.216 | 8.184 | 11.24 | 1.257 | 1.010 | 12.87 |
| #1 | 1.016 | .9432 | -.0232 | -.0081 | 1.003 | .9939 | 1.8839 |
| #2 | 1.012 | 1.015 | -.0207 | -.0069 | 1.021 | 1.008 | 1.061 |

| Elem | V_2924 | Zn2138 | Zr3391 |
|---|---|---|---|
| Avge | 1.001 | 1.012 | 1.032 |
| SDev | .010 | .012 | .013 |
| %RSD | 1.001 | 1.166 | 1.247 |
| #1 | .9937 | 1.004 | 1.023 |
| #2 | 1.008 | 1.021 | 1.041 |

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Method: EM5 Sample Name: ICV01-07 Operator: AA5
Run Time: 08/18/97 23:09:20
Comment:
Mode: CONC Corr. Factor: 1

| Elem | Ag3280 | Al3082 | As1936 | B_2496 | Ba4934 | Be3130 | Bi2230 |
|---|---|---|---|---|---|---|---|
| Avge | .5191 | 1.035 | .0066 | 1.012 | .9945 | .0006 | 3.800 |
| SDev | .0027 | .021 | .0195 | .000 | .0072 | .0000 | .052 |
| %RSD | .5146 | 2.030 | 294.3 | .0001 | .7230 | .1917 | 1.356 |
| #1 | .5210 | 1.050 | .0204 | 1.012 | .9996 | .0006 | 3.836 |
| #2 | .5172 | 1.020 | -.0072 | 1.012 | .9895 | .0006 | 3.764 |

| Elem | Ca3158 | Cd2265 | Co2286 | Cr2677 | Cu3247 | Fe2599 | K_7664 |
|---|---|---|---|---|---|---|---|
| Avge | .0287 | .0015 | -.0002 | -.0000 | .0014 | .0066 | 10.11 |
| SDev | .0018 | .0010 | .0004 | .0005 | .0007 | .0000 | .10 |
| %RSD | 6.320 | 68.38 | 179.0 | 249900. | 50.49 | .0152 | .9604 |
| #1 | .0274 | .0008 | -.0005 | -.0004 | .0019 | .0066 | 10.18 |
| #2 | .0300 | .0022 | .0001 | .0004 | .0009 | .0066 | 10.04 |

| Elem | Li6707 | Mg3832 | Mn2576 | Mo2020 | Na5895 | Ni2316 | Pb2203 |
|---|---|---|---|---|---|---|---|
| Avge | .0017 | .0349 | -.0007 | .0027 | 1.048 | .0009 | .0023 |
| SDev | .0016 | .0165 | .0000 | .0014 | .011 | .0000 | .0029 |
| %RSD | 94.30 | 47.19 | .0074 | 51.46 | 1.071 | .2719 | 128.3 |
| #1 | .0006 | .0233 | -.0007 | .0037 | 1.040 | .0009 | .0002 |
| #2 | .0028 | .0466 | -.0007 | .0017 | 1.056 | .0009 | .0043 |

| Elem | Sb2068 | Se1960 | Si2881 | Sn1899 | Sr4215 | Ti3372 | Tl1908 |
|---|---|---|---|---|---|---|---|
| Avge | .0048 | .0281 | 5.084 | 2.131 | -.0004 | .0000 | .0377 |
| SDev | .0027 | .0396 | .035 | .013 | .0000 | .0007 | .0200 |
| %RSD | 56.17 | 140.7 | .6899 | .5979 | .9843 | 101600. | 53.10 |
| #1 | .0067 | .0562 | 5.109 | 2.140 | -.0004 | -.0005 | -.0235 |
| #2 | .0029 | .0001 | 5.059 | 2.122 | -.0004 | .0005 | -.0518 |

| Elem | V_2924 | Zn2138 | Zr3391 |
|---|---|---|---|
| Avge | .0007 | .0042 | .0024 |
| SDev | .0025 | .0007 | .0013 |
| %RSD | 385.6 | 15.71 | 53.03 |
| #1 | -.0011 | .0047 | .0033 |
| #2 | .0025 | .0037 | .0015 |

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Method: EM5 Sample Name: I[illegible]01-31 Operator: AA5

Run Time: 08/18/97 23:11:49
Comment:
Mode: CONC  Corr. Factor: 1

| Elem | Ag3280 | Al3082 | As1936 | B_2496 | Ba4934 | Be3130 | Bi2230 |
|---|---|---|---|---|---|---|---|
| Avge | -.0003 | .0026 | .0067 | .0075 | .0012 | -.0000 | .0114 |
| SDev | .0009 | .0049 | .0290 | .0013 | .0000 | .0000 | .0114 |
| %RSD | 281.3 | 192.7 | 435.6 | 17.63 | .0000 | 22.44 | 100.3 |
| #1 | .0003 | -.0009 | .0272 | .0084 | .0012 | -.0000 | .0194 |
| #2 | .0010 | .0060 | .0138 | .0065 | .0012 | -.0000 | .0033 |

| Elem | Ca3158 | Cd2265 | Co2286 | Cr2677 | Cu3247 | Fe2599 | K_7664 |
|---|---|---|---|---|---|---|---|
| Avge | 20.33 | .0014 | .0005 | .0021 | .0005 | .0016 | 20.41 |
| SDev | .04 | .0003 | .0018 | .0005 | .0011 | .0000 | .19 |
| %RSD | .2032 | 23.23 | 353.0 | 23.57 | 210.9 | .1606 | .9273 |
| #1 | 20.30 | .0012 | .0018 | .0025 | -.0002 | .0016 | 20.28 |
| #2 | 20.36 | .0017 | -.0008 | .0018 | .0013 | .0016 | 20.55 |

| Elem | Li6707 | Mg3832 | Mn2576 | Mo2020 | Na5895 | Ni2316 | Pb2203 |
|---|---|---|---|---|---|---|---|
| Avge | -.0002 | 20.52 | -.0011 | -.0005 | 20.63 | -.0015 | .0011 |
| SDev | .0001 | .07 | .0005 | .0004 | .04 | .0017 | .0030 |
| %RSD | 70.65 | .3615 | 47.22 | 70.38 | .1904 | 113.0 | 272.1 |
| #1 | -.0001 | 20.47 | -.0007 | -.0007 | 20.60 | -.0003 | -.0010 |
| #2 | -.0002 | 20.57 | -.0015 | -.0003 | 20.66 | -.0027 | .0032 |

| Elem | Sb2068 | Se1960 | Si2881 | Sn1899 | Sr4215 | Ti3372 | Tl1908 |
|---|---|---|---|---|---|---|---|
| Avge | .0086 | .0280 | .0094 | -.0000 | .0003 | -.0003 | -.0030 |
| SDev | .0041 | .0396 | .0093 | .0051 | .0002 | .0002 | .0133 |
| %RSD | 47.60 | 141.4 | 98.72 | 2501000. | 70.87 | 70.64 | 437.2 |
| #1 | .0057 | .0000 | .0160 | -.0036 | .0001 | -.0005 | -.0125 |
| #2 | .0114 | .0560 | .0028 | .0036 | .0004 | -.0002 | .0064 |

| Elem | V_2924 | Zn2138 | Zr3391 |
|---|---|---|---|
| Avge | .0003 | .0014 | .0009 |
| SDev | .0002 | .0006 | .0009 |
| %RSD | 68.12 | 46.60 | 94.19 |
| #1 | .0002 | .0019 | .0003 |
| #2 | .0005 | .0009 | .0015 |

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Method: EMS  Sample Name: BLA01  Operator: AAS
Run Time: 08/18/97 23:14:18
Comment:
Mode: CONC  Corr. Factor: 1

| Elem | Ag3280 | Al3082 | As1936 | B_2496 | Ba4934 | Be3130 | Bi2230 |
|---|---|---|---|---|---|---|---|
| Avge | -.0035 | .0009 | -.0115 | -.0005 | .0008 | -.0000 | .0085 |
| SDev | .0009 | .0117 | .0144 | .0007 | .0000 | .0000 | .0079 |
| %RSD | 25.56 | 1353. | 124.7 | 142.0 | .0000 | 65.06 | 93.10 |
| #1 | .0029 | -.0074 | -.0014 | -.0009 | .0008 | -.0000 | -.0140 |
| #2 | .0041 | .0092 | -.0217 | .0000 | .0008 | -.0000 | -.0029 |

30

| Elem | Ca3158 | Cd2265 | Co2286 | Cr2677 | Cu3247 | Fe2599 | K_7664 |
|---|---|---|---|---|---|---|---|
| Avge | .0024 | .0005 | .0000 | -.0007 | -.0003 | .0012 | .0069 |
| SDev | .0004 | .0003 | .0011 | .0005 | .0000 | .0006 | .0049 |
| %RSD | 18.85 | 69.49 | 70520. | 70.74 | .6311 | 47.42 | 70.71 |
| #1 | .0021 | .0007 | .0008 | -.0004 | -.0003 | .0008 | .0103 |
| #2 | .0027 | .0002 | -.0008 | -.0011 | -.0003 | .0016 | .0034 |

| Elem | Li6707 | Mg3832 | Mn2576 | Mo2020 | Na5895 | Ni2316 | Pb2203 |
|---|---|---|---|---|---|---|---|
| Avge | .0000 | -.0117 | -.0015 | .0002 | .0040 | .0003 | -.0021 |
| SDev | .0003 | .0165 | .0000 | .0007 | .0168 | .0008 | .0015 |
| %RSD | 143400. | 141.4 | .0361 | 280.9 | 424.3 | 281.6 | 72.57 |
| #1 | -.0002 | -.0233 | -.0015 | .0007 | .0159 | -.0003 | -.0010 |
| #2 | .0002 | .0000 | -.0015 | -.0002 | -.0079 | .0009 | -.0031 |

| Elem | Sb2068 | Se1960 | Si2881 | Sn1899 | Sr4215 | Ti3372 | Tl1908 |
|---|---|---|---|---|---|---|---|
| Avge | .0077 | .0000 | -.0051 | -.0066 | -.0000 | -.0010 | .0222 |
| SDev | .0040 | .0000 | .0059 | .0025 | .0002 | .0007 | .0332 |
| %RSD | 52.83 | 20.68 | 116.0 | 38.59 | 47750. | 70.75 | 149.2 |
| #1 | .0105 | .0000 | -.0009 | -.0084 | -.0001 | -.0005 | .0457 |
| #2 | .0048 | .0000 | -.0093 | -.0048 | .0001 | -.0015 | -.0012 |

| Elem | V_2924 | Zn2138 | Zr3391 |
|---|---|---|---|
| Avge | .0002 | -.0019 | .0003 |
| SDev | .0000 | .0000 | .0009 |
| %RSD | 2.190 | .1824 | 283.1 |
| #1 | .0002 | -.0019 | .0009 |
| #2 | .0002 | -.0019 | -.0003 |

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Method: LMS  Sample Name: DLS  Operator: AAS
Run Time: 08/18/97 23:17:05
Comment:
Mode: CONC  Corr. Factor: 1

| Elem | Ag3280 | Al3082 | As1936 | B_2496 | Ba4934 | Be3130 | Bi2230 |
|---|---|---|---|---|---|---|---|
| Avge | .0067 | .0444 | -.0242 | -.0024 | .0108 | .0055 | .0014 |
| SDev | .0018 | .0006 | .0013 | .0007 | .0003 | .0000 | .0041 |
| %RSD | 26.63 | 1.440 | 5.430 | 27.92 | 2.571 | .0275 | 282.7 |
| #1 | .0055 | .0439 | -.0243 | -.0028 | .0110 | .0055 | -.0014 |
| #2 | .0080 | .0448 | -.0251 | -.0019 | .0106 | .0055 | .0043 |

| Elem | Ca3158 | Cd2265 | Co2286 | Cr2677 | Cu3247 | Fe2599 | K_7664 |
|---|---|---|---|---|---|---|---|
| Avge | -.0223 | .0053 | .0118 | .0121 | .0173 | .0265 | .0103 |
| SDev | .0005 | .0003 | .0004 | .0015 | .0004 | .0012 | .0776 |
| %RSD | 2.035 | 6.330 | 3.062 | 12.48 | 2.081 | 4.422 | 754.2 |
| #1 | -.0226 | .0051 | .0116 | .0111 | .0170 | .0256 | .0652 |
| #2 | -.0220 | .0055 | .0121 | .0132 | .0175 | .0273 | -.0446 |

| Elem | Li6707 | Mg3832 | Mn2576 | Mo2020 | Na5895 | Ni2316 | Pb2203 |
|---|---|---|---|---|---|---|---|
| Avge | .0003 | .0174 | .008[illegible] | -.0018 | .0159 | .0115 | .0333 |
| SDev | .0003 | .0083 | .0005 | .0014 | .0112 | .0000 | .0029 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| %RSD | 106.6 | 47.30 | 6.146 | 79.98 | 70.71 | .0303 | 8.702 |
| #1 | .0001 | .0116 | .0080 | -.0008 | .0238 | .0115 | .0313 |
| #2 | .0006 | .0233 | .0087 | -.0028 | .0079 | .0115 | .0354 |

| Elem | Sb2068 | Se1960 | Si2881 | Sn1899 | Sr4215 | Ti3372 | Tl1908 |
|---|---|---|---|---|---|---|---|
| Avge | H.0459 | .0003 | .0020 | -.0012 | -.0000 | .0002 | .0341 |
| SDev | .0040 | .0000 | .0053 | .0000 | .0002 | .0009 | .0918 |
| %RSD | 8.801 | 1.615 | 260.8 | .3351 | 3475. | 560.7 | 269.7 |
| #1 | .0430 | .0003 | .0058 | -.0012 | -.0001 | -.0005 | .0990 |
| #2 | H.0487 | .0003 | -.0017 | -.0012 | .0001 | .0008 | .0309 |

| Elem | V_2924 | Zn2138 | Zr3391 |
|---|---|---|---|
| Avge | .0105 | .0209 | .0015 |
| SDev | .0002 | .0033 | .0009 |
| %RSD | 2.240 | 15.76 | 56.46 |
| #1 | .0104 | .0186 | .0009 |
| #2 | .0107 | .0232 | .0021 |

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Method: EMS Sample Name: CDL01 Operator: AAS
Run Time: 08/18/97 23:19:53
Comment:
Mode: CORR Corr. Factor: 1

| Elem | Ag3280 | Al3082 | As1936 | B_2496 | Ba4934 | Be3130 | Bi2230 |
|---|---|---|---|---|---|---|---|
| Avge | .0166 | -.0109 | .0183 | -.0025 | .0006 | .0100 | -.0035 |
| SDev | .0022 | .0012 | .0010 | .0020 | .0003 | .0004 | .0050 |
| %RSD | 13.52 | 11.43 | 5.400 | 77.94 | 47.14 | 4.317 | 140.9 |
| #1 | .0182 | -.0118 | .0176 | -.0040 | .0004 | .0103 | -.0000 |
| #2 | .0150 | -.0100 | .0190 | -.0011 | .0008 | .0097 | -.0070 |

| Elem | Ca3158 | Cd2265 | Co2286 | Cr2677 | Cu3247 | Fe2599 | K_7664 |
|---|---|---|---|---|---|---|---|
| Avge | -.0212 | .0077 | .1015 | .0210 | .0458 | -.0003 | .0309 |
| SDev | .0034 | .0000 | .0022 | .0010 | .0025 | .0006 | .0291 |
| %RSD | 16.07 | .0219 | 2.150 | 4.809 | 5.487 | 191.0 | 94.28 |
| #1 | -.0236 | .0077 | .1030 | .0203 | .0476 | -.0007 | -.0515 |
| #2 | -.0188 | .0077 | .0999 | .0217 | .0440 | .0001 | -.0103 |

| Elem | Li6707 | Mg3832 | Mn2576 | Mo2020 | Na5895 | Ni2316 | Pb2203 |
|---|---|---|---|---|---|---|---|
| Avge | .0027 | .0466 | .0292 | -.0005 | .0079 | .0822 | .0877 |
| SDev | .0017 | .0330 | .0000 | .0004 | .0225 | .0004 | .0116 |
| %RSD | 62.51 | 70.76 | .0044 | 65.83 | 282.8 | .5077 | 13.26 |
| #1 | .0015 | .0233 | .0292 | -.0003 | -.0079 | .0819 | .0959 |
| #2 | .0040 | .0699 | .0292 | -.0008 | .0238 | .0825 | .0795 |

| Elem | Sb2068 | Se1960 | Si2881 | Sn1899 | Sr4215 | Ti3372 | Tl1908 |
|---|---|---|---|---|---|---|---|
| Avge | .1290 | .0240 | -.0015 | .0006 | -.0003 | -.0010 | .0480 |
| SDev | .0095 | .0339 | .0040 | .0043 | .0002 | .0002 | .0787 |
| %RSD | 7.333 | 141.4 | 258.4 | 705.6 | 70.58 | 23.91 | 164.0 |
| #1 | .1223 | .0480 | -.0043 | .0036 | -.0004 | -.0011 | .1036 |

24

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| #2 | .1357 | -.0000 | .0013 | -.0024 | -.0001 | -.0008 | -.0076 |

| Elem | V_2924 | Zn2138 | Zr3391 |
|---|---|---|---|
| Avge | .1006 | .0374 | .0012 |
| SDev | .0007 | .0007 | .0013 |
| %RSD | .6862 | 1.760 | 105.5 |
| #1 | .1011 | .0378 | .0021 |
| #2 | .1001 | .0369 | .0003 |

Method: EMS Sample Name: IMCS Operator: AAS
Run Time: 08/18/97 23:22:40
Comment:
Mode: CONC Corr. Factor: 1

| Elem | Ag3280 | Al3082 | As1936 | B_2496 | Ba4934 | Be3130 | Bi2230 |
|---|---|---|---|---|---|---|---|
| Avge | 2.000 | 10.02 | 10.03 | 9.892 | 9.948 | 9.866 | 10.02 |
| SDev | .010 | .05 | .06 | .030 | .047 | .034 | .03 |
| %RSD | .4915 | .5064 | .5535 | .2996 | .4726 | .3458 | .3385 |
| #1 | 2.007 | 10.05 | 10.06 | 9.913 | 9.981 | 9.890 | 9.995 |
| #2 | 1.993 | 9.982 | 9.986 | 9.871 | 9.915 | 9.841 | 10.04 |

| Elem | Ca3158 | Cd2265 | Co2286 | Cr2677 | Cu3247 | Fe2599 | K_7664 |
|---|---|---|---|---|---|---|---|
| Avge | .0514 | 9.899 | 9.933 | 9.941 | 9.952 | 9.920 | .0961 |
| SDev | .0029 | .038 | .047 | .035 | .042 | .041 | .0049 |
| %RSD | 5.745 | .3832 | .4717 | .3500 | .4260 | .4144 | 5.051 |
| #1 | .0493 | 9.926 | 9.966 | 9.966 | 9.982 | 9.950 | .0927 |
| #2 | .0534 | 9.873 | 9.900 | 9.917 | 9.922 | 9.891 | .0995 |

| Elem | Li6707 | Mg3832 | Mn2576 | Mo2020 | Na5895 | Ni2316 | Pb2203 |
|---|---|---|---|---|---|---|---|
| Avge | 9.981 | .0487 | 9.937 | -.0177 | -.0040 | 9.910 | 9.958 |
| SDev | .045 | .0166 | .049 | .0004 | .0056 | .032 | .045 |
| %RSD | .4534 | 34.08 | .4924 | 2.329 | 141.4 | .3247 | .4522 |
| #1 | 10.01 | .0370 | 9.972 | -.0180 | -.0079 | 9.933 | 9.990 |
| #2 | 9.949 | .0605 | 9.903 | -.0174 | .0000 | 9.887 | 9.926 |

| Elem | Sb2068 | Se1960 | Si2881 | Sn1899 | Sr4215 | Ti3372 | Tl1908 |
|---|---|---|---|---|---|---|---|
| Avge | -.0101 | 9.963 | .4142 | .0046 | 9.940 | -.0054 | 10.24 |
| SDev | .0043 | .034 | .0160 | .0119 | .048 | .0009 | .09 |
| %RSD | 42.31 | .3448 | 3.864 | 259.7 | .4857 | 16.80 | .8539 |
| #1 | -.0131 | 9.987 | .4029 | .0130 | 9.974 | -.0061 | 10.30 |
| #2 | -.0071 | 9.939 | .4255 | -.0038 | 9.906 | -.0048 | 10.17 |

| Elem | V_2924 | Zn2138 | Zr3391 |
|---|---|---|---|
| Avge | 9.918 | 9.937 | 9.926 |
| SDev | .033 | .037 | .048 |
| %RSD | .3331 | .3761 | .4839 |
| #1 | 9.942 | 9.963 | 9.960 |
| #2 | 9.895 | 9.910 | 9.892 |

Method: EMS Sample Name: ICS-A Operator: AAS
Run Time: 08/18/97 23:25:27
Comment:
Mode: CONC Corr. Factor: 1

| Elem | Ag3280 | Al3082 | As1936 | B_2496 | Ba4934 | Be3130 | Bi2230 |
|---|---|---|---|---|---|---|---|
| Avge | .0035 | 507.2 | .0112 | .0285 | .0066 | .0024 | H.0581 |
| SDev | .0027 | 1.2 | .0438 | .0007 | .0000 | .0000 | .0016 |
| %RSD | 77.42 | .2354 | 389.7 | 2.326 | .0000 | .0192 | 2.695 |
| #1 | .0054 | 506.4 | .0422 | .0290 | .0066 | .0024 | H.0592 |
| #2 | .0016 | 508.0 | -.0197 | .0280 | .0066 | .0024 | H.0570 |

| Elem | Ca3158 | Cd2265 | Co2286 | Cr2677 | Cu3247 | Fe2599 | K_7664 |
|---|---|---|---|---|---|---|---|
| Avge | 478.9 | .0081 | .0031 | .0007 | H.0266 | 180.0 | -.0034 |
| SDev | 1.0 | .0015 | .0011 | .0015 | .0039 | .3 | .0291 |
| %RSD | .2171 | 18.90 | 35.36 | 213.7 | 14.60 | .1826 | 848.5 |
| #1 | 478.2 | .0092 | .0023 | .0018 | H.0293 | 179.8 | -.0240 |
| #2 | 479.7 | .0070 | .0039 | -.0004 | H.0238 | 180.3 | .0172 |

| Elem | Li6707 | Mg3832 | Mn2576 | Mo2020 | Na5895 | Ni2316 | Pb2203 |
|---|---|---|---|---|---|---|---|
| Avge | -.0079 | 504.5 | .0055 | .0007 | -.0437 | -.0033 | .0162 |
| SDev | .0017 | .3 | .0005 | .0007 | .0056 | .0008 | .0107 |
| %RSD | 21.64 | .0538 | 9.416 | 102.6 | 12.86 | 25.72 | 66.02 |
| #1 | -.0067 | 504.3 | .0058 | .0002 | -.0476 | -.0038 | .0086 |
| #2 | -.0092 | 504.7 | .0051 | .0012 | -.0397 | -.0027 | .0237 |

| Elem | Sb2068 | Se1960 | Si2881 | Sn1899 | Sr4215 | Ti3372 | Tl1908 |
|---|---|---|---|---|---|---|---|
| Avge | .0281 | .0602 | .0060 | .0031 | .0121 | .0013 | -.0277 |
| SDev | .0013 | .0646 | .0007 | .0118 | .0000 | .0002 | .1112 |
| %RSD | 4.691 | 107.3 | 11.40 | 381.6 | .0000 | 17.70 | 401.7 |
| #1 | .0272 | H.1058 | .0065 | -.0053 | .0121 | .0011 | .0510 |
| #2 | .0291 | .0145 | .0056 | .0115 | .0121 | .0015 | -.1064 |

| Elem | V_2924 | Zn2138 | Zr3391 |
|---|---|---|---|
| Avge | .0053 | H.0319 | .0091 |
| SDev | .0009 | .0013 | .0004 |
| %RSD | 17.48 | 4.062 | 4.709 |
| #1 | .0047 | H.0310 | .0088 |
| #2 | .0060 | H.0329 | .0094 |

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Method: EMS Sample Name: ICS Operator: AAS
Run Time: 08/18/97 23:28:14
Comment:
Mode: CONC Corr. Factor: 1

| Elem | Ag3280 | Al3082 | As1936 | B_2496 | Ba4934 | Be3130 | Bi2230 |
|---|---|---|---|---|---|---|---|
| Avge | .2057 | 502.1 | .0308 | .0083 | .4988 | .4590 | H.0627 |
| SDev | .0027 | 3.3 | .0360 | .0013 | .0036 | .0022 | .0080 |
| %RSD | 1.312 | .6647 | 116.6 | 15.78 | .7207 | .4711 | 12.68 |
| #1 | .2076 | 504.4 | .0054 | .0093 | .5014 | .4605 | H.0570 |
| #2 | .2038 | 499.7 | .0563 | .0074 | .4963 | .4575 | H.0683 |

34

| Elem | Ca3158 | Cd2265 | Co2286 | Cr2677 | Cu3247 | Fe2599 | K_7664 |
|---|---|---|---|---|---|---|---|
| Avge | 474.2 | .8904 | .4548 | .4519 | .4884 | 178.4 | -.0240 |
| SDev | 2.1 | .0045 | .0033 | .0030 | .0002 | .9 | .0388 |
| %RSD | .4511 | .5039 | .7185 | .6702 | .0386 | .4937 | 161.6 |
| #1 | 475.7 | .8936 | .4571 | .4540 | .4882 | 179.0 | -.0515 |
| #2 | 472.7 | .8872 | .4525 | .4497 | .4885 | 177.7 | .0034 |

| Elem | Li6707 | Mg3832 | Mn2576 | Mo2020 | Na5895 | Ni2316 | Pb2203 |
|---|---|---|---|---|---|---|---|
| Avge | -.0111 | 500.0 | .4662 | .0005 | -.0357 | .8742 | .9379 |
| SDev | .0006 | 4.1 | .0031 | .0004 | .0168 | .0042 | .0186 |
| %RSD | 5.159 | .8107 | .6629 | 70.89 | 47.14 | .4784 | 1.985 |
| #1 | -.0115 | 502.8 | .4684 | .0008 | -.0476 | .8772 | .9248 |
| #2 | -.0107 | 497.1 | .4640 | .0003 | -.0238 | .8713 | .9511 |

| Elem | Sb2068 | Se1960 | Si2881 | Sn1899 | Sr4215 | Ti3372 | Tl1908 |
|---|---|---|---|---|---|---|---|
| Avge | .6122 | .1193 | .0018 | .0045 | .0111 | .0006 | .1168 |
| SDev | .0080 | .0080 | .0039 | .0069 | .0000 | .0000 | .0968 |
| %RSD | 1.314 | 6.746 | 220.9 | 152.3 | .0160 | .1093 | 82.84 |
| #1 | .6179 | .1136 | -.0010 | -.0003 | .0111 | .0006 | .1853 |
| #2 | .6065 | .1250 | .0046 | .0094 | .0111 | .0006 | .0484 |

| Elem | V_2924 | Zn2138 | Zr3391 |
|---|---|---|---|
| Avge | .4699 | .9612 | .0074 |
| SDev | .0009 | .0032 | .0013 |
| %RSD | .1879 | .3350 | 17.33 |
| #1 | .4693 | .9635 | .0065 |
| #2 | .4705 | .9589 | .0083 |

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Method: EMS  Sample Name: CCV  Operator: AAS
Run Time: 08/18/97 23:31:02
Comment:
Mode: CONC  Corr. Factor: 1

| Elem | Ag3280 | Al3082 | As1936 | B_2496 | Ba4934 | Be3130 | Bi2230 |
|---|---|---|---|---|---|---|---|
| Avge | .9561 | 4.986 | 4.856 | 4.838 | 4.865 | 4.774 | 4.871 |
| SDev | .0086 | .055 | .039 | .036 | .025 | .015 | .064 |
| %RSD | .9011 | 1.105 | .8064 | .7365 | .5173 | .3170 | 1.304 |
| #1 | .9622 | 5.025 | 4.883 | 4.863 | 4.882 | 4.785 | 4.916 |
| #2 | .9500 | 4.947 | 4.828 | 4.813 | 4.847 | 4.764 | 4.826 |

| Elem | Ca3158 | Cd2265 | Co2286 | Cr2677 | Cu3247 | Fe2599 | K_7664 |
|---|---|---|---|---|---|---|---|
| Avge | 49.18 | 4.758 | 4.793 | 4.813 | 4.899 | 4.884 | 49.80 |
| SDev | .17 | .013 | .026 | .018 | .011 | .023 | .07 |
| %RSD | .3475 | .2700 | .5451 | .3667 | .2206 | .4798 | .1462 |
| #1 | 49.30 | 4.767 | 4.811 | 4.825 | 4.906 | 4.901 | 49.85 |
| #2 | 49.06 | 4.749 | 4.774 | 4.800 | 4.891 | 4.868 | 49.75 |

| Elem | Li6707 | Mg3832 | Mn25[illegible] | Mo2020 | Na5895 | Ni2316 | Pb2203 |
|---|---|---|---|---|---|---|---|
| Avge | 4.945 | 49.55 | 4.81[illegible] | .9678 | 50.61 | 4.764 | 4.805 |

35

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| SDev | .012 | .25 | .018 | .0014 | .20 | .007 | .013 |
| %RSD | .2339 | .4989 | .3641 | .1483 | .3993 | .1404 | .2652 |
| #1 | 4.953 | 49.72 | 4.823 | .9668 | 50.75 | 4.769 | 4.814 |
| #2 | 4.937 | 49.37 | 4.798 | .9689 | 50.47 | 4.760 | 4.796 |

| Elem | Sb2068 | Se1960 | Si2881 | Sn1899 | Sr4215 | Ti3372 | Tl1908 |
|---|---|---|---|---|---|---|---|
| Avge | .9816 | 4.834 | 5.136 | 4.656 | 4.845 | 4.887 | 4.688 |
| SDev | .0081 | .051 | .015 | .025 | .025 | .015 | .060 |
| %RSD | .8245 | 1.058 | .2909 | .5463 | .5172 | .3055 | 1.276 |
| #1 | .9873 | 4.870 | 5.147 | 4.674 | 4.863 | 4.898 | 4.731 |
| #2 | .9758 | 4.798 | 5.126 | 4.638 | 4.827 | 4.877 | 4.646 |

| Elem | V_2924 | Zn2138 | Zr3391 |
|---|---|---|---|
| Avge | 4.830 | 4.832 | 4.856 |
| SDev | .028 | .014 | .020 |
| %RSD | .5765 | .2991 | .4150 |
| #1 | 4.850 | 4.843 | 4.870 |
| #2 | 4.811 | 4.822 | 4.842 |

Method: EMS Sample Name: 8LA01 Operator: AAS
Run Time: 08/18/97 23:33:50
Comment:
Mode: CONC Corr. Factor: 1

| Elem | Ag3280 | Al3082 | As1936 | B_2496 | Ba4934 | Be3130 | Bi2230 |
|---|---|---|---|---|---|---|---|
| Avge | -.0032 | .0358 | .0208 | .0131 | .0010 | .0021 | .0392 |
| SDev | .0004 | .0031 | .0153 | .0027 | .0003 | .0004 | .0249 |
| %RSD | 13.74 | 8.613 | 73.41 | 20.23 | 28.28 | 20.06 | 63.55 |
| #1 | -.0029 | .0379 | .0316 | .0112 | .0012 | .0018 | .0569 |
| #2 | -.0035 | .0336 | .0100 | .0150 | .0008 | .0024 | .0216 |

| Elem | Ca3158 | Cd2265 | Co2286 | Cr2677 | Cu3247 | Fe2599 | K_7664 |
|---|---|---|---|---|---|---|---|
| Avge | .0453 | .0034 | -.0000 | .0014 | H.0213 | .0173 | .0377 |
| SDev | .0039 | .0010 | .0018 | .0005 | .0032 | .0012 | .0679 |
| %RSD | 8.525 | 30.14 | 33040. | 35.40 | 15.16 | 6.731 | 180.0 |
| #1 | .0480 | .0041 | .0013 | .0018 | H.0236 | .0165 | -.0103 |
| #2 | .0425 | .0026 | -.0013 | .0011 | .0190 | .0182 | .0858 |

| Elem | Li6707 | Mg3832 | Mn2576 | Mo2020 | Na5895 | Ni2316 | Pb2203 |
|---|---|---|---|---|---|---|---|
| Avge | .0059 | .1340 | .0007 | .0012 | .0079 | .0027 | -.0093 |
| SDev | .0000 | .0082 | .0000 | .0014 | .0000 | .0000 | .0000 |
| %RSD | .0038 | 6.145 | .1483 | 113.3 | .0000 | .0926 | .0676 |
| #1 | .0059 | .1398 | .0007 | .0022 | .0079 | .0027 | .0093 |
| #2 | .0059 | .1282 | .0007 | .0002 | .0079 | .0027 | -.0093 |

| Elem | Sb2068 | Se1960 | Si2881 | Sn1899 | Sr4215 | Ti3372 | Tl1908 |
|---|---|---|---|---|---|---|---|
| Avge | .0163 | -.0238 | .0168 | .0096 | -.0004 | .0023 | .0102 |
| SDev | .0000 | .0453 | .0092 | .0068 | .0000 | .0007 | .0193 |
| %RSD | .0749 | 190.0 | 55.10 | 70.75 | .0349 | 30.33 | 188.5 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| #1 | .0163 | .0082 | .0233 | .0048 | -.0004 | .0028 | -.0034 |
| #2 | .0163 | -.0558 | .0102 | .0144 | -.0004 | .0018 | .0239 |

| Elem | V_2924 | Zn2138 | Zr3391 |
|---|---|---|---|
| Avge | -.0002 | .0116 | .0009 |
| SDev | .0009 | .0020 | .0009 |
| %RSD | 600.5 | 16.99 | 94.25 |
| #1 | -.0008 | .0130 | .0015 |
| #2 | .0005 | .0102 | .0003 |

Method: EMS  Sample Name: Q730253 BLA02  Operator: AAS
Run Time: 08/18/97 23:36:19
Comment:
Mode: CONC  Corr. Factor: 1

| Elem | Ag3280 | Al3082 | As1936 | B_2496 | Ba4934 | Be3130 | Bi2230 |
|---|---|---|---|---|---|---|---|
| Avge | -.0006 | .0196 | -.0167 | .0112 | .0008 | .0009 | .0179 |
| SDev | .0022 | .0000 | .0046 | .0000 | .0000 | .0004 | .0009 |
| %RSD | 350.4 | .1477 | 27.34 | .0016 | .0000 | 47.08 | 4.864 |
| #1 | -.0022 | .0196 | -.0134 | .0112 | .0008 | .0012 | .0185 |
| #2 | .0009 | .0197 | -.0199 | .0112 | .0008 | .0006 | .0173 |

| Elem | Ca3158 | Cd2265 | Co2286 | Cr2677 | Cu3247 | Fe2599 | K_7664 |
|---|---|---|---|---|---|---|---|
| Avge | .0106 | .0010 | .0013 | .0025 | .0099 | H.0326 | .0583 |
| SDev | .0034 | .0010 | .0000 | .0010 | .0022 | .0029 | .0097 |
| %RSD | 32.14 | 101.6 | .0708 | 40.44 | 21.74 | 8.950 | 16.64 |
| #1 | .0082 | .0003 | .0013 | .0018 | .0114 | H.0347 | .0652 |
| #2 | .0130 | .0017 | .0013 | .0032 | .0084 | H.0306 | .0515 |

| Elem | Li6707 | Mg3832 | Mn2576 | Mo2020 | Na5895 | Ni2316 | Pb2203 |
|---|---|---|---|---|---|---|---|
| Avge | .0067 | .1748 | .0000 | -.0000 | .0278 | .0038 | .0009 |
| SDev | .0005 | .0165 | .0000 | .0011 | .0168 | .0025 | .0001 |
| %RSD | 6.815 | 9.426 | 14.86 | 20340. | 60.61 | 65.38 | 12.87 |
| #1 | .0070 | .1964 | .0000 | .0007 | .0159 | .0056 | .0008 |
| #2 | .0064 | .1631 | .0000 | -.0008 | .0397 | .0021 | .0009 |

| Elem | Sb2068 | Se1960 | Si2881 | Sn1899 | Sr4215 | Ti3372 | Tl1908 |
|---|---|---|---|---|---|---|---|
| Avge | .0067 | .0283 | .0183 | .0042 | -.0004 | .0002 | .0295 |
| SDev | .0000 | .0396 | .0030 | .0043 | .0000 | .0000 | .0814 |
| %RSD | .4129 | 139.7 | 10.92 | 101.2 | .0000 | .1677 | 276.3 |
| #1 | .0067 | .0003 | .0169 | .0072 | -.0004 | .0002 | .0871 |
| #2 | .0067 | .0563 | .0197 | .0012 | -.0004 | .0002 | -.0281 |

| Elem | V_2924 | Zn2138 | Zr3391 |
|---|---|---|---|
| Avge | .0007 | .0163 | .0015 |
| SDev | .0007 | .0006 | .0000 |
| %RSD | 103.5 | 3.969 | .0208 |
| #1 | .0012 | .0167 | .0015 |
| #2 | .0002 | .0158 | .001[illegible] |

Method: EMS Sample Name: Q730252 LCS Operator: AAS
Run Time: 08/18/97 23:39:39
Comment:
Mode: CONC Corr. Factor: 1

| Elem | Ag3280 | Al3082 | As1936 | B_2496 | Ba4934 | Be3130 | Bi2230 |
|---|---|---|---|---|---|---|---|
| Avge | .4708 | 19.19 | 18.73 | .9399 | 18.88 | .4558 | 1.020 |
| SDev | .0003 | .12 | .10 | .0026 | .11 | .0034 | .010 |
| %RSD | .0728 | .6506 | .5596 | .2762 | .5802 | .7556 | .9946 |
| #1 | .4711 | 19.10 | 18.66 | .9381 | 18.80 | .4534 | 1.027 |
| #2 | .4706 | 19.27 | 18.81 | .9417 | 18.95 | .4583 | 1.013 |

| Elem | Ca3158 | Cd2265 | Co2286 | Cr2677 | Cu3247 | Fe2599 | K_7664 |
|---|---|---|---|---|---|---|---|
| Avge | 93.55 | .4482 | 4.544 | 1.826 | 2.365 | 9.293 | 97.12 |
| SDev | .37 | .0029 | .022 | .009 | .014 | .047 | .78 |
| %RSD | .4006 | .6383 | .4869 | .4968 | .5786 | .5100 | .8045 |
| #1 | 93.28 | .4462 | 4.528 | 1.819 | 2.355 | 9.259 | 96.57 |
| #2 | 93.81 | .4502 | 4.559 | 1.832 | 2.375 | 9.326 | 97.68 |

| Elem | Li6707 | Mg3832 | Mn2576 | Mo2020 | Na5895 | Ni2316 | Pb2203 |
|---|---|---|---|---|---|---|---|
| Avge | .9693 | 96.05 | 4.600 | .9204 | 98.62 | 4.513 | 4.602 |
| SDev | .0079 | .49 | .020 | .0053 | .64 | .031 | .009 |
| %RSD | .8153 | .5147 | .4368 | .5709 | .6488 | .6952 | .1886 |
| #1 | .9637 | 95.70 | 4.586 | .9167 | 98.17 | 4.491 | 4.596 |
| #2 | .9749 | 96.40 | 4.614 | .9242 | 99.08 | 4.535 | 4.608 |

| Elem | Sb2068 | Se1960 | Si2881 | Sn1899 | Sr4215 | Ti3372 | Tl1908 |
|---|---|---|---|---|---|---|---|
| Avge | 4.817 | 18.76 | 9.914 | 3.931 | .9235 | .9338 | 20.12 |
| SDev | .020 | .09 | .039 | .036 | .0053 | .0025 | .17 |
| %RSD | .4239 | .4851 | .3942 | .9072 | .5730 | .2711 | .8642 |
| #1 | 4.803 | 18.70 | 9.886 | 3.905 | .9198 | .9320 | 20.00 |
| #2 | 4.831 | 18.83 | 9.942 | 3.956 | .9273 | .9356 | 20.24 |

| Elem | V_2924 | Zn2138 | Zr3391 |
|---|---|---|---|
| Avge | 4.592 | 4.659 | .9431 |
| SDev | .020 | .016 | .0052 |
| %RSD | .4296 | .3505 | .5458 |
| #1 | 4.578 | 4.647 | .9394 |
| #2 | 4.606 | 4.670 | .9467 |

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Method: EMS Sample Name: A416935 1:5 SD Operator: AAS
Run Time: 08/18/97 23:42:08
Comment:
Mode: CONC Corr. Factor: 1

| Elem | Ag3280 | Al3082 | As1936 | B_2496 | Ba4934 | Be3130 | Bi2230 |
|---|---|---|---|---|---|---|---|
| Avge | .0016 | .0126 | .0374 | .0173 | .0696 | .0003 | .0152 |
| SDev | .0027 | .0037 | .0114 | .0020 | .0006 | .0004 | .0124 |
| %RSD | 169.7 | 29.17 | 30.48 | 11.49 | .7945 | 141.4 | 81.69 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| #1 | -.0035 | .0152 | .0294 | .0159 | .0692 | .0000 | .0240 |
| #2 | .0003 | .0100 | .0455 | .0187 | .0700 | .0006 | .0064 |

| Elem | Ca3158 | Cd2265 | Co2286 | Cr2677 | Cu3247 | Fe2599 | K_7664 |
|---|---|---|---|---|---|---|---|
| Avge | 16.76 | .0012 | .0036 | .0032 | .0099 | .0402 | .5971 |
| SDev | .09 | .0014 | .0011 | .0010 | .0014 | .0006 | .0146 |
| %RSD | .5228 | 110.3 | 30.45 | 31.52 | 14.49 | 1.466 | 2.438 |
| #1 | 16.82 | .0022 | .0044 | .0039 | .0109 | .0398 | .5868 |
| #2 | 16.70 | .0003 | .0028 | .0025 | .0089 | .0406 | .6074 |

| Elem | Li6707 | Mg3832 | Mn2576 | Mo2020 | Na5895 | Ni2316 | Pb2203 |
|---|---|---|---|---|---|---|---|
| Avge | .0034 | 6.667 | .0233 | .0050 | 2.266 | .0033 | -.0001 |
| SDev | .0019 | .016 | .0010 | .0025 | .006 | .0000 | .0102 |
| %RSD | 57.26 | .2470 | 4.416 | 49.52 | .2477 | .1523 | 7637. |
| #1 | .0020 | 6.678 | .0226 | .0067 | 2.270 | .0033 | .0070 |
| #2 | .0048 | 6.655 | .0240 | .0032 | 2.262 | .0033 | -.0073 |

| Elem | Sb2068 | Se1960 | Si2881 | Sn1899 | Sr4215 | Ti3372 | Tl1908 |
|---|---|---|---|---|---|---|---|
| Avge | .0166 | .0404 | 1.446 | .0102 | .0900 | .0008 | .0410 |
| SDev | .0027 | .0000 | .009 | .0026 | .0011 | .0000 | .0237 |
| %RSD | 16.44 | .0185 | .5962 | 24.99 | 1.229 | .0995 | 57.73 |
| #1 | .0146 | .0404 | 1.452 | .0120 | .0908 | .0008 | .0242 |
| #2 | .0185 | .0404 | 1.440 | .0084 | .0893 | .0008 | .0577 |

| Elem | V_2924 | Zn2138 | Zr3391 |
|---|---|---|---|
| Avge | .0020 | .0158 | .0027 |
| SDev | .0007 | .0000 | .0009 |
| %RSD | 34.35 | .0107 | 31.43 |
| #1 | .0015 | .0158 | .0033 |
| #2 | .0025 | .0158 | .0021 |

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Method: EMS Sample Name: A416935 Operator: AAS
Run Time: 08/18/97 23:44:37
Comment:
Mode: CONC Corr. Factor: 1

| Elem | Ag3280 | Al3082 | As1936 | B_2496 | Ba4934 | Be3130 | Bi2230 |
|---|---|---|---|---|---|---|---|
| Avge | -.0067 | -.0213 | -.0194 | .0589 | .3234 | .0003 | .0160 |
| SDev | .0000 | .0154 | .0137 | .0013 | .0000 | .0004 | .0197 |
| %RSD | .0121 | 72.23 | 70.95 | 2.244 | .0000 | 142.8 | 123.4 |
| #1 | -.0067 | -.0104 | -.0291 | .0579 | .3234 | .0006 | .0299 |
| #2 | .0067 | -.0322 | -.0096 | .0598 | .3234 | -.0000 | .0020 |

| Elem | Ca3158 | Cd2265 | Co2286 | Cr2677 | Cu3247 | Fe2599 | K_7664 |
|---|---|---|---|---|---|---|---|
| Avge | 85.29 | .0001 | .0025 | .0014 | -.0022 | .1653 | 2.673 |
| SDev | .03 | .0010 | .0004 | .0015 | .0000 | .0006 | .010 |
| %RSD | .0354 | 1191. | 14.60 | 108.3 | .0286 | .3549 | .3631 |
| #1 | 85.31 | -.0006 | .0022 | .0025 | -.0022 | .1649 | 2.666 |
| #2 | 85.26 | .0008 | .0028 | .0003 | -.0022 | .1657 | 2.680 |

29

| Elem | Li6707 | Mg3832 | Mn2576 | Mo2020 | Na5895 | Ni2316 | Pb2203 |
|---|---|---|---|---|---|---|---|
| Avge | .0093 | 33.97 | .1154 | .0137 | 11.68 | .0033 | .0235 |
| sDev | .0002 | .05 | .0005 | .0007 | .03 | .0042 | .0002 |
| %RSD | 2.463 | .1455 | .4463 | 5.122 | .2403 | 127.2 | .8643 |
| #1 | .0092 | 34.01 | .1150 | .0142 | 11.70 | .0062 | .0233 |
| #2 | .0095 | 33.94 | .1158 | .0132 | 11.66 | .0003 | .0236 |

| Elem | Sb2068 | Se1960 | Si2881 | Sn1899 | Sr4215 | Ti3372 | Tl1908 |
|---|---|---|---|---|---|---|---|
| Avge | .0025 | .0057 | 7.364 | .0066 | .4604 | -.0013 | .0291 |
| sDev | .0000 | .0057 | .022 | .0008 | .0007 | .0002 | .0578 |
| %RSD | .4249 | 99.14 | .2966 | 12.85 | .1602 | 17.74 | 198.9 |
| #1 | .0025 | .0097 | 7.379 | .0060 | .4609 | -.0011 | .0700 |
| #2 | .0025 | .0017 | 7.348 | .0072 | .4599 | -.0015 | -.0118 |

| Elem | V_2924 | Zn2138 | Zr3391 |
|---|---|---|---|
| Avge | .0004 | .0144 | .0006 |
| sDev | .0002 | .0020 | .0004 |
| %RSD | 63.05 | 13.59 | 70.74 |
| #1 | .0006 | .0158 | .0009 |
| #2 | .0002 | .0130 | .0003 |

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Method: CMS  Sample Name: Q730254 SPIO2  Operator: AAS
Run Time: 08/18/97 23:47:06
Comment:
Mode: CONC  Corr. Factor: 1

A416935

| Elem | Ag3280 | Al3082 | As1936 | B_2496 | Ba4934 | Be3130 | Bi2230 |
|---|---|---|---|---|---|---|---|
| Avge | .0466 | 2.028 | 2.026 | 1.037 | 2.325 | .0485 | 1.001 |
| sDev | .0009 | .030 | .038 | .006 | .006 | .0000 | .001 |
| %RSD | 1.925 | 1.482 | 1.857 | .5734 | .2736 | .0088 | .0590 |
| #1 | .0473 | 2.049 | 2.053 | 1.041 | 2.329 | .0485 | 1.001 |
| #2 | .0460 | 2.007 | 2.000 | 1.033 | 2.320 | .0485 | 1.000 |

| Elem | Ca3158 | Cd2265 | Co2286 | Cr2677 | Cu3247 | Fe2599 | K_7664 |
|---|---|---|---|---|---|---|---|
| Avge | 182.9 | .0471 | .4885 | .1984 | .2535 | 1.155 | 107.1 |
| sDev | .7 | .0014 | .0014 | .0000 | .0014 | .002 | .1 |
| %RSD | .4071 | 2.892 | .2957 | .0010 | .5670 | .2033 | .0589 |
| #1 | 183.4 | .0481 | .4895 | .1984 | .2545 | 1.157 | 107.1 |
| #2 | 182.4 | .0462 | .4875 | .1984 | .2525 | 1.153 | 107.1 |

| Elem | Li6707 | Mg3832 | Mn2576 | Mo2020 | Na5895 | Ni2316 | Pb2203 |
|---|---|---|---|---|---|---|---|
| Avge | 1.071 | 136.2 | .6049 | 1.005 | 118.5 | .4829 | .5251 |
| sDev | .002 | .4 | .0026 | .002 | .3 | .0021 | .0132 |
| %RSD | .1711 | .3026 | .4257 | .2097 | .2488 | .4340 | 2.507 |
| #1 | 1.072 | 136.4 | .6067 | 1.007 | 118.7 | .4844 | .5158 |
| #2 | 1.069 | 135.9 | .6031 | 1.004 | 118.3 | .4814 | .5344 |

| Elem | Sb2068 | Se1960 | Si2881 | Sn1899 | Sr4215 | Ti3372 | Tl1908 |
|---|---|---|---|---|---|---|---|
| Avge | .5260 | 2.049 | 17.49 | 3.800 | 1.446 | .9951 | 2.829 |
| sDev | .0014 | .011 | .04 | .004 | .005 | .0037 | .025 |

10

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|---|---|---|---|---|---|---|---|
| %RSD | .2661 | .5540 | .2565 | .1119 | .3186 | .3694 | .8868 |
| #1 | .5270 | 2.057 | 17.52 | 3.797 | 1.449 | .9977 | 2.811 |
| #2 | .5250 | 2.041 | 17.45 | 3.803 | 1.443 | .9925 | 2.846 |

| Elem | V_2924 | Zn2138 | Zr3391 |
|---|---|---|---|
| Avge | .4877 | .5130 | .9977 |
| SDev | .0028 | .0013 | .0034 |
| %RSD | .5699 | .2549 | .3438 |
| #1 | .4897 | .5139 | 1.000 |
| #2 | .4857 | .5121 | .9953 |

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Method: EMS Sample Name: Q730255 DPS02 A416935 Operator: AAS
Run Time: 08/18/97 23:49:35
Comment:
Mode: CONC Corr. Factor: 1

| Elem | Ag3280 | Al3082 | As1936 | B_2496 | Ba4934 | Be3130 | Bi2230 |
|---|---|---|---|---|---|---|---|
| Avge | .0526 | 2.014 | 2.035 | 1.046 | 2.351 | .0488 | 1.027 |
| SDev | .0022 | .006 | .037 | .002 | .010 | .0004 | .011 |
| %RSD | 4.265 | .2948 | 1.819 | .1892 | .4351 | .8907 | 1.120 |
| #1 | .0511 | 2.010 | 2.009 | 1.048 | 2.344 | .0485 | 1.035 |
| #2 | .0542 | 2.018 | 2.062 | 1.045 | 2.359 | .0491 | 1.019 |

| Elem | Ca3158 | Cd2265 | Co2286 | Cr2677 | Cu3247 | Fe2599 | K_7664 |
|---|---|---|---|---|---|---|---|
| Avge | 185.4 | .0477 | .4939 | .1984 | .2566 | 1.171 | 109.0 |
| SDev | .6 | .0000 | .0018 | .0010 | .0007 | .005 | .6 |
| %RSD | .2982 | .0396 | .3697 | .5076 | .2794 | .3998 | .5341 |
| #1 | 185.1 | .0476 | .4952 | .1977 | .2561 | 1.168 | 108.6 |
| #2 | 185.8 | .0477 | .4926 | .1991 | .2571 | 1.175 | 109.4 |

| Elem | Li6707 | Mg3832 | Mn2576 | Mo2020 | Na5895 | Ni2316 | Pb2203 |
|---|---|---|---|---|---|---|---|
| Avge | 1.084 | 138.3 | .6108 | 1.018 | 120.3 | .4879 | .5270 |
| SDev | .001 | .6 | .0026 | .006 | .3 | .0025 | .0045 |
| %RSD | .0634 | .4528 | .4213 | .5867 | .2707 | .5167 | .8480 |
| #1 | 1.083 | 137.9 | .6089 | 1.014 | 120.0 | .4861 | .5301 |
| #2 | 1.084 | 138.7 | .6126 | 1.022 | 120.5 | .4897 | .5238 |

| Elem | Sb2068 | Se1960 | Si2881 | Sn1899 | Sr4215 | Ti3372 | Tl1908 |
|---|---|---|---|---|---|---|---|
| Avge | .5300 | 2.065 | 17.59 | 4.036 | 1.460 | 1.008 | 2.893 |
| SDev | .0068 | .000 | .05 | .025 | .007 | .003 | .234 |
| %RSD | 1.289 | .0038 | .3004 | .6102 | .4542 | .3191 | 8.072 |
| #1 | .5251 | 2.065 | 17.55 | 4.018 | 1.455 | 1.006 | 2.728 |
| #2 | .5348 | 2.065 | 17.62 | 4.053 | 1.465 | 1.010 | 3.058 |

| Elem | V_2924 | Zn2138 | Zr3391 |
|---|---|---|---|
| Avge | .4923 | .5190 | 1.007 |
| SDev | .0037 | .0033 | .005 |
| %RSD | .7551 | .6325 | .4686 |
| #1 | .4897 | .5167 | 1.00[illegible] |

41

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|---|---|---|---|
| #2 | .4949 | .5214 | 1.010 |

Method: EMS Sample Name: A416936 Operator: AAS
Run Time: 08/18/97 23:52:04
Comment:
Mode: CONC Corr. Factor: 1

| Elem | Ag3280 | Al3082 | As1936 | B_2496 | Ba4934 | Be3130 | Bi2230 |
|---|---|---|---|---|---|---|---|
| Avge | -.0019 | -.0490 | .0171 | .0584 | .3119 | -.0000 | .0123 |
| SDev | .0005 | .0147 | .0020 | .0007 | .0014 | .0000 | .0080 |
| %RSD | 23.37 | 30.13 | 11.73 | 1.134 | .4433 | 1.693 | 65.44 |
| #1 | -.0023 | -.0385 | .0157 | .0579 | .3129 | -.0000 | .0180 |
| #2 | -.0016 | L-.0594 | .0185 | .0589 | .3109 | -.0000 | .0066 |

| Elem | Ca3158 | Cd2265 | Co2286 | Cr2677 | Cu3247 | Fe2599 | K_7664 |
|---|---|---|---|---|---|---|---|
| Avge | 85.39 | -.0011 | .0017 | .0007 | -.0045 | .1216 | 2.615 |
| SDev | .31 | .0007 | .0007 | .0015 | .0004 | .0018 | .024 |
| %RSD | .3652 | 59.47 | 41.84 | 222.3 | 8.025 | 1.447 | .9280 |
| #1 | 85.61 | -.0007 | .0022 | .0018 | -.0042 | .1229 | 2.632 |
| #2 | 85.17 | -.0016 | .0012 | -.0004 | -.0047 | .1204 | 2.598 |

| Elem | Li6707 | Mg3832 | Mn2576 | Mo2020 | Na5895 | Ni2316 | Pb2203 |
|---|---|---|---|---|---|---|---|
| Avge | .0109 | 34.10 | .1292 | .0189 | 11.70 | -.0011 | .0227 |
| SDev | .0003 | .16 | .0015 | .0010 | .05 | .0004 | .0015 |
| %RSD | 3.167 | .4833 | 1.195 | 5.569 | .4077 | 37.12 | 6.525 |
| #1 | .0111 | 34.22 | .1303 | .0196 | 11.74 | -.0008 | .0216 |
| #2 | .0106 | 33.99 | .1281 | .0181 | 11.67 | -.0014 | .0237 |

| Elem | Sb2068 | Se1960 | Si2881 | Sn1899 | Sr4215 | Ti3372 | Tl1908 |
|---|---|---|---|---|---|---|---|
| Avge | .0092 | .0213 | 7.415 | .0006 | .4616 | -.0002 | -.0288 |
| SDev | .0040 | .0056 | .036 | .0144 | .0024 | .0000 | .0014 |
| %RSD | 43.95 | 26.45 | .4909 | 2371. | .5191 | .2463 | 4.804 |
| #1 | .0121 | .0173 | 7.441 | .0108 | .4633 | -.0002 | -.0297 |
| #2 | .0064 | .0253 | 7.389 | -.0096 | .4599 | -.0002 | -.0278 |

| Elem | V_2924 | Zn2138 | Zr3391 |
|---|---|---|---|
| Avge | .0002 | .0079 | .0018 |
| SDev | .0000 | .0007 | .0004 |
| %RSD | 4.354 | 8.344 | 23.59 |
| #1 | .0002 | .0075 | .0021 |
| #2 | .0002 | .0084 | .0015 |

Method: EMS Sample Name: A416970 Operator: AAS
Run Time: 08/18/97 23:54:33
Comment:
Mode: CONC Corr. Factor: 1

| Elem | Ag3280 | Al3082 | As1936 | B_2496 | Ba4934 | Be3130 | Bi2230 |
|---|---|---|---|---|---|---|---|
| Avge | -.0022 | .1118 | .0155 | .0196 | .0194 | .0000 | .0062 |
| SDev | .0036 | .0234 | .0082 | .0013 | .0003 | .0000 | .0000 |

42

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|---|---|---|---|---|---|---|---|
| %RSD | 161.0 | 20.96 | 53.03 | 6.731 | 1.429 | 35.68 | .0850 |
| #1 | .0003 | .0952 | .0213 | .0206 | .0196 | .0000 | .0062 |
| #2 | -.0048 | .1283 | .0097 | .0187 | .0192 | .0000 | .0063 |

| Elem | Ca3158 | Cd2265 | Co2286 | Cr2677 | Cu3247 | Fe2599 | K_7664 |
|---|---|---|---|---|---|---|---|
| Avge | 19.06 | .0001 | -.0000 | .0003 | -.0053 | .1583 | 1.465 |
| SDev | .06 | .0003 | .0004 | .0000 | .0000 | .0006 | .010 |
| %RSD | .3049 | 516.7 | 3901. | .1877 | .0064 | .3686 | .6624 |
| #1 | 19.10 | -.0002 | .0002 | .0003 | -.0053 | .1579 | 1.458 |
| #2 | 19.01 | .0003 | -.0003 | .0003 | -.0053 | .1587 | 1.472 |

| Elem | Li6707 | Mg3832 | Mn2576 | Mo2020 | Na5895 | Ni2316 | Pb2203 |
|---|---|---|---|---|---|---|---|
| Avge | .0043 | 5.297 | .0299 | .0027 | 9.085 | .0009 | -.0001 |
| SDev | .0007 | .041 | .0000 | .0007 | .028 | .0008 | .0073 |
| %RSD | 16.01 | .7780 | .0006 | 25.68 | .3089 | 93.41 | 5444. |
| #1 | .0048 | 5.326 | .0299 | .0022 | 9.105 | .0015 | -.0053 |
| #2 | .0038 | 5.268 | .0299 | .0032 | 9.065 | .0003 | .0050 |

| Elem | Sb2068 | Se1960 | Si2881 | Sn1899 | Sr4215 | Ti3372 | Tl1908 |
|---|---|---|---|---|---|---|---|
| Avge | .0079 | -.0024 | .8623 | -.0066 | .0448 | .0028 | .0760 |
| SDev | .0095 | .0057 | .0040 | .0008 | .0002 | .0000 | .0359 |
| %RSD | 120.2 | 234.8 | .4600 | 12.82 | .4109 | .0045 | 47.31 |
| #1 | .0146 | -.0064 | .8651 | -.0072 | .0450 | .0028 | .1014 |
| #2 | .0012 | .0016 | .8595 | -.0060 | .0447 | .0028 | .0506 |

| Elem | V_2924 | Zn2138 | Zr3391 |
|---|---|---|---|
| Avge | .0015 | .0093 | .0015 |
| SDev | .0014 | .0000 | .0000 |
| %RSD | 93.47 | .0347 | .0000 |
| #1 | .0005 | .0093 | .0015 |
| #2 | .0025 | .0093 | .0015 |

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Method: EMS Sample Name: A41/040 Operator: AAS
Run Time: 08/18/97 23:57:02
Comment:
Mode: CONC Corr. Factor: 1

| Elem | Ag3280 | Al3082 | As1936 | B_2496 | Ba4934 | Be3130 | Bi2230 |
|---|---|---|---|---|---|---|---|
| Avge | -.0028 | .0039 | -.0051 | .0547 | .0215 | .0003 | .0136 |
| SDev | .0018 | .0111 | .0137 | .0020 | .0006 | .0004 | .0163 |
| %RSD | 64.04 | 286.5 | 267.2 | 3.622 | 2.571 | 144.3 | 120.1 |
| #1 | -.0041 | -.0040 | .0046 | .0533 | .0211 | .0006 | .0021 |
| #2 | -.0015 | .0117 | -.0148 | .0561 | .0219 | -.0000 | .0252 |

| Elem | Ca3158 | Cd2265 | Co2286 | Cr2677 | Cu3247 | Fe2599 | K_7664 |
|---|---|---|---|---|---|---|---|
| Avge | 46.18 | .0005 | .0010 | .0143 | -.0013 | .0169 | 3.662 |
| SDev | .21 | .0010 | .0011 | .0025 | .0014 | .0018 | .010 |
| %RSD | .4443 | 193.3 | 106.[illegible] | 17.67 | 114.1 | 10.35 | .2651 |
| #1 | 46.33 | -.0002 | .000[illegible] | .0125 | -.00[illegible] | .0157 | 3.655 |

43

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|---|---|---|---|---|---|---|---|
| #2 | 46.04 | .0012 | .0018 | .0161 | -.0002 | .0182 | 3.668 |

| Elem | Li6707 | Mg3832 | Mn2576 | Mo2020 | Na5895 | Ni2316 | Pb2203 |
|---|---|---|---|---|---|---|---|
| Avge | .0142 | 10.31 | .0018 | .0440 | 47.15 | .0001 | .0298 |
| SDev | .0011 | .00 | .0005 | .0014 | .38 | .0021 | .0291 |
| %RSD | 8.081 | .0001 | 28.32 | 3.188 | .8155 | 2312. | 97.78 |
| #1 | .0134 | 10.31 | .0015 | .0430 | 47.42 | .0016 | .0092 |
| #2 | .0150 | 10.31 | .0022 | .0449 | 46.88 | -.0014 | .0503 |

| Elem | Sb2068 | Se1960 | Si2881 | Sn1899 | Sr4215 | Ti3372 | Tl1908 |
|---|---|---|---|---|---|---|---|
| Avge | .0023 | -.0036 | 11.74 | .0037 | .2404 | -.0002 | -.0290 |
| SDev | .0013 | .0056 | .08 | .0034 | .0017 | .0005 | .0787 |
| %RSD | 57.79 | 156.5 | .6759 | 92.79 | .6904 | 304.9 | 271.8 |
| #1 | .0014 | .0004 | 11.80 | .0061 | .2415 | -.0005 | -.0846 |
| #2 | .0033 | -.0076 | 11.68 | .0013 | .2392 | .0002 | .0267 |

| Elem | V_2924 | Zn2138 | Zr3391 |
|---|---|---|---|
| Avge | .0049 | .0056 | .0006 |
| SDev | .0023 | .0000 | .0004 |
| %RSD | 47.53 | .1147 | 70.32 |
| #1 | .0033 | .0056 | .0003 |
| #2 | .0065 | .0056 | .0009 |

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Method: EMS Sample Name: CCV Operator: AAS
Run Time: 08/18/97 23:59:31
Comment:
Mode: CONC Corr. Factor: 1

| Elem | Ag3280 | Al3082 | As1936 | B_2496 | Ba4934 | Be3130 | Bi2230 |
|---|---|---|---|---|---|---|---|
| Avge | .9539 | 4.909 | 4.889 | 4.789 | 4.885 | 4.793 | 4.956 |
| SDev | .0036 | .018 | .003 | .032 | .013 | .017 | .059 |
| %RSD | .3775 | .3703 | .0663 | .6617 | .2604 | .3614 | 1.187 |
| #1 | .9514 | 4.896 | 4.891 | 4.766 | 4.876 | 4.781 | 4.914 |
| #2 | .9565 | 4.922 | 4.886 | 4.811 | 4.894 | 4.805 | 4.997 |

| Elem | Ca3158 | Cd2265 | Co2286 | Cr2677 | Cu3247 | Fe2599 | K_7664 |
|---|---|---|---|---|---|---|---|
| Avge | 49.28 | 4.776 | 4.808 | 4.825 | 4.887 | 4.854 | 49.85 |
| SDev | .16 | .015 | .016 | .017 | .019 | .013 | .28 |
| %RSD | .3160 | .3061 | .3314 | .3450 | .3820 | .2658 | .5646 |
| #1 | 49.17 | 4.766 | 4.797 | 4.813 | 4.874 | 4.845 | 49.65 |
| #2 | 49.39 | 4.787 | 4.819 | 4.836 | 4.900 | 4.863 | 50.05 |

| Elem | Li6707 | Mg3832 | Mn2576 | Mo2020 | Na5895 | Ni2316 | Pb2203 |
|---|---|---|---|---|---|---|---|
| Avge | 4.942 | 49.43 | 4.820 | .9738 | 50.53 | 4.784 | 4.806 |
| SDev | .025 | .12 | .012 | .0070 | .23 | .023 | .002 |
| %RSD | .5053 | .2332 | .2566 | .7186 | .4610 | .4898 | .0388 |
| #1 | 4.924 | 49.35 | 4.811 | .9688 | 50.36 | 4.767 | 4.804 |
| #2 | 4.959 | 49.51 | 4.828 | .9787 | 50.69 | 4.800 | 4.807 |

| Elem | Sb2068 | Se1960 | Si2881 | Sn1899 | Sr4215 | Ti3372 | Tl1908 |
|---|---|---|---|---|---|---|---|

94

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|---|---|---|---|---|---|---|---|
| Avge | .9605 | 4.914 | 5.212 | 4.658 | 4.857 | 4.904 | 4.852 |
| SDev | .0109 | .006 | .028 | .018 | .015 | .023 | .057 |
| %RSD | 1.139 | .1185 | .5354 | .3819 | .3111 | .4591 | 1.178 |
| #1 | .9682 | 4.910 | 5.193 | 4.646 | 4.846 | 4.888 | 4.893 |
| #2 | .9527 | 4.918 | 5.232 | 4.671 | 4.868 | 4.920 | 4.812 |

| Elem | V_2924 | Zn2138 | Zr3391 |
|---|---|---|---|
| Avge | 4.846 | 4.826 | 4.872 |
| SDev | .014 | .020 | .016 |
| %RSD | .2978 | .4072 | .3257 |
| #1 | 4.836 | 4.812 | 4.861 |
| #2 | 4.856 | 4.840 | 4.883 |

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Method: EMS Sample Name: BLA01 Operator: AAS
Run Time: 08/19/97 00:02:00
Comment:
Mode: CONC Corr. Factor: 1

| Elem | Ag3280 | Al3082 | As1936 | B_2496 | Ba4934 | Be3130 | Bi2230 |
|---|---|---|---|---|---|---|---|
| Avge | -.0029 | .0256 | -.0089 | .0117 | .0023 | .0024 | .0311 |
| SDev | .0018 | .0074 | .0124 | .0007 | .0006 | .0009 | .0079 |
| %RSD | 62.55 | 28.90 | 139.2 | 5.655 | 23.57 | 35.51 | 25.30 |
| #1 | -.0016 | .0308 | -.0001 | .0121 | .0020 | .0031 | .0256 |
| #2 | -.0041 | .0204 | -.0176 | .0112 | .0027 | .0018 | .0367 |

| Elem | Ca3158 | Cd2265 | Co2286 | Cr2677 | Cu3247 | Fe2599 | K_7664 |
|---|---|---|---|---|---|---|---|
| Avge | .0441 | H.0062 | .0015 | .0029 | .0150 | .0037 | .0549 |
| SDev | .0009 | .0010 | .0004 | .0015 | .0000 | .0018 | .0146 |
| %RSD | 2.057 | 16.30 | 23.55 | 53.06 | .0028 | 47.00 | 26.52 |
| #1 | .0448 | H.0055 | .0018 | .0018 | .0150 | .0025 | .0446 |
| #2 | .0435 | H.0070 | .0013 | .0039 | .0150 | .0049 | .0652 |

| Elem | Li6707 | Mg3832 | Mn2576 | Mo2020 | Na5895 | Ni2316 | Pb2203 |
|---|---|---|---|---|---|---|---|
| Avge | .0068 | .1049 | .0000 | .0060 | .0635 | .0047 | .0162 |
| SDev | .0003 | .0165 | .0010 | .0018 | .0112 | .0013 | .0015 |
| %RSD | 5.055 | 15.72 | 66950. | 29.53 | 17.68 | 26.39 | 9.274 |
| #1 | .0066 | .1165 | .0007 | .0072 | .0714 | .0039 | .0173 |
| #2 | .0070 | .0932 | -.0007 | .0047 | .0556 | .0056 | .0151 |

| Elem | Sb2068 | Se1960 | Si2881 | Sn1899 | Sr4215 | Ti3372 | Tl1908 |
|---|---|---|---|---|---|---|---|
| Avge | .0038 | .0161 | .0271 | .0000 | .0013 | .0018 | .0343 |
| SDev | .0013 | .0113 | .0066 | .0051 | .0002 | .0014 | .0218 |
| %RSD | 34.97 | 70.36 | 24.15 | 140500. | 14.13 | 77.09 | 63.70 |
| #1 | .0029 | .0241 | .0317 | .0036 | .0012 | .0028 | .0188 |
| #2 | .0048 | .0081 | .0225 | -.0036 | .0014 | .0008 | .0497 |

| Elem | V_2924 | Zn2138 | Zr3391 |
|---|---|---|---|
| Avge | .0028 | .0093 | .0036 |
| SDev | .0014 | .0013 | .0004 |
| %RSD | 49.[illegible] | 14.25 | 11.[illegible] |

| Elem | Sb2068 | Se1960 | Si2881 | Sn1899 | Sr4215 | Ti3372 | Tl1908 |
|---|---|---|---|---|---|---|---|
| Avge | .0048 | .0160 | .0224 | .0048 | -.0001 | .0019 | -.0121 |
| SDev | .0054 | .0113 | .0013 | .0000 | .0000 | .0007 | .0385 |
| %RSD | 112.8 | 70.51 | 5.804 | .0194 | .1040 | 35.34 | 317.3 |
| #1 | .0010 | .0240 | .0233 | .0048 | -.0001 | .0024 | .0151 |
| #2 | .0086 | .0080 | .0215 | .0048 | -.0001 | .0015 | -.0393 |

| Elem | V_2924 | Zn2138 | Zr3391 |
|---|---|---|---|
| Avge | .0020 | .0005 | .0027 |
| SDev | .0007 | .0020 | .0009 |
| %RSD | 35.24 | 435.4 | 31.43 |
| #1 | .0015 | .0019 | .0033 |
| #2 | .0025 | -.0009 | .0021 |

Method: EMS Sample Name: DLS Operator: AAS
Run Time: 08/19/97 01:31:36
Comment:
Mode: CONC Corr. Factor: 1

| Elem | Ag3280 | Al3082 | As1936 | B_2496 | Ba4934 | Be3130 | Bi2230 |
|---|---|---|---|---|---|---|---|
| Avge | .0102 | .0443 | -.0049 | .0023 | .0106 | .0055 | -.0006 |
| SDev | .0005 | .0141 | .0058 | .0007 | .0000 | .0000 | .0084 |
| %RSD | 4.595 | 31.88 | 119.8 | 28.58 | .0000 | .0603 | 1353. |
| #1 | .0099 | .0343 | -.0090 | .0028 | .0106 | .0055 | .0053 |
| #2 | .0106 | .0543 | -.0007 | .0018 | .0106 | .0055 | -.0066 |

| Elem | Ca3158 | Cd2265 | Co2286 | Cr2677 | Cu3247 | Fe2599 | K_7664 |
|---|---|---|---|---|---|---|---|
| Avge | -.0149 | .0048 | .0105 | .0107 | .0190 | .0256 | .0824 |
| SDev | .0005 | .0010 | .0000 | .0005 | .0014 | .0000 | .0146 |
| %RSD | 3.041 | 20.73 | .0287 | 4.713 | 7.533 | .0019 | 17.68 |
| #1 | -.0152 | .0041 | .0105 | .0103 | .0200 | .0256 | .0927 |
| #2 | -.0146 | .0055 | .0105 | .0111 | .0180 | .0256 | .0721 |

| Elem | Li6707 | Mg3832 | Mn2576 | Mo2020 | Na5895 | Ni2316 | Pb2203 |
|---|---|---|---|---|---|---|---|
| Avge | .0017 | .0640 | .0087 | -.0008 | .0238 | .0139 | .0445 |
| SDev | .0007 | .0083 | .0000 | .0021 | .0112 | .0025 | .0043 |
| %RSD | 40.44 | 12.89 | .0012 | 275.6 | 47.14 | 18.03 | 9.545 |
| #1 | .0022 | .0699 | .0087 | -.0023 | .0318 | H.0157 | .0475 |
| #2 | .0012 | .0582 | .0087 | .0007 | .0159 | .0121 | .0415 |

| Elem | Sb2068 | Se1960 | Si2881 | Sn1899 | Sr4215 | Ti3372 | Tl1908 |
|---|---|---|---|---|---|---|---|
| Avge | H.0478 | .0003 | .0076 | -.0012 | -.0001 | .0003 | .0435 |
| SDev | .0041 | .0000 | .0052 | .0034 | .0000 | .0011 | .0927 |
| %RSD | 8.482 | 4.805 | 68.72 | 282.0 | .0000 | 351.8 | 21[illegible]1 |
| #1 | H.0507 | .0002 | .0113 | -.0036 | -.0001 | .0011 | -.0220 |
| #2 | .0450 | .0003 | .0039 | .0012 | -.0001 | -.0005 | .1091 |

| Elem | V_2924 | Zn2138 | Zr3391 |
|---|---|---|---|
| Avge | .0112 | .0195 | .0006 |

46

| | | | |
|---|---|---|---|
| SDev | .0012 | .0000 | .0021 |
| %RSD | 10.41 | .0598 | 351.6 |
| #1 | .0104 | .0195 | .0021 |
| #2 | .0120 | .0195 | -.0009 |

Method: EMS  Sample Name: CDL01  Operator: AAS
Run Time: 08/19/97 01:34:06
Comment:
Mode: CONC  Corr. Factor: 1

| Elem | Ag3280 | Al3082 | As1936 | B_2496 | Ba4934 | Be3130 | Bi2230 |
|---|---|---|---|---|---|---|---|
| Avge | .0223 | -.0178 | .0222 | -.0007 | .0008 | .0094 | .0018 |
| SDev | .0022 | .0037 | .0280 | .0020 | .0000 | .0004 | .0198 |
| %RSD | 10.03 | 20.78 | 125.9 | 292.3 | .0000 | 4.606 | 1082. |
| #1 | .0239 | -.0152 | .0420 | -.0021 | .0008 | .0097 | .0159 |
| #2 | .0207 | -.0205 | .0024 | .0007 | .0008 | .0091 | -.0122 |

| Elem | Ca3158 | Cd2265 | Co2286 | Cr2677 | Cu3247 | Fe2599 | K_7664 |
|---|---|---|---|---|---|---|---|
| Avge | -.0236 | .0085 | .1002 | .0214 | .0453 | .0009 | .0927 |
| SDev | .0005 | .0003 | .0011 | .0005 | .0004 | .0000 | .0485 |
| %RSD | 1.924 | 3.714 | 1.090 | 2.363 | .7887 | .2845 | 52.38 |
| #1 | -.0239 | .0082 | .0994 | .0210 | .0455 | .0009 | .1270 |
| #2 | -.0233 | .0087 | .1009 | .0217 | .0450 | .0009 | .0583 |

| Elem | Li6707 | Mg3832 | Mn2576 | Mo2020 | Na5895 | Ni2316 | Pb2203 |
|---|---|---|---|---|---|---|---|
| Avge | .0019 | .0408 | .0281 | -.0028 | .0119 | .0813 | .0929 |
| SDev | .0000 | .0082 | .0005 | .0000 | .0056 | .0050 | .0041 |
| %RSD | .0105 | 20.22 | 1.835 | .0265 | 47.14 | 6.170 | 4.433 |
| #1 | .0019 | .0466 | .0277 | -.0028 | .0079 | .0849 | .0958 |
| #2 | .0019 | .0349 | .0284 | -.0028 | .0159 | .0778 | .0900 |

| Elem | Sb2068 | Se1960 | Si2881 | Sn1899 | Sr4215 | Ti3372 | Tl1908 |
|---|---|---|---|---|---|---|---|
| Avge | .1175 | .0120 | -.0016 | -.0006 | -.0004 | .0005 | -.0139 |
| SDev | .0176 | .0057 | .0026 | .0008 | .0000 | .0000 | .0175 |
| %RSD | 14.97 | 47.17 | 166.0 | 140.3 | .0000 | .0341 | 125.6 |
| #1 | .1050 | .0080 | .0003 | -.0012 | -.0004 | .0005 | -.0262 |
| #2 | .1299 | .0160 | -.0035 | -.0000 | -.0004 | .0005 | -.0016 |

| Elem | V_2924 | Zn2138 | Zr3391 |
|---|---|---|---|
| Avge | .0986 | .0364 | .0024 |
| SDev | .0002 | .0006 | .0021 |
| %RSD | .2321 | 1.753 | 88.14 |
| #1 | .0988 | .0369 | .0039 |
| #2 | .0984 | .0360 | .0009 |

Method: EMS  Sample Name: ICS-A  Operator: AAS
Run Time: 08/19/97 01:36:36
Comment:

Mode: CONC  Corr. Factor: 1

| Elem | Ag3280 | Al3082 | As1936 | B_2496 | Ba4934 | Be3130 | Bi2230 |
|---|---|---|---|---|---|---|---|
| Avge | .0019 | 497.8 | -.0183 | .0098 | .0045 | .0006 | .0192 |
| SDev | .0014 | .3 | .0868 | .0073 | .0003 | .0000 | .0083 |
| %RSD | 70.86 | .0513 | 475.0 | 74.09 | 6.149 | .2173 | 43.07 |
| #1 | .0029 | 497.6 | -.0796 | .0150 | .0043 | .0006 | .0251 |
| #2 | .0010 | 498.0 | .0431 | .0047 | .0047 | .0006 | .0134 |

| Elem | Ca3158 | Cd2265 | Co2286 | Cr2677 | Cu3247 | Fe2599 | K_7664 |
|---|---|---|---|---|---|---|---|
| Avge | 471.3 | -.0019 | .0005 | -.0000 | -.0145 | 177.1 | -.1098 |
| SDev | 1.5 | .0008 | .0004 | .0005 | .0010 | .5 | .0922 |
| %RSD | .3168 | 44.64 | 70.68 | 19790. | 6.759 | .2806 | 83.97 |
| #1 | 470.2 | -.0013 | .0003 | .0004 | -.0138 | 176.7 | -.1750 |
| #2 | 472.3 | -.0024 | .0008 | -.0004 | -.0152 | 177.4 | -.0446 |

| Elem | Li6707 | Mg3832 | Mn2576 | Mo2020 | Na5895 | Ni2316 | Pb2203 |
|---|---|---|---|---|---|---|---|
| Avge | -.0125 | 498.0 | .0040 | -.0004 | -.0714 | -.0056 | .0170 |
| SDev | .0008 | .0 | .0005 | .0014 | .0112 | .0000 | .0027 |
| %RSD | 6.431 | .0048 | 12.85 | 366.3 | 15.71 | .0444 | 15.90 |
| #1 | -.0130 | 498.0 | .0044 | -.0014 | -.0635 | -.0056 | .0151 |
| #2 | -.0119 | 498.0 | .0036 | .0006 | -.0794 | -.0056 | .0190 |

| Elem | Sb2068 | Se1960 | Si2881 | Sn1899 | Sr4215 | Ti3372 | Tl1908 |
|---|---|---|---|---|---|---|---|
| Avge | .0180 | .0185 | .0018 | -.0043 | .0100 | .0010 | .1080 |
| SDev | .0107 | .0445 | .0106 | .0094 | .0000 | .0002 | .1059 |
| %RSD | 59.50 | 240.5 | 575.9 | 219.7 | .0014 | 23.61 | 98.02 |
| #1 | .0104 | -.0130 | -.0056 | .0024 | .0100 | .0008 | -.1829 |
| #2 | .0256 | .0500 | .0093 | -.0109 | .0100 | .0011 | .0332 |

| Elem | V_2924 | Zn2138 | Zr3391 |
|---|---|---|---|
| Avge | .0049 | .0061 | .0055 |
| SDev | .0009 | .0013 | .0004 |
| %RSD | 18.62 | 21.05 | 7.860 |
| #1 | .0055 | .0052 | .0058 |
| #2 | .0042 | .0070 | .0052 |

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Method: EMS  Sample Name: ICS  Operator: AAS
Run Time: 08/19/97 01:39:05
Comment:
Mode: CONC  Corr. Factor: 1

| Elem | Ag3280 | Al3082 | As1936 | B_2496 | Ba4934 | Be3130 | Bi2230 |
|---|---|---|---|---|---|---|---|
| Avge | .2025 | 495.5 | .0649 | .0116 | .4936 | .4587 | .0400 |
| SDev | .0000 | 4.2 | .0147 | .0112 | .0039 | .0035 | .0215 |
| %RSD | .0213 | .8475 | 22.61 | 96.79 | .7844 | .7535 | 53.89 |
| #1 | .2026 | 498.5 | .0753 | .0195 | .4963 | .4611 | H.0552 |
| #2 | .2025 | 492.6 | .0545 | .0037 | .4908 | .4562 | .0247 |

| Elem | Ca3158 | Cd2265 | Co2286 | Cr2677 | Cu3247 | Fe2599 | K_7664 |
|---|---|---|---|---|---|---|---|
| Avge | 473.4 | .8859 | .4543 | .4490 | .4667 | 177.7 | .0275 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| SDev | 2.8 | .0077 | .0018 | .0020 | .0045 | 1.2 | .0340 |
| %RSD | .5902 | .8642 | .3988 | .4489 | .9691 | .6569 | 123.7 |
| #1 | 475.3 | .8913 | .4556 | .4504 | .4699 | 178.5 | .0034 |
| #2 | 471.4 | .8804 | .4530 | .4476 | .4635 | 176.9 | .0515 |

| Elem | Li6707 | Mg3832 | Mn2576 | Mo2020 | Na5895 | Ni2316 | Pb2203 |
|---|---|---|---|---|---|---|---|
| Avge | -.0117 | 495.9 | .4615 | -.0027 | -.0437 | .8725 | .9325 |
| SDev | .0011 | 4.0 | .0036 | .0014 | .0168 | .0050 | .0039 |
| %RSD | 9.814 | .8139 | .7812 | 50.44 | 38.57 | .5749 | .4194 |
| #1 | -.0125 | 498.8 | .4640 | -.0037 | -.0318 | .8760 | .9353 |
| #2 | -.0109 | 493.1 | .4589 | -.0017 | -.0556 | .8689 | .9298 |

| Elem | Sb2068 | Se1960 | Si2881 | Sn1899 | Sr4215 | Ti3372 | Tl1908 |
|---|---|---|---|---|---|---|---|
| Avge | .5777 | .0562 | .0068 | -.0056 | .0098 | .0023 | .0188 |
| SDev | .0026 | .0165 | .0112 | .0027 | .0000 | .0011 | .0640 |
| %RSD | .4527 | 29.31 | 164.9 | 48.75 | .0195 | 48.98 | 340.3 |
| #1 | .5796 | .0446 | .0147 | -.0075 | .0098 | .0032 | -.0265 |
| #2 | .5759 | .0679 | -.0011 | -.0037 | .0098 | .0015 | .0641 |

| Elem | V_2924 | Zn2138 | Zr3391 |
|---|---|---|---|
| Avge | .4679 | .9506 | .0059 |
| SDev | .0047 | .0012 | .0017 |
| %RSD | .9982 | .1279 | 29.05 |
| #1 | .4712 | .9514 | .0047 |
| #2 | .4646 | .9497 | .0071 |

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Method: EMS  Sample Name: CCV  Operator: AAS
Run Time: 08/19/97 01:41:35
Comment:
Mode: CONC  Corr. Factor: 1

| Elem | Ag3280 | Al3082 | As1936 | B_2496 | Ba4934 | Be3130 | Bi2230 |
|---|---|---|---|---|---|---|---|
| Avge | .9613 | 5.000 | 4.919 | 4.834 | 4.856 | 4.804 | 4.701 |
| SDev | .0014 | .023 | .055 | .001 | .020 | .018 | .028 |
| %RSD | .1483 | .4592 | 1.110 | .0128 | .4214 | .3783 | .6030 |
| #1 | .9623 | 5.016 | 4.958 | 4.834 | 4.871 | 4.817 | 4.721 |
| #2 | .9603 | 4.983 | 4.880 | 4.833 | 4.842 | 4.792 | 4.681 |

| Elem | Ca3158 | Cd2265 | Co2286 | Cr2677 | Cu3247 | Fe2599 | K_7664 |
|---|---|---|---|---|---|---|---|
| Avge | 49.32 | 4.763 | 4.793 | 4.802 | 4.885 | 4.897 | 49.79 |
| SDev | .19 | .023 | .018 | .014 | .012 | .030 | .17 |
| %RSD | .3829 | .4766 | .3779 | .2835 | .2356 | .6217 | .3411 |
| #1 | 49.45 | 4.779 | 4.806 | 4.811 | 4.893 | 4.918 | 49.91 |
| #2 | 49.18 | 4.747 | 4.780 | 4.792 | 4.877 | 4.875 | 49.67 |

| Elem | Li6707 | Mg3832 | Mn2576 | Mo2020 | Na5895 | Ni2316 | Pb2203 |
|---|---|---|---|---|---|---|---|
| Avge | 4.916 | 49.76 | 4.791 | .9666 | 50.01 | 4.778 | 4.818 |
| SDev | .013 | .25 | .0[illegible] | .0038 | .06 | .019 | .034 |
| %RSD | .2563 | .4967 | .46[illegible] | .3976 | .1271 | .4020 | .7044 |

49

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| #1 | 4.925 | 49.93 | 4.804 | .9693 | 50.06 | 4.791 | 4.842 |
| #2 | 4.907 | 49.58 | 4.779 | .9639 | 49.97 | 4.764 | 4.794 |

| Elem | Sb2068 | Se1960 | Si2881 | Sn1899 | Sr4215 | Ti3372 | Tl1908 |
|---|---|---|---|---|---|---|---|
| Avge | .9780 | 4.846 | 5.176 | 4.765 | 4.832 | 4.894 | 4.803 |
| SDev | .0109 | .023 | .007 | .014 | .020 | .023 | .027 |
| %RSD | 1.111 | .4736 | .1416 | .3040 | .4042 | .4741 | .5548 |
| #1 | .9857 | 4.862 | 5.182 | 4.756 | 4.845 | 4.910 | 4.764 |
| #2 | .9703 | 4.830 | 5.171 | 4.775 | 4.818 | 4.877 | 4.822 |

| Elem | V_2924 | Zn2138 | Zr3391 |
|---|---|---|---|
| Avge | 4.841 | 4.867 | 4.851 |
| SDev | .026 | .006 | .018 |
| %RSD | .5367 | .1335 | .3625 |
| #1 | 4.859 | 4.871 | 4.863 |
| #2 | 4.822 | 4.862 | 4.838 |

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Method: EMS  Sample Name: BLA01  Operator: AAS
Run Time: 08/19/97 01:44:04
Comment:
Mode: CONC  Corr. Factor: 1

| Elem | Ag3280 | Al3082 | As1936 | B_2496 | Ba4934 | Be3130 | Bi2230 |
|---|---|---|---|---|---|---|---|
| Avge | -.0013 | .0257 | .0086 | .0103 | .0014 | .0015 | .0148 |
| SDev | .0005 | .0123 | .0202 | .0013 | .0003 | .0004 | .0126 |
| %RSD | 35.59 | 47.97 | 233.8 | 12.84 | 20.20 | 26.42 | 86.45 |
| #1 | -.0009 | .0170 | .0229 | .0112 | .0016 | .0018 | .0239 |
| #2 | -.0016 | .0344 | -.0056 | .0093 | .0012 | .0012 | .0058 |

| Elem | Ca3158 | Cd2265 | Co2286 | Cr2677 | Cu3247 | Fe2599 | K_7664 |
|---|---|---|---|---|---|---|---|
| Avge | .0480 | -.0005 | .0005 | .0011 | .0091 | .0161 | .0206 |
| SDev | .0077 | .0003 | .0011 | .0000 | .0025 | .0029 | .0631 |
| %RSD | 16.08 | 71.18 | 212.7 | .0226 | 27.51 | 18.13 | 306.4 |
| #1 | .0534 | -.0002 | .0013 | .0011 | .0109 | .0182 | -.0340 |
| #2 | .0425 | -.0007 | -.0003 | .0011 | .0074 | .0140 | .0657 |

| Elem | Li6707 | Mg3832 | Mn2576 | Mo2020 | Na5895 | Ni2316 | Pb2203 |
|---|---|---|---|---|---|---|---|
| Avge | .0050 | .1457 | .0000 | .0010 | .0000 | .0000 | .0031 |
| SDev | .0001 | .0247 | .0000 | .0010 | .0000 | .0004 | .0087 |
| %RSD | 2.285 | 16.98 | 92.29 | 106.2 | .0000 | 24290. | 283.8 |
| #1 | .0049 | .1631 | .0000 | .0002 | .0000 | .0003 | .0031 |
| #2 | .0051 | .1282 | .0000 | .0017 | .0000 | .0003 | -.0093 |

| Elem | Sb2068 | Se1960 | Si2881 | Sn1899 | Sr4215 | Ti3372 | Tl1908 |
|---|---|---|---|---|---|---|---|
| Avge | -.0010 | .0162 | .0135 | .0040 | .0004 | .0011 | .0429 |
| SDev | .0108 | .0113 | .0059 | .0017 | .0000 | .0014 | .0751 |
| %RSD | 1131. | 69.85 | 43.58 | 35.48 | .0348 | 121.2 | 1750. |
| #1 | -.0086 | .0082 | .0177 | .0040 | .0004 | .0021 | [illegible] |
| #2 | .0067 | .0242 | .0094 | .0040 | -.0004 | .0002 | .1039 |

52

| Elem | V_2924 | Zn2138 | Zr3391 |
|---|---|---|---|
| Avge | .0013 | .0029 | .0009 |
| SDev | .0002 | .0007 | .0000 |
| %RSD | 17.40 | 28.37 | .0000 |
| #1 | .0015 | .0028 | .0009 |
| #2 | .0012 | .0019 | .0009 |

Method: EMS  Sample Name: Q730202 BLA02  Operator: AAS
Run Time: 06/19/97 01:46:34
Comment:
Mode: CONC  Corr. Factor: 1

| Elem | Ag2[illegible] | Al1082 | As1937 | B_2496 | Ba4554 | Be[illegible] | Bi2[illegible] |
|---|---|---|---|---|---|---|---|
| Avge | .0018 | .0074 | -.0037 | 0.0078 | .0000 | [illegible] | .0050 |
| SDev | .0009 | .0025 | .0046 | .0007 | .0000 | .0004 | .0041 |
| %RSD | 56.09 | 33.47 | 122.3 | .9777 | .0000 | 140.8 | [illegible] |
| #1 | -.0010 | .0057 | -.0005 | 0.0073 | [illegible] | .0006 | .0021 |
| #2 | .0022 | .0092 | -.0069 | 0.0082 | .0000 | .0009 | .0078 |

| Elem | Ca3158 | Cd2265 | Co2286 | Cr2677 | Cu3247 | Fe[illegible] | K_7664 |
|---|---|---|---|---|---|---|---|
| Avge | .0634 | -.0007 | .0008 | .00[illegible] | .0015 | .0161 | .0010 |
| SDev | .0050 | .0007 | .0007 | .0[illegible] | .0004 | .0006 | .0049 |
| %RSD | 7.877 | 94.77 | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| #1 | .0669 | -.0002 | .00[illegible] | .0069 | .0018 | .0165 | .0052 |
| #2 | .0599 | -.0012 | .000[illegible] | .0052 | .0013 | .0157 | [illegible] |

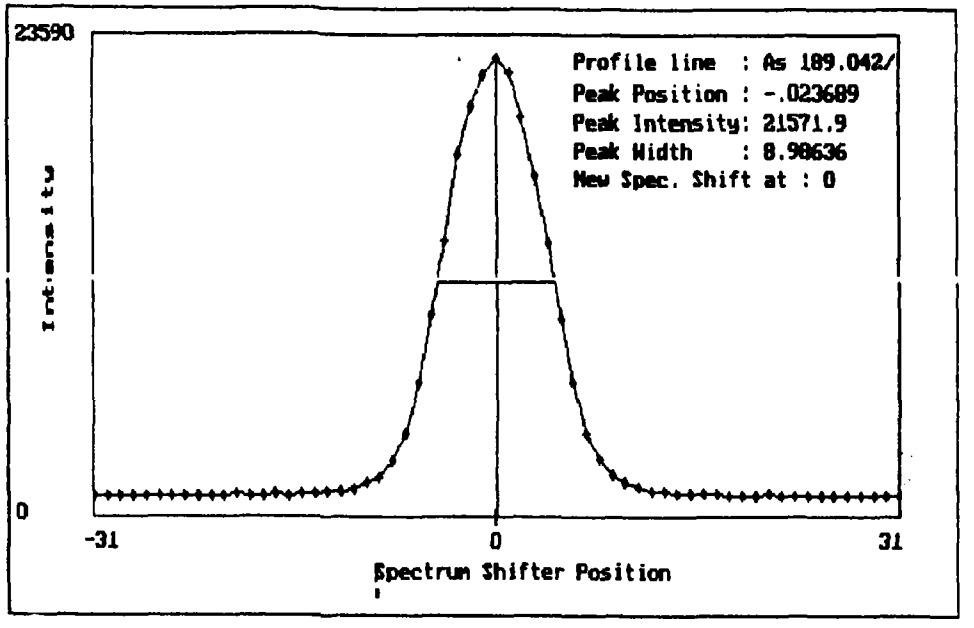
| Elem | Li6707 | Mg8842 | Mn2576 | Mo2020 | Na5895 | Ni2316 | Pb[illegible] |
|---|---|---|---|---|---|---|---|
| Avge | .0013 | .0583 | .0000 | .0010 | .1985 | .0012 | .0051 |
| SDev | .0010 | .0165 | .0000 | .0004 | .0004 | .0015 | .0001 |
| %RSD | 79.59 | 28.30 | 110.0 | [illegible] | 2.006 | 1[illegible] | 1.0[illegible] |
| #1 | .0006 | .0466 | .0000 | .0008 | .1985 | .0001 | .0051 |
| #2 | .0020 | .0699 | .0000 | -.0012 | .1985 | -.0021 | -.0050 |

| Elem | Sb2068 | Se1960 | Si2881 | Sn1899 | Sr[illegible] | Ti[illegible] | Tl1908 |
|---|---|---|---|---|---|---|---|
| Avge | .0028 | .0202 | .1151 | .0042 | -.0050 | -.0005 | .0060 |
| SDev | .0059 | .0283 | .0105 | .0076 | .0000 | .0009 | .0426 |
| %RSD | 1[illegible].4 | 140.3 | 9.158 | 181.9 | 477500 | 180.5 | 633.5 |
| #1 | .0010 | .0002 | .1077 | -.0012 | .0001 | .0011 | [illegible] |
| #2 | .0066 | .0402 | .1226 | .0096 | -.0001 | .0002 | .0300 |

| Elem | V_2924 | Zn2138 | Zr3391 |
|---|---|---|---|
| Avge | -.0005 | .0112 | .0021 |
| SDev | .0009 | .0013 | .0009 |
| %RSD | 195.8 | 11.74 | 40.39 |
| #1 | .0002 | .0121 | .0027 |
| #2 | -.0011 | .0103 | .0015 |

