# LONGHORN ARMY AMMUNITION PLANT KARNACK, TEXAS

# ADMINISTRATIVE RECORD

**Volume 20**

**2021**

**Bate Stamp Numbers**
**01042336 – 01043873**

**Prepared for**

**Department of the Army**
**Longhorn Army Ammunition Plant**

**1976–2021**

***LONGHORN ARMY AMMUNITION PLANT***
***KARNACK, TEXAS***
**ADMINISTRATIVE RECORD – CHRONOLOGICAL INDEX**

VOLUME 20

2021

A. Title: (Cont'd) Report – Draft Final First Annual Remedial Action Operation Report, LHAAP-04 Former Pilot Wastewater Treatment Plant, Longhorn Army Ammunition Plant, Karnack, Texas, June 2021
Author(s): Department of the Army
Recipient: U.S. Environmental Protection Agency and Texas Commission on Environmental Quality
Date: June 25, 2021
Bate Stamp: 01042336 – 01042393

**Item A above was supposed to be placed in the Apr–Jun 2021 AR quarter; however, it was left out, so that is why it is included in this Admin Record.**

B. Title: Minutes – Final Monthly Managers' Meeting (MMM), Longhorn Army Ammunition Plant (LHAAP), June 16, 2021
Author(s): Department of the Army
Recipient: All Parties
Date: July 1, 2021
Bate Stamp: 01042394 – 01042420

C. Title: Minutes – Final Minutes, Quarterly Restoration Advisory Board (RAB) Meeting Longhorn Army Ammunition Plant (LHAAP), April 21, 2021
Author(s): Bhate Environmental Associates, Inc.
Recipient: All Parties
Date: July 23, 2021
Bate Stamp: 01042421 – 01042471

D. Title: Report – Draft Final Seventh Annual Remedial Action Operation Report, LHAAP-67 (Aboveground Storage Tank Farm), Longhorn Army Ammunition Plant, Karnack, Texas, July 2021
Author(s): Department of the Army
Recipient: U.S. Environmental Protection Agency and Texas Commission on Environmental Quality
Date: July 23, 2021
Bate Stamp: 01042472 – 01043544

E. Title: Report – Final Remedial Action Completion Report, LHAAP-04 Former Pilot Wastewater Treatment Plant, Longhorn Army Ammunition Plant, Karnack, Texas, April 2021 (rev August 18, 2021)
Author(s): Department of the Army
Recipient: U.S. Environmental Protection Agency and Texas Commission on Environmental Quality
Date: August 18, 2021
Bate Stamp: 01043545 – 01043873

**ALS Environmental**

| | | | |
|---|---|---|---|
| **Client:** | ALS Houston | **Service Request No.:** | E2001090 |
| **Project:** | HS20110285 | **Date Received:** | 11/09/20 |
| **Sample Matrix:** | W | | |

## CASE NARRATIVE

All analyses were performed in adherence to the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II. When appropriate to the method, method blank results have been reported with each analytical test.

### Sample Receipt

Fourteen samples were received for analysis at ALS Environmental in Houston on 11/09/20.

The samples were received in good condition and are consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

### Data Validation Notes and Discussion

**Precision and Accuracy:**

EQ2000586: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in addition to a MS/MSD for this extraction batch. The LCS, DLCS, MS, & DMS recoveries are within QC limits.

DoD Certification is held for the method/matrix/analytes provided in this report.

*The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.*

*Use of ALS group USA Corp dba ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.*

**Client:** ALS Environmental - US
**Project:** HS20110285 **Service Request:**E2001090

## SAMPLE CROSS-REFERENCE

| SAMPLE # | CLIENT SAMPLE ID | DATE | TIME |
|---|---|---|---|
| E2001090-001 | LHSMW01-201104 | 11/4/2020 | 0720 |
| E2001090-002 | 04WW04-201104 | 11/4/2020 | 0720 |
| E2001090-003 | 04WW08-201104 | 11/4/2020 | 0720 |
| E2001090-004 | 04WW02-201104 | 11/4/2020 | 0720 |
| E2001090-005 | 04WW06-201104 | 11/4/2020 | 0720 |
| E2001090-006 | LHSMW02-201104 | 11/4/2020 | 0720 |
| E2001090-007 | 04WW11-201104 | 11/4/2020 | 0720 |
| E2001090-008 | 04WW11-201104-FD | 11/4/2020 | 0720 |
| E2001090-009 | 04WW01-201104 | 11/4/2020 | 0720 |
| E2001090-010 | 04WW05-201104 | 11/4/2020 | 0720 |
| E2001090-011 | 04WW09-201104 | 11/4/2020 | 0720 |
| E2001090-012 | 04WW09-201104-FD | 11/4/2020 | 0720 |
| E2001090-013 | 04WW10-201104 | 11/4/2020 | 0720 |
| E2001090-014 | 04WW07-201104 | 11/4/2020 | 0720 |

# Service Request Summary

**Folder #:** **E2001090**
Client Name: ALS Environmental - US
Project Name: HS20110285
Project Number:

**Report To:** RJ Modashia
ALS Laboratory Group
10450 Stancliff Road
Houston, TX 77099-4338
USA
Phone Number: 281-530-5656
Cell Number:
Fax Number: 281-530-5887
E-mail: rj.modashia@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 11/09/20
Internal Due Date: 11/23/2020
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS20110285
EDD: No EDD Specified

16 120 mL-Plastic Bottle Natural WM Unpreserved
**Location:** EHRMS-WIC 5E
**Pressure Gas:**

| Lab Samp No. | Client Samp No | Matrix | Collected | HOUSTON ClO4 DOD/6850 |
|---|---|---|---|---|
| E2001090-001 | LHSMW01-201104 | Ground Water | 11/04/20 0720 | **IV** |
| E2001090-002 | 04WW04-201104 | Ground Water | 11/04/20 0720 | **IV** |
| E2001090-003 | 04WW08-201104 | Ground Water | 11/04/20 0720 | **IV** |
| E2001090-004 | 04WW02-201104 | Ground Water | 11/04/20 0720 | **IV** |
| E2001090-005 | 04WW06-201104 | Ground Water | 11/04/20 0720 | **IV** |
| E2001090-006 | LHSMW02-201104 | Ground Water | 11/04/20 0720 | **IV** |
| E2001090-007 | 04WW11-201104 | Ground Water | 11/04/20 0720 | **IV** |
| E2001090-008 | 04WW11-201104-FD | Ground Water | 11/04/20 0720 | **IV** |
| E2001090-009 | 04WW01-201104 | Ground Water | 11/04/20 0720 | **IV** |
| E2001090-010 | 04WW05-201104 | Ground Water | 11/04/20 0720 | **IV** |
| E2001090-011 | 04WW09-201104 | Ground Water | 11/04/20 0720 | **IV** |
| E2001090-012 | 04WW09-201104-FD | Ground Water | 11/04/20 0720 | **IV** |
| E2001090-013 | 04WW10-201104 | Ground Water | 11/04/20 0720 | **IV** |
| E2001090-014 | 04WW07-201104 | Ground Water | 11/04/20 0720 | **IV** |

# Service Request Summary

**Folder #:** **E2001090**
Client Name: ALS Environmental - US
Project Name: HS20110285
Project Number:

**Report To:** RJ Modashia
ALS Laboratory Group
10450 Stancliff Road
Houston, TX 77099-4338
USA
Phone Number: 281-530-5656
Cell Number:
Fax Number: 281-530-5887
E-mail: rj.modashia@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 11/09/20
Internal Due Date: 11/23/2020
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS20110285
EDD: No EDD Specified

16 120 mL-Plastic Bottle Natural WM Unpreserved
**Location:** EHRMS-WIC 5E
**Pressure Gas:**

| Lab Samp No. | Client Samp No | Matrix | Collected | HOUSTON ClO4 DOD/6850 |
|---|---|---|---|---|
| E2001090-001 | LHSMW01-201104 | Ground Water | 11/04/20 0720 | **IV** |
| E2001090-002 | 04WW04-201104 | Ground Water | 11/04/20 0720 | **IV** |
| E2001090-003 | 04WW08-201104 | Ground Water | 11/04/20 0720 | **IV** |
| E2001090-004 | 04WW02-201104 | Ground Water | 11/04/20 0720 | **IV** |
| E2001090-005 | 04WW06-201104 | Ground Water | 11/04/20 0720 | **IV** |
| E2001090-006 | LHSMW02-201104 | Ground Water | 11/04/20 0720 | **IV** |
| E2001090-007 | 04WW11-201104 | Ground Water | 11/04/20 0720 | **IV** |
| E2001090-008 | 04WW11-201104-FD | Ground Water | 11/04/20 0720 | **IV** |
| E2001090-009 | 04WW01-201104 | Ground Water | 11/04/20 0720 | **IV** |
| E2001090-010 | 04WW05-201104 | Ground Water | 11/04/20 0720 | **IV** |
| E2001090-011 | 04WW09-201104 | Ground Water | 11/04/20 0720 | **IV** |
| E2001090-012 | 04WW09-201104-FD | Ground Water | 11/04/20 0720 | **IV** |
| E2001090-013 | 04WW10-201104 | Ground Water | 11/04/20 0720 | **IV** |
| E2001090-014 | 04WW07-201104 | Ground Water | 11/04/20 0720 | **IV** |

# Service Request Summary

**Folder #:** **E2001090**
Client Name: ALS Environmental - US
Project Name: HS20110285
Project Number:

**Report To:** RJ Modashia
ALS Laboratory Group
10450 Stancliff Road
Houston, TX 77099-4338
USA
Phone Number: 281-530-5656
Cell Number:
Fax Number: 281-530-5887
E-mail: rj.modashia@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 11/09/20
Internal Due Date: 11/23/2020
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS20110285
EDD: No EDD Specified

16 120 mL-Plastic Bottle Natural WM Unpreserved
**Location:** EHRMS-WIC 5E
**Pressure Gas:**

## Test Comments:

| Group | Test/Method | Samples | Comments |
|---|---|---|---|
| Semivoa GCMS | ClO4 DOD/6850 | 13 | level II 11/20,level IV due 12/1 |
| Semivoa GCMS | ClO4 DOD/6850 | 1 | MS/MSD |

# Data Qualifiers

## Lab Standard

| | |
|---|---|
| + | Possible Tedlar bag artifact. |
| A | TIC is a suspected aldol-condensation product |
| B | Analyte found in the associated method blank as well as in the sample. |
| BC | Reported results are not blank corrected. |
| BH | The back section of the tube yielded higher results than the front. |
| BT | Results indicated possible breakthrough; back section >=10% front section. |
| C | Result identification confirmed. |
| D | Compound identified in an analysis at a secondary dilution factor |
| D | Spike was diluted out |
| DE | Reported results are corrected for desorption efficiency. |
| E | Estimated value. Concentration above calibration range |
| E | The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample. |
| F | The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard. |
| H | The chromatographic fingerprint of the sample resembles a petroleum product but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard. |
| H1 | Sample analysis performed past holding time. See case narrative. |
| H2 | Initial analysis within holding time. Reanalysis for the required dilution was past holding time. |
| H3 | Sample was received and analyzed past holding time. |
| H4 | Sample was extracted past required extraction holding time, but analyzed within analysis holding time. See case narrative. |
| I | Internal standard not within the specified limits. See case narrative. |
| J | Estimated Value. Concentration found below MRL. |
| K | A deflection in the QC ion may indicate interference with the quantitation of this ion. The concentration of this analyte should be considered as an estimate. |
| K | Analyte was detected above the method reporting limit prior to normalization. |
| L | The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard. |
| L1 | Laboratory control sample recovery outside the specified limits; results may be biased high. |
| L2 | Laboratory control sample recovery outside the specified limits; results may be biased low. |
| L3 | Laboratory control sample recovery outside the specified limits. |
| M | Matrix interference; results may be biased high. |
| M | The duplicate injection precision not met. |
| M1 | Matrix interference due to coelution with a non-target compound; results may be biased high. |
| N | Presumptive evidence of a compound for TICs that have been identified based on a mass spectral library search. |
| N | The Matrix Spike sample recovery is not within control limits. See case narrative. |
| O | The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard. |

# Data Qualifiers

## Lab Standard

| | |
|---|---|
| P | Indicates chlorodiphenyl ether interference present at the retention time of the target compound. |
| P | Pesticide/Aroclor target analyte > 40% difference for detected concentrations between GC columns |
| Q | Indicates as estimated value because the P and P + 2 theoretical abundance ratio does not meet method criteria. |
| R | Duplicate Precision not met. |
| R1 | Duplicate precision not within the specified limits; however, the results are below the MRL and considered estimated. |
| S | Surrogate recovery not within specified limits. |
| S | The reported value was determined by the Method of Standard Additions (MSA). |
| T | Analyte is a tentatively identified compound, result is estimated. |
| U | Compound was analyzed for, but was not detected (ND). |
| V1 | The continuing calibration verification standard was outside (biased high) the specified limits for this compound. |
| V2 | The continuing calibration verification standard was outside (biased low) the specified limits for this compound. |
| W | Result quantified, but the corresponding peak was detected outside the generated retention time window. |
| W | The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance. |
| X | See case narrative. |
| Y | Recovery outside limits |
| Y | The chromatogram resembles a petroleum product but does not match the calibration standard. |
| Z | The chromatogram does not resemble a petroleum product. |
| i | The MRL/MDL has been elevated due to a matrix interference. |

# ALS Laboratory Group

**Acronyms**

| | |
|---|---|
| Cal | Calibration |
| Conc | CONCentration |
| Dioxin(s) | Polychlorinated dibenzo-p-dioxin(s) |
| EDL | Estimated Detection Limit |
| EMPC | Estimated Maximum Possible Concentration |
| Flags | Data qualifiers |
| Furan(s) | Polychlorinated dibenzofuran(s) |
| g | Grams |
| ICAL | Initial CALibration |
| ID | IDentifier |
| Ions | Masses monitored for the analyte during data acquisition |
| L | Liter (s) |
| LCS | Laboratory Control Sample |
| DLCS | Duplicate Laboratory Control Sample |
| MB | Method Blank |
| MCL | Method Calibration Limit |
| MDL | Method Detection Limit |
| mL | Milliliters |
| MS | Matrix Spiked sample |
| DMS | Duplicate Matrix Spiked sample |
| NO | Number of peaks meeting all identification criteria |
| PCDD(s) | Polychlorinated dibenzo-p-dioxin(s) |
| PCDF(s) | Polychlorinated dibenzofuran(s) |
| ppb | Parts per billion |
| ppm | Parts per million |
| ppq | Parts per quadrillion |
| ppt | Parts per trillion |
| QA | Quality Assurance |
| QC | Quality Control |
| Ratio | Ratio of areas from monitored ions for an analyte |
| % Rec. | Percent recovery |
| RPD | Relative Percent Difference |
| RRF | Relative Response Factor |
| RT | Retention Time |
| SDG | Sample Delivery Group |
| S/N | Signal-to-noise ratio |
| TEF | Toxicity Equivalence Factor |
| TEQ | Toxicity Equivalence Quotient |

10450 Stancliff Rd, Houston, TX 77099 | 281-530-5656 | www.alsglobal.com

ALS Environmental

## State Certifications, Accreditations, and Licenses

| Agency | Number | Expire Date |
|---|---|---|
| American Association for Laboratory Accreditation | 2897.01 2020 | 11/30/2021 |
| Arizona Department of Health Services | AZ0793-2020 | 5/27/2021 |
| Arkansas Department of Environmental Quality | 20-030-0 | 3/26/2021 |
| California Department of Health Services | 2919-2020 | 4/30/2021 |
| Department of Defense | A2LA 2897.01 | 11/30/2021 |
| Florida Department of Health | E87611-2020 | 6/30/2021 |
| Hawaii Department of Health | 2020 | 4/30/2021 |
| Illinois Environmental Protection Agency | 2000322020-4 | 5/9/2021 |
| Kansas Department of Health and Environment | E-10352-2020 | 7/31/2021 |
| Louisiana Department of Environmental Quality | 03087-2020 | 6/30/2021 |
| Louisiana Department of Health and Hospitals | LA028-2020 | 12/31/2020 |
| Maine Department of Health and Human Services | 2020016 | 6/5/2022 |
| Maryland Department of the Environment | 343-2020 | 6/30/2021 |
| Michigan Depratment of Environmental Quality | 9971-2020 | 4/30/2021 |
| Minnesota Department of Health | 1785988 | 12/31/2020 |
| Nebraska Department of Health and Human Services | NE-OS-25-13 (2020) | 4/30/2021 |
| Nevada Department of Concervation and Natural Resources | TX026932021-1 | 7/31/2021 |
| New Hampshire Environmental Laboratory Accreditation Program | 209420 | 4/24/2021 |
| New Jersey Department of Environmental Protection | TX008 | 6/30/2021 |
| New York Department of Health | 11707 | 3/31/2021 |
| Oklahoma Department of Environmental Quality | 2020-123 | 8/31/2021 |
| Pennsylvania Department of Environmental Protection | 014 | 6/30/2021 |
| Tennessee Department of Environment and Concervation | 04016-2020 | 4/30/2021 |
| Texas Commision on Environmental Quality | T104704231-20-26 | 4/30/2021 |
| United States Department of Agriculture | P330-19-00299 | 10/10/2022 |

# Chain of Custody

**ALS Environmental - Houston HRMS**
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

E2001090 5
ALS Laboratory Group
HS20110285

10450 Stancliff Rd, Ste 210
Houston, TX 77099
**T:** +1 281 530 5656
**F:** +1 281 530 5887
**www.alsglobal.com**

# Subcontract Chain of Custody

**SAMPLING STATE:** **Dept of Defense** **COC ID: 15115**

**SUBCONTRACT TO:**

ALS Environmental
10450 Stancliff RoadSuite 210
Houston, TX 77084 **Phone:** +1 281 530 5656

**CUSTOMER INFORMATION:**

| | |
|---|---|
| **Company:** | ALS Houston |
| **Contact:** | RJ Modashia |
| **Address:** | 10450 Stancliff Rd, Ste 210 |
| **Phone:** | +1 281 530 5656 |
| **Email:** | RJ.Modashia@alsglobal.com |
| **Alternate Contact:** | Jumoke M. Lawal |
| **Email:** | jumoke.lawal@alsglobal.com |

**INVOICE INFORMATION:**

| | |
|---|---|
| **Company:** | ALS Houston |
| **Contact:** | Accounts Payable |
| **Address:** | 10450 Stancliff Rd, Ste 210 |
| **Phone:** | +1 281 530 5656 |
| **Reference:** | HS20110285 |
| **TSR:** | Sonia West |

| | LAB SAMPLE ID | CLIENT SAMPLE ID | MATRIX | COLLECT DATE |
|---|---|---|---|---|
| | ANALYSIS REQUESTED | | | DUE DATE |
| 1. | **HS20110285-01** | **LHSMW01-201104** | **Groundwater** | **04 Nov 2020 07:20** |
| | Provide Level II and Level IV reports on a seperate pdf. | | | 16 Nov 2020 |
| 2. | **HS20110285-02** | **04WW04-201104** | **Groundwater** | **04 Nov 2020 08:00** |
| | Provide Level II and Level IV reports on a seperate pdf. | | | 16 Nov 2020 |
| 3. | **HS20110285-03** | **04WW08-201104** | **Groundwater** | **04 Nov 2020 08:40** |
| | Provide Level II and Level IV reports on a seperate pdf. | | | 16 Nov 2020 |
| 4. | **HS20110285-04** | **04WW02-201104** | **Groundwater** | **04 Nov 2020 09:20** |
| | Provide Level II and Level IV reports on a seperate pdf. | | | 16 Nov 2020 |
| 5. | **HS20110285-05** | **04WW06-201104** | **Groundwater** | **04 Nov 2020 10:00** |
| | Provide Level II and Level IV reports on a seperate pdf. | | | 16 Nov 2020 |
| 6. | **HS20110285-06** | **LHSMW02-201104** | **Groundwater** | **04 Nov 2020 10:45** |
| | Provide Level II and Level IV reports on a seperate pdf. | | | 16 Nov 2020 |
| 7. | **HS20110285-07** | **04WW11-201104** | **Groundwater** | **04 Nov 2020 11:30** |
| | Provide Level II and Level IV reports on a seperate pdf. | | | 16 Nov 2020 |
| 8. | **HS20110285-08** | **04WW11-201104-FD** | **Groundwater** | **04 Nov 2020 11:30** |
| | Provide Level II and Level IV reports on a seperate pdf. | | | 16 Nov 2020 |
| 9. | **HS20110285-09** | **04WW01-201104** | **Groundwater** | **04 Nov 2020 12:10** |

# Subcontract Chain of Custody

**SAMPLING STATE:** **Dept of Defense** **COC ID: 15115**

| | LAB SAMPLE ID | CLIENT SAMPLE ID | MATRIX | COLLECT DATE |
|---|---|---|---|---|
| | ANALYSIS REQUESTED | | | DUE DATE |
| | Provide Level II and Level IV reports on a seperate pdf. | | | 16 Nov 2020 |
| **10.** | **HS20110285-10** | **04WW05-201105** | **Groundwater** | **05 Nov 2020 07:35** |
| | Provide Level II and Level IV reports on a seperate pdf. | | | 16 Nov 2020 |
| **11.** | **HS20110285-11** | **04WW09-201105** | **Groundwater** | **05 Nov 2020 08:20** |
| | Provide Level II and Level IV reports on a seperate pdf. | | | 16 Nov 2020 |
| **12.** | **HS20110285-12** | **04WW09-201105-FD** | **Groundwater** | **05 Nov 2020 08:20** |
| | Provide Level II and Level IV reports on a seperate pdf. | | | 16 Nov 2020 |
| **13.** | **HS20110285-13** | **04WW10-201105** | **Groundwater** | **05 Nov 2020 09:10** |
| | Provide Level II and Level IV reports on a seperate pdf. | | | 16 Nov 2020 |
| **14.** | **HS20110285-14** | **04WW07-201105** | **Groundwater** | **05 Nov 2020 10:05** |
| | Provide Level II and Level IV reports on a seperate pdf. | | | 16 Nov 2020 |

**Comments:** Please analyze for the analysis listed above.
Send report to the emails shown above.

HS20110285-13 MS/MSD

**QC Level:** DOD IV (DoD Data Package)

Relinquished By: _____ Date/Time: _____

Received By: _____ Date/Time: 11/9/20 1237

Cooler ID(s): _____ Temperature(s): _____

# Cooler Receipt Form

ALS Environmental

Project Chemist: CH

Client/Project: ALS-H

Thermometer ID: IR25

Date/Time Received: 11/19/20 Initials: CH Date/Time Logged in: 11/19/20 Initials: CH

1. Method of delivery: ○ US Mail ○ Fed Ex ○ UPS ○ DHL ✓ ALS Courier ○ Client

2. Samples received in: ✓ Cooler ○ Box ○ Envelope ○ Other

3. Were custody seals on coolers? ○ Yes ✓ No — If yes, how many and where?
   Were they intact? ○ Yes ○ No ✓ N/A
   Were they signed and dated? ○ Yes ○ No ✓ N/A

4. Packing Material: ○ Inserts ✓ Baggies ○ Bubble Wrap ○ Gel Packs ○ Wet Ice ○ Sleeves ○ Other

5. Foreign or Regulated Soil? ○ Yes ✗ No Location of Sampling:

| Cooler Tracking Number | COC ID | Date Opened | Time Opened | Opened By | Temp. °C | Temp Blank? |
|---|---|---|---|---|---|---|
| NA | | 11/19/20 | 1237 | CH | 3.8 | ☒ |
| | | | | | | ☐ |
| | | | | | | ☐ |
| | | | | | | ☐ |

6. Were custody papers properly filled out (ink, signed, dated, etc)? ✓ Yes ○ No
7. Did all bottles arrive in good condition (not broken, no signs of leakage)? ✓ Yes ○ No
8. Were all sample labels complete (i.e., sample ID, analysis, preservation, etc)? ✓ Yes ○ No
9. Were appropriate bottles/containers and volumes received for the requested tests? ✓ Yes ○ No
10. Did sample labels and tags agree with custody documents? ✓ Yes ○ No

Notes, Discrepancies, & Resolutions:

Service request Label: E2001090 5

ALS Laboratory Group HS20110285

HS-HRMSCoolerReceipt R1.0

ALS Environmental - Houston HRMS

10450 Stancliff Rd., Suite 210
Houston, TX 77099
**T:** +1 713 266 1599
**F:** +1 713 266 1599
**www.alsglobal.com**

# SAMPLE ACCEPTANCE POLICY

This policy outlines the criteria samples must meet to be accepted by ALS Environmental – Houston HRMS.

**Cooler Custody Seals (desirable, mandatory if specified in SAP):**

- ✓ Intact on outside of cooler, signed and dated

**Chain-of-Custody (COC) documentation (mandatory):**

The following is required on each COC:

- ✓ Sample ID, the location, date and time of collection, collector's name, preservation type, sample type, and any other special remarks concerning the sampleThe COC must be completed in ink.
- ✓ Signature and date of relinquishing party.

In the absence of a COC at sample receipt, the COC will be requested from the client.

**Sample Integrity (mandatory):**

Samples are inspected upon arrival to ensure that sample integrity was not compromised during transfer to the laboratory.

- ✓ Sample containers must arrive in good condition (not broken or leaking).
- ✓ Samples must be labeled appropriately, including Sample IDs, and requested test using durable labels and indelible ink.
- ✓ The correct type of sample bottle must be used for the method requested.
- ✓ An appropriate sample volume, or weight, must be received.
- ✓ Sample IDs and number of containers must reconcile with the COC.
- ✓ Samples must be received within the method defined holding time.

**Temperature Requirement (varies by sample matrix):**

- ✓ Aqueous and Non-aqueous samples must be shipped and stored cold, at 0 to 6ºC.
- ✓ Tissue samples must be shipped and stored frozen, at -20 to -10ºC.
- ✓ Air samples are shipped and stored cold, at 0 to 6ºC
- ✓ The sample temperature must be recorded on the COC

All cooler inspections are documented on the Cooler Receipt Form (CRF). A separate CRF is completed for each service request. Any samples not meeting the above criteria are noted on the CRF and the Project Manager notified. The Project Manager must resolve any sample integrity issues with the client prior to proceeding with the analysis. Such resolutions are documented in writing and filed with the project folder. Data associated with samples received outside of this acceptance policy will be qualified on the case narrative of the final report

# Preparation Information Benchsheets

**ALS Environmental - Houston HRMS**
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

# *Preparation Information Benchsheet*

**Prep Run#:** 369486 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
**Team:** Semivoa GCMS/GRIVERA **Prep Method:** Method **Prep Date/Time:** 11/10/20 09:50

| # | Lab Code | Client ID | B# | Method /Test | pH | Cl | Matrix | Amt. Ext. | Sample Description |
|---|---|---|---|---|---|---|---|---|---|
| 1 | E2001081-001 | LH18/24-SP650_110320-AIX | .01 | 6850/ClO4 DOD | | | Water | 10mL | |
| 2 | E2001090-001 | LHSMW01-201104 | .01 | 6850/ClO4 DOD | | | Ground Water | 10mL | |
| 3 | E2001090-002 | 04WW04-201104 | .01 | 6850/ClO4 DOD | | | Ground Water | 10mL | |
| 4 | E2001090-003 | 04WW08-201104 | .01 | 6850/ClO4 DOD | | | Ground Water | 10mL | |
| 5 | E2001090-004 | 04WW02-201104 | .01 | 6850/ClO4 DOD | | | Ground Water | 10mL | |
| 6 | E2001090-005 | 04WW06-201104 | .01 | 6850/ClO4 DOD | | | Ground Water | 10mL | |
| 7 | E2001090-006 | LHSMW02-201104 | .01 | 6850/ClO4 DOD | | | Ground Water | 10mL | |
| 8 | E2001090-007 | 04WW11-201104 | .01 | 6850/ClO4 DOD | | | Ground Water | 10mL | |
| 9 | E2001090-008 | 04WW11-201104-FD | .01 | 6850/ClO4 DOD | | | Ground Water | 10mL | |
| 10 | E2001090-009 | 04WW01-201104 | .01 | 6850/ClO4 DOD | | | Ground Water | 10mL | |
| 11 | E2001090-010 | 04WW05-201104 | .01 | 6850/ClO4 DOD | | | Ground Water | 10mL | |
| 12 | E2001090-011 | 04WW09-201104 | .01 | 6850/ClO4 DOD | | | Ground Water | 10mL | |
| 13 | E2001090-012 | 04WW09-201104-FD | .01 | 6850/ClO4 DOD | | | Ground Water | 10mL | |
| 14 | E2001090-013 | 04WW10-201104 | .01 | 6850/ClO4 DOD | | | Ground Water | 10mL | |
| 15 | E2001090-014 | 04WW07-201104 | .01 | 6850/ClO4 DOD | | | Ground Water | 10mL | |
| 16 | EQ2000586-01 | MB | | 6850/ClO4 DOD | | | Liquid | 10mL | |
| 17 | EQ2000586-02 | LCS | | 6850/ClO4 DOD | | | Liquid | 10mL | |
| 18 | EQ2000586-03 | DLCS | | 6850/ClO4 DOD | | | Liquid | 10mL | |
| 19 | EQ2000586-04 | 04WW10-201104 MS | .01 | 6850/ClO4 DOD | | | Liquid | 10mL | |
| 20 | EQ2000586-05 | 04WW10-201104 DMS | .01 | 6850/ClO4 DOD | | | Liquid | 10mL | |

**Spiking Solutions**

Name: Perchlorate Intermediate Stock1 Inventory ID 209764 Logbook Ref: Perchlorate Int. Stock1 51820 Expires On: 11/18/2020

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| EQ2000586-02 | 1.00µL | EQ2000586-03 | 1.00µL | EQ2000586-04 | 1.00µL | EQ2000586-05 | 1.00µL |

Name: Sodium Perchlorate 1 ug/mL (IS) (18-O) as CLO4 Inventory ID 213952 Logbook Ref: Sodium Perchlorate Expires On: 07/13/2022

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| E2001081-001 | 100.00µL | E2001090-001 | 100.00µL | E2001090-002 | 100.00µL | E2001090-003 | 100.00µL | E2001090-004 | 100.00µL | E2001090-005 | 100.00µL |
| E2001090-006 | 100.00µL | E2001090-007 | 100.00µL | E2001090-008 | 100.00µL | E2001090-009 | 100.00µL | E2001090-010 | 100.00µL | E2001090-011 | 100.00µL |
| E2001090-012 | 100.00µL | E2001090-013 | 100.00µL | E2001090-014 | 100.00µL | EQ2000586-01 | 100.00µL | EQ2000586-02 | 100.00µL | EQ2000586-03 | 100.00µL |
| EQ2000586-04 | 100.00µL | EQ2000586-05 | 100.00µL | | | | | | | | |

# *Preparation Information Benchsheet*

**Prep Run#:** 369486 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
**Team:** Semivoa GCMS/GRIVERA **Prep Method:** Method **Prep Date/Time:** 11/10/20 09:50

## Preparation Steps

Step: Preparation
Started: 11/10/20 09:50
Finished: 11/10/20 10:20
By: GRIVERA
Comments

Comments: _____

Reviewed By: GR Date: 11/10/2020

Chain of Custody

| | | | | |
|---|---|---|---|---|
| Relinquished By: | | Date: | | Extracts Examined |
| Received By: | | Date: | | Yes No |

# Analytical Results

**ALS Environmental - Houston HRMS**
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

**ALS Group USA, Corp. dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | E2001090 |
| **Project:** | HS20110285 | **Date Collected:** | 11/ 4/20 0720 |
| **Sample Matrix:** | Ground Water | **Date Received:** | 11/ 9/20 |
| **Sample Name:** | LHSMW01-201104 | **Units:** | µg/L |
| **Lab Code:** | E2001090-001 | **Basis:** | NA |

**Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry**

**Analytical Method:** 6850
**Prep Method:** Method

| Analyte Name | Result | Q | LOQ | LOD | MDL | Dilution Factor | Date Extracted | Date Analyzed | Extraction Lot | Analysis Lot | Note |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Perchlorate | ND | U | 0.100 | 0.0500 | 0.0250 | 1 | 11/10/20 | 11/20/20 19:36 | 369486 | 704635 | |

**ALS Group USA, Corp. dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | E2001090 |
| **Project:** | HS20110285 | **Date Collected:** | 11/ 4/20 0720 |
| **Sample Matrix:** | Ground Water | **Date Received:** | 11/ 9/20 |
| **Sample Name:** | 04WW04-201104 | **Units:** | µg/L |
| **Lab Code:** | E2001090-002 | **Basis:** | NA |

**Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry**

**Analytical Method:** 6850
**Prep Method:** Method

| Analyte Name | Result | Q | LOQ | LOD | MDL | Dilution Factor | Date Extracted | Date Analyzed | Extraction Lot | Analysis Lot | Note |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Perchlorate | **0.158** | | 0.100 | 0.0500 | 0.0250 | 1 | 11/10/20 | 11/20/20 19:44 | 369486 | 704635 | |

**ALS Group USA, Corp. dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | E2001090 |
| **Project:** | HS20110285 | **Date Collected:** | 11/ 4/20 0720 |
| **Sample Matrix:** | Ground Water | **Date Received:** | 11/ 9/20 |
| **Sample Name:** | 04WW08-201104 | **Units:** | µg/L |
| **Lab Code:** | E2001090-003 | **Basis:** | NA |

**Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry**

**Analytical Method:** 6850
**Prep Method:** Method

| Analyte Name | Result | Q | LOQ | LOD | MDL | Dilution Factor | Date Extracted | Date Analyzed | Extraction Lot | Analysis Lot | Note |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Perchlorate | **4.65** | | 0.200 | 0.100 | 0.0500 | 2 | 11/10/20 | 11/23/20 10:02 | 369486 | 704605 | |

**ALS Group USA, Corp. dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | E2001090 |
| **Project:** | HS20110285 | **Date Collected:** | 11/ 4/20 0720 |
| **Sample Matrix:** | Ground Water | **Date Received:** | 11/ 9/20 |
| **Sample Name:** | 04WW02-201104 | **Units:** | µg/L |
| **Lab Code:** | E2001090-004 | **Basis:** | NA |

**Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry**

**Analytical Method:** 6850
**Prep Method:** Method

| Analyte Name | Result | Q | LOQ | LOD | MDL | Dilution Factor | Date Extracted | Date Analyzed | Extraction Lot | Analysis Lot | Note |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Perchlorate | **0.0693** | J | 0.100 | 0.0500 | 0.0250 | 1 | 11/10/20 | 11/20/20 20:00 | 369486 | 704635 | |

**ALS Group USA, Corp. dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | E2001090 |
| **Project:** | HS20110285 | **Date Collected:** | 11/ 4/20 0720 |
| **Sample Matrix:** | Ground Water | **Date Received:** | 11/ 9/20 |
| **Sample Name:** | 04WW06-201104 | **Units:** | µg/L |
| **Lab Code:** | E2001090-005 | **Basis:** | NA |

**Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry**

**Analytical Method:** 6850
**Prep Method:** Method

| Analyte Name | Result | Q | LOQ | LOD | MDL | Dilution Factor | Date Extracted | Date Analyzed | Extraction Lot | Analysis Lot | Note |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Perchlorate | ND | U | 0.100 | 0.0500 | 0.0250 | 1 | 11/10/20 | 11/20/20 20:08 | 369486 | 704635 | |

**ALS Group USA, Corp. dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | E2001090 |
| **Project:** | HS20110285 | **Date Collected:** | 11/ 4/20 0720 |
| **Sample Matrix:** | Ground Water | **Date Received:** | 11/ 9/20 |
| **Sample Name:** | LHSMW02-201104 | **Units:** | µg/L |
| **Lab Code:** | E2001090-006 | **Basis:** | NA |

**Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry**

**Analytical Method:** 6850
**Prep Method:** Method

| Analyte Name | Result | Q | LOQ | LOD | MDL | Dilution Factor | Date Extracted | Date Analyzed | Extraction Lot | Analysis Lot | Note |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Perchlorate | **0.169** | | 0.100 | 0.0500 | 0.0250 | 1 | 11/10/20 | 11/20/20 20:16 | 369486 | 704635 | |

**ALS Group USA, Corp. dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | E2001090 |
| **Project:** | HS20110285 | **Date Collected:** | 11/ 4/20 0720 |
| **Sample Matrix:** | Ground Water | **Date Received:** | 11/ 9/20 |
| **Sample Name:** | 04WW11-201104 | **Units:** | µg/L |
| **Lab Code:** | E2001090-007 | **Basis:** | NA |

**Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry**

**Analytical Method:** 6850
**Prep Method:** Method

| Analyte Name | Result | Q | LOQ | LOD | MDL | Dilution Factor | Date Extracted | Date Analyzed | Extraction Lot | Analysis Lot | Note |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Perchlorate | ND | U | 0.100 | 0.0500 | 0.0250 | 1 | 11/10/20 | 11/20/20 20:24 | 369486 | 704635 | |

**ALS Group USA, Corp. dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | E2001090 |
| **Project:** | HS20110285 | **Date Collected:** | 11/ 4/20 0720 |
| **Sample Matrix:** | Ground Water | **Date Received:** | 11/ 9/20 |
| **Sample Name:** | 04WW11-201104-FD | **Units:** | µg/L |
| **Lab Code:** | E2001090-008 | **Basis:** | NA |

**Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry**

**Analytical Method:** 6850
**Prep Method:** Method

| Analyte Name | Result | Q | LOQ | LOD | MDL | Dilution Factor | Date Extracted | Date Analyzed | Extraction Lot | Analysis Lot | Note |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Perchlorate | ND | U | 0.100 | 0.0500 | 0.0250 | 1 | 11/10/20 | 11/20/20 20:32 | 369486 | 704635 | |

**ALS Group USA, Corp. dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | E2001090 |
| **Project:** | HS20110285 | **Date Collected:** | 11/ 4/20 0720 |
| **Sample Matrix:** | Ground Water | **Date Received:** | 11/ 9/20 |
| **Sample Name:** | 04WW01-201104 | **Units:** | µg/L |
| **Lab Code:** | E2001090-009 | **Basis:** | NA |

**Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry**

**Analytical Method:** 6850
**Prep Method:** Method

| Analyte Name | Result | Q | LOQ | LOD | MDL | Dilution Factor | Date Extracted | Date Analyzed | Extraction Lot | Analysis Lot | Note |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Perchlorate | **0.246** | J | 0.500 | 0.250 | 0.125 | 5 | 11/10/20 | 11/23/20 10:10 | 369486 | 704605 | |

**ALS Group USA, Corp. dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | E2001090 |
| **Project:** | HS20110285 | **Date Collected:** | 11/ 4/20 0720 |
| **Sample Matrix:** | Ground Water | **Date Received:** | 11/ 9/20 |
| **Sample Name:** | 04WW05-201104 | **Units:** | µg/L |
| **Lab Code:** | E2001090-010 | **Basis:** | NA |

**Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry**

**Analytical Method:** 6850
**Prep Method:** Method

| Analyte Name | Result | Q | LOQ | LOD | MDL | Dilution Factor | Date Extracted | Date Analyzed | Extraction Lot | Analysis Lot | Note |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Perchlorate | ND | U | 0.100 | 0.0500 | 0.0250 | 1 | 11/10/20 | 11/20/20 20:55 | 369486 | 704635 | |

**ALS Group USA, Corp. dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | E2001090 |
| **Project:** | HS20110285 | **Date Collected:** | 11/ 4/20 0720 |
| **Sample Matrix:** | Ground Water | **Date Received:** | 11/ 9/20 |
| **Sample Name:** | 04WW09-201104 | **Units:** | µg/L |
| **Lab Code:** | E2001090-011 | **Basis:** | NA |

**Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry**

**Analytical Method:** 6850
**Prep Method:** Method

| Analyte Name | Result | Q | LOQ | LOD | MDL | Dilution Factor | Date Extracted | Date Analyzed | Extraction Lot | Analysis Lot | Note |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Perchlorate | **2.02** | | 0.100 | 0.0500 | 0.0250 | 1 | 11/10/20 | 11/20/20 21:03 | 369486 | 704635 | |

**ALS Group USA, Corp. dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | E2001090 |
| **Project:** | HS20110285 | **Date Collected:** | 11/ 4/20 0720 |
| **Sample Matrix:** | Ground Water | **Date Received:** | 11/ 9/20 |
| **Sample Name:** | 04WW09-201104-FD | **Units:** | µg/L |
| **Lab Code:** | E2001090-012 | **Basis:** | NA |

**Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry**

**Analytical Method:** 6850
**Prep Method:** Method

| Analyte Name | Result | Q | LOQ | LOD | MDL | Dilution Factor | Date Extracted | Date Analyzed | Extraction Lot | Analysis Lot | Note |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Perchlorate | **2.58** | | 0.100 | 0.0500 | 0.0250 | 1 | 11/10/20 | 11/20/20 21:11 | 369486 | 704635 | |

**ALS Group USA, Corp. dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | E2001090 |
| **Project:** | HS20110285 | **Date Collected:** | 11/ 4/20 0720 |
| **Sample Matrix:** | Ground Water | **Date Received:** | 11/ 9/20 |
| **Sample Name:** | 04WW10-201104 | **Units:** | µg/L |
| **Lab Code:** | E2001090-013 | **Basis:** | NA |

**Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry**

**Analytical Method:** 6850
**Prep Method:** Method

| Analyte Name | Result | Q | LOQ | LOD | MDL | Dilution Factor | Date Extracted | Date Analyzed | Extraction Lot | Analysis Lot | Note |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Perchlorate | **0.0888** | J | 0.200 | 0.100 | 0.0500 | 2 | 11/10/20 | 11/23/20 10:18 | 369486 | 704605 | |

**ALS Group USA, Corp. dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | E2001090 |
| **Project:** | HS20110285 | **Date Collected:** | 11/ 4/20 0720 |
| **Sample Matrix:** | Ground Water | **Date Received:** | 11/ 9/20 |
| **Sample Name:** | 04WW07-201104 | **Units:** | µg/L |
| **Lab Code:** | E2001090-014 | **Basis:** | NA |

**Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry**

**Analytical Method:** 6850
**Prep Method:** Method

| Analyte Name | Result | Q | LOQ | LOD | MDL | Dilution Factor | Date Extracted | Date Analyzed | Extraction Lot | Analysis Lot | Note |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Perchlorate | **0.190** | J | 0.500 | 0.250 | 0.125 | 5 | 11/10/20 | 11/23/20 10:25 | 369486 | 704605 | |

**ALS Group USA, Corp. dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | E2001090 |
| **Project:** | HS20110285 | **Date Collected:** | NA |
| **Sample Matrix:** | Ground Water | **Date Received:** | NA |
| **Sample Name:** | Method Blank | **Units:** | µg/L |
| **Lab Code:** | EQ2000586-01 | **Basis:** | NA |

**Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry**

**Analytical Method:** 6850
**Prep Method:** Method

| Analyte Name | Result | Q | LOQ | LOD | MDL | Dilution Factor | Date Extracted | Date Analyzed | Extraction Lot | Analysis Lot | Note |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Perchlorate | ND | U | 0.100 | 0.0500 | 0.0250 | 1 | 11/10/20 | 11/20/20 16:20 | 369486 | 704366 | |

# Accuracy & Precision

**ALS Environmental - Houston HRMS**
10450 Stancliff Rd., Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

**ALS Group USA, Corp. dba ALS Environmental**

QA/QC Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | E2001090 |
| **Project:** | HS20110285 | **Date Analyzed:** | 11/20/20 |
| **Sample Matrix:** | Ground Water | | |

**Lab Control Sample Summary**
**Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry**

| | | | |
|---|---|---|---|
| **Analytical Method:** | 6850 | **Units:** | µg/L |
| **Prep Method:** | Method | **Basis:** | NA |
| | | **Extraction Lot:** | 369486 |

| | Lab Control Sample EQ2000586-02 | | | Duplicate Lab Control Sample EQ2000586-03 | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Analyte Name** | **Result** | **Spike Amount** | **% Rec** | **Result** | **Spike Amount** | **% Rec** | **% Rec Limits** | **RPD** | **RPD Limit** |
| Perchlorate | 0.111 | 0.100 | 111 | 0.115 | 0.100 | 115 | 84 - 119 | 3 | 15 |

**Results flagged with an asterisk (*) indicate values outside control criteria.**

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

**ALS Group USA, Corp. dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | E2001090 |
| **Project:** | HS20110285 | **Date Collected:** | NA |
| **Sample Matrix:** | Ground Water | **Date Received:** | NA |
| **Sample Name:** | Lab Control Sample | **Units:** | µg/L |
| **Lab Code:** | EQ2000586-02 | **Basis:** | NA |

**Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry**

**Analytical Method:** 6850
**Prep Method:** Method

| Analyte Name | Result | Q | LOQ | LOD | MDL | Dilution Factor | Date Extracted | Date Analyzed | Extraction Lot | Analysis Lot | Note |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Perchlorate | **0.111** | | 0.100 | 0.0500 | 0.0250 | 1 | 11/10/20 | 11/20/20 16:28 | 369486 | 704366 | |

**ALS Group USA, Corp. dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | E2001090 |
| **Project:** | HS20110285 | **Date Collected:** | NA |
| **Sample Matrix:** | Ground Water | **Date Received:** | NA |
| **Sample Name:** | Duplicate Lab Control Sample | **Units:** | µg/L |
| **Lab Code:** | EQ2000586-03 | **Basis:** | NA |

**Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry**

**Analytical Method:** 6850
**Prep Method:** Method

| Analyte Name | Result | Q | LOQ | LOD | MDL | Dilution Factor | Date Extracted | Date Analyzed | Extraction Lot | Analysis Lot | Note |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Perchlorate | **0.115** | | 0.100 | 0.0500 | 0.0250 | 1 | 11/10/20 | 11/20/20 16:36 | 369486 | 704366 | |

**ALS Group USA, Corp. dba ALS Environmental**

QA/QC Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | E2001090 |
| **Project:** | HS20110285 | **Date Collected:** | 11/4/20 |
| **Sample Matrix:** | Ground Water | **Date Received:** | 11/9/20 |
| | | **Date Analyzed:** | 11/23/20 |

**Matrix Spike Summary**

**Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry**

| | | | |
|---|---|---|---|
| **Sample Name:** | 04WW10-201104 | **Units:** | µg/L |
| **Lab Code:** | E2001090-013 | **Basis:** | NA |

**Analytical Method:** 6850
**Prep Method:** Method

| | | 04WW10-201104MS | | | | 04WW10-201104DMS | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **Matrix Spike** | | | | **Duplicate Matrix Spike** | | | | | |
| | | EQ2000586-04 | | | | EQ2000586-05 | | | | | |
| **Analyte Name** | **Sample Result** | **Result** | **Spike Amount** | **% Rec** | | **Result** | **Spike Amount** | **% Rec** | **% Rec Limits** | **RPD** | **RPD Limit** |
| Perchlorate | 0.0888 | 0.189 | 0.100 | 101 | | 0.173 | 0.100 | 85 | 84 - 119 | 9 | 15 |

**Results flagged with an asterisk (*) indicate values outside control criteria.**

**Results flagged with a pound (#) indicate the control criteria is not applicable.**

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

**ALS Group USA, Corp. dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | E2001090 |
| **Project:** | HS20110285 | **Date Collected:** | 11/ 4/20 0720 |
| **Sample Matrix:** | Ground Water | **Date Received:** | 11/ 9/20 |
| **Sample Name:** | 04WW10-201104 | **Units:** | µg/L |
| **Lab Code:** | EQ2000586-04 | **Basis:** | NA |
| **Run Type:** | Matrix Spike | | |

**Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry**

**Analytical Method:** 6850
**Prep Method:** Method

| Analyte Name | Result | Q | LOQ | LOD | MDL | Dilution Factor | Date Extracted | Date Analyzed | Extraction Lot | Analysis Lot | Note |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Perchlorate | **0.189** | J | 0.200 | 0.100 | 0.0500 | 2 | 11/10/20 | 11/23/20 09:46 | 369486 | 704605 | |

**ALS Group USA, Corp. dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | E2001090 |
| **Project:** | HS20110285 | **Date Collected:** | 11/ 4/20 0720 |
| **Sample Matrix:** | Ground Water | **Date Received:** | 11/ 9/20 |
| **Sample Name:** | 04WW10-201104 | **Units:** | µg/L |
| **Lab Code:** | EQ2000586-05 | **Basis:** | NA |
| **Run Type:** | Duplicate Matrix Spike | | |

**Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry**

**Analytical Method:** 6850
**Prep Method:** Method

| Analyte Name | Result | Q | LOQ | LOD | MDL | Dilution Factor | Date Extracted | Date Analyzed | Extraction Lot | Analysis Lot | Note |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Perchlorate | **0.173** | J | 0.200 | 0.100 | 0.0500 | 2 | 11/10/20 | 11/23/20 09:54 | 369486 | 704605 | |

ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
**T :** +1 360 577 7222
**F :** +1 360 636 1068
**www.alsglobal.com**

November 17, 2020

**Analytical Report for Service Request No:** K2010363

RJ Modashia
ALS Laboratory Group
10450 Stancliff Road
Suite 210
Houston, TX 77099-4338

**RE: ALS Houston DOD TOC**

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory November 10, 2020
For your reference, these analyses have been assigned our service request number **K2010363.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3350. You may also contact me via email at Kelley.Lovejoy@alsglobal.com.

Respectfully submitted,

**ALS Group USA, Corp. dba ALS Environmental**

Kelley Lovejoy

Kelley Lovejoy
Project Manager


RIGHT SOLUTIONS | RIGHT PARTNER

ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
**T :** +1 360 577 7222
**F :** +1 360 636 1068
**www.alsglobal.com**

# Table of Contents

Acronyms
Qualifiers
State Certifications, Accreditations, And Licenses
Case Narrative
Chain of Custody
General Chemistry
Raw Data
    General Chemistry

## Acronyms

| | |
|---|---|
| ASTM | American Society for Testing and Materials |
| A2LA | American Association for Laboratory Accreditation |
| CARB | California Air Resources Board |
| CAS Number | Chemical Abstract Service registry Number |
| CFC | Chlorofluorocarbon |
| CFU | Colony-Forming Unit |
| DEC | Department of Environmental Conservation |
| DEQ | Department of Environmental Quality |
| DHS | Department of Health Services |
| DOE | Department of Ecology |
| DOH | Department of Health |
| EPA | U. S. Environmental Protection Agency |
| ELAP | Environmental Laboratory Accreditation Program |
| GC | Gas Chromatography |
| GC/MS | Gas Chromatography/Mass Spectrometry |
| LOD | Limit of Detection |
| LOQ | Limit of Quantitation |
| LUFT | Leaking Underground Fuel Tank |
| M | Modified |
| MCL | Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA. |
| MDL | Method Detection Limit |
| MPN | Most Probable Number |
| MRL | Method Reporting Limit |
| NA | Not Applicable |
| NC | Not Calculated |
| NCASI | National Council of the Paper Industry for Air and Stream Improvement |
| ND | Not Detected |
| NIOSH | National Institute for Occupational Safety and Health |
| PQL | Practical Quantitation Limit |
| RCRA | Resource Conservation and Recovery Act |
| SIM | Selected Ion Monitoring |
| TPH | Total Petroleum Hydrocarbons |
| tr | Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL. |

## Inorganic Data Qualifiers

| | |
|---|---|
| * | The result is an outlier. See case narrative. |
| # | The control limit criteria is not applicable. See case narrative. |
| B | The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards. |
| E | The result is an estimate amount because the value exceeded the instrument calibration range. |
| J | The result is an estimated value. |
| U | The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution. |
| i | The MRL/MDL or LOQ/LOD is elevated due to a matrix interference. |
| X | See case narrative. |
| Q | See case narrative. One or more quality control criteria was outside the limits. |
| H | The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory. |

## Metals Data Qualifiers

| | |
|---|---|
| # | The control limit criteria is not applicable. See case narrative. |
| J | The result is an estimated value. |
| E | The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample. |
| M | The duplicate injection precision was not met. |
| N | The Matrix Spike sample recovery is not within control limits. See case narrative. |
| S | The reported value was determined by the Method of Standard Additions (MSA). |
| U | The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution. |
| W | The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance. |
| i | The MRL/MDL or LOQ/LOD is elevated due to a matrix interference. |
| X | See case narrative. |
| + | The correlation coefficient for the MSA is less than 0.995. |
| Q | See case narrative. One or more quality control criteria was outside the limits. |

## Organic Data Qualifiers

| | |
|---|---|
| * | The result is an outlier. See case narrative. |
| # | The control limit criteria is not applicable. See case narrative. |
| A | A tentatively identified compound, a suspected aldol-condensation product. |
| B | The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards. |
| C | The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data. |
| D | The reported result is from a dilution. |
| E | The result is an estimated value. |
| J | The result is an estimated value. |
| N | The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed. |
| P | The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results. |
| U | The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution. |
| i | The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference. |
| X | See case narrative. |
| Q | See case narrative. One or more quality control criteria was outside the limits. |

## Additional Petroleum Hydrocarbon Specific Qualifiers

| | |
|---|---|
| F | The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard. |
| L | The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard. |
| H | The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard. |
| O | The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard. |
| Y | The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard. |
| Z | The chromatographic fingerprint does not resemble a petroleum product. |

**ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso**
**State Certifications, Accreditations, and Licenses**

| Agency | Web Site | Number |
|---|---|---|
| Alaska DEH | http://dec.alaska.gov/eh/lab/cs/csapproval.htm | UST-040 |
| Arizona DHS | http://www.azdhs.gov/lab/license/env.htm | AZ0339 |
| Arkansas - DEQ | http://www.adeq.state.ar.us/techsvs/labcert.htm | 88-0637 |
| California DHS (ELAP) | http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx | 2795 |
| DOD ELAP | http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm | L16-58-R4 |
| Florida DOH | http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm | E87412 |
| Hawaii DOH | http://health.hawaii.gov/ | - |
| ISO 17025 | http://www.pjlabs.com/ | L16-57 |
| Louisiana DEQ | http://www.deq.louisiana.gov/page/la-lab-accreditation | 03016 |
| Maine DHS | http://www.maine.gov/dhhs/ | WA01276 |
| Minnesota DOH | http://www.health.state.mn.us/accreditation | 053-999-457 |
| Nevada DEP | http://ndep.nv.gov/bsdw/labservice.htm | WA01276 |
| New Jersey DEP | http://www.nj.gov/dep/enforcement/oqa.html | WA005 |
| New York - DOH | https://www.wadsworth.org/regulatory/elap | 12060 |
| North Carolina DEQ | https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification | 605 |
| Oklahoma DEQ | http://www.deq.state.ok.us/CSDnew/labcert.htm | 9801 |
| Oregon – DEQ (NELAP) | http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx | WA100010 |
| South Carolina DHEC | http://www.scdhec.gov/environment/EnvironmentalLabCertification/ | 61002 |
| Texas CEQ | http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html | T104704427 |
| Washington DOE | http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html | C544 |
| Wyoming (EPA Region 8) | https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water- | - |
| Kelso Laboratory Website | www.alsglobal.com | NA |

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

# Case Narrative

**ALS Environmental—Kelso Laboratory**
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

1317 South 13th Ave, Kelso, WA 98626 | 1-360-577-7222 | www.alsglobal.com

**Client:** ALS Environmental - US
**Project:** ALS Houston DOD TOC
**Sample Matrix:** Ground Water

**Service Request:** K2010363
**Date Received:** 11/10/2020

## CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier level IV requested by the client.

**Sample Receipt:**

Five ground water samples were received for analysis at ALS Environmental on 11/10/2020. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

**General Chemistry:**

No significant anomalies were noted with this analysis.

Approved by Kelley Lovejoy Date 11/17/2020

# Chain of Custody

**ALS Environmental—Kelso Laboratory**
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

K20110363

10450 Stancliff Rd, Ste 210
Houston, TX 77099
**T:** +1 281 530 5656
**F:** +1 281 530 5887
**www.alsglobal.com**

# Subcontract Chain of Custody

**SAMPLING STATE:** **Dept of Defense** **COC ID:** **15114**

**SUBCONTRACT TO:**

ALS Environmental Kelso
1317 S. 13th Avenue
Kelso, WA 98626

**Phone:** +1 360 501 3312

**CUSTOMER INFORMATION:**

| | |
|---|---|
| **Company:** | ALS Houston |
| **Contact:** | RJ Modashia |
| **Address:** | 10450 Stancliff Rd, Ste 210 |
| **Phone:** | +1 281 530 5656 |
| **Email:** | RJ.Modashia@alsglobal.com |
| **Alternate Contact:** | Jumoke M. Lawal |
| **Email:** | jumoke.lawal@alsglobal.com |

**INVOICE INFORMATION:**

| | |
|---|---|
| **Company:** | ALS Houston |
| **Contact:** | Accounts Payable |
| **Address:** | 10450 Stancliff Rd, Ste 210 |
| **Phone:** | +1 281 530 5656 |
| **Reference:** | HS20110285 |
| **TSR:** | Sonia West |

| | LAB SAMPLE ID | CLIENT SAMPLE ID | MATRIX | COLLECT DATE |
|---|---|---|---|---|
| | ANALYSIS REQUESTED | | | DUE DATE |
| **1.** | **HS20110285-10** | **04WW05-201105** | **Groundwater** | **05 Nov 2020 07:35** |
| | TOC: Provide Level II & DOD Level IV/EQuIS APTIM EDD | | | 16 Nov 2020 |
| **2.** | **HS20110285-11** | **04WW09-201105** | **Groundwater** | **05 Nov 2020 08:20** |
| | TOC: Provide Level II & DOD Level IV/EQuIS APTIM EDD | | | 16 Nov 2020 |
| **3.** | **HS20110285-12** | **04WW09-201105-FD** | **Groundwater** | **05 Nov 2020 08:20** |
| | TOC: Provide Level II & DOD Level IV/EQuIS APTIM EDD | | | 16 Nov 2020 |
| **4.** | **HS20110285-13** | **04WW10-201105** | **Groundwater** | **05 Nov 2020 09:10** |
| | TOC: Provide Level II & DOD Level IV/EQuIS APTIM EDD | | | 16 Nov 2020 |
| **5.** | **HS20110285-14** | **04WW07-201105** | **Groundwater** | **05 Nov 2020 10:05** |
| | TOC: Provide Level II & DOD Level IV/EQuIS APTIM EDD | | | 16 Nov 2020 |

**Comments:** Please analyze for the analysis listed above.
Send report to the emails shown above.

HS20110285-13 MS/MSD

**QC Level:** DOD IV (DoD Data Package)



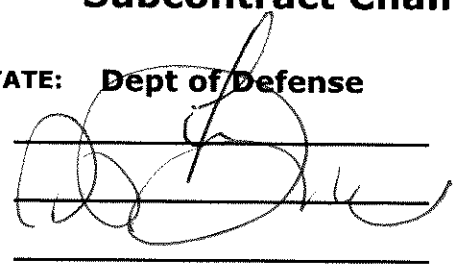
RIGHT SOLUTIONS | RIGHT PARTNER

K20103L3

# Subcontract Chain of Custody

**SAMPLING STATE:** **Dept of Defense**

**COC ID:** **15114**

Relinquished By: 

Date/Time: 11/9/2020 1800

Received By:

Date/Time: 11/10/20 1000

Cooler ID(s):

Temperature(s):

PM KL

# Cooler Receipt and Preservation Form

Client ALV-Houston Service Request K20 10363

Received: 11/10/20 Opened: 11/11/20 By: RK Unloaded: 11/10/20 By: BR

1. Samples were received via? *USPS* *Fed Ex* *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other* Plant *NA*
3. Were custody seals on coolers? NA Y N If yes, how many and where? Plant
   If present, were custody seals intact? Y N If present, were they signed and dated? Y N
4. Was a Temperature Blank present in cooler? NA Y N If yes, notate the temperature in the appropriate column below;
   If no, take the temperature of a representative sample bottle contained within the cooler; notate in the column "Sample Temp":
5. Were samples received within the method specified temperature ranges? NA Y N
   If no, were they received on ice and same day as collected? If not, notate the cooler # below and notify the PM. NA Y N

If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*

| Temp Blank | Sample Temp | IR Gun | Cooler #/COC ID / NA | Out of temp indicate with "X" | PM Notified If out of temp | Tracking Number NA | Filed |
|---|---|---|---|---|---|---|---|
| 0.5 | — | IR01 | 15114 | — | | 189188824170 | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

6. Packing material: *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Dry Ice* *Sleeves* _____
7. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
8. Were samples received in good condition (unbroken) NA Y N
9. Were all sample labels complete (ie, analysis, preservation, etc.)? NA Y N
10. Did all sample labels and tags agree with custody papers? NA Y N
11. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
12. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA Y N
13. Were VOA vials received without headspace? *Indicate in the table below.* NA Y N
14. Was C12/Res negative? NA Y N

| Sample ID on Bottle | Sample ID on COC | Identified by: |
|---|---|---|
| | | |
| | | |
| | | |

| Sample ID | Bottle Count Bottle Type | Head-space | Broke | pH | Reagent | Volume added | Reagent Lot Number | Initials | Time |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

Notes, Discrepancies, Resolutions: SHORT HOLD TIME

RUSH

# General Chemistry

**ALS Environmental—Kelso Laboratory**
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

**ALS Group USA, Corp.**
**dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | K2010363 |
| **Project:** | ALS Houston DOD TOC | **Date Collected:** | 11/5/20 |
| **Sample Matrix:** | Ground Water | **Date Received:** | 11/10/20 |
| **Analysis Method:** | SM 5310 C | **Units:** | mg/L |
| **Prep Method:** | None | **Basis:** | NA |

## Carbon, Total Organic

| Sample Name | Lab Code | Result | LOQ | LOD | MDL | Dil. | Date Analyzed | Q |
|---|---|---|---|---|---|---|---|---|
| 04WW05-201105 | K2010363-001 | **1.93** | 0.50 | 0.20 | 0.07 | 1 | 11/11/20 17:58 | |
| 04WW09-201105 | K2010363-002 | **177** | 2.5 | 1.0 | 0.4 | 5 | 11/11/20 17:58 | |
| 04WW09-201105-FD | K2010363-003 | **178** | 2.5 | 1.0 | 0.4 | 5 | 11/11/20 17:58 | |
| 04WW10-201105 | K2010363-004 | **3.32** | 0.50 | 0.20 | 0.07 | 1 | 11/11/20 17:58 | |
| 04WW07-201105 | K2010363-005 | **19.8** | 2.5 | 1.0 | 0.4 | 5 | 11/11/20 17:58 | |
| Method Blank | K2010363-MB | ND U | 0.50 | 0.20 | 0.07 | 1 | 11/11/20 17:58 | |

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | K2010363 |
| **Project** | ALS Houston DOD TOC | **Date Collected:** | 11/05/20 |
| **Sample Matrix:** | Ground Water | **Date Received:** | 11/10/20 |
| | | **Date Analyzed:** | 11/11/20 |

## Replicate Sample Summary
## General Chemistry Parameters

| | | | |
|---|---|---|---|
| **Sample Name:** | 04WW10-201105 | **Units:** | mg/L |
| **Lab Code:** | K2010363-004 | **Basis:** | NA |

| Analyte Name | Analysis Method | LOQ | LOD | MDL | Sample Result | Duplicate Sample K2010363-004DUP Result | Average | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, Total Organic | SM 5310 C | 0.50 | 0.20 | 0.07 | 3.32 | 3.15 | 3.23 | 5 | 10 |

**Results flagged with an asterisk (*) indicate values outside control criteria.**

**Results flagged with a pound (#) indicate the control criteria is not applicable.**

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | K2010363 |
| **Project:** | ALS Houston DOD TOC | **Date Collected:** | 11/05/20 |
| **Sample Matrix:** | Ground Water | **Date Received:** | 11/10/20 |
| | | **Date Analyzed:** | 11/11/20 |
| | | **Date Extracted:** | NA |

## Matrix Spike Summary
## Carbon, Total Organic

| | | | |
|---|---|---|---|
| **Sample Name:** | 04WW10-201105 | **Units:** | mg/L |
| **Lab Code:** | K2010363-004 | **Basis:** | NA |
| **Analysis Method:** | SM 5310 C | | |
| **Prep Method:** | None | | |

### Matrix Spike
K2010363-004MS

| Analyte Name | Sample Result | Result | Spike Amount | % Rec | % Rec Limits |
|---|---|---|---|---|---|
| Carbon, Total Organic | 3.32 | 28.0 | 25.0 | 99 | 83-117 |

**Results flagged with an asterisk (*) indicate values outside control criteria.**

**Results flagged with a pound (#) indicate the control criteria is not applicable.**

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

**Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.**

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | K2010363 |
| **Project:** | ALS Houston DOD TOC | **Date Analyzed:** | 11/11/20 |
| **Sample Matrix:** | Ground Water | **Date Extracted:** | NA |

**Lab Control Sample Summary**
**Carbon, Total Organic**

| | | | |
|---|---|---|---|
| **Analysis Method:** | SM 5310 C | **Units:** | mg/L |
| **Prep Method:** | None | **Basis:** | NA |
| | | **Analysis Lot:** | 703161 |

| Sample Name | Lab Code | Result | Spike Amount | % Rec | % Rec Limits |
|---|---|---|---|---|---|
| Lab Control Sample | K2010363-LCS | 25.9 | 25.0 | 104 | 83-117 |

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

**Client:** ALS Environmental - US **Service Request:** K2010363
**Project:** ALS Houston DOD TOC

## Continuing Calibration Verification (CCV) Summary

### Carbon, Total Organic

**Analysis Method:** SM 5310 C **Units:** mg/L

| | Analysis Lot | Lab Code | Date Analyzed | True Value | Measured Value | Percent Recovery | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| CCV1 | 703161 | KQ2017857-05 | 11/11/20 17:58 | 25.0 | 25.6 | 103 | 90-110 |
| CCV2 | 703161 | KQ2017857-06 | 11/11/20 17:58 | 25.0 | 25.6 | 103 | 90-110 |
| CCV3 | 703161 | KQ2017857-07 | 11/11/20 17:58 | 25.0 | 25.1 | 101 | 90-110 |
| CCV4 | 703161 | KQ2017857-08 | 11/11/20 17:58 | 25.0 | 26.8 | 107 | 90-110 |

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

**Client:** ALS Environmental - US **Service Request:**K2010363
**Project:** ALS Houston DOD TOC

## Continuing Calibration Blank (CCB) Summary
### Carbon, Total Organic

**Analysis Method:** SM 5310 C **Units:**mg/L

| | Analysis Lot | Lab Code | Date Analyzed | LOQ | LOD | MDL | Result | Q |
|---|---|---|---|---|---|---|---|---|
| CCB1 | 703161 | KQ2017857-09 | 11/11/20 17:58 | 0.50 | 0.20 | 0.07 | ND | U |
| CCB2 | 703161 | KQ2017857-10 | 11/11/20 17:58 | 0.50 | 0.20 | 0.07 | ND | U |
| CCB3 | 703161 | KQ2017857-11 | 11/11/20 17:58 | 0.50 | 0.20 | 0.07 | ND | U |
| CCB4 | 703161 | KQ2017857-12 | 11/11/20 17:58 | 0.50 | 0.20 | 0.07 | 0.38 | J |

**Subject:** **Final Monthly Managers' Meeting (MMM), Longhorn Army Ammunition Plant (LHAAP)**
**Location of Meeting:** **Teleconference**
**Date of Meeting:** **16 June 2021– 10:00 AM Central Daylight Time (CDT)**

**Attendees:**

| | |
|---|---|
| Army BRAC: | Rose M. Zeiler (RMZ) |
| USEPA: | Lauren Poulos (LP), Terry Burton and Kent Betcher |
| AEC: | Andrew Maly and Thomas Toudouze |
| TCEQ: | April Palmie (AP) |
| USACE: | Aaron Williams (AW) |
| Bhate: | Kim Nemmers (KN) and Zack Beck (ZB) |
| APTIM: | Praveen Srivastav (PS) and Rob Mayer (RM) |
| TLI: | Kyra Donnell (KD) |
| HDR: | Philip Werner (PW) and Lynn Lutz (LL) |
| USFWS: | Paul Bruckwicki (PB) |

**Defense Environmental Restoration Program (DERP) Performance-Based Remediation (PBR) Update**

- No action items to discuss

**Groundwater Treatment Plant (GWTP) –** KN said that the GWTP is operating properly. She explained that the acid feed pump for the air stripper needs to be replaced and is being evaluated. KN also said that the sand filter following the metals treatment was operating but that it was getting clogged. Replacement of the sand was likely to be needed in the future.

**Field Work –** KN said that the groundwater sampling for LHAAP-58 was completed in June 2021, and that groundwater sampling at LHAAP-18/24 was currently on going.

KN asked everyone to refer to the Document and Issues Tracking Table dated 16 June 2021.

- **Task 1** (Project Management) – KN stated that minutes from the May 2021 MMM were finalized on 3 June 2021. KN said that the Restoration Advisory Board (RAB) would be held on 21 July 2021 at the State Park. KN confirmed with RMZ that the RAB meeting would be held at 5pm to allow for the public meeting for the Proposed Plan (PP) LHAAP-47 to be held following.
- **Task 3** (LHAAP-03) – PS said that work at this site is complete and no more documents are being prepared for LHAAP-03.
- **Task 4** (LHAAP-04) – PS stated that the Year 2 Quarter 2 performance groundwater sampling was completed in May 2021. The validated data for the event is planned to be included in the July 2021 MMM package. PS said that comments were received from the Regulators on the Year 1 Remedial Action – Operation (RA-O) Report. He said that the comments were currently being addressed and that a Draft Final report with the associated revisions and responses to comments would be issued later in June 2021.
- **Task 5** (LHAAP-12) – PS said that the Final 2020 Annual RA-O Report had been submitted.
- **Task 6** (LHAAP-16) – PS stated that the Year 2 Quarter 1 groundwater sampling was completed in April and the validated data was included with the June 2021 MMM validated data PS said that the Year 1 RA-O Report was in progress for submittal in July 2021 to the Regulators. RM discussed the Year 2 Quarter 1 results for LHAAP-16. He said that there are the two wells across Harrison Bayou (16WW57 and 16WW58). With the biobarrier, the goal is to observe decreases in concentration downgradient due to cleaner water migrating.

RM said we were seeing decreasing trends in the two wells across the Harrison Bayou, with a more significant decrease observed in 16WW58. RM said that the Bayou Barrier is immediately upgradient of the Harrison Bayou and has two monitoring wells 16RW11 and 16IW20 that had good trends of trichlorethene (TCE) reductions. Wells 16WW12 and 16WW40 are downgradient of the biobarrier and had fluctuating trends of TCE but degradation products are observed. RM said that the Mid-Plume Biobarrier indicated good degradation overall in the shallow zone aquifer with vinyl chloride present. He said that 16EW04 has an upward trend but the daughter product cis-1,2-dichloroethene (DCE) is observed such that some degradation is occurring. RM explained that intermediate zone aquifer wells used for injections, 16EW05, 16EW06 and 16EW07, have biofouling of the wells. He said that samples collected from wells 16EW06 and 16EW07 were collected by pushing through the film but that 16EW05 could not be sampled. RM said that 16EW08 is showing good degradation so we know that degradation is occurring where we can sample within the intermediate zone aquifer. RM explained that rehabilitation of 16EW05 is planned for July and an observed thick, waxy material will require physical removal in part along with a product to breakdown the material. RM explained that 16EW05 was last sampled in March 2020. PS said that information about the material planned to be used will be shared with everyone before use. RMZ asked what the initial TCE results were for 16EW06 and 16EW07. RM said that after the injections, both TCE and DCE in 16EW06 increased from 250 micrograms per liter (µg/L) to above 3,000 µg/L but then quickly came down to less than the baseline. Currently, TCE, DCE and vinyl chloride are all present around 500 µg/L. RM said that the results were similar for 16EW07 in that there was a spike following the injections but then a quick reduction with degradation products being observed. RM said that 16WW49 and 16WW51 had TCE degradation observed. Biobarrier 3 was emplaced using direct push technology (DPT). RM said that injection wells 16RW09 and 16RW10 had decreasing trends observed Biobarrier 2 is cross gradient of Biobarrier 3 with more mixed results. Specifically, RM said that injection well results are fluctuating. RM said that the Biobarrier 1 results also looked good with TCE reducing and cis-DCE being present. RMZ asked about the elevated results in 16WW48 to which RM responded that there are a few wells with increasing trends. RM stated that this well is farther downgradient, and this increase may be due to untreated groundwater with higher concentrations migrating from between the biobarrier and the well. It is expected that that treated groundwater will migrate to this well in the future and a decrease in COCs will be observed

- **Task 7** (LHAAP-17) – PS said that no new documents were being prepared for LHAAP-17 under the PBR.
- **Task 9** (LHAAP-37) – PS stated that the Year 4, Semiannual Sampling Event 2 was completed with validated data planned for release in July 2021. PS said that the Event 1 sampling event was completed in November 2020.
- **Task 10** (LHAAP-46) – PS said that the Year 7 RA-O sampling was completed in March 2021 and that the Year 7 RA-O Report is being prepared for submittal in July 2021.
- **Task 11** (LHAAP-50) **–** PS stated the Year 1 Quarter 4 sampling was completed in April 2021 and the data was provided with the June 2021 MMM information. RM presented the data. RM said that there were two primary injection areas at LHAAP-50. He said that the monitoring well 50WW29, furthest downgradient of the injections, remains below detection limits. RM said that the well 50WW08, located upgradient and outside of the treatment area, has TCE and perchlorate increasing. Monitoring wells 50WW13 (shallow aquifer zone) and 50WW14 (lower aquifer zone) have good reductions of TCE with cis-DCE and vinyl chloride detected. Wells 50WW11 and 50WW6 also show decreasing trends in TCE

and perchlorate. RM said that perchlorate reduced from 8,000 µg/L to 421 µg/L in well 50WW11, and perchlorate reduced from 4,300 µg/L to below the detection limits in 50WW06. RM said that 50WW12 has TCE and perchlorate concentrations increasing so the results of this monitoring well are being watched. He said the seasonal fluctuations were reviewed and found that May seems to be a month with elevated results. RM said that it is possible that high perchlorate concentrations are inhibiting TCE and perchlorate degradation. RM said that the elevated concentrations may take longer to observe the degradation. RMZ said that 50WW12 is also a monitoring well with a 15-foot screen, completed from 22 to 37 feet below ground surface. She asked RM if there was difficulty with the injections via DPT in this area. RM said that this was the shallower depth injection and that there were some surfacing issues because formation is tight; however, APTIM was able to get all of the injectate into the ground. RM said that distribution could be an issue in the area around 50WW12.

- **Task 12** (LHAAP-58) – KN stated that the next sampling event will occur in June 2021 with validated data to be provided in August 2021.
- **Task 13** (LHAAP-67) – PS stated that the Year 7 Annual RA-O Report was submitted to the Regulators on 6 May 2021. PS said that the USEPA had requested an extension until 28 June 2021, which the Army had agreed to.
- **Task 14** (LHAAP-001-R and –003-R) – KN said that the Annual Report for LUCs at the sites was submitted to the Regulators on 17 May 2021.
- **Task 16** (GWTP) **–**KN said that the 1st Quarter 2021 GWTP report recently submitted to Army for review and is on the Project Portal. KN explained that both Level 2 and Level 4 data packages were posted.
- **Task 17** (LHAAP-18/24) – KN said that the groundwater sampling for LHAAP-18/24 is ongoing June 2021, with the validated data to be provided in August 2021.
- **Task 18** (Surface Water) – KN stated that surface water samples had been collected in April 2021 and that the data was included in the validated data package for the June 2021 MMM.
- **Task 19** (Land Use Control Management Plan) – No discussion.
- **Administrative Record (AR) –** PS said that the October to December 2020 AR was being printed and then would be reviewed before sending out in the next week or so. He said that the January through March 2021 cutoff document list is finalized, and AR was being compiled.
- **Well Abandonments –** No discussion.

**Update on other DERP Sites:**

- **LHAAP 18/24 –** PW explained that mobilization for Phase 2 Pre-Design Investigation (PDI) occurred on 7 June 2021. PW said that the DPT boring and temporary wells were installed, and that perchlorate was sampled with a 0.2 micron filter for each of the temporary wells. PW said that the permanent well is currently being installed in the Wilcox aquifer at LHAAP-18. PW said that more mats were being obtained for northeast of LHAAP-18/24.
- **LHAAP-29** – PW said that the Draft LHAAP-29 PDI Report due date will be extended to 16 September 2022. LL explained the estimated (J) flags on the laboratory analytical results from the PDI. LL said that the laboratory surrogates were low along with some matrix spike issues. When the data was re-run due to these issues, the hold times were exceeded. AP explained that her concern was that the detection limits did not meet the screening levels. LL said that the laboratory was instructed to use Method 8330. The laboratory from a previous investigation, ALS Limited, used Method 8330 and was able to meet the levels but the new laboratory is not. LL explained how limit of detection (LOD) and limit of quantitation (LOQ) is derived by laboratories and said that this results in variances in the laboratories'

detection limits (DLs). LL explained that the method is a gas chromatograph method such the separation column and instruments can result in the variance in the DLs. (In actuality, this is a high-performance liquid chromatography method, not a gas chromatography method, but the discussion of DLs, LODs, and LOQs is the same.) LL said that ALS Limited could be used to achieve the LODs. AW explained that the path forward is to send a small batch of samples to ALS Limited to see if we can get confidence of the data based on a subset of the data. PW said that a subset (10) of the samples collected, along with a field duplicate, will be sent to ALS Limited for reanalysis. The samples will include those that had exceedances and also those that were non-detect based on the other laboratory results to evaluate. If the analysis by ALS Limited does find detections of explosives in samples previously analyzed as non-detects, then the remaining 187 samples will be sent and reanalyzed by ALS Limited. Then a decision will be made on the path forward. Additional DPT borings will be advanced for sampling based on the initial samples also. AW said that additional data is needed to delineate both horizontally and vertically based on the detection from the data collected to date at several locations to refine delineation of the extent of contamination. This will help support the Remedial Design.

- **LHAAP-47** –PW said that concurrence on the draft final Feasibility Study was received from the TCEQ on 2 April 2021 and from USEPA on 21 April 2021. PW said that the comments from the regulators on the draft revised PP for LHAAP-47 on June 2021 are being addressed now. KN asked if the PP is still on track for presentation at the public meeting. AW said that responses on the PP are being prepared as quickly as possible to allow for the public meeting on 21 July 2021. RMZ said the Army would be requesting an expedited review of the Regulators to allow time for required publications. PW said that the revisions from the PP comments were being carried into the Record of Decision that is on track for submittal in September 2021 to the Regulators.

**LHAAP-17 PBR:** KD said that the Uniform Federal Policy-Quality Assurance Project Plan (UFP-QAPP)/Work Plan (WP) for the identification and removal of munitions and explosives of concern (MEC) was submitted to the Regulators on 10 May 2021. KD acknowledged that partial comments had been received and were being addressed. KD said that the Explanation of Significant Difference (ESD) was signed by Army and sent to USEPA for signature and TCEQ acceptance on 26 May 2021. KD said that the Remedial Design (RD)/Remedial Action Work Plan (RAWP) Addendum was submitted to the Regulators on 2 June 2021. RMZ said that comments received from the EPA prompted further discussions regarding the path forward. KN asked if the wells accessible at LHAAP-17 should still be sampled to which AW said that would be helpful. KN said that the accessible wells will be sampled for perchlorate in early July.

**Transfer Update:** RMZ told PB that she would like to meet with him in July when she was onsite.

**USFWS:** No updates.

**Schedule Next Managers' Meeting**

The next MMM will be held on Wednesday, 21 July 2021 at 10:00 am CDT via conference call.

Meeting concluded at approximately 11:08 am CDT.

**ACRONYM LIST**

| | |
|---|---|
| µg/L | Micrograms per liters |
| AEC | Army Environmental Command |
| AP | April Palmie |
| APTIM | APTIM Federal Services, LLC |
| AR | Administrative Record |
| AW | Aaron Williams |
| Bhate | Bhate Environmental Associates, Inc. |
| BRAC | Base Realignment and Closure |
| CDT | Central Daylight Time |
| DCE | cis,1,2-dichlroethene |
| DERP | Defense Environmental Restoration Program |
| DPT | Direct push technology |
| Email | Electronic mail |
| ESD | Explanation of Significant Difference |
| GWTP | Groundwater Treatment Plant |
| HDR | HDR, Inc. |
| J | Estimated |
| KB | Kent Becher |
| KD | Kyra Donnell |
| KN | Kim Nemmers |
| LHAAP | Longhorn Army Ammunition Plant |
| LOD | Limit of detection |
| LOQ | Limit of quantitation |
| LP | Lauren Poulos |
| MEC | Munitions and explosives of concern |
| MMM | Monthly Managers' Meeting |
| PB | Paul Bruckwicki |
| PBR | Performance-Based Remediation |
| PDI | Pre-Design Investigation |
| PP | Proposed Plan |
| PS | Praveen Srivastav |
| PW | Phil Werner |
| RAB | Restoration Advisory Board |
| RACR | Remedial Action Completion Report |
| RA-O | Remedial Action – Operation |
| RAWP | Remedial Action Work Plan |
| RD | Remedial Design |
| RM | Rob Mayer |
| RMZ | Rose M. Zeiler |
| TCE | Trichloroethene |
| TCEQ | Texas Commission on Environmental Quality |
| TLI | TLI Solutions, Inc. |
| UFP-QAPP | Uniform Federal Policy-Quality Assurance Project Plan |
| USACE | United States Army Corps of Engineers |
| USEPA | United States Environmental Protection Agency |
| USFWS | United Fish and Wildlife Service |
| USGS | United States Geological Survey |

**LHAAP Data Validated**
**MMM Validated Data June 2021**

| | |
|---|---|
| **GWTP Effluent** | *Weekly Perchlorate Sampling –April 2021*<br>Perchlorate (6850) |
| **GWTP Effluent** | *Weekly, Bi-Weekly, and Monthly Sampling – April 2021*<br>Ammonia (350.3)<br>Ortho-Phosphate (365.3)<br>Total Organic Carbon (SM5310C)<br>VOC (8260C)<br>Metals (6020A)<br>Hexavalent Chromium (7196A)<br>1,4-Dioxane (8270D-SIM)<br>Anions (9056) |
| **GWTP Influent** | *Monthly Sampling – April 2021*<br>Metals (6020A)<br>Perchlorate (6850)<br>Hexavalent Chromium (7196A) |
| **LHAAP Surface Water** | *Quarterly Perchlorate Sampling - April 2021*<br>Perchlorate (6850) |
| **LHAAP-16** | *Remedial Performance Monitoring (Year 2, Quarter 1)-April 2021*<br>Volatile Organic Compounds (8260C)<br>Metals (SW6020)<br>Perchlorate (EPA 6850)<br>Dissolved Gases (RSK-175)<br>Bromide (SW9056A)<br>Total Organic Carbon (SM5310B)<br>Dechlorinating Bacteria (Census)<br>Field Measurements (Dissolved Oxygen, Oxidation Reduction Potential, and pH) |
| **LHAAP-50** | *Remedial Performance Monitoring (Year 1, Quarter 4)-April 2021*<br>Volatile Organic Compounds (8260C)<br>Perchlorate (EPA 6850)<br>Alkalinity (SM2320B)<br>Chloride, Nitrate, Nitrite, and Sulfate (SW9056A)<br>Total Organic Carbon (SM5310B)<br>Field Measurements (Dissolved Oxygen, Oxidation Reduction Potential, Ferrous Iron, and pH) |

## GWTP Weekly/Effluent Perchlorate Sampling - April 2021

| Location ID: Sample Date: | Units | Daily Maximum Conc | PCL | LH18/24-SP650_040621_BIX 4/6/21 | LH18/24-SP650_041321_BIX 4/13/21 | LH18/24-SP650_041321_BIX 4/13/21 | LH18/24-SP650_042021_BIX 4/20/21 | LH18/24-SP650_042721_BIX 4/27/21 |
|---|---|---|---|---|---|---|---|---|
| **Location Description** | | | | Weekly | Monthly EFF | Weekly | Weekly | Weekly |
| **Perchlorate (6850)** | | | | | | | | |
| Perchlorate | µg/L | 589 | 17 | **5.74** | **1.46** | **1.33** | **17.3** | **9.27** |

µg/L - micrograms per liter

BIX - before ion exchange

## GWTP Weekly Sampling - April 2021

| Location ID:<br>Sample Date: | Units | Daily Maximum Conc | LH18/24-SP650_040621<br>4/6/21 | LH18/24-SP650_041321<br>4/13/21 | LH18/24-SP650_042021<br>4/20/21 | LH18/24-SP650_042721<br>4/27/21 |
|---|---|---|---|---|---|---|
| **Location Description** | | | **GWTP–Collected from a spigot on the discharge of effluent TK-650. Sampled Weekly.** | | | |
| **Ammonia as N (350.3)** | | | | | | |
| Ammonia as N | mg/L | NV | **5.5** | **3.9** | **0.23** | **0.69** |
| **Ortho-Phosphate (365.3)** | | | | | | |
| Ortho-Phosphate | mg/L | NV | **1.46** | **1.81** | **0.0830** | **0.031** |
| **Organic Carbon (SM5310C)** | | | | | | |
| Total Organic Carbon (TOC) | mg/L | NV | **20.3** | **4.13** | **8.29** | **2.06** |

mg/L - milligrams per liter

NV - No Value

## GWTP Bi-Weekly Sampling - April 2021

| Location ID: / Sample Date: | Units | (Bayou) Daily Maximum Conc | (INF pond) MCL | LH18/24-SP650_040621 4/6/21 | LH18/24-SP650_042021 4/20/21 |
|---|---|---|---|---|---|
| **Location Description** | | | | **GWTP – Collected from a spigot on the discharge of effluent TK-650. Sampled Biweekly.** | |
| **Volatile Organic Compounds (8260C)** | | | | | |
| 1,1,1-Trichloroethane | µg/L | 7,230 | 200 | < 0.50 U | < 0.50 U |
| 1,1,2-Trichloroethane | µg/L | 216.9 | 5 | < 1.0 U | < 1.0 U |
| 1,1-Dichloroethane | µg/L | 14,032 | NV | < 0.50 U | < 0.50 U |
| 1,1-Dichloroethene | µg/L | 253 | 7 | < 0.50 U | < 0.50 U |
| 1,2-Dichloroethane | µg/L | 181 | 5 | < 0.50 U | < 0.50 U |
| 1,2-Dichloropropane | µg/L | 5 | 5 | < 1.0 U | < 1.0 U |
| Acetone | µg/L | 2,395 | NV | < 2.0 U | < 2.0 U |
| Benzene | µg/L | 181 | 5 | < 0.50 U | < 0.50 U |
| Carbon tetrachloride | µg/L | 181 | 5 | < 1.0 U | < 1.0 U |
| Chlorobenzene | µg/L | 47,180 | 100 | < 1.0 U | < 1.0 U |
| Chloroform | µg/L | 3,615 | NV | < 0.50 U | < 0.50 U |
| cis-1,2-Dichloroethene | µg/L | NV | 70 | < 0.50 U | **8.4** |
| Ethylbenzene | µg/L | 57,025 | 700 | < 1.0 U | < 1.0 U |
| m,p-Xylene | µg/L | 83.6 | NV | < 1.0 U | < 1.0 U |
| Methylene chloride | µg/L | 1,699 | 5 | < 2.0 U | < 2.0 U |
| o-Xylene | µg/L | 83.6 | NV | < 1.0 U | < 1.0 U |
| Styrene | µg/L | 5,987 | 100 | < 1.0 U | < 1.0 U |
| Tetrachloroethene | µg/L | 180.7 | 5 | < 1.0 U | < 1.0 U |
| Toluene | µg/L | 4,189 | 10 | < 0.50 U | < 0.50 U |
| Trichloroethene | µg/L | 181 | 5 | < 0.50 U | **2.7** |
| Vinyl chloride | µg/L | 72 | 2 | < 0.50 U | < 0.50 U |
| **Anions (9056)** | | | | | |
| Chloride | mg/L | NV | NV | **553** | **565** |
| Sulfate | mg/L | NV | NV | **24.4** | **27.7** |

µg/L - micrograms per liter

mg/L - milligrams per liter

U- Undetected: The analyte was analyzed for, but not detected and reported to the limit of detection.

NV - No Value

## GWTP Monthly Effluent Sampling - April 2021

| Location ID:<br>Sample Date: | Units | Daily Maximum Conc | (INF pond) MCL | LH18/24-SP650_041321<br>4/13/21 |
|---|---|---|---|---|
| **Location Description** | | | | **GWTP – Collected from a spigot on the discharge of effluent TK-650. Sampled monthly** |
| **Volatile Organic Compounds (8260C)** | | | | |
| 1,1,1-Trichloroethane | µg/L | 7,230 | 200 | < 0.50 U |
| 1,1,2-Trichloroethane | µg/L | 216.9 | 5 | < 1.0 U |
| 1,1-Dichloroethane | µg/L | 14,032 | NV | < 0.50 U |
| 1,1-Dichloroethene | µg/L | 253 | 7 | < 0.50 U |
| 1,2-Dichloroethane | µg/L | 181 | 5 | < 0.50 U |
| 1,2-Dichloropropane | µg/L | 5 | 5 | < 1.0 U |
| Acetone | µg/L | 2,395 | NV | < 2.0 U |
| Benzene | µg/L | 181 | 5 | < 0.50 U |
| Carbon tetrachloride | µg/L | 181 | 5 | < 1.0 U |
| Chlorobenzene | µg/L | 47,180 | 100 | < 1.0 U |
| Chloroform | µg/L | 3,615 | NV | < 0.50 U |
| cis-1,2-dichloroethene | µg/L | NV | 70 | **8.7** |
| Ethylbenzene | µg/L | 57,025 | 700 | < 1.0 U |
| m,p-Xylene | µg/L | 83.6 | NV | < 1.0 U |
| Methylene chloride | µg/L | 1,699 | 5 | < 2.0 U |
| o-Xylene | µg/L | 83.6 | NV | < 1.0 U |
| Styrene | µg/L | 5,987 | 100 | < 1.0 U |
| Tetrachloroethene | µg/L | 180.7 | 5 | < 1.0 U |
| Toluene | µg/L | 4,189 | 10 | < 0.50 U |
| Trichloroethene | µg/L | 181 | 5 | **2.9** |
| Vinyl chloride | µg/L | 72 | 2 | < 0.50 U |
| **Metals (6020A)** | | | | |
| Barium | mg/L | 2 | 2 | **0.119** |
| Lead | mg/L | 0.0046 | 0.015 | < 0.00100 U |
| Selenium | mg/L | 0.012 | 0.05 | < 0.00250 U |
| Silver | mg/L | 0.003 | 0.1 | < 0.000500 U |
| **Hexavalent Chromium (7196A)** | | | | |
| Hexavalent Chromium | mg/L | 0.1244 | NV | < 0.0100 U |
| **Semi-Volatile Organic Compounds (8270D SIM)** | | | | |
| 1,4-Dioxane | µg/L | 134.2 | NV | **1.4** |

µg/L - micrograms per liter

mg/L - milligrams per liter

U- Undetected: The analyte was analyzed for, but not detected and reported to the limit of detection.

NV - no value

## GWTP Monthly Influent Sampling - April 2021

| Location ID:<br>Sample Date: | Units | LH18/24-SP140_041321<br>4/13/21 |
|---|---|---|
| **Location Description** | | **GWTP – Collected from a spigot on the influent to TK-140. Sampled Monthly.** |
| **Metals (6020A)** | | |
| Selenium | mg/L | < 0.00250 U |
| Silver | mg/L | < 0.000500 U |
| **Hexavalent Chromium (7196A)** | | |
| Hexavalent Chromium | mg/L | < 0.0100 U |
| **Perchlorate (6850)** | | |
| Perchlorate | µg/L | **9,760** |

mg/L - milligrams per liter

µg/L - micrograms per liter

U- Undetected: The analyte was analyzed for, but not detected and reported to the limit of detection.

## LHAAP-Quarterly Surface Water Sampling - April 2021

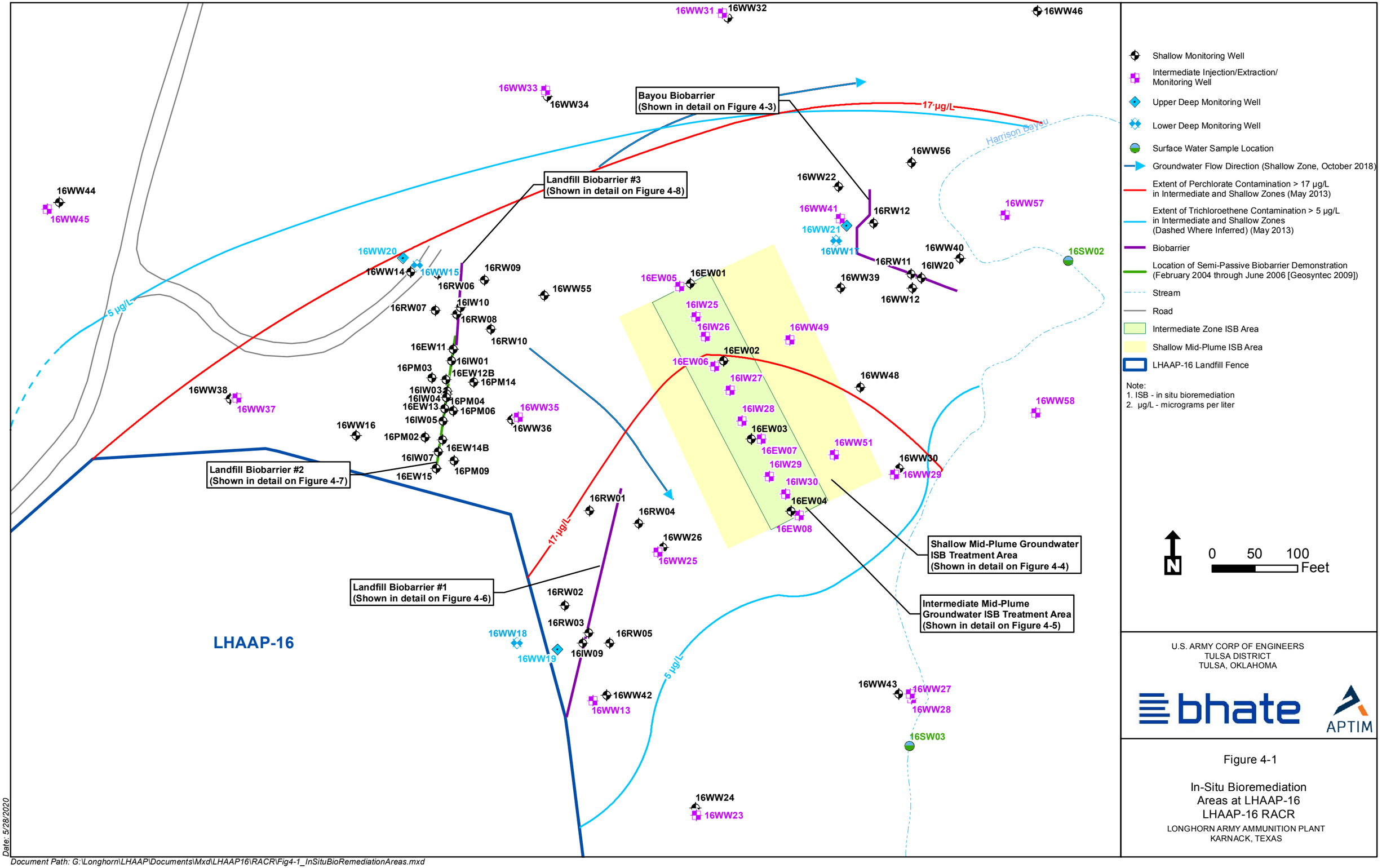
| Location ID: / Sample Date: | Units | PCL | HBW7_042721 4/27/21 | HBW10_042721 4/27/21 | HBW10_042721-a 4/27/21 | HBW1_042721 4/27/21 | GPW1_042721 4/27/21 | GPW3_042721 4/27/21 |
|---|---|---|---|---|---|---|---|---|
| Perchlorate (6850) | | | Harrison Bayou | | | | Goose Prairie Creek | |
| Perchlorate | µg/L | 17 | **0.0373 J** | < 0.0500 U | **0.0256 J** | **0.0410 J** | **0.0268 J** | **0.0321 J** |

PCL – Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Level

µg/L - micrograms per liter

U- Undetected: The analyte was analyzed for, but not detected and reported to the limit of detection.

J - Estimated Value. Concentration found below the limit of quantitation




U.S. ARMY CORP OF ENGINEERS
TULSA DISTRICT
TULSA, OKLAHOMA

bhate APTIM

Figure 4-1

In-Situ Bioremediation
Areas at LHAAP-16
LHAAP-16 RACR

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 5/28/2020

Document Path: G:\Longhorn\LHAAP\Documents\Mxd\LHAAP16\RACR\Fig4-1_InSituBioRemediationAreas.mxd

# Year 2, Quarter 1 Remedial Performance Monitoring
# Landfill 16 (LHAAP-16)

| | | | Injection Area | Landfill Biobarrier #1 | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Location Code | 16IW09 | | 16RW01 | | 16RW02 | | 16RW04 | | 16RW05 | | 16WW26 | | 16WW42 | |
| | | | Sample ID | 16IW09-210422 | | 16RW01-210414 | | 16RW02-210414 | | 16RW04-210414 | | 16RW05-210419 | | 16WW26-210420 | | 16WW42-210419 | |
| | | | Sample Date | 4/22/2021 | | 4/14/2021 | | 4/14/2021 | | 4/14/2021 | | 4/19/2021 | | 4/20/2021 | | 4/19/2021 | |
| | | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| **Analyte** | **Units** | **MCL/PCL/UTL [a]** | | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** |
| **Dechlorinating Bacteria (Census)** | | | | | | | | | | | | | | | | | |
| Dehalococcoides | cells/mL | NV | | NA | | NA | | NA | | NA | | NA | | 2.9 | | NA | |
| **Field Measurements** | | | | | | | | | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | | 0.03 | | 0.21 | | 0.2 | | 0.09 | | 0.03 | | 0.88 | | 0.15 | |
| Oxidation Reduction Potential | mV | NV | | 11 | | 289 | | 206 | | 283 | | -3.44 | | 279 | | 143 | |
| pH | SU | NV | | 5.76 | | 4.84 | | 5.30 | | 4.71 | | 7.25 | | 4.86 | | 5.88 | |
| **Dissolved Gases (RSK-175)** | | | | | | | | | | | | | | | | | |
| Ethane | µg/L | NV | | < 0.5 | U | NA | | NA | | NA | | NA | | < 0.5 | U | < 0.5 | U |
| Ethylene | µg/L | NV | | < 0.5 | UJ | NA | | NA | | NA | | NA | | < 0.5 | UJ | < 0.5 | UJ |
| Methane | µg/L | NV | | 3500 | | NA | | NA | | NA | | NA | | 1.18 | | 3.45 | |
| **General Chemistry (2320B/SM5310B/SW9056A)** | | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | | 598 | | NA | | NA | | NA | | NA | | < 5 | U | NA | |
| Bromide | mg/L | NV | | 4.13 | | NA | | NA | | NA | | NA | | 1.52 | | NA | |
| Nitrate | mg/L | NV | | 0.0908 | J | NA | | NA | | NA | | NA | | < 0.5 | U | NA | |
| Sulfate | mg/L | NV | | 4.75 | | NA | | NA | | NA | | NA | | 749 | | NA | |
| Total organic carbon | mg/L | NV | | 572 | | NA | | NA | | NA | | NA | | 3.54 | | 2.55 | |
| **Metals (SW6020)** | | | | | | | | | | | | | | | | | |
| Arsenic | mg/L | 0.01 | | NA | | NA | | NA | | NA | | NA | | NA | | NA | |
| Chromium | mg/L | 0.1 | | NA | | NA | | NA | | NA | | NA | | NA | | NA | |
| Manganese | mg/L | 1.1 | | NA | | NA | | NA | | NA | | NA | | NA | | NA | |
| Nickel | mg/L | 0.49 | | NA | | NA | | NA | | NA | | NA | | NA | | NA | |
| Thallium | mg/L | 0.002 | | NA | | NA | | NA | | NA | | NA | | NA | | NA | |
| **Perchlorate (EPA 6850)** | | | | | | | | | | | | | | | | | |
| Perchlorate | µg/L | 17 | | < 0.05 | U | 0.0618 | J | 0.0612 | J | < 0.05 | U | < 0.1 | U | < 0.05 | U | < 0.05 | U |
| **Volatile Organic Compounds (8260C)** | | | | | | | | | | | | | | | | | |
| 1,1,2-Trichloroethane | µg/L | 5 | | < 1 | U | < 10 | U | < 1 | U | < 5 | U | < 1 | U | < 1 | U | < 1 | U |
| 1,2-Dichloroethane | µg/L | 5 | | < 0.5 | U | < 5 | U | < 0.5 | U | < 2.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| cis-1,2-Dichloroethene | µg/L | 70 | | 3.1 | | **130** | | < 0.5 | U | 62 | | < 0.5 | U | 8.7 | | 66 | |
| Methylene chloride | µg/L | 5 | | < 2 | U | < 20 | U | < 2 | U | < 10 | U | < 2 | U | < 2 | U | < 2 | U |
| Trichloroethene | µg/L | 5 | | 0.62 | J | **3000** | | 3.1 | | **1100** | | 0.52 | J | **130** | | 0.97 | J |
| Vinyl chloride | µg/L | 2 | | < 0.5 | U | < 5 | U | < 0.5 | U | < 2.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |

# Year 2, Quarter 1 Remedial Performance Monitoring
# Landfill 16 (LHAAP-16)

| | | | Injection Area | | Landfill Biobarrier #2 | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Location Code | | 16IW03 | | 16PM02 | | 16PM03 | | | | 16PM06 | | 16PM09 | | 16PM14 | | 16WW36 | |
| | | | Sample ID | | 16IW03-210420 | | 16PM02-210414 | | 16PM03-210414 | | 16PM03-210414-FD | | 16PM06-210413 | | 16PM09-210413 | | 16PM14-210413 | | 16WW36-210413 | |
| | | | Sample Date | | 4/20/2021 | | 4/14/2021 | | 4/14/2021 | | 4/14/2021 | | 4/13/2021 | | 4/13/2021 | | 4/13/2021 | | 4/13/2021 | |
| | | | Sample Purpose | | REG | | REG | | REG | | FD | | REG | | REG | | REG | | REG | |
| **Analyte** | **Units** | **MCL/PCL/UTL [a]** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** |
| **Dechlorinating Bacteria (Census)** | | | | | | | | | | | | | | | | | | | | |
| Dehalococcoides | cells/mL | NV | NA | | NA | | NA | | NA | | NA | | NA | | NA | | NA | | 620 | |
| **Field Measurements** | | | | | | | | | | | | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | 0.18 | | 0.07 | | 0.13 | | 0.13 | | 0.1 | | 0.12 | | 0.18 | | 0.7 | | | |
| Oxidation Reduction Potential | mV | NV | -58 | | 150 | | 80 | | 80 | | -33 | | 138 | | 169 | | 179 | | | |
| pH | SU | NV | 5.21 | | 5.33 | | 6.06 | | 6.06 | | 6.29 | | 5.88 | | 6.03 | | 6.20 | | | |
| **Dissolved Gases (RSK-175)** | | | | | | | | | | | | | | | | | | | | |
| Ethane | µg/L | NV | < 0.5 | U | NA | | NA | | NA | | NA | | NA | | NA | | NA | | < 0.5 | U |
| Ethylene | µg/L | NV | 819 | J | NA | | NA | | NA | | NA | | NA | | NA | | NA | | 4.9 | J |
| Methane | µg/L | NV | 1330 | | NA | | NA | | NA | | NA | | NA | | NA | | NA | | 151 | J |
| **General Chemistry (2320B/SM5310B/SW9056A)** | | | | | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | 1700 | | NA | | NA | | NA | | NA | | NA | | NA | | NA | | 479 | |
| Bromide | mg/L | NV | 6.6 | | NA | | NA | | NA | | NA | | NA | | NA | | NA | | 1.96 | |
| Nitrate | mg/L | NV | < 0.5 | U | NA | | NA | | NA | | NA | | NA | | NA | | NA | | < 0.5 | U |
| Sulfate | mg/L | NV | 44.3 | | NA | | NA | | NA | | NA | | NA | | NA | | NA | | 1850 | |
| Total organic carbon | mg/L | NV | 2860 | | NA | | NA | | NA | | NA | | NA | | NA | | NA | | 15.1 | |
| **Metals (SW6020)** | | | | | | | | | | | | | | | | | | | | |
| Arsenic | mg/L | 0.01 | NA | | NA | | NA | | NA | | NA | | NA | | NA | | NA | | NA | |
| Chromium | mg/L | 0.1 | NA | | NA | | NA | | NA | | NA | | NA | | NA | | NA | | NA | |
| Manganese | mg/L | 1.1 | NA | | NA | | NA | | NA | | NA | | NA | | NA | | NA | | NA | |
| Nickel | mg/L | 0.49 | NA | | NA | | NA | | NA | | NA | | NA | | NA | | NA | | NA | |
| Thallium | mg/L | 0.002 | NA | | NA | | NA | | NA | | NA | | NA | | NA | | NA | | NA | |
| **Perchlorate (EPA 6850)** | | | | | | | | | | | | | | | | | | | | |
| Perchlorate | µg/L | 17 | 0.754 | J | 0.0372 | J | **193** | | **189** | | < 0.5 | U | 0.0355 | J | 0.259 | J | 1.26 | | | |
| **Volatile Organic Compounds (8260C)** | | | | | | | | | | | | | | | | | | | | |
| 1,1,2-Trichloroethane | µg/L | 5 | < 10 | U | < 25 | U | < 25 | U | < 25 | U | < 100 | U | 0.82 | J | < 20 | U | < 25 | U | | |
| 1,2-Dichloroethane | µg/L | 5 | **6.2** | J | **14** | J | **23** | J | **23** | J | **54** | J | < 0.5 | U | **22** | | < 12 | U | | |
| cis-1,2-Dichloroethene | µg/L | 70 | **11000** | | **2200** | | **6800** | | **7100** | | **42000** | | **210** | | **2900** | | **9000** | | | |
| Methylene chloride | µg/L | 5 | **17** | J | < 50 | U | < 50 | U | < 50 | U | < 200 | U | < 2 | U | < 40 | U | **43** | J | | |
| Trichloroethene | µg/L | 5 | **8900** | | **15000** | | **8800** | | **9000** | | **77000** | | **640** | | **4300** | | **10000** | | | |
| Vinyl chloride | µg/L | 2 | **3700** | | **40** | | **220** | | **240** | | **1800** | | **10** | | **110** | | **78** | | | |

# Year 2, Quarter 1 Remedial Performance Monitoring
# Landfill 16 (LHAAP-16)

| | | | Injection Area | | Landfill Biobarrier #3 | | | | | | | | Bayou Biobarrier | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Location Code | | 16RW06 | | 16RW07 | | 16RW09 | | 16RW10 | | 16IW10 | | 16IW20 | | 16RW11 | | |
| | | | Sample ID | | 16RW06-210419 | | 16RW07-210419 | | 16RW09-210420 | | 16RW10-210420 | | 16IW10-210421 | | 16IW20-210421 | | 16RW11-210421 | | 16RW11-210421-FD | |
| | | | Sample Date | | 4/19/2021 | | 4/19/2021 | | 4/20/2021 | | 4/20/2021 | | 4/21/2021 | | 4/21/2021 | | 4/21/2021 | | 4/21/2021 | |
| | | | Sample Purpose | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | FD | |
| **Analyte** | **Units** | **MCL/PCL/UTL [a]** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** |
| **Dechlorinating Bacteria (Census)** | | | | | | | | | | | | | | | | | | | | |
| Dehalococcoides | cells/mL | NV | NA | | NA | | NA | | NA | | NA | | NA | | NA | | NA | | NA | |
| **Field Measurements** | | | | | | | | | | | | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | 0.49 | | 0.98 | | 0.16 | | 0.16 | | 0.03 | | 0.04 | | 0.03 | | 0.03 | | | |
| Oxidation Reduction Potential | mV | NV | -236 | | -195 | | 127 | | 58 | | -40 | | 26 | | -118 | | -118 | | | |
| pH | SU | NV | 5.61 | | 5.73 | | 5.82 | | 6.25 | | 6.08 | | 5.98 | | 6.79 | | 6.79 | | | |
| **Dissolved Gases (RSK-175)** | | | | | | | | | | | | | | | | | | | | |
| Ethane | µg/L | NV | NA | | NA | | < 0.5 | U | < 0.5 | U | < 0.5 | UJ | < 0.5 | U | NA | | NA | | | |
| Ethylene | µg/L | NV | NA | | NA | | 1.97 | J | 26.1 | J | 6.83 | J | 20.2 | J | NA | | NA | | | |
| Methane | µg/L | NV | NA | | NA | | 144 | | 330 | | 733 | | 2240 | | NA | | NA | | | |
| **General Chemistry (2320B/SM5310B/SW9056A)** | | | | | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | NA | | NA | | NA | | NA | | 1190 | | 550 | | NA | | NA | | | |
| Bromide | mg/L | NV | NA | | NA | | NA | | NA | | 88.1 | | 12.3 | | NA | | NA | | | |
| Nitrate | mg/L | NV | NA | | NA | | NA | | NA | | 1.26 | J | 0.0503 | J | NA | | NA | | | |
| Sulfate | mg/L | NV | NA | | NA | | NA | | NA | | < 1 | U | 95.2 | | NA | | NA | | | |
| Total organic carbon | mg/L | NV | NA | | NA | | 2.28 | | 4.84 | | 746 | | 10.6 | | NA | | NA | | | |
| **Metals (SW6020)** | | | | | | | | | | | | | | | | | | | | |
| Arsenic | mg/L | 0.01 | NA | | NA | | NA | | NA | | NA | | NA | | NA | | NA | | | |
| Chromium | mg/L | 0.1 | NA | | NA | | NA | | NA | | NA | | NA | | NA | | NA | | | |
| Manganese | mg/L | 1.1 | NA | | NA | | NA | | NA | | NA | | NA | | NA | | NA | | | |
| Nickel | mg/L | 0.49 | NA | | NA | | NA | | NA | | NA | | NA | | NA | | NA | | | |
| Thallium | mg/L | 0.002 | NA | | NA | | NA | | NA | | NA | | NA | | NA | | NA | | | |
| **Perchlorate (EPA 6850)** | | | | | | | | | | | | | | | | | | | | |
| Perchlorate | µg/L | 17 | < 0.5 | U | 1 | | 0.241 | | **36.5** | | < 0.1 | U | < 0.05 | U | 0.0617 | J | < 0.1 | U | | |
| **Volatile Organic Compounds (8260C)** | | | | | | | | | | | | | | | | | | | | |
| 1,1,2-Trichloroethane | µg/L | 5 | < 1 | U | < 1 | U | < 1 | U | < 5 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | | |
| 1,2-Dichloroethane | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | **24** | | < 0.5 | U | 0.7 | J | < 0.5 | U | < 0.5 | U | | |
| cis-1,2-Dichloroethene | µg/L | 70 | 1.7 | | 46 | | **160** | | **710** | | 15 | | 30 | | 0.85 | J | 0.75 | J | | |
| Methylene chloride | µg/L | 5 | < 2 | U | < 2 | U | < 2 | U | **8.7** | J | < 2 | U | < 2 | U | < 2 | U | < 2 | U | | |
| Trichloroethene | µg/L | 5 | **60** | | **900** | | **810** | | **2400** | | **5.4** | | **5.7** | | 2 | | 1.9 | | | |
| Vinyl chloride | µg/L | 2 | < 0.5 | U | **29** | | **33** | | **93** | | **2.5** | | **9.1** | | < 0.5 | U | < 0.5 | U | | |

## Year 2, Quarter 1 Remedial Performance Monitoring
## Landfill 16 (LHAAP-16)

| | | | Injection Area | Bayou Biobarrier | | | | | | Mid Plume and Bayou Biobarrier | | Mid Plume Area | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Location Code | 16WW12 | | 16WW22 | | 16WW40 | | 16WW39 | | 16EW01 | | 16EW02 | | 16EW03 | | 16EW04 | |
| | | | Sample ID | 16WW12-210421 | | 16WW22-210415 | | 16WW40-210421 | | 16WW39-210415 | | 16EW01-210421 | | 16EW02-210419 | | 16EW03-210421 | | 16EW04-210419 | |
| | | | Sample Date | 4/21/2021 | | 4/15/2021 | | 4/21/2021 | | 4/15/2021 | | 4/21/2021 | | 4/19/2021 | | 4/21/2021 | | 4/19/2021 | |
| | | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| **Analyte** | **Units** | **MCL/PCL/UTL [a]** | | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** |
| **Dechlorinating Bacteria (Census)** | | | | | | | | | | | | | | | | | | | |
| Dehalococcoides | cells/mL | NV | | NA | | 13.7 | J | NA | | NA | | NA | | NA | | NA | | NA | |
| **Field Measurements** | | | | | | | | | | | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | | 0.03 | | 0.04 | | 0.02 | | 0.14 | | 0.28 | | 0.15 | | 0.54 | | 0.15 | |
| Oxidation Reduction Potential | mV | NV | | 130 | | 110 | | 135 | | 117 | | -18 | | 43 | | -104 | | 73 | |
| pH | SU | NV | | 6.35 | | 5.99 | | 5.64 | | 5.56 | | 6.55 | | 6.37 | | 6.80 | | 5.81 | |
| **Dissolved Gases (RSK-175)** | | | | | | | | | | | | | | | | | | | |
| Ethane | µg/L | NV | | NA | | < 0.5 | U | < 0.5 | U | NA | | < 0.5 | U | NA | | < 0.5 | U | NA | |
| Ethylene | µg/L | NV | | NA | | 1.24 | J | 1.25 | J | NA | | 102 | J | NA | | 527 | J | NA | |
| Methane | µg/L | NV | | NA | | 0.981 | | 9.57 | | NA | | 406 | | NA | | 528 | | NA | |
| **General Chemistry (2320B/SM5310B/SW9056A)** | | | | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | | NA | | 252 | | NA | | NA | | 529 | | NA | | 961 | | NA | |
| Bromide | mg/L | NV | | NA | | 4.62 | | NA | | NA | | 8.22 | | NA | | 5.93 | | NA | |
| Nitrate | mg/L | NV | | NA | | 0.0682 | J | NA | | NA | | 0.494 | J | NA | | < 0.5 | U | NA | |
| Sulfate | mg/L | NV | | NA | | 209 | | NA | | NA | | 3420 | | NA | | 1090 | | NA | |
| Total organic carbon | mg/L | NV | | NA | | 1.49 | | 11.3 | | NA | | 16.8 | | NA | | 12.2 | | NA | |
| **Metals (SW6020)** | | | | | | | | | | | | | | | | | | | |
| Arsenic | mg/L | 0.01 | | NA | | NA | | NA | | NA | | NA | | NA | | NA | | NA | |
| Chromium | mg/L | 0.1 | | NA | | NA | | NA | | NA | | NA | | NA | | NA | | NA | |
| Manganese | mg/L | 1.1 | | NA | | NA | | NA | | NA | | NA | | NA | | NA | | NA | |
| Nickel | mg/L | 0.49 | | NA | | NA | | NA | | NA | | NA | | NA | | NA | | NA | |
| Thallium | mg/L | 0.002 | | NA | | NA | | NA | | NA | | NA | | NA | | NA | | NA | |
| **Perchlorate (EPA 6850)** | | | | | | | | | | | | | | | | | | | |
| Perchlorate | µg/L | 17 | | **42.1** | | 0.471 | | 0.88 | | 7.87 | | **41.9** | | 0.53 | | < 0.05 | U | < 0.05 | U |
| **Volatile Organic Compounds (8260C)** | | | | | | | | | | | | | | | | | | | |
| 1,1,2-Trichloroethane | µg/L | 5 | | < 10 | U | < 1 | U | < 5 | U | < 1 | U | < 25 | U | < 25 | U | < 5 | U | < 10 | U |
| 1,2-Dichloroethane | µg/L | 5 | | **7.3** | J | < 0.5 | U | **5.6** | | 0.72 | J | **18** | J | **35** | | 2.8 | J | **6.2** | J |
| cis-1,2-Dichloroethene | µg/L | 70 | | **76** | | 2 | | **210** | | 39 | | **6000** | | **18000** | | **1200** | | **2600** | |
| Methylene chloride | µg/L | 5 | | < 20 | U | < 2 | U | < 10 | U | < 2 | U | < 50 | U | **41** | J | < 10 | U | **17** | J |
| Trichloroethene | µg/L | 5 | | **2100** | | **12** | | **1000** | | **330** | | **3500** | | **23000** | | **250** | | **9500** | |
| Vinyl chloride | µg/L | 2 | | **8.2** | J | < 0.5 | U | **5.4** | | 1.1 | | **720** | | **45** | | **460** | | **11** | |

# Year 2, Quarter 1 Remedial Performance Monitoring
# Landfill 16 (LHAAP-16)

| | | | Injection Area | | Mid Plume Area | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Location Code | | 16EW06 | | 16EW07 | | 16EW08 | | 16WW21 | | 16WW29 | | | | 16WW30 | | 16WW48 | |
| | | | Sample ID | | 16EW06-210422 [b] | | 16EW07-210415 [b] | | 16EW08-210419 | | 16WW21-210415 | | 16WW29-210420 | | 16WW29-210420-FD | | 16WW30-210420 | | 16WW48-210422 | |
| | | | Sample Date | | 4/22/2021 | | 4/15/2021 | | 4/19/2021 | | 4/15/2021 | | 4/20/2021 | | 4/20/2021 | | 4/20/2021 | | 4/22/2021 | |
| | | | Sample Purpose | | REG | | REG | | REG | | REG | | REG | | FD | | REG | | REG | |
| **Analyte** | **Units** | **MCL/PCL/UTL [a]** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** |
| **Dechlorinating Bacteria (Census)** | | | | | | | | | | | | | | | | | | | | |
| Dehalococcoides | cells/mL | NV | NA | | NA | | NA | | NA | | 19.9 | | NA | | NA | | NA | | 192 | |
| **Field Measurements** | | | | | | | | | | | | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | 0.05 | | 0.38 | | 0.02 | | 0.41 | | 0.04 | | 0.04 | | 0.18 | | 0.47 | | | |
| Oxidation Reduction Potential | mV | NV | -70 | | -261 | | -15 | | 84 | | -86 | | -86 | | 40 | | 168 | | | |
| pH | SU | NV | 5.73 | | 5.37 | | 5.26 | | 5.51 | | 6.42 | | 6.42 | | 5.83 | | 6.20 | | | |
| **Dissolved Gases (RSK-175)** | | | | | | | | | | | | | | | | | | | | |
| Ethane | µg/L | NV | NA | | NA | | NA | | NA | | < 0.5 | U | < 0.5 | U | NA | | < 0.5 | U | | |
| Ethylene | µg/L | NV | NA | | NA | | NA | | NA | | < 0.5 | UJ | 1.36 | J | NA | | < 0.5 | UJ | | |
| Methane | µg/L | NV | NA | | NA | | NA | | NA | | 30.6 | | 30.2 | | NA | | 2.83 | | | |
| **General Chemistry (2320B/SM5310B/SW9056A)** | | | | | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | 10 | U | NA | | NA | | NA | | 41.4 | | 35.4 | | NA | | 356 | | | |
| Bromide | mg/L | NV | 9.89 | U | NA | | NA | | NA | | 2.35 | | 2.23 | | NA | | 7.59 | | | |
| Nitrate | mg/L | NV | 9.89 | U | NA | | NA | | NA | | < 0.5 | U | < 0.5 | U | NA | | < 0.5 | U | | |
| Sulfate | mg/L | NV | 49.4 | U | NA | | NA | | NA | | 1800 | | 1850 | | NA | | 2300 | | | |
| Total organic carbon | mg/L | NV | NA | | NA | | NA | | NA | | 16.9 | | 16.9 | | NA | | 13.2 | | | |
| **Metals (SW6020)** | | | | | | | | | | | | | | | | | | | | |
| Arsenic | mg/L | 0.01 | NA | | NA | | NA | | NA | | NA | | NA | | NA | | NA | | | |
| Chromium | mg/L | 0.1 | NA | | NA | | NA | | NA | | NA | | NA | | NA | | NA | | | |
| Manganese | mg/L | 1.1 | NA | | NA | | NA | | NA | | NA | | NA | | NA | | NA | | | |
| Nickel | mg/L | 0.49 | NA | | NA | | NA | | NA | | NA | | NA | | NA | | NA | | | |
| Thallium | mg/L | 0.002 | NA | | NA | | NA | | NA | | NA | | NA | | NA | | NA | | | |
| **Perchlorate (EPA 6850)** | | | | | | | | | | | | | | | | | | | | |
| Perchlorate | µg/L | 17 | < 7.5 | U | 0.375 | J | < 0.05 | U | < 0.05 | U | < 0.05 | U | < 0.05 | U | < 0.05 | U | **94.7** | | | |
| **Volatile Organic Compounds (8260C)** | | | | | | | | | | | | | | | | | | | | |
| 1,1,2-Trichloroethane | µg/L | 5 | < 1000 | U | < 1000 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 25 | U | | |
| 1,2-Dichloroethane | µg/L | 5 | < 500 | U | < 500 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | **39** | | | |
| cis-1,2-Dichloroethene | µg/L | 70 | < 500 | U | < 500 | U | 0.84 | J | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | **17000** | | | |
| Methylene chloride | µg/L | 5 | < 2000 | U | < 2000 | U | < 2 | U | < 2 | U | < 2 | U | < 2 | U | < 2 | U | < 50 | U | | |
| Trichloroethene | µg/L | 5 | < 500 | U | < 500 | U | 2.6 | | 1.1 | | < 0.5 | U | < 0.5 | U | **11** | | **15000** | | | |
| Vinyl chloride | µg/L | 2 | < 500 | U | < 500 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | **16** | J | | |

## Year 2, Quarter 1 Remedial Performance Monitoring
## Landfill 16 (LHAAP-16)

| | | | Injection Area | Mid Plume Area | | | | MNA and LTM Performance Wells from RAWP Table 4-9 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Location Code | 16WW49 | | 16WW51 | | 16WW13 | | 16WW14 | | 16WW16 | | 16WW23 | | 16WW24 | |
| | | | Sample ID | 16WW49-210422 | | 16WW51-210415 | | 16WW13-210419 | | 16WW14-210412 | | 16WW16-210415 | | 16WW23-210422 | | 16WW24-210422 | |
| | | | Sample Date | 4/22/2021 | | 4/15/2021 | | 4/19/2021 | | 4/12/2021 | | 4/15/2021 | | 4/22/2021 | | 4/22/2021 | |
| | | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| **Analyte** | **Units** | **MCL/PCL/UTL [a]** | | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** |
| **Dechlorinating Bacteria (Census)** | | | | | | | | | | | | | | | | | |
| Dehalococcoides | cells/mL | NV | | NA | | NA | | NA | | NA | | 0.1 | J | NA | | NA | |
| **Field Measurements** | | | | | | | | | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | | 1.11 | | 0.51 | | 0.89 | | 0.47 | | 1.36 | | 3.42 | | 0.43 | |
| Oxidation Reduction Potential | mV | NV | | 130 | | 70 | | 139 | | 129 | | 173 | | 53 | | 482 | |
| pH | SU | NV | | 6.21 | | 5.45 | | 5.54 | | 5.97 | | 6.08 | | 5.57 | | 3.31 | |
| **Dissolved Gases (RSK-175)** | | | | | | | | | | | | | | | | | |
| Ethane | µg/L | NV | | NA | | NA | | NA | | NA | | 2.4 | | NA | | NA | |
| Ethylene | µg/L | NV | | NA | | NA | | NA | | NA | | 3.44 | J | NA | | NA | |
| Methane | µg/L | NV | | NA | | NA | | NA | | NA | | 437 | J | NA | | NA | |
| **General Chemistry (2320B/SM5310B/SW9056A)** | | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | | NA | | NA | | NA | | NA | | 338 | | NA | | NA | |
| Bromide | mg/L | NV | | NA | | NA | | NA | | NA | | 3.97 | | NA | | NA | |
| Nitrate | mg/L | NV | | NA | | NA | | NA | | NA | | < 0.1 | U | NA | | NA | |
| Sulfate | mg/L | NV | | NA | | NA | | NA | | NA | | 367 | | NA | | NA | |
| Total organic carbon | mg/L | NV | | NA | | NA | | NA | | NA | | 4.71 | | NA | | NA | |
| **Metals (SW6020)** | | | | | | | | | | | | | | | | | |
| Arsenic | mg/L | 0.01 | | NA | | NA | | NA | | NA | | NA | | NA | | NA | |
| Chromium | mg/L | 0.1 | | NA | | NA | | NA | | NA | | NA | | NA | | NA | |
| Manganese | mg/L | 1.1 | | NA | | NA | | NA | | NA | | NA | | NA | | NA | |
| Nickel | mg/L | 0.49 | | NA | | NA | | NA | | NA | | NA | | NA | | NA | |
| Thallium | mg/L | 0.002 | | NA | | NA | | NA | | NA | | NA | | NA | | NA | |
| **Perchlorate (EPA 6850)** | | | | | | | | | | | | | | | | | |
| Perchlorate | µg/L | 17 | | < 0.05 | U | 0.306 | | 0.292 | | < 0.05 | U | **288** | | < 0.05 | U | < 0.05 | U |
| **Volatile Organic Compounds (8260C)** | | | | | | | | | | | | | | | | | |
| 1,1,2-Trichloroethane | µg/L | 5 | | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 50 | U | < 1 | U | < 1 | U |
| 1,2-Dichloroethane | µg/L | 5 | | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | **32** | J | < 0.5 | U | < 0.5 | U |
| cis-1,2-Dichloroethene | µg/L | 70 | | **100** | | 44 | | **140** | | < 0.5 | U | **13000** | | < 0.5 | U | < 0.5 | U |
| Methylene chloride | µg/L | 5 | | < 2 | U | < 2 | U | < 2 | U | < 2 | U | < 100 | U | < 2 | U | < 2 | U |
| Trichloroethene | µg/L | 5 | | **11** | | **560** | | **22** | | **17** | | **28000** | | < 0.5 | U | < 0.5 | U |
| Vinyl chloride | µg/L | 2 | | < 0.5 | U | < 0.5 | U | 0.87 | J | < 0.5 | U | **260** | | < 0.5 | U | < 0.5 | U |

## Year 2, Quarter 1 Remedial Performance Monitoring
## Landfill 16 (LHAAP-16)

| | | | Injection Area | MNA and LTM Performance Wells from RAWP Table 4-9 | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Location Code | 16WW25 | | | | 16WW27 | | 16WW31 | | 16WW32 | | 16WW33 | | 16WW34 | | | |
| | | | Sample ID | 16WW25-210420 | | 16WW25-210420-FD | | 16WW27-210422 | | 16WW31-210412 | | 16WW32-210412 | | 16WW33-210412 | | 16WW34-210412 | | 16WW34-210412-FD | |
| | | | Sample Date | 4/20/2021 | | 4/20/2021 | | 4/22/2021 | | 4/12/2021 | | 4/12/2021 | | 4/12/2021 | | 4/12/2021 | | 4/12/2021 | |
| | | | Sample Purpose | REG | | FD | | REG | | REG | | REG | | REG | | REG | | FD | |
| **Analyte** | **Units** | **MCL/PCL/UTL [a]** | | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** |
| **Dechlorinating Bacteria (Census)** | | | | | | | | | | | | | | | | | | | |
| Dehalococcoides | cells/mL | NV | | < 0.5 | U | NA | | NA | | NA | | NA | | NA | | NA | | NA | |
| **Field Measurements** | | | | | | | | | | | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | | 0.06 | | 0.06 | | 0.3 | | 0.86 | | 0.66 | | 0.08 | | 0.33 | | 0.33 | |
| Oxidation Reduction Potential | mV | NV | | -34 | | -34 | | -20 | | 217 | | 190 | | 239 | | 154 | | 154 | |
| pH | SU | NV | | 6.28 | | 6.28 | | 6.0 | | 5.60 | | 5.76 | | 5.25 | | 5.55 | | 5.55 | |
| **Dissolved Gases (RSK-175)** | | | | | | | | | | | | | | | | | | | |
| Ethane | µg/L | NV | | < 0.5 | U | < 0.5 | U | NA | | NA | | NA | | NA | | NA | | NA | |
| Ethylene | µg/L | NV | | < 0.5 | UJ | < 0.5 | UJ | NA | | NA | | NA | | NA | | NA | | NA | |
| Methane | µg/L | NV | | 16.7 | | 15.3 | | NA | | NA | | NA | | NA | | NA | | NA | |
| **General Chemistry (2320B/SM5310B/SW9056A)** | | | | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | | 86.5 | | 77.5 | | NA | | NA | | NA | | NA | | NA | | NA | |
| Bromide | mg/L | NV | | 3.13 | | 2.75 | | NA | | NA | | NA | | NA | | NA | | NA | |
| Nitrate | mg/L | NV | | < 0.5 | U | < 0.5 | U | NA | | NA | | NA | | NA | | NA | | NA | |
| Sulfate | mg/L | NV | | 5500 | | 5560 | | NA | | NA | | NA | | NA | | NA | | NA | |
| Total organic carbon | mg/L | NV | | 39.1 | | 37 | | NA | | NA | | NA | | NA | | NA | | NA | |
| **Metals (SW6020)** | | | | | | | | | | | | | | | | | | | |
| Arsenic | mg/L | 0.01 | | NA | | NA | | NA | | NA | | NA | | NA | | NA | | NA | |
| Chromium | mg/L | 0.1 | | NA | | NA | | NA | | NA | | NA | | NA | | NA | | NA | |
| Manganese | mg/L | 1.1 | | NA | | NA | | NA | | NA | | NA | | NA | | NA | | NA | |
| Nickel | mg/L | 0.49 | | NA | | NA | | NA | | NA | | NA | | NA | | NA | | NA | |
| Thallium | mg/L | 0.002 | | NA | | NA | | NA | | NA | | NA | | NA | | NA | | NA | |
| **Perchlorate (EPA 6850)** | | | | | | | | | | | | | | | | | | | |
| Perchlorate | µg/L | 17 | | < 0.25 | U | < 0.25 | U | < 0.05 | U | < 0.05 | U | < 0.05 | U | < 0.05 | U | < 0.05 | U | < 0.05 | U |
| **Volatile Organic Compounds (8260C)** | | | | | | | | | | | | | | | | | | | |
| 1,1,2-Trichloroethane | µg/L | 5 | | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| 1,2-Dichloroethane | µg/L | 5 | | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| cis-1,2-Dichloroethene | µg/L | 70 | | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Methylene chloride | µg/L | 5 | | < 2 | U | < 2 | U | < 2 | U | < 2 | U | < 2 | U | < 2 | U | < 2 | U | < 2 | U |
| Trichloroethene | µg/L | 5 | | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Vinyl chloride | µg/L | 2 | | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |

## Year 2, Quarter 1 Remedial Performance Monitoring
## Landfill 16 (LHAAP-16)

| | | | Injection Area | MNA and LTM Performance Wells from RAWP Table 4-9 | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Location Code | 16WW35 | | 16WW37 | | 16WW38 | | 16WW41 | | 16WW43 | | 16WW44 | | 16WW46 | | 16WW55 | |
| | | | Sample ID | 16WW35-210413 | | 16WW37-210412 | | 16WW38-210412 | | 16WW41-210415 | | 16WW43-210422 | | 16WW44-210412 | | 16WW46-210412 | | 16WW55-210420 | |
| | | | Sample Date | 4/13/2021 | | 4/12/2021 | | 4/12/2021 | | 4/15/2021 | | 4/22/2021 | | 4/12/2021 | | 4/12/2021 | | 4/20/2021 | |
| | | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| **Analyte** | **Units** | **MCL/PCL/UTL [a]** | | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** |
| **Dechlorinating Bacteria (Census)** | | | | | | | | | | | | | | | | | | | |
| Dehalococcoides | cells/mL | NV | | 30 | | NA | | NA | | < 0.5 | UJ | NA | | NA | | NA | | 0.2 | J |
| **Field Measurements** | | | | | | | | | | | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | | 0.07 | | 0.19 | | 0.04 | | 0.02 | | 0.38 | | 0.3 | | 0.85 | | 0.34 | |
| Oxidation Reduction Potential | mV | NV | | 105 | | 166 | | 97 | | 143 | | 136 | | 157 | | 127 | | 189 | |
| pH | SU | NV | | 6.88 | | 5.96 | | 5.62 | | 6.65 | | 5.20 | | 5.79 | | 6.70 | | 5.82 | |
| **Dissolved Gases (RSK-175)** | | | | | | | | | | | | | | | | | | | |
| Ethane | µg/L | NV | | < 0.5 | U | NA | | NA | | < 0.5 | U | NA | | NA | | NA | | < 0.5 | U |
| Ethylene | µg/L | NV | | 8.75 | J | NA | | NA | | 14.3 | J | NA | | NA | | NA | | < 0.5 | UJ |
| Methane | µg/L | NV | | 102 | J | NA | | NA | | 16 | | NA | | NA | | NA | | 7.09 | |
| **General Chemistry (2320B/SM5310B/SW9056A)** | | | | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | | 1090 | | NA | | NA | | 1040 | | NA | | NA | | NA | | 321 | |
| Bromide | mg/L | NV | | < 0.5 | U | NA | | NA | | 9.79 | | NA | | NA | | NA | | 7.73 | |
| Nitrate | mg/L | NV | | < 0.5 | U | NA | | NA | | < 0.5 | U | NA | | NA | | NA | | 1.1 | |
| Sulfate | mg/L | NV | | 9810 | | NA | | NA | | 7890 | | NA | | NA | | NA | | 862 | |
| Total organic carbon | mg/L | NV | | 59.1 | | NA | | NA | | 47.6 | | NA | | NA | | NA | | 6.21 | |
| **Metals (SW6020)** | | | | | | | | | | | | | | | | | | | |
| Arsenic | mg/L | 0.01 | | NA | | NA | | NA | | NA | | NA | | NA | | NA | | NA | |
| Chromium | mg/L | 0.1 | | NA | | NA | | NA | | NA | | NA | | NA | | NA | | NA | |
| Manganese | mg/L | 1.1 | | NA | | NA | | NA | | NA | | NA | | NA | | NA | | NA | |
| Nickel | mg/L | 0.49 | | NA | | NA | | NA | | NA | | NA | | NA | | NA | | NA | |
| Thallium | mg/L | 0.002 | | NA | | NA | | NA | | NA | | NA | | NA | | NA | | NA | |
| **Perchlorate (EPA 6850)** | | | | | | | | | | | | | | | | | | | |
| Perchlorate | µg/L | 17 | | **367** | | 1.6 | | < 0.05 | U | **212** | | < 0.25 | U | 0.134 | | < 0.5 | U | **198** | |
| **Volatile Organic Compounds (8260C)** | | | | | | | | | | | | | | | | | | | |
| 1,1,2-Trichloroethane | µg/L | 5 | | < 10 | U | < 1 | U | < 10 | U | < 5 | U | < 1 | U | < 1 | U | < 1 | U | < 5 | U |
| 1,2-Dichloroethane | µg/L | 5 | | < 5 | U | < 0.5 | U | < 5 | U | 4.2 | J | < 0.5 | U | < 0.5 | U | < 0.5 | U | 3.6 | J |
| cis-1,2-Dichloroethene | µg/L | 70 | | **2100** | | 5.8 | | **600** | | **2600** | | < 0.5 | U | < 0.5 | U | < 0.5 | U | **270** | |
| Methylene chloride | µg/L | 5 | | **17** | J | < 2 | U | **16** | UB | < 10 | U | < 2 | U | < 2 | U | < 2 | U | < 10 | U |
| Trichloroethene | µg/L | 5 | | **9300** | | **110** | | **2100** | | **6200** | | < 0.5 | U | < 0.5 | U | < 0.5 | U | **2200** | |
| Vinyl chloride | µg/L | 2 | | **90** | | **2.2** | | **39** | | **330** | | < 0.5 | U | < 0.5 | U | < 0.5 | U | **18** | |

## Year 2, Quarter 1 Remedial Performance Monitoring
## Landfill 16 (LHAAP-16)

| | | | Injection Area | MNA and LTM Performance Wells from RAWP Table 4-9 | | | | | | Surface Water | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Location Code | 16WW56 | | 16WW57 | | 16WW58 | | 16SW01 | | | | 16SW02 | | 16SW03 | |
| | | | Sample ID | 16WW56-210415 | | 16WW57-210413 | | 16WW58-210413 | | 16SW01-210419 | | 16SW01-210419-FD | | 16SW02-210419 | | 16SW03-210419 | |
| | | | Sample Date | 4/15/2021 | | 4/13/2021 | | 4/13/2021 | | 4/19/2021 | | 4/19/2021 | | 4/19/2021 | | 4/19/2021 | |
| | | | Sample Purpose | REG | | REG | | REG | | REG | | FD | | REG | | REG | |
| Analyte | Units | MCL/PCL/UTL [a] | | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| **Dechlorinating Bacteria (Census)** | | | | | | | | | | | | | | | | | |
| Dehalococcoides | cells/mL | NV | | 21.9 | J | 3.1 | | 13 | | NA | | NA | | NA | | NA | |
| **Field Measurements** | | | | | | | | | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | | 0.48 | | 0.36 | | 0.05 | | NM | | NM | | NM | | NM | |
| Oxidation Reduction Potential | mV | NV | | 199 | | 54 | | 10 | | NM | | NM | | NM | | NM | |
| pH | SU | NV | | 5.82 | | 5.83 | | 5.53 | | NM | | NM | | NM | | NM | |
| **Dissolved Gases (RSK-175)** | | | | | | | | | | | | | | | | | |
| Ethane | µg/L | NV | | < 0.5 | U | < 0.5 | U | < 0.5 | U | NA | | NA | | NA | | NA | |
| Ethylene | µg/L | NV | | < 0.5 | UJ | < 0.5 | UJ | < 0.5 | UJ | NA | | NA | | NA | | NA | |
| Methane | µg/L | NV | | 1.02 | J | 1.41 | J | 6.29 | J | NA | | NA | | NA | | NA | |
| **General Chemistry (2320B/SM5310B/SW9056A)** | | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | | 170 | | 175 | | 98.4 | | NA | | NA | | NA | | NA | |
| Bromide | mg/L | NV | | 5.19 | | 4.78 | | 2.5 | | NA | | NA | | NA | | NA | |
| Nitrate | mg/L | NV | | 0.249 | | < 0.5 | U | < 0.1 | U | NA | | NA | | NA | | NA | |
| Sulfate | mg/L | NV | | 137 | | 2360 | | 282 | | NA | | NA | | NA | | NA | |
| Total organic carbon | mg/L | NV | | 1.8 | | 16.8 | | 3.43 | | NA | | NA | | NA | | NA | |
| **Metals (SW6020)** | | | | | | | | | | | | | | | | | |
| Arsenic | mg/L | 0.01 | | NA | | NA | | NA | | 0.000933 | J | 0.000929 | J | 0.00101 | J | 0.00104 | J |
| Chromium | mg/L | 0.1 | | NA | | NA | | NA | | 0.00235 | J | 0.00276 | J | 0.00336 | J | 0.00277 | J |
| Manganese | mg/L | 1.1 | | NA | | NA | | NA | | 0.107 | | 0.115 | | 0.119 | | 0.106 | |
| Nickel | mg/L | 0.49 | | NA | | NA | | NA | | 0.00412 | J | 0.00444 | J | 0.00452 | J | 0.00451 | J |
| Thallium | mg/L | 0.002 | | NA | | NA | | NA | | 0.00117 | J | < 0.0005 | U | < 0.0005 | U | < 0.0005 | U |
| **Perchlorate (EPA 6850)** | | | | | | | | | | | | | | | | | |
| Perchlorate | µg/L | 17 | | 0.0783 | J | 0.171 | J | 0.0348 | J | < 0.25 | U | < 0.25 | U | < 0.25 | U | < 0.25 | U |
| **Volatile Organic Compounds (8260C)** | | | | | | | | | | | | | | | | | |
| 1,1,2-Trichloroethane | µg/L | 5 | | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| 1,2-Dichloroethane | µg/L | 5 | | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| cis-1,2-Dichloroethene | µg/L | 70 | | 1.2 | | < 0.5 | U | 49 | | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Methylene chloride | µg/L | 5 | | < 2 | U | < 2 | U | < 2 | U | < 2 | U | < 2 | U | < 2 | U | < 2 | U |
| Trichloroethene | µg/L | 5 | | **14** | | **57** | | **1100** | | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Vinyl chloride | µg/L | 2 | | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |

# Year 2, Quarter 1 Remedial Performance Monitoring
# Landfill 16 (LHAAP-16)

**Notes:**

[a] Cleanup Level for manganese identifed in Table 1-1 of the Remedial Action Work Plan is the 95% upper tolerance limit value from the *Final Evaluation of Perimeter Well Data for Use as Groundwater Background* (Shaw, 2007)

[b] Due to high viscosity of the samples collected from 16EW06 and 16EW07, the volatile organic compound analyses were performed at a 1000x dilution. 16EW05 was not sampled due to solidified injection products in the well.

Blue highlighting indicates the concentration exceeds the MCL/PCL

Some samples have been diluted due to the concentration(s) of one or more analytes exceeding the upper limit of the calibration curve.

J - Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.

UJ – Undetected estimated. The analyte was analyzed for but, was not detected. Even though the analyte was not detected, certain discrepancies in meeting analyte specific quality control were not met.

U - Undetected: The analyte was analyzed for, but not detected.

MCL - Maximum Contaminant Limit

PCL – Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Level (used for perchlorate, manganese, and nickel where no MCL has been established)

mg/L - milligrams per liter

µg/L - micrograms per liter

ID - Identification

REG - Regular sample

FD - Field duplicate sample

< - The analyte was not detected above the concentration shown

NV - No MCL/PCL is shown for analytes that are not contaminants of concern

NA - not analyzed

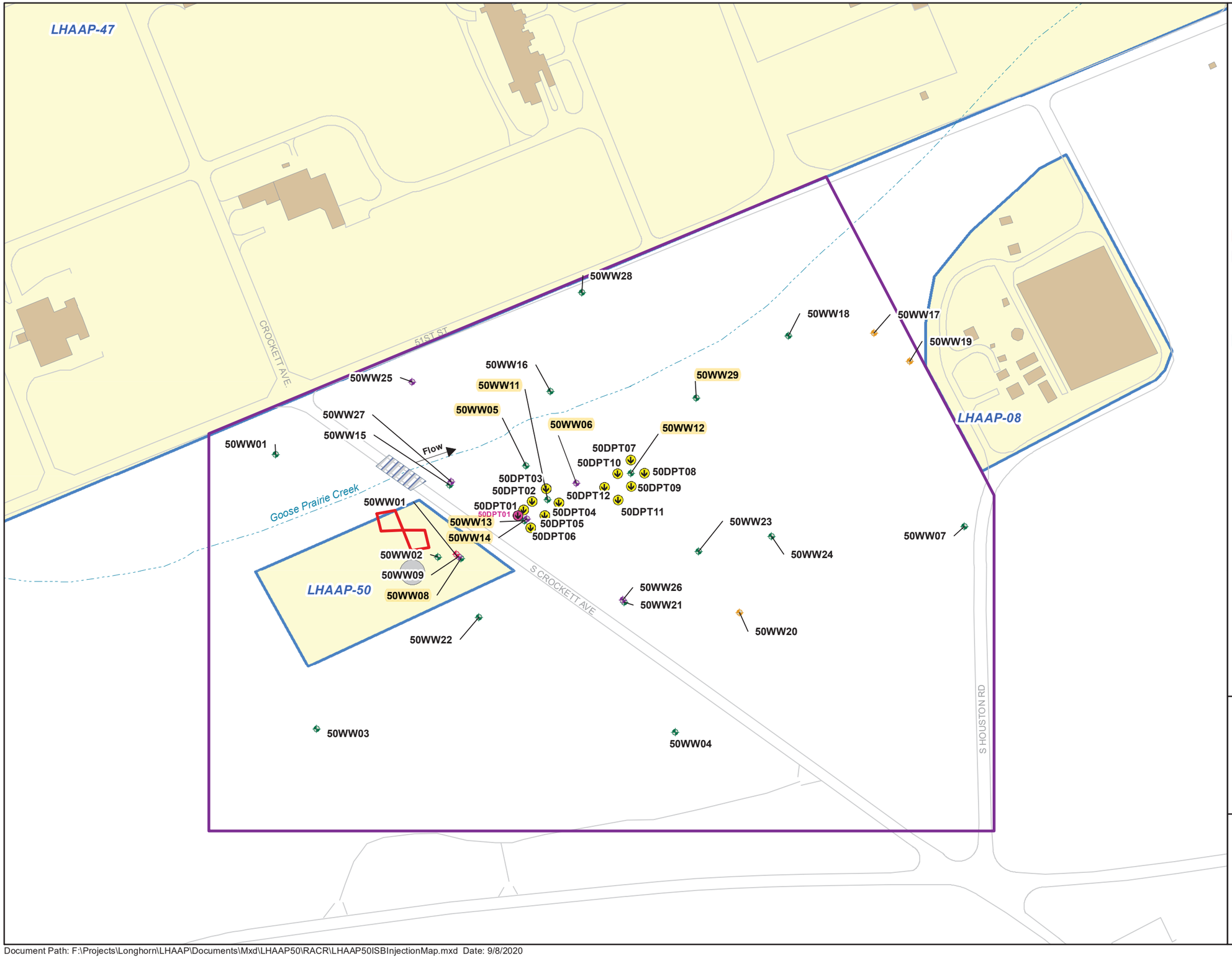
NM - not measured

SU - standard pH Units

mV - millivolts

cells/mL - cells per milliliter

UTL - upper tolerance limit




U.S. ARMY CORP OF ENGINEERS
TULSA DISTRICT
TULSA, OKLAHOMA

bhate APTIM

# LHAAP-50 Injection and Remedial Performance Monitoring Location Map

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP50\RACR\LHAAP50ISBInjectionMap.mxd Date: 9/8/2020

# LHAAP-50 Performance Monitoring
## Year 1, Quarter 4
## April 2021

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Location Code | 50WW05 | | 50WW06 | | 50WW08 | | 50WW11 | | | |
| | | Sample ID | 50WW05-210405 | | 50WW06-210406 | | 50WW08-210405 | | 50WW11-210406 | | 50WW11-210406-FD | |
| | | Sample Date | 4/5/2021 | | 4/6/2021 | | 4/5/2021 | | 4/6/2021 | | 4/6/2021 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | FD | |
| | | Location Description: | Site 50 - NE, lower shallow, outside site boundary. | | Site 50 - ENE, outside site boundary. | | Site 50 - E, upper shallow, inside site boundary. | | Site 50 - ENE, upper shallow, outside site boundary. | | Site 50 - ENE, upper shallow, outside site boundary. | |
| **Analyte** | **Units** | **MCL/PCL** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** |
| **Dechlorinating Bacteria (Census)** | | | | | | | | | | | | |
| Dehalococcoides | cells/mL | NV | NA | | 0.4 | J | NA | | 0.9 | | NA | |
| **Field Measurements** | | | | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | 0.32 | | 1.39 | | 0.66 | | 1.16 | | 1.16 | |
| Ferrous Iron | NA | NV | NM | | 0.45 | | NM | | 0.74 | | 0.74 | |
| Oxidation Reduction Potential | mV | NV | 159 | | 263 | | 151 | | 200 | | 200 | |
| pH | pH_units | NV | 6.78 | | 5.04 | | 6.57 | | 5.70 | | 5.70 | |
| **Dissolved Gases (RSK-175)** | | | | | | | | | | | | |
| Carbon dioxide | µg/L | NV | NA | | 88000 | J | NA | | 310000 | J | 300000 | J |
| Ethane | µg/L | NV | NA | | < 0.47 | U | NA | | < 0.47 | U | < 0.47 | U |
| Ethylene | µg/L | NV | NA | | < 0.55 | U | NA | | < 0.55 | U | < 0.55 | U |
| Methane | µg/L | NV | NA | | 2.6 | | NA | | 1.1 | J | 1.7 | J |
| **General Chemistry (2320B/SM5310B/SW9056A)** | | | | | | | | | | | | |
| Chloride | mg/L | NV | NA | | 3.42 | | NA | | 295 | | 283 | |
| Nitrate | mg/L | NV | NA | | < 0.1 | U | NA | | < 0.1 | U | < 0.1 | U |
| Sulfate | mg/L | NV | NA | | 10.9 | | NA | | 304 | | 294 | |
| Total organic carbon | mg/L | NV | NA | | 1.57 | | NA | | 1.65 | | 1.62 | |
| **Perchlorate (EPA 6850)** | | | | | | | | | | | | |
| Perchlorate | µg/L | 17 | < 0.05 | U | 0.032 | J | **115** | | **421** | | **482** | |
| **Volatile Organic Compounds (8260C)** | | | | | | | | | | | | |
| 1,1-Dichloroethene | µg/L | 7 | 4.7 | | < 0.5 | U | 1.3 | | 1.5 | | 2 | |
| 1,2-Dichloroethane | µg/L | 5 | 1.6 | | < 0.5 | U | 1.8 | | 1.5 | | 1.8 | |
| cis-1,2-Dichloroethene | µg/L | 70 | **140** | | < 0.5 | U | 58 | | 5.3 | | 5.7 | |
| Tetrachloroethene | µg/L | 5 | < 1 | U | < 1 | U | 1.6 | | < 1 | U | < 1 | U |
| Trichloroethene | µg/L | 5 | **240** | | 3.1 | | **610** | | **200** | | **230** | |
| Vinyl chloride | µg/L | 2 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |

# LHAAP-50 Performance Monitoring
## Year 1, Quarter 4
## April 2021

| | | | Location Code | | 50WW12 | | 50WW13 | | 50WW14 | | 50WW29 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample ID | | 50WW12-210406 | | 50WW13-210406 | | 50WW14-210406 | | 50WW29-210405 | |
| | | | Sample Date | | 4/6/2021 | | 4/6/2021 | | 4/6/2021 | | 4/5/2021 | |
| | | | Sample Purpose | | REG | | REG | | REG | | REG | |
| | | | Location Description: | | Site 50 - ENE, upper shallow, outside site boundary. | | Site 50 - E, upper shallow, outside site boundary. | | Site 50 - E, lower shallow, outside site boundary, along S. Crockett Ave. | | Site 50 - ENE, upper shallow, outside site boundary | |
| **Analyte** | **Units** | **MCL/PCL** | | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** |
| **Dechlorinating Bacteria (Census)** | | | | | | | | | | | |
| Dehalococcoides | cells/mL | NV | | 0.4 | J | 1.7 | | 13.4 | | NA | |
| **Field Measurements** | | | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | | 0.65 | | 0.85 | | 0.17 | | 0.56 | |
| Ferrous Iron | NA | NV | | 0.58 | | 0.65 | | 1.6 | | NM | |
| Oxidation Reduction Potential | mV | NV | | 170 | | 153 | | -34 | | 245 | |
| pH | pH_units | NV | | 6.11 | | 5.87 | | 6.34 | | 5.56 | |
| **Dissolved Gases (RSK-175)** | | | | | | | | | | | |
| Carbon dioxide | µg/L | NV | | 130000 | J | 300000 | J | 98000 | J | NA | |
| Ethane | µg/L | NV | | < 0.47 | U | < 0.47 | U | < 0.47 | U | NA | |
| Ethylene | µg/L | NV | | < 0.55 | U | < 0.55 | U | < 0.55 | U | NA | |
| Methane | µg/L | NV | | 1.5 | | 1.4 | | 3 | | NA | |
| **General Chemistry (2320B/SM5310B/SW9056A)** | | | | | | | | | | | |
| Chloride | mg/L | NV | | 994 | | 386 | | 402 | | NA | |
| Nitrate | mg/L | NV | | 0.226 | | < 0.1 | U | < 0.1 | U | NA | |
| Sulfate | mg/L | NV | | 572 | | 345 | | 383 | | NA | |
| Total organic carbon | mg/L | NV | | 1.73 | | 1.76 | | 1.57 | | NA | |
| **Perchlorate (EPA 6850)** | | | | | | | | | | | |
| Perchlorate | µg/L | 17 | | **90000** | | **122** | | < 0.05 | U | < 0.05 | U |
| **Volatile Organic Compounds (8260C)** | | | | | | | | | | | |
| 1,1-Dichloroethene | µg/L | 7 | | **17** | | 0.95 | J | < 0.5 | U | < 0.5 | U |
| 1,2-Dichloroethane | µg/L | 5 | | **11** | | 1.9 | | < 0.5 | U | < 0.5 | U |
| cis-1,2-Dichloroethene | µg/L | 70 | | 4 | J | 16 | | 5.9 | | < 0.5 | U |
| Tetrachloroethene | µg/L | 5 | | < 5 | U | 1.7 | | < 1 | U | < 1 | U |
| Trichloroethene | µg/L | 5 | | **1600** | | **410** | | **23** | | < 0.5 | U |
| Vinyl chloride | µg/L | 2 | | **< 2.5** | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |

# LHAAP-50 Performance Monitoring
## Year 1, Quarter 4
## April 2021

**Notes:**

Blue Highlighting Indicates the concentration exceeds the MCL/PCL

Some samples have been diluted due to the concentration(s) of one or more analytes exceeding the upper limit of the calibration curve.

J - Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.

U - Undetected: The analyte was analyzed for, but not detected.

MCL - Maximum Contaminant Limit

PCL – Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Level (used for perchlorate,where no MCL has been established)

mg/L - milligrams per liter

ug/L - micrograms per liter

ID - Identification

REG - Regular sample

FD - Field duplicate sample

< - The analyte was not detected above the concentration shown

NV - No MCL/PCL is shown for analytes that are not contaminants of concern

NA - not analyzed

NM - not measured

Std Units - Standard pH Units

mV - millivolts

cells/mL - cells per milliliter

Val Qual - validation qualifier

**Subject: Final Minutes, Quarterly Restoration Advisory Board (RAB) Meeting**
**Longhorn Army Ammunition Plant (LHAAP)**
**Location of Meeting: Conference Call**
**Date of Meeting: April 21, 2021, 6:00 PM Central Daylight Time (CDT)**

**Meeting Participants:**

| | |
|---|---|
| Army BRAC: | Rose M. Zeiler, Hank Procter |
| USACE: | Aaron Williams |
| USAEC: | Andrew Maly, Thomas Toudouze |
| Bhate: | Kim Nemmers |
| APTIM: | Bill Foss |
| HDR, Inc. | Philip Werner |
| TLI: | Kyra Donnell |
| USEPA Region 6: | Lauren Poulos and Kent Becher-USGS Liaison |
| TCEQ: | April Palmie |
| RAB: | Present: Deon Hall, Richard LeTourneau, John Fortune, and Sharon McAvoy<br>Absent: Judy VanDeventer; Terry Britt; John Pollard, Jr.; Tom Walker; Charles Dixon; Donna Burney; and Nigel R. Shivers |
| Public: | USEPA Technical Advisory Group: George Rice (Caddo Lake Institute [CLI]) and Janetta Coatts |

An agenda for the RAB meeting, a color copy of the Bhate Environmental Associates, Inc. (Bhate) slide presentation, and handouts (see list at end of meeting minutes) were provided for meeting attendees via electronic mail (e-mail) and regular postal mail for hard copies.

**Welcome and Introduction**

Ms. Rose Zeiler, the RAB Co-Chair, called the meeting to order. Ms. Zeiler welcomed and introduced Mr. Hank Procter, as Tom Lederle's replacement. Mr. Procter is a Program Manager with the BRAC Field Branch of the Office of the Deputy Chief of Staff, G-9. Mr. Procter explained that he has oversight of multiple installations across the country for BRAC, including two other Texas sites, Lone Star Army Ammunition Plant and Red River Army Depot, both north of LHAAP.

Ms. Zeiler said that the Army is always interested in new members for the RAB. She asked if anyone knew of people that were interested in joining the RAB. Ms. Zeiler said that the application is on the website. Mr. John Fortune said he spoke to someone that might be interested and that he would get the person an application.

Ms. Zeiler asked for any comments or additions to the RAB meeting minutes from the January 2021 conference call. Based on no additional input, Ms. Zeiler asked for a motion to approve. Mr. Fortune made a motion to approve. Mr. Deon Hall seconded the motion to approve the minutes. Ms. Zeiler stated that the minutes were approved. Ms. Zeiler asked for questions or items that RAB members may want to discuss for the next meeting, but no input was received.

**RAB Meeting Format and Presentation**

Ms. Zeiler explained that there are three contractors managing work at LHAAP. Those contractors are Bhate Environmental Associates, Inc. with APTIM; MMG-TLI Joint Venture (JV); and HDR, Inc.

**Defense Environmental Restoration**

Ms. Kim Nemmers discussed the documents currently in progress. Ms. Nemmers explained that remedies have been put in place for most of the sites included in the Bhate contract. Ms. Nemmers explained that following implementation of remedies, there is periodic monitoring of the remedy, which is called Remedial Action Operation or RA-O. She explained that following implementation, RA-O is completed more frequently (quarterly) and then the sampling frequency reduces over time to semi-annual and annual. Ms. Nemmers said that RA-O Reports are in progress for LHAAP-04, -12, -16, and -67. She said that the Quarterly Groundwater Treatment Plant (GWTP) Reports are in progress for the Fourth Quarter 2020 and First Quarter 2021.

Ms. Nemmers discussed field work completed since the RAB meeting in January 2021. Ms. Nemmers said that the field work since the last meeting was all groundwater sampling to evaluate performance of the remedies. Ms. Nemmers explained that the surface water samples from the bayous were collected in February 2021 and the data is presented in the handouts included with the RAB slides.

*LHAAP-50*

Mr. Bill Foss explained that the site is associated with an aboveground storage tank (AST) that received industrial wastewater from various sumps from 1955 to 1988. Treated wastewater was discharged to Goose Prairie Creek. The primary compounds of concern at LHAAP-50 are chlorinated solvents and perchlorate. Mr. Foss said that baseline sampling was completed in November 2019 and then the in-situ bioremediation (ISB) injections were completed in March 2020. Quarterly RA-O sampling has been completed in July 2020, October 2020, and January 2021. The latest quarterly RA-O sampling was completed the week of April 12, 2021 but is not presented as the data was not available.

Mr. Foss presented the original plume configuration and the monitoring wells within the plume. He then presented the injection points as part of the ISB remedial action. Mr. Foss pointed out the previously completed soil excavation area and that the groundwater flow is from left to right (Slide 11). Mr. Foss then discussed the trend charts of data that included two sampling events prior to the ISB injections and the available data following the injections. Mr. Foss pointed out that the site has seasonal fluctuations of the groundwater elevations. Mr. Foss explained that following the ISB injections the dissolved oxygen and oxidation reduction potential (ORP) have been decreasing, which is supportive of the ISB remedy performing as intended. He also explained that cis-1,2-dichloroethene (DCE) is a breakdown product of trichloroethene (TCE) so the observed increases of cis-1,2-DCE are indicative of the degradation of TCE. Overall, Mr. Foss said that the aquifer conditions are reducing and supportive of ISB.

*Groundwater Treatment Plant*

Ms. Nemmers presented the operation of the GWTP. She explained that the water the GWTP treats is from LHAAP-18/24. The extraction of groundwater from LHAAP-18/24 for treatment by the GWTP is an interim measure. Ms. Nemmers explained that groundwater from LHAAP-18/24 is removed via interceptor collection trenches (ICTs) and pumped to the GWTP via double-walled piping. Ms. Nemmers explained that maintenance of the pumps is an ongoing operation along with ensuring that there are no leaks in the piping. Ms. Zeiler pointed out that Harrison Bayou is to the north of LHAAP-18/24. Ms. Zeiler then explained that the lines shown on the figure are interceptor trenches. Ms. Nemmers then explained that the trenches are for collection of groundwater to prevent it from migrating, creating a barrier. Ms. Nemmers said that ensuring the pumps are operational is important to ensure that this capture is maintained though she pointed out that the amount of water extracted by the ICTs does vary. Mr. Fortune asked if this was the old burning ground, which Ms. Nemmers confirmed. Mr. Kent Becher pointed out that there are high density polyethylene (HDPE) liners along the northeast and southwest ICTs. Ms. Zeiler indicated that these liners within the trenches provides additional prevention for cutoff of the plume. Mr. Richard LeTourneau asked if there is testing done at different points along Goose Prairie Creek away from the confluence of the GWTP effluent discharge. Ms. Nemmers said she would explain following the discussion regarding the GWTP process.

Ms. Nemmers stated that all of the groundwater from LHAAP-18/24 goes into Tank 140, which is the equalization tank. She noted that the schematic indicates that water is from the burning ground and LHAAP-17. She explained that LHAAP-17 groundwater is not currently extracted, but is planned to as part of the work being completed by MMG-TLI Joint Venture (JV) later in the year. Ms. Nemmers explained that there are other tanks used for equalization throughout the treatment process because some treatment processes are faster than others. She explained that the first treatment process is for metals. Ms. Nemmers explained that metals are flocculated out. Currently metals levels are low enough that treatment is unnecessary but is completed anyhow. The metals treatment is not bypassed. She explained that magnesium hydroxide is added to increase the pH of the water to allow the metals to precipitate which is enhanced using the polymer. The clarifier is used to remove the metals sludge, followed by a sand filter to remove any remaining solids. She explained that the solids are put through a belt filter present to remove the water and allow the solids to be disposed at a landfill offsite. Ms. Nemmers explained that the water from the solids removal is then put back into Tank 140. She explained that the GWTP has a wall around it to contain any water within the GWTP including rainwater. All water within the containment is put into Tank 140 and run through the treatment system.

Ms. Nemmers explained that the water is then treated by the air stripper, which works by having the water enter from the top and air blowing in from the bottom. She explained that there are plastic balls in the unit that assist in the stripping of the volatile compounds. Ms. Nemmers said that the plastic balls do need to be cleaned from time to time to allow for improvement of contact by the water to the media. She explained that the water can then go through a granular activated carbon (GAC) vessel to polish the water. The water then goes into the fluidized bed reactor (FBR),

which is a system that uses microbes to treat perchlorate. Ms. Nemmers explained that the recent freeze event did affect the FBR microbes. She explained that the perchlorate is key to the microbial growth and that acetic acid is also provided to the system to support the microbes. Ms. Nemmers explained that there are jets within the reactor that fluidize the GAC to provide a way for the microbes to attach and grow. Ms. Nemmers said that the media capture tank has been replaced by a strainer to capture biomass that leaves the FBR, which is minimal when the FBR is operating optimally. Ms. Nemmers then pointed out the locations of the spigots for collecting influent and effluent for sampling, which is completed weekly, biweekly, and monthly depending on the sampling location and parameters analyzed. Ms. Nemmers explained that the analytical data is presented in the quarterly GWTP reports.

Ms. Nemmers explained that, when discharging to the INF pond, the water is treated by the ion exchange (IX) vessels. The IX vessels are in series to allow for determination if there is breakthrough potential from the first vessel. There is a sampling spigot between the two IX vessels that allows for that determination. Ms. Nemmers explained that the treated groundwater is discharged to one of three possible locations: 1) Harrison Bayou, 2) the INF Pond, or 3) for irrigation at LHAAP-18/24. Ms. Nemmers explained that the treated groundwater is typically discharged to the Harrison Bayou if there is flow in the Bayou. Ms. Nemmers said that there is testing of surface water from both Harrison Bayou and Goose Prairie Creek. Mr. Fortune asked if TK-650 is sampled on a time basis and not a volume basis. Ms. Nemmers concurred and then explained that the GWTP is not a continual operation but rather a batch operation. Mr. Fortune asked if the batches are generally the same size. Ms. Nemmers agreed that the batches are generally similar in volume. Mr. Foss stated that Harrison Bayou is also being sampled as part of the LHAAP-16 remedy implementation on a quarterly basis. Ms. Zeiler said that Mr. LeTourneau's previous question was whether there is sampling conducted downgradient and that the answer is yes.

*Look Ahead*

Ms. Nemmers then discussed the 3-month look ahead for LHAAP field work. Ms. Nemmers said that more monitoring of the remedies will be completed as well as quarterly sampling of the surface water.

Ms. Nemmers explained that the RA-O Reports previously discussed will reviewed by the Regulators. Ms. Nemmers explained that the First Quarter 2021 GWTP Report is being prepared. Ms. Nemmers also said that all of the reports discussed during the RAB meetings are posted onto the Administrative Record online.

*Groundwater Treatment Plant*

Ms. Nemmers explained the higher volumes shown on the graph (slide 18 and GWTP handout page 2) means that there is high flow in the Bayou and that the water being discharged is from both the GWTP and the INF Pond. Ms. Nemmers said that the GWTP will typically treat from 200,000 to 300,000 gallons of groundwater each month so when you see less water discharged than that on the graph, it means something happened at the GWTP that did not allow processing of the groundwater. Ms. Nemmers explained that the low discharge amount in March 2021 was

due to the freeze that occurred in Texas. Following the freezing conditions, the FBR readout indicated that the system was well outside of the normal operating conditions. She explained there is a data readout on the system that allows the GWTP operators to know if the FBR is within acceptable operational levels. Ms. Nemmers explained that the FBR took weeks for the microbes to recover.

Mr. Fortune asked what happens when there is not flow in the Harrison Bayou and the INF Pond is full. Ms. Nemmers explained that there is a protocol to discharge to LHAAP-18/24 for irrigation.

*Surface Water Sampling*

Ms. Nemmers said that the surface water sampling results from 2020 and 2021 are all near or at non-detect. She pointed to the handouts for a map showing where the surface water samples are collected.

*LHAAP-17*

Ms. Kyra Donnell from MMG-TLI JV presented on LHAAP-17. She explained that slide 21 showed the depths of the excavations at the time of the Record of Decision (ROD). Slide 22 shows the remaining removal actions that need to be completed. Ms. Donnell said that a work stoppage occurred on September 30, 2019, due to the presence of munitions hazards not previously known to be present. The discovery of those munitions prompted the need for an Explanation of Significant Difference (ESD). Ms. Donnell explained that an ESD is required if after the adoption of the ROD the remedial action differs significantly from the selected remedy with respect to performance, scope, or cost. She said that an ESD has been prepared and that the ESD has undergone Regulatory review. Comments from the Regulators are being addressed and submittal will occur in the next several days. The ESD includes the removal of munitions and explosives of concern (MEC) in soil that may act as a potential continuing source (contributing perchlorate contamination to soil and groundwater) and to add MEC Land Use Controls (LUCs). All other components of the selected remedy in the 2016 ROD remain unchanged. MEC-specific LUCs include:

- Prohibiting residential land use until it is demonstrated that munitions no longer present a threat to public/human safety.
- Prohibiting intrusive subsurface activities, including digging, until it is demonstrated that the MEC no longer present an explosive hazard. However, intrusive subsurface activities may occur provided that the U.S. Army and the U.S. Environmental Protection Agency (USEPA) approve such intrusive subsurface activities before they are commenced and provided that they are undertaken by qualified personnel who are trained in explosives safety measures.

Ms. Donnell explained that the remaining effort at LHAAP-17 to address the potential presence of munitions and to continue soils excavation in consideration of munitions is in the work planning stage. She said that the Memorandum of Record has been approved for the management of water within the excavations. A Work Plan for munitions investigation and removal, if present, is being prepared for Regulatory review. Ms. Donnell said that a separate

Remedial Design/Remedial Action Work Plan Addendum is also being prepared to addresses how the excavation of soils will continue in consideration of the munitions hazards that may still be present. The Addendum is currently under Army review.

*LHAAP-18/24, LHAAP-29, and LHAAP-47*

Mr. Philip Werner said HDR, Inc., is working on LHAAP-18/24, -29, and -47. He said that slide 26 presents the documents that HDR, Inc., is currently working on. The Draft Pre-Design Investigation (PDI) Report for LHAAP-29 is due in June 2021. Concurrent with the report, the draft Remedial Design is being prepared. For LHAAP-47, the draft final Feasibility Study Addendum was submitted for review in March with the final planned for April 2021. The Draft Revised Proposed Plan was submitted to the Regulators on 20 April 2021. Mr. Werner said that the PDI field work at LHAAP-18/24 still needs to be completed and includes the well installation and sampling. He said that they are awaiting analytical data to select where the permanent monitoring wells will be located and if any additional data is needed. The PDI Report for LHAAP-18/24 will be submitted in October 2021 to the Regulators. A draft Remedial Design will also be completed at that time. Mr. Werner explained that LHAAP-18 is the former burning grounds, and that LHAAP-24 is the former unlined evaporation pond and wash out facility.

Mr. Werner presented a summary of the PDI at LHAAP-29, which include 49 direct push technology (DPT) borings advanced to 16 feet below ground surface (bgs) for the most part. A total of 196 soil samples were collected for explosives analysis. Eight trenches were excavated along the former wooden, trinitrotoluene (TNT) waste water line. Where available, liquid and sediment samples from inside the pipe were also collected for explosives analysis. Liquid and sediment was collected from four of the eight planned locations with only sediment samples collected from the other four locations.

Mr. Werner presented the sampling completed at LHAAP-29. Mr. George Rice asked what the photo on the right (within slide 28) was to which Mr. Werner said that it was the wooden pipeline. Mr. Rice asked if the rings were to hold the pipe together, which Mr. Werner concurred. Mr. Werner said that the pipe was deteriorated. Ms. Zeiler said that the pipeline was being evaluated as a potential source for explosives, which is why the inside of the pipeline is being evaluated. Mr. Fortune asked where the pipeline went. Ms. Zeiler said that the pipeline was taking the waste water over to Site 32 where the treatment was to the northeast. Mr. Werner said that sampling at LHAAP-29 was completed on 11 March 2021, and the data is coming in now. Mr. Fortune asked if the surveyors that have been at LHAAP are involved in this project. Mr. Werner said yes and that the surveyors are doing a complete topographic survey of LHAAP-29 down to 1-foot contour intervals and picking up site features.

Mr. Werner provided a summary of the Phase 1 PDI at LHAAP-18/24. All 25 DPT borings were advanced to 40 feet bgs with a few borings advanced deeper. At each of the DPT boring locations, groundwater samples were collected for volatile organic compounds (VOCs) and perchlorate analysis. A total of nine soil samples were collected from borings advanced outside the ICT boundary to the northeast boundary of the site and analyzed for VOCs and perchlorate. The Phase 1 PDI field work was completed on 27 March 2021. The data, once received, will be used

to determine the location for the permanent monitoring well locations and if additional data gaps are present.

Mr. Werner presented the Phase 2 field work at LHAAP-18/24 which will include installation of six shallow zone and one Wilcox formation monitoring wells. Four of the monitoring wells will be located outside of the northeastern ICT boundary. One shallow monitoring well will be located within the ISB zone grid centered on monitoring well (MW-23). One shallow monitoring well will be to the north of that within the grid centered on 18CPT03 and 19CPTMW03SW. The one Wilcox formation monitoring well will be northwest of well MW-14 and the ISB grids. Mr. Werner explained that the shallow aquifer extends to a depth of 45 feet bgs and then the Wilcox formation lies just below that shallow zone. The two units are separated by a mostly contiguous clay layer across the site. Mr. Werner said that the clay unit separating the shallow unit from the Wilcox sands in the northwestern portion of the site thins out. Discussing slides 34 and 35, Mr. Werner presented the layout of LHAAP-18/24 and where the DPT soil borings were located. He pointed out the green dot in the north where the deeper Wilcox monitoring well will be placed. Mr. Werner said that the borings from Phase I Field Work were completed by March 27, 2021, and that the data is coming in from the laboratory.

**Next RAB Meeting Schedule and Closing Remarks**

Ms. Zeiler then discussed the next meeting with the RAB members. It was decided that the next RAB meeting will be held on **Wednesday, July 21, 2021,** with the **meeting starting at 6:00 pm Central Daylight Time**. Ms. Zeiler stated that whether the meeting is in person or again by conference call will be evaluated in May. Mr. Fortune said that he would like to meet in person.

Ms. McAvoy made a motion to adjourn; Mr. LeTourneau seconded the motion.

**Adjourn**

The meeting adjourned at 7:18 pm CDT.

**April 2021 Meeting Attachments and Handouts:**

- Color copy of Bhate presentation slides
- GWTP – Processed Groundwater Volumes Handout
- Surface Water Sampling Handout

# Longhorn Army Ammunition Plant Quarterly Restoration Advisory Board Meeting

**April 21, 2021**
**6:00 PM CDT**

APTIM

bhate

# Restoration Advisory Board Meeting

## Abbreviations and Acronyms

| | |
|---|---|
| µg/L | Micrograms per liter |
| bgs | Below ground surface |
| DERP | Defense Environmental Restoration Program |
| DPT | Direct push technology |
| ESD | Explanation of Significant Difference |
| GPW | Goose Prairie Creek Water Sample |
| GWP-Ind | Industrial Groundwater Use Protection |
| GWTP | Groundwater Treatment Plant |
| HBW | Harrison Bayou Water Sample |
| ISB | In situ bioremediation |
| J | Estimated laboratory value |
| LHAAP | Longhorn Army Ammunition Plant |
| LUC | Land Use Control |
| MEC | Munitions and explosives of concern |
| MSC | Medium-Specific Concentration |
| PCL | Protective Concentration Level |
| RAB | Restoration Advisory Board |
| RA(O) | Remedial Action Operation |
| ROD | Record of Decision |
| TCE | Trichloroethylene |
| TNT | Trinitrotoluene |
| TRRP | Texas Risk Reduction Program |
| VOC | Volatile organic compound |

# Restoration Advisory Board Meeting

## Agenda

**06:00** Welcome and Introduction

**06:05** Open Items {RMZ}
- Purpose of the Restoration Advisory Board (RAB) Meeting
- Ongoing Outreach/Website
- RAB Administrative Issues
  - Membership Update
  - Minutes (January 2021 RAB Meeting)

**06:15** Defense Environmental Restoration Program (DERP) Update {Bhate}
- Documents and Field Work Completed since last RAB
  - Update on LHAAP-50 Remedial Progress
  - What the Groundwater Treatment Plant (GWTP) does
- Three Month Look ahead
- GWTP Update

**06:45** Other DERP Updates
- LHAAP-17 Explanation of Significant Difference (ESD) and Status {MMG-TLI}
- LHAAP-18/24, -29, and -47 Status {HDR}

**06:55** Next RAB Meeting Schedule and Closing Remarks {RMZ}

# Restoration Advisory Board Meeting

## RAB Administrative Issues

- Membership Update
  - Persons interested in being new members
- Minutes (January 2021 RAB Meeting)

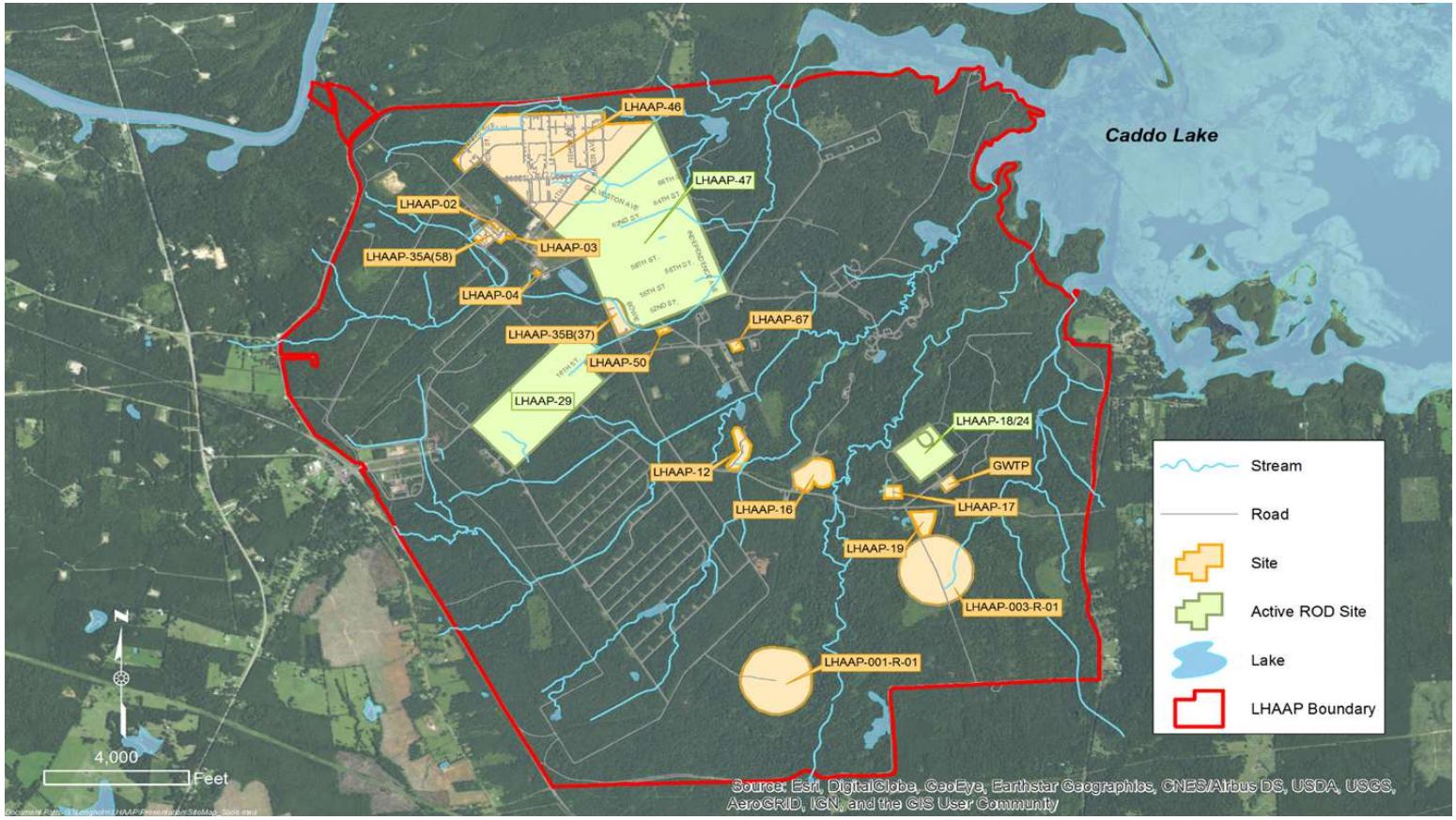
# Restoration Advisory Board Meeting

## The Army Wants You to be Informed

- The Army is committed to protecting human health and the environment; key to that commitment is engaging the community and increasing public participation in environmental restoration at the Longhorn Army Ammunition Plant (LHAAP)
- You are encouraged to:
  - Attend RAB Meetings and/or become a member of the RAB
  - Visit the Longhorn environmental website at www.longhornaap.com.
- The website is regularly updated to indicate the upcoming field events at each site including groundwater sampling, monitoring well installations, soil sampling, or remediation activities.
  - Make suggestions for improving communication – the Army welcomes and appreciates community feedback
- There are three contractors working at LHAAP: Bhate/APTIM; MMG-TLI Joint Venture; and HDR, Inc. The work conducted by these contractors will be presented in the following slides in that order.