Method: EMS  Sample Name: Q730201 LCS  Operator: AAS

5




TRACE 231 8-19-97 ASL 2371 START 0745 END 1415 1 of 2

A415302 Pb

A415520 As PbSe

A415522 As PbSe

A415574 As cd Pb Se Tl (R0 totals)

A415574 As cd Pb Se Tl (R1 totals)

A416935-936, A417040 As, Be

52

Method: YTTRIUM Standard: STD1-Blank

| Elem | As1890 | Tl1908 | Cr2677 | Sb2068 | Ag1280 | V 2924 | Be1140 |
|---|---|---|---|---|---|---|---|
| Avge | .0034 | -.0285 | .00963 | .0194 | -.00004 | -.00000 | .61984 |
| SDev | .0044 | .0009 | .00224 | .0143 | .00675 | .00025 | .00691 |
| %RSD | 132.1 | 3.235 | 23.247 | 36.18 | 16087. | 27390. | 1.1205 |
| #1 | .0065 | -.0279 | .01121 | .0495 | .00473 | -.00018 | .62475 |
| #2 | .0002 | -.0292 | .00805 | .0294 | -.00482 | .00018 | .61493 |

| Elem | Co2286 | Mn2576 | Fe2714 | Al3082 | Ca3179 | Mg2790 | 2265-1 |
|---|---|---|---|---|---|---|---|
| Avge | .00016 | .00007 | .0045 | .0720 | .0129 | .0049 | .00195 |
| SDev | .00003 | .00003 | .0019 | .0001 | .0000 | .0012 | .02421 |
| %RSD | 19.487 | 47.788 | 41.68 | .2067 | .2425 | 24.60 | 1238.5 |
| #1 | .00013 | .00009 | .0058 | .0721 | .0129 | .0057 | .01907 |
| #2 | .00018 | .00004 | .0031 | .0719 | .0129 | .0040 | -.01516 |

| Elem | 2265-2 | 2203-1 | 2203-2 | 1960-1 | 1960-2 |
|---|---|---|---|---|---|
| Avge | -.03060 | .0684 | .0086 | -.0190 | .0241 |
| SDev | .01358 | .0732 | .0374 | .0227 | .0103 |
| %RSD | 44.371 | 107.0 | 436.6 | 119.4 | 42.75 |
| #1 | -.04020 | .0166 | .0350 | -.0351 | .0311 |
| #2 | -.02100 | .1201 | -.0179 | -.0030 | .0168 |

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Method: YTTRIUM Standard: STD2

| Elem | As1890 | Tl1908 | Sb2068 | Ag3280 | Be3130 | Co2286 | 2265-1 |
|---|---|---|---|---|---|---|---|
| Avge | 2.831 | 1.766 | 4.371 | 4.5338 | 131.39 | .46472 | 22.123 |
| SDev | .002 | .026 | .014 | .0022 | .06 | .00070 | .268 |
| %RSD | .0838 | 1.459 | .3191 | .04822 | .04784 | .15053 | 1.2121 |
| #1 | 2.829 | 1.748 | 4.381 | 4.5354 | 131.35 | .46522 | 21.934 |
| #2 | 2.832 | 1.784 | 4.362 | 4.5323 | 131.44 | .46423 | 22.313 |

| Elem | 2265-2 | 2203-1 | 2203-2 | 1960-1 | 1960-2 |
|---|---|---|---|---|---|
| Avge | 70.595 | 6.484 | 7.020 | 1.622 | 2.178 |
| SDev | .496 | .147 | .136 | .044 | .043 |
| %RSD | .70221 | 2.272 | 1.931 | 2.718 | 1.974 |
| #1 | 70.946 | 6.588 | 6.924 | 1.653 | 2.148 |
| #2 | 70.244 | 6.380 | 7.115 | 1.591 | 2.208 |

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Method: YTTRIUM Standard: STD3

| | |
|---|---|
| SDev | [illegible] |
| %RSD | [illegible]646 |
| #1 | 6.5034 |
| #2 | 6.5548 |

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Method: YTTRIUM  Standard: STD5

| Elem | V 2924 | Mn2576 |
|---|---|---|
| Avge | .13281 | .09350 |
| SDev | .00051 | .00015 |
| %RSD | .38648 | .16490 |
| #1 | .13317 | .09361 |
| #2 | .13244 | .09339 |

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Method: YTTRIUM  Standard: STD4

| Elem | Fe2714 | Al3082 | Ca3179 | Mg2790 |
|---|---|---|---|---|
| Avge | 47.48 | 114.9 | 57.86 | 164.4 |
| SDev | .36 | .8 | .40 | 1.3 |
| %RSD | .7484 | .7177 | .6866 | .7633 |
| #1 | 47.73 | 115.5 | 58.14 | 165.3 |
| #2 | 47.23 | 114.3 | 57.58 | 163.5 |

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Method: YTTRIUM  Sample Name: TCCV  Operator: AZR
Run Time: 08/19/97 07:59:49
Comment:
Mode: CONC  Corr. Factor: 1

| Elem | As1890 | Pb2203 | Se1960 | Cd2265 | Tl1908 | Cr2677 | Sb2068 |
|---|---|---|---|---|---|---|---|
| Avge | .0963 | .1009 | .1002 | .10189 | .1002 | .10319 | .0967 |
| SDev | .0014 | .0001 | .0008 | .00001 | .0031 | .00014 | .0022 |
| %RSD | 1.476 | .0854 | .8241 | .01158 | 3.126 | .13690 | 2.309 |
| #1 | .0953 | .1010 | .0996 | .10190 | .0980 | .10309 | .0952 |
| #2 | .0973 | .1009 | .1008 | .10188 | .1024 | .10329 | .0983 |

| Elem | Ag3280 | V 2924 | Be3130 | Co2286 | Mn2576 | Fe2714 | Al3082 |
|---|---|---|---|---|---|---|---|
| Avge | .09586 | .10041 | .09678 | .09896 | .10090 | .0723 | .1661 |
| SDev | .00046 | .00071 | .00029 | .00045 | .00094 | .0272 | .0734 |
| %RSD | .48288 | .70918 | .29913 | .45112 | .93543 | 37.60 | 44.22 |
| #1 | .09554 | .09990 | .09658 | .09864 | .10023 | .0915 | .2180 |
| #2 | .09619 | .10091 | .09699 | .09928 | .10157 | .0530 | .1142 |

| Elem | Ca3179 | Mg2790 | 2265-1 | 2265-2 | 2203-1 | 2203-2 | 1960-1 |
|---|---|---|---|---|---|---|---|
| Avge | .1853 | .1433 | .10160 | .10203 | .1045 | .0992 | .1019 |
| SDev | .0683 | .0708 | .00013 | .00004 | .0018 | .0010 | .0037 |
| %RSD | 36.83 | 49.43 | .12257 | .04360 | 1.694 | 1.021 | 3.595 |
| #1 | .2336 | .1934 | .10169 | .10200 | .1032 | .0999 | .0993 |
| #2 | .1371 | .0932 | .10152 | .10206 | .1057 | .0984 | .1045 |

[illegible]

| | |
|---|---|
| Avge | 993 |
| SDev | 006 |
| %RSD | 952 |
| #1 | .0998 |
| #2 | .0989 |

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Method: YTTRIUM  Sample Name: BLA01  Operator: AZR
Run Time: 08/19/97 08:04:21
Comment:
Mode: CONC  Corr. Factor: 1

| Elem | As1890 | Pb2203 | Se1960 | Cd2265 | Tl1908 | Cr2677 | Sb2068 |
|---|---|---|---|---|---|---|---|
| Avge | .0004 | -.0005 | -.0004 | -.00012 | -.0006 | -.00045 | -.0007 |
| SDev | .0009 | .0014 | .0016 | .00001 | .0001 | .00031 | .0010 |
| %RSD | 256.6 | 259.2 | 447.3 | 5.0990 | 9.217 | 68.591 | 146.3 |
| #1 | -.0003 | -.0015 | -.0015 | -.00013 | -.0005 | -.00023 | -.0013 |
| #2 | .0010 | .0004 | .0008 | -.00012 | -.0006 | -.00067 | .0000 |

| Elem | Ag3280 | V 2924 | Be3130 | Co2286 | Mn2576 | Fe2714 | Al3082 |
|---|---|---|---|---|---|---|---|
| Avge | -.00138 | -.00025 | -.00002 | -.00062 | -.00000 | .0011 | .0293 |
| SDev | .00050 | .00059 | .00002 | .00010 | .00017 | .0003 | .0062 |
| %RSD | 36.464 | 236.56 | 88.417 | 16.155 | 7219.9 | 31.94 | 21.11 |
| #1 | -.00103 | -.00066 | -.00001 | -.00055 | .00012 | .0009 | .0337 |
| #2 | -.00174 | .00017 | -.00004 | -.00069 | -.00012 | .0014 | .0249 |

| Elem | Ca4179 | Mg2790 | 2265-1 | 2265-2 | 2203-1 | 2203-2 | 1960-1 |
|---|---|---|---|---|---|---|---|
| Avge | .0299 | .0273 | -.00003 | -.00017 | -.0012 | -.0002 | -.0014 |
| SDev | .0044 | .0037 | .00010 | .00004 | .0024 | .0009 | .0008 |
| %RSD | 14.57 | 13.57 | 413.03 | 25.146 | 206.0 | 402.5 | 59.88 |
| #1 | .0330 | .0299 | -.00010 | -.00014 | -.0029 | -.0008 | -.0020 |
| #2 | .0269 | .0247 | .00005 | -.00020 | .0005 | .0004 | -.0008 |

| Elem | 1960-2 |
|---|---|
| Avge | .0001 |
| SDev | .0020 |
| %RSD | 1397. |
| #1 | -.0013 |
| #2 | .0016 |

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Method: YTTRIUM  Sample Name: TICV01-19  Operator: AZR
Run Time: 08/19/97 08:07:44
Comment:
Mode: CONC  Corr. Factor: 1

| Elem | As1890 | Pb2203 | Se1960 | Cd2265 | Tl1908 | Cr2677 | Sb2068 |
|---|---|---|---|---|---|---|---|
| Avge | .0479 | .0499 | [illegible]529 | .05104 | .0494 | .05109 | .0483 |
| SDev | .0013 | .0007 | .0029 | .00015 | .0002 | .00079 | .0002 |
| %RSD | 2.714 | 1.431 | 5.544 | .29433 | .4771 | 1.5410 | .3810 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| #3 | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| Elem | ,3280 | V_2924 | e3130 | Co2286 | Mn2576 | Fe27. | A13082 |
| Avge | -.00115 | .05070 | .04800 | .04943 | .05002 | .0584 | -.0171 |
| SDev | .00072 | .00116 | .00005 | .00046 | .00033 | .0145 | .0022 |
| %RSD | 62.239 | 2.2867 | .10870 | .92861 | .66084 | 24.77 | 12.92 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| #1 | -.00065 | .05152 | .04804 | .04975 | .05025 | .0686 | -.0156 |
| #2 | -.00166 | .04988 | .04796 | .04910 | .04979 | .0481 | -.0187 |
| Elem | Ca3179 | Mg2790 | 2265-1 | 2265-2 | 2203-1 | 2203-2 | 1960-1 |
| Avge | -.0008 | .0575 | .05068 | .05122 | .0539 | .0479 | .0564 |
| SDev | .0021 | .0052 | .00048 | .00047 | .0033 | .0006 | .0084 |
| %RSD | 258.6 | 9.085 | .94636 | .90711 | 6.040 | 1.159 | 14.93 |
| #1 | .0007 | .0612 | .05034 | .05155 | .0562 | .0475 | .0624 |
| #2 | -.0023 | .0538 | .05101 | .05090 | .0516 | .0483 | .0505 |
| Elem | 1960-2 | | | | | | |
| Avge | .0511 | | | | | | |
| SDev | .0002 | | | | | | |
| %RSD | .3660 | | | | | | |
| #1 | .0512 | | | | | | |
| #2 | .0509 | | | | | | |

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Method: YTTRIUM Sample Name: TICV01-07 Operator: AZR
Run Time: 08/19/97 08:13:53
Comment:
Mode: CONC Corr. Factor: 1

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Elem | As1890 | Pb2203 | Se1960 | Cd2265 | Tl1908 | Cr2677 | Sb2068 |
| Avge | -.0027 | -.0004 | -.0002 | -.00014 | -.0021 | -.00108 | -.0025 |
| SDev | .0023 | .0002 | .0002 | .00010 | .0011 | .00063 | .0009 |
| %RSD | 82.33 | 52.95 | 84.90 | 71.193 | 52.50 | 58.433 | 36.05 |
| #1 | -.0011 | -.0003 | -.0004 | -.00007 | -.0029 | -.00063 | -.0019 |
| #2 | -.0043 | -.0006 | -.0001 | -.00022 | -.0013 | -.00153 | -.0032 |
| Elem | Ag3280 | V_2924 | Be3130 | Co2286 | Mn2576 | Fe2714 | A13082 |
| Avge | .04665 | .00033 | -.00004 | -.00099 | -.00036 | -.0130 | .0756 |
| SDev | .00089 | .00047 | .00004 | .00069 | .00033 | .0121 | .0048 |
| %RSD | 1.9145 | 144.17 | 99.947 | 70.085 | 93.002 | 93.04 | 6.357 |
| #1 | .04728 | .00066 | -.00001 | -.00050 | -.00012 | -.0044 | .0790 |
| #2 | .04602 | -.00001 | -.00007 | -.00148 | -.00059 | -.0215 | .0722 |
| Elem | Ca3179 | Mg2790 | 2265-1 | 2265-2 | 2203-1 | 2203-2 | 1960-1 |
| Avge | -.0632 | -.0091 | -.00065 | .00011 | .0033 | -.0023 | .0030 |
| SDev | .0020 | .0053 | .00025 | .00003 | .0030 | .0018 | .0052 |
| %RSD | 3.218 | 58.88 | 38.079 | 25.870 | 90.27 | 80.06 | 172.0 |
| #1 | -.0618 | -.0053 | -.00048 | .00013 | .0012 | -.0010 | -.0006 |
| #2 | -.0647 | -.0128 | -.00083 | .00009 | .0055 | .0036 | .0067 |
| Elem | 1960-2 | | | | | | |

56

| | |
|---|---|
| Avge | .0016 |
| SDev | .0023 |
| %RSD | 1.6 |
| #1 | -.0002 |
| #2 | -.0035 |

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Method: YTTRIUM  Sample Name: TICV01-47  Operator: AZR
Run Time: 08/19/97 08:17:15
Comment:
Mode: CONC  Corr. Factor: 1

| Elem | As1890 | Pb2203 | Se1960 | Cd2265 | Tl1908 | Cr2677 | Sb2068 |
|---|---|---|---|---|---|---|---|
| Avge | -.0008 | -.0013 | -.0043 | .00044 | -.0026 | -.00249 | -.0028 |
| SDev | .0000 | .0011 | .0029 | .00003 | .0014 | .00026 | .0034 |
| %RSD | 4.730 | 83.26 | 67.48 | 6.2259 | 54.06 | 10.239 | 120.7 |
| #1 | -.0009 | -.0021 | -.0064 | .00042 | -.0016 | -.00267 | -.0004 |
| #2 | -.0008 | -.0005 | -.0023 | .00046 | -.0037 | -.00231 | -.0051 |

| Elem | Ag3280 | V 2924 | Be3130 | Co2286 | Mn2576 | Fe2714 | Al1082 |
|---|---|---|---|---|---|---|---|
| Avge | -.00310 | -.00142 | -.00034 | -.00163 | -.00050 | 101.9 | 256.9 |
| SDev | .00032 | .00035 | .00002 | .00036 | .00001 | .1 | .4 |
| %RSD | 10.457 | 24.557 | 6.0157 | 22.213 | 1.7167 | .0513 | .1437 |
| #1 | -.00333 | -.00118 | -.00032 | -.00189 | -.00051 | 101.9 | 257.2 |
| #2 | -.00287 | -.00167 | -.00035 | -.00137 | -.00050 | 101.9 | 256.7 |

| Elem | Ca3179 | Mg2790 | 2265-1 | 2265-2 | 2203-1 | 2203-2 | 1960-1 |
|---|---|---|---|---|---|---|---|
| Avge | 248.7 | 256.3 | .00122 | .00006 | -.0147 | .0053 | -.0075 |
| SDev | .1 | .1 | .00012 | .00002 | .0028 | .0003 | .0028 |
| %RSD | .0567 | .0288 | 9.6033 | 30.934 | 18.86 | 5.182 | 37.53 |
| #1 | 248.6 | 256.3 | .00114 | .00007 | -.0167 | .0051 | -.0095 |
| #2 | 248.8 | 256.4 | .00130 | .00004 | -.0127 | .0055 | -.0055 |

| Elem | 1960-2 |
|---|---|
| Avge | -.0027 |
| SDev | .0030 |
| %RSD | 108.3 |
| #1 | -.0048 |
| #2 | -.0006 |

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Method: YTTRIUM  Sample Name: BLA01  Operator: AZR
Run Time: 08/19/97 08:20:37
Comment:
Mode: CONC  Corr. Factor: 1

| Elem | As1890 | Pb2203 | Se1960 | Cd2265 | Tl1908 | Cr2677 | Sb2068 |
|---|---|---|---|---|---|---|---|
| Avge | -.0021 | -.0004 | .0009 | -.00012 | .0003 | -.00077 | -.0018 |
| SDev | .0017 | .0010 | .0027 | .00003 | .0029 | .00115 | .0036 |
| %RSD | 82.12 | 237.1 | 287.9 | 26.708 | 1018. | 148.76 | 201.2 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| #2 | .0009 | .0003 | .0010 | .00010 | .0018 | .00 | [illegible] |
| Elem | Ag3280 | V_2924 | Be3130 | Co2286 | Mn2576 | Fe2714 | Al3082 |
| Avge | -.00120 | .00068 | -.00004 | -.00067 | .00000 | .0288 | .0845 |
| SDev | .00167 | .00096 | .00005 | .00078 | .00017 | .0292 | .0524 |
| %RSD | 139.31 | 141.71 | 142.57 | 116.30 | 14591. | 101.2 | 61.98 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| #1 | -.00002 | H.00136 | .00000 | -.00012 | .00012 | .0495 | .1215 |
| #2 | L-.00238 | -.00000 | -.00007 | L-.00122 | -.00012 | .0082 | .0474 |
| Elem | Ca3179 | Mg2790 | 2265-1 | 2265-2 | 2203-1 | 2203-2 | 1960-1 |
| Avge | .0817 | .0823 | -.00034 | -.00002 | .0012 | -.0012 | -.0008 |
| SDev | .0402 | .0483 | .00003 | .00006 | .0019 | .0006 | .0047 |
| %RSD | 49.17 | 58.70 | 7.7113 | 403.42 | 157.3 | 45.13 | 625.0 |
| #1 | .1101 | .1165 | -.00032 | -.00006 | -.0001 | -.0016 | -.0041 |
| #2 | .0533 | .0481 | -.00036 | .00003 | .0026 | -.0008 | .0026 |
| Elem | 1960-2 | | | | | | |
| Avge | -.0010 | | | | | | |
| SDev | .0017 | | | | | | |
| %RSD | 165.7 | | | | | | |
| #1 | -.0022 | | | | | | |
| #2 | .0002 | | | | | | |

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Method: YTTRIUM Sample Name: TDLS Operator: AZR
Run Time: 08/19/97 08:24:00
Comment:
Mode: CONC Corr. Factor: 1

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Elem | As1890 | Pb2203 | Se1960 | Cd2265 | Tl1908 | Cr2677 | Sb2068 |
| Avge | .0043 | .0044 | .0054 | .00097 | .0079 | .00340 | .0029 |
| SDev | .0003 | .0009 | .0013 | .00014 | .0003 | .00026 | .0014 |
| %RSD | 7.607 | 19.60 | 23.58 | 14.331 | 3.884 | 7.5569 | 47.61 |
| #1 | .0040 | .0050 | .0045 | .00087 | .0081 | .00359 | .0019 |
| #2 | .0045 | .0038 | .0062 | .00107 | .0076 | .00322 | .0019 |
| Elem | Ag3280 | V_2924 | Be3130 | Co2286 | Mn2576 | Fe2714 | Al3082 |
| Avge | -.00087 | .00137 | .00088 | .00029 | .00072 | .0342 | -.0086 |
| SDev | .00043 | .00025 | .00004 | .00017 | .00016 | .0035 | .0040 |
| %RSD | 49.410 | 18.480 | 4.7776 | 60.497 | 21.879 | 10.36 | 47.17 |
| #1 | -.00057 | .00155 | .00091 | .00041 | .00061 | .0317 | -.0057 |
| #2 | -.00118 | .00119 | .00085 | .00017 | .00083 | .0367 | -.0114 |
| Elem | Ca3179 | Mg2790 | 2265-1 | 2265-2 | 2203-1 | 2203-2 | 1960-1 |
| Avge | -.0430 | .0120 | .00120 | .00086 | .0044 | .0044 | .0035 |
| SDev | .0013 | .0004 | .00028 | .00007 | .0023 | .0002 | .0010 |
| %RSD | 3.014 | 3.142 | 23.696 | 7.7617 | 51.69 | 3.613 | 28.20 |
| #1 | -.0421 | .0118 | .00100 | .00081 | .0060 | .0045 | .0028 |
| #2 | -.0440 | .0123 | .00141 | .00090 | .0028 | .0043 | .0012 |
| Elem | 1960-2 | | | | | | |

| | |
|---|---|
| Avge | 063 |
| SDev | 014 |
| %RSD | .28 |
| #1 | .0053 |
| #2 | .0073 |

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Method: YTTRIUM  Sample Name: TCDL01  Operator: AZR
Run Time: 08/19/97 08:27:22
Comment:
Mode: CONC  Corr. Factor: 1

| Elem | As1890 | Pb2203 | Se1960 | Cd2265 | Tl1908 | Cr2677 | Sb2068 |
|---|---|---|---|---|---|---|---|
| Avge | .0187 | .0052 | .0079 | .00998 | .0199 | .01942 | .1154 |
| SDev | .0001 | .0002 | .0015 | .00010 | .0002 | .00038 | .0009 |
| %RSD | .2853 | 3.155 | 18.92 | .99548 | .8421 | 1.9447 | .8071 |
| #1 | .0187 | .0053 | .0069 | .00991 | .0200 | .01915 | .1161 |
| #2 | .0187 | .0051 | .0090 | .01005 | .0198 | .01968 | .1147 |

| Elem | Ag3280 | V 2924 | Be3130 | Co2286 | Mn2576 | Fe2714 | Al3082 |
|---|---|---|---|---|---|---|---|
| Avge | .01815 | .09778 | .00933 | .09750 | .02954 | .0151 | -.0272 |
| SDev | .00031 | .00110 | .00002 | .00005 | .00015 | .0009 | .0004 |
| %RSD | 1.7243 | 1.1228 | .16665 | .05114 | .50867 | 6.158 | 1.447 |
| #1 | .01837 | .09856 | .00934 | .09753 | .02944 | .0158 | -.0275 |
| #2 | .01792 | .09700 | .00932 | .09746 | .02965 | .0145 | -.0269 |

| Elem | Ca3179 | Mg2790 | 2265-1 | 2265-2 | 2203-1 | 2203-2 | 1960-1 |
|---|---|---|---|---|---|---|---|
| Avge | -.0580 | .0023 | .01019 | .00987 | .0026 | .0065 | .0032 |
| SDev | .0006 | .0016 | .00061 | .00016 | .0027 | .0011 | .0024 |
| %RSD | .9700 | 69.07 | 6.0130 | 1.5902 | 105.5 | 16.89 | 76.07 |
| #1 | -.0576 | .0012 | .00976 | .00999 | .0045 | .0058 | .0050 |
| #2 | -.0584 | .0034 | .01063 | .00976 | .0007 | .0073 | .0015 |

| Elem | 1960-2 |
|---|---|
| Avge | .0103 |
| SDev | .0035 |
| %RSD | 33.76 |
| #1 | .0078 |
| #2 | .0128 |

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Method: YTTRIUM  Sample Name: THMCS  Operator: AZR
Run Time: 08/19/97 08:30:44
Comment:
Mode: CONC  Corr. Factor: 1

| Elem | As1890 | Pb2203 | Se1960 | Cd2265 | Tl1908 | Cr2677 | Sb2068 |
|---|---|---|---|---|---|---|---|
| Avge | .4978 | .4979 | .4947 | .49689 | .4994 | -.00110 | .4933 |
| SDev | .0090 | .0066 | .0064 | .00433 | .0046 | .00162 | .0096 |
| %RSD | 1.806 | 1.327 | 1.299 | .87201 | .9289 | 147.33 | 1.947 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| #2 | .0915 | .4933 | .4901 | .49363 | .1964 | .00 | .1865 |

| Elem | Ag3280 | V 2924 | Be3130 | Co2286 | Mn2576 | Fe2714 | Al3082 |
|---|---|---|---|---|---|---|---|
| Avge | .49693 | .00009 | .49857 | .49690 | -.00024 | .0498 | -.0240 |
| SDev | .00802 | .00013 | .00650 | .00764 | .00017 | .0277 | .0117 |
| %RSD | 1.6137 | 140.86 | 1.3037 | 1.5376 | 69.498 | 55.48 | 48.67 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| #1 | .50261 | .00018 | .50317 | .50230 | -.00012 | .0694 | -.0158 |
| #2 | .49126 | .00000 | .49397 | .49149 | -.00036 | .0303 | -.0323 |

| Elem | Ca3179 | Mg2790 | 2265-1 | 2265-2 | 2203-1 | 2203-2 | 1960-1 |
|---|---|---|---|---|---|---|---|
| Avge | -.0592 | .0001 | .50205 | .49432 | .4780 | .5078 | .4764 |
| SDev | .0027 | .0103 | .00719 | .00291 | .0044 | .0121 | .0052 |
| %RSD | 4.581 | 10180. | 1.4311 | .58859 | .9199 | 2.383 | 1.098 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| #1 | -.0572 | .0074 | .50713 | .49638 | .4749 | .5163 | .4727 |
| #2 | -.0611 | -.0072 | .49697 | .49226 | .4811 | .4992 | .4801 |

| Elem | 1960-2 |
|---|---|
| Avge | .5038 |
| SDev | .0123 |
| %RSD | 2.431 |

| | |
|---|---|
| #1 | .5125 |
| #2 | .4952 |

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Method: YTTRIUM Sample Name: ICS-A Operator: AZR
Run Time: 08/19/97 08:34:06
Comment:
Mode: CONC Corr. Factor: 1

| Elem | As1890 | Pb2203 | Se1960 | Cd2265 | Tl1908 | Cr2677 | Sb2068 |
|---|---|---|---|---|---|---|---|
| Avge | -.0040 | -.0004 | -.0083 | H.00200 | -.0003 | -.00361 | -.0062 |
| SDev | .0020 | .0017 | .0035 | .00029 | .0008 | .00007 | .0008 |
| %RSD | 51.07 | 415.2 | 41.75 | 14.541 | 281.3 | 1.8092 | 12.35 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| #1 | -.0026 | .0008 | -.0058 | H.00221 | .0003 | -.00365 | -.0068 |
| #2 | -.0055 | -.0016 | L-.0107 | .00180 | -.0009 | -.00356 | -.0057 |

| Elem | Ag3280 | V_2924 | Be3130 | Co2286 | Mn2576 | Fe2714 | Al3082 |
|---|---|---|---|---|---|---|---|
| Avge | L-.00542 | L-.00553 | -.00062 | L-.00268 | L-.00122 | 201.1 | 499.9 |
| SDev | .00077 | .00023 | .00007 | .00058 | .00000 | 2.7 | 6.9 |
| %RSD | 14.259 | 4.0917 | 11.867 | 21.636 | .16118 | 1.359 | 1.381 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| #1 | L-.00487 | L-.00569 | -.00057 | L-.00227 | L-.00122 | 199.2 | 495.1 |
| #2 | L-.00597 | L-.00537 | -.00067 | L-.00309 | L-.00121 | 203.1 | 504.8 |

| Elem | Ca3179 | Mg2790 | 2265-1 | 2265-2 | 2203-1 | 2203-2 | 1960-1 |
|---|---|---|---|---|---|---|---|
| Avge | 501.4 | 509.4 | .00496 | .00052 | -.0238 | .0113 | -.0209 |
| SDev | 6.9 | 6.4 | .00064 | .00012 | .0012 | .0032 | .0010 |
| %RSD | 1.370 | 1.252 | 12.948 | 22.058 | 5.096 | 28.19 | 4.773 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| #1 | 496.5 | 504.9 | .00541 | .00061 | -.0246 | .0135 | -.0202 |
| #2 | 506.2 | 513.9 | .00451 | .00044 | -.0229 | .0090 | -.0217 |

60

| | |
|---|---|
| Avge | .0020 |
| SDev | .0047 |
| %RSD | 8.0 |
| #1 | .0013 |
| #2 | -.0053 |

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Method: YTTRIUM  Sample Name: FEIEC  Operator:
Run Time: 08/19/97 08:37:57
Comment:
Mode: CONC  Corr. Factor: 1

| Elem | As1890 | Pb2203 | Se1960 | Cd2265 | Tl1908 | Cr2677 | Sb2068 |
|---|---|---|---|---|---|---|---|
| Avge | .0018 | -.0004 | -.0032 | -.00011 | Q-.0038 | Q-.00209 | Q-.0078 |
| SDev | .0002 | .0001 | .0000 | .00004 | .0060 | .00039 | .0000 |
| %RSD | 8.832 | 26.40 | .2659 | 38.667 | .7082 | 18.702 | .2811 |
| #1 | .0019 | -.0005 | -.0032 | -.00008 | Q-.0038 | Q-.00237 | Q-.0078 |
| #2 | .0017 | -.0004 | -.0032 | -.00014 | Q-.0038 | Q-.00182 | Q-.0078 |

| Elem | Ag1280 | V 2924 | Be3130 | Co2286 | Mn2576 | Fe2714 | Al3082 |
|---|---|---|---|---|---|---|---|
| Avge | Q-.00575 | -.00018 | Q-.00015 | Q-.00256 | .00027 | 216.7 | .1176 |
| SDev | .00005 | .00123 | .00003 | .00034 | .00001 | .1 | .0348 |
| %RSD | .91033 | 678.00 | 17.614 | 13.310 | 15.615 | .0474 | 29.62 |
| #1 | Q-.00579 | Q-.00105 | Q-.00013 | Q-.00232 | .00021 | 216.6 | .1422 |
| #2 | Q-.00572 | .00069 | Q-.00017 | Q-.00280 | .00030 | 216.7 | .0930 |

| Elem | Ca3179 | Mg2790 | 2265-1 | 2265-2 | 2203-1 | 2203-2 | 1960-1 |
|---|---|---|---|---|---|---|---|
| Avge | .0793 | .1556 | Q.00077 | Q-.00055 | Q-.0072 | Q.0029 | Q-.0103 |
| SDev | .0293 | .0293 | .00043 | .00015 | .0053 | .0025 | .0053 |
| %RSD | 36.91 | 18.81 | 55.635 | 27.293 | 74.63 | 85.43 | 51.96 |
| #1 | .1000 | .1763 | Q.00107 | Q-.00066 | Q-.0109 | Q.0047 | Q-.0110 |
| #2 | .0586 | .1349 | Q.00047 | Q-.00044 | Q-.0034 | .0012 | Q-.0065 |

| Elem | 1960-2 |
|---|---|
| Avge | .0003 |
| SDev | .0027 |
| %RSD | 883.3 |
| #1 | .0022 |
| #2 | -.0016 |

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Method: YTTRIUM  Sample Name: ICS-A  Operator: AZR
Run Time: 08/19/97 08:43:49
Comment:
Mode: CONC  Corr. Factor: 1

| Elem | As1890 | Pb2203 | Se1960 | Cd2265 | Tl1908 | Cr2677 | Sb2068 |
|---|---|---|---|---|---|---|---|
| Avge | -.0012 | -.0016 | .0041 | .00187 | -.0002 | H.00836 | .0051 |
| SDev | .0036 | .0016 | .0007 | .00016 | .0004 | .00269 | .0036 |
| %RSD | 311.3 | 99.02 | 16.06 | 8.4153 | 34.00 | 32.159 | 70.81 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| #2 | .0037 | -.0005 | -.0037 | .00198 | -.0002 | H.010 | .0077 |

| Elem | Ag3280 | V_2924 | Be3130 | Co2286 | Mn2576 | Fe2714 | Al3082 |
|---|---|---|---|---|---|---|---|
| Avge | .00136 | L-.00467 | -.00053 | .00081 | L-.00030 | 200.8 | 498.9 |
| SDev | .00029 | .00108 | .00001 | .00039 | .00017 | .5 | .5 |
| %RSD | 20.990 | 23.234 | 2.7254 | 48.105 | 54.684 | .2621 | .0903 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| #1 | .00116 | L-.00390 | -.00054 | .00109 | L-.00042 | 201.2 | 499.2 |
| #2 | .00157 | L-.00544 | -.00052 | .00054 | L-.00019 | 200.4 | 498.6 |

| Elem | Ca3179 | Mg2790 | 2265-1 | 2265-2 | 2203-1 | 2203-2 | 1960-1 |
|---|---|---|---|---|---|---|---|
| Avge | 502.0 | 508.2 | .00331 | .00116 | -.0122 | .0036 | -.0080 |
| SDev | 1.1 | 1.9 | .00118 | .00035 | .0091 | .0070 | .0016 |
| %RSD | .2179 | .3675 | 35.582 | 30.500 | 74.95 | 191.2 | 19.55 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| #1 | 502.8 | 509.5 | .00247 | .00141 | -.0057 | -.0013 | -.0069 |
| #2 | 501.2 | 506.9 | .00414 | .00091 | -.0186 | .0086 | -.0092 |

| Elem | 1960-2 |
|---|---|
| Avge | -.0022 |
| SDev | .0018 |
| %RSD | 81.80 |

| | |
|---|---|
| #1 | -.0034 |
| #2 | -.0009 |

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Method: YTTRIUM Sample Name: TICS Operator: AZR
Run Time: 08/19/97 08:49:47
Comment:
Mode: CONC Corr. Factor: 1

| Elem | As1890 | Pb2203 | Se1960 | Cd2265 | Tl1908 | Cr2677 | Sb2068 |
|---|---|---|---|---|---|---|---|
| Avge | .0962 | .0470 | .0479 | .91988 | .0969 | .47302 | .6139 |
| SDev | .0008 | .0002 | .0002 | .00387 | .0008 | .00275 | .0004 |
| %RSD | .8307 | .3620 | .4081 | .42122 | .8354 | .58195 | .0661 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| #1 | .0968 | .0469 | .0481 | .91714 | .0975 | .47107 | .6142 |
| #2 | .0957 | .0472 | .0478 | .92262 | .0964 | .47497 | .6137 |

| Elem | Ag3280 | V_2924 | Be3130 | Co2286 | Mn2576 | Fe2714 | Al3082 |
|---|---|---|---|---|---|---|---|
| Avge | .19927 | .47090 | .49758 | .44658 | .45950 | 199.8 | 495.5 |
| SDev | .00018 | .00255 | .00279 | .00245 | .00221 | 1.2 | 3.4 |
| %RSD | .09161 | .54125 | .55974 | .54739 | .48093 | .5825 | .6835 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| #1 | .19940 | .46910 | .49561 | .44485 | .45794 | 199.0 | 493.1 |
| #2 | .19915 | .47270 | .49955 | .44831 | .46107 | 200.7 | 497.9 |

| Elem | Ca3179 | Mg2790 | 2265-1 | 2265-2 | 2203-1 | 2203-2 | 1960-1 |
|---|---|---|---|---|---|---|---|
| Avge | 499.4 | 504.4 | .94014 | .90977 | .0238 | .0586 | .0377 |
| SDev | 3.1 | 2.5 | .00617 | .00273 | .0000 | .0002 | .0043 |
| %RSD | .6206 | .5055 | .65572 | .30023 | .1769 | .3995 | 11.25 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| #1 | 497.2 | 502.6 | .93579 | .90784 | .0238 | .0585 | .0407 |
| #2 | 501.6 | 506.2 | .94450 | .91170 | .0238 | .0588 | .0347 |

62

| | |
|---|---|
| Avge | 0540 |
| SDev | 018 |
| %RSD | 446 |
| #1 | .0517 |
| #2 | .0543 |

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Method: YTTRIUM  Sample Name: TCCV  Operator: AZR
Run Time: 08/19/97 08:53:09
Comment:
Mode: CONC  Corr. Factor: 1

| Elem | As1890 | Pb2203 | Se1960 | Cd2265 | Tl1908 | Cr2677 | Sb2068 |
|---|---|---|---|---|---|---|---|
| Avge | .0945 | .0995 | .0979 | .09976 | .0986 | .10003 | .0911 |
| SDev | .0023 | .0019 | .0032 | .00146 | .0018 | .00156 | .0025 |
| %RSD | 2.443 | 1.950 | 3.262 | 1.4637 | 1.801 | 1.5621 | 2.668 |
| #1 | .0929 | .0982 | .0957 | .09873 | .0973 | .09893 | .0923 |
| #2 | .0962 | .1009 | .1002 | .10079 | .0999 | .10114 | .0958 |

| Elem | Ag3280 | V 2924 | Be3130 | Co2286 | Mn2576 | Fe2714 | Al3082 |
|---|---|---|---|---|---|---|---|
| Avge | .09322 | .09682 | .09481 | .09610 | .09842 | .0889 | .1963 |
| SDev | .00100 | .00163 | .00103 | .00106 | .00137 | .0205 | .0466 |
| %RSD | 1.0715 | 1.6821 | 1.0807 | 1.1032 | 1.3959 | 23.11 | 23.72 |
| #1 | .09252 | .09566 | .09408 | .09535 | .09745 | .1031 | .2292 |
| #2 | .09393 | .09797 | .09553 | .09685 | .09939 | .0744 | .1633 |

| Elem | Ca3179 | Mg2790 | 2265-1 | 2265-2 | 2203-1 | 2203-2 | 1960-1 |
|---|---|---|---|---|---|---|---|
| Avge | .2220 | .1829 | .10002 | .09963 | .1009 | .0989 | .0990 |
| SDev | .0453 | .0455 | .00161 | .00138 | .0016 | .0021 | .0031 |
| %RSD | 20.42 | 24.87 | 1.6143 | 1.3882 | 1.542 | 2.157 | 3.128 |
| #1 | .2540 | .2151 | .09888 | .09865 | .0998 | .0974 | .0968 |
| #2 | .1899 | .1507 | .10116 | .10061 | .1020 | .1004 | .1012 |

| Elem | 1960-2 |
|---|---|
| Avge | .0974 |
| SDev | .0032 |
| %RSD | 3.331 |
| #1 | .0951 |
| #2 | .0997 |

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Method: YTTRIUM  Sample Name: BLA01  Operator: AZR
Run Time: 08/19/97 08:56:32
Comment:
Mode: CONC  Corr. Factor: 1

| Elem | As1890 | Pb2203 | Se1960 | Cd2265 | Tl1908 | Cr2677 | Sb2068 |
|---|---|---|---|---|---|---|---|
| Avge | -.0033 | -.0005 | .0002 | -.00001 | .0005 | -.00119 | -.0039 |
| SDev | .0005 | .0003 | .0009 | .00006 | .0003 | .00024 | .0003 |
| %RSD | 14.77 | 62.58 | 475.2 | 461.38 | 61.09 | 19.860 | 6.928 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| #2 | 8837 | -.0003 | .0001 | .00003 | .0007 | .00 | .0011 |

| Elem | 3280 | V_2924 | Be3130 | Co2286 | Mn2576 | Fe271 | Al3082 |
|---|---|---|---|---|---|---|---|
| Avge | -.00191 | -.00024 | .00001 | -.00080 | -.00024 | .0091 | .0549 |
| SDev | .00031 | .00035 | .00005 | .00016 | .00016 | .0030 | .0141 |
| %RSD | 16.013 | 141.32 | 323.21 | 20.074 | 68.025 | 32.60 | 25.60 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| #1 | L-.00212 | -.00000 | .00005 | -.00069 | -.00036 | .0113 | .0649 |
| #2 | -.00169 | -.00049 | -.00002 | -.00091 | -.00013 | .0070 | .0450 |

| Elem | Ca3179 | Mg2790 | 2265-1 | 2265-2 | 2203-1 | 2203-2 | 1960-1 |
|---|---|---|---|---|---|---|---|
| Avge | .0599 | .0571 | -.00040 | .00018 | .0029 | -.0022 | .0023 |
| SDev | .0098 | .0092 | .00066 | .00023 | .0050 | .0030 | .0023 |
| %RSD | 16.37 | 16.11 | 166.69 | 132.33 | 172.4 | 133.7 | 96.74 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| #1 | .0668 | .0636 | -.00086 | .00034 | .0064 | -.0043 | .0039 |
| #2 | .0530 | .0506 | .00007 | .00001 | -.0006 | -.0001 | .0007 |

| Elem | 1960-2 |
|---|---|
| Avge | -.0014 |
| SDev | .0025 |
| %RSD | 169.7 |

| | |
|---|---|
| #1 | -.0032 |
| #2 | .0003 |

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Method: YTTRIUM Sample Name: A415302 .5G:1000 Operator: AZR
Run Time: 08/19/97 08:59:55
Comment:
Mode: CONC Corr. Factor: 1

Pb

| Elem | As1890 | Pb2203 | Se1960 | Cd2265 | Tl1908 | Cr2677 | Sb2068 |
|---|---|---|---|---|---|---|---|
| Avge | .0025 | 4.024 | .0008 | .01081 | -.0006 | .54508 | .0177 |
| SDev | .0018 | .116 | .0014 | .00028 | .0009 | .01778 | .0033 |
| %RSD | 74.11 | 2.889 | 168.7 | 2.6252 | 142.8 | 3.2614 | 18.46 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| #1 | .0038 | 3.942 | -.0002 | .01061 | .0000 | .53251 | .0153 |
| #2 | .0012 | 4.106 | .0018 | .01101 | -.0012 | .55765 | .0200 |

| Elem | Ag3280 | V_2924 | Be3130 | Co2286 | Mn2576 | Fe2714 | Al3082 |
|---|---|---|---|---|---|---|---|
| Avge | -.00016 | .00662 | .00012 | .00691 | .20561 | 24.87 | 2.421 |
| SDev | .00077 | .00014 | .00005 | .00067 | .00568 | .80 | .083 |
| %RSD | 492.56 | 2.0549 | 40.519 | 9.6324 | 2.7603 | 3.232 | 3.429 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| #1 | -.00070 | .00672 | .00009 | .00644 | .20160 | 24.30 | 2.362 |
| #2 | .00039 | .00652 | .00016 | .00738 | .20963 | 25.44 | 2.479 |

| Elem | Ca3179 | Mg2790 | 2265-1 | 2265-2 | 2203-1 | 2203-2 | 1960-1 |
|---|---|---|---|---|---|---|---|
| Avge | 40.25 | 21.27 | .01066 | .01089 | 3.940 | 4.061 | .0018 |
| SDev | 1.30 | .72 | .00056 | .00014 | .121 | .114 | .0019 |
| %RSD | 3.230 | 3.363 | 5.2872 | 1.3235 | 3.064 | 2.805 | 101.4 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| #1 | 39.33 | 20.76 | .01027 | .01079 | 3.863 | 3.981 | .0031 |
| #2 | 41.17 | 21.77 | .01106 | .01099 | 4.034 | 4.142 | .0005 |

Elem 1960-2

64

Method: YTTRIUM  Sample Name: A417192 1:10  Operator: AZR (5)
Run Time: 08/19/97 15:49:26
Comment:
Mode: CONC  Corr. Factor: 1

| Elem | As1890 | Pb2203 | Se1960 | Cd2265 | Tl1908 | Cr2677 | Sb2068 |
|---|---|---|---|---|---|---|---|
| Avge | .0009 | .1020 | .0007 | -.00005 | -.0005 | .00067 | -.0032 |
| SDev | .0003 | .0006 | .0001 | .00006 | .0009 | .00018 | .0014 |
| %RSD | 112.5 | .6278 | 21.01 | 123.19 | 172.6 | 27.378 | 42.90 |
| #1 | .0000 | .1025 | .0006 | -.00001 | .0001 | .00054 | -.0041 |
| #2 | .0004 | .1016 | .0008 | -.00009 | -.0012 | .00080 | -.0022 |

| Elem | Ag3280 | V 2924 | Be3130 | Co2286 | Mn2576 | Fe2714 | Al3082 |
|---|---|---|---|---|---|---|---|
| Avge | -.00185 | -.00007 | .00014 | .00330 | .00077 | .0617 | .0132 |
| SDev | .00041 | .00012 | .00001 | .00040 | .00017 | .0020 | .0015 |
| %RSD | 22.226 | 172.46 | 3.5287 | 12.082 | 21.814 | 3.230 | 11.68 |
| #1 | L-.00214 | .00002 | .00014 | .00301 | .00065 | .0603 | .0121 |
| #2 | -.00156 | -.00016 | .00014 | .00358 | .00089 | .0632 | .0143 |

| Elem | Ca3179 | Mg2790 | 2265-1 | 2265-2 | 2203-1 | 2203-2 | 1960-1 |
|---|---|---|---|---|---|---|---|
| Avge | 290.0 | -.0052 | .00005 | -.00009 | .1010 | .1025 | .0028 |
| SDev | .7 | .0021 | .00050 | .00016 | .0009 | .0014 | .0049 |
| %RSD | .2392 | 41.21 | 1071.3 | 178.78 | .8817 | 1.370 | 176.7 |
| #1 | 290.5 | -.0067 | .00040 | -.00021 | .1003 | .1035 | -.0007 |
| #2 | 289.6 | -.0037 | -.00030 | .00002 | .1016 | .1015 | .0062 |

| Elem | 1960-2 |
|---|---|
| Avge | -.0004 |
| SDev | .0022 |
| %RSD | 617.7 |
| #1 | .0012 |
| #2 | -.0019 |

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Method: YTTRIUM  Sample Name: TCCV  Operator: AZR
Run Time: 08/19/97 15:52:50
Comment:
Mode: CONC  Corr. Factor: 1

| Elem | As1890 | Pb2203 | Se1960 | Cd2265 | Tl1908 | Cr2677 | Sb2068 |
|---|---|---|---|---|---|---|---|
| Avge | .0929 | .0968 | .0954 | .09756 | .0980 | .10030 | .0921 |
| SDev | .0029 | .0029 | .0035 | .00220 | .0027 | .00273 | .0037 |
| %RSD | 3.177 | 2.970 | 3.621 | 2.2561 | 2.713 | 2.7185 | 4.022 |
| #1 | .0908 | .0948 | .0930 | .09601 | .0962 | .09837 | L.0895 |
| #2 | .0949 | .0988 | .0979 | .09912 | .0999 | .10223 | .0947 |

| Elem | Ag3280 | V_2924 | Be3130 | Co2286 | Mn2576 | Fe2714 | Al3082 |
|---|---|---|---|---|---|---|---|
| Avge | .09407 | .09669 | .09427 | .09589 | .09701 | .0036 | .0230 |
| SDev | .00208 | .00121 | .00247 | .00258 | .00263 | .0091 | .0092 |
| %RSD | 2.2059 | 1.2476 | 2.6191 | 2.6891 | 2.7130 | 253.6 | 40.05 |
| #1 | .09260 | .09584 | .09253 | .09407 | .09515 | -.0028 | .0165 |
| #2 | .09554 | .09754 | .09602 | .09771 | .09887 | .0100 | .0295 |

65

| Elem | Ca3179 | Mg2790 | 2265-1 | 2265-2 | 2203-1 | 2203-2 | 1960-1 |
|---|---|---|---|---|---|---|---|
| Avge | .2060 | -.0013 | .09783 | .09743 | .0928 | .0988 | .0900 |
| SDev | .0245 | .0013 | .00301 | .00180 | .0041 | .0064 | .0039 |
| %RSD | 11.90 | 96.40 | 3.0728 | 1.8467 | 4.458 | 6.454 | 4.344 |
| #1 | .2234 | -.0004 | .09570 | .09616 | .0957 | .0943 | .0928 |
| #2 | .1887 | -.0022 | .09995 | .09870 | .0899 | .1033 | .0873 |

| Elem | 1960-2 |
|---|---|
| Avge | .0982 |
| SDev | .0071 |
| %RSD | 7.267 |
| #1 | .0931 |
| #2 | .1032 |

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Method: YTTRIUM Sample Name: BLA01 Operator: AZR
Run Time: 08/19/97 15:56:13
Comment:
Mode: CONC Corr. Factor: 1

| Elem | As1890 | Pb2203 | Se1960 | Cd2265 | Tl1908 | Cr2677 | Sb2068 |
|---|---|---|---|---|---|---|---|
| Avge | -.0024 | -.0002 | -.0002 | -.00009 | -.0005 | -.00108 | -.0019 |
| SDev | .0009 | .0002 | .0024 | .00006 | .0017 | .00036 | .0018 |
| %RSD | 37.87 | 136.0 | 1011. | 68.273 | 365.6 | 33.467 | 94.74 |
| #1 | -.0030 | -.0004 | .0015 | -.00014 | .0007 | -.00133 | -.0032 |
| #2 | -.0017 | -.0000 | -.0019 | -.00005 | -.0017 | -.00082 | -.0006 |

| Elem | Ag3280 | V_2924 | Be3130 | Co2286 | Mn2576 | Fe2714 | Al3082 |
|---|---|---|---|---|---|---|---|
| Avge | -.00178 | .00017 | .00004 | -.00085 | -.00000 | .0020 | .0039 |
| SDev | .00035 | .00023 | .00000 | .00010 | .00017 | .0047 | .0040 |
| %RSD | 19.339 | 140.35 | 1.7824 | 11.817 | 3808.0 | 235.5 | 102.4 |
| #1 | -.00203 | .00033 | .00004 | -.00092 | -.00012 | -.0013 | .0011 |
| #2 | -.00154 | .00000 | .00004 | -.00078 | .00011 | .0053 | .0067 |

| Elem | Ca3179 | Mg2790 | 2265-1 | 2265-2 | 2203-1 | 2203-2 | 1960-1 |
|---|---|---|---|---|---|---|---|
| Avge | .0752 | -.0056 | -.00036 | .00004 | .0031 | -.0018 | .0028 |
| SDev | .0076 | .0013 | .00007 | .00006 | .0002 | .0003 | .0021 |
| %RSD | 10.18 | 23.59 | 19.130 | 159.60 | 6.709 | 14.38 | 75.56 |
| #1 | .0806 | -.0065 | -.00041 | -.00001 | .0030 | -.0020 | .0043 |
| #2 | .0698 | -.0047 | -.00031 | .00008 | .0033 | -.0016 | .0013 |

| Elem | 1960-2 |
|---|---|
| Avge | -.0017 |
| SDev | .0026 |
| %RSD | 146.9 |
| #1 | .0001 |
| #2 | -.0036 |

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Method: YTTRIUM  Sample Name: Q730257 TLC8  Operator: AZR
Run Time: 08/19/97 16:01:58
Comment:
Mode: CONC  Corr. Factor: 1

| Elem | As1890 | Pb2203 | Se1960 | Cd2265 | Tl1908 | Cr2677 | Sb2068 |
|---|---|---|---|---|---|---|---|
| Avge | .4544 | .4670 | .4708 | .46762 | .4747 | .48837 | .4593 |
| SDev | .0008 | .0016 | .0007 | .00217 | .0039 | .00173 | .0046 |
| %RSD | .1748 | .3490 | .1494 | .46320 | .8172 | .35529 | 1.009 |
| #1 | .4550 | .4658 | .4703 | .46609 | .4720 | .48714 | .4560 |
| #2 | .4539 | .4681 | .4713 | .46916 | .4775 | .48960 | .4625 |

| Elem | Ag3280 | V_2924 | Be3130 | Co2286 | Mn2576 | Fe2714 | Al3082 |
|---|---|---|---|---|---|---|---|
| Avge | .46837 | .46752 | .46318 | .46661 | .47069 | .0820 | .0324 |
| SDev | .00233 | .00116 | .00078 | .00166 | .00060 | .0173 | .0083 |
| %RSD | .49773 | .24860 | .16802 | .35634 | .12649 | 21.13 | 25.67 |
| #1 | .46672 | .46834 | .46263 | .46544 | .47027 | .0697 | .0265 |
| #2 | .47002 | .46670 | .46373 | .46779 | .47111 | .0942 | .0382 |

| Elem | Ca3179 | Mg2790 | 2265-1 | 2265-2 | 2203-1 | 2203-2 | 1960-1 |
|---|---|---|---|---|---|---|---|
| Avge | -.0083 | -.0117 | .47121 | .46583 | .4595 | .4707 | .4589 |
| SDev | .0028 | .0080 | .00395 | .00128 | .0066 | .0058 | .0090 |
| %RSD | 33.96 | 67.94 | .83740 | .27422 | 1.448 | 1.225 | 1.965 |
| #1 | -.0063 | -.0174 | .46842 | .46493 | .4642 | .4666 | .4653 |
| #2 | -.0103 | -.0061 | .47400 | .46674 | .4548 | .4748 | .4525 |

| Elem | 1960-2 |
|---|---|
| Avge | .4768 |
| SDev | .0056 |
| %RSD | 1.165 |
| #1 | .4729 |
| #2 | .4807 |

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Method: YTTRIUM  Sample Name: Q730258 BLA02  Operator: AZR
Run Time: 08/19/97 16:05:22
Comment:
Mode: CONC  Corr. Factor: 1

| Elem | As1890 | Pb2203 | Se1960 | Cd2265 | Tl1908 | Cr2677 | Sb2068 |
|---|---|---|---|---|---|---|---|
| Avge | -.0008 | -.0010 | .0005 | .00024 | .0040 | .00199 | .0002 |
| SDev | .0015 | .0004 | .0009 | .00001 | .0050 | .00157 | .0053 |
| %RSD | 199.5 | 36.66 | 176.3 | 3.3849 | 123.8 | 78.855 | 3165. |
| #1 | .0003 | -.0013 | -.0001 | .00023 | .0075 | .00310 | .0039 |
| #2 | -.0018 | -.0008 | .0011 | .00024 | .0005 | .00088 | -.0036 |

| Elem | Ag3280 | V_2924 | Be3130 | Co2286 | Mn2576 | Fe2714 | Al3082 |
|---|---|---|---|---|---|---|---|
| Avge | .00007 | -.00007 | .00023 | .00016 | .00069 | .0162 | -.0126 |
| SDev | .00188 | .00013 | .00006 | .00139 | .00082 | .0193 | .0110 |
| %RSD | 2560.2 | 182.80 | 24.163 | 891.18 | 118.31 | 119.2 | 87.25 |
| #1 | .00140 | .00002 | .00027 | .00114 | .00127 | .0298 | -.0048 |
| #2 | -.00126 | -.00016 | .00019 | -.00083 | .00011 | .0025 | -.0204 |

67

| Elem | Ca3179 | Mg2790 | 2265-1 | 2265-2 | 2203-1 | 2203-2 | 1960-1 |
|---|---|---|---|---|---|---|---|
| Avge | -.0440 | -.0052 | .00069 | .00001 | -.0055 | .0012 | -.0008 |
| SDev | .0035 | .0122 | .00030 | .00016 | .0022 | .0005 | .0038 |
| %RSD | 7.995 | 235.8 | 43.930 | 1582.2 | 40.56 | 45.69 | 476.1 |
| #1 | -.0415 | .0034 | .00091 | -.00011 | -.0071 | .0016 | -.0035 |
| #2 | -.0464 | -.0137 | .00048 | .00013 | -.0039 | .0008 | .0019 |

| Elem | 1960-2 |
|---|---|
| Avge | .0011 |
| SDev | .0006 |
| %RSD | 54.23 |
| #1 | .0016 |
| #2 | .0007 |

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Method: YTTRIUM Sample Name: A416935 Operator: AZR
Run Time: 08/19/97 16:08:46
Comment:
Mode: CONC Corr. Factor: 1

| Elem | As1890 | Pb2203 | Se1960 | Cd2265 | Tl1908 | Cr2677 | Sb2068 |
|---|---|---|---|---|---|---|---|
| Avge | .0029 | -.0012 | -.0015 | .00024 | .0019 | .00096 | .0001 |
| SDev | .0015 | .0002 | .0007 | .00013 | .0038 | .00084 | .0055 |
| %RSD | 53.37 | 16.88 | 44.72 | 54.463 | 198.6 | 87.282 | 7503. |
| #1 | .0040 | -.0011 | -.0010 | .00033 | .0046 | .00156 | .0040 |
| #2 | .0018 | -.0013 | -.0020 | .00015 | -.0008 | .00037 | -.0038 |

| Elem | Ag3280 | V_2924 | Be3130 | Co2286 | Mn2576 | Fe2714 | Al3082 |
|---|---|---|---|---|---|---|---|
| Avge | -.00029 | .00021 | .00020 | .00196 | .11051 | .1571 | .0094 |
| SDev | .00204 | .00048 | .00003 | .00096 | .00053 | .0182 | .0087 |
| %RSD | 714.73 | 227.06 | 16.338 | 48.704 | .48187 | 11.61 | 92.22 |
| #1 | .00116 | .00056 | .00022 | .00264 | .11089 | .1700 | .0156 |
| #2 | -.00173 | -.00013 | .00017 | .00129 | .11014 | .1442 | .0033 |

| Elem | Ca3179 | Mg2790 | 2265-1 | 2265-2 | 2203-1 | 2203-2 | 1960-1 |
|---|---|---|---|---|---|---|---|
| Avge | 82.36 | 32.44 | .00111 | -.00020 | -.0093 | .0029 | -.0078 |
| SDev | .33 | .19 | .00077 | .00019 | .0046 | .0026 | .0067 |
| %RSD | .3972 | .5845 | 69.616 | 96.144 | 49.50 | 91.16 | 86.20 |
| #1 | 82.59 | 32.58 | .00166 | -.00034 | -.0126 | .0047 | -.0126 |
| #2 | 82.12 | 32.31 | .00057 | -.00006 | -.0061 | .0010 | -.0031 |

| Elem | 1960-2 |
|---|---|
| Avge | .0017 |
| SDev | .0044 |
| %RSD | 258.8 |
| #1 | .0048 |
| #2 | -.0014 |

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62

Method: YTTRIUM  Sample Name: A416935 1:5  Operator: AZR
Run Time: 08/19/97 16:12:10
Comment:
Mode: CONC  Corr. Factor: 1

| Elem | As1890 | Pb2203 | Se1960 | Cd2265 | Tl1908 | Cr2677 | Sb2068 |
|---|---|---|---|---|---|---|---|
| Avge | .0002 | -.0004 | -.0005 | -.00012 | .0006 | -.00068 | -.0019 |
| SDev | .0009 | .0004 | .0014 | .00022 | .0003 | .00068 | .0005 |
| %RSD | 428.3 | 103.3 | 277.1 | 193.75 | 59.78 | 99.242 | 26.68 |
| #1 | .0008 | -.0001 | -.0015 | -.00027 | .0003 | -.00020 | -.0016 |
| #2 | -.0004 | -.0007 | .0005 | .00004 | .0008 | -.00116 | -.0023 |

| Elem | Ag3280 | V_2924 | Be3130 | Co2286 | Mn2576 | Fe2714 | Al3082 |
|---|---|---|---|---|---|---|---|
| Avge | -.00193 | .00102 | .00015 | -.00041 | .02243 | .0182 | .0068 |
| SDev | .00012 | .00144 | .00005 | .00013 | .00034 | .0054 | .0069 |
| %RSD | 5.9897 | 140.90 | 33.169 | 32.935 | 1.5000 | 29.99 | 101.7 |
| #1 | -.00185 | .00203 | .00019 | -.00031 | .02266 | .0220 | .0116 |
| #2 | -.00201 | .00000 | .00012 | -.00050 | .02219 | .0143 | .0019 |

| Elem | Ca3179 | Mg2790 | 2265-1 | 2265-2 | 2203-1 | 2203-2 | 1960-1 |
|---|---|---|---|---|---|---|---|
| Avge | 16.53 | 6.531 | -.00072 | .00019 | .0039 | -.0026 | .0012 |
| SDev | .02 | .014 | .00114 | .00023 | .0061 | .0024 | .0044 |
| %RSD | .1231 | .2164 | 157.07 | 123.20 | 158.0 | 95.34 | 369.6 |
| #1 | 16.55 | 6.541 | -.00153 | .00035 | .0082 | -.0043 | .0043 |
| #2 | 16.52 | 6.521 | .00008 | .00002 | -.0005 | -.0008 | -.0019 |

| Elem | 1960-2 |
|---|---|
| Avge | -.0013 |
| SDev | .0043 |
| %RSD | 318.6 |
| #1 | -.0043 |
| #2 | .0017 |

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Method: YTTRIUM  Sample Name: Q730259 TBP02  Operator: AZR
Run Time: 08/19/97 16:15:34
Comment:
Mode: CONC  Corr. Factor: 1  A416935

| Elem | As1890 | Pb2203 | Se1960 | Cd2265 | Tl1908 | Cr2677 | Sb2068 |
|---|---|---|---|---|---|---|---|
| Avge | 2.114 | .4820 | 2.178 | .04938 | 3.048 | .20003 | .4742 |
| SDev | .005 | .0015 | .012 | .00002 | .019 | .00105 | .0052 |
| %RSD | .2335 | .3124 | .5394 | .03398 | .6185 | .52711 | 1.096 |
| #1 | 2.111 | .4809 | 2.170 | .04937 | 3.034 | .19928 | .4705 |
| #2 | 2.118 | .4830 | 2.187 | .04940 | 3.061 | .20077 | .4779 |

| Elem | Ag3280 | V_2924 | Be3130 | Co2286 | Mn2576 | Fe2714 | Al3082 |
|---|---|---|---|---|---|---|---|
| Avge | .05730 | .50754 | .05076 | .46060 | .59511 | 1.686 | 2.257 |
| SDev | .00069 | .00156 | .00021 | .00254 | .00117 | .017 | .001 |
| %RSD | 1.2130 | .30681 | .41454 | .55193 | .19586 | 1.002 | .0600 |
| #1 | .05680 | .50644 | .05061 | .45880 | .59429 | 1.674 | 2.256 |
| #2 | .05779 | .50864 | .05091 | .46239 | .59593 | 1.698 | 2.258 |

69

| Elem | Ca3179 | Mg2790 | 2265-1 | 2265-2 | 2203-1 | 2203-2 | 1960-1 |
|---|---|---|---|---|---|---|---|
| Avge | 181.7 | 133.6 | .04946 | .04934 | .4634 | .4913 | 2.115 |
| SDev | .8 | .7 | .00052 | .00029 | .0070 | .0013 | .014 |
| %RSD | .4334 | .5360 | 1.0573 | .58008 | 1.518 | .2555 | .6816 |
| #1 | 181.1 | 133.1 | .04983 | .04914 | .4584 | .4921 | 2.105 |
| #2 | 182.2 | 134.1 | .04909 | .04955 | .4684 | .4904 | 2.125 |

| Elem | 1960-2 |
|---|---|
| Avge | 2.210 |
| SDev | .010 |
| %RSD | .4715 |
| #1 | 2.203 |
| #2 | 2.217 |

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Method: YTTRIUM Sample Name: Q730260 TDS02 Operator: AZR
Run Time: 08/19/97 16:26:55
Comment: A416935
Mode: CONC Corr. Factor: 1

| Elem | As1890 | Pb2203 | Se1960 | Cd2265 | Tl1908 | Cr2677 | Sb2068 |
|---|---|---|---|---|---|---|---|
| Avge | 2.178 | .4986 | 2.249 | .05102 | 3.157 | .20561 | .4919 |
| SDev | .083 | .0188 | .081 | .00185 | .132 | .00894 | .0226 |
| %RSD | 3.820 | 3.777 | 3.593 | 3.6217 | 4.175 | 4.3492 | 4.592 |
| #1 | 2.119 | .4853 | 2.192 | .04971 | 3.064 | .19929 | .4760 |
| #2 | 2.236 | .5119 | 2.306 | .05233 | 3.250 | .21193 | .5079 |

| Elem | Ag3280 | V_2924 | Be3130 | Co2286 | Mn2576 | Fe2714 | Al3082 |
|---|---|---|---|---|---|---|---|
| Avge | .05841 | .52872 | .05244 | .47655 | .61999 | 1.721 | 2.295 |
| SDev | .00471 | .01832 | .00224 | .01982 | .02379 | .095 | .105 |
| %RSD | 8.0691 | 3.4647 | 4.2710 | 4.1586 | 3.8366 | 5.523 | 4.587 |
| #1 | .05508 | .51577 | .05085 | .46253 | .60317 | 1.654 | 2.220 |
| #2 | .06174 | .54167 | .05402 | .49056 | .63681 | 1.768 | 2.369 |

| Elem | Ca3179 | Mg2790 | 2265-1 | 2265-2 | 2203-1 | 2203-2 | 1960-1 |
|---|---|---|---|---|---|---|---|
| Avge | 188.8 | 138.0 | .04992 | .05157 | .4899 | .5030 | 2.200 |
| SDev | 7.4 | 5.6 | .00290 | .00132 | .0069 | .0248 | .062 |
| %RSD | 3.938 | 4.028 | 5.8132 | 2.5627 | 1.400 | 4.933 | 2.839 |
| #1 | 183.5 | 134.0 | .04786 | .05064 | .4850 | .4854 | 2.155 |
| #2 | 194.0 | 141.9 | .05197 | .05251 | .4947 | .5205 | 2.244 |

| Elem | 1960-2 |
|---|---|
| Avge | 2.274 |
| SDev | .090 |
| %RSD | 3.957 |
| #1 | 2.210 |
| #2 | 2.338 |

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20

Method: YTTRIUM  Sample Name: A416936  Operator: AZR
Run Time: 08/19/97 16:30:19
Comment:
Mode: CONC  Corr. Factor: 1

| Elem | As1890 | Pb2203 | Se1960 | Cd2265 | Tl1908 | Cr2677 | Sb2068 |
|---|---|---|---|---|---|---|---|
| Avge | .0014 | -.0010 | .0007 | .00018 | .0132 | -.00060 | L-.0063 |
| SDev | .0007 | .0002 | .0011 | .00008 | .0004 | .00188 | .0058 |
| %RSD | 48.32 | 17.99 | 147.0 | 43.931 | 3.366 | 316.12 | 91.92 |
| #1 | .0009 | -.0011 | .0015 | .00023 | .0135 | -.00193 | L-.0104 |
| #2 | .0019 | -.0008 | -.0000 | .00012 | .0129 | .00074 | -.0022 |

| Elem | Ag3280 | V_2924 | Be3130 | Co2286 | Mn2576 | Fe2714 | Al3082 |
|---|---|---|---|---|---|---|---|
| Avge | L-.00259 | L-.00161 | .00010 | .00035 | .12582 | .0792 | -.0136 |
| SDev | .00367 | .00062 | .00008 | .00177 | .00060 | .0410 | .0150 |
| %RSD | 141.55 | 38.782 | 81.504 | 508.77 | .47675 | 51.80 | 110.1 |
| #1 | L-.00518 | L-.00205 | .00004 | -.00091 | .12540 | .0502 | -.0242 |
| #2 | .00000 | L-.00117 | .00015 | .00160 | .12624 | .1082 | -.0030 |

| Elem | Ca3179 | Mg2790 | 2265-1 | 2265-2 | 2203-1 | 2203-2 | 1960-1 |
|---|---|---|---|---|---|---|---|
| Avge | 83.25 | 32.55 | .00157 | -.00052 | -.0149 | .0060 | -.0146 |
| SDev | .29 | .13 | .00098 | .00037 | .0080 | .0037 | .0084 |
| %RSD | .3461 | .4042 | 62.435 | 71.927 | 53.70 | 62.24 | 58.04 |
| #1 | 83.04 | 32.46 | .00226 | -.00078 | -.0206 | .0087 | -.0205 |
| #2 | 83.45 | 32.64 | .00088 | -.00025 | -.0093 | .0034 | -.0086 |

| Elem | 1960-2 |
|---|---|
| Avge | .0084 |
| SDev | .0059 |
| %RSD | 69.96 |
| #1 | .0125 |
| #2 | .0042 |

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Method: YTTRIUM  Sample Name: A417040  Operator: AZR
Run Time: 08/19/97 16:33:43
Comment:
Mode: CONC  Corr. Factor: 1

| Elem | As1890 | Pb2203 | Se1960 | Cd2265 | Tl1908 | Cr2677 | Sb2068 |
|---|---|---|---|---|---|---|---|
| Avge | .0038 | -.0004 | .0022 | .00001 | .0045 | .01276 | -.0021 |
| SDev | .0003 | .0001 | .0014 | .00008 | .0004 | .00014 | .0003 |
| %RSD | 8.029 | 25.17 | 66.84 | 649.32 | 9.462 | 1.0797 | 12.05 |
| #1 | .0040 | -.0005 | .0011 | .00007 | .0048 | .01286 | -.0023 |
| #2 | .0036 | -.0003 | .0032 | -.00005 | .0042 | .01266 | -.0019 |

| Elem | Ag3280 | V_2924 | Be3130 | Co2286 | Mn2576 | Fe2714 | Al3082 |
|---|---|---|---|---|---|---|---|
| Avge | -.00154 | .00519 | .00018 | L-.00112 | .00306 | -.0026 | .0117 |
| SDev | .00017 | .00051 | .00001 | .00010 | .00070 | .0002 | .0014 |
| %RSD | 10.864 | 9.7244 | 7.3572 | 8.9145 | 22.983 | 7.954 | 11.91 |
| #1 | -.00165 | .00555 | .00019 | L-.00105 | .00355 | -.0028 | .0126 |
| #2 | -.00142 | .00484 | .00017 | L-.00120 | .00256 | -.0025 | .0107 |

| Elem | Ca3179 | Mg2790 | 2265-1 | 2265-2 | 2203-1 | 2203-2 | 1960-1 |
|---|---|---|---|---|---|---|---|
| Avge | 45.22 | 9.976 | -.00043 | .00024 | .0018 | -.0015 | .0058 |
| SDev | .06 | .020 | .00025 | .00025 | .0031 | .0017 | .0018 |
| %RSD | .1310 | .2035 | 58.544 | 106.35 | 170.3 | 112.2 | 31.02 |
| #1 | 45.26 | 9.990 | -.00061 | .00041 | .0040 | -.0027 | .0071 |
| #2 | 45.17 | 9.961 | -.00025 | .00006 | -.0004 | -.0003 | .0045 |

| Elem | 1960-2 |
|---|---|
| Avge | .0004 |
| SDev | .0031 |
| %RSD | 870.1 |
| #1 | -.0018 |
| #2 | .0025 |

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Method: YTTRIUM Sample Name: A416970 Operator: AZR
Run Time: 08/19/97 16:37:07
Comment:
Mode: CONC Corr. Factor: 1

| Elem | As1890 | Pb2203 | Se1960 | Cd2265 | Tl1908 | Cr2677 | Sb2068 |
|---|---|---|---|---|---|---|---|
| Avge | .0030 | -.0006 | .0010 | -.00010 | .0031 | -.00066 | -.0034 |
| SDev | .0013 | .0002 | .0004 | .00002 | .0003 | .00051 | .0001 |
| %RSD | 42.91 | 38.02 | 41.94 | 22.177 | 11.34 | 77.034 | 1.728 |
| #1 | .0021 | -.0004 | .0007 | -.00009 | .0028 | -.00030 | -.0034 |
| #2 | .0039 | -.0008 | .0013 | -.00012 | .0033 | -.00102 | -.0034 |

| Elem | Ag3280 | V_2924 | Be3130 | Co2286 | Mn2576 | Fe2714 | Al3082 |
|---|---|---|---|---|---|---|---|
| Avge | -.00167 | .00137 | .00011 | -.00072 | .03093 | .1435 | .0978 |
| SDev | .00076 | .00047 | .00003 | .00010 | .00059 | .0049 | .0029 |
| %RSD | 45.265 | 34.602 | 23.924 | 14.367 | 1.9165 | 3.406 | 2.959 |
| #1 | -.00113 | .00171 | .00013 | -.00065 | .03135 | .1469 | .0998 |
| #2 | L-.00220 | .00104 | .00009 | -.00079 | .03051 | .1400 | .0957 |

| Elem | Ca3179 | Mg2790 | 2265-1 | 2265-2 | 2203-1 | 2203-2 | 1960-1 |
|---|---|---|---|---|---|---|---|
| Avge | 18.68 | 5.098 | -.00031 | .00000 | -.0000 | -.0009 | .0047 |
| SDev | .04 | .003 | .00031 | .00019 | .0029 | .0011 | .0050 |
| %RSD | .1980 | .0568 | 100.20 | 4078.3 | 11700. | 126.0 | 106.2 |
| #1 | 18.65 | 5.096 | -.00053 | .00014 | .0021 | -.0017 | .0082 |
| #2 | 18.71 | 5.100 | -.00009 | -.00013 | -.0021 | -.0001 | .0012 |

| Elem | 1960-2 |
|---|---|
| Avge | -.0008 |
| SDev | .0031 |
| %RSD | 366.3 |
| #1 | -.0030 |
| #2 | .0013 |

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22

Method: YTTRIUM  Sample Name: TCCV  Operator: AZR
Run Time: 08/19/97 16:40:31
Comment:
Mode: CONC  Corr. Factor: 1

| Elem | As1890 | Pb2203 | Se1960 | Cd2265 | Tl1908 | Cr2677 | Sb2068 |
|---|---|---|---|---|---|---|---|
| Avge | .0920 | .0959 | .0982 | .09694 | .1005 | .09858 | .0921 |
| SDev | .0010 | .0028 | .0033 | .00223 | .0021 | .00363 | .0059 |
| %RSD | 1.066 | 2.921 | 3.333 | 2.2995 | 2.074 | 3.6782 | 6.453 |
| #1 | .0914 | .0939 | .0959 | .09536 | .0991 | .09601 | L.0879 |
| #2 | .0927 | .0978 | .1005 | .09851 | .1020 | .10114 | .0963 |

| Elem | Ag3280 | V_2924 | Be3130 | Co2286 | Mn2576 | Fe2714 | Al3082 |
|---|---|---|---|---|---|---|---|
| Avge | .09274 | .09606 | .09355 | .09433 | .09657 | -.0007 | .0173 |
| SDev | .00265 | .00277 | .00293 | .00340 | .00308 | .0049 | .0097 |
| %RSD | 2.8609 | 2.8824 | 3.1329 | 3.5987 | 3.1849 | 674.8 | 55.86 |
| #1 | .09086 | .09410 | .09148 | .09193 | .09439 | -.0042 | .0105 |
| #2 | .09461 | .09802 | .09562 | .09673 | .09874 | .0028 | .0241 |

| Elem | Ca3179 | Mg2790 | 2265-1 | 2265-2 | 2203-1 | 2203-2 | 1960-1 |
|---|---|---|---|---|---|---|---|
| Avge | .0666 | .0061 | .09705 | .09688 | .0973 | .0951 | .0994 |
| SDev | .0006 | .0014 | .00246 | .00212 | .0023 | .0030 | .0012 |
| %RSD | .9273 | 22.84 | 2.5330 | 2.1826 | 2.375 | 3.200 | 1.207 |
| #1 | .0662 | .0051 | .09532 | .09538 | .0957 | .0930 | .0985 |
| #2 | .0671 | .0071 | .09879 | .09837 | .0989 | .0973 | .1002 |

| Elem | 1960-2 |
|---|---|
| Avge | .0977 |
| SDev | .0043 |
| %RSD | 4.412 |
| #1 | .0946 |
| #2 | .1007 |

---

Method: YTTRIUM  Sample Name: BLA01  Operator: AZR
Run Time: 08/19/97 16:43:54
Comment:
Mode: CONC  Corr. Factor: 1

| Elem | As1890 | Pb2203 | Se1960 | Cd2265 | Tl1908 | Cr2677 | Sb2068 |
|---|---|---|---|---|---|---|---|
| Avge | -.0023 | -.0008 | .0007 | -.00013 | .0024 | -.00098 | -.0038 |
| SDev | .0013 | .0007 | .0003 | .00010 | .0019 | .00043 | .0013 |
| %RSD | 59.30 | 88.52 | 34.92 | 79.583 | 77.99 | 43.915 | 34.01 |
| #1 | -.0032 | -.0003 | .0005 | -.00006 | .0011 | -.00129 | -.0047 |
| #2 | -.0013 | -.0013 | .0009 | -.00020 | .0037 | -.00068 | -.0029 |

| Elem | Ag3280 | V_2924 | Be3130 | Co2286 | Mn2576 | Fe2714 | Al3082 |
|---|---|---|---|---|---|---|---|
| Avge | -.00163 | .00025 | .00009 | -.00094 | .00000 | -.0109 | .0096 |
| SDev | .00058 | .00012 | .00000 | .00102 | .00017 | .0052 | .0042 |
| %RSD | 35.863 | 48.651 | 4.5993 | 108.98 | 7224.4 | 47.92 | 44.05 |
| #1 | -.00204 | .00016 | .00009 | L-.00166 | -.00012 | -.0146 | .0066 |
| #2 | -.00122 | .00034 | .00010 | -.00022 | .00012 | -.0072 | .0125 |

| Elem | Ca3179 | Mg2790 | 2265-1 | 2265-2 | 2203-1 | 2203-2 | 1960-1 |
|---|---|---|---|---|---|---|---|
| Avge | .0127 | .0027 | -.00042 | .00002 | .0024 | -.0024 | .0015 |
| SDev | .0004 | .0045 | .00000 | .00016 | .0014 | .0003 | .0031 |
| %RSD | 2.861 | 168.0 | .95760 | 1014.8 | 57.98 | 14.46 | 205.9 |
| #1 | .0130 | -.0005 | -.00043 | .00013 | .0035 | -.0022 | .0037 |
| #2 | .0124 | .0058 | -.00042 | -.00010 | .0014 | -.0027 | -.0007 |

| Elem | 1960-2 |
|---|---|
| Avge | .0003 |
| SDev | .0019 |
| %RSD | 590.9 |
| #1 | -.0010 |
| #2 | .0017 |

---

Method: YTTRIUM Sample Name: TDLS Operator: AZR
Run Time: 08/19/97 16:47:18
Comment:
Mode: CONC Corr. Factor: 1

| Elem | As1890 | Pb2203 | Se1960 | Cd2265 | Tl1908 | Cr2677 | Sb2068 |
|---|---|---|---|---|---|---|---|
| Avge | .0032 | .0048 | .0050 | .00096 | .0110 | .00358 | .0044 |
| SDev | .0004 | .0001 | .0033 | .00002 | .0019 | .00062 | .0018 |
| %RSD | 13.16 | 1.009 | 65.84 | 2.2449 | 17.60 | 17.407 | 39.72 |
| #1 | .0029 | .0049 | .0074 | .00095 | .0097 | .00314 | .0032 |
| #2 | .0035 | .0048 | .0027 | .00098 | .0124 | .00402 | .0056 |

| Elem | Ag3280 | V_2924 | Be3130 | Co2286 | Mn2576 | Fe2714 | Al3082 |
|---|---|---|---|---|---|---|---|
| Avge | .00013 | .00079 | .00103 | .00037 | .00085 | .0374 | -.0112 |
| SDev | .00092 | .00084 | .00001 | .00048 | .00000 | .0134 | .0020 |
| %RSD | 692.23 | 106.22 | 1.2255 | 131.26 | .12435 | 35.67 | 17.76 |
| #1 | -.00052 | .00138 | .00102 | .00003 | .00085 | .0280 | -.0126 |
| #2 | .00078 | .00020 | .00103 | .00070 | .00085 | .0469 | -.0098 |

| Elem | Ca3179 | Mg2790 | 2265-1 | 2265-2 | 2203-1 | 2203-2 | 1960-1 |
|---|---|---|---|---|---|---|---|
| Avge | -.0567 | -.0015 | .00137 | .00076 | .0034 | .0056 | -.0011 |
| SDev | .0009 | .0031 | .00034 | .00014 | .0039 | .0019 | .0078 |
| %RSD | 1.578 | 203.1 | 24.540 | 17.652 | 115.2 | 33.83 | 731.2 |
| #1 | -.0560 | -.0037 | .00113 | .00086 | .0062 | .0042 | .0044 |
| #2 | -.0573 | .0007 | .00160 | .00067 | .0006 | .0069 | -.0066 |

| Elem | 1960-2 |
|---|---|
| Avge | .0081 |
| SDev | .0011 |
| %RSD | 13.37 |
| #1 | .0088 |
| #2 | .0073 |

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24

Method: YTTRIUM  Sample Name: TCDL01  Operator: AZR
Run Time: 08/19/97 16:50:42
Comment:
Mode: CONC  Corr. Factor: 1

| Elem | As1890 | Pb2203 | Se1960 | Cd2265 | Tl1908 | Cr2677 | Sb2068 |
|---|---|---|---|---|---|---|---|
| Avge | .0171 | .0056 | .0099 | .00991 | .0196 | .01893 | .1138 |
| SDev | .0036 | .0011 | .0011 | .00019 | .0000 | .00010 | .0015 |
| %RSD | 21.23 | 19.05 | 10.91 | 1.9336 | .0708 | .54118 | 1.306 |
| #1 | .0196 | .0049 | .0091 | .00977 | .0196 | .01900 | .1128 |
| #2 | .0145 | .0064 | .0107 | .01004 | .0197 | .01886 | .1149 |

| Elem | Ag3280 | V_2924 | Be3130 | Co2286 | Mn2576 | Fe2714 | Al3082 |
|---|---|---|---|---|---|---|---|
| Avge | .01715 | .09960 | .00960 | .09734 | .02910 | -.0056 | -.0365 |
| SDev | .00034 | .00053 | .00003 | .00038 | .00012 | .0057 | .0034 |
| %RSD | 1.9514 | .53058 | .36110 | .39055 | .41134 | 102.3 | 9.317 |
| #1 | .01691 | .09997 | .00957 | .09707 | .02902 | -.0097 | -.0389 |
| #2 | .01738 | .09922 | .00962 | .09761 | .02919 | -.0015 | -.0341 |

| Elem | Ca3179 | Mg2790 | 2265-1 | 2265-2 | 2203-1 | 2203-2 | 1960-1 |
|---|---|---|---|---|---|---|---|
| Avge | -.0665 | -.0149 | .00971 | .01000 | .0080 | .0044 | .0121 |
| SDev | .0004 | .0013 | .00062 | .00002 | .0013 | .0023 | .0005 |
| %RSD | .5280 | 8.440 | 6.3863 | .22478 | 16.20 | 51.21 | 4.061 |
| #1 | -.0663 | -.0140 | .00928 | .01002 | .0090 | .0028 | .0118 |
| #2 | -.0668 | -.0158 | .01015 | .00999 | .0071 | .0060 | .0125 |

| Elem | 1960-2 |
|---|---|
| Avge | .0088 |
| SDev | .0014 |
| %RSD | 15.64 |
| #1 | .0078 |
| #2 | .0097 |

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Method: YTTRIUM  Sample Name: ICS-A  Operator: AZR
Run Time: 08/19/97 16:54:06
Comment:
Mode: CONC  Corr. Factor: 1

| Elem | As1890 | Pb2203 | Se1960 | Cd2265 | Tl1908 | Cr2677 | Sb2068 |
|---|---|---|---|---|---|---|---|
| Avge | -.0008 | -.0014 | -.0054 | .00195 | .0040 | -.00045 | .0062 |
| SDev | .0019 | .0000 | .0015 | .00005 | .0017 | .00012 | .0028 |
| %RSD | 237.0 | .5000 | 26.73 | 2.2863 | 42.59 | 25.403 | 44.99 |
| #1 | -.0021 | -.0014 | -.0065 | .00198 | .0028 | -.00037 | .0082 |
| #2 | .0005 | -.0014 | -.0044 | .00192 | .0051 | -.00054 | .0043 |

| Elem | Ag3280 | V_2924 | Be3130 | Co2286 | Mn2576 | Fe2714 | Al3082 |
|---|---|---|---|---|---|---|---|
| Avge | .00193 | L-.00332 | -.00045 | .00082 | L-.00010 | 203.5 | 510.2 |
| SDev | .00038 | .00034 | .00005 | .00073 | .00020 | .3 | .3 |
| %RSD | 19.384 | 10.270 | 11.131 | 88.712 | 196.54 | .1600 | .0650 |
| #1 | .00220 | L-.00357 | -.00041 | .00134 | L-.00025 | 203.3 | 510.0 |
| #2 | .00167 | L-.00308 | .00048 | .00031 | L.00004 | 203.7 | 510.4 |

| Elem | Ca3179 | Mg2790 | 2265-1 | 2265-2 | 2203-1 | 2203-2 | 1960-1 |
|---|---|---|---|---|---|---|---|
| Avge | 506.9 | 509.3 | .00291 | .00147 | -.0292 | .0124 | -.0065 |
| SDev | 1.4 | 1.1 | .00076 | .00031 | .0121 | .0060 | .0047 |
| %RSD | .2752 | .2176 | 26.201 | 21.371 | 41.44 | 48.46 | 71.64 |
| #1 | 505.9 | 508.5 | .00345 | .00125 | -.0378 | .0167 | -.0099 |
| #2 | 507.9 | 510.1 | .00237 | .00169 | -.0206 | .0082 | -.0032 |

| Elem | 1960-2 |
|---|---|
| Avge | -.0049 |
| SDev | .0002 |
| %RSD | 3.311 |
| #1 | -.0048 |
| #2 | -.0050 |

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Method: YTTRIUM Sample Name: TICS Operator: AZR
Run Time: 08/19/97 16:57:34
Comment:
Mode: CONC Corr. Factor: 1

| Elem | As1890 | Pb2203 | Se1960 | Cd2265 | Tl1908 | Cr2677 | Sb2068 |
|---|---|---|---|---|---|---|---|
| Avge | .0984 | .0434 | .0426 | .92908 | .0999 | .47904 | .6196 |
| SDev | .0011 | .0004 | .0032 | .00142 | .0013 | .00104 | .0049 |
| %RSD | 1.083 | .9946 | 7.434 | .15326 | 1.320 | .21647 | .7979 |
| #1 | .0992 | .0431 | .0403 | .93009 | .0990 | .47830 | .6161 |
| #2 | .0977 | .0437 | .0448 | .92807 | .1008 | .47977 | .6231 |

| Elem | Ag3280 | V_2924 | Be3130 | Co2286 | Mn2576 | Fe2714 | Al3082 |
|---|---|---|---|---|---|---|---|
| Avge | .20322 | .47949 | .50583 | .45070 | .46411 | 202.3 | 504.9 |
| SDev | .00112 | .00094 | .00052 | .00023 | .00043 | .0 | .1 |
| %RSD | .54919 | .19621 | .10340 | .05078 | .09338 | .0215 | .0141 |
| #1 | .20243 | .48015 | .50546 | .45054 | .46380 | 202.2 | 504.8 |
| #2 | .20401 | .47882 | .50620 | .45086 | .46441 | 202.3 | 504.9 |

| Elem | Ca3179 | Mg2790 | 2265-1 | 2265-2 | 2203-1 | 2203-2 | 1960-1 |
|---|---|---|---|---|---|---|---|
| Avge | 504.0 | 505.4 | .94643 | .92041 | .0171 | .0565 | .0361 |
| SDev | .6 | .1 | .00292 | .00359 | .0075 | .0044 | .0063 |
| %RSD | .1257 | .0220 | .30840 | .39026 | 43.82 | 7.766 | 17.59 |
| #1 | 503.5 | 505.5 | .94437 | .92295 | .0224 | .0534 | .0406 |
| #2 | 504.4 | 505.3 | .94850 | .91787 | .0118 | .0596 | .0316 |

| Elem | 1960-2 |
|---|---|
| Avge | .0458 |
| SDev | .0079 |
| %RSD | 17.28 |
| #1 | .0402 |
| #2 | .0514 |

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Method: YTTRIUM  Sample Name: TCCV  Operator: AZR
Run Time: 08/19/97 17:00:58
Comment:
Mode: CONC  Corr. Factor: 1

| Elem | As1890 | Pb2203 | Se1960 | Cd2265 | Tl1908 | Cr2677 | Sb2068 |
|---|---|---|---|---|---|---|---|
| Avge | .0963 | .0990 | .1003 | .10011 | .1036 | .10317 | .0983 |
| SDev | .0009 | .0003 | .0007 | .00042 | .0024 | .00000 | .0011 |
| %RSD | .9230 | .3045 | .6963 | .41960 | 2.331 | .00307 | 1.170 |
| #1 | .0957 | .0992 | .0999 | .10041 | .1019 | .10317 | .0974 |
| #2 | .0969 | .0988 | .1008 | .09981 | .1053 | .10317 | .0991 |

| Elem | Ag3280 | V_2924 | Be3130 | Co2286 | Mn2576 | Fe2714 | Al3082 |
|---|---|---|---|---|---|---|---|
| Avge | .09709 | .09876 | .09657 | .09839 | .09934 | .1067 | .2252 |
| SDev | .00043 | .00096 | .00022 | .00007 | .00011 | .0054 | .0272 |
| %RSD | .44465 | .97328 | .22664 | .07443 | .10665 | 5.081 | 12.09 |
| #1 | .09678 | .09944 | .09673 | .09834 | .09941 | .1106 | .2444 |
| #2 | .09740 | .09808 | .09642 | .09845 | .09926 | .1029 | .2059 |

| Elem | Ca3179 | Mg2790 | 2265-1 | 2265-2 | 2203-1 | 2203-2 | 1960-1 |
|---|---|---|---|---|---|---|---|
| Avge | .2292 | .1963 | .10048 | .09993 | .0965 | .1002 | .0937 |
| SDev | .0277 | .0243 | .00002 | .00062 | .0009 | .0000 | .0011 |
| %RSD | 12.10 | 12.39 | .01868 | .62087 | .9877 | .0238 | 1.159 |
| #1 | .2488 | .2135 | .10050 | .10037 | .0972 | .1002 | .0929 |
| #2 | .2096 | .1791 | .10047 | .09949 | .0958 | .1002 | .0944 |

| Elem | 1960-2 |
|---|---|
| Avge | .1037 |
| SDev | .0005 |
| %RSD | .4878 |
| #1 | .1033 |
| #2 | .1040 |

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Method: YTTRIUM  Sample Name: BLA01  Operator: AZR
Run Time: 08/19/97 17:04:22
Comment:
Mode: CONC  Corr. Factor: 1

| Elem | As1890 | Pb2203 | Se1960 | Cd2265 | Tl1908 | Cr2677 | Sb2068 |
|---|---|---|---|---|---|---|---|
| Avge | -.0010 | -.0001 | .0005 | .00020 | .0034 | -.00028 | -.0008 |
| SDev | .0032 | .0007 | .0004 | .00015 | .0018 | .00114 | .0016 |
| %RSD | 304.5 | 551.8 | 91.26 | 73.332 | 54.53 | 412.15 | 309.6 |
| #1 | -.0033 | .0004 | .0002 | .00031 | .0047 | .00053 | .0004 |
| #2 | .0012 | -.0006 | .0008 | .00010 | .0021 | -.00108 | -.0019 |

| Elem | Ag3280 | V_2924 | Be3130 | Co2286 | Mn2576 | Fe2714 | Al3082 |
|---|---|---|---|---|---|---|---|
| Avge | -.00067 | -.00058 | .00017 | -.00029 | .00000 | .0362 | .0983 |
| SDev | .00097 | .00059 | .00004 | .00092 | .00017 | .0225 | .0220 |
| %RSD | 145.25 | 101.05 | 21.404 | 321.08 | 6357.5 | 62.05 | 22.43 |
| #1 | .00002 | -.00100 | .00020 | .00036 | .00012 | .0521 | .1139 |
| #2 | -.00136 | -.00017 | .00015 | -.00094 | -.00012 | .0203 | .0827 |

22

**HERITAGE ENVIRONMENTAL SERVICES, INC.**

7901 West Morris Street
Indianapolis, IN 46231
Phone: 317/243-0811
FAX: 317/486-5085

CASE NARRATIVE
GENERAL CHEMISTRIES SECTION

*SAMPLE#* A416935-936

These samples were analyzed for Total Cyanide (SW846-9010A and SW846-9012) and Hexavalent Chromium (SW846-7196A) using normal procedures with no modifications. The required holding times were met for the analyses. The method blanks were below the reporting limits. The Laboratory Fortified Blanks, and Initial and Continuing Calibration Verification standards were within the control limits. In addition, the matrix spike and matrix spike duplicate recoveries were within the control limits.