# Restoration Advisory Board Meeting

## Bhate/APTIM



# Restoration Advisory Board Meeting

## Documents in Process

| Site | Document |
|---|---|
| LHAAP-04 | Annual Remedial Action Operation (RA[O]) Report |
| LHAAP-12 | Annual RA(O) Report |
| LHAAP-16 | Annual RA(O) Report |
| LHAAP-67 | Annual RA(O) Report |
| GWTP | Quarterly Evaluation Report: Fourth Quarter (October – December 2020)<br>Quarterly Evaluation Report: First Quarter (January – March 2021) |

# Restoration Advisory Board Meeting

## Completed Field Work Since Last RAB Meeting

| Site | Activity |
|---|---|
| LHAAP-04 | Year 2 Quarter 1 Performance Sampling (March) |
| LHAAP-16 | Year 1 Quarter 4 Performance Sampling (January-February) |
| LHAAP-46 | Year 7 Annual Sampling (March) |
| LHAAP-50 | Year 1 Quarter 3 Contingency Remedy Performance Sampling (January) |
| Multi-site | Well Plugging and Abandonment Waste Disposal |
| Surface Water | Surface Water Sampling (February) |

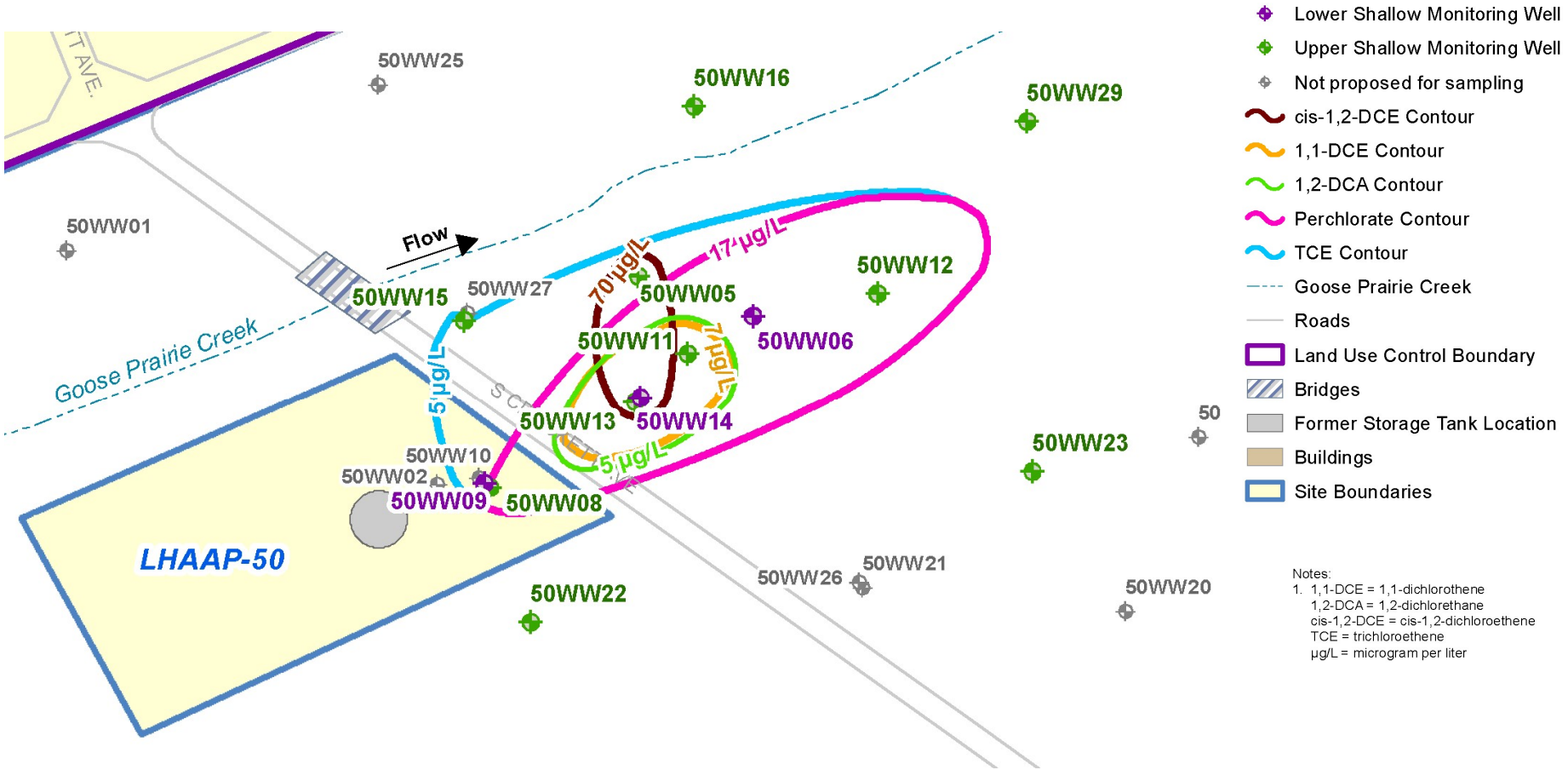
# Restoration Advisory Board Meeting

## LHAAP-50 Remedial Progress

- **Site Background**
  - LHAAP-50 had a 47,000-gallon aboveground storage tank receiving industrial wastewater from various production sumps throughout LHAAP between 1955 and 1988
  - After solids were filtered, the water was discharged to Goose Prairie Creek
  - Constituents of concern at LHAAP-50 were chlorinated solvents and perchlorate in groundwater and perchlorate in soil
- **In-situ bioremediation remedy implemented in March 2020 after monitored natural attenuation found to be ineffective**
- **Baseline sampling performed in November 2019**
- **Quarterly sampling in July 2020, October 2020, and January 2021**
- **Next Quarterly Event (Year 1 Quarter 4) in April 2021**

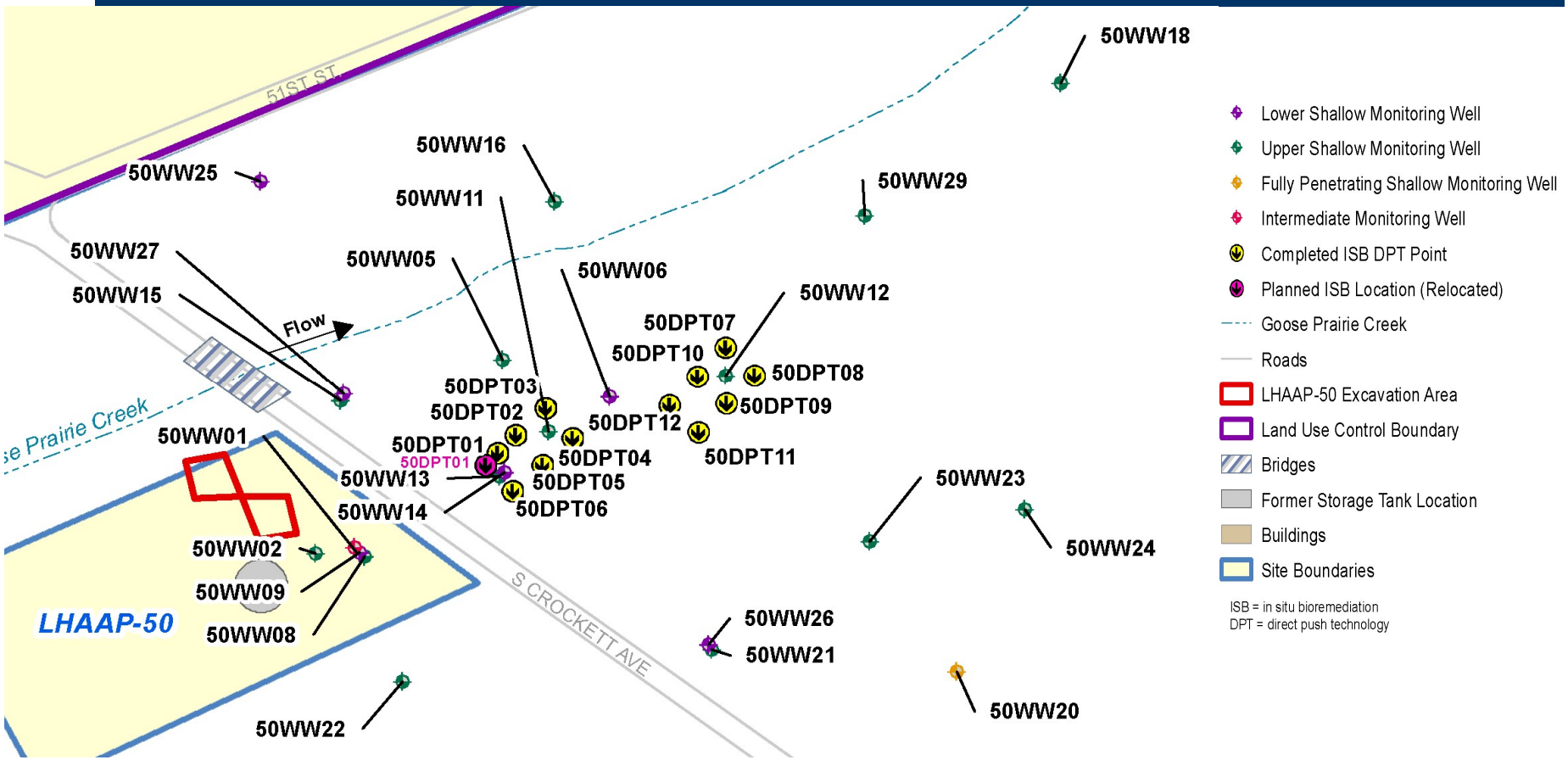
# Restoration Advisory Board Meeting

## LHAAP-50 Remedial Progress



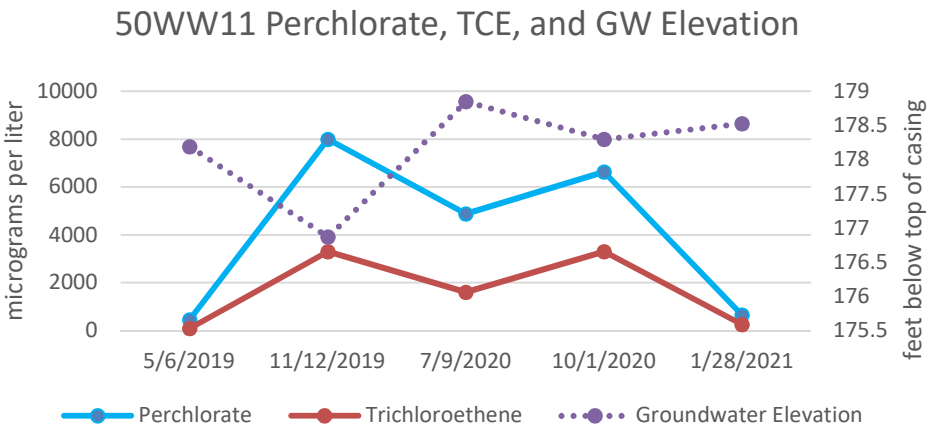
# Restoration Advisory Board Meeting

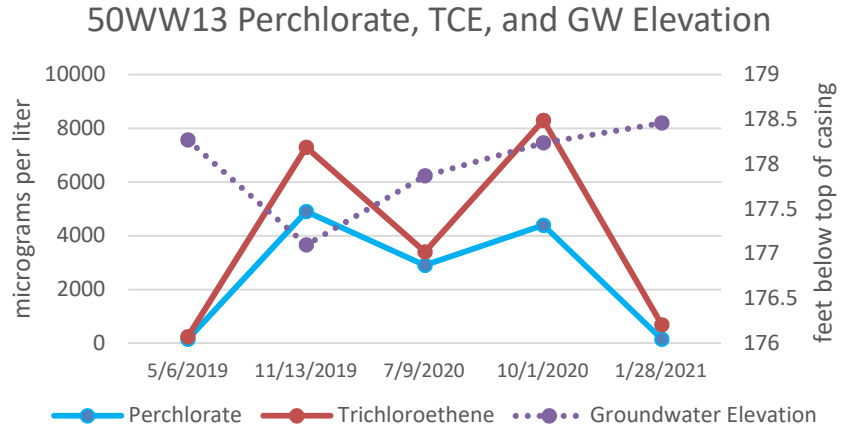
## LHAAP-50 Remedial Progress

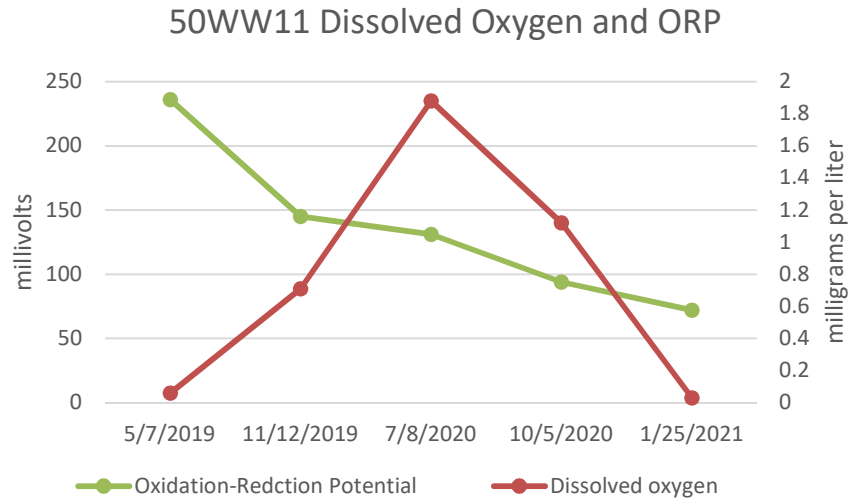


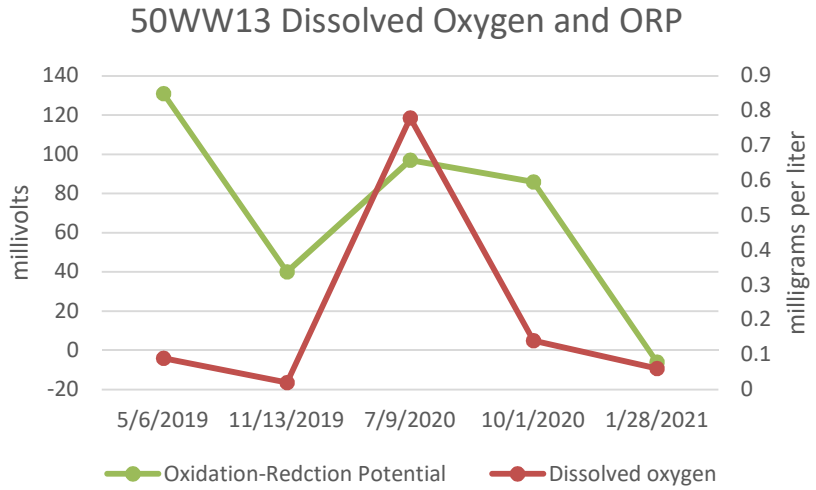
# Restoration Advisory Board Meeting

## LHAAP-50 Remedial Progress



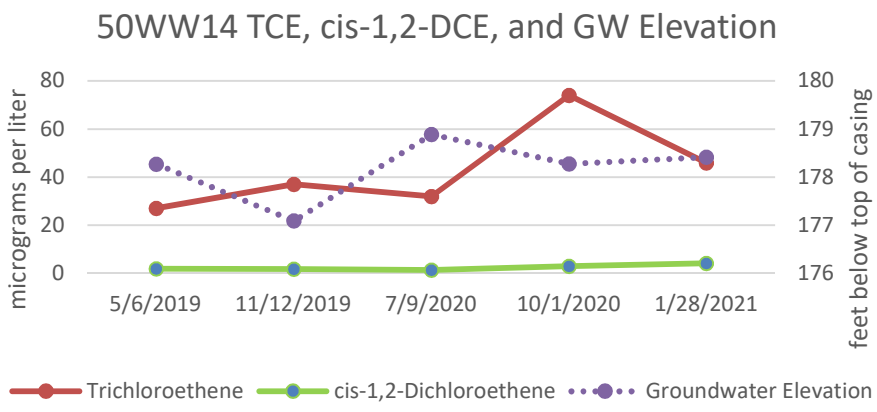



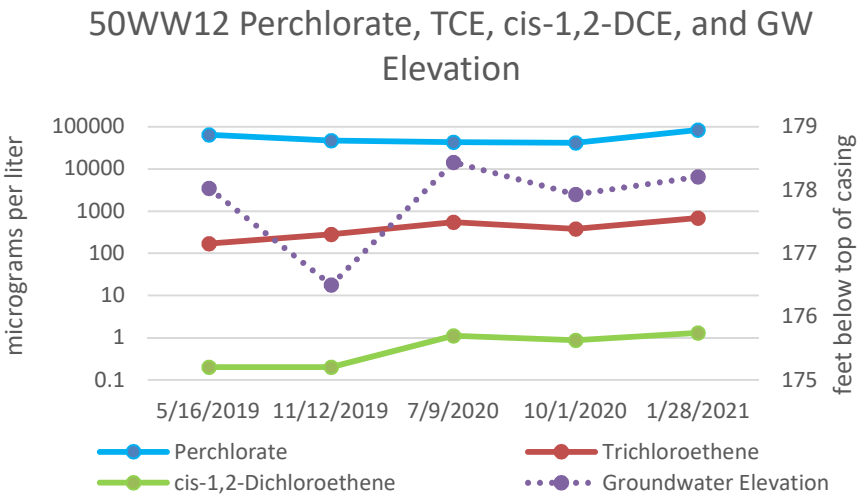



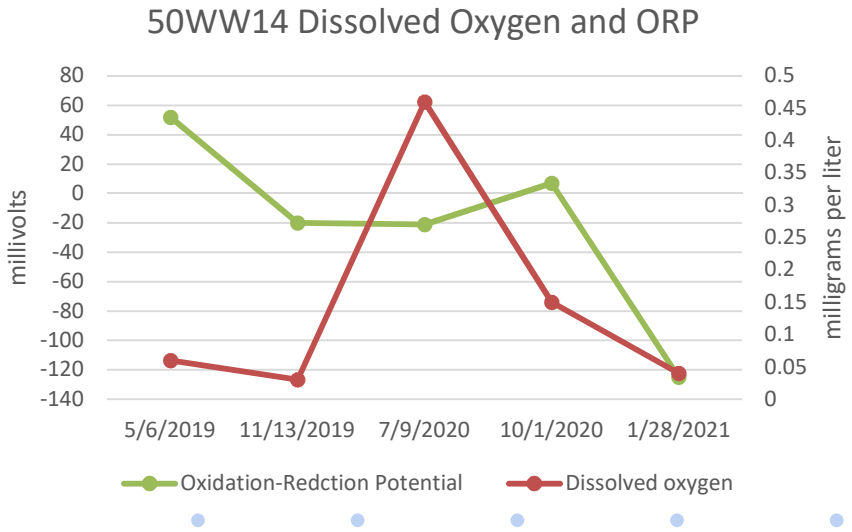



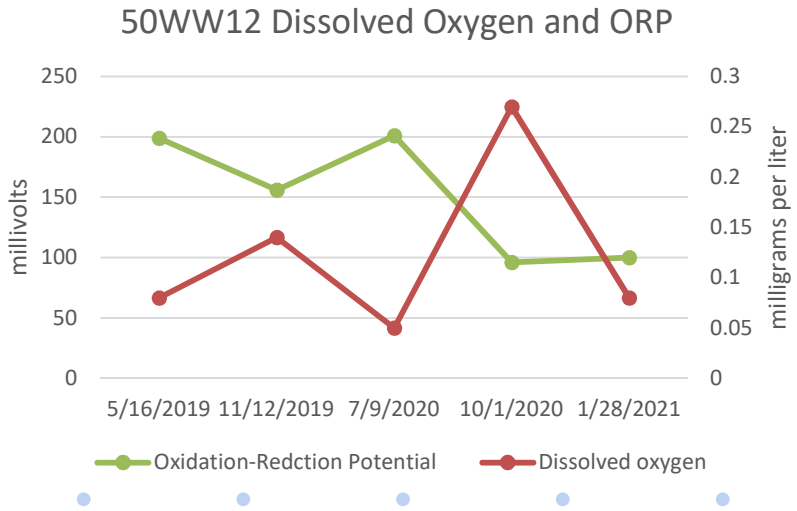
# Restoration Advisory Board Meeting

## LHAAP-50 Remedial Progress



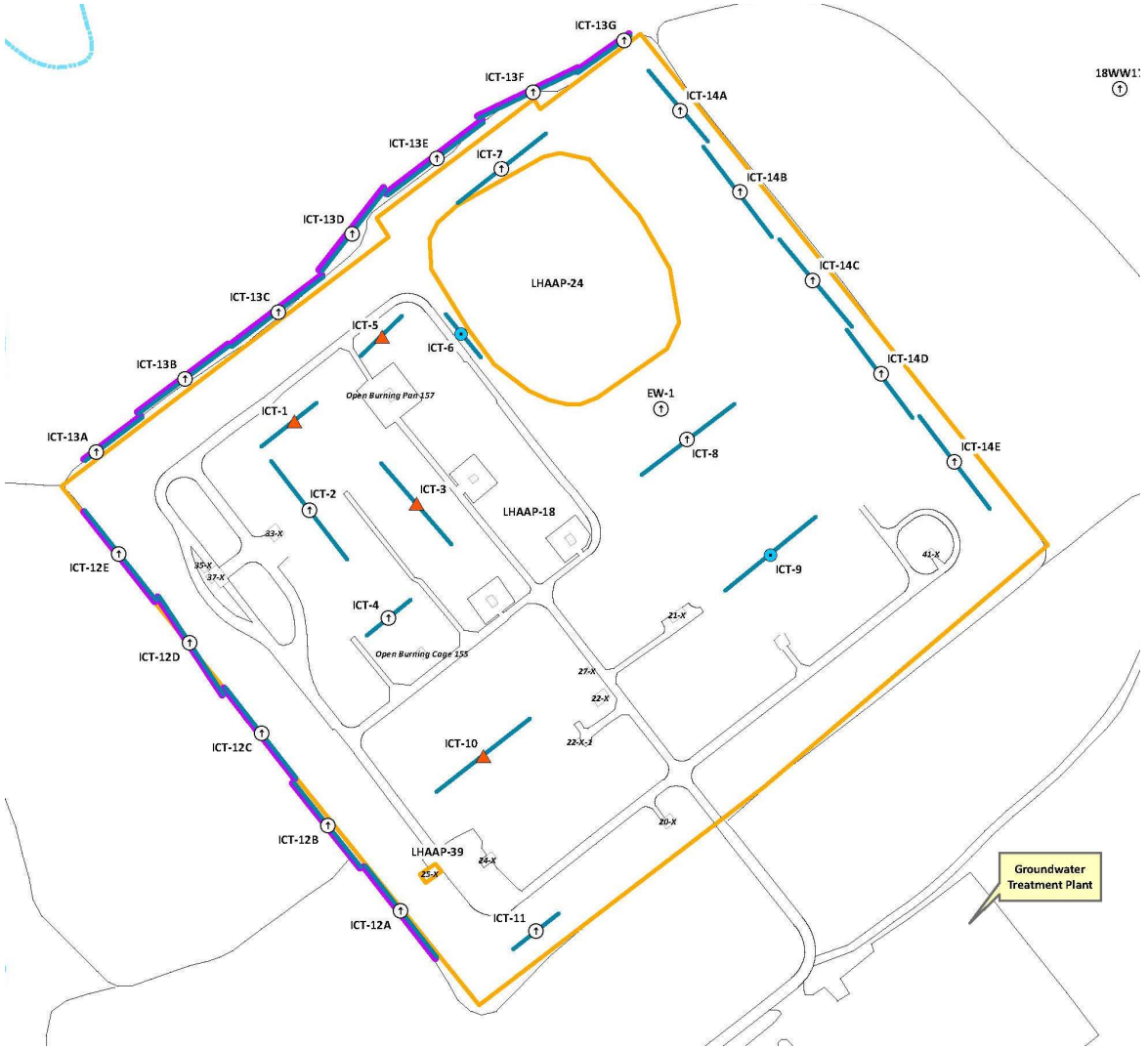



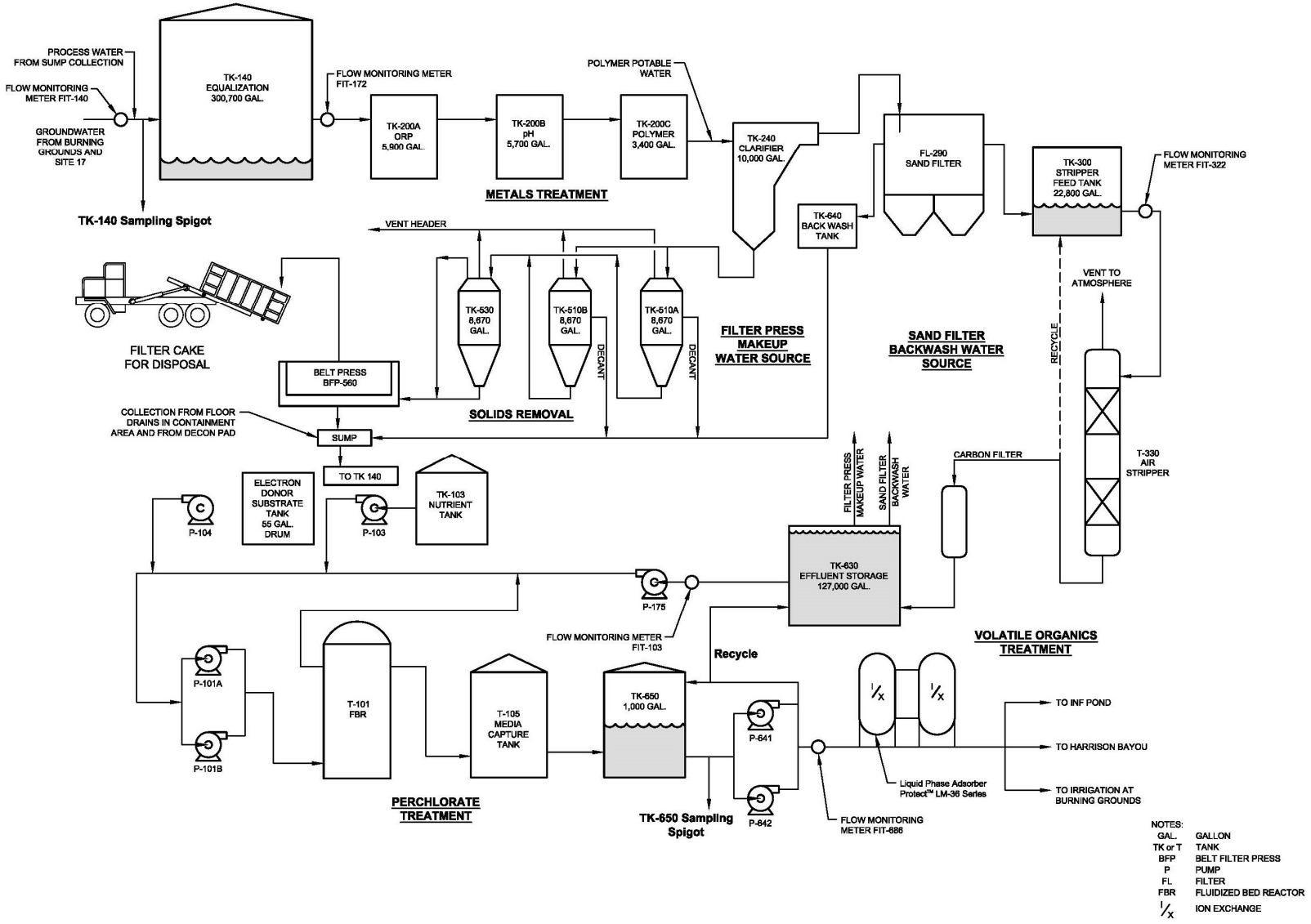
# Restoration Advisory Board Meeting

## LHAAP Extraction from LHAAP-18/24



# Restoration Advisory Board Meeting

## LHAAP Groundwater Treatment Plant



# Restoration Advisory Board Meeting

## 3 Month Look Ahead - Field Work by Bhate Team

| Site | Activity |
|---|---|
| LHAAP-04 | Year 2 Quarter 2 Performance Monitoring (May 2021) |
| LHAAP-16 | Year 2 Quarter 1 Remedy Performance Monitoring (April 2021) |
| LHAAP-37 | Year 4 Semi-Annual RA(O) Sampling Event #2 (May 2021) |
| LHAAP-50 | Year 1 Quarter 4 Contingency Remedy Performance Sampling (April 2021) |
| LHAAP-58 | Semi-Annual Performance Monitoring (June 2021) |
| LHAAP-18/24 | Semi-Annual RA(O) Sampling (June/July 2021) |
| Surface Water | 2nd Quarter Sampling |

# Restoration Advisory Board Meeting

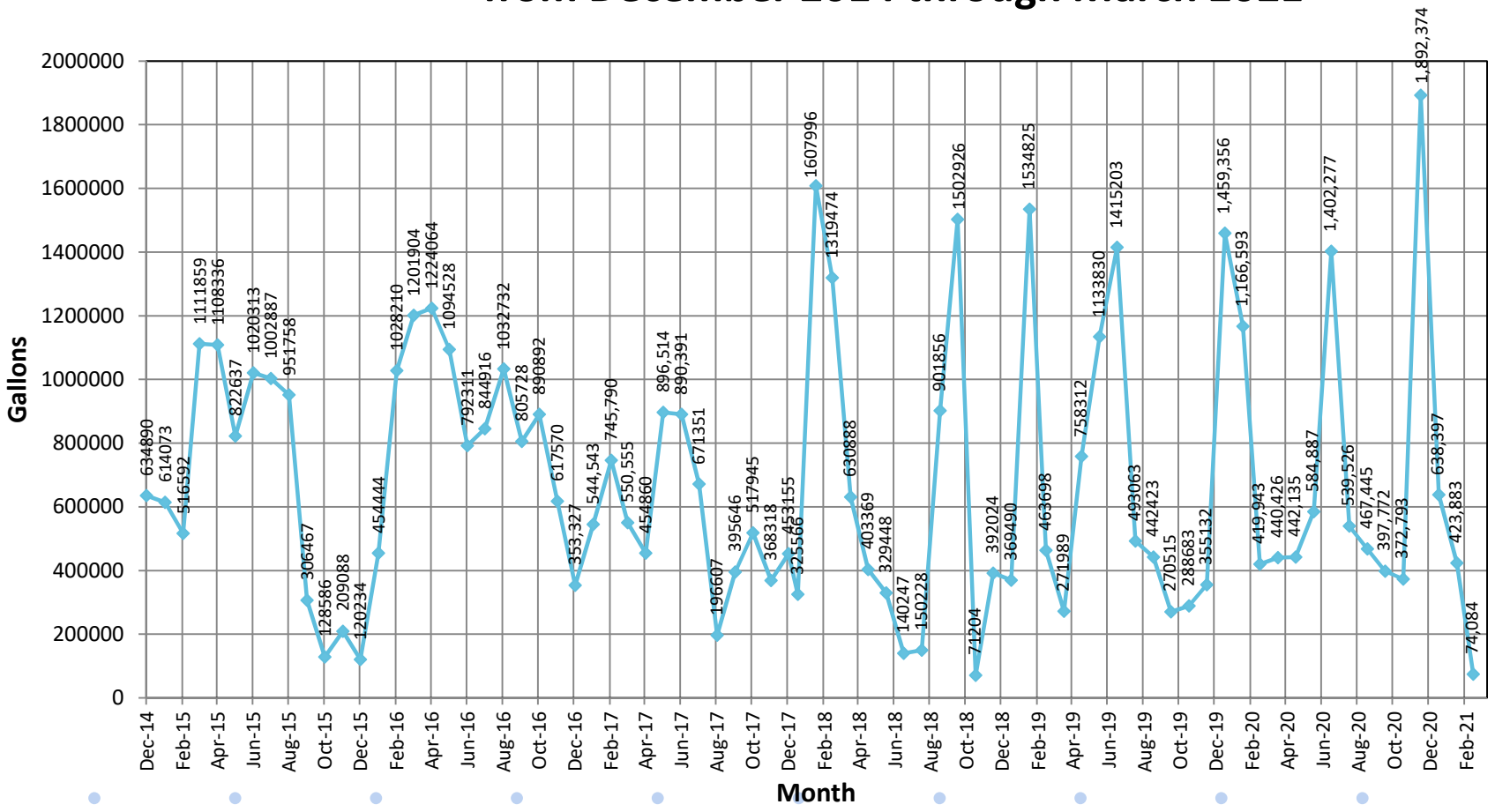
## 3 Month Look Ahead – Documents by Bhate Team

| Site | Document |
|---|---|
| LHAAP-04 | RA(O) Report to regulators |
| LHAAP-12 | RA(O) Report to regulators |
| LHAAP-16 | RA(O) Report to regulators |
| LHAAP-67 | RA(O) Report to regulators |
| GWTP and LHAAP-18/24 | Quarterly Evaluation Report: First Quarter (January to March 2021) |

# Restoration Advisory Board Meeting

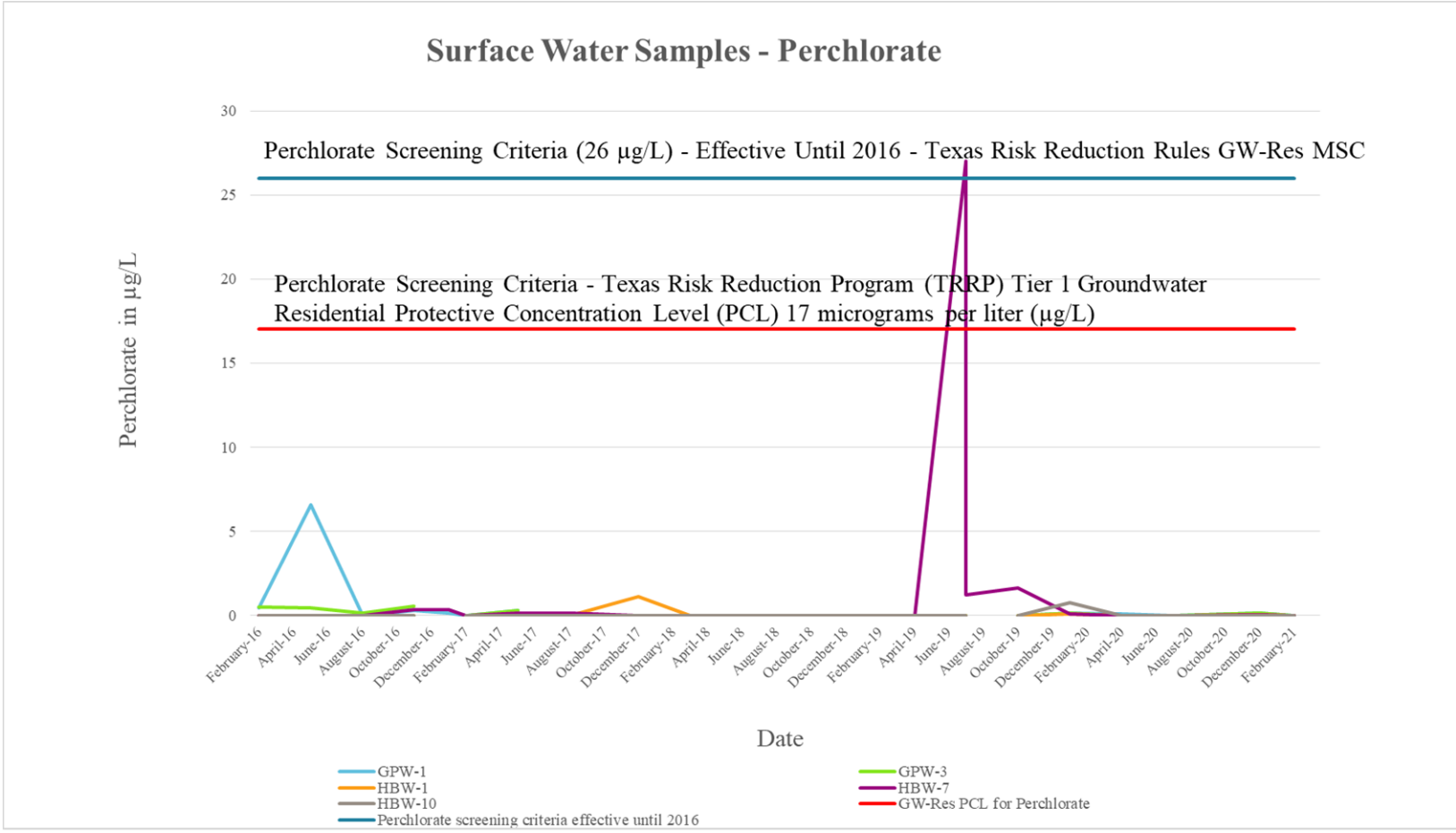
## GWTP Update

### Treated Groundwater Discharged Monthly from December 2014 through March 2021



# Restoration Advisory Board Meeting

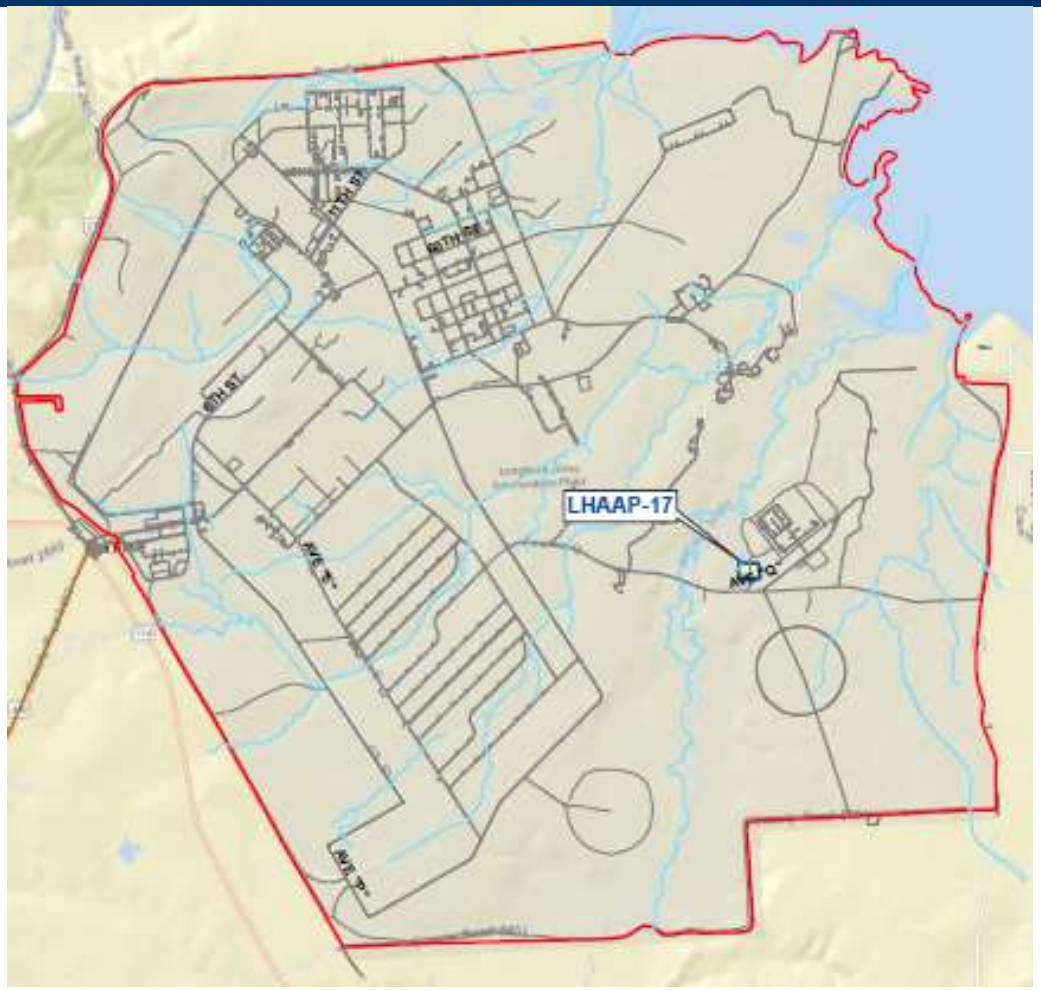
## Surface Water Sample Results




**Note: Surface water at HBW-7 had a detection of 27 µg/L from a sample collected on 11 July 2019. Surface water at HBW-7 was resampled 19 days later (30 July 2019) with a detection of 1.2 J µg/L.**

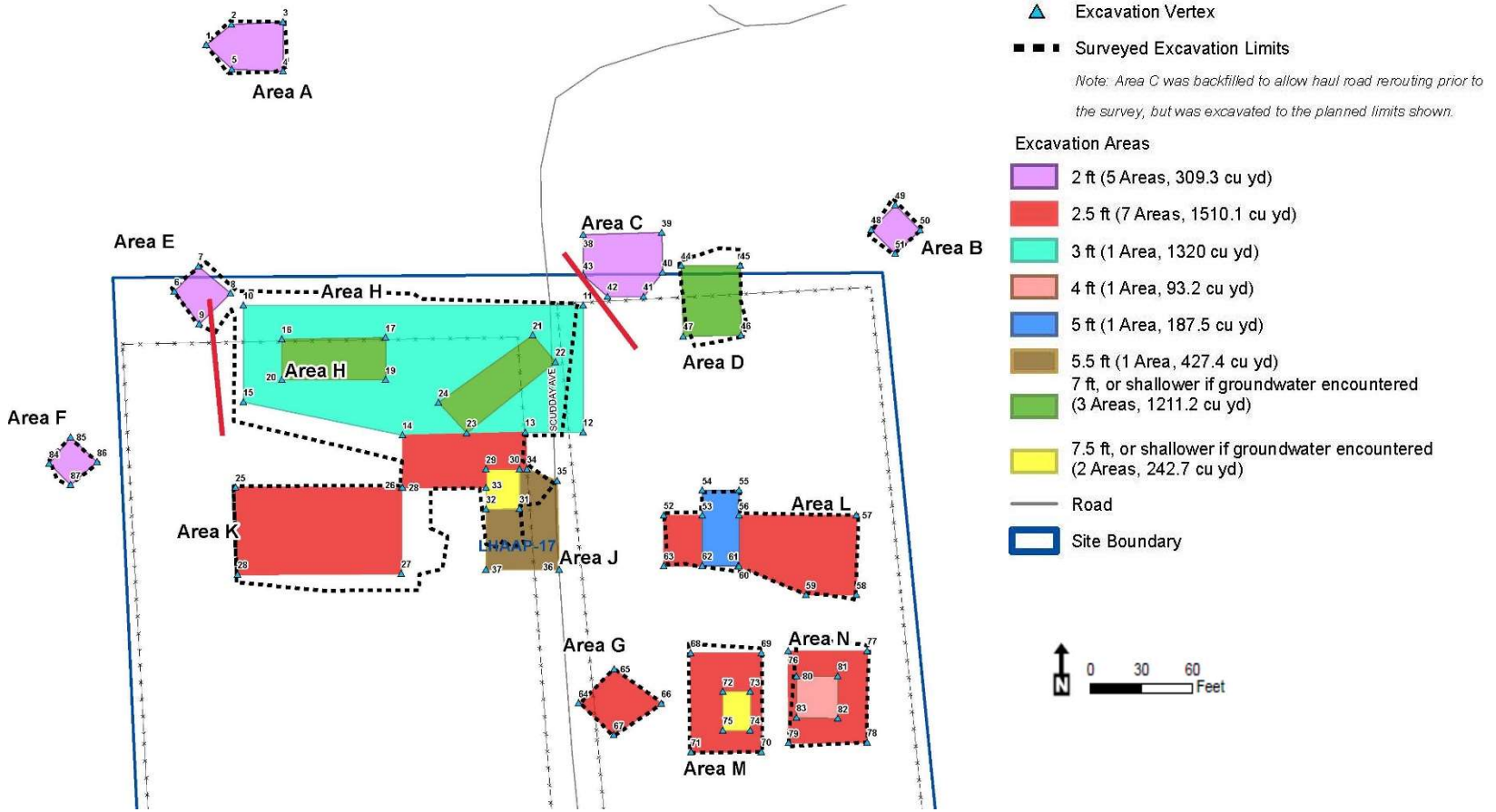
# Restoration Advisory Board Meeting

## MMG-TLI JV



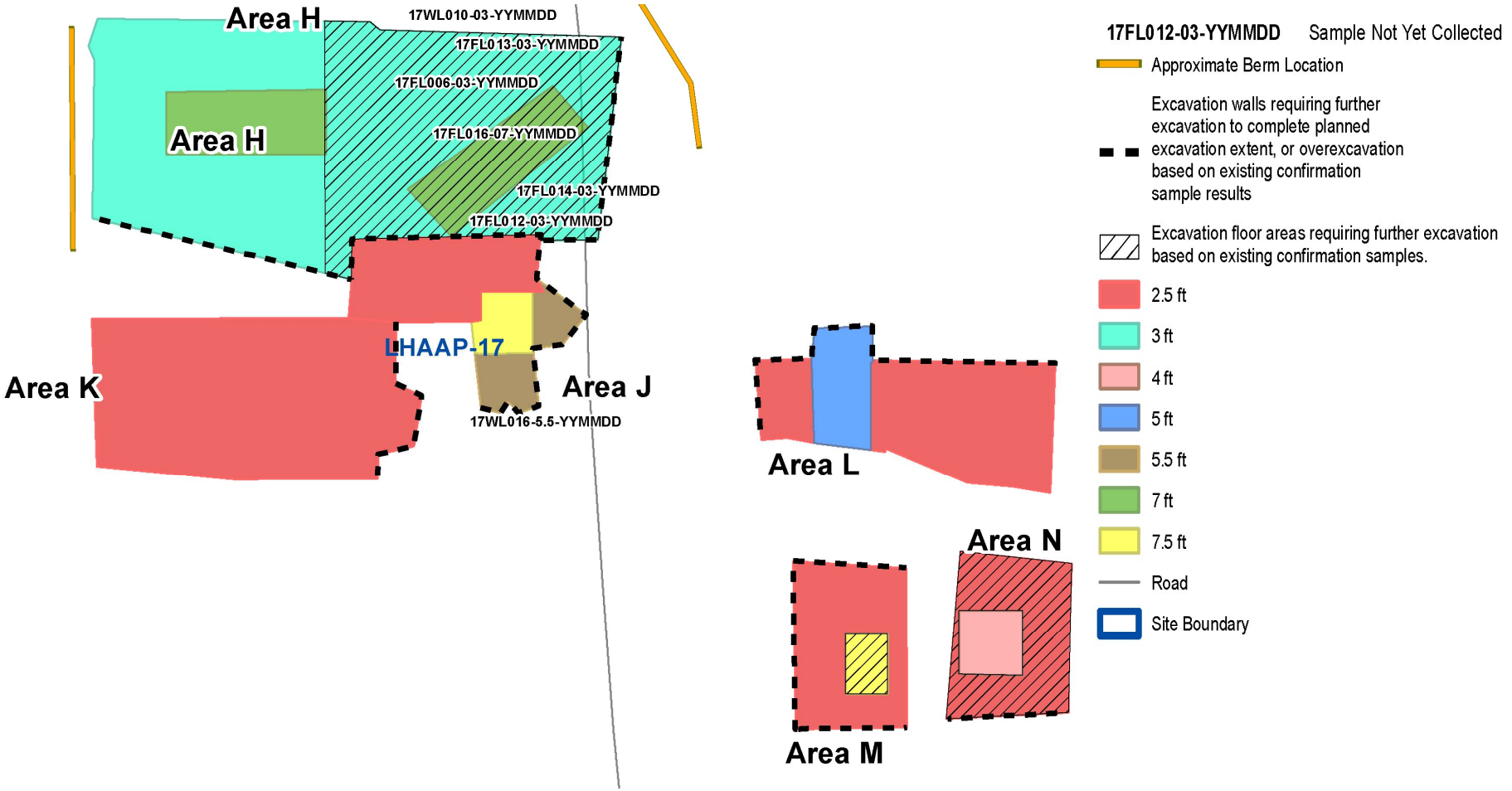
# Restoration Advisory Board Meeting

## LHAAP-17 Remedial Action-planned/completed to date



# Restoration Advisory Board Meeting

## LHAAP-17 Remedial Action-to be completed



# Restoration Advisory Board Meeting

## LHAAP-17 Remedial Action

- A work stoppage occurred on September 30, 2019, due to the presence of munitions hazards not previously known to be present.
- An Explanation of Significant Difference (ESD) has been prepared and is currently under regulatory review to include the removal of munitions and explosives of concern (MEC) in soil that may act as a potential continuing source (contributing perchlorate contamination to soil and groundwater) and to add MEC Land Use Controls (LUCs). All other components of the selected remedy in the 2016 Record of Decision (ROD) remain unchanged. Addition of munitions-related LUCs include:
  - Prohibiting residential land use until it is demonstrated that munitions no longer present a threat to public/human safety.
  - Prohibiting intrusive subsurface activities, including digging, until it is demonstrated that the MEC no longer present an explosive hazard. However, intrusive subsurface activities may occur provided that the U.S. Army and the USEPA approve such intrusive subsurface activities before they are commenced and provided that they are undertaken by qualified personnel who are trained in explosives safety measures.

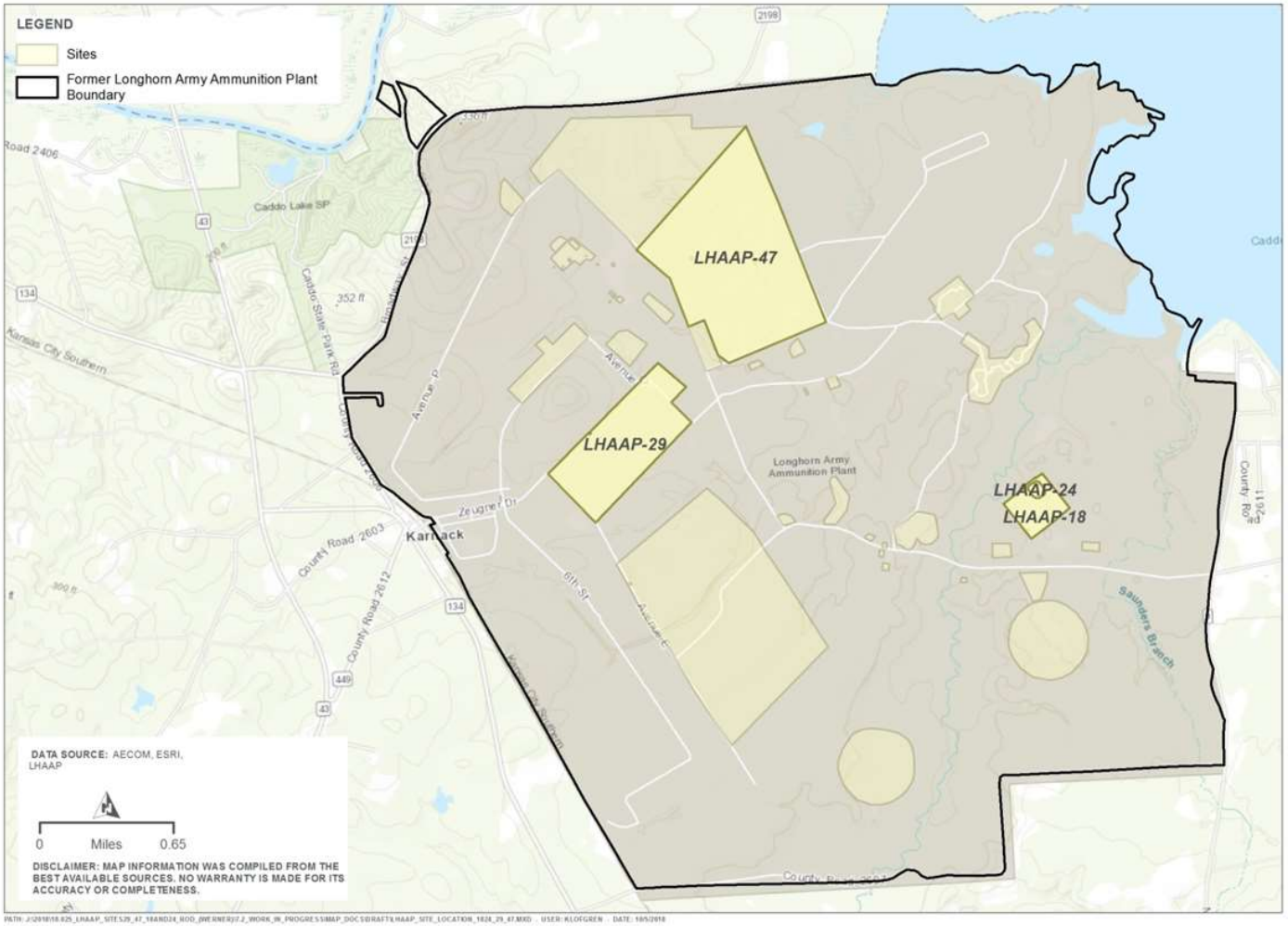
# Restoration Advisory Board Meeting

## LHAAP-17 Remedial Action

- **Work plans/memoranda have been submitted for U.S. Army and regulatory review/acceptance:**
  - **Memorandum for Record: Draining of impounded water**
  - **Uniform Federal Policy-Quality Assurance Project Plan: Munitions Investigation and Removal**
  - **Remedial Design/Remedial Action Work Plan Addendum: Continued excavation of soils implementing explosives safety considerations including using remotely operated machinery and qualified Unexploded Ordnance Technicians to excavate and sift soils**

# Restoration Advisory Board Meeting

## HDR, Inc.



# Restoration Advisory Board Meeting

## LHAAP-18/24, -29, and -47 Document Status
## 3 Month Look Ahead - Documents by HDR Team

| Site | Document |
|---|---|
| LHAAP-29 | Draft Pre-Design Investigation Report, June 2021 |
| LHAAP-47 | Final Feasibility Study Addendum, April 2021 |
| LHAAP-47 | Draft Revised Proposed Plan, April 2021 |

# Restoration Advisory Board Meeting

## Future Field Work by HDR Team

| Site | Activity |
|---|---|
| LHAAP-18/24 | Pre-Design Investigation Field Work, Phase 2, Well Installation and Sampling, April - May 2021 |
| | |

# Restoration Advisory Board Meeting

## Summary of LHAAP-29 Pre-Design Investigation Field Work

- 49 Direct Push Technology (DPT) soil borings advanced to depths not exceeding 16 feet below ground surface (bgs)
- 196 soil samples collected for explosives analyses (by Method SW8330A)
- Eight excavations completed along the former trinitrotoluene (TNT) Wooden Wastewater Line
- Liquid/sediment samples collected for explosives analyses (by Method SW8330A)

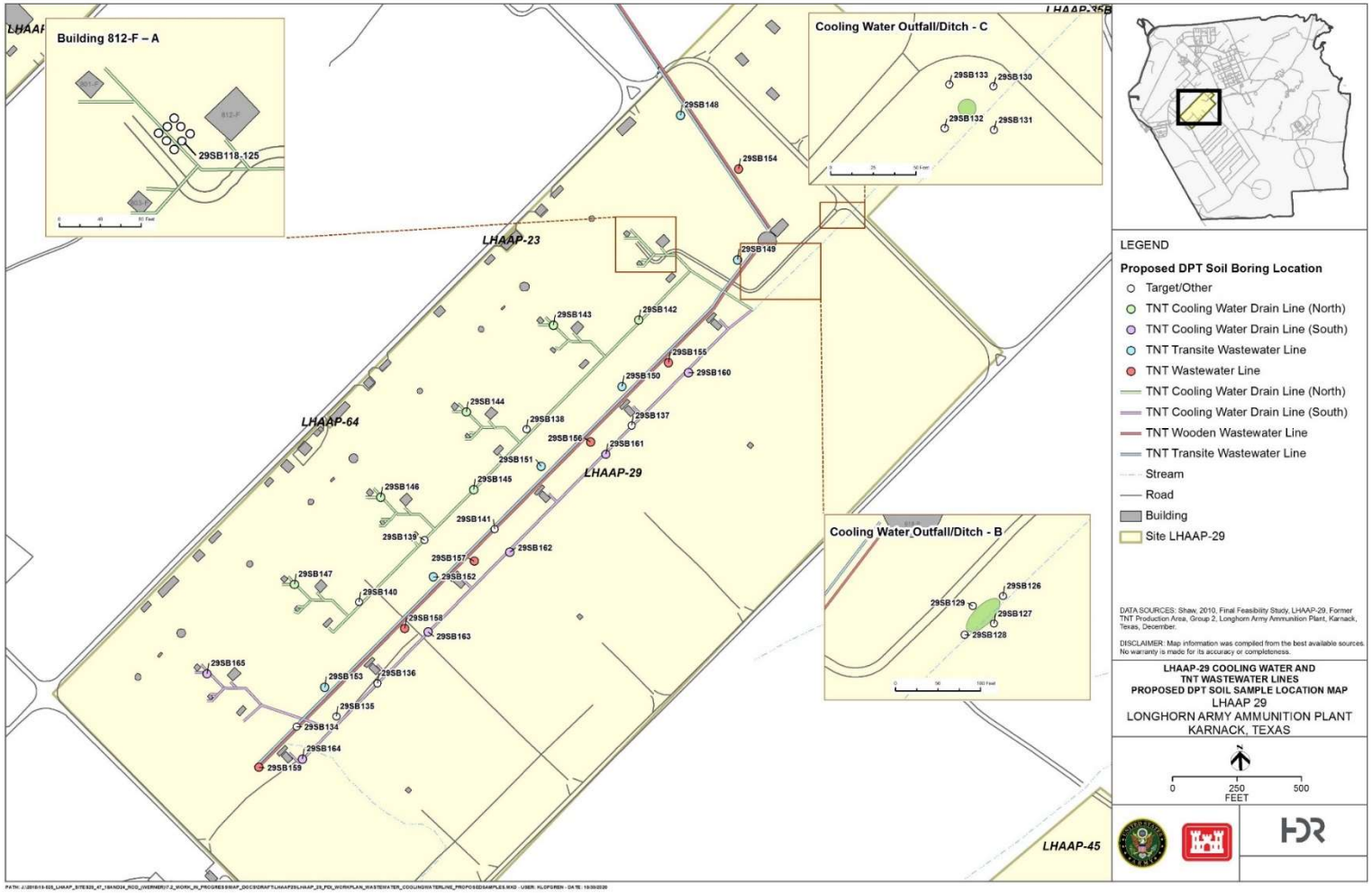






# Restoration Advisory Board Meeting

## Summary of LHAAP-29 Pre-Design Investigation Field Work Sample Locations



# Restoration Advisory Board Meeting

## Summary of LHAAP-18/24 Pre-Design Investigation Phase 1 Field Work

- 25 DPT soil borings advanced to depths not exceeding 40 feet bgs
- Nine soil samples collected for Volatile Organic Compound (VOC) and Perchlorate Analyses (by Methods SW8260 B & 6850, respectively)
- 25 Groundwater samples collected for VOC and Perchlorate Analyses (by Methods SW8260 B & 6850, respectively)
- Phase 1 Field Work Completed 27 March 2021

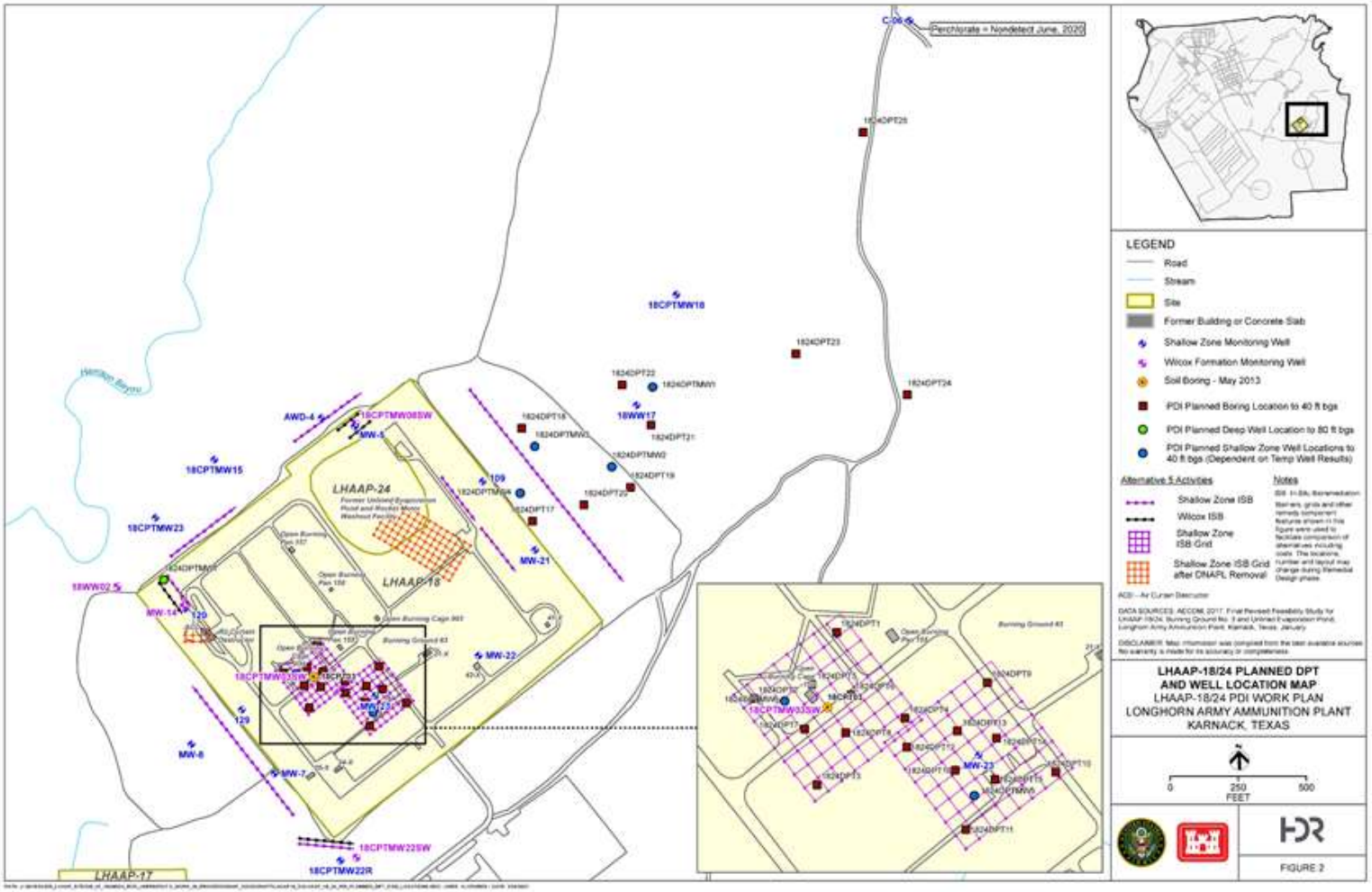
# Restoration Advisory Board Meeting

## LHAAP-18/24 Pre-Design Investigation Phase 2 Field Work

- Installation of six Shallow Zone and one Wilcox Formation wells
  - ✓ **Four outside the northeast interception-collection trench boundary**
  - ✓ **One at the in-situ bioremediation (ISB) shallow zone grid centered on Well MW-23**
  - ✓ **One at the ISB shallow zone grid centered on 18CPT03 and 18CPTMW03SW**
  - ✓ **One Wilcox Formation well northwest of well MW-14**

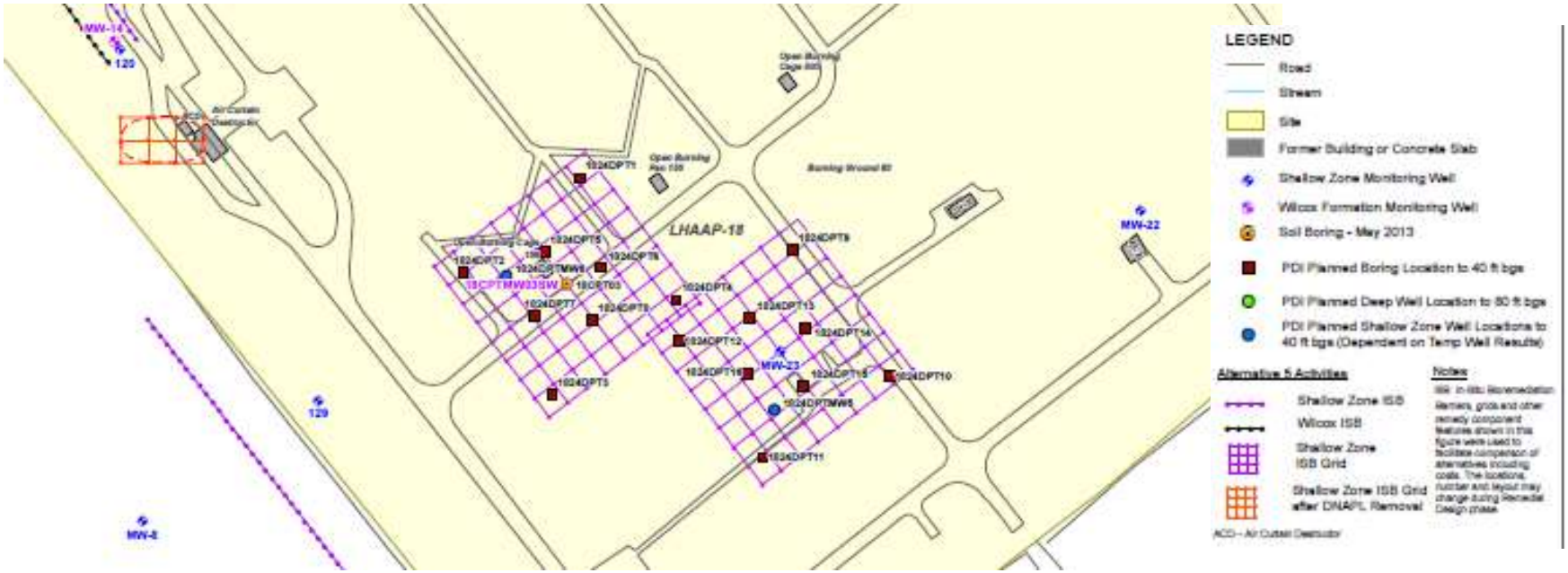
# Restoration Advisory Board Meeting

## LHAAP-18/24 Pre-Design Investigation Sample Locations



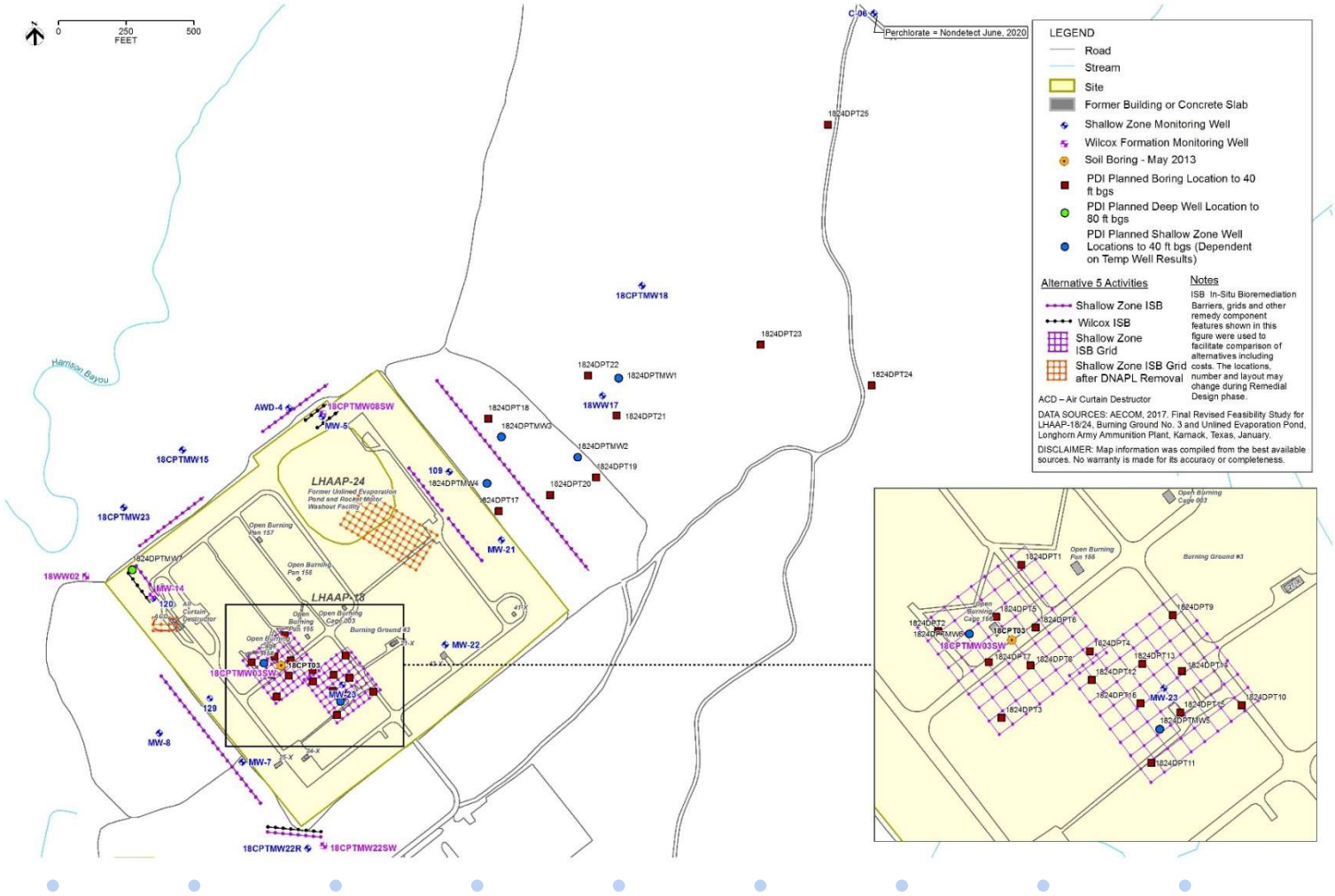
# Restoration Advisory Board Meeting

## LHAAP-18/24 Pre-Design Investigation Sample Locations



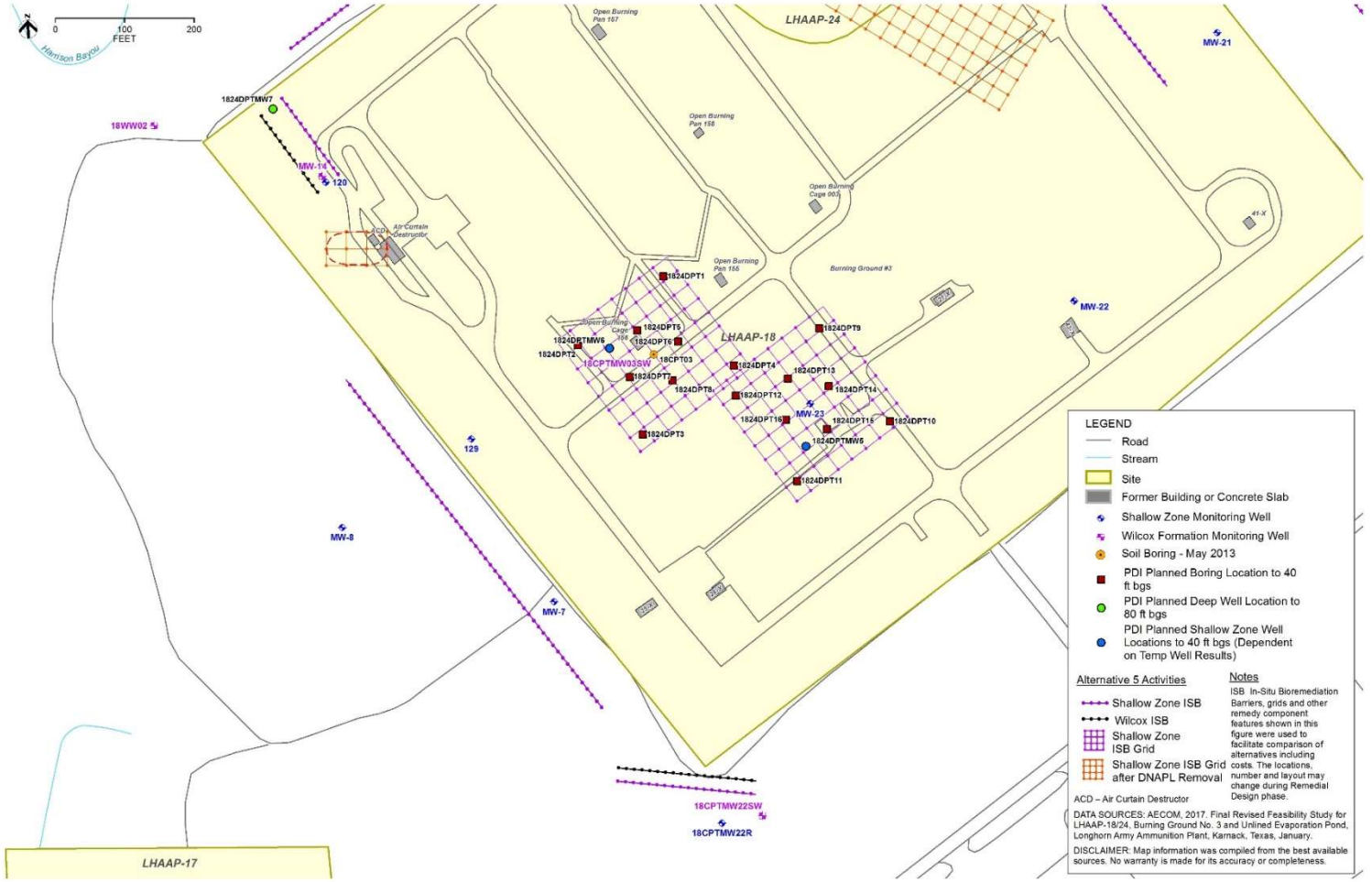
# Restoration Advisory Board Meeting

## LHAAP-18/24 Pre-Design Investigation Sample Locations



# Restoration Advisory Board Meeting

## LHAAP-18/24 Pre-Design Investigation Sample Locations



# Restoration Advisory Board Meeting

## Next RAB Meeting Schedule & Closing Remarks

- Schedule July 2021 RAB Meeting
- Other Issues/Remarks
- Thank you for coming

# Harrison Bayou and Goose Prairie Creek – Perchlorate Data

Surface water samples are collected quarterly from each location in Harrison Bayou and Goose Prairie Creek, unless the sampling location is dry.

**Surface Water Sample Data (in micrograms per liter)**

| Quarter | 3rd | 4th | 1st | 2nd | 3rd | 4th | 1st | 2nd | 3rd | 4th | 1st |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Creek Sample ID** | **Jul 1999** | **Sep 1999** | **Feb 2000** | **Apr 2000** | **Aug 2000** | **Dec 2000** | **Feb 2001** | **Apr 2001** | **July 2001** | **Oct 2001** | **Jan 2002** |
| GPW-1 | <1.0 U | - | 4 | <4.0 U | <4.0 U | <4.0 U | - | 2.65 | <4.0 U | <4.0 U | <4.0 U |
| GPW-3 | <1.0 U | <4.0 U | 17 | 8 | <4.0 U | <4.0 U | - | 2.28 | <4.0 U | <4.0 U | <4.0 U |
| HBW-1 | - | <8.0 U | 310 | 23 | - | - | <4.0 U | - | <4.0 U | <4.0 U | <4.0 U |
| HBW-7 | - | <8.0 U | 370 | 110 | - | - | <4.0 U | - | <4.0 U | <4.0 U | <4.0 U |
| HBW-10 | - | <8.0 U | 905 | 650 | <4.0 U | - | <4.0 U | - | <4.0 U | - | - |

| Quarter | 2nd | 3rd | 4th | 1st | 2nd | 3rd | 3rd | 4th | 2nd | 3rd | 4th |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Creek Sample ID** | **June 2002** | **Sept 2002** | **Dec 2002** | **Feb 2003** | **June 2003** | **Aug 2003** | **July 2004** | **Dec 2006** | **May 2007** | **Aug 2007** | **Dec 2007** |
| GPW-1 | <4.0 U | <4.0 U | 18.3 | 18.6 | 59.9 | - | 2.25 | - | <1.0 U | <1.0 U | 10.7 |
| GPW-3 | <4.0 U | <4.0 U | 5.49 | 12.6 | 14.7 | - | 2.2 | - | <1.0 U | <1.0 U | 7.48 |
| HBW-1 | <4.0 U | <4.0 U | <4.0 U | - | <4.0 U | 99.3 | <0.2 U | <1.0 U | <1.0 U | 122 | <1.0 U |
| HBW-7 | <4.0 U | <4.0 U | <4.0 U | - | <4.0 U | <4.0 U | <0.2 U | <1.0 U | <1.0 U | 1.02 | <1.0 U |
| HBW-10 | <4.0 U | <4.0 U | <4.0 U | - | <4.0 U | - | <0.2 U | <1.0 U | <1.0 U | <1.0 U | <1.0 U |

| Quarter | 1st | 2nd | 3rd | 4th | 2nd | 3rd | 3rd | 3rd | 4th | 1st | 2nd |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Creek Sample ID** | **Mar 2008** | **Jun 2008** | **Sep 2008** | **Dec 2008** | **May 2009** | **Jul 2009** | **Aug 2009** | **Sep 2009** | **Dec 2009** | **Mar 2010** | **Jun 2010** |
| GPW-1 | 27 | <0.5 U | <0.5 U | <0.22 U | 16 | <4 U | NS | <1.2 U | 3.7 | 1.3 J | <0.6 U |
| GPW-3 | 21.9 | 9.42 | 1.1 | <0.22 U | 8.9 | <4 U | NS | <0.6 U | 2.8 | 1.8 J | <0.6 U |
| HBW-1 | <0.5 U | <0.5 U | <0.5 U | <0.22 U | <0.55 U | <4 U | NS | <1.5 U | <0.275 U | 1.5 U | <0.6 U |
| HBW-7 | <0.5 U | <0.5 U | <0.5 U | <0.22 U | <0.55 U | <4 U | 24 | <1.2 U | <0.275 U | 1.5 U | <0.6 U |
| HBW-10 | <0.5 U | <0.5 U | <0.5 U | <0.22 U | <0.55 U | <4 U | NS | <1.5 U | <0.275 U | 1.2 U | <0.6 U |

| Quarter | 3rd | 4th | 1st | 2nd | 3rd | 4th | 1st | 2nd | 3rd | 4th | 1st |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Creek Sample ID** | **Sep 2010** | **Dec 2010** | **Mar 2011** | **Jun 2011** | **Sep 2011** | **Dec 2011** | **Mar 2012** | **Jun 2012** | **Not Applicable** | **Jan & Feb 2013** | **Mar 2013** |
| GPW-1 | Dry | <0.1 U | 8.7 | Dry | Dry | 1.76 | 0.163 J | Dry | NS | 1.65 | 0.735 |
| GPW-3 | Dry | 0.199 J | 0.673 | Dry | Dry | 1.31 | 0.261 | Dry | NS | 1.74 | 0.754 |
| HBW-1 | Dry | <0.1 U | <0.2 U | Dry | Dry | <0.1 U | <0.1 U | Dry | NS | <0.2 U | <0.2 U |
| HBW-7 | Dry | <0.1 U | <0.2 U | Dry | Dry | 0.171 J | <0.1 U | Dry | NS | <0.2 U | <0.2 U |
| HBW-10 | Dry | <0.1 U | <0.2 U | Dry | Dry | <0.1 U | <0.1 U | Dry | NS | <0.2 U | <0.2 U |

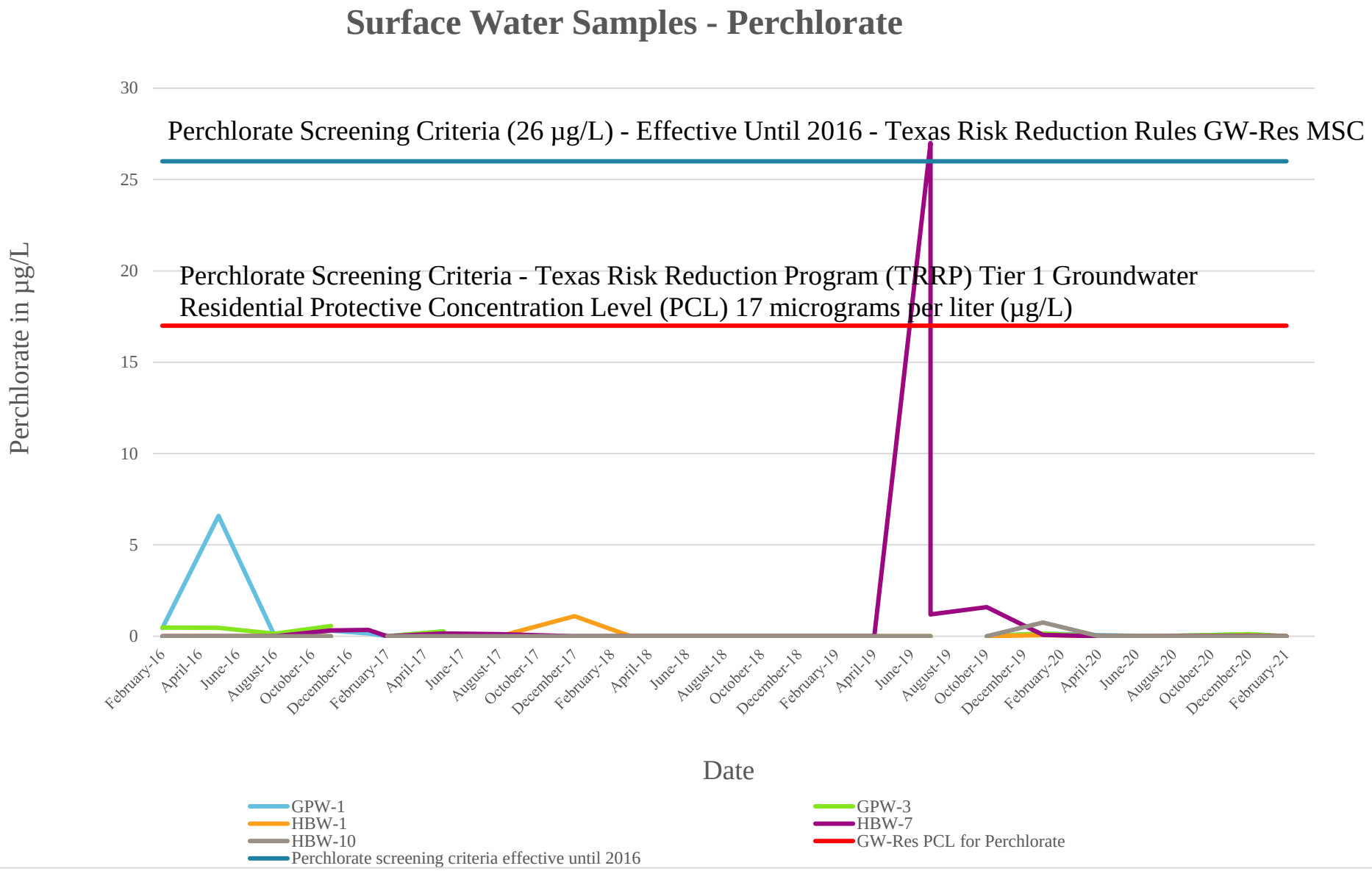
| Quarter | 2nd | 3rd | 4th | 1st | 2nd | 3nd | 4th | 1st | 2nd | 3rd | 4th |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Creek Sample ID** | **Jun 2013** | **Sept 2013** | **Dec 2013** | **Feb 2014** | **May 2014** | **Aug 2014** | **Nov 2014** | **Feb 2015** | **May 2015** | **Aug 2015** | **Nov 2015** |
| GPW-1 | Dry | <0.2 U | Dry | 0.766 | Dry | Dry | 0.244 J | 0.311 J | 0.156 J | Dry | 0.142 J |
| GPW-3 | Dry | <0.2 U | Dry | 1.15 | Dry | Dry | 0.276 J | 0.344 J | Dry | Dry | 0.311 J |
| HBW-1 | <0.2 U | <0.2 U | Dry | <0.2 U | Dry | Dry | <0.2 U | <0.2 U | Dry | Dry | <0.2 U |
| HBW-7 | <0.2 U | <0.2 U | Dry | 0.201 J | Dry | Dry | <0.2 U | 0.124 J | Dry | Dry | <0.2 U |
| HBW-10 | <0.2 U | <0.2 U | Dry | <0.2 U | Dry | Dry | <0.2 U | <0.2 U | Dry | Dry | <0.2 U |

| Quarter | 1st | 2nd | 3rd | 4th | 1st | 2nd | 3rd | 4th | 1st | 2nd | 3rd |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Creek Sample ID** | **Feb 2016** | **May 2016** | **Aug 2016** | **Nov 2016** | **Feb 2017** | **May 2017** | **Aug 2017** | **Dec 2017** | **Mar 2018** | **Jun 2018** | **Aug 2018** |
| GPW-1 | 0.447 | 6.59 | <0.2 U | 0.301 J | <1 U | 0.263 | Dry | <2.0 U | <2.0 U | Dry | <2.0 U |
| GPW-3 | 0.474 | 0.457 | 0.141 | 0.563 | <1 U | 0.274 | Dry | <2.0 U | <2.0 U | Dry | <2.0 U |
| HBW-1 | <0.2 U | <0.2 U | <0.2 U | <0.2 U | <1 U | <0.2 U | <0.2 U | 1.1 J | <2.0 U | Dry | <2.0 U |
| HBW-7 | <0.2 U | <0.2 U | <0.2 U | 0.318 J | <1 U | 0.155 | <0.2 U | <2.0 U | <2.0 U | Dry | <2.0 U |
| HBW-10 | <0.2 U | <0.2 U | <0.2 U | <0.2 U | <1 U | <0.2 U | 0.111 J | <2.0 U | <2.0 U | Dry | <2.0 U |

NS – not sampled  U – non-detect  J – Estimated  Dry – no surface water

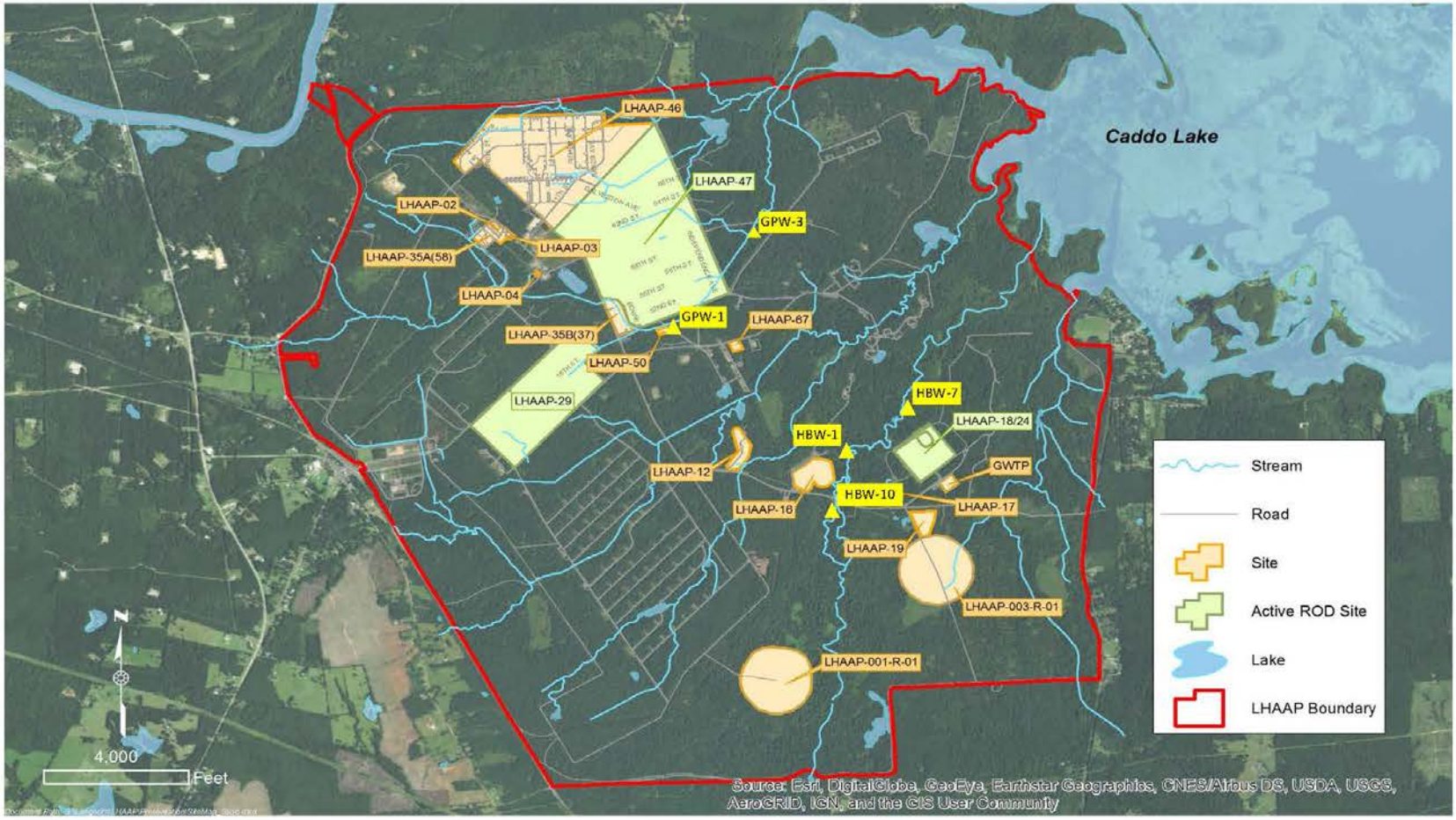
| Quarter | 4th | 1st | 2nd | 3rd | 4th | 1st | 2nd | 3rd | 4th | 1st |
|---|---|---|---|---|---|---|---|---|---|---|
| **Creek Sample ID** | **Oct 2018** | **Jan 2019** | **Apr 2019** | **Jul 2019** | **Oct 2019** | **Jan 2020** | **Apr 2020** | **Jul 2020** | **Dec 2020** | **Feb 2021** |
| GPW-1 | <2.0 U | <2.0 U | <2.0 U | <2.0 U | <2.0 U | 0.163 | 0.0589 J | <0.05 U | 0.110 | <0.05 U |
| GPW-3 | <2.0 U | <2.0 U | <2.0 U | <2.0 U | <2.0 U | 0.156 | 0.0662 J | 0.0326 J | 0.108 | <0.05 U |
| HBW-1 | <2.0 U | <2.0 U | <2.0 U | <2.0 U | <2.0 U | 0.0600 J | <0.05 U | <0.05 U | 0.0374 J | <0.05 U |
| HBW-7 | <2.0 U | <2.0 U | <2.0 U | 27 (initial)/ 1.2 J (resample) | 1.6 J | 0.0761 J | <0.05 U | 0.0318 J | 0.0265 J | <0.05 U |
| HBW-10 | <2.0 U | <2.0 U | <2.0 U | <2.0 U | <2.0 U | 0.0782 J | <0.05 U | <0.05 U | <0.05 U | <0.05 U |

NS – not sampled U – non-detect J – Estimated Dry – no surface water




Note: Surface water at HBW-7 had a detection of 27 µg/L from a sample collected on 11 July 2019. Surface water at HBW-7 was resampled 19 days later (30 July 2019) with a detection of 1.2 J µg/L.

# Longhorn Army Ammuntion Plant Creek Sampling Locations



# Groundwater Treatment Plant - Processed Groundwater Volumes

The amount of groundwater treated is determined by measuring the number of gallons of processed water discharged.

## Processed Water Discharged Data (in gallons)

| Oct-07 | Nov-07 | Dec-07 | Jan-08 | Feb-08 | Mar-08 | Apr-08 | May-08 | Jun-08 | Jul-08 | Aug-08 | Sep-08 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,041,491 | 848,356 | 804,822 | 792,148 | 665,883 | 818,872 | 791,306 | 568,812 | 776,904 | 748,377 | 690,052 | 617,199 |

| Oct-08 | Nov-08 | Dec-08 | Jan-09 | Feb-09 | Mar-09 | Apr-09 | May-09 | Jun-09 | Jul-09 | Aug-09 | Sep-09 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 655,059 | 619,274 | 726,118 | 552,299 | 598,144 | 433,800 | 488,807 | 526,958 | 387,644 | 0 | 414,853 | 735,716 |

| Oct-09 | Nov-09 | Dec-09 | Jan-10 | Feb-10 | Mar-10 | Apr-10 | May-10 | Jun-10 | Jul-10 | Aug-10 | Sep-10 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 808,322 | 636,306 | 727,492 | 391,898 | 695,343 | 802,656 | 894,731 | 962,121 | 1,257,977 | 1,314,924 | 1,041,495 | 1,136,547 |

| Oct-10 | Nov-10 | Dec-10 | Jan-11 | Feb-11 | Mar-11 | Apr-11 | May-11 | Jun-11 | Jul-11 | Aug-11 | Sep-11 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 956,567 | 705,805 | 849,712 | 811,679 | 668,281 | 1,090,348 | 817,325 | 900,338 | 916,552 | 784,369 | 652,524 | 733,456 |

| Oct-11 | Nov-11 | Dec-11 | Jan-12 | Feb-12 | Mar-12 | Apr-12 | May-12 | Jun-12 | Jul-12 | Aug-12 | Sep-12 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 748,102 | 658,250 | 684,903 | 865,453 | 725,000* | 730,000* | 980,000* | 630,000* | 0 | 0 | 0 | 349,012 |

| Oct-12 | Nov-12 | Dec-12 | Jan-13 | Feb-13 | Mar-13 | Apr-13 | May-13 | Jun-13 | Jul-13 | Aug-13 | Sep-13 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 617,037 | 607,610 | 560,436 | 869,710 | 751,213 | 641,708 | 699,776 | 746,885 | 392,719 | 962,890 | 843,913 | 716,057 |

| Oct-13 | Nov-13 | Dec-13 | Jan-14 | Feb-14 | Mar-14 | Apr-14 | May-14 | Jun-14 | Jul-14 | Aug-14 | Sep-14 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 813,974 | 727,442 | 706,416 | 552,657 | 738,691 | 844,095 | 811,346 | 972,913 | 611,505 | 626,253 | 573,601 | 575,376 |

| Oct-14 | Nov-14 | Dec-14 | Jan-15 | Feb-15 | Mar-15 | Apr-15 | May-15 | Jun-15 | Jul-15 | Aug-15 | Sep-15 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 440,877 | 572,479 | 634,890 | 614,073 | 516,592 | 1,111,859 | 1,108,336 | 822,637 | 1,020,313 | 1,002,887 | 951,758 | 306,467 |

| Oct-15 | Nov-15 | Dec-15 | Jan-16 | Feb-16 | Mar-16 | Apr-16 | May-16 | Jun-16 | Jul-16 | Aug-16 | Sep-16 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 128,586 | 209,088 | 120,234 | 454,444 | 1,028,210 | 1,201,904 | 1,224,064 | 1,094,528 | 792,311 | 844,916 | 1,032,732 | 805,728 |

| Oct-16 | Nov-16 | Dec-16 | Jan-17 | Feb-17 | Mar-17 | Apr-17 | May-17 | Jun-17 | Jul-17 | Aug-17 | Sep-17 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 890,892 | 617,570 | 353,327 | 544,543 | 745,790 | 550,555 | 454,860 | 896,514 | 890,391 | 528,538 | 195,198 | 961,324 |

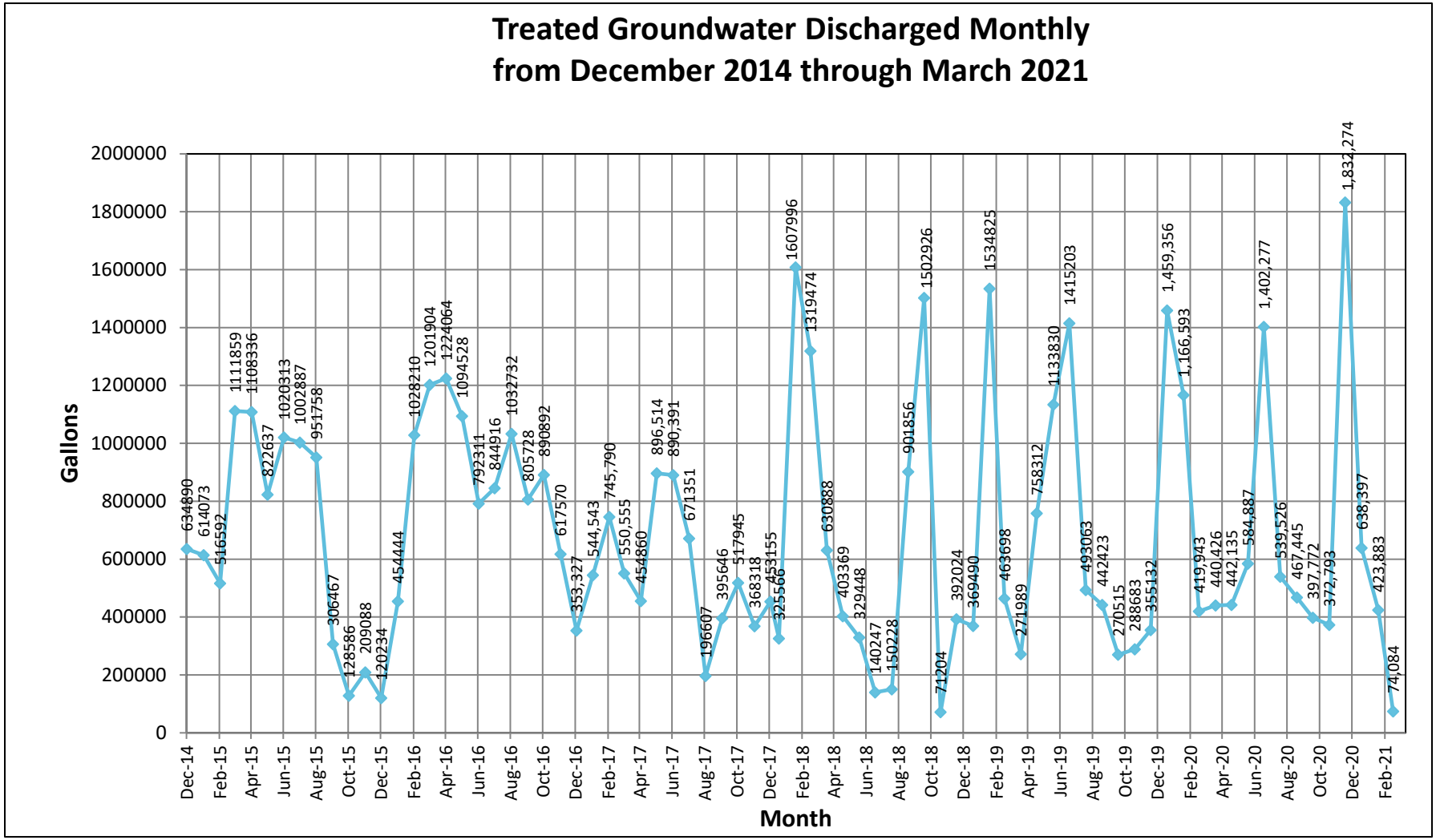
| Oct-17 | Nov-17 | Dec-17 | Jan-18 | Feb-18 | Mar-18 | Apr-18 | May-18 | Jun-18 | Jul - 18 | Aug-18 | Sep-18 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 517,945 | 368,318 | 453,155 | 325,566 | 1,607,996 | 1,319,474 | 630,888 | 403,369 | 329,448 | 140,247 | 150,228 | 901,856 |

| Oct-18 | Nov-18 | Dec-18 | Jan-19 | Feb-19 | Mar-19 | Apr-19 | May-19 | Jun-19 | Jul - 19 | Aug-19 | Sep-19 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,502,926 | 71,204 | 392,024 | 369,490 | 1,534,825 | 463,698 | 271,989 | 758,312 | 1,133,830 | 1,415,203 | 493,063 | 442,423 |

| Oct-19 | Nov-19 | Dec-19 | Jan-20 | Feb-20 | Mar-20 | Apr-20 | May-20 | Jun-20 | Jul-20 | Aug-20 | Sep-20 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 270,515 | 288,683 | 355,132 | 1,459,356 | 1,166,593 | 419,943 | 440,426 | 442,135 | 584,887 | 1,402,277 | 539,526 | 467,445 |

| Oct-20 | Nov-20 | Dec-20 | Jan-21 | Feb-21 | Mar-21 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 397,772 | 372,793 | 1,832,274 | 638,397 | 423,883 | 74,084 | | | | | | |

*Indicates Estimate


Treated Groundwater Discharged Monthly
from December 2014 through March 2021
Gallons
Month
2000000
1800000
1600000
1400000
1200000
1000000
800000
600000
400000
200000
0
Dec-14
Feb-15
Apr-15
Jun-15
Aug-15
Oct-15
Dec-15
Feb-16
Apr-16
Jun-16
Aug-16
Oct-16
Dec-16
Feb-17
Apr-17
Jun-17
Aug-17
Oct-17
Dec-17
Feb-18
Apr-18
Jun-18
Aug-18
Oct-18
Dec-18
Feb-19
Apr-19
Jun-19
Aug-19
Oct-19
Dec-19
Feb-20
Apr-20
Jun-20
Aug-20
Oct-20
Dec-20
Feb-21
634890
614073
516592
1111859
1108336
822637
1020313
1002887
951758
306467
128586
209088
120234
454444
1028210
1201904
1224064
1094528
792311
844916
1032732
805728
890892
617570
353,327
544,543
745,790
550,555
454860
896,514
890,391
671351
196607
395646
517945
368318
453155
325566
1607996
1319474
630888
403369
329448
140247
150228
901856
1502926
71204
392024
369490
1534825
463698
271989
758312
1133830
1415203
493063
442423
270515
288683
355132
1,459,356
1,166,593
419,943
440,426
442,135
584,887
1,402,277
539,526
467,445
397,772
372,793
1,832,274
638,397
423,883
74,084

# Water Discharge Location and Volume (Gallons)

| Month | Total Combined to Harrison Bayou | LHAAP-18/24 Sprinklers | GWTP To INF Pond | INF Pond to Harrison Bayou | Contract Hauled Off-Site |
|---|---|---|---|---|---|
| Dec-16 | 0 | 236,688 | 0 | 0 | 0 |
| Jan-17 | 0 | 0 | 0 | 0 | 0 |
| Feb-17 | 0 | 0 | 0 | 0 | 14,355 |
| Mar-17 | 127,242 | 0 | 0 | 0 | 14,400 |
| Apr-17 | 113,038 | 0 | 236,821 | 0 | 0 |
| May-17 | 0 | 0 | 534,155 | 0 | 0 |
| Jun-17 | 958,404 | 0 | 294,550 | 490,574 | 0 |
| Jul-17 | 0 | 0 | 528,538 | 0 | 0 |
| Aug-17 | 0 | 0 | 195,197 | 0 | 0 |
| Sep-17 | 651,434 | 0 | 309,980 | 651,434 | 0 |
| Oct-17 | 0 | 0 | 517,945 | 0 | 0 |
| Nov-17 | 0 | 0 | 368,318 | 0 | 0 |
| Dec-17 | 560,350 | 0 | 453,155 | 560,350 | 0 |
| Jan-18 | 325,566 | 0 | 253,177 | 325,566 | 0 |
| Feb-18 | 1,607,996 | 0 | 62,017 | 1,430,634 | 0 |
| Mar-18 | 1,319,474 | 0 | 0 | 870,816 | 0 |
| Apr-18 | 630,888 | 0 | 0 | 630,888 | 0 |
| May-18 | 403,369 | 0 | 0 | 403,369 | 0 |
| Jun-18 | 193,669 | 0 | 135,779 | 0 | 0 |
| Jul -18 | 0 | 0 | 140,247 | 0 | 0 |
| Aug -18 | 49,409 | 0 | 100,819 | 0 | 0 |
| Sep-18 | 585,397 | 0 | 316,459 | 524,484 | 0 |
| Oct-18 | 1,409,106 | 0 | 93,820 | 1,016,285 | 0 |
| Nov-18 | 71,204 | 0 | 0 | 0 | 0 |
| Dec-18 | 392,024 | 0 | 0 | 0 | 0 |
| Jan-19 | 369,490 | 0 | 0 | 369,490 | 0 |
| Feb-19 | 1,534,825 | 0 | 0 | 1,326,485 | 0 |
| Mar-19 | 463,698 | 0 | 0 | 83,250 | 0 |
| Apr-19 | 271,989 | 0 | 0 | 0 | 0 |
| May-19 | 758,312 | 0 | 0 | 253,817 | 0 |
| Jun-19 | 1,133,830 | 0 | 0 | 847,918 | 0 |
| Jul-19 | 1,415,203 | 0 | 0 | 903,001 | 0 |
| Aug-19 | 374,629 | 0 | 118,434 | 0 | 0 |

| Month | Total Combined to Harrison Bayou | LHAAP-18/24 Sprinklers | GWTP To INF Pond | INF Pond to Harrison Bayou | Contract Hauled Off-Site |
|---|---|---|---|---|---|
| Sep-19 | 0 | 0 | 442,423 | 0 | 0 |
| Oct-19 | 0 | 0 | 270,515 | 0 | 0 |
| Nov-19 | 115,503 | 0 | 173,180 | 0 | 0 |
| Dec-19 | 318,248 | 0 | 36,884 | 0 | 0 |
| Jan-20 | 1,459,396 | 0 | 0 | 1,115,183 | 0 |
| Feb-20 | 1,166,593 | 0 | 0 | 741,954 | 0 |
| Mar-20 | 419,943 | 0 | 0 | 0 | 0 |
| Apr-20 | 440,426 | 0 | 0 | 0 | 0 |
| May-20 | 442,135 | 0 | 0 | 0 | 0 |
| June-20 | 584,887 | 0 | 0 | 0 | 0 |
| July-20 | 1,402,277 | 0 | 0 | 984,393 | 0 |
| Aug-20 | 216,197 | 0 | 323,359 | 0 | 0 |
| Sep-20 | 0 | 0 | 467,445 | 0 | 0 |
| Oct-20 | 0 | 0 | 397,772 | 0 | 0 |
| Nov-20 | 0 | 0 | 372,793 | 0 | 0 |
| Dec-20 | 1,832,274 | 0 | 60,199 | 1,571,432 | 0 |
| Jan-21 | 638,397 | 0 | 0 | 383,318 | 0 |
| Feb-21 | 423,883 | 0 | 0 | 259,875 | 0 |
| Mar-21 | 74,084 | 0 | 0 | 74,084 | 0 |

**DEPARTMENT OF THE ARMY**
**LONGHORN ARMY AMMUNITION PLANT**
**POST OFFICE BOX 220**
**RATCLIFF, AR 72951**

July 23, 2021

DAIN-ODB-LO

Ms. Lauren Poulos
U.S. Environmental Protection Agency
1201 Elm Street, Suite 500
Dallas, TX 75270-2002

**Re: Draft Final Seventh Annual Remedial Action Operation Report, LHAAP-67 (Aboveground Storage Tank Farm), Longhorn Army Ammunition Plant, Karnack, Texas, July 2021**

Dear Ms. Poulos,

An electronic copy of the above referenced document has been added to the project portal's "Documents" folder at the following address for your review: (https://docs.cbifederalservices.com/sites/501032/regulators/Shared%20Documents/Forms/AllItems.aspx). An electronic copy of this letter and download instructions for the electronic file have been sent via email. The Draft Final document has been updated with a July publication date and includes a table of responses to the Environmental Protection Agency's (EPA) comments on the Draft version that were received on June 28-29, 2021. However, no changes to the document were specifically requested in the EPA comments and no changes to the document other than updates to the version title and publication date were performed as part of the responses. In accordance with Federal Facility Agreement, this Draft Final will be considered Final after 30 days without further comment.

The document was prepared by Bhate Environmental Associates, Inc., (Bhate) team, on behalf of the Army as part of Bhate's Performance Based Remediation contract for the facility. I ask that Kim Nemmers, Bhate's Project Manager, be copied on any communications related to the project.

The point of contact for this action is the undersigned. I may be contacted at 479-635-0110, or by email at rose.m.zeiler.civ@mail.mil.

Sincerely,

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager

Electronic Copies furnished:
B. Follin, USEPA Region 6, Dallas, TX
A. Palmie, TCEQ, Austin, TX

P. Bruckwicki, USFWS, Caddo Lake NWR, TX (1 hard copy and 1 CD)
R. Smith USACE, Tulsa District, OK
A. Williams, USACE, Tulsa District, OK
A. Maly USAEC, San Antonio, TX
K. Nemmers, Bhate, Lakewood, CO
P. Srivastav, APTIM, Houston, TX

**DEPARTMENT OF THE ARMY**
**LONGHORN ARMY AMMUNITION PLANT**
**POST OFFICE BOX 220**
**RATCLIFF, AR 72951**

July 23, 2021

DAIN-ODB-LO

Ms. April Palmie
Texas Commission on Environmental Quality
Superfund Section, MC-136
12100 Park 35 Circle, Bldg D
Austin, TX 78753

**Re: Draft Final Seventh Annual Remedial Action Operation Report, LHAAP-67 (Aboveground Storage Tank Farm), Longhorn Army Ammunition Plant, Karnack, Texas, July 2021**

Dear Ms. Palmie,

An electronic copy of the above referenced document has been added to the project portal's "Documents" folder at the following address for your review: (https://docs.cbifederalservices.com/sites/501032/regulators/Shared%20Documents/Forms/AllItems.aspx). An electronic copy of this letter and download instructions for the electronic file have been sent via email. The Draft Final document has been updated with a July publication date and includes a table of responses to the Environmental Protection Agency's (EPA) comments on the Draft version that were received on June 28-29, 2021. However, no changes to the document were specifically requested in the EPA comments and no changes to the document other than updates to the version title and publication date were performed as part of the responses. In accordance with Federal Facility Agreement, this Draft Final will be considered Final after 30 days without further comment.

The document was prepared by Bhate Environmental Associates, Inc., (Bhate) team, on behalf of the Army as part of Bhate's Performance Based Remediation contract for the facility. I ask that Kim Nemmers, Bhate's Project Manager, be copied on any communications related to the project.

The point of contact for this action is the undersigned. I may be contacted at 479-635-0110, or by email at rose.m.zeiler.civ@mail.mil.

Sincerely,

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager

Electronic Copies furnished:
L. Poulos, USEPA Region 6, Dallas, TX
B. Follin, USEPA Region 6, Dallas, TX

P. Bruckwicki, USFWS, Caddo Lake NWR, TX (1 Hard Copy and 1 CD)
R. Smith, USACE, Tulsa District, OK
A. Williams, USACE, Tulsa District, OK
A. Maly, USAEC, San Antonio, TX
K. Nemmers, Bhate, Lakewood, CO
P. Srivastav, APTIM, Houston, TX

**Response to USEPA Comments on**
**Draft Seventh Annual Remedial Action Operation Report, LHAAP-67**
**Longhorn Army Ammunition Plant, Karnack, Texas**

**Document Date: 6 May 2021**
**Comment Date: 28-29 June 2021**

**Reviewer:** Lauren Poulos, USEPA
**Respondent:** Dr. Rose Zeiler

1. Respondent Concurs (C), Does Not Concur (D), Takes Exception (E), or Delete (X)
2. Commenter Agrees (A) with response, or Does Not Agree (D) with response

| Comment Ref. # | USEPA Comment | C, D, E, or X | Response | A or D[2] |
|---|---|---|---|---|
| General Comment | General Comment, Page 1-5: Based on current water levels, it appears groundwater flow is to the north-northwest. However, there is a lack of a control point on the northeast corner. The contours might change if there was an additional well in this area. It does appear that with all of the recharge occurring on-site over the past few years, there are highs that seem to making flow direction change. It may be that there is also a northeast flow path when looking at the southwest corner contours and towards the northeast corner. Considering the general axis of the plume and that well 67WW12 is showing some contamination, this may indicate an almost radial flow during these higher groundwater levels. | C | Agree. With the concentrations at 67WW12 increasing, the flow along the eastern portion of the plume may be turning northeast or radial at times, in response to increased recharge at the site. However, the dominant shallow groundwater gradient is to the northwest as shown in Figure 2-2. Future sampling will determine if the increasing concentration trend at 67WW12 continues and whether flow in directions other than to the northwest is becoming significant in the dispersion or migration of COCs. | |

| Comment Ref. # | USEPA Comment | C, D, E, or X | Response | A or D[2] |
|---|---|---|---|---|
| 1. | Vinyl chloride will probably need to be added as a COC; if not now, then in the future. | C | Currently, Vinyl chloride (VC) is being evaluated as a daughter product of the degradation process and the presence of this VOC confirms that limited reductive dechlorination is occurring. The inclusion of VC as a COC will be evaluated during the next Five Year Review. | |
| 2. | If conditions are favorable, a value of 730 ug/L for DCE to start MNA is acceptable. The problem may be the conditions. | C | The groundwater geochemistry is not favorable for biological degradation of 1,1-DCE at 67WW15. Abiotic degradation may be the primary natural attenuation process by which COCs are reducing at this site. | |
| 3. | Increasing values of DCE are not necessarily a problem. If DCE is increasing due to PCE/TCE breakdown, increasing values actually demonstrate a working design. | C | Agreed, DCE and VC are being evaluated as daughter products of reductive dechlorination and are considered to be evidence of degradation. | |
| 4. | Dissolved oxygen is too high for thorough reductive dechlorination. Zero DO is preferable. | C | Agreed for some wells; however, for areas where wells are impacted by COCs, the DO levels are below 0.5 mg/L, which are considered anerobic and favorable for anaerobic degradation pathways. | |
| 5. | ORP is too high for thorough reductive dechlorination. Negative numbers are preferable, and less than -200 mV is ideal. | C | Agreed. The ORP values in general are above levels indicating favorable conditions for complete anaerobic degradation. | |

| Comment Ref. # | USEPA Comment | C, D, E, or X | Response | A or D[2] |
|---|---|---|---|---|
| 6. | High levels of iron can be a secondary catalyst for reductive dechlorination. The iron levels seen here are not high enough to be significant. | C | Agreed, dissolved iron levels do not suggest reduced conditions nor is iron able to be a secondary catalyst for abiotic degradation. | |
| 7. | In the past 10 years, we've identified high sulfate levels to be a potential culprit in derailing an MNA remedy. Sulfate has a chemical reaction analogous to the more commonly known carbonate cycle. | C | Agreed, and sulfate is also an electronic acceptor/respiratory substrate that the microbes may utilize before the chlorinated VOCs as it is more energy favorable. | |
| 8. | Dehalococcoides is a "gold-standard" bacterium. Low concentrations are always disappointing to see. Unfortunately, even if there are "secondary" bacteria like Dehalobacter or Dehalogenimonas, the pH and other parameters are not favorable. The conclusion is correct; we can't count on help from microbacteria. | C | Agreed, the primary pathways for reductions in COC and daughter product concentrations are not biological, but abiotic processes, including dispersion, dilution, sorption, and volatilization | |
| 9. | EPA very much agrees with the summary and conclusions. | C | Noted and appreciated. | |

# *Draft Final*
# Seventh Annual Remedial Action Operation Report, LHAAP-67 (Aboveground Storage Tank Farm)
## Longhorn Army Ammunition Plant
## Karnack, Texas

Prepared for

U.S. Army Corps of Engineers, Tulsa District
Contracting Division
2488 East 81st Street
Tulsa, Oklahoma 74137-4290

Prepared by

bhate

1608 13th Avenue South, Suite 300
Birmingham, Alabama 35205
1-800-806-4001 • www.bhate.com

Prepared by

APTIM

Aptim Federal Services, LLC
2500 City West, Suite 1700
Houston, Texas 77042

**Contract No. W9128F-13-D-0012**
**Task Order No. W9128BV17F0150**
**Project No. 501032**
**Rev 0**
**July 2021**

# Table of Contents

**List of Tables** ..... **ii**
**List of Figures** ..... **ii**
**List of Appendices** ..... **ii**
**Acronyms and Abbreviations** ..... **iii**

**1.0 Introduction** ..... **1-1**
1.1 Remedial Action Objectives ..... 1-1
1.2 Performance Objectives ..... 1-2
1.3 Site Description ..... 1-3
1.4 Conceptual Site Model ..... 1-3
**2.0 Site Activities at LHAAP-67** ..... **2-1**
2.1 Annual LUC Compliance Inspection ..... 2-1
2.2 Groundwater Monitoring ..... 2-1
2.2.1 Approved Modifications to the Groundwater Monitoring Program ..... 2-1
2.2.2 Groundwater Elevations and Flow Direction ..... 2-2
2.2.3 Groundwater Monitoring and Analytical Results ..... 2-3
2.3 Surface Water Sampling ..... 2-3
2.4 Groundwater Monitoring System Maintenance ..... 2-3
2.5 Groundwater Monitoring Optimization ..... 2-4
**3.0 Natural Attenuation Evaluation** ..... **3-1**
3.1 First Line of Evidence: Change in COC Concentrations ..... 3-1
3.1.1 Plume Migration ..... 3-1
3.1.2 Trend Analysis ..... 3-2
3.1.3 Predictive Modeling ..... 3-4
3.1.4 Plume Stability ..... 3-5
3.2 Second Line of Evidence: Geochemical Indicators ..... 3-7
3.3 Third Line of Evidence: Microbial Analysis ..... 3-10
**4.0 Summary and Conclusions** ..... **4-1**
**5.0 References** ..... **5-1**

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Draft Final • Rev 0 • July 2021

# List of Tables

Table 2-1 Groundwater RA-O Sampling – 2020
Table 2-2 Groundwater Elevation Data
Table 2-3 Groundwater Results – November 2020
Table 2-4 Groundwater Results – 2013–2020
Table 2-5 Historical Contaminants of Concern
Table 2-6 Well Maintenance Activities, Year 7 RA-O
Table 2-7 Year 8 RA-O Sampling – 2021
Table 3-1 Mann-Kendall Trend Summary – LHAAP-67

# List of Figures

Figure 1-1 LHAAP Location Map
Figure 1-2 LHAAP Site Vicinity Map
Figure 2-1 Groundwater Monitoring Well Locations
Figure 2-2 Shallow Zone Potentiometric Map – November 2020
Figure 2-3 Groundwater Elevations, 2014–2020
Figure 2-4 Groundwater Results, November 2020
Figure 3-1 COC Concentrations
Figure 3-2 Plume Stability

# List of Appendices

Appendix A Annual LUC Compliance Certification and Documentation
Appendix B Groundwater Sampling Forms
Appendix C Laboratory Analytical Data Package
Appendix D Photographic Log
Appendix E Mann-Kendall Trend Test Results
Appendix F Regression Analysis

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Draft Final • Rev 0 • July 2021

# Acronyms and Abbreviations

| | |
|---|---|
| µg/L | micrograms per liter |
| AECOM | AECOM Technical Services, Inc. |
| AST | aboveground storage tank |
| bgs | below ground surface |
| Bhate | Bhate Environmental Associates, Inc. |
| COCs | contaminants of concern |
| DCA | dichloroethane |
| DCE | dichloroethene |
| DHC | *Dehalococcoides sp.* |
| DO | dissolved oxygen |
| LHAAP | Longhorn Army Ammunition Plant |
| LUC | land use control |
| MCL | maximum contaminant level |
| mg/L | milligrams per liter |
| MNA | monitored natural attenuation |
| mV | millivolts |
| No. | number |
| ORP | oxidation-reduction potential |
| pH | potential of hydrogen |
| RACR | Remedial Action Completion Report |
| RA-O | remedial action operation |
| RAWP | Remedial Action Work Plan |
| ROD | Record of Decision |
| RD | Remedial Design |
| Shaw | Shaw Environmental & Infrastructure, Inc. |
| SU | standard unit |
| TCA | trichloroethane |
| TCE | trichloroethene |
| TCEQ | Texas Commission on Environmental Quality |
| TOC | total organic carbon |
| USACE | U.S. Army Corps of Engineers |
| USEPA | U.S. Environmental Protection Agency |
| VOC | volatile organic compound |

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Draft Final • Rev 0 • July 2021

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150• Draft Final • Rev 0 • July 2021

**This page intentionally left blank.**

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Draft Final • Rev 0 • July 2021

# 1.0 INTRODUCTION

The U.S. Army Corps of Engineers (USACE), Tulsa District, contracted with Bhate Environmental Associates, Inc. (Bhate) under the Omaha Multiple Environmental Government Acquisition National Small Business Multiple Award Task Order Contract, Environmental Remediation Services with Military Munitions Response Program, Task Order Number (No.) W9128BV17F0150, to conduct environmental restoration at multiple sites at the former Longhorn Army Ammunition Plant (LHAAP). The Bhate Team consists of Bhate and Aptim Federal Services, LLC.

LHAAP is located in east Texas in the northeastern corner of Harrison County, between State Highway 43 in Karnack, Texas, and the western shore of Caddo Lake (**Figure 1-1**). The nearest cities are Marshall, Texas, approximately 14 miles to the southwest, and Shreveport, Louisiana, approximately 40 miles to the east. Caddo Lake is a large freshwater lake that bounds LHAAP to the north and east. The eastern fence of the LHAAP installation is 3.5 miles from the Texas-Louisiana state border.

A Final Record of Decision (ROD) was executed for LHAAP-67 in June 2010 (USACE 2010). Groundwater monitoring at LHAAP-67 is ongoing as described in the Final Remedial Action Completion Report (RACR) (AECOM Technical Services, Inc. [AECOM] 2016). This Seventh Annual Remedial Action Operation (RA-O) report covers the period from May 2020 to March 2021, including the annual groundwater monitoring event in November 2020, and provides analysis for seven years of monitored natural attenuation (MNA) data.

## 1.1 Remedial Action Objectives

The remedial action objectives at the LHAAP-67 site must protect human health and meet applicable or relevant and appropriate requirements. There are no ecological risks at the LHAAP-67 site (USACE 2010).

The remedial action objectives for the LHAAP-67 site, consistent with the reasonably anticipated future use as a national wildlife refuge, are:

- Protection of human health by preventing human exposure to the contaminated groundwater.
- Protection of human health and the environment by preventing contaminated groundwater from migrating into nearby surface water.
- Return of groundwater to its potential beneficial use as drinking water wherever practicable.

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Draft Final • Rev 0 • July 2021

## 1.2 Performance Objectives

The remedy selected for LHAAP-67 is land use controls (LUCs) and MNA. The performance objectives at LHAAP-67 consist of two components: 1) physical inspections and 2) groundwater/surface water monitoring. As a component of the LUC implementation, the civil survey of the LUC boundary was conducted in November 2014 and recorded in the Harrison County Courthouse in December 2014. Physical inspections are conducted periodically to confirm compliance with the LUC objectives, which consist of preventing human exposure to groundwater contamination presenting an unacceptable risk to a future maintenance worker and ensuring that there is no withdrawal or use of groundwater from the site for anything other than environmental monitoring and testing until the cleanup levels are attained. Groundwater monitoring has been in-progress at the site since May 2013, and LHAAP-67 was included as part of the sitewide Final Fourth Five-Year Review Report finalized in May 2019 (USACE 2019).

According to the Remedial Design (RD), groundwater monitoring is being performed to demonstrate that natural attenuation is an effective remedy that will attain the remediation objectives over time and that the groundwater plume will not migrate to nearby surface water bodies at levels that may present an unacceptable risk to human health and the environment (Shaw Environmental & Infrastructure, Inc. [Shaw] 2011). Groundwater monitoring is being performed in accordance with the Remedial Action Work Plan (RAWP) (AECOM 2013) to:

- Detect changes in environmental conditions that may reduce the efficacy of natural attenuation processes.
- Identify potentially toxic and/or mobile transformation products.
- Verify that the plume is not expanding and poses no unacceptable risk to downgradient receptors.
- Detect new releases of contaminants to the environment that could impact effectiveness of the natural attenuation remedy.
- Verify attainment of the remediation objectives.

Work completed as part of the 2020–2021 RA-O consisted of the following:

- November 2020 annual groundwater monitoring event consisting of 17 wells.
- December 2020 LUC inspection.
- Well maintenance activities.

This report summarizes the LUC compliance inspection, the results of groundwater sampling, and an evaluation of the MNA remedy.

## 1.3 Site Description

LHAAP-67 is in the central portion of LHAAP, as shown on **Figure 1-2**, and covers an area of approximately 1.9 acres. The site topography is relatively flat. The nearest significant surface water body is Central Creek, located approximately 870 feet southeast and upgradient of LHAAP-67. Central Creek eventually flows into Caddo Lake.

When operational, LHAAP-67 consisted of seven aboveground storage tanks (ASTs) used for storing No. 2 fuel oil, kerosene, and solvents. The size of the tanks is unknown. The tanks were surrounded by earthen dikes designed to contain potential spills. The ASTs have been removed, and the only man-made structure remaining at the site is a railroad bed.

The LUC area associated with the groundwater use restriction at LHAAP-67 extends beyond the historical site boundaries along the western, eastern, and southern sections of the site and encompasses a total of 2.6 acres. LHAAP-67 has no known areas of archaeological or historical importance.

## 1.4 Conceptual Site Model

A detailed Conceptual Site Model of LHAAP-67 was previously presented in the ROD (USACE 2010). Based upon additional data collected as part of final remedy implementation as presented in the LHAAP-67 Final RACR (AECOM 2016), the lithologic units at the site have been reclassified.

Historically, two distinct water-bearing zones (shallow and intermediate) had been designated at LHAAP-67; however, during drilling performed for the 2013 investigation, no continuous clay layer (i.e., aquitard) or significant lithological differences between previously identified shallow and intermediate zones were encountered. Collocated monitoring wells 67WW06 (total depth 51 feet below ground surface [bgs]) and 67WW07 (total depth 24.0 feet bgs), historically identified as intermediate and shallow zone wells, respectively, had similar static groundwater levels during the four sampling events performed during 2013–2014, with a maximum difference of 1.04 feet noted during the January 2014 event (these small differences were confirmed in the four 2014–2015 sampling events, with a maximum difference of 0.08 feet). Therefore, the previously designated shallow and intermediate zones are now considered to be hydraulically connected and constitute a single uppermost groundwater-bearing unit at LHAAP-67 to a depth of approximately 50 feet bgs. Monitoring well 67WW06, which was previously identified as an intermediate zone well, has been reclassified as a shallow zone monitoring well, screened in the uppermost groundwater-bearing unit. A deeper "intermediate" water-bearing zone was identified at a depth of approximately 68 feet bgs in boring 67DPT14 (drilled in June 2014), with a clear aquitard separating this unit from the shallow zone. To assess the deeper "intermediate" water-bearing zone, 67WW16I was

installed in May 2016. Based on this information, shallow and intermediate water-bearing zones are present in the LHAAP-67 investigation area, but the configuration has been modified from that presented in the RD as discussed above.

The contaminants of concern (COCs) identified in the ROD for LHAAP-67 shallow zone groundwater are trichloroethene (TCE), 1,1-dichloroethene (DCE), 1,2-dichloroethane (DCA), 1,1,1-trichloroethane (TCA), and 1,1,2-TCA. It is also noted that vinyl chloride, a degradation product of TCE, was detected in May 2019 below the maximum contaminant level (MCL) and was below the detection limit of 0.5 micrograms per liter (µg/L) in October 2019 and during the Year 7 RA-O sampling event. The presence of these COCs in the shallow groundwater zone represents the primary driver for remedial action as they are at concentrations above the human health standards for a hypothetical future maintenance worker under an industrial exposure scenario. No COCs were detected in 67WW16I after the first sampling event in November 2017, confirming the June 2014 results from temporary well 67DPT14 and indicating that COCs are confined to the shallow groundwater zone.

The nature and extent of groundwater contamination at LHAAP-67 was evaluated during field investigations conducted between 1998 and 2007. It is believed that historical releases from the ASTs at the site contaminated the soil, with contaminants then leaching from the soil into groundwater. A relatively small area of contamination is observed in the shallow groundwater which poses an unacceptable carcinogenic risk and noncarcinogenic hazard to a hypothetical future maintenance worker under an industrial exposure scenario. There is no groundwater contamination in the deeper “intermediate” groundwater zone. The only potentially complete exposure pathway is via use of the shallow groundwater zone as drinking water. However, shallow groundwater is not used as drinking water at the refuge and the pathway is eliminated from any hypothetical receptor because LUCs are in place that prohibit the use of groundwater other than for environmental monitoring and testing. The nearest significant surface water body to LHAAP-67 site is Central Creek, located upgradient and approximately 870 feet from the site, as shown on **Figure 1-2**. There is no other surface water body in close proximity to the LHAAP-67 site. Therefore, there is not a complete pathway from groundwater to surface water.

The First Annual RA-O report indicated that the dominant shallow zone groundwater gradient was to the north-northeast, but the flow direction began to shift by May 2014 towards the north-northwest and continued to show a north-northwesterly flow direction. Based on groundwater level data collected in 2015 through November 2020, the dominant shallow zone groundwater gradient appears to be to the north-northwest. The apparent change of the shallow zone groundwater gradient may be due to the increase in precipitation the area received during 2015 and the resulting rise in groundwater levels during 2016 and in the more recent sampling events. Also, the groundwater levels fluctuate with seasonal precipitation as the groundwater

elevations are normally higher in most wells in the spring (May) sampling events. However, the highest water levels recorded during RA-O sampling were observed during the Year 7, November 2020, sampling event. The historical gradient was originally assumed to be towards the southeast in the Final RD (Shaw 2011) and was based on data collected primarily from three monitoring wells because some of the wells, such as 67WW03 and 67WW04, which are screened higher than most wells that produce groundwater, were dry most of the time. Therefore, because the groundwater is flowing away from Central Creek at LHAAP-67, the potential discharge to surface water in Central Creek became an incomplete exposure pathway and as stated in the RAWP and RACR, surface water sampling was no longer deemed to be necessary (AECOM 2013, 2016).

To assess the deeper "intermediate" water-bearing zone, monitoring well 67WW16I was completed to a depth of 78 feet bgs. This well was sampled in May 2016, November 2017, May 2018, October 2018, May 2019, October 2019, and November 2020, and no COCs were detected. This sampling confirms that COCs are confined to the shallow zone groundwater.

In response to the Fourth Five-Year Review Report (USACE 2019), recommendation to "evaluate data in the north area of the plume to determine if temporary exceedances indicate plume migration or require extension of the plume boundary monitoring well system," two new monitoring wells (67WW17 and 67WW18) were installed in the shallow groundwater zone in July and August 2019. These wells have been sampled twice, during the sixth and seventh annual RA-O events, and all COCs were below their respective MCLs. Therefore, the plume boundary does not extend farther to the north and is currently bounded to the north and northwest by the data from these two wells.

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Draft Final • Rev 0 • July 2021

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Draft Final • Rev 0 • July 2021

**This page intentionally left blank.**

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Draft Final • Rev 0 • July 2021

# 2.0 SITE ACTIVITIES AT LHAAP-67

This chapter describes the results of the Year 7 RA-O activities, including annual LUC compliance inspection, the first annual groundwater monitoring, and monitoring system repairs and/or maintenance performed at LHAAP-67.

## 2.1 Annual LUC Compliance Inspection

The annual LUC compliance inspection for LHAAP-67 was performed on December 22, 2020. The LUC for this site is groundwater restriction, which prohibits water well installation for any purpose other than environmental monitoring and testing and residential groundwater use until the levels of COCs in groundwater and soil allow unrestricted use and unlimited exposure. The restriction applies to groundwater underlying an approximately 6-acre area defined by the surveyed LUC boundary (AECOM 2016). The Annual LUC Compliance Certification Documentation Form for the Year 7 RA-O monitoring period is included in **Appendix A**. No noncompliance issues or concerns were noted during the annual inspection.

## 2.2 Groundwater Monitoring

The Year 7 RA-O monitoring event performed in November 2020 is the second annual monitoring event after three years of semiannual monitoring. Sample Collection Logs are included in **Appendix B**. Sampling was attempted at 17 monitoring wells, which included the second sampling event at the two new monitoring wells, 67WW17 and 67WW18, as shown in **Table 2-1**. Monitoring well locations are depicted on **Figure 2-1**.

Prior to collecting groundwater samples, monitoring wells were gauged using a water level probe, and the depth to water was recorded to the nearest 0.01 feet from the top of casing. Depth-to-water measurements were used to calculate the groundwater elevations presented in **Table 2-2**. In November 2020, monitoring well 67WW03 was dry and could not be gauged or sampled and 67WW04, which was to be gauged only, also did not have enough water for this measurement.

Groundwater samples were collected using low-flow sampling techniques as described in the groundwater sampling procedures found in the *Final Installation-Wide Work Plan* (Bhate 2018).

### 2.2.1 Approved Modifications to the Groundwater Monitoring Program

The following minor modifications have been made to the groundwater monitoring program since the beginning of the RA-Os, in coordination with U.S. Environmental Protection Agency (USEPA) and the Texas Commission on Environmental Quality (TCEQ), since it was first developed in the RAWP (AECOM 2013):

- Monitoring wells 67WW09A and 67WW10 replaced the sampling of 67WW04 to bound the plume to the south.
- Well 67WW04 will continue to be gauged for water levels only during each sampling event.
- Monitoring wells 67WW06 and 67WW07 are now considered duplicative, and only 67WW07 will be sampled in the future.
- Well 67WW06 will continue to be gauged for water levels only during each sampling event.
- Monitoring wells 67WW01 and 67WW08 were selected in the RAWP for collection of MNA geochemical parameters. Based on the lack of consistent groundwater at 67WW01 and an evaluation of COC concentrations and monitoring well locations with respect to the plume, it was determined in coordination with USEPA and TCEQ that future sampling for MNA geochemical parameters will occur at monitoring wells 67WW13 and 67WW08.
- No further surface water monitoring is planned for the LHAAP-67 site at Central Creek (AECOM 2016).
- Two additional wells, 67WW17 and 67WW18, were installed and added to the monitoring plan to evaluate the groundwater and bound the plume to the north and northwest of the site.

### 2.2.2 Groundwater Elevations and Flow Direction

During the Year 7 RA-O sampling event, water levels were gauged in November 2020 and used to determine groundwater flow direction, as shown on **Figure 2-2**. Monitoring wells 67WW03 and 67WW04 were dry in November 2020 and, as noted on the figure, the groundwater elevation measured at 67WW01 was anomalous relative to the nearby monitoring locations and was not used to draw the potentiometric contours. However, this did not limit the ability to construct a potentiometric surface contour map. Based on the gauging data during this event, the groundwater flow direction is interpreted to be north-northwesterly. As observed previously, the groundwater levels fluctuate with seasonal precipitation, as the groundwater elevations are higher in the spring and lower in the fall, as shown on **Figure 2-3**. This figure shows that on average, the primary pattern is groundwater elevation approximately 1.5 feet lower in the fall than in the spring. The annual sampling that began during the Year 6 RA-O event will continue in the future and may provide more consistent groundwater water levels from event to event without the seasonal fluctuations.

The groundwater elevations across the site during the Years 2, 3, 4, 5, 6, and 7 RA-O sampling events remained similar, with a predominantly north-northwesterly groundwater flow direction.

### 2.2.3 Groundwater Monitoring and Analytical Results

The seventh annual RA-O is the second annual groundwater sampling event after three years of semiannual sampling. Groundwater samples were collected and analyzed for volatile organic compounds (VOC) according to SW-846 Method 8260. During the November 2020 sampling event, the amount of water was insufficient to collect for analysis at monitoring well 67WW03. Samples collected from 67WW08 and 67WW13 were also analyzed for MNA geochemical parameters (**Table 2-1**).

During the annual Year 7 RA-O sampling event, VOCs were detected above their respective MCLs in monitoring wells 67WW01, 67WW02, 67WW08, 67WW12, 67WW13, 67WW14, and 67WW15. The highest concentration of VOCs was detected in well 67WW15, with 1,1-DCE levels at 730 µg/L.

Analytical results for the annual RA-O period are presented in **Table 2-3** and **Table 2-4**. **Table 2-3** presents the VOC and MNA data from the RA-O Year 7 (2020) annual sampling event, while **Table 2-4** presents the RA-O data from the first (2013) through the seventh year (2020) sampling events. Historical COC results, as far back at 1988 for some wells, are presented in **Table 2-5**. **Figure 2-4** depicts the VOC data in wells sampled in November 2020. The trends of COC concentrations in monitoring wells with COC concentrations greater than the MCLs are depicted in graphs presented on **Figure 2-4**.

An expanded discussion on the VOCs and their distribution, including trend analysis, is included in **Section 3.1**.

Groundwater monitoring well Sample Collection Logs for the November 2020 sampling event were completed for each monitoring well sampled and are included in **Appendix B**. Laboratory analytical results are included in **Appendix C**.

## 2.3 Surface Water Sampling

Surface water monitoring is not required for LHAAP-67, based on the change in the groundwater flow direction and with TCEQ and USEPA concurrence. The current north-northwest groundwater flow direction indicates that Central Creek, located south of the LHAAP-67 site, is upgradient from the site and surface water monitoring continues to be unnecessary.

## 2.4 Groundwater Monitoring System Maintenance

Inspections of the conditions and integrity of monitoring wells are conducted during each sampling event and the information is recorded on the field sampling forms. **Appendix D** includes a photographic log, which shows the condition of the wells in November 2020. Maintenance or repairs are performed as needed, based on observed conditions. During the

Year 7 reporting period, no damage to well bollards, pads, or protective well casings was observed. Also, only minimal encroachment of weeds or brush on the well pads was observed. Mowing of the area to control brush and weeds is conducted on a routine basis as needed to allow access to the wells. During the Year 7 RA-O, mowing of LHAAP-67 was conducted on October 27, 2020. **Table 2-6** provides a summary of the maintenance activities that were performed at the site during the Year 7 RA-O period.

## 2.5 Groundwater Monitoring Optimization

In accordance with the recommendation in the Fourth Five-Year Review Report (USACE 2019) and as discussed in the Year 5 RA-O, two monitoring wells, 67WW17 and 67WW18, were installed to the north and northwest of the site to evaluate the extent of the plume boundary in those directions. Monitoring well 67WW17 was installed at 27 feet bgs with a screened interval from 17 to 27 feet to match the shallow screened interval in well 67WW02, while well 16WW18 was installed at 39 feet bgs with a screened interval from 29 to 39 feet bgs to match the screened interval in well 67WW15. The two new monitoring wells were sampled in October 2019 and November 2020, and all the COCs were below the MCLs. These wells will continue to be sampled annually to bound the plume in the north-northwest direction. The monitoring well network for Year 8 RA-O sampling is presented in **Table 2-7**. In accordance with the RAWP (AECOM 2013), monitoring will continue to be conducted annually until the next Five-Year Review.

# 3.0 NATURAL ATTENUATION EVALUATION

This chapter presents the results of the MNA remedy evaluation in accordance with the three lines of evidence discussed in the Final RD (Shaw 2011) for site COCs.

## 3.1 First Line of Evidence: Change in COC Concentrations

Natural attenuation is the combination of multiple mechanisms that reduce contaminant concentrations, including biodegradation, volatilization, dilution, advection, and absorption. The decrease of COC concentrations over time and distance is evidence of natural attenuation. The change in groundwater COC concentrations over time and with distance was evaluated at LHAAP-67. COC concentrations for the November 2020 sampling event are provided on **Figure 2-4** as well as in **Tables 2-3** and **2-4**. COCs exceeding their respective MCLs are highlighted. To aid in evaluating groundwater levels and COCs over time, concentration trends are provided on **Figure 3-1**.

### 3.1.1 Plume Migration

Based on the general direction of groundwater flow, monitoring wells 67WW09A and 67WW10 are considered upgradient background monitoring wells. Well 67WW04 was previously used as an upgradient background well; however, it has been removed from the RA-O because it was dry during most sampling events since 2013. Monitoring wells 67WW02 and 67WW05 and the two new wells 678WW17 and 67WW18 are downgradient monitoring wells. In-plume monitoring wells include 67WW01, 67WW13, and 67WW15. Monitoring wells 67WW07 and 67WW14 are considered cross-gradient wells. In the Year 7 RA-O event, six monitoring wells had COC concentrations above the MCLs: 67WW01, 67WW02, 67WW08, 67WW12, 67WW13, and 67WW15. Also, during this RA-O period, the COCs at 67WW11 have remained below the MCLs since the Year 4 RA-O period in November 2017.

At 67WW13, 1,1-DCE concentrations seasonally fluctuated from 200 to 640 µg/L between May and October 2019, respectively. However, if the evaluation of 1,2-DCE concentrations is conducted for the fall data only, 1,1-DCE was detected at concentrations of 320, 570, 640, and 720 µg/L in 2017, 2018, 2019, and 2020, respectively. In contrast to the fall concentrations, the spring 1,1-DCE concentrations were 160, 170, and 160 µg/L in 2017, 2018, and 2019, respectively. The data show that the fluctuations in concentrations correspond to lower groundwater elevations in the fall and higher groundwater elevations in the spring, as discussed in **Section 2.2.2**. Since sampling is now conducted annually, the higher fall concentration may be observed and was observed in November 2020 at 720 µg/L.

The Year 7 RA-O data indicate that contaminant concentrations decrease with distance, from the highest levels inside the plume towards the downgradient edge of the plume.

Concentrations of 1,1-DCE continue to decrease along the groundwater path from 67WW01 towards 67WW02 (158 feet) and then to 67WW17 (87 feet) from 49 to 40 µg/L to below the detection limit of 0.5 µg/L. However, during the Year 7 RA-O sampling event, 1,2-DCA was observed above the MCL in 67WW02 for the first time. Also, a decrease in 1,1-DCE has been observed from 730 µg/L to below the detection limit of 0.5 µg/L as groundwater flows 202 feet from 67WW15 to 67WW18.

### 3.1.2 Trend Analysis

Mann-Kendall analysis for the Year 7 RA-O monitoring period was completed for compounds at the seven wells where one or more COCs were above the MCLs. The results are presented in **Appendix E** in graphical format with statistical results presented on the bottom of the page. The GSI Mann-Kendall Tool Kit was used for this analysis. The concentrations of COCs are presented in µg/L. Half the reporting limit was used for nondetect values. For locations with field duplicate samples, the primary sample concentration was used in the trend analysis. The level of significance is calculated for each analysis and provided on the trend analysis sheet. A summary of the Mann-Kendall results is provided in **Table 3-1**. Graphical trend charts of historical COC results for all wells discussed are presented on **Figure 3-1**, and the historical COC results are provided in **Table 2-5**.

**Significant Decreases**

Mann-Kendall analysis identified statistically significant evidence of decreasing trends at the following well:

- **Monitoring well 67WW08—1,1-DCE and 1,2-DCA.** This well is located upgradient of the higher COC concentrations present at LHAAP-67, and the decreasing trends may be the result of natural attenuation (e.g., dilution from clean upgradient groundwater). Concentrations of 1,2-DCA have been continually decreasing, from the highest concentration of 106 µg/L in December 2014 to below the MCL for the first time at 2.3 µg/L in October 2019 and to 1.8 µg/L in November 2020, as shown on **Figure 3-1**. A decrease in 1,1-DCE has also been observed, from 2,320 to 50 µg/L between December 2014 and November 2020, respectively. Results from future sampling events will continue to be evaluated for COC concentration trends.

**Significant Increases**

Mann-Kendall analysis identified statistically significant evidence of increasing trends at the following wells:

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Draft Final • Rev 0 • July 2021

- **Monitoring well 67WW02—1,1-DCE and 1,1-DCA.** This well is a downgradient well, and increases have continued to be observed. During the Year 7 RA-O period, 1,1-DCE concentrations increased from 6.9 µg/L in October 2018 to 180 µg/L in May 2019 and then to 220 µg/L in November 2020. At this well, concentrations have been the highest during the spring sampling events, until the November 2020 sampling event, where levels increased to the highest level of 1,1-DCE at 220 µg/L. An increasing trend has also been observed for 1,2-DCA and was evaluated for the first time during this report because the concentration has increased above the MCL for the first time, in November 2020. 1,2-DCA concentrations at this well remained near nondetected levels until 2018 and then began to fluctuate near the MCL of 5.0 µg/L until November 2020, when it was detected at 5.5 µg/L. Concentrations at these well have increased from below the MCL since 2013 and have fluctuated in an increasing trend (**Figure 3-1**). Due to the groundwater flow direction becoming more northerly, this well is now on the downgradient edge of the plume, and the trend suggests that the plume may be expanding in this direction. The two new wells, 67WW17 and 67WW18, are downgradient of this well and bound the plume. Results from future sampling events will continue to be evaluated for COC concentration trends.
- **Monitoring well 67WW12—1,1-DCE.** Over the first five years of RA-O sampling, 1,1-DCE concentrations at 67WW12 were below the MCL until October 2019 and continued to increase in November 2020. This well is located on the eastern edge of the plume, and concentrations increased from 2.1 to 40 µg/L between May 2019 and November 2020. The data from this well will continue to be evaluated in the future to determine if this trend continues.
- **Monitoring well 67WW13—1,2-DCA and 1,1,2-TCA.** Over the first five years of RA-O sampling, 1,2-DCA concentrations at this in plume well have been stable, and during the Year 6 and Year 7 RA-O sampling events, an increasing trend was observed. Concentrations of 1,1,2-TCA have fluctuated near the MCL of 5 µg/L, and in November 2020, the level was at 5.7 µg/L. Since 2013, 1,1,2-TCA levels ranged from 7.66 µg/L in November 2015 to 3.9 µg/L in May 2019; however, the overall trend is increasing.
- **Monitoring well 67WW14—1,1-DCE.** This well is located near the west side of the plume, and concentrations of 1,2-DCE fluctuated near the MCL of 5 µg/L during the Year 7 RA-O period. Concentrations at this well ranged from 4.2 to 7.4 µg/L between November 2017 and October 2019 and decreased to 4.9 µg/L in November 2020. Although the concentration was below the MCL of 5 µg/L in

November 2020, an increasing trend has been observed since 2013, suggesting that this well is within an area of fluctuating concentrations on the fringe of the plume and that the plume may be slowly expanding to the west.

**Stable/No Trend**

Mann-Kendall analysis identified a trend as either stable or no trend at the following wells:

- **Monitoring well 67WW01—1,1-DCE and 1,2-DCA.** This well is located close to the center of the plume. Historically, 1,1,1-TCA and 1,1,2-TCA were detected above the MCL at this well (1998) along with their degradation daughter products 1,1-DCE and 1,2-DCA. The initial increase in daughter products 1,1-DCE and 1,2-DCA indicated that degradation was occurring. In 2016, 1,1,1-TCA and 1,1,2-TCA were reduced to or near nondetect levels. Since that time, 1,1-DCE and 1,2-DCA have decreased to their lowest levels, at 49 and 6.1 µg/L, respectively, in November 2020. Although the Mann-Kendall analysis indicates that trends for both compounds were increasing during the first five years of RA-O, trends are now stable or not observed, and the concentrations have continued to decrease to the lowest levels observed.
- **Monitoring well 67WW13—1,1-DCE.** This well is also near the center of the contaminant plume. Over the seven years of RA-O sampling, changes in 1,1-DCE concentrations show no statistical trend, indicating that the groundwater contaminant plume in the vicinity of 67WW13 is stable.
- **Monitoring well 67WW15—1,1-DCE, 1,2-DCA, and 1,1,2-TCA.** Monitoring well 67WW15 is located cross gradient of 67WW13 and during the Year 7 RA-O, the Mann-Kendall analysis showed that concentration trends of the COCs above the MCL are stable. Concentrations of 1,1-DCE decreased from 2,460 µg/L in May 2016 to 510 µg/L in November 2017 (**Figure 3-1**). Since November 2017, the elevated concentrations have fluctuated with the seasonal groundwater, with the higher levels observed during the fall sampling events, which specifically have fluctuated between 510 and 670 µg/L, and statistically there is no trend. Concentrations of 1,2-DCA and 1,1,2-TCA also decreased between May 2016 and November 2017, but the trends of these two compounds also show that the data are stable.

### 3.1.3 Predictive Modeling

During the Year 7 RA-O sampling event, a statistically significant decrease was observed at one well, 67WW08. At this upgradient in-plume well, the decreasing trend was observed for 1,1-DCE and 1,2-DCA. To determine the estimated time to achieve the MCLs in this

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Draft Final • Rev 0 • July 2021

upgradient plume well, time-dependent attenuation rates were determined and are provided in **Appendix F**.

During the Year 5 RA-O, predictive modeling estimated 0.1 year for 1,2-DCA to decrease below the MCL. During the Year 7 RA-O sampling, 1,2-DCA was detected at 1.6 µg/L, below the MCL for the second year in a row, confirming that the predictive modeling was correct.

A first order rate constant was estimated for 1,1-DCE during the Year 7 RA-O at 0.001 $day^{-1}$. The estimated time to reduce 1,1-DCE from 50 µg/L observed in November 2020 to the MCL of 5 µg/L is estimated to be 6.3 years. A significant decrease in COCs is not occurring in other wells at LHAAP-67; and therefore, degradation rates cannot be calculated to determine a time to achieve the MCL for the plume (i.e., predictive modeling by assuming some degree of degradation and degradation half-lives is not meaningful for this plume).

### 3.1.4 Plume Stability

Plume maps from the May 2018 through November 2020 sampling events are presented for comparison on **Figure 3-2**. 1,1,2-TCA, 1,1-DCE, and 1,2-DCA are the most widespread COCs in the shallow groundwater. Since baseline sampling in 2013, the plume has remained fairly stable with small shifts due to seasonal groundwater elevation changes. The COC data from the RA-O monitoring indicate that the plume has migrated north-northwest, in the direction of groundwater flow, as well as northeast beyond 67WW12.

At cross-gradient monitoring well 67WW14, located on the west side of the LHAAP-67 contaminant plume, 1,1-DCE was above the MCL in 2015, 2016, and 2019, and below the MCL in 2017, 2018, and 2020, indicating that the western plume boundary is fluctuating, perhaps due to seasonal variations. Even though the overall plume is relatively stable, Mann-Kendall indicates a statistically significant increasing trend for 1,1-DCE in 67WW14. Future data will determine if this trend continues. It should be noted that the trends identified in the Mann-Kendall analysis results may have been influenced by fluctuations in concentrations due to groundwater elevation changes and/or changes in groundwater flow direction.

At the downgradient well 67WW02, concentrations have fluctuated with groundwater levels, but the overall trend is increasing, and 1,2-DCA was detected for the first time in November 2020. The two new monitoring wells, 67WW17 and 67WW18, and monitoring well 67WW05 are non-detect for the site COCs, thus bounding the downgradient edge of the plumes.

To the east, at monitoring well 67WW12, a statistically significant increase in 1,1-DCE was observed. During the Year 6 RA-O, 1,1-DCE was detected above the MCL for the first time and the levels increased again in November 2020, along with an increase in groundwater elevation. The data may indicate that the plume is expanding in that direction, and additional

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Draft Final • Rev 0 • July 2021

sampling events will determine if this trend continues. Due to the increase in 1,1-DCE levels in monitoring well 67WW12, the plume is not currently delineated to the east. Additional monitoring locations may be needed on the east side of the site, if the increasing trend persists.

At upgradient in-plume monitoring well 67WW08, COC trends continue to decrease, indicating that the plume is shrinking in the upgradient area. During the Year 7 RA-O sampling event, 1,1-DCE decreased from 63 µg/L in October 2019 to 50 µg/L in November 2020. Also, 1,2-DCA concentrations decreased to below the MCL of 5 µg/L for the first time in October 2019 (2.4 µg/L) and continued to decrease to a level of 1.8 µg/L in November 2020. The decreases in COCs are attributed to primarily abiotic natural attenuation processes, including dilution from upgradient clean groundwater.

Mann-Kendall analysis at the in-plume monitoring well 67WW15 indicates COC concentrations are stable or do not have a trend. At monitoring well 67WW18, downgradient of 67WW15, all the COCs are nondetect, suggesting that concentrations are decreasing in the downgradient direction, indicating a relatively stable plume near 67WW15.

Monitoring well 67WW13, located near the center of the plume, exhibited a stable trend for 1,1-DCE and a statistically increasing trend for 1,2-DCA and 1,1,2-TCA. As shown on **Figure 3-2**, 1,1,2-TCA levels have fluctuated around the MCL and were above 5 µg/L most recently in October 2018 and November 2020. As with monitoring well 67WW15, monitoring well 67WW13 remains bounded by downgradient monitoring wells 67WW17 and 67WW18, where COCs have not been detected above MCLs.

Historically, upgradient monitoring well 67WW11 contained elevated levels of 1,1-DCE. Since 2016, all COCs have remained below the MCLs, which suggests that natural attenuation has decreased contaminant levels, likely due to dilution effects from upgradient groundwater.

Cross-gradient and downgradient monitoring well 67WW07 has also had concentrations below the MCLs over the seven-year RA-O period.

COCs in upgradient monitoring wells 67WW09, 67WW09A, 67WW10, and 67WW11 have remained below the MCLs.

The Year 7 RA-O data suggest that the core of the plume is stable; however, the COCs present at the downgradient and side-gradient edges may be migrating. Additional sampling in the future will aid in determining if these trends continue or whether additional monitoring locations will be needed.

## 3.2 Second Line of Evidence: Geochemical Indicators

**Table 2-3** includes the November 2020 geochemical indicators that are useful MNA evaluation parameters. Some geochemical indicators are collected in the field and recorded for all sampling events for all wells. In February 2019, the *Final Technical Memorandum – Monitored Natural Attenuation Monitoring Parameters* (Bhate 2019) updated the list of geochemical parameters to reduce redundancy. The updated list of parameters collected at LHAAP-67 is reflected in **Table 2-3**. The full list of parameters analyzed for the MNA evaluation were collected at two wells, 67WW08 and 67WW013. The field parameters for LHAAP-67 wells include dissolved oxygen (DO), oxidation-reduction potential (ORP), potential of hydrogen (pH), conductivity, turbidity, ferrous iron, and temperature.

**Dissolved Oxygen**

DO is the most thermodynamically favored electron acceptor used by microbes for biodegradation of organic carbon, whether natural or anthropogenic (USEPA 1998). Anaerobic bacteria, which are the primary microbes able to degrade the site COCs, generally cannot function at DO concentrations greater than about 0.5 milligrams per liter (mg/L) and hence, reductive dechlorination may not occur.

Monitoring wells 67WW01, 67WW02, 67WW08, 67WW12, 67WW13, and 67WW15 were evaluated because COC concentrations are greater than the MCL. Previously, 67WW14 was included in this evaluation; however, COCs have been below the MCLs for the last two years and, therefore, 67WW14 was not assessed for geochemical indicators. The DO concentrations during the Year 7 RA-O sampling event ranged from 0.07 to 1.28 mg/L, with four of the six readings below the 0.5 mg/L threshold, with one reading at 0.56 mg/L. DO levels of 0.50 mg/L or less observed in these impacted wells are favorable for biological reductive dechlorination.

**Oxidation-Reduction Potential**

The ORP levels indicate the oxidative or reductive potential in the aquifer matrix and provide real-time data to determine if conditions are conducive for anaerobic biodegradation. ORP values less than 50 millivolts (mV) indicate that anaerobic conditions are present in the aquifer and are favorable for biological reductive dechlorination of chlorinated ethenes and ethanes. During the Year 7 RA-O monitoring period, the ORP measurements collected from groundwater in the impacted wells were greater than 50 mV and ranged from 51 to 224 mV. The measurements observed in the impacted wells indicate generally oxidative conditions are present, which are not favorable for reductive dechlorination.

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Draft Final • Rev 0 • July 2021

## Nitrate

After DO has been depleted by microbes in the treatment zone, nitrate may be used as an electron acceptor for the degradation of organic carbon via denitrification and is reduced to nitrite. Nitrate levels above 1.0 mg/L may compete with reductive dechlorination (USEPA 1998). Nitrate was analyzed for in monitoring wells 67WW08 and 67WW13 during Year 7 RA-O and levels were below laboratory reporting limit; and therefore, nitrate will not compete as a respiratory substrate with site COCs.

## Iron Reduction

After nitrate, iron (III) (ferric iron) is used as an electron acceptor during anaerobic biodegradation of organic carbon. During this process, iron (III) is reduced to iron (II) (ferrous iron), which is soluble in water. Therefore, an increase in ferrous iron can indicate reducing groundwater conditions. During the Year 4 and Year 5 RA-O sampling, ferrous iron was detected at low levels, below 0.343 mg/L. In the Year 7 RA-O sampling, ferrous iron levels increased and were detected at 1.06 and 0.90 mg/L in monitoring wells 67WW08 and 67WW13, respectively. At 67WW08, ferrous iron increased from 0.41 to 1.06 mg/L between October 2019 and November 2020, which correlates to the DO levels below 0.5 mg/L and decreasing trends in COCs at this well. Although ferrous iron also increased in well 67WW13 from 0.06 to 0.90 between October 2019 and November 2020, the increase does not correlate to lower DO levels or decreasing trends in COCs. The November 2020 data indicate that limited biological degradation may be occurring in some areas but is not a significant pathway for reducing COCs at this site.

## Sulfate

After DO, nitrate, and iron have been depleted in the groundwater, sulfate is used as an electron acceptor and reduced to sulfide. Concentrations of sulfate greater than 20 mg/L may compete with reductive dechlorination of the site COCs. However, in many plumes with high concentrations of sulfate, reductive dechlorination still occurs (USEPA 1998). Sulfate was analyzed for at monitoring wells 67WW08 and 67WW13 during the Year 7 RA-O and detected at 521 and 346 mg/L, respectively. Since RA-O sampling began at LHAAP-67, relatively high concentrations of sulfate have been observed and have not declined. Sulfide analysis was conducted at LHAAP-67 through October 2018, and levels were consistently below the detection limit. Due to the historically low levels of sulfide, this analysis was removed and changes in sulfate levels will be used to aid in determining sulfate reducing conditions (Bhate 2019). The data indicate that sulfate-reducing conditions do not exist in the groundwater.

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Draft Final • Rev 0 • July 2021

## Methane

Methanogenesis occurs in highly reducing conditions and generally occurs after oxygen, nitrate, iron, and sulfate have been depleted. Methane levels above 500 µg/L are considered indicative of methanogenic conditions (USEPA 1998). Methane concentrations remain low and were less than 1.3 µg/L during the Year 7 RA-O at 67WW08 and 67WW13. These methane levels suggest that methanogenic conditions are not present in the groundwater at LHAAP-67.

## Total Organic Carbon

Organic carbon is utilized as an energy and hydrogen source to support the reductive dechlorination of the chlorinated COCs. Total organic carbon (TOC) concentrations greater than 20 mg/L are considered adequate to support microbial activity (USEPA 1998). TOC was analyzed for in monitoring wells 67WW08 and 67WW13 during the Year 7 RA-O sampling events and ranged from 1.7 to 1.45 mg/L. The data indicate that carbon concentrations in the groundwater are not at levels sufficient to be supportive of reductive dechlorination.

## pH

The pH of the groundwater has an effect on the activity of microbial populations. Microbes capable of degrading chlorinated aliphatic hydrocarbons generally prefer pH values from 6 to 8 standard units (SU) (USEPA 1998). The shallow zone groundwater pH within the plume during the Year 7 RA-O period ranged from 5.37 SU (67WW15) to 6.68 SU (67WW02), with an average value of 6.00 SU. The pH levels in these wells are marginal for dechlorinating bacteria and would likely limit the proliferation of the microbes.

## Ethene and Ethane

Ethane and ethene are the end products of the reductive dechlorination pathways for chlorinated ethanes and ethenes. During the Year 7 RA-O, 67WW08 and 67WW13 were analyzed for ethene and ethane, and concentrations continue to be below the laboratory reporting limits. The data indicate that complete dechlorination is not occurring at this time.

## Geochemical Indicator MNA Parameter Summary

The qualitative assessment of geochemical indicators during the Year 7 RA-O period in the shallow groundwater zone at LHAAP-67 indicates current geochemical conditions are not favorable for MNA processes via biological reduction. Nonetheless, certain parameters observed in a few locations may indicate that conditions could favor biological natural attenuation, such as the increase in ferrous iron and low DO concentrations observed. The

presence of degradation products, 1,2-DCA and 1,1-DCE, suggest that limited biological degradation is occurring; however, the primary MNA processes reducing concentrations are abiotic.

## 3.3 Third Line of Evidence: Microbial Analysis

If the first two lines of evidence for MNA are deemed inadequate or inconclusive and/or the need for a contingency remedy is evaluated, data from field or microcosm studies will be necessary to establish the third line of evidence for MNA.

Analysis for the dechlorinating bacteria *Dehalococcoides sp.* (DHC) was not conducted during the Year 7 RA-O, based on the recommendation in the 2019 Five-Year Review (USACE 2019), and will not be conducted in the future. During the last sampling event for DHC in October 2018 low concentrations were detected but the populations would not be sufficient to aid the biological degradation of site COCs.

# 4.0 SUMMARY AND CONCLUSIONS

The LUC for LHAAP-67 is a groundwater restriction, which prohibits water well installation for any purpose other than environmental monitoring and testing and residential groundwater use within the LUC boundary until the levels of COCs in groundwater and soil allow unrestricted use and unlimited exposure. The annual LUC compliance inspection for the Year 7 RA-O period was conducted on December 22, 2020. No change in land use or groundwater use has occurred at the site during the seven years of RA-O monitoring.

No LUC noncompliance issues, or concerns were identified during the annual inspection. Site monitoring wells were in good condition, with no maintenance other than mowing required.

VOC data and geochemical indicators were collected over the course of the monitoring period at LHAAP-67 to evaluate effectiveness of MNA as a site remedy. A tiered approach was used to evaluate the occurrence of natural attenuation in site groundwater. The first line of evidence evaluated reductions in COC concentrations and assessed the time to achieve the MCLs. The second line of evidence evaluated geochemical indicators. The third line of evidence evaluates microbial populations in the aquifer, but due to low historical concentrations and the 2019 MNA memo, this analysis has been eliminated. The results of the tiered evaluation and the conclusions are summarized below.

An assessment of the first line of evidence included an evaluation of the groundwater flow and COC degradation trends. The groundwater flow direction at LHAAP-67 has shifted over the years. In 2007, the groundwater flowed to the northwest, but during the Year 1 RA-O in 2013-2014, it flowed toward the east. Since the Year 2 RA-O in 2014–2015, the groundwater flow has been in a more northwesterly direction. During the Year 7 RA-O, the groundwater direction continued to be north-northwest, towards monitoring well 67WW02, as it has been since the Year 2 RA-O in 2015. As observed in previous years, groundwater levels fluctuate with seasonal precipitation. Previously, elevations have been higher in the spring and lower in the fall; however, in November 2020, higher levels were observed. The Year 6 RA-O marked the change from semiannual to annual sampling, and the November 2020 sampling was the second annual event. The change to annual sampling may provide a more reliable MNA analysis due to more consistent groundwater levels and contaminant concentrations.

Two wells, 67WW17 and 67WW18, were installed in August 2019 to determine the extent of the downgradient plume and were sampled for the second time during the Year 7 RA-O. Concentrations of COCs in these wells continue to be below the MCLs, and the wells bound the plume to the north and northwest.

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Draft Final • Rev 0 • July 2021

The COCs in upgradient wells 67WW09, 67WW09A, 67WW10, and 67WW11 remain below their respective MCLs and bound the plume in the upgradient direction.

At monitoring wells within the center of the plume, 67WW01, 67WW13, and 67WW15, COC concentrations remained statistically stable. In-plume well 67WW15 exhibited the highest levels of COCs during the Year 7 RA-O monitoring period for the fourth year in a row.

At 67WW02, located at the downgradient edge of the plume, COCs have increased above the MCL and a statistically significant increasing trend in concentrations continues to be observed. During the Year 7 RA-O sampling event, 1,2-DCA was observed above the MCL for the first time. The plume is bounded by the two new downgradient monitoring wells, 67WW17 and 67WW18.

The western edge of the plume has shifted over the years as concentrations at 67WW14 have fluctuated. As suggested in the third RA-O assessment, a possible shift in the plume to the west may be occurring, resulting in increasing COC concentrations at 67WW14. However, concentrations that were above the MCL during the Year 6 RA-O were below the MCL during the Year 4, Year 5, and Year 7 RA-O sampling events.

At the eastern edge of the plume, COCs at 67WW12 were below the MCL until the Year 6 RA-O sampling event. At this well, the concentration of 1,1-DCE began to increase in 2017, rose above the MCL for the first time in October 2019, and continued to increase during the Year 7 RA-O sampling, suggesting the plume may be expanding to the east. If these trends continue with further monitoring data, additional monitoring locations may be needed to the east and/or northeast.

A statistically significant decreasing trend for 1,2-DCA and 1,1-DCE was observed in upgradient in-plume monitoring well 67WW08. Using the first-order rate constant for 1,2-DCE during in the Year 5 RA-O, the estimated time for levels to decrease to below the MCL was less than one year, and in October 2019 the level was below the MCL. The rate constant for 1,1-DCE was estimated at 0.001 $day^{-1}$ in November 2020, and the time to achieve the MCL of 5 µg/L is 6.3 years. The degradation rate calculated may be significantly influenced by seasonal fluctuations in groundwater elevation and local hydrogeologic influences and may change over time or slow down as concentrations decrease. Therefore, the actual time to achieve the MCL may be longer than anticipated.

The qualitative assessment of geochemical indicators performed as the second line of evidence at LHAAP-67 indicates that the conditions in the groundwater are not completely reducing and are not optimal for the biological degradation processes that will degrade site COCs. Although degradation products (1,2-DCA and 1,1-DCE) have been detected in monitoring wells,

groundwater conditions within the impacted area are not favorable for complete biological reductive dechlorination of site COCs.

The third line of evidence to assess MNA is to evaluate microorganisms that demonstrate biological degradation. DHC analysis was not conducted in October 2019, based on the recommendation in the 2019 Five-Year Review (USACE 2019), and will not be conducted in the future. The last DHC analysis was conducted during the Year 5 RA-O, and concentrations were not favorable for reductive dechlorination.

The evaluation of MNA at LHAAP-67 indicates decreasing concentrations in the upgradient part of the plume may have some limited biological degradation, but the primary pathways for reductions are abiotic processes, including dispersion, dilution, sorption, and volatilization. However, at the leading edges of the plume, there is no strong evidence that MNA will prevent the plume from expanding in the downgradient and eastern direction. In the wells located at the western edge of the plume, the levels are low and fluctuating. Additional sampling is required to determine if the downgradient increases are sustained. The Year 7 RA-O groundwater monitoring will continue on an annual basis until the next Five-Year Review, in compliance with the RAWP (AECOM 2013).

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Draft Final • Rev 0 • July 2021

**This page intentionally left blank.**

# 5.0 REFERENCES

AECOM Technical Services, Inc. (AECOM). 2013. *Final Remedial Action Work Plan for LHAAP-67, Aboveground Storage Tank Farm, Longhorn Army Ammunition Plant, Karnack, Texas.* March.

AECOM. 2016. *Final Remedial Action Completion Report, LHAAP-67, Aboveground Storage Tank Farm, Longhorn Army Ammunition Plant, Karnack, Texas*. July.

Bhate Environmental, Inc. (Bhate). 2018. *Final Installation-Wide Work Plan, Longhorn Army Ammunition Plant, Karnack, Texas*. May.

Bhate. 2019. *Final Technical Memorandum – Monitored Natural Attenuation Monitoring Parameters, Longhorn Army Ammunition Plant, Karnack, Texas*. February.

Shaw Environmental & Infrastructure, Inc. (Shaw). 2011. *Final Remedial Design, LHAAP-35B (37), Chemical Laboratory and LHAAP-67, Above Ground Storage Tank Farm, Longhorn Army Ammunition Plant, Karnack, Texas*. August.

U.S. Army Corps of Engineers (USACE). 2010. *Final Record of Decision, LHAAP-35B (37), Chemical Laboratory and LHAAP-67, Above Ground Storage Tank Farm, Longhorn Army Ammunition Plant, Karnack, Texas.* June.

USACE. 2019. *Fourth Five-Year Review Report, Longhorn Army Ammunition Plant, Town of Karnack, Harrison County, Texas*. May.

U.S. Environmental Protection Agency (USEPA). 1998. *Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Ground Water*. USEPA/600/R-98/128. September.

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Draft Final • Rev 0 • July 2021

**This page intentionally left blank.**

# Tables

## Table 2-1
## Groundwater RA-O Sampling – 2020

| Monitoring Well ID | November 2020 | | | |
|---|---|---|---|---|
| | VOCs | Field Parameters [a] | MNA Parameters [b] | Water Levels |
| 67WW01 | X | X | | X |
| 67WW02 | X | X | | X |
| 67WW03 | Not sufficient amount of water to sample | | | Dry |
| 67WW04 [c] | Gauge for water levels only | | | Dry |
| 67WW05 | X | X | | X |
| 67WW06 [d] | Gauge for water levels only | | | X |
| 67WW07 | X | X | | X |
| 67WW08 | X | X | X | X |
| 67WW09 | X | X | | X |
| 67WW09A | X | X | | X |
| 67WW10 | X | X | | X |
| 67WW11 | X | X | | X |
| 67WW12 | X | X | | X |
| 67WW13 | X | X | X | X |
| 67WW14 | X | X | | X |
| 67WW15 | X | X | | X |
| 67WW16I | X | X | | X |
| 67WW17 | X | X | | X |
| 67WW18 | X | X | | X |

Notes:

[a] Field parameters to be monitored for all wells: pH, temperature, conductivity, turbidity, oxidation-reduction potential (ORP), dissolved oxygen (DO), and ferrous iron.

[b] MNA parameters include nitrate, sulfate, chloride, TOC, dissolved gases (methane, ethane, ethene), carbon dioxide, and dissolved iron.

[c] 67WW04 was replaced by 67WW09A and 67WW10.

[d] 67WW06 was eliminated in May 2018 due to the close proximity of 67WW07.

X - well will be analyzed for that parameter.

ID - Identifier

MNA - monitored natural attenuation

RA-O - remedial action operation

TOC - total organic carbon

VOC - volatile organic compound

**Table 2-2**
**Groundwater Elevation Data**

| Well ID | Sampling Date | Top of Casing Elevation | Ground Surface Elevation (ft MSL) | Depth to Water (ft from TOC) | Screen Interval (ft from TOC) | | Screen Interval (ft MSL) | | Groundwater Elevation (ft MSL) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Top | Bottom | Top | Bottom | |
| 67WW01 | 05/31/13 | 200.92 | 198.21 | 25.55 | 14.68 | 24.68 | 186.24 | 176.24 | 175.37 |
| | 09/27/13 | 200.92 | 198.21 | Dry | 14.68 | 24.68 | 186.24 | 176.24 | Dry |
| | 01/23/14 | 200.92 | 198.21 | Dry | 14.68 | 24.68 | 186.24 | 176.24 | Dry |
| | 05/07/14 | 200.92 | 198.21 | 26.9 | 14.68 | 24.68 | 186.24 | 176.24 | 174.02 |
| | 07/24/14 | 200.92 | 198.21 | 26.20 | 14.68 | 24.68 | 186.24 | 176.24 | 174.72 |
| | 12/02/14 | 200.92 | 198.21 | 25.17 | 14.68 | 24.68 | 186.24 | 176.24 | 175.75 |
| | 02/10/15 | 200.92 | 198.21 | 25.55 | 14.68 | 24.68 | 186.24 | 176.24 | 175.37 |
| | 05/19/15 | 200.92 | 198.21 | 23.40 | 14.68 | 24.68 | 186.24 | 176.24 | 177.52 |
| | 11/18/15 | 200.92 | 198.21 | 26.17 | 14.68 | 24.68 | 186.24 | 176.24 | 174.75 |
| | 03/28/16 | 200.92 | 198.21 | 23.71 | 14.68 | 24.68 | 186.24 | 176.24 | 177.21 |
| | 05/18/16 | 200.92 | 198.21 | 23.26 | 14.68 | 24.68 | 186.24 | 176.24 | 177.66 |
| | 11/28/17 | 200.92 | 198.21 | 25.95 | 14.68 | 24.68 | 186.24 | 176.24 | 174.97 |
| | 05/02/18 | 200.92 | 198.21 | 24 | 14.68 | 24.68 | 186.24 | 176.24 | 176.92 |
| | 10/25/18 | 200.92 | 198.21 | 26.98 | 14.68 | 24.68 | 186.24 | 176.24 | 173.94 |
| | 05/03/19 | 200.92 | 198.21 | 22.97 | 14.68 | 24.68 | 186.24 | 176.24 | 177.95 |
| | 10/24/19 | 200.92 | 198.21 | 23.77 | 14.68 | 24.68 | 186.24 | 176.24 | 177.15 |
| | 11/03/20 | 200.92 | 198.21 | 24.77 | 14.68 | 24.68 | 186.24 | 176.24 | 176.15 |
| 67WW02 | 05/31/13 | 199.69 | 196.61 | 24.38 | 18.08 | 28.08 | 181.61 | 171.61 | 175.31 |
| | 09/27/13 | 199.69 | 196.61 | 25.28 | 18.08 | 28.08 | 181.61 | 171.61 | 174.41 |
| | 01/23/14 | 199.69 | 196.61 | 24.77 | 18.08 | 28.08 | 181.61 | 171.61 | 174.92 |
| | 05/06/14 | 199.69 | 196.61 | 27.68 | 18.08 | 28.08 | 181.61 | 171.61 | 172.01 |
| | 07/23/14 | 199.69 | 196.61 | 23.45 | 18.08 | 28.08 | 181.61 | 171.61 | 176.24 |
| | 12/02/14 | 199.69 | 196.61 | 24.13 | 18.08 | 28.08 | 181.61 | 171.61 | 175.56 |
| | 02/10/15 | 199.69 | 196.61 | 23.65 | 18.08 | 28.08 | 181.61 | 171.61 | 176.04 |
| | 05/11/15 | 199.69 | 196.61 | 22.79 | 18.08 | 28.08 | 181.61 | 171.61 | 176.90 |
| | 11/18/15 | 199.69 | 196.61 | 24.22 | 18.08 | 28.08 | 181.61 | 171.61 | 175.47 |
| | 05/18/16 | 199.69 | 196.61 | 22.58 | 18.08 | 28.08 | 181.61 | 171.61 | 177.11 |
| | 11/28/17 | 199.69 | 196.61 | 23.95 | 18.08 | 28.08 | 181.61 | 171.61 | 175.74 |
| | 05/03/18 | 199.69 | 196.61 | 24.15 | 18.08 | 28.08 | 181.61 | 171.61 | 175.54 |
| | 10/25/18 | 199.69 | 196.61 | 24.35 | 18.08 | 28.08 | 181.61 | 171.61 | 175.34 |
| | 05/01/19 | 199.69 | 196.61 | 22.42 | 18.08 | 28.08 | 181.61 | 171.61 | 177.27 |
| | 10/24/19 | 199.69 | 196.61 | 22.97 | 18.08 | 28.08 | 181.61 | 171.61 | 176.72 |
| | 11/03/20 | 199.69 | 196.61 | 21.95 | 18.08 | 28.08 | 181.61 | 171.61 | 177.74 |
| 67WW03 | 05/31/13 | 200.44 | 198.12 | 25.39 | 16.32 | 26.32 | 184.12 | 174.14 | 175.05 |
| | 09/27/13 | 200.44 | 198.12 | Dry | 16.32 | 26.32 | 184.12 | 174.14 | Dry |
| | 01/23/14 | 200.44 | 198.12 | Dry | 16.32 | 26.32 | 184.12 | 174.14 | Dry |
| | 05/06/14 | 200.44 | 198.12 | Dry | 16.32 | 26.32 | 184.12 | 174.14 | Dry |
| | 07/23/14 | 200.44 | 198.12 | Dry | 16.32 | 26.32 | 184.12 | 174.14 | Dry |
| | 12/02/14 | 200.44 | 198.12 | Dry | 16.32 | 26.32 | 184.12 | 174.14 | Dry |
| | 02/10/15 | 200.44 | 198.12 | Dry | 16.32 | 26.32 | 184.12 | 174.14 | Dry |
| | 05/11/15 | 200.44 | 198.12 | 22.98 | 16.32 | 26.32 | 184.12 | 174.14 | 177.46 |
| | 11/18/15 | 200.44 | 198.12 | Dry | 16.32 | 26.32 | 184.12 | 174.14 | Dry |
| | 03/28/16 | 200.44 | 198.12 | 23.2 | 16.32 | 26.32 | 184.12 | 174.14 | 177.24 |
| | 05/18/16 | 200.44 | 198.12 | 22.76 | 16.32 | 26.32 | 184.12 | 174.14 | 177.68 |
| | 11/27/17 | 200.44 | 198.12 | Dry | 16.32 | 26.32 | 184.12 | 174.14 | Dry |
| | 05/02/18 | 200.44 | 198.12 | Dry | 16.32 | 26.32 | 184.12 | 174.14 | Dry |
| | 10/22/18 | 200.44 | 198.12 | 24.95 | 16.32 | 26.32 | 184.12 | 174.14 | 175.49 |
| | 05/02/19 | 200.44 | 198.12 | Dry | 16.32 | 26.32 | 184.12 | 174.14 | Dry |
| | 10/28/19 | 200.44 | 198.12 | Dry | 16.32 | 26.32 | 184.12 | 174.14 | Dry |
| | 11/03/20 | 200.44 | 198.12 | Dry | 16.32 | 26.32 | 184.12 | 174.14 | Dry |

**Table 2-2**
**Groundwater Elevation Data**

| Well ID | Sampling Date | Top of Casing Elevation | Ground Surface Elevation (ft MSL) | Depth to Water (ft from TOC) | Screen Interval (ft from TOC) | | Screen Interval (ft MSL) | | Groundwater Elevation (ft MSL) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Top | Bottom | Top | Bottom | |
| 67WW04 | 09/27/13 | 203.76 | 200.5 | Dry | 14.71 | 24.71 | 189.5 | 179.5 | Dry |
| | 01/23/14 | 203.76 | 200.5 | Dry | 14.71 | 24.71 | 189.5 | 179.5 | Dry |
| | 05/06/14 | 203.76 | 200.5 | Dry | 14.71 | 24.71 | 189.5 | 179.5 | Dry |
| | 07/25/14 | 203.76 | 200.5 | Dry | 14.71 | 24.71 | 189.5 | 179.5 | Dry |
| | 12/02/14 | 203.76 | 200.5 | Dry | 14.71 | 24.71 | 189.5 | 179.5 | Dry |
| | 02/10/15 | 203.76 | 200.5 | Dry | 14.71 | 24.71 | 189.5 | 179.5 | Dry |
| | 05/11/15 | 203.76 | 200.5 | Dry | 14.71 | 24.71 | 189.5 | 179.5 | Dry |
| | 11/18/15 | 203.76 | 200.5 | Dry | 14.71 | 24.71 | 189.5 | 179.5 | Dry |
| | 05/16/16 | 203.76 | 200.5 | Dry | 14.71 | 24.71 | 189.5 | 179.5 | Dry |
| | 11/27/17 | 203.76 | 200.5 | Dry | 14.71 | 24.71 | 189.5 | 179.5 | Dry |
| | 05/02/18 | 203.76 | 200.5 | Dry | 14.71 | 24.71 | 189.5 | 179.5 | Dry |
| | 10/25/18 | 203.76 | 200.5 | 24.48 | 14.71 | 24.71 | 189.5 | 179.5 | 179.28 |
| | 05/02/19 | 203.76 | 200.5 | Dry | 14.71 | 24.71 | 189.5 | 179.5 | Dry |
| | 10/28/19 | 203.76 | 200.5 | Dry | 14.71 | 24.71 | 189.5 | 179.5 | Dry |
| | 11/03/20 | 203.76 | 200.5 | Dry | 14.71 | 24.71 | 189.5 | 179.5 | Dry |
| 67WW05 | 09/28/13 | 201 | 197.48 | 26.40 | 19.52 | 29.52 | 181.48 | 171.48 | 174.60 |
| | 01/23/14 | 201 | 197.48 | 26.00 | 19.52 | 29.52 | 181.48 | 171.48 | 175.00 |
| | 05/06/14 | 201 | 197.48 | 25.85 | 19.52 | 29.52 | 181.48 | 171.48 | 175.15 |
| | 07/23/14 | 201 | 197.48 | 25.20 | 19.52 | 29.52 | 181.48 | 171.48 | 175.80 |
| | 12/02/14 | 201 | 197.48 | 25.55 | 19.52 | 29.52 | 181.48 | 171.48 | 175.45 |
| | 02/10/15 | 201 | 197.48 | 26.20 | 19.52 | 29.52 | 181.48 | 171.48 | 174.80 |
| | 05/11/15 | 201 | 197.48 | 24.68 | 19.52 | 29.52 | 181.48 | 171.48 | 176.32 |
| | 11/18/15 | 201 | 197.48 | 25.76 | 19.52 | 29.52 | 181.48 | 171.48 | 175.24 |
| | 05/18/16 | 201 | 197.48 | 24.56 | 19.52 | 29.52 | 181.48 | 171.48 | 176.44 |
| | 11/28/17 | 201 | 197.48 | 25.6 | 19.52 | 29.52 | 181.48 | 171.48 | 175.40 |
| | 05/02/18 | 201 | 197.48 | 25.8 | 19.52 | 29.52 | 181.48 | 171.48 | 175.20 |
| | 10/25/18 | 201 | 197.48 | 25.8 | 19.52 | 29.52 | 181.48 | 171.48 | 175.20 |
| | 05/02/19 | 201 | 197.48 | 24.46 | 19.52 | 29.52 | 181.48 | 171.48 | 176.54 |
| | 10/24/19 | 201 | 197.48 | 24.72 | 19.52 | 29.52 | 181.48 | 171.48 | 176.28 |
| | 11/03/20 | 201 | 197.48 | 23.5 | 19.52 | 29.52 | 181.48 | 171.48 | 177.50 |
| 67WW06 | 05/31/13 | 200.81 | 196.95 | 25.32 | 41.86 | 51.86 | 158.95 | 148.95 | 175.49 |
| | 09/28/13 | 200.81 | 196.95 | 26.32 | 41.86 | 51.86 | 158.95 | 148.95 | 174.49 |
| | 01/24/14 | 200.81 | 196.95 | 26.61 | 41.86 | 51.86 | 158.95 | 148.95 | 174.20 |
| | 05/06/14 | 200.81 | 196.95 | 23.75 | 41.86 | 51.86 | 158.95 | 148.95 | 177.06 |
| | 07/23/14 | 200.81 | 196.95 | 23.75 | 41.86 | 51.86 | 158.95 | 148.95 | 177.06 |
| | 12/02/14 | 200.81 | 196.95 | 24.80 | 41.86 | 51.86 | 158.95 | 148.95 | 176.01 |
| | 02/10/15 | 200.81 | 196.95 | 23.95 | 41.86 | 51.86 | 158.95 | 148.95 | 176.86 |
| | 05/11/15 | 200.81 | 196.95 | 22.38 | 41.86 | 51.86 | 158.95 | 148.95 | 178.43 |
| | 11/18/15 | 200.81 | 196.95 | 24.80 | 41.86 | 51.86 | 158.95 | 148.95 | 176.01 |
| | 05/18/16 | 200.81 | 196.95 | 22.16 | 41.86 | 51.86 | 158.95 | 148.95 | 178.65 |
| | 11/29/17 | 200.81 | 196.95 | 24.66 | 41.86 | 51.86 | 158.95 | 148.95 | 176.15 |
| | 05/02/18 | 200.81 | 196.95 | 23.18 | 41.86 | 51.86 | 158.95 | 148.95 | 177.63 |
| | 10/25/18 | 200.81 | 196.95 | 24.91 | 41.86 | 51.86 | 158.95 | 148.95 | 175.90 |
| | 05/03/19 | 200.81 | 196.95 | 21.63 | 41.86 | 51.86 | 158.95 | 148.95 | 179.18 |
| | 10/28/19 | 200.81 | 196.95 | 23.37 | 41.86 | 51.86 | 158.95 | 148.95 | 177.44 |
| | 11/03/20 | 200.81 | 196.95 | 22.12 | 41.86 | 51.86 | 158.95 | 148.95 | 178.69 |
| 67WW07 | 05/31/13 | 200.84 | 197.04 | 25.35 | 17.8 | 27.8 | 183.04 | 173.04 | 175.49 |
| | 09/27/13 | 200.84 | 197.04 | 26.32 | 17.8 | 27.8 | 183.04 | 173.04 | 174.52 |
| | 01/23/14 | 200.84 | 197.04 | 25.6 | 17.8 | 27.8 | 183.04 | 173.04 | 175.24 |
| | 05/06/14 | 200.84 | 197.04 | 23.8 | 17.8 | 27.8 | 183.04 | 173.04 | 177.04 |
| | 07/24/14 | 200.84 | 197.04 | 23.83 | 17.8 | 27.8 | 183.04 | 173.04 | 177.01 |
| | 12/02/14 | 200.84 | 197.04 | 24.75 | 17.8 | 27.8 | 183.04 | 173.04 | 176.09 |
| | 02/10/15 | 200.84 | 197.04 | 24.00 | 17.8 | 27.8 | 183.04 | 173.04 | 176.84 |