Barbara A. Shrake

BARBARA A. SHRAKE
LABORATORY SUPERVISOR
8/27/97

Recycled Paper

Page 1 of 1 | Reference No. CYAN-P : 2400

# CYANIDE DISTILLATION

| | | | |
|---|---|---|---|
| Analyst MJB 8997 | | Reviewer BAS #1108 | Recorder |
| Start Date 14-Aug-97 | Start Time 16:45 | Date 8/18/97 | Date |
| End Date 14-Aug-97 | End Time 22:00 | | |

| QAQC TYPE | SAMPLE | PREP CODE | INIT WT / VOL | FINAL VOLUME | COMMENTS | Arsenite | Sulfamic | Bismuth |
|---|---|---|---|---|---|---|---|---|
| BLA02 | B2400 | ~~250mg~~ | 250mL | 250mL | | ✓ | ✓ | |
| LFB02L | S2400 | | | | | ✓ | ✓ | |
| LFB02H | S2400 | | | | | ✓ | ✓ | |
| | A416935 | P101.4 | | | ECC ITIW | ✓ | ✓ | |
| SPIØ2 | A416935 | | | | | ✓ | ✓ | |
| DPSØ2 | A416935 | | | | | ✓ | ✓ | |
| | A416833 | P101.3 | | | MIX TANK 3 | ✓ | ✓ | |
| | A416849 | P101.3 | | | BFI - SEWER DISCHARGE | ✓ | ✓ | |
| | A416691 | P101.4 | | | G71D | ✓ | ✓ | |
| | A416692 | | | | G71M | ✓ | ✓ | |
| | A416693 | | | | G40D | ✓ | ✓ | |
| | A416694 | | | | G40M | ✓ | ✓ | |
| | A416936 | P101.4 | | | EEC ITIWD | ✓ | ✓ | |
| | A416766 | P101.4 | | | A21D | ✓ | ✓ | |
| | A416767 | | | | A19U | ✓ | ✓ | |
| | A416768 | | | | MW-27 | ✓ | ✓ | |
| | A416769 | | | | MW-26 | ✓ | ✓ | |
| | A416770 | | | | FB-1 | ✓ | ✓ | |
| | A416771 | | | | DUP-1 | ✓ | ✓ | |
| | A416772 | | | | MW-25 | ✓ | ✓ | |
| | A416773 | | | | MW-28 | ✓ | ✓ | |
| | A416774 | | | | MW-22S | ✓ | ✓ | |
| | A416775 | | | | A23D | ✓ | ✓ | |
| | | | | | | | | |
| | | | | | | | | |

Run Number _____ Reference No cyan-626

(Instrument #254) Analysis CYANIDE

Analyst Kyuu 43:8 Reviewer BAS #1108 Recorder _____
Date 8/18/97 Date _____

Start Date 06-15-1997 Start Time 17:00 End Date 06-15-1997 End Time 19:00

| CAL01 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| True Value | 0.500 | 0.250 | 0.100 | 0.0500 | 0.0200 | 0.0100 | 0.00500 | 0.00000 |
| Response | 2808 | 1355 | 544 | 265 | 103 | 50 | 14 | 0 |
| Obs Conc | 0.496 | 0.257 | 0.103 | 0.0496 | 0.0189 | 0.0089 | 0.00200 | -0.00067 |
| % Rec | 99.2 | 102.8 | 103.0 | 99.6 | 94.5 | 89.0 | 40.0 | NA |

Correlation 0.99979 Slope 5252 Intercept 4

| BLA01 | | | | |
|---|---|---|---|---|
| mg/L | -0.0007 | -0.0003 | -0.0001 | -0.0001 |

| ICV01 | |
|---|---|
| STD ID | X451 |
| True Value | 0.150 |
| Obs Conc | 0.145 |
| % Rec | 96.7 |

| BLA02 | |
|---|---|
| ID | B2400 |
| mg/L | -0.0003 |

| LFB02 | | |
|---|---|---|
| STD ID | P2400 | P2400 |
| True Value | 0.050 | 0.250 |
| Obs Conc | 0.049 | 0.239 |
| % Rec | 98.4 | 95.6 |

| DUP02 | |
|---|---|
| Sample # | |
| Rep 1 | |
| Rep 2 | |
| RPD | |

| SPI02 | | |
|---|---|---|
| Sample # | A416935 T | A416935 T |
| Spike TV | 0.100 | 0.100 |
| Sample TV | 0.000 | 0.000 |
| Total Conc | 0.100 | 0.092 |
| % Rec | 100.0 | 92.0 |
| | RPD = | 8.3 |

| DUP01 | |
|---|---|
| Sample # | |
| Rep 1 | |
| Rep 2 | |
| RPD | |

| SPI01 | |
|---|---|
| Sample # | |
| Spike TV | |
| Sample TV | |
| Total Conc | |
| % Rec | |

| CCV | | | |
|---|---|---|---|
| True Value | 0.100 | 0.100 | 0.100 |
| Obs Conc | 0.098 | 0.098 | 0.100 |
| % Rec | 98.0 | 98.0 | 100.0 |

C Parameter # 299 Reference No. cyan-628

| QAQC | SAMPLE | TEST CODE | TV | SPIKE | RESULT | %REC | RPD | DL | UNITS | DILUTION | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BLA01 | | | | | -0.0007 | | | | mg/L | | |
| CDL01 | | | 0.020 | | 0.0186 | 93.0 | | | mg/L | | |
| ICV01 | X451 | | 0.150 | | 0.145 | 96.7 | | | mg/L | | UWL 96 |
| BLA02 | B2400 | | | | -0.0003 | | | | mg/L | | |
| LFB02L | P2400 | | 0.050 | | 0.0492 | 98.4 | | | mg/L | | |
| LFB02H | P2400 | | 0.250 | | 0.239 | 95.6 | | | mg/L | | |
| | A416935 T4 | G101.4 | | | BDL | | | 0.005 | mg/L | | |
| SPI02 | A416935 T | P2400 | 0.000 | 0.100 | 0.100 | 100.0 | | | mg/L | | |
| DPS02 | A416935 T | P2400 | 0.000 | 0.100 | 0.092 | 92.0 | 8.3 | | mg/L | | |
| | A416833 T3 | G101.3 | | | BDL | | | 0.005 | mg/L | | |
| | A416849 T3 | G101.3 | | | BDL | | | 0.005 | mg/L | | |
| CCV | | | 0.100 | | 0.098 | 98.0 | | | mg/L | | |
| BLA01 | | | | | -0.0003 | | | | mg/L | | |
| | A416691 T4 | G101.4 | | | BDL | | | 0.005 | mg/L | | |
| | A416692 T4 | G101.4 | | | BDL | | | 0.005 | mg/L | | |
| | A416693 T4 | G101.4 | | | BDL | | | 0.005 | mg/L | | |

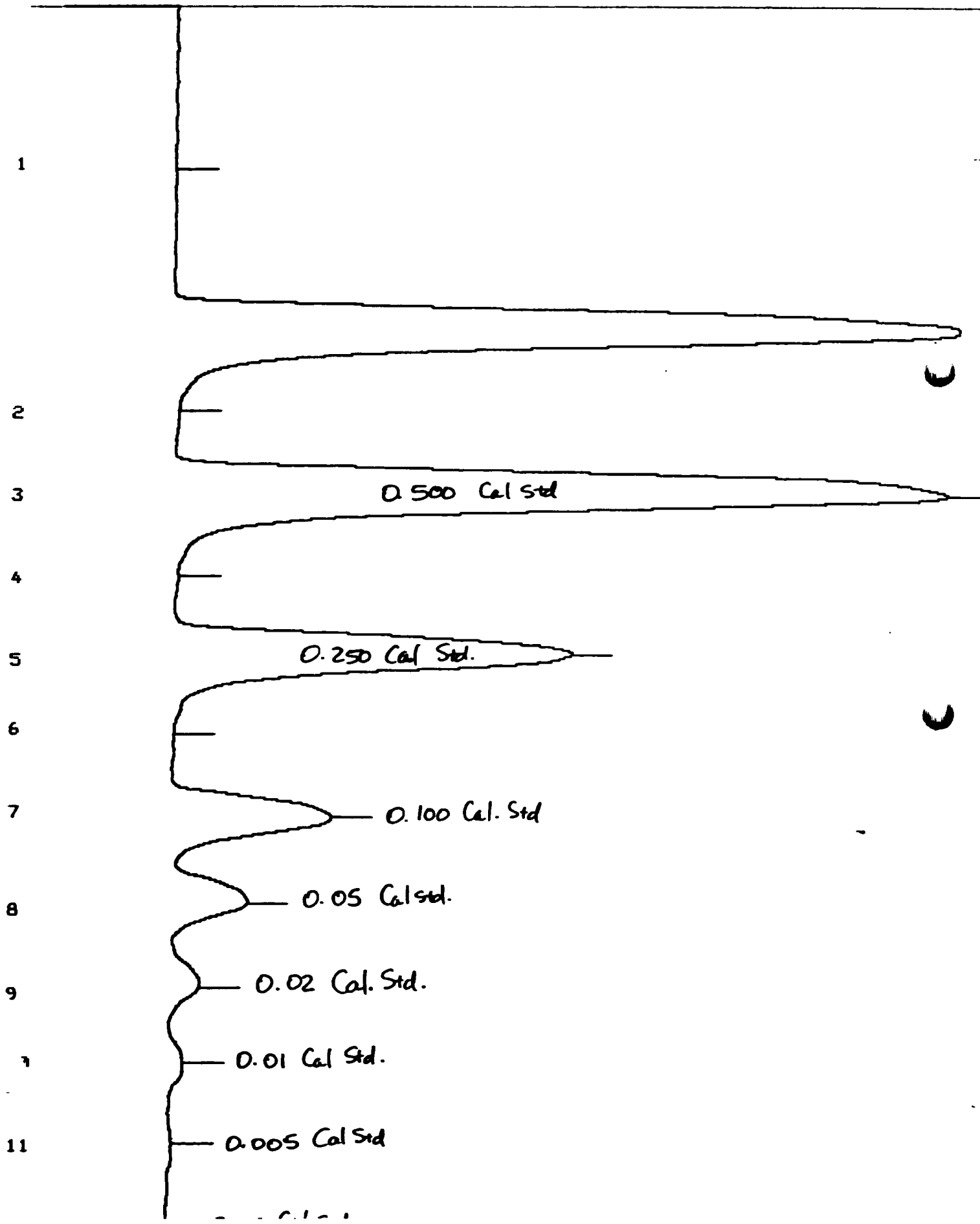
C Parameter # 269 Reference No. cyan-626

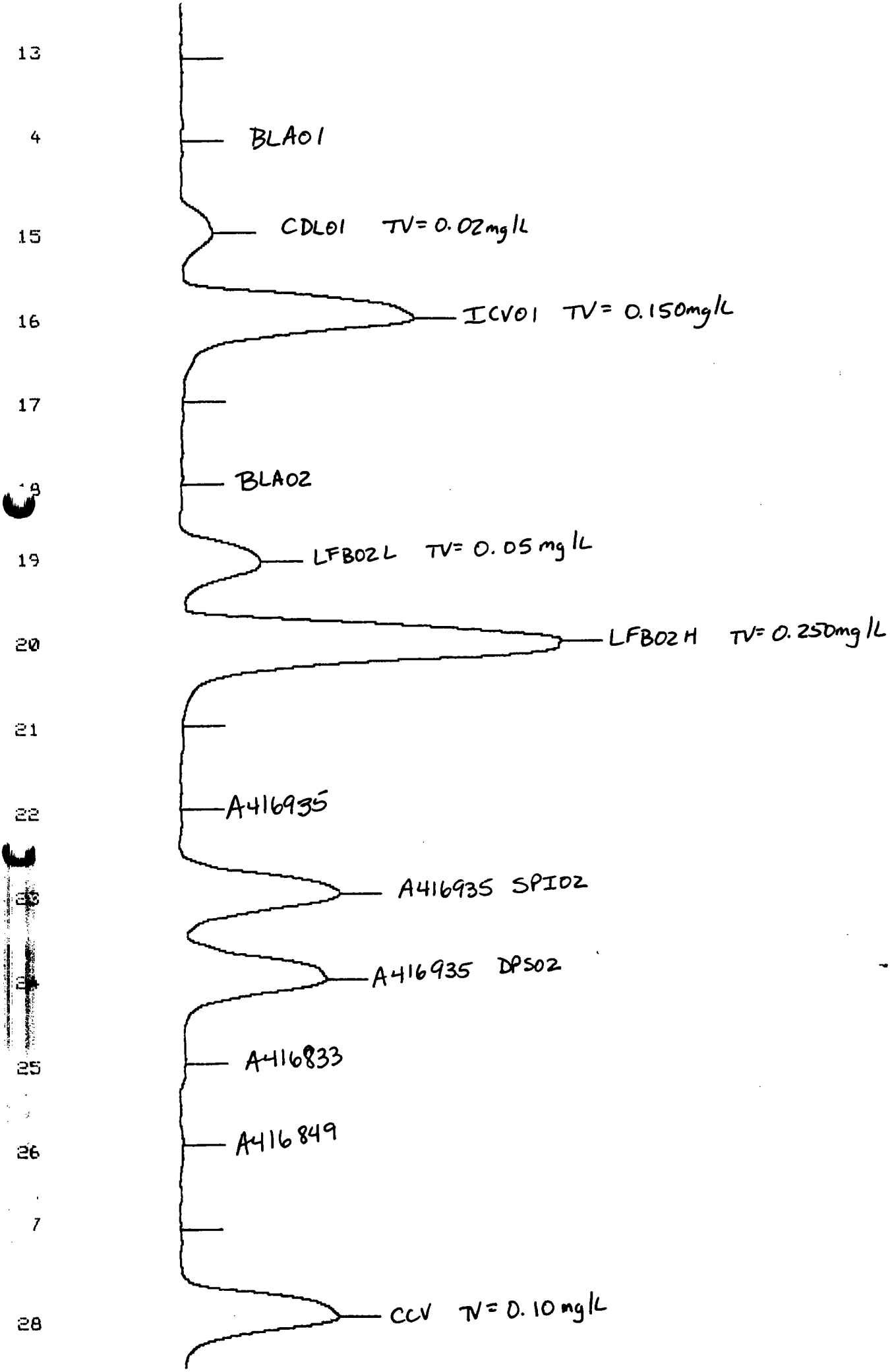
| QAQC | SAMPLE | TEST CODE | TV | SPIKE | RESULT | %REC | RPD | DL | UNITS | DILUTION | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | A416694 T4 | G101.4 | | | BDL | | | 0.005 | mg/L | | |
| | A416936 T4 | G101.4 | | | BDL | | | 0.005 | mg/L | | |
| | A416766 T4 | G101.4 | | | BDL | | | 0.005 | mg/L | | |
| | A416767 T4 | G101.4 | | | BDL | | | 0.005 | mg/L | | |
| | A416768 T4 | G101.4 | | | BDL | | | 0.005 | mg/L | | |
| | A416769 T4 | G101.4 | | | BDL | | | 0.005 | mg/L | | |
| | A416770 T4 | G101.4 | | | BDL | | | 0.005 | mg/L | | |
| CCV | | | 0.100 | | 0.098 | 98.0 | | | mg/L | | |
| BLA01 | | | | | -0.0001 | | | | mg/L | | |
| | A416771 T4 | G101.4 | | | BDL | | | 0.005 | mg/L | | |
| | A416772 T4 | G101.4 | | | BDL | | | 0.005 | mg/L | | |
| | A416773 T4 | G101.4 | | | BDL | | | 0.005 | mg/L | | |
| | A416774 T4 | G101.4 | | | BDL | | | 0.005 | mg/L | | |
| | A416775 T4 | G101.4 | | | BDL | | | 0.005 | mg/L | | |
| CCV | | | 0.100 | | 0.100 | 100.0 | | | mg/L | | |
| BLA01 | | | | | -0.0001 | | | | mg/L | | |

4

RUN DATE: 08-15-1997(CHART DATE: 08-15-1997
CHART SPEED: 60
DATA FILE NAME: C:\SOFTPAC\DATA\cyan-626.D11






13
4
BLA01
15
CDL01 TV= 0.02mg/L
16
ICV01 TV= 0.150mg/L
17
BLA02
19
LFB02L TV= 0.05 mg/L
20
LFB02H TV= 0.250mg/L
21
22
A416935
A416935 SPI02
A416935 DPS02
25
A416833
26
A416849
7
28
CCV TV= 0.10 mg/L

29 BLA01

30 W

31 ~~A416690~~ A416691

32 A416692

33 A416693

34 A416694

35 A416936

36 A416766

37 A416767

38 A416768

39 A416769

40 A416770

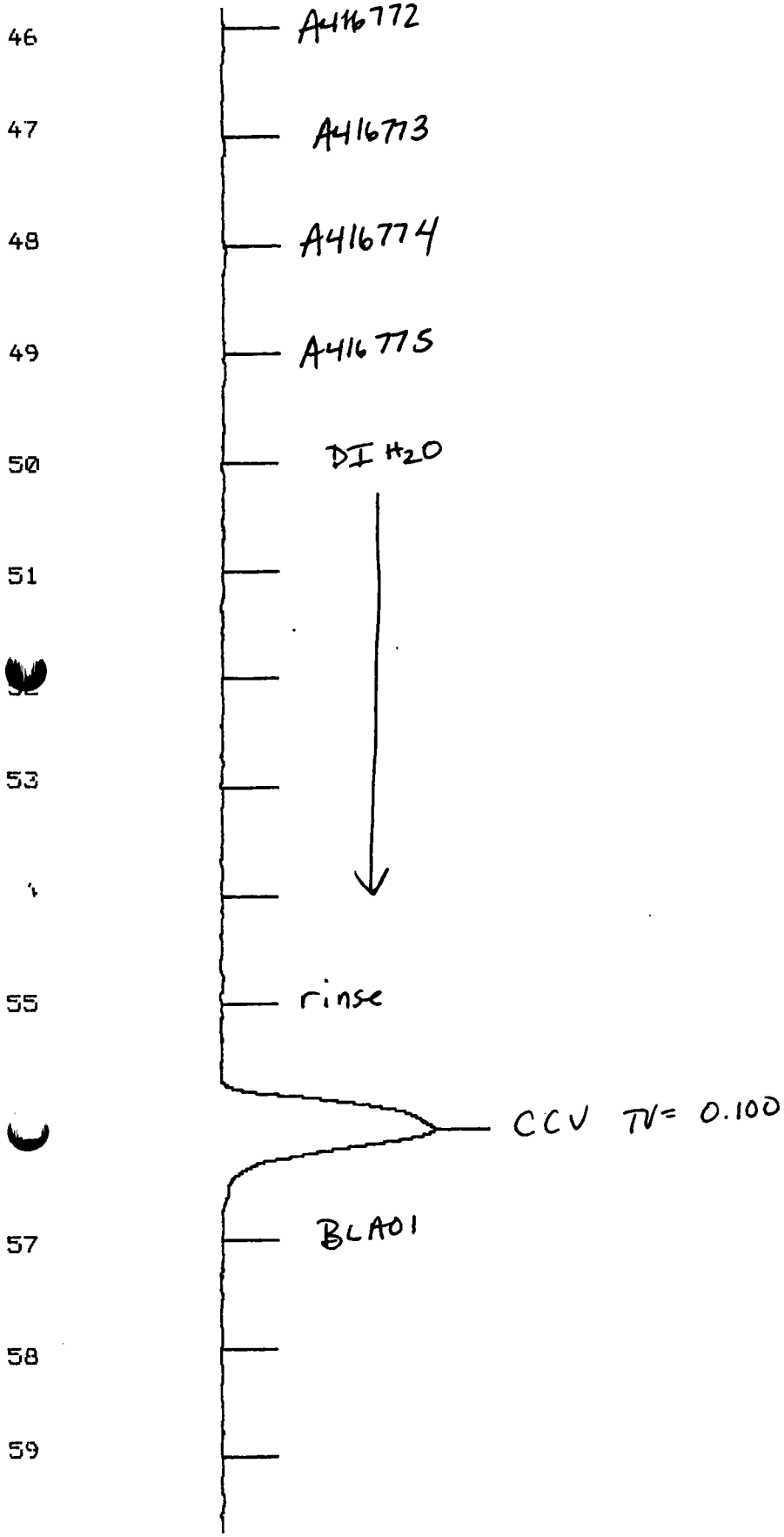
41 W

42 CCV TV= 0.10mg/L

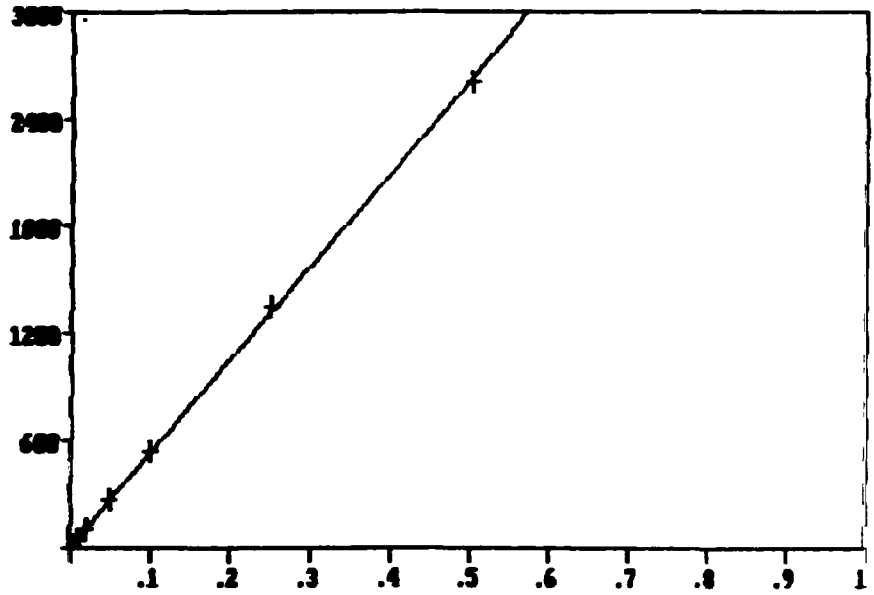
43 BLA01

44 W

45 A416771


46
A416772
47
A416773
48
A416774
49
A416775
50
DI H2O
51
53
55
rinse
CCV TV= 0.100
57
BLA01
58
59

CHANNEL NAME: CYANIDE
RUN NAME: cyan-626
RUN DATE: 08-15-1997
INITIAL CALIBRATION




PEAK NAME: CF
INTERCEPT = 3.517348

CALIBRATION CODE: 1
SLOPE = 5252.258

CORRELATION: .9997899

CHANNEL NAME: CYANIDE
RUN DATE: 08-15-1997
SAMPLE TABLE NAME: cyan-626

| PEAK/CUP# | | SAMPLE ID | DIL | WGT | HEIGHT | CALC VALUE | EF |
|---|---|---|---|---|---|---|---|
| 1 | 1 | SYNC | 1 | 1 | 2639 | 0.50178 | s |
| [illegible] | 2 | rinse | 1 | 1 | 21 | 0.00333 | I |
| 3 | 3 | S1 0.500: .5 | 1 | 1 | 2608 | 0.49588 | |
| 4 | 4 | S8 rinse: 0 | 1 | 1 | 25 | 0.00409 | D |
| 5 | 5 | S2 0.250: .2 | 1 | 1 | 1355 | 0.25731 | |
| 6 | 6 | S8 rinse: 0 | 1 | 1 | 15 | 0.00219 | D |
| 7 | 7 | S3 0.100: .1 | 1 | 1 | 544 | 0.10290 | |
| 8 | 8 | S4 0.050: .0 | 1 | 1 | 265 | 0.04978 | |
| 9 | 9 | S5 0.020: .0 | 1 | 1 | 103 | 0.01894 | |
| 10 | 10 | S6 0.010: .0 | 1 | 1 | 50 | 0.00885 | |
| 11 | 11 | S7 0.005: .0 | 1 | 1 | 14 | 0.00200 | I |
| 12 | 12 | S8 0.000: 0 | 1 | 1 | 0 | -0.00067 | I |

INTERCEPT: 3.517348 LINEAR COEF: 5252.258
CORRELATION COEF: .9997899

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 13 | 13 | W | 1 | 1 | 0 | -0.00067 | b |
| 1[illegible] | 14 | BLA01 | 1 | 1 | 0 | -0.00067 | I |
| [illegible] | 15 | CDL01 0.02 | 1 | 1 | 101 | 0.01856 | |
| 16 | 16 | ICV01 0.150 | 1 | 1 | 764 | 0.14479 | |
| 17 | 17 | rinse | 1 | 1 | 4 | 0.00009 | I |
| 18 | 18 | BLA02 B2400 | 1 | 1 | 2 | -0.00029 | I |
| 19 | 19 | LFB02L P2400 | 1 | 1 | 262 | 0.04921 | |
| 20 | 20 | LFB02H P2400 | 1 | 1 | 1258 | 0.23885 | |
| 21 | 21 | rinse | 1 | 1 | 9 | 0.00104 | I |
| 22 | 22 | A416935 T4 | 1 | 1 | 4 | 0.00009 | I |
| [illegible] | 23 | SPI02 A935 | 1 | 1 | 529 | 0.10005 | |
| 24 | 24 | DPS02 A935 | 1 | 1 | 486 | 0.09186 | |
| 25 | 25 | A416833 T3 | 1 | 1 | 20 | 0.00314 | I |
| 26 | 26 | A416849 T3 | 1 | 1 | 10 | 0.00123 | I |
| 27 | 27 | rinse | 1 | 1 | 0 | -0.00067 | I |
| 28 | 28 | CCV 0.100 | 1 | 1 | 517 | 0.09776 | |
| 29 | 29 | BLA01 | 1 | 1 | 2 | -0.00029 | I |
| 30 | 30 | W | 1 | 1 | 0 | -0.00067 | b |
| [illegible] | 31 | A416691 T4 | 1 | 1 | 3 | -0.00010 | I |
| 32 | 32 | A416692 T4 | 1 | 1 | 1 | -0.00048 | I |
| 33 | 33 | A416693 T4 | 1 | 1 | 2 | -0.00029 | I |
| 34 | 34 | A416694 T4 | 1 | 1 | 2 | -0.00029 | I |
| 35 | 35 | A416936 T4 | 1 | 1 | 1 | -0.00048 | I |
| 36 | 36 | A416766 T4 | 1 | 1 | 0 | -0.00067 | I |
| 37 | 37 | A416767 T4 | 1 | 1 | 0 | -0.00067 | I |
| 38 | 38 | A416768 T4 | 1 | 1 | 1 | -0.00048 | I |
| 39 | 39 | A416769 T4 | 1 | 1 | 0 | -0.00067 | I |
| 40 | 40 | A416770 T4 | 1 | 1 | 1 | -0.00048 | I |
| 41 | 27 | rinse | 1 | 1 | 0 | -0.00067 | I |
| 42 | 28 | CCV 0.100 | 1 | 1 | 519 | 0.09814 | |
| 43 | 29 | BLA01 | 1 | 1 | 3 | -0.00010 | I |
| 44 | 30 | W | 1 | 1 | 0 | -0.00067 | b |
| 45 | 41 | A416771 T4 | 1 | 1 | 1 | -0.00048 | I |
| 46 | 42 | A416772 T4 | 1 | 1 | 3 | -0.00010 | I |
| 47 | 43 | A416773 T4 | 1 | 1 | 1 | -0.00048 | I |
| [illegible] | 44 | A416774 T4 | 1 | 1 | 2 | -0.00029 | I |
| [illegible] | 45 | A416775 T4 | 1 | 1 | 1 | -0.00048 | I |
| 50 | 46 | _____ | 1 | 1 | 0 | -0.00067 | I |
| 51 | 47 | _____ | 1 | 1 | 0 | -0.00067 | I |
| 52 | 48 | _____ | 1 | 1 | 0 | -0.00067 | I |
| 53 | 49 | _____ | 1 | 1 | 0 | -0.00067 | I |
| 54 | 50 | _____ | 1 | 1 | 0 | -0.00067 | I |
| 55 | 27 | rinse | 1 | 1 | 0 | -0.00067 | I |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 57 | 29 | BLA01 | 1 | 1 | 3 | -0.00010 | I |
| 58 | 30 | W | 1 | 1 | 0 | -0.00067 | b |
| 59 | 51 | _____ | 1 | 1 | 0 | -0.00067 | I |

| | |
|---|---|
| Analysis Run Number | |
| Run Number | 3319 |
| Test | M110.6, M410.6 |
| Analyst | KMW 4318 |
| Date Analyzed | 8-14-97 |
| Instrument / Test | #223 Cr+6 |

| | |
|---|---|
| Reagent Lot # | M6320 |
| Expiration Date | 8-28-97 |

BLA01 RESP -0.005, -0.006, -0.003

| CAL01 | | | | | | |
|---|---|---|---|---|---|---|
| | KNOWN CONC. | 0.000 | 0.010 | 0.025 | 0.050 | 0.100 |
| | RESPONSE | 0.003 | 0.016 | 0.024 | 0.048 | 0.095 |
| | OBS. CONC. | -0.007 | 0.009 | 0.018 | 0.046 | 0.100 |
| | % RECOVERY | — | 90.0 | 72.0 | 92.0 | 100.0 |

| CAL01 | | | | | | |
|---|---|---|---|---|---|---|
| | KNOWN CONC. | 0.250 | 0.500 | 0.750 | 1.00 | |
| | RESPONSE | 0.232 | 0.453 | 0.671 | 0.851 | |
| | OBS. CONC. | 0.259 | 0.516 | 0.768 | 0.98 | |
| | % RECOVERY | 103.6 | 103.2 | 102.4 | 98.0 | |

CORR. = 0.9994 SLOPE = 0.8628 INT. = 0.008

| DUP | | | | | | |
|---|---|---|---|---|---|---|
| | DUP SAMPLE | | | | | |
| | REP. 1 CONC. | | | | | |
| | REP. 2 CONC. | | | | | |
| | REL. % DIFF. | | | | | |

| SPI 01 | | | | | | |
|---|---|---|---|---|---|---|
| | SPIKE SAMPLE | A416935 | A416935 | | | |
| | SPIKE CONC. | 0.200 | 0.200 | | | |
| | SAMPLE CONC. | BDL | BDL | | | |
| | TOTAL CONC. | 0.215 | 0.219 | | | |
| | % RECOVERY | 107.5 | 109.5 | | | |
| | | | RPD= 1.8% | | | |

| CCV | | | | | | |
|---|---|---|---|---|---|---|
| | OBS. RESP. | | | | | |
| | TRUE VALUE | 0.200 | 0.200 | | | |
| | OBS. CONC. | 0.220 | 0.214 | | | |
| | % RECOVERY | 110.0 | 107.0 | | | |

| ICV01 | | | | | | |
|---|---|---|---|---|---|---|
| | STD I.D. | X423 | | | | |
| | TRUE VALUE | 0.400 | | | | |
| | OBS. CONC. | 0.414 | | | | |
| | % RECOVERY | 103.5 | | | | |
| | MATRIX | | | | | |

 Reference No. M110.6, M410.6, M510.6 33·9

# HEXAVALENT CHROMIUM

Analyst YMW 4318 Reviewer BAS#1108 Recorder
Date 8/15/97 Date

Start Date 8-14-97 Start Time 16:30 End Date 8-14-97 End Time 16:30

| Sample Number | BLANK | CDL | X423 | A416935 | A416935 | A416935 |
|---|---|---|---|---|---|---|
| Hexachrome | -0.005 | 0.048 | 0.414 | BDL | 0.215 | 0.219 |
| Units | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L |
| Dilution | | | | | | |
| Concentration | -0.005 | 0.048 | 0.414 | N/C | 0.215 | 0.219 |
| ID # | 1 | 2 | 3 | | 4 | 5 |
| QAQC Type | BLAØ1 | CDLØ1 | ICVØ1 | | SPIØ1 | DPSØ1 |
| True Value | | 0.050 | 0.400 | | SAMPLE= SPIKE= | SAMPLE= SPIKE= |
| Detection Limit | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| Comments | | 96.0% | 103.5% | ECC ITIW | 107.5% ECC ITIW | RPD=1.8 109.5% ECC ITIW |

| Sample Number | A416936 | A416916 | BLANK | CCV | A416941 | BLANK |
|---|---|---|---|---|---|---|
| Hexachrome | BDL | BDL | -0.006 | 0.220 | BDL | -0.003 |
| Units | mg/L | mg/L | mg/L | mg/L | mg/kg | mg/L |
| Dilution | | | | | kg/100 | |
| Concentration | N/C | N/C | -0.006 | 0.220 | N/C | -0.003 |
| ID # | | | 6 | 7 | | 1 |
| QAQC Type | | | ~~BLAØ1~~ 8-14 6 | BLAØ1 ~~7~~ 8-14 | | BLAØ1 |
| True Value | | | | 0.200 | | |
| Detection Limit | 0.01 | 0.01 | 0.01 | 0.01 | 1.0 | 0.01 |
| Comments | ECC ITIWD | 97201 | | 110.0% | AA113 | |

Reference No. M110.6, M410.6, M510.6 3320 1

## HEXAVALENT CHROMIUM

Analyst _____ Reviewer BAS#1108 Recorder _____

Date 8/15/97 Date _____

Start Date _____ Start Time _____ End Date _____ End Time _____

| | | | | | | |
|---|---|---|---|---|---|---|
| Sample Number | CCV | | | | | |
| Hexachrome | 0.214 | | | | | |
| Units | mg/L | | | | | |
| Dilution | | | | | | |
| Concentration | 0.214 | | | | | |
| ID # | 2 | | | | | |
| QAQC Type | CCV | | | | | |
| True Value | 0.200 | | | | | |
| Detection Limit | 0.01 | | | | | |
| Comments | 107.0% | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Sample Number | | | | | | |
| Hexachrome | | | | | | |
| Units | | | | | | |
| Dilution | | | | | | |
| Concentration | | | | | | |
| ID # | | | | | | |
| QAQC Type | | | | | | |
| True Value | | | | | | |
| Detection Limit | | | | | | |
| Comments | | | | | | |

| | |
|---|---|
| NAME | CHROM/01 |
| TEST WV | 546 NM |
| INIT DLY | 5.0 SEC |
| SIGNAL AVE | 1 |
| LAMP SAVE | 1 |
| THROUGH 0 | NO |
| SLOPE | 0.0020 |
| INTERCEPT | 0.000 |
| LO LIMIT | 0.010 |
| HI LIMIT | 1.10 |

---

| | | | | | | |
|---|---|---|---|---|---|---|
| 104 | 1 | CHROM/01 | 546 NM | -0.005 | C | LO |
| 104 | 2 | CHROM/01 | 546 NM | 0.046 | C | |
| 104 | 3 | CHROM/01 | 546 NM | 0.414 | C | |
| 104 | 4 | CHROM/01 | 546 NM | 0.215 | C | |
| 104 | 5 | CHROM/01 | 546 NM | 0.215 | C | |
| 104 | 6 | CHROM/01 | 546 NM | -0.006 | C | LO |
| 104 | 7 | CHROM/01 | 546 NM | 0.220 | C | |

| | |
|---|---|
| NAME | CHROM/01 |
| TEST WV | 546 NM |
| INIT DLY | 5.0 SEC |
| SIGNAL AVE | 1 |
| LAMP SAVE | 1 |
| THROUGH 0 | NO |
| SLOPE | 0.8628 |
| INTERCEPT | 0.008 |
| LO LIMIT | 0.010 |
| HI LIMIT | 1.10 |

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| | | | | | | |
|---|---|---|---|---|---|---|
| ID# | 1 | CHROM/01 | 546 NM | -0.003 | C | LO |
| ID# | 2 | CHROM/01 | 546 NM | 0.214 | C | |

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

Lab Name: Heritage Environmental Services Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix (soil/water): Water Lab Sample ID: A416935

Level (low/med): Low Date Received: 8/14/97

% Solids: _____

Concentration Units (ug/L or mg/kg dry weight): ug/L

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | | | | |
| 7440-36-0 | Antimony | | | | |
| 7440-38-2 | Arsenic | | | | |
| 7440-39-3 | Barium | | | | |
| 7440-41-7 | Beryllium | | | | |
| 7440-43-9 | Cadmium | | | | |
| 7440-70-2 | Calcium | | | | |
| 7440-47-3 | Chromium | | | | |
| 7440-48-4 | Cobalt | | | | |
| 7440-50-8 | Copper | | | | |
| 7439-89-6 | Iron | | | | |
| 7439-92-1 | Lead | | | | |
| 7439-95-4 | Magnesium | | | | |
| 7439-96-5 | Manganese | | | | |
| 7439-97-6 | Mercury | | | | |
| 7440-02-0 | Nickel | | | | |
| 7440-09-7 | Potassium | | | | |
| 7782-49-2 | Selenium | | | | |
| 7440-22-4 | Silver | | | | |
| 7440-23-5 | Sodium | | | | |
| 7440-28-0 | Thallium | | | | |
| 7440-62-2 | Vanadium | | | | |
| 7440-66-6 | Zinc | | | | |
| | Cyanide | 0.0 | U | | AS |

Color Before: Colorless Clarity Before: Clear Texture: _____

Color After: Colorless Clarity After: Clear Artifacts: _____

Comments:

DRAFT

FORM I - IN

ILM04.0

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

Lab Name: Heritage Environmental Services Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix (soil/water): Water Lab Sample ID: A416936

Level (low/med): Low Date Received: 8/14/97

% Solids: _____

Concentration Units (ug/L or mg/kg dry weight): ug/L

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | | | | |
| 7440-36-0 | Antimony | | | | |
| 7440-38-2 | Arsenic | | | | |
| 7440-39-3 | Barium | | | | |
| 7440-41-7 | Beryllium | | | | |
| 7440-43-9 | Cadmium | | | | |
| 7440-70-2 | Calcium | | | | |
| 7440-47-3 | Chromium | | | | |
| 7440-48-4 | Cobalt | | | | |
| 7440-50-8 | Copper | | | | |
| 7439-89-6 | Iron | | | | |
| 7439-92-1 | Lead | | | | |
| 7439-95-4 | Magnesium | | | | |
| 7439-96-5 | Manganese | | | | |
| 7439-97-6 | Mercury | | | | |
| 7440-02-0 | Nickel | | | | |
| 7440-09-7 | Potassium | | | | |
| 7782-49-2 | Selenium | | | | |
| 7440-22-4 | Silver | | | | |
| 7440-23-5 | Sodium | | | | |
| 7440-28-0 | Thallium | | | | |
| 7440-62-2 | Vanadium | | | | |
| 7440-66-6 | Zinc | | | | |
| | Cyanide | 0.0 | U | | AS |

Color Before: Colorless Clarity Before: Clear Texture: _____

Color After: Colorless Clarity After: Clear Artifacts: _____

Comments:

DRAFT

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2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Heritage Environmental Services Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Initial Calibration Source: Fisher #931981

Continuing Calibration Source: LabChem # 13545-1

Concentration Units: ug/L

| Analyte | Initial Calibration True | Initial Calibration Found | Initial Calibration %R(1) | Continuing Calibration True | Continuing Calibration Found | Continuing Calibration %R(1) | Continuing Calibration Found | Continuing Calibration %R(1) | M |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum | | | | | | | | | |
| Antimony | | | | | | | | | |
| Arsenic | | | | | | | | | |
| Barium | | | | | | | | | |
| Beryllium | | | | | | | | | |
| Cadmium | | | | | | | | | |
| Calcium | | | | | | | | | |
| Chromium | | | | | | | | | |
| Cobalt | | | | | | | | | |
| Copper | | | | | | | | | |
| Iron | | | | | | | | | |
| Lead | | | | | | | | | |
| Magnesium | | | | | | | | | |
| Manganese | | | | | | | | | |
| Mercury | | | | | | | | | |
| Nickel | | | | | | | | | |
| Potassium | | | | | | | | | |
| Selenium | | | | | | | | | |
| Silver | | | | | | | | | |
| Sodium | | | | | | | | | |
| Thallium | | | | | | | | | |
| Vanadium | | | | | | | | | |
| Zinc | | | | | | | | | |
| Cyanide | 150.0 | 145.0 | 96.7 | 100.0 | 98.00 | 98.0 | 96.00 | 96.0 | AS |

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

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2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Heritage Environmental Services Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Initial Calibration Source: Fisher #931981

Continuing Calibration Source: Lab Chem # 13545-1

Concentration Units: ug/L

| Analyte | Initial Calibration True | Initial Calibration Found | Initial Calibration %R(1) | Continuing Calibration True | Continuing Calibration Found | Continuing Calibration %R(1) | Continuing Calibration Found | Continuing Calibration %R(1) | M |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum | | | | | | | | | |
| Antimony | | | | | | | | | |
| Arsenic | | | | | | | | | |
| Barium | | | | | | | | | |
| Beryllium | | | | | | | | | |
| Cadmium | | | | | | | | | |
| Calcium | | | | | | | | | |
| Chromium | | | | | | | | | |
| Cobalt | | | | | | | | | |
| Copper | | | | | | | | | |
| Iron | | | | | | | | | |
| Lead | | | | | | | | | |
| Magnesium | | | | | | | | | |
| Manganese | | | | | | | | | |
| Mercury | | | | | | | | | |
| Nickel | | | | | | | | | |
| Potassium | | | | | | | | | |
| Selenium | | | | | | | | | |
| Silver | | | | | | | | | |
| Sodium | | | | | | | | | |
| Thallium | | | | | | | | | |
| Vanadium | | | | | | | | | |
| Zinc | | | | | | | | | |
| Cyanide | | | | 100.0 | 100.0 | 100.0 | | | AS |

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

3
BLANKS

Lab Name: Heritage Environmental Services Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Preparation Blank Matrix (soil/water): Water

Preparation Blank Concentration Units (ug/L or mg/kg): µg/L

| Analyte | Initial Calib. Blank (ug/L) | C | Continuing Calibration Blank (ug/L) 1 | C | 2 | C | 3 | C | Prepa-ration Blank | C | M |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | | | | | | | | | | | |
| Antimony | | | | | | | | | | | |
| Arsenic | | | | | | | | | | | |
| Barium | | | | | | | | | | | |
| Beryllium | | | | | | | | | | | |
| Cadmium | | | | | | | | | | | |
| Calcium | | | | | | | | | | | |
| Chromium | | | | | | | | | | | |
| Cobalt | | | | | | | | | | | |
| Copper | | | | | | | | | | | |
| Iron | | | | | | | | | | | |
| Lead | | | | | | | | | | | |
| Magnesium | | | | | | | | | | | |
| Manganese | | | | | | | | | | | |
| Mercury | | | | | | | | | | | |
| Nickel | | | | | | | | | | | |
| Potassium | | | | | | | | | | | |
| Selenium | | | | | | | | | | | |
| Silver | | | | | | | | | | | |
| Sodium | | | | | | | | | | | |
| Thallium | | | | | | | | | | | |
| Vanadium | | | | | | | | | | | |
| Zinc | | | | | | | | | | | |
| Cyanide | 5.0 | U | 5.0 | U | 5.0 | U | 5.0 | U | 5.0 | U | AS |

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U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

A416935

Lab Name: Heritage Environmental Services Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix (soil/water): Water Level (low/med): Med

% Solids for Sample: _____

Concentration Units (ug/L or mg/kg dry weight): ug/L

| Analyte | Control Limit %R | Spiked Sample Result (SSR) | C | Sample Result (SR) | C | Spike Added (SA) | %R | Q | M |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum | | | | | | | | | |
| Antimony | | | | | | | | | |
| Arsenic | | | | | | | | | |
| Barium | | | | | | | | | |
| Beryllium | | | | | | | | | |
| Cadmium | | | | | | | | | |
| Calcium | | | | | | | | | |
| Chromium | | | | | | | | | |
| Cobalt | | | | | | | | | |
| Copper | | | | | | | | | |
| Iron | | | | | | | | | |
| Lead | | | | | | | | | |
| Magnesium | | | | | | | | | |
| Manganese | | | | | | | | | |
| Mercury | | | | | | | | | |
| Nickel | | | | | | | | | |
| Potassium | | | | | | | | | |
| Selenium | | | | | | | | | |
| Silver | | | | | | | | | |
| Sodium | | | | | | | | | |
| Thallium | | | | | | | | | |
| Vanadium | | | | | | | | | |
| Zinc | | | | | | | | | |
| Cyanide | 75-125 | 100.0000 | | 0.0000 | U | 100.0000 | 100.0 | | AS |

Comments:

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U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

A416935

Lab Name: Heritage Environmental Services Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix (soil/water): Water Level (low/med): Med

% Solids for Sample: _____

Concentration Units (ug/L or mg/kg dry weight): ug/L

| Analyte | Control Limit %R | Spiked Sample Result (SSR) | C | Sample Result (SR) | C | Spike Added (SA) | %R | Q | M |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum | | | | | | | | | |
| Antimony | | | | | | | | | |
| Arsenic | | | | | | | | | |
| Barium | | | | | | | | | |
| Beryllium | | | | | | | | | |
| Cadmium | | | | | | | | | |
| lcium | | | | | | | | | |
| ıromium | | | | | | | | | |
| Cobalt | | | | | | | | | |
| Copper | | | | | | | | | |
| Iron | | | | | | | | | |
| Lead | | | | | | | | | |
| Magnesium | | | | | | | | | |
| Manganese | | | | | | | | | |
| Mercury | | | | | | | | | |
| Nickel | | | | | | | | | |
| Potassium | | | | | | | | | |
| Selenium | | | | | | | | | |
| Silver | | | | | | | | | |
| Sodium | | | | | | | | | |
| Thallium | | | | | | | | | |
| Vanadium | | | | | | | | | |
| Zinc | | | | | | | | | |
| Cyanide | 75-125 | 92.0000 | | 0.0000 | u | 100.0000 | 92.0 | | AS |

Comments:

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6
DUPLICATES

EPA SAMPLE NO.

A416935

Lab Name: Heritage Environmental Services Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix (soil/water): Water Level (low/med): Med

% Solids for Sample: _____ % Solids for Duplicate: _____

Concentration Units (ug/L or mg/kg dry weight): µg/L

| Analyte | Control Limit | Sample (S) | C | Duplicate (D) | C | RPD | Q | M |
|---|---|---|---|---|---|---|---|---|
| Aluminum | | | | | | | | |
| Antimony | | | | | | | | |
| Arsenic | | | | | | | | |
| Barium | | | | | | | | |
| Beryllium | | | | | | | | |
| Cadmium | | | | | | | | |
| Calcium | | | | | | | | |
| Chromium | | | | | | | | |
| Cobalt | | | | | | | | |
| Copper | | | | | | | | |
| Iron | | | | | | | | |
| Lead | | | | | | | | |
| Magnesium | | | | | | | | |
| Manganese | | | | | | | | |
| Mercury | | | | | | | | |
| Nickel | | | | | | | | |
| Potassium | | | | | | | | |
| Selenium | | | | | | | | |
| Silver | | | | | | | | |
| Sodium | | | | | | | | |
| Thallium | | | | | | | | |
| Vanadium | | | | | | | | |
| Zinc | | | | | | | | |
| Cyanide | | 100.0000 | | 92.0000 | | 8.3 | | AS |

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FORM VI - IN

ILM04.0

U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

Lab Name: Heritage Environmental Services Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Solid LCS Source: _____

Aqueous LCS Source: Fisher #931981

| Analyte | Aqueous (ug/L) True | Found | %R | Solid (mg/kg) True | Found | C | Limits | | %R |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum | | | | | | | | | |
| Antimony | | | | | | | | | |
| Arsenic | | | | | | | | | |
| Barium | | | | | | | | | |
| Beryllium | | | | | | | | | |
| Cadmium | | | | | | | | | |
| Calcium | | | | | | | | | |
| Chromium | | | | | | | | | |
| balt | | | | | | | | | |
| pper | | | | | | | | | |
| Iron | | | | | | | | | |
| Lead | | | | | | | | | |
| Magnesium | | | | | | | | | |
| Manganese | | | | | | | | | |
| Mercury | | | | | | | | | |
| Nickel | | | | | | | | | |
| Potassium | | | | | | | | | |
| Selenium | | | | | | | | | |
| Silver | | | | | | | | | |
| Sodium | | | | | | | | | |
| Thallium | | | | | | | | | |
| Vanadium | | | | | | | | | |
| Zinc | | | | | | | | | |
| Cyanide | 50.0 | 49.00 | 98.4 | | | | | | |

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U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

Lab Name: Heritage Environmental Services Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Solid LCS Source: _____

Aqueous LCS Source: Fisher # 931981

| Analyte | Aqueous (ug/L) True | Aqueous (ug/L) Found | Aqueous (ug/L) %R | Solid (mg/kg) True | Solid (mg/kg) Found | Solid (mg/kg) C | Solid (mg/kg) Limits | Solid (mg/kg) Limits | Solid (mg/kg) %R |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum | | | | | | | | | |
| Antimony | | | | | | | | | |
| Arsenic | | | | | | | | | |
| Barium | | | | | | | | | |
| Beryllium | | | | | | | | | |
| Cadmium | | | | | | | | | |
| Calcium | | | | | | | | | |
| Chromium | | | | | | | | | |
| Cobalt | | | | | | | | | |
| Copper | | | | | | | | | |
| Iron | | | | | | | | | |
| Lead | | | | | | | | | |
| Magnesium | | | | | | | | | |
| Manganese | | | | | | | | | |
| Mercury | | | | | | | | | |
| Nickel | | | | | | | | | |
| Potassium | | | | | | | | | |
| Selenium | | | | | | | | | |
| Silver | | | | | | | | | |
| Sodium | | | | | | | | | |
| Thallium | | | | | | | | | |
| Vanadium | | | | | | | | | |
| Zinc | | | | | | | | | |
| Cyanide | 250.0 | 239.0 | 95.6 | | | | | | |

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13
PREPARATION LOG

Lab Name: Heritage Environmental Services Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Method: ____

| EPA Sample No. | Preparation Date | Weight (gram) | Volume (mL) |
|---|---|---|---|
| PB | 8-14-97 | 250ml | 250 |
| LCS | 8-14-97 | 250ml | 250 |
| LCS | 8-14-97 | 250ml | 250 |
| A416935 | 8-14-97 | 250ml | 250 |
| A416935 SPIKE | 8-14-97 | 250ml | 250 |
| A416935 DPS02 | 8-14-97 | 250ml | 250 |
| A416833 | 8-14-97 | 250ml | 250 |
| A416849 | 8-14-97 | 250ml | 250 |
| A416691 | 8-14-97 | 250ml | 250 |
| A416692 | 8-14-97 | 250ml | 250 |
| A416693 | 8-14-97 | 250ml | 250 |
| A416694 | 8-14-97 | 250ml | 250 |
| A416936 | 8-14-97 | 250ml | 250 |
| A416766 | 8-14-97 | 250ml | 250 |
| A416767 | 8-14-97 | 250ml | 250 |
| A416768 | 8-14-97 | 250ml | 250 |
| A416769 | 8-14-97 | 250ml | 250 |
| A416770 | 8-14-97 | 250ml | 250 |
| A416771 | 8-14-97 | 250ml | 250 |
| A416772 | 8-14-97 | 250ml | 250 |
| A416773 | 8-14-97 | 250ml | 250 |
| A416774 | 8-14-97 | 250ml | 250 |
| A416775 | 8-14-97 | 250ml | 250 |

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U.S. EPA - CLP

14

ANALYSIS RUN LOG

Lab Name: Heritage Environmental Services  Contract: _____

Lab Code: _____  Case No.: _____  SAS No.: _____  SDG No.: _____

Instrument ID Number: #254  Method: _____

Start Date: 8-15-97  End Date: 8-15-97

| EPA Sample No. | D/F | Time | % R | Analytes | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AL | SB | AS | BA | BE | CD | CA | CR | CO | CU | FE | PB | MG | MN | HG | NI | K | SE | AG | NA | TL | V | ZN | CN |
| Cal 01 | 1 | 17:00-19:00 | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | X |
| Cal01 | 1 | 17:00-19:00 | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | X |
| Cal01 | 1 | 17:00-19:00 | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | X |
| Cal01 | 1 | 17:00-19:00 | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | X |
| Cal01 | 1 | 17:00-19:00 | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | X |
| Cal01 | 1 | 17:00-19:00 | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | X |
| Cal01 | 1 | 17:00-19:00 | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | X |
| Cal01 | 1 | 17:00-19:00 | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | X |
| ICB | 1 | 17:00-19:00 | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | X |
| CDL01 | 1 | 17:00-19:00 | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | X |
| ICV01 | 1 | 17:00-19:00 | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | X |
| PB #2400 | 1 | 17:00-19:00 | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | X |
| CSH# 2400 | 1 | 17:00-19:00 | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | X |
| LCSH #2400 | 1 | 17:00-19:00 | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | X |
| A416935 | 1 | 17:00-19:00 | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | X |
| A416935 SP002 | 1 | 17:00-19:00 | 100.0 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | X |
| A416935 DP002 | 1 | 17:00-19:00 | 92.0 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | X |
| A416833 | 1 | 17:00-19:00 | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | X |
| A416849 | 1 | 17:00-19:00 | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | X |
| CCV | 1 | 17:00-19:00 | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | X |
| CCB | 1 | 17:00-19:00 | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | X |
| A416691 | 1 | 17:00-19:00 | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | X |
| A416692 | 1 | 17:00-19:00 | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | X |
| A416693 | 1 | 17:00-19:00 | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | X |
| A416694 | 1 | 17:00-19:00 | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | X |
| A416936 | 1 | 17:00-19:00 | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | X |
| A416766 | 1 | 17:00-19:00 | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | X |
| A416767 | 1 | 17:00-19:00 | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | X |
| A416768 | 1 | 17:00-19:00 | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | X |
| A416769 | 1 | 17:00-19:00 | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | X |
| A416770 | 1 | 17:00-19:00 | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | X |
| CCV | 1 | 17:00-19:00 | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | X |
| CCB | 1 | 17:00-19:00 | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | X |
| A416771 | 1 | 17:00-19:00 | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | X |

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U.S. EPA - CLP

14

ANALYSIS RUN LOG

Lab Name: Heritage Environmental Services  Contract: _____

Lab Code: _____  Case No.: _____  SAS No.: _____  SDG No.: _____

Instrument ID Number: #234  Method: __

Start Date: 8-15-97  End Date: 8-15-97

| EPA Sample No. | D/F | Time | % R | Analytes | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AL | SB | AS | BA | BE | CD | CA | CR | CO | CU | FE | PB | MG | MN | HG | NI | K | SE | AG | NA | TL | V | ZN | CN |
| A416772 | 1 | 17:00-18:00 | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | X |
| A416773 | 1 | 17:00-18:00 | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | X |
| A416774 | 1 | 17:00-18:00 | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | X |
| A416775 | 1 | 17:00-18:00 | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | X |
| CCV | 1 | 17:00-18:00 | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | X |
| CCB | 1 | 17:00-18:00 | | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | X |

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Form XIV - IN

ILM04.

**HERITAGE ENVIRONMENTAL SERVICES, INC.**

7901 West Morris Street
Indianapolis, IN 46231
Phone: 317/243-0811
FAX: 317/486-5085

# CASE NARRATIVE
## GC/MS VOLATILES
## SW-846 8240B
## SAMPLES A416935-937
## 8/22/97

There were no QC problems encountered in the analysis of these samples.

Anne Bradburn

Anne Bradburn
GC/MS Group Leader

Recycled Paper

2A
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: HERITAGE LABS Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument #: GCMS #5 Date Analyzed : 15-Aug-97

| | EPA SAMPLE NO. | SMC1 # | SMC2 # | SMC3 # | TOT OUT |
|---|---|---|---|---|---|
| 01 | VBLK01 | 97 | 99 | 94 | 0 |
| 02 | DI MS | 103 | 99 | 92 | 0 |
| 03 | A416935 | 96 | 95 | 100 | 0 |
| 04 | A416936 | 89 | 98 | 100 | 0 |
| 05 | A416937 | 103 | 95 | 101 | 0 |
| 06 | A416936 MS | 103 | 98 | 101 | 0 |
| 07 | A416936 MSD | 91 | 93 | 93 | 0 |
| 08 | A416429 | 93 | 94 | 92 | 0 |
| 09 | A416430 | 95 | 98 | 67 * | 1 |
| 10 | A416431 | 83 | 95 | 97 | 0 |
| 11 | A416432 | 86 | 98 | 74 * | 1 |
| 12 | A416433 | 92 | 96 | 94 | 0 |
| 13 | A416434 | 83 | 100 | 96 | 0 |

| | | | QC LIMITS |
|---|---|---|---|
| SMC1 | = | 1,2-Dichloroethane-d4 | (76-114) |
| SMC2 | = | Toluene-d8 | (88-110) |
| SMC3 | = | Bromofluorobenzene | (86-115) |

# Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

Enter highlighted compounds. R332164

QC Std# 208
Method # 186

Heritage Environmental Services, Indianapolis
LCS01 Volatile QC Report-EPA Method 8240
Water

LCS Data File : 1392E.
LCS Date/Time : 081597 05:42

KS 8/20/97

Spike Conc : 20 uG/L
Dilution Factor: 1

| Compound | Spike Conc | Spike % Rec | Min Recovery * | Max Recovery * |
|---|---|---|---|---|
| Acetone | 16.7 | 83.5 | D | 370.9 |
| Benzene | 18.6 | 93.0 | 73 | 122.3 |
| Bromodichloromethane | 19.1 | 95.5 | 67 | 128.3 |
| Bromoform | 16.5 | 82.5 | 36 | 155.9 |
| Bromomethane | 16.8 | 84.0 | 33 | 166.6 |
| Carbon Disulfide | 18.3 | 91.5 | 36 | 144.2 |
| Carbon Tetrachloride | 19.9 | 99.5 | 58 | 133.2 |
| Chlorobenzene | 17.7 | 88.5 | 74 | 121.5 |
| Chloroethane | 16.4 | 82.0 | 29 | 149.8 |
| [redacted] | [redacted] | [redacted] | 15 | 168.4 |
| CHLOROFORM | 20 | 100.0 | 60 | 134.4 |
| Chloromethane | 13.9 | 69.5 | 7 | 177.5 |
| Dibromochloromethane | 19 | 95.0 | 59 | 135 |
| cis-1,3-Dichloropropene | 18.4 | 92.0 | 58 | 131.3 |
| Dichlorodifluoromethane | 7.44 | 37.2 | | |
| 1,1-Dichloroethane | 19.6 | 98.0 | 62 | 129.8 |
| 1,2-Dichloroethane | 20 | 100.0 | 59 | 136.2 |
| 1,1-DICHLOROETHENE | 17.6 | 88.0 | 56 | 131.4 |
| 1,2-DICHLOROPROPANE | 20 | 100.0 | 63 | 128.9 |
| ETHYLBENZENE | 17.2 | 86.0 | 72 | 123 |
| Trichlorofluoromethane | 16.9 | 84.5 | 40 | 160.4 |
| 2-Hexanone | 17.7 | 88.5 | D | 351.7 |
| Methylene Chloride | 19.3 | 96.5 | D | 138.2 |
| 2-Butanone | 19 | 95.0 | 64 | 321.3 |
| 4-Methyl-2-Pentanone | 19.3 | 96.5 | D | 277.8 |
| Styrene | 17.6 | 88.0 | 74 | 125.7 |
| 1,1,2,2-Tetrachloroethane | 18 | 90.0 | 52 | 150.5 |
| Tetrachloroethene | 17.9 | 89.5 | 64 | 130.1 |
| TOLUENE | 20.3 | 101.5 | 62 | 134.5 |
| 1,2-Dichloroethene (total) | 37.7 | 94.3 | 54 | 135.3 |
| trans-1,3-Dichloropropene | 19.1 | 95.5 | 54 | 141.6 |
| 1,1,1-Trichloroethane | 19.5 | 97.5 | 65 | 131 |
| 1,1,2-Trichloroethane | 18.5 | 92.5 | 49 | 149.2 |
| Trichloroethene | 20.2 | 101.0 | 66 | 125.3 |
| Vinyl acetate | 32 | 160.0 | D | 224.4 |
| VINYL CHLORIDE | 16.1 | 80.5 | 23 | 154.9 |
| Xylene (total) | 52.2 | 87.0 | 71 | 123.8 |
| Tetrahydrofuran | 51.7 | 103.4 | D | 273.8 |
| Diethyl ether | 19.2 | 96.0 | 47 | 143 |



8/20/97 KSR 8/20/97

QC Std# 208
Method # 186

Heritage Environmental Services, Indianapolis
LCS01 Volatile QC Report-EPA Method 8240
Water

LCS Data File : 1392E.
LCS Date/Time : 081597 05:42
Spike Conc : 20 uG/L
Dilution Factor: 1

| Compound | Spike Conc | Spike % Rec | Min Recovery * | Max Recovery * |
|---|---|---|---|---|
| Trichlorotrifluoroethane | 16.9 | 84.5 | D | 195 |
| Methyl-t-butyl ether | 20.1 | 100.5 | 53 | 149.3 |
| Diisopropyl ether | 19.3 | 96.5 | 67 | 124.8 |

Notes:
* Laboratory Generated Limits (based on >20 analyses) are used as Warning Limits. Updated 4/95
# Method limits from EPA Method 624 (based on 20 uG/L spike) are used as Control Limits.
** Analyzed using SP1000 Packed Column.
Tetrahydrofuran (1) spiked at 50 uG/L
1,2-Dichloroethene (total) spiked at 40 uG/L
Co-eluting Dichlorobenzenes spiked at 40, Xylenes spiked at 60 uG/L
Laboratory limits for dichlorodifluoromethane generated starting 4/94.

R332164

3A
VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Heritage Laboratories, Inc. Contract: _____

Lab Code: EMSIN Case No.: _____ SAS No.: _____ SDG No.: _____

Sample No.: A416936 MS File: 1396E. Date/Time: 081597 08:56
MSD File: 1397E. Date/Time: 081597/09:42

| QC#: COMPOUND | SPIKE ADDED (uG/L) | SAMPLE CONCENTRATION (uG/L) | MS CONCENTRATION (uG/L) | MS % REC # | QC. LIMITS REC. |
|---|---|---|---|---|---|
| 1,1-DICHLOROETHENE | 50 | 0 | 40.1 | 80.2 | 59 - 172 |
| Trichloroethene | 50 | 0 | 44.6 | 89.2 | 62 - 137 |
| Benzene | 50 | 0 | 41 | 82.0 | 66 - 142 |
| TOLUENE | 50 | 0 | 43.7 | 87.4 | 59 - 139 |
| Chlorobenzene | 50 | 0 | 41.9 | 83.8 | 60 - 133 |

| QC#: COMPOUND | SPIKE ADDED (uG/L) | MSD CONCENTRATION (uG/L) | MSD % REC # | % RPD # | QC LIMITS RPD | REC. |
|---|---|---|---|---|---|---|
| 1,1-DICHLOROETHENE | 50 | 42.3 | 84.6 | 5.3 | 22 | 59 - 172 |
| Trichloroethene | 50 | 40.3 | 80.6 | 10.1 | 24 | 62 - 137 |
| Benzene | 50 | 40.3 | 80.6 | 1.7 | 21 | 66 - 142 |
| TOLUENE | 50 | 40 | 80.0 | 8.8 | 21 | 59 - 139 |
| Chlorobenzene | 50 | 42.8 | 85.6 | 2.1 | 21 | 60 - 133 |

CLP Limits are the Control Limits on this form.

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

* Values outside of QC limits

RPD : 0 out of 5 outside limits
Spike Recovery : 0 out of 10 outside limits

COMMENTS: _____

FORM III SV-1 3/90

8/20/97

QC Std# 206 Heritage Environmental Services, Indianapolis
Method # 186 MS/MSD Volatile QC Report-EPA Method 8240
Water

Laboratory Sample # : A416936
Data File :1394E. MS Data File : 1396E. MSD Data File : 1397E.
Date/Time : 061597 07:26 MS Date/Time : 061597 08:56 MSD Date/Time : 061597 09:42
Spike Conc : 50 uG/L
Dilution Factor: 1

| Compound | Sample Conc | Spike Conc | Spike % Rec | Spike Dup Conc | Spike Dup % Rec | RPD | Min Recovery * | Max Recovery * |
|---|---|---|---|---|---|---|---|---|
| Acetone | 0 | 34.7 | 69.4 | 36.6 | 73.2 | 5.3 | 17 | 201.3 |
| Benzene | 0 | 41 | 82.0 | 40.3 | 80.6 | 1.7 | 67 | 132.8 |
| Bromodichloromethane | 0 | 43.8 | 87.6 | 41.2 | 82.4 | 6.1 | 68 | 141 |
| Bromoform | 0 | 40.6 | 81.2 | 40 | 80.0 | 1.5 | 66 | 143.9 |
| Bromomethane | 0 | 32.5 | 65.0 | 32.2 | 64.4 | 0.9 | 32 | 148 |
| Carbon Disulfide | 0 | 41.9 | 83.8 | 41.9 | 83.8 | 0.0 | 43 | 144.1 |
| Carbon Tetrachloride | 0 | 45.7 | 91.4 | 39.7 | 79.4 | 14.1 | 70 | 136.3 |
| Chlorobenzene | 0 | 41.9 | 83.8 | 42.8 | 85.6 | 2.1 | 73 | 123.8 |
| Chloroethane | 0 | 35.9 | 71.8 | 39.5 | 79.0 | 9.5 | 48 | 145.3 |
| 2-Chloroethylvinylether | 0 | 0 | 0.0 # | 0 | 0.0 # | | D | 169.5 |
| CHLOROFORM | 0 | 45.2 | 90.4 | 43.3 | 86.6 | 4.3 | 62 | 142 |
| Chloromethane | 0 | 26.4 | 52.8 | 29.6 | 59.2 | 11.4 | 32 | 161.5 |
| Dibromochloromethane | 0 | 43.6 | 87.2 | 40.5 | 81.0 | 7.4 | 66 | 142.6 |
| cis-1,3-Dichloropropene | 0 | 42.2 | 84.4 | 43.5 | 87.0 | 3.0 | 63 | 132.6 |
| Dichlorodifluoromethane | 0 | 12.9 | 25.8 | 12.2 | 24.4 | 5.6 | | |
| 1,1-Dichloroethane | 0 | 45.9 | 91.8 | 47.7 | 95.4 | 3.8 | 64 | 138 |
| 1,2-Dichloroethane | 0 | 46.1 | 92.2 | 44.7 | 89.4 | 3.1 | 61 | 154.8 |
| 1,1-DICHLOROETHENE | 0 | 40.1 | 80.2 | 42.3 | 84.6 | 5.3 | 67 | 128.6 |
| 1,2-DICHLOROPROPANE | 0 | 46.1 | 92.2 | 46.4 | 92.8 | 0.6 | 75 | 128.9 |
| ETHYLBENZENE | 0 | 40.6 | 81.2 | 38.5 | 77.0 | 5.3 | 70 | 128.5 |
| Trichlorofluoromethane | 0 | 35.2 | 70.4 | 35.7 | 71.4 | 1.4 | 45 | 162.3 |
| 2-Hexanone | 0 | 43.2 | 86.4 | 44.6 | 89.2 | 3.2 | 28 | 192.9 |
| Methylene Chloride | 0 | 42.9 | 85.8 | 40.9 | 81.8 | 4.8 | 66 | 138.8 |
| 2-Butanone | 0 | 42.8 | 85.6 | 45.5 | 91.0 | 6.1 | 33 | 185.8 |
| 4-Methyl-2-Pentanone | 0 | 27 | 54.0 | 27.5 | 55.0 | 1.8 | 20 | 192.2 |
| Styrene | 0 | 46.1 | 92.2 | 38.1 | 76.2 | 19.0 | 60 | 139.1 |
| 1,1,2,2-Tetrachloroethane | 0 | 42.1 | 84.2 | 41.4 | 82.8 | 1.7 | 43 | 183.7 |
| Tetrachloroethene | 0 | 41.4 | 82.8 | 43.4 | 86.8 | 4.7 | 65 | 125.8 |
| TOLUENE | 0 | 43.7 | 87.4 | 40 | 80.0 | 8.8 | 62 | 137.8 |
| 1,2-Dichloroethene (total) | 0 | 85.5 | 85.5 | 87.4 | 87.4 | 2.2 | 50 | 145.2 |
| trans-1,3-Dichloropropene | 0 | 43.3 | 86.6 | 42.5 | 85.0 | 1.9 | 60 | 142.1 |
| 1,1,1-Trichloroethane | 0 | 44.9 | 89.8 | 42.6 | 85.2 | 5.3 | 68 | 138.7 |
| 1,1,2-Trichloroethane | 0 | 43.8 | 87.6 | 45.4 | 90.8 | 3.6 | 69 | 139.2 |
| Trichloroethene | 0 | 44.6 | 89.2 | 40.3 | 80.6 | 10.1 | 54 | 140.3 |
| Vinyl acetate | 0 | 48.6 | 97.2 | 80.5 | 161.0 | 49.4 | 4 | 191.7 |
| VINYL CHLORIDE | 0 | 36.2 | 72.4 | 37.2 | 74.4 | 2.7 | 20 | 170.3 |
| Xylene (total) | 0 | 136 | 90.7 | 120 | 80.0 | 12.5 | 66 | 132.9 |
| Tetrahydrofuran | 0 | 112 | 89.6 | 114 | 91.2 | 1.8 | 23 | 193.3 |
| Diethyl ether | 0 | 42.1 | 84.2 | 42.7 | 85.4 | 1.4 | 52 | 152.7 |

QC Std# 208 Heritage Environmental Services, Indianapolis
Method # 186 MS/MSD Volatile QC Report-EPA Method 8240
Water

Laboratory Sample # : A416936
Data File :1394E. MS Data File : 1396E. MSD Data File : 1397E.
Date/Time : 081597 07:26 MS Date/Time : 081597 08:56 MSD Date/Time : 081597 09:42
Spike Conc : 50 uG/L
Dilution Factor: 1

| Compound | Sample Conc | Spike Conc | Spike % Rec | Spike Dup Conc | Spike Dup % Rec | RPD | Min Recovery * | Max Recovery * |
|---|---|---|---|---|---|---|---|---|
| Trichlorotrifluoroethane | 0 | 38.7 | 77.4 | 40.4 | 80.8 | 4.3 | 45 | 147.7 |
| Methyl-t-butyl ether | 0 | 44.1 | 88.2 | 43.9 | 87.8 | 0.5 | 67 | 145.1 |
| Diisopropyl ether | 0 | 43.4 | 86.8 | 47.5 | 95.0 | 9.0 | 64 | 139.1 |

Notes:
* Laboratory Generated Limits (based on >20 analyses) are used as Warning Limits. Updated 4/95
# Method limits from EPA Method 624 (based on 20 uG/L spike) are used as Control Limits.
** Analyzed using SP1000 Packed Column.
Tetrahydrofuran (1) spiked at 125 uG/L
1,2-Dichloroethene (total) spiked at 100 uG/L
Co-eluting Dichlorobenzenes spiked at 100, Xylenes spiked at 150 uG/L
Laboratory limits for dichlorodifluoromethane generated starting 4/94.

4A

VOLATILE METHOD BLANK SUMMARY

Sample No. VBLK01

Lab Name: HES/CLO Contract: _____

Lab Code: _____ Case No: _____ SAS No.: _____ SGD No:. _____

Lab File ID: 1391E Lab Sample ID: VBLK

Date Analyzed: 8/15/97 Test Code: O510.3 Time Analyzed: 4:38

GC Column: _____ ID : _____ Heated Purge: (Y/N) __

Instrument ID: GC/MS#5

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

| | LAB SAMPLE NO | CLIENT SAMPLE ID | LAB FILE ID | TIME ANALYZED |
|---|---|---|---|---|
| 01 | LCS | | 1392E | 5:42 |
| 02 | A416935 | ECC 1T1W | 1393E | 6:41 |
| 03 | A416936 | ECC1T1WD | 1394E | 7:26 |
| 04 | A416937 | ECC1TB1W | 1395E | 8:11 |
| 05 | A416936 MS | | 1396E | 8:56 |
| 06 | A416936 MSD | | 1397E | 9:42 |
| 07 | | | | |
| 08 | | | | |
| 09 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |
| 15 | | | | |
| 16 | | | | |

COMMENTS:

FORM IV VOA

3/90

5A

# VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
## BROMOFLUOROBENZENE (BFB)

Lab Name: HERITAGE LABS Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Lab File ID: 1374E.D BFB Injection Date: 08/14/97

Instrument ID: GCMS #5 BFB Injection Time: 04:38

GC Column: CAP. ID: 0.53 (mm) Heated Purge: (Y/N) N

| m/e | ION ABUNDANCE CRITERIA | % RELATIVE ABUNDANCE |
|---|---|---|
| 50 | 8.0 - 40.0% of mass 95 | 30.8 |
| 75 | 30.0 - 66.0% of mass 95 | 55.7 |
| 95 | Base peak, 100% relative abundance | 100.0 |
| 96 | 5.0 - 9.0% of mass 95 | 7.2 |
| 173 | Less than 2.0% of mass 174 | 0.0 ( 0.0)1 |
| 174 | 50.0 - 120.0% of mass 95 | 70.4 |
| 175 | 4.0 - 9.0% of mass 174 | 5.5 ( 7.8)1 |
| 176 | 93.0 - 101.0% of mass 174 | 70.4 ( 100.0)1 |
| 177 | 5.0 - 9.0% of mass 176 | 4.9 ( 7.0)2 |

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

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

| | EPA SAMPLE NO. | LAB SAMPLE ID | LAB FILE ID | DATE ANALYZED | TIME ANALYZED |
|---|---|---|---|---|---|
| 01 | VSTD050 | VSTD050 | 1376E.D | 08/14/97 | 07:08 |
| 02 | VSTD100 | VSTD100 | 1377E.D | 08/14/97 | 07:54 |
| 03 | VSTD150 | VSTD150 | 1378E.D | 08/14/97 | 08:38 |
| 04 | VSTD200 | VSTD200 | 1379E.D | 08/14/97 | 09:24 |
| 05 | VSTD020 | VSTD020 | 1381E.D | 08/14/97 | 10:14 |

5A

# VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
## BROMOFLUOROBENZENE (BFB)

Lab Name: HERITAGE LABS Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Lab File ID: 1389E.D BFB Injection Date: 08/15/97

Instrument ID: GCMS #5 BFB Injection Time: 03:08

GC Column: CAP. ID: 0.53 (mm) Heated Purge: (Y/N) N

| m/e | ION ABUNDANCE CRITERIA | % RELATIVE ABUNDANCE |
|---|---|---|
| 50 | 8.0 - 40.0% of mass 95 | 31.8 |
| 75 | 30.0 - 66.0% of mass 95 | 53.3 |
| 95 | Base peak, 100% relative abundance | 100.0 |
| 96 | 5.0 - 9.0% of mass 95 | 7.6 |
| 173 | Less than 2.0% of mass 174 | 0.0 ( 0.0)1 |
| 174 | 50.0 - 120.0% of mass 95 | 68.2 |
| 175 | 4.0 - 9.0% of mass 174 | 5.4 ( 7.9)1 |
| 176 | 93.0 - 101.0% of mass 174 | 64.9 ( 95.2)1 |
| 177 | 5.0 - 9.0% of mass 176 | 4.3 ( 6.6)2 |

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

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

| | EPA SAMPLE NO. | LAB SAMPLE ID | LAB FILE ID | DATE ANALYZED | TIME ANALYZED |
|---|---|---|---|---|---|
| 01 | VSTD050 | VSTD050 #081497 | 1390E.D | 08/15/97 | 03:36 |
| 02 | VBLK01 | VBLK | 1391E.D | 08/15/97 | 04:38 |
| 03 | DI MS | DI MS | 1392E.D | 08/15/97 | 05:42 |
| 04 | A416935 | A416935 | 1393E.D | 08/15/97 | 06:41 |
| 05 | A416936 | A416936 | 1394E.D | 08/15/97 | 07:26 |
| 06 | A416937 | A416937 | 1395E.D | 08/15/97 | 08:11 |
| 07 | A416936 MS | A416936 MS | 1396E.D | 08/15/97 | 08:56 |
| 08 | A416936 MSD | A416936 MSD | 1397E.D | 08/15/97 | 09:42 |
| 09 | A416429 | A416429 | 1398E.D | 08/15/97 | 10:26 |
| 10 | A416430 | A416430 | 1399E.D | 08/15/97 | 11:12 |
| 11 | A416431 | A416431 | 1400E.D | 08/15/97 | 11:57 |
| 12 | A416432 | A416432 | 1401E.D | 08/15/97 | 12:42 |
| 13 | A416433 | A416433 | 1402E.D | 08/15/97 | 13:27 |
| 14 | A416434 | A416434 | 1403E.D | 08/15/97 | 14:12 |

8A

# VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: HERITAGE LABS Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Lab File ID (Standard): 1390E.D Date Analyzed: 08/15/97

Instrument ID: GCMS #5 Time Analyzed: 03:36

GC Column: CAP. ID: 0.53 (mm) Heated Purge: (Y/N) Y

| | | IS1 AREA # | RT # | IS2 AREA # | RT # | IS3 AREA # | RT # |
|---|---|---|---|---|---|---|---|
| | 12 HOUR STD | 301220 | 15.75 | 1319074 | 18.07 | 1181058 | 27.52 |
| | UPPER LIMIT | 602440 | 16.25 | 2638148 | 18.57 | 2362116 | 28.02 |
| | LOWER LIMIT | 150610 | 15.25 | 659537 | 17.57 | 590529 | 27.02 |
| | EPA SAMPLE NO. | | | | | | |
| 01 | VBLK01 | 304254 | 15.76 | 1272872 | 18.08 | 1091346 | 27.53 |
| 02 | DI MS | 296567 | 15.75 | 1237329 | 18.09 | 1142862 | 27.54 |
| 03 | A416935 | 303684 | 15.76 | 1267483 | 18.08 | 1072969 | 27.53 |
| 04 | A416936 | 300889 | 15.76 | 1260037 | 18.11 | 1008975 | 27.55 |
| 05 | A416937 | 294747 | 15.76 | 1296125 | 18.08 | 1047448 | 27.53 |
| 06 | A416936 MS | 323685 | 15.77 | 1338051 | 18.08 | 1166987 | 27.53 |
| 07 | A416936 MSD | 315280 | 15.77 | 1354628 | 18.12 | 1101563 | 27.53 |
| 08 | A416429 | 312160 | 15.78 | 1399837 | 18.10 | 1103119 | 27.53 |
| 09 | A416430 | 316264 | 15.78 | 1350540 | 18.10 | 1068818 | 27.55 |
| 10 | A416431 | 304170 | 15.77 | 1354907 | 18.09 | 1031816 | 27.54 |
| 11 | A416432 | 300834 | 15.77 | 1262749 | 18.09 | 905677 | 27.54 |
| 12 | A416433 | 338986 | 15.78 | 1464315 | 18.11 | 1182954 | 27.55 |
| 13 | A416434 | 328348 | 15.76 | 1382115 | 18.10 | 1142867 | 27.53 |

IS1 = BROMOCHLOROMETH
IS2 = 1,4-DIFLUOROBENZEN
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 to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

K552164

Heritage Environmental Services

Method : SW846-8240B  Test Code : 0510.3.0  Lab Sample ID : A416935
Sample Description : ECC 1T1W
Submitter : Erm-Nc

File : 1393E  Date/Time : 8/15/97 6:41  Analyst : HHw

QC Passes ? : ✓  pH ? ✓  Dilution Factor 1  DL Multiplier 1

| | ANALYTE | RESULT | LIMIT | UNITS |
|---|---|---|---|---|
| 99 | ACETONE | | 20 | ug/L |
| 8 | 1,1-DICHLOROETHENE | | 5 | ug/L |
| 349 | ETHYL BENZENE | | 5 | ug/L |
| 302 | DICHLOROMETHANE (METHYLENE CHLORIDE) | | 5 | ug/L |
| 475 | METHYL ETHYL KETONE | | 10 | ug/L |
| 91 | 4-METHYL-2-PENTANONE | | 10 | ug/L |
| 703 | TETRACHLOROETHENE | | 2.2 | ug/L |
| 724 | TOLUENE | | 5 | ug/L |
| 22 | 1,2-DICHLOROETHENE (CIS AND TRANS) | | 5 | ug/L |
| 2 | 1,1,1-TRICHLOROETHANE | | 5 | ug/L |
| 4 | 1,1,2-TRICHLOROETHANE | | 3.0 | ug/L |
| 750 | TRICHLOROETHENE | | 5 | ug/L |
| 76[redacted] | | 4.9 | 3.4 | ug/L |
| 803 | XYLENES (O/M/P-XYLENE) | | 5 | ug/L |
| 1804 | ... | | | |
| 971 | SURROGATE RECOVERY | | | |
| 972 | ---------- | | | |
| 301 | DICHLOROETHANE-D4 | 96 | | % Rec |
| 726 | TOLUENE-D8 | 95 | | % Rec |
| 196 | 4-BROMOFLUOROBENZENE | 100 | | % Rec |

TC#109

Approved : 8/18/97

Page 1 of 1

Cindy 8-18-97
8-18-97

Quantitation Report (Not Reviewed)

Data File : C:\E081597\1393E.D
Acq On : 15 Aug 97 6:41
Sample : A416935
Misc :
MS Integration Params: rteint.p
Quant Time: Aug 15 7:19 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#5
Multiplr: 1.00
Quant Results File: CLPVOA.RES

Quant Method : C:\HPCHEM\1\METHODS\CLPVOA.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Tue Jun 03 11:22:41 1997
Response via : Initial Calibration
DataAcq Meth : CLPVOA

| Internal Standards | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| 1) BROMOCHLOROMETHANE | 15.76 | 128 | 303684 | 50.00 UG/L | -0.06 |
| 29) 1,4-DIFLUOROBENZENE | 18.08 | 114 | 1267483 | 50.00 UG/L | -0.05 |
| 44) CHLOROBENZENE-d5 | 27.53 | 117 | 1072969 | 50.00 UG/L | -0.09 |
| **System Monitoring Compounds** | | | | | |
| 28) 1,2-Dichloroethane-d4 | 17.12 | 65 | 692921 | 48.12 UG/L | -0.08 |
| Spiked Amount 50.000 | Range 76 - 114 | | Recovery = 96.24% | | |
| 41) Toluene-d8 | 22.61 | 98 | 1345106 | 47.49 UG/L | -0.06 |
| Spiked Amount 50.000 | Range 88 - 110 | | Recovery = 94.98% | | |
| 58) Bromofluorobenzene | 31.62 | 95 | 998905 | 49.86 UG/L | -0.10 |
| Spiked Amount 50.000 | Range 86 - 115 | | Recovery = 99.72% | | |
| **Target Compounds** | | | | | Qvalue |
| ~~4) VINYL CHLORIDE~~ | 7.35 | 62 | 45213 | 4.86 UG/L # | 100 |
| ~~5) 1,3-Butadiene~~ | 4.41 | 39 | 513 | ~~18.29 UG/L~~ # | 100 |
| ~~11) Acetone~~ | 10.28 | 43 | 13378 | 3.64 UG/L # | 100 |

0510.3

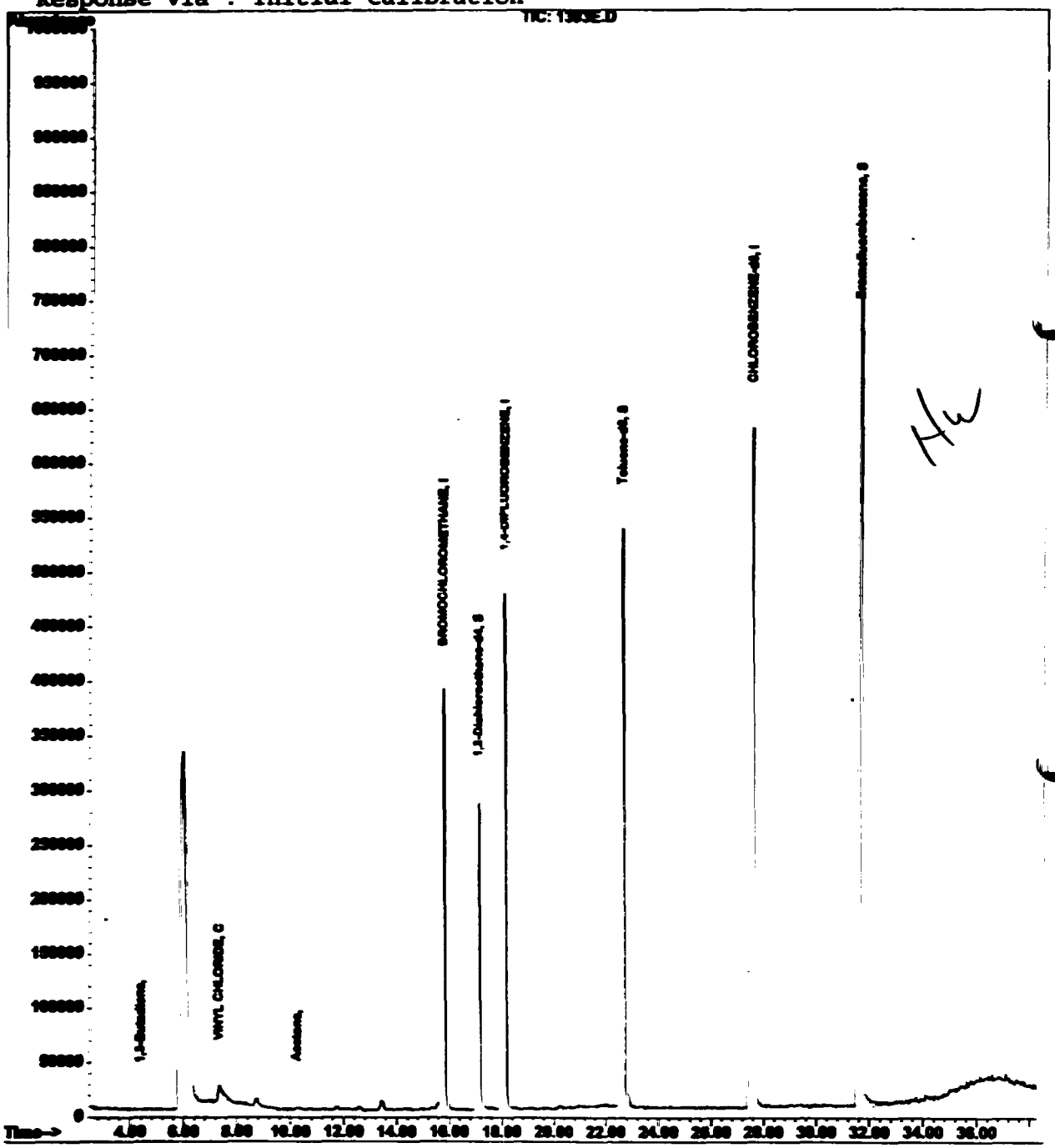
(#) = qualifier out of range (m) = manual integration
1393E.D CLPVOA.M Fri Aug 15 07:19:51 1997 MANAGER Page 1

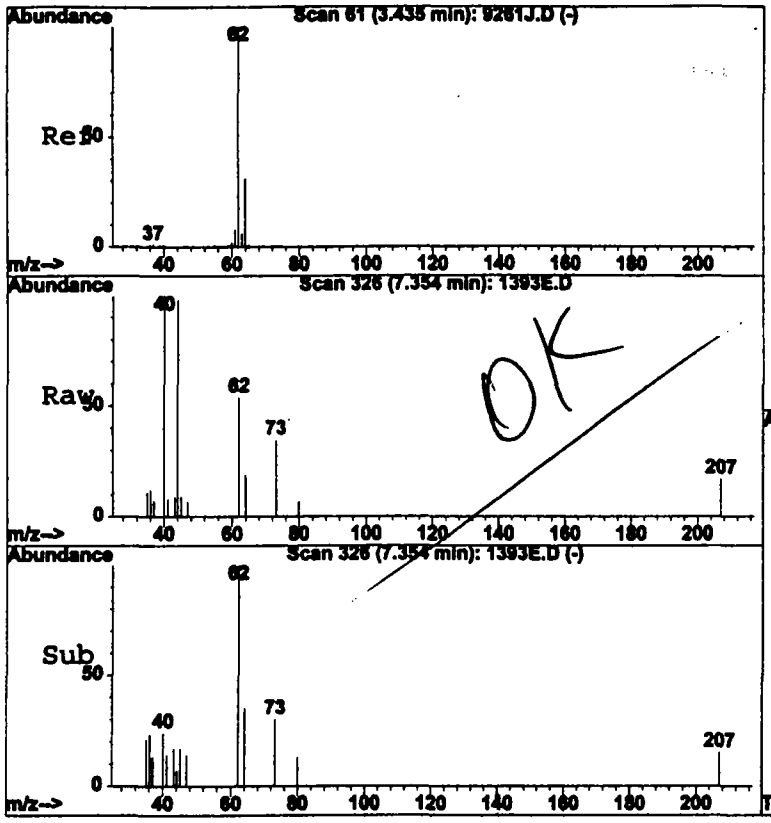
Quantitation Report

Data File : C:\E081597\1393E.D
Acq On : 15 Aug 97 6:41
Sample : A416935
Misc :
MS Integration Params: rteint.p
Quant Time: Aug 15 7:19 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#5
Multiplr: 1.00
Quant Results File: CLPVOA.RES

Method : C:\HPCHEM\1\METHODS\CLPVOA.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Tue Jun 03 11:22:41 1997
Response via : Initial Calibration

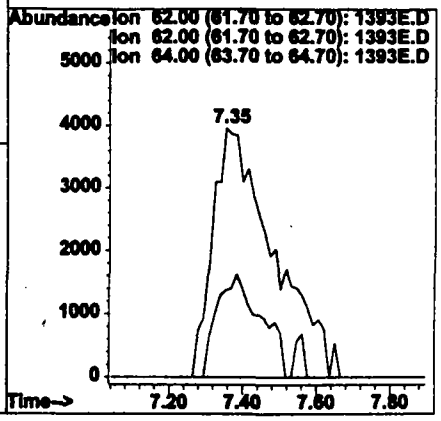


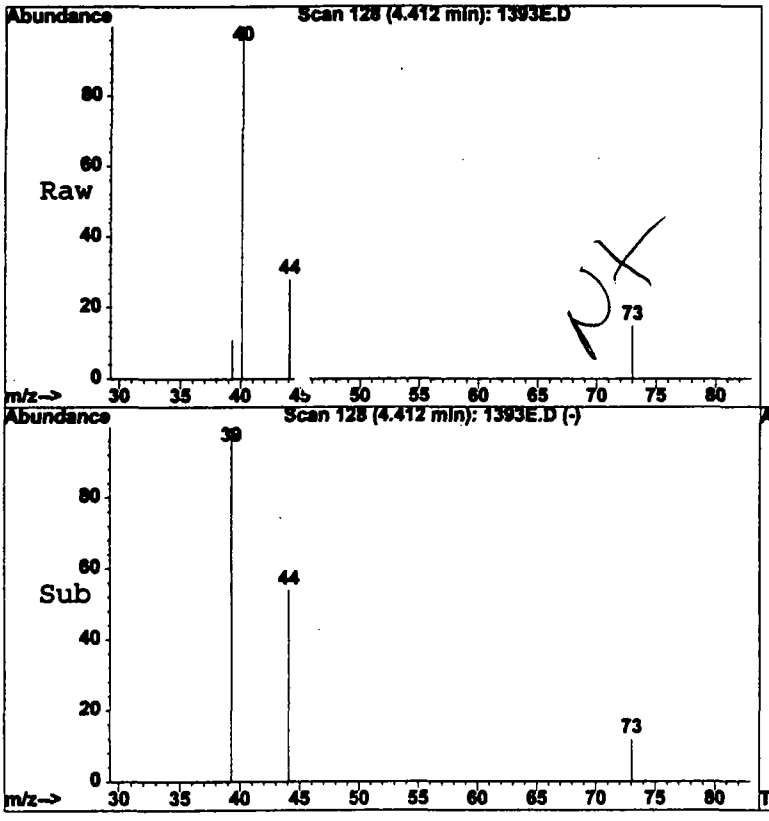



#4
VINYL CHLORIDE
Concen: 4.86 UG/L
RT: 7.35 min Scan# 326
Delta R.T. 0.03 min
Lab File: 1393E.D
Acq: 15 Aug 97 6:41

Tgt Ion: 62 Resp: 45213

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 62 | 100 | | |
| 62 | 100.0 | 0.0 | 0.0# |
| 64 | 0.0 | 0.0 | 0.0 |

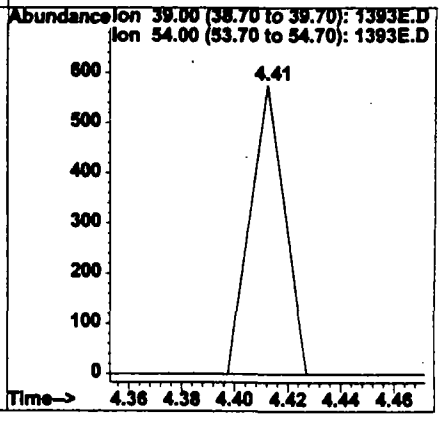


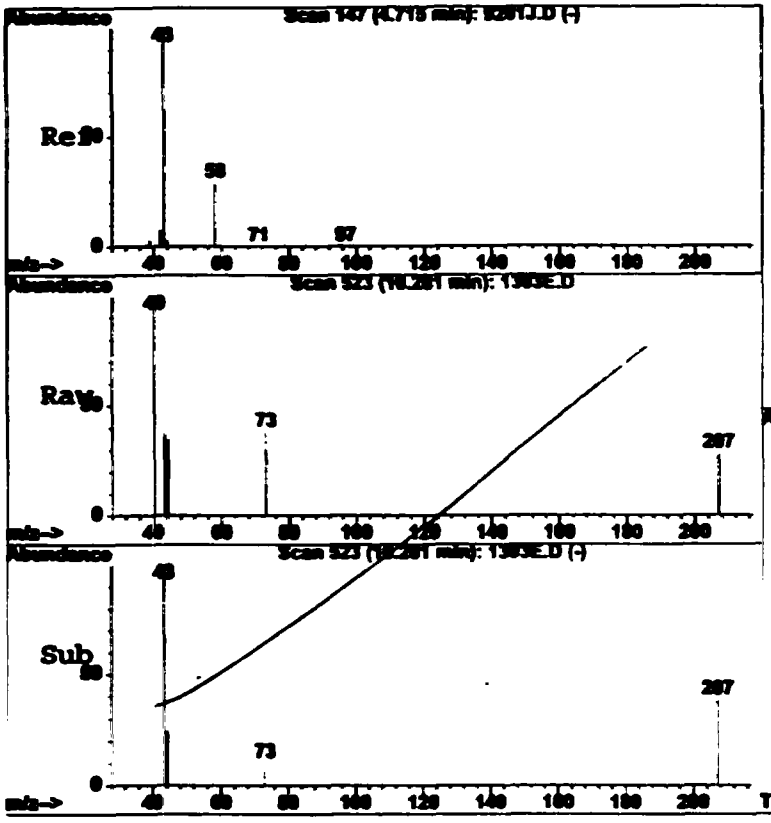




#5
1,3-Butadiene
Concen: 18.29 UG/L
RT: 4.41 min Scan# 128
Delta R.T. 0.17 min
Lab File: 1393E.D
Acq: 15 Aug 97 6:41