**Table 2-2**
**Groundwater Elevation Data**

| Well ID | Sampling Date | Top of Casing Elevation | Ground Surface Elevation (ft MSL) | Depth to Water (ft from TOC) | Screen Interval (ft from TOC) | | Screen Interval (ft MSL) | | Groundwater Elevation (ft MSL) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Top | Bottom | Top | Bottom | |
| 67WW07 | 05/11/15 | 200.84 | 197.04 | 22.45 | 17.8 | 27.8 | 183.04 | 173.04 | 178.39 |
| | 11/18/15 | 200.84 | 197.04 | 24.84 | 17.8 | 27.8 | 183.04 | 173.04 | 176.00 |
| | 05/18/16 | 200.84 | 197.04 | 22.21 | 17.8 | 27.8 | 183.04 | 173.04 | 178.63 |
| | 11/29/17 | 200.84 | 197.04 | 24.65 | 17.8 | 27.8 | 183.04 | 173.04 | 176.19 |
| | 05/02/18 | 200.84 | 197.04 | 24.25 | 17.8 | 27.8 | 183.04 | 173.04 | 176.59 |
| | 10/25/18 | 200.84 | 197.04 | 24.94 | 17.8 | 27.8 | 183.04 | 173.04 | 175.90 |
| | 05/03/19 | 200.84 | 197.04 | 21.72 | 17.8 | 27.8 | 183.04 | 173.04 | 179.12 |
| | 10/28/19 | 200.84 | 197.04 | 23.40 | 17.8 | 27.8 | 183.04 | 173.04 | 177.44 |
| | 11/03/20 | 200.84 | 197.04 | 22.07 | 17.8 | 27.8 | 183.04 | 173.04 | 178.77 |
| 67WW08 | 06/03/13 | 200.02 | 197.60 | 24.65 | 26.02 | 50.52 | 174 | 149.5 | 175.37 |
| | 10/02/13 | 200.02 | 197.60 | 25.57 | 26.02 | 50.52 | 174 | 149.5 | 174.45 |
| | 01/23/14 | 200.02 | 197.60 | 24.9 | 26.02 | 50.52 | 174 | 149.5 | 175.12 |
| | 05/07/14 | 200.02 | 197.60 | 23.65 | 26.02 | 50.52 | 174 | 149.5 | 176.37 |
| | 07/24/14 | 200.02 | 197.60 | 23.41 | 26.02 | 50.52 | 174 | 149.5 | 176.61 |
| | 12/04/14 | 200.02 | 197.60 | 24.23 | 26.02 | 50.52 | 174 | 149.5 | 175.79 |
| | 02/11/15 | 200.02 | 197.60 | 23.46 | 26.02 | 50.52 | 174 | 149.5 | 176.56 |
| | 05/19/15 | 200.02 | 197.60 | 22.25 | 26.02 | 50.52 | 174 | 149.5 | 177.77 |
| | 11/19/15 | 200.02 | 197.60 | 24.38 | 26.02 | 50.52 | 174 | 149.5 | 175.64 |
| | 05/19/16 | 200.02 | 197.60 | 22.12 | 26.02 | 50.52 | 174 | 149.5 | 177.90 |
| | 11/28/17 | 200.02 | 197.60 | 24.00 | 26.02 | 50.52 | 174 | 149.5 | 176.02 |
| | 05/01/18 | 200.02 | 197.60 | 22.92 | 26.02 | 50.52 | 174 | 149.5 | 177.10 |
| | 10/23/18 | 200.02 | 197.60 | 24.41 | 26.02 | 50.52 | 174 | 149.5 | 175.61 |
| | 05/01/19 | 200.02 | 197.60 | 21.67 | 26.02 | 50.52 | 174 | 149.5 | 178.35 |
| | 10/28/19 | 200.02 | 197.60 | 22.85 | 26.02 | 50.52 | 174 | 149.5 | 177.17 |
| | 11/03/20 | 200.02 | 197.60 | 21.80 | 26.02 | 50.52 | 174 | 149.5 | 178.22 |
| 67WW09 | 06/01/13 | 198.21 | 195.72 | 22.78 | 16.99 | 36.49 | 181.22 | 161.72 | 175.43 |
| | 09/28/13 | 198.21 | 195.72 | 23.66 | 16.99 | 36.49 | 181.22 | 161.72 | 174.55 |
| | 01/24/14 | 198.21 | 195.72 | 22.95 | 16.99 | 36.49 | 181.22 | 161.72 | 175.26 |
| | 05/06/14 | 198.21 | 195.72 | 21.52 | 16.99 | 36.49 | 181.22 | 161.72 | 176.69 |
| | 07/25/14 | 198.21 | 195.72 | 21.40 | 16.99 | 36.49 | 181.22 | 161.72 | 176.81 |
| | 12/04/14 | 198.21 | 195.72 | 22.25 | 16.99 | 36.49 | 181.22 | 161.72 | 175.96 |
| | 02/11/15 | 198.21 | 195.72 | 21.50 | 16.99 | 36.49 | 181.22 | 161.72 | 176.71 |
| | 05/19/15 | 198.21 | 195.72 | 20.30 | 16.99 | 36.49 | 181.22 | 161.72 | 177.91 |
| | 11/18/15 | 198.21 | 195.72 | 22.24 | 16.99 | 36.49 | 181.22 | 161.72 | 175.97 |
| | 05/18/16 | 198.21 | 195.72 | 20.15 | 16.99 | 36.49 | 181.22 | 161.72 | 178.06 |
| | 11/27/17 | 198.21 | 195.72 | 22.06 | 16.99 | 36.49 | 181.22 | 161.72 | 176.15 |
| | 05/02/18 | 198.21 | 195.72 | 20.95 | 16.99 | 36.49 | 181.22 | 161.72 | 177.26 |
| | 10/23/18 | 198.21 | 195.72 | 22.43 | 16.99 | 36.49 | 181.22 | 161.72 | 175.78 |
| | 05/03/19 | 198.21 | 195.72 | 19.83 | 16.99 | 36.49 | 181.22 | 161.72 | 178.38 |
| | 10/24/19 | 198.21 | 195.72 | 20.78 | 16.99 | 36.49 | 181.22 | 161.72 | 177.43 |
| | 11/03/20 | 198.21 | 195.72 | 19.85 | 16.99 | 36.49 | 181.22 | 161.72 | 178.36 |
| 67WW09A | 09/27/13 | 202.93 | 200.4 | 28.4 | 23.33 | 38.03 | 179.6 | 164.9 | 174.53 |
| | 01/23/14 | 202.93 | 200.4 | 27.65 | 23.33 | 38.03 | 179.6 | 164.9 | 175.28 |
| | 05/06/14 | 202.93 | 200.4 | 26.1 | 23.33 | 38.03 | 179.6 | 164.9 | 176.83 |
| | 07/24/14 | 202.93 | 200.4 | 26.06 | 23.33 | 38.03 | 179.6 | 164.9 | 176.87 |
| | 12/03/14 | 202.93 | 200.4 | 27.00 | 23.33 | 38.03 | 179.6 | 164.9 | 175.93 |
| | 02/10/15 | 202.93 | 200.4 | 26.11 | 23.33 | 38.03 | 179.6 | 164.9 | 176.82 |
| | 05/12/15 | 202.93 | 200.4 | 24.97 | 23.33 | 38.03 | 179.6 | 164.9 | 177.96 |
| | 11/18/15 | 202.93 | 200.4 | 26.97 | 23.33 | 38.03 | 179.6 | 164.9 | 175.96 |
| | 05/18/16 | 202.93 | 200.4 | 24.61 | 23.33 | 38.03 | 179.6 | 164.9 | 178.32 |
| | 11/29/17 | 202.93 | 200.4 | 26.81 | 23.33 | 38.03 | 179.6 | 164.9 | 176.12 |
| | 05/03/18 | 202.93 | 200.4 | 25.78 | 23.33 | 38.03 | 179.6 | 164.9 | 177.15 |
| | 10/25/18 | 202.93 | 200.4 | 27.02 | 23.33 | 38.03 | 179.6 | 164.9 | 175.91 |
| | 05/02/19 | 202.93 | 200.4 | 24.35 | 23.33 | 38.03 | 179.6 | 164.9 | 178.58 |
| | 10/28/19 | 202.93 | 200.4 | 25.5 | 23.33 | 38.03 | 179.6 | 164.9 | 177.43 |
| | 11/03/20 | 202.93 | 200.4 | 24.72 | 23.33 | 38.03 | 179.6 | 164.9 | 178.21 |

**Table 2-2**
**Groundwater Elevation Data**

| Well ID | Sampling Date | Top of Casing Elevation | Ground Surface Elevation (ft MSL) | Depth to Water (ft from TOC) | Screen Interval (ft from TOC) | | Screen Interval (ft MSL) | | Groundwater Elevation (ft MSL) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Top | Bottom | Top | Bottom | |
| 67WW10 | 06/01/13 | 201.51 | 198.8 | 26.1 | 22.71 | 52.21 | 178.8 | 149.3 | 175.41 |
| | 09/27/13 | 201.51 | 198.8 | 27.03 | 22.71 | 52.21 | 178.8 | 149.3 | 174.48 |
| | 01/24/14 | 201.51 | 198.8 | 26.22 | 22.71 | 52.21 | 178.8 | 149.3 | 175.29 |
| | 05/06/14 | 201.51 | 198.8 | 24.4 | 22.71 | 52.21 | 178.8 | 149.3 | 177.11 |
| | 07/24/14 | 201.51 | 198.8 | 24.42 | 22.71 | 52.21 | 178.8 | 149.3 | 177.09 |
| | 12/03/14 | 201.51 | 198.8 | 25.58 | 22.71 | 52.21 | 178.8 | 149.3 | 175.93 |
| | 02/10/15 | 201.51 | 198.8 | 24.55 | 22.71 | 52.21 | 178.8 | 149.3 | 176.96 |
| | 05/12/15 | 201.51 | 198.8 | 23.10 | 22.71 | 52.21 | 178.8 | 149.3 | 178.41 |
| | 11/18/15 | 201.51 | 198.8 | 25.49 | 22.71 | 52.21 | 178.8 | 149.3 | 176.02 |
| | 05/18/16 | 201.51 | 198.8 | 22.73 | 22.71 | 52.21 | 178.8 | 149.3 | 178.78 |
| | 11/29/17 | 201.51 | 198.8 | 25.35 | 22.71 | 52.21 | 178.8 | 149.3 | 176.16 |
| | 05/03/18 | 201.51 | 198.8 | 23.77 | 22.71 | 52.21 | 178.8 | 149.3 | 177.74 |
| | 10/22/18 | 201.51 | 198.8 | 25.65 | 22.71 | 52.21 | 178.8 | 149.3 | 175.86 |
| | 05/02/19 | 201.51 | 198.8 | 22.31 | 22.71 | 52.21 | 178.8 | 149.3 | 179.20 |
| | 10/28/19 | 201.51 | 198.8 | 24.07 | 22.71 | 52.21 | 178.8 | 149.3 | 177.44 |
| | 11/03/20 | 201.51 | 198.8 | 23.20 | 22.71 | 52.21 | 178.8 | 149.3 | 178.31 |
| 67WW11 | 06/01/13 | 199.64 | 197.21 | 24.21 | 22.93 | 47.43 | 176.71 | 152.21 | 175.43 |
| | 10/02/13 | 199.64 | 197.21 | 25.17 | 22.93 | 47.43 | 176.71 | 152.21 | 174.47 |
| | 01/23/14 | 199.64 | 197.21 | 24.45 | 22.93 | 47.43 | 176.71 | 152.21 | 175.19 |
| | 05/06/14 | 199.64 | 197.21 | 22.86 | 22.93 | 47.43 | 176.71 | 152.21 | 176.78 |
| | 07/24/14 | 199.64 | 197.21 | 23.89 | 22.93 | 47.43 | 176.71 | 152.21 | 175.75 |
| | 12/04/14 | 199.64 | 197.21 | 23.77 | 22.93 | 47.43 | 176.71 | 152.21 | 175.87 |
| | 02/11/15 | 199.64 | 197.21 | 23.95 | 22.93 | 47.43 | 176.71 | 152.21 | 175.69 |
| | 05/19/15 | 199.64 | 197.21 | 21.67 | 22.93 | 47.43 | 176.71 | 152.21 | 177.97 |
| | 11/19/15 | 199.64 | 197.21 | 23.91 | 22.93 | 47.43 | 176.71 | 152.21 | 175.73 |
| | 05/19/16 | 199.64 | 197.21 | 22.48 | 22.93 | 47.43 | 176.71 | 152.21 | 177.16 |
| | 11/27/17 | 199.64 | 197.21 | 23.53 | 22.93 | 47.43 | 176.71 | 152.21 | 176.11 |
| | 05/02/18 | 199.64 | 197.21 | 22.37 | 22.93 | 47.43 | 176.71 | 152.21 | 177.27 |
| | 10/23/18 | 199.64 | 197.21 | 23.95 | 22.93 | 47.43 | 176.71 | 152.21 | 175.69 |
| | 05/01/19 | 199.64 | 197.21 | 21.21 | 22.93 | 47.43 | 176.71 | 152.21 | 178.43 |
| | 10/24/19 | 199.64 | 197.21 | 22.28 | 22.93 | 47.43 | 176.71 | 152.21 | 177.36 |
| | 11/03/20 | 199.64 | 197.21 | 21.3 | 22.93 | 47.43 | 176.71 | 152.21 | 178.34 |
| 67WW12 | 06/01/13 | 201.65 | 199.07 | 26.46 | 26.58 | 36.08 | 175.07 | 165.57 | 175.19 |
| | 10/01/13 | 201.65 | 199.07 | 24.4 | 26.58 | 36.08 | 175.07 | 165.57 | 177.25 |
| | 01/24/14 | 201.65 | 199.07 | 26.8 | 26.58 | 36.08 | 175.07 | 165.57 | 174.85 |
| | 05/06/14 | 201.65 | 199.07 | 25.43 | 26.58 | 36.08 | 175.07 | 165.57 | 176.22 |
| | 07/25/14 | 201.65 | 199.07 | 25.30 | 26.58 | 36.08 | 175.07 | 165.57 | 176.35 |
| | 12/03/14 | 201.65 | 199.07 | 26.12 | 26.58 | 36.08 | 175.07 | 165.57 | 175.53 |
| | 02/10/15 | 201.65 | 199.07 | 25.35 | 26.58 | 36.08 | 175.07 | 165.57 | 176.30 |
| | 05/12/15 | 201.65 | 199.07 | 24.50 | 26.58 | 36.08 | 175.07 | 165.57 | 177.15 |
| | 11/18/15 | 201.65 | 199.07 | 26.16 | 26.58 | 36.08 | 175.07 | 165.57 | 175.49 |
| | 05/18/16 | 201.65 | 199.07 | 24.16 | 26.58 | 36.08 | 175.07 | 165.57 | 177.49 |
| | 11/29/17 | 201.65 | 199.07 | 26.03 | 26.58 | 36.08 | 175.07 | 165.57 | 175.62 |
| | 05/03/18 | 201.65 | 199.07 | 24.85 | 26.58 | 36.08 | 175.07 | 165.57 | 176.80 |
| | 10/22/18 | 201.65 | 199.07 | 26.30 | 26.58 | 36.08 | 175.07 | 165.57 | 175.35 |
| | 05/02/19 | 201.65 | 199.07 | 23.85 | 26.58 | 36.08 | 175.07 | 165.57 | 177.80 |
| | 10/28/19 | 201.65 | 199.07 | 24.87 | 26.58 | 36.08 | 175.07 | 165.57 | 176.78 |
| | 11/03/20 | 201.65 | 199.07 | 23.85 | 26.58 | 36.08 | 175.07 | 165.57 | 177.80 |
| 67WW13 | 05/31/13 | 197.92 | 195.85 | 22.55 | 12.57 | 27.07 | 185.35 | 170.85 | 175.37 |
| | 10/01/13 | 197.92 | 195.85 | 23.42 | 12.57 | 27.07 | 185.35 | 170.85 | 174.50 |
| | 01/24/14 | 197.92 | 195.85 | 22.68 | 12.57 | 27.07 | 185.35 | 170.85 | 175.24 |
| | 05/06/14 | 197.92 | 195.85 | 21.66 | 12.57 | 27.07 | 185.35 | 170.85 | 176.26 |
| | 07/25/14 | 197.92 | 195.85 | 21.55 | 12.57 | 27.07 | 185.35 | 170.85 | 176.37 |
| | 12/04/14 | 197.92 | 195.85 | 22.22 | 12.57 | 27.07 | 185.35 | 170.85 | 175.70 |
| | 02/11/15 | 197.92 | 195.85 | 21.61 | 12.57 | 27.07 | 185.35 | 170.85 | 176.31 |
| | 05/19/15 | 197.92 | 195.85 | 20.55 | 12.57 | 27.07 | 185.35 | 170.85 | 177.37 |
| | 11/18/15 | 197.92 | 195.85 | 22.22 | 12.57 | 27.07 | 185.35 | 170.85 | 175.70 |

**Table 2-2**
**Groundwater Elevation Data**

| Well ID | Sampling Date | Top of Casing Elevation | Ground Surface Elevation (ft MSL) | Depth to Water (ft from TOC) | Screen Interval (ft from TOC) | | Screen Interval (ft MSL) | | Groundwater Elevation (ft MSL) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Top | Bottom | Top | Bottom | |
| 67WW13 | 05/19/16 | 197.92 | 195.85 | 20.40 | 12.57 | 27.07 | 185.35 | 170.85 | 177.52 |
| | 11/28/17 | 197.92 | 195.85 | 21.98 | 12.57 | 27.07 | 185.35 | 170.85 | 175.94 |
| | 05/01/18 | 197.92 | 195.85 | 21.10 | 12.57 | 27.07 | 185.35 | 170.85 | 176.82 |
| | 10/23/18 | 197.92 | 195.85 | 22.38 | 12.57 | 27.07 | 185.35 | 170.85 | 175.54 |
| | 05/01/19 | 197.92 | 195.85 | 20.18 | 12.57 | 27.07 | 185.35 | 170.85 | 177.74 |
| | 10/28/19 | 197.92 | 195.85 | 20.95 | 12.57 | 27.07 | 185.35 | 170.85 | 176.97 |
| | 11/03/20 | 197.92 | 195.85 | 19.90 | 12.57 | 27.07 | 185.35 | 170.85 | 178.02 |
| 67WW14 | 10/01/13 | 196.96 | 194.52 | 21.8 | 14.44 | 29.44 | 182.52 | 167.52 | 175.16 |
| | 01/24/14 | 196.96 | 194.52 | 21.47 | 14.44 | 29.44 | 182.52 | 167.52 | 175.49 |
| | 05/07/14 | 196.96 | 194.52 | 20.58 | 14.44 | 29.44 | 182.52 | 167.52 | 176.38 |
| | 07/25/14 | 196.96 | 194.52 | 20.25 | 14.44 | 29.44 | 182.52 | 167.52 | 176.71 |
| | 12/03/14 | 196.96 | 194.52 | 20.85 | 14.44 | 29.44 | 182.52 | 167.52 | 176.11 |
| | 02/10/15 | 196.96 | 194.52 | 20.40 | 14.44 | 29.44 | 182.52 | 167.52 | 176.56 |
| | 05/12/15 | 196.96 | 194.52 | 19.64 | 14.44 | 29.44 | 182.52 | 167.52 | 177.32 |
| | 11/18/15 | 196.96 | 194.52 | 20.81 | 14.44 | 29.44 | 182.52 | 167.52 | 176.15 |
| | 05/18/16 | 196.96 | 194.52 | 19.4 | 14.44 | 29.44 | 182.52 | 167.52 | 177.56 |
| | 11/27/17 | 196.96 | 194.52 | 20.51 | 14.44 | 29.44 | 182.52 | 167.52 | 176.45 |
| | 05/02/18 | 196.96 | 194.52 | 19.9 | 14.44 | 29.44 | 182.52 | 167.52 | 177.06 |
| | 10/22/18 | 196.96 | 194.52 | 20.85 | 14.44 | 29.44 | 182.52 | 167.52 | 176.11 |
| | 05/02/19 | 196.96 | 194.52 | 18.78 | 14.44 | 29.44 | 182.52 | 167.52 | 178.18 |
| | 10/24/19 | 196.96 | 194.52 | 19.37 | 14.44 | 29.44 | 182.52 | 167.52 | 177.59 |
| | 11/03/20 | 196.96 | 194.52 | 18.57 | 14.44 | 29.44 | 182.52 | 167.52 | 178.39 |
| 67WW15 | 05/19/16 | 199.82 | 197.24 | 22.18 | 36.78 | 46.48 | 163.04 | 153.34 | 177.64 |
| | 11/27/17 | 199.82 | 197.24 | 23.85 | 36.78 | 46.48 | 163.04 | 153.34 | 175.97 |
| | 05/02/18 | 199.82 | 197.24 | 23 | 36.78 | 46.48 | 163.04 | 153.34 | 176.82 |
| | 10/23/18 | 199.82 | 197.24 | 24.23 | 36.78 | 46.48 | 163.04 | 153.34 | 175.59 |
| | 05/03/19 | 199.82 | 197.24 | 22.04 | 36.78 | 46.48 | 163.04 | 153.34 | 177.78 |
| | 10/24/19 | 199.82 | 197.24 | 22.72 | 36.78 | 46.48 | 163.04 | 153.34 | 177.10 |
| | 11/03/20 | 199.82 | 197.24 | 21.71 | 36.78 | 46.48 | 163.04 | 153.34 | 178.11 |
| 67WW16I | 05/18/16 | 199.51 | 197.12 | 21.95 | 70.09 | 79.79 | 129.42 | 119.72 | 177.56 |
| | 11/29/17 | 199.51 | 197.12 | 24.81 | 70.09 | 79.79 | 129.42 | 119.72 | 174.70 |
| | 05/03/18 | 199.51 | 197.12 | 22.75 | 70.09 | 79.79 | 129.42 | 119.72 | 176.76 |
| | 10/25/18 | 199.51 | 197.12 | 24.03 | 70.09 | 79.79 | 129.42 | 119.72 | 175.48 |
| | 05/01/19 | 199.51 | 197.12 | 21.8 | 70.09 | 79.79 | 129.42 | 119.72 | 177.71 |
| | 10/24/19 | 199.51 | 197.12 | 22.69 | 70.09 | 79.79 | 129.42 | 119.72 | 176.82 |
| | 11/03/20 | 199.51 | 197.12 | 21.67 | 70.09 | 79.79 | 129.42 | 119.72 | 177.84 |
| 67WW17 | 10/24/19 | 199.73 | 196.33 | 23.65 | 20.40 | 30.40 | 179.33 | 169.33 | 176.08 |
| | 11/03/20 | 199.73 | 196.33 | 22.48 | 20.40 | 30.40 | 179.33 | 169.33 | 177.25 |
| 67WW18 | 10/24/19 | 198.9 | 195.29 | 23.55 | 32.61 | 42.61 | 166.29 | 156.29 | 175.35 |
| | 11/03/20 | 198.9 | 195.29 | 21.49 | 32.61 | 42.61 | 166.29 | 156.29 | 177.41 |

Notes:

Elevations are reported as feet above mean sea level (ft MSL).

[a] Screen information calculated from Data Gap Investigation Report (Shaw 2007).

[b] Screen information calculated from well construction detail forms.

[c] Well screen top and bottom depths and elevations for monitoring wells 67WW01, 67WW02, and 67WW03 were revised/confirmed with a downhole camera survey performed in March 2015.

[d] Monitoring wells 67WW01, 67WW02, and 67WW08 were re-surveyed in September 2016 and elevations in the table for these wells are based on the re-survey

[e] Intermediate zone monitoring well

Dry - insufficient or no water in well

ft - feet

ID - identification

MSL - mean sea level

TOC - top of casing

# Table 2-3
## Groundwater Results – November 2020

| | | Location Code | 67WW01 | | 67WW02 | | 67WW05 | | 67WW07 | | 67WW08 | | | | 67WW09 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW01-201103 | | 67WW02-201102 | | 67WW05-201102 | | 67WW07-201102 | | 67WW08-201103-FD | | 67WW08-201103 | | 67WW09-201103 | |
| | | Sample Date | 11/3/2020 | | 11/2/2020 | | 11/2/2020 | | 11/2/2020 | | 11/3/2020 | | 11/3/2020 | | 11/3/2020 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | FD | | REG | | REG | |
| **Parameter** | **Units** | **MCL/GW-Ind** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** |
| **ANIONS** | | | | | | | | | | | | | | | | |
| Chloride | mg/L | NV | | | | | | | | | 1810 | | 1830 | | | |
| Nitrate | mg/L | 10 | | | | | | | | | < 0.2 | U | < 0.2 | U | | |
| Sulfate | mg/L | NV | | | | | | | | | 500 | | 521 | | | |
| **FIELD TESTS** | | | | | | | | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | 0.1 | | 0.17 | | 0.58 | | 0.05 | | | | 0.32 | | 0.42 | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | 1.06 | | | |
| Oxidation-Reduction Potential | mV | NV | 55 | | 51 | | 31 | | 38 | | | | 62 | | 191 | |
| pH | SU | NV | 6.23 | | 6.68 | | 6.11 | | 6.37 | | | | 5.94 | | 6.17 | |
| Conductivity | µmhos/cm | NV | 4.44 | | 4.42 | | 3.03 | | 1.72 | | | | 6.74 | | 3.24 | |
| Temperature | deg. C | NV | 17.90 | | 20.0 | | 17.69 | | 19.95 | | | | 18.65 | | 17.87 | |
| Turbidity | NTU | NV | 168 | | 20.2 | | 96.1 | | 0 | | | | 0.8 | | 0 | |
| **GASES** | | | | | | | | | | | | | | | | |
| Carbon dioxide | µg/L | NV | | | | | | | | | 270,000 | | 270,000 | | | |
| Ethane | µg/L | NV | | | | | | | | | < 0.47 | U | < 0.47 | U | | |
| Ethylene | µg/L | NV | | | | | | | | | < 0.55 | U | < 0.55 | U | | |
| Methane | µg/L | NV | | | | | | | | | 1 | J | 1.2 | J | | |
| **TOTAL ORGANIC CARBON** | | | | | | | | | | | | | | | | |
| Total organic carbon | mg/L | NV | | | | | | | | | 1.21 | | 1.17 | | | |
| **VOLATILES** | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | µg/L | 110 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1,1-Trichloroethane | µg/L | 200 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1,2,2-Tetrachloroethane | µg/L | 14 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | µg/L | 3,100,000 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| 1,1,2-Trichloroethane | µg/L | 5 | < 0.5 | U | 1 | | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1-Dichloroethane | µg/L | 10,000 | 2.6 | | 7.6 | | < 0.5 | U | < 0.5 | U | 7.1 | | 7.3 | | < 0.5 | U |
| 1,1-Dichloroethene | µg/L | 7 | 49 | | 220 | | < 0.5 | U | < 0.5 | U | 44 | | 50 | | < 0.5 | U |
| 1,1-Dichloropropene | µg/L | 2.9 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2,3-Trichlorobenzene | µg/L | 310 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| 1,2,3-Trichloropropane | µg/L | 0.041 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| 1,2,4-Trichlorobenzene | µg/L | 70 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| 1,2,4-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2-Dibromo-3-chloropropane | µg/L | 0.2 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2-Dibromoethane | µg/L | 0.05 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2-Dichlorobenzene | µg/L | 600 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| 1,2-Dichloroethane | µg/L | 5 | 6.1 | | 5.5 | | < 0.5 | U | < 0.5 | U | 1.6 | | 1.8 | | < 0.5 | U |
| 1,2-Dichloropropane | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,3,5-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,3-Dichlorobenzene | µg/L | 3,100 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| 1,3-Dichloropropane | µg/L | 29 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,4-Dichlorobenzene | µg/L | 75 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| 2,2-Dichloropropane | µg/L | 42 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |

# Table 2-3
## Groundwater Results - November 2020

| | | Location Code | 67WW01 | | 67WW02 | | 67WW05 | | 67WW07 | | 67WW08 | | | | 67WW09 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW01-201103 | | 67WW02-201102 | | 67WW05-201102 | | 67WW07-201102 | | 67WW08-201103-FD | | 67WW08-201103 | | 67WW09-201103 | |
| | | Sample Date | 11/3/2020 | | 11/2/2020 | | 11/2/2020 | | 11/2/2020 | | 11/3/2020 | | 11/3/2020 | | 11/3/2020 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | FD | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 2-Butanone | µg/L | 61,000 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| 2-Chlorotoluene | µg/L | 2,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 2-Hexanone | µg/L | 6,100 | < 2 | U | < 2 | U | < 2 | U | < 2 | U | < 2 | U | < 2 | U | < 2 | U |
| 4-Chlorotoluene | µg/L | 2000 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| Acetone | µg/L | 92000 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| Benzene | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Bromobenzene | µg/L | 2000 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| Bromochloromethane | µg/L | 4100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Bromodichloromethane | µg/L | 4.6 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Bromoform | µg/L | 36 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Bromomethane | µg/L | 140 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Carbon disulfide | µg/L | 10000 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| Carbon tetrachloride | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Chlorobenzene | µg/L | 100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Chloroethane | µg/L | 41000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Chloroform | µg/L | 1000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Chloromethane | µg/L | 220 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| cis-1,2-Dichloroethene | µg/L | 70 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| cis-1,3-Dichloropropene | µg/L | 5.3 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Dibromochloromethane | µg/L | 34 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Dibromomethane | µg/L | 380 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Dichlorodifluoromethane | µg/L | 20000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Ethylbenzene | µg/L | 700 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Hexachlorobutadiene | µg/L | 20 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| Isopropylbenzene | µg/L | 10000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| m,p-Xylenes | µg/L | 10000 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| Methyl isobutyl ketone | µg/L | 8200 | < 2 | U | < 2 | U | < 2 | U | < 2 | U | < 2 | U | < 2 | U | < 2 | U |
| Methylene chloride | µg/L | 5 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| Naphthalene | µg/L | 2000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| n-Butylbenzene | µg/L | 4100 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| n-Propylbenzene | µg/L | 4100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| o-Xylene | µg/L | 10000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| p-Isopropyltoluene | µg/L | 10000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| sec-Butylbenzene | µg/L | 4100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Styrene | µg/L | 100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| tert-Butylbenzene | µg/L | 4100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Tetrachloroethene | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Toluene | µg/L | 1000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| trans-1,2-Dichloroethene | µg/L | 100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| trans-1,3-Dichloropropene | µg/L | 29 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Trichloroethene | µg/L | 5 | < 0.5 | U | 0.83 | J | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Trichlorofluoromethane | µg/L | 31000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Vinyl chloride | µg/L | 2 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |

# Table 2-3
## Groundwater Results - November 2020

| | | Location Code | 67WW09A | | 67WW10 | | 67WW11 | | 67WW12 | | 67WW13 | | 67WW14 | | 67WW15 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW09A-201102 | | 67WW10-201102 | | 67WW11-201103 | | 67WW12-201102 | | 67WW13-201103 | | 67WW14-201102 | | 67WW15-201103 | |
| | | Sample Date | 11/2/2020 | | 11/2/2020 | | 11/3/2020 | | 11/2/2020 | | 11/3/2020 | | 11/2/2020 | | 11/3/2020 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| **Parameter** | **Units** | **MCL/GW-Ind** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** |
| **ANIONS** | | | | | | | | | | | | | | | | |
| Chloride | mg/L | NV | | | | | | | | | 1270 | | | | | |
| Nitrate | mg/L | 10 | | | | | | | | | < 0.2 | U | | | | |
| Sulfate | mg/L | NV | | | | | | | | | 346 | | | | | |
| **FIELD TESTS** | | | | | | | | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | 0.06 | | 0.15 | | 0.05 | | 0.07 | | 1.28 | | 0.25 | | 0.56 | |
| Ferrous Iron | mg/L | NV | | | | | | | | | 0.9 | | | | | |
| Oxidation-Reduction Potential | mV | NV | 75 | | 115 | | 29 | | 55 | | 205 | | 47 | | 224 | |
| pH | SU | NV | 6.44 | | 5.62 | | 6.38 | | 6.31 | | 6.07 | | 5.60 | | 5.37 | |
| Conductivity | µmhos/cm | NV | 4.93 | | 5.58 | | 4.87 | | 5.1 | | 4.97 | | 2.64 | | 1.90 | |
| Temperature | deg. C | NV | 19.86 | | 19.34 | | 19.92 | | 19.17 | | 15.93 | | 16.43 | | 16.91 | |
| Turbidity | NTU | NV | 0 | | 57.1 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| **GASES** | | | | | | | | | | | | | | | | |
| Carbon dioxide | µg/L | NV | | | | | | | | | 350,000 | | | | | |
| Ethane | µg/L | NV | | | | | | | | | < 0.47 | U | | | | |
| Ethylene | µg/L | NV | | | | | | | | | < 0.55 | U | | | | |
| Methane | µg/L | NV | | | | | | | | | < 1 | U | | | | |
| **TOTAL ORGANIC CARBON** | | | | | | | | | | | | | | | | |
| Total organic carbon | mg/L | NV | | | | | | | | | 1.45 | J | | | | |
| **VOLATILES** | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | µg/L | 110 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1,1-Trichloroethane | µg/L | 200 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1,2,2-Tetrachloroethane | µg/L | 14 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | µg/L | 3,100,000 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| 1,1,2-Trichloroethane | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | 5.7 | | < 0.5 | U | 6.4 | |
| 1,1-Dichloroethane | µg/L | 10,000 | < 0.5 | U | < 0.5 | U | 1.3 | | 1.1 | | 33 | | 1.2 | | 14 | |
| 1,1-Dichloroethene | µg/L | 7 | < 0.5 | U | < 0.5 | U | 1.2 | | 40 | | 720 | | 4.9 | | 730 | |
| 1,1-Dichloropropene | µg/L | 2.9 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2,3-Trichlorobenzene | µg/L | 310 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| 1,2,3-Trichloropropane | µg/L | 0.041 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| 1,2,4-Trichlorobenzene | µg/L | 70 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| 1,2,4-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2-Dibromo-3-chloropropane | µg/L | 0.2 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2-Dibromoethane | µg/L | 0.05 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2-Dichlorobenzene | µg/L | 600 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| 1,2-Dichloroethane | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | 44 | | < 0.5 | U | 29 | |
| 1,2-Dichloropropane | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,3,5-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,3-Dichlorobenzene | µg/L | 3,100 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| 1,3-Dichloropropane | µg/L | 29 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,4-Dichlorobenzene | µg/L | 75 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| 2,2-Dichloropropane | µg/L | 42 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |

# Table 2-3
## Groundwater Results - November 2020

| | | Location Code | 67WW09A | | 67WW10 | | 67WW11 | | 67WW12 | | 67WW13 | | 67WW14 | | 67WW15 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW09A-201102 | | 67WW10-201102 | | 67WW11-201103 | | 67WW12-201102 | | 67WW13-201103 | | 67WW14-201102 | | 67WW15-201103 | |
| | | Sample Date | 11/2/2020 | | 11/2/2020 | | 11/3/2020 | | 11/2/2020 | | 11/3/2020 | | 11/2/2020 | | 11/3/2020 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 2-Butanone | µg/L | 61,000 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| 2-Chlorotoluene | µg/L | 2,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 2-Hexanone | µg/L | 6,100 | < 2 | U | < 2 | U | < 2 | U | < 2 | U | < 2 | U | < 2 | U | < 2 | U |
| 4-Chlorotoluene | µg/L | 2000 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| Acetone | µg/L | 92000 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| Benzene | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Bromobenzene | µg/L | 2000 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| Bromochloromethane | µg/L | 4100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Bromodichloromethane | µg/L | 4.6 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Bromoform | µg/L | 36 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Bromomethane | µg/L | 140 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Carbon disulfide | µg/L | 10000 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| Carbon tetrachloride | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Chlorobenzene | µg/L | 100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Chloroethane | µg/L | 41000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Chloroform | µg/L | 1000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Chloromethane | µg/L | 220 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| cis-1,2-Dichloroethene | µg/L | 70 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | 1.6 | | < 0.5 | U | 1.7 | |
| cis-1,3-Dichloropropene | µg/L | 5.3 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Dibromochloromethane | µg/L | 34 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Dibromomethane | µg/L | 380 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Dichlorodifluoromethane | µg/L | 20000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Ethylbenzene | µg/L | 700 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Hexachlorobutadiene | µg/L | 20 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| Isopropylbenzene | µg/L | 10000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| m,p-Xylenes | µg/L | 10000 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| Methyl isobutyl ketone | µg/L | 8200 | < 2 | U | < 2 | U | < 2 | U | < 2 | U | < 2 | U | < 2 | U | < 2 | U |
| Methylene chloride | µg/L | 5 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| Naphthalene | µg/L | 2000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| n-Butylbenzene | µg/L | 4100 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| n-Propylbenzene | µg/L | 4100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| o-Xylene | µg/L | 10000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| p-Isopropyltoluene | µg/L | 10000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| sec-Butylbenzene | µg/L | 4100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Styrene | µg/L | 100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| tert-Butylbenzene | µg/L | 4100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Tetrachloroethene | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Toluene | µg/L | 1000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| trans-1,2-Dichloroethene | µg/L | 100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| trans-1,3-Dichloropropene | µg/L | 29 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Trichloroethene | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | 3.1 | | < 0.5 | U | 2 | |
| Trichlorofluoromethane | µg/L | 31000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Vinyl chloride | µg/L | 2 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |

# Table 2-3
## Groundwater Results - November 2020

| | | Location Code | 67WW16I | | 67WW17 | | | | 67WW18 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW16I-201103 | | 67WW17-201102-FD | | 67WW17-201102 | | 67WW18-201102 | |
| | | Sample Date | 11/3/2020 | | 11/2/2020 | | 11/2/2020 | | 11/2/2020 | |
| | | Sample Purpose | REG | | FD | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| **ANIONS** | | | | | | | | | | |
| Chloride | mg/L | NV | | | | | | | | |
| Nitrate | mg/L | 10 | | | | | | | | |
| Sulfate | mg/L | NV | | | | | | | | |
| **FIELD TESTS** | | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | 0.14 | | | | 0.76 | | 0.36 | |
| Ferrous Iron | mg/L | NV | | | | | | | | |
| Oxidation-Reduction Potential | mV | NV | 1 | | | | 96 | | 63 | |
| pH | SU | NV | 6.41 | | | | 5.76 | | 5.92 | |
| Conductivity | µmhos/cm | NV | 1.43 | | | | 3.15 | | 1.14 | |
| Temperature | deg. C | NV | 18.41 | | | | 18.46 | | 19.07 | |
| Turbidity | NTU | NV | 1.5 | | | | 0 | | 0 | |
| **GASES** | | | | | | | | | | |
| Carbon dioxide | µg/L | NV | | | | | | | | |
| Ethane | µg/L | NV | | | | | | | | |
| Ethylene | µg/L | NV | | | | | | | | |
| Methane | µg/L | NV | | | | | | | | |
| **TOTAL ORGANIC CARBON** | | | | | | | | | | |
| Total organic carbon | mg/L | NV | | | | | | | | |
| **VOLATILES** | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | µg/L | 110 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1,1-Trichloroethane | µg/L | 200 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1,2,2-Tetrachloroethane | µg/L | 14 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | µg/L | 3,100,000 | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| 1,1,2-Trichloroethane | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1-Dichloroethane | µg/L | 10,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1-Dichloroethene | µg/L | 7 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1-Dichloropropene | µg/L | 2.9 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2,3-Trichlorobenzene | µg/L | 310 | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| 1,2,3-Trichloropropane | µg/L | 0.041 | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| 1,2,4-Trichlorobenzene | µg/L | 70 | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| 1,2,4-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2-Dibromo-3-chloropropane | µg/L | 0.2 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2-Dibromoethane | µg/L | 0.05 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2-Dichlorobenzene | µg/L | 600 | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| 1,2-Dichloroethane | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2-Dichloropropane | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,3,5-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,3-Dichlorobenzene | µg/L | 3,100 | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| 1,3-Dichloropropane | µg/L | 29 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,4-Dichlorobenzene | µg/L | 75 | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| 2,2-Dichloropropane | µg/L | 42 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |

# Table 2-3
## Groundwater Results - November 2020

| | | Location Code | 67WW16I | | 67WW17 | | | | 67WW18 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW16I-201103 | | 67WW17-201102-FD | | 67WW17-201102 | | 67WW18-201102 | |
| | | Sample Date | 11/3/2020 | | 11/2/2020 | | 11/2/2020 | | 11/2/2020 | |
| | | Sample Purpose | REG | | FD | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 2-Butanone | µg/L | 61,000 | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| 2-Chlorotoluene | µg/L | 2,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 2-Hexanone | µg/L | 6,100 | < 2 | U | < 2 | U | < 2 | U | < 2 | U |
| 4-Chlorotoluene | µg/L | 2000 | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| Acetone | µg/L | 92000 | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| Benzene | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Bromobenzene | µg/L | 2000 | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| Bromochloromethane | µg/L | 4100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Bromodichloromethane | µg/L | 4.6 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Bromoform | µg/L | 36 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Bromomethane | µg/L | 140 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Carbon disulfide | µg/L | 10000 | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| Carbon tetrachloride | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Chlorobenzene | µg/L | 100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Chloroethane | µg/L | 41000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Chloroform | µg/L | 1000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Chloromethane | µg/L | 220 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| cis-1,2-Dichloroethene | µg/L | 70 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| cis-1,3-Dichloropropene | µg/L | 5.3 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Dibromochloromethane | µg/L | 34 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Dibromomethane | µg/L | 380 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Dichlorodifluoromethane | µg/L | 20000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Ethylbenzene | µg/L | 700 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Hexachlorobutadiene | µg/L | 20 | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| Isopropylbenzene | µg/L | 10000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| m,p-Xylenes | µg/L | 10000 | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| Methyl isobutyl ketone | µg/L | 8200 | < 2 | U | < 2 | U | < 2 | U | < 2 | U |
| Methylene chloride | µg/L | 5 | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| Naphthalene | µg/L | 2000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| n-Butylbenzene | µg/L | 4100 | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| n-Propylbenzene | µg/L | 4100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| o-Xylene | µg/L | 10000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| p-Isopropyltoluene | µg/L | 10000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| sec-Butylbenzene | µg/L | 4100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Styrene | µg/L | 100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| tert-Butylbenzene | µg/L | 4100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Tetrachloroethene | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Toluene | µg/L | 1000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| trans-1,2-Dichloroethene | µg/L | 100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| trans-1,3-Dichloropropene | µg/L | 29 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Trichloroethene | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Trichlorofluoromethane | µg/L | 31000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Vinyl chloride | µg/L | 2 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |

# Table 2-3
# Groundwater Results - November 2020

Notes:

**Bold and highlighted results indicate analyte is above the MCL/GW-Ind.**

µg/L - micrograms per liter

µmhos/cm - micromhos per centimeter

µS/cm - microsiemens per centimeter

°C - degrees Celsius

J - estimated value

U - Not detected; The analyte was analyzed for but not detected above the associated method detection limit.

cells/mL - cells per milliliter

CEQ/mL - cell equivalence per milliliter

< - The analyte was not detected above the detection limit shown

FD - field duplicate

GW-Ind - groundwater medium-specific concentration for industrial use

ID - identification

MCL - maximum contaminant level

mg/L - milligrams per liter

mS/cm - millisiemens per centimeter

mV - millivolts

NTU - nephelometric turbidity unit

NV - no value established

REG - regular sample

SU - standard unit

Val Qual - validation qualifier

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW01 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW01-130430 | | 67WW01-050113 | | 67WW01-130531 | | 67WW01-053113 | | 67WW01-130927 | | 67WW01-140123 | | 67WW01-050714 | | 67WW01-140507 | | 67WW01-140725 | | 67WW01-072514 | | 67WW01-141203 | |
| | | Sample Date | 4/30/2013 | | 5/1/2013 | | 5/31/2013 | | 5/31/2013 | | 9/27/2013 | | 1/23/2014 | | 5/7/2014 | | 5/7/2014 | | 7/25/2014 | | 7/25/2014 | | 12/3/2014 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| **ANIONS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Chloride | mg/L | NV | | | | | | | | | | | | | 981 | | | | | | | | | |
| Nitrate | mg/L | 10 | | | | | | | | | | | | | < 1 | U | | | | | | | | |
| Nitrite | mg/L | 1 | | | | | | | | | | | | | < 1 | U | | | | | | | | |
| Sulfate | mg/L | NV | | | | | | | | | | | | | 167 | | | | | | | | | |
| Sulfide | mg/L | NV | | | | | | | | | | | | | < 1 | U | | | | | | | | |
| **TOTAL ORGANIC CARBON** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Inorganic Carbon | mg/L | NV | | | | | | | | | | | | | 23.4 | | | | | | | | | |
| Total Organic Carbon | mg/L | NV | | | | | | | | | | | | | 5.25 | | | | | | | | | |
| **DHC** | | | | | | | | | | | | | | | | | | | | | | | | |
| BVC | cells/mL | NV | | | | | | | | | | | | | 0.5 | U | | | | | | | | |
| Dehalococcoides | cells/mL | NV | | | | | | | | | | | | | 4.7 | | | | | | | | | |
| **FIELD TESTS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Conductivity | mS/cm | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | 2.33 | | | | 8.62 | | 8.62 | | - | - | - | - | 8.81 | | 8.81 | | 8.79 | | 8.79 | | - | - |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Flow Rate | mL/Min | NV | | | | | | | | | | | | | | | | | | | | | | |
| Measured well depth | Ft BTOC | NV | | | | | | | | | | | | | | | | | | | | | | |
| Oxidation-Reduction Potentia | mV | NV | 0 | | | | 15 | | 15 | | - | - | - | - | 85 | | 85 | | 107 | | 107 | | -13 | |
| pH | SU | NV | 5.57 | | | | 5.84 | | 5.84 | | - | - | - | - | 5.52 | | 5.52 | | 5.91 | | 5.91 | | 6.15 | |
| Temperature | C | NV | 19.98 | | | | 28 | | 28 | | - | - | -99 | | 19.77 | | 19.77 | | 21.9 | | 21.9 | | 17.6 | |
| Turbidity | NTU | NV | 116 | | | | 69.6 | | 69.6 | | - | - | - | - | 36.6 | | 36.6 | | 33 | | 33 | | 23.3 | |
| **GASES** | | | | | | | | | | | | | | | | | | | | | | | | |
| Carbon dioxide | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethane | µg/L | NV | | | | | | | | | | | | | < 2 | U | | | | | | | | |
| Ethylene | µg/L | NV | | | | | | | | | | | | | < 2 | U | | | | | | | | |
| Methane | µg/L | NV | | | | | | | | | | | | | 33.5 | | | | | | | | | |
| **GENERAL CHEMISTRY** | | | | | | | | | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | 5.69 | | | | | | | | | |
| **SEMIVOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,4-Dioxane | µg/L | 26 | | | 4.15 | | | | | | | | | | | | | | | | | | | |
| **VOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | µg/L | 110 | | | | | | | < 0.25 | U | | | | | < 0.5 | U | | | | | < 0.5 | U | | |
| 1,1,1-Trichloroethane | µg/L | 200 | | | | | | | < 0.25 | U | | | | | < 0.5 | U | | | | | < 0.5 | U | | |
| 1,1,2,2-Tetrachloroethane | µg/L | 14 | | | | | | | < 0.2 | U | | | | | < 0.4 | U | | | | | < 0.4 | U | | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | µg/L | 3,100,000 | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,2-Trichloroethane | µg/L | 5 | | | | | | | < 0.25 | U | | | | | < 0.5 | U | | | | | 0.29 | J | | |
| 1,1-Dichloroethane | µg/L | 10,000 | | | | | | | 6.37 | | | | | | 11 | | | | | | 9.2 | | | |
| 1,1-Dichloroethene | µg/L | 7 | | | | | | | 139 | | | | | | 257 | | | | | | 224 | | | |
| 1,1-Dichloropropene | µg/L | 2.9 | | | | | | | < 0.25 | U | | | | | < 0.5 | U | | | | | < 0.5 | U | | |
| 1,2,3-Trichlorobenzene | µg/L | 310 | | | | | | | < 0.15 | U | | | | | < 0.3 | U | | | | | < 0.3 | U | | |
| 1,2,3-Trichloropropane | µg/L | 0.041 | | | | | | | < 0.5 | U | | | | | < 1 | U | | | | | < 1 | U | | |
| 1,2,4-Trichlorobenzene | µg/L | 70 | | | | | | | < 0.2 | U | | | | | < 0.4 | U | | | | | < 0.4 | U | | |
| 1,2,4-Trimethylbenzene | µg/L | 5,100 | | | | | | | < 0.25 | U | | | | | < 0.5 | U | | | | | < 0.5 | U | | |
| 1,2-Dibromo-3-chloropropane | µg/L | 0.2 | | | | | | | < 1 | U | | | | | < 2 | U | | | | | < 2 | U | | |
| 1,2-Dibromoethane | µg/L | 0.05 | | | | | | | < 0.25 | U | | | | | < 0.5 | U | | | | | < 0.5 | U | | |
| 1,2-Dichlorobenzene | µg/L | 600 | | | | | | | < 0.125 | U | | | | | < 0.25 | U | | | | | < 0.25 | U | | |
| 1,2-Dichloroethane | µg/L | 5 | | | | | | | 6.68 | | | | | | 12.2 | | | | | | 10.7 | | | |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW01 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW01-130430 | | 67WW01-050113 | | 67WW01-130531 | | 67WW01-053113 | | 67WW01-130927 | | 67WW01-140123 | | 67WW01-050714 | | 67WW01-140507 | | 67WW01-140725 | | 67WW01-072514 | | 67WW01-141203 | |
| | | Sample Date | 4/30/2013 | | 5/1/2013 | | 5/31/2013 | | 5/31/2013 | | 9/27/2013 | | 1/23/2014 | | 5/7/2014 | | 5/7/2014 | | 7/25/2014 | | 7/25/2014 | | 12/3/2014 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,2-Dichloropropane | µg/L | 5 | | | | | | | < 0.2 | U | | | | | < 0.4 | U | | | | | < 0.4 | U | | |
| 1,3,5-Trimethylbenzene | µg/L | 5,100 | | | | | | | < 0.25 | U | | | | | < 0.5 | U | | | | | < 0.5 | U | | |
| 1,3-Dichlorobenzene | µg/L | 3,100 | | | | | | | < 0.25 | U | | | | | < 0.5 | U | | | | | < 0.5 | U | | |
| 1,3-Dichloropropane | µg/L | 29 | | | | | | | < 0.2 | U | | | | | < 0.4 | U | | | | | < 0.4 | U | | |
| 1,4-Dichlorobenzene | µg/L | 75 | | | | | | | < 0.125 | U | | | | | < 0.25 | U | | | | | < 0.25 | U | | |
| 2,2-Dichloropropane | µg/L | 42 | | | | | | | < 0.25 | U | | | | | < 0.5 | U | | | | | < 0.5 | U | | |
| 2-Butanone | µg/L | 61,000 | | | | | | | < 2.5 | U | | | | | < 5 | U | | | | | < 5 | U | | |
| 2-Chlorotoluene | µg/L | 2,000 | | | | | | | < 0.125 | U | | | | | < 0.25 | U | | | | | < 0.25 | U | | |
| 2-Hexanone | µg/L | 6,100 | | | | | | | < 2.5 | U | | | | | < 5 | U | | | | | < 5 | U | | |
| 4-Chlorotoluene | µg/L | 2,000 | | | | | | | < 0.25 | U | | | | | < 0.5 | U | | | | | < 0.5 | U | | |
| Acetone | µg/L | 92,000 | | | | | | | < 2.5 | U | | | | | < 5 | U | | | | | < 5 | U | | |
| Benzene | µg/L | 5 | | | | | | | < 0.125 | U | | | | | < 0.14 | B | | | | | < 0.25 | U | | |
| Bromobenzene | µg/L | 2,000 | | | | | | | < 0.125 | U | | | | | < 0.25 | U | | | | | < 0.25 | U | | |
| Bromochloromethane | µg/L | 4,100 | | | | | | | < 0.2 | U | | | | | < 0.4 | U | | | | | < 0.4 | U | | |
| Bromodichloromethane | µg/L | 4.6 | | | | | | | < 0.25 | U | | | | | < 0.5 | U | | | | | < 0.5 | U | | |
| Bromoform | µg/L | 36 | | | | | | | < 0.5 | U | | | | | < 1 | U | | | | | < 1 | U | | |
| Bromomethane | µg/L | 140 | | | | | | | < 0.5 | U | | | | | < 1 | U | | | | | < 1 | U | | |
| Carbon disulfide | µg/L | 10,000 | | | | | | | < 0.5 | U | | | | | < 1 | U | | | | | < 1 | U | | |
| Carbon tetrachloride | µg/L | 5 | | | | | | | < 0.25 | U | | | | | < 0.5 | U | | | | | < 0.5 | U | | |
| Chlorobenzene | µg/L | 100 | | | | | | | < 0.125 | U | | | | | < 0.25 | U | | | | | < 0.25 | U | | |
| Chloroethane | µg/L | 41,000 | | | | | | | < 0.5 | U | | | | | < 1 | U | | | | | < 1 | U | | |
| Chloroform | µg/L | 1,000 | | | | | | | < 0.125 | U | | | | | < 0.25 | U | | | | | < 0.25 | U | | |
| Chloromethane | µg/L | 220 | | | | | | | < 0.5 | U | | | | | < 1 | U | | | | | < 1 | U | | |
| cis-1,2-Dichloroethene | µg/L | 70 | | | | | | | 1.12 | | | | | | 1.29 | | | | | | 1.02 | | | |
| cis-1,3-Dichloropropene | µg/L | 5.3 | | | | | | | < 0.25 | U | | | | | < 0.5 | U | | | | | < 0.5 | U | | |
| Dibromochloromethane | µg/L | 34 | | | | | | | < 0.25 | U | | | | | < 0.5 | U | | | | | < 0.5 | U | | |
| Dibromomethane | µg/L | 380 | | | | | | | < 0.25 | U | | | | | < 0.5 | U | | | | | < 0.5 | U | | |
| Dichlorodifluoromethane | µg/L | 20,000 | | | | | | | < 0.25 | U | | | | | < 0.5 | U | | | | | < 0.5 | U | | |
| Ethylbenzene | µg/L | 700 | | | | | | | < 0.25 | U | | | | | < 0.5 | U | | | | | < 0.5 | U | | |
| Hexachlorobutadiene | µg/L | 20 | | | | | | | < 0.25 | U | | | | | < 0.5 | U | | | | | < 0.5 | U | | |
| Isopropylbenzene | µg/L | 10,000 | | | | | | | < 0.25 | U | | | | | < 0.5 | U | | | | | < 0.5 | U | | |
| m,p-Xylenes | µg/L | 10,000 | | | | | | | < 0.5 | U | | | | | < 1 | U | | | | | < 1 | U | | |
| Methyl isobutyl ketone | µg/L | 8,200 | | | | | | | < 2.5 | U | | | | | < 5 | U | | | | | < 5 | U | | |
| Methylene chloride | µg/L | 5 | | | | | | | < 0.25 | U | | | | | < 0.5 | U | | | | | < 0.5 | U | | |
| Naphthalene | µg/L | 2,000 | | | | | | | < 0.2 | U | | | | | < 0.4 | U | | | | | < 0.4 | U | | |
| n-Butylbenzene | µg/L | 4,100 | | | | | | | < 0.25 | U | | | | | < 0.5 | U | | | | | < 0.5 | U | | |
| n-Propylbenzene | µg/L | 4,100 | | | | | | | < 0.125 | U | | | | | < 0.25 | U | | | | | < 0.25 | U | | |
| o-Xylene | µg/L | 10,000 | | | | | | | < 0.25 | U | | | | | < 0.5 | U | | | | | < 0.5 | U | | |
| p-Isopropyltoluene | µg/L | 10,000 | | | | | | | < 0.25 | U | | | | | < 0.5 | U | | | | | < 0.5 | U | | |
| sec-Butylbenzene | µg/L | 4,100 | | | | | | | < 0.25 | U | | | | | < 0.5 | U | | | | | < 0.5 | U | | |
| Styrene | µg/L | 100 | | | | | | | < 0.125 | U | | | | | < 0.25 | U | | | | | < 0.25 | U | | |
| tert-Butylbenzene | µg/L | 4,100 | | | | | | | < 0.25 | U | | | | | < 0.5 | U | | | | | < 0.5 | U | | |
| Tetrachloroethene | µg/L | 5 | | | | | | | < 0.25 | U | | | | | < 0.5 | U | | | | | < 0.5 | U | | |
| Toluene | µg/L | 1,000 | | | | | | | < 0.25 | U | | | | | < 0.5 | U | | | | | 0.473 | J | | |
| trans-1,2-Dichloroethene | µg/L | 100 | | | | | | | < 0.25 | U | | | | | < 0.5 | U | | | | | < 0.5 | U | | |
| trans-1,3-Dichloropropene | µg/L | 29 | | | | | | | < 0.5 | U | | | | | < 1 | U | | | | | < 1 | U | | |
| Trichloroethene | µg/L | 5 | | | | | | | 2.96 | | | | | | 3 | | | | | | 2.3 | | | |
| Trichlorofluoromethane | µg/L | 31,000 | | | | | | | < 0.25 | U | | | | | < 0.5 | U | | | | | < 0.5 | U | | |
| Vinyl chloride | µg/L | 2 | | | | | | | 2.18 | | | | | | 2.15 | | | | | | 1.16 | | | |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW01 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW01-120314 | | 67WW01-150210 | | 67WW01-021015 | | 67WW01-150519 | | 67WW01-051915 | | 67WW01-151119 | | 67WW01-111915 | | 67WW01-151215 | | 67WW01-160329 | | 67WW01-032916 | | 67WW01-160519 | |
| | | Sample Date | 12/3/2014 | | 2/10/2015 | | 2/10/2015 | | 5/19/2015 | | 5/19/2015 | | 11/19/2015 | | 11/19/2015 | | 12/15/2015 | | 3/29/2016 | | 3/29/2016 | | 5/19/2016 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| **ANIONS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Chloride | mg/L | NV | | | | | | | | | 988 | | | | | | | | | | | | | |
| Nitrate | mg/L | 10 | | | | | | | | | < 1 | U | | | | | | | | | | | | |
| Nitrite | mg/L | 1 | | | | | | | | | 2.02 | | | | | | | | | | | | | |
| Sulfate | mg/L | NV | | | | | | | | | 143 | | | | | | | | | | | | | |
| Sulfide | mg/L | NV | | | | | | | | | < 1 | U | | | | | | | | | | | | |
| **TOTAL ORGANIC CARBON** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Inorganic Carbon | mg/L | NV | | | | | | | | | 42.6 | | | | | | | | | | | | | |
| Total Organic Carbon | mg/L | NV | | | | | | | | | 12.7 | | | | | | | | | | | | | |
| **DHC** | | | | | | | | | | | | | | | | | | | | | | | | |
| BVC | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dehalococcoides | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| **FIELD TESTS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Conductivity | mS/cm | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | | | - | - | | | - | - | | | - | - | | | - | - | - | - | | | - | - |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Flow Rate | mL/Min | NV | | | | | | | | | | | | | | | | | | | | | | |
| Measured well depth | Ft BTOC | NV | | | | | | | | | | | | | | | | | | | | | | |
| Oxidation-Reduction Potentia | mV | NV | -13 | | -101 | | -101 | | -52 | | -52 | | - | - | | | - | - | - | - | | | - | - |
| pH | SU | NV | 6.15 | | 6.92 | | 6.92 | | 7.11 | | 7.11 | | 6.19 | | 6.19 | | - | - | 5.57 | | 5.57 | | 6.28 | |
| Temperature | C | NV | 17.6 | | 18.85 | | 18.85 | | 21.65 | | 21.65 | | 16.27 | | 16.27 | | - | - | 15.38 | | 15.38 | | 17.86 | |
| Turbidity | NTU | NV | 23.3 | | 194 | | 194 | | 161 | | 161 | | 284 | | 284 | | - | - | 50.2 | | 50.2 | | 26.2 | |
| **GASES** | | | | | | | | | | | | | | | | | | | | | | | | |
| Carbon dioxide | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethane | µg/L | NV | | | | | | | | | < 2 | U | | | | | | | | | | | | |
| Ethylene | µg/L | NV | | | | | | | | | < 2 | U | | | | | | | | | | | | |
| Methane | µg/L | NV | | | | | | | | | 20 | | | | | | | | | | | | | |
| **GENERAL CHEMISTRY** | | | | | | | | | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ferrous Iron | mg/L | NV | | | | | | | | | 0.0539 | | | | | | | | | | | | | |
| **SEMIVOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,4-Dioxane | µg/L | 26 | | | | | | | | | | | | | | | | | | | | | | |
| **VOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | µg/L | 110 | < 0.5 | U | | | < 0.5 | U | | | < 1.25 | U | | | < 1.25 | U | | | | | < 0.5 | U | | |
| 1,1,1-Trichloroethane | µg/L | 200 | < 0.5 | U | | | < 0.5 | U | | | < 1.25 | U | | | < 1.25 | U | | | | | < 0.5 | U | | |
| 1,1,2,2-Tetrachloroethane | µg/L | 14 | < 0.4 | U | | | < 0.4 | U | | | < 1 | U | | | < 1 | U | | | | | < 0.4 | U | | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | µg/L | 3,100,000 | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,2-Trichloroethane | µg/L | 5 | 0.483 | J | | | 1.44 | | | | 1.72 | J | | | 2.14 | J | | | | | 2.67 | | | |
| 1,1-Dichloroethane | µg/L | 10,000 | 14.9 | | | | 23.7 | | | | 23.5 | | | | 26.2 | | | | | | 38.5 | | | |
| 1,1-Dichloroethene | µg/L | 7 | 349 | | | | 544 | | | | 631 | | | | 694 | | | | | | 728 | | | |
| 1,1-Dichloropropene | µg/L | 2.9 | < 0.5 | U | | | < 0.5 | U | | | < 1.25 | U | | | < 1.25 | U | | | | | < 0.5 | U | | |
| 1,2,3-Trichlorobenzene | µg/L | 310 | < 0.3 | U | | | < 0.3 | U | | | < 0.75 | U | | | < 0.75 | U | | | | | < 0.3 | U | | |
| 1,2,3-Trichloropropane | µg/L | 0.041 | < 1 | U | | | < 1 | U | | | < 2.5 | U | | | < 2.5 | U | | | | | < 1 | U | | |
| 1,2,4-Trichlorobenzene | µg/L | 70 | < 0.4 | U | | | < 0.4 | U | | | < 1 | U | | | < 1 | U | | | | | < 0.4 | U | | |
| 1,2,4-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | | | < 0.5 | U | | | < 1.25 | U | | | < 1.25 | U | | | | | < 0.5 | U | | |
| 1,2-Dibromo-3-chloropropane | µg/L | 0.2 | < 2 | U | | | < 2 | U | | | < 5 | U | | | < 5 | U | | | | | < 2 | U | | |
| 1,2-Dibromoethane | µg/L | 0.05 | < 0.5 | U | | | < 0.5 | U | | | < 1.25 | U | | | < 1.25 | U | | | | | < 0.5 | U | | |
| 1,2-Dichlorobenzene | µg/L | 600 | < 0.25 | U | | | < 0.25 | U | | | < 0.626 | U | | | < 0.626 | U | | | | | < 0.25 | U | | |
| 1,2-Dichloroethane | µg/L | 5 | 16.6 | | | | 28.7 | | | | 31.4 | | | | 38.6 | | | | | | 52.6 | | | |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW01 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW01-120314 | | 67WW01-150210 | | 67WW01-021015 | | 67WW01-150519 | | 67WW01-051915 | | 67WW01-151119 | | 67WW01-111915 | | 67WW01-151215 | | 67WW01-160329 | | 67WW01-032916 | | 67WW01-160519 | |
| | | Sample Date | 12/3/2014 | | 2/10/2015 | | 2/10/2015 | | 5/19/2015 | | 5/19/2015 | | 11/19/2015 | | 11/19/2015 | | 12/15/2015 | | 3/29/2016 | | 3/29/2016 | | 5/19/2016 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,2-Dichloropropane | µg/L | 5 | < 0.4 | U | | | < 0.4 | U | | | < 1 | U | | | < 1 | U | | | | | < 0.4 | U | | |
| 1,3,5-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | | | < 0.5 | U | | | < 1.25 | U | | | < 1.25 | U | | | | | < 0.5 | U | | |
| 1,3-Dichlorobenzene | µg/L | 3,100 | < 0.5 | U | | | < 0.5 | U | | | < 1.25 | U | | | < 1.25 | U | | | | | < 0.5 | U | | |
| 1,3-Dichloropropane | µg/L | 29 | < 0.4 | U | | | < 0.4 | U | | | < 1 | U | | | < 1 | U | | | | | < 0.4 | U | | |
| 1,4-Dichlorobenzene | µg/L | 75 | < 0.25 | U | | | < 0.25 | U | | | < 0.626 | U | | | < 0.626 | U | | | | | < 0.25 | U | | |
| 2,2-Dichloropropane | µg/L | 42 | < 0.5 | U | | | < 0.5 | U | | | < 1.25 | U | | | < 1.25 | U | | | | | < 0.5 | U | | |
| 2-Butanone | µg/L | 61,000 | < 5 | U | | | < 5 | U | | | < 12.5 | U | | | < 12.5 | U | | | | | < 5 | U | | |
| 2-Chlorotoluene | µg/L | 2,000 | < 0.25 | U | | | < 0.25 | U | | | < 0.626 | UJ | | | < 0.626 | U | | | | | < 0.25 | U | | |
| 2-Hexanone | µg/L | 6,100 | < 5 | U | | | < 5 | U | | | < 12.5 | U | | | < 12.5 | U | | | | | < 5 | U | | |
| 4-Chlorotoluene | µg/L | 2,000 | < 0.5 | U | | | < 0.5 | U | | | < 1.25 | U | | | < 1.25 | U | | | | | < 0.5 | U | | |
| Acetone | µg/L | 92,000 | < 5 | U | | | < 5 | U | | | < 12.5 | U | | | < 12.5 | U | | | | | < 5 | U | | |
| Benzene | µg/L | 5 | < 0.25 | U | | | < 0.25 | U | | | < 0.626 | U | | | < 0.626 | U | | | | | 0.168 | J | | |
| Bromobenzene | µg/L | 2,000 | < 0.25 | U | | | < 0.25 | U | | | < 0.626 | U | | | < 0.626 | U | | | | | < 0.25 | U | | |
| Bromochloromethane | µg/L | 4,100 | < 0.4 | U | | | < 0.4 | U | | | < 1 | U | | | < 1 | U | | | | | < 0.4 | U | | |
| Bromodichloromethane | µg/L | 4.6 | < 0.5 | U | | | < 0.5 | U | | | < 1.25 | U | | | < 1.25 | U | | | | | < 0.5 | U | | |
| Bromoform | µg/L | 36 | < 1 | U | | | < 1 | U | | | < 2.5 | U | | | < 2.5 | U | | | | | < 1 | U | | |
| Bromomethane | µg/L | 140 | < 1 | U | | | < 1 | UJ | | | < 2.5 | U | | | < 2.5 | U | | | | | < 1 | U | | |
| Carbon disulfide | µg/L | 10,000 | < 1 | U | | | < 1 | U | | | < 2.5 | U | | | < 2.5 | U | | | | | < 1 | U | | |
| Carbon tetrachloride | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | | | < 1.25 | U | | | < 1.25 | U | | | | | < 0.5 | U | | |
| Chlorobenzene | µg/L | 100 | < 0.25 | U | | | < 0.25 | U | | | < 0.626 | U | | | < 0.626 | U | | | | | < 0.25 | U | | |
| Chloroethane | µg/L | 41,000 | < 1 | U | | | < 1 | U | | | < 2.5 | U | | | < 2.5 | U | | | | | < 1 | U | | |
| Chloroform | µg/L | 1,000 | < 0.25 | U | | | < 0.25 | U | | | < 0.626 | U | | | < 0.626 | U | | | | | < 0.25 | U | | |
| Chloromethane | µg/L | 220 | < 1 | U | | | < 1 | U | | | < 2.5 | U | | | < 2.5 | U | | | | | < 1 | U | | |
| cis-1,2-Dichloroethene | µg/L | 70 | 1.26 | | | | 1.82 | | | | 1.54 | J | | | 1.6 | J | | | | | 2.16 | | | |
| cis-1,3-Dichloropropene | µg/L | 5.3 | < 0.5 | U | | | < 0.5 | U | | | < 1.25 | U | | | < 1.25 | U | | | | | < 0.5 | U | | |
| Dibromochloromethane | µg/L | 34 | < 0.5 | U | | | < 0.5 | U | | | < 1.25 | U | | | < 1.25 | U | | | | | < 0.5 | U | | |
| Dibromomethane | µg/L | 380 | < 0.5 | U | | | < 0.5 | U | | | < 1.25 | U | | | < 1.25 | U | | | | | < 0.5 | U | | |
| Dichlorodifluoromethane | µg/L | 20,000 | < 0.5 | U | | | < 0.5 | U | | | < 1.25 | U | | | < 1.25 | U | | | | | < 0.5 | U | | |
| Ethylbenzene | µg/L | 700 | < 0.5 | U | | | < 0.5 | U | | | < 1.25 | U | | | < 1.25 | U | | | | | < 0.5 | U | | |
| Hexachlorobutadiene | µg/L | 20 | < 0.5 | U | | | < 0.5 | U | | | < 1.25 | U | | | < 1.25 | U | | | | | < 0.5 | U | | |
| Isopropylbenzene | µg/L | 10,000 | < 0.5 | U | | | < 0.5 | U | | | < 1.25 | U | | | < 1.25 | U | | | | | < 0.5 | U | | |
| m,p-Xylenes | µg/L | 10,000 | < 1 | U | | | < 1 | U | | | < 2.5 | U | | | < 2.5 | U | | | | | < 1 | U | | |
| Methyl isobutyl ketone | µg/L | 8,200 | < 5 | U | | | < 5 | U | | | < 12.5 | U | | | < 12.5 | U | | | | | < 5 | U | | |
| Methylene chloride | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | | | < 1.25 | U | | | < 1.25 | U | | | | | < 0.5 | U | | |
| Naphthalene | µg/L | 2,000 | < 0.4 | U | | | < 0.4 | U | | | < 1 | U | | | < 1 | U | | | | | < 0.4 | U | | |
| n-Butylbenzene | µg/L | 4,100 | < 0.5 | U | | | < 0.5 | U | | | < 1.25 | U | | | < 1.25 | U | | | | | < 0.5 | U | | |
| n-Propylbenzene | µg/L | 4,100 | < 0.25 | U | | | < 0.25 | U | | | < 0.626 | U | | | < 0.626 | U | | | | | < 0.25 | U | | |
| o-Xylene | µg/L | 10,000 | < 0.5 | U | | | < 0.5 | U | | | < 1.25 | U | | | < 1.25 | U | | | | | < 0.5 | U | | |
| p-Isopropyltoluene | µg/L | 10,000 | < 0.5 | U | | | < 0.5 | U | | | < 1.25 | U | | | < 1.25 | U | | | | | < 0.5 | U | | |
| sec-Butylbenzene | µg/L | 4,100 | < 0.5 | U | | | < 0.5 | U | | | < 1.25 | U | | | < 1.25 | U | | | | | < 0.5 | U | | |
| Styrene | µg/L | 100 | < 0.25 | U | | | < 0.25 | U | | | < 0.626 | U | | | < 0.626 | U | | | | | < 0.25 | U | | |
| tert-Butylbenzene | µg/L | 4,100 | < 0.5 | U | | | < 0.5 | U | | | < 1.25 | U | | | < 1.25 | U | | | | | < 0.5 | U | | |
| Tetrachloroethene | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | | | < 1.25 | U | | | < 1.25 | U | | | | | < 0.5 | U | | |
| Toluene | µg/L | 1,000 | 0.398 | J | | | 0.287 | J | | | < 1.25 | U | | | < 1.25 | U | | | | | < 0.5 | U | | |
| trans-1,2-Dichloroethene | µg/L | 100 | < 0.5 | U | | | < 0.5 | U | | | < 1.25 | U | | | < 1.25 | U | | | | | < 0.5 | U | | |
| trans-1,3-Dichloropropene | µg/L | 29 | < 1 | U | | | < 1 | U | | | < 2.5 | U | | | < 2.5 | U | | | | | < 1 | U | | |
| Trichloroethene | µg/L | 5 | 3.36 | | | | 4.07 | | | | 3.03 | | | | 2.84 | | | | | | 4 | | | |
| Trichlorofluoromethane | µg/L | 31,000 | < 0.5 | U | | | < 0.5 | U | | | < 1.25 | U | | | < 1.25 | U | | | | | < 0.5 | U | | |
| Vinyl chloride | µg/L | 2 | 2.16 | | | | 2.38 | | | | 1.86 | J | | | 2.38 | J | | | | | 3.64 | | | |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW01 | | | | | | | | | | | | | | 67WW02 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW01-051916 | | 67WW01-112817 | | 67WW01-180503 | | 67WW01-181025 | | 67WW01-190503 | | 67WW01-191024 | | 67WW01-201103 | | 67WW02-130502 | | 67WW02-050213 | | 67WW02-130531 | | 67WW02-053113 | |
| | | Sample Date | 5/19/2016 | | 11/28/2017 | | 5/3/2018 | | 10/25/2018 | | 5/3/2019 | | 10/24/2019 | | 11/3/2020 | | 5/2/2013 | | 5/2/2013 | | 5/31/2013 | | 5/31/2013 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| **ANIONS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Chloride | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Nitrate | mg/L | 10 | | | | | | | | | | | | | | | | | | | | | | |
| Nitrite | mg/L | 1 | | | | | | | | | | | | | | | | | | | | | | |
| Sulfate | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Sulfide | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **TOTAL ORGANIC CARBON** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Inorganic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Total Organic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **DHC** | | | | | | | | | | | | | | | | | | | | | | | | |
| BVC | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dehalococcoides | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| **FIELD TESTS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Conductivity | mS/cm | NV | | | | | | | | | | | | | 4.44 | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | | | 6.95 | | 9.14 | | | | 0.46 | | 0.43 | | 0.1 | | 3.4 | | 3.4 | | 8.68 | | 8.68 | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Flow Rate | mL/Min | NV | | | | | 0 | | | | 100 | | 100 | | 100 | | | | | | | | | |
| Measured well depth | Ft BTOC | NV | | | 27 | | 27 | | 27 | | 27.03 | | 26.94 | | | | | | | | | | | |
| Oxidation-Reduction Potentia | mV | NV | | | 19 | | 73 | | | | 202 | | 99 | | 55 | | 92 | | 92 | | -8 | | -8 | |
| pH | SU | NV | 6.28 | | 6.47 | | 6.61 | | | | 6.17 | | 5.99 | | 6.23 | | 5.72 | | 5.72 | | 6.57 | | 6.57 | |
| Temperature | C | NV | 17.86 | | 17.22 | | 19.98 | | | | 19.81 | | 21.04 | | 17.9 | | 20.58 | | 20.58 | | 27.07 | | 27.07 | |
| Turbidity | NTU | NV | 26.2 | | 184 | | 67.6 | | | | 100 | | 57.3 | | 168 | | 78.4 | | 78.4 | | 51.4 | | 51.4 | |
| **GASES** | | | | | | | | | | | | | | | | | | | | | | | | |
| Carbon dioxide | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethylene | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Methane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **GENERAL CHEMISTRY** | | | | | | | | | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **SEMIVOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,4-Dioxane | µg/L | 26 | | | 17 | | | | | | | | | | | | | | 1.7 | J | | | | |
| **VOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | µg/L | 110 | < 2.5 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U |
| 1,1,1-Trichloroethane | µg/L | 200 | < 2.5 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U |
| 1,1,2,2-Tetrachloroethane | µg/L | 14 | < 2 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.2 | UJ |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | µg/L | 3,100,000 | | | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 1 | U | | | | | | | | |
| 1,1,2-Trichloroethane | µg/L | 5 | 1.62 | J | < 1 | U | 1.2 | | | | 1.4 | | 0.53 | J | < 0.5 | U | | | | | | | < 0.25 | U |
| 1,1-Dichloroethane | µg/L | 10,000 | 27.6 | | 22 | | 15 | | | | 12 | | 3.4 | | 2.6 | | | | | | | | 0.507 | J |
| 1,1-Dichloroethene | µg/L | 7 | 714 | | 250 | | 450 | | | | 280 | | 70 | | 49 | | | | | | | | < 0.5 | U |
| 1,1-Dichloropropene | µg/L | 2.9 | < 2.5 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U |
| 1,2,3-Trichlorobenzene | µg/L | 310 | < 1.5 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | UJ | < 1 | U | | | | | | | < 0.15 | U |
| 1,2,3-Trichloropropane | µg/L | 0.041 | < 5 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 1 | U | | | | | | | < 0.5 | U |
| 1,2,4-Trichlorobenzene | µg/L | 70 | < 2 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 1 | U | | | | | | | < 0.2 | U |
| 1,2,4-Trimethylbenzene | µg/L | 5,100 | < 2.5 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U |
| 1,2-Dibromo-3-chloropropane | µg/L | 0.2 | < 10 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 1 | U |
| 1,2-Dibromoethane | µg/L | 0.05 | < 2.5 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U |
| 1,2-Dichlorobenzene | µg/L | 600 | < 1.25 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 1 | U | | | | | | | < 0.125 | U |
| 1,2-Dichloroethane | µg/L | 5 | 43.3 | | 28 | | 22 | | | | 21 | | 7.6 | | 6.1 | | | | | | | | < 0.25 | U |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW01 | | | | | | | | | | | | | | 67WW02 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW01-051916 | | 67WW01-112817 | | 67WW01-180503 | | 67WW01-181025 | | 67WW01-190503 | | 67WW01-191024 | | 67WW01-201103 | | 67WW02-130502 | | 67WW02-050213 | | 67WW02-130531 | | 67WW02-053113 | |
| | | Sample Date | 5/19/2016 | | 11/28/2017 | | 5/3/2018 | | 10/25/2018 | | 5/3/2019 | | 10/24/2019 | | 11/3/2020 | | 5/2/2013 | | 5/2/2013 | | 5/31/2013 | | 5/31/2013 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,2-Dichloropropane | µg/L | 5 | < 2 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.2 | U |
| 1,3,5-Trimethylbenzene | µg/L | 5,100 | < 2.5 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U |
| 1,3-Dichlorobenzene | µg/L | 3,100 | < 2.5 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 1 | U | | | | | | | < 0.25 | U |
| 1,3-Dichloropropane | µg/L | 29 | < 2 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.2 | U |
| 1,4-Dichlorobenzene | µg/L | 75 | < 1.25 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 1 | U | | | | | | | < 0.125 | U |
| 2,2-Dichloropropane | µg/L | 42 | < 2.5 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U |
| 2-Butanone | µg/L | 61,000 | < 25 | U | < 2 | U | < 1 | U | | | < 1 | U | < 1 | U | < 1 | U | | | | | | | < 2.5 | U |
| 2-Chlorotoluene | µg/L | 2,000 | < 1.25 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.125 | U |
| 2-Hexanone | µg/L | 6,100 | < 25 | U | < 2 | U | < 1 | U | | | < 1 | U | < 1 | U | < 2 | U | | | | | | | < 2.5 | U |
| 4-Chlorotoluene | µg/L | 2,000 | < 2.5 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 1 | U | | | | | | | < 0.25 | U |
| Acetone | µg/L | 92,000 | < 25 | U | < 2 | U | < 1 | U | | | < 1 | U | < 1 | U | < 1 | U | | | | | | | < 2.5 | U |
| Benzene | µg/L | 5 | < 1.25 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.125 | U |
| Bromobenzene | µg/L | 2,000 | < 1.25 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 1 | U | | | | | | | < 0.125 | U |
| Bromochloromethane | µg/L | 4,100 | < 2 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.2 | U |
| Bromodichloromethane | µg/L | 4.6 | < 2.5 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U |
| Bromoform | µg/L | 36 | < 5 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.5 | U |
| Bromomethane | µg/L | 140 | < 5 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.5 | UJ |
| Carbon disulfide | µg/L | 10,000 | < 5 | U | < 2 | U | < 1 | U | | | < 1 | U | < 1 | U | < 1 | U | | | | | | | < 0.5 | U |
| Carbon tetrachloride | µg/L | 5 | < 2.5 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U |
| Chlorobenzene | µg/L | 100 | < 1.25 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.125 | U |
| Chloroethane | µg/L | 41,000 | < 5 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.5 | U |
| Chloroform | µg/L | 1,000 | < 1.25 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.125 | U |
| Chloromethane | µg/L | 220 | < 5 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.5 | UJ |
| cis-1,2-Dichloroethene | µg/L | 70 | 1.47 | J | 1.3 | | 0.95 | J | | | 0.86 | J | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U |
| cis-1,3-Dichloropropene | µg/L | 5.3 | < 2.5 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U |
| Dibromochloromethane | µg/L | 34 | < 2.5 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U |
| Dibromomethane | µg/L | 380 | < 2.5 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U |
| Dichlorodifluoromethane | µg/L | 20,000 | < 2.5 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U |
| Ethylbenzene | µg/L | 700 | < 2.5 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U |
| Hexachlorobutadiene | µg/L | 20 | < 2.5 | UJ | < 1 | U | < 0.5 | U | | | < 1 | U | < 0.5 | U | < 1 | U | | | | | | | < 0.25 | U |
| Isopropylbenzene | µg/L | 10,000 | < 2.5 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U |
| m,p-Xylenes | µg/L | 10,000 | < 5 | U | < 2 | U | < 1 | U | | | < 1 | U | < 1 | U | < 1 | U | | | | | | | < 0.5 | U |
| Methyl isobutyl ketone | µg/L | 8,200 | < 25 | U | < 2 | U | < 1 | U | | | < 1 | U | < 1 | U | < 2 | U | | | | | | | < 2.5 | U |
| Methylene chloride | µg/L | 5 | < 2.5 | U | < 2 | U | < 1 | U | | | < 1 | U | < 1 | U | < 1 | U | | | | | | | < 0.25 | U |
| Naphthalene | µg/L | 2,000 | < 2 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | UJ | < 0.5 | U | | | | | | | < 0.2 | U |
| n-Butylbenzene | µg/L | 4,100 | < 2.5 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 1 | U | | | | | | | < 0.25 | U |
| n-Propylbenzene | µg/L | 4,100 | < 1.25 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.125 | U |
| o-Xylene | µg/L | 10,000 | < 2.5 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U |
| p-Isopropyltoluene | µg/L | 10,000 | < 2.5 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U |
| sec-Butylbenzene | µg/L | 4,100 | < 2.5 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U |
| Styrene | µg/L | 100 | < 1.25 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.125 | U |
| tert-Butylbenzene | µg/L | 4,100 | < 2.5 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U |
| Tetrachloroethene | µg/L | 5 | < 2.5 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U |
| Toluene | µg/L | 1,000 | < 2.5 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U |
| trans-1,2-Dichloroethene | µg/L | 100 | < 2.5 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U |
| trans-1,3-Dichloropropene | µg/L | 29 | < 5 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.5 | U |
| Trichloroethene | µg/L | 5 | 3.28 | J | 2.1 | | 1.7 | | | | 1.3 | | 0.53 | J | < 0.5 | U | | | | | | | < 0.25 | U |
| Trichlorofluoromethane | µg/L | 31,000 | < 2.5 | U | < 1 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U |
| Vinyl chloride | µg/L | 2 | 2.98 | J | < 1 | U | 1.4 | | | | 0.92 | J | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW02 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW02-130927 | | 67WW02-092713 | | 67WW02-140123 | | 67WW02-012314 | | 67WW02-140506 | | 67WW02-050614 | | 67WW02-140724 | | 67WW02-072414 | | 67WW02-141203 | | 67WW02-120314 | | 67WW02-150210 | |
| | | Sample Date | 9/27/2013 | | 9/27/2013 | | 1/23/2014 | | 1/23/2014 | | 5/6/2014 | | 5/6/2014 | | 7/24/2014 | | 7/24/2014 | | 12/3/2014 | | 12/3/2014 | | 2/10/2015 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| **ANIONS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Chloride | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Nitrate | mg/L | 10 | | | | | | | | | | | | | | | | | | | | | | |
| Nitrite | mg/L | 1 | | | | | | | | | | | | | | | | | | | | | | |
| Sulfate | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Sulfide | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **TOTAL ORGANIC CARBON** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Inorganic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Total Organic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **DHC** | | | | | | | | | | | | | | | | | | | | | | | | |
| BVC | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dehalococcoides | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| **FIELD TESTS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Conductivity | mS/cm | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | 10.06 | | 10.06 | | 5.81 | | 5.81 | | 6.54 | | 6.54 | | 8.83 | | 8.83 | | - | - | | | - | - |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Flow Rate | mL/Min | NV | | | | | | | | | | | | | | | | | | | | | | |
| Measured well depth | Ft BTOC | NV | | | | | | | | | | | | | | | | | | | | | | |
| Oxidation-Reduction Potentia | mV | NV | 73 | | 73 | | -65 | | -65 | | 47 | | 47 | | 192 | | 192 | | 61 | | 61 | | -30 | |
| pH | SU | NV | 6.69 | | 6.69 | | 6.78 | | 6.78 | | 5.62 | | 5.62 | | 7.02 | | 7.02 | | 6.27 | | 6.27 | | 7.25 | |
| Temperature | C | NV | 25.23 | | 25.23 | | 16.2 | | 16.2 | | 21.01 | | 21.01 | | 22.38 | | 22.38 | | 19 | | 19 | | 19.49 | |
| Turbidity | NTU | NV | 21 | | 21 | | 49.7 | | 49.7 | | 106 | | 106 | | 11.6 | | 11.6 | | 19.3 | | 19.3 | | 8.9 | |
| **GASES** | | | | | | | | | | | | | | | | | | | | | | | | |
| Carbon dioxide | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethylene | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Methane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **GENERAL CHEMISTRY** | | | | | | | | | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **SEMIVOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,4-Dioxane | µg/L | 26 | | | | | | | | | | | | | | | | | | | | | | |
| **VOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | µg/L | 110 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,1,1-Trichloroethane | µg/L | 200 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,1,2,2-Tetrachloroethane | µg/L | 14 | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | µg/L | 3,100,000 | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,2-Trichloroethane | µg/L | 5 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,1-Dichloroethane | µg/L | 10,000 | | | 0.508 | J | | | 0.406 | J | | | 0.44 | J | | | 0.335 | J | | | 0.406 | J | | |
| 1,1-Dichloroethene | µg/L | 7 | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | |
| 1,1-Dichloropropene | µg/L | 2.9 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,2,3-Trichlorobenzene | µg/L | 310 | | | < 0.3 | U | | | < 0.3 | U | | | < 0.3 | U | | | < 0.3 | U | | | < 0.3 | U | | |
| 1,2,3-Trichloropropane | µg/L | 0.041 | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | |
| 1,2,4-Trichlorobenzene | µg/L | 70 | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | |
| 1,2,4-Trimethylbenzene | µg/L | 5,100 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,2-Dibromo-3-chloropropane | µg/L | 0.2 | | | < 2 | U | | | < 2 | U | | | < 2 | U | | | < 2 | U | | | < 2 | U | | |
| 1,2-Dibromoethane | µg/L | 0.05 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,2-Dichlorobenzene | µg/L | 600 | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| 1,2-Dichloroethane | µg/L | 5 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW02 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW02-130927 | | 67WW02-092713 | | 67WW02-140123 | | 67WW02-012314 | | 67WW02-140506 | | 67WW02-050614 | | 67WW02-140724 | | 67WW02-072414 | | 67WW02-141203 | | 67WW02-120314 | | 67WW02-150210 | |
| | | Sample Date | 9/27/2013 | | 9/27/2013 | | 1/23/2014 | | 1/23/2014 | | 5/6/2014 | | 5/6/2014 | | 7/24/2014 | | 7/24/2014 | | 12/3/2014 | | 12/3/2014 | | 2/10/2015 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,2-Dichloropropane | µg/L | 5 | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | |
| 1,3,5-Trimethylbenzene | µg/L | 5,100 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,3-Dichlorobenzene | µg/L | 3,100 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,3-Dichloropropane | µg/L | 29 | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | |
| 1,4-Dichlorobenzene | µg/L | 75 | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| 2,2-Dichloropropane | µg/L | 42 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | UJ | | | < 0.5 | U | | | < 0.5 | U | | |
| 2-Butanone | µg/L | 61,000 | | | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | | |
| 2-Chlorotoluene | µg/L | 2,000 | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| 2-Hexanone | µg/L | 6,100 | | | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | | |
| 4-Chlorotoluene | µg/L | 2,000 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Acetone | µg/L | 92,000 | | | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | | |
| Benzene | µg/L | 5 | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| Bromobenzene | µg/L | 2,000 | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| Bromochloromethane | µg/L | 4,100 | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | |
| Bromodichloromethane | µg/L | 4.6 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Bromoform | µg/L | 36 | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | |
| Bromomethane | µg/L | 140 | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | |
| Carbon disulfide | µg/L | 10,000 | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | |
| Carbon tetrachloride | µg/L | 5 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Chlorobenzene | µg/L | 100 | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| Chloroethane | µg/L | 41,000 | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | |
| Chloroform | µg/L | 1,000 | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| Chloromethane | µg/L | 220 | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | |
| cis-1,2-Dichloroethene | µg/L | 70 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| cis-1,3-Dichloropropene | µg/L | 5.3 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Dibromochloromethane | µg/L | 34 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Dibromomethane | µg/L | 380 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Dichlorodifluoromethane | µg/L | 20,000 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Ethylbenzene | µg/L | 700 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Hexachlorobutadiene | µg/L | 20 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Isopropylbenzene | µg/L | 10,000 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| m,p-Xylenes | µg/L | 10,000 | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | |
| Methyl isobutyl ketone | µg/L | 8,200 | | | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | | |
| Methylene chloride | µg/L | 5 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Naphthalene | µg/L | 2,000 | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | |
| n-Butylbenzene | µg/L | 4,100 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| n-Propylbenzene | µg/L | 4,100 | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| o-Xylene | µg/L | 10,000 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| p-Isopropyltoluene | µg/L | 10,000 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| sec-Butylbenzene | µg/L | 4,100 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Styrene | µg/L | 100 | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| tert-Butylbenzene | µg/L | 4,100 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Tetrachloroethene | µg/L | 5 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Toluene | µg/L | 1,000 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| trans-1,2-Dichloroethene | µg/L | 100 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| trans-1,3-Dichloropropene | µg/L | 29 | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | |
| Trichloroethene | µg/L | 5 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Trichlorofluoromethane | µg/L | 31,000 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Vinyl chloride | µg/L | 2 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW02 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW02-021015 | | 67WW02-150511 | | 67WW02-051215 | | 67WW02FD-051215 | | 67WW02-151119 | | 67WW02-111915 | | 67WW02-151215 | | 67WW02-160519 | | 67WW02FD-051916 | | 67WW02-051916 | | 67WW02-112817 | |
| | | Sample Date | 2/10/2015 | | 5/11/2015 | | 5/12/2015 | | 5/12/2015 | | 11/19/2015 | | 11/19/2015 | | 12/15/2015 | | 5/19/2016 | | 5/19/2016 | | 5/19/2016 | | 11/28/2017 | |
| | | Sample Purpose | REG | | REG | | REG | | FD | | REG | | REG | | REG | | REG | | FD | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| **ANIONS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Chloride | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Nitrate | mg/L | 10 | | | | | | | | | | | | | | | | | | | | | | |
| Nitrite | mg/L | 1 | | | | | | | | | | | | | | | | | | | | | | |
| Sulfate | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Sulfide | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **TOTAL ORGANIC CARBON** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Inorganic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Total Organic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **DHC** | | | | | | | | | | | | | | | | | | | | | | | | |
| BVC | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dehalococcoides | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| **FIELD TESTS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Conductivity | mS/cm | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | | | - | - | | | | | - | - | | | 0.29 | | - | - | | | | | 7.82 | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Flow Rate | mL/Min | NV | | | | | | | | | | | | | | | | | | | | | | |
| Measured well depth | Ft BTOC | NV | | | | | | | | | | | | | | | | | | | | | 27.78 | |
| Oxidation-Reduction Potentia | mV | NV | -30 | | 52 | | | | | | - | - | | | 119 | | - | - | | | | | 90 | |
| pH | SU | NV | 7.25 | | 6.57 | | | | | | 6.29 | | 6.29 | | 6.42 | | 6.08 | | | | 6.08 | | 6.12 | |
| Temperature | C | NV | 19.49 | | 19.34 | | | | | | 17.57 | | 17.57 | | 20.93 | | 18.37 | | | | 18.37 | | 15.93 | |
| Turbidity | NTU | NV | 8.9 | | 23 | | | | | | 49.3 | | 49.3 | | 12.3 | | 10.6 | | | | 10.6 | | 20.9 | |
| **GASES** | | | | | | | | | | | | | | | | | | | | | | | | |
| Carbon dioxide | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethylene | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Methane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **GENERAL CHEMISTRY** | | | | | | | | | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **SEMIVOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,4-Dioxane | µg/L | 26 | | | | | | | | | | | | | 2.75 | | | | | | | | 0.26 | |
| **VOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | µg/L | 110 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | < 0.5 | U | < 1 | U |
| 1,1,1-Trichloroethane | µg/L | 200 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | < 0.5 | U | < 1 | U |
| 1,1,2,2-Tetrachloroethane | µg/L | 14 | < 0.4 | U | | | < 0.4 | U | < 0.4 | U | | | < 0.4 | U | | | | | < 0.4 | U | < 0.4 | U | < 1 | U |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | µg/L | 3,100,000 | | | | | | | | | | | | | | | | | | | | | < 1 | U |
| 1,1,2-Trichloroethane | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | < 0.5 | U | < 1 | U |
| 1,1-Dichloroethane | µg/L | 10,000 | 0.592 | J | | | 0.883 | J | 0.873 | J | | | 0.302 | J | | | | | 3.25 | | 3.27 | | < 1 | U |
| 1,1-Dichloroethene | µg/L | 7 | 3.59 | | | | 13.2 | | 13 | | | | 0.857 | J | | | | | 66.3 | | 67.6 | | < 1 | U |
| 1,1-Dichloropropene | µg/L | 2.9 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | < 0.5 | U | < 1 | U |
| 1,2,3-Trichlorobenzene | µg/L | 310 | < 0.3 | U | | | < 0.3 | U | < 0.3 | U | | | < 0.3 | U | | | | | < 0.3 | U | < 0.3 | U | < 1 | U |
| 1,2,3-Trichloropropane | µg/L | 0.041 | < 1 | U | | | < 1 | U | < 1 | U | | | < 1 | U | | | | | < 1 | U | < 1 | U | < 1 | U |
| 1,2,4-Trichlorobenzene | µg/L | 70 | < 0.4 | U | | | < 0.4 | U | < 0.4 | U | | | < 0.4 | U | | | | | < 0.4 | U | < 0.4 | U | < 1 | U |
| 1,2,4-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | < 0.5 | U | < 1 | U |
| 1,2-Dibromo-3-chloropropane | µg/L | 0.2 | < 2 | U | | | < 2 | U | < 2 | U | | | < 2 | U | | | | | < 2 | U | < 2 | U | < 1 | U |
| 1,2-Dibromoethane | µg/L | 0.05 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | < 0.5 | U | < 1 | U |
| 1,2-Dichlorobenzene | µg/L | 600 | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | | | | < 0.25 | U | < 0.25 | U | < 1 | U |
| 1,2-Dichloroethane | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | 0.321 | J | 0.377 | J | < 1 | U |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW02 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW02-021015 | | 67WW02-150511 | | 67WW02-051215 | | 67WW02FD-051215 | | 67WW02-151119 | | 67WW02-111915 | | 67WW02-151215 | | 67WW02-160519 | | 67WW02FD-051916 | | 67WW02-051916 | | 67WW02-112817 | |
| | | Sample Date | 2/10/2015 | | 5/11/2015 | | 5/12/2015 | | 5/12/2015 | | 11/19/2015 | | 11/19/2015 | | 12/15/2015 | | 5/19/2016 | | 5/19/2016 | | 5/19/2016 | | 11/28/2017 | |
| | | Sample Purpose | REG | | REG | | REG | | FD | | REG | | REG | | REG | | REG | | FD | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,2-Dichloropropane | µg/L | 5 | < 0.4 | U | | | < 0.4 | U | < 0.4 | U | | | < 0.4 | U | | | | | < 0.4 | U | < 0.4 | U | < 1 | U |
| 1,3,5-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | < 0.5 | U | < 1 | U |
| 1,3-Dichlorobenzene | µg/L | 3,100 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | < 0.5 | U | < 1 | U |
| 1,3-Dichloropropane | µg/L | 29 | < 0.4 | U | | | < 0.4 | U | < 0.4 | U | | | < 0.4 | U | | | | | < 0.4 | U | < 0.4 | U | < 1 | U |
| 1,4-Dichlorobenzene | µg/L | 75 | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | | | | < 0.25 | U | < 0.25 | U | < 1 | U |
| 2,2-Dichloropropane | µg/L | 42 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | < 0.5 | U | < 1 | U |
| 2-Butanone | µg/L | 61,000 | < 5 | U | | | < 5 | UJ | < 5 | U | | | < 5 | U | | | | | < 5 | U | < 5 | U | < 2 | U |
| 2-Chlorotoluene | µg/L | 2,000 | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | | | | < 0.25 | U | < 0.25 | U | < 1 | U |
| 2-Hexanone | µg/L | 6,100 | < 5 | U | | | < 5 | UJ | < 5 | U | | | < 5 | U | | | | | < 5 | U | < 5 | U | < 2 | U |
| 4-Chlorotoluene | µg/L | 2,000 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | < 0.5 | U | < 1 | U |
| Acetone | µg/L | 92,000 | < 5 | U | | | < 5 | U | < 5 | U | | | < 5 | U | | | | | < 5 | U | < 5 | U | < 2 | U |
| Benzene | µg/L | 5 | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | | | | < 0.25 | U | < 0.25 | U | < 1 | U |
| Bromobenzene | µg/L | 2,000 | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | | | | < 0.25 | U | < 0.25 | U | < 1 | U |
| Bromochloromethane | µg/L | 4,100 | < 0.4 | U | | | < 0.4 | U | < 0.4 | U | | | < 0.4 | U | | | | | < 0.4 | U | < 0.4 | U | < 1 | U |
| Bromodichloromethane | µg/L | 4.6 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | < 0.5 | U | < 1 | U |
| Bromoform | µg/L | 36 | < 1 | U | | | < 1 | U | < 1 | U | | | < 1 | U | | | | | < 1 | U | < 1 | U | < 1 | U |
| Bromomethane | µg/L | 140 | < 1 | UJ | | | < 1 | U | < 1 | U | | | < 1 | U | | | | | < 1 | U | < 1 | UJ | < 1 | U |
| Carbon disulfide | µg/L | 10,000 | < 1 | U | | | < 1 | U | < 1 | U | | | < 1 | U | | | | | < 1 | U | < 1 | U | < 2 | U |
| Carbon tetrachloride | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | < 0.5 | U | < 1 | U |
| Chlorobenzene | µg/L | 100 | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | | | | < 0.25 | U | < 0.25 | U | < 1 | U |
| Chloroethane | µg/L | 41,000 | < 1 | U | | | < 1 | U | < 1 | U | | | < 1 | U | | | | | < 1 | U | < 1 | U | < 1 | U |
| Chloroform | µg/L | 1,000 | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | | | | < 0.25 | U | < 0.25 | U | < 1 | U |
| Chloromethane | µg/L | 220 | < 1 | U | | | < 1 | U | < 1 | U | | | < 1 | U | | | | | < 1 | U | < 1 | U | < 1 | U |
| cis-1,2-Dichloroethene | µg/L | 70 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | < 0.5 | U | < 1 | U |
| cis-1,3-Dichloropropene | µg/L | 5.3 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | < 0.5 | U | < 1 | U |
| Dibromochloromethane | µg/L | 34 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | < 0.5 | U | < 1 | U |
| Dibromomethane | µg/L | 380 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | < 0.5 | U | < 1 | U |
| Dichlorodifluoromethane | µg/L | 20,000 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | < 0.5 | U | < 1 | U |
| Ethylbenzene | µg/L | 700 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | < 0.5 | U | < 1 | U |
| Hexachlorobutadiene | µg/L | 20 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | < 0.5 | U | < 1 | U |
| Isopropylbenzene | µg/L | 10,000 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | < 0.5 | U | < 1 | U |
| m,p-Xylenes | µg/L | 10,000 | < 1 | U | | | < 1 | U | < 1 | U | | | < 1 | U | | | | | < 1 | U | < 1 | U | < 2 | U |
| Methyl isobutyl ketone | µg/L | 8,200 | < 5 | U | | | < 5 | U | < 5 | UJ | | | < 5 | U | | | | | < 5 | U | < 5 | U | < 2 | U |
| Methylene chloride | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | < 0.5 | U | < 2 | U |
| Naphthalene | µg/L | 2,000 | < 0.4 | U | | | < 0.4 | U | < 0.4 | U | | | < 0.4 | U | | | | | < 0.4 | U | < 0.4 | U | < 1 | U |
| n-Butylbenzene | µg/L | 4,100 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | < 0.5 | U | < 1 | U |
| n-Propylbenzene | µg/L | 4,100 | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | | | | < 0.25 | U | < 0.25 | U | < 1 | U |
| o-Xylene | µg/L | 10,000 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | < 0.5 | U | < 1 | U |
| p-Isopropyltoluene | µg/L | 10,000 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | < 0.5 | U | < 1 | U |
| sec-Butylbenzene | µg/L | 4,100 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | < 0.5 | U | < 1 | U |
| Styrene | µg/L | 100 | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | | | | < 0.25 | U | < 0.25 | U | < 1 | U |
| tert-Butylbenzene | µg/L | 4,100 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | < 0.5 | U | < 1 | U |
| Tetrachloroethene | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | < 0.5 | U | < 1 | U |
| Toluene | µg/L | 1,000 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | < 0.5 | U | < 1 | U |
| trans-1,2-Dichloroethene | µg/L | 100 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | < 0.5 | U | < 1 | U |
| trans-1,3-Dichloropropene | µg/L | 29 | < 1 | U | | | < 1 | U | < 1 | U | | | < 1 | U | | | | | < 1 | U | < 1 | U | < 1 | U |
| Trichloroethene | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | < 0.5 | U | < 1 | U |
| Trichlorofluoromethane | µg/L | 31,000 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | < 0.5 | U | < 1 | U |
| Vinyl chloride | µg/L | 2 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | 0.273 | J | 0.285 | J | < 1 | U |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW02 | | | | | | | | | | | | 67WW03 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW02-180503FD | | 67WW02-180503 | | 67WW02-181025 | | 67WW02-190501 | | 67WW02-191024 | | 67WW02-201102 | | 67WW03-130927 | | 67WW03-140123 | | 67WW03-140506 | | 67WW03-140723 | | 67WW03-141202 | |
| | | Sample Date | 5/3/2018 | | 5/3/2018 | | 10/25/2018 | | 5/1/2019 | | 10/24/2019 | | 11/2/2020 | | 9/27/2013 | | 1/23/2014 | | 5/6/2014 | | 7/23/2014 | | 12/2/2014 | |
| | | Sample Purpose | FD | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| **ANIONS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Chloride | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Nitrate | mg/L | 10 | | | | | | | | | | | | | | | | | | | | | | |
| Nitrite | mg/L | 1 | | | | | | | | | | | | | | | | | | | | | | |
| Sulfate | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Sulfide | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **TOTAL ORGANIC CARBON** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Inorganic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Total Organic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **DHC** | | | | | | | | | | | | | | | | | | | | | | | | |
| BVC | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dehalococcoides | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| **FIELD TESTS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Conductivity | mS/cm | NV | | | | | | | | | | | 4.42 | | | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | | | 8.6 | | 1.27 | | 0.27 | | 0.36 | | 0.17 | | - | - | - | - | - | - | - | - | - | - |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Flow Rate | mL/Min | NV | | | 0 | | 100 | | 100 | | 100 | | 100 | | | | | | | | | | | |
| Measured well depth | Ft BTOC | NV | | | 27.88 | | 27.92 | | 27.8 | | 27.75 | | | | | | | | | | | | | |
| Oxidation-Reduction Potentia | mV | NV | | | 155 | | 129 | | 73 | | 125 | | 51 | | - | - | - | - | - | - | - | - | - | - |
| pH | SU | NV | | | 6.37 | | 6.50 | | 5.74 | | 6.26 | | 6.68 | | - | - | - | - | - | - | - | - | - | - |
| Temperature | C | NV | | | 20.69 | | 19.04 | | 24 | | 22.60 | | 20 | | - | - | -99 | | -99 | | -99 | | -99 | |
| Turbidity | NTU | NV | | | 14.3 | | 1.1 | | 0 | | 8.7 | | 20.2 | | - | - | - | - | - | - | - | - | - | - |
| **GASES** | | | | | | | | | | | | | | | | | | | | | | | | |
| Carbon dioxide | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethylene | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Methane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **GENERAL CHEMISTRY** | | | | | | | | | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **SEMIVOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,4-Dioxane | µg/L | 26 | | | | | | | | | | | | | | | | | | | | | | |
| **VOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | µg/L | 110 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | | | | |
| 1,1,1-Trichloroethane | µg/L | 200 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | | | | |
| 1,1,2,2-Tetrachloroethane | µg/L | 14 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | | | | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | µg/L | 3,100,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | | | | | | | | |
| 1,1,2-Trichloroethane | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | 1.2 | | < 0.5 | U | 1 | | | | | | | | | | | |
| 1,1-Dichloroethane | µg/L | 10,000 | 7.7 | | 7.8 | | < 0.5 | U | 8.4 | | 1.7 | | 7.6 | | | | | | | | | | | |
| 1,1-Dichloroethene | µg/L | 7 | 190 | | 190 | | 6.9 | | 180 | | 34 | | 220 | | | | | | | | | | | |
| 1,1-Dichloropropene | µg/L | 2.9 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | | | | |
| 1,2,3-Trichlorobenzene | µg/L | 310 | < 0.5 | U | < 0.5 | U | < 0.5 | UJ | < 0.5 | U | < 0.5 | U | < 1 | U | | | | | | | | | | |
| 1,2,3-Trichloropropane | µg/L | 0.041 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | µg/L | 70 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | | | | | | | | |
| 1,2,4-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | | | | |
| 1,2-Dibromo-3-chloropropane | µg/L | 0.2 | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | | | | |
| 1,2-Dibromoethane | µg/L | 0.05 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | | | | |
| 1,2-Dichlorobenzene | µg/L | 600 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | | | | | | | | |
| 1,2-Dichloroethane | µg/L | 5 | 1.9 | | 2 | | < 0.5 | U | 4.7 | | < 0.5 | U | 5.5 | | | | | | | | | | | |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW02 | | | | | | | | | | | | 67WW03 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW02-180503FD | | 67WW02-180503 | | 67WW02-181025 | | 67WW02-190501 | | 67WW02-191024 | | 67WW02-201102 | | 67WW03-130927 | | 67WW03-140123 | | 67WW03-140506 | | 67WW03-140723 | | 67WW03-141202 | |
| | | Sample Date | 5/3/2018 | | 5/3/2018 | | 10/25/2018 | | 5/1/2019 | | 10/24/2019 | | 11/2/2020 | | 9/27/2013 | | 1/23/2014 | | 5/6/2014 | | 7/23/2014 | | 12/2/2014 | |
| | | Sample Purpose | FD | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,2-Dichloropropane | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | | | | |
| 1,3,5-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | | | | |
| 1,3-Dichlorobenzene | µg/L | 3,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | | | | | | | | |
| 1,3-Dichloropropane | µg/L | 29 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | | | | |
| 1,4-Dichlorobenzene | µg/L | 75 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | | | | | | | | |
| 2,2-Dichloropropane | µg/L | 42 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | | | | |
| 2-Butanone | µg/L | 61,000 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | | | | | | | | | | |
| 2-Chlorotoluene | µg/L | 2,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | | | | |
| 2-Hexanone | µg/L | 6,100 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 2 | U | | | | | | | | | | |
| 4-Chlorotoluene | µg/L | 2,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | | | | | | | | |
| Acetone | µg/L | 92,000 | < 1 | U | < 1 | U | < 2 | U | < 1 | U | < 1 | U | < 1 | U | | | | | | | | | | |
| Benzene | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | | | | |
| Bromobenzene | µg/L | 2,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | | | | | | | | |
| Bromochloromethane | µg/L | 4,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | | | | |
| Bromodichloromethane | µg/L | 4.6 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | | | | |
| Bromoform | µg/L | 36 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | | | | |
| Bromomethane | µg/L | 140 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | | | | |
| Carbon disulfide | µg/L | 10,000 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | | | | | | | | | | |
| Carbon tetrachloride | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | | | | |
| Chlorobenzene | µg/L | 100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | | | | |
| Chloroethane | µg/L | 41,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | | | | |
| Chloroform | µg/L | 1,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | | | | |
| Chloromethane | µg/L | 220 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | | | | |
| cis-1,2-Dichloroethene | µg/L | 70 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | | | | |
| cis-1,3-Dichloropropene | µg/L | 5.3 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | | | | |
| Dibromochloromethane | µg/L | 34 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | | | | |
| Dibromomethane | µg/L | 380 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | | | | |
| Dichlorodifluoromethane | µg/L | 20,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | | | | |
| Ethylbenzene | µg/L | 700 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | | | | |
| Hexachlorobutadiene | µg/L | 20 | < 0.5 | U | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 1 | U | | | | | | | | | | |
| Isopropylbenzene | µg/L | 10,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | | | | |
| m,p-Xylenes | µg/L | 10,000 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | | | | | | | | | | |
| Methyl isobutyl ketone | µg/L | 8,200 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 2 | U | | | | | | | | | | |
| Methylene chloride | µg/L | 5 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | | | | | | | | | | |
| Naphthalene | µg/L | 2,000 | < 0.5 | U | < 0.5 | U | < 0.5 | UJ | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | | | | |
| n-Butylbenzene | µg/L | 4,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | | | | | | | | |
| n-Propylbenzene | µg/L | 4,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | | | | |
| o-Xylene | µg/L | 10,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | | | | |
| p-Isopropyltoluene | µg/L | 10,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | | | | |
| sec-Butylbenzene | µg/L | 4,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | | | | |
| Styrene | µg/L | 100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | | | | |
| tert-Butylbenzene | µg/L | 4,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | | | | |
| Tetrachloroethene | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | | | | |
| Toluene | µg/L | 1,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | | | | |
| trans-1,2-Dichloroethene | µg/L | 100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | | | | |
| trans-1,3-Dichloropropene | µg/L | 29 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | | | | |
| Trichloroethene | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | 0.87 | J | < 0.5 | U | 0.83 | J | | | | | | | | | | |
| Trichlorofluoromethane | µg/L | 31,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | | | | |
| Vinyl chloride | µg/L | 2 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | | | | |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW03 | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW03-150210 | | 67WW03-150511 | | 67WW03-051215 | | 67WW03-151118 | | 67WW03-151215 | | 67WW03-160329 | | 67WW03-032916 | | 67WW03-160519 | | 67WW03-051916 | | 67WW03-180502 | | 67WW03-181025 | |
| | | Sample Date | 2/10/2015 | | 5/11/2015 | | 5/12/2015 | | 11/18/2015 | | 12/15/2015 | | 3/29/2016 | | 3/29/2016 | | 5/19/2016 | | 5/19/2016 | | 5/2/2018 | | 10/25/2018 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| **ANIONS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Chloride | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Nitrate | mg/L | 10 | | | | | | | | | | | | | | | | | | | | | | |
| Nitrite | mg/L | 1 | | | | | | | | | | | | | | | | | | | | | | |
| Sulfate | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Sulfide | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **TOTAL ORGANIC CARBON** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Inorganic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Total Organic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **DHC** | | | | | | | | | | | | | | | | | | | | | | | | |
| BVC | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dehalococcoides | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| **FIELD TESTS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Conductivity | mS/cm | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | - | - | - | - | | | - | - | - | - | - | - | | | - | - | | | | | | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Flow Rate | mL/Min | NV | | | | | | | | | | | | | | | | | | | | | | |
| Measured well depth | Ft BTOC | NV | | | | | | | | | | | | | | | | | | | 24.9 | | 24.95 | |
| Oxidation-Reduction Potentia | mV | NV | - | - | 40 | | | | - | - | - | - | - | - | | | - | - | | | | | | |
| pH | SU | NV | - | - | 6.12 | | | | - | - | - | - | 4.41 | | | | 6.26 | | | | | | | |
| Temperature | C | NV | -99 | | 18.52 | | | | -99 | | -99 | | 13.21 | | | | 17.89 | | | | | | | |
| Turbidity | NTU | NV | - | - | 200 | | | | - | - | - | - | 28.9 | | | | 9.1 | | | | | | | |
| **GASES** | | | | | | | | | | | | | | | | | | | | | | | | |
| Carbon dioxide | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethylene | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Methane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **GENERAL CHEMISTRY** | | | | | | | | | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **SEMIVOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,4-Dioxane | µg/L | 26 | | | | | | | | | | | | | | | | | | | | | | |
| **VOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | µg/L | 110 | | | | | < 0.5 | U | | | | | | | < 0.5 | U | | | < 0.5 | U | | | | |
| 1,1,1-Trichloroethane | µg/L | 200 | | | | | < 0.5 | U | | | | | | | < 0.5 | U | | | < 0.5 | U | | | | |
| 1,1,2,2-Tetrachloroethane | µg/L | 14 | | | | | < 0.4 | U | | | | | | | < 0.4 | U | | | < 0.4 | U | | | | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | µg/L | 3,100,000 | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,2-Trichloroethane | µg/L | 5 | | | | | < 0.5 | U | | | | | | | < 0.5 | U | | | < 0.5 | U | | | | |
| 1,1-Dichloroethane | µg/L | 10,000 | | | | | < 0.25 | U | | | | | | | < 0.25 | U | | | < 0.25 | U | | | | |
| 1,1-Dichloroethene | µg/L | 7 | | | | | < 1 | U | | | | | | | < 1 | U | | | < 1 | U | | | | |
| 1,1-Dichloropropene | µg/L | 2.9 | | | | | < 0.5 | U | | | | | | | < 0.5 | U | | | < 0.5 | U | | | | |
| 1,2,3-Trichlorobenzene | µg/L | 310 | | | | | < 0.3 | U | | | | | | | < 0.3 | U | | | < 0.3 | U | | | | |
| 1,2,3-Trichloropropane | µg/L | 0.041 | | | | | < 1 | U | | | | | | | < 1 | U | | | < 1 | U | | | | |
| 1,2,4-Trichlorobenzene | µg/L | 70 | | | | | < 0.4 | U | | | | | | | < 0.4 | U | | | < 0.4 | U | | | | |
| 1,2,4-Trimethylbenzene | µg/L | 5,100 | | | | | < 0.5 | U | | | | | | | < 0.5 | U | | | < 0.5 | U | | | | |
| 1,2-Dibromo-3-chloropropane | µg/L | 0.2 | | | | | < 2 | U | | | | | | | < 2 | U | | | < 2 | U | | | | |
| 1,2-Dibromoethane | µg/L | 0.05 | | | | | < 0.5 | U | | | | | | | < 0.5 | U | | | < 0.5 | U | | | | |
| 1,2-Dichlorobenzene | µg/L | 600 | | | | | < 0.25 | U | | | | | | | < 0.25 | U | | | < 0.25 | U | | | | |
| 1,2-Dichloroethane | µg/L | 5 | | | | | < 0.5 | U | | | | | | | < 0.5 | U | | | < 0.5 | U | | | | |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW03 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW03-150210 | | 67WW03-150511 | | 67WW03-051215 | | 67WW03-151118 | | 67WW03-151215 | | 67WW03-160329 | | 67WW03-032916 | | 67WW03-160519 | | 67WW03-051916 | | 67WW03-180502 | | 67WW03-181025 | |
| | | Sample Date | 2/10/2015 | | 5/11/2015 | | 5/12/2015 | | 11/18/2015 | | 12/15/2015 | | 3/29/2016 | | 3/29/2016 | | 5/19/2016 | | 5/19/2016 | | 5/2/2018 | | 10/25/2018 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,2-Dichloropropane | µg/L | 5 | | | | | < 0.4 | U | | | | | | | < 0.4 | U | | | < 0.4 | U | | | | |
| 1,3,5-Trimethylbenzene | µg/L | 5,100 | | | | | < 0.5 | U | | | | | | | < 0.5 | U | | | < 0.5 | U | | | | |
| 1,3-Dichlorobenzene | µg/L | 3,100 | | | | | < 0.5 | U | | | | | | | < 0.5 | U | | | < 0.5 | U | | | | |
| 1,3-Dichloropropane | µg/L | 29 | | | | | < 0.4 | U | | | | | | | < 0.4 | U | | | < 0.4 | U | | | | |
| 1,4-Dichlorobenzene | µg/L | 75 | | | | | < 0.25 | U | | | | | | | < 0.25 | U | | | < 0.25 | U | | | | |
| 2,2-Dichloropropane | µg/L | 42 | | | | | < 0.5 | U | | | | | | | < 0.5 | U | | | < 0.5 | U | | | | |
| 2-Butanone | µg/L | 61,000 | | | | | < 5 | U | | | | | | | < 5 | U | | | < 5 | U | | | | |
| 2-Chlorotoluene | µg/L | 2,000 | | | | | < 0.25 | U | | | | | | | < 0.25 | U | | | < 0.25 | U | | | | |
| 2-Hexanone | µg/L | 6,100 | | | | | < 5 | UJ | | | | | | | < 5 | U | | | < 5 | U | | | | |
| 4-Chlorotoluene | µg/L | 2,000 | | | | | < 0.5 | U | | | | | | | < 0.5 | U | | | < 0.5 | U | | | | |
| Acetone | µg/L | 92,000 | | | | | < 5 | U | | | | | | | < 5 | U | | | < 5 | U | | | | |
| Benzene | µg/L | 5 | | | | | < 0.25 | U | | | | | | | < 0.25 | U | | | < 0.25 | U | | | | |
| Bromobenzene | µg/L | 2,000 | | | | | < 0.25 | U | | | | | | | < 0.25 | U | | | < 0.25 | U | | | | |
| Bromochloromethane | µg/L | 4,100 | | | | | < 0.4 | U | | | | | | | < 0.4 | U | | | < 0.4 | U | | | | |
| Bromodichloromethane | µg/L | 4.6 | | | | | < 0.5 | U | | | | | | | < 0.5 | U | | | < 0.5 | U | | | | |
| Bromoform | µg/L | 36 | | | | | < 1 | U | | | | | | | < 1 | U | | | < 1 | U | | | | |
| Bromomethane | µg/L | 140 | | | | | < 1 | U | | | | | | | < 1 | U | | | < 1 | U | | | | |
| Carbon disulfide | µg/L | 10,000 | | | | | < 1 | U | | | | | | | < 1 | U | | | < 1 | U | | | | |
| Carbon tetrachloride | µg/L | 5 | | | | | < 0.5 | U | | | | | | | < 0.5 | U | | | < 0.5 | U | | | | |
| Chlorobenzene | µg/L | 100 | | | | | < 0.25 | U | | | | | | | < 0.25 | U | | | < 0.25 | U | | | | |
| Chloroethane | µg/L | 41,000 | | | | | < 1 | U | | | | | | | < 1 | U | | | < 1 | U | | | | |
| Chloroform | µg/L | 1,000 | | | | | < 0.25 | U | | | | | | | < 0.25 | U | | | < 0.25 | U | | | | |
| Chloromethane | µg/L | 220 | | | | | < 1 | U | | | | | | | < 1 | U | | | < 1 | U | | | | |
| cis-1,2-Dichloroethene | µg/L | 70 | | | | | < 0.5 | U | | | | | | | < 0.5 | U | | | < 0.5 | U | | | | |
| cis-1,3-Dichloropropene | µg/L | 5.3 | | | | | < 0.5 | U | | | | | | | < 0.5 | U | | | < 0.5 | U | | | | |
| Dibromochloromethane | µg/L | 34 | | | | | < 0.5 | U | | | | | | | < 0.5 | U | | | < 0.5 | U | | | | |
| Dibromomethane | µg/L | 380 | | | | | < 0.5 | U | | | | | | | < 0.5 | U | | | < 0.5 | U | | | | |
| Dichlorodifluoromethane | µg/L | 20,000 | | | | | < 0.5 | U | | | | | | | < 0.5 | U | | | < 0.5 | U | | | | |
| Ethylbenzene | µg/L | 700 | | | | | < 0.5 | U | | | | | | | < 0.5 | U | | | < 0.5 | U | | | | |
| Hexachlorobutadiene | µg/L | 20 | | | | | < 0.5 | U | | | | | | | < 0.5 | U | | | < 0.5 | U | | | | |
| Isopropylbenzene | µg/L | 10,000 | | | | | < 0.5 | U | | | | | | | < 0.5 | U | | | < 0.5 | U | | | | |
| m,p-Xylenes | µg/L | 10,000 | | | | | < 1 | U | | | | | | | < 1 | U | | | < 1 | U | | | | |
| Methyl isobutyl ketone | µg/L | 8,200 | | | | | < 5 | U | | | | | | | < 5 | U | | | < 5 | U | | | | |
| Methylene chloride | µg/L | 5 | | | | | < 0.5 | U | | | | | | | < 0.5 | U | | | < 0.5 | U | | | | |
| Naphthalene | µg/L | 2,000 | | | | | < 0.4 | U | | | | | | | < 0.4 | U | | | < 0.4 | U | | | | |
| n-Butylbenzene | µg/L | 4,100 | | | | | < 0.5 | U | | | | | | | < 0.5 | U | | | < 0.5 | U | | | | |
| n-Propylbenzene | µg/L | 4,100 | | | | | < 0.25 | U | | | | | | | < 0.25 | U | | | < 0.25 | U | | | | |
| o-Xylene | µg/L | 10,000 | | | | | < 0.5 | U | | | | | | | < 0.5 | U | | | < 0.5 | U | | | | |
| p-Isopropyltoluene | µg/L | 10,000 | | | | | 0.411 | J | | | | | | | 0.456 | J | | | < 0.5 | U | | | | |
| sec-Butylbenzene | µg/L | 4,100 | | | | | < 0.5 | U | | | | | | | < 0.5 | U | | | < 0.5 | U | | | | |
| Styrene | µg/L | 100 | | | | | < 0.25 | U | | | | | | | < 0.25 | U | | | < 0.25 | U | | | | |
| tert-Butylbenzene | µg/L | 4,100 | | | | | < 0.5 | U | | | | | | | < 0.5 | U | | | < 0.5 | U | | | | |
| Tetrachloroethene | µg/L | 5 | | | | | < 0.5 | U | | | | | | | < 0.5 | U | | | < 0.5 | U | | | | |
| Toluene | µg/L | 1,000 | | | | | < 0.5 | U | | | | | | | < 0.5 | U | | | < 0.5 | U | | | | |
| trans-1,2-Dichloroethene | µg/L | 100 | | | | | < 0.5 | U | | | | | | | < 0.5 | U | | | < 0.5 | U | | | | |
| trans-1,3-Dichloropropene | µg/L | 29 | | | | | < 1 | U | | | | | | | < 1 | U | | | < 1 | U | | | | |
| Trichloroethene | µg/L | 5 | | | | | < 0.5 | U | | | | | | | < 0.5 | U | | | < 0.5 | U | | | | |
| Trichlorofluoromethane | µg/L | 31,000 | | | | | < 0.5 | U | | | | | | | < 0.5 | U | | | < 0.5 | U | | | | |
| Vinyl chloride | µg/L | 2 | | | | | < 0.5 | U | | | | | | | < 0.5 | U | | | < 0.5 | U | | | | |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW03 | | | | 67WW04 | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW03-190502 | | 67WW03-191028 | | 67WW04-130927 | | 67WW04-140123 | | 67WW04-140506 | | 67WW04-140725 | | 67WW04-141202 | | 67WW04-150210 | | 67WW04-150511 | | 67WW04-151118 | | 67WW04-160518 | |
| | | Sample Date | 5/2/2019 | | 10/28/2019 | | 9/27/2013 | | 1/23/2014 | | 5/6/2014 | | 7/25/2014 | | 12/2/2014 | | 2/10/2015 | | 5/11/2015 | | 11/18/2015 | | 5/18/2016 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| **ANIONS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Chloride | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Nitrate | mg/L | 10 | | | | | | | | | | | | | | | | | | | | | | |
| Nitrite | mg/L | 1 | | | | | | | | | | | | | | | | | | | | | | |
| Sulfate | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Sulfide | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **TOTAL ORGANIC CARBON** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Inorganic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Total Organic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **DHC** | | | | | | | | | | | | | | | | | | | | | | | | |
| BVC | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dehalococcoides | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| **FIELD TESTS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Conductivity | mS/cm | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Flow Rate | mL/Min | NV | | | | | | | | | | | | | | | | | | | | | | |
| Measured well depth | Ft BTOC | NV | 24.9 | | 24.87 | | | | | | | | | | | | | | | | | | | |
| Oxidation-Reduction Potentia | mV | NV | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| pH | SU | NV | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Temperature | C | NV | | | | | -99 | | - | - | - | - | -99 | | -99 | | - | - | -99 | | -99 | | - | - |
| Turbidity | NTU | NV | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **GASES** | | | | | | | | | | | | | | | | | | | | | | | | |
| Carbon dioxide | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethylene | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Methane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **GENERAL CHEMISTRY** | | | | | | | | | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **SEMIVOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,4-Dioxane | µg/L | 26 | | | | | | | | | | | | | | | | | | | | | | |
| **VOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | µg/L | 110 | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | µg/L | 200 | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,2,2-Tetrachloroethane | µg/L | 14 | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | µg/L | 3,100,000 | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,2-Trichloroethane | µg/L | 5 | | | | | | | | | | | | | | | | | | | | | | |
| 1,1-Dichloroethane | µg/L | 10,000 | | | | | | | | | | | | | | | | | | | | | | |
| 1,1-Dichloroethene | µg/L | 7 | | | | | | | | | | | | | | | | | | | | | | |
| 1,1-Dichloropropene | µg/L | 2.9 | | | | | | | | | | | | | | | | | | | | | | |
| 1,2,3-Trichlorobenzene | µg/L | 310 | | | | | | | | | | | | | | | | | | | | | | |
| 1,2,3-Trichloropropane | µg/L | 0.041 | | | | | | | | | | | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | µg/L | 70 | | | | | | | | | | | | | | | | | | | | | | |
| 1,2,4-Trimethylbenzene | µg/L | 5,100 | | | | | | | | | | | | | | | | | | | | | | |
| 1,2-Dibromo-3-chloropropane | µg/L | 0.2 | | | | | | | | | | | | | | | | | | | | | | |
| 1,2-Dibromoethane | µg/L | 0.05 | | | | | | | | | | | | | | | | | | | | | | |
| 1,2-Dichlorobenzene | µg/L | 600 | | | | | | | | | | | | | | | | | | | | | | |
| 1,2-Dichloroethane | µg/L | 5 | | | | | | | | | | | | | | | | | | | | | | |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW03 | | | | 67WW04 | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW03-190502 | | 67WW03-191028 | | 67WW04-130927 | | 67WW04-140123 | | 67WW04-140506 | | 67WW04-140725 | | 67WW04-141202 | | 67WW04-150210 | | 67WW04-150511 | | 67WW04-151118 | | 67WW04-160518 | |
| | | Sample Date | 5/2/2019 | | 10/28/2019 | | 9/27/2013 | | 1/23/2014 | | 5/6/2014 | | 7/25/2014 | | 12/2/2014 | | 2/10/2015 | | 5/11/2015 | | 11/18/2015 | | 5/18/2016 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,2-Dichloropropane | µg/L | 5 | | | | | | | | | | | | | | | | | | | | | | |
| 1,3,5-Trimethylbenzene | µg/L | 5,100 | | | | | | | | | | | | | | | | | | | | | | |
| 1,3-Dichlorobenzene | µg/L | 3,100 | | | | | | | | | | | | | | | | | | | | | | |
| 1,3-Dichloropropane | µg/L | 29 | | | | | | | | | | | | | | | | | | | | | | |
| 1,4-Dichlorobenzene | µg/L | 75 | | | | | | | | | | | | | | | | | | | | | | |
| 2,2-Dichloropropane | µg/L | 42 | | | | | | | | | | | | | | | | | | | | | | |
| 2-Butanone | µg/L | 61,000 | | | | | | | | | | | | | | | | | | | | | | |
| 2-Chlorotoluene | µg/L | 2,000 | | | | | | | | | | | | | | | | | | | | | | |
| 2-Hexanone | µg/L | 6,100 | | | | | | | | | | | | | | | | | | | | | | |
| 4-Chlorotoluene | µg/L | 2,000 | | | | | | | | | | | | | | | | | | | | | | |
| Acetone | µg/L | 92,000 | | | | | | | | | | | | | | | | | | | | | | |
| Benzene | µg/L | 5 | | | | | | | | | | | | | | | | | | | | | | |
| Bromobenzene | µg/L | 2,000 | | | | | | | | | | | | | | | | | | | | | | |
| Bromochloromethane | µg/L | 4,100 | | | | | | | | | | | | | | | | | | | | | | |
| Bromodichloromethane | µg/L | 4.6 | | | | | | | | | | | | | | | | | | | | | | |
| Bromoform | µg/L | 36 | | | | | | | | | | | | | | | | | | | | | | |
| Bromomethane | µg/L | 140 | | | | | | | | | | | | | | | | | | | | | | |
| Carbon disulfide | µg/L | 10,000 | | | | | | | | | | | | | | | | | | | | | | |
| Carbon tetrachloride | µg/L | 5 | | | | | | | | | | | | | | | | | | | | | | |
| Chlorobenzene | µg/L | 100 | | | | | | | | | | | | | | | | | | | | | | |
| Chloroethane | µg/L | 41,000 | | | | | | | | | | | | | | | | | | | | | | |
| Chloroform | µg/L | 1,000 | | | | | | | | | | | | | | | | | | | | | | |
| Chloromethane | µg/L | 220 | | | | | | | | | | | | | | | | | | | | | | |
| cis-1,2-Dichloroethene | µg/L | 70 | | | | | | | | | | | | | | | | | | | | | | |
| cis-1,3-Dichloropropene | µg/L | 5.3 | | | | | | | | | | | | | | | | | | | | | | |
| Dibromochloromethane | µg/L | 34 | | | | | | | | | | | | | | | | | | | | | | |
| Dibromomethane | µg/L | 380 | | | | | | | | | | | | | | | | | | | | | | |
| Dichlorodifluoromethane | µg/L | 20,000 | | | | | | | | | | | | | | | | | | | | | | |
| Ethylbenzene | µg/L | 700 | | | | | | | | | | | | | | | | | | | | | | |
| Hexachlorobutadiene | µg/L | 20 | | | | | | | | | | | | | | | | | | | | | | |
| Isopropylbenzene | µg/L | 10,000 | | | | | | | | | | | | | | | | | | | | | | |
| m,p-Xylenes | µg/L | 10,000 | | | | | | | | | | | | | | | | | | | | | | |
| Methyl isobutyl ketone | µg/L | 8,200 | | | | | | | | | | | | | | | | | | | | | | |
| Methylene chloride | µg/L | 5 | | | | | | | | | | | | | | | | | | | | | | |
| Naphthalene | µg/L | 2,000 | | | | | | | | | | | | | | | | | | | | | | |
| n-Butylbenzene | µg/L | 4,100 | | | | | | | | | | | | | | | | | | | | | | |
| n-Propylbenzene | µg/L | 4,100 | | | | | | | | | | | | | | | | | | | | | | |
| o-Xylene | µg/L | 10,000 | | | | | | | | | | | | | | | | | | | | | | |
| p-Isopropyltoluene | µg/L | 10,000 | | | | | | | | | | | | | | | | | | | | | | |
| sec-Butylbenzene | µg/L | 4,100 | | | | | | | | | | | | | | | | | | | | | | |
| Styrene | µg/L | 100 | | | | | | | | | | | | | | | | | | | | | | |
| tert-Butylbenzene | µg/L | 4,100 | | | | | | | | | | | | | | | | | | | | | | |
| Tetrachloroethene | µg/L | 5 | | | | | | | | | | | | | | | | | | | | | | |
| Toluene | µg/L | 1,000 | | | | | | | | | | | | | | | | | | | | | | |
| trans-1,2-Dichloroethene | µg/L | 100 | | | | | | | | | | | | | | | | | | | | | | |
| trans-1,3-Dichloropropene | µg/L | 29 | | | | | | | | | | | | | | | | | | | | | | |
| Trichloroethene | µg/L | 5 | | | | | | | | | | | | | | | | | | | | | | |
| Trichlorofluoromethane | µg/L | 31,000 | | | | | | | | | | | | | | | | | | | | | | |
| Vinyl chloride | µg/L | 2 | | | | | | | | | | | | | | | | | | | | | | |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW05 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW05-130531 | | 67WW05-053113 | | 67WW05-130928 | | 67WW05-092813 | | 67WW05-140123 | | 67WW05-012314 | | 67WW05-140506 | | 67WW05-050614 | | 67WW05-140724 | | 67WW05-072414 | | 67WW05-141203 | |
| | | Sample Date | 5/31/2013 | | 5/31/2013 | | 9/28/2013 | | 9/28/2013 | | 1/23/2014 | | 1/23/2014 | | 5/6/2014 | | 5/6/2014 | | 7/24/2014 | | 7/24/2014 | | 12/3/2014 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| **ANIONS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Chloride | mg/L | NV | | | | | | | | | | | | | | | 697 | | | | | | | |
| Nitrate | mg/L | 10 | | | | | | | | | | | | | | | | | | | | | | |
| Nitrite | mg/L | 1 | | | | | | | | | | | | | | | | | | | | | | |
| Sulfate | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Sulfide | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **TOTAL ORGANIC CARBON** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Inorganic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Total Organic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **DHC** | | | | | | | | | | | | | | | | | | | | | | | | |
| BVC | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dehalococcoides | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| **FIELD TESTS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Conductivity | mS/cm | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | 8.72 | | | | 10.02 | | | | 6.01 | | | | 7.35 | | | | 8.31 | | | | - | - |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Flow Rate | mL/Min | NV | | | | | | | | | | | | | | | | | | | | | | |
| Measured well depth | Ft BTOC | NV | | | | | | | | | | | | | | | | | | | | | | |
| Oxidation-Reduction Potentia | mV | NV | -15 | | | | -72 | | | | -34 | | | | 13 | | | | 221 | | | | 34 | |
| pH | SU | NV | 6.94 | | | | 6.37 | | | | 6.57 | | | | 5.56 | | | | 6.92 | | | | 5.7 | |
| Temperature | C | NV | 26.87 | | | | 21.75 | | | | 15.83 | | | | 22.15 | | | | 22.72 | | | | 18.55 | |
| Turbidity | NTU | NV | 2.5 | | | | 16.2 | | | | 9.7 | | | | 8.1 | | | | 28.5 | | | | 24.8 | |
| **GASES** | | | | | | | | | | | | | | | | | | | | | | | | |
| Carbon dioxide | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethylene | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Methane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **GENERAL CHEMISTRY** | | | | | | | | | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **SEMIVOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,4-Dioxane | µg/L | 26 | | | | | | | | | | | | | | | | | | | | | | |
| **VOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | µg/L | 110 | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,1,1-Trichloroethane | µg/L | 200 | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,1,2,2-Tetrachloroethane | µg/L | 14 | | | < 0.2 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | µg/L | 3,100,000 | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,2-Trichloroethane | µg/L | 5 | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,1-Dichloroethane | µg/L | 10,000 | | | < 0.125 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| 1,1-Dichloroethene | µg/L | 7 | | | < 0.5 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | |
| 1,1-Dichloropropene | µg/L | 2.9 | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,2,3-Trichlorobenzene | µg/L | 310 | | | < 0.15 | U | | | < 0.3 | U | | | < 0.3 | U | | | < 0.3 | U | | | < 0.3 | U | | |
| 1,2,3-Trichloropropane | µg/L | 0.041 | | | < 0.5 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | |
| 1,2,4-Trichlorobenzene | µg/L | 70 | | | < 0.2 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | |
| 1,2,4-Trimethylbenzene | µg/L | 5,100 | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,2-Dibromo-3-chloropropane | µg/L | 0.2 | | | < 1 | U | | | < 2 | U | | | < 2 | U | | | < 2 | U | | | < 2 | U | | |
| 1,2-Dibromoethane | µg/L | 0.05 | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,2-Dichlorobenzene | µg/L | 600 | | | < 0.125 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| 1,2-Dichloroethane | µg/L | 5 | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW05 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW05-130531 | | 67WW05-053113 | | 67WW05-130928 | | 67WW05-092813 | | 67WW05-140123 | | 67WW05-012314 | | 67WW05-140506 | | 67WW05-050614 | | 67WW05-140724 | | 67WW05-072414 | | 67WW05-141203 | |
| | | Sample Date | 5/31/2013 | | 5/31/2013 | | 9/28/2013 | | 9/28/2013 | | 1/23/2014 | | 1/23/2014 | | 5/6/2014 | | 5/6/2014 | | 7/24/2014 | | 7/24/2014 | | 12/3/2014 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,2-Dichloropropane | µg/L | 5 | | | < 0.2 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | |
| 1,3,5-Trimethylbenzene | µg/L | 5,100 | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,3-Dichlorobenzene | µg/L | 3,100 | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,3-Dichloropropane | µg/L | 29 | | | < 0.2 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | |
| 1,4-Dichlorobenzene | µg/L | 75 | | | < 0.125 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| 2,2-Dichloropropane | µg/L | 42 | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 2-Butanone | µg/L | 61,000 | | | < 2.5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | | |
| 2-Chlorotoluene | µg/L | 2,000 | | | < 0.125 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| 2-Hexanone | µg/L | 6,100 | | | < 2.5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | | |
| 4-Chlorotoluene | µg/L | 2,000 | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Acetone | µg/L | 92,000 | | | < 2.5 | UJ | | | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | | |
| Benzene | µg/L | 5 | | | < 0.125 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| Bromobenzene | µg/L | 2,000 | | | < 0.125 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| Bromochloromethane | µg/L | 4,100 | | | < 0.2 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | |
| Bromodichloromethane | µg/L | 4.6 | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Bromoform | µg/L | 36 | | | < 0.5 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | |
| Bromomethane | µg/L | 140 | | | < 0.5 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | |
| Carbon disulfide | µg/L | 10,000 | | | < 0.5 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | |
| Carbon tetrachloride | µg/L | 5 | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Chlorobenzene | µg/L | 100 | | | < 0.125 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| Chloroethane | µg/L | 41,000 | | | < 0.5 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | |
| Chloroform | µg/L | 1,000 | | | < 0.125 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| Chloromethane | µg/L | 220 | | | < 0.5 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | |
| cis-1,2-Dichloroethene | µg/L | 70 | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| cis-1,3-Dichloropropene | µg/L | 5.3 | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Dibromochloromethane | µg/L | 34 | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Dibromomethane | µg/L | 380 | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Dichlorodifluoromethane | µg/L | 20,000 | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Ethylbenzene | µg/L | 700 | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Hexachlorobutadiene | µg/L | 20 | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Isopropylbenzene | µg/L | 10,000 | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| m,p-Xylenes | µg/L | 10,000 | | | < 0.5 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | |
| Methyl isobutyl ketone | µg/L | 8,200 | | | < 2.5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | | |
| Methylene chloride | µg/L | 5 | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Naphthalene | µg/L | 2,000 | | | < 0.2 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | |
| n-Butylbenzene | µg/L | 4,100 | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| n-Propylbenzene | µg/L | 4,100 | | | < 0.125 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| o-Xylene | µg/L | 10,000 | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| p-Isopropyltoluene | µg/L | 10,000 | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| sec-Butylbenzene | µg/L | 4,100 | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Styrene | µg/L | 100 | | | < 0.125 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| tert-Butylbenzene | µg/L | 4,100 | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Tetrachloroethene | µg/L | 5 | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Toluene | µg/L | 1,000 | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| trans-1,2-Dichloroethene | µg/L | 100 | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| trans-1,3-Dichloropropene | µg/L | 29 | | | < 0.5 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | |
| Trichloroethene | µg/L | 5 | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Trichlorofluoromethane | µg/L | 31,000 | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Vinyl chloride | µg/L | 2 | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW05 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW05-120314 | | 67WW05-150210 | | 67WW05-021015 | | 67WW05-150511 | | 67WW05-051215 | | 67WW05-151119 | | 67WW05-111915 | | 67WW05-160519 | | 67WW05-051916 | | 67WW05-112817 | | 67WW05-180503 | |
| | | Sample Date | 12/3/2014 | | 2/10/2015 | | 2/10/2015 | | 5/11/2015 | | 5/12/2015 | | 11/19/2015 | | 11/19/2015 | | 5/19/2016 | | 5/19/2016 | | 11/28/2017 | | 5/3/2018 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| **ANIONS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Chloride | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Nitrate | mg/L | 10 | | | | | | | | | | | | | | | | | | | | | | |
| Nitrite | mg/L | 1 | | | | | | | | | | | | | | | | | | | | | | |
| Sulfate | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Sulfide | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **TOTAL ORGANIC CARBON** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Inorganic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Total Organic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **DHC** | | | | | | | | | | | | | | | | | | | | | | | | |
| BVC | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dehalococcoides | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| **FIELD TESTS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Conductivity | mS/cm | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | | | - | - | | | - | - | | | - | - | | | - | - | | | 7.47 | | 9.51 | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Flow Rate | mL/Min | NV | | | | | | | | | | | | | | | | | | | | | 0 | |
| Measured well depth | Ft BTOC | NV | | | | | | | | | | | | | | | | | | | 30.13 | | 24.9 | |
| Oxidation-Reduction Potentia | mV | NV | | | -10 | | | | 127 | | | | - | - | | | - | - | | | 133 | | 229 | |
| pH | SU | NV | | | 6.83 | | | | 5.74 | | | | 5.12 | | | | 5.42 | | | | 5.26 | | 5.68 | |
| Temperature | C | NV | | | 19.82 | | | | 19.69 | | | | 16.33 | | | | 18.66 | | | | 16.09 | | 20.63 | |
| Turbidity | NTU | NV | | | 22.7 | | | | 100 | | | | 129 | | | | 91.8 | | | | 301 | | 54 | |
| **GASES** | | | | | | | | | | | | | | | | | | | | | | | | |
| Carbon dioxide | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethylene | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Methane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **GENERAL CHEMISTRY** | | | | | | | | | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **SEMIVOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,4-Dioxane | µg/L | 26 | | | | | | | | | | | | | | | | | | | 0.53 | | | |
| **VOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | µg/L | 110 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| 1,1,1-Trichloroethane | µg/L | 200 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| 1,1,2,2-Tetrachloroethane | µg/L | 14 | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | < 1 | U | < 0.5 | U |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | µg/L | 3,100,000 | | | | | | | | | | | | | | | | | | | < 1 | U | < 0.5 | U |
| 1,1,2-Trichloroethane | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| 1,1-Dichloroethane | µg/L | 10,000 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 1 | U | < 0.5 | U |
| 1,1-Dichloroethene | µg/L | 7 | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | < 0.5 | U |
| 1,1-Dichloropropene | µg/L | 2.9 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| 1,2,3-Trichlorobenzene | µg/L | 310 | < 0.3 | U | | | < 0.3 | U | | | < 0.3 | U | | | < 0.3 | U | | | < 0.3 | U | < 1 | U | < 0.5 | U |
| 1,2,3-Trichloropropane | µg/L | 0.041 | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | < 0.5 | U |
| 1,2,4-Trichlorobenzene | µg/L | 70 | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | < 1 | U | < 0.5 | U |
| 1,2,4-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| 1,2-Dibromo-3-chloropropane | µg/L | 0.2 | < 2 | U | | | < 2 | U | | | < 2 | U | | | < 2 | U | | | < 2 | U | < 1 | U | < 0.5 | U |
| 1,2-Dibromoethane | µg/L | 0.05 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| 1,2-Dichlorobenzene | µg/L | 600 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 1 | U | < 0.5 | U |
| 1,2-Dichloroethane | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW05 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW05-120314 | | 67WW05-150210 | | 67WW05-021015 | | 67WW05-150511 | | 67WW05-051215 | | 67WW05-151119 | | 67WW05-111915 | | 67WW05-160519 | | 67WW05-051916 | | 67WW05-112817 | | 67WW05-180503 | |
| | | Sample Date | 12/3/2014 | | 2/10/2015 | | 2/10/2015 | | 5/11/2015 | | 5/12/2015 | | 11/19/2015 | | 11/19/2015 | | 5/19/2016 | | 5/19/2016 | | 11/28/2017 | | 5/3/2018 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,2-Dichloropropane | µg/L | 5 | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | < 1 | U | < 0.5 | U |
| 1,3,5-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| 1,3-Dichlorobenzene | µg/L | 3,100 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| 1,3-Dichloropropane | µg/L | 29 | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | < 1 | U | < 0.5 | U |
| 1,4-Dichlorobenzene | µg/L | 75 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 1 | U | < 0.5 | U |
| 2,2-Dichloropropane | µg/L | 42 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| 2-Butanone | µg/L | 61,000 | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | < 2 | U | < 1 | U |
| 2-Chlorotoluene | µg/L | 2,000 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 1 | U | < 0.5 | U |
| 2-Hexanone | µg/L | 6,100 | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | < 2 | U | < 1 | U |
| 4-Chlorotoluene | µg/L | 2,000 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| Acetone | µg/L | 92,000 | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | < 2 | U | < 1 | U |
| Benzene | µg/L | 5 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 1 | U | < 0.5 | U |
| Bromobenzene | µg/L | 2,000 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 1 | U | < 0.5 | U |
| Bromochloromethane | µg/L | 4,100 | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | < 1 | U | < 0.5 | U |
| Bromodichloromethane | µg/L | 4.6 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| Bromoform | µg/L | 36 | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | < 0.5 | U |
| Bromomethane | µg/L | 140 | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | < 0.5 | U |
| Carbon disulfide | µg/L | 10,000 | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 2 | U | < 1 | U |
| Carbon tetrachloride | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| Chlorobenzene | µg/L | 100 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 1 | U | < 0.5 | U |
| Chloroethane | µg/L | 41,000 | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | < 0.5 | U |
| Chloroform | µg/L | 1,000 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 1 | U | < 0.5 | U |
| Chloromethane | µg/L | 220 | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | < 0.5 | U |
| cis-1,2-Dichloroethene | µg/L | 70 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| cis-1,3-Dichloropropene | µg/L | 5.3 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| Dibromochloromethane | µg/L | 34 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| Dibromomethane | µg/L | 380 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| Dichlorodifluoromethane | µg/L | 20,000 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| Ethylbenzene | µg/L | 700 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| Hexachlorobutadiene | µg/L | 20 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| Isopropylbenzene | µg/L | 10,000 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| m,p-Xylenes | µg/L | 10,000 | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 2 | U | < 1 | U |
| Methyl isobutyl ketone | µg/L | 8,200 | < 5 | U | | | < 5 | U | | | < 5 | UJ | | | < 5 | U | | | < 5 | U | < 2 | U | < 1 | U |
| Methylene chloride | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 2 | U | < 1 | U |
| Naphthalene | µg/L | 2,000 | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | < 1 | U | < 0.5 | U |
| n-Butylbenzene | µg/L | 4,100 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| n-Propylbenzene | µg/L | 4,100 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 1 | U | < 0.5 | U |
| o-Xylene | µg/L | 10,000 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| p-Isopropyltoluene | µg/L | 10,000 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| sec-Butylbenzene | µg/L | 4,100 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| Styrene | µg/L | 100 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 1 | U | < 0.5 | U |
| tert-Butylbenzene | µg/L | 4,100 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| Tetrachloroethene | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| Toluene | µg/L | 1,000 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| trans-1,2-Dichloroethene | µg/L | 100 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| trans-1,3-Dichloropropene | µg/L | 29 | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | < 0.5 | U |
| Trichloroethene | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| Trichlorofluoromethane | µg/L | 31,000 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| Vinyl chloride | µg/L | 2 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW05 | | | | | | | | | | 67WW06 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW05-181025-FD | | 67WW05-181025 | | 67WW05-190502 | | 67WW05-191024 | | 67WW05-201102 | | 67WW06-130430 | | 67WW06-043013 | | 67WW06-130531 | | 67WW06-053113 | | 67WW06-053113-FD | | 67WW06-130928 | |
| | | Sample Date | 10/25/2018 | | 10/25/2018 | | 5/2/2019 | | 10/24/2019 | | 11/2/2020 | | 4/30/2013 | | 4/30/2013 | | 5/31/2013 | | 5/31/2013 | | 5/31/2013 | | 9/28/2013 | |
| | | Sample Purpose | FD | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | FD | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| **ANIONS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Chloride | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Nitrate | mg/L | 10 | | | | | | | | | | | | | | | | | | | | | | |
| Nitrite | mg/L | 1 | | | | | | | | | | | | | | | | | | | | | | |
| Sulfate | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Sulfide | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **TOTAL ORGANIC CARBON** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Inorganic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Total Organic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **DHC** | | | | | | | | | | | | | | | | | | | | | | | | |
| BVC | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dehalococcoides | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| **FIELD TESTS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Conductivity | mS/cm | NV | | | | | | | | | 3.03 | | | | | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | | | 0.11 | | 1.99 | | 0.9 | | 0.58 | | 0 | | 0 | | 1.57 | | 1.57 | | | | 0.82 | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Flow Rate | mL/Min | NV | | | 100 | | 100 | | 100 | | 100 | | | | | | | | | | | | | |
| Measured well depth | Ft BTOC | NV | | | 30.2 | | 30.13 | | 30.08 | | | | | | | | | | | | | | | |
| Oxidation-Reduction Potentia | mV | NV | | | 172 | | 247 | | 62 | | 31 | | 82 | | 82 | | 22 | | 22 | | | | 13 | |
| pH | SU | NV | | | 5.17 | | 4.11 | | 5.63 | | 6.11 | | 5.01 | | 5.01 | | 5.27 | | 5.27 | | | | 5.45 | |
| Temperature | C | NV | | | 17.93 | | 20.10 | | 18.35 | | 17.69 | | 24.95 | | 24.95 | | 24.28 | | 24.28 | | | | 20.2 | |
| Turbidity | NTU | NV | | | 21.3 | | 55.2 | | 48.8 | | 96.1 | | 9.7 | | 9.7 | | 13.4 | | 13.4 | | | | 5.5 | |
| **GASES** | | | | | | | | | | | | | | | | | | | | | | | | |
| Carbon dioxide | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethylene | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Methane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **GENERAL CHEMISTRY** | | | | | | | | | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **SEMIVOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,4-Dioxane | µg/L | 26 | | | | | | | | | | | | | < 1 | U | | | | | | | | |
| **VOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | µg/L | 110 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U | < 0.25 | U | | |
| 1,1,1-Trichloroethane | µg/L | 200 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U | < 0.25 | U | | |
| 1,1,2,2-Tetrachloroethane | µg/L | 14 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.2 | U | < 0.2 | U | | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | µg/L | 3,100,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | | | | | | | | | | |
| 1,1,2-Trichloroethane | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U | < 0.25 | U | | |
| 1,1-Dichloroethane | µg/L | 10,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | 0.212 | J | 0.193 | J | | |
| 1,1-Dichloroethene | µg/L | 7 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.5 | U | < 0.5 | U | | |
| 1,1-Dichloropropene | µg/L | 2.9 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U | < 0.25 | U | | |
| 1,2,3-Trichlorobenzene | µg/L | 310 | < 0.5 | U | < 0.5 | UJ | < 0.5 | U | < 0.5 | U | < 1 | U | | | | | | | < 0.15 | U | < 0.15 | U | | |
| 1,2,3-Trichloropropane | µg/L | 0.041 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | | | | | < 0.5 | U | < 0.5 | U | | |
| 1,2,4-Trichlorobenzene | µg/L | 70 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | | | | | < 0.2 | U | < 0.2 | U | | |
| 1,2,4-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U | < 0.25 | U | | |
| 1,2-Dibromo-3-chloropropane | µg/L | 0.2 | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 1 | U | < 1 | U | | |
| 1,2-Dibromoethane | µg/L | 0.05 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U | < 0.25 | U | | |
| 1,2-Dichlorobenzene | µg/L | 600 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | | | | | < 0.125 | U | < 0.125 | U | | |
| 1,2-Dichloroethane | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | 2.25 | | 2.2 | | | |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW05 | | | | | | | | | | 67WW06 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW05-181025-FD | | 67WW05-181025 | | 67WW05-190502 | | 67WW05-191024 | | 67WW05-201102 | | 67WW06-130430 | | 67WW06-043013 | | 67WW06-130531 | | 67WW06-053113 | | 67WW06-053113-FD | | 67WW06-130928 | |
| | | Sample Date | 10/25/2018 | | 10/25/2018 | | 5/2/2019 | | 10/24/2019 | | 11/2/2020 | | 4/30/2013 | | 4/30/2013 | | 5/31/2013 | | 5/31/2013 | | 5/31/2013 | | 9/28/2013 | |
| | | Sample Purpose | FD | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | FD | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,2-Dichloropropane | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.2 | U | < 0.2 | U | | |
| 1,3,5-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U | < 0.25 | U | | |
| 1,3-Dichlorobenzene | µg/L | 3,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | | | | | < 0.25 | U | < 0.25 | U | | |
| 1,3-Dichloropropane | µg/L | 29 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.2 | U | < 0.2 | U | | |
| 1,4-Dichlorobenzene | µg/L | 75 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | | | | | < 0.125 | U | < 0.125 | U | | |
| 2,2-Dichloropropane | µg/L | 42 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U | < 0.25 | U | | |
| 2-Butanone | µg/L | 61,000 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | | | | | | | < 2.5 | U | < 2.5 | U | | |
| 2-Chlorotoluene | µg/L | 2,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.125 | U | < 0.125 | U | | |
| 2-Hexanone | µg/L | 6,100 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 2 | U | | | | | | | < 2.5 | U | < 2.5 | U | | |
| 4-Chlorotoluene | µg/L | 2,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | | | | | < 0.25 | U | < 0.25 | U | | |
| Acetone | µg/L | 92,000 | < 2 | U | < 2 | U | < 3.8 | U | < 2.2 | U | < 1 | U | | | | | | | < 2.5 | UJ | < 2.5 | UJ | | |
| Benzene | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.125 | U | < 0.125 | U | | |
| Bromobenzene | µg/L | 2,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | | | | | < 0.125 | U | < 0.125 | U | | |