Tgt Ion: 39 Resp: 513

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 39 | 100 | | |
| 54 | 0.0 | 0.0 | 0.0 |

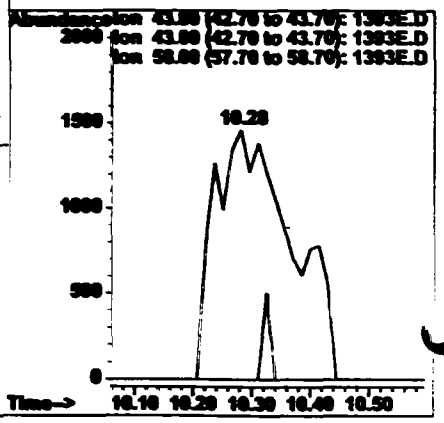





#11
Acetone
Concen: 3.64 UG/L
RT: 10.28 min Scan# 523
Delta R.T. -0.07 min
Lab File: 1393E.D
Acq: 15 Aug 97 6:41

Tgt Ion: 43 Resp: 13378

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 43 | 100 | | |
| 43 | 100.0 | 0.0 | 0.0# |
| 58 | 0.0 | 0.0 | 0.0 |



K552167

Heritage Environmental Services

Method : SW846-8240B  Test Code : 0510.3.0  Lab Sample ID : A416936
Sample Description : ECC 1T1WD
Submitter : Erm-Nc

File : 1394E  Date/Time : 8/15/97 7:26  Analyst : HHw

QC Passes ? : ✓  pH ? ✓  Dilution Factor 1  DL Multiplier 1

| | ANALYTE | RESULT | LIMIT | UNITS |
|---|---|---|---|---|
| 99 | ACETONE | | 20 | ug/L |
| 8 | 1,1-DICHLOROETHENE | | 5 | ug/L |
| 349 | ETHYL BENZENE | | 5 | ug/L |
| 302 | DICHLOROMETHANE (METHYLENE CHLORIDE) | | 5 | ug/L |
| 475 | METHYL ETHYL KETONE | | 10 | ug/L |
| 91 | 4-METHYL-2-PENTANONE | | 10 | ug/L |
| 703 | TETRACHLOROETHENE | | 2.2 | ug/L |
| 724 | TOLUENE | | 5 | ug/L |
| 22 | 1,2-DICHLOROETHENE (CIS AND TRANS) | | 5 | ug/L |
| 2 | 1,1,1-TRICHLOROETHANE | | 5 | ug/L |
| 4 | 1,1,2-TRICHLOROETHANE | | 3.0 | ug/L |
| 750 | TRICHLOROETHENE | | 5 | ug/L |
| 76[redacted] | [redacted] | 4.3 | 3.4 | ug/L |
| 803 | XYLENES (O/M/P-XYLENE) | | 5 | ug/L |
| 1804 | ... | | | |
| 971 | SURROGATE RECOVERY | | | |
| 972 | ---------- | | | |
| 301 | DICHLOROETHANE-D4 | 89 | | % Rec |
| 726 | TOLUENE-D8 | 98 | | % Rec |
| 196 | 4-BROMOFLUOROBENZENE | 100 | | % Rec |

TC#109

Approved : MS 8/18/97

Page 1 of 1

Canez 8-18-97
8-18-97

Quantitation Report (Not Reviewed)

Data File : C:\E081597\1394E.D
Acq On : 15 Aug 97 7:26
Sample : A416936
Misc :
MS Integration Params: rteint.p
Quant Time: Aug 15 8:05 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#5
Multiplr: 1.00
Quant Results File: CLPVOA.RES

Quant Method : C:\HPCHEM\1\METHODS\CLPVOA.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Tue Jun 03 11:22:41 1997
Response via : Initial Calibration
DataAcq Meth : CLPVOA

| Internal Standards | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| 1) BROMOCHLOROMETHANE | 15.76 | 128 | 300889 | 50.00 UG/L | -0.06 |
| 29) 1,4-DIFLUOROBENZENE | 18.11 | 114 | 1260037 | 50.00 UG/L | -0.02 |
| 44) CHLOROBENZENE-d5 | 27.55 | 117 | 1008975 | 50.00 UG/L | -0.08 |
| **System Monitoring Compounds** | | | | | |
| 28) 1,2-Dichloroethane-d4 | 17.15 | 65 | 638297 | 44.74 UG/L | -0.05 |
| Spiked Amount 50.000 | Range 76 - 114 | | Recovery = 89.48% | | |
| 41) Toluene-d8 | 22.61 | 98 | 1376963 | 48.91 UG/L | -0.05 |
| Spiked Amount 50.000 | Range 88 - 110 | | Recovery = 97.82% | | |
| 58) Bromofluorobenzene | 31.63 | 95 | 945856 | 50.21 UG/L | -0.09 |
| Spiked Amount 50.000 | Range 86 - 115 | | Recovery = 100.42% | | |
| **Target Compounds** | | | | | Qvalue |
| ~~4) VINYL CHLORIDE~~ | 7.37 | 62 | 39692 | 4.31 UG/L # | 100 |
| ~~5) 1,3-Butadiene~~ | 3.95 | 39 | 576 | ~~20.73 UG/L~~ # | 100 |
| ~~11) Acetone~~ | 10.28 | 43 | 17538 | 4.81 UG/L # | 100 |

0510.3

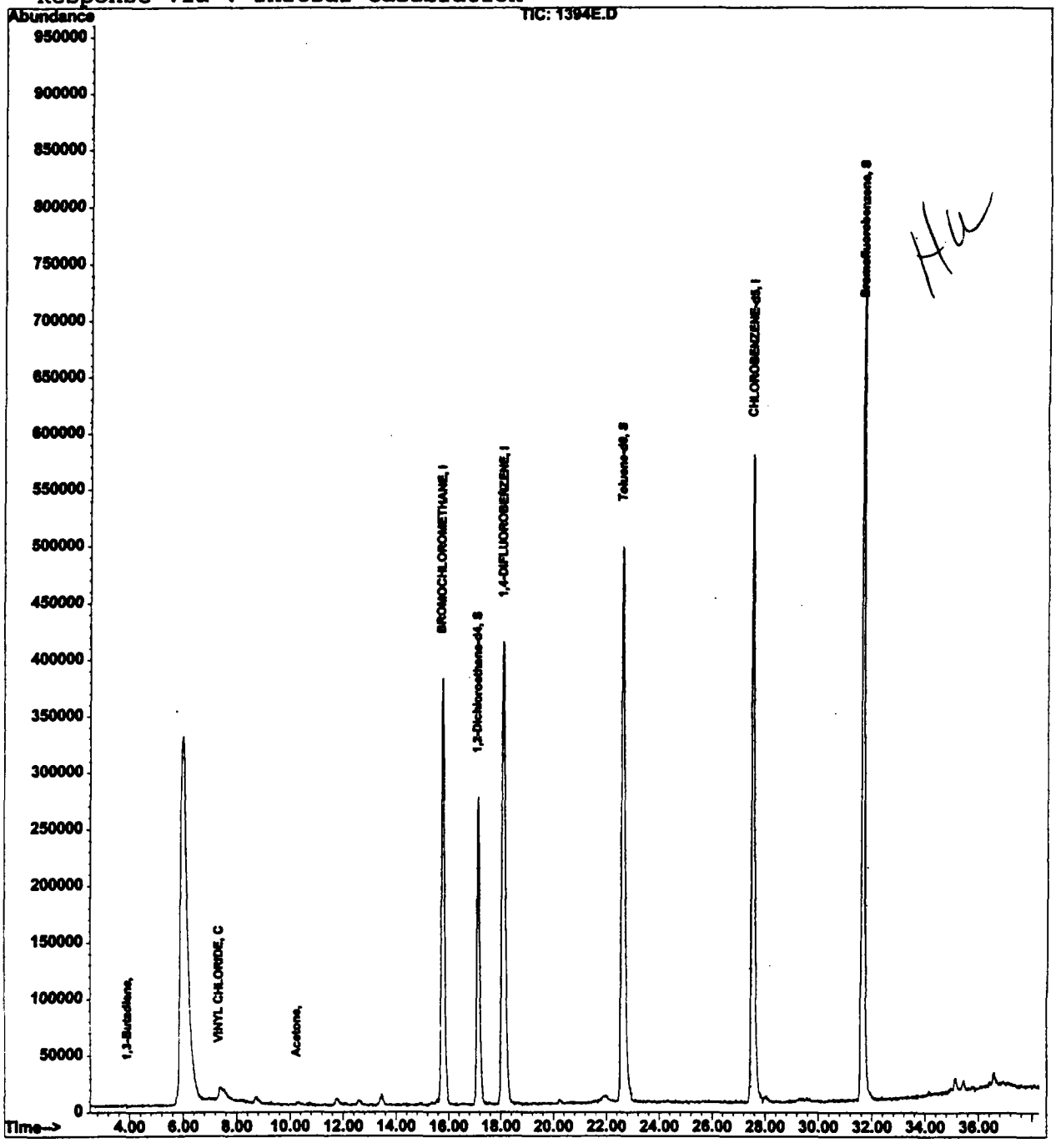
(#) = qualifier out of range (m) = manual integration

Quantitation Report

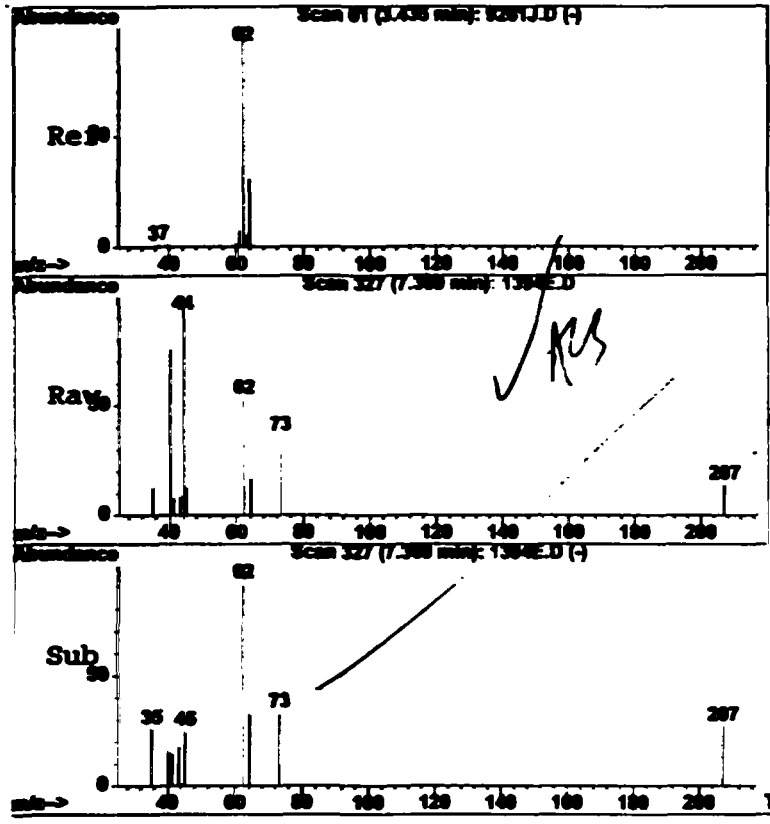
Data File : C:\E081597\1394E.D
Acq On : 15 Aug 97 7:26
Sample : A416936
Misc :
MS Integration Params: rteint.p
Quant Time: Aug 15 8:05 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#5
Multiplr: 1.00
Quant Results File: CLPVOA.RES

Method : C:\HPCHEM\1\METHODS\CLPVOA.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Tue Jun 03 11:22:41 1997
Response via : Initial Calibration



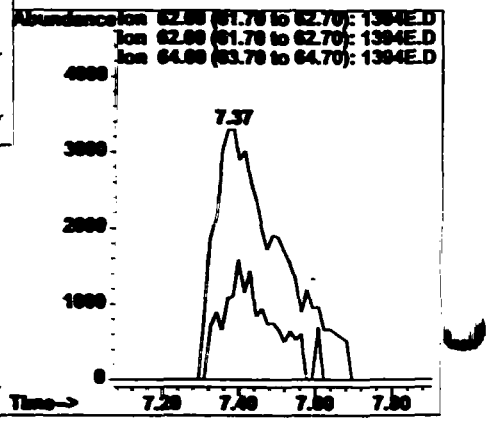

1394E.D CLPVOA.M Fri Aug 15 08:05:28 1997 MANAGER Page 2

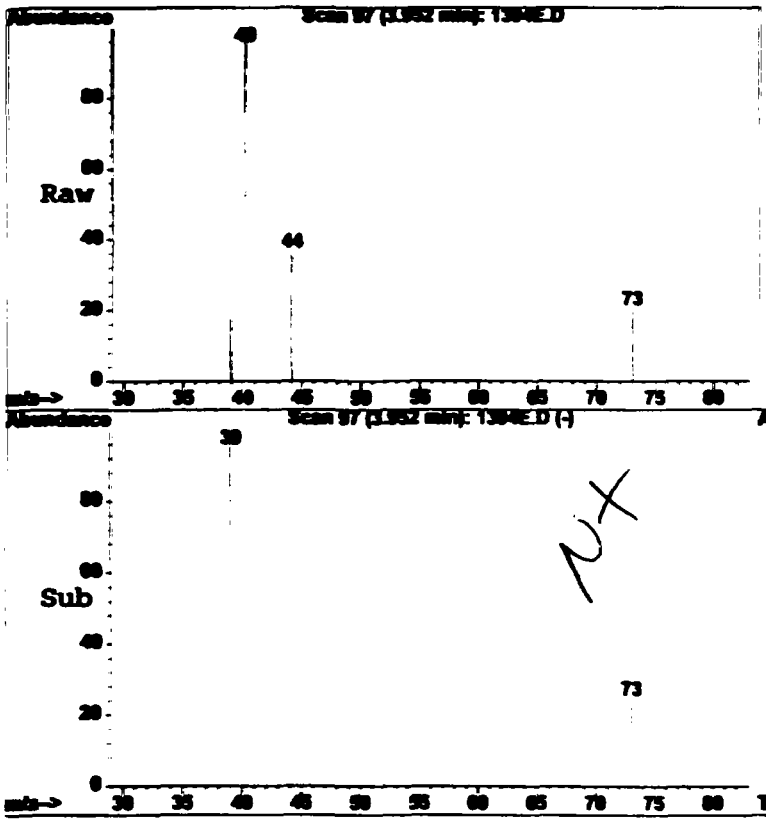



#4
VINYL CHLORIDE
Concen: 4.31 UG/L
RT: 7.37 min Scan# 327
Delta R.T. 0.04 min
Lab File: 1394E.D
Acq: 15 Aug 97 7:26

Tgt Ion: 62 Resp: 39692

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 62 | 100 | | |
| 62 | 100.0 | 0.0 | 0.0# |
| 64 | 0.0 | 0.0 | 0.0 |

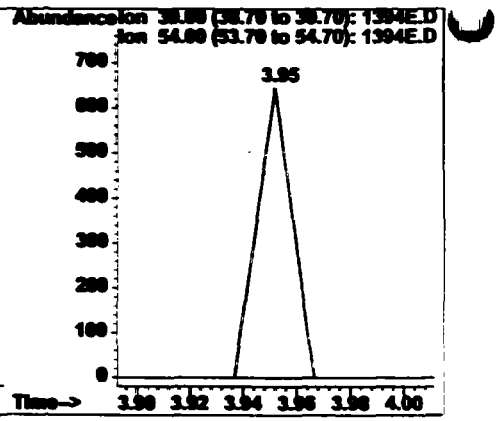


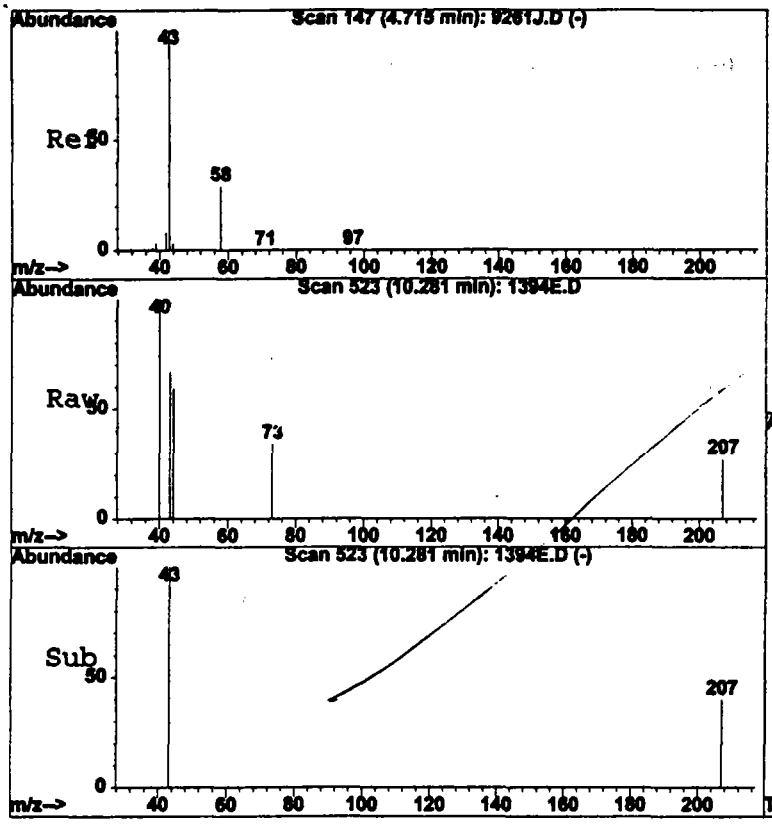




#5
1,3-Butadiene
Concen: 20.73 UG/L
RT: 3.95 min Scan# 97
Delta R.T. -0.29 min
Lab File: 1394E.D
Acq: 15 Aug 97 7:26

Tgt Ion: 39 Resp: 576

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 39 | 100 | | |
| 54 | 0.0 | 0.0 | 0.0 |

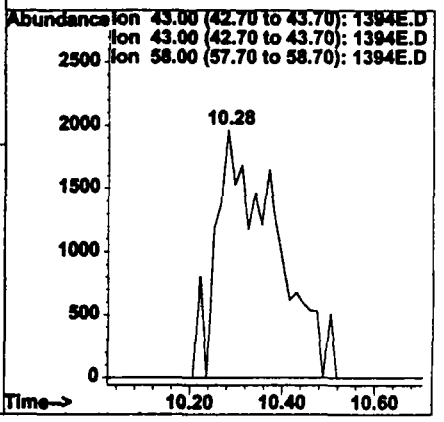





#11
Acetone
Concen: 4.81 UG/L
RT: 10.28 min Scan# 523
Delta R.T. -0.07 min
Lab File: 1394E.D
Acq: 15 Aug 97 7:26

Tgt Ion: 43 Resp: 17538

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 43 | 100 | | |
| 43 | 100.0 | 0.0 | 0.0# |
| 58 | 0.0 | 0.0 | 0.0 |



K552107

Heritage Environmental Services

Method : SW846-8240B  Test Code : 0510.3.0  Lab Sample ID : A416937
Sample Description : ECC 1TB1W
Submitter : Erm-Nc

File : B95E  Date/Time : 8/15/97 8:11  Analyst : HH

QC Passes ? : ✓  pH ? ✓  Dilution Factor 1  DL Multiplier 1

| | ANALYTE | RESULT | LIMIT | UNITS |
|---|---|---|---|---|
| 99 | ACETONE | | 20 | ug/L |
| 8 | 1,1-DICHLOROETHENE | | 5 | ug/L |
| 349 | ETHYL BENZENE | | 5 | ug/L |
| 302 | DICHLOROMETHANE (METHYLENE CHLORIDE) | | 5 | ug/L |
| 475 | METHYL ETHYL KETONE | | 10 | ug/L |
| 91 | 4-METHYL-2-PENTANONE | | 10 | ug/L |
| 703 | TETRACHLOROETHENE | | 2.2 | ug/L |
| 724 | TOLUENE | | 5 | ug/L |
| 22 | 1,2-DICHLOROETHENE (CIS AND TRANS) | | 5 | ug/L |
| 2 | 1,1,1-TRICHLOROETHANE | | 5 | ug/L |
| 4 | 1,1,2-TRICHLOROETHANE | | 3.0 | ug/L |
| 750 | TRICHLOROETHENE | | 5 | ug/L |
| 768 | VINYL CHLORIDE | | 3.4 | ug/L |
| 803 | XYLENES (O/M/P-XYLENE) | | 5 | ug/L |
| 1804 | ... | | | |
| 971 | SURROGATE RECOVERY | | | |
| 972 | ---------- | | | |
| 301 | DICHLOROETHANE-D4 | 103 | | % Rec |
| 726 | TOLUENE-D8 | 95 | | % Rec |
| 196 | 4-BROMOFLUOROBENZENE | 101 | | % Rec |

TC#109

Approved : MB 8/18/97

Page 1 of 1

Cindy 8-18-97

KM 8-18-97

Quantitation Report (Not Reviewed)

Data File : C:\E081597\1395E.D
Acq On : 15 Aug 97 8:11
Sample : A416937
Misc :
MS Integration Params: rteint.p
Quant Time: Aug 15 8:49 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#5
Multiplr: 1.00
Quant Results File: CLPVOA.RES

Quant Method : C:\HPCHEM\1\METHODS\CLPVOA.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Tue Jun 03 11:22:41 1997
Response via : Initial Calibration
DataAcq Meth : CLPVOA

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) BROMOCHLOROMETHANE | 15.76 | 128 | 294747 | 50.00 | UG/L | -0.06 |
| 29) 1,4-DIFLUOROBENZENE | 18.08 | 114 | 1296125 | 50.00 | UG/L | -0.05 |
| 44) CHLOROBENZENE-d5 | 27.53 | 117 | 1047448 | 50.00 | UG/L | -0.09 |
| **System Monitoring Compounds** | | | | | | |
| 28) 1,2-Dichloroethane-d4 | 17.13 | 65 | 717090 | 51.31 | UG/L | -0.06 |
| Spiked Amount 50.000 | Range 76 - 114 | | Recovery = 102.62% | | | |
| 41) Toluene-d8 | 22.61 | 98 | 1376788 | 47.54 | UG/L | -0.06 |
| Spiked Amount 50.000 | Range 88 - 110 | | Recovery = 95.08% | | | |
| 58) Bromofluorobenzene | 31.63 | 95 | 991042 | 50.68 | UG/L | -0.09 |
| Spiked Amount 50.000 | Range 86 - 115 | | Recovery = 101.36% | | | |
| **Target Compounds** | | | | | | Qvalue |
| ~~11) Acetone~~ | 10.27 | 43 | 15060 | 4.22 | UG/L # | 100 |

05103

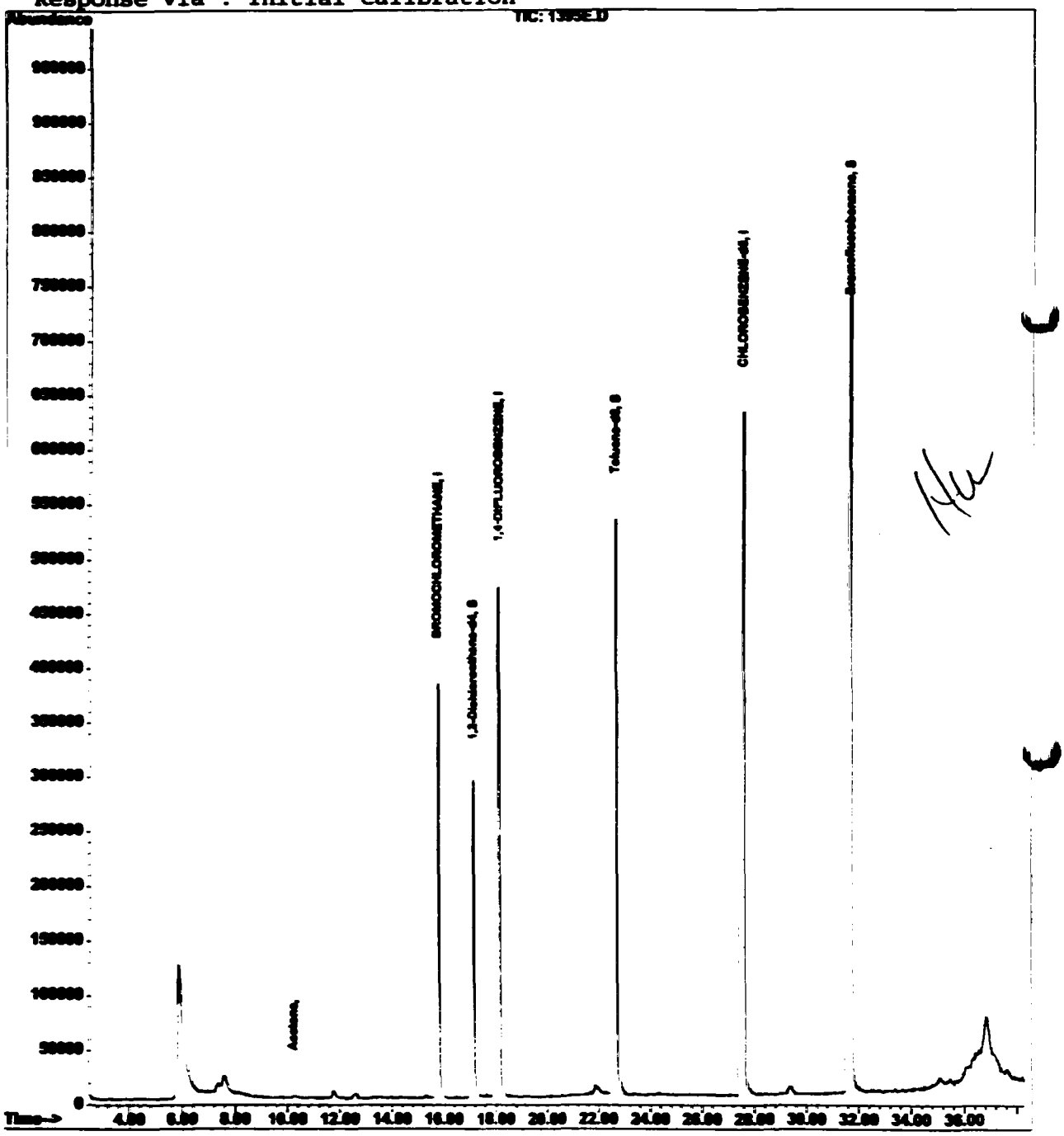
(#) = qualifier out of range (m) = manual integration

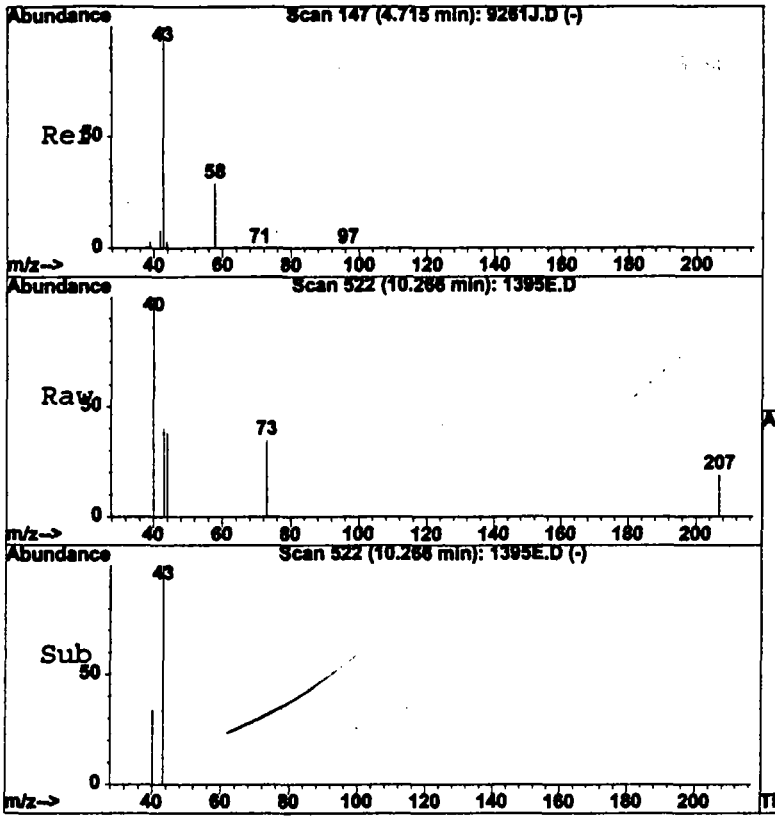
Quantitation Report

Data File : C:\E081597\1395E.D
Acq On : 15 Aug 97 8:11
Sample : A416937
Misc :
MS Integration Params: rteint.p
Quant Time: Aug 15 8:49 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#5
Multiplr: 1.00
Quant Results File: CLPVOA.RES

Method : C:\HPCHEM\1\METHODS\CLPVOA.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Tue Jun 03 11:22:41 1997
Response via : Initial Calibration

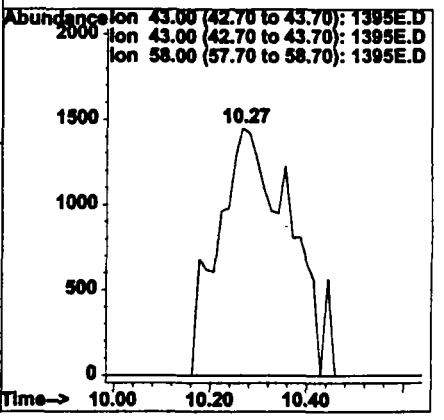





#11
Acetone
Concen: 4.22 UG/L
RT: 10.27 min Scan# 522
Delta R.T. -0.09 min
Lab File: 1395E.D
Acq: 15 Aug 97 8:11

Tgt Ion: 43 Resp: 15060

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 43 | 100 | | |
| 43 | 100.0 | 0.0 | 0.0# |
| 58 | 0.0 | 0.0 | 0.0 |



Response Factor Report GCMS#5

Method : C:\HPCHEM\1\METHODS\CLPVOA.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Tue Jun 03 11:22:41 1997
Response via : Initial Calibration

Calibration Files
20 =1381E.D 50 =1376E.D 100 =1377E.D
150 =1378E.D 200 =1379E.D

| | | Compound | 20 | 50 | 100 | 150 | 200 | Avg | %RSD |
|---|---|---|---|---|---|---|---|---|---|
| 1) | I | BROMOCHLOROMETHANE | ----------ISTD---------- | | | | | | |
| 2) | T | Dichlorodifluorometha | 1.091 | 1.561 | 1.537 | 1.384 | 1.285 | 1.372 | 14.11 |
| 3) | P | Chloromethane | 1.258 | 1.559 | 1.473 | 1.282 | 1.379 | 1.390 | 9.14 |
| 4) | C | VINYL CHLORIDE | 1.561 | 1.710 | 1.630 | 1.370 | 1.388 | 1.532 | 9.75# |
| 5) | | 1,3-Butadiene | 0.017 | 0.002 | 0.003 | 0.001 | 0.000 | 0.005# | 154.80 |
| 6) | | Bromomethane | 1.158 | 1.216 | 1.292 | 1.325 | 1.372 | 1.273 | 6.71 |
| 7) | | Chloroethane | 0.992 | 1.052 | 1.027 | 1.029 | 1.029 | 1.026 | 2.08 |
| 8) | | Trichlorofluoromethan | 3.124 | 3.727 | 3.555 | 3.374 | 3.507 | 3.458 | 6.52 |
| 9) | | Diethyl ether | 1.235 | 1.093 | 1.178 | 1.141 | 1.113 | 1.152 | 4.87 |
| 10) | | Acrolein | 0.112 | 0.094 | 0.094 | 0.092 | 0.093 | 0.097 | 8.54 |
| 11) | | Acetone | 0.692 | 0.623 | 0.642 | 0.569 | 0.502 | 0.606 | 12.00 |
| 12) | | Trichlorotrifluoroeth | 2.756 | 3.007 | 2.917 | 2.817 | 3.026 | 2.905 | 4.04 |
| 13) | CM | 1,1-DICHLOROETHENE | 1.160 | 1.158 | 1.240 | 1.170 | 1.234 | 1.192 | 3.44# |
| 14) | | Methylene Chloride | 1.428 | 1.408 | 1.499 | 1.405 | 1.328 | 1.414 | 4.32 |
| 15) | | Acrylonitrile | 0.378 | 0.306 | 0.322 | 0.315 | 0.308 | 0.326 | 9.12 |
| 16) | | Carbon Disulfide | 3.147 | 3.491 | 3.416 | 3.375 | 3.491 | 3.384 | 4.18 |
| 17) | | Vinyl acetate | 3.872 | 3.680 | 3.820 | 3.447 | 3.525 | 3.669 | 4.99 |
| 18) | | Methyl-t-butyl ether | 3.620 | 3.644 | 3.655 | 3.532 | 3.464 | 3.583 | 2.29 |
| 19) | | 1,2-Dichloroethene(tr | 1.446 | 1.475 | 1.458 | 1.438 | 1.449 | 1.453 | 0.96 |
| 20) | | Diisopropyl ether | 8.697 | 8.801 | 8.785 | 8.475 | 8.803 | 8.712 | 1.60 |
| 21) | P | 1,1-Dichloroethane | 3.406 | 3.415 | 3.455 | 3.283 | 3.397 | 3.391 | 1.90 |
| 22) | | 2-Butanone | 0.763 | 0.612 | 0.693 | 0.603 | 0.584 | 0.651 | 11.54 |
| 23) | | Ethyl acetate | 2.537 | 2.262 | 2.527 | 2.752 | 2.618 | 2.539 | 7.05 |
| 24) | | 1,2-Dichloroethene(ci | 1.547 | 1.478 | 1.538 | 1.447 | 1.519 | 1.506 | 2.80 |
| 25) | C | CHLOROFORM | 3.679 | 3.668 | 3.718 | 3.489 | 3.535 | 3.618 | 2.75# |
| 26) | | Tetrahydrofuran | 0.458 | 0.402 | 0.402 | 0.389 | 0.364 | 0.403 | 8.54 |
| 27) | | Cyclohexane | 0.789 | 0.655 | 0.665 | 0.649 | 0.655 | 0.683 | 8.73 |
| 28) | S | 1,2-Dichloroethane-d4 | 2.533 | 2.256 | 2.510 | 2.355 | 2.202 | 2.371 | 6.24 |
| 29) | I | 1,4-DIFLUOROBENZENE | ----------ISTD---------- | | | | | | |
| 30) | | 1,1,1-Trichloroethane | 0.686 | 0.775 | 0.713 | 0.706 | 0.688 | 0.713 | 5.11 |
| 31) | | Carbon Tetrachloride | 0.503 | 0.559 | 0.612 | 0.602 | 0.574 | 0.570 | 7.61 |
| 32) | | 1,2-Dichloroethane | 0.658 | 0.725 | 0.675 | 0.656 | 0.619 | 0.667 | 5.80 |
| 33) | CM | Benzene | 1.042 | 1.013 | 1.043 | 1.031 | 0.980 | 1.022 | 2.56# |
| 34) | M | Trichloroethene | 0.436 | 0.459 | 0.436 | 0.446 | 0.428 | 0.441 | 2.72 |
| 35) | C | 1,2-DICHLOROPROPANE | 0.559 | 0.593 | 0.548 | 0.568 | 0.544 | 0.563 | 3.48# |
| 36) | | Bromodichloromethane | 0.884 | 0.981 | 0.929 | 0.929 | 0.892 | 0.923 | 4.17 |
| 37) | | 1,4-Dioxane | 0.000 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001# | 40.60 |
| 38) | | 2-Chloroethylvinyleth | 0.277 | 0.283 | 0.277 | 0.281 | 0.271 | 0.278 | 1.66 |
| 39) | | 4-Methyl-2-Pentanone | 0.782 | 0.721 | 0.748 | 0.745 | 0.682 | 0.735 | 5.03 |
| 40) | | cis-1,3-Dichloroprope | 0.743 | 0.773 | 0.741 | 0.739 | 0.736 | 0.746 | 2.01 |
| 41) | S | Toluene-d8 | 1.125 | 1.173 | 1.077 | 1.108 | 1.105 | 1.117 | 3.17 |
| 42) | CM | TOLUENE | 0.683 | 0.702 | 0.678 | 0.706 | 0.659 | 0.686 | 2.79# |

(#) = Out of Range

Response Factor Report GCMS#5

Method : C:\HPCHEM\1\METHODS\CLPVOA.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Tue Jun 03 11:22:41 1997
Response via : Initial Calibration

Calibration Files
20 =1381E.D 50 =1376E.D 100 =1377E.D
150 =1378E.D 200 =1379E.D

| | | Compound | 20 | 50 | 100 | 150 | 200 | Avg | %RSD |
|---|---|---|---|---|---|---|---|---|---|
| 43) | | trans-1,3-Dichloropro | 0.633 | 0.703 | 0.645 | 0.658 | 0.632 | 0.654 | 4.45 |
| 44) | I | CHLOROBENZENE-d5 | ----------ISTD---------- | | | | | | |
| 45) | | 2-Hexanone | 0.393 | 0.371 | 0.360 | 0.374 | 0.348 | 0.369 | 4.57 |
| 46) | | 1,1,2-Trichloroethane | 0.452 | 0.462 | 0.428 | 0.441 | 0.438 | 0.444 | 2.90 |
| 47) | | Tetrachloroethene | 0.491 | 0.534 | 0.480 | 0.477 | 0.525 | 0.502 | 5.23 |
| 48) | | Dibromochloromethane | 0.754 | 0.718 | 0.785 | 0.790 | 0.727 | 0.755 | 4.30 |
| 49) | | 4-Vinylcyclohexene | 0.016 | 0.014 | 0.009 | 0.009 | 0.006 | 0.011# | 36.70 |
| 50) | | 1,2-Dibromoethane | 0.047 | 0.094 | 0.098 | 0.105 | 0.094 | 0.088 | 26.30 |
| 51) | PM | Chlorobenzene | 1.103 | 1.194 | 1.073 | 1.067 | 1.140 | 1.115 | 4.74 |
| 52) | C | ETHYLBENZENE | 0.518 | 0.527 | 0.515 | 0.501 | 0.520 | 0.516 | 1.85# |
| 53) | | Xylene(m,p) | 0.566 | 0.546 | 0.554 | 0.529 | 0.564 | 0.552 | 2.78 |
| 54) | | Xylene(o) | 0.533 | 0.527 | 0.510 | 0.486 | 0.507 | 0.513 | 3.57 |
| 55) | | Styrene | 0.840 | 0.806 | 0.843 | 0.814 | 0.828 | 0.826 | 1.94 |
| 56) | P | Bromoform | 0.560 | 0.639 | 0.616 | 0.629 | 0.631 | 0.615 | 5.17 |
| 57) | P | 1,1,2,2-Tetrachloroet | 0.770 | 0.756 | 0.733 | 0.740 | 0.723 | 0.745 | 2.50 |
| 58) | S | Bromofluorobenzene | 0.952 | 0.991 | 0.894 | 0.881 | 0.951 | 0.934 | 4.86 |
| 59) | | 1,3-Dichlorobenzene | 0.757 | 0.790 | 0.746 | 0.731 | 0.799 | 0.765 | 3.78 |
| 60) | | 1,4-Dichlorobenzene | 0.789 | 0.800 | 0.754 | 0.745 | 0.842 | 0.786 | 4.95 |
| 61) | | 1,2-Dichlorobenzene | 0.658 | 0.638 | 0.661 | 0.665 | 0.731 | 0.671 | 5.30 |

(#) = Out of Range

Quantitation Report (QT Reviewed)

Data File : C:\E081497\1381E.D
Acq On : 14 Aug 97 10:14
Sample : VSTD020
Misc :
MS Integration Params: rteint.p
Quant Time: Aug 14 11:18 1997

Vial: 6
Operator: HAROLD
Inst : GCMS#5
Multiplr: 1.00
Quant Results File: CLPVOA.RES

Quant Method : C:\HPCHEM\1\METHODS\CLPVOA.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Tue Jun 03 11:22:41 1997
Response via : Initial Calibration
DataAcq Meth : CLPVOA

| Internal Standards | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| 1) BROMOCHLOROMETHANE | 15.75 | 128 | 316102 | 50.00 UG/L | -0.07 |
| 29) 1,4-DIFLUOROBENZENE | 18.05 | 114 | 1381219 | 50.00 UG/L | -0.08 |
| 44) CHLOROBENZENE-d5 | 27.50 | 117 | 1152130 | 50.00 UG/L | -0.12 |
| **System Monitoring Compounds** | | | | | |
| 28) 1,2-Dichloroethane-d4 | 17.10 | 65 | 320246 | 25.68 UG/L | -0.09 |
| Spiked Amount 50.000 | Range 76 - 114 | | Recovery = 51.36%# | | |
| 41) Toluene-d8 | 22.61 | 98 | 621302 | 22.27 UG/L | -0.[illegible] |
| Spiked Amount 50.000 | Range 88 - 110 | | Recovery = 44.54%# | | |
| 58) Bromofluorobenzene | 31.54 | 95 | 438503 | 23.78 UG/L | -0.18 |
| Spiked Amount 50.000 | Range 86 - 115 | | Recovery = 47.56%# | | |
| **Target Compounds** | | | | | Qvalue |
| 2) Dichlorodifluoromethane | 6.48 | 85 | 137954 | 19.86 UG/L # | 100 |
| 3) Chloromethane | 7.10 | 50 | 159040 | 16.93 UG/L # | 100 |
| 4) VINYL CHLORIDE | 7.31 | 62 | 197425 | 18.73 UG/L # | 100 |
| 6) Bromomethane | 8.47 | 94 | 146470 | 14.54 UG/L # | 100 |
| 7) Chloroethane | 8.62 | 64 | 125488 | 14.79 UG/L # | 100 |
| 8) Trichlorofluoromethane | 9.23 | 101 | 394983 | 19.04 UG/L # | 100 |
| 9) Diethyl ether | 9.82 | 59 | 156093 | 16.06 UG/L # | 100 |
| 10) Acrolein | 10.15 | 56 | 84754 | 62.43 UG/L # | 100 |
| 11) Acetone | 10.31 | 43 | 87545 | 27.37 UG/L # | 100 |
| 12) Trichlorotrifluoroethane | 10.18 | 101 | 348485 | 16.80 UG/L # | 100 |
| 13) 1,1-DICHLOROETHENE | 10.68 | 96 | 146715 | 13.73 UG/L # | 100 |
| 14) Methylene Chloride | 11.74 | 84 | 180558 | 15.94 UG/L # | 32 |
| 15) Acrylonitrile | 11.93 | 53 | 286540 | 95.56 UG/L # | 100 |
| 16) Carbon Disulfide | 11.99 | 76 | 397913 | 13.07 UG/L # | 1[illegible] |
| 17) Vinyl acetate | 13.00 | 43 | 489553m | 24.05 UG/L | 100 |
| 18) Methyl-t-butyl ether | 12.03 | 73 | 457688 | 17.62 UG/L # | 100 |
| 19) 1,2-Dichloroethene(trans) | 12.45 | 96 | 182855 | 16.25 UG/L # | 100 |
| 20) Diisopropyl ether | 13.00 | 45 | 1099646 | 15.68 UG/L # | 100 |
| 21) 1,1-Dichloroethane | 13.40 | 63 | 430698 | 18.47 UG/L # | 100 |
| 22) 2-Butanone | 14.31 | 43 | 96486 | 9.02 UG/L # | 100 |
| 23) Ethyl acetate | 13.24 | 43 | 320790m | 8.54 UG/L | 100 |
| 24) 1,2-Dichloroethene(cis) | 14.87 | 96 | 195575 | 17.21 UG/L # | 100 |
| 25) CHLOROFORM | 15.27 | 83 | 465157 | 20.64 UG/L # | 100 |
| 26) Tetrahydrofuran | 15.81 | 42 | 144637 | 39.51 UG/L # | 100 |
| 27) Cyclohexane | 10.15 | 56 | 84754 | 8.92 UG/L # | 100 |
| 30) 1,1,1-Trichloroethane | 16.34 | 97 | 378836 | 20.83 UG/L # | 100 |
| 31) Carbon Tetrachloride | 17.07 | 117 | 277724 | 19.68 UG/L # | 100 |
| 32) 1,2-Dichloroethane | 17.34 | 62 | 363349 | 22.07 UG/L # | 100 |

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

Quantitation Report (QT Reviewed)

Data File : C:\E081497\1381E.D
Acq On : 14 Aug 97 10:14
Sample : VSTD020
Misc :
MS Integration Params: rteint.p
Quant Time: Aug 14 11:18 1997

Vial: 6
Operator: HAROLD
Inst : GCMS#5
Multiplr: 1.00
Quant Results File: CLPVOA.RES

Quant Method : C:\HPCHEM\1\METHODS\CLPVOA.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Tue Jun 03 11:22:41 1997
Response via : Initial Calibration
DataAcq Meth : CLPVOA

| Compound | R.T. | QIon | Response | Conc Unit | Qvalue |
|---|---|---|---|---|---|
| 33) Benzene | 17.49 | 78 | 575889 | 17.96 UG/L # | 100 |
| 34) Trichloroethene | 19.11 | 130 | 240991 | 20.42 UG/L # | 100 |
| 35) 1,2-DICHLOROPROPANE | 19.57 | 63 | 308998 | 18.59 UG/L # | 100 |
| 36) Bromodichloromethane | 20.25 | 83 | 488278 | 21.28 UG/L # | 100 |
| 37) 1,4-Dioxane | 14.62 | 88 | 5751 | 304.17 UG/L # | 100 |
| 38) 2-Chloroethylvinylether | 20.92 | 63 | 153120 | 18.75 UG/L # | 100 |
| 39) 4-Methyl-2-Pentanone | 21.02 | 43 | 431787 | 46.79 UG/L # | 100 |
| 40) cis-1,3-Dichloropropene | 21.78 | 75 | 410678 | 20.37 UG/L # | 100 |
| 42) TOLUENE | 22.86 | 92 | 377501 | 18.95 UG/L # | 100 |
| 43) trans-1,3-Dichloropropene | 23.27 | 75 | 349918 | 21.16 UG/L # | 100 |
| 45) 2-Hexanone | 23.70 | 43 | 181083 | 17.79 UG/L # | 100 |
| 46) 1,1,2-Trichloroethane | 23.83 | 97 | 208137 | 18.57 UG/L # | 100 |
| 47) Tetrachloroethene | 24.97 | 164 | 226332 | 20.73 UG/L # | 100 |
| 48) Dibromochloromethane | 25.61 | 129 | 347583 | 20.84 UG/L # | 100 |
| 51) Chlorobenzene | 27.65 | 112 | 508162 | 19.78 UG/L # | 100 |
| 52) ETHYLBENZENE | 27.75 | 106 | 238806 | 19.59 UG/L # | 100 |
| 53) Xylene(m,p) | 28.01 | 106 | 522110 | 40.46 UG/L # | 100 |
| 54) Xylene(o) | 29.52 | 106 | 245557 | 20.88 UG/L # | 100 |
| 55) Styrene | 29.61 | 104 | 387333 | 19.82 UG/L # | 100 |
| 56) Bromoform | 30.84 | 173 | 258084 | 21.81 UG/L # | 100 |
| 57) 1,1,2,2-Tetrachloroethane | 31.21 | 83 | 354947 | 19.93 UG/L # | 100 |
| 59) 1,3-Dichlorobenzene | 35.05 | 146 | 348900m | 24.16 UG/L | 100 |
| 60) 1,4-Dichlorobenzene | 35.36 | 146 | 363746 | 25.19 UG/L # | 100 |
| 61) 1,2-Dichlorobenzene | 36.50 | 146 | 303287 | 24.07 UG/L # | 100 |

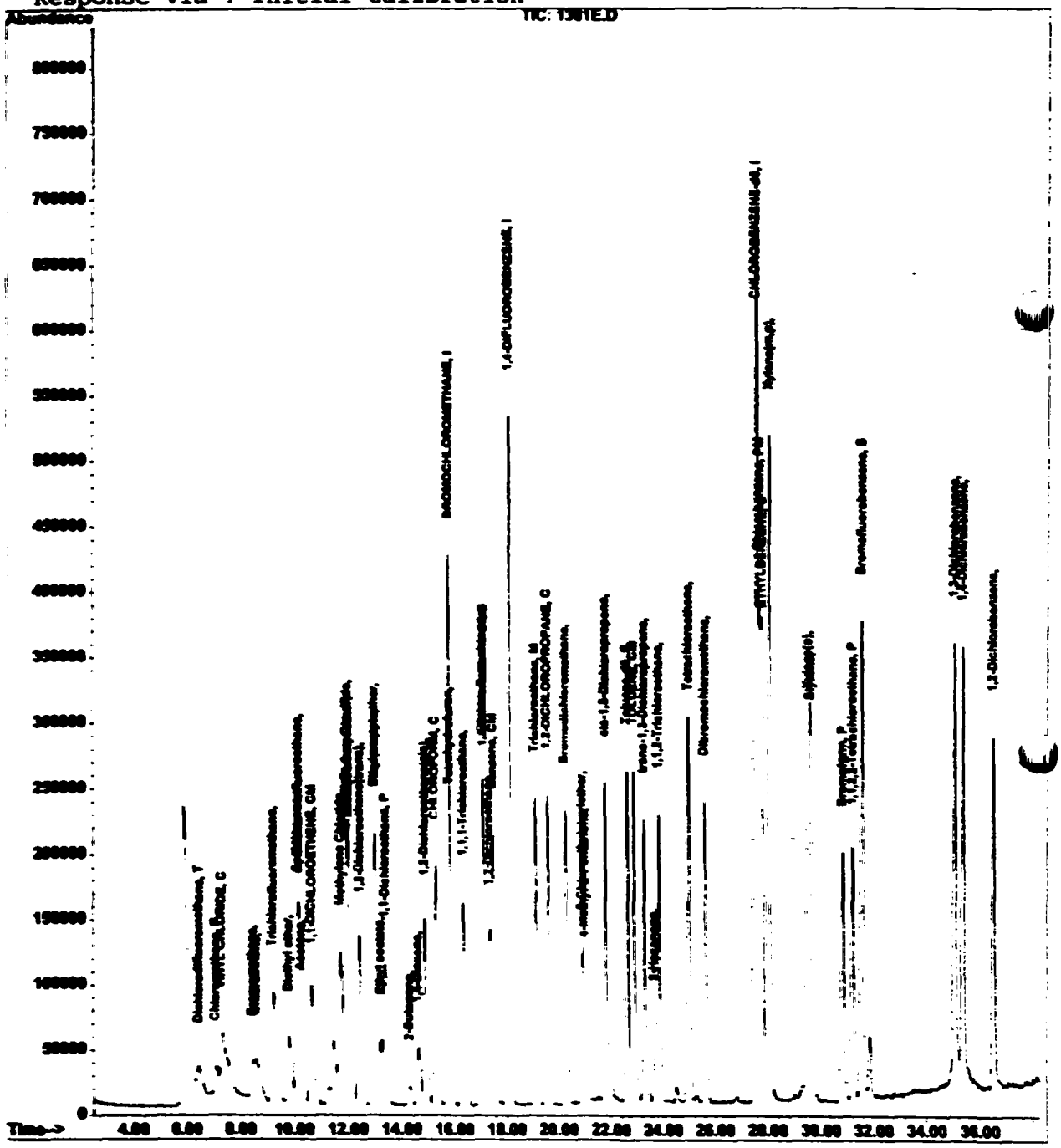
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\E081497\1381E.D
Acq On : 14 Aug 97 10:14
Sample : VSTD020
Misc :
MS Integration Params: rteint.p
Quant Time: Aug 14 11:18 1997

Vial: 6
Operator: HAROLD
Inst : GCMS#5
Multiplr: 1.00
Quant Results File: CLPVOA.RES

Method : C:\HPCHEM\1\METHODS\CLPVOA.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Tue Jun 03 11:22:41 1997
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\E081497\1376E.D
Acq On : 14 Aug 97 7:08
Sample : VSTD050
Misc :
MS Integration Params: rteint.p
Quant Time: Aug 14 11:18 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#5
Multiplr: 1.00
Quant Results File: CLPVOA.RES

Quant Method : C:\HPCHEM\1\METHODS\CLPVOA.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Tue Jun 03 11:22:41 1997
Response via : Initial Calibration
DataAcq Meth : CLPVOA

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) BROMOCHLOROMETHANE | 15.75 | 128 | 315922 | 50.00 | UG/L | -0.07 |
| 29) 1,4-DIFLUOROBENZENE | 18.05 | 114 | 1289811 | 50.00 | UG/L | -0.08 |
| 44) CHLOROBENZENE-d5 | 27.52 | 117 | 1056923 | 50.00 | UG/L | -0.11 |
| **System Monitoring Compounds** | | | | | | |
| 28) 1,2-Dichloroethane-d4 | 17.10 | 65 | 712590 | 57.18 | UG/L | -0.09 |
| Spiked Amount 50.000 | Range 76 - 114 | | Recovery = 114.36%# | | | |
| 41) Toluene-d8 | 22.60 | 98 | 1512504 | 58.07 | UG/L | -0.08 |
| Spiked Amount 50.000 | Range 88 - 110 | | Recovery = 116.14%# | | | |
| 58) Bromofluorobenzene | 31.62 | 95 | 1046986 | 61.90 | UG/L | -0.10 |
| Spiked Amount 50.000 | Range 86 - 115 | | Recovery = 123.80%# | | | |

| Target Compounds | | | | | | Qvalue |
|---|---|---|---|---|---|---|
| 2) Dichlorodifluoromethane | 6.46 | 85 | 493157 | 71.04 | UG/L # | 100 |
| 3) Chloromethane | 7.09 | 50 | 492518 | 52.44 | UG/L # | 100 |
| 4) VINYL CHLORIDE | 7.30 | 62 | 540354 | 51.30 | UG/L # | 100 |
| 6) Bromomethane | 8.45 | 94 | 384102 | 38.15 | UG/L # | 100 |
| 7) Chloroethane | 8.68 | 64 | 332371 | 39.20 | UG/L # | 100 |
| 8) Trichlorofluoromethane | 9.24 | 101 | 1177541 | 56.81 | UG/L # | 100 |
| 9) Diethyl ether | 9.81 | 59 | 345299 | 35.55 | UG/L # | 100 |
| 10) Acrolein | 10.13 | 56 | 178055 | 131.22 | UG/L # | 100 |
| 11) Acetone | 10.28 | 43 | 196834 | 61.58 | UG/L # | 100 |
| 12) Trichlorotrifluoroethane | 10.15 | 101 | 950133 | 45.82 | UG/L # | 100 |
| 13) 1,1-DICHLOROETHENE | 10.65 | 96 | 365763 | 34.24 | UG/L # | 100 |
| 14) Methylene Chloride | 11.71 | 84 | 444958 | 39.30 | UG/L # | 16 |
| 15) Acrylonitrile | 11.93 | 53 | 580831 | 193.81 | UG/L # | 100 |
| 16) Carbon Disulfide | 11.98 | 76 | 1102932 | 36.26 | UG/L # | 100 |
| 17) Vinyl acetate | 13.00 | 43 | 1162556m | 57.16 | UG/L | 100 |
| 18) Methyl-t-butyl ether | 12.03 | 73 | 1151153 | 44.33 | UG/L # | 100 |
| 19) 1,2-Dichloroethene(trans) | 12.44 | 96 | 465889 | 41.43 | UG/L # | 100 |
| 20) Diisopropyl ether | 13.02 | 45 | 2780558 | 39.68 | UG/L # | 100 |
| 21) 1,1-Dichloroethane | 13.40 | 63 | 1078962 | 46.31 | UG/L # | 100 |
| 22) 2-Butanone | 14.32 | 43 | 193412 | 18.09 | UG/L # | 100 |
| 23) Ethyl acetate | 13.22 | 43 | 714685m | 19.04 | UG/L | 100 |
| 24) 1,2-Dichloroethene(cis) | 14.87 | 96 | 467063 | 41.11 | UG/L # | 100 |
| 25) CHLOROFORM | 15.29 | 83 | 1158826 | 51.45 | UG/L # | 100 |
| 26) Tetrahydrofuran | 15.81 | 42 | 317434 | 86.75 | UG/L # | 100 |
| 27) Cyclohexane | 10.13 | 56 | 178055 | 18.76 | UG/L # | 100 |
| 30) 1,1,1-Trichloroethane | 16.34 | 97 | 1000014 | 58.88 | UG/L # | 100 |
| 31) Carbon Tetrachloride | 17.07 | 117 | 720457 | 54.67 | UG/L # | 100 |
| 32) 1,2-Dichloroethane | 17.34 | 62 | 935521 | 60.85 | UG/L # | 100 |

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

Quantitation Report (QT Reviewed)

Data File : C:\E081497\1376E.D
Acq On : 14 Aug 97 7:08
Sample : VSTD050
Misc :
MS Integration Params: rteint.p
Quant Time: Aug 14 11:18 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#5
Multiplr: 1.00
Quant Results File: CLPVOA.RES

Quant Method : C:\HPCHEM\1\METHODS\CLPVOA.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Tue Jun 03 11:22:41 1997
Response via : Initial Calibration
DataAcq Meth : CLPVOA

| Compound | R.T. | QIon | Response | Conc Unit | Qvalue |
|---|---|---|---|---|---|
| 33) Benzene | 17.50 | 78 | 1306321 | 43.64 UG/L # | 100 |
| 34) Trichloroethene | 19.11 | 130 | 592504 | 53.75 UG/L # | 100 |
| 35) 1,2-DICHLOROPROPANE | 19.57 | 63 | 765223 | 49.31 UG/L # | 100 |
| 36) Bromodichloromethane | 20.27 | 83 | 1265620 | 59.08 UG/L # | 100 |
| 37) 1,4-Dioxane | 14.66 | 88 | 14567 | 825.06 UG/L # | 100 |
| 38) 2-Chloroethylvinylether | 20.90 | 63 | 365567 | 47.94 UG/L # | 100 |
| 39) 4-Methyl-2-Pentanone | 20.99 | 43 | 929774 | 107.89 UG/L # | 100 |
| 40) cis-1,3-Dichloropropene | 21.75 | 75 | 996720 | 52.94 UG/L # | 100 |
| 42) TOLUENE | 22.84 | 92 | 906001 | 48.69 UG/L # | 100 |
| 43) trans-1,3-Dichloropropene | 23.24 | 75 | 906753 | 58.71 UG/L # | 100 |
| 45) 2-Hexanone | 23.67 | 43 | 392291 | 42.00 UG/L # | 100 |
| 46) 1,1,2-Trichloroethane | 23.80 | 97 | 487817 | 47.45 UG/L # | 100 |
| 47) Tetrachloroethene | 24.93 | 164 | 564758 | 56.38 UG/L # | 100 |
| 48) Dibromochloromethane | 25.60 | 129 | 759377 | 49.64 UG/L # | 100 |
| 51) Chlorobenzene | 27.65 | 112 | 1262050 | 53.54 UG/L # | 100 |
| 52) ETHYLBENZENE | 27.75 | 106 | 556598 | 49.77 UG/L # | 100 |
| 53) Xylene(m,p) | 28.02 | 106 | 1153521 | 97.43 UG/L # | 100 |
| 54) Xylene(o) | 29.54 | 106 | 557426 | 51.67 UG/L # | 100 |
| 55) Styrene | 29.66 | 104 | 851834 | 47.52 UG/L # | 100 |
| 56) Bromoform | 30.90 | 173 | 675260 | 62.20 UG/L # | 100 |
| 57) 1,1,2,2-Tetrachloroethane | 31.28 | 83 | 799274 | 48.93 UG/L # | 100 |
| 59) 1,3-Dichlorobenzene | 35.11 | 146 | 834467 | 62.98 UG/L # | 100 |
| 60) 1,4-Dichlorobenzene | 35.42 | 146 | 845897 | 63.86 UG/L # | 100 |
| 61) 1,2-Dichlorobenzene | 36.55 | 146 | 673822 | 58.30 UG/L # | 100 |

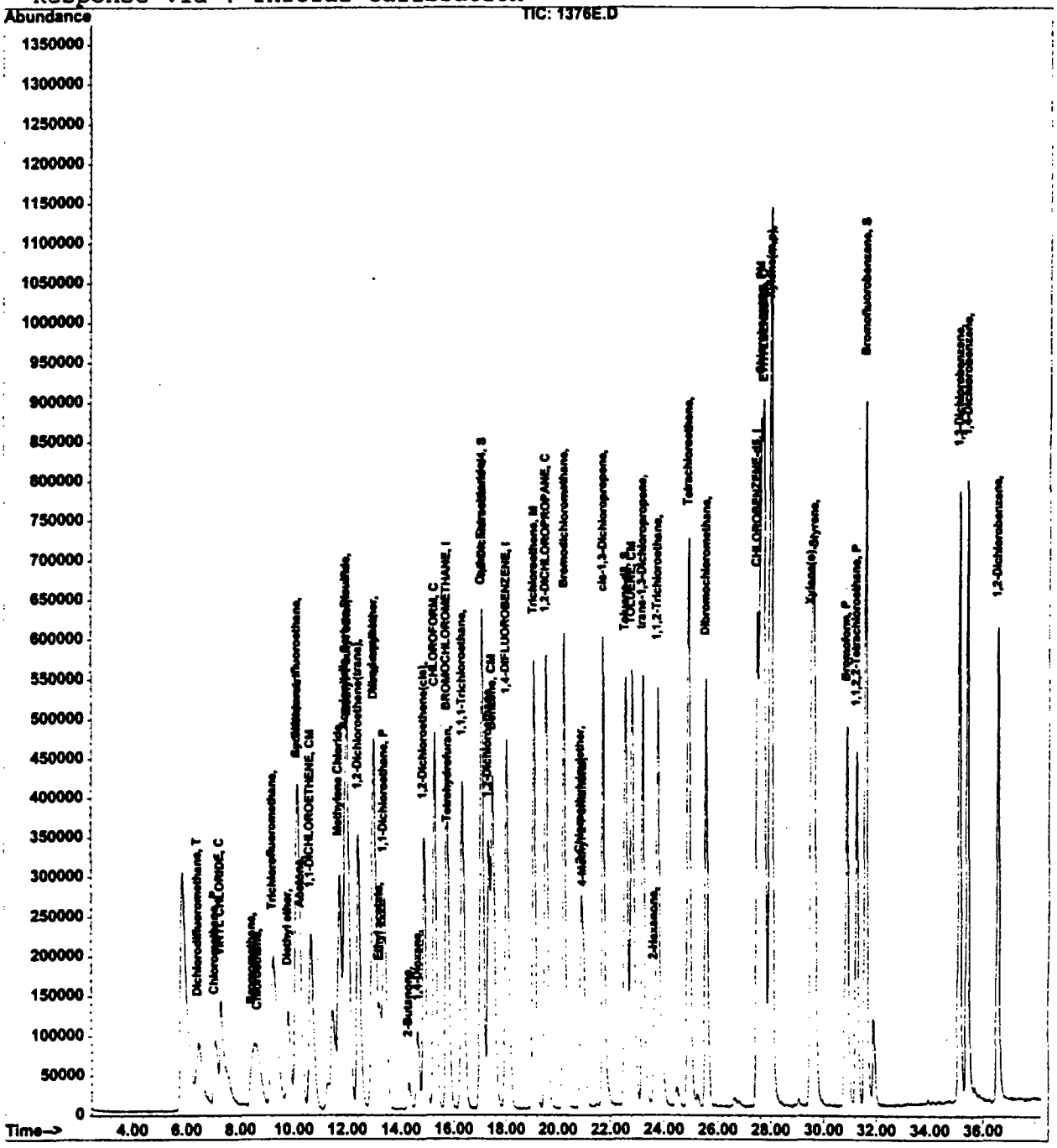
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\E081497\1376E.D
Acq On : 14 Aug 97 7:08
Sample : VSTD050
Misc :
MS Integration Params: rteint.p
Quant Time: Aug 14 11:18 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#5
Multiplr: 1.00
Quant Results File: CLPVOA.RES

Method : C:\HPCHEM\1\METHODS\CLPVOA.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Tue Jun 03 11:22:41 1997
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\E081497\1377E.D
Acq On : 14 Aug 97 7:54
Sample : VSTD100
Misc :
MS Integration Params: rteint.p
Quant Time: Aug 14 11:17 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#5
Multiplr: 1.00
Quant Results File: CLPVOA.RES

Quant Method : C:\HPCHEM\1\METHODS\CLPVOA.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Tue Jun 03 11:22:41 1997
Response via : Initial Calibration
DataAcq Meth : CLPVOA

| Internal Standards | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| 1) BROMOCHLOROMETHANE | 15.75 | 128 | 325727 | 50.00 UG/L | -0.07 |
| 29) 1,4-DIFLUOROBENZENE | 18.05 | 114 | 1421503 | 50.00 UG/L | -0.08 |
| 44) CHLOROBENZENE-d5 | 27.52 | 117 | 1233218 | 50.00 UG/L | -0.10 |
| **System Monitoring Compounds** | | | | | |
| 28) 1,2-Dichloroethane-d4 | 17.10 | 65 | 1634908 | 127.25 UG/L | -0.09 |
| Spiked Amount 50.000 | Range 76 - 114 | | Recovery = 254.50%# | | |
| 41) Toluene-d8 | 22.60 | 98 | 3061336 | 106.64 UG/L | -0.08 |
| Spiked Amount 50.000 | Range 88 - 110 | | Recovery = 213.28%# | | |
| 58) Bromofluorobenzene | 31.62 | 95 | 2205546 | 111.76 UG/L | -0.10 |
| Spiked Amount 50.000 | Range 86 - 115 | | Recovery = 223.52%# | | |

| Target Compounds | | | | | Qvalue |
|---|---|---|---|---|---|
| 2) Dichlorodifluoromethane | 6.45 | 85 | 1001596 | 139.94 UG/L # | 100 |
| 3) Chloromethane | 7.07 | 50 | 959305 | 99.07 UG/L # | 100 |
| 4) VINYL CHLORIDE | 7.25 | 62 | 1061701 | 97.76 UG/L # | 100 |
| 6) Bromomethane | 8.41 | 94 | 841401 | 81.06 UG/L # | 100 |
| 7) Chloroethane | 8.63 | 64 | 668818 | 76.50 UG/L # | 100 |
| 8) Trichlorofluoromethane | 9.23 | 101 | 2316052 | 108.37 UG/L # | 100 |
| 9) Diethyl ether | 9.81 | 59 | 767607 | 76.66 UG/L # | 100 |
| 10) Acrolein | 10.13 | 56 | 368278 | 263.24 UG/L # | 100 |
| 11) Acetone | 10.28 | 43 | 417927 | 126.82 UG/L # | 100 |
| 12) Trichlorotrifluoroethane | 10.15 | 101 | 1900467 | 88.89 UG/L # | 100 |
| 13) 1,1-DICHLOROETHENE | 10.64 | 96 | 807837 | 73.35 UG/L # | 100 |
| 14) Methylene Chloride | 11.74 | 84 | 976329 | 83.63 UG/L # | 32 |
| 15) Acrylonitrile | 11.92 | 53 | 1259451 | 407.61 UG/L # | 100 |
| 16) Carbon Disulfide | 11.96 | 76 | 2225556 | 70.96 UG/L # | 100 |
| 17) Vinyl acetate | 13.00 | 43 | 2488854m | 118.68 UG/L | 100 |
| 18) Methyl-t-butyl ether | 12.02 | 73 | 2381169 | 88.94 UG/L # | 100 |
| 19) 1,2-Dichloroethene(trans) | 12.44 | 96 | 949938 | 81.92 UG/L # | 100 |
| 20) Diisopropyl ether | 13.00 | 45 | 5723130 | 79.22 UG/L # | 100 |
| 21) 1,1-Dichloroethane | 13.40 | 63 | 2250561 | 93.68 UG/L # | 100 |
| 22) 2-Butanone | 14.32 | 43 | 451528 | 40.95 UG/L # | 100 |
| 23) Ethyl acetate | 13.24 | 43 | 1645946m | 42.54 UG/L | 100 |
| 24) 1,2-Dichloroethene(cis) | 14.89 | 96 | 1002232 | 85.57 UG/L # | 100 |
| 25) CHLOROFORM | 15.29 | 83 | 2422399 | 104.31 UG/L # | 100 |
| 26) Tetrahydrofuran | 15.79 | 42 | 654563 | 173.51 UG/L # | 100 |
| 27) Cyclohexane | 10.13 | 56 | 368278 | 37.63 UG/L # | 100 |
| 30) 1,1,1-Trichloroethane | 16.34 | 97 | 2025795 | 108.22 UG/L # | 100 |
| 31) Carbon Tetrachloride | 17.07 | 117 | 1740787 | 119.85 UG/L # | 100 |
| 32) 1,2-Dichloroethane | 17.35 | 62 | 1918018 | 113.20 UG/L # | 100 |

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

Quantitation Report (QT Reviewed)

Data File : C:\E081497\1377E.D
Acq On : 14 Aug 97 7:54
Sample : VSTD100
Misc :
MS Integration Params: rteint.p
Quant Time: Aug 14 11:17 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#5
Multiplr: 1.00
Quant Results File: CLPVOA.RES

Quant Method : C:\HPCHEM\1\METHODS\CLPVOA.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Tue Jun 03 11:22:41 1997
Response via : Initial Calibration
DataAcq Meth : CLPVOA

| Compound | R.T. | QIon | Response | Conc Unit | Qvalue |
|---|---|---|---|---|---|
| 3) Benzene | 17.52 | 78 | 2964841 | 89.86 UG/L # | 100 |
| 4) Trichloroethene | 19.12 | 130 | 1238551 | 101.95 UG/L # | 100 |
| 5) 1,2-DICHLOROPROPANE | 19.57 | 63 | 1557579 | 91.07 UG/L # | 100 |
| 6) Bromodichloromethane | 20.27 | 83 | 2639934 | 111.81 UG/L # | 100 |
| 7) 1,4-Dioxane | 14.65 | 88 | 33444 | 1718.74 UG/L # | 100 |
| 8) 2-Chloroethylvinylether | 20.92 | 63 | 788265 | 93.79 UG/L # | 100 |
| 9) 4-Methyl-2-Pentanone | 21.01 | 43 | 2127494 | 224.00 UG/L # | 100 |
| 0) cis-1,3-Dichloropropene | 21.75 | 75 | 2107484 | 101.57 UG/L # | 100 |
| 2) TOLUENE | 22.84 | 92 | 1928412 | 94.04 UG/L # | 100 |
| 3) trans-1,3-Dichloropropene | 23.24 | 75 | 1833486 | 107.71 UG/L # | 100 |
| 5) 2-Hexanone | 23.67 | 43 | 887273 | 81.42 UG/L # | 100 |
| 6) 1,1,2-Trichloroethane | 23.80 | 97 | 1055514 | 88.00 UG/L # | 100 |
| 7) Tetrachloroethene | 24.93 | 164 | 1184113 | 101.32 UG/L # | 100 |
| 8) Dibromochloromethane | 25.59 | 129 | 1936015 | 108.47 UG/L # | 100 |
| 1) Chlorobenzene | 27.64 | 112 | 2645358 | 96.18 UG/L # | 100 |
| 2) ETHYLBENZENE | 27.76 | 106 | 1269171 | 97.26 UG/L # | 100 |
| 3) Xylene(m,p) | 28.01 | 106 | 2733852 | 197.91 UG/L # | 100 |
| 4) Xylene(o) | 29.55 | 106 | 1258269 | 99.95 UG/L # | 100 |
| 5) Styrene | 29.66 | 104 | 2078261 | 99.37 UG/L # | 100 |
| 6) Bromoform | 30.92 | 173 | 1519541 | 119.97 UG/L # | 100 |
| 7) 1,1,2,2-Tetrachloroethane | 31.28 | 83 | 1808369 | 94.87 UG/L # | 100 |
| 9) 1,3-Dichlorobenzene | 35.12 | 146 | 1839149 | 118.96 UG/L # | 100 |
| 0) 1,4-Dichlorobenzene | 35.42 | 146 | 1860201 | 120.36 UG/L # | 100 |
| 1) 1,2-Dichlorobenzene | 36.57 | 146 | 1631311 | 120.97 UG/L # | 100 |

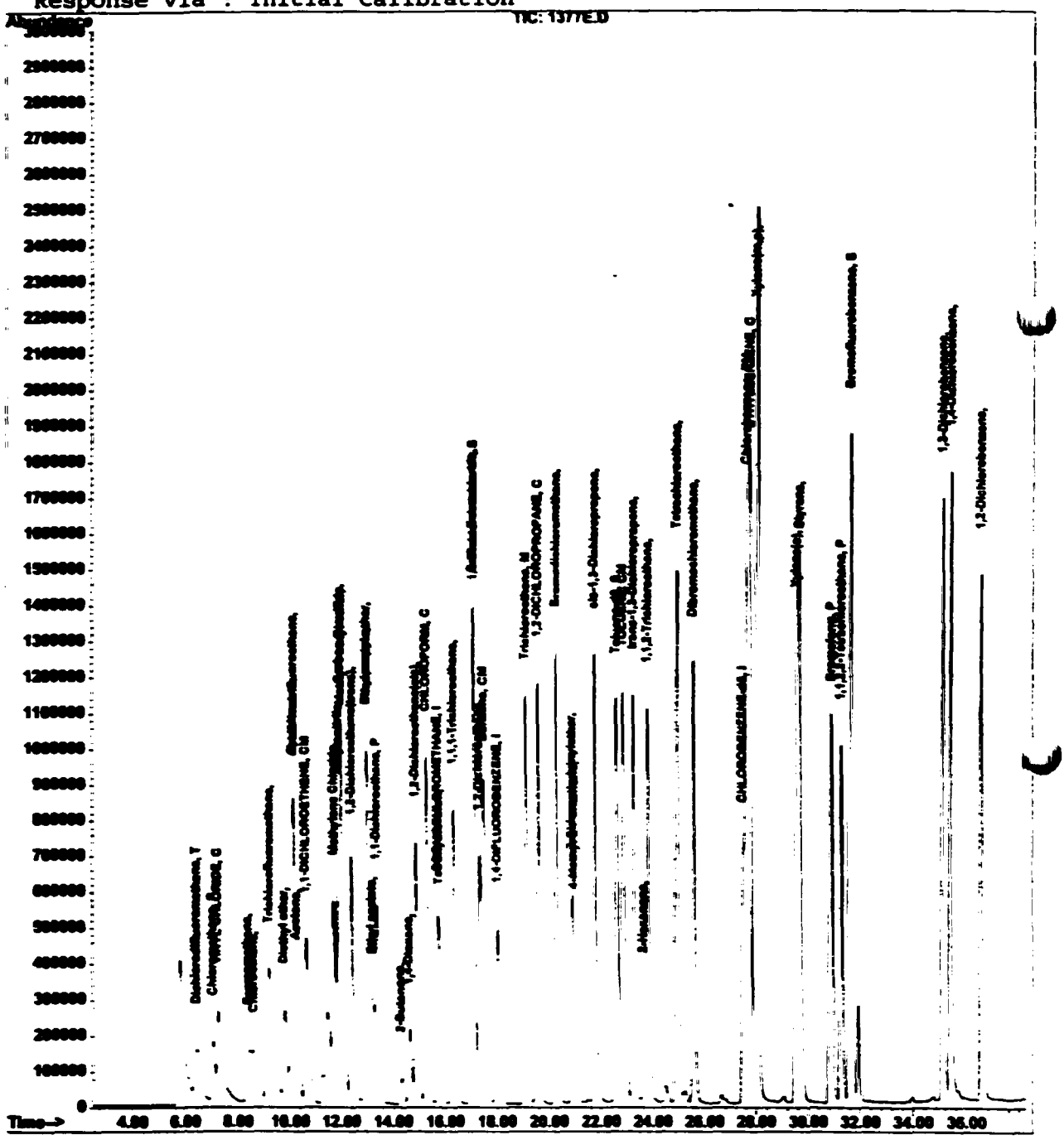
) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\E081497\1377E.D
Acq On : 14 Aug 97 7:54
Sample : VSTD100
Misc :
MS Integration Params: rteint.p
Quant Time: Aug 14 11:17 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#5
Multiplr: 1.00
Quant Results File: CLPVOA.RES

Method : C:\HPCHEM\1\METHODS\CLPVOA.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Tue Jun 03 11:22:41 1997
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\E081497\1378E.D
Acq On : 14 Aug 97 8:38
Sample : VSTD150
Misc :
MS Integration Params: rteint.p
Quant Time: Aug 14 11:17 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#5
Multiplr: 1.00
Quant Results File: CLPVOA.RES

Quant Method : C:\HPCHEM\1\METHODS\CLPVOA.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Tue Jun 03 11:22:41 1997
Response via : Initial Calibration
DataAcq Meth : CLPVOA

| Internal Standards | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| 1) BROMOCHLOROMETHANE | 15.75 | 128 | 356489 | 50.00 UG/L | -0.07 |
| 29) 1,4-DIFLUOROBENZENE | 18.08 | 114 | 1486829 | 50.00 UG/L | -0.05 |
| 44) CHLOROBENZENE-d5 | 27.55 | 117 | 1272061 | 50.00 UG/L | -0.08 |
| **System Monitoring Compounds** | | | | | |
| 28) 1,2-Dichloroethane-d4 | 17.12 | 65 | 2518285 | 179.09 UG/L | -0.08 |
| Spiked Amount 50.000 | Range 76 - 114 | | Recovery = 358.18%# | | |
| 41) Toluene-d8 | 22.61 | 98 | 4940485 | 164.54 UG/L | -0.06 |
| Spiked Amount 50.000 | Range 88 - 110 | | Recovery = 329.08%# | | |
| 58) Bromofluorobenzene | 31.62 | 95 | 3360199 | 165.07 UG/L | -0.10 |
| Spiked Amount 50.000 | Range 86 - 115 | | Recovery = 330.14%# | | |

| Target Compounds | | | | | Qvalue |
|---|---|---|---|---|---|
| 2) Dichlorodifluoromethane | 6.51 | 85 | 1480622 | 189.02 UG/L # | 100 |
| 3) Chloromethane | 7.12 | 50 | 1371297 | 129.40 UG/L # | 100 |
| 4) VINYL CHLORIDE | 7.29 | 62 | 1464925 | 123.24 UG/L # | 100 |
| 6) Bromomethane | 8.39 | 94 | 1417455 | 124.78 UG/L # | 100 |
| 7) Chloroethane | 8.63 | 64 | 1100714 | 115.04 UG/L # | 100 |
| 8) Trichlorofluoromethane | 9.21 | 101 | 3608144 | 154.26 UG/L # | 100 |
| 9) Diethyl ether | 9.84 | 59 | 1220703 | 111.38 UG/L # | 100 |
| 10) Acrolein | 10.16 | 56 | 591947 | 386.60 UG/L # | 100 |
| 11) Acetone | 10.33 | 43 | 608507 | 168.72 UG/L # | 100 |
| 12) Trichlorotrifluoroethane | 10.16 | 101 | 3012382 | 128.74 UG/L # | 100 |
| 13) 1,1-DICHLOROETHENE | 10.65 | 96 | 1250913 | 103.78 UG/L # | 100 |
| 14) Methylene Chloride | 11.74 | 84 | 1502239 | 117.58 UG/L # | 32 |
| 15) Acrylonitrile | 11.96 | 53 | 2018786 | 596.98 UG/L # | 100 |
| 16) Carbon Disulfide | 11.99 | 76 | 3609115 | 105.14 UG/L # | 100 |
| 17) Vinyl acetate | 13.04 | 43 | 3686458m | 160.61 UG/L | 100 |
| 18) Methyl-t-butyl ether | 12.06 | 73 | 3777758 | 128.92 UG/L # | 100 |
| 19) 1,2-Dichloroethene(trans) | 12.44 | 96 | 1538244 | 121.21 UG/L # | 100 |
| 20) Diisopropyl ether | 13.04 | 45 | 9063713 | 114.63 UG/L # | 100 |
| 21) 1,1-Dichloroethane | 13.42 | 63 | 3511081 | 133.54 UG/L # | 100 |
| 22) 2-Butanone | 14.35 | 43 | 645018 | 53.45 UG/L # | 100 |
| 23) Ethyl acetate | 13.27 | 43 | 2943094m | 69.50 UG/L | 100 |
| 24) 1,2-Dichloroethene(cis) | 14.89 | 96 | 1547707 | 120.73 UG/L # | 100 |
| 25) CHLOROFORM | 15.29 | 83 | 3731891 | 146.83 UG/L # | 100 |
| 26) Tetrahydrofuran | 15.84 | 42 | 1039749 | 251.83 UG/L # | 100 |
| 27) Cyclohexane | 10.16 | 56 | 591947 | 55.26 UG/L # | 100 |
| 30) 1,1,1-Trichloroethane | 16.36 | 97 | 3150420 | 160.91 UG/L # | 100 |
| 31) Carbon Tetrachloride | 17.07 | 117 | 2687288 | 176.88 UG/L # | 100 |
| 32) 1,2-Dichloroethane | 17.35 | 62 | 2925896 | 165.10 UG/L # | 100 |

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

Quantitation Report (QT Reviewed)

Data File : C:\E081497\1378E.D
Acq On : 14 Aug 97 8:38
Sample : VSTD150
Misc :
MS Integration Params: rteint.p
Quant Time: Aug 14 11:17 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#5
Multiplr: 1.00
Quant Results File: CLPVOA.RES

Quant Method : C:\HPCHEM\1\METHODS\CLPVOA.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Tue Jun 03 11:22:41 1997
Response via : Initial Calibration
DataAcq Meth : CLPVOA

| Compound | R.T. | QIon | Response | Conc Unit | Qvalue |
|---|---|---|---|---|---|
| 33) Benzene | 17.52 | 78 | 4599349 | 133.28 UG/L # | 100 |
| 34) Trichloroethene | 19.12 | 130 | 1990257 | 156.63 UG/L # | 100 |
| 35) 1,2-DICHLOROPROPANE | 19.58 | 63 | 2535231 | 141.71 UG/L # | 100 |
| 36) Bromodichloromethane | 20.27 | 83 | 4141892 | 167.72 UG/L # | 100 |
| 37) 1,4-Dioxane | 14.65 | 88 | 53069 | 2607.47 UG/L # | 100 |
| 38) 2-Chloroethylvinylether | 20.92 | 63 | 1255583 | 142.83 UG/L # | 100 |
| 39) 4-Methyl-2-Pentanone | 21.02 | 43 | 3322523 | 334.46 UG/L # | 100 |
| 40) cis-1,3-Dichloropropene | 21.75 | 75 | 3294610 | 151.80 UG/L # | 0 |
| 42) TOLUENE | 22.85 | 92 | 3150309 | 146.88 UG/L # | 100 |
| 43) trans-1,3-Dichloropropene | 23.25 | 75 | 2933059 | 164.74 UG/L # | 100 |
| 45) 2-Hexanone | 23.68 | 43 | 1428611 | 127.09 UG/L # | 100 |
| 46) 1,1,2-Trichloroethane | 23.82 | 97 | 1682011 | 135.94 UG/L # | 100 |
| 47) Tetrachloroethene | 24.95 | 164 | 1822223 | 151.15 UG/L # | 100 |
| 48) Dibromochloromethane | 25.61 | 129 | 3013472 | 163.68 UG/L # | 100 |
| 51) Chlorobenzene | 27.66 | 112 | 4070251 | 143.46 UG/L # | 100 |
| 52) ETHYLBENZENE | 27.77 | 106 | 1911195 | 141.98 UG/L # | 100 |
| 53) Xylene(m,p) | 28.04 | 106 | 4035692 | 283.23 UG/L # | 100 |
| 54) Xylene(o) | 29.55 | 106 | 1856444 | 142.97 UG/L # | 100 |
| 55) Styrene | 29.66 | 104 | 3107101 | 144.02 UG/L # | 100 |
| 56) Bromoform | 30.92 | 173 | 2399552 | 183.66 UG/L # | 100 |
| 57) 1,1,2,2-Tetrachloroethane | 31.29 | 83 | 2823561 | 143.61 UG/L # | 100 |
| 59) 1,3-Dichlorobenzene | 35.11 | 146 | 2790855 | 175.00 UG/L # | 100 |
| 60) 1,4-Dichlorobenzene | 35.40 | 146 | 2843950 | 178.39 UG/L # | 100 |
| 61) 1,2-Dichlorobenzene | 36.56 | 146 | 2539460 | 182.56 UG/L # | 100 |

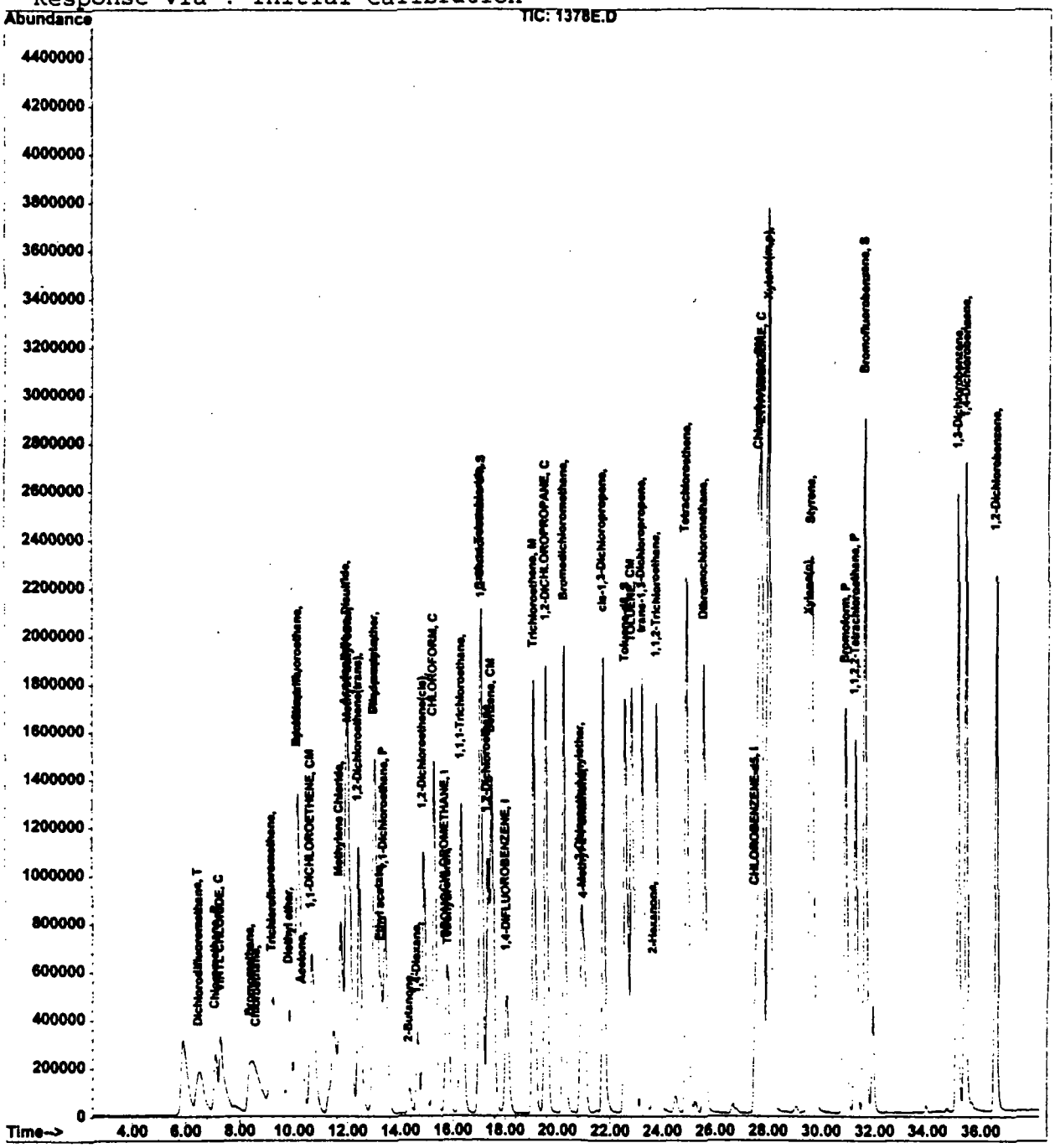
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\E081497\1378E.D
Acq On : 14 Aug 97 8:38
Sample : VSTD150
Misc :
MS Integration Params: rteint.p
Quant Time: Aug 14 11:17 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#5
Multiplr: 1.00
Quant Results File: CLPVOA.RES

Method : C:\HPCHEM\1\METHODS\CLPVOA.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Tue Jun 03 11:22:41 1997
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\E081497\1379E.D
Acq On : 14 Aug 97 9:24
Sample : VSTD200
Misc :
MS Integration Params: rteint.p
Quant Time: Aug 14 11:16 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#5
Multiplr: 1.00
Quant Results File: CLPVOA.RES

Quant Method : C:\HPCHEM\1\METHODS\CLPVOA.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Tue Jun 03 11:22:41 1997
Response via : Initial Calibration
DataAcq Meth : CLPVOA

| Internal Standards | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| 1) BROMOCHLOROMETHANE | 15.73 | 128 | 347623 | 50.00 UG/L | -0.09 |
| 29) 1,4-DIFLUOROBENZENE | 18.05 | 114 | 1515079 | 50.00 UG/L | -0.08 |
| 44) CHLOROBENZENE-d5 | 27.52 | 117 | 1226428 | 50.00 UG/L | -0.11 |
| **System Monitoring Compounds** | | | | | |
| 28) 1,2-Dichloroethane-d4 | 17.09 | 65 | 3062324 | 223.34 UG/L | -0.11 |
| Spiked Amount 50.000 | Range 76 - 114 | | Recovery = 446.68%# | | |
| 41) Toluene-d8 | 22.60 | 98 | 6693885 | 218.78 UG/L | -0.[illegible] |
| Spiked Amount 50.000 | Range 88 - 110 | | Recovery = 437.56%# | | |
| 58) Bromofluorobenzene | 31.63 | 95 | 4664421 | 237.67 UG/L | -0.09 |
| Spiked Amount 50.000 | Range 86 - 115 | | Recovery = 475.34%# | | |
| **Target Compounds** | | | | | Qvalue |
| 2) Dichlorodifluoromethane | 6.45 | 85 | 1786188 | 233.84 UG/L # | 100 |
| 3) Chloromethane | 7.04 | 50 | 1917124 | 185.52 UG/L # | 100 |
| 4) VINYL CHLORIDE | 7.24 | 62 | 1930130 | 166.52 UG/L # | 100 |
| 6) Bromomethane | 8.33 | 94 | 1907072 | 172.16 UG/L # | 100 |
| 7) Chloroethane | 8.60 | 64 | 1430663 | 153.34 UG/L # | 100 |
| 8) Trichlorofluoromethane | 9.17 | 101 | 4877133 | 213.83 UG/L # | 100 |
| 9) Diethyl ether | 9.81 | 59 | 1548303 | 144.88 UG/L # | 100 |
| 10) Acrolein | 10.12 | 56 | 774025 | 518.41 UG/L # | 100 |
| 11) Acetone | 10.28 | 43 | 698554 | 198.63 UG/L # | 100 |
| 12) Trichlorotrifluoroethane | 10.09 | 101 | 4207118 | 184.38 UG/L # | 100 |
| 13) 1,1-DICHLOROETHENE | 10.61 | 96 | 1715624 | 145.96 UG/L # | 100 |
| 14) Methylene Chloride | 11.71 | 84 | 1846340 | 148.19 UG/L # | 30 |
| 15) Acrylonitrile | 11.95 | 53 | 2568383 | 778.88 UG/L # | 100 |
| 16) Carbon Disulfide | 11.93 | 76 | 4853514 | 145.00 UG/L # | 1[illegible] |
| 17) Vinyl acetate | 13.01 | 43 | 4902088m | 219.02 UG/L | 100 |
| 18) Methyl-t-butyl ether | 12.02 | 73 | 4816375 | 168.56 UG/L # | 100 |
| 19) 1,2-Dichloroethene(trans) | 12.39 | 96 | 2015088 | 162.83 UG/L # | 100 |
| 20) Diisopropyl ether | 13.01 | 45 | 12240887 | 158.76 UG/L # | 100 |
| 21) 1,1-Dichloroethane | 13.39 | 63 | 4723249 | 184.22 UG/L # | 100 |
| 22) 2-Butanone | 14.35 | 43 | 812530 | 69.05 UG/L # | 100 |
| 23) Ethyl acetate | 13.22 | 43 | 3639992m | 88.15 UG/L | 100 |
| 24) 1,2-Dichloroethene(cis) | 14.89 | 96 | 2112680 | 169.01 UG/L # | 100 |
| 25) CHLOROFORM | 15.27 | 83 | 4915640 | 198.33 UG/L # | 100 |
| 26) Tetrahydrofuran | 15.79 | 42 | 1263910 | 313.93 UG/L # | 100 |
| 27) Cyclohexane | 10.12 | 56 | 774025 | 74.10 UG/L # | 100 |
| 30) 1,1,1-Trichloroethane | 16.31 | 97 | 4166524 | 208.84 UG/L # | 100 |
| 31) Carbon Tetrachloride | 17.07 | 117 | 3477752 | 224.64 UG/L # | 100 |
| 32) 1,2-Dichloroethane | 17.34 | 62 | 3751442 | 207.73 UG/L # | 100 |

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

Quantitation Report (QT Reviewed)

Data File : C:\E081497\1379E.D
Acq On : 14 Aug 97 9:24
Sample : VSTD200
Misc :
MS Integration Params: rteint.p
Quant Time: Aug 14 11:16 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#5
Multiplr: 1.00
Quant Results File: CLPVOA.RES