| Bromochloromethane | µg/L | 4,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.2 | U | < 0.2 | U | | |
| Bromodichloromethane | µg/L | 4.6 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U | < 0.25 | U | | |
| Bromoform | µg/L | 36 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.5 | U | < 0.5 | U | | |
| Bromomethane | µg/L | 140 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.5 | U | < 0.5 | U | | |
| Carbon disulfide | µg/L | 10,000 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | | | | | | | < 0.5 | U | < 0.5 | U | | |
| Carbon tetrachloride | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U | < 0.25 | U | | |
| Chlorobenzene | µg/L | 100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.125 | U | < 0.125 | U | | |
| Chloroethane | µg/L | 41,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.5 | U | < 0.5 | U | | |
| Chloroform | µg/L | 1,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.125 | U | < 0.125 | U | | |
| Chloromethane | µg/L | 220 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.5 | U | < 0.5 | U | | |
| cis-1,2-Dichloroethene | µg/L | 70 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U | < 0.25 | U | | |
| cis-1,3-Dichloropropene | µg/L | 5.3 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U | < 0.25 | U | | |
| Dibromochloromethane | µg/L | 34 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U | < 0.25 | U | | |
| Dibromomethane | µg/L | 380 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U | < 0.25 | U | | |
| Dichlorodifluoromethane | µg/L | 20,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U | < 0.25 | U | | |
| Ethylbenzene | µg/L | 700 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U | < 0.25 | U | | |
| Hexachlorobutadiene | µg/L | 20 | < 1 | U | < 1 | U | < 1 | U | < 0.5 | U | < 1 | U | | | | | | | < 0.25 | U | < 0.25 | U | | |
| Isopropylbenzene | µg/L | 10,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U | < 0.25 | U | | |
| m,p-Xylenes | µg/L | 10,000 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | | | | | | | < 0.5 | U | < 0.5 | U | | |
| Methyl isobutyl ketone | µg/L | 8,200 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 2 | U | | | | | | | < 2.5 | U | < 2.5 | U | | |
| Methylene chloride | µg/L | 5 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | | | | | | | 0.918 | J | 0.846 | J | | |
| Naphthalene | µg/L | 2,000 | < 0.5 | U | < 0.5 | UJ | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.2 | U | < 0.2 | U | | |
| n-Butylbenzene | µg/L | 4,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | | | | | < 0.25 | U | < 0.25 | U | | |
| n-Propylbenzene | µg/L | 4,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.125 | U | < 0.125 | U | | |
| o-Xylene | µg/L | 10,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U | < 0.25 | U | | |
| p-Isopropyltoluene | µg/L | 10,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U | < 0.25 | U | | |
| sec-Butylbenzene | µg/L | 4,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U | < 0.25 | U | | |
| Styrene | µg/L | 100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.125 | U | < 0.125 | U | | |
| tert-Butylbenzene | µg/L | 4,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U | < 0.25 | U | | |
| Tetrachloroethene | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U | < 0.25 | U | | |
| Toluene | µg/L | 1,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U | < 0.25 | U | | |
| trans-1,2-Dichloroethene | µg/L | 100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U | < 0.25 | U | | |
| trans-1,3-Dichloropropene | µg/L | 29 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.5 | U | < 0.5 | U | | |
| Trichloroethene | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U | < 0.25 | U | | |
| Trichlorofluoromethane | µg/L | 31,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U | < 0.25 | U | | |
| Vinyl chloride | µg/L | 2 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | | | < 0.25 | U | < 0.25 | U | | |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW06 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW06-092813 | | 67WW06-140124 | | 67WW06-012414 | | 67WW06-140506 | | 67WW06-140723 | | 67WW06-141202 | | 67WW06-150210 | | 67WW06-150511 | | 67WW06-151118 | | 67WW06-151216 | | 67WW06-161215 | |
| | | Sample Date | 9/28/2013 | | 1/24/2014 | | 1/24/2014 | | 5/6/2014 | | 7/23/2014 | | 12/2/2014 | | 2/10/2015 | | 5/11/2015 | | 11/18/2015 | | 12/16/2015 | | 12/16/2015 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| **ANIONS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Chloride | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Nitrate | mg/L | 10 | | | | | | | | | | | | | | | | | | | | | | |
| Nitrite | mg/L | 1 | | | | | | | | | | | | | | | | | | | | | | |
| Sulfate | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Sulfide | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **TOTAL ORGANIC CARBON** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Inorganic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Total Organic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **DHC** | | | | | | | | | | | | | | | | | | | | | | | | |
| BVC | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dehalococcoides | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| **FIELD TESTS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Conductivity | mS/cm | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | 0.82 | | 0.8 | | 0.8 | | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | 0 | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Flow Rate | mL/Min | NV | | | | | | | | | | | | | | | | | | | | | | |
| Measured well depth | Ft BTOC | NV | | | | | | | | | | | | | | | | | | | | | | |
| Oxidation-Reduction Potentia | mV | NV | 13 | | 67 | | 67 | | - | - | - | - | - | - | - | - | - | - | - | - | 56 | | 56 | |
| pH | SU | NV | 5.45 | | 5.58 | | 5.58 | | - | - | - | - | - | - | - | - | - | - | - | - | 5.74 | | 5.74 | |
| Temperature | C | NV | 20.2 | | 15.42 | | 15.42 | | -99 | | -99 | | -99 | | - | - | - | - | - | - | 19.27 | | 19.27 | |
| Turbidity | NTU | NV | 5.5 | | 42.9 | | 42.9 | | - | - | - | - | - | - | - | - | - | - | - | - | 36.2 | | 36.2 | |
| **GASES** | | | | | | | | | | | | | | | | | | | | | | | | |
| Carbon dioxide | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethylene | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Methane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **GENERAL CHEMISTRY** | | | | | | | | | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **SEMIVOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,4-Dioxane | µg/L | 26 | | | | | | | | | | | | | | | | | | | | | < 1 | U |
| **VOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | µg/L | 110 | < 0.5 | U | | | < 0.5 | U | | | | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | µg/L | 200 | < 0.5 | U | | | < 0.5 | U | | | | | | | | | | | | | | | | |
| 1,1,2,2-Tetrachloroethane | µg/L | 14 | < 0.4 | U | | | < 0.4 | U | | | | | | | | | | | | | | | | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | µg/L | 3,100,000 | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,2-Trichloroethane | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | | | | | | | | | | | | | | | | |
| 1,1-Dichloroethane | µg/L | 10,000 | < 0.25 | U | | | 0.234 | J | | | | | | | | | | | | | | | | |
| 1,1-Dichloroethene | µg/L | 7 | < 1 | U | | | 0.752 | J | | | | | | | | | | | | | | | | |
| 1,1-Dichloropropene | µg/L | 2.9 | < 0.5 | U | | | < 0.5 | U | | | | | | | | | | | | | | | | |
| 1,2,3-Trichlorobenzene | µg/L | 310 | < 0.3 | U | | | < 0.3 | U | | | | | | | | | | | | | | | | |
| 1,2,3-Trichloropropane | µg/L | 0.041 | < 1 | U | | | < 1 | U | | | | | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | µg/L | 70 | < 0.4 | U | | | < 0.4 | U | | | | | | | | | | | | | | | | |
| 1,2,4-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | | | < 0.5 | U | | | | | | | | | | | | | | | | |
| 1,2-Dibromo-3-chloropropane | µg/L | 0.2 | < 2 | U | | | < 2 | U | | | | | | | | | | | | | | | | |
| 1,2-Dibromoethane | µg/L | 0.05 | < 0.5 | U | | | < 0.5 | U | | | | | | | | | | | | | | | | |
| 1,2-Dichlorobenzene | µg/L | 600 | < 0.25 | U | | | < 0.25 | U | | | | | | | | | | | | | | | | |
| 1,2-Dichloroethane | µg/L | 5 | 1.77 | | | | 2.03 | | | | | | | | | | | | | | | | | |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW06 | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW06-092813 | | 67WW06-140124 | | 67WW06-012414 | | 67WW06-140506 | | 67WW06-140723 | | 67WW06-141202 | | 67WW06-150210 | | 67WW06-150511 | | 67WW06-151118 | | 67WW06-151216 | | 67WW06-161215 | |
| | | Sample Date | 9/28/2013 | | 1/24/2014 | | 1/24/2014 | | 5/6/2014 | | 7/23/2014 | | 12/2/2014 | | 2/10/2015 | | 5/11/2015 | | 11/18/2015 | | 12/16/2015 | | 12/16/2015 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,2-Dichloropropane | µg/L | 5 | < 0.4 | U | | | < 0.4 | U | | | | | | | | | | | | | | | | |
| 1,3,5-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | | | < 0.5 | U | | | | | | | | | | | | | | | | |
| 1,3-Dichlorobenzene | µg/L | 3,100 | < 0.5 | U | | | < 0.5 | U | | | | | | | | | | | | | | | | |
| 1,3-Dichloropropane | µg/L | 29 | < 0.4 | U | | | < 0.4 | U | | | | | | | | | | | | | | | | |
| 1,4-Dichlorobenzene | µg/L | 75 | < 0.25 | U | | | < 0.25 | U | | | | | | | | | | | | | | | | |
| 2,2-Dichloropropane | µg/L | 42 | < 0.5 | U | | | < 0.5 | U | | | | | | | | | | | | | | | | |
| 2-Butanone | µg/L | 61,000 | < 5 | U | | | < 5 | U | | | | | | | | | | | | | | | | |
| 2-Chlorotoluene | µg/L | 2,000 | < 0.25 | U | | | < 0.25 | U | | | | | | | | | | | | | | | | |
| 2-Hexanone | µg/L | 6,100 | < 5 | U | | | < 5 | U | | | | | | | | | | | | | | | | |
| 4-Chlorotoluene | µg/L | 2,000 | < 0.5 | U | | | < 0.5 | U | | | | | | | | | | | | | | | | |
| Acetone | µg/L | 92,000 | < 5 | U | | | < 5 | U | | | | | | | | | | | | | | | | |
| Benzene | µg/L | 5 | < 0.25 | U | | | < 0.25 | U | | | | | | | | | | | | | | | | |
| Bromobenzene | µg/L | 2,000 | < 0.25 | U | | | < 0.25 | U | | | | | | | | | | | | | | | | |
| Bromochloromethane | µg/L | 4,100 | < 0.4 | U | | | < 0.4 | U | | | | | | | | | | | | | | | | |
| Bromodichloromethane | µg/L | 4.6 | < 0.5 | U | | | < 0.5 | U | | | | | | | | | | | | | | | | |
| Bromoform | µg/L | 36 | < 1 | U | | | < 1 | U | | | | | | | | | | | | | | | | |
| Bromomethane | µg/L | 140 | < 1 | UJ | | | < 1 | U | | | | | | | | | | | | | | | | |
| Carbon disulfide | µg/L | 10,000 | < 1 | U | | | < 1 | U | | | | | | | | | | | | | | | | |
| Carbon tetrachloride | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | | | | | | | | | | | | | | | | |
| Chlorobenzene | µg/L | 100 | < 0.25 | U | | | < 0.25 | U | | | | | | | | | | | | | | | | |
| Chloroethane | µg/L | 41,000 | < 1 | U | | | < 1 | U | | | | | | | | | | | | | | | | |
| Chloroform | µg/L | 1,000 | < 0.25 | U | | | < 0.25 | U | | | | | | | | | | | | | | | | |
| Chloromethane | µg/L | 220 | < 1 | U | | | < 1 | U | | | | | | | | | | | | | | | | |
| cis-1,2-Dichloroethene | µg/L | 70 | < 0.5 | U | | | < 0.5 | U | | | | | | | | | | | | | | | | |
| cis-1,3-Dichloropropene | µg/L | 5.3 | < 0.5 | U | | | < 0.5 | U | | | | | | | | | | | | | | | | |
| Dibromochloromethane | µg/L | 34 | < 0.5 | U | | | < 0.5 | U | | | | | | | | | | | | | | | | |
| Dibromomethane | µg/L | 380 | < 0.5 | U | | | < 0.5 | U | | | | | | | | | | | | | | | | |
| Dichlorodifluoromethane | µg/L | 20,000 | < 0.5 | U | | | < 0.5 | U | | | | | | | | | | | | | | | | |
| Ethylbenzene | µg/L | 700 | < 0.5 | U | | | < 0.5 | U | | | | | | | | | | | | | | | | |
| Hexachlorobutadiene | µg/L | 20 | < 0.5 | U | | | < 0.5 | U | | | | | | | | | | | | | | | | |
| Isopropylbenzene | µg/L | 10,000 | < 0.5 | U | | | < 0.5 | U | | | | | | | | | | | | | | | | |
| m,p-Xylenes | µg/L | 10,000 | < 1 | U | | | < 1 | U | | | | | | | | | | | | | | | | |
| Methyl isobutyl ketone | µg/L | 8,200 | < 5 | U | | | < 5 | U | | | | | | | | | | | | | | | | |
| Methylene chloride | µg/L | 5 | 0.966 | J | | | < 0.5 | U | | | | | | | | | | | | | | | | |
| Naphthalene | µg/L | 2,000 | < 0.4 | U | | | < 0.4 | U | | | | | | | | | | | | | | | | |
| n-Butylbenzene | µg/L | 4,100 | < 0.5 | U | | | < 0.5 | U | | | | | | | | | | | | | | | | |
| n-Propylbenzene | µg/L | 4,100 | < 0.25 | U | | | < 0.25 | U | | | | | | | | | | | | | | | | |
| o-Xylene | µg/L | 10,000 | < 0.5 | U | | | < 0.5 | U | | | | | | | | | | | | | | | | |
| p-Isopropyltoluene | µg/L | 10,000 | < 0.5 | U | | | < 0.5 | U | | | | | | | | | | | | | | | | |
| sec-Butylbenzene | µg/L | 4,100 | < 0.5 | U | | | < 0.5 | U | | | | | | | | | | | | | | | | |
| Styrene | µg/L | 100 | < 0.25 | U | | | < 0.25 | U | | | | | | | | | | | | | | | | |
| tert-Butylbenzene | µg/L | 4,100 | < 0.5 | U | | | < 0.5 | U | | | | | | | | | | | | | | | | |
| Tetrachloroethene | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | | | | | | | | | | | | | | | | |
| Toluene | µg/L | 1,000 | < 0.5 | U | | | < 0.5 | U | | | | | | | | | | | | | | | | |
| trans-1,2-Dichloroethene | µg/L | 100 | < 0.5 | U | | | < 0.5 | U | | | | | | | | | | | | | | | | |
| trans-1,3-Dichloropropene | µg/L | 29 | < 1 | U | | | < 1 | U | | | | | | | | | | | | | | | | |
| Trichloroethene | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | | | | | | | | | | | | | | | | |
| Trichlorofluoromethane | µg/L | 31,000 | < 0.5 | U | | | < 0.5 | U | | | | | | | | | | | | | | | | |
| Vinyl chloride | µg/L | 2 | < 0.5 | U | | | < 0.5 | U | | | | | | | | | | | | | | | | |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW06 | | | | 67WW07 | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW06-160518 | | 67WW06-112917 | | 67WW07-130531 | | 67WW07-053113 | | 67WW07-130927 | | 67WW07-092713 | | 67WW07-140123 | | 67WW07-012314 | | 67WW07-140506 | | 67WW07-050614 | | 67WW07-140725 | |
| | | Sample Date | 5/18/2016 | | 11/29/2017 | | 5/31/2013 | | 5/31/2013 | | 9/27/2013 | | 9/27/2013 | | 1/23/2014 | | 1/23/2014 | | 5/6/2014 | | 5/6/2014 | | 7/25/2014 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| **ANIONS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Chloride | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Nitrate | mg/L | 10 | | | | | | | | | | | | | | | | | | | | | | |
| Nitrite | mg/L | 1 | | | | | | | | | | | | | | | | | | | | | | |
| Sulfate | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Sulfide | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **TOTAL ORGANIC CARBON** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Inorganic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Total Organic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **DHC** | | | | | | | | | | | | | | | | | | | | | | | | |
| BVC | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dehalococcoides | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| **FIELD TESTS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Conductivity | mS/cm | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | - | - | 0.1 | | 8.75 | | | | 10.55 | | | | 5.96 | | | | 6.12 | | | | 9.24 | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Flow Rate | mL/Min | NV | | | 100 | | | | | | | | | | | | | | | | | | | |
| Measured well depth | Ft BTOC | NV | | | 47.17 | | | | | | | | | | | | | | | | | | | |
| Oxidation-Reduction Potentia | mV | NV | - | - | 204 | | 35 | | | | 0 | | | | 60 | | | | 36 | | | | 91 | |
| pH | SU | NV | - | - | 5.11 | | 5.52 | | | | 5.78 | | | | 5.79 | | | | 5.45 | | | | 5.58 | |
| Temperature | C | NV | -99 | | 18.57 | | 25.72 | | | | 25.11 | | | | 14.63 | | | | 26.29 | | | | 21.89 | |
| Turbidity | NTU | NV | - | - | 150 | | 13.9 | | | | 9.6 | | | | 54.4 | | | | 30.2 | | | | 8.8 | |
| **GASES** | | | | | | | | | | | | | | | | | | | | | | | | |
| Carbon dioxide | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethylene | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Methane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **GENERAL CHEMISTRY** | | | | | | | | | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **SEMIVOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,4-Dioxane | µg/L | 26 | | | 1.7 | | | | | | | | | | | | | | | | | | | |
| **VOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | µg/L | 110 | | | < 1 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,1,1-Trichloroethane | µg/L | 200 | | | < 1 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,1,2,2-Tetrachloroethane | µg/L | 14 | | | < 1 | U | | | < 0.2 | UJ | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | µg/L | 3,100,000 | | | < 1 | U | | | | | | | | | | | | | | | | | | |
| 1,1,2-Trichloroethane | µg/L | 5 | | | < 1 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,1-Dichloroethane | µg/L | 10,000 | | | < 1 | U | | | < 0.125 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| 1,1-Dichloroethene | µg/L | 7 | | | < 1 | U | | | < 0.5 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | |
| 1,1-Dichloropropene | µg/L | 2.9 | | | < 1 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,2,3-Trichlorobenzene | µg/L | 310 | | | < 1 | U | | | < 0.15 | U | | | < 0.3 | U | | | < 0.3 | U | | | < 0.3 | U | | |
| 1,2,3-Trichloropropane | µg/L | 0.041 | | | < 1 | U | | | < 0.5 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | |
| 1,2,4-Trichlorobenzene | µg/L | 70 | | | < 1 | U | | | < 0.2 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | |
| 1,2,4-Trimethylbenzene | µg/L | 5,100 | | | < 1 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,2-Dibromo-3-chloropropane | µg/L | 0.2 | | | < 1 | U | | | < 1 | UJ | | | < 2 | U | | | < 2 | U | | | < 2 | U | | |
| 1,2-Dibromoethane | µg/L | 0.05 | | | < 1 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,2-Dichlorobenzene | µg/L | 600 | | | < 1 | U | | | < 0.125 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| 1,2-Dichloroethane | µg/L | 5 | | | 1 | | | | 1.67 | | | | 1.77 | | | | 1.35 | | | | 1.44 | | | |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW06 | | | | 67WW07 | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW06-160518 | | 67WW06-112917 | | 67WW07-130531 | | 67WW07-053113 | | 67WW07-130927 | | 67WW07-092713 | | 67WW07-140123 | | 67WW07-012314 | | 67WW07-140506 | | 67WW07-050614 | | 67WW07-140725 | |
| | | Sample Date | 5/18/2016 | | 11/29/2017 | | 5/31/2013 | | 5/31/2013 | | 9/27/2013 | | 9/27/2013 | | 1/23/2014 | | 1/23/2014 | | 5/6/2014 | | 5/6/2014 | | 7/25/2014 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,2-Dichloropropane | µg/L | 5 | | | < 1 | U | | | < 0.2 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | |
| 1,3,5-Trimethylbenzene | µg/L | 5,100 | | | < 1 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,3-Dichlorobenzene | µg/L | 3,100 | | | < 1 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,3-Dichloropropane | µg/L | 29 | | | < 1 | U | | | < 0.2 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | |
| 1,4-Dichlorobenzene | µg/L | 75 | | | < 1 | U | | | < 0.125 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| 2,2-Dichloropropane | µg/L | 42 | | | < 1 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | UJ | | |
| 2-Butanone | µg/L | 61,000 | | | < 2 | U | | | < 2.5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | | |
| 2-Chlorotoluene | µg/L | 2,000 | | | < 1 | U | | | < 0.125 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| 2-Hexanone | µg/L | 6,100 | | | < 2 | U | | | < 2.5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | | |
| 4-Chlorotoluene | µg/L | 2,000 | | | < 1 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Acetone | µg/L | 92,000 | | | < 2 | U | | | < 2.5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | | |
| Benzene | µg/L | 5 | | | < 1 | U | | | < 0.125 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| Bromobenzene | µg/L | 2,000 | | | < 1 | U | | | < 0.125 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| Bromochloromethane | µg/L | 4,100 | | | < 1 | U | | | < 0.2 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | |
| Bromodichloromethane | µg/L | 4.6 | | | < 1 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Bromoform | µg/L | 36 | | | < 1 | U | | | < 0.5 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | |
| Bromomethane | µg/L | 140 | | | < 1 | U | | | < 0.5 | UJ | | | < 1 | U | | | < 1 | U | | | < 1 | U | | |
| Carbon disulfide | µg/L | 10,000 | | | < 2 | U | | | < 0.5 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | |
| Carbon tetrachloride | µg/L | 5 | | | < 1 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Chlorobenzene | µg/L | 100 | | | < 1 | U | | | < 0.125 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| Chloroethane | µg/L | 41,000 | | | < 1 | U | | | < 0.5 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | |
| Chloroform | µg/L | 1,000 | | | < 1 | U | | | < 0.125 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| Chloromethane | µg/L | 220 | | | < 1 | U | | | < 0.5 | UJ | | | < 1 | U | | | < 1 | U | | | < 1 | U | | |
| cis-1,2-Dichloroethene | µg/L | 70 | | | < 1 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| cis-1,3-Dichloropropene | µg/L | 5.3 | | | < 1 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Dibromochloromethane | µg/L | 34 | | | < 1 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Dibromomethane | µg/L | 380 | | | < 1 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Dichlorodifluoromethane | µg/L | 20,000 | | | < 1 | U | | | < 0.25 | UJ | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Ethylbenzene | µg/L | 700 | | | < 1 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Hexachlorobutadiene | µg/L | 20 | | | < 1 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Isopropylbenzene | µg/L | 10,000 | | | < 1 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| m,p-Xylenes | µg/L | 10,000 | | | < 2 | U | | | < 0.5 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | |
| Methyl isobutyl ketone | µg/L | 8,200 | | | < 2 | U | | | < 2.5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | | |
| Methylene chloride | µg/L | 5 | | | < 2 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Naphthalene | µg/L | 2,000 | | | < 1 | U | | | < 0.2 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | |
| n-Butylbenzene | µg/L | 4,100 | | | < 1 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| n-Propylbenzene | µg/L | 4,100 | | | < 1 | U | | | < 0.125 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| o-Xylene | µg/L | 10,000 | | | < 1 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| p-Isopropyltoluene | µg/L | 10,000 | | | < 1 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| sec-Butylbenzene | µg/L | 4,100 | | | < 1 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Styrene | µg/L | 100 | | | < 1 | U | | | < 0.125 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| tert-Butylbenzene | µg/L | 4,100 | | | < 1 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Tetrachloroethene | µg/L | 5 | | | < 1 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Toluene | µg/L | 1,000 | | | < 1 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| trans-1,2-Dichloroethene | µg/L | 100 | | | < 1 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| trans-1,3-Dichloropropene | µg/L | 29 | | | < 1 | U | | | < 0.5 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | |
| Trichloroethene | µg/L | 5 | | | < 1 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Trichlorofluoromethane | µg/L | 31,000 | | | < 1 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Vinyl chloride | µg/L | 2 | | | < 1 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW07 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW07-072514 | | 67WW07-141203 | | 67WW07-120314 | | 67WW07-150210 | | 67WW07-021015 | | 67WW07-150511 | | 67WW07-051215 | | 67WW07-151119 | | 67WW07-111915 | | 67WW07-160519 | | 67WW07-051916 | |
| | | Sample Date | 7/25/2014 | | 12/3/2014 | | 12/3/2014 | | 2/10/2015 | | 2/10/2015 | | 5/11/2015 | | 5/12/2015 | | 11/19/2015 | | 11/19/2015 | | 5/19/2016 | | 5/19/2016 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| **ANIONS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Chloride | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Nitrate | mg/L | 10 | | | | | | | | | | | | | | | | | | | | | | |
| Nitrite | mg/L | 1 | | | | | | | | | | | | | | | | | | | | | | |
| Sulfate | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Sulfide | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **TOTAL ORGANIC CARBON** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Inorganic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Total Organic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **DHC** | | | | | | | | | | | | | | | | | | | | | | | | |
| BVC | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dehalococcoides | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| **FIELD TESTS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Conductivity | mS/cm | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | | | - | - | | | - | - | | | - | - | | | - | - | | | - | - | | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Flow Rate | mL/Min | NV | | | | | | | | | | | | | | | | | | | | | | |
| Measured well depth | Ft BTOC | NV | | | | | | | | | | | | | | | | | | | | | | |
| Oxidation-Reduction Potentia | mV | NV | | | 51 | | | | -18 | | | | 31 | | | | - | - | | | - | - | | |
| pH | SU | NV | | | 5.79 | | | | 6.41 | | | | 5.98 | | | | 6.22 | | | | 6.04 | | | |
| Temperature | C | NV | | | 17.46 | | | | 18.47 | | | | 18.5 | | | | 15.55 | | | | 17.91 | | | |
| Turbidity | NTU | NV | | | 10.7 | | | | 6.7 | | | | 35.3 | | | | 40.8 | | | | 10.5 | | | |
| **GASES** | | | | | | | | | | | | | | | | | | | | | | | | |
| Carbon dioxide | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethylene | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Methane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **GENERAL CHEMISTRY** | | | | | | | | | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **SEMIVOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,4-Dioxane | µg/L | 26 | | | | | | | | | | | | | | | | | | | | | | |
| **VOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | µg/L | 110 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| 1,1,1-Trichloroethane | µg/L | 200 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| 1,1,2,2-Tetrachloroethane | µg/L | 14 | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | µg/L | 3,100,000 | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,2-Trichloroethane | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| 1,1-Dichloroethane | µg/L | 10,000 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U |
| 1,1-Dichloroethene | µg/L | 7 | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U |
| 1,1-Dichloropropene | µg/L | 2.9 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| 1,2,3-Trichlorobenzene | µg/L | 310 | < 0.3 | U | | | < 0.3 | U | | | < 0.3 | U | | | < 0.3 | U | | | < 0.3 | U | | | < 0.3 | U |
| 1,2,3-Trichloropropane | µg/L | 0.041 | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U |
| 1,2,4-Trichlorobenzene | µg/L | 70 | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U |
| 1,2,4-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| 1,2-Dibromo-3-chloropropane | µg/L | 0.2 | < 2 | U | | | < 2 | U | | | < 2 | U | | | < 2 | U | | | < 2 | U | | | < 2 | U |
| 1,2-Dibromoethane | µg/L | 0.05 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| 1,2-Dichlorobenzene | µg/L | 600 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U |
| 1,2-Dichloroethane | µg/L | 5 | 1.39 | | | | 1.19 | | | | 1.04 | | | | 0.817 | J | | | 0.601 | J | | | 0.33 | J |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW07 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW07-072514 | | 67WW07-141203 | | 67WW07-120314 | | 67WW07-150210 | | 67WW07-021015 | | 67WW07-150511 | | 67WW07-051215 | | 67WW07-151119 | | 67WW07-111915 | | 67WW07-160519 | | 67WW07-051916 | |
| | | Sample Date | 7/25/2014 | | 12/3/2014 | | 12/3/2014 | | 2/10/2015 | | 2/10/2015 | | 5/11/2015 | | 5/12/2015 | | 11/19/2015 | | 11/19/2015 | | 5/19/2016 | | 5/19/2016 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,2-Dichloropropane | µg/L | 5 | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U |
| 1,3,5-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| 1,3-Dichlorobenzene | µg/L | 3,100 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| 1,3-Dichloropropane | µg/L | 29 | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U |
| 1,4-Dichlorobenzene | µg/L | 75 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U |
| 2,2-Dichloropropane | µg/L | 42 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| 2-Butanone | µg/L | 61,000 | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U |
| 2-Chlorotoluene | µg/L | 2,000 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U |
| 2-Hexanone | µg/L | 6,100 | < 5 | U | | | < 5 | U | | | < 5 | U | | | 3.18 | J | | | < 5 | U | | | < 5 | U |
| 4-Chlorotoluene | µg/L | 2,000 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Acetone | µg/L | 92,000 | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U |
| Benzene | µg/L | 5 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U |
| Bromobenzene | µg/L | 2,000 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U |
| Bromochloromethane | µg/L | 4,100 | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U |
| Bromodichloromethane | µg/L | 4.6 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Bromoform | µg/L | 36 | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U |
| Bromomethane | µg/L | 140 | < 1 | U | | | < 1 | U | | | < 1 | UJ | | | < 1 | U | | | < 1 | U | | | < 1 | U |
| Carbon disulfide | µg/L | 10,000 | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U |
| Carbon tetrachloride | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Chlorobenzene | µg/L | 100 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U |
| Chloroethane | µg/L | 41,000 | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U |
| Chloroform | µg/L | 1,000 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U |
| Chloromethane | µg/L | 220 | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U |
| cis-1,2-Dichloroethene | µg/L | 70 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| cis-1,3-Dichloropropene | µg/L | 5.3 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Dibromochloromethane | µg/L | 34 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Dibromomethane | µg/L | 380 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Dichlorodifluoromethane | µg/L | 20,000 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Ethylbenzene | µg/L | 700 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Hexachlorobutadiene | µg/L | 20 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | UJ |
| Isopropylbenzene | µg/L | 10,000 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| m,p-Xylenes | µg/L | 10,000 | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U |
| Methyl isobutyl ketone | µg/L | 8,200 | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | UJ | | | < 5 | U | | | < 5 | U |
| Methylene chloride | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Naphthalene | µg/L | 2,000 | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U |
| n-Butylbenzene | µg/L | 4,100 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| n-Propylbenzene | µg/L | 4,100 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U |
| o-Xylene | µg/L | 10,000 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| p-Isopropyltoluene | µg/L | 10,000 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| sec-Butylbenzene | µg/L | 4,100 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Styrene | µg/L | 100 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U |
| tert-Butylbenzene | µg/L | 4,100 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Tetrachloroethene | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Toluene | µg/L | 1,000 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| trans-1,2-Dichloroethene | µg/L | 100 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| trans-1,3-Dichloropropene | µg/L | 29 | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U |
| Trichloroethene | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Trichlorofluoromethane | µg/L | 31,000 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Vinyl chloride | µg/L | 2 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW07 | | | | | | | | | | | | 67WW08 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW07-112917 | | 67WW07-180503 | | 67WW07-181025 | | 67WW07-190503 | | 67WW07-191028 | | 67WW07-201102 | | 67WW08-060313 | | 67WW08-130603 | | 67WW08-131002 | | 67WW08-100213 | | 67WW08-012314 | |
| | | Sample Date | 11/29/2017 | | 5/3/2018 | | 10/25/2018 | | 5/3/2019 | | 10/28/2019 | | 11/2/2020 | | 6/3/2013 | | 6/3/2013 | | 10/2/2013 | | 10/2/2013 | | 1/23/2014 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| **ANIONS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Chloride | mg/L | NV | | | | | | | | | | | | | 1,320 | | | | | | 1,360 | | 1,490 | |
| Nitrate | mg/L | 10 | | | | | | | | | | | | | < 20 | U | | | | | < 2 | U | < 2 | U |
| Nitrite | mg/L | 1 | | | | | | | | | | | | | < 20 | U | | | | | < 2 | U | < 2 | U |
| Sulfate | mg/L | NV | | | | | | | | | | | | | 300 | | | | | | 297 | | 303 | |
| Sulfide | mg/L | NV | | | | | | | | | | | | | | | | | | | < 1 | U | < 1 | U |
| **TOTAL ORGANIC CARBON** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Inorganic Carbon | mg/L | NV | | | | | | | | | | | | | 10.3 | | | | | | 28.9 | | | |
| Total Organic Carbon | mg/L | NV | | | | | | | | | | | | | 3.61 | | | | | | 6.32 | | 9.95 | |
| **DHC** | | | | | | | | | | | | | | | | | | | | | | | | |
| BVC | cells/mL | NV | | | | | | | | | | | | | | | | | | | 0.5 | U | 0.5 | U |
| Dehalococcoides | cells/mL | NV | | | | | | | | | | | | | 1 | | | | | | 0.5 | U | 0.5 | U |
| **FIELD TESTS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Conductivity | mS/cm | NV | | | | | | | | | | | 1.72 | | | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | 8.55 | | 8.73 | | 0.1 | | 0.07 | | 0.08 | | 0.05 | | 0 | | 0 | | 0.74 | | 0.74 | | 0.38 | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Flow Rate | mL/Min | NV | | | 0 | | 100 | | 100 | | 100 | | 100 | | | | | | | | | | | |
| Measured well depth | Ft BTOC | NV | 27.9 | | 27.85 | | 28 | | 27.88 | | 27.85 | | | | | | | | | | | | | |
| Oxidation-Reduction Potentia | mV | NV | 264 | | 88 | | 200 | | 249 | | 61 | | 38 | | 74 | | 74 | | -165 | | -165 | | -90 | |
| pH | SU | NV | 4.72 | | 6.68 | | 5.01 | | 5.05 | | 6.34 | | 6.37 | | 6.62 | | 6.62 | | 6.47 | | 6.47 | | 6.8 | |
| Temperature | C | NV | 17.74 | | 19.86 | | 17.79 | | 20.26 | | 18.36 | | 19.95 | | 29.25 | | 29.25 | | 21.82 | | 21.82 | | 17.22 | |
| Turbidity | NTU | NV | 3.2 | | 13.3 | | 65.6 | | 31.4 | | 42.9 | | 0 | | 7.6 | | 7.6 | | 1.5 | | 1.5 | | 0.6 | |
| **GASES** | | | | | | | | | | | | | | | | | | | | | | | | |
| Carbon dioxide | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethane | µg/L | NV | | | | | | | | | | | | | < 1 | U | | | | | < 2 | U | < 2 | U |
| Ethylene | µg/L | NV | | | | | | | | | | | | | 1.29 | J | | | | | < 2 | U | < 2 | U |
| Methane | µg/L | NV | | | | | | | | | | | | | 10.6 | | | | | | < 9.49 | U | 7.79 | |
| **GENERAL CHEMISTRY** | | | | | | | | | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | 0.0795 | | | | | | 0.161 | | 0.344 | |
| **SEMIVOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,4-Dioxane | µg/L | 26 | 0.53 | | | | | | | | | | | | | | | | | | | | | |
| **VOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | µg/L | 110 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.25 | U | | | | | < 5 | U | < 2.5 | U |
| 1,1,1-Trichloroethane | µg/L | 200 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.25 | U | | | | | < 5 | U | < 2.5 | U |
| 1,1,2,2-Tetrachloroethane | µg/L | 14 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | 5 | R | | | | | < 4 | U | < 2 | U |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | µg/L | 3,100,000 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | | | | | | | | |
| 1,1,2-Trichloroethane | µg/L | 5 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | 4.25 | | | | | | 5.08 | J | 6.7 | |
| 1,1-Dichloroethane | µg/L | 10,000 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | 37.5 | R | | | | | 46.5 | | 54.4 | |
| 1,1-Dichloroethene | µg/L | 7 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | 1390 | J | | | | | 1120 | | 1340 | |
| 1,1-Dichloropropene | µg/L | 2.9 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | 6.25 | R | | | | | < 5 | U | < 2.5 | U |
| 1,2,3-Trichlorobenzene | µg/L | 310 | < 1 | U | < 0.5 | U | < 0.5 | UJ | < 0.5 | U | < 0.5 | UJ | < 1 | U | < 0.15 | U | | | | | < 3 | U | < 1.5 | U |
| 1,2,3-Trichloropropane | µg/L | 0.041 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | | | | | < 10 | U | < 5 | U |
| 1,2,4-Trichlorobenzene | µg/L | 70 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.2 | U | | | | | < 4 | U | < 2 | U |
| 1,2,4-Trimethylbenzene | µg/L | 5,100 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.25 | U | | | | | < 5 | U | < 2.5 | U |
| 1,2-Dibromo-3-chloropropane | µg/L | 0.2 | < 1 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | 25 | R | | | | | < 20 | U | < 10 | U |
| 1,2-Dibromoethane | µg/L | 0.05 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | 6.25 | R | | | | | < 5 | U | < 2.5 | U |
| 1,2-Dichlorobenzene | µg/L | 600 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | 3.13 | R | | | | | < 2.5 | U | < 1.25 | U |
| 1,2-Dichloroethane | µg/L | 5 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | 64.3 | R | | | | | 76.5 | | 89.9 | |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW07 | | | | | | | | | | | | 67WW08 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW07-112917 | | 67WW07-180503 | | 67WW07-181025 | | 67WW07-190503 | | 67WW07-191028 | | 67WW07-201102 | | 67WW08-060313 | | 67WW08-130603 | | 67WW08-131002 | | 67WW08-100213 | | 67WW08-012314 | |
| | | Sample Date | 11/29/2017 | | 5/3/2018 | | 10/25/2018 | | 5/3/2019 | | 10/28/2019 | | 11/2/2020 | | 6/3/2013 | | 6/3/2013 | | 10/2/2013 | | 10/2/2013 | | 1/23/2014 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,2-Dichloropropane | µg/L | 5 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.2 | U | | | | | < 4 | U | < 2 | U |
| 1,3,5-Trimethylbenzene | µg/L | 5,100 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | 6.25 | R | | | | | < 5 | U | < 2.5 | U |
| 1,3-Dichlorobenzene | µg/L | 3,100 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | 6.25 | R | | | | | < 5 | U | < 2.5 | U |
| 1,3-Dichloropropane | µg/L | 29 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | 5 | R | | | | | < 4 | U | < 2 | U |
| 1,4-Dichlorobenzene | µg/L | 75 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | 3.13 | R | | | | | < 2.5 | U | < 1.25 | U |
| 2,2-Dichloropropane | µg/L | 42 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.25 | U | | | | | < 5 | U | < 2.5 | U |
| 2-Butanone | µg/L | 61,000 | < 2 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 2.5 | U | | | | | < 50 | U | < 25 | U |
| 2-Chlorotoluene | µg/L | 2,000 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.125 | U | | | | | < 2.5 | U | < 1.25 | U |
| 2-Hexanone | µg/L | 6,100 | < 2 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 2 | U | < 2.5 | U | | | | | < 50 | U | < 25 | U |
| 4-Chlorotoluene | µg/L | 2,000 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.25 | U | | | | | < 5 | U | < 2.5 | U |
| Acetone | µg/L | 92,000 | < 2 | U | < 1 | U | < 2 | U | < 5.1 | U | < 1 | U | < 1 | U | < 2.5 | U | | | | | < 50 | U | < 25 | U |
| Benzene | µg/L | 5 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | 3.13 | R | | | | | < 2.5 | U | < 1.25 | U |
| Bromobenzene | µg/L | 2,000 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.125 | U | | | | | < 2.5 | U | < 1.25 | U |
| Bromochloromethane | µg/L | 4,100 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.2 | U | | | | | < 4 | U | < 2 | U |
| Bromodichloromethane | µg/L | 4.6 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | 6.25 | R | | | | | < 5 | U | < 2.5 | U |
| Bromoform | µg/L | 36 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | < 10 | U | < 5 | U |
| Bromomethane | µg/L | 140 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | UJ | | | | | < 10 | U | < 5 | U |
| Carbon disulfide | µg/L | 10,000 | < 2 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 0.5 | U | | | | | < 10 | U | < 5 | U |
| Carbon tetrachloride | µg/L | 5 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.25 | U | | | | | < 5 | U | < 2.5 | U |
| Chlorobenzene | µg/L | 100 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | 3.13 | R | | | | | < 2.5 | U | < 1.25 | U |
| Chloroethane | µg/L | 41,000 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | 12.5 | R | | | | | < 10 | U | < 5 | U |
| Chloroform | µg/L | 1,000 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | 3.56 | | | | | | < 2.66 | J | 4.11 | J |
| Chloromethane | µg/L | 220 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | UJ | | | | | < 10 | U | < 5 | U |
| cis-1,2-Dichloroethene | µg/L | 70 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | 2.18 | | | | | | < 5 | U | 2.73 | J |
| cis-1,3-Dichloropropene | µg/L | 5.3 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.25 | U | | | | | < 5 | U | < 2.5 | U |
| Dibromochloromethane | µg/L | 34 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.25 | U | | | | | < 5 | U | < 2.5 | U |
| Dibromomethane | µg/L | 380 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.25 | U | | | | | < 5 | U | < 2.5 | U |
| Dichlorodifluoromethane | µg/L | 20,000 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | 6.25 | R | | | | | < 5 | U | < 2.5 | U |
| Ethylbenzene | µg/L | 700 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | 6.25 | R | | | | | < 5 | U | < 2.5 | U |
| Hexachlorobutadiene | µg/L | 20 | < 1 | U | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 1 | U | 6.25 | R | | | | | < 5 | U | < 2.5 | U |
| Isopropylbenzene | µg/L | 10,000 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.25 | U | | | | | < 5 | U | < 2.5 | U |
| m,p-Xylenes | µg/L | 10,000 | < 2 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 0.5 | U | | | | | < 10 | U | < 5 | U |
| Methyl isobutyl ketone | µg/L | 8,200 | < 2 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 2 | U | < 2.5 | U | | | | | < 50 | U | < 25 | U |
| Methylene chloride | µg/L | 5 | < 2 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | 6.25 | R | | | | | < 5 | U | < 2.5 | U |
| Naphthalene | µg/L | 2,000 | < 1 | U | < 0.5 | U | < 0.5 | UJ | < 0.5 | U | < 0.5 | UJ | < 0.5 | U | < 0.2 | U | | | | | < 4 | U | < 2 | U |
| n-Butylbenzene | µg/L | 4,100 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.25 | U | | | | | < 5 | U | < 2.5 | U |
| n-Propylbenzene | µg/L | 4,100 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.125 | U | | | | | < 2.5 | U | < 1.25 | U |
| o-Xylene | µg/L | 10,000 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | 6.25 | R | | | | | < 5 | U | < 2.5 | U |
| p-Isopropyltoluene | µg/L | 10,000 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.25 | U | | | | | < 5 | U | < 2.5 | U |
| sec-Butylbenzene | µg/L | 4,100 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.25 | U | | | | | < 5 | U | < 2.5 | U |
| Styrene | µg/L | 100 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.125 | U | | | | | < 2.5 | U | < 1.25 | U |
| tert-Butylbenzene | µg/L | 4,100 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.25 | U | | | | | < 5 | U | < 2.5 | U |
| Tetrachloroethene | µg/L | 5 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.25 | U | | | | | < 5 | U | < 2.5 | U |
| Toluene | µg/L | 1,000 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.25 | U | | | | | < 5 | U | < 2.5 | U |
| trans-1,2-Dichloroethene | µg/L | 100 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.25 | U | | | | | < 5 | U | < 2.5 | U |
| trans-1,3-Dichloropropene | µg/L | 29 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | < 10 | U | < 5 | U |
| Trichloroethene | µg/L | 5 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | 6.25 | R | | | | | < 5 | U | 3.12 | J |
| Trichlorofluoromethane | µg/L | 31,000 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.25 | U | | | | | < 5 | U | < 2.5 | U |
| Vinyl chloride | µg/L | 2 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | 0.951 | J | | | | | < 5 | U | < 2.5 | U |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW08 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW08-140123 | | 67WW08-050714 | | 67WW08-140507 | | 67WW08-072414 | | 67WW08-140724 | | 67WW08-141204 | | 67WW08-120414 | | 67WW08-150211 | | 67WW08-021115 | | 67WW08-150519 | | 67WW08-051915 | |
| | | Sample Date | 1/23/2014 | | 5/7/2014 | | 5/7/2014 | | 7/24/2014 | | 7/24/2014 | | 12/4/2014 | | 12/4/2014 | | 2/11/2015 | | 2/11/2015 | | 5/19/2015 | | 5/19/2015 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| **ANIONS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Chloride | mg/L | NV | | | 1,380 | | | | 1,340 | | | | | | 1410 | H1 | | | 1,250 | | | | 1,750 | |
| Nitrate | mg/L | 10 | | | < 2 | U | | | < 1 | U | | | | | < 2 | U | | | < 4 | U | | | < 2 | U |
| Nitrite | mg/L | 1 | | | < 2 | U | | | < 1 | U | | | | | 2.04 | J | | | < 4 | U | | | 3.95 | J |
| Sulfate | mg/L | NV | | | 365 | | | | 317 | | | | | | 302 | J | | | 258 | | | | 524 | |
| Sulfide | mg/L | NV | | | < 1 | U | | | | | | | | | | | | | < 1 | U | | | < 1 | U |
| **TOTAL ORGANIC CARBON** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Inorganic Carbon | mg/L | NV | | | 80.6 | | | | 70.9 | | | | | | 22.9 | | | | 160 | | | | 55.2 | |
| Total Organic Carbon | mg/L | NV | | | 10.6 | | | | 7.58 | | | | | | 3.68 | | | | 22.4 | | | | 8.32 | |
| **DHC** | | | | | | | | | | | | | | | | | | | | | | | | |
| BVC | cells/mL | NV | | | 0.5 | U | | | | | | | | | | | | | | | | | | |
| Dehalococcoides | cells/mL | NV | | | 0.6 | | | | | | | | | | | | | | | | | | | |
| **FIELD TESTS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Conductivity | mS/cm | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | 0.38 | | 0.45 | | 0.45 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0.66 | | 0.66 | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Flow Rate | mL/Min | NV | | | | | | | | | | | | | | | | | | | | | | |
| Measured well depth | Ft BTOC | NV | | | | | | | | | | | | | | | | | | | | | | |
| Oxidation-Reduction Potentia | mV | NV | -90 | | -32 | | -32 | | -7 | | -7 | | -1 | | -1 | | 45 | | 45 | | -16 | | -16 | |
| pH | SU | NV | 6.8 | | 5.55 | | 5.55 | | 6.89 | | 6.89 | | 6.42 | | 6.42 | | 6.61 | | 6.61 | | 6.53 | | 6.53 | |
| Temperature | C | NV | 17.22 | | 19.33 | | 19.33 | | 21.72 | | 21.72 | | 19.14 | | 19.14 | | 18.75 | | 18.75 | | 20.12 | | 20.12 | |
| Turbidity | NTU | NV | 0.6 | | 9.7 | | 9.7 | | 6.1 | | 6.1 | | 2.7 | | 2.7 | | 3.7 | | 3.7 | | 67.1 | | 67.1 | |
| **GASES** | | | | | | | | | | | | | | | | | | | | | | | | |
| Carbon dioxide | µg/L | NV | | | | | | | | | | | | | 89,600 | | | | | | | | | |
| Ethane | µg/L | NV | | | < 2 | U | | | < 2 | U | | | | | < 2 | U | | | < 2 | U | | | < 2 | U |
| Ethylene | µg/L | NV | | | < 2 | U | | | < 2 | U | | | | | < 2 | U | | | < 2 | U | | | < 2 | U |
| Methane | µg/L | NV | | | 6.97 | | | | 6.47 | | | | | | 14.4 | | | | 9.4 | | | | 5.16 | |
| **GENERAL CHEMISTRY** | | | | | | | | | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ferrous Iron | mg/L | NV | | | 0.282 | | | | 0.227 | | | | | | 0.374 | | | | 0.0907 | | | | 0.944 | |
| **SEMIVOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,4-Dioxane | µg/L | 26 | | | | | | | | | | | | | | | | | | | | | | |
| **VOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | µg/L | 110 | | | < 5 | U | | | < 5 | U | | | | | < 5 | U | | | < 5 | U | | | < 5 | U |
| 1,1,1-Trichloroethane | µg/L | 200 | | | < 5 | U | | | < 5 | U | | | | | < 5 | U | | | < 5 | U | | | < 5 | U |
| 1,1,2,2-Tetrachloroethane | µg/L | 14 | | | < 4 | U | | | < 4 | U | | | | | < 4 | U | | | < 4 | U | | | < 4 | U |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | µg/L | 3,100,000 | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,2-Trichloroethane | µg/L | 5 | | | 5.01 | J | | | 7.74 | J | | | | | 7.36 | J | | | 6.96 | J | | | 4.5 | J |
| 1,1-Dichloroethane | µg/L | 10,000 | | | 57.3 | | | | 56.7 | | | | | | 63.9 | | | | 61.1 | | | | 52.1 | |
| 1,1-Dichloroethene | µg/L | 7 | | | 1590 | | | | 1890 | | | | | | 2320 | | | | 1930 | | | | 1570 | |
| 1,1-Dichloropropene | µg/L | 2.9 | | | < 5 | U | | | < 5 | U | | | | | < 5 | U | | | < 5 | U | | | < 5 | U |
| 1,2,3-Trichlorobenzene | µg/L | 310 | | | < 3 | U | | | < 3 | U | | | | | < 3 | U | | | < 3 | U | | | < 3 | U |
| 1,2,3-Trichloropropane | µg/L | 0.041 | | | < 10 | U | | | < 10 | U | | | | | < 10 | U | | | < 10 | U | | | < 10 | U |
| 1,2,4-Trichlorobenzene | µg/L | 70 | | | < 4 | U | | | < 4 | U | | | | | < 4 | U | | | < 4 | U | | | < 4 | U |
| 1,2,4-Trimethylbenzene | µg/L | 5,100 | | | < 5 | U | | | < 5 | U | | | | | < 5 | U | | | < 5 | U | | | < 5 | U |
| 1,2-Dibromo-3-chloropropane | µg/L | 0.2 | | | < 20 | U | | | < 20 | U | | | | | < 20 | U | | | < 20 | U | | | < 20 | U |
| 1,2-Dibromoethane | µg/L | 0.05 | | | < 5 | U | | | < 5 | U | | | | | < 5 | U | | | < 5 | U | | | < 5 | U |
| 1,2-Dichlorobenzene | µg/L | 600 | | | < 2.5 | U | | | < 2.5 | U | | | | | < 2.5 | U | | | < 2.5 | U | | | < 2.5 | U |
| 1,2-Dichloroethane | µg/L | 5 | | | 101 | | | | 98.9 | | | | | | 106 | | | | 104 | | | | 85.6 | |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW08 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW08-140123 | | 67WW08-050714 | | 67WW08-140507 | | 67WW08-072414 | | 67WW08-140724 | | 67WW08-141204 | | 67WW08-120414 | | 67WW08-150211 | | 67WW08-021115 | | 67WW08-150519 | | 67WW08-051915 | |
| | | Sample Date | 1/23/2014 | | 5/7/2014 | | 5/7/2014 | | 7/24/2014 | | 7/24/2014 | | 12/4/2014 | | 12/4/2014 | | 2/11/2015 | | 2/11/2015 | | 5/19/2015 | | 5/19/2015 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,2-Dichloropropane | µg/L | 5 | | | < 4 | U | | | < 4 | U | | | | | < 4 | U | | | < 4 | U | | | < 4 | U |
| 1,3,5-Trimethylbenzene | µg/L | 5,100 | | | < 5 | U | | | < 5 | U | | | | | < 5 | U | | | < 5 | U | | | < 5 | U |
| 1,3-Dichlorobenzene | µg/L | 3,100 | | | < 5 | U | | | < 5 | U | | | | | < 5 | U | | | < 5 | U | | | < 5 | U |
| 1,3-Dichloropropane | µg/L | 29 | | | < 4 | U | | | < 4 | U | | | | | < 4 | U | | | < 4 | U | | | < 4 | U |
| 1,4-Dichlorobenzene | µg/L | 75 | | | < 2.5 | U | | | < 2.5 | U | | | | | < 2.5 | U | | | < 2.5 | U | | | < 2.5 | U |
| 2,2-Dichloropropane | µg/L | 42 | | | < 5 | U | | | < 5 | U | | | | | < 5 | U | | | < 5 | U | | | < 5 | U |
| 2-Butanone | µg/L | 61,000 | | | < 50 | U | | | < 50 | U | | | | | < 50 | U | | | < 50 | U | | | < 50 | U |
| 2-Chlorotoluene | µg/L | 2,000 | | | < 2.5 | U | | | < 2.5 | U | | | | | < 2.5 | U | | | < 2.5 | U | | | < 2.5 | U |
| 2-Hexanone | µg/L | 6,100 | | | < 50 | U | | | < 50 | U | | | | | < 50 | U | | | < 50 | U | | | < 50 | U |
| 4-Chlorotoluene | µg/L | 2,000 | | | < 5 | U | | | < 5 | U | | | | | < 5 | U | | | < 5 | U | | | < 5 | U |
| Acetone | µg/L | 92,000 | | | < 50 | U | | | < 50 | U | | | | | < 50 | U | | | < 50 | U | | | < 50 | U |
| Benzene | µg/L | 5 | | | < 3.37 | U | | | < 2.5 | U | | | | | < 2.5 | U | | | < 2.5 | U | | | < 2.5 | U |
| Bromobenzene | µg/L | 2,000 | | | < 2.5 | U | | | < 2.5 | U | | | | | < 2.5 | U | | | < 2.5 | U | | | < 2.5 | U |
| Bromochloromethane | µg/L | 4,100 | | | < 4 | U | | | < 4 | U | | | | | < 4 | U | | | < 4 | U | | | < 4 | U |
| Bromodichloromethane | µg/L | 4.6 | | | < 5 | U | | | < 5 | U | | | | | < 5 | U | | | < 5 | U | | | < 5 | U |
| Bromoform | µg/L | 36 | | | < 10 | U | | | < 10 | U | | | | | < 10 | U | | | < 10 | U | | | < 10 | U |
| Bromomethane | µg/L | 140 | | | < 10 | U | | | < 10 | U | | | | | < 10 | U | | | < 10 | U | | | < 10 | U |
| Carbon disulfide | µg/L | 10,000 | | | < 10 | U | | | < 10 | U | | | | | < 10 | U | | | < 10 | U | | | < 10 | U |
| Carbon tetrachloride | µg/L | 5 | | | < 5 | U | | | < 5 | U | | | | | < 5 | U | | | < 5 | U | | | < 5 | U |
| Chlorobenzene | µg/L | 100 | | | < 2.5 | U | | | < 2.5 | U | | | | | < 2.5 | U | | | < 2.5 | U | | | < 2.5 | U |
| Chloroethane | µg/L | 41,000 | | | < 10 | U | | | < 10 | U | | | | | < 10 | U | | | < 10 | U | | | < 10 | U |
| Chloroform | µg/L | 1,000 | | | 4.88 | J | | | 5.13 | J | | | | | 2.53 | J | | | 2.57 | J | | | 3.04 | J |
| Chloromethane | µg/L | 220 | | | < 10 | U | | | < 10 | U | | | | | < 10 | U | | | < 10 | U | | | < 10 | U |
| cis-1,2-Dichloroethene | µg/L | 70 | | | < 5 | U | | | < 5 | U | | | | | 2.69 | J | | | 2.71 | J | | | < 5 | U |
| cis-1,3-Dichloropropene | µg/L | 5.3 | | | < 5 | U | | | < 5 | U | | | | | < 5 | U | | | < 5 | U | | | < 5 | U |
| Dibromochloromethane | µg/L | 34 | | | < 5 | U | | | < 5 | U | | | | | < 5 | U | | | < 5 | U | | | < 5 | U |
| Dibromomethane | µg/L | 380 | | | < 5 | U | | | < 5 | U | | | | | < 5 | U | | | < 5 | U | | | < 5 | U |
| Dichlorodifluoromethane | µg/L | 20,000 | | | < 5 | U | | | < 5 | U | | | | | < 5 | U | | | < 5 | U | | | < 5 | U |
| Ethylbenzene | µg/L | 700 | | | < 5 | U | | | < 5 | U | | | | | < 5 | U | | | < 5 | U | | | < 5 | U |
| Hexachlorobutadiene | µg/L | 20 | | | < 5 | U | | | < 5 | U | | | | | < 5 | U | | | < 5 | U | | | < 5 | U |
| Isopropylbenzene | µg/L | 10,000 | | | < 5 | U | | | < 5 | U | | | | | < 5 | U | | | < 5 | U | | | < 5 | U |
| m,p-Xylenes | µg/L | 10,000 | | | < 10 | U | | | < 10 | U | | | | | < 10 | U | | | < 10 | U | | | < 10 | U |
| Methyl isobutyl ketone | µg/L | 8,200 | | | < 50 | U | | | < 50 | U | | | | | < 50 | U | | | < 50 | U | | | < 50 | U |
| Methylene chloride | µg/L | 5 | | | < 5 | U | | | < 5 | U | | | | | 3.42 | J | | | < 5 | U | | | < 5 | U |
| Naphthalene | µg/L | 2,000 | | | < 4 | U | | | < 4 | U | | | | | < 4 | U | | | < 4 | U | | | < 4 | U |
| n-Butylbenzene | µg/L | 4,100 | | | < 5 | U | | | < 5 | U | | | | | < 5 | U | | | < 5 | U | | | < 5 | U |
| n-Propylbenzene | µg/L | 4,100 | | | < 2.5 | U | | | < 2.5 | U | | | | | < 2.5 | U | | | < 2.5 | U | | | < 2.5 | U |
| o-Xylene | µg/L | 10,000 | | | < 5 | U | | | < 5 | U | | | | | < 5 | U | | | < 5 | U | | | < 5 | U |
| p-Isopropyltoluene | µg/L | 10,000 | | | < 5 | U | | | < 5 | U | | | | | < 5 | U | | | < 5 | U | | | < 5 | U |
| sec-Butylbenzene | µg/L | 4,100 | | | < 5 | U | | | < 5 | U | | | | | < 5 | U | | | < 5 | U | | | < 5 | U |
| Styrene | µg/L | 100 | | | < 2.5 | U | | | < 2.5 | U | | | | | < 2.5 | U | | | < 2.5 | U | | | < 2.5 | U |
| tert-Butylbenzene | µg/L | 4,100 | | | < 5 | U | | | < 5 | U | | | | | < 5 | U | | | < 5 | U | | | < 5 | U |
| Tetrachloroethene | µg/L | 5 | | | < 5 | U | | | < 5 | U | | | | | < 5 | U | | | < 5 | U | | | < 5 | U |
| Toluene | µg/L | 1,000 | | | < 5 | U | | | < 5 | U | | | | | < 5 | U | | | < 5 | U | | | < 5 | U |
| trans-1,2-Dichloroethene | µg/L | 100 | | | < 5 | U | | | < 5 | U | | | | | < 5 | U | | | < 5 | U | | | < 5 | U |
| trans-1,3-Dichloropropene | µg/L | 29 | | | < 10 | U | | | < 10 | U | | | | | < 10 | U | | | < 10 | U | | | < 10 | U |
| Trichloroethene | µg/L | 5 | | | 4.41 | J | | | 3.14 | J | | | | | 3.55 | J | | | 3.15 | J | | | < 5 | U |
| Trichlorofluoromethane | µg/L | 31,000 | | | < 5 | U | | | < 5 | U | | | | | < 5 | U | | | < 5 | U | | | < 5 | U |
| Vinyl chloride | µg/L | 2 | | | < 5 | U | | | < 5 | U | | | | | < 5 | U | | | < 5 | U | | | < 5 | U |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW08 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW08-151119 | | 67WW08-111915 | | 67WW08-160519 | | 67WW08-051916 | | 67WW08-112817-FD | | 67WW08-112817 | | 67WW08-180501 | | 67WW08-181023 | | 67WW08-181023-FD | | 67WW08-190501 | | 67WW08-191028-FD | |
| | | Sample Date | 11/19/2015 | | 11/19/2015 | | 5/19/2016 | | 5/19/2016 | | 11/28/2017 | | 11/28/2017 | | 5/1/2018 | | 10/23/2018 | | 10/23/2018 | | 5/1/2019 | | 10/28/2019 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | FD | | REG | | REG | | REG | | FD | | REG | | FD | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| **ANIONS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Chloride | mg/L | NV | | | 1,400 | | | | 1,510 | | 1,590 | | 1,600 | | 1,530 | | 1,820 | | 1,770 | | 1,680 | | 1,890 | |
| Nitrate | mg/L | 10 | | | < 2 | U | | | < 2 | U | < 0.1 | U | < 0.1 | U | < 0.1 | U | < 0.2 | U | < 0.2 | U | < 0.5 | U | < 0.2 | U |
| Nitrite | mg/L | 1 | | | < 2 | U | | | < 2 | U | < 0.1 | U | < 0.1 | U | < 0.1 | U | < 0.2 | U | < 0.2 | U | | | | |
| Sulfate | mg/L | NV | | | 300 | | | | 365 | | 440 | | 4290 | | 407 | | 499 | | 489 | | 479 | | 513 | |
| Sulfide | mg/L | NV | | | < 1 | U | | | < 1 | U | 1.48 | J | 1.48 | J | < 1.5 | U | < 1 | U | < 1 | U | | | | |
| **TOTAL ORGANIC CARBON** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Inorganic Carbon | mg/L | NV | | | 103 | | | | 44.2 | | 140 | | 130 | | 150 | | 55 | | 58 | | | | | |
| Total Organic Carbon | mg/L | NV | | | 47.5 | | | | 65.4 | | 4 | | 3.99 | | 4.14 | | 2.86 | | 3.19 | | 2.09 | | 1.23 | |
| **DHC** | | | | | | | | | | | | | | | | | | | | | | | | |
| BVC | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dehalococcoides | cells/mL | NV | | | | | | | | | < 0.5 | U | < 0.5 | U | 0.2 | | 9.3 | | | | | | | |
| **FIELD TESTS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Conductivity | mS/cm | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | 0.44 | | 0.44 | | 0.82 | | 0.82 | | | | 0.26 | | 0 | | 0.08 | | | | 0.08 | | | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | 0.11 | | | | | | 0.21 | | | |
| Flow Rate | mL/Min | NV | | | | | | | | | | | 100 | | 100 | | 100 | | | | 100 | | | |
| Measured well depth | Ft BTOC | NV | | | | | | | | | | | 52 | | 50.9 | | 52.45 | | | | 51.95 | | | |
| Oxidation-Reduction Potentia | mV | NV | 113 | | 113 | | 129 | | 129 | | | | 186 | | 268 | | 150 | | | | 138 | | | |
| pH | SU | NV | 6.13 | | 6.13 | | 5.79 | | 5.79 | | | | 5.88 | | 6.40 | | 6.33 | | | | 5.82 | | | |
| Temperature | C | NV | 19.15 | | 19.15 | | 18.74 | | 18.74 | | | | 19.04 | | 22.03 | | 18.14 | | | | 20.44 | | | |
| Turbidity | NTU | NV | 45.3 | | 45.3 | | 9.3 | | 9.3 | | | | 21.3 | | 9.3 | | 0 | | | | 0 | | | |
| **GASES** | | | | | | | | | | | | | | | | | | | | | | | | |
| Carbon dioxide | µg/L | NV | | | | | | | | | 240,000 | | 290,000 | | 420,000 | | 130,000 | | 130,000 | | 270,000 | | 110,000 | |
| Ethane | µg/L | NV | | | < 2 | U | | | < 2 | U | < 0.23 | U | < 0.23 | U | < 0.47 | U | < 0.94 | U | < 0.94 | U | < 0.47 | U | < 0.47 | U |
| Ethylene | µg/L | NV | | | < 2 | U | | | < 2 | U | < 0.22 | U | < 0.22 | U | < 0.55 | UJ | < 1.1 | U | < 1.1 | U | < 0.55 | U | < 0.55 | U |
| Methane | µg/L | NV | | | 12.1 | | | | 11.3 | | 1.6 | J | 2 | J | 2.1 | | 5.4 | | 5.5 | | 2.5 | | 2.1 | |
| **GENERAL CHEMISTRY** | | | | | | | | | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | | | | | | | | | | | | | | | 220 | | 221 | | | | | |
| Ferrous Iron | mg/L | NV | | | 0.0931 | | | | 0.0585 | | | | | | 0.063 | J | 0.343 | | 0.27 | | | | | |
| **SEMIVOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,4-Dioxane | µg/L | 26 | | | | | | | | | 29 | J | 22 | J | | | | | | | | | | |
| **VOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | µg/L | 110 | | | < 5 | U | | | < 5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1,1-Trichloroethane | µg/L | 200 | | | < 5 | U | | | < 5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1,2,2-Tetrachloroethane | µg/L | 14 | | | < 4 | U | | | < 4 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | µg/L | 3,100,000 | | | | | | | | | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1,2-Trichloroethane | µg/L | 5 | | | 4.67 | J | | | 2.76 | J | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1-Dichloroethane | µg/L | 10,000 | | | 48.1 | | | | 31.9 | | 18 | | 15 | | 14 | | 12 | | 12 | | 7.5 | | 7.6 | |
| 1,1-Dichloroethene | µg/L | 7 | | | 1710 | | | | 1130 | | 350 | | 340 | | 300 | | 160 | | 160 | | 110 | | 65 | |
| 1,1-Dichloropropene | µg/L | 2.9 | | | < 5 | U | | | < 5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2,3-Trichlorobenzene | µg/L | 310 | | | < 3 | U | | | < 3 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | UJ |
| 1,2,3-Trichloropropane | µg/L | 0.041 | | | < 10 | U | | | < 10 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2,4-Trichlorobenzene | µg/L | 70 | | | < 4 | U | | | < 4 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2,4-Trimethylbenzene | µg/L | 5,100 | | | < 5 | U | | | < 5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2-Dibromo-3-chloropropane | µg/L | 0.2 | | | < 20 | U | | | < 20 | U | < 1 | U | < 1 | U | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| 1,2-Dibromoethane | µg/L | 0.05 | | | < 5 | U | | | < 5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2-Dichlorobenzene | µg/L | 600 | | | < 2.5 | U | | | < 2.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2-Dichloroethane | µg/L | 5 | | | 77.6 | | | | 56.1 | | 13 | | 13 | | 11 | | 6.5 | | 6.2 | | 5.1 | | 2.4 | |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW08 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW08-151119 | | 67WW08-111915 | | 67WW08-160519 | | 67WW08-051916 | | 67WW08-112817-FD | | 67WW08-112817 | | 67WW08-180501 | | 67WW08-181023 | | 67WW08-181023-FD | | 67WW08-190501 | | 67WW08-191028-FD | |
| | | Sample Date | 11/19/2015 | | 11/19/2015 | | 5/19/2016 | | 5/19/2016 | | 11/28/2017 | | 11/28/2017 | | 5/1/2018 | | 10/23/2018 | | 10/23/2018 | | 5/1/2019 | | 10/28/2019 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | FD | | REG | | REG | | REG | | FD | | REG | | FD | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,2-Dichloropropane | µg/L | 5 | | | < 4 | U | | | < 4 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,3,5-Trimethylbenzene | µg/L | 5,100 | | | < 5 | U | | | < 5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,3-Dichlorobenzene | µg/L | 3,100 | | | < 5 | U | | | < 5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,3-Dichloropropane | µg/L | 29 | | | < 4 | U | | | < 4 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,4-Dichlorobenzene | µg/L | 75 | | | < 2.5 | U | | | < 2.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 2,2-Dichloropropane | µg/L | 42 | | | < 5 | U | | | < 5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 2-Butanone | µg/L | 61,000 | | | < 50 | U | | | < 50 | U | < 2 | U | < 2 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| 2-Chlorotoluene | µg/L | 2,000 | | | < 2.5 | U | | | < 2.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 2-Hexanone | µg/L | 6,100 | | | < 50 | U | | | < 50 | U | < 2 | U | < 2 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| 4-Chlorotoluene | µg/L | 2,000 | | | < 5 | U | | | < 5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Acetone | µg/L | 92,000 | | | < 50 | U | | | < 50 | U | < 2 | U | < 2 | U | < 1 | U | < 2 | U | < 2 | U | < 1 | U | < 1 | U |
| Benzene | µg/L | 5 | | | < 2.5 | U | | | < 2.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Bromobenzene | µg/L | 2,000 | | | < 2.5 | U | | | < 2.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Bromochloromethane | µg/L | 4,100 | | | < 4 | U | | | < 4 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Bromodichloromethane | µg/L | 4.6 | | | < 5 | U | | | < 5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Bromoform | µg/L | 36 | | | < 10 | U | | | < 10 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Bromomethane | µg/L | 140 | | | < 10 | U | | | < 10 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Carbon disulfide | µg/L | 10,000 | | | < 10 | U | | | < 10 | U | < 2 | U | < 2 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| Carbon tetrachloride | µg/L | 5 | | | < 5 | U | | | < 5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Chlorobenzene | µg/L | 100 | | | < 2.5 | U | | | < 2.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Chloroethane | µg/L | 41,000 | | | < 10 | U | | | < 10 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Chloroform | µg/L | 1,000 | | | 1.61 | J | | | < 2.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Chloromethane | µg/L | 220 | | | < 10 | U | | | < 10 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| cis-1,2-Dichloroethene | µg/L | 70 | | | < 5 | U | | | < 5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| cis-1,3-Dichloropropene | µg/L | 5.3 | | | < 5 | U | | | < 5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Dibromochloromethane | µg/L | 34 | | | < 5 | U | | | < 5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Dibromomethane | µg/L | 380 | | | < 5 | U | | | < 5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Dichlorodifluoromethane | µg/L | 20,000 | | | < 5 | U | | | < 5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | UJ | < 0.5 | UJ | < 0.5 | U | < 0.5 | U |
| Ethylbenzene | µg/L | 700 | | | < 5 | U | | | < 5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Hexachlorobutadiene | µg/L | 20 | | | < 5 | U | | | < 5 | UJ | < 1 | U | < 1 | U | < 0.5 | U | < 1 | U | < 1 | U | < 1 | U | < 0.5 | U |
| Isopropylbenzene | µg/L | 10,000 | | | < 5 | U | | | < 5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| m,p-Xylenes | µg/L | 10,000 | | | < 10 | U | | | < 10 | U | < 2 | U | < 2 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| Methyl isobutyl ketone | µg/L | 8,200 | | | < 50 | U | | | < 50 | U | < 2 | U | < 2 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| Methylene chloride | µg/L | 5 | | | < 5 | U | | | < 5 | U | < 2 | U | < 2 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| Naphthalene | µg/L | 2,000 | | | < 4 | U | | | < 4 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | UJ |
| n-Butylbenzene | µg/L | 4,100 | | | < 5 | U | | | < 5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| n-Propylbenzene | µg/L | 4,100 | | | < 2.5 | U | | | < 2.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| o-Xylene | µg/L | 10,000 | | | < 5 | U | | | < 5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| p-Isopropyltoluene | µg/L | 10,000 | | | < 5 | U | | | < 5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| sec-Butylbenzene | µg/L | 4,100 | | | < 5 | U | | | < 5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Styrene | µg/L | 100 | | | < 2.5 | U | | | < 2.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| tert-Butylbenzene | µg/L | 4,100 | | | < 5 | U | | | < 5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Tetrachloroethene | µg/L | 5 | | | < 5 | U | | | < 5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Toluene | µg/L | 1,000 | | | < 5 | U | | | < 5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| trans-1,2-Dichloroethene | µg/L | 100 | | | < 5 | U | | | < 5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| trans-1,3-Dichloropropene | µg/L | 29 | | | < 10 | U | | | < 10 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Trichloroethene | µg/L | 5 | | | < 5 | U | | | < 5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Trichlorofluoromethane | µg/L | 31,000 | | | < 5 | U | | | < 5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Vinyl chloride | µg/L | 2 | | | < 5 | U | | | < 5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW08 | | | | | | 67WW09 | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW08-191028 | | 67WW08-201103-FD | | 67WW08-201103 | | 67WW09-130601 | | 67WW10-060113 | | 67WW09-060113 | | 67WW09-130928 | | 67WW09-092813 | | 67WW09-140124 | | 67WW09-012414 | | 67WW09-140506 | |
| | | Sample Date | 10/28/2019 | | 11/3/2020 | | 11/3/2020 | | 6/1/2013 | | 6/1/2013 | | 6/3/2013 | | 9/28/2013 | | 9/28/2013 | | 1/24/2014 | | 1/24/2014 | | 5/6/2014 | |
| | | Sample Purpose | REG | | FD | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| **ANIONS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Chloride | mg/L | NV | 1,920 | | 1,810 | | 1,830 | | | | | | | | | | | | | | | | | |
| Nitrate | mg/L | 10 | < 0.2 | U | < 0.2 | U | < 0.2 | U | | | | | | | | | | | | | | | | |
| Nitrite | mg/L | 1 | | | | | | | | | | | | | | | | | | | | | | |
| Sulfate | mg/L | NV | 515 | | 500 | | 521 | | | | | | | | | | | | | | | | | |
| Sulfide | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **TOTAL ORGANIC CARBON** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Inorganic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Total Organic Carbon | mg/L | NV | 1.38 | J | 1.21 | | 1.17 | | | | | | | | | | | | | | | | | |
| **DHC** | | | | | | | | | | | | | | | | | | | | | | | | |
| BVC | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dehalococcoides | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| **FIELD TESTS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Conductivity | mS/cm | NV | | | | | 6.74 | | | | | | | | | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | 0.11 | | | | 0.32 | | 0.52 | | 0.52 | | | | 0.83 | | 0.83 | | 0.86 | | 0.86 | | - | - |
| Ferrous Iron | mg/L | NV | 0.41 | | | | 1.06 | | | | | | | | | | | | | | | | | |
| Flow Rate | mL/Min | NV | 100 | | | | 100 | | | | | | | | | | | | | | | | | |
| Measured well depth | Ft BTOC | NV | 50.9 | | | | | | | | | | | | | | | | | | | | | |
| Oxidation-Reduction Potentia | mV | NV | 126 | | | | 62 | | 189 | | 189 | | | | 157 | | 157 | | 136 | | 136 | | - | - |
| pH | SU | NV | 6.05 | | | | 5.94 | | 6.64 | | 6.64 | | | | 6.31 | | 6.31 | | 6.24 | | 6.24 | | - | - |
| Temperature | C | NV | 18.88 | | | | 18.65 | | 27.95 | | 27.95 | | | | 22.22 | | 22.22 | | 16.27 | | 16.27 | | - | - |
| Turbidity | NTU | NV | 0 | | | | 0.8 | | 4.5 | | 4.5 | | | | 1.7 | | 1.7 | | 0.9 | | 0.9 | | - | - |
| **GASES** | | | | | | | | | | | | | | | | | | | | | | | | |
| Carbon dioxide | µg/L | NV | 130,000 | | 270,000 | | 270,000 | | | | | | | | | | | | | | | | | |
| Ethane | µg/L | NV | < 0.47 | U | < 0.47 | U | < 0.47 | U | | | | | | | | | | | | | | | | |
| Ethylene | µg/L | NV | < 0.55 | U | < 0.55 | U | < 0.55 | U | | | | | | | | | | | | | | | | |
| Methane | µg/L | NV | 2.5 | | 1 | J | 1.2 | J | | | | | | | | | | | | | | | | |
| **GENERAL CHEMISTRY** | | | | | | | | | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **SEMIVOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,4-Dioxane | µg/L | 26 | | | | | | | | | | | | | | | | | | | | | | |
| **VOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | µg/L | 110 | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | UJ | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,1,1-Trichloroethane | µg/L | 200 | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,1,2,2-Tetrachloroethane | µg/L | 14 | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.2 | U | < 0.2 | UJ | | | < 0.4 | U | | | < 0.4 | U | | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | µg/L | 3,100,000 | < 0.5 | U | < 1 | U | < 1 | U | | | | | | | | | | | | | | | | |
| 1,1,2-Trichloroethane | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,1-Dichloroethane | µg/L | 10,000 | 7.7 | | 7.1 | | 7.3 | | | | 0.39 | J | 3.6 | | | | 3.97 | | | | 4.59 | | | |
| 1,1-Dichloroethene | µg/L | 7 | 63 | | 44 | | 50 | | | | < 0.5 | U | 16.1 | | | | 17.5 | | | | 20.8 | | | |
| 1,1-Dichloropropene | µg/L | 2.9 | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,2,3-Trichlorobenzene | µg/L | 310 | < 0.5 | UJ | < 1 | U | < 1 | U | | | < 0.15 | U | < 0.15 | U | | | < 0.3 | U | | | < 0.3 | U | | |
| 1,2,3-Trichloropropane | µg/L | 0.041 | < 0.5 | U | < 1 | U | < 1 | U | | | < 0.5 | U | < 0.5 | U | | | < 1 | U | | | < 1 | U | | |
| 1,2,4-Trichlorobenzene | µg/L | 70 | < 0.5 | U | < 1 | U | < 1 | U | | | < 0.2 | U | < 0.2 | U | | | < 0.4 | U | | | < 0.4 | U | | |
| 1,2,4-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,2-Dibromo-3-chloropropane | µg/L | 0.2 | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 1 | UJ | < 1 | UJ | | | < 2 | U | | | < 2 | U | | |
| 1,2-Dibromoethane | µg/L | 0.05 | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,2-Dichlorobenzene | µg/L | 600 | < 0.5 | U | < 1 | U | < 1 | U | | | < 0.125 | U | < 0.125 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| 1,2-Dichloroethane | µg/L | 5 | 2.3 | | 1.6 | | 1.8 | | | | < 0.25 | U | < 0.25 | U | | | 0.414 | J | | | 0.347 | J | | |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW08 | | | | | | 67WW09 | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW08-191028 | | 67WW08-201103-FD | | 67WW08-201103 | | 67WW09-130601 | | 67WW10-060113 | | 67WW09-060113 | | 67WW09-130928 | | 67WW09-092813 | | 67WW09-140124 | | 67WW09-012414 | | 67WW09-140506 | |
| | | Sample Date | 10/28/2019 | | 11/3/2020 | | 11/3/2020 | | 6/1/2013 | | 6/1/2013 | | 6/3/2013 | | 9/28/2013 | | 9/28/2013 | | 1/24/2014 | | 1/24/2014 | | 5/6/2014 | |
| | | Sample Purpose | REG | | FD | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,2-Dichloropropane | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.2 | U | < 0.2 | U | | | < 0.4 | U | | | < 0.4 | U | | |
| 1,3,5-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,3-Dichlorobenzene | µg/L | 3,100 | < 0.5 | U | < 1 | U | < 1 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,3-Dichloropropane | µg/L | 29 | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.2 | U | < 0.2 | U | | | < 0.4 | U | | | < 0.4 | U | | |
| 1,4-Dichlorobenzene | µg/L | 75 | < 0.5 | U | < 1 | U | < 1 | U | | | < 0.125 | U | < 0.125 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| 2,2-Dichloropropane | µg/L | 42 | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 2-Butanone | µg/L | 61,000 | < 1 | U | < 1 | U | < 1 | U | | | < 2.5 | U | < 2.5 | U | | | < 5 | U | | | < 5 | U | | |
| 2-Chlorotoluene | µg/L | 2,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.125 | U | < 0.125 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| 2-Hexanone | µg/L | 6,100 | < 1 | U | < 2 | U | < 2 | U | | | < 2.5 | U | < 2.5 | U | | | < 5 | U | | | < 5 | U | | |
| 4-Chlorotoluene | µg/L | 2,000 | < 0.5 | U | < 1 | U | < 1 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Acetone | µg/L | 92,000 | < 1 | U | < 1 | U | < 1 | U | | | < 2.5 | U | < 2.5 | U | | | < 5 | U | | | < 5 | U | | |
| Benzene | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.125 | U | < 0.125 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| Bromobenzene | µg/L | 2,000 | < 0.5 | U | < 1 | U | < 1 | U | | | < 0.125 | U | < 0.125 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| Bromochloromethane | µg/L | 4,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.2 | U | < 0.2 | U | | | < 0.4 | U | | | < 0.4 | U | | |
| Bromodichloromethane | µg/L | 4.6 | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Bromoform | µg/L | 36 | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 1 | U | | | < 1 | U | | |
| Bromomethane | µg/L | 140 | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | UJ | < 0.5 | UJ | | | < 1 | U | | | < 1 | U | | |
| Carbon disulfide | µg/L | 10,000 | < 1 | U | < 1 | U | < 1 | U | | | < 0.5 | U | < 0.5 | U | | | < 1 | U | | | < 1 | U | | |
| Carbon tetrachloride | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Chlorobenzene | µg/L | 100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.125 | U | < 0.125 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| Chloroethane | µg/L | 41,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 1 | U | | | < 1 | U | | |
| Chloroform | µg/L | 1,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.125 | U | < 0.125 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| Chloromethane | µg/L | 220 | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | UJ | < 0.5 | UJ | | | < 1 | U | | | < 1 | U | | |
| cis-1,2-Dichloroethene | µg/L | 70 | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| cis-1,3-Dichloropropene | µg/L | 5.3 | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Dibromochloromethane | µg/L | 34 | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Dibromomethane | µg/L | 380 | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Dichlorodifluoromethane | µg/L | 20,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Ethylbenzene | µg/L | 700 | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Hexachlorobutadiene | µg/L | 20 | < 0.5 | U | < 1 | U | < 1 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Isopropylbenzene | µg/L | 10,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| m,p-Xylenes | µg/L | 10,000 | < 1 | U | < 1 | U | < 1 | U | | | < 0.5 | U | < 0.5 | U | | | < 1 | U | | | < 1 | U | | |
| Methyl isobutyl ketone | µg/L | 8,200 | < 1 | U | < 2 | U | < 2 | U | | | < 2.5 | U | < 2.5 | U | | | < 5 | U | | | < 5 | U | | |
| Methylene chloride | µg/L | 5 | < 1 | U | < 1 | U | < 1 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Naphthalene | µg/L | 2,000 | < 0.5 | UJ | < 0.5 | U | < 0.5 | U | | | < 0.2 | U | < 0.2 | U | | | < 0.4 | U | | | < 0.4 | U | | |
| n-Butylbenzene | µg/L | 4,100 | < 0.5 | U | < 1 | U | < 1 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| n-Propylbenzene | µg/L | 4,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.125 | U | < 0.125 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| o-Xylene | µg/L | 10,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| p-Isopropyltoluene | µg/L | 10,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| sec-Butylbenzene | µg/L | 4,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Styrene | µg/L | 100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.125 | U | < 0.125 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| tert-Butylbenzene | µg/L | 4,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Tetrachloroethene | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Toluene | µg/L | 1,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| trans-1,2-Dichloroethene | µg/L | 100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| trans-1,3-Dichloropropene | µg/L | 29 | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 1 | U | | | < 1 | U | | |
| Trichloroethene | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Trichlorofluoromethane | µg/L | 31,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Vinyl chloride | µg/L | 2 | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.5 | U | | | 0.472 | J | | |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW09 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW09-140725 | | 67WW09-072514 | | 67WW09-141204 | | 67WW09-120414 | | 67WW09-150211 | | 67WW09FD-021115 | | 67WW09-021115 | | 67WW09-150519 | | 67WW09-051915 | | 67WW09-151118 | | 67WW09FD-111815 | |
| | | Sample Date | 7/25/2014 | | 7/25/2014 | | 12/4/2014 | | 12/4/2014 | | 2/11/2015 | | 2/11/2015 | | 2/11/2015 | | 5/19/2015 | | 5/19/2015 | | 11/18/2015 | | 11/18/2015 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | FD | | REG | | REG | | REG | | REG | | FD | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| **ANIONS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Chloride | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Nitrate | mg/L | 10 | | | | | | | | | | | | | | | | | | | | | | |
| Nitrite | mg/L | 1 | | | | | | | | | | | | | | | | | | | | | | |
| Sulfate | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Sulfide | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **TOTAL ORGANIC CARBON** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Inorganic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Total Organic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **DHC** | | | | | | | | | | | | | | | | | | | | | | | | |
| BVC | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dehalococcoides | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| **FIELD TESTS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Conductivity | mS/cm | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | 0.61 | | 0.61 | | 0 | | 0 | | 1.02 | | | | 1.02 | | 1.13 | | 1.13 | | 0 | | | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Flow Rate | mL/Min | NV | | | | | | | | | | | | | | | | | | | | | | |
| Measured well depth | Ft BTOC | NV | | | | | | | | | | | | | | | | | | | | | | |
| Oxidation-Reduction Potentia | mV | NV | 310 | | 310 | | 166 | | 166 | | 164 | | | | 164 | | 259 | | 259 | | 224 | | | |
| pH | SU | NV | 5.41 | | 5.41 | | 5.95 | | 5.95 | | 6.45 | | | | 6.45 | | 5.48 | | 5.48 | | 5.63 | | | |
| Temperature | C | NV | 26.09 | | 26.09 | | 20.48 | | 20.48 | | 18.13 | | | | 18.13 | | 18.88 | | 18.88 | | 19.88 | | | |
| Turbidity | NTU | NV | 4.4 | | 4.4 | | 1.8 | | 1.8 | | 3.4 | | | | 3.4 | | 12.5 | | 12.5 | | 0 | | | |
| **GASES** | | | | | | | | | | | | | | | | | | | | | | | | |
| Carbon dioxide | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethylene | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Methane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **GENERAL CHEMISTRY** | | | | | | | | | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **SEMIVOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,4-Dioxane | µg/L | 26 | | | | | | | | | | | | | | | | | | | | | | |
| **VOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | µg/L | 110 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| 1,1,1-Trichloroethane | µg/L | 200 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| 1,1,2,2-Tetrachloroethane | µg/L | 14 | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | µg/L | 3,100,000 | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,2-Trichloroethane | µg/L | 5 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| 1,1-Dichloroethane | µg/L | 10,000 | | | 3.03 | | | | 3.93 | | | | 2.92 | | 2.93 | | | | 1.56 | | | | 1.08 | |
| 1,1-Dichloroethene | µg/L | 7 | | | 8.93 | | | | 11.6 | | | | 8.29 | | 8.17 | | | | 2.71 | | | | 1.62 | J |
| 1,1-Dichloropropene | µg/L | 2.9 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| 1,2,3-Trichlorobenzene | µg/L | 310 | | | < 0.3 | U | | | < 0.3 | U | | | < 0.3 | U | < 0.3 | U | | | < 0.3 | U | | | < 0.3 | U |
| 1,2,3-Trichloropropane | µg/L | 0.041 | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | | | < 1 | U | | | < 1 | U |
| 1,2,4-Trichlorobenzene | µg/L | 70 | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U |
| 1,2,4-Trimethylbenzene | µg/L | 5,100 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| 1,2-Dibromo-3-chloropropane | µg/L | 0.2 | | | < 2 | U | | | < 2 | U | | | < 2 | U | < 2 | U | | | < 2 | U | | | < 2 | U |
| 1,2-Dibromoethane | µg/L | 0.05 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| 1,2-Dichlorobenzene | µg/L | 600 | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U |
| 1,2-Dichloroethane | µg/L | 5 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW09 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW09-140725 | | 67WW09-072514 | | 67WW09-141204 | | 67WW09-120414 | | 67WW09-150211 | | 67WW09FD-021115 | | 67WW09-021115 | | 67WW09-150519 | | 67WW09-051915 | | 67WW09-151118 | | 67WW09FD-111815 | |
| | | Sample Date | 7/25/2014 | | 7/25/2014 | | 12/4/2014 | | 12/4/2014 | | 2/11/2015 | | 2/11/2015 | | 2/11/2015 | | 5/19/2015 | | 5/19/2015 | | 11/18/2015 | | 11/18/2015 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | FD | | REG | | REG | | REG | | REG | | FD | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,2-Dichloropropane | µg/L | 5 | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U |
| 1,3,5-Trimethylbenzene | µg/L | 5,100 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| 1,3-Dichlorobenzene | µg/L | 3,100 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| 1,3-Dichloropropane | µg/L | 29 | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U |
| 1,4-Dichlorobenzene | µg/L | 75 | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U |
| 2,2-Dichloropropane | µg/L | 42 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| 2-Butanone | µg/L | 61,000 | | | < 5 | U | | | < 5 | U | | | < 5 | U | < 5 | U | | | < 5 | U | | | < 5 | U |
| 2-Chlorotoluene | µg/L | 2,000 | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U |
| 2-Hexanone | µg/L | 6,100 | | | < 5 | U | | | < 5 | U | | | < 5 | U | < 5 | U | | | < 5 | U | | | < 5 | U |
| 4-Chlorotoluene | µg/L | 2,000 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Acetone | µg/L | 92,000 | | | < 5 | U | | | < 5 | U | | | < 5 | U | < 5 | U | | | < 5 | U | | | < 5 | U |
| Benzene | µg/L | 5 | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U |
| Bromobenzene | µg/L | 2,000 | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U |
| Bromochloromethane | µg/L | 4,100 | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U |
| Bromodichloromethane | µg/L | 4.6 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Bromoform | µg/L | 36 | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | | | < 1 | U | | | < 1 | U |
| Bromomethane | µg/L | 140 | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | | | < 1 | U | | | < 1 | U |
| Carbon disulfide | µg/L | 10,000 | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | | | < 1 | U | | | < 1 | U |
| Carbon tetrachloride | µg/L | 5 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Chlorobenzene | µg/L | 100 | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U |
| Chloroethane | µg/L | 41,000 | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | | | < 1 | U | | | < 1 | U |
| Chloroform | µg/L | 1,000 | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U |
| Chloromethane | µg/L | 220 | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | | | < 1 | U | | | < 1 | U |
| cis-1,2-Dichloroethene | µg/L | 70 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| cis-1,3-Dichloropropene | µg/L | 5.3 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Dibromochloromethane | µg/L | 34 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Dibromomethane | µg/L | 380 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Dichlorodifluoromethane | µg/L | 20,000 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Ethylbenzene | µg/L | 700 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Hexachlorobutadiene | µg/L | 20 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Isopropylbenzene | µg/L | 10,000 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| m,p-Xylenes | µg/L | 10,000 | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | | | < 1 | U | | | < 1 | U |
| Methyl isobutyl ketone | µg/L | 8,200 | | | < 5 | U | | | < 5 | U | | | < 5 | U | < 5 | U | | | < 5 | U | | | < 5 | U |
| Methylene chloride | µg/L | 5 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Naphthalene | µg/L | 2,000 | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U |
| n-Butylbenzene | µg/L | 4,100 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| n-Propylbenzene | µg/L | 4,100 | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U |
| o-Xylene | µg/L | 10,000 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| p-Isopropyltoluene | µg/L | 10,000 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| sec-Butylbenzene | µg/L | 4,100 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Styrene | µg/L | 100 | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U |
| tert-Butylbenzene | µg/L | 4,100 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Tetrachloroethene | µg/L | 5 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Toluene | µg/L | 1,000 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| trans-1,2-Dichloroethene | µg/L | 100 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| trans-1,3-Dichloropropene | µg/L | 29 | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | | | < 1 | U | | | < 1 | U |
| Trichloroethene | µg/L | 5 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Trichlorofluoromethane | µg/L | 31,000 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Vinyl chloride | µg/L | 2 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW09 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW09-111815 | | 67WW09-160518 | | 67WW09-051816 | | 67WW09FD-051816 | | 67WW09-112717 | | 67WW09-180502 | | 67WW09-181023 | | 67WW09-190503 | | 67WW09-191024 | | 67WW09-201103 | | 67WW09A-130927 | |
| | | Sample Date | 11/18/2015 | | 5/18/2016 | | 5/18/2016 | | 5/18/2016 | | 11/27/2017 | | 5/2/2018 | | 10/23/2018 | | 5/3/2019 | | 10/24/2019 | | 11/3/2020 | | 9/27/2013 | |
| | | Sample Purpose | REG | | REG | | REG | | FD | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| **ANIONS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Chloride | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Nitrate | mg/L | 10 | | | | | | | | | | | | | | | | | | | | | | |
| Nitrite | mg/L | 1 | | | | | | | | | | | | | | | | | | | | | | |
| Sulfate | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Sulfide | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **TOTAL ORGANIC CARBON** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Inorganic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Total Organic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **DHC** | | | | | | | | | | | | | | | | | | | | | | | | |
| BVC | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dehalococcoides | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| **FIELD TESTS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Conductivity | mS/cm | NV | | | | | | | | | | | | | | | | | | | 3.24 | | | |
| Dissolved oxygen | mg/L | NV | 0 | | 0.6 | | 0.6 | | | | 0.09 | | 1.52 | | 0.1 | | 0.13 | | 0.09 | | 0.42 | | 1.19 | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Flow Rate | mL/Min | NV | | | | | | | | | 100 | | 100 | | 100 | | 100 | | 100 | | 100 | | | |
| Measured well depth | Ft BTOC | NV | | | | | | | | | 37.9 | | 37.8 | | 38 | | 37.88 | | 37.8 | | | | | |
| Oxidation-Reduction Potentia | mV | NV | 224 | | 305 | | 305 | | | | 325 | | 400 | | 203 | | 250 | | 194 | | 191 | | 182 | |
| pH | SU | NV | 5.63 | | 5.19 | | 5.19 | | | | 5.27 | | 5.35 | | 6.23 | | 5.36 | | 6.05 | | 6.17 | | 5.62 | |
| Temperature | C | NV | 19.88 | | 18.25 | | 18.25 | | | | 19.97 | | 20.78 | | 18.75 | | 20.04 | | 21.04 | | 17.87 | | 28.67 | |
| Turbidity | NTU | NV | 0 | | 0.8 | | 0.8 | | | | 31.4 | | 5 | | 0 | | 0 | | 0 | | 0 | | 21.5 | |
| **GASES** | | | | | | | | | | | | | | | | | | | | | | | | |
| Carbon dioxide | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethylene | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Methane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **GENERAL CHEMISTRY** | | | | | | | | | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **SEMIVOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,4-Dioxane | µg/L | 26 | | | | | | | | | 1.2 | | | | | | | | | | | | | |
| **VOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | µg/L | 110 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | |
| 1,1,1-Trichloroethane | µg/L | 200 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | |
| 1,1,2,2-Tetrachloroethane | µg/L | 14 | < 0.4 | U | | | < 0.4 | U | < 0.4 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | µg/L | 3,100,000 | | | | | | | | | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | |
| 1,1,2-Trichloroethane | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | |
| 1,1-Dichloroethane | µg/L | 10,000 | 1.08 | | | | 0.477 | J | 0.487 | J | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | |
| 1,1-Dichloroethene | µg/L | 7 | 1.66 | J | | | < 1 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | |
| 1,1-Dichloropropene | µg/L | 2.9 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | |
| 1,2,3-Trichlorobenzene | µg/L | 310 | < 0.3 | U | | | < 0.3 | U | < 0.3 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | UJ | < 1 | U | | |
| 1,2,3-Trichloropropane | µg/L | 0.041 | < 1 | U | | | < 1 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | |
| 1,2,4-Trichlorobenzene | µg/L | 70 | < 0.4 | U | | | < 0.4 | U | < 0.4 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | |
| 1,2,4-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | |
| 1,2-Dibromo-3-chloropropane | µg/L | 0.2 | < 2 | U | | | < 2 | U | < 2 | U | < 1 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | |
| 1,2-Dibromoethane | µg/L | 0.05 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | |
| 1,2-Dichlorobenzene | µg/L | 600 | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | |
| 1,2-Dichloroethane | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW09 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW09-111815 | | 67WW09-160518 | | 67WW09-051816 | | 67WW09FD-051816 | | 67WW09-112717 | | 67WW09-180502 | | 67WW09-181023 | | 67WW09-190503 | | 67WW09-191024 | | 67WW09-201103 | | 67WW09A-130927 | |
| | | Sample Date | 11/18/2015 | | 5/18/2016 | | 5/18/2016 | | 5/18/2016 | | 11/27/2017 | | 5/2/2018 | | 10/23/2018 | | 5/3/2019 | | 10/24/2019 | | 11/3/2020 | | 9/27/2013 | |
| | | Sample Purpose | REG | | REG | | REG | | FD | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,2-Dichloropropane | µg/L | 5 | < 0.4 | U | | | < 0.4 | U | < 0.4 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | |
| 1,3,5-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | |
| 1,3-Dichlorobenzene | µg/L | 3,100 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | |
| 1,3-Dichloropropane | µg/L | 29 | < 0.4 | U | | | < 0.4 | U | < 0.4 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | |
| 1,4-Dichlorobenzene | µg/L | 75 | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | |
| 2,2-Dichloropropane | µg/L | 42 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | |
| 2-Butanone | µg/L | 61,000 | < 5 | U | | | < 5 | U | < 5 | U | < 2 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | | |
| 2-Chlorotoluene | µg/L | 2,000 | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | |
| 2-Hexanone | µg/L | 6,100 | < 5 | U | | | < 5 | U | < 5 | U | < 2 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 2 | U | | |
| 4-Chlorotoluene | µg/L | 2,000 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | |
| Acetone | µg/L | 92,000 | < 5 | U | | | < 5 | U | < 5 | U | < 2 | U | < 1 | U | < 2 | U | < 3.2 | U | < 1 | U | < 1 | U | | |
| Benzene | µg/L | 5 | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | |
| Bromobenzene | µg/L | 2,000 | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | |
| Bromochloromethane | µg/L | 4,100 | < 0.4 | U | | | < 0.4 | U | < 0.4 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | |
| Bromodichloromethane | µg/L | 4.6 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | |
| Bromoform | µg/L | 36 | < 1 | U | | | < 1 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | |
| Bromomethane | µg/L | 140 | < 1 | U | | | < 1 | UJ | < 1 | UJ | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | |
| Carbon disulfide | µg/L | 10,000 | < 1 | U | | | < 1 | U | < 1 | U | < 2 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | | |
| Carbon tetrachloride | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | |
| Chlorobenzene | µg/L | 100 | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | |
| Chloroethane | µg/L | 41,000 | < 1 | U | | | < 1 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | |
| Chloroform | µg/L | 1,000 | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | |
| Chloromethane | µg/L | 220 | < 1 | U | | | < 1 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | |
| cis-1,2-Dichloroethene | µg/L | 70 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | |
| cis-1,3-Dichloropropene | µg/L | 5.3 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | |
| Dibromochloromethane | µg/L | 34 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | |
| Dibromomethane | µg/L | 380 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | |
| Dichlorodifluoromethane | µg/L | 20,000 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | UJ | < 0.5 | U | < 0.5 | U | < 0.5 | U | | |
| Ethylbenzene | µg/L | 700 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | |
| Hexachlorobutadiene | µg/L | 20 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 1 | U | | |
| Isopropylbenzene | µg/L | 10,000 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | |
| m,p-Xylenes | µg/L | 10,000 | < 1 | U | | | < 1 | U | < 1 | U | < 2 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | | |
| Methyl isobutyl ketone | µg/L | 8,200 | < 5 | U | | | < 5 | U | < 5 | U | < 2 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 2 | U | | |
| Methylene chloride | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 2 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | | |
| Naphthalene | µg/L | 2,000 | < 0.4 | U | | | < 0.4 | U | < 0.4 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | UJ | < 0.5 | U | | |
| n-Butylbenzene | µg/L | 4,100 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | |
| n-Propylbenzene | µg/L | 4,100 | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | |
| o-Xylene | µg/L | 10,000 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | |
| p-Isopropyltoluene | µg/L | 10,000 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | |
| sec-Butylbenzene | µg/L | 4,100 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | |
| Styrene | µg/L | 100 | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | |
| tert-Butylbenzene | µg/L | 4,100 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | |
| Tetrachloroethene | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | |
| Toluene | µg/L | 1,000 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | |
| trans-1,2-Dichloroethene | µg/L | 100 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | |
| trans-1,3-Dichloropropene | µg/L | 29 | < 1 | U | | | < 1 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | |
| Trichloroethene | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | |
| Trichlorofluoromethane | µg/L | 31,000 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | |
| Vinyl chloride | µg/L | 2 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW09A | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW09A-092713 | | 67WW09A-092713-FD | | 67WW09A-140123 | | 67WW09A-012314 | | 67WW09A-140506 | | 67WW09A-050614 | | 67WW09A-140724 | | 67WW09AFD-072414 | | 67WW09A-072414 | | 67WW09A-141203 | | 67WW09A-120314 | |
| | | Sample Date | 9/27/2013 | | 9/27/2013 | | 1/23/2014 | | 1/23/2014 | | 5/6/2014 | | 5/6/2014 | | 7/24/2014 | | 7/24/2014 | | 7/24/2014 | | 12/3/2014 | | 12/3/2014 | |
| | | Sample Purpose | REG | | FD | | REG | | REG | | REG | | REG | | REG | | FD | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| **ANIONS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Chloride | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Nitrate | mg/L | 10 | | | | | | | | | | | | | | | | | | | | | | |
| Nitrite | mg/L | 1 | | | | | | | | | | | | | | | | | | | | | | |
| Sulfate | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Sulfide | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **TOTAL ORGANIC CARBON** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Inorganic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Total Organic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **DHC** | | | | | | | | | | | | | | | | | | | | | | | | |
| BVC | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dehalococcoides | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| **FIELD TESTS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Conductivity | mS/cm | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | 1.19 | | | | 0.59 | | 0.59 | | 0.46 | | 0.46 | | 0.12 | | | | 0.12 | | 0 | | 0 | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Flow Rate | mL/Min | NV | | | | | | | | | | | | | | | | | | | | | | |
| Measured well depth | Ft BTOC | NV | | | | | | | | | | | | | | | | | | | | | | |
| Oxidation-Reduction Potential | mV | NV | 182 | | | | 18 | | 18 | | 20 | | 20 | | 26 | | | | 26 | | 30 | | 30 | |
| pH | SU | NV | 5.62 | | | | 6.73 | | 6.73 | | 5.55 | | 5.55 | | 6.89 | | | | 6.89 | | 6.5 | | 6.5 | |
| Temperature | C | NV | 28.67 | | | | 15.63 | | 15.63 | | 19.01 | | 19.01 | | 24.26 | | | | 24.26 | | 18.75 | | 18.75 | |
| Turbidity | NTU | NV | 21.5 | | | | 32.1 | | 32.1 | | 20.7 | | 20.7 | | 5.8 | | | | 5.8 | | 4.3 | | 4.3 | |
| **GASES** | | | | | | | | | | | | | | | | | | | | | | | | |
| Carbon dioxide | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethylene | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Methane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **GENERAL CHEMISTRY** | | | | | | | | | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **SEMIVOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,4-Dioxane | µg/L | 26 | | | | | | | | | | | | | | | | | | | | | | |
| **VOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | µg/L | 110 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U |
| 1,1,1-Trichloroethane | µg/L | 200 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U |
| 1,1,2,2-Tetrachloroethane | µg/L | 14 | < 0.4 | U | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | < 0.4 | U | | | < 0.4 | U |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | µg/L | 3,100,000 | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,2-Trichloroethane | µg/L | 5 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U |
| 1,1-Dichloroethane | µg/L | 10,000 | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U |
| 1,1-Dichloroethene | µg/L | 7 | < 1 | U | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | | | < 1 | U |
| 1,1-Dichloropropene | µg/L | 2.9 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U |
| 1,2,3-Trichlorobenzene | µg/L | 310 | < 0.3 | U | < 0.3 | U | | | < 0.3 | U | | | < 0.3 | U | | | < 0.3 | U | < 0.3 | U | | | < 0.3 | U |
| 1,2,3-Trichloropropane | µg/L | 0.041 | < 1 | U | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | | | < 1 | U |
| 1,2,4-Trichlorobenzene | µg/L | 70 | < 0.4 | U | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | < 0.4 | U | | | < 0.4 | U |
| 1,2,4-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U |
| 1,2-Dibromo-3-chloropropane | µg/L | 0.2 | < 2 | U | < 2 | U | | | < 2 | UJ | | | < 2 | U | | | < 2 | U | < 2 | U | | | < 2 | U |
| 1,2-Dibromoethane | µg/L | 0.05 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U |
| 1,2-Dichlorobenzene | µg/L | 600 | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U |
| 1,2-Dichloroethane | µg/L | 5 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW09A | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW09A-092713 | | 67WW09A-092713-FD | | 67WW09A-140123 | | 67WW09A-012314 | | 67WW09A-140506 | | 67WW09A-050614 | | 67WW09A-140724 | | 67WW09AFD-072414 | | 67WW09A-072414 | | 67WW09A-141203 | | 67WW09A-120314 | |
| | | Sample Date | 9/27/2013 | | 9/27/2013 | | 1/23/2014 | | 1/23/2014 | | 5/6/2014 | | 5/6/2014 | | 7/24/2014 | | 7/24/2014 | | 7/24/2014 | | 12/3/2014 | | 12/3/2014 | |
| | | Sample Purpose | REG | | FD | | REG | | REG | | REG | | REG | | REG | | FD | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,2-Dichloropropane | µg/L | 5 | < 0.4 | U | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | < 0.4 | U | | | < 0.4 | U |
| 1,3,5-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U |
| 1,3-Dichlorobenzene | µg/L | 3,100 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U |
| 1,3-Dichloropropane | µg/L | 29 | < 0.4 | U | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | < 0.4 | U | | | < 0.4 | U |
| 1,4-Dichlorobenzene | µg/L | 75 | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U |
| 2,2-Dichloropropane | µg/L | 42 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U |
| 2-Butanone | µg/L | 61,000 | < 5 | U | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | < 5 | U | | | < 5 | U |
| 2-Chlorotoluene | µg/L | 2,000 | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U |
| 2-Hexanone | µg/L | 6,100 | < 5 | U | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | < 5 | U | | | < 5 | U |
| 4-Chlorotoluene | µg/L | 2,000 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U |
| Acetone | µg/L | 92,000 | < 5 | U | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | < 5 | U | | | < 5 | U |
| Benzene | µg/L | 5 | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U |
| Bromobenzene | µg/L | 2,000 | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U |
| Bromochloromethane | µg/L | 4,100 | < 0.4 | U | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | < 0.4 | U | | | < 0.4 | U |
| Bromodichloromethane | µg/L | 4.6 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U |
| Bromoform | µg/L | 36 | < 1 | U | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | | | < 1 | U |
| Bromomethane | µg/L | 140 | < 1 | U | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | | | < 1 | U |
| Carbon disulfide | µg/L | 10,000 | < 1 | U | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | | | < 1 | U |
| Carbon tetrachloride | µg/L | 5 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U |
| Chlorobenzene | µg/L | 100 | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U |
| Chloroethane | µg/L | 41,000 | < 1 | U | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | | | < 1 | U |
| Chloroform | µg/L | 1,000 | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U |
| Chloromethane | µg/L | 220 | < 1 | U | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | | | < 1 | U |
| cis-1,2-Dichloroethene | µg/L | 70 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U |
| cis-1,3-Dichloropropene | µg/L | 5.3 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U |
| Dibromochloromethane | µg/L | 34 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U |
| Dibromomethane | µg/L | 380 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U |
| Dichlorodifluoromethane | µg/L | 20,000 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U |
| Ethylbenzene | µg/L | 700 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U |
| Hexachlorobutadiene | µg/L | 20 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U |