Quant Method : C:\HPCHEM\1\METHODS\CLPVOA.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Tue Jun 03 11:22:41 1997
Response via : Initial Calibration
DataAcq Meth : CLPVOA

| | Compound | R.T. | QIon | Response | Conc Unit | Qvalue |
|---|---|---|---|---|---|---|
| 33) | Benzene | 17.50 | 78 | 5941693 | 168.96 UG/L # | 100 |
| 34) | Trichloroethene | 19.11 | 130 | 2596368 | 200.52 UG/L # | 100 |
| 35) | 1,2-DICHLOROPROPANE | 19.58 | 63 | 3299764 | 181.01 UG/L # | 100 |
| 36) | Bromodichloromethane | 20.27 | 83 | 5408217 | 214.91 UG/L # | 100 |
| 37) | 1,4-Dioxane | 14.65 | 88 | 71120 | 3429.23 UG/L # | 100 |
| 38) | 2-Chloroethylvinylether | 20.92 | 63 | 1645159 | 183.66 UG/L # | 100 |
| 39) | 4-Methyl-2-Pentanone | 21.04 | 43 | 4131620 | 408.15 UG/L # | 100 |
| 40) | cis-1,3-Dichloropropene | 21.77 | 75 | 4459076 | 201.63 UG/L # | 100 |
| 42) | TOLUENE | 22.85 | 92 | 3995404 | 182.81 UG/L # | 100 |
| 43) | trans-1,3-Dichloropropene | 23.24 | 75 | 3832203 | 211.22 UG/L # | 100 |
| 45) | 2-Hexanone | 23.70 | 43 | 1706329 | 157.44 UG/L # | 100 |
| 46) | 1,1,2-Trichloroethane | 23.82 | 97 | 2150816 | 180.30 UG/L # | 100 |
| 47) | Tetrachloroethene | 24.95 | 164 | 2573788 | 221.44 UG/L # | 100 |
| 48) | Dibromochloromethane | 25.60 | 129 | 3567207 | 200.97 UG/L # | 100 |
| 51) | Chlorobenzene | 27.65 | 112 | 5591745 | 204.42 UG/L # | 100 |
| 52) | ETHYLBENZENE | 27.75 | 106 | 2549281 | 196.43 UG/L # | 100 |
| 53) | Xylene(m,p) | 28.02 | 106 | 5535229 | 402.93 UG/L # | 100 |
| 54) | Xylene(o) | 29.55 | 106 | 2489449 | 198.85 UG/L # | 100 |
| 55) | Styrene | 29.67 | 104 | 4062655 | 195.32 UG/L # | 100 |
| 56) | Bromoform | 30.92 | 173 | 3095971 | 245.78 UG/L # | 100 |
| 57) | 1,1,2,2-Tetrachloroethane | 31.29 | 83 | 3549037 | 187.23 UG/L # | 100 |
| 59) | 1,3-Dichlorobenzene | 35.14 | 146 | 3920195 | 254.96 UG/L # | 100 |
| 60) | 1,4-Dichlorobenzene | 35.43 | 146 | 4132528 | 268.86 UG/L # | 100 |
| 61) | 1,2-Dichlorobenzene | 36.58 | 146 | 3588034 | 267.54 UG/L # | 100 |

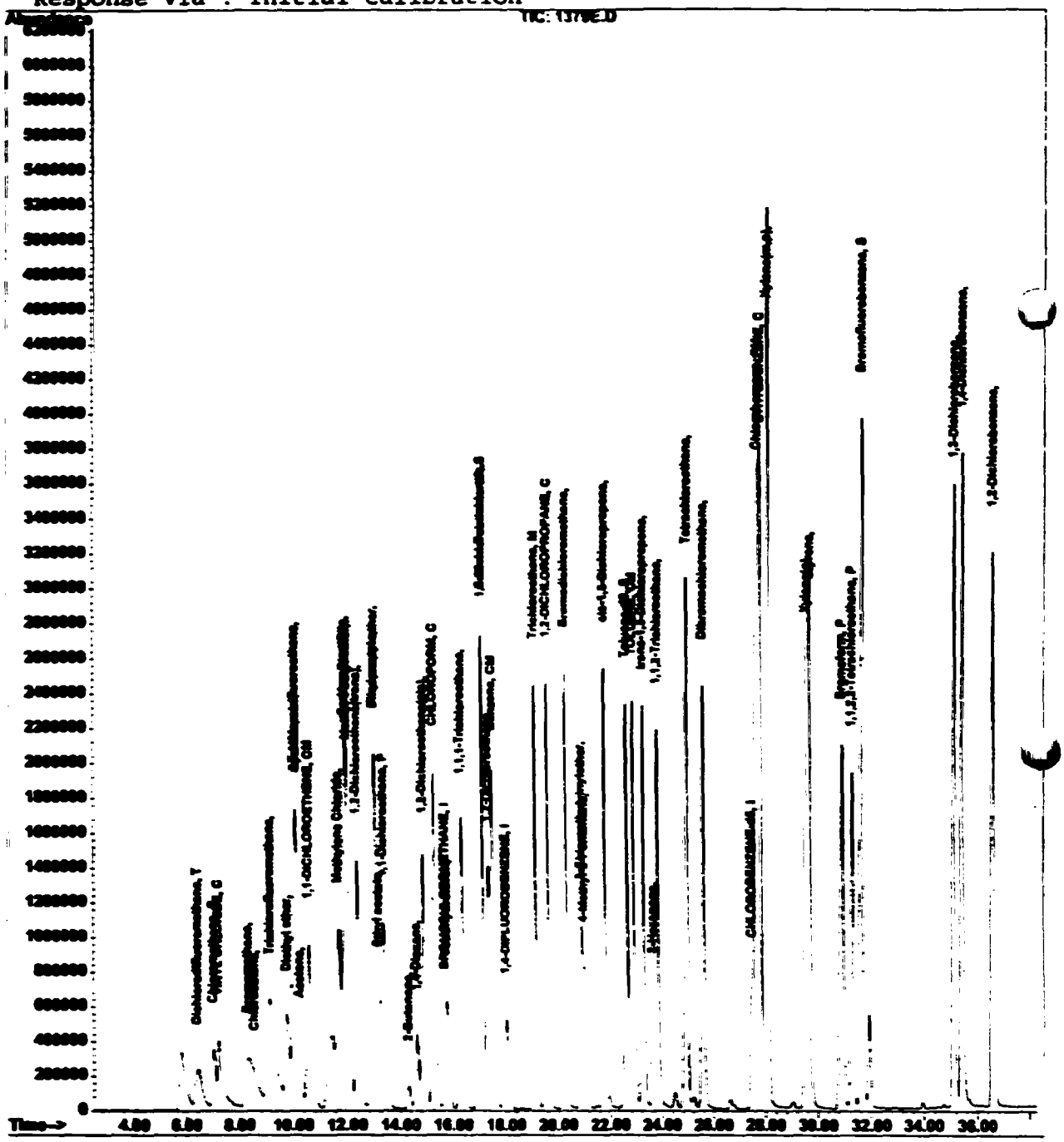
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\E081497\1379E.D
Acq On : 14 Aug 97 9:24
Sample : VSTD200
Misc :
MS Integration Params: rteint.p
Quant Time: Aug 14 11:16 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#5
Multiplr: 1.00
Quant Results File: CLPVOA.RES

Method : C:\HPCHEM\1\METHODS\CLPVOA.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Tue Jun 03 11:22:41 1997
Response via : Initial Calibration



Continuing Calibration Report

Data File : C:\E081597\1390E.D
Acq On : 15 Aug 97 3:36
Sample : VSTD050 #081497
Misc : CALIBRATION CHECK 8/15/97
MS Integration Params: rteint.p

Vial: 6
Operator: HAROLD
Inst : GCMS#5
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\CLPVOA.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Tue Jun 03 11:22:41 1997
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

cal 20 = 1381E.D cal 50 = 1376E.D cal100 = 1377E.D
cal150 = 1378E.D cal200 = 1379E.D

| | | Compound | AvgRF | CCRF | %Dev |
|---|---|---|---|---|---|
| 1 | I | BROMOCHLOROMETHANE | 1.00000 | 1.00000 | 0.0 |
| 2 | T | Dichlorodifluoromethane | 1.37171 | 0.95395 | 30.5# |
| 3 | P | Chloromethane | 1.39007 | 1.34085 | 3.5 |
| 4 | C | VINYL CHLORIDE | 1.53188 | 1.54748 | 1.0 |
| 5 | | 1,3-Butadiene | 0.00462 | 0.00172 | 62.8# |
| 6 | | Bromomethane | 1.27254 | 1.31889 | 3.6 |
| 7 | | Chloroethane | 1.02586 | 1.03053 | 0.5 |
| 8 | | Trichlorofluoromethane | 3.45753 | 3.32858 | 3.7 |
| 9 | | Diethyl ether | 1.15214 | 1.27048 | 10.3 |
| 10 | | Acrolein | 0.09698 | 0.13405 | 38.2# |
| 11 | | Acetone | 0.60566 | 0.71092 | 17.4 |
| 12 | | Trichlorotrifluoroethane | 2.90464 | 2.75766 | 5.1 |
| 13 | CM | 1,1-DICHLOROETHENE | 1.19233 | 1.22622 | 2.8 |
| 14 | | Methylene Chloride | 1.41353 | 1.34871 | 4.6 |
| 15 | | Acrylonitrile | 0.32576 | 0.42422 | 30.2# |
| 16 | | Carbon Disulfide | 3.38393 | 3.04833 | 9.9 |
| 17 | | Vinyl acetate | 3.66892 | 6.19625 | 68.9# |
| 18 | | Methyl-t-butyl ether | 3.58298 | 3.55569 | 0.8 |
| 19 | | 1,2-Dichloroethene(trans) | 1.45331 | 1.39504 | 4.0 |
| 20 | | Diisopropyl ether | 8.71235 | 8.87061 | 1.8 |
| 21 | P | 1,1-Dichloroethane | 3.39122 | 3.27165 | 3.5 |
| 22 | | 2-Butanone | 0.65118 | 0.68253 | 4.8 |
| 23 | | Ethyl acetate | 2.53911 | 6.19625 | 144.0# |
| 24 | | 1,2-Dichloroethene(cis) | 1.50604 | 1.44281 | 4.2 |
| 25 | C | CHLOROFORM | 3.61801 | 3.56464 | 1.5 |
| 26 | | Tetrahydrofuran | 0.40277 | 0.45929 | 14.0 |
| 27 | | Cyclohexane | 0.68251 | 0.93522 | 37.0# |
| 28 | S | 1,2-Dichloroethane-d4 | 2.37101 | 2.52821 | 6.6 |
| 29 | I | 1,4-DIFLUOROBENZENE | 1.00000 | 1.00000 | 0.0 |
| 30 | | 1,1,1-Trichloroethane | 0.71347 | 0.69319 | 2.8 |
| 31 | | Carbon Tetrachloride | 0.56998 | 0.53506 | 6.1 |
| 32 | | 1,2-Dichloroethane | 0.66652 | 0.64979 | 2.5 |
| 33 | CM | Benzene | 1.02191 | 0.98875 | 3.2 |
| 34 | M | Trichloroethene | 0.44117 | 0.40313 | 8.6 |
| 35 | C | 1,2-DICHLOROPROPANE | 0.56266 | 0.55029 | 2.2 |
| 36 | | Bromodichloromethane | 0.92291 | 0.89995 | 2.5 |
| 37 | | 1,4-Dioxane | 0.00069 | 0.00055 | 20.3 |
| 38 | | 2-Chloroethylvinylether | 0.27816 | 0.26843 | 3.5 |
| 39 | | 4-Methyl-2-Pentanone | 0.73547 | 0.73520 | 0.0 |

(#) = Out of Range (Advisory for non CCC, SPCC)

Continuing Calibration Report

Data File : C:\E081597\1390E.D
Acq On : 15 Aug 97 3:36
Sample : VSTD050 #081497
Misc : CALIBRATION CHECK 8/15/97
MS Integration Params: rteint.p

Vial: 6
Operator: HAROLD
Inst : GCMS#5
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\CLPVOA.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Tue Jun 03 11:22:41 1997
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

cal 20 = 1381E.D cal 50 = 1376E.D cal100 = 1377E.D
cal150 = 1378E.D cal200 = 1379E.D

| | | Compound | AvgRF | CCRF | %Dev |
|---|---|---|---|---|---|
| 40 | | cis-1,3-Dichloropropene | 0.74636 | 0.70696 | 5.3 |
| 41 | S | Toluene-d8 | 1.11723 | 1.06494 | 4.7 |
| 42 | CM | TOLUENE | 0.68591 | 0.67516 | 1.6 |
| 43 | | trans-1,3-Dichloropropene | 0.65424 | 0.62508 | 4.5 |
| 44 | I | CHLOROBENZENE-d5 | 1.00000 | 1.00000 | 0.0 |
| 45 | | 2-Hexanone | 0.36920 | 0.34738 | 5.9 |
| 46 | | 1,1,2-Trichloroethane | 0.44406 | 0.40142 | 9.6 |
| 47 | | Tetrachloroethene | 0.50154 | 0.42801 | 14.7 |
| 48 | | Dibromochloromethane | 0.75489 | 0.69196 | 8.3 |
| 49 | | 4-Vinylcyclohexene | 0.01093 | 0.00000 | 100.0# |
| 50 | | 1,2-Dibromoethane | 0.08762 | 0.00000 | 100.0# |
| 51 | PM | Chlorobenzene | 1.11514 | 0.96346 | 13.6 |
| 52 | C | ETHYLBENZENE | 0.51597 | 0.44218 | 14.3 |
| 53 | | Xylene(m,p) | 0.55186 | 0.47457 | 14.0 |
| 54 | | Xylene(o) | 0.51286 | 0.44314 | 13.6 |
| 55 | | Styrene | 0.82628 | 0.73591 | 10.9 |
| 56 | P | Bromoform | 0.61497 | 0.53898 | 12.4 |
| 57 | P | 1,1,2,2-Tetrachloroethane | 0.74459 | 0.69564 | 6.6 |
| 58 | S | Bromofluorobenzene | 0.93353 | 0.92015 | 1.4 |
| 59 | | 1,3-Dichlorobenzene | 0.76454 | 0.68974 | 9.8 |
| 60 | | 1,4-Dichlorobenzene | 0.78629 | 0.69655 | 11.4 |
| 61 | | 1,2-Dichlorobenzene | 0.67078 | 0.61993 | 7.6 |

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

2500J.D CLPVOA.M Fri Aug 15 04:21:30 1997 MANAGER

Quantitation Report (QT Reviewed)

Data File : C:\E081597\1390E.D
Acq On : 15 Aug 97 3:36
Sample : VSTD050 #081497
Misc : CALIBRATION CHECK 8/15/97
MS Integration Params: rteint.p
Quant Time: Aug 15 4:19 1997

Vial: 6
Operator: HAROLD
Inst : GCMS#5
Multiplr: 1.00
Quant Results File: CLPVOA.RES

Quant Method : C:\HPCHEM\1\METHODS\CLPVOA.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Tue Jun 03 11:22:41 1997
Response via : Initial Calibration
DataAcq Meth : CLPVOA

| Internal Standards | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| 1) BROMOCHLOROMETHANE | 15.75 | 128 | 301220 | 50.00 UG/L | -0.07 |
| 29) 1,4-DIFLUOROBENZENE | 18.07 | 114 | 1319074 | 50.00 UG/L | -0.06 |
| 44) CHLOROBENZENE-d5 | 27.52 | 117 | 1181058 | 50.00 UG/L | -0.11 |
| **System Monitoring Compounds** | | | | | |
| 28) 1,2-Dichloroethane-d4 | 17.12 | 65 | 761548 | 53.32 UG/L | -0.08 |
| Spiked Amount 50.000 | Range 76 - 114 | | Recovery = 106.64% | | |
| 41) Toluene-d8 | 22.60 | 98 | 1404736 | 47.66 UG/L | -0.08 |
| Spiked Amount 50.000 | Range 88 - 110 | | Recovery = 95.32% | | |
| 58) Bromofluorobenzene | 31.62 | 95 | 1086753 | 49.28 UG/L | -0.10 |
| Spiked Amount 50.000 | Range 86 - 115 | | Recovery = 98.56% | | |
| **Target Compounds** | | | | | Qvalue |
| 2) Dichlorodifluoromethane | 6.48 | 85 | 287349 | 34.77 UG/L # | 100 |
| 3) Chloromethane | 7.10 | 50 | 403891 | 48.23 UG/L # | 100 |
| 4) VINYL CHLORIDE | 7.31 | 62 | 466132 | 50.51 UG/L # | 100 |
| 5) 1,3-Butadiene | 4.29 | 39 | 519 | 18.66 UG/L # | 100 |
| 6) Bromomethane | 8.50 | 94 | 397275 | 51.82 UG/L # | 100 |
| 7) Chloroethane | 8.66 | 64 | 310417 | 50.23 UG/L # | 100 |
| 8) Trichlorofluoromethane | 9.27 | 101 | 1002635 | 48.14 UG/L # | 100 |
| 9) Diethyl ether | 9.85 | 59 | 382695 | 55.14 UG/L # | 100 |
| 10) Acrolein | 10.16 | 56 | 242268 | 414.67 UG/L # | 100 |
| 11) Acetone | 10.28 | 43 | 214143 | 58.69 UG/L # | 100 |
| 12) Trichlorotrifluoroethane | 10.22 | 101 | 830662 | 47.47 UG/L # | 100 |
| 13) 1,1-DICHLOROETHENE | 10.68 | 96 | 369362 | 51.42 UG/L # | 100 |
| 14) Methylene Chloride | 11.75 | 84 | 406258 | 47.71 UG/L # | 28 |
| 15) Acrylonitrile | 11.93 | 53 | 766708 | 390.68 UG/L # | 100 |
| 16) Carbon Disulfide | 12.02 | 76 | 918219 | 45.04 UG/L # | 100 |
| 17) Vinyl acetate | 13.05 | 43 | 1866433 | 84.44 UG/L # | 100 |
| 18) Methyl-t-butyl ether | 12.03 | 73 | 1071044 | 49.62 UG/L # | 100 |
| 19) 1,2-Dichloroethene(trans) | 12.47 | 96 | 420214 | 48.00 UG/L # | 100 |
| 20) Diisopropyl ether | 13.03 | 45 | 2672005 | 50.91 UG/L # | 100 |
| 21) 1,1-Dichloroethane | 13.43 | 63 | 985485 | 48.24 UG/L # | 100 |
| 22) 2-Butanone | 14.32 | 43 | 205591 | 52.41 UG/L # | 100 |
| 23) Ethyl acetate | 13.05 | 43 | 1866433 | 122.02 UG/L # | 100 |
| 24) 1,2-Dichloroethene(cis) | 14.90 | 96 | 434602 | 47.90 UG/L # | 100 |
| 25) CHLOROFORM | 15.29 | 83 | 1073740 | 49.26 UG/L # | 100 |
| 26) Tetrahydrofuran | 15.82 | 42 | 345871 | 142.54 UG/L # | 100 |
| 27) Cyclohexane | 10.16 | 56 | 242268 | 58.92 UG/L # | 100 |
| 30) 1,1,1-Trichloroethane | 16.36 | 97 | 914369 | 48.58 UG/L # | 100 |
| 31) Carbon Tetrachloride | 17.09 | 117 | 705787 | 46.94 UG/L # | 100 |

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

Quantitation Report (QT Reviewed)

Data File : C:\E081597\1390E.D
Vial: 6
Acq On : 15 Aug 97 3:36
Operator: HAROLD
Sample : VSTD050 #081497
Inst : GCMS#5
Misc : CALIBRATION CHECK 8/15/97
Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 15 4:19 1997
Quant Results File: CLPVOA.RES

Quant Method : C:\HPCHEM\1\METHODS\CLPVOA.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Tue Jun 03 11:22:41 1997
Response via : Initial Calibration
DataAcq Meth : CLPVOA

| Compound | R.T. | QIon | Response | Conc Unit | Qvalue |
|---|---|---|---|---|---|
| 32) 1,2-Dichloroethane | 17.37 | 62 | 857121 | 48.75 UG/L # | 100 |
| 33) Benzene | 17.52 | 78 | 1304229 | 48.38 UG/L # | 100 |
| 34) Trichloroethene | 19.11 | 130 | 531760 | 45.69 UG/L # | 100 |
| 35) 1,2-DICHLOROPROPANE | 19.60 | 63 | 725867 | 48.90 UG/L # | 100 |
| 36) Bromodichloromethane | 20.27 | 83 | 1187099 | 48.76 UG/L # | 100 |
| 37) 1,4-Dioxane | 14.65 | 88 | 14546 | 801.34 UG/L # | 100 |
| 38) 2-Chloroethylvinylether | 20.92 | 63 | 354078 | 48.25 UG/L # | 100 |
| 39) 4-Methyl-2-Pentanone | 21.01 | 43 | 969786 | 49.98 UG/L # | [illegible] |
| 40) cis-1,3-Dichloropropene | 21.77 | 75 | 932527 | 47.36 UG/L # | [illegible] |
| 42) TOLUENE | 22.85 | 92 | 890581 | 49.22 UG/L # | 100 |
| 43) trans-1,3-Dichloropropene | 23.25 | 75 | 824530 | 47.77 UG/L # | 100 |
| 45) 2-Hexanone | 23.67 | 43 | 410274 | 47.04 UG/L # | 100 |
| 46) 1,1,2-Trichloroethane | 23.80 | 97 | 474103 | 45.20 UG/L # | 100 |
| 47) Tetrachloroethene | 24.95 | 164 | 505499 | 42.67 UG/L # | 100 |
| 48) Dibromochloromethane | 25.58 | 129 | 817246 | 45.83 UG/L # | 100 |
| 51) Chlorobenzene | 27.65 | 112 | 1137905 | 43.20 UG/L # | 100 |
| 52) ETHYLBENZENE | 27.77 | 106 | 522235 | 42.85 UG/L # | 100 |
| 53) Xylene(m,p) | 28.02 | 106 | 1121000 | 86.00 UG/L # | 100 |
| 54) Xylene(o) | 29.57 | 106 | 523378 | 43.20 UG/L # | 100 |
| 55) Styrene | 29.67 | 104 | 869150 | 44.53 UG/L # | 100 |
| 56) Bromoform | 30.92 | 173 | 636572 | 43.82 UG/L # | 100 |
| 57) 1,1,2,2-Tetrachloroethane | 31.28 | 83 | 821587 | 46.71 UG/L # | 100 |
| 59) 1,3-Dichlorobenzene | 35.12 | 146 | 814624 | 45.11 UG/L # | 100 |
| 60) 1,4-Dichlorobenzene | 35.44 | 146 | 822669 | 44.29 UG/L # | 100 |
| 61) 1,2-Dichlorobenzene | 36.56 | 146 | 732171 | 46.21 UG/L # | 100 |

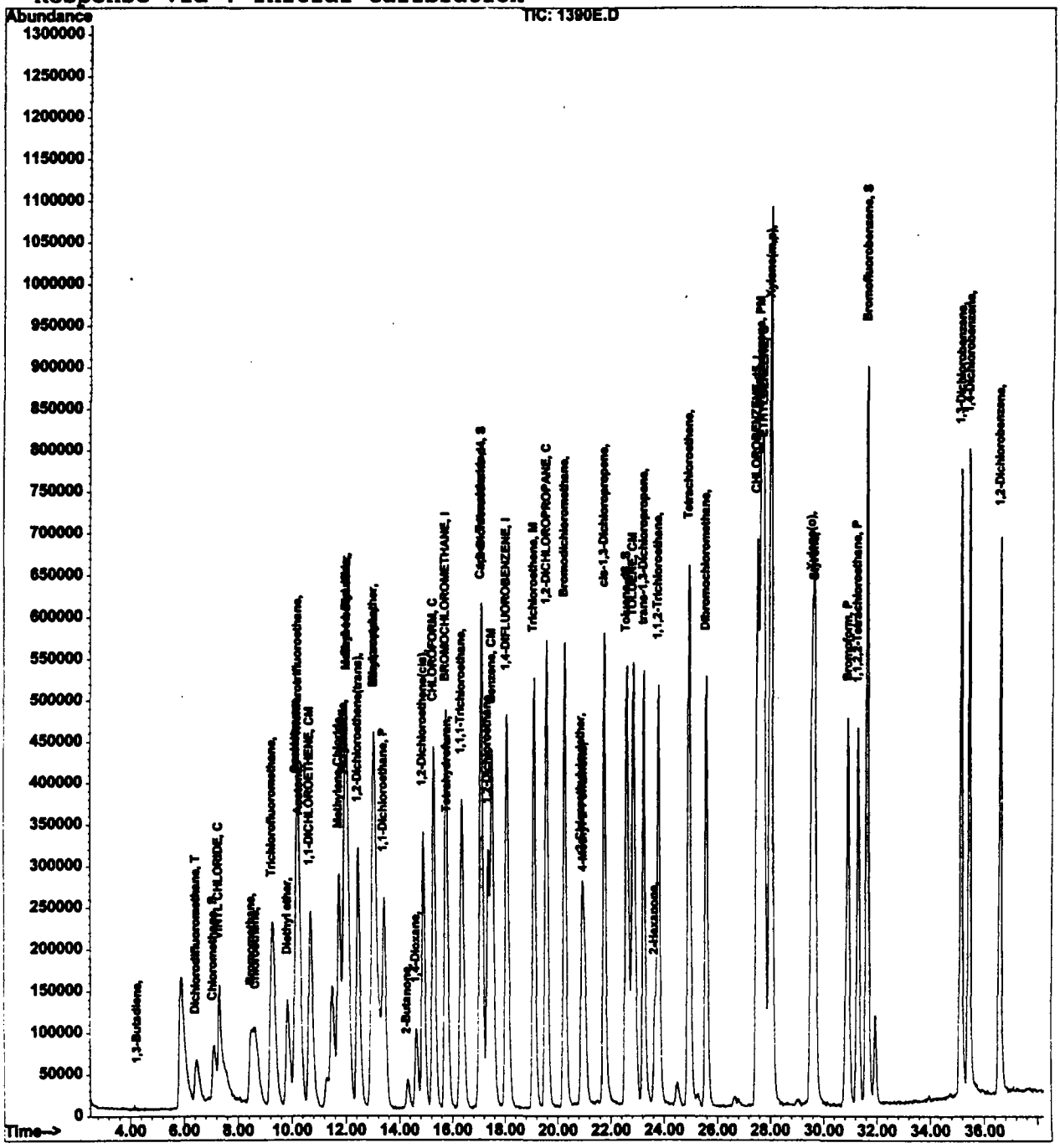
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\E081597\1390E.D
Acq On : 15 Aug 97 3:36
Sample : VSTD050 #081497
Misc : CALIBRATION CHECK 8/15/97
MS Integration Params: rteint.p
Quant Time: Aug 15 4:19 1997

Vial: 6
Operator: HAROLD
Inst : GCMS#5
Multiplr: 1.00
Quant Results File: CLPVOA.RES

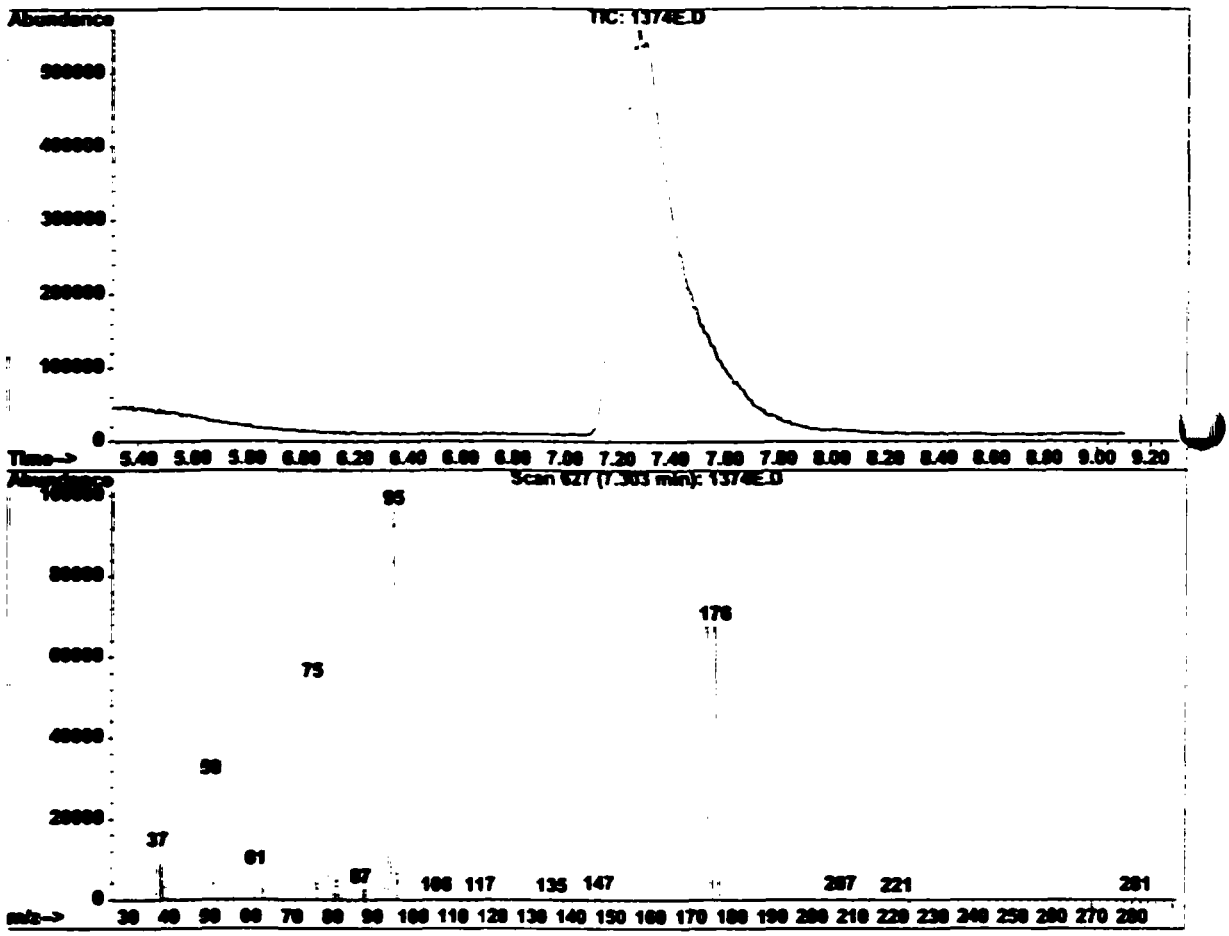
Method : C:\HPCHEM\1\METHODS\CLPVOA.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Tue Jun 03 11:22:41 1997
Response via : Initial Calibration



BFB

Data File : C:\E081497\1374E.D
Acq On : 14 Aug 97 4:38
Sample : BFB TUNE CHECK
Misc : 8/14/97
MS Integration Params: rteint.p
Method : C:\HPCHEM\1\METHODS\VOL624.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES

Vial: 5
Operator: HAROLD
Inst : GCMS#5
Multiplr: 1.00




Spectrum Information: Scan 627

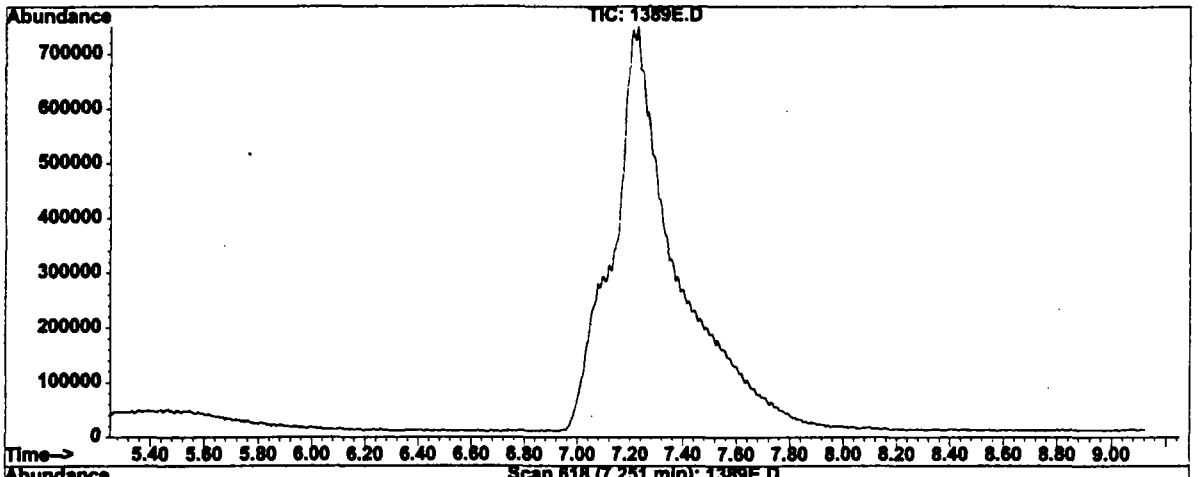
| Target Mass | Rel. to Mass | Lower Limit% | Upper Limit% | Rel. Abn% | Raw Abn | Result Pass/Fail |
|---|---|---|---|---|---|---|
| 50 | 95 | 15 | 40 | 30.8 | 29752 | PASS |
| 75 | 95 | 30 | 60 | 55.7 | 53744 | PASS |
| 95 | 95 | 100 | 100 | 100.0 | 96504 | PASS |
| 96 | 95 | 5 | 9 | 7.2 | 6985 | PASS |
| 173 | 174 | 0.00 | 2 | 0.0 | 0 | PASS |
| 174 | 95 | 50 | 100 | 70.4 | 67896 | PASS |
| 175 | 174 | 5 | 9 | 7.8 | 5324 | PASS |
| 176 | 174 | 95 | 101 | 100.0 | 67928 | PASS |
| 177 | 176 | 5 | 9 | 7.0 | 4747 | PASS |

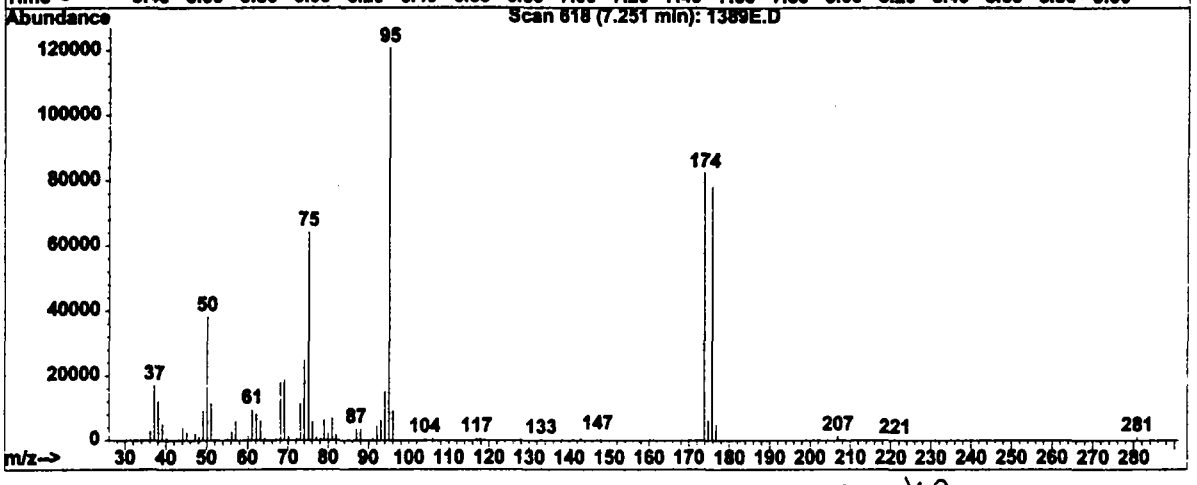
1374E.D VOL624.M Thu Aug 14 04:58:53 1997 MANAGER

BFB

Data File : C:\E081597\1389E.D
Acq On : 15 Aug 97 3:08
Sample : BFB TUNE CHECK
Misc : 8/15/97
MS Integration Params: rteint.p
Method : C:\HPCHEM\1\METHODS\CLPVOA.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES

Vial: 6
Operator: HAROLD
Inst : GCMS#5
Multiplr: 1.00




Spectrum Information: Scan 618

AL 8/20/97

| Target Mass | Rel. to Mass | Lower Limit% | Upper Limit% | Rel. Abn% | Raw Abn | Result Pass/Fail |
|---|---|---|---|---|---|---|
| 50 | 95 | 15 | 40 | 31.8 | 38416 | PASS |
| 75 | 95 | 30 | 60 | 53.3 | 64408 | PASS |
| 95 | 95 | 100 | 100 | 100.0 | 120936 | PASS |
| 96 | 95 | 5 | 9 | 7.6 | 9194 | PASS |
| 173 | 174 | 0.00 | 2 | 0.0 | 0 | PASS |
| 174 | 95 | 50 | 100 | 68.2 | 82464 | PASS |
| 175 | 174 | 5 | 9 | 7.9 | 6524 | PASS |
| 176 | 174 | 95 | 101 | 95.2 | 78536 | PASS |
| 177 | 176 | 5 | 9 | 6.6 | 5148 | PASS |

1389E.D CLPVOA.M Fri Aug 15 03:18:47 1997 MANAGER

R332164

HERITAGE

SW846-8240 MATRIX METHOD BLANK

VOLATILE ORGANICS FOR GC/MS, PACKED COLUMN TECHNIQUE

GC/MS VOA Data File: >1391E

Date/Time of Analysis: 8/15/97 4:38

| Analyte List | Result | Units | Limit |
|---|---|---|---|
| Acetone | BDL | uG/L | 20 |
| Acrolein | BDL | uG/L | 50 |
| Acrylonitrile | BDL | uG/L | 70 |
| Benzene | BDL | uG/L | 5 |
| Bromodichloromethane | BDL | uG/L | 5 |
| Bromoform | BDL | uG/L | 5 |
| Bromomethane | BDL | uG/L | 10 |
| Carbon Disulfide | BDL | uG/L | 5 |
| Carbon Tetrachloride | BDL | uG/L | 5 |
| Chlorobenzene | BDL | uG/L | 5 |
| Chloroethane | BDL | uG/L | 10 |
| Chloroform | BDL | uG/L | 5 |
| Chloromethane | BDL | uG/L | 10 |
| Dibromochloromethane | BDL | uG/L | 5 |
| Cis-1,3-Dichloropropene | BDL | uG/L | 5 |
| Dichlorodifluoromethane | BDL | uG/L | 5 |
| 1,1-Dichloroethane | BDL | uG/L | 5 |
| 1,2-Dichloroethane | BDL | uG/L | 5 |
| 1,1-Dichloroethene | BDL | uG/L | 5 |
| 1,2-Dichloropropane | BDL | uG/L | 5 |
| Ethylbenzene | BDL | uG/L | 5 |
| Fluorotrichloromethane | BDL | uG/L | 5 |
| 2-Butanone | BDL | uG/L | 10 |
| Methylene Chloride | BDL | uG/L | 5 |
| Methyl Ethyl Ketone | BDL | uG/L | 10 |
| 4-Methyl-2-Pentanone | BDL | uG/L | 10 |
| Styrene | BDL | uG/L | 5 |
| 1,1,2,2-Tetrachloroethane | BDL | uG/L | 5 |
| Tetrachloroethene | BDL | uG/L | 5 |
| Tetrahydrofuran | BDL | uG/L | 25 |
| Toluene | BDL | uG/L | 5 |
| 1,2-Dichloroethene | BDL | uG/L | 5 |
| Trans-1,3-Dichloropropene | BDL | uG/L | 5 |
| 1,1,1-Trichloroethane | BDL | uG/L | 5 |
| 1,1,2-Trichloroethane | BDL | uG/L | 5 |
| Trichloroethene | BDL | uG/L | 5 |
| Vinyl Acetate | BDL | uG/L | 10 |
| Vinyl Chloride | BDL | uG/L | 10 |
| Xylene | BDL | uG/L | 5 |

AMS 8/20/97

| Surrogate Recovery | | |
|---|---|---|
| Dichloroethane-D4 | 97 | % Recovery |
| Toluene-D8 | 99 | % Recovery |
| Bromofluorobenzene | 94 | % Recovery |

Note: On this instrument, packed column has been replaced by capillary column with 8240 criteria.

Quantitation Report (Not Reviewed)

Data File : C:\E081597\1391E.D
Acq On : 15 Aug 97 4:38
Sample : VBLK
Misc : 8/15/97
MS Integration Params: rteint.p
Quant Time: Aug 15 5:24 1997

Vial: 6
Operator: HAROLD
Inst : GCMS#5
Multiplr: 1.00
Quant Results File: CLPVOA.RES

Quant Method : C:\HPCHEM\1\METHODS\CLPVOA.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Tue Jun 03 11:22:41 1997
Response via : Initial Calibration
DataAcq Meth : CLPVOA

| Internal Standards | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| 1) BROMOCHLOROMETHANE | 15.76 | 128 | 304254 | 50.00 UG/L | -0.06 |
| 29) 1,4-DIFLUOROBENZENE | 18.08 | 114 | 1272872 | 50.00 UG/L | -0.05 |
| 44) CHLOROBENZENE-d5 | 27.53 | 117 | 1091346 | 50.00 UG/L | -0.09 |

System Monitoring Compounds

| | | | | | |
|---|---|---|---|---|---|
| 28) 1,2-Dichloroethane-d4 | 17.13 | 65 | 700984 | 48.59 UG/L | -0.06 |
| Spiked Amount 50.000 | Range 76 - 114 | | Recovery = 97.18% | | |
| 41) Toluene-d8 | 22.60 | 98 | 1402918 | 49.33 UG/L | -0.08 |
| Spiked Amount 50.000 | Range 88 - 110 | | Recovery = 98.66% | | |
| 58) Bromofluorobenzene | 31.62 | 95 | 955112 | 46.87 UG/L | -0.10 |
| Spiked Amount 50.000 | Range 86 - 115 | | Recovery = 93.74% | | |

Target Compounds

| | | | | | Qvalue |
|---|---|---|---|---|---|
| ~~5) 1,3-Butadiene~~ NT | 4.31 | 39 | 555 | ~~19.75 UG/L~~ | # 100 |

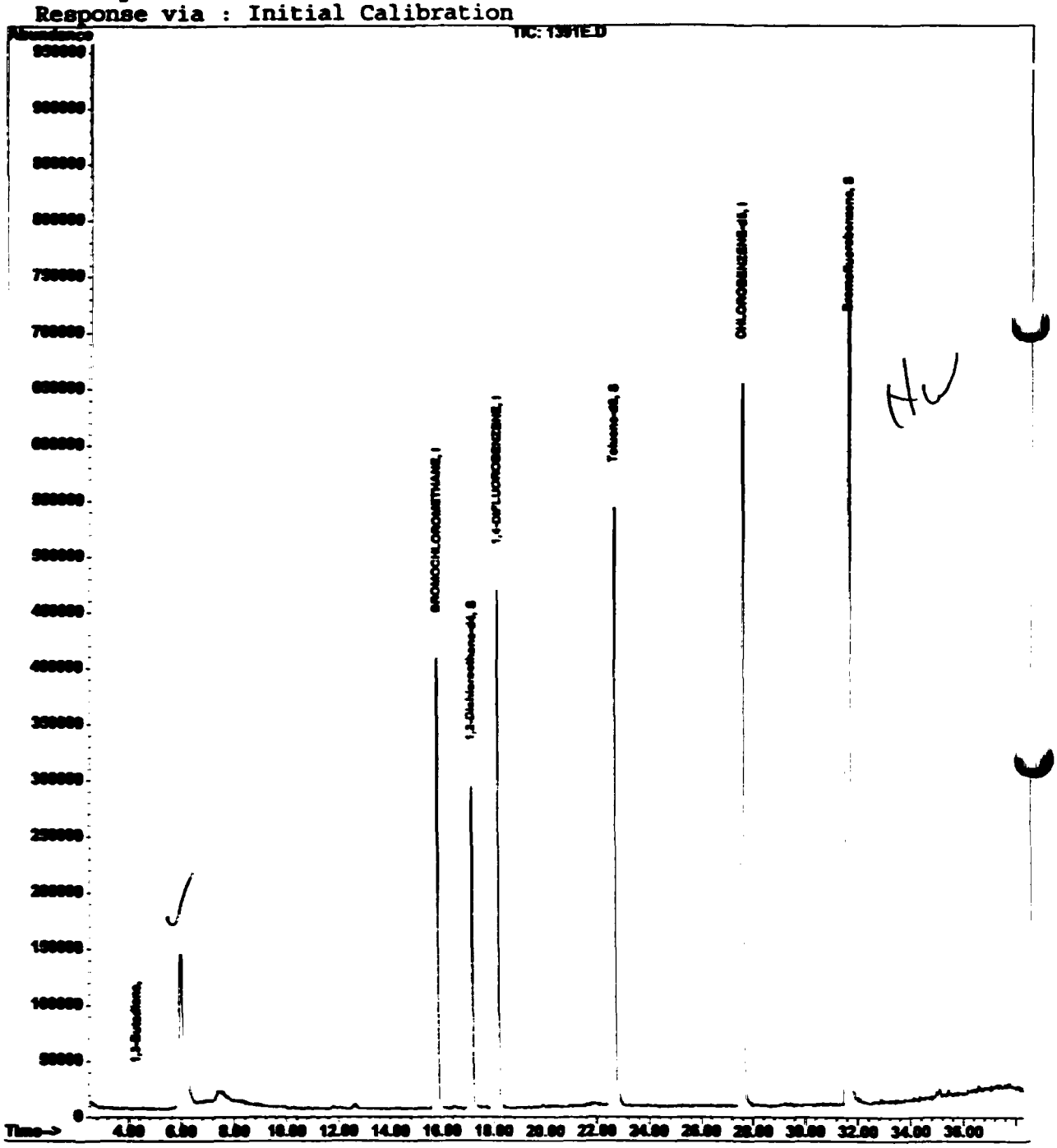
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\E081597\1391E.D
Acq On : 15 Aug 97 4:38
Sample : VBLK
Misc : 8/15/97
MS Integration Params: rteint.p
Quant Time: Aug 15 5:24 1997

Vial: 6
Operator: HAROLD
Inst : GCMS#5
Multiplr: 1.00
Quant Results File: CLPVOA.RES

Method : C:\HPCHEM\1\METHODS\CLPVOA.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Tue Jun 03 11:22:41 1997
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\E081597\1392E.D
Acq On : 15 Aug 97 5:42
Sample : DI MS
Misc :
MS Integration Params: rteint.p
Quant Time: Aug 15 6:22 1997

Vial: 6
Operator: HAROLD
Inst : GCMS#5
Multiplr: 1.00
Quant Results File: CLPVOA.RES

Quant Method : C:\HPCHEM\1\METHODS\CLPVOA.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Tue Jun 03 11:22:41 1997
Response via : Initial Calibration
DataAcq Meth : CLPVOA

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) BROMOCHLOROMETHANE | 15.75 | 128 | 296567 | 50.00 | UG/L | -0.07 |
| 29) 1,4-DIFLUOROBENZENE | 18.09 | 114 | 1237329 | 50.00 | UG/L | -0.04 |
| 44) CHLOROBENZENE-d5 | 27.54 | 117 | 1142862 | 50.00 | UG/L | -0.09 |
| **System Monitoring Compounds** | | | | | | |
| 28) 1,2-Dichloroethane-d4 | 17.12 | 65 | 725038 | 51.56 | UG/L | -0.07 |
| Spiked Amount 50.000 | Range 76 - 114 | | Recovery = 103.12% | | | |
| 41) Toluene-d8 | 22.62 | 98 | 1370860 | 49.58 | UG/L | -0.06 |
| Spiked Amount 50.000 | Range 88 - 110 | | Recovery = 99.16% | | | |
| 58) Bromofluorobenzene | 31.62 | 95 | 985065 | 46.16 | UG/L | -0.10 |
| Spiked Amount 50.000 | Range 86 - 115 | | Recovery = 92.32% | | | |

| Target Compounds | | | | | | Qvalue |
|---|---|---|---|---|---|---|
| 2) Dichlorodifluoromethane | 6.50 | 85 | 60524 | 7.44 | UG/L # | 100 |
| 3) Chloromethane | 7.15 | 50 | 114454 | 13.88 | UG/L # | 100 |
| 4) VINYL CHLORIDE | 7.33 | 62 | 145863 | 16.05 | UG/L # | 100 |
| 5) 1,3-Butadiene | 3.87 | 39 | 448 | 16.36 | UG/L # | 100 |
| 6) Bromomethane | 8.50 | 94 | 126637 | 16.78 | UG/L # | 100 |
| 7) Chloroethane | 8.67 | 64 | 99917 | 16.42 | UG/L # | 100 |
| 8) Trichlorofluoromethane | 9.29 | 101 | 347172 | 16.93 | UG/L # | 100 |
| 9) Diethyl ether | 9.87 | 59 | 130973 | 19.17 | UG/L # | 100 |
| 10) Acrolein | 10.18 | 56 | 89676 | 155.90 | UG/L # | 100 |
| 11) Acetone | 10.32 | 43 | 59977 | 16.70 | UG/L # | 100 |
| 12) Trichlorotrifluoroethane | 10.23 | 101 | 290750 | 16.88 | UG/L # | 100 |
| 13) 1,1-DICHLOROETHENE | 10.72 | 96 | 124112 | 17.55 | UG/L # | 100 |
| 14) Methylene Chloride | 11.77 | 84 | 161626 | 19.28 | UG/L # | 28 |
| 15) Acrylonitrile | 11.95 | 53 | 408157 | 211.24 | UG/L # | 100 |
| 16) Carbon Disulfide | 12.02 | 76 | 367881 | 18.33 | UG/L # | 100 |
| 17) Vinyl acetate | 13.05 | 43 | 696915 | 32.03 | UG/L # | 100 |
| 18) Methyl-t-butyl ether | 12.07 | 73 | 426529 | 20.07 | UG/L # | 100 |
| 19) 1,2-Dichloroethene(trans) | 12.47 | 96 | 156606 | 18.17 | UG/L # | 100 |
| 20) Diisopropyl ether | 13.05 | 45 | 998332 | 19.32 | UG/L # | 100 |
| 21) 1,1-Dichloroethane | 13.44 | 63 | 393440 | 19.56 | UG/L # | 100 |
| 22) 2-Butanone | 14.31 | 43 | 73439 | 19.01 | UG/L # | 100 |
| 23) Ethyl acetate | 13.05 | 43 | 696915 | 46.27 | UG/L # | 100 |
| 24) 1,2-Dichloroethene(cis) | 14.92 | 96 | 174501 | 19.53 | UG/L # | 100 |
| 25) CHLOROFORM | 15.31 | 83 | 429531 | 20.02 | UG/L # | 100 |
| 26) Tetrahydrofuran | 15.83 | 42 | 123426 | 51.66 | UG/L # | 100 |
| 27) Cyclohexane | 10.18 | 56 | 89676 | 22.15 | UG/L # | 100 |
| 30) 1,1,1-Trichloroethane | 16.38 | 97 | 343642 | 19.46 | UG/L # | 100 |
| 31) Carbon Tetrachloride | 17.09 | 117 | 281097 | 19.93 | UG/L # | 100 |

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

Quantitation Report (Not Reviewed)

Data File : C:\E081597\1392E.D
Acq On : 15 Aug 97 5:42
Sample : DI MS
Misc :
MS Integration Params: rteint.p
Quant Time: Aug 15 6:22 1997

Vial: 6
Operator: HAROLD
Inst : GCMS#5
Multiplr: 1.00
Quant Results File: CLPVOA.RES

Quant Method : C:\HPCHEM\1\METHODS\CLPVOA.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Tue Jun 03 11:22:41 1997
Response via : Initial Calibration
DataAcq Meth : CLPVOA

| Compound | R.T. | QIon | Response | Conc Unit | Qvalue |
|---|---|---|---|---|---|
| 32) 1,2-Dichloroethane | 17.36 | 62 | 330085 | 20.01 UG/L # | 100 |
| 33) Benzene | 17.52 | 78 | 469977 | 18.58 UG/L # | 100 |
| 34) Trichloroethene | 19.13 | 130 | 220061 | 20.16 UG/L # | 100 |
| 35) 1,2-DICHLOROPROPANE | 19.59 | 63 | 277797 | 19.95 UG/L # | 100 |
| 36) Bromodichloromethane | 20.27 | 83 | 435530 | 19.07 UG/L # | 100 |
| 37) 1,4-Dioxane | 14.70 | 88 | 988 | 58.02 UG/L # | 100 |
| 38) 2-Chloroethylvinylether | 20.92 | 63 | 128264 | 18.63 UG/L # | 100 |
| 39) 4-Methyl-2-Pentanone | 21.00 | 43 | 350737 | 19.27 UG/L # | |
| 40) cis-1,3-Dichloropropene | 21.76 | 75 | 339830 | 18.40 UG/L # | 100 |
| 42) TOLUENE | 22.87 | 92 | 343783 | 20.25 UG/L # | 100 |
| 43) trans-1,3-Dichloropropene | 23.27 | 75 | 309808 | 19.14 UG/L # | 100 |
| 45) 2-Hexanone | 23.69 | 43 | 149407 | 17.70 UG/L # | 100 |
| 46) 1,1,2-Trichloroethane | 23.81 | 97 | 187540 | 18.48 UG/L # | 100 |
| 47) Tetrachloroethene | 24.97 | 164 | 205710 | 17.94 UG/L # | 100 |
| 48) Dibromochloromethane | 25.62 | 129 | 328336 | 19.03 UG/L # | 100 |
| 51) Chlorobenzene | 27.67 | 112 | 451661 | 17.72 UG/L # | 100 |
| 52) ETHYLBENZENE | 27.79 | 106 | 202619 | 17.18 UG/L # | 100 |
| 53) Xylene(m,p) | 28.03 | 106 | 424277 | 33.64 UG/L # | 100 |
| 54) Xylene(o) | 29.59 | 106 | 217875 | 18.59 UG/L # | 100 |
| 55) Styrene | 29.68 | 104 | 332278 | 17.59 UG/L # | 100 |
| 56) Bromoform | 30.91 | 173 | 232390 | 16.53 UG/L # | 100 |
| 57) 1,1,2,2-Tetrachloroethane | 31.28 | 83 | 306230 | 17.99 UG/L # | 100 |
| 59) 1,3-Dichlorobenzene | 35.13 | 146 | 280314 | 16.04 UG/L # | 100 |
| 60) 1,4-Dichlorobenzene | 35.42 | 146 | 286188 | 15.92 UG/L # | 100 |
| 61) 1,2-Dichlorobenzene | 36.57 | 146 | 263163 | 17.16 UG/L # | 100 |

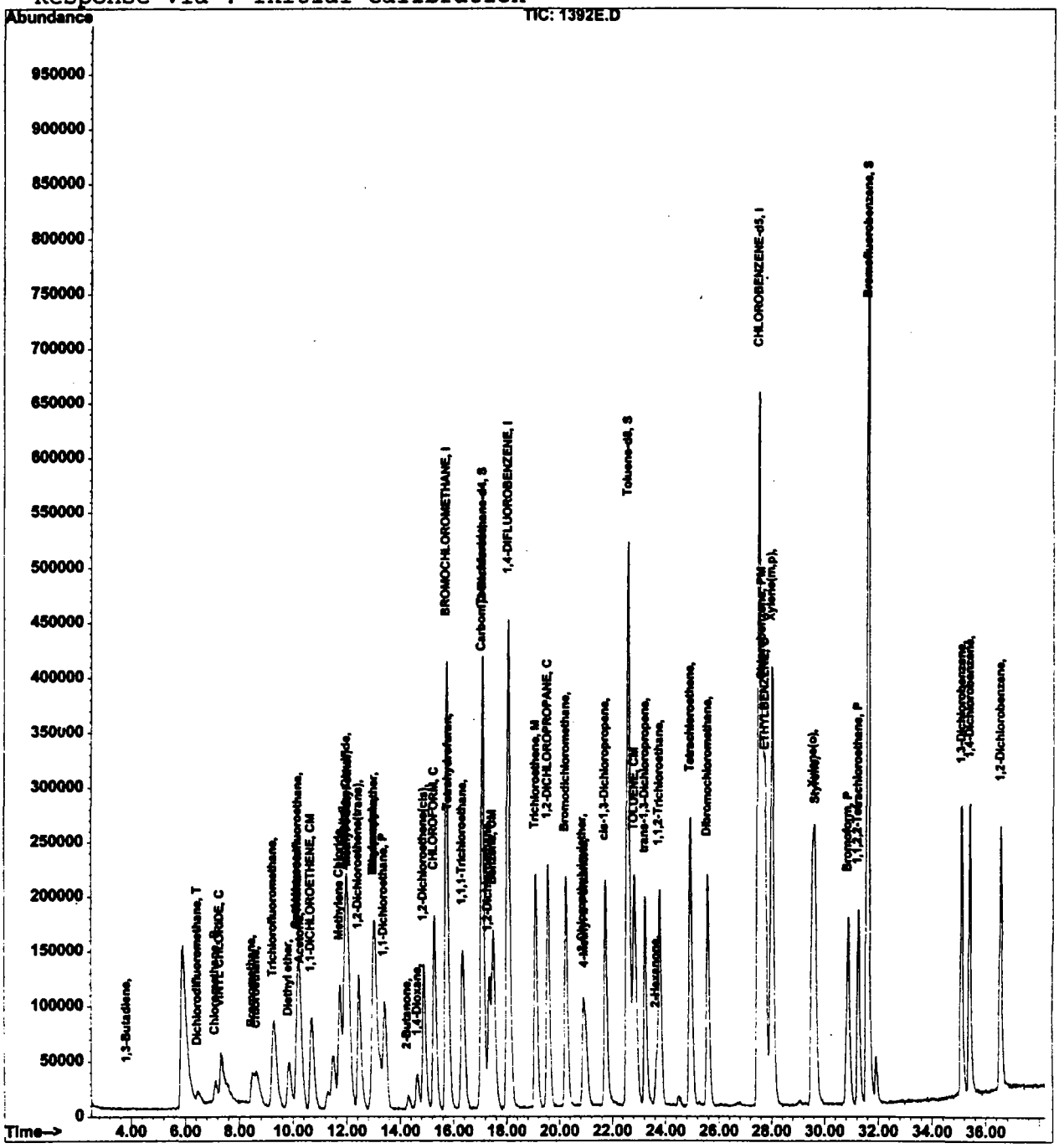
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\E081597\1392E.D
Acq On : 15 Aug 97 5:42
Sample : DI MS
Misc :
MS Integration Params: rteint.p
Quant Time: Aug 15 6:22 1997

Vial: 6
Operator: HAROLD
Inst : GCMS#5
Multiplr: 1.00
Quant Results File: CLPVOA.RES

Method : C:\HPCHEM\1\METHODS\CLPVOA.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Tue Jun 03 11:22:41 1997
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\E081597\1396E.D
Acq On : 15 Aug 97 8:56
Sample : A416936 MS
Misc :
MS Integration Params: rteint.p
Quant Time: Aug 15 9:35 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#5
Multiplr: 1.00
Quant Results File: CLPVOA.RES

1394E

Quant Method : C:\HPCHEM\1\METHODS\CLPVOA.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Tue Jun 03 11:22:41 1997
Response via : Initial Calibration
DataAcq Meth : CLPVOA

| Internal Standards | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| 1) BROMOCHLOROMETHANE | 15.77 | 128 | 323685 | 50.00 UG/L | -0.06 |
| 29) 1,4-DIFLUOROBENZENE | 18.08 | 114 | 1338051 | 50.00 UG/L | -0.05 |
| 44) CHLOROBENZENE-d5 | 27.53 | 117 | 1166987 | 50.00 UG/L | -0.09 |
| **System Monitoring Compounds** | | | | | |
| 28) 1,2-Dichloroethane-d4 | 17.12 | 65 | 787890 | 51.33 UG/L | -0.07 |
| Spiked Amount 50.000 | Range 76 - 114 | | Recovery = 102.66% | | |
| 41) Toluene-d8 | 22.60 | 98 | 1466225 | 49.04 UG/L | -0. |
| Spiked Amount 50.000 | Range 88 - 110 | | Recovery = 98.08% | | |
| 58) Bromofluorobenzene | 31.62 | 95 | 1102965 | 50.62 UG/L | -0.10 |
| Spiked Amount 50.000 | Range 86 - 115 | | Recovery = 101.24% | | |
| **Target Compounds** | | | | | Qvalue |
| 2) Dichlorodifluoromethane | 6.44 | 85 | 114193 | 12.86 UG/L # | 100 |
| 3) Chloromethane | 7.12 | 50 | 237748 | 26.42 UG/L # | 100 |
| 4) VINYL CHLORIDE | 7.30 | 62 | 358514 | 36.15 UG/L # | 100 |
| 5) 1,3-Butadiene | 4.22 | 39 | 540 | 18.06 UG/L # | 100 |
| 6) Bromomethane | 8.49 | 94 | 268006 | 32.53 UG/L # | 100 |
| 7) Chloroethane | 8.66 | 64 | 238431 | 35.90 UG/L # | 100 |
| 8) Trichlorofluoromethane | 9.26 | 101 | 787898 | 35.20 UG/L # | 100 |
| 9) Diethyl ether | 9.84 | 59 | 314097 | 42.11 UG/L # | 100 |
| 10) Acrolein | 10.15 | 56 | 220134 | 350.64 UG/L # | 100 |
| 11) Acetone | 10.27 | 43 | 136178 | 34.73 UG/L # | 100 |
| 12) Trichlorotrifluoroethane | 10.19 | 101 | 727083 | 38.67 UG/L # | 100 |
| 13) 1,1-DICHLOROETHENE | 10.68 | 96 | 309692 | 40.12 UG/L # | 100 |
| 14) Methylene Chloride | 11.75 | 84 | 392170 | 42.86 UG/L # | 3 |
| 15) Acrylonitrile | 11.93 | 53 | 745108 | 353.32 UG/L # | 1 |
| 16) Carbon Disulfide | 12.02 | 76 | 917553 | 41.88 UG/L # | 100 |
| 17) Vinyl acetate | 13.03 | 43 | 1153899 | 48.58 UG/L # | 100 |
| 18) Methyl-t-butyl ether | 12.07 | 73 | 1022923 | 44.10 UG/L # | 100 |
| 19) 1,2-Dichloroethene(trans) | 12.45 | 96 | 382609 | 40.67 UG/L # | 100 |
| 20) Diisopropyl ether | 13.03 | 45 | 2448019 | 43.40 UG/L # | 100 |
| 21) 1,1-Dichloroethane | 13.43 | 63 | 1007513 | 45.89 UG/L # | 100 |
| 22) 2-Butanone | 14.32 | 43 | 180206 | 42.75 UG/L # | 100 |
| 23) Ethyl acetate | 13.27 | 43 | 724749 | 44.09 UG/L # | 100 |
| 24) 1,2-Dichloroethene(cis) | 14.90 | 96 | 437008 | 44.82 UG/L # | 100 |
| 25) CHLOROFORM | 15.29 | 83 | 1059488 | 45.23 UG/L # | 100 |
| 26) Tetrahydrofuran | 15.81 | 42 | 292397 | 112.14 UG/L # | 100 |
| 27) Cyclohexane | 0.15 | 56 | 220134 | 49.82 UG/L # | 100 |
| 30) 1,1,1-Trichloroethane | 16.37 | 97 | 857833 | 44.93 UG/L # | 100 |
| 31) Carbon Tetrachloride | 17.09 | 117 | 697329 | 45.72 UG/L # | 100 |

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

Quantitation Report (Not Reviewed)

Data File : C:\E081597\1396E.D
Acq On : 15 Aug 97 8:56
Sample : A416936 MS
Misc :
MS Integration Params: rteint.p
Quant Time: Aug 15 9:35 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#5
Multiplr: 1.00
Quant Results File: CLPVOA.RES

Quant Method : C:\HPCHEM\1\METHODS\CLPVOA.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Tue Jun 03 11:22:41 1997
Response via : Initial Calibration
DataAcq Meth : CLPVOA

| Compound | R.T. | QIon | Response | Conc Unit | Qvalue |
|---|---|---|---|---|---|
| 32) 1,2-Dichloroethane | 17.36 | 62 | 822993 | 46.14 UG/L # | 100 |
| 33) Benzene | 17.52 | 78 | 1121332 | 41.00 UG/L # | 100 |
| 34) Trichloroethene | 19.12 | 130 | 526551 | 44.60 UG/L # | 100 |
| 35) 1,2-DICHLOROPROPANE | 19.58 | 63 | 693427 | 46.05 UG/L # | 100 |
| 36) Bromodichloromethane | 20.27 | 83 | 1082448 | 43.83 UG/L # | 100 |
| 37) 1,4-Dioxane | 14.67 | 88 | 12266 | 666.15 UG/L # | 100 |
| 39) 4-Methyl-2-Pentanone | 21.03 | 43 | 530860 | 26.97 UG/L # | 100 |
| 40) cis-1,3-Dichloropropene | 21.75 | 75 | 841964 | 42.15 UG/L # | 100 |
| 42) TOLUENE | 22.87 | 92 | 802536 | 43.72 UG/L # | 100 |
| 43) trans-1,3-Dichloropropene | 23.25 | 75 | 758636 | 43.33 UG/L # | 100 |
| 45) 2-Hexanone | 23.67 | 43 | 372345 | 43.21 UG/L # | 100 |
| 46) 1,1,2-Trichloroethane | 23.80 | 97 | 454246 | 43.83 UG/L # | 100 |
| 47) Tetrachloroethene | 24.96 | 164 | 484668 | 41.40 UG/L # | 100 |
| 48) Dibromochloromethane | 25.60 | 129 | 767340 | 43.55 UG/L # | 100 |
| 51) Chlorobenzene | 27.65 | 112 | 1089880 | 41.87 UG/L # | 100 |
| 52) ETHYLBENZENE | 27.76 | 106 | 489469 | 40.64 UG/L # | 100 |
| 53) Xylene(m,p) | 28.02 | 106 | 1148911 | 89.20 UG/L # | 100 |
| 54) Xylene(o) | 29.55 | 106 | 561289 | 46.89 UG/L # | 100 |
| 55) Styrene | 29.66 | 104 | 888096 | 46.05 UG/L # | 100 |
| 56) Bromoform | 30.91 | 173 | 582103 | 40.56 UG/L # | 100 |
| 57) 1,1,2,2-Tetrachloroethane | 31.29 | 83 | 731217 | 42.08 UG/L # | 100 |
| 59) 1,3-Dichlorobenzene | 35.12 | 146 | 779209 | 43.67 UG/L # | 100 |
| 60) 1,4-Dichlorobenzene | 35.42 | 146 | 759840 | 41.40 UG/L # | 100 |
| 61) 1,2-Dichlorobenzene | 36.58 | 146 | 677190 | 43.26 UG/L # | 100 |

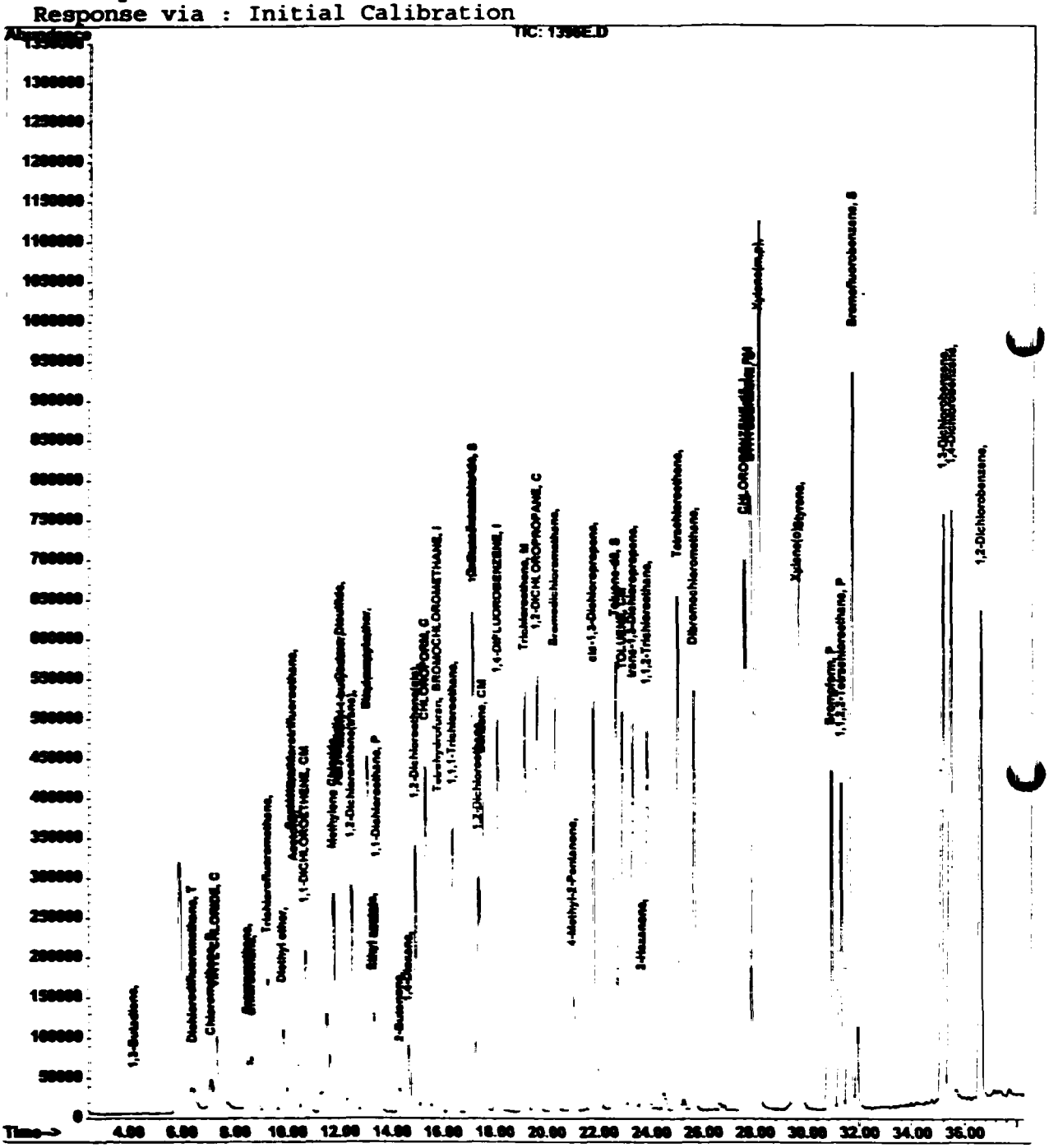
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\E081597\1396E.D
Acq On : 15 Aug 97 8:56
Sample : A416936 MS
Misc :
MS Integration Params: rteint.p
Quant Time: Aug 15 9:35 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#5
Multiplr: 1.00
Quant Results File: CLPVOA.RES

Method : C:\HPCHEM\1\METHODS\CLPVOA.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Tue Jun 03 11:22:41 1997
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\E081597\1397E.D
Acq On : 15 Aug 97 9:42
Sample : A416936 MSD
Misc :
MS Integration Params: rteint.p
Quant Time: Aug 15 10:20 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#5
Multiplr: 1.00
Quant Results File: CLPVOA.RES

Quant Method : C:\HPCHEM\1\METHODS\CLPVOA.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Tue Jun 03 11:22:41 1997
Response via : Initial Calibration
DataAcq Meth : CLPVOA

| Internal Standards | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| 1) BROMOCHLOROMETHANE | 15.77 | 128 | 315280 | 50.00 UG/L | -0.05 |
| 29) 1,4-DIFLUOROBENZENE | 18.12 | 114 | 1354628 | 50.00 UG/L | -0.02 |
| 44) CHLOROBENZENE-d5 | 27.53 | 117 | 1101563 | 50.00 UG/L | -0.09 |
| **System Monitoring Compounds** | | | | | |
| 28) 1,2-Dichloroethane-d4 | 17.12 | 65 | 679314 | 45.44 UG/L | -0.07 |
| Spiked Amount 50.000 | Range 76 - 114 | | Recovery = 90.88% | | |
| 41) Toluene-d8 | 22.63 | 98 | 1403006 | 46.35 UG/L | -0.04 |
| Spiked Amount 50.000 | Range 88 - 110 | | Recovery = 92.70% | | |
| 58) Bromofluorobenzene | 31.64 | 95 | 952605 | 46.32 UG/L | -0.08 |
| Spiked Amount 50.000 | Range 86 - 115 | | Recovery = 92.64% | | |
| **Target Compounds** | | | | | Qvalue |
| 2) Dichlorodifluoromethane | 6.44 | 85 | 105633 | 12.21 UG/L # | 100 |
| 3) Chloromethane | 7.11 | 50 | 259360 | 29.59 UG/L # | 100 |
| 4) VINYL CHLORIDE | 7.30 | 62 | 358849 | 37.15 UG/L # | 100 |
| 6) Bromomethane | 8.47 | 94 | 258427 | 32.21 UG/L # | 100 |
| 7) Chloroethane | 8.64 | 64 | 255727 | 39.53 UG/L # | 100 |
| 8) Trichlorofluoromethane | 9.28 | 101 | 778739 | 35.72 UG/L # | 100 |
| 9) Diethyl ether | 9.84 | 59 | 310503 | 42.74 UG/L # | 100 |
| 10) Acrolein | 10.17 | 56 | 147870 | 241.81 UG/L # | 100 |
| 11) Acetone | 10.29 | 43 | 139941 | 36.64 UG/L # | 100 |
| 12) Trichlorotrifluoroethane | 10.21 | 101 | 740267 | 40.42 UG/L # | 100 |
| 13) 1,1-DICHLOROETHENE | 10.67 | 96 | 317635 | 42.25 UG/L # | 100 |
| 14) Methylene Chloride | 11.76 | 84 | 364938 | 40.94 UG/L # | 28 |
| 15) Acrylonitrile | 11.95 | 53 | 501867 | 244.32 UG/L # | 100 |
| 16) Carbon Disulfide | 12.01 | 76 | 893324 | 41.87 UG/L # | 100 |
| 17) Vinyl acetate | 13.08 | 43 | 1861718 | 80.47 UG/L # | 100 |
| 18) Methyl-t-butyl ether | 12.07 | 73 | 992785 | 43.94 UG/L # | 100 |
| 19) 1,2-Dichloroethene(trans) | 12.47 | 96 | 391407 | 42.71 UG/L # | 100 |
| 20) Diisopropyl ether | 13.05 | 45 | 2608982 | 47.49 UG/L # | 100 |
| 21) 1,1-Dichloroethane | 13.44 | 63 | 1019345 | 47.67 UG/L # | 100 |
| 22) 2-Butanone | 14.33 | 43 | 186650 | 45.46 UG/L # | 100 |
| 23) Ethyl acetate | 13.08 | 43 | 1861718 | 116.28 UG/L # | 100 |
| 24) 1,2-Dichloroethene(cis) | 14.92 | 96 | 424503 | 44.70 UG/L # | 100 |
| 25) CHLOROFORM | 15.31 | 83 | 987638 | 43.29 UG/L # | 100 |
| 26) Tetrahydrofuran | 15.84 | 42 | 290139 | 114.24 UG/L # | 100 |
| 27) Cyclohexane | 10.17 | 56 | 147870 | 34.36 UG/L # | 100 |
| 30) 1,1,1-Trichloroethane | 16.38 | 97 | 823681 | 42.61 UG/L # | 100 |
| 31) Carbon Tetrachloride | 17.11 | 117 | 612832 | 39.69 UG/L # | 100 |
| 32) 1,2-Dichloroethane | 17.37 | 62 | 806359 | 44.65 UG/L # | 100 |

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

Quantitation Report (Not Reviewed)

Data File : C:\E081597\1397E.D
Acq On : 15 Aug 97 9:42
Sample : A416936 MSD
Misc :
MS Integration Params: rteint.p
Quant Time: Aug 15 10:20 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#5
Multiplr: 1.00
Quant Results File: CLPVOA.RES

Quant Method : C:\HPCHEM\1\METHODS\CLPVOA.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Tue Jun 03 11:22:41 1997
Response via : Initial Calibration
DataAcq Meth : CLPVOA

| Compound | R.T. | QIon | Response | Conc Unit | Qvalue |
|---|---|---|---|---|---|
| 33) Benzene | 17.54 | 78 | 1116830 | 40.34 UG/L # | 100 |
| 34) Trichloroethene | 19.13 | 130 | 481604 | 40.29 UG/L # | 100 |
| 35) 1,2-DICHLOROPROPANE | 19.60 | 63 | 706850 | 46.37 UG/L # | 100 |
| 36) Bromodichloromethane | 20.28 | 83 | 1029929 | 41.19 UG/L # | 100 |
| 37) 1,4-Dioxane | 14.65 | 88 | 12471 | 669.00 UG/L # | 100 |
| 39) 4-Methyl-2-Pentanone | 21.04 | 43 | 547055 | 27.45 UG/L # | 100 |
| 40) cis-1,3-Dichloropropene | 21.77 | 75 | 878838 | 43.46 UG/L # | 100 |
| 42) TOLUENE | 22.88 | 92 | 744120 | 40.04 UG/L # | 100 |
| 43) trans-1,3-Dichloropropene | 23.26 | 75 | 752491 | 42.45 UG/L # | [illegible] |
| 45) 2-Hexanone | 23.69 | 43 | 363015 | 44.63 UG/L # | 100 |
| 46) 1,1,2-Trichloroethane | 23.82 | 97 | 443868 | 45.37 UG/L # | 100 |
| 47) Tetrachloroethene | 24.96 | 164 | 479895 | 43.43 UG/L # | 100 |
| 48) Dibromochloromethane | 25.60 | 129 | 674288 | 40.54 UG/L # | 100 |
| 51) Chlorobenzene | 27.68 | 112 | 1051016 | 42.78 UG/L # | 100 |
| 52) ETHYLBENZENE | 27.79 | 106 | 437864 | 38.52 UG/L # | 100 |
| 53) Xylene(m,p) | 28.03 | 106 | 968328 | 79.64 UG/L # | 100 |
| 54) Xylene(o) | 29.59 | 106 | 456532 | 40.40 UG/L # | 100 |
| 55) Styrene | 29.69 | 104 | 693625 | 38.10 UG/L # | 100 |
| 56) Bromoform | 30.94 | 173 | 541565 | 39.97 UG/L # | 100 |
| 57) 1,1,2,2-Tetrachloroethane | 31.31 | 83 | 678871 | 41.38 UG/L # | 100 |
| 59) 1,3-Dichlorobenzene | 35.13 | 146 | 602783 | 35.79 UG/L # | 100 |
| 60) 1,4-Dichlorobenzene | 35.44 | 146 | 607724 | 35.08 UG/L # | 100 |
| 61) 1,2-Dichlorobenzene | 36.58 | 146 | 477951 | 32.34 UG/L # | 100 |

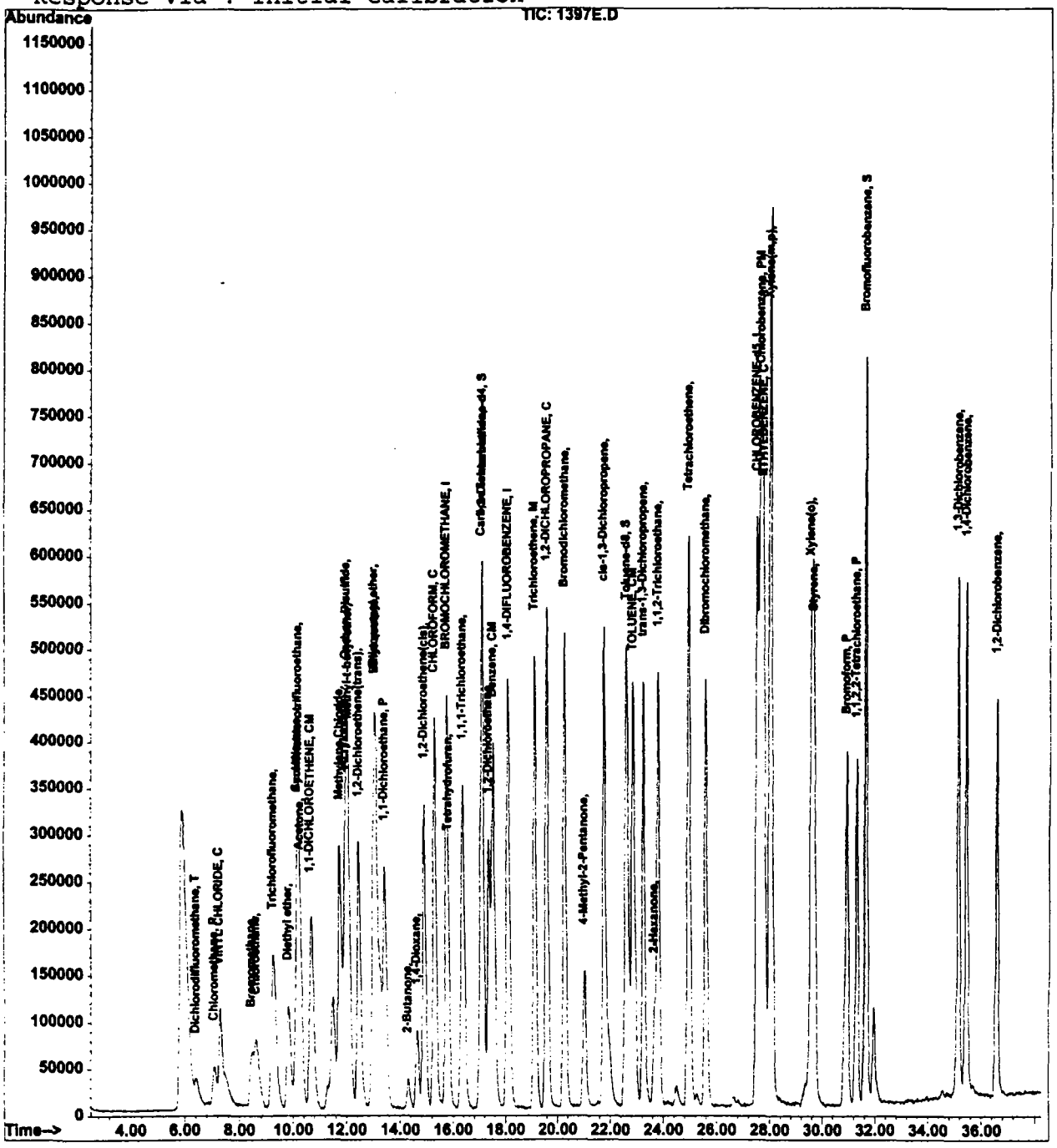
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\E081597\1397E.D
Acq On : 15 Aug 97 9:42
Sample : A416936 MSD
Misc :
MS Integration Params: rteint.p
Quant Time: Aug 15 10:20 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#5
Multiplr: 1.00
Quant Results File: CLPVOA.RES

Method : C:\HPCHEM\1\METHODS\CLPVOA.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Tue Jun 03 11:22:41 1997
Response via : Initial Calibration



**HERITAGE ENVIRONMENTAL SERVICES, INC.**

7901 West Morris Street
Indianapolis, IN 46231
Phone: 317/243-0811
FAX: 317/486-5085

CASE NARRATIVE
GC/MS ~~SEMI~~ VOLATILES
SW-846 8240B
SAMPLES A417040-041
8/25/97

There were no QC problems encountered in the analysis of these samples.

Anne Bradburn
Anne Bradburn
GC/MS Group Leader

2A

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: HERITAGE LABS Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument #: GCMS #3 Date Analyzed : 19-Aug-97

| | EPA SAMPLE NO. | SMC1 # | SMC2 # | SMC3 # | TOT OUT |
|---|---|---|---|---|---|
| 01 | VBLK01 | 114* | 106 | 104 | 1 |
| 02 | DI MS | 123* | 107 | 108 | 1 |
| 03 | A416939 | 113 | 108 | 103 | 0 |
| 04 | A416940 | 113 | 108 | 105 | 0 |
| 05 | A416970 | 130* | 104 | 104 | 1 |
| 06 | A417040 | 113 | 108 | 101 | 0 |
| 07 | A417041 | 114 | 106 | 105 | 0 |
| 08 | A417040 MS | 121* | 105 | 107 | 1 |
| 09 | A417040 MSD | 123* | 105 | 105 | 1 |

| | | | QC LIMITS |
|---|---|---|---|
| SMC1 | = | 1,2-Dichloroethane-d4 | (76-114) |
| SMC2 | = | Toluene-d8 | (88-110) |
| SMC3 | = | Bromofluorobenzene | (86-115) |

# Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out



1

Enter All R332388

QC Std# 206
Method # 186

Heritage Environmental Services, Indianapolis
LCS01 Volatile QC Report-EPA Method 8240
Water

AMB 8/21/97

LCS Data File : 1642C.
LCS Date/Time : 081997 06:49

Spike Conc : 20 uG/L
Dilution Factor: 1

| Compound | Spike Conc | Spike % Rec | Min Recovery | Max Recovery * |
|---|---|---|---|---|
| Acetone | 23 | 115.0 | D | 370.9 |
| Benzene | 27.2 | 136.0 * | 73 | 122.3 |
| Bromodichloromethane | 28.1 | 140.5 * | 67 | 128.3 |
| Bromoform | 21.2 | 106.0 | 36 | 155.9 |
| Bromomethane | 23.8 | 119.0 | 33 | 166.6 |
| Carbon Disulfide | 19.2 | 96.0 | 36 | 144.2 |
| Carbon Tetrachloride | 23.7 | 118.5 | 58 | 133.2 |
| Chlorobenzene | 24.9 | 124.5 * | 74 | 121.5 |
| Chloroethane | 36.7 | 183.5 * | 29 | 149.8 |
| 2-Chloroethylvinylether | 23 | 115.0 | 15 | 168.4 |
| CHLOROFORM | ~~28.3~~ | ~~141.5~~ * 134.0 | 60 | 134.4 |
| Chloromethane | 21.2 | 106.0 | 7 | 177.5 |
| Dibromochloromethane | 23.2 | 116.0 | 59 | 135 |
| cis-1,3-Dichloropropene | 25.6 | 128.0 | 58 | 131.3 |
| Dichlorodifluoromethane | 23.6 | 118.0 * | | |
| 1,1-Dichloroethane | 28 | 140.0 * | 62 | 129.8 |
| 1,2-Dichloroethane | ~~32.5~~ | ~~162.5~~ * 148.3 * | 59 | 136.2 |
| 1,1-DICHLOROETHENE | 22.5 | 112.5 | 56 | 131.4 |
| 1,2-DICHLOROPROPANE | 27.4 | 137.0 * | 63 | 128.9 |
| ETHYLBENZENE | 24.9 | 124.5 * | 72 | 123 |
| Trichlorofluoromethane | 25.4 | 127.0 | 40 | 160.4 |
| 2-Hexanone | 24.4 | 122.0 | D | 351.7 |
| Methylene Chloride | 27.1 | 135.5 * | D | 138.2 |
| 2-Butanone | 26.4 | 132.0 | 64 | 321.3 |
| 4-Methyl-2-Pentanone | 27 | 135.0 | D | 277.8 |
| Styrene | 24.4 | 122.0 | 74 | 125.7 |
| 1,1,2,2-Tetrachloroethane | 28.1 | 140.5 | 52 | 150.5 |
| Tetrachloroethene | 22.3 | 111.5 | 64 | 130.1 |
| TOLUENE | 26.4 | 132.0 | 62 | 134.5 |
| 1,2-Dichloroethene (total) | 52.9 | 132.3 | 54 | 135.3 |
| trans-1,3-Dichloropropene | 26.1 | 130.5 | 54 | 141.6 |
| 1,1,1-Trichloroethane | 26.2 | 131.0 | 65 | 131 |
| 1,1,2-Trichloroethane | 26.3 | 131.5 | 49 | 149.2 |
| Trichloroethene | 23.4 | 117.0 | 66 | 125.3 |
| Vinyl acetate | 27.5 | 137.5 | D | 224.4 |
| VINYL CHLORIDE | 34.5 | 172.5 * | 23 | 154.9 |
| Xylene (total) | 73.5 | 122.5 | 71 | 123.8 |
| Tetrahydrofuran | 66.9 | 133.8 | D | 273.8 |
| Diethyl ether | 30.5 | 152.5 * | 47 | 143 |



2

QC Std# 208
Method # 186

Heritage Environmental Services, Indianapolis
LCS01 Volatile QC Report-EPA Method 8240
Water

LCS Data File : 1642C.
LCS Date/Time : 081997 06:49
Spike Conc : 20 uG/L
Dilution Factor: 1

| Compound | Spike Conc | Spike % Rec | Min Recovery * | Max Recovery * |
|---|---|---|---|---|
| Trichlorotrifluoroethane | 24.8 | 124.0 | D | 195 |
| Methyl-t-butyl ether | 27.5 | 137.5 | 53 | 149.3 |
| Diisopropyl ether | 28.5 | 142.5 * | 67 | 124.8 |

Notes:
* Laboratory Generated Limits (based on >20 analyses) are used as Warning Limits. Updated 4/95
# Method limits from EPA Method 624 (based on 20 uG/L spike) are used as Control Limits.
** Analyzed using SP1000 Packed Column.
Tetrahydrofuran (1) spiked at 50 uG/L
1,2-Dichloroethene (total) spiked at 40 uG/L
Co-eluting Dichlorobenzenes spiked at 40, Xylenes spiked at 60 uG/L
Laboratory limits for dichlorodifluoromethane generated starting 4/94.

R332388

3A
VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Heritage Laboratories, Inc. Contract: _____

Lab Code: EMSIN Case No.: _____ SAS No.: _____ SDG No.: _____

Sample No.: A416940 MS File: 1653C. Date/Time: 081997 14:43
MSD File: 1654C. Date/Time: 081997 15:26

| QC#: COMPOUND | SPIKE ADDED (uG/L) | SAMPLE CONCENTRATION (uG/L) | MS CONCENTRATION (uG/L) | MS % REC # | QC. LIMITS REC. |
|---|---|---|---|---|---|
| 1,1-DICHLOROETHENE | 50 | 0 | 45.5 | 91.0 | 59 - 172 |
| Trichloroethene | 50 | 0 | 47.3 | 94.6 | 62 - 137 |
| Benzene | 50 | 12 | 54.4 | 84.8 | 66 - 142 |
| TOLUENE | 50 | 7.3 | 51.6 | 88.6 | 59 - 139 |
| Chlorobenzene | 50 | 0 | 50 | 100.0 | 60 - 133 |

| QC#: COMPOUND | SPIKE ADDED (uG/L) | MSD CONCENTRATION (uG/L) | MSD % REC # | % RPD # | QC LIMITS RPD | REC. |
|---|---|---|---|---|---|---|
| 1,1-DICHLOROETHENE | 50 | 44.8 | 89.6 | 1.6 | 22 | 59 - 172 |
| Trichloroethene | 50 | 46.9 | 93.8 | 0.8 | 24 | 62 - 137 |
| Benzene | 50 | 54.4 | 84.8 | 0.0 | 21 | 66 - 142 |
| TOLUENE | 50 | 51.5 | 88.4 | 0.2 | 21 | 59 - 139 |
| Chlorobenzene | 50 | 49.2 | 98.4 | 1.6 | 21 | 60 - 133 |

CLP Limits are the Control Limits on this form.

MS 8/21/97

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

* Values outside of QC limits

RPD : 0 out of 5 outside limits
Spike Recovery : 0 out of 10 outside limits

COMMENTS: MSD out of 12hrs/

FORM III SV-1 3/90

8/28/97
8-21-97

QC Std# 208
Method # 186

Heritage Environmental Services, Indianapolis
MS/MSD Volatile QC Report-EPA Method 8240
Water

Laboratory Sample # : A416940
Data File :1648C. MS Data File : 1653C. MSD Data File : 1654C.
Date/Time : 081997 11:08 MS Date/Time : 081997 14:43 MSD Date/Time : 081997 15:26
Spike Conc : 50 uG/L
Dilution Factor: 1

| Compound | Sample Conc | Spike Conc | Spike % Rec | Spike Dup Conc | Spike Dup % Rec | RPD | Min Recovery * | Max Recovery * |
|---|---|---|---|---|---|---|---|---|
| Acetone | 48 | 92.1 | 88.2 | 96.4 | 96.8 | 9.3 | 17 | 201.3 |
| Benzene | 12 | 54.4 | 84.8 | 54.4 | 84.8 | 0.0 | 67 | 132.8 |
| Bromodichloromethane | 0 | 55.6 | 111.2 | 55.9 | 111.8 | 0.5 | 68 | 141 |
| Bromoform | 0 | 45.3 | 90.6 | 44 | 88.0 | 2.9 | 66 | 143.9 |
| Bromomethane | 0 | 50.3 | 100.6 | 49.3 | 98.6 | 2.0 | 32 | 148 |
| Carbon Disulfide | 0 | 38.3 | 76.6 | 37.2 | 74.4 | 2.9 | 43 | 144.1 |
| Carbon Tetrachloride | 0 | 47.3 | 94.6 | 47.7 | 95.4 | 0.8 | 70 | 136.3 |
| Chlorobenzene | 0 | 50 | 100.0 | 49.2 | 98.4 | 1.6 | 73 | 123.8 |
| Chloroethane | 0 | 76.3 | 152.6 * | 76.7 | 153.4 * | 0.5 | 48 | 145.3 |
| 2-Chloroethylvinylether | 0 | 0 | 0.0 # | 0 | 0.0 # | | D | 169.5 |
| CHLOROFORM | 0 | 55.5 | 111.0 | 56.3 | 112.6 | 1.4 | 62 | 142 |
| Chloromethane | 0 | 43.1 | 86.2 | 44.4 | 88.8 | 3.0 | 32 | 161.5 |
| Dibromochloromethane | 0 | 47.8 | 95.6 | 47.3 | 94.6 | 1.1 | 66 | 142.6 |
| cis-1,3-Dichloropropene | 0 | 52.4 | 104.8 | 52.7 | 105.4 | 0.6 | 63 | 132.6 |
| Dichlorodifluoromethane | 0 | 35.9 | 71.8 | 36.2 | 72.4 | 0.8 | | |
| 1,1-Dichloroethane | 0 | 55.5 | 111.0 | 56.2 | 112.4 | 1.3 | 64 | 138 |
| 1,2-Dichloroethane | 0 | 61.9 | 123.8 | 62 | 124.0 | 0.2 | 61 | 154.8 |
| 1,1-DICHLOROETHENE | 0 | 45.5 | 91.0 | 44.8 | 89.6 | 1.6 | 67 | 128.6 |
| 1,2-DICHLOROPROPANE | 0 | 57.1 | 114.2 | 57.1 | 114.2 | 0.0 | 75 | 128.9 |
| ETHYLBENZENE | 6.9 | 52.2 | 90.6 | 51.1 | 88.4 | 2.5 | 70 | 128.5 |
| Trichlorofluoromethane | 0 | 51.4 | 102.8 | 51 | 102.0 | 0.8 | 45 | 162.3 |
| 2-Hexanone | 15 | 59.2 | 88.4 | 60.7 | 91.4 | 3.3 | 28 | 192.9 |
| Methylene Chloride | 0 | 64.3 | 128.6 | 64.1 | 128.2 | 0.3 | 66 | 138.8 |
| 2-Butanone | 8.7 | 62.7 | 108.0 | 68.4 | 119.4 | 10.0 | 33 | 185.8 |
| 4-Methyl-2-Pentanone | 17 | 60 | 86.0 | 61.3 | 88.6 | 3.0 | 20 | 192.2 |
| Styrene | 0 | 50.9 | 101.8 | 49 | 98.0 | 3.8 | 60 | 139.1 |
| 1,1,2,2-Tetrachloroethane | 0 | 61.3 | 122.6 | 60.7 | 121.4 | 1.0 | 43 | 183.7 |
| Tetrachloroethene | 0 | 45.1 | 90.2 | 44.5 | 89.0 | 1.3 | 65 | 125.8 |
| TOLUENE | 7.3 | 51.6 | 88.6 | 51.5 | 88.4 | 0.2 | 62 | 137.8 |
| 1,2-Dichloroethene (total) | 0 | 104 | 104.0 | 102 | 102.0 | 1.9 | 50 | 145.2 |
| trans-1,3-Dichloropropene | 0 | 54 | 108.0 | 55 | 110.0 | 1.8 | 60 | 142.1 |
| 1,1,1-Trichloroethane | 0 | 52.7 | 105.4 | 53.1 | 106.2 | 0.8 | 68 | 138.7 |
| 1,1,2-Trichloroethane | 0 | 54.8 | 109.6 | 53.8 | 107.6 | 1.8 | 69 | 139.2 |
| Trichloroethene | 0 | 47.3 | 94.6 | 46.9 | 93.8 | 0.8 | 54 | 140.3 |
| Vinyl acetate | 9.9 | 56.4 | 93.0 | 60.1 | 100.4 | 7.7 | 4 | 191.7 |
| VINYL CHLORIDE | 0 | 41.6 | 83.2 | 43.1 | 86.2 | 3.5 | 20 | 170.3 |
| Xylene (total) | 0 | 71.7 | 47.8 | 72.5 | 48.3 | 1.0 | 66 | 132.9 |
| Tetrahydrofuran | 9.4 | 148 | 110.9 | 159 | 119.7 | 7.6 | 23 | 193.3 |
| Diethyl ether | 0 | 55.8 | 111.6 | 54.9 | 109.8 | 1.6 | 52 | 152.7 |

QC Std# 208 Heritage Environmental Services, Indianapolis
Method # 186 MS/MSD Volatile QC Report-EPA Method 8240
Water

Laboratory Sample # : A416940
Data File :1648C. MS Data File : 1653C. MSD Data File : 1654C.
Date/Time : 061997 11:06 MS Date/Time : 061997 14:43 MSD Date/Time : 061997 15:26
Spike Conc : 50 uG/L
Dilution Factor: 1

| Compound | Sample Conc | Spike Conc | Spike % Rec | Spike Dup Conc | Spike Dup % Rec | RPD | Min Recovery * | Max Recovery * |
|---|---|---|---|---|---|---|---|---|
| Trichlorotrifluoroethane | 0 | 48.7 | 97.4 | 47.5 | 95.0 | 2.5 | 45 | 147.7 |
| Methyl-t-butyl ether | 0 | 53.5 | 107.0 | 54 | 108.0 | 0.9 | 67 | 145.1 |
| Diisopropyl ether | 0 | 57.2 | 114.4 | 56.5 | 113.0 | 1.2 | 64 | 139.1 |

Notes:
* Laboratory Generated Limits (based on >20 analyses) are used as Warning Limits. Updated 4/95
# Method limits from EPA Method 624 (based on 20 uG/L spike) are used as Control Limits.
** Analyzed using SP1000 Packed Column.
Tetrahydrofuran (1) spiked at 125 uG/L
1,2-Dichloroethene (total) spiked at 100 uG/L
Co-eluting Dichlorobenzenes spiked at 100, Xylenes spiked at 150 uG/L
Laboratory limits for dichlorodifluoromethane generated starting 4/94.

4A

VOLATILE METHOD BLANK SUMMARY

Sample No. VBLK01

Lab Name: HES/CLO Contract: _____

Lab Code: _____ Case No: _____ SAS No.: _____ SGD No:. _____

Lab File ID: 1641C Lab Sample ID: VBLK

Date Analyzed: 8/19/97 Test Code: O510.3 Time Analyzed: 3:09

GC Column: PACKED ID : _____ Heated Purge: (Y/N) N

Instrument ID: GC/MS#3

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

| | LAB SAMPLE NO | CLIENT SAMPLE ID | LAB FILE ID | TIME ANALYZED |
|---|---|---|---|---|
| 01 | LCS | | 1642C | 6:49 |
| 02 | A417040 | ECC 1T5W | 1650C | 12:34 |
| 03 | A417041 | ECC 1T2W | 1651C | 13:17 |
| 04 | A416940 MS | | 1653C | 14:43 |
| 05 | A416940 MSD | | 1654C | 15:26 |
| 06 | | | | |
| 07 | | | | |
| 08 | | | | |
| 09 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |
| 15 | | | | |
| 16 | | | | |

COMMENTS:

FORM IV VOA

3/90

5A

# VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
## BROMOFLUOROBENZENE (BFB)

Lab Name: HERITAGE LABS Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Lab File ID: 1409C.D BFB Injection Date: 07/30/97

Instrument ID: GCMS #3 BFB Injection Time: 07:09

GC Column: PACKED ID: 0.53 (mm) Heated Purge: (Y/N) Y

| m/e | ION ABUNDANCE CRITERIA | % RELATIVE ABUNDANCE |
|---|---|---|
| 50 | 8.0 - 40.0% of mass 95 | 23.2 |
| 75 | 30.0 - 66.0% of mass 95 | 54.5 |
| 95 | Base peak, 100% relative abundance | 100.0 |
| 96 | 5.0 - 9.0% of mass 95 | 7.9 |
| 173 | Less than 2.0% of mass 174 | 0.0 ( 0.0)1 |
| 174 | 50.0 - 120.0% of mass 95 | 88.4 |
| 175 | 4.0 - 9.0% of mass 174 | 7.0 ( 7.9)1 |
| 176 | 93.0 - 101.0% of mass 174 | 88.1 ( 99.7)1 |
| 177 | 5.0 - 9.0% of mass 176 | 6.4 ( 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:

| | EPA SAMPLE NO. | LAB SAMPLE ID | LAB FILE ID | DATE ANALYZED | TIME ANALYZED |
|---|---|---|---|---|---|
| 01 | VSTD200 | VSTD200 | 1410C.D | 07/30/97 | 07:43 |
| 02 | VSTD150 | VSTD150 | 1411C.D | 07/30/97 | 08:26 |
| 03 | VSTD100 | VSTD100 | 1412C.D | 07/30/97 | 09:10 |
| 04 | VSTD050 | VSTD050 | 1413C.D | 07/30/97 | 09:53 |
| 05 | VSTD020 | VSTD020 | 1414C.D | 07/30/97 | 10:36 |

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

BROMOFLUOROBENZENE (BFB)

Lab Name: HERITAGE LABS Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Lab File ID: 1639C.D BFB Injection Date: 08/19/97

Instrument ID: GCMS #3 BFB Injection Time: 03:09

GC Column: PACKED ID: _____ (mm) Heated Purge: (Y/N) N

| m/e | ION ABUNDANCE CRITERIA | % RELATIVE ABUNDANCE |
|---|---|---|
| 50 | 8.0 - 40.0% of mass 95 | 29.0 |
| 75 | 30.0 - 66.0% of mass 95 | 57.5 |
| 95 | Base peak, 100% relative abundance | 100.0 |
| 96 | 5.0 - 9.0% of mass 95 | 7.4 |
| 173 | Less than 2.0% of mass 174 | 0.0 ( 0.0)1 |
| 174 | 50.0 - 120.0% of mass 95 | 72.2 |
| 175 | 4.0 - 9.0% of mass 174 | 4.8 ( 6.7)1 |
| 176 | 93.0 - 101.0% of mass 174 | 69.8 ( 96.6)1 |
| 177 | 5.0 - 9.0% of mass 176 | 5.0 ( 7.1)2 |

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

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

| | EPA SAMPLE NO. | LAB SAMPLE ID | LAB FILE ID | DATE ANALYZED | TIME ANALYZED |
|---|---|---|---|---|---|
| 01 | VSTD050 | VSTD050 #081497 | 1640C.D | 08/19/97 | 04:38 |
| 02 | VBLK01 | VBLK | 1641C.D | 08/19/97 | 05:46 |
| 03 | DI MS | DI MS | 1642C.D | 08/19/97 | 06:49 |
| 04 | A416762 1:63 | A416762 1:63 | 1643C.D | 08/19/97 | 07:32 |
| 05 | A417760 1:63 | A416760 1:63 | 1644C.D | 08/19/97 | 08:15 |
| 06 | A416779 1:125 | A416779 1:125 | 1645C.D | 08/19/97 | 08:58 |
| 07 | A416718 1:63 | A416718 1:63 | 1646C.D | 08/19/97 | 09:41 |
| 08 | A416939 | A416939 | 1647C.D | 08/19/97 | 10:25 |
| 09 | A416940 | A416940 | 1648C.D | 08/19/97 | 11:08 |
| 10 | A416970 | A416970 | 1649C.D | 08/19/97 | 11:51 |
| 11 | A417040 | A417040 | 1650C.D | 08/19/97 | 12:34 |
| 12 | A417041 | A417041 | 1651C.D | 08/19/97 | 13:17 |
| 13 | A416776 | A416776 | 1652C.D | 08/19/97 | 14:00 |
| 14 | A417040 MS | A417040 MS | 1653C.D | 08/19/97 | 14:43 |
| 15 | A417040 MSD | A417040 MSD | 1654C.D | 08/19/97 | 15:26 |

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: HERITAGE LABS Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Lab File ID (Standard): 1640C.D Date Analyzed: 08/19/97

Instrument ID: GCMS #3 Time Analyzed: 04:38

GC Column: PACKED ID: _____ (mm) Heated Purge: (Y/N) Y

| | | IS1 AREA # | RT # | IS2 AREA # | RT # | IS3 AREA # | RT # |
|---|---|---|---|---|---|---|---|
| | 12 HOUR STD | 281463 | 9.57 | 957651 | 20.34 | 788047 | 25.08 |
| | UPPER LIMIT | 562926 | 10.07 | 1915302 | 20.84 | 1576094 | 25.58 |
| | LOWER LIMIT | 140732 | 9.07 | 478826 | 19.84 | 394024 | 24.58 |
| | EPA SAMPLE NO. | | | | | | |
| 01 | VBLK01 | 248805 | 9.54 | 879745 | 20.34 | 730595 | 25.11 |
| 02 | DI MS | 262159 | 9.54 | 846120 | 20.34 | 703799 | 25.08 |
| 03 | A416762 1:63 | 254204 | 9.78 | 822201 | 20.28 | 778396 | 25.12 |
| 04 | A417760 1:63 | 287215 | 9.78 | 900621 | 20.21 | 821397 | 25.09 |
| 05 | A416779 1:12 | 321042 | 9.64 | 1070566 | 20.31 | 915828 | 25.08 |
| 06 | A416718 1:63 | 325999 | 9.74 | 1108785 | 20.27 | 949097 | 25.08 |
| 07 | A416939 | 309044 | 9.57 | 1011523 | 20.34 | 854183 | 25.08 |
| 08 | A416940 | 306026 | 9.54 | 1004995 | 20.34 | 837912 | 25.08 |
| 09 | A416970 | 248485 | 9.54 | 958697 | 20.34 | 804270 | 25.08 |
| 10 | A417040 | 285829 | 9.54 | 932259 | 20.34 | 818707 | 25.08 |
| 11 | A417041 | 276254 | 9.54 | 922705 | 20.35 | 769788 | 25.08 |
| 12 | A416776 | 124476* | 9.57 | 379080* | 20.34 | 312829* | 25.11 |
| 13 | A417040 MS | 288122 | 9.61 | 950918 | 20.34 | 784480 | 25.08 |
| 14 | A417040 MSD | 288770 | 9.58 | 961665 | 20.31 | 808064 | 25.05 |

IS1 = BROMOCHLOROMETH

IS2 = 1,4-DIFLUOROBENZEN

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 to be used to flag values outside QC limit with an asterisk.

* Values outside of contract required QC limits

Heritage Environmental Services

R332388

Method : SW846-8240B  Test Code : 0510.3.0  Lab Sample ID : A417040
Sample Description : ECC 1T5W
Submitter : Erm-Nc

File : 1650C  Date/Time : 8/19/97 12:34  Analyst : HHW

QC Passes ? : ✓  pH ? ✓  Dilution Factor 1  DL Multiplier 1

| ANALYTE | | RESULT | LIMIT | UNITS |
|---|---|---|---|---|
| 99 | ACETONE * | 23 | 20 | ug/L |
| 8 | 1,1-DICHLOROETHENE | | 5 | ug/L |
| 349 | ETHYL BENZENE | | 5 | ug/L |
| 302 | DICHLOROMETHANE (METHYLENE CHLORIDE) | | 5 | ug/L |
| 475 | METHYL ETHYL KETONE | | 10 | ug/L |
| 91 | 4-METHYL-2-PENTANONE | | 10 | ug/L |
| 703 | TETRACHLOROETHENE | | 2.2 | ug/L |
| 724 | TOLUENE | | 5 | ug/L |
| 22 | 1,2-DICHLOROETHENE (CIS AND TRANS) | | 5 | ug/L |
| 2 | 1,1,1-TRICHLOROETHANE | | 5 | ug/L |
| 4 | 1,1,2-TRICHLOROETHANE | | 3.0 | ug/L |
| 750 | TRICHLOROETHENE | | 5 | ug/L |
| 768 | VINYL CHLORIDE | | 3.4 | ug/L |
| 803 | XYLENES (O/M/P-XYLENE) | | 5 | ug/L |
| 1804 | ... | | | |
| 971 | SURROGATE RECOVERY | | | |
| 972 | ---------- | | | |
| 301 | DICHLOROETHANE-D4 | 113 | | % Rec |
| 726 | TOLUENE-D8 | 108 | | % Rec |
| 196 | 4-BROMOFLUOROBENZENE | 101 | | % Rec |

Approved : RLS 8/20/97

Page 1 of 1

Candy 8-20-97

Quantitation Report (QT Reviewed)

Data File : G:\C081997\1650C.D
Acq On : 19 Aug 97 12:34
Sample : A417040
Misc :
MS Integration Params: rteint.p
Quant Time: Aug 20 17:51 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#3
Multiplr: 1.00
Quant Results File: CLPVOL.RES

Quant Method : C:\HPCHEM\1\METHODS\CLPVOL.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Wed Jul 30 11:15:26 1997
Response via : Initial Calibration
DataAcq Meth : CLPVOL

| Internal Standards | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| 1) BROMOCHLOROMETHANE | 9.54 | 128 | 285829 | 50.00 UG/L | -0.17 |
| 26) 1,4-DIFLUOROBENZENE | 20.34 | 114 | 932259 | 50.00 UG/L | -0.03 |
| 40) CHLOROBENZENE-d5 | 25.08 | 117 | 818707 | 50.00 UG/L | -0.07 |
| **System Monitoring Compounds** | | | | | |
| 25) 1,2-Dichloroethane-d4 | 12.69 | 65 | 502382m | 56.47 UG/L | 0.10 |
| Spiked Amount 50.000 | Range 76 - 114 | | Recovery = 112.94% | | |
| 37) Toluene-d8 | 23.89 | 98 | 920050 | 53.91 UG/L | -0.[illegible] |
| Spiked Amount 50.000 | Range 88 - 110 | | Recovery = 107.82% | | |
| 53) Bromofluorobenzene | 28.76 | 95 | 778962 | 50.74 UG/L | -0.03 |
| Spiked Amount 50.000 | Range 86 - 115 | | Recovery = 101.48% | | |
| **Target Compounds** | | | | | Qvalue |
| ~~8) Diethyl ether~~ | 11.33 | 59 | 12273 | 3.45 UG/L # | 100 |
| 10)✓Acetone | 6.19 | 43 | 69531m | 22.51 UG/L | 100 |
| ~~21) 2-Butanone~~ | 12.72 | 43 | 24161 | 4.19 UG/L # | 100 |

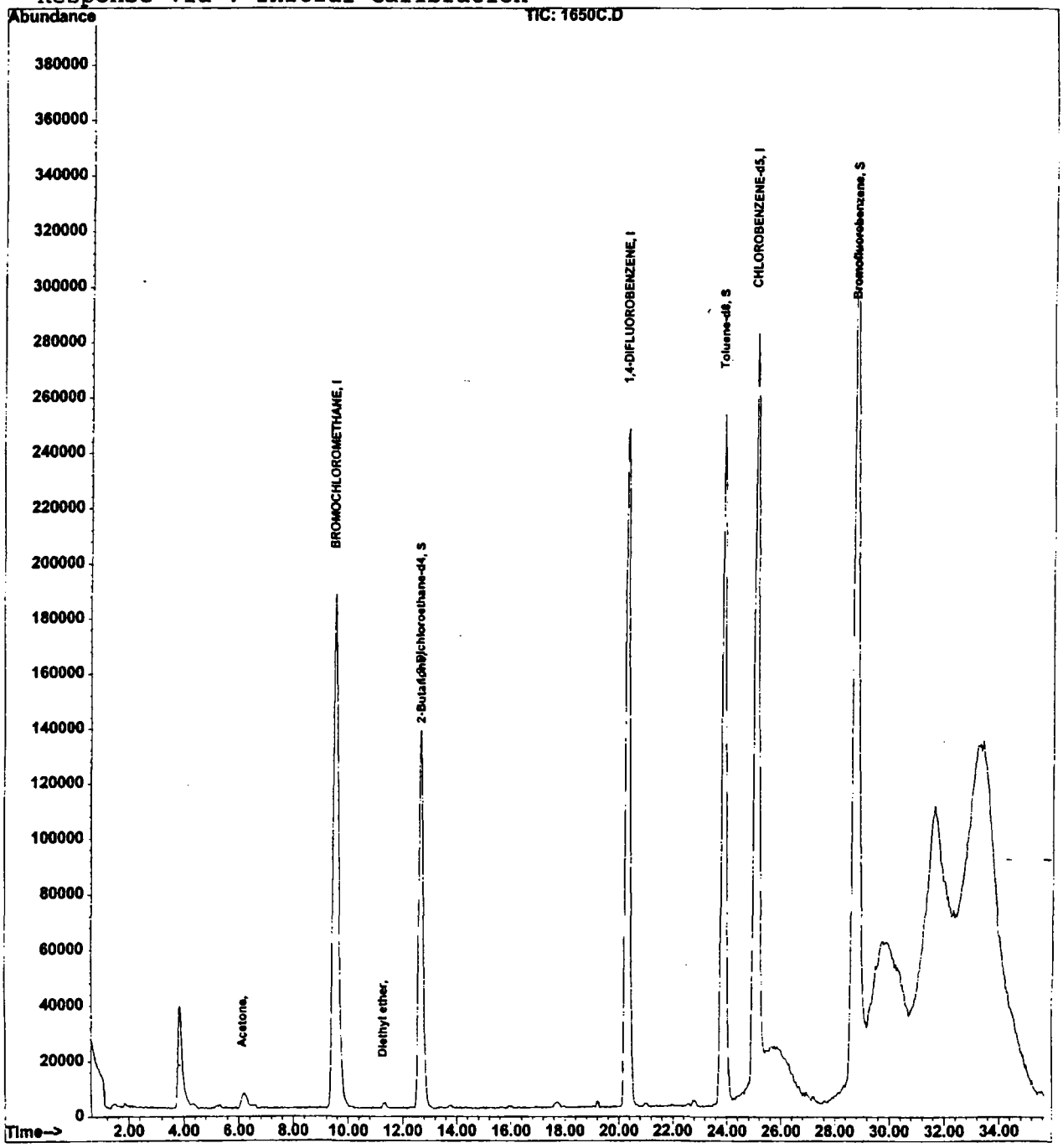
(#) = qualifier out of range (m) = manual integration

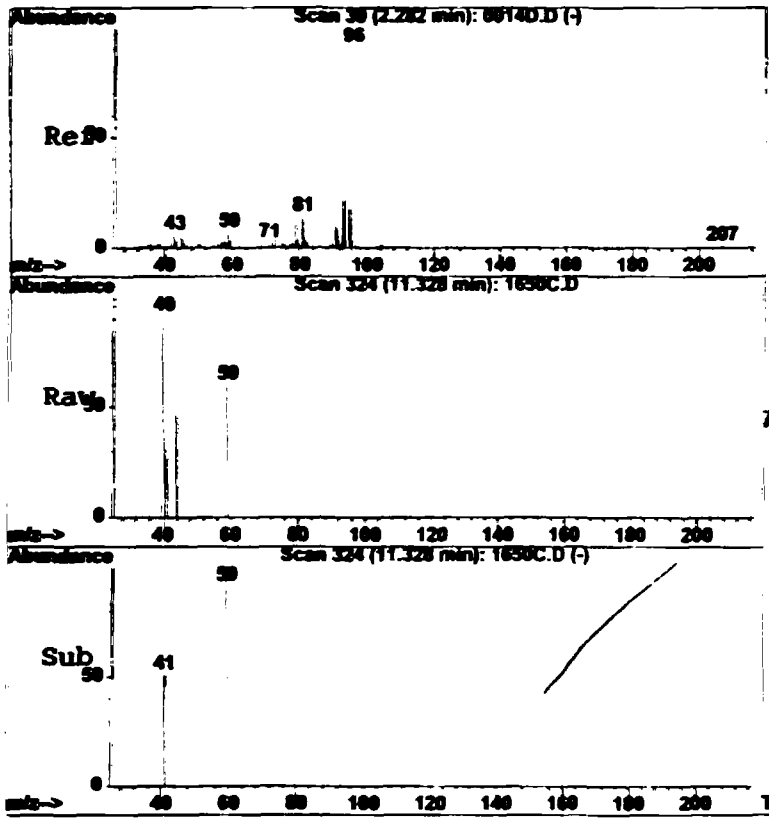
Quantitation Report

Data File : G:\C081997\1650C.D
Acq On : 19 Aug 97 12:34
Sample : A417040
Misc :
MS Integration Params: rteint.p
Quant Time: Aug 20 17:51 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#3
Multiplr: 1.00
Quant Results File: CLPVOL.RES

Method : C:\HPCHEM\1\METHODS\CLPVOL.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Wed Jul 30 11:15:26 1997
Response via : Initial Calibration

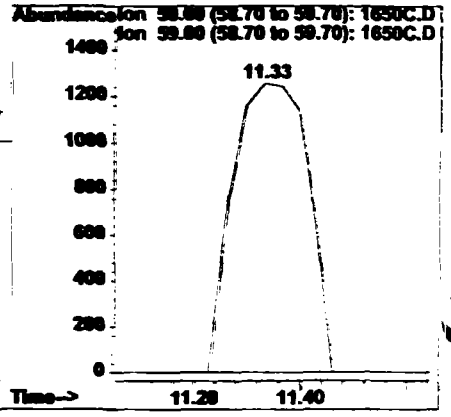


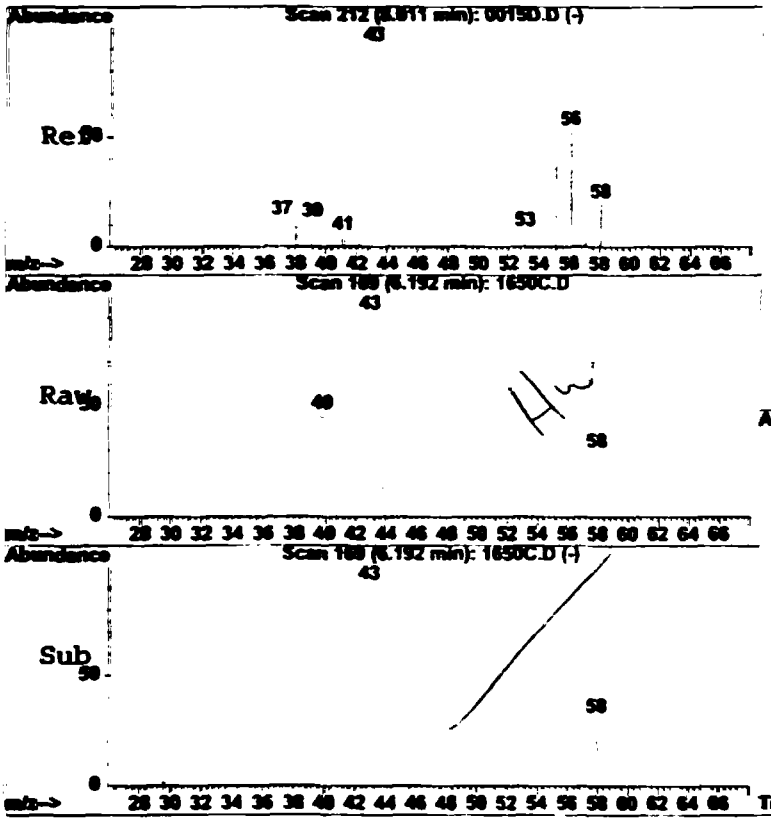



#8
Diethyl ether
Concen: 3.45 UG/L
RT: 11.33 min Scan# 324
Delta R.T. -0.36 min
Lab File: 1650C.D
Acq: 19 Aug 97 12:34

Tgt Ion: 59 Resp: 12273

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 59 | 100 | | |
| 59 | 100.0 | 0.0 | 0.0# |

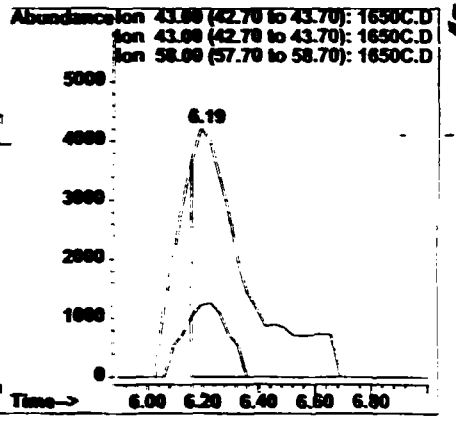


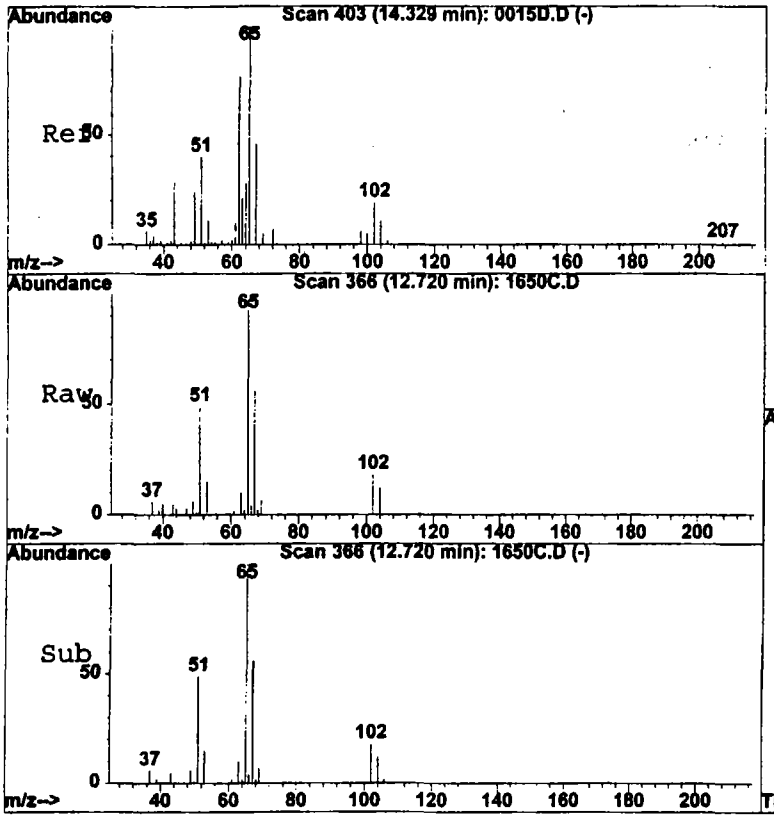




#10
Acetone
Concen: 16.26 UG/L
RT: 6.19 min Scan# 169
Delta R.T. -0.79 min
Lab File: 1650C.D
Acq: 19 Aug 97 12:34

Tgt Ion: 43 Resp: 50239

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 43 | 100 | | |
| 43 | 100.0 | 0.0 | 0.0# |
| 58 | 0.0 | 0.0 | 0.0 |

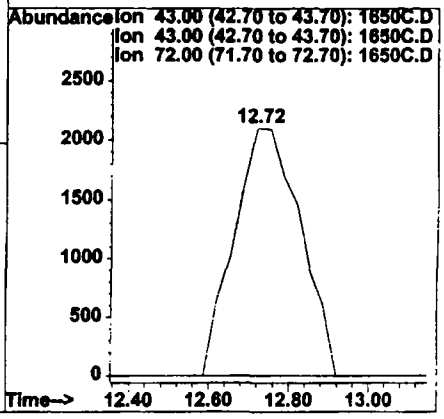





#21
2-Butanone
Concen: 4.19 UG/L
RT: 12.72 min Scan# 366
Delta R.T. -0.07 min
Lab File: 1650C.D
Acq: 19 Aug 97 12:34

Tgt Ion: 43 Resp: 24161

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 43 | 100 | | |
| 43 | 100.0 | 0.0 | 0.0# |
| 72 | 0.0 | 0.0 | 0.0 |

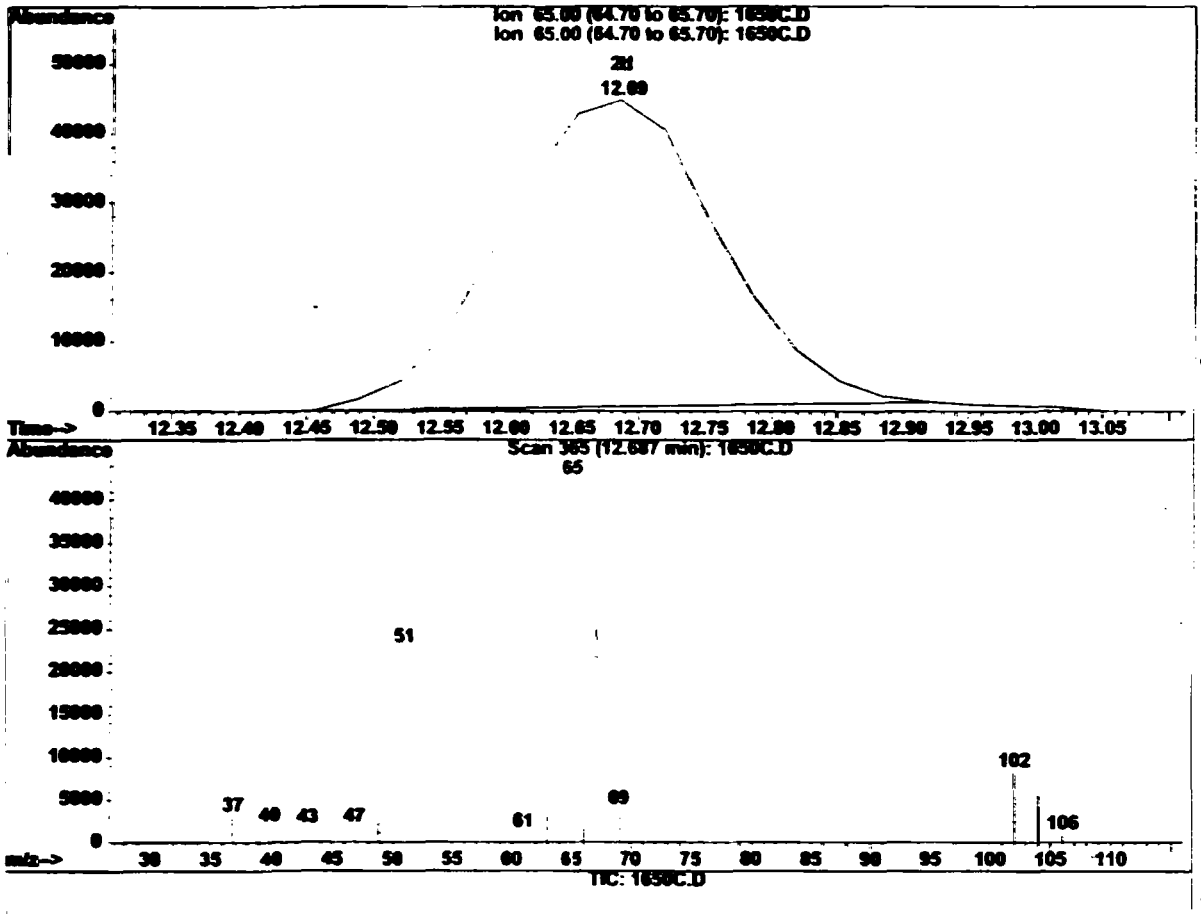


Quantitation Report

Data File : G:\C081997\1650C.D
Acq On : 19 Aug 97 12:34
Sample : A417040
Misc :
Quant Time: Aug 20 16:51 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#3
Multiplr: 1.00
Quant Results File: temp.res

Method : C:\HPCHEM\1\METHODS\CLPVOL.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Wed Jul 30 11:15:26 1997
Response via : Multiple Level Calibration




(25) 1,2-Dichloroethane-d4 (S)

12.00min 58.47UG/L m

response 582382

| Ion | Exp% | Act% |
|---|---|---|
| 65.00 | 100 | 100 |
| 65.00 | 0.00 | 104.000 |
| 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 |

1650C.D CLPVOL.M Wed Aug 20 16:51:59 1997 RPT1

Heritage Environmental Services

R332358

Method : SW846-8240B  Test Code : 0510.3.0  Lab Sample ID : A417041
Sample Description : ECC 1T2W
Submitter : Erm-Nc

File : 1651C  Date/Time : 8/19/97 13:17  Analyst : HHw

QC Passes ? : ✓  pH ? ✓  Dilution Factor 1  DL Multiplier 1

| | ANALYTE | RESULT | LIMIT | UNITS |
|---|---|---|---|---|
| 99 | ACETONE | | 20 | ug/L |
| 8 | 1,1-DICHLOROETHENE | | 5 | ug/L |
| 349 | ETHYL BENZENE | | 5 | ug/L |
| 302 | DICHLOROMETHANE (METHYLENE CHLORIDE) | | 5 | ug/L |
| 475 | METHYL ETHYL KETONE | | 10 | ug/L |
| 91 | 4-METHYL-2-PENTANONE | | 10 | ug/L |
| 703 | TETRACHLOROETHENE | | 2.2 | ug/L |
| 724 | TOLUENE | | 5 | ug/L |
| 22 | 1,2-DICHLOROETHENE (CIS AND TRANS) | | 5 | ug/L |
| 2 | 1,1,1-TRICHLOROETHANE | | 5 | ug/L |
| 4 | 1,1,2-TRICHLOROETHANE | | 3.0 | ug/L |
| 750 | TRICHLOROETHENE | | 5 | ug/L |
| 768 | VINYL CHLORIDE | | 3.4 | ug/L |
| 803 | XYLENES (O/M/P-XYLENE) | | 5 | ug/L |
| 1804 | ... | | | |
| 971 | SURROGATE RECOVERY | | | |
| 972 | ---------- | | | |
| 301 | DICHLOROETHANE-D4 | 114 ✓ | | % Rec |
| 726 | TOLUENE-D8 | 106 ✓ | | % Rec |
| 196 | 4-BROMOFLUOROBENZENE | 107 ✓ | | % Rec |

Approved : AUS 8/20/97

Page 1 of 1

VISM 8-20-97

Cancel 8-20-97

Quantitation Report (QT Reviewed)

Data File : G:\C081997\1651C.D
Acq On : 19 Aug 97 13:17
Sample : A417041
Misc :
MS Integration Params: rteint.p
Quant Time: Aug 20 16:52 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#3
Multiplr: 1.00
Quant Results File: CLPVOL.RES

Quant Method : C:\HPCHEM\1\METHODS\CLPVOL.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Wed Jul 30 11:15:26 1997
Response via : Initial Calibration
DataAcq Meth : CLPVOL

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) BROMOCHLOROMETHANE | 9.54 | 128 | 276254 | 50.00 | UG/L | -0.16 |
| 26) 1,4-DIFLUOROBENZENE | 20.35 | 114 | 922705 | 50.00 | UG/L | -0.03 |
| 40) CHLOROBENZENE-d5 | 25.08 | 117 | 769788 | 50.00 | UG/L | -0.06 |
| **System Monitoring Compounds** | | | | | | |
| 25) 1,2-Dichloroethane-d4 | 12.69 | 65 | 490002m | 56.99 | UG/L | 0.10 |
| Spiked Amount 50.000 | Range 76 - 114 | | Recovery = 113.98% | | | |
| 37) Toluene-d8 | 23.89 | 98 | 897166 | 53.12 | UG/L | -0.03 |
| Spiked Amount 50.000 | Range 88 - 110 | | Recovery = 106.24% | | | |
| 53) Bromofluorobenzene | 28.73 | 95 | 755714 | 52.35 | UG/L | -0.06 |
| Spiked Amount 50.000 | Range 86 - 115 | | Recovery = 104.70% | | | |
| **Target Compounds** | | | | | | Qvalue |
| 10) Acetone | 6.20 | 43 | 14100 | 4.72 | UG/L # | 100 |

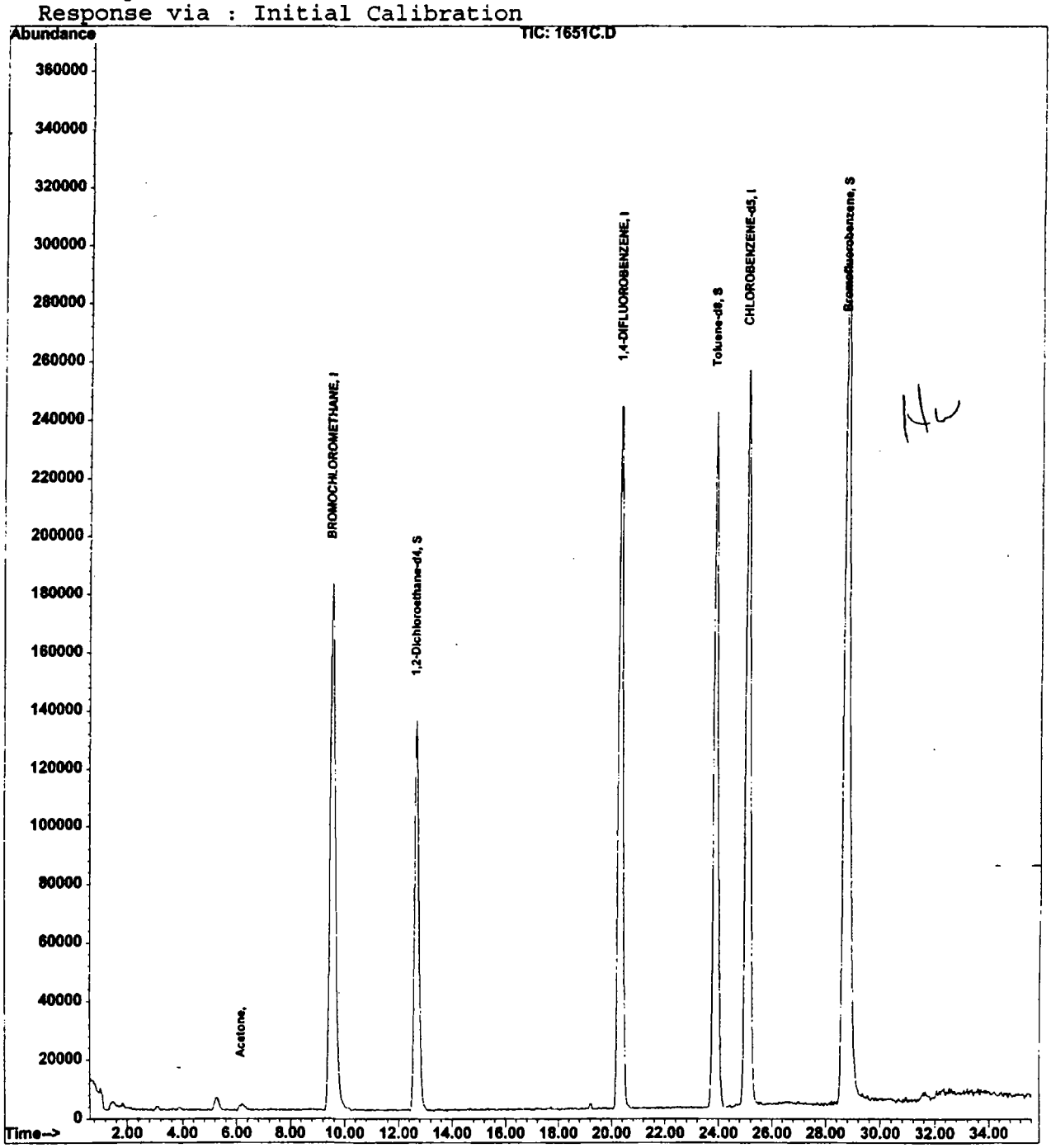
(#) = qualifier out of range (m) = manual integration

Quantitation Report

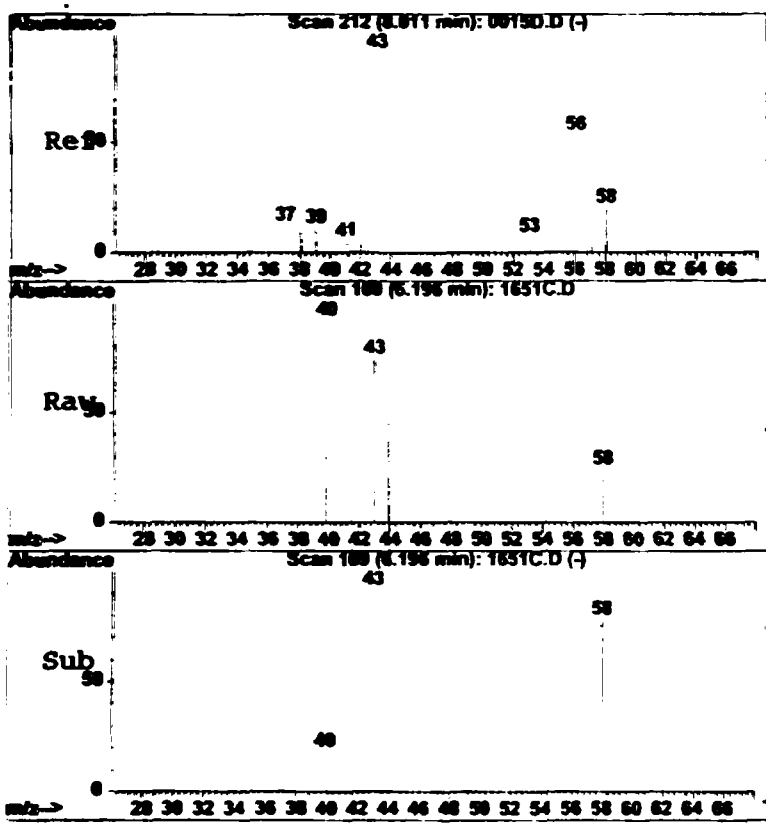
Data File : G:\C081997\1651C.D
Acq On : 19 Aug 97 13:17
Sample : A417041
Misc :
MS Integration Params: rteint.p
Quant Time: Aug 20 16:52 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#3
Multiplr: 1.00
Quant Results File: CLPVOL.RES

Method : C:\HPCHEM\1\METHODS\CLPVOL.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Wed Jul 30 11:15:26 1997
Response via : Initial Calibration



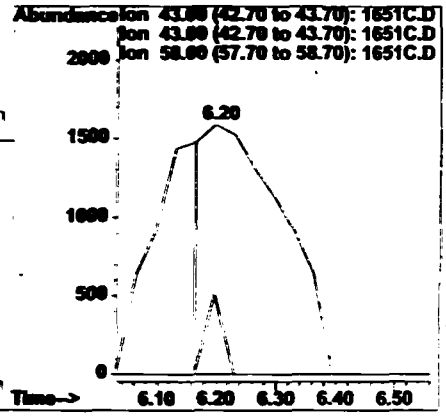

1651C.D CLPVOL.M Wed Aug 20 16:53:08 1997 RPT1 Page 2




#10
Acetone
Concen: 4.72 UG/L
RT: 6.20 min Scan# 169
Delta R.T. -0.79 min
Lab File: 1651C.D
Acq: 19 Aug 97 13:17

Tgt Ion: 43 Resp: 14100

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 43 | 100 | | |
| 43 | 100.0 | 0.0 | 0.0# |
| 58 | 7.2 | 0.0 | 0.0# |

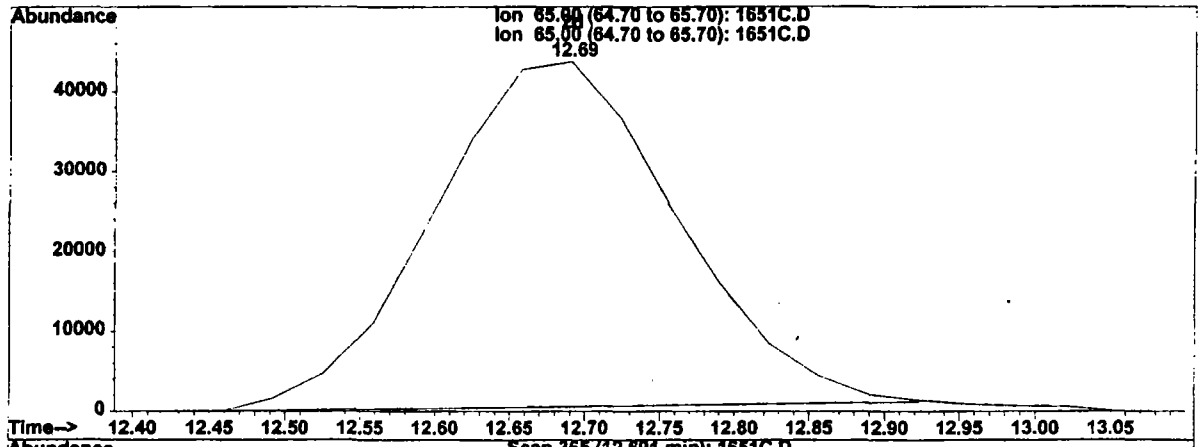


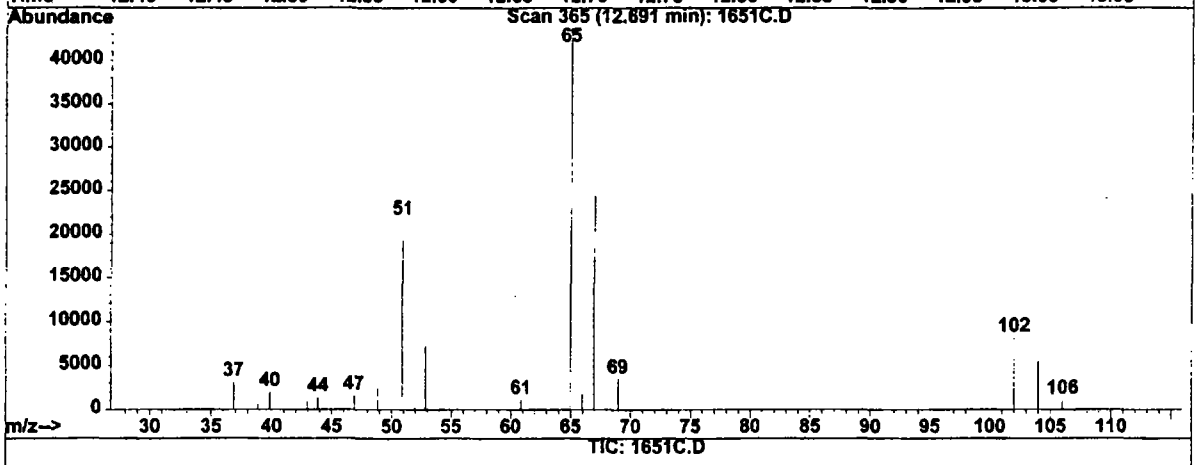
Quantitation Report

Data File : G:\C081997\1651C.D
Acq On : 19 Aug 97 13:17
Sample : A417041
Misc :
Quant Time: Aug 20 16:52 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#3
Multiplr: 1.00
Quant Results File: temp.res

Method : C:\HPCHEM\1\METHODS\CLPVOL.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Wed Jul 30 11:15:26 1997
Response via : Multiple Level Calibration




(25) 1,2-Dichloroethane-d4 (S)

12.69min 56.99UG/L m

response 490002

| Ion | Exp% | Act% |
|---|---|---|
| 65.00 | 100 | 100 |
| 65.00 | 0.00 | 104.17# |
| 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 |

1651C.D CLPVOL.M Wed Aug 20 16:52:53 1997 RPT1

Response Factor Report GCMS#3

Method : C:\HPCHEM\1\METHODS\CLPVOL.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Wed Jul 30 11:15:26 1997
Response via : Initial Calibration

Calibration Files
20 =1414C.D 50 =1413C.D 100 =1412C.D
150 =1411C.D 200 =1410C.D

| | | Compound | 20 | 50 | 100 | 150 | 200 | Avg | %RSD |
|---|---|---|---|---|---|---|---|---|---|
| 1) | I | BROMOCHLOROMETHANE | ----------ISTD---------- | | | | | | |
| 2) | T | Dichlorodifluorometha | 0.733 | 0.794 | 0.643 | 0.600 | 0.587 | 0.671 | 13.29 |
| 3) | P | Chloromethane | 0.911 | 1.137 | 0.834 | 0.759 | 0.772 | 0.883 | 17.49 |
| 4) | C | VINYL CHLORIDE | 0.508 | 0.511 | 0.404 | 0.370 | 0.354 | 0.429 | 17.53# |
| 5) | | Bromomethane | 0.612 | 0.596 | 0.513 | 0.472 | 0.446 | 0.528 | 14.02 |
| 6) | | Chloroethane | 0.585 | 0.600 | 0.308 | 0.205 | 0.207 | 0.381 | 51.86 |
| 7) | | Trichlorofluoromethan | 2.308 | 2.549 | 1.927 | 1.811 | 1.878 | 2.095 | 15.24 |
| 8) | | Diethyl ether | 0.738 | 0.569 | 0.609 | 0.586 | 0.612 | 0.623 | 10.75 |
| 9) | | Acrolein | 0.160 | 0.107 | 0.125 | 0.128 | 0.144 | 0.133 | 15.19 |
| 10) | | Acetone | 0.791 | 0.438 | 0.499 | 0.474 | 0.500 | 0.540 | 26.35 |
| 11) | | Trichlorotrifluoroeth | 2.291 | 2.214 | 1.930 | 1.810 | 1.939 | 2.037 | 10.08 |
| 12) | CM | 1,1-DICHLOROETHENE | 0.982 | 1.114 | 0.928 | 0.879 | 0.930 | 0.966 | 9.34# |
| 13) | | Methylene Chloride | 1.220 | 1.228 | 1.108 | 1.043 | 1.105 | 1.141 | 7.03 |
| 14) | | Acrylonitrile | 0.550 | 0.384 | 0.418 | 0.403 | 0.428 | 0.437 | 15.00 |
| 15) | | Carbon Disulfide | 2.408 | 2.619 | 2.291 | 2.339 | 2.550 | 2.441 | 5.70 |
| 16) | | Vinyl acetate | 2.618 | 2.026 | 2.211 | 2.029 | 2.034 | 2.184 | 11.69 |
| 17) | | Methyl-t-butyl ether | 2.554 | 2.386 | 2.177 | 2.097 | 2.147 | 2.272 | 8.47 |
| 18) | | 1,2-Dichloroethene (t | 1.099 | 0.999 | 0.972 | 0.949 | 0.992 | 1.002 | 5.75 |
| 19) | | Diisopropyl ether | 4.326 | 4.729 | 3.824 | 3.562 | 3.535 | 3.995 | 12.98 |
| 20) | P | 1,1-Dichloroethane | 2.271 | 2.318 | 2.009 | 1.871 | 1.898 | 2.074 | 10.08 |
| 21) | | 2-Butanone | 1.203 | 0.919 | 1.021 | 0.923 | 0.976 | 1.009 | 11.55 |
| 22) | | Ethyl acetate | 2.717 | 2.436 | 2.182 | 2.077 | 2.163 | 2.315 | 11.30 |
| 23) | C | CHLOROFORM | 2.699 | 2.547 | 2.425 | 2.238 | 2.267 | 2.435 | 7.94# |
| 24) | | Tetrahydrofuran | 0.787 | 0.518 | 0.656 | 0.612 | 0.646 | 0.644 | 15.06 |
| 25) | S | 1,2-Dichloroethane-d4 | 1.779 | 1.607 | 1.507 | 1.444 | 1.444 | 1.556 | 9.05 |
| 26) | I | 1,4-DIFLUOROBENZENE | ----------ISTD---------- | | | | | | |
| 27) | | 1,1,1-Trichloroethane | 0.684 | 0.592 | 0.571 | 0.591 | 0.609 | 0.610 | 7.21 |
| 28) | | Carbon Tetrachloride | 0.714 | 0.648 | 0.615 | 0.638 | 0.660 | 0.655 | 5.65 |
| 29) | | 1,2-Dichloroethane | 0.563 | 0.408 | 0.475 | 0.466 | 0.471 | 0.476 | 11.71 |
| 30) | CM | Benzene | 0.980 | 0.816 | 0.785 | 0.786 | 0.785 | 0.830 | 10.17# |
| 31) | M | Trichloroethene | 0.549 | 0.480 | 0.461 | 0.458 | 0.478 | 0.485 | 7.66 |
| 32) | C | 1,2-DICHLOROPROPANE | 0.513 | 0.476 | 0.456 | 0.446 | 0.450 | 0.468 | 5.86# |
| 33) | | Bromodichloromethane | 0.867 | 0.824 | 0.818 | 0.794 | 0.815 | 0.824 | 3.27 |
| 34) | | 2-Chloroethylvinyleth | 0.252 | 0.232 | 0.250 | 0.254 | 0.260 | 0.250 | 4.21 |
| 35) | | 4-Methyl-2-Pentanone | 0.841 | 0.625 | 0.711 | 0.684 | 0.686 | 0.710 | 11.26 |
| 36) | | cis-1,3-Dichloroprope | 0.560 | 0.542 | 0.532 | 0.532 | 0.544 | 0.542 | 2.10 |
| 37) | S | Toluene-d8 | 1.027 | 0.911 | 0.887 | 0.856 | 0.895 | 0.915 | 7.19 |
| 38) | CM | TOLUENE | 0.771 | 0.500 | 0.477 | 0.491 | 0.473 | 0.542 | 23.68# |
| 39) | | trans-1,3-Dichloropro | 0.588 | 0.562 | 0.534 | 0.516 | 0.509 | 0.542 | 6.08 |
| 40) | I | CHLOROBENZENE-d5 | ----------ISTD---------- | | | | | | |
| 41) | | 2-Hexanone | 0.883 | 0.600 | 0.692 | 0.647 | 0.659 | 0.696 | 15.74 |

(#) = Out of Range

Response Factor Report GCMS#3

Method : C:\HPCHEM\1\METHODS\CLPVOL.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Wed Jul 30 11:15:26 1997
Response via : Initial Calibration

Calibration Files
20 =1414C.D 50 =1413C.D 100 =1412C.D
150 =1411C.D 200 =1410C.D

| | | Compound | 20 | 50 | 100 | 150 | 200 | Avg | %RSD |
|---|---|---|---|---|---|---|---|---|---|
| 42) | | 1,1,2-Trichloroethane | 0.564 | 0.525 | 0.499 | 0.480 | 0.472 | 0.508 | 7.38 |
| 43) | | trans-1,4-Dichloro-2- | 0.169 | 0.156 | 0.178 | 0.175 | 0.185 | 0.173 | 6.20 |
| 44) | | Tetrachloroethene | 0.550 | 0.494 | 0.487 | 0.469 | 0.507 | 0.501 | 6.12 |
| 45) | | Dibromochloromethane | 1.088 | 1.068 | 1.048 | 1.036 | 1.042 | 1.056 | 2.01 |
| 46) | PM | Chlorobenzene | 1.013 | 0.936 | 0.924 | 0.887 | 0.913 | 0.935 | 5.10 |
| 47) | C | ETHYLBENZENE | 0.469 | 0.402 | 0.397 | 0.385 | 0.394 | 0.409 | 8.33# |
| 48) | | Xylene (o,p) | 0.593 | 0.488 | 0.469 | 0.459 | 0.463 | 0.494 | 11.35 |
| 49) | | Xylene (m) | 0.720 | 0.470 | 0.485 | 0.474 | 0.485 | 0.527 | 20.54 |
| 50) | | Styrene | 0.874 | 0.833 | 0.802 | 0.788 | 0.796 | 0.819 | 4.35 |
| 51) | P | Bromoform | 0.970 | 0.951 | 0.993 | 0.984 | 1.056 | 0.991 | 4.02 |
| 52) | P | 1,1,2,2-Tetrachloroet | 1.069 | 0.997 | 1.013 | 0.948 | 0.946 | 0.994 | 5.13 |
| 53) | S | Bromofluorobenzene | 1.033 | 0.987 | 0.888 | 0.882 | 0.899 | 0.938 | 7.25 |
| 54) | | m-Dichlorobenzene | 1.049 | 1.003 | 0.951 | 0.925 | 0.934 | 0.972 | 5.39 |
| 55) | | o,p-Dichlorobenzene | 1.055 | 1.009 | 0.963 | 0.913 | 0.931 | 0.974 | 5.96 |

(#) = Out of Range

Quantitation Report (QT Reviewed)

Data File : C:\C073097\1410C.D
Acq On : 30 Jul 97 7:43
Sample : VSTD200
Misc :
MS Integration Params: rteint.p
Quant Time: Jul 31 10:18 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#3
Multiplr: 1.00
Quant Results File: CLPVOL.RES

Quant Method : C:\HPCHEM\1\METHODS\CLPVOL.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Wed Jul 30 11:15:26 1997
Response via : Initial Calibration
DataAcq Meth : CLPVOL

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) BROMOCHLOROMETHANE | 9.70 | 128 | 494079 | 50.00 | UG/L | 0.00 |
| 26) 1,4-DIFLUOROBENZENE | 20.37 | 114 | 1501969 | 50.00 | UG/L | 0.00 |
| 40) CHLOROBENZENE-d5 | 25.15 | 117 | 1242605 | 50.00 | UG/L | 0.00 |
| **System Monitoring Compounds** | | | | | | |
| 25) 1,2-Dichloroethane-d4 | 12.59 | 65 | 2854396 | 186.88 | UG/L | 0.00 |
| Spiked Amount 50.000 | Range 76 - 114 | | Recovery = 373.76%# | | | |
| 37) Toluene-d8 | 23.92 | 98 | 5375515 | 195.55 | UG/L | 0.00 |
| Spiked Amount 50.000 | Range 88 - 110 | | Recovery = 391.10%# | | | |
| 53) Bromofluorobenzene | 28.79 | 95 | 4466804 | 191.96 | UG/L | 0.00 |
| Spiked Amount 50.000 | Range 86 - 115 | | Recovery = 383.92%# | | | |
| **Target Compounds** | | | | | | Qvalue |
| 2) Dichlorodifluoromethane | 2.08 | 85 | 1159982 | 174.89 | UG/L # | 100 |
| 3) Chloromethane | 0.96 | 50 | 1526580 | 175.16 | UG/L # | 100 |
| 4) VINYL CHLORIDE | 2.15 | 62 | 699373 | 165.39 | UG/L # | 100 |
| 5) Bromomethane | 1.65 | 94 | 880723 | 169.46 | UG/L # | 100 |
| 6) Chloroethane | 3.04 | 64 | 408405m | 110.42 | UG/L | 100 |
| 7) Trichlorofluoromethane | 7.98 | 101 | 3711832 | 179.32 | UG/L # | 100 |
| 8) Diethyl ether | 11.69 | 59 | 1209248 | 196.49 | UG/L # | 100 |
| 9) Acrolein | 6.79 | 56 | 1713414 | 1318.99 | UG/L # | 100 |
| 10) Acetone | 6.99 | 43 | 987385 | 185.10 | UG/L # | 100 |
| 11) Trichlorotrifluoroethane | 12.16 | 101 | 3831859 | 190.28 | UG/L # | 100 |
| 12) 1,1-DICHLOROETHENE | 8.94 | 96 | 1837894 | 192.45 | UG/L # | 100 |
| 13) Methylene Chloride | 5.53 | 84 | 2184740 | 194.41 | UG/L # | 28 |
| 14) Acrylonitrile | 7.75 | 53 | 5079363 | 1192.57 | UG/L # | 100 |
| 15) Carbon Disulfide | 7.15 | 76 | 5039223 | 208.92 | UG/L # | 100 |
| 16) Vinyl acetate | 14.34 | 43 | 4019856 | 186.29 | UG/L # | 100 |
| 17) Methyl-t-butyl ether | 13.71 | 73 | 4243713 | 189.00 | UG/L # | 100 |
| 18) 1,2-Dichloroethene (total) | 11.33 | 96 | 3922807 | 396.05 | UG/L # | 100 |
| 19) Diisopropyl ether | 18.75 | 45 | 6985999 | 176.95 | UG/L # | 100 |
| 20) 1,1-Dichloroethane | 10.50 | 63 | 3751533 | 183.31 | UG/L # | 100 |
| 21) 2-Butanone | 12.79 | 43 | 1929778 | 193.94 | UG/L # | 100 |
| 22) Ethyl acetate | 14.58 | 43 | 4273984 | 190.43 | UG/L # | 100 |
| 23) CHLOROFORM | 11.99 | 83 | 4480404 | 186.19 | UG/L # | 100 |
| 24) Tetrahydrofuran | 10.67 | 42 | 3194034 | 503.12 | UG/L # | 100 |
| 27) 1,1,1-Trichloroethane | 13.88 | 97 | 3659485 | 199.87 | UG/L # | 100 |
| 28) Carbon Tetrachloride | 14.24 | 117 | 3966892 | 201.59 | UG/L # | 100 |
| 29) 1,2-Dichloroethane | 12.69 | 62 | 2829632 | 197.56 | UG/L # | 100 |
| 30) Benzene | 17.49 | 78 | 4718259 | 189.18 | UG/L # | 100 |
| 31) Trichloroethene | 17.29 | 130 | 2874171 | 197.12 | UG/L # | 100 |

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

Quantitation Report (QT Reviewed)

Data File : C:\C073097\1410C.D
Acq On : 30 Jul 97 7:43
Sample : VSTD200
Misc :
MS Integration Params: rteint.p
Quant Time: Jul 31 10:18 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#3
Multiplr: 1.00
Quant Results File: CLPVOL.RES

Quant Method : C:\HPCHEM\1\METHODS\CLPVOL.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Wed Jul 30 11:15:26 1997
Response via : Initial Calibration
DataAcq Meth : CLPVOL

| | Compound | R.T. | QIon | Response | Conc Unit | Qvalue |
|---|---|---|---|---|---|---|
| 32) | 1,2-DICHLOROPROPANE | 16.40 | 63 | 2706431 | 192.45 UG/L # | 100 |
| 33) | Bromodichloromethane | 15.20 | 83 | 4893746 | 197.77 UG/L # | 100 |
| 34) | 2-Chloroethylvinylether | 19.15 | 63 | 1563952 | 208.31 UG/L # | 100 |
| 35) | 4-Methyl-2-Pentanone | 21.07 | 43 | 4122650 | 193.40 UG/L # | 100 |
| 36) | cis-1,3-Dichloropropene | 16.76 | 75 | 3269231 | 200.94 UG/L # | 100 |
| 38) | TOLUENE | 24.12 | 92 | 2839808m | 170.56 UG/L | 100 |
| 39) | trans-1,3-Dichloropropene | 18.05 | 75 | 3060132 | 188.73 UG/L # | 100 |
| 41) | 2-Hexanone | 22.59 | 43 | 3277917 | 189.00 UG/L # | 100 |
| 42) | 1,1,2-Trichloroethane | 18.12 | 97 | 2344668 | 185.96 UG/L # | 100 |
| 43) | trans-1,4-Dichloro-2-butad | 23.19 | 75 | 919552 | 214.34 UG/L # | 61 |
| 44) | Tetrachloroethene | 22.96 | 164 | 2519523 | 202.17 UG/L # | 100 |
| 45) | Dibromochloromethane | 18.02 | 129 | 5179734 | 197.29 UG/L # | 100 |
| 46) | Chlorobenzene | 25.24 | 112 | 4536898 | 195.36 UG/L # | 100 |
| 47) | ETHYLBENZENE | 27.00 | 106 | 1957118 | 192.37 UG/L # | 100 |
| 48) | Xylene (o,p) | 30.48 | 106 | 4602763 | 374.68 UG/L # | 100 |
| 49) | Xylene (m) | 29.88 | 106 | 2410509m | 184.43 UG/L | 100 |
| 50) | Styrene | 29.72 | 104 | 3955934 | 194.48 UG/L # | 100 |
| 51) | Bromoform | 20.64 | 173 | 5250326 | 213.19 UG/L # | 100 |
| 52) | 1,1,2,2-Tetrachloroethane | 22.93 | 83 | 4700454 | 190.22 UG/L # | 100 |
| 54) | m-Dichlorobenzene | 32.87 | 146 | 4643715 | 192.18 UG/L # | 100 |
| 55) | o,p-Dichlorobenzene | 33.79 | 146 | 9253940m | 383.42 UG/L | 100 |

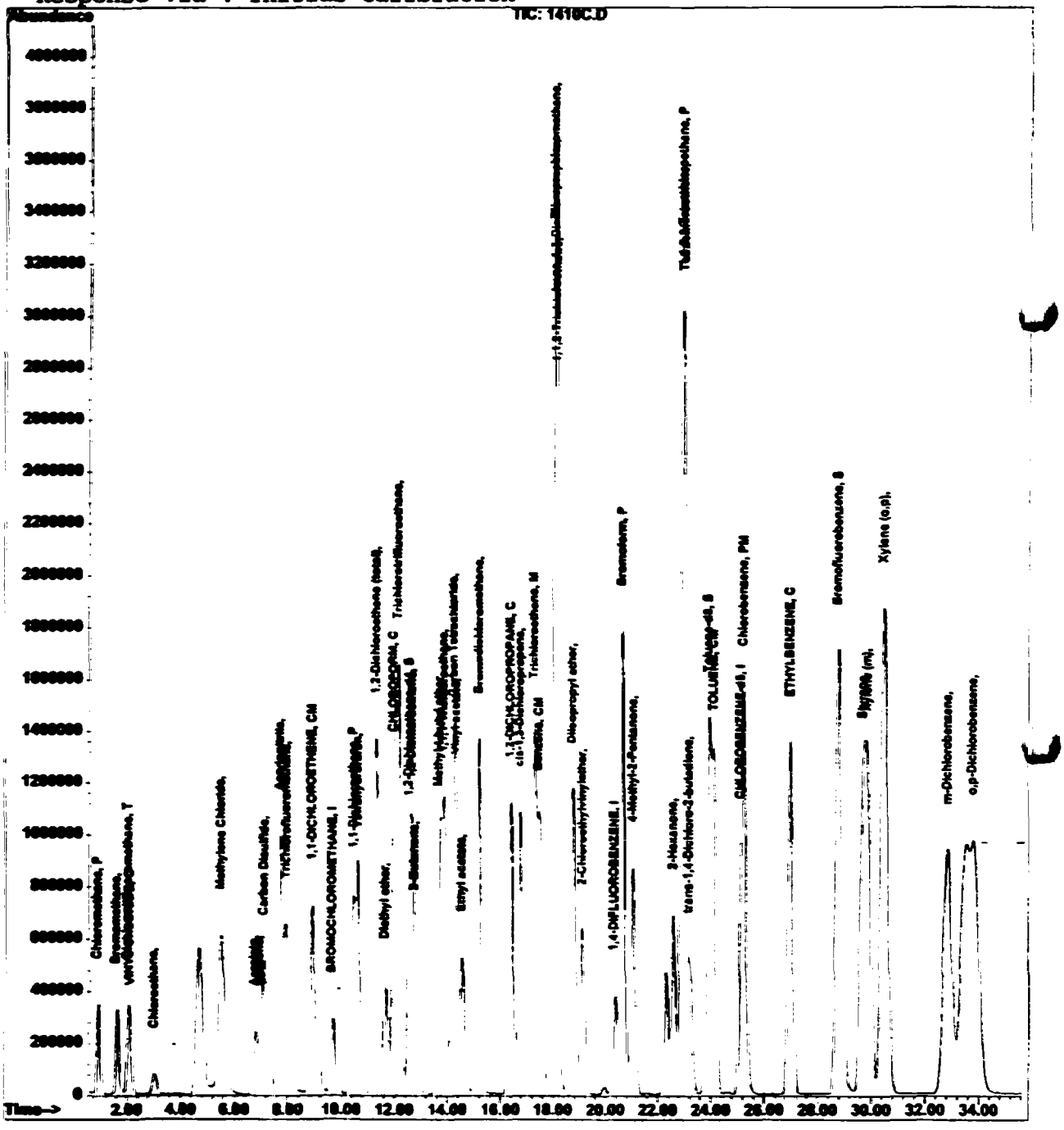
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\C073097\1410C.D
Acq On : 30 Jul 97 7:43
Sample : VSTD200
Misc :
MS Integration Params: rteint.p
Quant Time: Jul 31 10:18 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#3
Multiplr: 1.00
Quant Results File: CLPVOL.RES

Method : C:\HPCHEM\1\METHODS\CLPVOL.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Wed Jul 30 11:15:26 1997
Response via : Initial Calibration




1410C.D CLPVOL.M Thu Jul 31 10:19:31 1997 MANAGER Page 3

Quantitation Report (QT Reviewed)

Data File : C:\C073097\1411C.D
Acq On : 30 Jul 97 8:26
Sample : VSTD150
Misc :
MS Integration Params: rteint.p
Quant Time: Jul 31 10:17 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#3
Multiplr: 1.00
Quant Results File: CLPVOL.RES

Quant Method : C:\HPCHEM\1\METHODS\CLPVOL.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Wed Jul 30 11:15:26 1997
Response via : Initial Calibration
DataAcq Meth : CLPVOL

| Internal Standards | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| 1) BROMOCHLOROMETHANE | 9.67 | 128 | 517449 | 50.00 UG/L | -0.03 |
| 26) 1,4-DIFLUOROBENZENE | 20.38 | 114 | 1583070 | 50.00 UG/L | 0.00 |
| 40) CHLOROBENZENE-d5 | 25.15 | 117 | 1309100 | 50.00 UG/L | 0.00 |
| **System Monitoring Compounds** | | | | | |
| 25) 1,2-Dichloroethane-d4 | 12.62 | 65 | 2242358 | 140.18 UG/L | 0.04 |
| Spiked Amount 50.000 | Range 76 - 114 | | Recovery = 280.36%# | | |
| 37) Toluene-d8 | 23.92 | 98 | 4063583 | 140.25 UG/L | 0.00 |
| Spiked Amount 50.000 | Range 88 - 110 | | Recovery = 280.50%# | | |
| 53) Bromofluorobenzene | 28.79 | 95 | 3463371 | 141.28 UG/L | 0.00 |
| Spiked Amount 50.000 | Range 86 - 115 | | Recovery = 282.56%# | | |

| Target Compounds | | | | | Qvalue |
|---|---|---|---|---|---|
| 2) Dichlorodifluoromethane | 2.05 | 85 | 931647 | 134.12 UG/L # | 100 |
| 3) Chloromethane | 0.96 | 50 | 1178164 | 129.07 UG/L # | 100 |
| 4) VINYL CHLORIDE | 2.12 | 62 | 574457 | 129.71 UG/L # | 100 |
| 5) Bromomethane | 1.65 | 94 | 732110 | 134.51 UG/L # | 100 |
| 6) Chloroethane | 3.01 | 64 | 318401m | 82.20 UG/L | 100 |
| 7) Trichlorofluoromethane | 7.98 | 101 | 2811278 | 129.68 UG/L # | 100 |
| 8) Diethyl ether | 11.73 | 59 | 909594 | 141.12 UG/L # | 100 |
| 9) Acrolein | 6.66 | 56 | 1188177 | 873.35 UG/L # | 100 |
| 10) Acetone | 6.82 | 43 | 735464 | 131.64 UG/L # | 100 |
| 11) Trichlorotrifluoroethane | 12.19 | 101 | 2809148 | 133.19 UG/L # | 100 |
| 12) 1,1-DICHLOROETHENE | 8.94 | 96 | 1364272 | 136.40 UG/L # | 100 |
| 13) Methylene Chloride | 5.50 | 84 | 1619439 | 137.60 UG/L # | 28 |
| 14) Acrylonitrile | 7.59 | 53 | 3750165 | 840.73 UG/L # | 100 |
| 15) Carbon Disulfide | 7.16 | 76 | 3631196 | 143.74 UG/L # | 100 |
| 16) Vinyl acetate | 14.41 | 43 | 3149558 | 139.37 UG/L # | 100 |
| 17) Methyl-t-butyl ether | 13.78 | 73 | 3255070 | 138.42 UG/L # | 100 |
| 18) 1,2-Dichloroethene (total) | 11.36 | 96 | 2947472 | 284.14 UG/L # | 100 |
| 19) Diisopropyl ether | 18.79 | 45 | 5529993 | 133.74 UG/L # | 100 |
| 20) 1,1-Dichloroethane | 10.47 | 63 | 2904774 | 135.52 UG/L # | 100 |
| 21) 2-Butanone | 12.82 | 43 | 1433173 | 137.52 UG/L # | 100 |
| 22) Ethyl acetate | 14.68 | 43 | 3224265 | 137.17 UG/L # | 100 |
| 23) CHLOROFORM | 12.03 | 83 | 3473450 | 137.82 UG/L # | 100 |
| 24) Tetrahydrofuran | 10.63 | 42 | 2374380 | 357.11 UG/L # | 100 |
| 27) 1,1,1-Trichloroethane | 13.95 | 97 | 2805409 | 145.37 UG/L # | 100 |
| 28) Carbon Tetrachloride | 14.35 | 117 | 3028140 | 146.00 UG/L # | 100 |
| 29) 1,2-Dichloroethane | 12.76 | 62 | 2211354 | 146.48 UG/L # | 100 |
| 30) Benzene | 17.63 | 78 | 3731334 | 141.94 UG/L # | 100 |
| 31) Trichloroethene | 17.36 | 130 | 2173689 | 141.44 UG/L # | 100 |

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

Quantitation Report (QT Reviewed)

Data File : C:\C073097\1411C.D
Acq On : 30 Jul 97 8:26
Sample : VSTD150
Misc :
MS Integration Params: rteint.p
Quant Time: Jul 31 10:17 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#3
Multiplr: 1.00
Quant Results File: CLPVOL.RES

Quant Method : C:\HPCHEM\1\METHODS\CLPVOL.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Wed Jul 30 11:15:26 1997
Response via : Initial Calibration
DataAcq Meth : CLPVOL

| | Compound | R.T. | QIon | Response | Conc Unit | | Qvalue |
|---|---|---|---|---|---|---|---|
| 32) | 1,2-DICHLOROPROPANE | 16.43 | 63 | 2117651 | 142.86 | UG/L # | 100 |
| 33) | Bromodichloromethane | 15.21 | 83 | 3771974 | 144.62 | UG/L # | 100 |
| 34) | 2-Chloroethylvinylether | 19.12 | 63 | 1205223 | 152.30 | UG/L # | 100 |
| 35) | 4-Methyl-2-Pentanone | 21.07 | 43 | 3248660 | 144.60 | UG/L # | 100 |
| 36) | cis-1,3-Dichloropropene | 16.76 | 75 | 2528053 | 147.42 | UG/L # | 100 |
| 38) | TOLUENE | 24.12 | 92 | 2332397m | 132.91 | UG/L | 100 |
| 39) | trans-1,3-Dichloropropene | 18.06 | 75 | 2449947 | 143.36 | UG/L # | 100 |
| 41) | 2-Hexanone | 22.60 | 43 | 2539921 | 139.01 | UG/L # | 1[illegible] |
| 42) | 1,1,2-Trichloroethane | 18.09 | 97 | 1885885 | 141.97 | UG/L # | 1[illegible] |
| 43) | trans-1,4-Dichloro-2-butad | 23.19 | 75 | 686057 | 151.79 | UG/L # | 66 |
| 44) | Tetrachloroethene | 22.96 | 164 | 1840156 | 140.16 | UG/L # | 100 |
| 45) | Dibromochloromethane | 17.99 | 129 | 4068963 | 147.11 | UG/L # | 100 |
| 46) | Chlorobenzene | 25.25 | 112 | 3483645 | 142.39 | UG/L # | 100 |
| 47) | ETHYLBENZENE | 27.00 | 106 | 1511417 | 141.02 | UG/L # | 100 |
| 48) | Xylene (o,p) | 30.48 | 106 | 3604484 | 278.51 | UG/L # | 100 |
| 49) | Xylene (m) | 29.89 | 106 | 1861325 | 135.18 | UG/L # | 100 |
| 50) | Styrene | 29.72 | 104 | 3093989 | 144.38 | UG/L # | 100 |
| 51) | Bromoform | 20.64 | 173 | 3864786 | 148.96 | UG/L # | 100 |
| 52) | 1,1,2,2-Tetrachloroethane | 22.93 | 83 | 3722678 | 143.00 | UG/L # | 100 |
| 54) | m-Dichlorobenzene | 32.84 | 146 | 3631409 | 142.65 | UG/L # | 100 |
| 55) | o,p-Dichlorobenzene | 33.80 | 146 | 7169365m | 281.96 | UG/L | 100 |

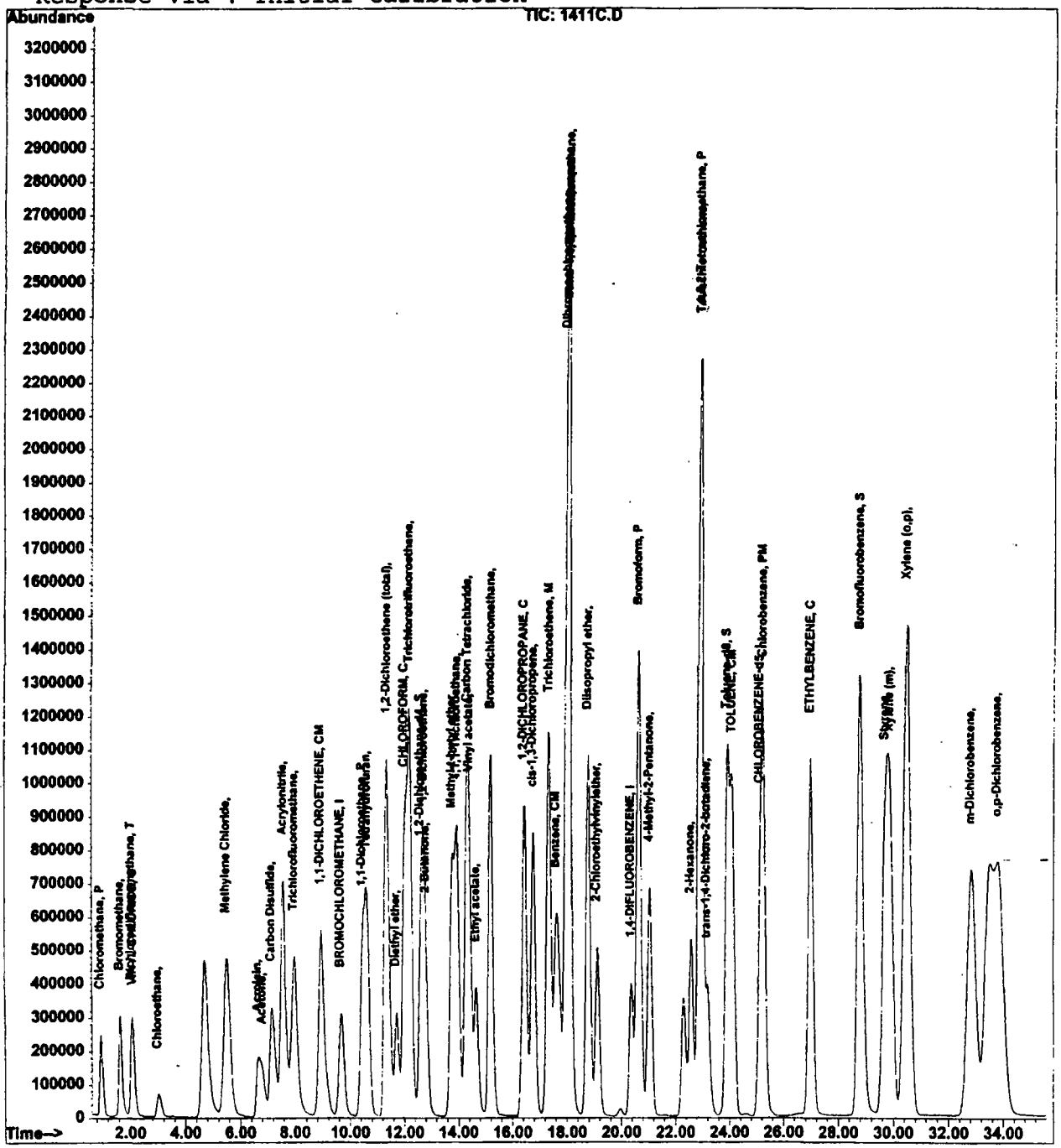
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\C073097\1411C.D
Acq On : 30 Jul 97 8:26
Sample : VSTD150
Misc :
MS Integration Params: rteint.p
Quant Time: Jul 31 10:17 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#3
Multiplr: 1.00
Quant Results File: CLPVOL.RES

Method : C:\HPCHEM\1\METHODS\CLPVOL.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Wed Jul 30 11:15:26 1997
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\C073097\1412C.D
Acq On : 30 Jul 97 9:10
Sample : VSTD100
Misc :
MS Integration Params: rteint.p
Quant Time: Jul 31 10:16 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#3
Multiplr: 1.00
Quant Results File: CLPVOL.RES

Quant Method : C:\HPCHEM\1\METHODS\CLPVOL.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Wed Jul 30 11:15:26 1997
Response via : Initial Calibration
DataAcq Meth : CLPVOL

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) BROMOCHLOROMETHANE | 9.67 | 128 | 469255 | 50.00 | UG/L | -0.03 |
| 26) 1,4-DIFLUOROBENZENE | 20.37 | 114 | 1522728 | 50.00 | UG/L | 0.00 |
| 40) CHLOROBENZENE-d5 | 25.15 | 117 | 1267146 | 50.00 | UG/L | 0.00 |
| **System Monitoring Compounds** | | | | | | |
| 25) 1,2-Dichloroethane-d4 | 12.69 | 65 | 1414586 | 97.51 | UG/L | 0.10 |
| Spiked Amount 50.000 | Range 76 - 114 | | Recovery = 195.02%# | | | |
| 37) Toluene-d8 | 23.95 | 98 | 2702480 | 96.97 | UG/L | 0.03 |
| Spiked Amount 50.000 | Range 88 - 110 | | Recovery = 193.94%# | | | |
| 53) Bromofluorobenzene | 28.79 | 95 | 2251184 | 94.87 | UG/L | 0.00 |
| Spiked Amount 50.000 | Range 86 - 115 | | Recovery = 189.74%# | | | |
| **Target Compounds** | | | | | | Qvalue |
| 2) Dichlorodifluoromethane | 2.05 | 85 | 603038 | 95.73 | UG/L # | 100 |
| 3) Chloromethane | 0.96 | 50 | 782626 | 94.55 | UG/L # | 100 |
| 4) VINYL CHLORIDE | 2.12 | 62 | 378928 | 94.35 | UG/L # | 100 |
| 5) Bromomethane | 1.65 | 94 | 481387 | 97.53 | UG/L # | 100 |
| 6) Chloroethane | 3.11 | 64 | 289358 | 82.38 | UG/L # | 100 |
| 7) Trichlorofluoromethane | 7.98 | 101 | 1808502 | 91.99 | UG/L # | 100 |
| 8) Diethyl ether | 11.76 | 59 | 571089 | 97.70 | UG/L # | 100 |
| 9) Acrolein | 6.52 | 56 | 701779 | 568.81 | UG/L # | 100 |
| 10) Acetone | 6.66 | 43 | 468151 | 92.40 | UG/L # | 100 |
| 11) Trichlorotrifluoroethane | 12.26 | 101 | 1811429 | 94.71 | UG/L # | 100 |
| 12) 1,1-DICHLOROETHENE | 8.94 | 96 | 870569 | 95.98 | UG/L # | 100 |
| 13) Methylene Chloride | 5.50 | 84 | 1039521 | 97.40 | UG/L # | 28 |
| 14) Acrylonitrile | 7.42 | 53 | 2355705 | 582.35 | UG/L # | 100 |
| 15) Carbon Disulfide | 7.19 | 76 | 2150306 | 93.86 | UG/L # | 100 |
| 16) Vinyl acetate | 14.48 | 43 | 2075400 | 101.27 | UG/L # | 100 |
| 17) Methyl-t-butyl ether | 13.85 | 73 | 2042822 | 95.79 | UG/L # | 100 |
| 18) 1,2-Dichloroethene (total) | 11.39 | 96 | 1823869 | 193.88 | UG/L # | 100 |
| 19) Diisopropyl ether | 18.78 | 45 | 3589293 | 95.72 | UG/L # | 100 |
| 20) 1,1-Dichloroethane | 10.47 | 63 | 1885159 | 96.98 | UG/L # | 100 |
| 21) 2-Butanone | 12.82 | 43 | 958131 | 101.38 | UG/L # | 100 |
| 22) Ethyl acetate | 14.74 | 43 | 2047460 | 96.05 | UG/L # | 100 |
| 23) CHLOROFORM | 12.06 | 83 | 2276345 | 99.60 | UG/L # | 100 |
| 24) Tetrahydrofuran | 10.60 | 42 | 1539789 | 255.37 | UG/L # | 100 |
| 27) 1,1,1-Trichloroethane | 14.01 | 97 | 1739702 | 93.72 | UG/L # | 100 |
| 28) Carbon Tetrachloride | 14.38 | 117 | 1872470 | 93.86 | UG/L # | 100 |
| 29) 1,2-Dichloroethane | 12.79 | 62 | 1445586 | 99.55 | UG/L # | 100 |
| 30) Benzene | 17.76 | 78 | 2390603 | 94.54 | UG/L # | 100 |
| 31) Trichloroethene | 17.36 | 130 | 1404547 | 95.01 | UG/L # | 100 |

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

Quantitation Report (QT Reviewed)

Data File : C:\C073097\1412C.D
Acq On : 30 Jul 97 9:10
Sample : VSTD100
Misc :
MS Integration Params: rteint.p
Quant Time: Jul 31 10:16 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#3
Multiplr: 1.00
Quant Results File: CLPVOL.RES

Quant Method : C:\HPCHEM\1\METHODS\CLPVOL.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Wed Jul 30 11:15:26 1997
Response via : Initial Calibration
DataAcq Meth : CLPVOL

| | Compound | R.T. | QIon | Response | Conc | Unit | | Qvalue |
|---|---|---|---|---|---|---|---|---|
| 32) | 1,2-DICHLOROPROPANE | 16.46 | 63 | 1388548 | 97.39 | UG/L | # | 100 |
| 33) | Bromodichloromethane | 15.21 | 83 | 2492121 | 99.34 | UG/L | # | 100 |
| 34) | 2-Chloroethylvinylether | 19.12 | 63 | 762247 | 100.14 | UG/L | # | 100 |
| 35) | 4-Methyl-2-Pentanone | 21.04 | 43 | 2166444 | 100.25 | UG/L | # | 100 |
| 36) | cis-1,3-Dichloropropene | 16.80 | 75 | 1620473 | 98.24 | UG/L | # | 100 |
| 38) | TOLUENE | 24.12 | 92 | 1452633m | 86.06 | UG/L | | 100 |
| 39) | trans-1,3-Dichloropropene | 18.06 | 75 | 1625531 | 98.89 | UG/L | # | 100 |
| 41) | 2-Hexanone | 22.59 | 43 | 1754838 | 99.22 | UG/L | # | 100 |
| 42) | 1,1,2-Trichloroethane | 18.09 | 97 | 1263568 | 98.27 | UG/L | # | 100 |
| 43) | trans-1,4-Dichloro-2-butad | 23.19 | 75 | 450365 | 102.95 | UG/L | # | 68 |
| 44) | Tetrachloroethene | 22.96 | 164 | 1234121 | 97.11 | UG/L | # | 100 |
| 45) | Dibromochloromethane | 17.99 | 129 | 2655950 | 99.20 | UG/L | # | 100 |
| 46) | Chlorobenzene | 25.25 | 112 | 2340538 | 98.83 | UG/L | # | 100 |
| 47) | ETHYLBENZENE | 27.00 | 106 | 1005934 | 96.96 | UG/L | # | 100 |
| 48) | Xylene (o,p) | 30.48 | 106 | 2377634 | 189.80 | UG/L | # | 100 |
| 49) | Xylene (m) | 29.88 | 106 | 1229696 | 92.26 | UG/L | # | 100 |
| 50) | Styrene | 29.72 | 104 | 2031422 | 97.93 | UG/L | # | 100 |
| 51) | Bromoform | 20.64 | 173 | 2517055 | 100.23 | UG/L | # | 100 |
| 52) | 1,1,2,2-Tetrachloroethane | 22.93 | 83 | 2566189 | 101.84 | UG/L | # | 100 |
| 54) | m-Dichlorobenzene | 32.87 | 146 | 2408915 | 97.76 | UG/L | # | 100 |
| 55) | o,p-Dichlorobenzene | 33.76 | 146 | 4880037m | 198.28 | UG/L | | 100 |

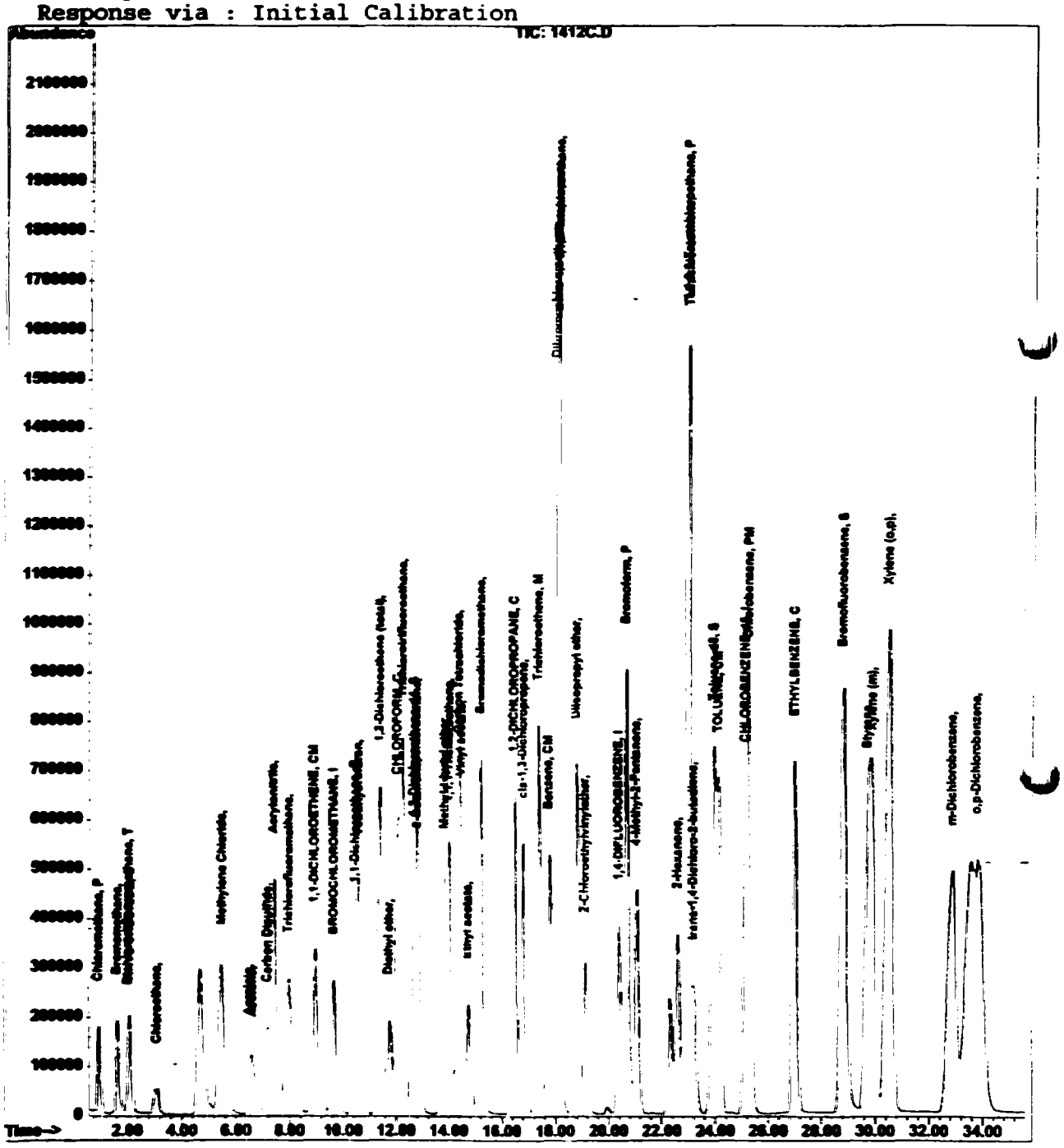
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\C073097\1412C.D
Acq On : 30 Jul 97 9:10
Sample : VSTD100
Misc :
MS Integration Params: rteint.p
Quant Time: Jul 31 10:16 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#3
Multiplr: 1.00
Quant Results File: CLPVOL.RES

Method : C:\HPCHEM\1\METHODS\CLPVOL.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Wed Jul 30 11:15:26 1997
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\C073097\1413C.D
Acq On : 30 Jul 97 9:53
Sample : VSTD050
Misc :
MS Integration Params: rteint.p
Quant Time: Jul 31 10:15 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#3
Multiplr: 1.00
Quant Results File: CLPVOL.RES

Quant Method : C:\HPCHEM\1\METHODS\CLPVOL.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Wed Jul 30 11:15:26 1997
Response via : Initial Calibration
DataAcq Meth : CLPVOL

| Internal Standards | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| 1) BROMOCHLOROMETHANE | 9.67 | 128 | 371493 | 50.00 UG/L | -0.03 |
| 26) 1,4-DIFLUOROBENZENE | 20.37 | 114 | 1448150 | 50.00 UG/L | 0.00 |
| 40) CHLOROBENZENE-d5 | 25.15 | 117 | 1189130 | 50.00 UG/L | 0.00 |
| **System Monitoring Compounds** | | | | | |
| 25) 1,2-Dichloroethane-d4 | 12.72 | 65 | 596843 | 51.97 UG/L | 0.13 |
| Spiked Amount 50.000 | Range 76 - 114 | | Recovery = 103.94% | | |
| 37) Toluene-d8 | 23.95 | 98 | 1319610 | 49.79 UG/L | 0.03 |
| Spiked Amount 50.000 | Range 88 - 110 | | Recovery = 99.58% | | |
| 53) Bromofluorobenzene | 28.82 | 95 | 1173505 | 52.70 UG/L | 0.03 |
| Spiked Amount 50.000 | Range 86 - 115 | | Recovery = 105.40% | | |
| **Target Compounds** | | | | | Qvalue |
| 2) Dichlorodifluoromethane | 2.05 | 85 | 294907 | 59.14 UG/L # | 100 |
| 3) Chloromethane | 0.92 | 50 | 422383 | 64.46 UG/L # | 100 |
| 4) VINYL CHLORIDE | 2.12 | 62 | 189723 | 59.67 UG/L # | 100 |
| 5) Bromomethane | 1.62 | 94 | 221248 | 56.62 UG/L # | 100 |
| 6) Chloroethane | 2.98 | 64 | 222803m | 80.12 UG/L | 100 |
| 7) Trichlorofluoromethane | 7.98 | 101 | 947062 | 60.85 UG/L # | 100 |
| 8) Diethyl ether | 11.79 | 59 | 211475 | 45.70 UG/L # | 100 |
| 9) Acrolein | 6.39 | 56 | 238949 | 244.64 UG/L # | 100 |
| 10) Acetone | 6.39 | 43 | 162877 | 40.61 UG/L # | 100 |
| 11) Trichlorotrifluoroethane | 12.29 | 101 | 822338 | 54.31 UG/L # | 100 |
| 12) 1,1-DICHLOROETHENE | 8.98 | 96 | 413926 | 57.64 UG/L # | 100 |
| 13) Methylene Chloride | 5.36 | 84 | 456193 | 53.99 UG/L # | 28 |
| 14) Acrylonitrile | 7.22 | 53 | 856586 | 267.48 UG/L # | 100 |
| 15) Carbon Disulfide | 7.25 | 76 | 972875 | 53.64 UG/L # | 100 |
| 16) Vinyl acetate | 14.48 | 43 | 752745 | 46.40 UG/L # | 100 |
| 17) Methyl-t-butyl ether | 13.91 | 73 | 886512 | 52.51 UG/L # | 100 |
| 18) 1,2-Dichloroethene (total) | 11.46 | 96 | 742127 | 99.65 UG/L # | 100 |
| 19) Diisopropyl ether | 18.78 | 45 | 1756647 | 59.18 UG/L # | 100 |
| 20) 1,1-Dichloroethane | 10.50 | 63 | 861252 | 55.97 UG/L # | 100 |
| 21) 2-Butanone | 12.79 | 43 | 341457 | 45.64 UG/L # | 100 |
| 22) Ethyl acetate | 14.84 | 43 | 904949 | 53.62 UG/L # | 100 |
| 23) CHLOROFORM | 12.12 | 83 | 946201 | 52.30 UG/L # | 100 |
| 24) Tetrahydrofuran | 10.60 | 42 | 480779 | 100.72 UG/L # | 100 |
| 27) 1,1,1-Trichloroethane | 14.11 | 97 | 857528 | 48.57 UG/L # | 100 |
| 28) Carbon Tetrachloride | 14.51 | 117 | 938992 | 49.49 UG/L # | 100 |
| 29) 1,2-Dichloroethane | 12.85 | 62 | 590258 | 42.74 UG/L # | 100 |
| 30) Benzene | 17.79 | 78 | 1181285 | 49.12 UG/L # | 100 |
| 31) Trichloroethene | 17.36 | 130 | 695469 | 49.47 UG/L # | 100 |

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

Quantitation Report (QT Reviewed)

Data File : C:\C073097\1413C.D
Acq On : 30 Jul 97 9:53
Sample : VSTD050
Misc :
MS Integration Params: rteint.p
Quant Time: Jul 31 10:15 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#3
Multiplr: 1.00
Quant Results File: CLPVOL.RES

Quant Method : C:\HPCHEM\1\METHODS\CLPVOL.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Wed Jul 30 11:15:26 1997
Response via : Initial Calibration
DataAcq Meth : CLPVOL

| Compound | R.T. | QIon | Response | Conc Unit | Qvalue |
|---|---|---|---|---|---|
| 32) 1,2-DICHLOROPROPANE | 16.46 | 63 | 688921 | 50.81 UG/L # | 100 |
| 33) Bromodichloromethane | 15.21 | 83 | 1193641 | 50.03 UG/L # | 100 |
| 34) 2-Chloroethylvinylether | 19.12 | 63 | 336266 | 46.45 UG/L # | 100 |
| 35) 4-Methyl-2-Pentanone | 21.04 | 43 | 905691 | 44.07 UG/L # | 100 |
| 36) cis-1,3-Dichloropropene | 16.80 | 75 | 784527 | 50.01 UG/L # | 100 |
| 38) TOLUENE | 24.12 | 92 | 724387 | 45.12 UG/L # | 100 |
| 39) trans-1,3-Dichloropropene | 18.06 | 75 | 814105 | 52.08 UG/L # | 100 |
| 41) 2-Hexanone | 22.60 | 43 | 713303 | 42.98 UG/L # | 100 |
| 42) 1,1,2-Trichloroethane | 19.09 | 97 | 623859 | 51.70 UG/L # | [illegible] |
| 43) trans-1,4-Dichloro-2-butad | 23.19 | 75 | 185932 | 45.29 UG/L # | 9 |
| 44) Tetrachloroethene | 22.96 | 164 | 587926 | 49.30 UG/L # | 100 |
| 45) Dibromochloromethane | 18.02 | 129 | 1270531 | 50.57 UG/L # | 100 |
| 46) Chlorobenzene | 25.25 | 112 | 1112776 | 50.07 UG/L # | 100 |
| 47) ETHYLBENZENE | 27.00 | 106 | 477973 | 49.09 UG/L # | 100 |
| 48) Xylene (o,p) | 30.48 | 106 | 1160111 | 98.68 UG/L # | 100 |
| 49) Xylene (m) | 29.88 | 106 | 558744m | 44.67 UG/L | 100 |
| 50) Styrene | 29.72 | 104 | 990324 | 50.87 UG/L # | 100 |
| 51) Bromoform | 20.67 | 173 | 1131033 | 47.99 UG/L # | 100 |
| 52) 1,1,2,2-Tetrachloroethane | 22.93 | 83 | 1184989 | 50.11 UG/L # | 100 |
| 54) m-Dichlorobenzene | 32.83 | 146 | 1192816 | 51.59 UG/L # | 100 |
| 55) o,p-Dichlorobenzene | 33.80 | 146 | 2399079m | 103.87 UG/L | 100 |

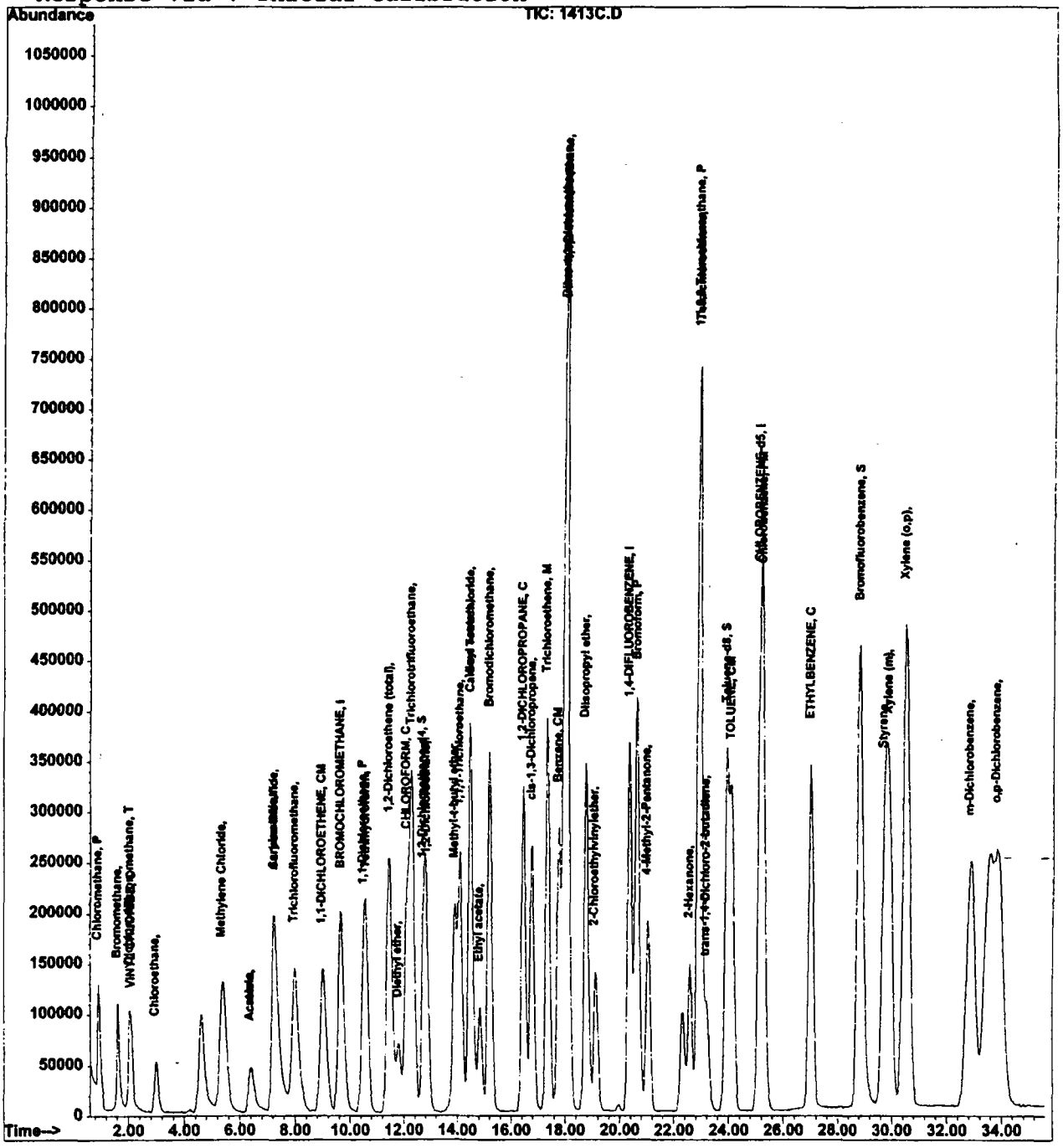
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\C073097\1413C.D
Acq On : 30 Jul 97 9:53
Sample : VSTD050
Misc :
MS Integration Params: rteint.p
Quant Time: Jul 31 10:15 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#3
Multiplr: 1.00
Quant Results File: CLPVOL.RES

Method : C:\HPCHEM\1\METHODS\CLPVOL.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Wed Jul 30 11:15:26 1997
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\C073097\1414C.D
Acq On : 30 Jul 97 10:36
Sample : VSTD020
Misc :
MS Integration Params: rteint.p
Quant Time: Jul 31 10:13 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#3
Multiplr: 1.00
Quant Results File: CLPVOL.RES

Quant Method : C:\HPCHEM\1\METHODS\CLPVOL.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Wed Jul 30 11:15:26 1997
Response via : Initial Calibration
DataAcq Meth : CLPVOL

| Internal Standards | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| 1) BROMOCHLOROMETHANE | 9.64 | 128 | 433599 | 50.00 UG/L | -0.07 |
| 26) 1,4-DIFLUOROBENZENE | 20.37 | 114 | 1365848 | 50.00 UG/L | 0.00 |
| 40) CHLOROBENZENE-d5 | 25.15 | 117 | 1140021 | 50.00 UG/L | 0.00 |
| **System Monitoring Compounds** | | | | | |
| 25) 1,2-Dichloroethane-d4 | 12.75 | 65 | 308484 | 23.01 UG/L | 0.17 |
| Spiked Amount 50.000 | Range 76 - 114 | | Recovery = | 46.02%# | |
| 37) Toluene-d8 | 23.95 | 98 | 561297 | 22.45 UG/L | 0.0[illegible] |
| Spiked Amount 50.000 | Range 88 - 110 | | Recovery = | 44.90%# | |
| 53) Bromofluorobenzene | 28.82 | 95 | 470830 | 22.05 UG/L | 0.03 |
| Spiked Amount 50.000 | Range 86 - 115 | | Recovery = | 44.10%# | |
| **Target Compounds** | | | | | Qvalue |
| 2) Dichlorodifluoromethane | 2.05 | 85 | 127143 | 21.84 UG/L # | 100 |
| 3) Chloromethane | 0.89 | 50 | 158042 | 20.66 UG/L # | 100 |
| 4) VINYL CHLORIDE | 2.12 | 62 | 88081 | 23.74 UG/L # | 100 |
| 5) Bromomethane | 1.62 | 94 | 106226 | 23.29 UG/L # | 100 |
| 6) Chloroethane | 2.98 | 64 | 101479 | 31.26 UG/L # | 100 |
| 7) Trichlorofluoromethane | 8.01 | 101 | 400310 | 22.04 UG/L # | 100 |
| 8) Diethyl ether | 11.79 | 59 | 128074 | 23.71 UG/L # | 100 |
| 9) Acrolein | 6.36 | 56 | 166524 | 146.07 UG/L # | 100 |
| 10) Acetone | 6.36 | 43 | 137206m | 29.31 UG/L | 100 |
| 11) Trichlorotrifluoroethane | 12.32 | 101 | 397355 | 22.48 UG/L # | 100 |
| 12) 1,1-DICHLOROETHENE | 8.98 | 96 | 170263 | 20.31 UG/L # | 100 |
| 13) Methylene Chloride | 5.36 | 84 | 211590 | 21.45 UG/L # | 32 |
| 14) Acrylonitrile | 7.19 | 53 | 572452 | 153.15 UG/L # | 100 |
| 15) Carbon Disulfide | 7.25 | 76 | 417667 | 19.73 UG/L # | 10[illegible] |
| 16) Vinyl acetate | 14.48 | 43 | 454130 | 23.98 UG/L # | 100 |
| 17) Methyl-t-butyl ether | 13.91 | 73 | 443022 | 22.48 UG/L # | 100 |
| 18) 1,2-Dichloroethene (total) | 11.46 | 96 | 381376 | 43.87 UG/L # | 100 |
| 19) Diisopropyl ether | 18.78 | 45 | 750365 | 21.66 UG/L # | 100 |
| 20) 1,1-Dichloroethane | 10.50 | 63 | 393926 | 21.93 UG/L # | 100 |
| 21) 2-Butanone | 12.79 | 43 | 208655 | 23.89 UG/L # | 100 |
| 22) Ethyl acetate | 14.84 | 43 | 471213 | 23.92 UG/L # | 100 |
| 23) CHLOROFORM | 12.09 | 83 | 468126 | 22.17 UG/L # | 100 |
| 24) Tetrahydrofuran | 10.57 | 42 | 341238 | 61.25 UG/L # | 100 |
| 27) 1,1,1-Trichloroethane | 14.11 | 97 | 373917 | 22.46 UG/L # | 100 |
| 28) Carbon Tetrachloride | 14.51 | 117 | 390170 | 21.80 UG/L # | 100 |
| 29) 1,2-Dichloroethane | 12.85 | 62 | 307802 | 23.63 UG/L # | 100 |
| 30) Benzene | 17.79 | 78 | 535143 | 23.59 UG/L # | 100 |
| 31) Trichloroethene | 17.39 | 130 | 300192 | 22.64 UG/L # | 100 |

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

Quantitation Report (QT Reviewed)

Data File : C:\C073097\1414C.D
Acq On : 30 Jul 97 10:36
Sample : VSTD020
Misc :
MS Integration Params: rteint.p
Quant Time: Jul 31 10:13 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#3
Multiplr: 1.00
Quant Results File: CLPVOL.RES

Quant Method : C:\HPCHEM\1\METHODS\CLPVOL.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Wed Jul 30 11:15:26 1997
Response via : Initial Calibration
DataAcq Meth : CLPVOL

| Compound | R.T. | QIon | Response | Conc Unit | Qvalue |
|---|---|---|---|---|---|
| 32) 1,2-DICHLOROPROPANE | 16.46 | 63 | 280154 | 21.91 UG/L # | 100 |
| 33) Bromodichloromethane | 15.21 | 83 | 473918 | 21.06 UG/L # | 100 |
| 34) 2-Chloroethylvinylether | 19.15 | 63 | 137923 | 20.20 UG/L # | 100 |
| 35) 4-Methyl-2-Pentanone | 21.07 | 43 | 459477 | 23.70 UG/L # | 100 |
| 36) cis-1,3-Dichloropropene | 16.80 | 75 | 305899 | 20.68 UG/L # | 100 |
| 38) TOLUENE | 24.12 | 92 | 421481m | 27.84 UG/L | 100 |
| 39) trans-1,3-Dichloropropene | 18.09 | 75 | 321237 | 21.79 UG/L # | 100 |
| 41) 2-Hexanone | 22.59 | 43 | 402715 | 25.31 UG/L # | 100 |
| 42) 1,1,2-Trichloroethane | 18.09 | 97 | 257291 | 22.24 UG/L # | 100 |
| 43) trans-1,4-Dichloro-2-butad | 23.22 | 75 | 77228 | 19.62 UG/L # | 82 |
| 44) Tetrachloroethene | 22.96 | 164 | 251009 | 21.95 UG/L # | 100 |
| 45) Dibromochloromethane | 18.02 | 129 | 495934 | 20.59 UG/L # | 100 |
| 46) Chlorobenzene | 25.25 | 112 | 462118 | 21.69 UG/L # | 100 |
| 47) ETHYLBENZENE | 27.00 | 106 | 214034 | 22.93 UG/L # | 100 |
| 48) Xylene (o,p) | 30.51 | 106 | 540570 | 47.96 UG/L # | 100 |
| 49) Xylene (m) | 29.92 | 106 | 328311m | 27.38 UG/L | 100 |
| 50) Styrene | 29.75 | 104 | 398748 | 21.37 UG/L # | 100 |
| 51) Bromoform | 20.67 | 173 | 442371 | 19.58 UG/L # | 100 |
| 52) 1,1,2,2-Tetrachloroethane | 22.93 | 83 | 487415 | 21.50 UG/L # | 100 |
| 54) m-Dichlorobenzene | 32.90 | 146 | 478267 | 21.57 UG/L # | 100 |
| 55) o,p-Dichlorobenzene | 33.83 | 146 | 961998m | 43.45 UG/L | 100 |

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

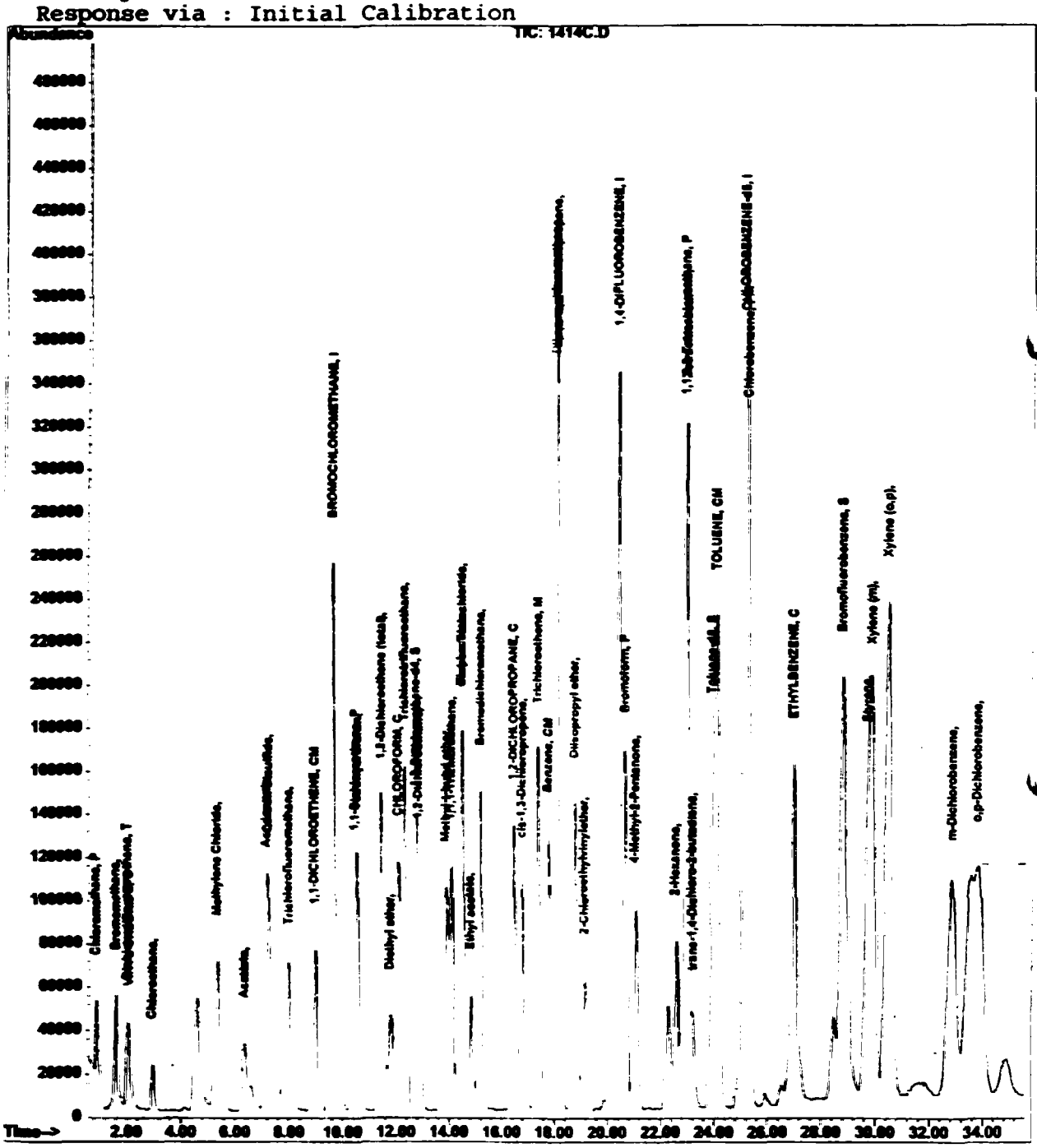
Quantitation Report

Data File : C:\C073097\1414C.D
Acq On : 30 Jul 97 10:36
Sample : VSTD020
Misc :
MS Integration Params: rteint.p
Quant Time: Jul 31 10:13 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#3
Multiplr: 1.00

Quant Results File: CLPVOL.RES

Method : C:\HPCHEM\1\METHODS\CLPVOL.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Wed Jul 30 11:15:26 1997
Response via : Initial Calibration



Continuing Calibration Report

Data File : C:\C081997\1640C.D
Acq On : 19 Aug 97 4:38
Sample : VSTD050 #081497
Misc : CALIBRATION CHECK 8/19/97
MS Integration Params: rteint.p

Vial: 1
Operator: HAROLD
Inst : GCMS#3
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\CLPVOL.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Wed Jul 30 11:15:26 1997
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

cal 20 = 1414C.D cal 50 = 1413C.D cal100 = 1412C.D
cal150 = 1411C.D cal200 = 1410C.D

| | | Compound | AvgRF | CCRF | %Dev |
|---|---|---|---|---|---|
| 1 | I | BROMOCHLOROMETHANE | 1.00000 | 1.00000 | 0.0 |
| 2 | T | Dichlorodifluoromethane | 0.67131 | 0.16632 | 75.2# |
| 3 | P | Chloromethane | 0.88270 | 0.51045 | 42.2# |
| 4 | C | VINYL CHLORIDE | 0.42925 | 0.36867 | 14.1 |
| 5 | | Bromomethane | 0.52764 | 0.40838 | 22.6 |
| 6 | | Chloroethane | 0.38098 | 0.49762 | 30.6# |
| 7 | | Trichlorofluoromethane | 2.09471 | 1.98295 | 5.3 |
| 8 | | Diethyl ether | 0.62280 | 0.71205 | 14.3 |
| 9 | | Acrolein | 0.13278 | 0.08265 | 37.8# |
| 10 | | Acetone | 0.54035 | 0.56854 | 5.2 |
| 11 | | Trichlorotrifluoroethane | 2.03665 | 1.90441 | 6.5 |
| 12 | CM | 1,1-DICHLOROETHENE | 0.96646 | 0.79716 | 17.5 |
| 13 | | Methylene Chloride | 1.14085 | 1.15214 | 1.0 |
| 14 | | Acrylonitrile | 0.43674 | 0.31545 | 27.8# |
| 15 | | Carbon Disulfide | 2.44143 | 1.69278 | 30.7# |
| 16 | | Vinyl acetate | 2.18379 | 2.21383 | 1.4 |
| 17 | | Methyl-t-butyl ether | 2.27230 | 2.43192 | 7.0 |
| 18 | | 1,2-Dichloroethene (total) | 1.00236 | 1.07721 | 7.5 |
| 19 | | Diisopropyl ether | 3.99533 | 4.63748 | 16.1 |
| 20 | P | 1,1-Dichloroethane | 2.07355 | 2.27228 | 9.6 |
| 21 | | 2-Butanone | 1.00856 | 0.99348 | 1.5 |
| 22 | | Ethyl acetate | 2.31482 | 2.21866 | 4.2 |
| 23 | C | CHLOROFORM | 2.43524 | 2.80227 | 15.1 |
| 24 | | Tetrahydrofuran | 0.64384 | 0.63155 | 1.9 |
| 25 | S | 1,2-Dichloroethane-d4 | 1.55626 | 1.75798 | 13.0 |
| 26 | I | 1,4-DIFLUOROBENZENE | 1.00000 | 1.00000 | 0.0 |
| 27 | | 1,1,1-Trichloroethane | 0.60953 | 0.62445 | 2.4 |
| 28 | | Carbon Tetrachloride | 0.65506 | 0.62201 | 5.0 |
| 29 | | 1,2-Dichloroethane | 0.47645 | 0.56639 | 18.9 |
| 30 | CM | Benzene | 0.83024 | 0.87181 | 5.0 |
| 31 | M | Trichloroethene | 0.48540 | 0.46206 | 4.8 |
| 32 | C | 1,2-DICHLOROPROPANE | 0.46817 | 0.51171 | 9.3 |
| 33 | | Bromodichloromethane | 0.82376 | 0.91789 | 11.4 |
| 34 | | 2-Chloroethylvinylether | 0.24981 | 0.25607 | 2.5 |
| 35 | | 4-Methyl-2-Pentanone | 0.70961 | 0.69403 | 2.2 |
| 36 | | cis-1,3-Dichloropropene | 0.54204 | 0.58140 | 7.3 |
| 37 | S | Toluene-d8 | 0.91528 | 0.89361 | 2.4 |
| 38 | CM | TOLUENE | 0.54249 | 0.55010 | 1.4 |
| 39 | | trans-1,3-Dichloropropene | 0.54182 | 0.58596 | 8.1 |

(#) = Out of Range (Advisory for non CCC, SPCC)

Continuing Calibration Report

Data File : C:\C081997\1640C.D
Acq On : 19 Aug 97 4:38
Sample : VSTD050 #081497
Misc : CALIBRATION CHECK 8/19/97
MS Integration Params: rteint.p

Vial: 1
Operator: HAROLD
Inst : GCMS#3
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\CLPVOL.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Wed Jul 30 11:15:26 1997
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

cal 20 = 1414C.D cal 50 = 1413C.D cal100 = 1412C.D
cal150 = 1411C.D cal200 = 1410C.D

| | | Compound | AvgRF | CCRF | %Dev |
|---|---|---|---|---|---|
| 40 | I | CHLOROBENZENE-d5 | 1.00000 | 1.00000 | 0.0 |
| 41 | | 2-Hexanone | 0.69633 | 0.63804 | 8.4 |
| 42 | | 1,1,2-Trichloroethane | 0.50787 | 0.52763 | 3.9 |
| 43 | | trans-1,4-Dichloro-2-butadi | 0.17262 | 0.15197 | 12.0 |
| 44 | | Tetrachloroethene | 0.50146 | 0.45225 | 9.8 |
| 45 | | Dibromochloromethane | 1.05644 | 1.01730 | 3.7 |
| 46 | PM | Chlorobenzene | 0.93451 | 0.93051 | 0.4 |
| 47 | C | ETHYLBENZENE | 0.40937 | 0.42639 | 4.2 |
| 48 | | Xylene (o,p) | 0.49431 | 0.48612 | 1.7 |
| 49 | | Xylene (m) | 0.52680 | 0.50511 | 4.1 |
| 50 | | Styrene | 0.81851 | 0.80861 | 1.2 |
| 51 | P | Bromoform | 0.99097 | 0.87761 | 11.4 |
| 52 | P | 1,1,2,2-Tetrachloroethane | 0.99431 | 1.05311 | 5.9 |
| 53 | S | Bromofluorobenzene | 0.93764 | 0.93647 | 0.1 |
| 54 | | m-Dichlorobenzene | 0.97227 | 0.96458 | 0.8 |
| 55 | | o,p-Dichlorobenzene | 0.97400 | 0.96574 | 0.8 |

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

0450C.D CLPVOL.M Tue Aug 19 05:20:02 1997 MANAGER

Quantitation Report (QT Reviewed)

Data File : C:\C081997\1640C.D
Acq On : 19 Aug 97 4:38
Sample : VSTD050 #081497
Misc : CALIBRATION CHECK 8/19/97
MS Integration Params: rteint.p
Quant Time: Aug 19 5:19 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#3
Multiplr: 1.00
Quant Results File: CLPVOL.RES

Quant Method : C:\HPCHEM\1\METHODS\CLPVOL.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Wed Jul 30 11:15:26 1997
Response via : Initial Calibration
DataAcq Meth : CLPVOL

| Internal Standards | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| 1) BROMOCHLOROMETHANE | 9.57 | 128 | 281463 | 50.00 UG/L | -0.13 |
| 26) 1,4-DIFLUOROBENZENE | 20.34 | 114 | 957651 | 50,00 UG/L | -0.03 |
| 40) CHLOROBENZENE-d5 | 25.08 | 117 | 788047 | 50.00 UG/L | -0.06 |
| **System Monitoring Compounds** | | | | | |
| 25) 1,2-Dichloroethane-d4 | 12.69 | 65 | 494805 | 56.48 UG/L | 0.10 |
| Spiked Amount 50.000 | Range 76 - 114 | | Recovery = 112.96% | | |
| 37) Toluene-d8 | 23.89 | 98 | 855765 | 48.82 UG/L | -0.03 |
| Spiked Amount 50.000 | Range 88 - 110 | | Recovery = 97.64% | | |
| 53) Bromofluorobenzene | 28.76 | 95 | 737984 | 49.94 UG/L | -0.03 |
| Spiked Amount 50.000 | Range 86 - 115 | | Recovery = 99.88% | | |
| **Target Compounds** | | | | | Qvalue |
| 2) Dichlorodifluoromethane | 2.02 | 85 | 46814 | 12.39 UG/L # | 100 |
| 3) Chloromethane | 0.89 | 50 | 143674 | 28.91 UG/L # | 100 |
| 4) VINYL CHLORIDE | 2.08 | 62 | 103766 | 42.94 UG/L # | 100 |
| 5) Bromomethane | 1.62 | 94 | 114945 | 38.70 UG/L # | 100 |
| 6) Chloroethane | 2.95 | 64 | 140062 | 65.31 UG/L # | 100 |
| 7) Trichlorofluoromethane | 7.92 | 101 | 558126 | 47.33 UG/L # | 100 |
| 8) Diethyl ether | 11.76 | 59 | 200415 | 57.16 UG/L # | 100 |
| 9) Acrolein | 6.26 | 56 | 139578 | 186.73 UG/L # | 100 |
| 10) Acetone | 6.26 | 43 | 160024 | 52.61 UG/L # | 100 |
| 11) Trichlorotrifluoroethane | 12.26 | 101 | 536022 | 46.75 UG/L # | 100 |
| 12) 1,1-DICHLOROETHENE | 8.91 | 96 | 224372 | 41.24 UG/L # | 100 |
| 13) Methylene Chloride | 5.27 | 84 | 324286 | 50.49 UG/L # | 32 |
| 14) Acrylonitrile | 7.09 | 53 | 532729 | 216.68 UG/L # | 100 |
| 15) Carbon Disulfide | 7.19 | 76 | 476454 | 34.67 UG/L # | 100 |
| 16) Vinyl acetate | 14.41 | 43 | 623112 | 50.69 UG/L # | 100 |
| 17) Methyl-t-butyl ether | 13.85 | 73 | 684495 | 53.51 UG/L # | 100 |
| 18) 1,2-Dichloroethene (total) | 11.36 | 96 | 606391 | 107.47 UG/L # | 100 |
| 19) Diisopropyl ether | 18.75 | 45 | 1305278 | 58.04 UG/L # | 100 |
| 20) 1,1-Dichloroethane | 10.43 | 63 | 639563 | 54.79 UG/L # | 100 |
| 21) 2-Butanone | 12.75 | 43 | 279628 | 49.25 UG/L # | 100 |
| 22) Ethyl acetate | 14.81 | 43 | 624470 | 47.92 UG/L # | 100 |
| 23) CHLOROFORM | 12.03 | 83 | 788736 | 57.54 UG/L # | 100 |
| 24) Tetrahydrofuran | 10.53 | 42 | 444397 | 122.61 UG/L # | 100 |
| 27) 1,1,1-Trichloroethane | 14.05 | 97 | 598005 | 51.22 UG/L # | 100 |
| 28) Carbon Tetrachloride | 14.44 | 117 | 595668 | 47.48 UG/L # | 100 |
| 29) 1,2-Dichloroethane | 12.79 | 62 | 542406 | 59.44 UG/L # | 100 |
| 30) Benzene | 17.76 | 78 | 834887 | 52.50 UG/L # | 100 |
| 31) Trichloroethene | 17.33 | 130 | 442493 | 47.60 UG/L # | 100 |

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

Quantitation Report (QT Reviewed)

Data File : C:\C081997\1640C.D
Acq On : 19 Aug 97 4:38
Sample : VSTD050 #081497
Misc : CALIBRATION CHECK 8/19/97
MS Integration Params: rteint.p
Quant Time: Aug 19 5:19 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#3
Multiplr: 1.00
Quant Results File: CLPVOL.RES

Quant Method : C:\HPCHEM\1\METHODS\CLPVOL.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Wed Jul 30 11:15:26 1997
Response via : Initial Calibration
DataAcq Meth : CLPVOL

| Compound | R.T. | QIon | Response | Conc Unit | Qvalue |
|---|---|---|---|---|---|
| 32) 1,2-DICHLOROPROPANE | 16.43 | 63 | 490040 | 54.65 UG/L # | 100 |
| 33) Bromodichloromethane | 15.14 | 83 | 879020 | 55.71 UG/L # | 100 |
| 34) 2-Chloroethylvinylether | 19.08 | 63 | 245223 | 51.25 UG/L # | 100 |
| 35) 4-Methyl-2-Pentanone | 21.01 | 43 | 664638 | 48.90 UG/L # | 100 |
| 36) cis-1,3-Dichloropropene | 16.73 | 75 | 556783 | 53.63 UG/L # | 100 |
| 38) TOLUENE | 24.09 | 92 | 526805 | 50.70 UG/L # | 100 |
| 39) trans-1,3-Dichloropropene | 18.02 | 75 | 561146 | 54.07 UG/L # | 100 |
| 41) 2-Hexanone | 22.56 | 43 | 502804 | 45.81 UG/L # | 10[illegible] |
| 42) 1,1,2-Trichloroethane | 18.06 | 97 | 415795 | 51.94 UG/L # | 10[illegible] |
| 43) trans-1,4-Dichloro-2-butad | 23.16 | 75 | 119756 | 44.02 UG/L | 90 |
| 44) Tetrachloroethene | 22.93 | 164 | 356397 | 45.09 UG/L # | 100 |
| 45) Dibromochloromethane | 17.96 | 129 | 801680 | 48.15 UG/L # | 100 |
| 46) Chlorobenzene | 25.21 | 112 | 733289 | 49.79 UG/L # | 100 |
| 47) ETHYLBENZENE | 26.97 | 106 | 336012 | 52.08 UG/L # | 100 |
| 48) Xylene (o,p) | 30.45 | 106 | 766166 | 98.34 UG/L # | 100 |
| 49) Xylene (m) | 29.85 | 106 | 398049 | 47.94 UG/L # | 100 |
| 50) Styrene | 29.65 | 104 | 637223 | 49.40 UG/L # | 100 |
| 51) Bromoform | 20.61 | 173 | 691594 | 44.28 UG/L # | 100 |
| 52) 1,1,2,2-Tetrachloroethane | 22.89 | 83 | 829897 | 52.96 UG/L # | 100 |
| 54) m-Dichlorobenzene | 32.77 | 146 | 760136 | 49.60 UG/L # | 100 |
| 55) o,p-Dichlorobenzene | 33.70 | 146 | 1522090m | 99.15 UG/L | 100 |

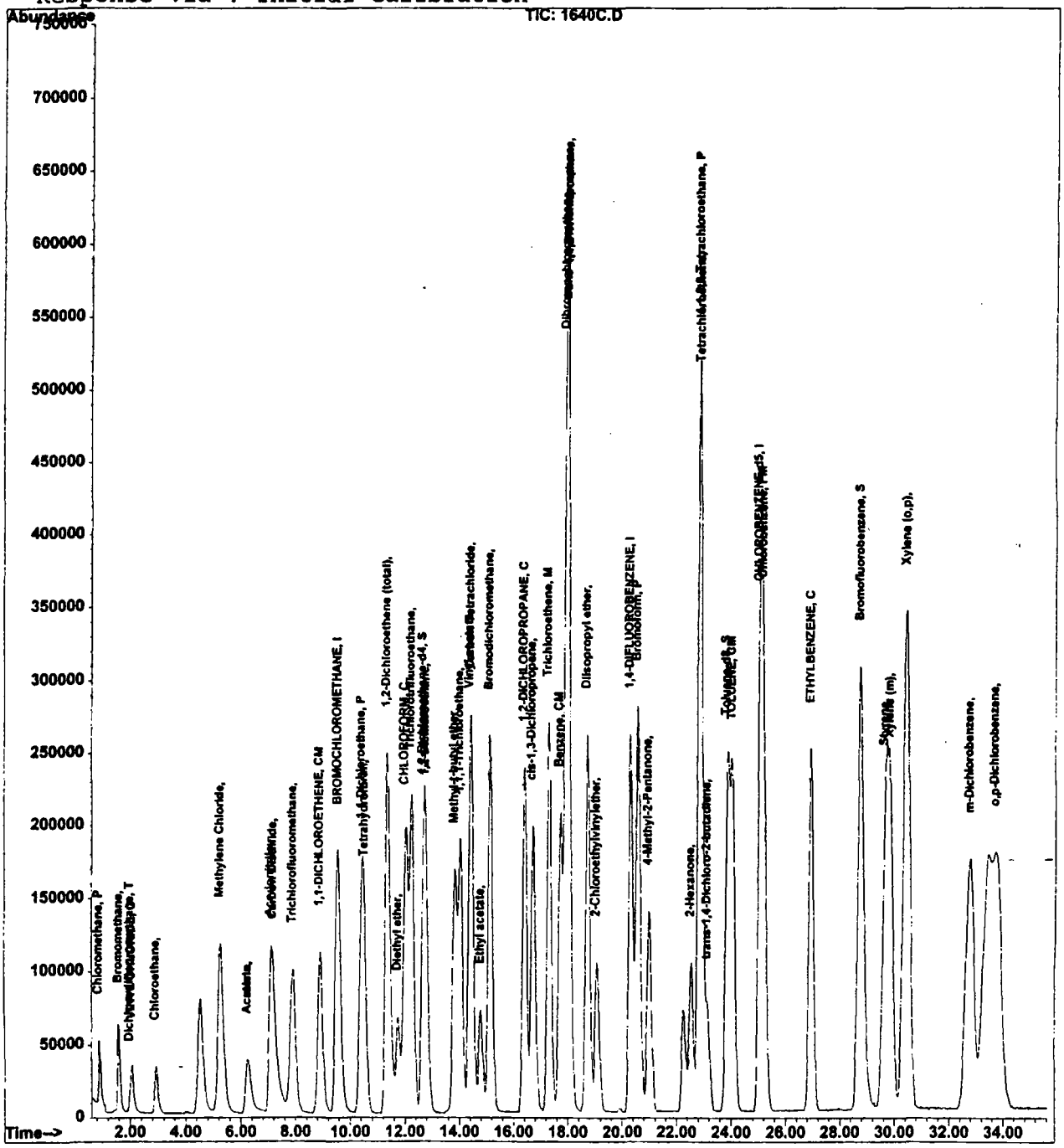
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\C081997\1640C.D
Acq On : 19 Aug 97 4:38
Sample : VSTD050 #081497
Misc : CALIBRATION CHECK 8/19/97
MS Integration Params: rteint.p
Quant Time: Aug 19 5:19 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#3
Multiplr: 1.00
Quant Results File: CLPVOL.RES

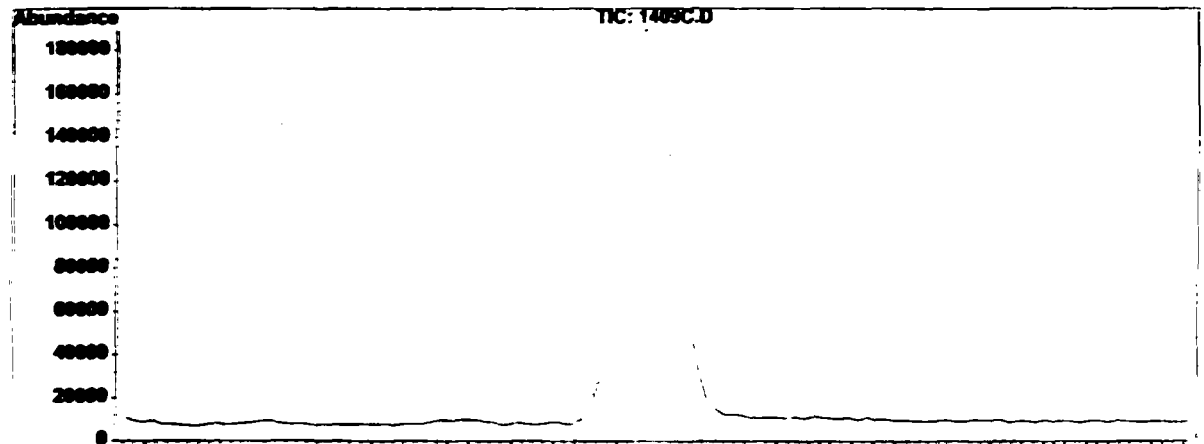
Method : C:\HPCHEM\1\METHODS\CLPVOL.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Wed Jul 30 11:15:26 1997
Response via : Initial Calibration

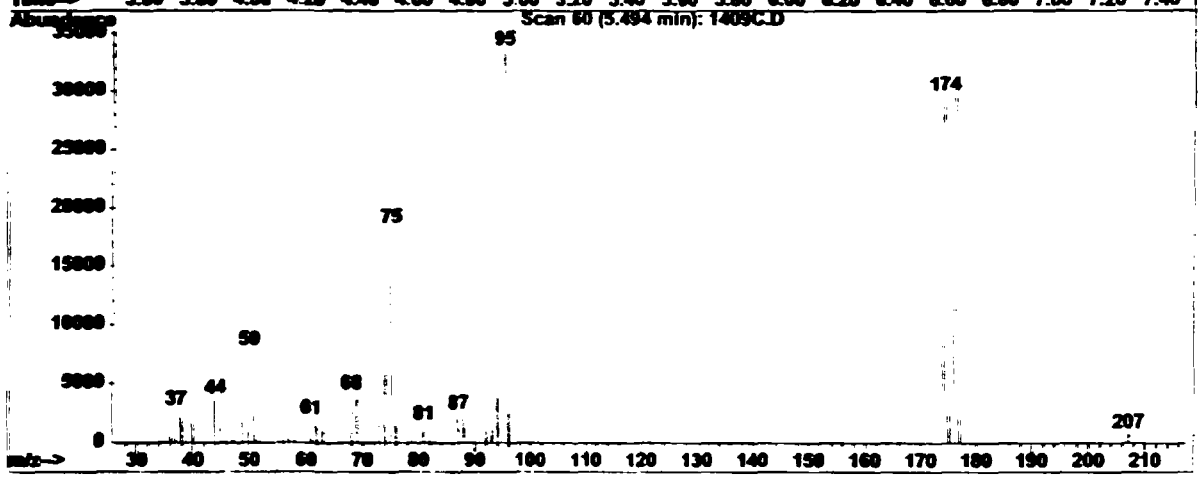


BFB

Data File : C:\C073097\1409C.D
Acq On : 30 Jul 97 7:09
Sample : BFB TUNE CHECK
Misc : 7/30/97
MS Integration Params: rteint.p
Method : C:\HPCHEM\1\METHODS\CERC02.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES

Vial: 2
Operator: HAROLD
Inst : GCMS#3
Multiplr: 1.00




Spectrum Information: Scan 60

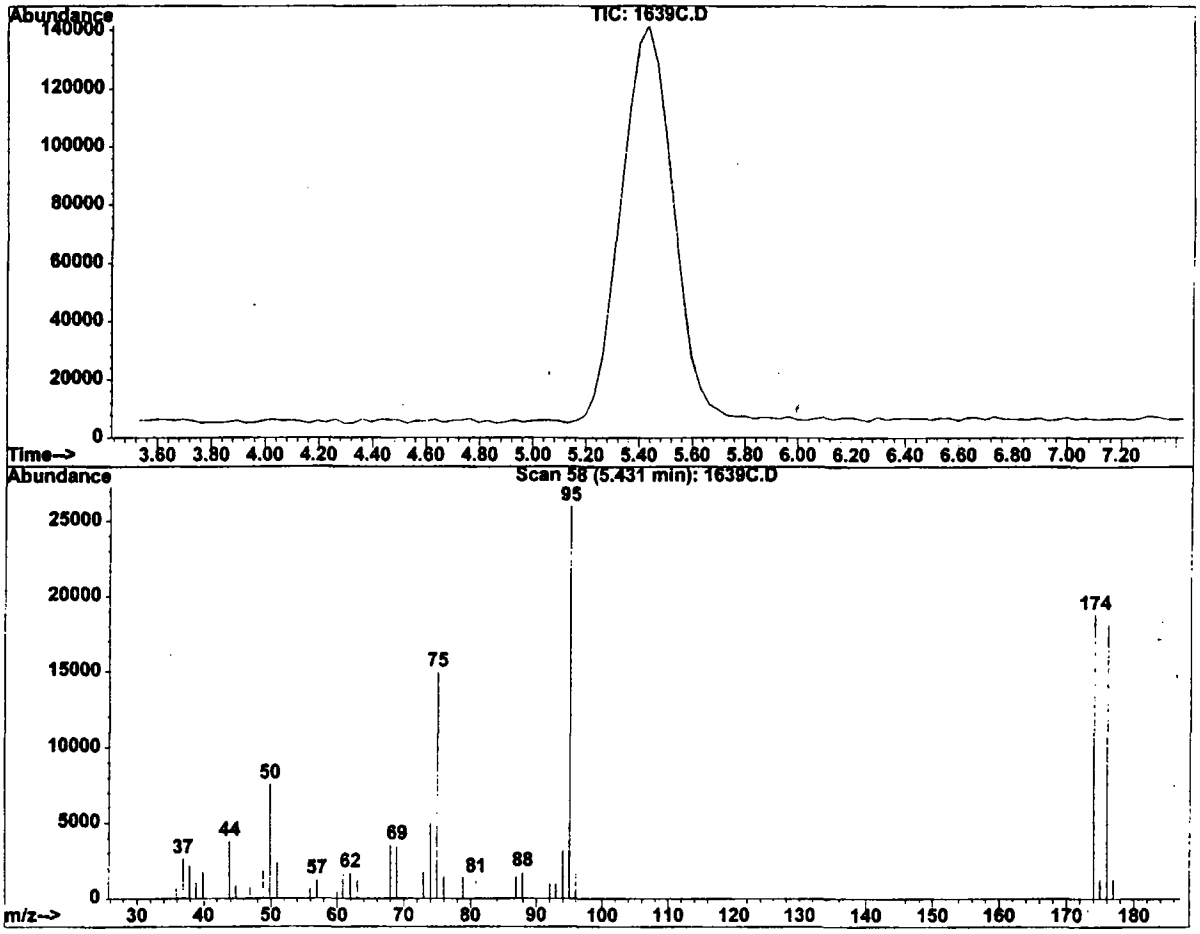
| Target Mass | Rel. to Mass | Lower Limit% | Upper Limit% | Rel. Abn% | Raw Abn | Result Pass/Fail |
|---|---|---|---|---|---|---|
| 50 | 95 | 15 | 40 | 23.2 | 7799 | PASS |
| 75 | 95 | 30 | 60 | 54.5 | 18304 | PASS |
| 95 | 95 | 100 | 100 | 100.0 | 33568 | PASS |
| 96 | 95 | 5 | 9 | 7.9 | 2667 | PASS |
| 173 | 174 | 0.00 | 2 | 0.0 | 0 | PASS |
| 174 | 95 | 50 | 100 | 88.4 | 29664 | PASS |
| 175 | 174 | 5 | 9 | 7.9 | 2349 | PASS |
| 176 | 174 | 95 | 101 | 99.7 | 29568 | PASS |
| 177 | 176 | 5 | 9 | 7.2 | 2139 | PASS |

1409C.D CERC02.M Wed Jul 30 07:19:14 1997 MANAGER

BFB

Data File : C:\C081997\1639C.D
Acq On : 19 Aug 97 3:09
Sample : BFB TUNE CHECK 8/19/97
Misc :
MS Integration Params: rteint.p
Method : C:\HPCHEM\1\METHODS\CLPVOL.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES

Vial: 15
Operator: HAROLD
Inst : GCMS#3
Multiplr: 1.00




Spectrum Information: Scan 58

| Target Mass | Rel. to Mass | Lower Limit% | Upper Limit% | Rel. Abn% | Raw Abn | Result Pass/Fail |
|---|---|---|---|---|---|---|
| 50 | 95 | 15 | 40 | 29.0 | 7557 | PASS |
| 75 | 95 | 30 | 60 | 57.5 | 14957 | PASS |
| 95 | 95 | 100 | 100 | 100.0 | 26016 | PASS |
| 96 | 95 | 5 | 9 | 7.4 | 1920 | PASS |
| 173 | 174 | 0.00 | 2 | 0.0 | 0 | PASS |
| 174 | 95 | 50 | 100 | 72.2 | 18784 | PASS |
| 175 | 174 | 5 | 9 | 6.7 | 1255 | PASS |
| 176 | 174 | 95 | 101 | 96.6 | 18152 | PASS |
| 177 | 176 | 5 | 9 | 7.1 | 1295 | PASS |

1639C.D CLPVOL.M Tue Aug 19 03:22:52 1997 MANAGER

R332588

HERITAGE
SW846-8240 MATRIX METHOD BLANK
VOLATILE ORGANICS FOR GC/MS, PACKED COLUMN TECHNIQUE

GC/MS VOA Data File: >1641C

Date/Time of Analysis: 8/19/97 5:46

| Analyte List | Result | Units | Limit |
|---|---|---|---|
| Acetone | BDL | uG/L | 20 |
| Acrolein | BDL | uG/L | 50 |
| Acrylonitrile | BDL | uG/L | 70 |
| Benzene | BDL | uG/L | 5 |
| Bromodichloromethane | BDL | uG/L | 5 |
| Bromoform | BDL | uG/L | 5 |
| Bromomethane | BDL | uG/L | 10 |
| Carbon Disulfide | BDL | uG/L | 5 |
| Carbon Tetrachloride | BDL | uG/L | 5 |
| Chlorobenzene | BDL | uG/L | 5 |
| Chloroethane | BDL | uG/L | 10 |
| Chloroform | BDL | uG/L | 5 |
| Chloromethane | BDL | uG/L | 10 |
| Dibromochloromethane | BDL | uG/L | 5 |
| Cis-1,3-Dichloropropene | BDL | uG/L | 5 |
| Dichlorodifluoromethane | BDL | uG/L | 5 |
| 1,1-Dichloroethane | BDL | uG/L | 5 |
| 1,2-Dichloroethane | BDL | uG/L | 5 |
| 1,1-Dichloroethene | BDL | uG/L | 5 |
| 1,2-Dichloropropane | BDL | uG/L | 5 |
| Ethyl Benzene | BDL | uG/L | 5 |
| Trichlorofluoromethane | BDL | uG/L | 5 |
| 2-Butanone | BDL | uG/L | 10 |
| Dichloromethane | BDL | uG/L | 5 |
| Methyl Ethyl Ketone | BDL | uG/L | 10 |
| 4-Methyl-2-Pentanone | BDL | uG/L | 10 |
| Styrene | BDL | uG/L | 5 |
| 1,1,2,2-Tetrachloroethane | BDL | uG/L | 5 |
| Tetrachloroethene | BDL | uG/L | 5 |
| Tetrahydrofuran | BDL | uG/L | 25 |
| Toluene | BDL | uG/L | 5 |
| 1,2-Dichloroethane | BDL | uG/L | 5 |
| Trans-1,3-Dichloropropene | BDL | uG/L | 5 |
| 1,1,1-Trichloroethane | BDL | uG/L | 5 |
| 1,1,2-Trichloroethane | BDL | uG/L | 5 |
| Trichloroethene | BDL | uG/L | 5 |
| Vinyl Acetate | BDL | uG/L | 10 |
| Vinyl Chloride | BDL | uG/L | 10 |
| Xylenes | BDL | uG/L | 5 |

MS 8/21/97

Surrogate Recovery

| | | |
|---|---|---|
| Dichloroethane-D4 | 114 | % RECOVERY |
| Toluene-D8 | 106 | % RECOVERY |
| 4-Bromofluorobenzene | 104 | % RECOVERY |

Note: 200 ul of extraction solvent was added to the blank so this can be used for medium level soils also. The detection limit multiplier is 0.063 and the units are in uG/kG.

KSM 8-21-97

Quantitation Report (QT Reviewed)

Data File : C:\C081997\1641C.D
Acq On : 19 Aug 97 5:46
Sample : VBLK
Misc : 8/19/97
MS Integration Params: rteint.p
Quant Time: Aug 19 6:33 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#3
Multiplr: 1.00
Quant Results File: CLPVOL.RES

Quant Method : C:\HPCHEM\1\METHODS\CLPVOL.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Wed Jul 30 11:15:26 1997
Response via : Initial Calibration
DataAcq Meth : CLPVOL

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) BROMOCHLOROMETHANE | 9.54 | 128 | 248805 | 50.00 | UG/L | -0.16 |
| 26) 1,4-DIFLUOROBENZENE | 20.34 | 114 | 879745 | 50.00 | UG/L | -0.03 |
| 40) CHLOROBENZENE-d5 | 25.11 | 117 | 730595 | 50.00 | UG/L | -0.03 |

System Monitoring Compounds

| | | | | | | |
|---|---|---|---|---|---|---|
| 25) 1,2-Dichloroethane-d4 | 12.69 | 65 | 441561m | 57.02 | UG/L | 0.10 |
| Spiked Amount 50.000 | Range 76 - 114 | | Recovery = 114.04%# | | | |
| 37) Toluene-d8 | 23.92 | 98 | 853129 | 52.98 | UG/L | 0.00 |
| Spiked Amount 50.000 | Range 88 - 110 | | Recovery = 105.96% | | | |
| 53) Bromofluorobenzene | 28.76 | 95 | 714964 | 52.18 | UG/L | -0.03 |
| Spiked Amount 50.000 | Range 86 - 115 | | Recovery = 104.36% | | | |

Target Compounds Qvalue

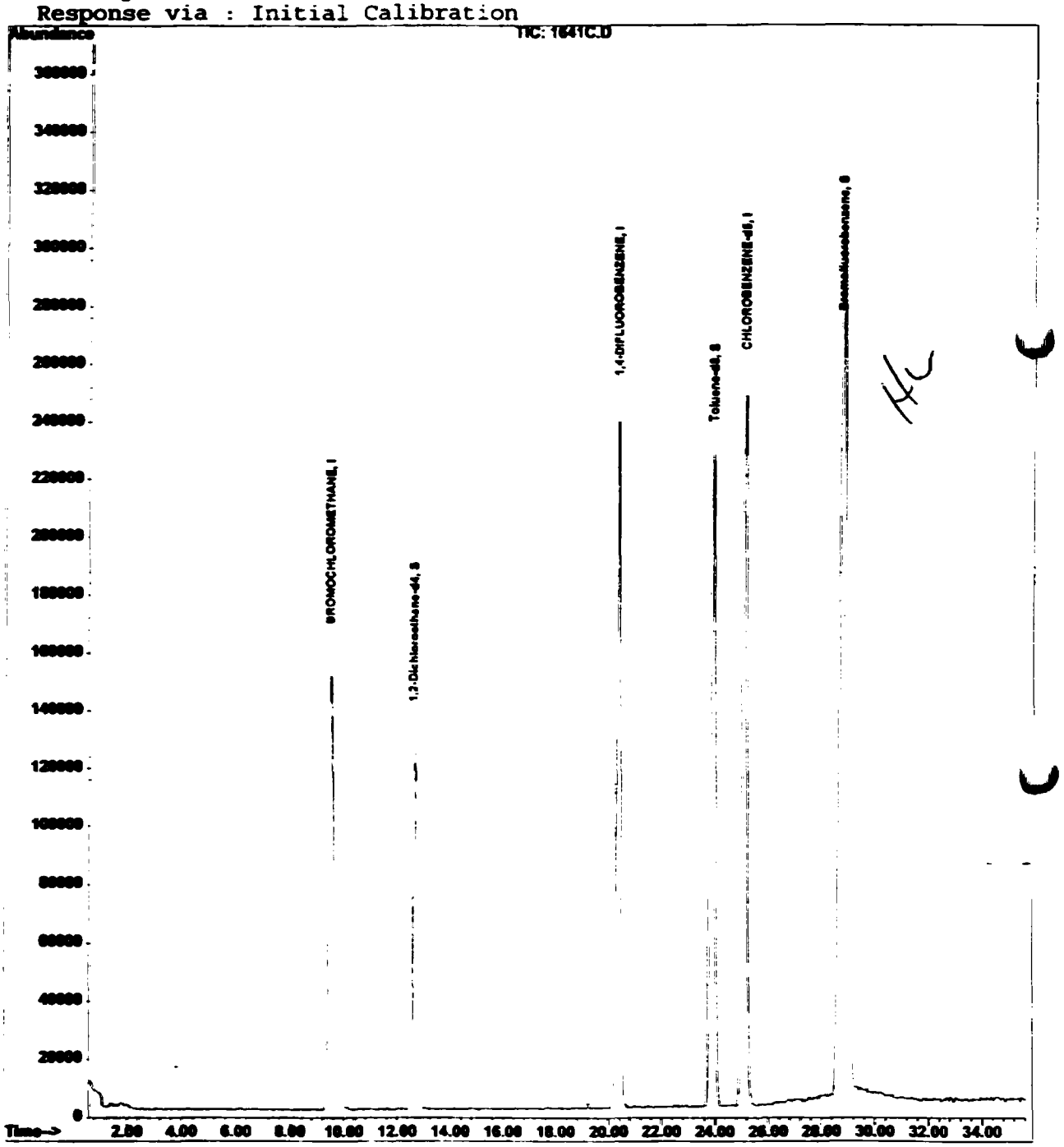
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\C081997\1641C.D
Acq On : 19 Aug 97 5:46
Sample : VBLK
Misc : 8/19/97
MS Integration Params: rteint.p
Quant Time: Aug 19 6:33 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#3
Multiplr: 1.00
Quant Results File: CLPVOL.RES

Method : C:\HPCHEM\1\METHODS\CLPVOL.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Wed Jul 30 11:15:26 1997
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\C081997\1642C.D
Acq On : 19 Aug 97 6:49
Sample : DI MS
Misc :
MS Integration Params: rteint.p
Quant Time: Aug 19 7:25 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#3
Multiplr: 1.00
Quant Results File: CLPVOL.RES

Quant Method : C:\HPCHEM\1\METHODS\CLPVOL.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Wed Jul 30 11:15:26 1997
Response via : Initial Calibration
DataAcq Meth : CLPVOL

| Internal Standards | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| 1) BROMOCHLOROMETHANE | 9.54 | 128 | 262159 | 50.00 UG/L | -0.16 |
| 26) 1,4-DIFLUOROBENZENE | 20.34 | 114 | 846120 | 50.00 UG/L | -0.03 |
| 40) CHLOROBENZENE-d5 | 25.08 | 117 | 703799 | 50.00 UG/L | -0.06 |
| **System Monitoring Compounds** | | | | | |
| 25) 1,2-Dichloroethane-d4 | 12.69 | 65 | 500334 | 61.32 UG/L | 0.10 |
| Spiked Amount 50.000 | Range 76 - 114 | | Recovery = 122.64%# | | |
| 37) Toluene-d8 | 23.89 | 98 | 828562 | 53.49 UG/L | -0.03 |
| Spiked Amount 50.000 | Range 88 - 110 | | Recovery = 106.98% | | |
| 53) Bromofluorobenzene | 28.76 | 95 | 710181 | 53.81 UG/L | -0.03 |
| Spiked Amount 50.000 | Range 86 - 115 | | Recovery = 107.62% | | |

| Target Compounds | | | | | Qvalue |
|---|---|---|---|---|---|
| 2) Dichlorodifluoromethane | 2.02 | 85 | 83133 | 23.62 UG/L # | 100 |
| 3) Chloromethane | 0.89 | 50 | 98094 | 21.20 UG/L # | 100 |
| 4) VINYL CHLORIDE | 2.09 | 62 | 77688 | 34.52 UG/L # | 100 |
| 5) Bromomethane | 1.59 | 94 | 65882 | 23.81 UG/L # | 100 |
| 6) Chloroethane | 2.92 | 64 | 73388 | 36.74 UG/L # | 100 |
| 7) Trichlorofluoromethane | 7.92 | 101 | 279128 | 25.41 UG/L # | 100 |
| 8) Diethyl ether | 11.76 | 59 | 99702 | 30.53 UG/L # | 100 |
| 9) Acrolein | 6.23 | 56 | 74940 | 107.64 UG/L # | 100 |
| 10) Acetone | 6.23 | 43 | 65017 | 22.95 UG/L # | 100 |
| 11) Trichlorotrifluoroethane | 12.29 | 101 | 264928 | 24.81 UG/L # | 100 |
| 12) 1,1-DICHLOROETHENE | 8.91 | 96 | 114070 | 22.51 UG/L # | 100 |
| 13) Methylene Chloride | 5.27 | 84 | 162253 | 27.12 UG/L # | 32 |
| 14) Acrylonitrile | 7.09 | 53 | 314474 | 137.33 UG/L # | 100 |
| 15) Carbon Disulfide | 7.19 | 76 | 246021 | 19.22 UG/L # | 100 |
| 16) Vinyl acetate | 14.41 | 43 | 314552 | 27.47 UG/L # | 100 |
| 17) Methyl-t-butyl ether | 13.85 | 73 | 327530 | 27.49 UG/L # | 100 |
| 18) 1,2-Dichloroethene (total) | 11.40 | 96 | 277752 | 52.85 UG/L # | 100 |
| 19) Diisopropyl ether | 18.75 | 45 | 597441 | 28.52 UG/L # | 100 |
| 20) 1,1-Dichloroethane | 10.40 | 63 | 304376 | 28.00 UG/L # | 100 |
| 21) 2-Butanone | 12.76 | 43 | 139607 | 26.40 UG/L # | 100 |
| 22) Ethyl acetate | 14.81 | 43 | 284680 | 23.46 UG/L # | 100 |
| 23) CHLOROFORM | 12.06 | 83 | ~~361876~~ 333340 | ~~28.52~~ 26.52 UG/L # | 100 |
| 24) Tetrahydrofuran | 10.50 | 42 | 225959 | 66.94 UG/L # | 100 |
| 27) 1,1,1-Trichloroethane | 14.05 | 97 | 269995 | 26.18 UG/L # | 100 |
| 28) Carbon Tetrachloride | 14.45 | 117 | 262743 | 23.70 UG/L # | 100 |
| 29) 1,2-Dichloroethane | 12.79 | 62 | ~~262018~~ 211042 | ~~32.50~~ 26.47 UG/L # | 100 |
| 30) Benzene | 17.73 | 78 | 381762 | 27.17 UG/L # | 100 |
| 31) Trichloroethene | 17.33 | 130 | 192237 | 23.40 UG/L # | 100 |

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

Quantitation Report (Not Reviewed)

Data File : C:\C081997\1642C.D
Acq On : 19 Aug 97 6:49
Sample : DI MS
Misc :
MS Integration Params: rteint.p
Quant Time: Aug 19 7:25 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#3
Multiplr: 1.00
Quant Results File: CLPVOL.RES

Quant Method : C:\HPCHEM\1\METHODS\CLPVOL.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Wed Jul 30 11:15:26 1997
Response via : Initial Calibration
DataAcq Meth : CLPVOL

| Compound | R.T. | QIon | Response | Conc Unit | Qvalue |
|---|---|---|---|---|---|
| 32) 1,2-DICHLOROPROPANE | 16.43 | 63 | 217196 | 27.42 UG/L # | 100 |
| 33) Bromodichloromethane | 15.14 | 83 | 391719 | 28.10 UG/L # | 100 |
| 34) 2-Chloroethylvinylether | 19.09 | 63 | 97093 | 22.97 UG/L # | 100 |
| 35) 4-Methyl-2-Pentanone | 21.01 | 43 | 324021 | 26.98 UG/L # | 100 |
| 36) cis-1,3-Dichloropropene | 16.73 | 75 | 235062 | 25.63 UG/L # | 100 |
| 38) TOLUENE | 24.09 | 92 | 242058 | 26.37 UG/L # | 100 |
| 39) trans-1,3-Dichloropropene | 18.03 | 75 | 239552 | 26.13 UG/L # | 100 |
| 41) 2-Hexanone | 22.57 | 43 | 239526 | 24.44 UG/L # | 100 |
| 42) 1,1,2-Trichloroethane | 18.06 | 97 | 188304 | 26.34 UG/L # | [illegible] |
| 43) trans-1,4-Dichloro-2-butad | 23.16 | 75 | 45698 | 18.81 UG/L | 91 |
| 44) Tetrachloroethene | 22.93 | 164 | 157106 | 22.26 UG/L # | 100 |
| 45) Dibromochloromethane | 17.96 | 129 | 345660 | 23.24 UG/L # | 100 |
| 46) Chlorobenzene | 25.22 | 112 | 326922 | 24.85 UG/L # | 100 |
| 47) ETHYLBENZENE | 26.97 | 106 | 143724 | 24.94 UG/L # | 100 |
| 48) Xylene (o,p) | 30.45 | 106 | 345006 | 49.59 UG/L # | 100 |
| 49) Xylene (m) | 29.85 | 106 | 177008 | 23.87 UG/L # | 100 |
| 50) Styrene | 29.69 | 104 | 281603 | 24.44 UG/L # | 100 |
| 51) Bromoform | 20.61 | 173 | 295570 | 21.19 UG/L # | 100 |
| 52) 1,1,2,2-Tetrachloroethane | 22.90 | 83 | 393890 | 28.14 UG/L # | 100 |
| 54) m-Dichlorobenzene | 32.77 | 146 | 330264 | 24.13 UG/L # | 100 |
| 55) o,p-Dichlorobenzene | 33.73 | 146 | 325483 | 23.74 UG/L # | 100 |

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

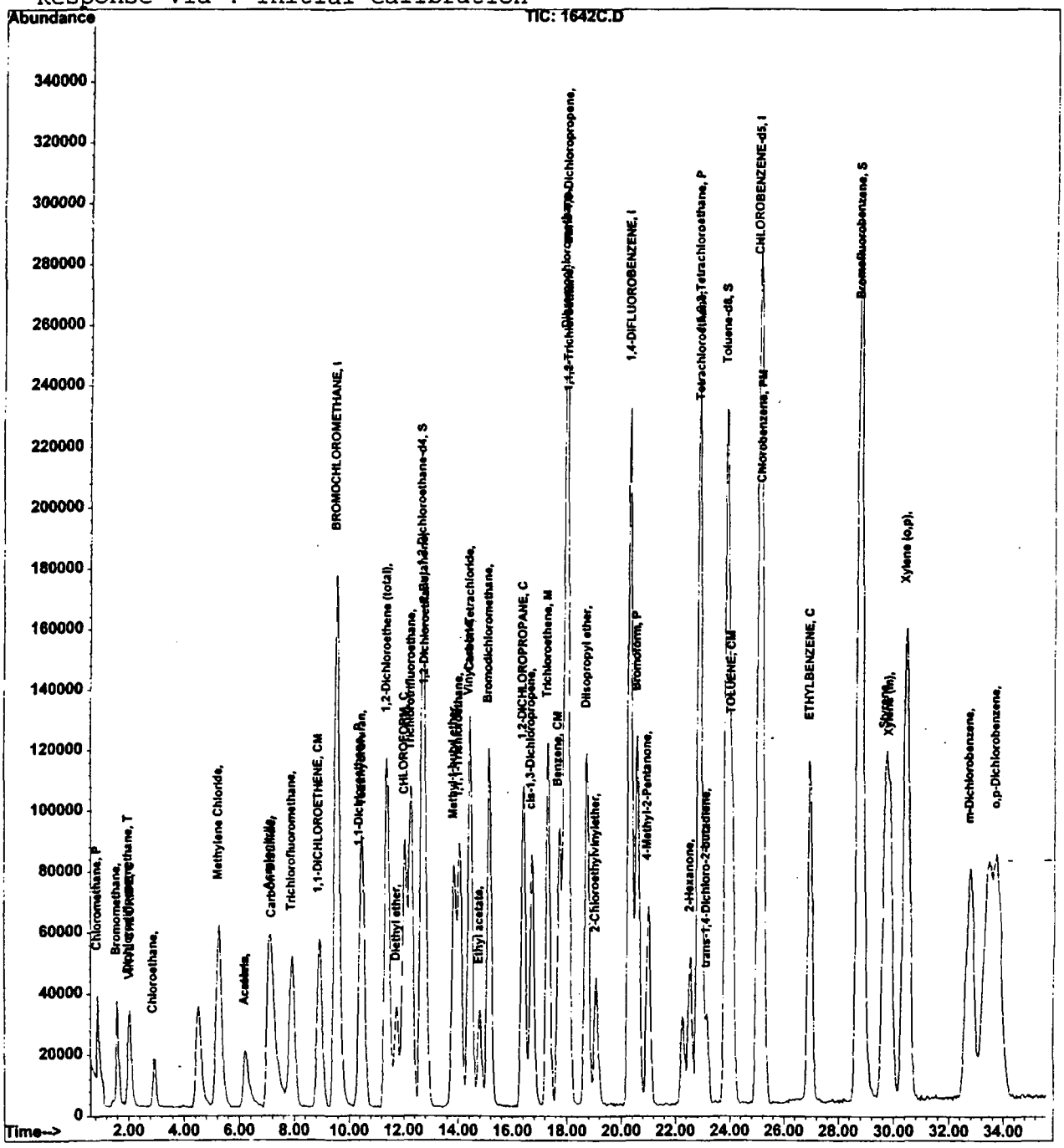
Quantitation Report

Data File : C:\C081997\1642C.D
Acq On : 19 Aug 97 6:49
Sample : DI MS
Misc :
MS Integration Params: rteint.p
Quant Time: Aug 19 7:25 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#3
Multiplr: 1.00

Quant Results File: CLPVOL.RES

Method : C:\HPCHEM\1\METHODS\CLPVOL.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Wed Jul 30 11:15:26 1997
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\C081997\1653C.D
Acq On : 19 Aug 97 14:43
Sample : A417040 MS
Misc :
MS Integration Params: rteint.p
Quant Time: Aug 19 15:19 1997

1648C

Vial: 1
Operator: HAROLD
Inst : GCMS#3
Multiplr: 1.00

Quant Results File: CLPVOL.RES

Quant Method : C:\HPCHEM\1\METHODS\CLPVOL.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Wed Jul 30 11:15:26 1997
Response via : Initial Calibration
DataAcq Meth : CLPVOL

MSD out of range

| Internal Standards | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| 1) BROMOCHLOROMETHANE | 9.61 | 128 | 288122 | 50.00 UG/L | -0.10 |
| 26) 1,4-DIFLUOROBENZENE | 20.34 | 114 | 950918 | 50.00 UG/L | -0.03 |
| 40) CHLOROBENZENE-d5 | 25.08 | 117 | 784480 | 50.00 UG/L | -0.07 |
| **System Monitoring Compounds** | | | | | |
| 25) 1,2-Dichloroethane-d4 | 12.65 | 65 | 543785 | 60.64 UG/L | 0.07 |
| Spiked Amount 50.000 | Range 76 - 114 | | Recovery = 121.28%# | | |
| 37) Toluene-d8 | 23.89 | 98 | 917196 | 52.69 UG/L | -0.03 |
| Spiked Amount 50.000 | Range 88 - 110 | | Recovery = 105.38% | | |
| 53) Bromofluorobenzene | 28.73 | 95 | 784584 | 53.33 UG/L | -0.07 |
| Spiked Amount 50.000 | Range 86 - 115 | | Recovery = 106.66% | | |
| **Target Compounds** | | | | | Qvalue |
| 2) Dichlorodifluoromethane | 2.02 | 85 | 138742 | 35.87 UG/L # | 100 |
| 3) Chloromethane | 0.89 | 50 | 219342 | 43.12 UG/L # | 100 |
| 4) VINYL CHLORIDE | 2.08 | 62 | 102782 | 41.55 UG/L # | 100 |
| 5) Bromomethane | 1.62 | 94 | 152850 | 50.27 UG/L # | 100 |
| 6) Chloroethane | 2.98 | 64 | 167480 | 76.29 UG/L # | 100 |
| 7) Trichlorofluoromethane | 7.92 | 101 | 620756 | 51.43 UG/L # | 100 |
| 8) Diethyl ether | 11.73 | 59 | 200085 | 55.75 UG/L # | 100 |
| 9) Acrolein | 6.36 | 56 | 251931 | 329.26 UG/L # | 100 |
| 10) Acetone | 6.42 | 43 | 286644 | 92.06 UG/L # | 100 |
| 11) Trichlorotrifluoroethane | 12.22 | 101 | 571236 | 48.67 UG/L # | 100 |
| 12) 1,1-DICHLOROETHENE | 8.91 | 96 | 253273 | 45.48 UG/L # | 100 |
| 13) Methylene Chloride | 5.33 | 84 | 422681 | 64.29 UG/L # | 32 |
| 14) Acrylonitrile | 7.22 | 53 | 936041 | 371.93 UG/L # | 100 |
| 15) Carbon Disulfide | 7.19 | 76 | 538327 | 38.26 UG/L # | 1[illegible] |
| 16) Vinyl acetate | 14.41 | 43 | 709218 | 56.36 UG/L # | 10[illegible] |
| 17) Methyl-t-butyl ether | 13.85 | 73 | 701006 | 53.54 UG/L # | 100 |
| 18) 1,2-Dichloroethene (total) | 11.36 | 96 | 601981 | 104.22 UG/L # | 100 |
| 19) Diisopropyl ether | 18.72 | 45 | 1316903 | 57.20 UG/L # | 100 |
| 20) 1,1-Dichloroethane | 10.43 | 63 | 662728 | 55.46 UG/L # | 100 |
| 21) 2-Butanone | 12.75 | 43 | 364250 | 62.67 UG/L # | 100 |
| 22) Ethyl acetate | 14.81 | 43 | 629537 | 47.20 UG/L # | 100 |
| 23) CHLOROFORM | 12.02 | 83 | 778736 | 55.49 UG/L # | 100 |
| 24) Tetrahydrofuran | 10.53 | 42 | 547709 | 147.63 UG/L # | 100 |
| 27) 1,1,1-Trichloroethane | 14.01 | 97 | 611208 | 52.73 UG/L # | 100 |
| 28) Carbon Tetrachloride | 14.41 | 117 | 588625 | 47.25 UG/L # | 100 |
| 29) 1,2-Dichloroethane | 12.79 | 62 | 560593 | 61.87 UG/L # | 100 |
| 30) Benzene | 17.72 | 78 | 859453 | 54.43 UG/L # | 100 |
| 31) Trichloroethene | 17.33 | 130 | 436910 | 47.33 UG/L # | 100 |

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

Quantitation Report (Not Reviewed)

Data File : C:\C081997\1653C.D
Acq On : 19 Aug 97 14:43
Sample : A417040 MS
Misc :
MS Integration Params: rteint.p
Quant Time: Aug 19 15:19 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#3
Multiplr: 1.00
Quant Results File: CLPVOL.RES

Quant Method : C:\HPCHEM\1\METHODS\CLPVOL.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Wed Jul 30 11:15:26 1997
Response via : Initial Calibration
DataAcq Meth : CLPVOL

| | Compound | R.T. | QIon | Response | Conc Unit | Qvalue |
|---|---|---|---|---|---|---|
| 32) | 1,2-DICHLOROPROPANE | 16.40 | 63 | 508587 | 57.12 UG/L # | 100 |
| 33) | Bromodichloromethane | 15.14 | 83 | 870742 | 55.58 UG/L # | 100 |
| 35) | 4-Methyl-2-Pentanone | 21.00 | 43 | 810183 | 60.03 UG/L # | 100 |
| 36) | cis-1,3-Dichloropropene | 16.73 | 75 | 540486 | 52.43 UG/L # | 100 |
| 38) | TOLUENE | 24.09 | 92 | 532278 | 51.59 UG/L # | 100 |
| 39) | trans-1,3-Dichloropropene | 18.02 | 75 | 556679 | 54.02 UG/L # | 100 |
| 41) | 2-Hexanone | 22.53 | 43 | 647153 | 59.24 UG/L # | 100 |
| 42) | 1,1,2-Trichloroethane | 18.02 | 97 | 436566 | 54.79 UG/L # | 100 |
| 43) | trans-1,4-Dichloro-2-butad | 23.16 | 75 | 123962 | 45.77 UG/L | 96 |
| 44) | Tetrachloroethene | 22.93 | 164 | 354933 | 45.11 UG/L # | 100 |
| 45) | Dibromochloromethane | 17.96 | 129 | 792897 | 47.84 UG/L # | 100 |
| 46) | Chlorobenzene | 25.21 | 112 | 733554 | 50.03 UG/L # | 100 |
| 47) | ETHYLBENZENE | 26.94 | 106 | 335342 | 52.21 UG/L # | 100 |
| 48) | Xylene (o,p) | 30.45 | 106 | 768928 | 99.15 UG/L # | 100 |
| 49) | Xylene (m) | 29.82 | 106 | 407700 | 49.33 UG/L # | 100 |
| 50) | Styrene | 29.65 | 104 | 653035 | 50.85 UG/L # | 100 |
| 51) | Bromoform | 20.61 | 173 | 704522 | 45.31 UG/L # | 100 |
| 52) | 1,1,2,2-Tetrachloroethane | 22.86 | 83 | 956030 | 61.28 UG/L # | 100 |
| 54) | m-Dichlorobenzene | 32.77 | 146 | 731169 | 47.93 UG/L # | 100 |
| 55) | o,p-Dichlorobenzene | 33.70 | 146 | 754584 | 49.38 UG/L # | 100 |

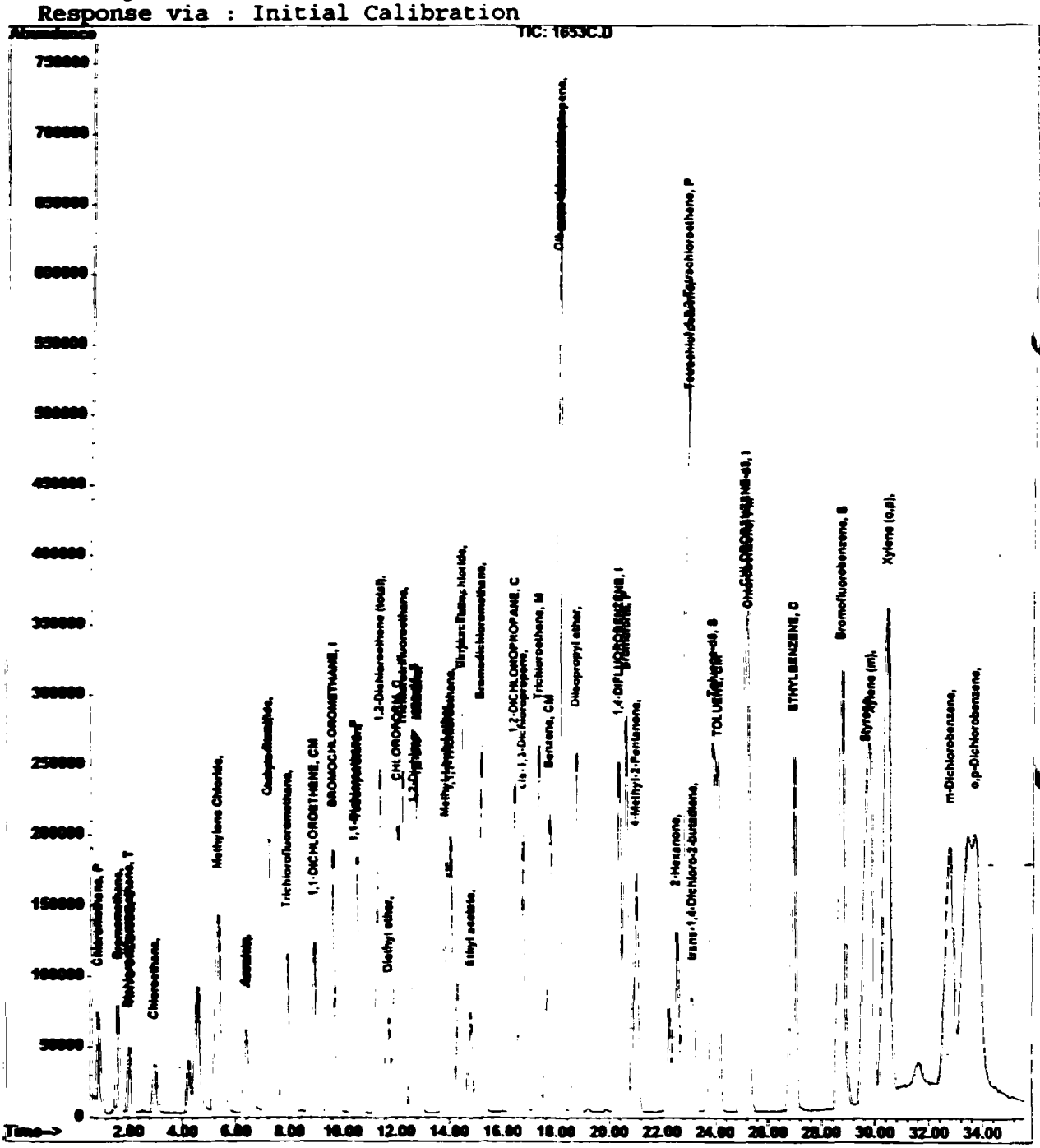
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\C081997\1653C.D
Acq On : 19 Aug 97 14:43
Sample : A417040 MS
Misc :
MS Integration Params: rteint.p
Quant Time: Aug 19 15:19 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#3
Multiplr: 1.00
Quant Results File: CLPVOL.RES

Method : C:\HPCHEM\1\METHODS\CLPVOL.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Wed Jul 30 11:15:26 1997
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\C081997\1654C.D
Acq On : 19 Aug 97 15:26
Sample : A417040 MSD
Misc :
MS Integration Params: rteint.p
Quant Time: Aug 19 16:02 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#3
Multiplr: 1.00
Quant Results File: CLPVOL.RES

Quant Method : C:\HPCHEM\1\METHODS\CLPVOL.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Wed Jul 30 11:15:26 1997
Response via : Initial Calibration
DataAcq Meth : CLPVOL

| Internal Standards | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| 1) BROMOCHLOROMETHANE | 9.58 | 128 | 288770 | 50.00 UG/L | -0.13 |
| 26) 1,4-DIFLUOROBENZENE | 20.31 | 114 | 961665 | 50.00 UG/L | -0.06 |
| 40) CHLOROBENZENE-d5 | 25.05 | 117 | 808064 | 50.00 UG/L | -0.09 |
| **System Monitoring Compounds** | | | | | |
| 25) 1,2-Dichloroethane-d4 | 12.66 | 65 | 554527 | 61.70 UG/L | 0.07 |
| Spiked Amount 50.000 | Range 76 - 114 | | Recovery = 123.40%# | | |
| 37) Toluene-d8 | 23.86 | 98 | 919716 | 52.25 UG/L | -0.06 |
| Spiked Amount 50.000 | Range 88 - 110 | | Recovery = 104.50% | | |
| 53) Bromofluorobenzene | 28.73 | 95 | 797694 | 52.64 UG/L | -0.06 |
| Spiked Amount 50.000 | Range 86 - 115 | | Recovery = 105.28% | | |
| **Target Compounds** | | | | | Qvalue |
| 2) Dichlorodifluoromethane | 2.02 | 85 | 140450 | 36.23 UG/L # | 100 |
| 3) Chloromethane | 0.90 | 50 | 226166 | 44.36 UG/L # | 100 |
| 4) VINYL CHLORIDE | 2.09 | 62 | 106822 | 43.09 UG/L # | 100 |
| 5) Bromomethane | 1.59 | 94 | 150241 | 49.30 UG/L # | 100 |
| 6) Chloroethane | 2.98 | 64 | 168719 | 76.68 UG/L # | 100 |
| 7) Trichlorofluoromethane | 7.92 | 101 | 617318 | 51.03 UG/L # | 100 |
| 8) Diethyl ether | 11.73 | 59 | 197336 | 54.86 UG/L # | 100 |
| 9) Acrolein | 6.36 | 56 | 260413 | 339.58 UG/L # | 100 |
| 10) Acetone | 6.43 | 43 | 300917 | 96.43 UG/L # | 100 |
| 11) Trichlorotrifluoroethane | 12.23 | 101 | 558876 | 47.51 UG/L # | 100 |
| 12) 1,1-DICHLOROETHENE | 8.92 | 96 | 249898 | 44.77 UG/L # | 100 |
| 13) Methylene Chloride | 5.34 | 84 | 422637 | 64.14 UG/L # | 32 |
| 14) Acrylonitrile | 7.23 | 53 | 994455 | 394.25 UG/L # | 100 |
| 15) Carbon Disulfide | 7.19 | 76 | 524592 | 37.20 UG/L # | 100 |
| 16) Vinyl acetate | 14.42 | 43 | 757469 | 60.06 UG/L # | 100 |
| 17) Methyl-t-butyl ether | 13.85 | 73 | 708402 | 53.98 UG/L # | 100 |
| 18) 1,2-Dichloroethene (total) | 11.37 | 96 | 589199 | 101.78 UG/L # | 100 |
| 19) Diisopropyl ether | 18.72 | 45 | 1304308 | 56.53 UG/L # | 100 |
| 20) 1,1-Dichloroethane | 10.41 | 63 | 673479 | 56.24 UG/L # | 100 |
| 21) 2-Butanone | 12.76 | 43 | 398134 | 68.35 UG/L # | 100 |
| 22) Ethyl acetate | 14.78 | 43 | 644560 | 48.21 UG/L # | 100 |
| 23) CHLOROFORM | 12.03 | 83 | 791293 | 56.26 UG/L # | 100 |
| 24) Tetrahydrofuran | 10.54 | 42 | 590571 | 158.82 UG/L # | 100 |
| 27) 1,1,1-Trichloroethane | 14.02 | 97 | 622167 | 53.07 UG/L # | 100 |
| 28) Carbon Tetrachloride | 14.42 | 117 | 601260 | 47.72 UG/L # | 100 |
| 29) 1,2-Dichloroethane | 12.79 | 62 | 567776 | 61.96 UG/L # | 100 |
| 30) Benzene | 17.73 | 78 | 868836 | 54.41 UG/L # | 100 |
| 31) Trichloroethene | 17.33 | 130 | 437377 | 46.85 UG/L # | 100 |

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

Quantitation Report (Not Reviewed)

Data File : C:\C081997\1654C.D
Acq On : 19 Aug 97 15:26
Sample : A417040 MSD
Misc :
MS Integration Params: rteint.p
Quant Time: Aug 19 16:02 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#3
Multiplr: 1.00
Quant Results File: CLPVOL.RES

Quant Method : C:\HPCHEM\1\METHODS\CLPVOL.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Wed Jul 30 11:15:26 1997
Response via : Initial Calibration
DataAcq Meth : CLPVOL

| Compound | R.T. | QIon | Response | Conc Unit | Qvalue |
|---|---|---|---|---|---|
| 32) 1,2-DICHLOROPROPANE | 16.40 | 63 | 513917 | 57.07 UG/L # | 100 |
| 33) Bromodichloromethane | 15.14 | 83 | 885929 | 55.92 UG/L # | 100 |
| 35) 4-Methyl-2-Pentanone | 21.01 | 43 | 836684 | 61.30 UG/L # | 100 |
| 36) cis-1,3-Dichloropropene | 16.74 | 75 | 549131 | 52.67 UG/L # | 100 |
| 38) TOLUENE | 24.06 | 92 | 537038 | 51.47 UG/L # | 100 |
| 39) trans-1,3-Dichloropropene | 18.03 | 75 | 573326 | 55.02 UG/L # | 100 |
| 41) 2-Hexanone | 22.53 | 43 | 683094 | 60.70 UG/L # | 100 |
| 42) 1,1,2-Trichloroethane | 18.06 | 97 | 441166 | 53.75 UG/L # | 100 |
| 43) trans-1,4-Dichloro-2-butad | 23.13 | 75 | 130971 | 46.95 UG/L | [illegible] |
| 44) Tetrachloroethene | 22.90 | 164 | 360961 | 44.54 UG/L # | 100 |
| 45) Dibromochloromethane | 17.96 | 129 | 808003 | 47.33 UG/L # | 100 |
| 46) Chlorobenzene | 25.19 | 112 | 742564 | 49.17 UG/L # | 100 |
| 47) ETHYLBENZENE | 26.94 | 106 | 337769 | 51.05 UG/L # | 100 |
| 48) Xylene (o,p) | 30.42 | 106 | 776667 | 97.22 UG/L # | 100 |
| 49) Xylene (m) | 29.79 | 106 | 411944 | 48.39 UG/L # | 100 |
| 50) Styrene | 29.63 | 104 | 648429 | 49.02 UG/L # | 100 |
| 51) Bromoform | 20.58 | 173 | 705374 | 44.04 UG/L # | 100 |
| 52) 1,1,2,2-Tetrachloroethane | 22.83 | 83 | 975565 | 60.71 UG/L # | 100 |
| 54) m-Dichlorobenzene | 32.74 | 146 | 749934 | 47.73 UG/L # | 100 |
| 55) o,p-Dichlorobenzene | 33.63 | 146 | 655423 | 41.64 UG/L # | 100 |

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

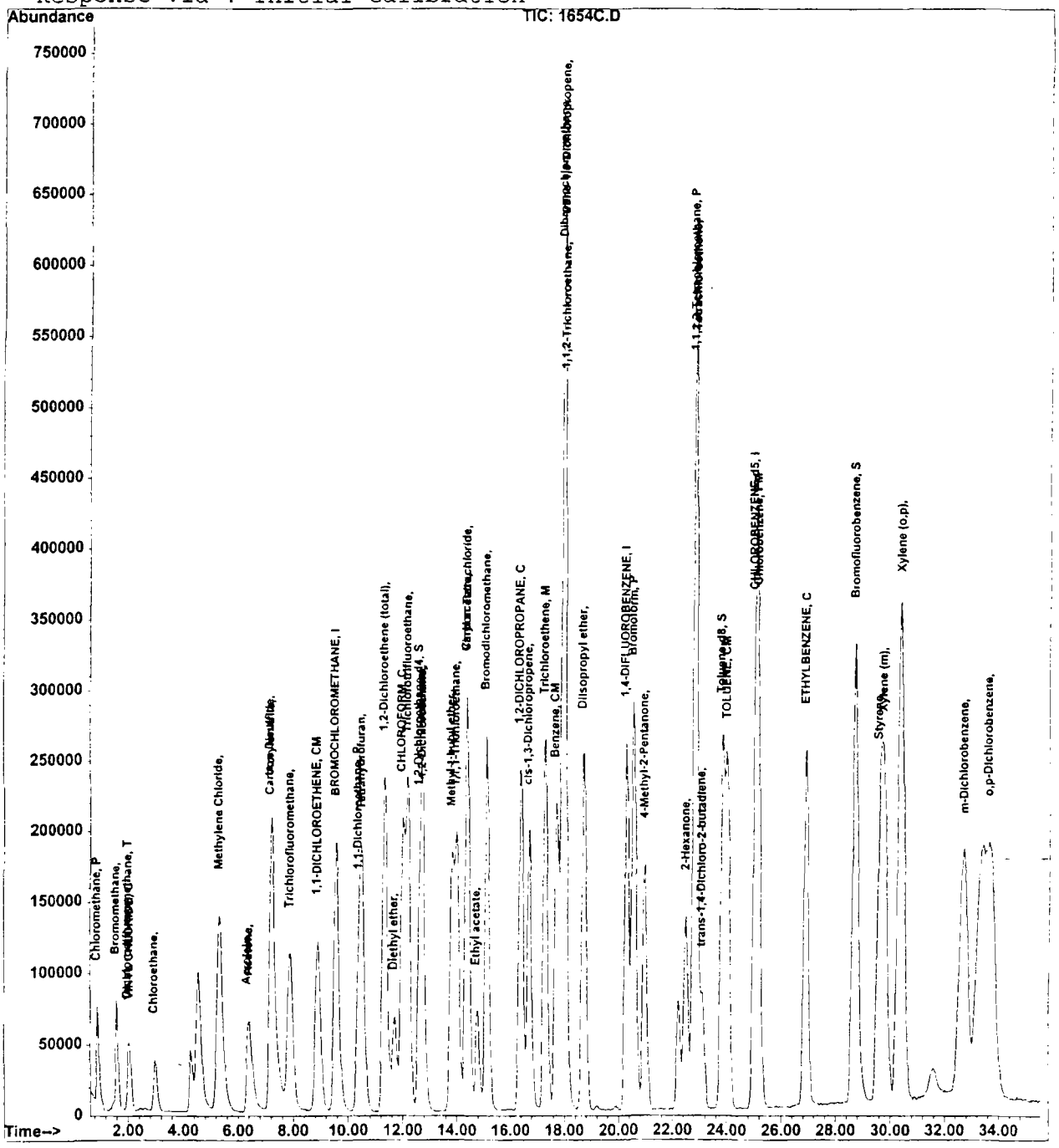
Quantitation Report

Data File : C:\C081997\1654C.D
Acq On : 19 Aug 97 15:26
Sample : A417040 MSD
Misc :
MS Integration Params: rteint.p
Quant Time: Aug 19 16:02 1997

Vial: 1
Operator: HAROLD
Inst : GCMS#3
Multiplr: 1.00

Quant Results File: CLPVOL.RES

Method : C:\HPCHEM\1\METHODS\CLPVOL.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Wed Jul 30 11:15:26 1997
Response via : Initial Calibration



# CERTIFICATE OF ANALYSIS

| Service Location | Received | Project | Lab ID |
|---|---|---|---|
| HERITAGE ENVIRONMENTAL SERVICES, INC.<br>COMMERCIAL LABORATORY OPERATIONS<br>7901 W. MORRIS ST.<br>INDIANAPOLIS, IN 46231<br>(317)243-8304 | 14-AUG-97 | | A416935 |
| | Complete | PO Number | |
| | 28-AUG-97 | 91112RH | |
| | Printed | Sampled | |
| | 28-AUG-97 | 14-AUG-97 12:00 | |

| Report To | Bill To |
|---|---|
| PAUL KOPYDLOWSKI<br>ERM NORTH CENTRAL, INC.<br>540 LAKE COOK ROAD<br>SUITE 300<br>DEERFIELD, IL 60015 | ACCOUNTS PAYABLE<br>ERM-NORTH CENTRAL, INC.<br>540 LAKE COOK ROAD, SUITE 300<br>DEERFIELD, IL 60015 |

**Sample Description**

CLIENT ID: ECC 1T1W
PROJECT: ECC

## VOLATILE ORGANICS SW846-8240B

Analyst: H. WILLIAMS  Analysis Date: 15-AUG-97 06:41  Instrument: GC/MS VOA  Test: 0510.3.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| ACETONE | BDL | 20 | ug/L |
| 1,1-DICHLOROETHENE | BDL | 5.0 | ug/L |
| ETHYL BENZENE | BDL | 5.0 | ug/L |
| DICHLOROMETHANE (METHYLENE CHLORIDE) | BDL | 5.0 | ug/L |
| METHYL ETHYL KETONE | BDL | 10 | ug/L |
| 4-METHYL-2-PENTANONE | BDL | 10 | ug/L |
| TETRACHLOROETHENE | BDL | 2.2 | ug/L |
| TOLUENE | BDL | 5.0 | ug/L |
| 1,2-DICHLOROETHENE (CIS AND TRANS) | BDL | 5.0 | ug/L |
| 1,1,1-TRICHLOROETHANE | BDL | 5.0 | ug/L |
| 1,1,2-TRICHLOROETHANE | BDL | 3.0 | ug/L |
| TRICHLOROETHENE | BDL | 5.0 | ug/L |
| VINYL CHLORIDE | 4.9 | 3.4 | ug/L |
| XYLENES (O/M/P-XYLENE) | BDL | 5.0 | ug/L |
| ... | | | |
| SURROGATE RECOVERY | | | |
| --- | | | |
| DICHLOROETHANE-D4 | 96 | | % Rec |
| TOLUENE-D8 | 95 | | % Rec |
| 4-BROMOFLUOROBENZENE | 100 | | % Rec |

*On this instrument, packed column has been replaced by capillary column with 8240 criteria.*

## FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A

Analyst: R. DALAL  Analysis Date: 18-AUG-97 11:00  Instrument: PREP  Test: P130.4.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| INITIAL WEIGHT OR VOLUME | 50 | | mL |
| FINAL VOLUME | 50 | | mL |

 (continued on next page)

## ANTIMONY ICP SW846-6010A

Analyst: A. STOCKBURGER Analysis Date: 18-AUG-97 23:47 Instrument: ICP Test: M102.3.0

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| ANTIMONY | BDL | 0.030 | mg/L |

## ARSENIC TRACE ICP SW846-6010A

Analyst: A. ROBERTSON Analysis Date: 19-AUG-97 16:12 Instrument: TRACE ICP Test: M103.0.0

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| ARSENIC | BDL | 0.0050 | mg/L |

## BARIUM ICP SW846-6010A

Analyst: A. STOCKBURGER Analysis Date: 18-AUG-97 23:47 Instrument: ICP Test: M104.3.0

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| BARIUM | 0.32 | 0.010 | mg/L |

## BERYLLIUM TRACE ICP SW846-6010A

Analyst: A. ROBERTSON Analysis Date: 19-AUG-97 16:12 Instrument: TRACE ICP Test: M105.0.0

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| BERYLLIUM | BDL | 0.0010 | mg/L |

## CADMIUM ICP SW846-6010A

Analyst: A. STOCKBURGER Analysis Date: 18-AUG-97 23:47 Instrument: ICP Test: M108.3.0

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| CADMIUM | BDL | 0.0050 | mg/L |

## LEAD ICP SW846-6010A

Analyst: A. STOCKBURGER Analysis Date: 18-AUG-97 23:47 Instrument: ICP Test: M116.3.0

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| LEAD | BDL | 0.050 | mg/L |

## MANGANESE ICP SW846-6010A

Analyst: A. STOCKBURGER Analysis Date: 18-AUG-97 23:47 Instrument: ICP Test: M119.3.0

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| MANGANESE | 0.12 | 0.010 | mg/L |

## NICKEL ICP SW846-6010A

Analyst: A. STOCKBURGER Analysis Date: 18-AUG-97 23:47 Instrument: ICP Test: M122.3.0

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| NICKEL | BDL | 0.010 | mg/L |

## SILVER ICP SW846-6010A

Analyst: A. STOCKBURGER Analysis Date: 18-AUG-97 23:47 Instrument: ICP Test: M130.3.0

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| SILVER | BDL | 0.010 | mg/L |

## TIN ICP SW846-6010A

Analyst: A. STOCKBURGER Analysis Date: 18-AUG-97 23:47 Instrument: ICP Test: M135.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| TIN | BDL | 0.050 | mg/L |

## VANADIUM ICP SW846-6010A

Analyst: A. STOCKBURGER Analysis Date: 18-AUG-97 23:47 Instrument: ICP Test: M138.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| VANADIUM | BDL | 0.010 | mg/L |

## ZINC ICP SW846-6010A

Analyst: A. STOCKBURGER Analysis Date: 18-AUG-97 23:47 Instrument: ICP Test: M139.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| ZINC | BDL | 0.020 | mg/L |

## HEXAVALENT CHROMIUM SW846-7196A

Analyst: K. WHITFIELD Analysis Date: 14-AUG-97 16:30 Test: M110.6.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| HEXAVALENT CHROMIUM | BDL | 0.010 | mg/L |

## CYANIDE DISTILLATION SW846-9010A

Analyst: M. BOROS Analysis Date: 14-AUG-97 16:45 Instrument: PREP Test: P101.4.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| INITIAL WEIGHT OR VOLUME | 250 | | mL |
| FINAL VOLUME | 250 | | mL |

## CYANIDE, TOTAL (AUTOMATED) SW846-9012

Analyst: K. WHITFIELD Analysis Date: 15-AUG-97 17:00 Instrument: AUTO-ANALYZER Test: G101.4.0
Prep: CYANIDE DISTILLATION SW846-9010A P101.4.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| CYANIDE | BDL | 0.0050 | mg/L |

Sample Comments

*BDL Below Detection Limit*

*Sample chain of custody number 62745.*

*This Certificate shall not be reproduced, except in full, without the written approval of the lab.*

Approved : P.K. Spence

# CERTIFICATE OF ANALYSIS

| Service Location | Received | Project | Lab ID |
|---|---|---|---|
| HERITAGE ENVIRONMENTAL SERVICES, INC.<br>COMMERCIAL LABORATORY OPERATIONS<br>7901 W. MORRIS ST.<br>INDIANAPOLIS, IN 46231<br>(317)243-8304 | 14-AUG-97 | | A416936 |
| | Complete | PO Number | |
| | 28-AUG-97 | 91112RH | |
| | Printed | Sampled | |
| | 28-AUG-97 | 14-AUG-97 12:00 | |

| Report To | Bill To |
|---|---|
| PAUL KOPYDLOWSKI<br>ERM NORTH CENTRAL, INC.<br>540 LAKE COOK ROAD<br>SUITE 300<br>DEERFIELD, IL 60015 | ACCOUNTS PAYABLE<br>ERM-NORTH CENTRAL, INC.<br>540 LAKE COOK ROAD, SUITE 300<br>DEERFIELD, IL 60015 |

**Sample Description**

CLIENT ID: ECC 1T1WD
PROJECT: ECC

## VOLATILE ORGANICS SW846-8240B

Analyst: W. WILLIAMS  Analysis Date: 15-AUG-97 07:26  Instrument: GC/MS VOA  Test: 0510.3.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| ACETONE | BDL | 20 | ug/L |
| 1,1-DICHLOROETHENE | BDL | 5.0 | ug/L |
| ETHYL BENZENE | BDL | 5.0 | ug/L |
| DICHLOROMETHANE (METHYLENE CHLORIDE) | BDL | 5.0 | ug/L |
| METHYL ETHYL KETONE | BDL | 10 | ug/L |
| 4-METHYL-2-PENTANONE | BDL | 10 | ug/L |
| TETRACHLOROETHENE | BDL | 2.2 | ug/L |
| TOLUENE | BDL | 5.0 | ug/L |
| 1,2-DICHLOROETHENE (CIS AND TRANS) | BDL | 5.0 | ug/L |
| 1,1,1-TRICHLOROETHANE | BDL | 5.0 | ug/L |
| 1,1,2-TRICHLOROETHANE | BDL | 3.0 | ug/L |
| TRICHLOROETHENE | BDL | 5.0 | ug/L |
| VINYL CHLORIDE | 4.3 | 3.4 | ug/L |
| XYLENES (O/M/P-XYLENE) | BDL | 5.0 | ug/L |
| ... | | | |
| SURROGATE RECOVERY | | | |
| --- | | | |
| DICHLOROETHANE-D4 | 89 | | % Rec |
| TOLUENE-D8 | 98 | | % Rec |
| 4-BROMOFLUOROBENZENE | 100 | | % Rec |

*On this instrument, packed column has been replaced by capillary column with 8240 criteria.*

## FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A

Analyst: R. DALAL  Analysis Date: 18-AUG-97 11:00  Instrument: PREP  Test: P130.4.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| INITIAL WEIGHT OR VOLUME | 50 | | mL |
| FINAL VOLUME | 50 | | mL |

## ANTIMONY ICP SW846-6010A

Analyst: A. STOCKBURGER Analysis Date: 18-AUG-97 23:54 Instrument: ICP Test: M102.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| ANTIMONY | BDL | 0.030 | mg/L |

## ARSENIC TRACE ICP SW846-6010A

Analyst: A. ROBERTSON Analysis Date: 16-AUG-97 08:53 Instrument: TRACE ICP Test: M103.0.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| ARSENIC | BDL | 0.0050 | mg/L |

## BARIUM ICP SW846-6010A

Analyst: A. STOCKBURGER Analysis Date: 18-AUG-97 23:54 Instrument: ICP Test: M104.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| BARIUM | 0.31 | 0.010 | mg/L |

## BERYLLIUM TRACE ICP SW846-6010A

Analyst: A. ROBERTSON Analysis Date: 16-AUG-97 08:53 Instrument: TRACE ICP Test: M105.0.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| BERYLLIUM | BDL | 0.0010 | mg/L |

## CADMIUM ICP SW846-6010A

Analyst: A. STOCKBURGER Analysis Date: 18-AUG-97 23:54 Instrument: ICP Test: M108.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| CADMIUM | BDL | 0.0050 | mg/L |

## LEAD ICP SW846-6010A

Analyst: A. STOCKBURGER Analysis Date: 18-AUG-97 23:54 Instrument: ICP Test: M116.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| LEAD | BDL | 0.050 | mg/L |

## MANGANESE ICP SW846-6010A

Analyst: A. STOCKBURGER Analysis Date: 18-AUG-97 23:54 Instrument: ICP Test: M119.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| MANGANESE | 0.13 | 0.010 | mg/L |

## NICKEL ICP SW846-6010A

Analyst: A. STOCKBURGER Analysis Date: 18-AUG-97 23:54 Instrument: ICP Test: M122.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| NICKEL | BDL | 0.010 | mg/L |

## SILVER ICP SW846-6010A

Analyst: A. STOCKBURGER Analysis Date: 18-AUG-97 23:54 Instrument: ICP Test: M130.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| SILVER | BDL | 0.010 | mg/L |

## TIN ICP SW846-6010A

Analyst: A. STOCKBURGER Analysis Date: 18-AUG-97 23:54 Instrument: ICP Test: M135.3.0

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| TIN | BDL | 0.050 | mg/L |

## VANADIUM ICP SW846-6010A

Analyst: A. STOCKBURGER Analysis Date: 18-AUG-97 23:54 Instrument: ICP Test: M138.3.0

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| VANADIUM | BDL | 0.010 | mg/L |

## ZINC ICP SW846-6010A

Analyst: A. STOCKBURGER Analysis Date: 18-AUG-97 23:54 Instrument: ICP Test: M139.3.0

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| ZINC | BDL | 0.020 | mg/L |

## HEXAVALENT CHROMIUM SW846-7196A

Analyst: K. WHITFIELD Analysis Date: 14-AUG-97 16:30 Test: M110.6.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| HEXAVALENT CHROMIUM | BDL | 0.010 | mg/L |

## CYANIDE DISTILLATION SW846-9010A

Analyst: M. BOROS Analysis Date: 14-AUG-97 16:45 Instrument: PREP Test: P101.4.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| INITIAL WEIGHT OR VOLUME | 250 | | mL |
| FINAL VOLUME | 250 | | mL |

## CYANIDE, TOTAL (AUTOMATED) SW846-9012

Analyst: K. WHITFIELD Analysis Date: 15-AUG-97 17:00 Instrument: AUTO-ANALYZER Test: G101.4.0

Prep: CYANIDE DISTILLATION SW846-9010A P101.4.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| CYANIDE | BDL | 0.0050 | mg/L |

Sample Comments

*BDL Below Detection Limit*

*Sample chain of custody number 62745.*

*This Certificate shall not be reproduced, except in full, without the written approval of the lab.*

Approved : P.K. Spence

# CERTIFICATE OF ANALYSIS

| Service Location | Received | Project | Lab ID |
|---|---|---|---|
| HERITAGE ENVIRONMENTAL SERVICES, INC.<br>COMMERCIAL LABORATORY OPERATIONS<br>7901 W. MORRIS ST.<br>INDIANAPOLIS, IN 46231<br>(317)243-8304 | 14-AUG-97 | | A416937 |
| | Complete: 25-AUG-97 | PO Number: 91112RH | |
| | Printed: 25-AUG-97 | Sampled: 14-AUG-97 15:00 | |

**Report To**

PAUL KOPYDLOWSKI
ERM NORTH CENTRAL, INC.
540 LAKE COOK ROAD
SUITE 300
DEERFIELD, IL 60015

**Bill To**

ACCOUNTS PAYABLE
ERM-NORTH CENTRAL, INC.
540 LAKE COOK ROAD, SUITE 300
DEERFIELD, IL 60015

**Sample Description**

CLIENT ID: ECC 1TB1W
PROJECT: ECC

## VOLATILE ORGANICS SW846-8240B

Analyst: H. WILLIAMS  Analysis Date: 15-AUG-97 08:11  Instrument: GC/MS VOA  Test: 0510.3.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| ACETONE | BDL | 20 | ug/L |
| 1,1-DICHLOROETHENE | BDL | 5 | ug/L |
| ETHYL BENZENE | BDL | 5 | ug/L |
| DICHLOROMETHANE (METHYLENE CHLORIDE) | BDL | 5 | ug/L |
| METHYL ETHYL KETONE | BDL | 10 | ug/L |
| 4-METHYL-2-PENTANONE | BDL | 10 | ug/L |
| TETRACHLOROETHENE | BDL | 2.2 | ug/L |
| TOLUENE | BDL | 5 | ug/L |
| 1,2-DICHLOROETHENE (CIS AND TRANS) | BDL | 5 | ug/L |
| 1,1,1-TRICHLOROETHANE | BDL | 5 | ug/L |
| 1,1,2-TRICHLOROETHANE | BDL | 3.0 | ug/L |
| TRICHLOROETHENE | BDL | 5 | ug/L |
| VINYL CHLORIDE | BDL | 3.4 | ug/L |
| XYLENES (O/M/P-XYLENE) | BDL | 5 | ug/L |
| ... | | | |
| SURROGATE RECOVERY | | | |
| --- | | | |
| DICHLOROETHANE-D4 | 103 | | % Rec |
| TOLUENE-D8 | 95 | | % Rec |
| 4-BROMOFLUOROBENZENE | 101 | | % Rec |

*On this instrument, packed column has been replaced by capillary column with 8240 criteria.*

**Sample Comments**

*BDL  Below Detection Limit*

*Sample chain of custody number 62745.*

*This Certificate shall not be reproduced, except in full, without the written approval of the lab.*

Approved : G A Burch

# CERTIFICATE OF ANALYSIS

| Service Location | Received | Project | Lab ID |
|---|---|---|---|
| HERITAGE ENVIRONMENTAL SERVICES, INC.<br>COMMERCIAL LABORATORY OPERATIONS<br>7901 W. MORRIS ST.<br>INDIANAPOLIS, IN 46231<br>(317)243-8304 | 15-AUG-97 | | A417040 |
| | Complete | PO Number | |
| | 04-SEP-97 | 91112RH | |
| | Printed | Sampled | |
| | 08-SEP-97 | 15-AUG-97 08:30 | |

| Report To | Bill To |
|---|---|
| PAUL KOPYDLOWSKI<br>ERM NORTH CENTRAL, INC.<br>540 LAKE COOK ROAD<br>SUITE 300<br>DEERFIELD, IL 60015 | ACCOUNTS PAYABLE<br>ERM-NORTH CENTRAL, INC.<br>540 LAKE COOK ROAD, SUITE 300<br>DEERFIELD, IL 60015 |

Sample Description

CLIENT ID: ECC 1T5W
PROJECT: ECC

## VOLATILE ORGANICS SW846-8240B

Analyst: H. WILLIAMS  Analysis Date: 19-AUG-97 12:34  Instrument: GC/MS VOA  Test: 0510.3.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| ACETONE | 23 | 20 | ug/L |
| 1,1-DICHLOROETHENE | BDL | 5 | ug/L |
| ETHYL BENZENE | BDL | 5 | ug/L |
| DICHLOROMETHANE (METHYLENE CHLORIDE) | BDL | 5 | ug/L |
| METHYL ETHYL KETONE | BDL | 10 | ug/L |
| 4-METHYL-2-PENTANONE | BDL | 10 | ug/L |
| TETRACHLOROETHENE | BDL | 2.2 | ug/L |
| TOLUENE | BDL | 5 | ug/L |
| 1,2-DICHLOROETHENE (CIS AND TRANS) | BDL | 5 | ug/L |
| 1,1,1-TRICHLOROETHANE | BDL | 5 | ug/L |
| 1,1,2-TRICHLOROETHANE | BDL | 3.0 | ug/L |
| TRICHLOROETHENE | BDL | 5 | ug/L |
| VINYL CHLORIDE | BDL | 3.4 | ug/L |
| XYLENES (O/M/P-XYLENE) | BDL | 5 | ug/L |
| ... | | | |
| SURROGATE RECOVERY | | | |
| --- | | | |
| DICHLOROETHANE-D4 | 113 | | % Rec |
| TOLUENE-D8 | 108 | | % Rec |
| 4-BROMOFLUOROBENZENE | 101 | | % Rec |

## FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A

Analyst: R. DALAL  Analysis Date: 18-AUG-97 11:00  Instrument: PREP  Test: P130.4.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| INITIAL WEIGHT OR VOLUME | 50 | | mL |
| FINAL VOLUME | 50 | | mL |

## ANTIMONY ICP SW846-6010A

Analyst: A. STOCKBURGER  Analysis Date: 18-AUG-97 23:59  Instrument: ICP  Test: M102.3.0

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| ANTIMONY | BDL | 0.030 | mg/L |

 (continued on next page)

## ARSENIC TRACE ICP SW846-6010A

Analyst: A. ROBERTSON Analysis Date: 19-AUG-97 16:37 Instrument: TRACE ICP Test: M103.0.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| ARSENIC | BDL | 0.0050 | mg/L |

## BARIUM ICP SW846-6010A

Analyst: A. STOCKBURGER Analysis Date: 18-AUG-97 23:59 Instrument: ICP Test: M104.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| BARIUM | 0.022 | 0.010 | mg/L |

## BERYLLIUM TRACE ICP SW846-6010A

Analyst: A. ROBERTSON Analysis Date: 19-AUG-97 16:37 Instrument: TRACE ICP Test: M105.0.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| BERYLLIUM | BDL | 0.0010 | mg/L |

## CADMIUM ICP SW846-6010A

Analyst: A. STOCKBURGER Analysis Date: 18-AUG-97 23:59 Instrument: ICP Test: M108.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| CADMIUM | BDL | 0.0050 | mg/L |

## LEAD ICP SW846-6010A

Analyst: A. STOCKBURGER Analysis Date: 18-AUG-97 23:59 Instrument: ICP Test: M116.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| LEAD | BDL | 0.050 | mg/L |

## MANGANESE ICP SW846-6010A

Analyst: A. STOCKBURGER Analysis Date: 18-AUG-97 23:59 Instrument: ICP Test: M119.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| MANGANESE | BDL | 0.010 | mg/L |

## NICKEL ICP SW846-6010A

Analyst: A. STOCKBURGER Analysis Date: 18-AUG-97 23:59 Instrument: ICP Test: M122.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| NICKEL | BDL | 0.010 | mg/L |

## SILVER ICP SW846-6010A

Analyst: A. STOCKBURGER Analysis Date: 18-AUG-97 23:59 Instrument: ICP Test: M130.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| SILVER | BDL | 0.010 | mg/L |

## TIN ICP SW846-6010A

Analyst: A. STOCKBURGER Analysis Date: 18-AUG-97 23:59 Instrument: ICP Test: M135.3.0
Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| TIN | BDL | 0.050 | mg/L |

## VANADIUM ICP SW846-6010A

Analyst: A. STOCKBURGER Analysis Date: 18-AUG-97 23:59 Instrument: ICP Test: M138.3.0

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| VANADIUM | BDL | 0.010 | mg/L |

## ZINC ICP SW846-6010A

Analyst: A. STOCKBURGER Analysis Date: 18-AUG-97 23:59 Instrument: ICP Test: M139.3.0

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A P130.4.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| ZINC | BDL | 0.020 | mg/L |

Sample Comments

*BDL Below Detection Limit*

*Sample chain of custody number 62746.*

*This Certificate shall not be reproduced, except in full, without the written approval of the lab.*

Approved : Kurt Marie

# CERTIFICATE OF ANALYSIS

| Service Location | Received | Project | Lab ID |
|---|---|---|---|
| HERITAGE ENVIRONMENTAL SERVICES, INC.<br>COMMERCIAL LABORATORY OPERATIONS<br>7901 W. MORRIS ST.<br>INDIANAPOLIS, IN 46231<br>(317)243-8304 | 15-AUG-97 | | A417041 |
| | Complete | PO Number | |
| | 04-SEP-97 | 91112RH | |
| | Printed | Sampled | |
| | 08-SEP-97 | 15-AUG-97 08:30 | |

| Report To | Bill To |
|---|---|
| PAUL KOPYDLOWSKI<br>ERM NORTH CENTRAL, INC.<br>540 LAKE COOK ROAD<br>SUITE 300<br>DEERFIELD, IL 60015 | ACCOUNTS PAYABLE<br>ERM-NORTH CENTRAL, INC.<br>540 LAKE COOK ROAD, SUITE 300<br>DEERFIELD, IL 60015 |

Sample Description

CLIENT ID: ECC 1T2W
PROJECT: ECC

**VOLATILE ORGANICS SW846-8240B**

Analyst: H. WILLIAMS  Analysis Date: 19-AUG-97 13:17  Instrument: GC/MS VOA  Test: 0510.3.0

| Parameter | Result | Det. Limit | Units |
|---|---|---|---|
| ACETONE | BDL | 20 | ug/L |
| 1,1-DICHLOROETHENE | BDL | 5 | ug/L |
| ETHYL BENZENE | BDL | 5 | ug/L |
| DICHLOROMETHANE (METHYLENE CHLORIDE) | BDL | 5 | ug/L |
| METHYL ETHYL KETONE | BDL | 10 | ug/L |
| 4-METHYL-2-PENTANONE | BDL | 10 | ug/L |
| TETRACHLOROETHENE | BDL | 2.2 | ug/L |
| TOLUENE | BDL | 5 | ug/L |
| 1,2-DICHLOROETHENE (CIS AND TRANS) | BDL | 5 | ug/L |
| 1,1,1-TRICHLOROETHANE | BDL | 5 | ug/L |
| 1,1,2-TRICHLOROETHANE | BDL | 3.0 | ug/L |
| TRICHLOROETHENE | BDL | 5 | ug/L |
| VINYL CHLORIDE | BDL | 3.4 | ug/L |
| XYLENES (O/M/P-XYLENE) | BDL | 5 | ug/L |
| ... | | | |
| SURROGATE RECOVERY | | | |
| --- | | | |
| DICHLOROETHANE-D4 | 114 | | % Rec |
| TOLUENE-D8 | 106 | | % Rec |
| 4-BROMOFLUOROBENZENE | 105 | | % Rec |

Sample Comments

*BDL  Below Detection Limit*

*Sample chain of custody number 62746.*

*This Certificate shall not be reproduced, except in full, without the written approval of the lab.*

Approved : Kurt Marie

# QUALITY ASSURANCE REPORT

Service Location
HERITAGE ENVIRONMENTAL SERVICES, INC.
COMMERCIAL LABORATORY OPERATIONS
7901 W. MORRIS ST.
INDIANAPOLIS, IN 46231
(317)243-8304

Report Date
04-SEP-97

Submitter
ERM-NORTH CENTRAL, INC.
PROJECT MANAGER
540 LAKE COOK ROAD
SUITE 300
DEERFIELD, IL 60015

| Client ID | Lab ID | Date-Time Sampled | Date Received | Date Complete | Description |
|---|---|---|---|---|---|
| ECC 1T1W | A416935 | 14-AUG-97 12:00 | 14-AUG-97 | 28-AUG-97 | PROJECT: ECC |
| ECC 1T1WD | A416936 | 14-AUG-97 12:00 | 14-AUG-97 | 28-AUG-97 | PROJECT: ECC |
| ECC 1TB1W | A416937 | 14-AUG-97 15:00 | 14-AUG-97 | 25-AUG-97 | PROJECT: ECC |
| ECC 1T5W | A417040 | 15-AUG-97 08:30 | 15-AUG-97 | 04-SEP-97 | PROJECT: ECC |
| ECC 1T2W | A417041 | 15-AUG-97 08:30 | 15-AUG-97 | 04-SEP-97 | PROJECT: ECC |

## CYANIDE, TOTAL (AUTOMATED) SW846-9012 — G101.4
### Prep: CYANIDE DISTILLATION SW846-9010A

Run: R332225 Analyst.: M BOROS Run Date...: 14-AUG-97
PREP Reviewer: B SHRAKE Review Date: 18-AUG-97

| QC Type | Lab ID | Source | Anal Run |
|---|---|---|---|
| BLA02 | Q730219 | | R332227 |
| LFB02L | Q730220 | | R332227 |
| SAMPLE | A416935 | Rep: 0 | R332227 |
| LFB02H | Q730221 | | R332227 |
| SPI02 | Q730222 | A416935 | R332227 |
| DPS02 | Q730223 | A416935 | R332227 |
| SAMPLE | A416936 | Rep: 0 | R332227 |

Run: R332227 Analyst.: K WHITFIELD Run Date...: 15-AUG-97 Instrument: AUTO-ANALYZER
ANALYTICAL Reviewer: B SHRAKE Review Date: 18-AUG-97

| QC Type | Lab ID | Source | Parameter | True/Sampl | Spike Val | Observed | Units | % Rec | RPD |
|---|---|---|---|---|---|---|---|---|---|
| BLA01 | Q730216 | | CYANIDE | | | -.0007 | mg/L | | |
| CDL01 | Q730217 | | CYANIDE | 0.02 | | 0.0186 | mg/L | 93 | |
| ICV01 | Q730218 | | CYANIDE | 0.15 | | 0.145 | mg/L | 96.7 | |
| BLA02 | Q730219 | | CYANIDE | | | -.0003 | mg/L | | |
| LFB02L | Q730220 | | CYANIDE | 0.05 | | 0.0492 | mg/L | 98.4 | |
| LFB02H | Q730221 | | CYANIDE | 0.25 | | 0.239 | mg/L | 95.6 | |
| SAMPLE | A416935 | | See Cert. of Analysis, Rep: 0 | | | | | | |
| SPI02 | Q730222 | A416935 | CYANIDE | 0 | 0.1 | 0.1 | mg/L | 100 | |
| DPS02 | Q730223 | A416935 | CYANIDE | 0 | 0.1 | 0.092 | mg/L | 92 | 8.3 |
| CCV | Q730224 | | CYANIDE | 0.1 | | 0.098 | mg/L | 98 | |
| BLA01 | Q730225 | | CYANIDE | | | -.0003 | mg/L | | |
| SAMPLE | A416936 | | See Cert. of Analysis, Rep: 0 | | | | | | |
| CCV | Q730226 | | CYANIDE | 0.1 | | 0.098 | mg/L | 98 | |
| BLA01 | Q730227 | | CYANIDE | | | -.0001 | mg/L | | |

## ANTIMONY ICP SW846-6010A — M102.3
### Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A

Run: R332232 Analyst.: R DALAL Run Date...: 18-AUG-97
PREP Reviewer: W WATNESS Review Date: 18-AUG-97

| QC Type | Lab ID | Source | Anal Run |
|---|---|---|---|
| LCS | Q730252 | SPEX | R332278 |
| BLA02 | Q730253 | NA | R332278 |
| SPI02 | Q730254 | A416935 | R332278 |
| DPS02 | Q730255 | A416935 | R332278 |
| SAMPLE | A416935 | Rep: 0 | R332278 |
| SAMPLE | A416936 | Rep: 0 | R332278 |
| SAMPLE | A417040 | Rep: 0 | R332278 |

Run: R332278 Analyst.: A STOCKBURGER Run Date...: 18-AUG-97 Instrument: ICP
ANALYTICAL Reviewer: S ENDERSON Review Date: 19-AUG-97

| QC Type | Lab ID | Source | Parameter | True/Sampl | Spike Val | Observed | Units | % Rec | RPD |
|---|---|---|---|---|---|---|---|---|---|
| CCV | Q730689 | INORGAN | ANTIMONY | 1.00 | | 0.966 | mg/L | 97 | |
| BLA01 | Q730690 | NA | ANTIMONY | | | < 0.0120 | mg/L | | |
| ICV01 | Q730691 | PERKIN | ANTIMONY | 1 | | 1.01 | mg/L | 101 | |
| CDL01 | Q730695 | PERKIN | ANTIMONY | 0.120 | | 0.129 | mg/L | 108 | |
| ICS-A | Q730698 | PERKIN | ANTIMONY | 0.6 | | 0.612 | mg/L | 102 | |
| BLA02 | Q730253 | NA | ANTIMONY | | | < 0.0120 | mg/L | | |
| LCS | Q730252 | SPEX | ANTIMONY | 5.00 | | 4.82 | mg/L | 96 | |

HERITAGE ENVIRONMENTAL SERVICES, INC.

| QC Type | Lab ID | Source | Parameter | True/Sampl | Spike Val | Observed | Units | % Rec | RPD |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE | A416935 | | See Cert. of Analysis, Rep: 0 | | | | | | |
| SPI02 | Q730254 | A416935 | ANTIMONY | 0 | 0.500 | 0.526 | mg/L | 105 | |
| DPS02 | Q730255 | A416935 | ANTIMONY | 0 | 0.500 | 0.530 | mg/L | 106 | 1 |
| SAMPLE | A416936 | | See Cert. of Analysis, Rep: 0 | | | | | | |
| SAMPLE | A417040 | | See Cert. of Analysis, Rep: 0 | | | | | | |
| CCV | Q730701 | INORGAN | ANTIMONY | 1.00 | | 0.960 | mg/L | 96 | |
| BLA01 | Q730702 | NA | ANTIMONY | | | < 0.0120 | mg/L | | |
| CDL01 | Q730711 | PERKIN | ANTIMONY | 0.120 | | 0.117 | mg/L | 98 | |
| ICS-A | Q730713 | PERKIN | ANTIMONY | 0.6 | | 0.578 | mg/L | 96 | |

## ARSENIC TRACE ICP SW846-6010A M103.0

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A

Run: R332232 Analyst.: R DALAL Run Date...: 18-AUG-97
PREP Reviewer: W WATNESS Review Date: 18-AUG-97

| QC Type | Lab ID | Source | Anal Run |
|---|---|---|---|
| SAMPLE | A416935 | Rep: 0 | R332401 |
| SAMPLE | A416936 | Rep: 0 | R332238 |
| SAMPLE | A417040 | Rep: 0 | R332401 |
| LCS | Q730257 | INORGAN | R332401 |
| BLA02 | Q730258 | NA | R332401 |
| SPI02 | Q730259 | A416935 | R332401 |
| DPS02 | Q730260 | A416935 | R332401 |

Run: R332238 Analyst.: A ROBERTSON Run Date...: 16-AUG-97 Instrument: TRACE ICP
ANALYTICAL Reviewer: S O'NEAL Review Date: 19-AUG-97

| QC Type | Lab ID | Source | Parameter | True/Sampl | Spike Val | Observed | Units | % Rec | RPD |
|---|---|---|---|---|---|---|---|---|---|
| CCV | Q730337 | INORGAN | ARSENIC | 0.1 | | 0.0956 | mg/L | 96 | |
| BLA01 | Q730338 | NA | ARSENIC | | | < 0.00200 | mg/L | | |
| ICV01 | Q730339 | PERKIN- | ARSENIC | 0.05 | | 0.0497 | mg/L | 99 | |
| CDL01 | Q730342 | PERKIN- | ARSENIC | 0.02 | | 0.0216 | mg/L | 108 | |
| ICS-A | Q730345 | PERKIN | ARSENIC | 0.1 | | 0.103 | mg/L | 103 | |
| SAMPLE | A416936 | | See Cert. of Analysis, Rep: 0 | | | | | | |
| CCV | Q730348 | INORGAN | ARSENIC | 0.1 | | 0.0951 | mg/L | 95 | |
| BLA01 | Q730349 | NA | ARSENIC | | | < 0.00200 | mg/L | | |
| CDL01 | Q730350 | PERKIN- | ARSENIC | 0.02 | | 0.0193 | mg/L | 97 | |
| ICS-A | Q730352 | PERKIN | ARSENIC | 0.1 | | 0.100 | mg/L | 100 | |

Run: R332401 Analyst.: A ROBERTSON Run Date...: 19-AUG-97 Instrument: TRACE ICP
ANALYTICAL Reviewer: Review Date:

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| CCV | Q731396 | INORGAN | ARSENIC | 0.1 | | 0.0963 | mg/L | 96 | |
| BLA01 | Q731397 | NA | ARSENIC | | | < 0.00200 | mg/L | | |
| ICV01 | Q731398 | PERKIN- | ARSENIC | 0.05 | | 0.0479 | mg/L | 96 | |
| CDL01 | Q731401 | PERKIN- | ARSENIC | 0.02 | | 0.0187 | mg/L | 94 | |
| ICS-A | Q731404 | PERKIN | ARSENIC | 0.1 | | 0.0962 | mg/L | 96 | |
| LCS | Q730257 | INORGAN | ARSENIC | 0.5 | | 0.454 | mg/L | 91 | |
| BLA02 | Q730258 | NA | ARSENIC | | | < 0.00200 | mg/L | | |
| SAMPLE | A416935 | | See Cert. of Analysis, Rep: 0 | | | | | | |
| SPI02 | Q730259 | A416935 | ARSENIC | 0 | 2 | 2.11 | mg/L | 106 | |
| DPS02 | Q730260 | A416935 | ARSENIC | 0 | 2 | 2.18 | mg/L | 109 | 3 |
| SAMPLE | A417040 | | See Cert. of Analysis, Rep: 0 | | | | | | |
| CCV | Q731436 | INORGAN | ARSENIC | 0.1 | | 0.0920 | mg/L | 92 | |
| BLA01 | Q731437 | NA | ARSENIC | | | < 0.00200 | mg/L | | |
| CDL01 | Q731438 | PERKIN- | ARSENIC | 0.02 | | 0.0171 | mg/L | 86 | |
| ICS-A | Q731440 | PERKIN | ARSENIC | 0.1 | | 0.0984 | mg/L | 98 | |

## BARIUM ICP SW846-6010A — M104.3

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A

Run: R332232 Analyst.: R DALAL Run Date...: 18-AUG-97
PREP Reviewer: W WATNESS Review Date: 18-AUG-97

| QC Type | Lab ID | Source | Anal Run |
|---|---|---|---|
| LCS | Q730252 | SPEX | R332278 |
| BLA02 | Q730253 | NA | R332278 |
| SP102 | Q730254 | A416935 | R332278 |
| DPS02 | Q730255 | A416935 | R332278 |
| SAMPLE | A416935 | Rep: 0 | R332278 |
| SAMPLE | A416936 | Rep: 0 | R332278 |
| SAMPLE | A417040 | Rep: 0 | R332278 |

Run: R332278 Analyst.: A STOCKBURGER Run Date...: 18-AUG-97 Instrument: ICP
ANALYTICAL Reviewer: S ENDERSON Review Date: 19-AUG-97

| QC Type | Lab ID | Source | Parameter | True/Sampl | Spike Val | Observed | Units | % Rec | RPD |
|---|---|---|---|---|---|---|---|---|---|
| CCV | Q730689 | INORGAN | BARIUM | 5.00 | | 4.84 | mg/L | 97 | |
| BLA01 | Q730690 | NA | BARIUM | | | < 0.00400 | mg/L | | |
| ICV01 | Q730692 | PERKIN | BARIUM | 1 | | 0.994 | mg/L | 99 | |
| CDL01 | Q730696 | INORGAN | BARIUM | 10 | - | 9.95 | mg/L | 100 | |
| ICS-A | Q730698 | PERKIN | BARIUM | 0.500 | | 0.499 | mg/L | 100 | |
| BLA02 | Q730253 | NA | BARIUM | | | < 0.00400 | mg/L | | |
| LCS | Q730252 | SPEX | BARIUM | 20.0 | | 18.9 | mg/L | 95 | |
| SAMPLE | A416935 | | See Cert. of Analysis, Rep: 0 | | | | | | |
| SP102 | Q730254 | A416935 | BARIUM | 0.323 | 2.00 | 2.32 | mg/L | 100 | |
| DPS02 | Q730255 | A416935 | BARIUM | 0.323 | 2.00 | 2.35 | mg/L | 101 | 1 |
| SAMPLE | A416936 | | See Cert. of Analysis, Rep: 0 | | | | | | |
| SAMPLE | A417040 | | See Cert. of Analysis, Rep: 0 | | | | | | |
| CCV | Q730701 | INORGAN | BARIUM | 5.00 | | 4.88 | mg/L | 98 | |
| LA01 | Q730702 | NA | BARIUM | | | < 0.00400 | mg/L | | |
| ICS-A | Q730713 | PERKIN | BARIUM | 0.500 | | 0.494 | mg/L | 99 | |

## BERYLLIUM TRACE ICP SW846-6010A — M105.0

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A

Run: R332232 Analyst.: R DALAL Run Date...: 18-AUG-97
PREP Reviewer: W WATNESS Review Date: 18-AUG-97

| QC Type | Lab ID | Source | Anal Run |
|---|---|---|---|
| SAMPLE | A416935 | Rep: 0 | R332401 |
| SAMPLE | A416936 | Rep: 0 | R332238 |
| SAMPLE | A417040 | Rep: 0 | R332401 |
| LCS | Q730257 | INORGAN | R332401 |
| BLA02 | Q730258 | NA | R332401 |
| SP102 | Q730259 | A416935 | R332401 |
| DPS02 | Q730260 | A416935 | R332401 |

Run: R332238 Analyst.: A ROBERTSON Run Date...: 16-AUG-97 Instrument: TRACE ICP
ANALYTICAL Reviewer: S O'NEAL Review Date: 19-AUG-97

| QC Type | Lab ID | Source | Parameter | True/Sampl | Spike Val | Observed | Units | % Rec | RPD |
|---|---|---|---|---|---|---|---|---|---|
| CCV | Q730337 | INORGAN | BERYLLIUM | 0.1 | | 0.0939 | mg/L | 94 | |
| BLA01 | Q730338 | NA | BERYLLIUM | | | < 0.000400 | mg/L | | |
| ICV01 | Q730339 | PERKIN- | BERYLLIUM | 0.05 | | 0.0479 | mg/L | 96 | |
| CDL01 | Q730342 | PERKIN- | BERYLLIUM | 0.01 | | 0.00987 | mg/L | 99 | |
| ICS-A | Q730345 | PERKIN | BERYLLIUM | 0.5 | | 0.520 | mg/L | 104 | |
| SAMPLE | A416936 | | See Cert. of Analysis, Rep: 0 | | | | | | |

| QC Type | Lab ID | Source | Parameter | True/Sampl | Spike Val | Observed | Units | % Rec | RPD |
|---|---|---|---|---|---|---|---|---|---|
| CCV | Q730348 | INORGAN | BERYLLIUM | 0.1 | | 0.0949 | mg/L | 95 | |
| BLA01 | Q730349 | NA | BERYLLIUM | | | < 0.000400 | mg/L | | |
| DL01 | Q730350 | PERKIN- | BERYLLIUM | 0.01 | | 0.00964 | mg/L | 96 | |
| ICS-A | Q730352 | PERKIN | BERYLLIUM | 0.5 | | 0.516 | mg/L | 103 | |

Run: R332401 Analyst.: A ROBERTSON Run Date...: 19-AUG-97 Instrument: TRACE ICP
ANALYTICAL Reviewer: Review Date:

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| CCV | Q731396 | INORGAN | BERYLLIUM | 0.1 | | 0.0968 | mg/L | 97 | |
| BLA01 | Q731397 | NA | BERYLLIUM | | | < 0.000400 | mg/L | | |
| ICV01 | Q731398 | PERKIN- | BERYLLIUM | 0.05 | | 0.0480 | mg/L | 96 | |
| CDL01 | Q731401 | PERKIN- | BERYLLIUM | 0.01 | | 0.00932 | mg/L | 93 | |
| ICS-A | Q731404 | PERKIN | BERYLLIUM | 0.5 | | 0.498 | mg/L | 100 | |
| LCS | Q730257 | INORGAN | BERYLLIUM | 0.5 | | 0.463 | mg/L | 93 | |
| BLA02 | Q730258 | NA | BERYLLIUM | | | < 0.000400 | mg/L | | |
| SAMPLE | A416935 | | See Cert. of Analysis, Rep: 0 | | | | | | |
| SPI02 | Q730259 | A416935 | BERYLLIUM | 0 | 0.05 | 0.0508 | mg/L | 102 | |
| DPS02 | Q730260 | A416935 | BERYLLIUM | 0 | 0.05 | 0.0524 | mg/L | 105 | 3 |
| SAMPLE | A417040 | | See Cert. of Analysis, Rep: 0 | | - | | | | |
| CCV | Q731436 | INORGAN | BERYLLIUM | 0.1 | | 0.0935 | mg/L | 94 | |
| BLA01 | Q731437 | NA | BERYLLIUM | | | < 0.000400 | mg/L | | |
| [illegible]21 | Q731438 | PERKIN- | BERYLLIUM | 0.01 | | 0.00959 | mg/L | 96 | |
| [illegible]A | Q731440 | PERKIN | BERYLLIUM | 0.5 | | 0.506 | mg/L | 101 | |

## CADMIUM ICP SW846-6010A M108.3

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A

Run: R332232 Analyst.: R DALAL Run Date...: 18-AUG-97
PREP Reviewer: W WATNESS Review Date: 18-AUG-97

| C Type | Lab ID | Source | Anal Run |
|---|---|---|---|
| LCS | Q730252 | SPEX | R332278 |
| BLA02 | Q730253 | NA | R332278 |
| SPI02 | Q730254 | A416935 | R332278 |
| DPS02 | Q730255 | A416935 | R332278 |
| SAMPLE | A416935 | Rep: 0 | R332278 |
| SAMPLE | A416936 | Rep: 0 | R332278 |
| SAMPLE | A417040 | Rep: 0 | R332278 |

[illegible]: R332278 Analyst.: A STOCKBURGER Run Date...: 18-AUG-97 Instrument: ICP
ANALYTICAL Reviewer: S ENDERSON Review Date: 19-AUG-97

| QC Type | Lab ID | Source | Parameter | True/Sampl | Spike Val | Observed | Units | % Rec | RPD |
|---|---|---|---|---|---|---|---|---|---|
| CCV | Q730689 | INORGAN | CADMIUM | 5.00 | | 4.72 | mg/L | 94 | |
| ICV01 | Q730691 | PERKIN | CADMIUM | 1 | | 1.02 | mg/L | 102 | |
| BLA01 | Q730694 | NA | CADMIUM | | | < 0.00200 | mg/L | | |
| CDL01 | Q730695 | PERKIN | CADMIUM | 0.010 | | 0.00774 | mg/L | 77 | |
| ICS-A | Q730698 | PERKIN | CADMIUM | 1.00 | | 0.890 | mg/L | 89 | |
| BLA02 | Q730253 | NA | CADMIUM | | | < 0.00200 | mg/L | | |
| LCS | Q730252 | SPEX | CADMIUM | 0.500 | | 0.448 | mg/L | 90 | |
| SAMPLE | A416935 | | See Cert. of Analysis, Rep: 0 | | | | | | |
| SPI02 | Q730254 | A416935 | CADMIUM | 0 | 0.050 | 0.0471 | mg/L | 94 | |
| DPS02 | Q730255 | A416935 | CADMIUM | 0 | 0.050 | 0.0476 | mg/L | 95 | 1 |
| SAMPLE | A416936 | | See Cert. of Analysis, Rep: 0 | | | | | | |
| SAMPLE | A417040 | | See Cert. of Analysis, Rep: 0 | | | | | | |
| CCV | Q730701 | INORGAN | CADMIUM | 5.00 | | 4.78 | mg/L | 96 | |
| BLA01 | Q730702 | NA | CADMIUM | | | 0.00623 | mg/L | | |
| DL01 | Q730711 | PERKIN | CADMIUM | 0.010 | | 0.00845 | mg/L | 85 | |

HERITAGE ENVIRONMENTAL SERVICES, INC.

| QC Type | Lab ID | Source | Parameter | True/Sampl | Spike Val | Observed | Units | % Rec | RPD |
|---|---|---|---|---|---|---|---|---|---|
| ICS-A | Q730713 | PERKIN | CADMIUM | 1.00 | | 0.886 | mg/L | 89 | |

## HEXAVALENT CHROMIUM SW846-7196A — M110.6

Run: R332069 Analyst.: K WHITFIELD Run Date...: 14-AUG-97
ANALYTICAL Reviewer: B SHRAKE Review Date: 15-AUG-97

| QC Type | Lab ID | Source | Parameter | True/Sampl | Spike Val | Observed | Units | % Rec | RPD |
|---|---|---|---|---|---|---|---|---|---|
| BLA01 | Q729480 | | HEXAVALENT CHROMIUM | | | -.005 | mg/L | | |
| CDL01 | Q729481 | | HEXAVALENT CHROMIUM | 0.05 | | 0.048 | mg/L | 96 | |
| ICV01 | Q729482 | | HEXAVALENT CHROMIUM | 0.4 | | 0.414 | mg/L | 103.5 | |
| SAMPLE | A416935 | | See Cert. of Analysis, Rep: 0 | | | | | | |
| SPI01 | Q729483 | A416935 | HEXAVALENT CHROMIUM | 0 | 0.2 | 0.215 | mg/L | 107.5 | |
| DPS01 | Q729484 | A416935 | HEXAVALENT CHROMIUM | 0 | 0.2 | 0.219 | mg/L | 109.5 | 1.8 |
| SAMPLE | A416936 | | See Cert. of Analysis, Rep: 0 | | | | | | |
| BLA01 | Q729485 | | HEXAVALENT CHROMIUM | | | -.006 | mg/L | | |
| CCV | Q729486 | | HEXAVALENT CHROMIUM | 0.2 | | 0.22 | mg/L | 110 | |

## LEAD ICP SW846-6010A — M116.3

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A

Run: R332232 Analyst.: R DALAL Run Date...: 18-AUG-97
PREP Reviewer: W WATNESS Review Date: 18-AUG-97

| QC Type | Lab ID | Source | Anal Run |
|---|---|---|---|
| LCS | Q730252 | SPEX | R332278 |
| BLA02 | Q730253 | NA | R332278 |
| SPI02 | Q730254 | A416935 | R332278 |
| DPS02 | Q730255 | A416935 | R332278 |
| SAMPLE | A416935 | Rep: 0 | R332278 |
| SAMPLE | A416936 | Rep: 0 | R332278 |
| SAMPLE | A417040 | Rep: 0 | R332278 |

Run: R332278 Analyst.: A STOCKBURGER Run Date...: 18-AUG-97 Instrument: ICP
ANALYTICAL Reviewer: S ENDERSON Review Date: 19-AUG-97

| QC Type | Lab ID | Source | Parameter | True/Sampl | Spike Val | Observed | Units | % Rec | RPD |
|---|---|---|---|---|---|---|---|---|---|
| CCV | Q730689 | INORGAN | LEAD | 5.00 | | 4.77 | mg/L | 95 | |
| BLA01 | Q730690 | NA | LEAD | | | < 0.0200 | mg/L | | |
| ICV01 | Q730691 | PERKIN | LEAD | 1 | | 1.02 | mg/L | 102 | |
| CDL01 | Q730695 | PERKIN | LEAD | 0.100 | | 0.0877 | mg/L | 88 | |
| ICS-A | Q730698 | PERKIN | LEAD | 1.00 | | 0.938 | mg/L | 94 | |
| BLA02 | Q730253 | NA | LEAD | | | < 0.0200 | mg/L | | |
| LCS | Q730252 | SPEX | LEAD | 5.00 | | 4.60 | mg/L | 92 | |
| SAMPLE | A416935 | | See Cert. of Analysis, Rep: 0 | | | | | | |
| SPI02 | Q730254 | A416935 | LEAD | 0 | 0.500 | 0.525 | mg/L | 105 | |
| DPS02 | Q730255 | A416935 | LEAD | 0 | 0.500 | 0.527 | mg/L | 105 | 0 |
| SAMPLE | A416936 | | See Cert. of Analysis, Rep: 0 | | | | | | |
| SAMPLE | A417040 | | See Cert. of Analysis, Rep: 0 | | | | | | |
| CCV | Q730701 | INORGAN | LEAD | 5.00 | | 4.80 | mg/L | 96 | |
| BLA01 | Q730702 | NA | LEAD | | | < 0.0200 | mg/L | | |
| CDL01 | Q730711 | PERKIN | LEAD | 0.100 | | 0.0929 | mg/L | 93 | |
| ICS-A | Q730713 | PERKIN | LEAD | 1.00 | | 0.932 | mg/L | 93 | |

## MANGANESE ICP SW846-6010A — M119.3

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A

Run: R332232 Analyst.: R DALAL Run Date...: 18-AUG-97
PREP Reviewer: W WATNESS Review Date: 18-AUG-97

| QC Type | Lab ID | Source | Anal Run |
|---|---|---|---|
| LCS | Q730252 | SPEX | R332278 |
| BLA02 | Q730253 | NA | R332278 |
| SPI02 | Q730254 | A416935 | R332278 |
| DPS02 | Q730255 | A416935 | R332278 |
| SAMPLE | A416935 | Rep: 0 | R332278 |
| SAMPLE | A416936 | Rep: 0 | R332278 |
| SAMPLE | A417040 | Rep: 0 | R332278 |

Run: R332278 Analyst.: A STOCKBURGER Run Date...: 18-AUG-97 Instrument: ICP
ANALYTICAL Reviewer: S ENDERSON Review Date: 19-AUG-97

| QC Type | Lab ID | Source | Parameter | True/Sampl | Spike Val | Observed | Units | % Rec | RPD |
|---|---|---|---|---|---|---|---|---|---|
| CCV | Q730689 | INORGAN | MANGANESE | 5.00 | | 4.78 | mg/L | 96 | |
| BLA01 | Q730690 | NA | MANGANESE | | | < 0.00400 | mg/L | | |
| ICV01 | Q730691 | PERKIN | MANGANESE | 1 | | 1.01 | mg/L | 101 | |
| CDL01 | Q730695 | PERKIN | MANGANESE | 0.030 | | 0.0292 | mg/L | 97 | |
| ICS-A | Q730698 | PERKIN | MANGANESE | 0.500 | | 0.466 | mg/L | 93 | |
| BLA02 | Q730253 | NA | MANGANESE | | | < 0.00400 | mg/L | | |
| LCS | Q730252 | SPEX | MANGANESE | 5.00 | | 4.60 | mg/L | 92 | |
| SAMPLE | A416935 | | See Cert. of Analysis, Rep: 0 | | | | | | |
| SPI02 | Q730254 | A416935 | MANGANESE | 0.115 | 0.500 | 0.605 | mg/L | 98 | |
| DPS02 | Q730255 | A416935 | MANGANESE | 0.115 | 0.500 | 0.611 | mg/L | 99 | 1 |
| SAMPLE | A416936 | | See Cert. of Analysis, Rep: 0 | | | | | | |
| SAMPLE | A417040 | | See Cert. of Analysis, Rep: 0 | | | | | | |
| CCV | Q730701 | INORGAN | MANGANESE | 5.00 | | 4.82 | mg/L | 96 | |
| BLA01 | Q730702 | NA | MANGANESE | | | < 0.00400 | mg/L | | |
| CDL01 | Q730711 | PERKIN | MANGANESE | 0.030 | | 0.0281 | mg/L | 94 | |
| ICS-A | Q730713 | PERKIN | MANGANESE | 0.500 | | 0.461 | mg/L | 92 | |

## NICKEL ICP SW846-6010A — M122.3

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A

Run: R332232 Analyst.: R DALAL Run Date...: 18-AUG-97
PREP Reviewer: W WATNESS Review Date: 18-AUG-97

| QC Type | Lab ID | Source | Anal Run |
|---|---|---|---|
| LCS | Q730252 | SPEX | R332278 |
| BLA02 | Q730253 | NA | R332278 |
| SPI02 | Q730254 | A416935 | R332278 |
| DPS02 | Q730255 | A416935 | R332278 |
| SAMPLE | A416935 | Rep: 0 | R332278 |
| SAMPLE | A416936 | Rep: 0 | R332278 |
| SAMPLE | A417040 | Rep: 0 | R332278 |

Run: R332278 Analyst.: A STOCKBURGER Run Date...: 18-AUG-97 Instrument: ICP
ANALYTICAL Reviewer: S ENDERSON Review Date: 19-AUG-97

| QC Type | Lab ID | Source | Parameter | True/Sampl | Spike Val | Observed | Units | % Rec | RPD |
|---|---|---|---|---|---|---|---|---|---|
| CCV | Q730689 | INORGAN | NICKEL | 5.00 | | 4.74 | mg/L | 95 | |
| BLA01 | Q730690 | NA | NICKEL | | | < 0.00400 | mg/L | | |
| ICV01 | Q730691 | PERKIN | NICKEL | 1 | | 1.00 | mg/L | 100 | |
| CDL01 | Q730695 | PERKIN | NICKEL | 0.080 | | 0.0822 | mg/L | 103 | |
| ICS-A | Q730698 | PERKIN | NICKEL | 1.00 | | 0.874 | mg/L | 87 | |

| QC Type | Lab ID | Source | Parameter | True/Sampl | Spike Val | Observed | Units | % Rec | RPD |
|---|---|---|---|---|---|---|---|---|---|
| BLA02 | Q730253 | NA | NICKEL | | | < 0.00400 | mg/L | | |
| LCS | Q730252 | SPEX | NICKEL | 5.00 | | 4.51 | mg/L | 90 | |
| SAMPLE | A416935 | | See Cert. of Analysis, Rep: 0 | | | | | | |
| SPI02 | Q730254 | A416935 | NICKEL | 0 | 0.500 | 0.483 | mg/L | 97 | |
| DPS02 | Q730255 | A416935 | NICKEL | 0 | 0.500 | 0.488 | mg/L | 98 | 1 |
| SAMPLE | A416936 | | See Cert. of Analysis, Rep: 0 | | | | | | |
| SAMPLE | A417040 | | See Cert. of Analysis, Rep: 0 | | | | | | |
| CCV | Q730701 | INORGAN | NICKEL | 5.00 | | 4.78 | mg/L | 96 | |
| BLA01 | Q730702 | NA | NICKEL | | | 0.00474 | mg/L | | |
| CDL01 | Q730711 | PERKIN | NICKEL | 0.080 | | 0.0813 | mg/L | 102 | |
| ICS-A | Q730713 | PERKIN | NICKEL | 1.00 | | 0.872 | mg/L | 87 | |

## SILVER ICP SW846-6010A — MI30.3

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A

Run: R332232 — Analyst.: R DALAL — Run Date...: 18-AUG-97
PREP — Reviewer: W WATNESS — Review Date: 18-AUG-97

| QC Type | Lab ID | Source | Anal Run |
|---|---|---|---|
| LCS | Q730252 | SPEX | R332278 |
| BLA02 | Q730253 | NA | R332278 |
| SPI02 | Q730254 | A416935 | R332278 |
| DPS02 | Q730255 | A416935 | R332278 |
| SAMPLE | A416935 | Rep: 0 | R332278 |
| SAMPLE | A416936 | Rep: 0 | R332278 |
| SAMPLE | A417040 | Rep: 0 | R332278 |

Run: R332278 — Analyst.: A STOCKBURGER — Run Date...: 18-AUG-97 — Instrument: ICP
ANALYTICAL — Reviewer: S ENDERSON — Review Date: 19-AUG-97

| QC Type | Lab ID | Source | Parameter | True/Sampl | Spike Val | Observed | Units | % Rec | RPD |
|---|---|---|---|---|---|---|---|---|---|
| CCV | Q730689 | INORGAN | SILVER | 1.00 | | 0.962 | mg/L | 96 | |
| BLA01 | Q730690 | NA | SILVER | | | < 0.00400 | mg/L | | |
| ICV01 | Q730692 | PERKIN | SILVER | 0.5 | | 0.519 | mg/L | 104 | |
| CDL01 | Q730695 | PERKIN | SILVER | 0.020 | | 0.0166 | mg/L | 83 | |
| ICS-A | Q730698 | PERKIN | SILVER | 0.2 | | 0.206 | mg/L | 103 | |
| BLA02 | Q730253 | NA | SILVER | | | < 0.00400 | mg/L | | |
| LCS | Q730252 | SPEX | SILVER | 0.500 | | 0.471 | mg/L | 94 | |
| SAMPLE | A416935 | | See Cert. of Analysis, Rep: 0 | | | | | | |
| SPI02 | Q730254 | A416935 | SILVER | 0 | 0.050 | 0.0466 | mg/L | 93 | |
| DPS02 | Q730255 | A416935 | SILVER | 0 | 0.050 | 0.0526 | mg/L | 105 | 12 |
| SAMPLE | A416936 | | See Cert. of Analysis, Rep: 0 | | | | | | |
| SAMPLE | A417040 | | See Cert. of Analysis, Rep: 0 | | | | | | |
| CCV | Q730701 | INORGAN | SILVER | 1.00 | | 0.954 | mg/L | 95 | |
| BLA01 | Q730702 | NA | SILVER | | | < 0.00400 | mg/L | | |
| CDL01 | Q730711 | PERKIN | SILVER | 0.020 | | 0.0223 | mg/L | 112 | |
| ICS-A | Q730713 | PERKIN | SILVER | 0.2 | | 0.202 | mg/L | 101 | |

## TIN ICP SW846-6010A — MI35.3

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A

Run: R332232 — Analyst.: R DALAL — Run Date...: 18-AUG-97
PREP — Reviewer: W WATNESS — Review Date: 18-AUG-97

| QC Type | Lab ID | Source | Anal Run |
|---|---|---|---|
| LCS | Q730252 | SPEX | R332278 |

| QC Type | Lab ID | Source | Anal Run |
|---|---|---|---|
| BLA02 | Q730253 | NA | R332278 |
| SPI02 | Q730254 | A416935 | R332278 |
| DPS02 | Q730255 | A416935 | R332278 |
| SAMPLE | A416935 | Rep: 0 | R332278 |
| SAMPLE | A416936 | Rep: 0 | R332278 |
| SAMPLE | A417040 | Rep: 0 | R332278 |

Run: R332278 Analyst.: A STOCKBURGER Run Date...: 18-AUG-97 Instrument: ICP
ANALYTICAL Reviewer: S ENDERSON Review Date: 19-AUG-97

| QC Type | Lab ID | Source | Parameter | True/Sampl | Spike Val | Observed | Units | % Rec | RPD |
|---|---|---|---|---|---|---|---|---|---|
| CCV | Q730689 | INORGAN | TIN | 5 | | 4.76 | mg/L | 95 | |
| BLA01 | Q730690 | NA | TIN | | | < 0.0200 | mg/L | | |
| ICV01 | Q730692 | PERKIN | TIN | 2 | | 2.13 | mg/L | 107 | |
| BLA02 | Q730253 | NA | TIN | | | < 0.0200 | mg/L | | |
| LCS | Q730252 | SPEX | TIN | 4 | | 3.93 | mg/L | 98 | |
| SAMPLE | A416935 | | See Cert. of Analysis, Rep: 0 | | | | | | |
| SPI02 | Q730254 | A416935 | TIN | 0 | 4 | 3.80 | mg/L | 95 | |
| DPS02 | Q730255 | A416935 | TIN | 0 | 4 | 4.04 | mg/L | 101 | 6 |
| SAMPLE | A416936 | | See Cert. of Analysis, Rep: 0 | | | | | | |
| SAMPLE | A417040 | | See Cert. of Analysis, Rep: 0 | | | | | | |
| [illegible] | Q730701 | INORGAN | TIN | 5 | | 4.66 | mg/L | 93 | |
| [illegible]A01 | Q730702 | NA | TIN | | | < 0.0200 | mg/L | | |

## VANADIUM ICP SW846-6010A M138.3

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A

Run: R332232 Analyst.: R DALAL Run Date...: 18-AUG-97
PREP Reviewer: W WATNESS Review Date: 18-AUG-97

| QC Type | Lab ID | Source | Anal Run |
|---|---|---|---|
| LCS | Q730252 | SPEX | R332278 |
| BLA02 | Q730253 | NA | R332278 |
| SPI02 | Q730254 | A416935 | R332278 |
| DPS02 | Q730255 | A416935 | R332278 |
| SAMPLE | A416935 | Rep: 0 | R332278 |
| SAMPLE | A416936 | Rep: 0 | R332278 |
| SAMPLE | A417040 | Rep: 0 | R332278 |

[illegible]n: R332278 Analyst.: A STOCKBURGER Run Date...: 18-AUG-97 Instrument: ICP
ANALYTICAL Reviewer: S ENDERSON Review Date: 19-AUG-97

| QC Type | Lab ID | Source | Parameter | True/Sampl | Spike Val | Observed | Units | % Rec | RPD |
|---|---|---|---|---|---|---|---|---|---|
| CCV | Q730689 | INORGAN | VANADIUM | 5.00 | | 4.81 | mg/L | 96 | |
| BLA01 | Q730690 | NA | VANADIUM | | | < 0.00400 | mg/L | | |
| ICV01 | Q730691 | PERKIN | VANADIUM | 1 | | 1.00 | mg/L | 100 | |
| CDL01 | Q730695 | PERKIN | VANADIUM | 0.100 | | 0.100 | mg/L | 100 | |
| ICS-A | Q730698 | PERKIN | VANADIUM | 0.500 | | 0.470 | mg/L | 94 | |
| BLA02 | Q730253 | NA | VANADIUM | | | < 0.00400 | mg/L | | |
| LCS | Q730252 | SPEX | VANADIUM | 5.00 | | 4.59 | mg/L | 92 | |
| SAMPLE | A416935 | | See Cert. of Analysis, Rep: 0 | | | | | | |
| SPI02 | Q730254 | A416935 | VANADIUM | 0 | 0.500 | 0.488 | mg/L | 98 | |
| DPS02 | Q730255 | A416935 | VANADIUM | 0 | 0.500 | 0.492 | mg/L | 98 | 0 |
| SAMPLE | A416936 | | See Cert. of Analysis, Rep: 0 | | | | | | |
| SAMPLE | A417040 | | See Cert. of Analysis, Rep: 0 | | | | | | |
| CCV | Q730701 | INORGAN | VANADIUM | 5.00 | | 4.85 | mg/L | 97 | |
| BLA01 | Q730702 | NA | VANADIUM | | | < 0.00400 | mg/L | | |
| CDL01 | Q730711 | PERKIN | VANADIUM | 0.100 | | 0.0986 | mg/L | 99 | |

| QC Type | Lab ID | Source | Parameter | True/Sampl | Spike Val | Observed | Units | % Rec | RPD |
|---|---|---|---|---|---|---|---|---|---|
| ICS-A | Q730713 | PERKIN | VANADIUM | 0.500 | | 0.468 | mg/L | 96 | |

## ZINC ICP SW846-6010A — M139.3

Prep: FAA OR ICP ACID DIGESTION OF AQUEOUS SAMPLES SW846-3005A

Run: R332232 PREP — Analyst.: R DALAL — Reviewer: W WATNESS — Run Date...: 18-AUG-97 — Review Date: 18-AUG-97

| QC Type | Lab ID | Source | Anal Run |
|---|---|---|---|
| LCS | Q730252 | SPEX | R332278 |
| BLA02 | Q730253 | NA | R332278 |
| SPI02 | Q730254 | A416935 | R332278 |
| DPS02 | Q730255 | A416935 | R332278 |
| SAMPLE | A416935 | Rep: 0 | R332278 |
| SAMPLE | A416936 | Rep: 0 | R332278 |
| SAMPLE | A417040 | Rep: 0 | R332278 |

Run: R332278 ANALYTICAL — Analyst.: A STOCKBURGER — Reviewer: S ENDERSON — Run Date...: 18-AUG-97 — Review Date: 19-AUG-97 — Instrument: ICP

| QC Type | Lab ID | Source | Parameter | True/Sampl | Spike Val | Observed | Units | % Rec | RPD |
|---|---|---|---|---|---|---|---|---|---|
| CCV | Q730689 | INORGAN | ZINC | 5.00 | | 4.83 | mg/L | 97 | |
| ICV01 | Q730691 | PERKIN | ZINC | 1 | | 1.01 | mg/L | 101 | |
| BLA01 | Q730694 | NA | ZINC | | | < 0.00800 | mg/L | | |
| CDL01 | Q730695 | PERKIN | ZINC | 0.040 | | 0.0374 | mg/L | 94 | |
| ICS-A | Q730698 | PERKIN | ZINC | 1.00 | | 0.961 | mg/L | 96 | |
| BLA02 | Q730253 | NA | ZINC | | | 0.0163 | mg/L | | |
| LCS | Q730252 | SPEX | ZINC | 5.00 | | 4.66 | mg/L | 93 | |
| SAMPLE | A416935 | | See Cert. of Analysis, Rep: 0 | | | | | | |
| SPI02 | Q730254 | A416935 | ZINC | 0 | 0.500 | 0.513 | mg/L | 103 | |
| DPS02 | Q730255 | A416935 | ZINC | 0 | 0.500 | 0.519 | mg/L | 104 | 1 |
| SAMPLE | A416936 | | See Cert. of Analysis, Rep: 0 | | | | | | |
| SAMPLE | A417040 | | See Cert. of Analysis, Rep: 0 | | | | | | |
| CCV | Q730701 | INORGAN | ZINC | 5.00 | | 4.82 | mg/L | 96 | |
| BLA01 | Q730702 | NA | ZINC | | | 0.00928 | mg/L | | |
| CDL01 | Q730711 | PERKIN | ZINC | 0.040 | | 0.0364 | mg/L | 91 | |
| ICS-A | Q730713 | PERKIN | ZINC | 1.00 | | 0.950 | mg/L | 95 | |

## VOLATILE ORGANICS SW846-8240B — 0510.3

Run: R332164 ANALYTICAL — Analyst.: N WILLIAMS — Reviewer: A BRADBURN — Run Date...: 15-AUG-97 — Review Date: 20-AUG-97 — Instrument: GC/MS VOA

| QC Type | Lab ID | Source | Parameter | True/Sampl | Spike Val | Observed | Units | % Rec | RPD |
|---|---|---|---|---|---|---|---|---|---|
| CCV | Q731572 | | See Attached Report: g1390e.ind | | | | | | |
| BLA01 | Q731573 | | See Attached Report: g1391e.ind | | | | | | |
| SAMPLE | A416935 | | See Cert. of Analysis, Rep: 0 | | | | | | |
| SAMPLE | A416936 | | See Cert. of Analysis, Rep: 0 | | | | | | |
| SAMPLE | A416937 | | See Cert. of Analysis, Rep: 0 | | | | | | |
| SPI01 | Q731575 | A416936 | 1,1-DICHLOROETHENE | 0 | 50 | 40.1 | ug/L | 80.2 | |
| SPI01 | Q731575 | A416936 | TRICHLOROETHENE | 0 | 50 | 44.6 | ug/L | 89.2 | |
| SPI01 | Q731575 | A416936 | TOLUENE | 0 | 50 | 43.7 | ug/L | 87.4 | |
| DPS01 | Q731576 | A416936 | 1,1-DICHLOROETHENE | 0 | 50 | 42.3 | ug/L | 84.6 | 5.3 |
| DPS01 | Q731576 | A416936 | TRICHLOROETHENE | 0 | 50 | 40.3 | ug/L | 80.6 | 10.1 |
| DPS01 | Q731576 | A416936 | TOLUENE | 0 | 50 | 40 | ug/L | 80 | 8.8 |

# HERITAGE ENVIRONMENTAL SERVICES, INC.

Run: R332388 Analyst.: H WILLIAMS Run Date...: 19-AUG-97 Instrument: GC/MS VOA
ANALYTICAL Reviewer: A BRADBURN Review Date: 20-AUG-97

| QC Type | Lab ID | Source | Parameter | True/Sampl | Spike Val | Observed | Units | % Rec | RPD |
|---|---|---|---|---|---|---|---|---|---|
| CCV | Q732416 | | See Attached Report: g1640c.ind | | | | | | |
| BLA01 | Q732417 | | See Attached Report: g1641c.ind | | | | | | |
| LCS01 | Q732420 | EMS | ACETONE (2-PROPANONE) | 20 | | 23 | ug/L | 115 | |
| LCS01 | Q732420 | EMS | 1,1-DICHLOROETHENE | 20 | | 22.5 | ug/L | 112.5 | |
| LCS01 | Q732420 | EMS | ETHYL BENZENE | 20 | | 24.9 | ug/L | 124.5 | |
| LCS01 | Q732420 | EMS | DICHLOROMETHANE (METHYLENE CHLORIDE) | 20 | | 27.1 | ug/L | 135.5 | |
| LCS01 | Q732420 | EMS | METHYL ETHYL KETONE | 20 | | 26.4 | ug/L | 132 | |
| LCS01 | Q732420 | EMS | 4-METHYL-2-PENTANONE | 20 | | 27 | ug/L | 135 | |
| LCS01 | Q732420 | EMS | TETRACHLOROETHENE | 20 | | 22.3 | ug/L | 111.5 | |
| LCS01 | Q732420 | EMS | TOLUENE | 20 | | 26.4 | ug/L | 132 | |
| LCS01 | Q732420 | EMS | 1,2-DICHLOROETHENE (CIS AND TRANS) | 40 | | 52.9 | ug/L | 132.3 | |
| LCS01 | Q732420 | EMS | 1,1,1-TRICHLOROETHANE | 20 | | 26.2 | ug/L | 131 | |
| LCS01 | Q732420 | EMS | 1,1,2-TRICHLOROETHANE | 20 | | 26.3 | ug/L | 131.5 | |
| LCS01 | Q732420 | EMS | TRICHLOROETHENE | 20 | | 23.4 | ug/L | 117 | |
| LCS01 | Q732420 | EMS | VINYL CHLORIDE | 20 | | 34.5 | ug/L | 172.5 | |
| LCS01 | Q732420 | EMS | XYLENES (O/M/P-XYLENE) | 60 | | 73.5 | ug/L | 122.5 | |
| SAMPLE | A417040 | | See Cert. of Analysis, Rep: 0 | | | | | | |
| SAMPLE | A417041 | | See Cert. of Analysis, Rep: 0 | | | | | | |
| SPI01 | Q732418 | A416940 | 1,1-DICHLOROETHENE | 0 | 50 | 45.5 | ug/L | 91 | |
| SPI01 | Q732418 | A416940 | TRICHLOROETHENE | 0 | 50 | 47.3 | ug/L | 94.6 | |
| SPI01 | Q732418 | A416940 | TOLUENE | 7.3 | 50 | 51.6 | ug/L | 88.6 | |
| DPS01 | Q732419 | A416940 | 1,1-DICHLOROETHENE | 0 | 50 | 44.8 | ug/L | 89.6 | 1.6 |
| DPS01 | Q732419 | A416940 | TRICHLOROETHENE | 0 | 50 | 46.9 | ug/L | 93.8 | .8 |
| DPS01 | Q732419 | A416940 | TOLUENE | 7.3 | 50 | 51.5 | ug/L | 88.4 | .2 |

Comments

*Q732419 MSD OUT OF 12 HOURS.*

Approved by: CBBoyle

# Continuing Calibration Report

Data File : C:\E081597\1390E.D  Vial: 6
Acq On : 15 Aug 97 3:36  Operator: HAROLD
Sample : VSTD050 #081497  Inst : GCMS#5
Misc : CALIBRATION CHECK 8/15/97  Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\HPCHEM\1\METHODS\CLPVOA.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Tue Jun 03 11:22:41 1997
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

cal 20 = 1381E.D cal 50 = 1376E.D cal100 = 1377E.D
cal150 = 1378E.D cal200 = 1379E.D

| | | Compound | AvgRF | CCRF | %Dev |
|---|---|---|---|---|---|
| 1 | I | BROMOCHLOROMETHANE | 1.00000 | 1.00000 | 0.0 |
| 2 | T | Dichlorodifluoromethane | 1.37171 | 0.95395 | 30.5# |
| 3 | P | Chloromethane | 1.39007 | 1.34085 | 3.5 |
| 4 | C | VINYL CHLORIDE | 1.53188 | 1.54748 | 1.0 |
| 5 | | 1,3-Butadiene | 0.00462 | 0.00172 | 62.8# |
| 6 | | Bromomethane | 1.27254 | 1.31889 | 3.6 |
| 7 | | Chloroethane | 1.02586 | 1.03053 | 0.5 |
| 8 | | Trichlorofluoromethane | 3.45753 | 3.32858 | 3.7 |
| 9 | | Diethyl ether | 1.15214 | 1.27048 | 10.3 |
| 10 | | Acrolein | 0.09698 | 0.13405 | 38.2# |
| 11 | | Acetone | 0.60566 | 0.71092 | 17.4 |
| 12 | | Trichlorotrifluoroethane | 2.90464 | 2.75766 | 5.1 |
| 13 | CM | 1,1-DICHLOROETHENE | 1.19233 | 1.22622 | 2.8 |
| 14 | | Methylene Chloride | 1.41353 | 1.34871 | 4.6 |
| 15 | | Acrylonitrile | 0.32576 | 0.42422 | 30.2# |
| 16 | | Carbon Disulfide | 3.38393 | 3.04833 | 9.9 |
| 17 | | Vinyl acetate | 3.66892 | 6.19625 | 68.9# |
| 18 | | Methyl-t-butyl ether | 3.58298 | 3.55569 | 0.8 |
| 19 | | 1,2-Dichloroethene(trans) | 1.45331 | 1.39504 | 4.0 |
| 20 | | Diisopropyl ether | 8.71235 | 8.87061 | 1.8 |
| 21 | P | 1,1-Dichloroethane | 3.39122 | 3.27165 | 3.5 |
| 22 | | 2-Butanone | 0.65118 | 0.68253 | 4.8 |
| 23 | | Ethyl acetate | 2.53911 | 6.19625 | 144.0# |
| 24 | | 1,2-Dichloroethene(cis) | 1.50604 | 1.44281 | 4.2 |
| 25 | C | CHLOROFORM | 3.61801 | 3.56464 | 1.5 |
| 26 | | Tetrahydrofuran | 0.40277 | 0.45929 | 14.0 |
| 27 | | Cyclohexane | 0.68251 | 0.93522 | 37.0# |
| 28 | S | 1,2-Dichloroethane-d4 | 2.37101 | 2.52821 | 6.6 |
| 29 | I | 1,4-DIFLUOROBENZENE | 1.00000 | 1.00000 | 0.0 |
| 30 | | 1,1,1-Trichloroethane | 0.71347 | 0.69319 | 2.8 |
| 31 | | Carbon Tetrachloride | 0.56998 | 0.53506 | 6.1 |
| 32 | | 1,2-Dichloroethane | 0.66652 | 0.64979 | 2.5 |
| 33 | CM | Benzene | 1.02191 | 0.98875 | 3.2 |
| 34 | M | Trichloroethene | 0.44117 | 0.40313 | 8.6 |
| 35 | C | 1,2-DICHLOROPROPANE | 0.56266 | 0.55029 | 2.2 |
| 36 | | Bromodichloromethane | 0.92291 | 0.89995 | 2.5 |
| 37 | | 1,4-Dioxane | 0.00069 | 0.00055 | 20.3 |
| 38 | | 2-Chloroethylvinylether | 0.27816 | 0.26843 | 3.5 |
| 39 | | 4-Methyl-2-Pentanone | 0.73547 | 0.73520 | 0.0 |

# Continuing Calibration Report

Data File : C:\E081597\1390E.D  Vial: 6
Acq On : 15 Aug 97 3:36  Operator: HAROLD
Sample : VSTD050 #081497  Inst : GCMS#5
Misc : CALIBRATION CHECK 8/15/97  Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\HPCHEM\1\METHODS\CLPVOA.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Tue Jun 03 11:22:41 1997
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

cal 20 = 1381E.D cal 50 = 1376E.D cal100 = 1377E.D
cal150 = 1378E.D cal200 = 1379E.D

| | Compound | AvgRF | CCRF | %Dev |
|---|---|---|---|---|
| [illegible] | cis-1,3-Dichloropropene | 0.74636 | 0.70696 | 5.3 |
| [illegible] S | Toluene-d8 | 1.11723 | 1.06494 | 4.7 |
| 42 CM | TOLUENE | 0.68591 | 0.67516 | 1.6 |
| 43 | trans-1,3-Dichloropropene | 0.65424 | 0.62508 | 4.5 |
| 44 I | CHLOROBENZENE-d5 | 1.00000 | 1.00000 | 0.0 |
| 45 | 2-Hexanone | 0.36920 | 0.34738 | 5.9 |
| 46 | 1,1,2-Trichloroethane | 0.44406 | 0.40142 | 9.6 |
| 47 | Tetrachloroethene | 0.50154 | 0.42801 | 14.7 |
| 8 | Dibromochloromethane | 0.75489 | 0.69196 | 8.3 |
| 9 | 4-Vinylcyclohexene | 0.01093 | 0.00000 | 100.0# |
| 50 | 1,2-Dibromoethane | 0.08762 | 0.00000 | 100.0# |
| 51 PM | Chlorobenzene | 1.11514 | 0.96346 | 13.6 |
| 52 C | ETHYLBENZENE | 0.51597 | 0.44218 | 14.3 |
| 53 | Xylene(m,p) | 0.55186 | 0.47457 | 14.0 |
| 54 | Xylene(o) | 0.51286 | 0.44314 | 13.6 |
| 55 | Styrene | 0.82628 | 0.73591 | 10.9 |
| [illegible] P | Bromoform | 0.61497 | 0.53898 | 12.4 |
| 57 P | 1,1,2,2-Tetrachloroethane | 0.74459 | 0.69564 | 6.6 |
| 58 S | Bromofluorobenzene | 0.93353 | 0.92015 | 1.4 |
| 59 | 1,3-Dichlorobenzene | 0.76454 | 0.68974 | 9.8 |
| 60 | 1,4-Dichlorobenzene | 0.78629 | 0.69655 | 11.4 |
| 61 | 1,2-Dichlorobenzene | 0.67078 | 0.61993 | 7.6 |

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

HERITAGE
SW846-8240 MATRIX METHOD BLANK
VOLATILE ORGANICS FOR GC/MS, PACKED COLUMN TECHNIQUE

GC/MS VOA Data File: >1391E
Date/Time of Analysis: 8/15/97 4:38

| Analyte List | Result | Units | Limit |
|---|---|---|---|
| Acetone | BDL | uG/L | 20 |
| Acrolein | BDL | uG/L | 50 |
| Acrylonitrile | BDL | uG/L | 70 |
| Benzene | BDL | uG/L | 5 |
| Bromodichloromethane | BDL | uG/L | 5 |
| Bromoform | BDL | uG/L | 5 |
| Bromomethane | BDL | uG/L | 10 |
| Carbon Disulfide | BDL | uG/L | 5 |
| Carbon Tetrachloride | BDL | uG/L | 5 |
| Chlorobenzene | BDL | uG/L | 5 |
| Chloroethane | BDL | uG/L | 10 |
| Chloroform | BDL | uG/L | 5 |
| Chloromethane | BDL | uG/L | 10 |
| Dibromochloromethane | BDL | uG/L | 5 |
| Cis-1,3-Dichloropropene | BDL | uG/L | 5 |
| Dichlorodifluoromethane | BDL | uG/L | 5 |
| 1,1-Dichloroethane | BDL | uG/L | 5 |
| 1,2-Dichloroethane | BDL | uG/L | 5 |
| 1,1-Dichloroethene | BDL | uG/L | 5 |
| 1,2-Dichloropropane | BDL | uG/L | 5 |
| Ethylbenzene | BDL | uG/L | 5 |
| Fluorotrichloromethane | BDL | uG/L | 5 |
| 2-Hexanone | BDL | uG/L | 10 |
| Methylene Chloride | BDL | uG/L | 5 |
| Methyl Ethyl Ketone | BDL | uG/L | 10 |
| 4-Methyl-2-Pentanone | BDL | uG/L | 10 |
| Styrene | BDL | uG/L | 5 |
| 1,1,2,2-Tetrachloroethane | BDL | uG/L | 5 |
| Tetrachloroethene | BDL | uG/L | 5 |
| Tetrahydrofuran | BDL | uG/L | 25 |
| Toluene | BDL | uG/L | 5 |
| 1,2-Dichloroethene | BDL | uG/L | 5 |
| Trans-1,3-Dichloropropene | BDL | uG/L | 5 |
| 1,1,1-Trichloroethane | BDL | uG/L | 5 |
| 1,1,2-Trichloroethane | BDL | uG/L | 5 |
| Trichloroethene | BDL | uG/L | 5 |
| Vinyl Acetate | BDL | uG/L | 10 |
| Vinyl Chloride | BDL | uG/L | 10 |
| Xylene | BDL | uG/L | 5 |

| Surrogate Recovery | | |
|---|---|---|
| Dichloroethane-D4 | 97 | % Recovery |
| Toluene-D8 | 99 | % Recovery |
| Bromofluorobenzene | 94 | % Recovery |

Note: On this instrument, packed column has been replaced by capillary column with 8240 criteria.

# Continuing Calibration Report

Data File : C:\C081997\1640C.D  Vial: 1
Acq On : 19 Aug 97 4:38  Operator: HAROLD
Sample : VSTD050 #081497  Inst : GCMS#3
Misc : CALIBRATION CHECK 8/19/97  Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\HPCHEM\1\METHODS\CLPVOL.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Wed Jul 30 11:15:26 1997
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

cal 20 = 1414C.D cal 50 = 1413C.D cal100 = 1412C.D
cal150 = 1411C.D cal200 = 1410C.D

| | | Compound | AvgRF | CCRF | %Dev |
|---|---|---|---|---|---|
| [illegible] | I | BROMOCHLOROMETHANE | 1.00000 | 1.00000 | 0.0 |
| 2 | T | Dichlorodifluoromethane | 0.67131 | 0.16632 | 75.2# |
| 3 | P | Chloromethane | 0.88270 | 0.51045 | 42.2# |
| 4 | C | VINYL CHLORIDE | 0.42925 | 0.36867 | 14.1 |
| 5 | | Bromomethane | 0.52764 | 0.40838 | 22.6 |
| 6 | | Chloroethane | 0.38098 | 0.49762 | 30.6# |
| 7 | | Trichlorofluoromethane | 2.09471 | 1.98295 | 5.3 |
| 8 | | Diethyl ether | 0.62280 | 0.71205 | 14.3 |
| 9 | | Acrolein | 0.13278 | 0.08265 | 37.8# |
| [illegible] | | Acetone | 0.54035 | 0.56854 | 5.2 |
| 11 | | Trichlorotrifluoroethane | 2.03665 | 1.90441 | 6.5 |
| 12 | CM | 1,1-DICHLOROETHENE | 0.96646 | 0.79716 | 17.5 |
| 13 | | Methylene Chloride | 1.14085 | 1.15214 | 1.0 |
| 14 | | Acrylonitrile | 0.43674 | 0.31545 | 27.8# |
| 15 | | Carbon Disulfide | 2.44143 | 1.69278 | 30.7# |
| 16 | | Vinyl acetate | 2.18379 | 2.21383 | 1.4 |
| [illegible] | | Methyl-t-butyl ether | 2.27230 | 2.43192 | 7.0 |
| [illegible] | | 1,2-Dichloroethene (total) | 1.00236 | 1.07721 | 7.5 |
| 19 | | Diisopropyl ether | 3.99533 | 4.63748 | 16.1 |
| 20 | P | 1,1-Dichloroethane | 2.07355 | 2.27228 | 9.6 |
| 21 | | 2-Butanone | 1.00856 | 0.99348 | 1.5 |
| 22 | | Ethyl acetate | 2.31482 | 2.21866 | 4.2 |
| 23 | C | CHLOROFORM | 2.43524 | 2.80227 | 15.1 |
| 24 | | Tetrahydrofuran | 0.64384 | 0.63155 | 1.9 |
| 25 | S | 1,2-Dichloroethane-d4 | 1.55626 | 1.75798 | 13.0 |
| 26 | I | 1,4-DIFLUOROBENZENE | 1.00000 | 1.00000 | 0.0 |
| 27 | | 1,1,1-Trichloroethane | 0.60953 | 0.62445 | 2.4 |
| 28 | | Carbon Tetrachloride | 0.65506 | 0.62201 | 5.0 |
| 29 | | 1,2-Dichloroethane | 0.47645 | 0.56639 | 18.9 |
| 30 | CM | Benzene | 0.83024 | 0.87181 | 5.0 |
| 31 | M | Trichloroethene | 0.48540 | 0.46206 | 4.8 |
| 32 | C | 1,2-DICHLOROPROPANE | 0.46817 | 0.51171 | 9.3 |
| 33 | | Bromodichloromethane | 0.82376 | 0.91789 | 11.4 |
| [illegible] | | 2-Chloroethylvinylether | 0.24981 | 0.25607 | 2.5 |
| 35 | | 4-Methyl-2-Pentanone | 0.70961 | 0.69403 | 2.2 |
| 36 | | cis-1,3-Dichloropropene | 0.54204 | 0.58140 | 7.3 |
| 37 | S | Toluene-d8 | 0.91528 | 0.89361 | 2.4 |
| 38 | CM | TOLUENE | 0.54249 | 0.55010 | 1.4 |
| 39 | | trans-1,3-Dichloropropene | 0.54182 | 0.58596 | 8.1 |

# Continuing Calibration Report

Data File : C:\C081997\1640C.D  Vial: 1
Acq On : 19 Aug 97 4:38  Operator: HAROLD
Sample : VSTD050 #081497  Inst : GCMS#3
Misc : CALIBRATION CHECK 8/19/97  Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\HPCHEM\1\METHODS\CLPVOL.M (RTE Integrator)
Title : QUANTITATION FOR VOLATILES
Last Update : Wed Jul 30 11:15:26 1997
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

cal 20 = 1414C.D cal 50 = 1413C.D cal100 = 1412C.D
cal150 = 1411C.D cal200 = 1410C.D

| | | Compound | AvgRF | CCRF | %Dev |
|---|---|---|---|---|---|
| 40 | I | CHLOROBENZENE-d5 | 1.00000 | 1.00000 | 0.0 |
| 41 | | 2-Hexanone | 0.69633 | 0.63804 | 8.4 |
| 42 | | 1,1,2-Trichloroethane | 0.50787 | 0.52763 | 3.9 |
| 43 | | trans-1,4-Dichloro-2-butadi | 0.17262 | 0.15197 | 12.0 |
| 44 | | Tetrachloroethene | 0.50146 | 0.45225 | 9.8 |
| 45 | | Dibromochloromethane | 1.05644 | 1.01730 | 3.7 |
| 46 | PM | Chlorobenzene | 0.93451 | 0.93051 | 0.4 |
| 47 | C | ETHYLBENZENE | 0.40937 | 0.42639 | 4.2 |
| '8 | | Xylene (o,p) | 0.49431 | 0.48612 | 1.7 |
| ,9 | | Xylene (m) | 0.52680 | 0.50511 | 4.1 |
| 50 | | Styrene | 0.81851 | 0.80861 | 1.2 |
| 51 | P | Bromoform | 0.99097 | 0.87761 | 11.4 |
| 52 | P | 1,1,2,2-Tetrachloroethane | 0.99431 | 1.05311 | 5.9 |
| 53 | S | Bromofluorobenzene | 0.93764 | 0.93647 | 0.1 |
| 54 | | m-Dichlorobenzene | 0.97227 | 0.96458 | 0.8 |
| 55 | | o,p-Dichlorobenzene | 0.97400 | 0.96574 | 0.8 |

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

HERITAGE
SW846-8240 MATRIX METHOD BLANK
VOLATILE ORGANICS FOR GC/MS, PACKED COLUMN TECHNIQUE

GC/MS VOA Data File: >1641C

Date/Time of Analysis: 8/19/97 5:46

| Analyte List | Result | Units | Limit |
|---|---|---|---|
| Acetone | BDL | uG/L | 20 |
| Acrolein | BDL | uG/L | 50 |
| Acrylonitrile | BDL | uG/L | 70 |
| Benzene | BDL | uG/L | 5 |
| Bromodichloromethane | BDL | uG/L | 5 |
| Bromoform | BDL | uG/L | 5 |
| Bromomethane | BDL | uG/L | 10 |
| Carbon Disulfide | BDL | uG/L | 5 |
| Carbon Tetrachloride | BDL | uG/L | 5 |
| Chlorobenzene | BDL | uG/L | 5 |
| Chloroethane | BDL | uG/L | 10 |
| Chloroform | BDL | uG/L | 5 |
| Chloromethane | BDL | uG/L | 10 |
| Dibromochloromethane | BDL | uG/L | 5 |
| Cis-1,3-Dichloropropene | BDL | uG/L | 5 |
| Dichlorodifluoromethane | BDL | uG/L | 5 |
| 1,1-Dichloroethane | BDL | uG/L | 5 |
| 1,2-Dichloroethane | BDL | uG/L | 5 |
| 1,1-Dichloroethene | BDL | uG/L | 5 |
| 1,2-Dichloropropane | BDL | uG/L | 5 |
| Ethyl Benzene | BDL | uG/L | 5 |
| Trichlorofluoromethane | BDL | uG/L | 5 |
| 2-Hexanone | BDL | uG/L | 10 |
| Dichloromethane | BDL | uG/L | 5 |
| Methyl Ethyl Ketone | BDL | uG/L | 10 |
| 4-Methyl-2-Pentanone | BDL | uG/L | 10 |
| Styrene | BDL | uG/L | 5 |
| 1,1,2,2-Tetrachloroethane | BDL | uG/L | 5 |
| Tetrachloroethene | BDL | uG/L | 5 |
| Tetrahydrofuran | BDL | uG/L | 25 |
| Toluene | BDL | uG/L | 5 |
| 1,2-Dichloroethene | BDL | uG/L | 5 |
| Trans-1,3-Dichloropropene | BDL | uG/L | 5 |
| 1,1,1-Trichloroethane | BDL | uG/L | 5 |
| 1,1,2-Trichloroethane | BDL | uG/L | 5 |
| Trichloroethene | BDL | uG/L | 5 |
| Vinyl Acetate | BDL | uG/L | 10 |
| Vinyl Chloride | BDL | uG/L | 10 |
| Xylenes | BDL | uG/L | 5 |

| Surrogate Recovery | | |
|---|---|---|
| Dichloroethane-D4 | 114 | % RECOVERY |
| Toluene-D8 | 106 | % RECOVERY |
| 4-Bromofluorobenzene | 104 | % RECOVERY |

Note: 200 ul of extraction solvent was added to the blank so this can be used for medium level soils also. The detection limit multiplier is 0.063 and the units are in mG/kG.