| Isopropylbenzene | µg/L | 10,000 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U |
| m,p-Xylenes | µg/L | 10,000 | < 1 | U | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | | | < 1 | U |
| Methyl isobutyl ketone | µg/L | 8,200 | < 5 | U | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | < 5 | U | | | < 5 | U |
| Methylene chloride | µg/L | 5 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U |
| Naphthalene | µg/L | 2,000 | < 0.4 | U | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | < 0.4 | U | | | < 0.4 | U |
| n-Butylbenzene | µg/L | 4,100 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U |
| n-Propylbenzene | µg/L | 4,100 | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U |
| o-Xylene | µg/L | 10,000 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U |
| p-Isopropyltoluene | µg/L | 10,000 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U |
| sec-Butylbenzene | µg/L | 4,100 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U |
| Styrene | µg/L | 100 | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U |
| tert-Butylbenzene | µg/L | 4,100 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U |
| Tetrachloroethene | µg/L | 5 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U |
| Toluene | µg/L | 1,000 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U |
| trans-1,2-Dichloroethene | µg/L | 100 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U |
| trans-1,3-Dichloropropene | µg/L | 29 | < 1 | U | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | | | < 1 | U |
| Trichloroethene | µg/L | 5 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U |
| Trichlorofluoromethane | µg/L | 31,000 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U |
| Vinyl chloride | µg/L | 2 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW09A | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW09AFD-120314 | | 67WW09A-150210 | | 67WW09A-021015 | | 67WW09A-150512 | | 67WW09A-051215 | | 67WW09A-151118 | | 67WW09A-111815 | | 67WW09A-160518 | | 67WW09A-051816 | | 67WW09A-112917 | | 67WW09A-180503 | |
| | | Sample Date | 12/3/2014 | | 2/10/2015 | | 2/10/2015 | | 5/12/2015 | | 5/12/2015 | | 11/18/2015 | | 11/18/2015 | | 5/18/2016 | | 5/18/2016 | | 11/29/2017 | | 5/3/2018 | |
| | | Sample Purpose | FD | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| **ANIONS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Chloride | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Nitrate | mg/L | 10 | | | | | | | | | | | | | | | | | | | | | | |
| Nitrite | mg/L | 1 | | | | | | | | | | | | | | | | | | | | | | |
| Sulfate | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Sulfide | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **TOTAL ORGANIC CARBON** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Inorganic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Total Organic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **DHC** | | | | | | | | | | | | | | | | | | | | | | | | |
| BVC | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dehalococcoides | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| **FIELD TESTS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Conductivity | mS/cm | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | | | 0 | | 0 | | 0.47 | | 0.47 | | 0 | | 0 | | 0.42 | | 0.42 | | 0.16 | | 0.29 | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Flow Rate | mL/Min | NV | | | | | | | | | | | | | | | | | | | 100 | | 100 | |
| Measured well depth | Ft BTOC | NV | | | | | | | | | | | | | | | | | | | 38.7 | | 38.76 | |
| Oxidation-Reduction Potentia | mV | NV | | | -12 | | -12 | | 112 | | 112 | | 127 | | 127 | | 137 | | 137 | | 128 | | 243 | |
| pH | SU | NV | | | 7.13 | | 7.13 | | 5.67 | | 5.67 | | 5.81 | | 5.81 | | 5.64 | | 5.64 | | 5.94 | | 5.74 | |
| Temperature | C | NV | | | 17.83 | | 17.83 | | 18.84 | | 18.84 | | 18.3 | | 18.3 | | 18.55 | | 18.55 | | 19.55 | | 20.34 | |
| Turbidity | NTU | NV | | | 20.8 | | 20.8 | | 31.3 | | 31.3 | | 12 | | 12 | | 0 | | 0 | | 0 | | 5.3 | |
| **GASES** | | | | | | | | | | | | | | | | | | | | | | | | |
| Carbon dioxide | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethylene | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Methane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **GENERAL CHEMISTRY** | | | | | | | | | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **SEMIVOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,4-Dioxane | µg/L | 26 | | | | | | | | | | | | | | | | | | | 3.6 | | | |
| **VOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | µg/L | 110 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| 1,1,1-Trichloroethane | µg/L | 200 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| 1,1,2,2-Tetrachloroethane | µg/L | 14 | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | < 1 | U | < 0.5 | U |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | µg/L | 3,100,000 | | | | | | | | | | | | | | | | | | | < 1 | U | < 0.5 | U |
| 1,1,2-Trichloroethane | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| 1,1-Dichloroethane | µg/L | 10,000 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 1 | U | < 0.5 | U |
| 1,1-Dichloroethene | µg/L | 7 | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | < 0.5 | U |
| 1,1-Dichloropropene | µg/L | 2.9 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| 1,2,3-Trichlorobenzene | µg/L | 310 | < 0.3 | U | | | < 0.3 | U | | | < 0.3 | U | | | < 0.3 | U | | | < 0.3 | U | < 1 | U | < 0.5 | U |
| 1,2,3-Trichloropropane | µg/L | 0.041 | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | < 0.5 | U |
| 1,2,4-Trichlorobenzene | µg/L | 70 | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | < 1 | U | < 0.5 | U |
| 1,2,4-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| 1,2-Dibromo-3-chloropropane | µg/L | 0.2 | < 2 | U | | | < 2 | U | | | < 2 | U | | | < 2 | U | | | < 2 | U | < 1 | U | < 0.5 | U |
| 1,2-Dibromoethane | µg/L | 0.05 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| 1,2-Dichlorobenzene | µg/L | 600 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 1 | U | < 0.5 | U |
| 1,2-Dichloroethane | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW09A | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW09AFD-120314 | | 67WW09A-150210 | | 67WW09A-021015 | | 67WW09A-150512 | | 67WW09A-051215 | | 67WW09A-151118 | | 67WW09A-111815 | | 67WW09A-160518 | | 67WW09A-051816 | | 67WW09A-112917 | | 67WW09A-180503 | |
| | | Sample Date | 12/3/2014 | | 2/10/2015 | | 2/10/2015 | | 5/12/2015 | | 5/12/2015 | | 11/18/2015 | | 11/18/2015 | | 5/18/2016 | | 5/18/2016 | | 11/29/2017 | | 5/3/2018 | |
| | | Sample Purpose | FD | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,2-Dichloropropane | µg/L | 5 | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | < 1 | U | < 0.5 | U |
| 1,3,5-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| 1,3-Dichlorobenzene | µg/L | 3,100 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| 1,3-Dichloropropane | µg/L | 29 | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | < 1 | U | < 0.5 | U |
| 1,4-Dichlorobenzene | µg/L | 75 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 1 | U | < 0.5 | U |
| 2,2-Dichloropropane | µg/L | 42 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| 2-Butanone | µg/L | 61,000 | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | < 2 | U | < 1 | U |
| 2-Chlorotoluene | µg/L | 2,000 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 1 | U | < 0.5 | U |
| 2-Hexanone | µg/L | 6,100 | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | < 2 | U | < 1 | U |
| 4-Chlorotoluene | µg/L | 2,000 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| Acetone | µg/L | 92,000 | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | < 2 | U | < 1 | U |
| Benzene | µg/L | 5 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 1 | U | < 0.5 | U |
| Bromobenzene | µg/L | 2,000 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 1 | U | < 0.5 | U |
| Bromochloromethane | µg/L | 4,100 | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | < 1 | U | < 0.5 | U |
| Bromodichloromethane | µg/L | 4.6 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| Bromoform | µg/L | 36 | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | < 0.5 | U |
| Bromomethane | µg/L | 140 | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | < 0.5 | U |
| Carbon disulfide | µg/L | 10,000 | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 2 | U | < 1 | U |
| Carbon tetrachloride | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| Chlorobenzene | µg/L | 100 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 1 | U | < 0.5 | U |
| Chloroethane | µg/L | 41,000 | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | < 0.5 | U |
| Chloroform | µg/L | 1,000 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 1 | U | < 0.5 | U |
| Chloromethane | µg/L | 220 | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | < 0.5 | U |
| cis-1,2-Dichloroethene | µg/L | 70 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| cis-1,3-Dichloropropene | µg/L | 5.3 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| Dibromochloromethane | µg/L | 34 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| Dibromomethane | µg/L | 380 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| Dichlorodifluoromethane | µg/L | 20,000 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| Ethylbenzene | µg/L | 700 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| Hexachlorobutadiene | µg/L | 20 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| Isopropylbenzene | µg/L | 10,000 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| m,p-Xylenes | µg/L | 10,000 | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 2 | U | < 1 | U |
| Methyl isobutyl ketone | µg/L | 8,200 | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | < 2 | U | < 1 | U |
| Methylene chloride | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 2 | U | < 1 | U |
| Naphthalene | µg/L | 2,000 | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | < 1 | U | < 0.5 | U |
| n-Butylbenzene | µg/L | 4,100 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| n-Propylbenzene | µg/L | 4,100 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 1 | U | < 0.5 | U |
| o-Xylene | µg/L | 10,000 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| p-Isopropyltoluene | µg/L | 10,000 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| sec-Butylbenzene | µg/L | 4,100 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| Styrene | µg/L | 100 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 1 | U | < 0.5 | U |
| tert-Butylbenzene | µg/L | 4,100 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| Tetrachloroethene | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| Toluene | µg/L | 1,000 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| trans-1,2-Dichloroethene | µg/L | 100 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| trans-1,3-Dichloropropene | µg/L | 29 | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | < 0.5 | U |
| Trichloroethene | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| Trichlorofluoromethane | µg/L | 31,000 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |
| Vinyl chloride | µg/L | 2 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW09A | | | | | | | | 67WW10 | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW09A-181025 | | 67WW09A-190502 | | 67WW09A-191028 | | 67WW09A-201102 | | 67WW10-130601 | | 67WW10-130927 | | 67WW10-092713 | | 67WW10-140124 | | 67WW10-012414 | | 67WW10-140506 | | 67WW10-050614 | |
| | | Sample Date | 10/25/2018 | | 5/2/2019 | | 10/28/2019 | | 11/2/2020 | | 6/1/2013 | | 9/27/2013 | | 9/27/2013 | | 1/24/2014 | | 1/24/2014 | | 5/6/2014 | | 5/6/2014 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| **ANIONS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Chloride | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Nitrate | mg/L | 10 | | | | | | | | | | | | | | | | | | | | | | |
| Nitrite | mg/L | 1 | | | | | | | | | | | | | | | | | | | | | | |
| Sulfate | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Sulfide | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **TOTAL ORGANIC CARBON** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Inorganic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Total Organic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **DHC** | | | | | | | | | | | | | | | | | | | | | | | | |
| BVC | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dehalococcoides | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| **FIELD TESTS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Conductivity | mS/cm | NV | | | | | | | 4.93 | | | | | | | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | 0.05 | | 0.09 | | 0.04 | | 0.06 | | 0.11 | | 0.6 | | 0.6 | | 0.54 | | 0.54 | | 0.44 | | 0.44 | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Flow Rate | mL/Min | NV | 100 | | 100 | | 100 | | 100 | | | | | | | | | | | | | | | |
| Measured well depth | Ft BTOC | NV | 38.71 | | 38.77 | | 37.62 | | | | | | | | | | | | | | | | | |
| Oxidation-Reduction Potentia | mV | NV | 138 | | 123 | | 71 | | 75 | | 190 | | -9 | | -9 | | 29 | | 29 | | 55 | | 55 | |
| pH | SU | NV | 6.04 | | 6 | | 6.22 | | 6.44 | | 6.27 | | 6.02 | | 6.02 | | 6.07 | | 6.07 | | 5.29 | | 5.29 | |
| Temperature | C | NV | 17.79 | | 20.80 | | 18.51 | | 19.86 | | 24.32 | | 25.2 | | 25.2 | | 15.1 | | 15.1 | | 20.2 | | 20.2 | |
| Turbidity | NTU | NV | 0 | | 24 | | 1.7 | | 0 | | 4.9 | | 1.6 | | 1.6 | | 0.4 | | 0.4 | | 2.6 | | 2.6 | |
| **GASES** | | | | | | | | | | | | | | | | | | | | | | | | |
| Carbon dioxide | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethylene | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Methane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **GENERAL CHEMISTRY** | | | | | | | | | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **SEMIVOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,4-Dioxane | µg/L | 26 | | | | | | | | | | | | | | | | | | | | | | |
| **VOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | µg/L | 110 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| 1,1,1-Trichloroethane | µg/L | 200 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| 1,1,2,2-Tetrachloroethane | µg/L | 14 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | µg/L | 3,100,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | | | | | | | | | | | | |
| 1,1,2-Trichloroethane | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| 1,1-Dichloroethane | µg/L | 10,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | 0.362 | J | | | 0.319 | J | | | < 0.25 | U |
| 1,1-Dichloroethene | µg/L | 7 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | < 1 | U | | | < 1 | U | | | < 1 | U |
| 1,1-Dichloropropene | µg/L | 2.9 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| 1,2,3-Trichlorobenzene | µg/L | 310 | < 0.5 | UJ | < 0.5 | U | < 0.5 | UJ | < 1 | U | | | | | < 0.3 | U | | | < 0.3 | U | | | < 0.3 | U |
| 1,2,3-Trichloropropane | µg/L | 0.041 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | | | < 1 | U | | | < 1 | U | | | < 1 | U |
| 1,2,4-Trichlorobenzene | µg/L | 70 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U |
| 1,2,4-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| 1,2-Dibromo-3-chloropropane | µg/L | 0.2 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | < 2 | U | | | < 2 | U | | | < 2 | U |
| 1,2-Dibromoethane | µg/L | 0.05 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| 1,2-Dichlorobenzene | µg/L | 600 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U |
| 1,2-Dichloroethane | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW09A | | | | | | | | 67WW10 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW09A-181025 | | 67WW09A-190502 | | 67WW09A-191028 | | 67WW09A-201102 | | 67WW10-130601 | | 67WW10-130927 | | 67WW10-092713 | | 67WW10-140124 | | 67WW10-012414 | | 67WW10-140506 | | 67WW10-050614 | |
| | | Sample Date | 10/25/2018 | | 5/2/2019 | | 10/28/2019 | | 11/2/2020 | | 6/1/2013 | | 9/27/2013 | | 9/27/2013 | | 1/24/2014 | | 1/24/2014 | | 5/6/2014 | | 5/6/2014 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,2-Dichloropropane | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U |
| 1,3,5-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| 1,3-Dichlorobenzene | µg/L | 3,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| 1,3-Dichloropropane | µg/L | 29 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U |
| 1,4-Dichlorobenzene | µg/L | 75 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U |
| 2,2-Dichloropropane | µg/L | 42 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | UJ |
| 2-Butanone | µg/L | 61,000 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | | | | | < 5 | U | | | < 5 | U | | | < 5 | U |
| 2-Chlorotoluene | µg/L | 2,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U |
| 2-Hexanone | µg/L | 6,100 | < 1 | U | < 1 | U | < 1 | U | < 2 | U | | | | | < 5 | U | | | < 5 | U | | | < 5 | U |
| 4-Chlorotoluene | µg/L | 2,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Acetone | µg/L | 92,000 | < 2 | U | < 5 | U | < 1 | U | < 1 | U | | | | | < 5 | U | | | < 5 | U | | | < 5 | U |
| Benzene | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U |
| Bromobenzene | µg/L | 2,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U |
| Bromochloromethane | µg/L | 4,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U |
| Bromodichloromethane | µg/L | 4.6 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Bromoform | µg/L | 36 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | < 1 | U | | | < 1 | U | | | < 1 | U |
| Bromomethane | µg/L | 140 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | < 1 | U | | | < 1 | U | | | < 1 | U |
| Carbon disulfide | µg/L | 10,000 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | | | | | < 1 | U | | | < 1 | U | | | < 1 | U |
| Carbon tetrachloride | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Chlorobenzene | µg/L | 100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U |
| Chloroethane | µg/L | 41,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | < 1 | U | | | < 1 | U | | | < 1 | U |
| Chloroform | µg/L | 1,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U |
| Chloromethane | µg/L | 220 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | < 1 | U | | | < 1 | U | | | < 1 | U |
| cis-1,2-Dichloroethene | µg/L | 70 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| cis-1,3-Dichloropropene | µg/L | 5.3 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Dibromochloromethane | µg/L | 34 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Dibromomethane | µg/L | 380 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Dichlorodifluoromethane | µg/L | 20,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Ethylbenzene | µg/L | 700 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Hexachlorobutadiene | µg/L | 20 | < 1 | U | < 1 | U | < 0.5 | U | < 1 | U | | | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Isopropylbenzene | µg/L | 10,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| m,p-Xylenes | µg/L | 10,000 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | | | | | < 1 | U | | | < 1 | U | | | < 1 | U |
| Methyl isobutyl ketone | µg/L | 8,200 | < 1 | U | < 1 | U | < 1 | U | < 2 | U | | | | | < 5 | U | | | < 5 | U | | | < 5 | U |
| Methylene chloride | µg/L | 5 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | | | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Naphthalene | µg/L | 2,000 | < 0.5 | UJ | < 0.5 | U | < 0.5 | UJ | < 0.5 | U | | | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U |
| n-Butylbenzene | µg/L | 4,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| n-Propylbenzene | µg/L | 4,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U |
| o-Xylene | µg/L | 10,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| p-Isopropyltoluene | µg/L | 10,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| sec-Butylbenzene | µg/L | 4,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Styrene | µg/L | 100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U |
| tert-Butylbenzene | µg/L | 4,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Tetrachloroethene | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Toluene | µg/L | 1,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| trans-1,2-Dichloroethene | µg/L | 100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| trans-1,3-Dichloropropene | µg/L | 29 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | < 1 | U | | | < 1 | U | | | < 1 | U |
| Trichloroethene | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Trichlorofluoromethane | µg/L | 31,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Vinyl chloride | µg/L | 2 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW10 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW10-140724 | | 67WW10-072414 | | 67WW10-141203 | | 67WW10-120314 | | 67WW10-150210 | | 67WW10-021015 | | 67WW10-150512 | | 67WW10-051215 | | 67WW10-151118 | | 67WW10-111815 | | 67WW10-160518 | |
| | | Sample Date | 7/24/2014 | | 7/24/2014 | | 12/3/2014 | | 12/3/2014 | | 2/10/2015 | | 2/10/2015 | | 5/12/2015 | | 5/12/2015 | | 11/18/2015 | | 11/18/2015 | | 5/18/2016 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| **ANIONS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Chloride | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Nitrate | mg/L | 10 | | | | | | | | | | | | | | | | | | | | | | |
| Nitrite | mg/L | 1 | | | | | | | | | | | | | | | | | | | | | | |
| Sulfate | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Sulfide | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **TOTAL ORGANIC CARBON** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Inorganic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Total Organic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **DHC** | | | | | | | | | | | | | | | | | | | | | | | | |
| BVC | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dehalococcoides | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| **FIELD TESTS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Conductivity | mS/cm | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | 0.52 | | 0.52 | | 0 | | 0 | | 0 | | 0 | | 0.64 | | 0.64 | | 0.1 | | 0.1 | | 0.5 | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Flow Rate | mL/Min | NV | | | | | | | | | | | | | | | | | | | | | | |
| Measured well depth | Ft BTOC | NV | | | | | | | | | | | | | | | | | | | | | | |
| Oxidation-Reduction Potentia | mV | NV | 174 | | 174 | | 83 | | 83 | | 25 | | 25 | | 117 | | 117 | | 68 | | 68 | | 163 | |
| pH | SU | NV | 5.59 | | 5.59 | | 5.56 | | 5.56 | | 6.18 | | 6.18 | | 5.53 | | 5.53 | | 5.77 | | 5.77 | | 5.02 | |
| Temperature | C | NV | 22.24 | | 22.24 | | 19.2 | | 19.2 | | 17.33 | | 17.33 | | 18.78 | | 18.78 | | 17.68 | | 17.68 | | 18.66 | |
| Turbidity | NTU | NV | 54.7 | | 54.7 | | 9.1 | | 9.1 | | 0 | | 0 | | 217 | | 217 | | 90.8 | | 90.8 | | 30.9 | |
| **GASES** | | | | | | | | | | | | | | | | | | | | | | | | |
| Carbon dioxide | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethylene | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Methane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **GENERAL CHEMISTRY** | | | | | | | | | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **SEMIVOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,4-Dioxane | µg/L | 26 | | | | | | | | | | | | | | | | | | | | | | |
| **VOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | µg/L | 110 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,1,1-Trichloroethane | µg/L | 200 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,1,2,2-Tetrachloroethane | µg/L | 14 | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | µg/L | 3,100,000 | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,2-Trichloroethane | µg/L | 5 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,1-Dichloroethane | µg/L | 10,000 | | | < 0.25 | U | | | 0.173 | J | | | < 0.25 | U | | | < 0.25 | U | | | 0.14 | J | | |
| 1,1-Dichloroethene | µg/L | 7 | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | |
| 1,1-Dichloropropene | µg/L | 2.9 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,2,3-Trichlorobenzene | µg/L | 310 | | | < 0.3 | U | | | < 0.3 | U | | | < 0.3 | U | | | < 0.3 | U | | | < 0.3 | U | | |
| 1,2,3-Trichloropropane | µg/L | 0.041 | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | |
| 1,2,4-Trichlorobenzene | µg/L | 70 | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | |
| 1,2,4-Trimethylbenzene | µg/L | 5,100 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,2-Dibromo-3-chloropropane | µg/L | 0.2 | | | < 2 | U | | | < 2 | U | | | < 2 | U | | | < 2 | U | | | < 2 | U | | |
| 1,2-Dibromoethane | µg/L | 0.05 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,2-Dichlorobenzene | µg/L | 600 | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| 1,2-Dichloroethane | µg/L | 5 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW10 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW10-140724 | | 67WW10-072414 | | 67WW10-141203 | | 67WW10-120314 | | 67WW10-150210 | | 67WW10-021015 | | 67WW10-150512 | | 67WW10-051215 | | 67WW10-151118 | | 67WW10-111815 | | 67WW10-160518 | |
| | | Sample Date | 7/24/2014 | | 7/24/2014 | | 12/3/2014 | | 12/3/2014 | | 2/10/2015 | | 2/10/2015 | | 5/12/2015 | | 5/12/2015 | | 11/18/2015 | | 11/18/2015 | | 5/18/2016 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,2-Dichloropropane | µg/L | 5 | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | |
| 1,3,5-Trimethylbenzene | µg/L | 5,100 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,3-Dichlorobenzene | µg/L | 3,100 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,3-Dichloropropane | µg/L | 29 | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | |
| 1,4-Dichlorobenzene | µg/L | 75 | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| 2,2-Dichloropropane | µg/L | 42 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 2-Butanone | µg/L | 61,000 | | | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | | |
| 2-Chlorotoluene | µg/L | 2,000 | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| 2-Hexanone | µg/L | 6,100 | | | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | UJ | | | < 5 | U | | |
| 4-Chlorotoluene | µg/L | 2,000 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Acetone | µg/L | 92,000 | | | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | | |
| Benzene | µg/L | 5 | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| Bromobenzene | µg/L | 2,000 | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| Bromochloromethane | µg/L | 4,100 | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | |
| Bromodichloromethane | µg/L | 4.6 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Bromoform | µg/L | 36 | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | |
| Bromomethane | µg/L | 140 | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | |
| Carbon disulfide | µg/L | 10,000 | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | |
| Carbon tetrachloride | µg/L | 5 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Chlorobenzene | µg/L | 100 | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| Chloroethane | µg/L | 41,000 | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | |
| Chloroform | µg/L | 1,000 | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| Chloromethane | µg/L | 220 | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | |
| cis-1,2-Dichloroethene | µg/L | 70 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| cis-1,3-Dichloropropene | µg/L | 5.3 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Dibromochloromethane | µg/L | 34 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Dibromomethane | µg/L | 380 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Dichlorodifluoromethane | µg/L | 20,000 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Ethylbenzene | µg/L | 700 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Hexachlorobutadiene | µg/L | 20 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Isopropylbenzene | µg/L | 10,000 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| m,p-Xylenes | µg/L | 10,000 | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | |
| Methyl isobutyl ketone | µg/L | 8,200 | | | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | | |
| Methylene chloride | µg/L | 5 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Naphthalene | µg/L | 2,000 | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | |
| n-Butylbenzene | µg/L | 4,100 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| n-Propylbenzene | µg/L | 4,100 | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| o-Xylene | µg/L | 10,000 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| p-Isopropyltoluene | µg/L | 10,000 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| sec-Butylbenzene | µg/L | 4,100 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Styrene | µg/L | 100 | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| tert-Butylbenzene | µg/L | 4,100 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Tetrachloroethene | µg/L | 5 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Toluene | µg/L | 1,000 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| trans-1,2-Dichloroethene | µg/L | 100 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| trans-1,3-Dichloropropene | µg/L | 29 | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | |
| Trichloroethene | µg/L | 5 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Trichlorofluoromethane | µg/L | 31,000 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Vinyl chloride | µg/L | 2 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW10 | | | | | | | | | | | | | | 67WW11 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW10-051816 | | 67WW10-112917 | | 67WW10-180503 | | 67WW10-181022 | | 67WW10-190502 | | 67WW10-191028 | | 67WW10-201102 | | 67WW11-130601 | | 67WW11-060113-FD | | 67WW11-060113 | | 67WW11-131002 | |
| | | Sample Date | 5/18/2016 | | 11/29/2017 | | 5/3/2018 | | 10/22/2018 | | 5/2/2019 | | 10/28/2019 | | 11/2/2020 | | 6/1/2013 | | 6/1/2013 | | 6/1/2013 | | 10/2/2013 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | FD | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| **ANIONS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Chloride | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Nitrate | mg/L | 10 | | | | | | | | | | | | | | | | | | | | | | |
| Nitrite | mg/L | 1 | | | | | | | | | | | | | | | | | | | | | | |
| Sulfate | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Sulfide | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **TOTAL ORGANIC CARBON** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Inorganic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Total Organic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **DHC** | | | | | | | | | | | | | | | | | | | | | | | | |
| BVC | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dehalococcoides | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| **FIELD TESTS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Conductivity | mS/cm | NV | | | | | | | | | | | | | 5.58 | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | 0.5 | | 0.32 | | 0.29 | | 0.18 | | 0.06 | | 0.03 | | 0.15 | | 1.17 | | | | 1.17 | | 0.63 | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Flow Rate | mL/Min | NV | | | 100 | | 100 | | 100 | | 100 | | 100 | | 100 | | | | | | | | | |
| Measured well depth | Ft BTOC | NV | | | 50.65 | | 50.6 | | 50.9 | | 50.8 | | 50.68 | | | | | | | | | | | |
| Oxidation-Reduction Potentia | mV | NV | 163 | | 221 | | 283 | | 178 | | 157 | | 164 | | 115 | | 168 | | | | 168 | | 64 | |
| pH | SU | NV | 5.02 | | 5.01 | | 4.96 | | 5.51 | | 5.37 | | 5.34 | | 5.62 | | 6.78 | | | | 6.78 | | 6.23 | |
| Temperature | C | NV | 18.66 | | 19.32 | | 20.94 | | 18.54 | | 20.46 | | 18.48 | | 19.34 | | 23.9 | | | | 23.9 | | 22.65 | |
| Turbidity | NTU | NV | 30.9 | | 42 | | 26 | | 31.2 | | 25.4 | | 160 | | 57.1 | | 9.6 | | | | 9.6 | | 4 | |
| **GASES** | | | | | | | | | | | | | | | | | | | | | | | | |
| Carbon dioxide | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethylene | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Methane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **GENERAL CHEMISTRY** | | | | | | | | | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **SEMIVOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,4-Dioxane | µg/L | 26 | | | 0.23 | | | | | | | | | | | | | | | | | | | |
| **VOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | µg/L | 110 | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | |
| 1,1,1-Trichloroethane | µg/L | 200 | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | |
| 1,1,2,2-Tetrachloroethane | µg/L | 14 | < 0.4 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.2 | UJ | < 0.2 | UJ | | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | µg/L | 3,100,000 | | | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | | | | | | |
| 1,1,2-Trichloroethane | µg/L | 5 | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | |
| 1,1-Dichloroethane | µg/L | 10,000 | < 0.25 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | 10.6 | | 10.6 | | | |
| 1,1-Dichloroethene | µg/L | 7 | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | 46.8 | | 47.1 | | | |
| 1,1-Dichloropropene | µg/L | 2.9 | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | |
| 1,2,3-Trichlorobenzene | µg/L | 310 | < 0.3 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | UJ | < 1 | U | | | < 0.15 | U | < 0.15 | U | | |
| 1,2,3-Trichloropropane | µg/L | 0.041 | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | < 0.5 | U | < 0.5 | U | | |
| 1,2,4-Trichlorobenzene | µg/L | 70 | < 0.4 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | < 0.2 | U | < 0.2 | U | | |
| 1,2,4-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | |
| 1,2-Dibromo-3-chloropropane | µg/L | 0.2 | < 2 | U | < 1 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 1 | UJ | < 1 | UJ | | |
| 1,2-Dibromoethane | µg/L | 0.05 | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | |
| 1,2-Dichlorobenzene | µg/L | 600 | < 0.25 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | < 0.125 | U | < 0.125 | U | | |
| 1,2-Dichloroethane | µg/L | 5 | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | 0.85 | J | 0.869 | J | | |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW10 | | | | | | | | | | | | | | 67WW11 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW10-051816 | | 67WW10-112917 | | 67WW10-180503 | | 67WW10-181022 | | 67WW10-190502 | | 67WW10-191028 | | 67WW10-201102 | | 67WW11-130601 | | 67WW11-060113-FD | | 67WW11-060113 | | 67WW11-131002 | |
| | | Sample Date | 5/18/2016 | | 11/29/2017 | | 5/3/2018 | | 10/22/2018 | | 5/2/2019 | | 10/28/2019 | | 11/2/2020 | | 6/1/2013 | | 6/1/2013 | | 6/1/2013 | | 10/2/2013 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | FD | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,2-Dichloropropane | µg/L | 5 | < 0.4 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.2 | U | < 0.2 | U | | |
| 1,3,5-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | |
| 1,3-Dichlorobenzene | µg/L | 3,100 | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | < 0.25 | U | < 0.25 | U | | |
| 1,3-Dichloropropane | µg/L | 29 | < 0.4 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.2 | U | < 0.2 | U | | |
| 1,4-Dichlorobenzene | µg/L | 75 | < 0.25 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | < 0.125 | U | < 0.125 | U | | |
| 2,2-Dichloropropane | µg/L | 42 | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | |
| 2-Butanone | µg/L | 61,000 | < 5 | U | < 2 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | | | < 2.5 | U | < 2.5 | U | | |
| 2-Chlorotoluene | µg/L | 2,000 | < 0.25 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.125 | U | < 0.125 | U | | |
| 2-Hexanone | µg/L | 6,100 | < 5 | U | < 2 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 2 | U | | | < 2.5 | U | < 2.5 | U | | |
| 4-Chlorotoluene | µg/L | 2,000 | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | < 0.25 | U | < 0.25 | U | | |
| Acetone | µg/L | 92,000 | < 5 | U | < 2 | U | < 1 | U | < 2 | U | < 7.8 | U | < 1 | U | < 1 | U | | | < 2.5 | U | < 2.5 | U | | |
| Benzene | µg/L | 5 | < 0.25 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.125 | U | < 0.125 | U | | |
| Bromobenzene | µg/L | 2,000 | < 0.25 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | < 0.125 | U | < 0.125 | U | | |
| Bromochloromethane | µg/L | 4,100 | < 0.4 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.2 | U | < 0.2 | U | | |
| Bromodichloromethane | µg/L | 4.6 | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | |
| Bromoform | µg/L | 36 | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | |
| Bromomethane | µg/L | 140 | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | UJ | < 0.5 | UJ | | |
| Carbon disulfide | µg/L | 10,000 | < 1 | U | < 2 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | | | < 0.5 | U | < 0.5 | U | | |
| Carbon tetrachloride | µg/L | 5 | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | |
| Chlorobenzene | µg/L | 100 | < 0.25 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.125 | U | < 0.125 | U | | |
| Chloroethane | µg/L | 41,000 | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | |
| Chloroform | µg/L | 1,000 | < 0.25 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.125 | U | < 0.125 | U | | |
| Chloromethane | µg/L | 220 | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | |
| cis-1,2-Dichloroethene | µg/L | 70 | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | |
| cis-1,3-Dichloropropene | µg/L | 5.3 | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | |
| Dibromochloromethane | µg/L | 34 | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | |
| Dibromomethane | µg/L | 380 | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | |
| Dichlorodifluoromethane | µg/L | 20,000 | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | UJ | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | UJ | < 0.25 | UJ | | |
| Ethylbenzene | µg/L | 700 | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | |
| Hexachlorobutadiene | µg/L | 20 | < 0.5 | U | < 1 | U | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 1 | U | | | < 0.25 | U | < 0.25 | U | | |
| Isopropylbenzene | µg/L | 10,000 | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | |
| m,p-Xylenes | µg/L | 10,000 | < 1 | U | < 2 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | | | < 0.5 | U | < 0.5 | U | | |
| Methyl isobutyl ketone | µg/L | 8,200 | < 5 | U | < 2 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 2 | U | | | < 2.5 | U | < 2.5 | U | | |
| Methylene chloride | µg/L | 5 | < 0.5 | U | < 2 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | | | < 0.25 | U | < 0.25 | U | | |
| Naphthalene | µg/L | 2,000 | < 0.4 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | UJ | < 0.5 | U | | | < 0.2 | U | < 0.2 | U | | |
| n-Butylbenzene | µg/L | 4,100 | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | < 0.25 | U | < 0.25 | U | | |
| n-Propylbenzene | µg/L | 4,100 | < 0.25 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.125 | U | < 0.125 | U | | |
| o-Xylene | µg/L | 10,000 | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | |
| p-Isopropyltoluene | µg/L | 10,000 | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | |
| sec-Butylbenzene | µg/L | 4,100 | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | |
| Styrene | µg/L | 100 | < 0.25 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.125 | U | < 0.125 | U | | |
| tert-Butylbenzene | µg/L | 4,100 | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | |
| Tetrachloroethene | µg/L | 5 | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | |
| Toluene | µg/L | 1,000 | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | |
| trans-1,2-Dichloroethene | µg/L | 100 | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | |
| trans-1,3-Dichloropropene | µg/L | 29 | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | |
| Trichloroethene | µg/L | 5 | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | |
| Trichlorofluoromethane | µg/L | 31,000 | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | |
| Vinyl chloride | µg/L | 2 | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW11 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW11-100213 | | 67WW11 FD-012314 | | 67WW11-140123 | | 67WW11FD-012314 | | 67WW11-012314 | | 67WW11-140506 | | 67WW11-072414 | | 67WW11-140724 | | 67WW11-141204 | | 67WW11-120414 | | 67WW11-150211 | |
| | | Sample Date | 10/2/2013 | | 1/23/2014 | | 1/23/2014 | | 1/23/2014 | | 1/23/2014 | | 5/6/2014 | | 7/24/2014 | | 7/24/2014 | | 12/4/2014 | | 12/4/2014 | | 2/11/2015 | |
| | | Sample Purpose | REG | | FD | | REG | | FD | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| **ANIONS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Chloride | mg/L | NV | | | | | | | | | | | | | | | | | | | 1,330 | | | |
| Nitrate | mg/L | 10 | < 2 | U | | | | | | | | | | | < 1 | U | | | | | < 2 | U | | |
| Nitrite | mg/L | 1 | < 2 | U | | | | | | | | | | | < 1 | U | | | | | 1.97 | J | | |
| Sulfate | mg/L | NV | 375 | | | | | | | | | | | | 414 | | | | | | 424 | | | |
| Sulfide | mg/L | NV | < 1 | U | | | | | | | | | | | | | | | | | | | | |
| **TOTAL ORGANIC CARBON** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Inorganic Carbon | mg/L | NV | 17.6 | | | | | | | | | | | | 49.4 | | | | | | 140 | | | |
| Total Organic Carbon | mg/L | NV | 5.7 | | | | | | | | | | | | 8.7 | | | | | | 9.1 | J | | |
| **DHC** | | | | | | | | | | | | | | | | | | | | | | | | |
| BVC | cells/mL | NV | 0.5 | U | | | | | | | | | | | | | | | | | | | | |
| Dehalococcoides | cells/mL | NV | 0.5 | U | | | | | | | | | | | | | | | | | | | | |
| **FIELD TESTS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Conductivity | mS/cm | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | 0.63 | | | | 0.48 | | | | 0.48 | | - | - | 1.07 | | 1.07 | | 0 | | 0 | | 0 | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Flow Rate | mL/Min | NV | | | | | | | | | | | | | | | | | | | | | | |
| Measured well depth | Ft BTOC | NV | | | | | | | | | | | | | | | | | | | | | | |
| Oxidation-Reduction Potentia | mV | NV | 64 | | | | 129 | | | | 129 | | - | - | 194 | | 194 | | 204 | | 204 | | 165 | |
| pH | SU | NV | 6.23 | | | | 5.84 | | | | 5.84 | | - | - | 6.72 | | 6.72 | | 5.63 | | 5.63 | | 6.04 | |
| Temperature | C | NV | 22.65 | | | | 17.25 | | | | 17.25 | | -99 | | 22 | | 22 | | 19.1 | | 19.1 | | 18.42 | |
| Turbidity | NTU | NV | 4 | | | | 1.9 | | | | 1.9 | | - | - | 2.9 | | 2.9 | | 5.6 | | 5.6 | | 4.7 | |
| **GASES** | | | | | | | | | | | | | | | | | | | | | | | | |
| Carbon dioxide | µg/L | NV | | | | | | | | | | | | | | | | | | | 364,000 | | | |
| Ethane | µg/L | NV | < 2 | U | | | | | | | | | | | < 2 | U | | | | | < 2 | U | | |
| Ethylene | µg/L | NV | < 2 | U | | | | | | | | | | | < 2 | U | | | | | < 2 | U | | |
| Methane | µg/L | NV | < 4.38 | U | | | | | | | | | | | < 2 | U | | | | | 2.41 | J | | |
| **GENERAL CHEMISTRY** | | | | | | | | | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ferrous Iron | mg/L | NV | < 0.04 | U | | | | | | | | | | | < 0.04 | U | | | | | < 0.04 | U | | |
| **SEMIVOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,4-Dioxane | µg/L | 26 | | | | | | | | | | | | | | | | | | | | | | |
| **VOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | µg/L | 110 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| 1,1,1-Trichloroethane | µg/L | 200 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| 1,1,2,2-Tetrachloroethane | µg/L | 14 | < 0.4 | U | < 0.4 | U | | | < 0.4 | U | < 0.4 | U | | | < 0.4 | U | | | | | < 0.4 | U | | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | µg/L | 3,100,000 | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,2-Trichloroethane | µg/L | 5 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| 1,1-Dichloroethane | µg/L | 10,000 | 10.6 | | 10.7 | | | | 10.7 | | 9.83 | | | | 10.4 | | | | | | 11.1 | | | |
| 1,1-Dichloroethene | µg/L | 7 | 42.8 | | 43 | | | | 43 | | 38.8 | | | | 34.5 | | | | | | 37.5 | | | |
| 1,1-Dichloropropene | µg/L | 2.9 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| 1,2,3-Trichlorobenzene | µg/L | 310 | < 0.3 | U | < 0.3 | U | | | < 0.3 | U | < 0.3 | U | | | < 0.3 | U | | | | | < 0.3 | U | | |
| 1,2,3-Trichloropropane | µg/L | 0.041 | < 1 | U | < 1 | U | | | < 1 | U | < 1 | U | | | < 1 | U | | | | | < 1 | U | | |
| 1,2,4-Trichlorobenzene | µg/L | 70 | < 0.4 | U | < 0.4 | U | | | < 0.4 | U | < 0.4 | U | | | < 0.4 | U | | | | | < 0.4 | U | | |
| 1,2,4-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| 1,2-Dibromo-3-chloropropane | µg/L | 0.2 | < 2 | U | < 2 | U | | | < 2 | U | < 2 | U | | | < 2 | U | | | | | < 2 | U | | |
| 1,2-Dibromoethane | µg/L | 0.05 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| 1,2-Dichlorobenzene | µg/L | 600 | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | | | | < 0.25 | U | | |
| 1,2-Dichloroethane | µg/L | 5 | 0.799 | J | 0.823 | J | | | 0.823 | J | 0.748 | J | | | 0.684 | J | | | | | 0.567 | J | | |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW11 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW11-100213 | | 67WW11 FD-012314 | | 67WW11-140123 | | 67WW11FD-012314 | | 67WW11-012314 | | 67WW11-140506 | | 67WW11-072414 | | 67WW11-140724 | | 67WW11-141204 | | 67WW11-120414 | | 67WW11-150211 | |
| | | Sample Date | 10/2/2013 | | 1/23/2014 | | 1/23/2014 | | 1/23/2014 | | 1/23/2014 | | 5/6/2014 | | 7/24/2014 | | 7/24/2014 | | 12/4/2014 | | 12/4/2014 | | 2/11/2015 | |
| | | Sample Purpose | REG | | FD | | REG | | FD | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,2-Dichloropropane | µg/L | 5 | < 0.4 | U | < 0.4 | U | | | < 0.4 | U | < 0.4 | U | | | < 0.4 | U | | | | | < 0.4 | U | | |
| 1,3,5-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| 1,3-Dichlorobenzene | µg/L | 3,100 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| 1,3-Dichloropropane | µg/L | 29 | < 0.4 | U | < 0.4 | U | | | < 0.4 | U | < 0.4 | U | | | < 0.4 | U | | | | | < 0.4 | U | | |
| 1,4-Dichlorobenzene | µg/L | 75 | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | | | | < 0.25 | U | | |
| 2,2-Dichloropropane | µg/L | 42 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| 2-Butanone | µg/L | 61,000 | < 5 | U | < 5 | U | | | < 5 | U | < 5 | U | | | < 5 | U | | | | | < 5 | U | | |
| 2-Chlorotoluene | µg/L | 2,000 | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | | | | < 0.25 | U | | |
| 2-Hexanone | µg/L | 6,100 | < 5 | U | < 5 | U | | | < 5 | U | < 5 | U | | | < 5 | U | | | | | < 5 | U | | |
| 4-Chlorotoluene | µg/L | 2,000 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| Acetone | µg/L | 92,000 | 33.6 | | < 5 | U | | | < 5 | U | < 5 | U | | | < 5 | U | | | | | < 5 | U | | |
| Benzene | µg/L | 5 | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | | | | < 0.25 | U | | |
| Bromobenzene | µg/L | 2,000 | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | | | | < 0.25 | U | | |
| Bromochloromethane | µg/L | 4,100 | < 0.4 | U | < 0.4 | U | | | < 0.4 | U | < 0.4 | U | | | < 0.4 | U | | | | | < 0.4 | U | | |
| Bromodichloromethane | µg/L | 4.6 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| Bromoform | µg/L | 36 | < 1 | U | < 1 | U | | | < 1 | U | < 1 | U | | | < 1 | U | | | | | < 1 | U | | |
| Bromomethane | µg/L | 140 | < 1 | U | < 1 | U | | | < 1 | U | < 1 | U | | | < 1 | U | | | | | < 1 | U | | |
| Carbon disulfide | µg/L | 10,000 | < 1 | U | < 1 | U | | | < 1 | U | < 1 | U | | | < 1 | U | | | | | < 1 | U | | |
| Carbon tetrachloride | µg/L | 5 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| Chlorobenzene | µg/L | 100 | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | | | | < 0.25 | U | | |
| Chloroethane | µg/L | 41,000 | < 1 | U | < 1 | U | | | < 1 | U | < 1 | U | | | < 1 | U | | | | | < 1 | U | | |
| Chloroform | µg/L | 1,000 | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | | | | < 0.25 | U | | |
| Chloromethane | µg/L | 220 | 0.536 | J | < 1 | U | | | < 1 | U | < 1 | U | | | < 1 | U | | | | | < 1 | U | | |
| cis-1,2-Dichloroethene | µg/L | 70 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| cis-1,3-Dichloropropene | µg/L | 5.3 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| Dibromochloromethane | µg/L | 34 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| Dibromomethane | µg/L | 380 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| Dichlorodifluoromethane | µg/L | 20,000 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| Ethylbenzene | µg/L | 700 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| Hexachlorobutadiene | µg/L | 20 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| Isopropylbenzene | µg/L | 10,000 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| m,p-Xylenes | µg/L | 10,000 | < 1 | U | < 1 | U | | | < 1 | U | < 1 | U | | | < 1 | U | | | | | < 1 | U | | |
| Methyl isobutyl ketone | µg/L | 8,200 | < 5 | U | < 5 | U | | | < 5 | U | < 5 | U | | | < 5 | U | | | | | < 5 | U | | |
| Methylene chloride | µg/L | 5 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| Naphthalene | µg/L | 2,000 | < 0.4 | U | < 0.4 | U | | | < 0.4 | U | < 0.4 | U | | | < 0.4 | U | | | | | < 0.4 | U | | |
| n-Butylbenzene | µg/L | 4,100 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| n-Propylbenzene | µg/L | 4,100 | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | | | | < 0.25 | U | | |
| o-Xylene | µg/L | 10,000 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| p-Isopropyltoluene | µg/L | 10,000 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| sec-Butylbenzene | µg/L | 4,100 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| Styrene | µg/L | 100 | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | | | | < 0.25 | U | | |
| tert-Butylbenzene | µg/L | 4,100 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| Tetrachloroethene | µg/L | 5 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| Toluene | µg/L | 1,000 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| trans-1,2-Dichloroethene | µg/L | 100 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| trans-1,3-Dichloropropene | µg/L | 29 | < 1 | U | < 1 | U | | | < 1 | U | < 1 | U | | | < 1 | U | | | | | < 1 | U | | |
| Trichloroethene | µg/L | 5 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| Trichlorofluoromethane | µg/L | 31,000 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| Vinyl chloride | µg/L | 2 | < 0.5 | U | 0.296 | J | | | 0.296 | J | < 0.5 | U | | | 0.271 | J | | | | | 0.302 | J | | |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW11 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW11-021115 | | 67WW11-150519 | | 67WW11-051915 | | 67WW11-151119 | | 67WW11-111915 | | 67WW11-160519 | | 67WW11-051916 | | 67WW11-112717 | | 67WW11-180502 | | 67WW11-181023 | | 67WW11-190501 | |
| | | Sample Date | 2/11/2015 | | 5/19/2015 | | 5/19/2015 | | 11/19/2015 | | 11/19/2015 | | 5/19/2016 | | 5/19/2016 | | 11/27/2017 | | 5/2/2018 | | 10/23/2018 | | 5/1/2019 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| **ANIONS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Chloride | mg/L | NV | 1,350 | | | | | | | | 1,380 | | | | 1,430 | | | | | | | | | |
| Nitrate | mg/L | 10 | < 2 | U | | | | | | | < 2 | U | | | < 2 | U | | | | | | | | |
| Nitrite | mg/L | 1 | < 2 | U | | | | | | | < 2 | U | | | < 2 | U | | | | | | | | |
| Sulfate | mg/L | NV | 389 | | | | | | | | 376 | | | | 409 | | | | | | | | | |
| Sulfide | mg/L | NV | < 1 | U | | | | | | | < 1 | U | | | < 1 | U | | | | | | | | |
| **TOTAL ORGANIC CARBON** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Inorganic Carbon | mg/L | NV | 121 | | | | | | | | 113 | | | | 74.8 | | | | | | | | | |
| Total Organic Carbon | mg/L | NV | 12.9 | | | | | | | | 23.1 | | | | 22.1 | | | | | | | | | |
| **DHC** | | | | | | | | | | | | | | | | | | | | | | | | |
| BVC | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dehalococcoides | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| **FIELD TESTS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Conductivity | mS/cm | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | 0 | | 0.69 | | 0.69 | | 0.18 | | 0.18 | | 0.74 | | 0.74 | | 0.19 | | 0.94 | | 0.07 | | 0.5 | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Flow Rate | mL/Min | NV | | | | | | | | | | | | | | | 100 | | 100 | | 100 | | 100 | |
| Measured well depth | Ft BTOC | NV | | | | | | | | | | | | | | | 46.68 | | 46.63 | | 47.05 | | 46.64 | |
| Oxidation-Reduction Potentia | mV | NV | 165 | | 246 | | 246 | | 183 | | 183 | | 169 | | 169 | | 291 | | 389 | | 171 | | 195 | |
| pH | SU | NV | 6.04 | | 5.49 | | 5.49 | | 5.61 | | 5.61 | | 5.87 | | 5.87 | | 5.87 | | 5.88 | | 6.45 | | 5.29 | |
| Temperature | C | NV | 18.42 | | 19.2 | | 19.2 | | 18.49 | | 18.49 | | 18.29 | | 18.29 | | 19.49 | | 19.80 | | 18.02 | | 20.6 | |
| Turbidity | NTU | NV | 4.7 | | 105 | | 105 | | 25.9 | | 25.9 | | 1.2 | | 1.2 | | 20.7 | | 8.2 | | 1.9 | | 7.8 | |
| **GASES** | | | | | | | | | | | | | | | | | | | | | | | | |
| Carbon dioxide | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethane | µg/L | NV | < 2 | U | | | | | | | < 2 | U | | | < 2 | U | | | | | | | | |
| Ethylene | µg/L | NV | < 2 | U | | | | | | | < 2 | U | | | < 2 | U | | | | | | | | |
| Methane | µg/L | NV | 1.78 | J | | | | | | | 2.11 | J | | | < 2 | U | | | | | | | | |
| **GENERAL CHEMISTRY** | | | | | | | | | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ferrous Iron | mg/L | NV | < 0.04 | U | | | | | | | < 0.04 | U | | | < 0.04 | U | | | | | | | | |
| **SEMIVOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,4-Dioxane | µg/L | 26 | | | | | | | | | | | | | | | 18 | | | | | | | |
| **VOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | µg/L | 110 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1,1-Trichloroethane | µg/L | 200 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1,2,2-Tetrachloroethane | µg/L | 14 | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | µg/L | 3,100,000 | | | | | | | | | | | | | | | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1,2-Trichloroethane | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1-Dichloroethane | µg/L | 10,000 | 9.81 | | | | 8.25 | | | | 8.54 | | | | 6.58 | | 3.6 | | 3.3 | | 3.8 | | 1.9 | J |
| 1,1-Dichloroethene | µg/L | 7 | 30.4 | | | | 21.6 | | | | 28.5 | | | | 19.3 | | 5.2 | | 5.5 | | 6.1 | | 2.8 | |
| 1,1-Dichloropropene | µg/L | 2.9 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2,3-Trichlorobenzene | µg/L | 310 | < 0.3 | U | | | < 0.3 | U | | | < 0.3 | U | | | < 0.3 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2,3-Trichloropropane | µg/L | 0.041 | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2,4-Trichlorobenzene | µg/L | 70 | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2,4-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2-Dibromo-3-chloropropane | µg/L | 0.2 | < 2 | U | | | < 2 | U | | | < 2 | U | | | < 2 | U | < 1 | U | < 0.5 | U | < 1 | U | < 0.5 | U |
| 1,2-Dibromoethane | µg/L | 0.05 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2-Dichlorobenzene | µg/L | 600 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2-Dichloroethane | µg/L | 5 | 0.559 | J | | | 0.518 | J | | | 0.513 | J | | | 0.396 | J | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW11 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW11-021115 | | 67WW11-150519 | | 67WW11-051915 | | 67WW11-151119 | | 67WW11-111915 | | 67WW11-160519 | | 67WW11-051916 | | 67WW11-112717 | | 67WW11-180502 | | 67WW11-181023 | | 67WW11-190501 | |
| | | Sample Date | 2/11/2015 | | 5/19/2015 | | 5/19/2015 | | 11/19/2015 | | 11/19/2015 | | 5/19/2016 | | 5/19/2016 | | 11/27/2017 | | 5/2/2018 | | 10/23/2018 | | 5/1/2019 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,2-Dichloropropane | µg/L | 5 | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,3,5-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,3-Dichlorobenzene | µg/L | 3,100 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,3-Dichloropropane | µg/L | 29 | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,4-Dichlorobenzene | µg/L | 75 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 2,2-Dichloropropane | µg/L | 42 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 2-Butanone | µg/L | 61,000 | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | < 2 | U | < 1 | U | < 1 | U | < 1 | U |
| 2-Chlorotoluene | µg/L | 2,000 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 2-Hexanone | µg/L | 6,100 | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | < 2 | U | < 1 | U | < 1 | U | < 1 | U |
| 4-Chlorotoluene | µg/L | 2,000 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Acetone | µg/L | 92,000 | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | < 2 | U | < 1 | U | < 2 | U | 5.6 | |
| Benzene | µg/L | 5 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Bromobenzene | µg/L | 2,000 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Bromochloromethane | µg/L | 4,100 | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | UJ |
| Bromodichloromethane | µg/L | 4.6 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Bromoform | µg/L | 36 | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Bromomethane | µg/L | 140 | < 1 | UJ | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Carbon disulfide | µg/L | 10,000 | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 2 | U | < 1 | U | < 1 | U | < 1 | U |
| Carbon tetrachloride | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Chlorobenzene | µg/L | 100 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Chloroethane | µg/L | 41,000 | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Chloroform | µg/L | 1,000 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | UJ |
| Chloromethane | µg/L | 220 | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| cis-1,2-Dichloroethene | µg/L | 70 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | UJ |
| cis-1,3-Dichloropropene | µg/L | 5.3 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Dibromochloromethane | µg/L | 34 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Dibromomethane | µg/L | 380 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Dichlorodifluoromethane | µg/L | 20,000 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | UJ | < 0.5 | U |
| Ethylbenzene | µg/L | 700 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Hexachlorobutadiene | µg/L | 20 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 1 | U | < 1 | U |
| Isopropylbenzene | µg/L | 10,000 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| m,p-Xylenes | µg/L | 10,000 | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 2 | U | < 1 | U | < 1 | U | < 1 | U |
| Methyl isobutyl ketone | µg/L | 8,200 | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | < 2 | U | < 1 | U | < 1 | U | < 1 | U |
| Methylene chloride | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 2 | U | < 1 | U | < 1 | U | < 1 | U |
| Naphthalene | µg/L | 2,000 | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| n-Butylbenzene | µg/L | 4,100 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| n-Propylbenzene | µg/L | 4,100 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| o-Xylene | µg/L | 10,000 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| p-Isopropyltoluene | µg/L | 10,000 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| sec-Butylbenzene | µg/L | 4,100 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Styrene | µg/L | 100 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| tert-Butylbenzene | µg/L | 4,100 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Tetrachloroethene | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Toluene | µg/L | 1,000 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| trans-1,2-Dichloroethene | µg/L | 100 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| trans-1,3-Dichloropropene | µg/L | 29 | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Trichloroethene | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Trichlorofluoromethane | µg/L | 31,000 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Vinyl chloride | µg/L | 2 | < 0.5 | U | | | < 0.5 | U | | | 0.333 | J | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW11 | | | | 67WW12 | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW11-191024 | | 67WW11-201103 | | 67WW12-130601 | | 67WW12-060113 | | 67WW12-131001 | | 67WW12-100113 | | 67WW12-140124 | | 67WW12-012414 | | 67WW12-140506 | | 67WW12-050614 | | 67WW12-140725 | |
| | | Sample Date | 10/24/2019 | | 11/3/2020 | | 6/1/2013 | | 6/1/2013 | | 10/1/2013 | | 10/1/2013 | | 1/24/2014 | | 1/24/2014 | | 5/6/2014 | | 5/6/2014 | | 7/25/2014 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| **ANIONS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Chloride | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Nitrate | mg/L | 10 | | | | | | | | | | | | | | | | | | | | | | |
| Nitrite | mg/L | 1 | | | | | | | | | | | | | | | | | | | | | | |
| Sulfate | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Sulfide | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **TOTAL ORGANIC CARBON** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Inorganic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Total Organic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **DHC** | | | | | | | | | | | | | | | | | | | | | | | | |
| BVC | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dehalococcoides | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| **FIELD TESTS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Conductivity | mS/cm | NV | | | 4.87 | | | | | | | | | | | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | 0.04 | | 0.05 | | 0.57 | | 0.57 | | 0.66 | | 0.66 | | 0.62 | | 0.62 | | 0.8 | | 0.8 | | 0.21 | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Flow Rate | mL/Min | NV | 100 | | 100 | | | | | | | | | | | | | | | | | | | |
| Measured well depth | Ft BTOC | NV | 46.6 | | | | | | | | | | | | | | | | | | | | | |
| Oxidation-Reduction Potentia | mV | NV | 187 | | 29 | | 175 | | 175 | | -119 | | -119 | | 91 | | 91 | | 43 | | 43 | | 12 | |
| pH | SU | NV | 6.23 | | 6.38 | | 6.71 | | 6.71 | | 6.31 | | 6.31 | | 6.22 | | 6.22 | | 5.39 | | 5.39 | | 6.36 | |
| Temperature | C | NV | 21.72 | | 19.92 | | 27.34 | | 27.34 | | 22.99 | | 22.99 | | 15.69 | | 15.69 | | 20.51 | | 20.51 | | 22.61 | |
| Turbidity | NTU | NV | 0 | | 0 | | 2.7 | | 2.7 | | 0.3 | | 0.3 | | 0 | | 0 | | 5.2 | | 5.2 | | 10.8 | |
| **GASES** | | | | | | | | | | | | | | | | | | | | | | | | |
| Carbon dioxide | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethylene | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Methane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **GENERAL CHEMISTRY** | | | | | | | | | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **SEMIVOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,4-Dioxane | µg/L | 26 | | | | | | | | | | | | | | | | | | | | | | |
| **VOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | µg/L | 110 | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,1,1-Trichloroethane | µg/L | 200 | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,1,2,2-Tetrachloroethane | µg/L | 14 | < 0.5 | U | < 0.5 | U | | | < 0.2 | UJ | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | µg/L | 3,100,000 | < 0.5 | U | < 1 | U | | | | | | | | | | | | | | | | | | |
| 1,1,2-Trichloroethane | µg/L | 5 | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,1-Dichloroethane | µg/L | 10,000 | 1.9 | | 1.3 | | | | < 0.125 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| 1,1-Dichloroethene | µg/L | 7 | 1.9 | | 1.2 | | | | < 0.5 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | |
| 1,1-Dichloropropene | µg/L | 2.9 | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,2,3-Trichlorobenzene | µg/L | 310 | < 0.5 | UJ | < 1 | U | | | < 0.15 | U | | | < 0.3 | U | | | < 0.3 | U | | | < 0.3 | U | | |
| 1,2,3-Trichloropropane | µg/L | 0.041 | < 0.5 | U | < 1 | U | | | < 0.5 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | |
| 1,2,4-Trichlorobenzene | µg/L | 70 | < 0.5 | U | < 1 | U | | | < 0.2 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | |
| 1,2,4-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,2-Dibromo-3-chloropropane | µg/L | 0.2 | < 0.5 | U | < 0.5 | U | | | < 1 | UJ | | | < 2 | UJ | | | < 2 | UJ | | | < 2 | U | | |
| 1,2-Dibromoethane | µg/L | 0.05 | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,2-Dichlorobenzene | µg/L | 600 | < 0.5 | U | < 1 | U | | | < 0.125 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| 1,2-Dichloroethane | µg/L | 5 | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW11 | | | | 67WW12 | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW11-191024 | | 67WW11-201103 | | 67WW12-130601 | | 67WW12-060113 | | 67WW12-131001 | | 67WW12-100113 | | 67WW12-140124 | | 67WW12-012414 | | 67WW12-140506 | | 67WW12-050614 | | 67WW12-140725 | |
| | | Sample Date | 10/24/2019 | | 11/3/2020 | | 6/1/2013 | | 6/1/2013 | | 10/1/2013 | | 10/1/2013 | | 1/24/2014 | | 1/24/2014 | | 5/6/2014 | | 5/6/2014 | | 7/25/2014 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,2-Dichloropropane | µg/L | 5 | < 0.5 | U | < 0.5 | U | | | < 0.2 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | |
| 1,3,5-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,3-Dichlorobenzene | µg/L | 3,100 | < 0.5 | U | < 1 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 1,3-Dichloropropane | µg/L | 29 | < 0.5 | U | < 0.5 | U | | | < 0.2 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | |
| 1,4-Dichlorobenzene | µg/L | 75 | < 0.5 | U | < 1 | U | | | < 0.125 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| 2,2-Dichloropropane | µg/L | 42 | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| 2-Butanone | µg/L | 61,000 | < 1 | U | < 1 | U | | | < 2.5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | | |
| 2-Chlorotoluene | µg/L | 2,000 | < 0.5 | U | < 0.5 | U | | | < 0.125 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| 2-Hexanone | µg/L | 6,100 | < 1 | U | < 2 | U | | | < 2.5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | | |
| 4-Chlorotoluene | µg/L | 2,000 | < 0.5 | U | < 1 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Acetone | µg/L | 92,000 | < 1 | U | < 1 | U | | | < 2.5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | | |
| Benzene | µg/L | 5 | < 0.5 | U | < 0.5 | U | | | < 0.125 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.161 | U | | |
| Bromobenzene | µg/L | 2,000 | < 0.5 | U | < 1 | U | | | < 0.125 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| Bromochloromethane | µg/L | 4,100 | < 0.5 | U | < 0.5 | U | | | < 0.2 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | |
| Bromodichloromethane | µg/L | 4.6 | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Bromoform | µg/L | 36 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | |
| Bromomethane | µg/L | 140 | < 0.5 | U | < 0.5 | U | | | < 0.5 | UJ | | | < 1 | U | | | < 1 | U | | | < 1 | U | | |
| Carbon disulfide | µg/L | 10,000 | < 1 | U | < 1 | U | | | < 0.5 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | |
| Carbon tetrachloride | µg/L | 5 | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Chlorobenzene | µg/L | 100 | < 0.5 | U | < 0.5 | U | | | < 0.125 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| Chloroethane | µg/L | 41,000 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | |
| Chloroform | µg/L | 1,000 | < 0.5 | U | < 0.5 | U | | | < 0.125 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| Chloromethane | µg/L | 220 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | |
| cis-1,2-Dichloroethene | µg/L | 70 | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| cis-1,3-Dichloropropene | µg/L | 5.3 | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Dibromochloromethane | µg/L | 34 | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Dibromomethane | µg/L | 380 | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Dichlorodifluoromethane | µg/L | 20,000 | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Ethylbenzene | µg/L | 700 | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Hexachlorobutadiene | µg/L | 20 | < 0.5 | U | < 1 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Isopropylbenzene | µg/L | 10,000 | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| m,p-Xylenes | µg/L | 10,000 | < 1 | U | < 1 | U | | | < 0.5 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | |
| Methyl isobutyl ketone | µg/L | 8,200 | < 1 | U | < 2 | U | | | < 2.5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | | |
| Methylene chloride | µg/L | 5 | < 1 | U | < 1 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Naphthalene | µg/L | 2,000 | < 0.5 | UJ | < 0.5 | U | | | < 0.2 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | |
| n-Butylbenzene | µg/L | 4,100 | < 0.5 | U | < 1 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| n-Propylbenzene | µg/L | 4,100 | < 0.5 | U | < 0.5 | U | | | < 0.125 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| o-Xylene | µg/L | 10,000 | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| p-Isopropyltoluene | µg/L | 10,000 | < 0.5 | U | < 0.5 | U | | | 0.299 | J | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| sec-Butylbenzene | µg/L | 4,100 | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Styrene | µg/L | 100 | < 0.5 | U | < 0.5 | U | | | < 0.125 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | |
| tert-Butylbenzene | µg/L | 4,100 | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Tetrachloroethene | µg/L | 5 | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Toluene | µg/L | 1,000 | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| trans-1,2-Dichloroethene | µg/L | 100 | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| trans-1,3-Dichloropropene | µg/L | 29 | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | |
| Trichloroethene | µg/L | 5 | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Trichlorofluoromethane | µg/L | 31,000 | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |
| Vinyl chloride | µg/L | 2 | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW12 | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW12-072514 | | 67WW12-141203 | | 67WW12-120314 | | 67WW12-150210 | | 67WW12-021015 | | 67WW12-150512 | | 67WW12-051215 | | 67WW12FFD-111815 | | 67WW12-151118 | | 67WW12-111815 | | 67WW12-151216 | |
| | | Sample Date | 7/25/2014 | | 12/3/2014 | | 12/3/2014 | | 2/10/2015 | | 2/10/2015 | | 5/12/2015 | | 5/12/2015 | | 11/18/2015 | | 11/18/2015 | | 11/18/2015 | | 12/16/2015 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | | FD | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| **ANIONS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Chloride | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Nitrate | mg/L | 10 | | | | | | | | | | | | | | | | | | | | | | |
| Nitrite | mg/L | 1 | | | | | | | | | | | | | | | | | | | | | | |
| Sulfate | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Sulfide | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **TOTAL ORGANIC CARBON** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Inorganic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Total Organic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **DHC** | | | | | | | | | | | | | | | | | | | | | | | | |
| BVC | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dehalococcoides | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| **FIELD TESTS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Conductivity | mS/cm | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | 0.21 | | 0 | | 0 | | 0.17 | | 0.17 | | 1.23 | | 1.23 | | | | 0.05 | | 0.05 | | 0 | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Flow Rate | mL/Min | NV | | | | | | | | | | | | | | | | | | | | | | |
| Measured well depth | Ft BTOC | NV | | | | | | | | | | | | | | | | | | | | | | |
| Oxidation-Reduction Potential | mV | NV | 12 | | 20 | | 20 | | 139 | | 139 | | 54 | | 54 | | | | 178 | | 178 | | 50 | |
| pH | SU | NV | 6.36 | | 6.06 | | 6.06 | | 5.32 | | 5.32 | | 5.41 | | 5.41 | | | | 5.21 | | 5.21 | | 5.85 | |
| Temperature | C | NV | 22.61 | | 19.09 | | 19.09 | | 19.7 | | 19.7 | | 18.55 | | 18.55 | | | | 17.95 | | 17.95 | | 19.38 | |
| Turbidity | NTU | NV | 10.8 | | 0.5 | | 0.5 | | 2.1 | | 2.1 | | 0 | | 0 | | | | 3.1 | | 3.1 | | 11 | |
| **GASES** | | | | | | | | | | | | | | | | | | | | | | | | |
| Carbon dioxide | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethylene | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Methane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **GENERAL CHEMISTRY** | | | | | | | | | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **SEMIVOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,4-Dioxane | µg/L | 26 | | | | | | | | | | | | | | | | | | | | | | |
| **VOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | µg/L | 110 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | |
| 1,1,1-Trichloroethane | µg/L | 200 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | |
| 1,1,2,2-Tetrachloroethane | µg/L | 14 | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | < 0.4 | U | | | < 0.4 | U | | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | µg/L | 3,100,000 | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,2-Trichloroethane | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | |
| 1,1-Dichloroethane | µg/L | 10,000 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | |
| 1,1-Dichloroethene | µg/L | 7 | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | | | < 1 | U | | |
| 1,1-Dichloropropene | µg/L | 2.9 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | |
| 1,2,3-Trichlorobenzene | µg/L | 310 | < 0.3 | U | | | < 0.3 | U | | | < 0.3 | U | | | < 0.3 | U | < 0.3 | U | | | < 0.3 | U | | |
| 1,2,3-Trichloropropane | µg/L | 0.041 | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | | | < 1 | U | | |
| 1,2,4-Trichlorobenzene | µg/L | 70 | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | < 0.4 | U | | | < 0.4 | U | | |
| 1,2,4-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | |
| 1,2-Dibromo-3-chloropropane | µg/L | 0.2 | < 2 | U | | | < 2 | U | | | < 2 | U | | | < 2 | U | < 2 | U | | | < 2 | U | | |
| 1,2-Dibromoethane | µg/L | 0.05 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | |
| 1,2-Dichlorobenzene | µg/L | 600 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | |
| 1,2-Dichloroethane | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW12 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW12-072514 | | 67WW12-141203 | | 67WW12-120314 | | 67WW12-150210 | | 67WW12-021015 | | 67WW12-150512 | | 67WW12-051215 | | 67WW12FFD-111815 | | 67WW12-151118 | | 67WW12-111815 | | 67WW12-151216 | |
| | | Sample Date | 7/25/2014 | | 12/3/2014 | | 12/3/2014 | | 2/10/2015 | | 2/10/2015 | | 5/12/2015 | | 5/12/2015 | | 11/18/2015 | | 11/18/2015 | | 11/18/2015 | | 12/16/2015 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | | FD | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,2-Dichloropropane | µg/L | 5 | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | < 0.4 | U | | | < 0.4 | U | | |
| 1,3,5-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | |
| 1,3-Dichlorobenzene | µg/L | 3,100 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | |
| 1,3-Dichloropropane | µg/L | 29 | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | < 0.4 | U | | | < 0.4 | U | | |
| 1,4-Dichlorobenzene | µg/L | 75 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | |
| 2,2-Dichloropropane | µg/L | 42 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | |
| 2-Butanone | µg/L | 61,000 | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | < 5 | U | | | < 5 | U | | |
| 2-Chlorotoluene | µg/L | 2,000 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | |
| 2-Hexanone | µg/L | 6,100 | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | < 5 | U | | | < 5 | U | | |
| 4-Chlorotoluene | µg/L | 2,000 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | |
| Acetone | µg/L | 92,000 | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | U | < 5 | U | | | < 5 | U | | |
| Benzene | µg/L | 5 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | |
| Bromobenzene | µg/L | 2,000 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | |
| Bromochloromethane | µg/L | 4,100 | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | < 0.4 | U | | | < 0.4 | U | | |
| Bromodichloromethane | µg/L | 4.6 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | |
| Bromoform | µg/L | 36 | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | | | < 1 | U | | |
| Bromomethane | µg/L | 140 | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | | | < 1 | U | | |
| Carbon disulfide | µg/L | 10,000 | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | | | < 1 | U | | |
| Carbon tetrachloride | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| Chlorobenzene | µg/L | 100 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | | | < 0.25 | U | | |
| Chloroethane | µg/L | 41,000 | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | | | < 1 | U | | |
| Chloroform | µg/L | 1,000 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | | | < 0.25 | U | | |
| Chloromethane | µg/L | 220 | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | | | < 1 | U | | |
| cis-1,2-Dichloroethene | µg/L | 70 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| cis-1,3-Dichloropropene | µg/L | 5.3 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| Dibromochloromethane | µg/L | 34 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| Dibromomethane | µg/L | 380 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| Dichlorodifluoromethane | µg/L | 20,000 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| Ethylbenzene | µg/L | 700 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| Hexachlorobutadiene | µg/L | 20 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| Isopropylbenzene | µg/L | 10,000 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| m,p-Xylenes | µg/L | 10,000 | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | | | < 1 | U | | |
| Methyl isobutyl ketone | µg/L | 8,200 | < 5 | U | | | < 5 | U | | | < 5 | U | | | < 5 | UJ | < 5 | U | | | < 5 | U | | |
| Methylene chloride | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| Naphthalene | µg/L | 2,000 | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | | | | | < 0.4 | U | | |
| n-Butylbenzene | µg/L | 4,100 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| n-Propylbenzene | µg/L | 4,100 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | | | < 0.25 | U | | |
| o-Xylene | µg/L | 10,000 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| p-Isopropyltoluene | µg/L | 10,000 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| sec-Butylbenzene | µg/L | 4,100 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| Styrene | µg/L | 100 | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | | | | | < 0.25 | U | | |
| tert-Butylbenzene | µg/L | 4,100 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| Tetrachloroethene | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| Toluene | µg/L | 1,000 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| trans-1,2-Dichloroethene | µg/L | 100 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| trans-1,3-Dichloropropene | µg/L | 29 | < 1 | U | | | < 1 | U | | | < 1 | U | | | < 1 | U | | | | | < 1 | U | | |
| Trichloroethene | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| Trichlorofluoromethane | µg/L | 31,000 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |
| Vinyl chloride | µg/L | 2 | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | | | | | < 0.5 | U | | |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW12 | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW12-161215 | | 67WW12-161215 | | 67WW12- | | 67WW12-160518 | | 67WW12-051816 | | 67WW12-112917 | | 67WW12-112917-FD | | 67WW12-180503 | | 67WW12-181022 | | 67WW12-190502 | | 67WW12-191028 | |
| | | Sample Date | 12/16/2015 | | 12/16/2015 | | 12/16/2015 | | 5/18/2016 | | 5/18/2016 | | 11/29/2017 | | 11/29/2017 | | 5/3/2018 | | 10/22/2018 | | 5/2/2019 | | 10/28/2019 | |
| | | Sample Purpose | REG | | REG | | FD | | REG | | REG | | REG | | FD | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| **ANIONS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Chloride | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Nitrate | mg/L | 10 | | | | | | | | | | | | | | | | | | | | | | |
| Nitrite | mg/L | 1 | | | | | | | | | | | | | | | | | | | | | | |
| Sulfate | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Sulfide | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **TOTAL ORGANIC CARBON** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Inorganic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Total Organic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **DHC** | | | | | | | | | | | | | | | | | | | | | | | | |
| BVC | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dehalococcoides | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| **FIELD TESTS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Conductivity | mS/cm | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | | | 0 | | | | 0.36 | | 0.36 | | 0.43 | | | | 0 | | 0.29 | | 0.61 | | 0.62 | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Flow Rate | mL/Min | NV | | | | | | | | | | | 100 | | | | 100 | | 100 | | 100 | | 100 | |
| Measured well depth | Ft BTOC | NV | | | | | | | | | | | 36.93 | | | | 36.93 | | 37.08 | | 36.94 | | 36.85 | |
| Oxidation-Reduction Potentia | mV | NV | | | 50 | | | | 221 | | 221 | | 209 | | | | 302 | | 209 | | 187 | | 126 | |
| pH | SU | NV | | | 5.85 | | | | 4.96 | | 4.96 | | 5.52 | | | | 5.34 | | 5.68 | | 5.35 | | 5.72 | |
| Temperature | C | NV | | | 19.38 | | | | 18.41 | | 18.41 | | 19.71 | | | | 21.76 | | 18.77 | | 20.12 | | 18.62 | |
| Turbidity | NTU | NV | | | 11 | | | | 5.7 | | 5.7 | | 0 | | | | 0 | | 0 | | 6.3 | | 1.8 | |
| **GASES** | | | | | | | | | | | | | | | | | | | | | | | | |
| Carbon dioxide | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethylene | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Methane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **GENERAL CHEMISTRY** | | | | | | | | | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **SEMIVOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,4-Dioxane | µg/L | 26 | < 1 | U | < 1 | U | < 1 | U | | | | | 0.6 | J | 0.48 | J | | | | | | | | |
| **VOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | µg/L | 110 | | | | | | | | | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1,1-Trichloroethane | µg/L | 200 | | | | | | | | | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1,2,2-Tetrachloroethane | µg/L | 14 | | | | | | | | | < 0.4 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | µg/L | 3,100,000 | | | | | | | | | | | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1,2-Trichloroethane | µg/L | 5 | | | | | | | | | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1-Dichloroethane | µg/L | 10,000 | | | | | | | | | < 0.25 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | 0.51 | J |
| 1,1-Dichloroethene | µg/L | 7 | | | | | | | | | 0.681 | J | 2.2 | | 1.8 | | < 0.5 | U | 4.8 | | 2.1 | | 17 | |
| 1,1-Dichloropropene | µg/L | 2.9 | | | | | | | | | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2,3-Trichlorobenzene | µg/L | 310 | | | | | | | | | < 0.3 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | UJ |
| 1,2,3-Trichloropropane | µg/L | 0.041 | | | | | | | | | < 1 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2,4-Trichlorobenzene | µg/L | 70 | | | | | | | | | < 0.4 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2,4-Trimethylbenzene | µg/L | 5,100 | | | | | | | | | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2-Dibromo-3-chloropropane | µg/L | 0.2 | | | | | | | | | < 2 | U | < 1 | U | < 1 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| 1,2-Dibromoethane | µg/L | 0.05 | | | | | | | | | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2-Dichlorobenzene | µg/L | 600 | | | | | | | | | < 0.25 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2-Dichloroethane | µg/L | 5 | | | | | | | | | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW12 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW12-161215 | | 67WW12-161215 | | 67WW12-12/16/2015 | | 67WW12-160518 | | 67WW12-051816 | | 67WW12-112917 | | 67WW12-112917-FD | | 67WW12-180503 | | 67WW12-181022 | | 67WW12-190502 | | 67WW12-191028 | |
| | | Sample Date | 12/16/2015 | | 12/16/2015 | | 12/16/2015 | | 5/18/2016 | | 5/18/2016 | | 11/29/2017 | | 11/29/2017 | | 5/3/2018 | | 10/22/2018 | | 5/2/2019 | | 10/28/2019 | |
| | | Sample Purpose | REG | | REG | | FD | | REG | | REG | | REG | | FD | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,2-Dichloropropane | µg/L | 5 | | | | | | | | | < 0.4 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,3,5-Trimethylbenzene | µg/L | 5,100 | | | | | | | | | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,3-Dichlorobenzene | µg/L | 3,100 | | | | | | | | | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,3-Dichloropropane | µg/L | 29 | | | | | | | | | < 0.4 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,4-Dichlorobenzene | µg/L | 75 | | | | | | | | | < 0.25 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 2,2-Dichloropropane | µg/L | 42 | | | | | | | | | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 2-Butanone | µg/L | 61,000 | | | | | | | | | < 5 | U | < 2 | U | < 2 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| 2-Chlorotoluene | µg/L | 2,000 | | | | | | | | | < 0.25 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 2-Hexanone | µg/L | 6,100 | | | | | | | | | < 5 | U | < 2 | U | < 2 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| 4-Chlorotoluene | µg/L | 2,000 | | | | | | | | | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Acetone | µg/L | 92,000 | | | | | | | | | < 5 | U | < 2 | U | < 2 | U | < 1 | U | < 2 | U | < 1 | U | < 1 | U |
| Benzene | µg/L | 5 | | | | | | | | | < 0.25 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Bromobenzene | µg/L | 2,000 | | | | | | | | | < 0.25 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Bromochloromethane | µg/L | 4,100 | | | | | | | | | < 0.4 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Bromodichloromethane | µg/L | 4.6 | | | | | | | | | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Bromoform | µg/L | 36 | | | | | | | | | < 1 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Bromomethane | µg/L | 140 | | | | | | | | | < 1 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Carbon disulfide | µg/L | 10,000 | | | | | | | | | < 1 | U | < 2 | U | < 2 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| Carbon tetrachloride | µg/L | 5 | | | | | | | | | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Chlorobenzene | µg/L | 100 | | | | | | | | | < 0.25 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Chloroethane | µg/L | 41,000 | | | | | | | | | < 1 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Chloroform | µg/L | 1,000 | | | | | | | | | < 0.25 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Chloromethane | µg/L | 220 | | | | | | | | | < 1 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| cis-1,2-Dichloroethene | µg/L | 70 | | | | | | | | | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| cis-1,3-Dichloropropene | µg/L | 5.3 | | | | | | | | | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Dibromochloromethane | µg/L | 34 | | | | | | | | | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Dibromomethane | µg/L | 380 | | | | | | | | | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Dichlorodifluoromethane | µg/L | 20,000 | | | | | | | | | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | UJ | < 0.5 | U | < 0.5 | U |
| Ethylbenzene | µg/L | 700 | | | | | | | | | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Hexachlorobutadiene | µg/L | 20 | | | | | | | | | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U |
| Isopropylbenzene | µg/L | 10,000 | | | | | | | | | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| m,p-Xylenes | µg/L | 10,000 | | | | | | | | | < 1 | U | < 2 | U | < 2 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| Methyl isobutyl ketone | µg/L | 8,200 | | | | | | | | | < 5 | U | < 2 | U | < 2 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| Methylene chloride | µg/L | 5 | | | | | | | | | < 0.5 | U | < 2 | U | < 2 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| Naphthalene | µg/L | 2,000 | | | | | | | | | < 0.4 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | UJ |
| n-Butylbenzene | µg/L | 4,100 | | | | | | | | | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| n-Propylbenzene | µg/L | 4,100 | | | | | | | | | < 0.25 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| o-Xylene | µg/L | 10,000 | | | | | | | | | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| p-Isopropyltoluene | µg/L | 10,000 | | | | | | | | | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| sec-Butylbenzene | µg/L | 4,100 | | | | | | | | | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Styrene | µg/L | 100 | | | | | | | | | < 0.25 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| tert-Butylbenzene | µg/L | 4,100 | | | | | | | | | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Tetrachloroethene | µg/L | 5 | | | | | | | | | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Toluene | µg/L | 1,000 | | | | | | | | | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| trans-1,2-Dichloroethene | µg/L | 100 | | | | | | | | | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| trans-1,3-Dichloropropene | µg/L | 29 | | | | | | | | | < 1 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Trichloroethene | µg/L | 5 | | | | | | | | | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Trichlorofluoromethane | µg/L | 31,000 | | | | | | | | | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Vinyl chloride | µg/L | 2 | | | | | | | | | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW12 | | 67WW13 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW12-201102 | | 67WW13-130531 | | 67WW13-053113 | | 67WW13-131001 | | 67WW13-100113 | | 67WW13-140124 | | 67WW13FD-012414 | | 67WW13-012414 | | 67WW13-140506 | | 67WW13FD-050614 | | 67WW13-050614 | |
| | | Sample Date | 11/2/2020 | | 5/31/2013 | | 5/31/2013 | | 10/1/2013 | | 10/1/2013 | | 1/24/2014 | | 1/24/2014 | | 1/24/2014 | | 5/6/2014 | | 5/6/2014 | | 5/6/2014 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | FD | | REG | | REG | | FD | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| **ANIONS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Chloride | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Nitrate | mg/L | 10 | | | | | | | | | | | | | | | | | | | | | | |
| Nitrite | mg/L | 1 | | | | | | | | | | | | | | | | | | | | | | |
| Sulfate | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Sulfide | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **TOTAL ORGANIC CARBON** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Inorganic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Total Organic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **DHC** | | | | | | | | | | | | | | | | | | | | | | | | |
| BVC | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dehalococcoides | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| **FIELD TESTS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Conductivity | mS/cm | NV | 5.1 | | | | | | | | | | | | | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | 0.07 | | 1.17 | | 1.17 | | 0.98 | | 0.98 | | 0.16 | | | | 0.16 | | 2.03 | | | | 2.03 | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Flow Rate | mL/Min | NV | 100 | | | | | | | | | | | | | | | | | | | | | |
| Measured well depth | Ft BTOC | NV | | | | | | | | | | | | | | | | | | | | | | |
| Oxidation-Reduction Potentia | mV | NV | 55 | | 106 | | 106 | | 37 | | 37 | | 125 | | | | 125 | | 122 | | | | 122 | |
| pH | SU | NV | 6.31 | | 6.68 | | 6.68 | | 7.09 | | 7.09 | | 6.76 | | | | 6.76 | | 5.86 | | | | 5.86 | |
| Temperature | C | NV | 19.17 | | 34.55 | | 34.55 | | 21.97 | | 21.97 | | 15.8 | | | | 15.8 | | 25.17 | | | | 25.17 | |
| Turbidity | NTU | NV | 0 | | 0.2 | | 0.2 | | 0.3 | | 0.3 | | 0 | | | | 0 | | 1.2 | | | | 1.2 | |
| **GASES** | | | | | | | | | | | | | | | | | | | | | | | | |
| Carbon dioxide | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethylene | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Methane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **GENERAL CHEMISTRY** | | | | | | | | | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **SEMIVOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,4-Dioxane | µg/L | 26 | | | | | | | | | | | | | | | | | | | | | | |
| **VOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | µg/L | 110 | < 0.5 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 1.25 | U | < 1.25 | U | | | < 1 | U | < 1 | U |
| 1,1,1-Trichloroethane | µg/L | 200 | < 0.5 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 1.25 | U | < 1.25 | U | | | < 1 | U | < 1 | U |
| 1,1,2,2-Tetrachloroethane | µg/L | 14 | < 0.5 | U | | | < 2 | U | | | < 0.4 | U | | | < 1 | U | < 1 | U | | | < 0.8 | U | < 0.8 | U |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | µg/L | 3,100,000 | < 1 | U | | | | | | | | | | | | | | | | | | | | |
| 1,1,2-Trichloroethane | µg/L | 5 | < 0.5 | U | | | 3.58 | | | | 3.37 | | | | 3.01 | | 2.99 | | | | 1.95 | J | 1.99 | J |
| 1,1-Dichloroethane | µg/L | 10,000 | 1.1 | | | | 30.6 | | | | 33.8 | | | | 32.4 | | 32.7 | | | | 14.4 | | 15.5 | |
| 1,1-Dichloroethene | µg/L | 7 | 40 | | | | 565 | J | | | 515 | | | | 569 | | 572 | | | | 228 | | 240 | |
| 1,1-Dichloropropene | µg/L | 2.9 | < 0.5 | U | | | < 2.5 | U | | | < 0.5 | U | | | < 1.25 | U | < 1.25 | U | | | < 1 | U | < 1 | U |
| 1,2,3-Trichlorobenzene | µg/L | 310 | < 1 | U | | | < 0.15 | U | | | < 0.3 | U | | | < 0.75 | U | < 0.75 | U | | | < 0.6 | U | < 0.6 | U |
| 1,2,3-Trichloropropane | µg/L | 0.041 | < 1 | U | | | < 0.5 | U | | | < 1 | U | | | < 2.5 | U | < 2.5 | U | | | < 2 | U | < 2 | U |
| 1,2,4-Trichlorobenzene | µg/L | 70 | < 1 | U | | | < 2 | U | | | < 0.4 | U | | | < 1 | U | < 1 | U | | | < 0.8 | U | < 0.8 | U |
| 1,2,4-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 1.25 | U | < 1.25 | U | | | < 1 | U | < 1 | U |
| 1,2-Dibromo-3-chloropropane | µg/L | 0.2 | < 0.5 | U | | | < 1 | U | | | < 2 | UJ | | | < 5 | UJ | < 5 | U | | | < 4 | U | < 4 | U |
| 1,2-Dibromoethane | µg/L | 0.05 | < 0.5 | U | | | < 2.5 | U | | | < 0.5 | U | | | < 1.25 | U | < 1.25 | U | | | < 1 | U | < 1 | U |
| 1,2-Dichlorobenzene | µg/L | 600 | < 1 | U | | | < 1.25 | U | | | < 0.25 | U | | | < 0.626 | U | < 0.626 | U | | | < 0.5 | U | < 0.5 | U |
| 1,2-Dichloroethane | µg/L | 5 | < 0.5 | U | | | 19.9 | | | | 23.8 | | | | 22.9 | | 22.9 | | | | 12.9 | | 13.7 | |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW12 | | 67WW13 | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW12-201102 | | 67WW13-130531 | | 67WW13-053113 | | 67WW13-131001 | | 67WW13-100113 | | 67WW13-140124 | | 67WW13FD-012414 | | 67WW13-012414 | | 67WW13-140506 | | 67WW13FD-050614 | | 67WW13-050614 | |
| | | Sample Date | 11/2/2020 | | 5/31/2013 | | 5/31/2013 | | 10/1/2013 | | 10/1/2013 | | 1/24/2014 | | 1/24/2014 | | 1/24/2014 | | 5/6/2014 | | 5/6/2014 | | 5/6/2014 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | FD | | REG | | REG | | FD | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,2-Dichloropropane | µg/L | 5 | < 0.5 | U | | | < 2 | U | | | < 0.4 | U | | | < 1 | U | < 1 | U | | | < 0.8 | U | < 0.8 | U |
| 1,3,5-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | | | < 2.5 | U | | | < 0.5 | U | | | < 1.25 | U | < 1.25 | U | | | < 1 | U | < 1 | U |
| 1,3-Dichlorobenzene | µg/L | 3,100 | < 1 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 1.25 | U | < 1.25 | U | | | < 1 | U | < 1 | U |
| 1,3-Dichloropropane | µg/L | 29 | < 0.5 | U | | | < 2 | U | | | < 0.4 | U | | | < 1 | U | < 1 | U | | | < 0.8 | U | < 0.8 | U |
| 1,4-Dichlorobenzene | µg/L | 75 | < 1 | U | | | < 1.25 | U | | | < 0.25 | U | | | < 0.626 | U | < 0.626 | U | | | < 0.5 | U | < 0.5 | U |
| 2,2-Dichloropropane | µg/L | 42 | < 0.5 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 1.25 | U | < 1.25 | U | | | < 1 | U | < 1 | UJ |
| 2-Butanone | µg/L | 61,000 | < 1 | U | | | < 2.5 | U | | | < 5 | U | | | < 12.5 | U | < 12.5 | U | | | < 10 | U | < 10 | U |
| 2-Chlorotoluene | µg/L | 2,000 | < 0.5 | U | | | < 1.25 | U | | | < 0.25 | U | | | < 0.626 | U | < 0.626 | U | | | < 0.5 | U | < 0.5 | U |
| 2-Hexanone | µg/L | 6,100 | < 2 | U | | | < 2.5 | U | | | < 5 | U | | | < 12.5 | U | < 12.5 | U | | | < 10 | U | < 10 | U |
| 4-Chlorotoluene | µg/L | 2,000 | < 1 | U | | | < 2.5 | U | | | < 0.5 | U | | | < 1.25 | U | < 1.25 | U | | | < 1 | U | < 1 | U |
| Acetone | µg/L | 92,000 | < 1 | U | | | < 25 | U | | | < 5 | U | | | < 12.5 | U | < 12.5 | U | | | < 10 | U | < 10 | U |
| Benzene | µg/L | 5 | < 0.5 | U | | | < 0.125 | U | | | < 0.25 | U | | | < 0.626 | U | < 0.626 | U | | | 0.79 | J | 1.21 | J |
| Bromobenzene | µg/L | 2,000 | < 1 | U | | | < 1.25 | U | | | < 0.25 | U | | | < 0.626 | U | < 0.626 | U | | | < 0.5 | U | < 0.5 | U |
| Bromochloromethane | µg/L | 4,100 | < 0.5 | U | | | < 0.2 | U | | | < 0.4 | U | | | < 1 | U | < 1 | U | | | < 0.8 | U | < 0.8 | U |
| Bromodichloromethane | µg/L | 4.6 | < 0.5 | U | | | < 2.5 | U | | | < 0.5 | U | | | < 1.25 | U | < 1.25 | U | | | < 1 | U | < 1 | U |
| Bromoform | µg/L | 36 | < 0.5 | U | | | < 0.5 | U | | | < 1 | U | | | < 2.5 | U | < 2.5 | U | | | < 2 | U | < 2 | U |
| Bromomethane | µg/L | 140 | < 0.5 | U | | | < 0.5 | U | | | < 1 | U | | | < 2.5 | U | < 2.5 | U | | | < 2 | U | < 2 | U |
| Carbon disulfide | µg/L | 10,000 | < 1 | U | | | < 5 | U | | | < 1 | U | | | < 2.5 | U | < 2.5 | U | | | < 2 | U | < 2 | U |
| Carbon tetrachloride | µg/L | 5 | < 0.5 | U | | | < 2.5 | U | | | < 0.5 | U | | | < 1.25 | U | < 1.25 | U | | | < 1 | U | < 1 | U |
| Chlorobenzene | µg/L | 100 | < 0.5 | U | | | < 0.125 | U | | | < 0.25 | U | | | < 0.626 | U | < 0.626 | U | | | < 0.5 | U | < 0.5 | U |
| Chloroethane | µg/L | 41,000 | < 0.5 | U | | | < 0.5 | U | | | < 1 | U | | | < 2.5 | U | < 2.5 | U | | | < 2 | U | < 2 | U |
| Chloroform | µg/L | 1,000 | < 0.5 | U | | | < 1.25 | U | | | < 0.336 | UJ | | | 0.359 | J | < 0.626 | U | | | < 0.5 | U | < 0.5 | U |
| Chloromethane | µg/L | 220 | < 0.5 | U | | | < 0.5 | U | | | < 1 | U | | | < 2.5 | U | < 2.5 | U | | | < 2 | U | < 2 | U |
| cis-1,2-Dichloroethene | µg/L | 70 | < 0.5 | U | | | < 2.5 | U | | | 1.66 | | | | 1.77 | J | 1.67 | J | | | 0.684 | J | 0.755 | J |
| cis-1,3-Dichloropropene | µg/L | 5.3 | < 0.5 | U | | | < 2.5 | U | | | < 0.5 | U | | | < 1.25 | U | < 1.25 | U | | | < 1 | U | < 1 | U |
| Dibromochloromethane | µg/L | 34 | < 0.5 | U | | | < 2.5 | U | | | < 0.5 | U | | | < 1.25 | U | < 1.25 | U | | | < 1 | U | < 1 | U |
| Dibromomethane | µg/L | 380 | < 0.5 | U | | | < 2.5 | U | | | < 0.5 | U | | | < 1.25 | U | < 1.25 | U | | | < 1 | U | < 1 | U |
| Dichlorodifluoromethane | µg/L | 20,000 | < 0.5 | U | | | < 2.5 | U | | | < 0.5 | U | | | < 1.25 | U | < 1.25 | U | | | < 1 | U | < 1 | U |
| Ethylbenzene | µg/L | 700 | < 0.5 | U | | | < 2.5 | U | | | < 0.5 | U | | | < 1.25 | U | < 1.25 | U | | | < 1 | U | < 1 | U |
| Hexachlorobutadiene | µg/L | 20 | < 1 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 1.25 | U | < 1.25 | U | | | < 1 | U | < 1 | U |
| Isopropylbenzene | µg/L | 10,000 | < 0.5 | U | | | < 2.5 | U | | | < 0.5 | U | | | < 1.25 | U | < 1.25 | U | | | < 1 | U | < 1 | U |
| m,p-Xylenes | µg/L | 10,000 | < 1 | U | | | < 5 | U | | | < 1 | U | | | < 2.5 | U | < 2.5 | U | | | < 2 | U | < 2 | U |
| Methyl isobutyl ketone | µg/L | 8,200 | < 2 | U | | | < 25 | U | | | < 5 | U | | | < 12.5 | U | < 12.5 | U | | | < 10 | U | < 10 | U |
| Methylene chloride | µg/L | 5 | < 1 | U | | | < 2.5 | U | | | < 0.5 | U | | | < 1.25 | U | < 1.25 | U | | | < 1 | U | < 1 | U |
| Naphthalene | µg/L | 2,000 | < 0.5 | U | | | < 0.2 | U | | | < 0.4 | U | | | < 1 | U | < 1 | U | | | < 0.8 | U | < 0.8 | U |
| n-Butylbenzene | µg/L | 4,100 | < 1 | U | | | < 2.5 | U | | | < 0.5 | U | | | < 1.25 | U | < 1.25 | U | | | < 1 | U | < 1 | U |
| n-Propylbenzene | µg/L | 4,100 | < 0.5 | U | | | < 1.25 | U | | | < 0.25 | U | | | < 0.626 | U | < 0.626 | U | | | < 0.5 | U | < 0.5 | U |
| o-Xylene | µg/L | 10,000 | < 0.5 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 1.25 | U | < 1.25 | U | | | < 1 | U | < 1 | U |
| p-Isopropyltoluene | µg/L | 10,000 | < 0.5 | U | | | < 2.5 | U | | | < 0.5 | U | | | < 1.25 | U | < 1.25 | U | | | < 1 | U | < 1 | U |
| sec-Butylbenzene | µg/L | 4,100 | < 0.5 | U | | | < 2.5 | U | | | < 0.5 | U | | | < 1.25 | U | < 1.25 | U | | | < 1 | U | < 1 | U |
| Styrene | µg/L | 100 | < 0.5 | U | | | < 0.125 | U | | | < 0.25 | U | | | < 0.626 | U | < 0.626 | U | | | < 0.5 | U | < 0.5 | U |
| tert-Butylbenzene | µg/L | 4,100 | < 0.5 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 1.25 | U | < 1.25 | U | | | < 1 | U | < 1 | U |
| Tetrachloroethene | µg/L | 5 | < 0.5 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 1.25 | U | < 1.25 | U | | | < 1 | U | < 1 | U |
| Toluene | µg/L | 1,000 | < 0.5 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 1.25 | U | < 1.25 | U | | | < 1 | U | < 1 | U |
| trans-1,2-Dichloroethene | µg/L | 100 | < 0.5 | U | | | < 2.5 | U | | | < 0.5 | U | | | < 1.25 | U | < 1.25 | U | | | < 1 | U | < 1 | U |
| trans-1,3-Dichloropropene | µg/L | 29 | < 0.5 | U | | | < 0.5 | U | | | < 1 | U | | | < 2.5 | U | < 2.5 | U | | | < 2 | U | < 2 | U |
| Trichloroethene | µg/L | 5 | < 0.5 | U | | | 2.71 | J | | | 2.81 | | | | 2.99 | | 2.86 | | | | 1.27 | J | 1.25 | J |
| Trichlorofluoromethane | µg/L | 31,000 | < 0.5 | U | | | < 0.25 | U | | | < 0.5 | U | | | < 1.25 | U | < 1.25 | U | | | < 1 | U | < 1 | U |
| Vinyl chloride | µg/L | 2 | < 0.5 | U | | | 2.55 | | | | 2.1 | | | | 2.37 | J | 2.37 | J | | | 0.619 | J | 0.644 | J |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW13 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW13-140725 | | 67WW13FD-072514 | | 67WW13-072514 | | 67WW13-141204 | | 67WW13-120414 | | 67WW13FD-120414 | | 67WW13-150211 | | 67WW13-021115 | | 67WW13-150325 | | 67WW13-032515 | | 67WW13-150519 | |
| | | Sample Date | 7/25/2014 | | 7/25/2014 | | 7/25/2014 | | 12/4/2014 | | 12/4/2014 | | 12/4/2014 | | 2/11/2015 | | 2/11/2015 | | 3/25/2015 | | 3/25/2015 | | 5/19/2015 | |
| | | Sample Purpose | REG | | FD | | REG | | REG | | REG | | FD | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| **ANIONS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Chloride | mg/L | NV | | | | | | | | | | | | | | | | | | | 1,820 | | | |
| Nitrate | mg/L | 10 | | | | | | | | | | | | | | | | | | | < 2 | U | | |
| Nitrite | mg/L | 1 | | | | | | | | | | | | | | | | | | | < 2 | U | | |
| Sulfate | mg/L | NV | | | | | | | | | | | | | | | | | | | 334 | | | |
| Sulfide | mg/L | NV | | | | | | | | | | | | | | | | | | | < 1 | U | | |
| **TOTAL ORGANIC CARBON** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Inorganic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | 144 | | | |
| Total Organic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | 16.8 | J | | |
| **DHC** | | | | | | | | | | | | | | | | | | | | | | | | |
| BVC | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dehalococcoides | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| **FIELD TESTS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Conductivity | mS/cm | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | 1.19 | | | | 1.19 | | 0.29 | | 0.29 | | | | 1.73 | | 1.73 | | 1.55 | | 1.55 | | 1.25 | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Flow Rate | mL/Min | NV | | | | | | | | | | | | | | | | | | | | | | |
| Measured well depth | Ft BTOC | NV | | | | | | | | | | | | | | | | | | | | | | |
| Oxidation-Reduction Potentia | mV | NV | 178 | | | | 178 | | 150 | | 150 | | | | 145 | | 145 | | 176 | | 176 | | 219 | |
| pH | SU | NV | 6.24 | | | | 6.24 | | 6.46 | | 6.46 | | | | 7.16 | | 7.16 | | 4.62 | | 4.62 | | 5.95 | |
| Temperature | C | NV | 25.2 | | | | 25.2 | | 19.85 | | 19.85 | | | | 16.69 | | 16.69 | | 20.67 | | 20.67 | | 20.22 | |
| Turbidity | NTU | NV | 0.2 | | | | 0.2 | | 0 | | 0 | | | | 0.2 | | 0.2 | | 0 | | 0 | | 0 | |
| **GASES** | | | | | | | | | | | | | | | | | | | | | | | | |
| Carbon dioxide | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethane | µg/L | NV | | | | | | | | | | | | | | | | | | | < 2 | U | | |
| Ethylene | µg/L | NV | | | | | | | | | | | | | | | | | | | < 2 | U | | |
| Methane | µg/L | NV | | | | | | | | | | | | | | | | | | | < 2 | U | | |
| **GENERAL CHEMISTRY** | | | | | | | | | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | < 0.04 | U | | |
| **SEMIVOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,4-Dioxane | µg/L | 26 | | | | | | | | | | | | | | | | | | | | | | |
| **VOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | µg/L | 110 | | | < 0.5 | U | < 0.5 | U | | | < 2.5 | U | < 2.5 | U | | | < 1.25 | U | | | | | | |
| 1,1,1-Trichloroethane | µg/L | 200 | | | < 0.5 | U | < 0.5 | U | | | < 2.5 | U | < 2.5 | U | | | < 1.25 | U | | | | | | |
| 1,1,2,2-Tetrachloroethane | µg/L | 14 | | | < 0.4 | U | < 0.4 | U | | | < 2 | U | < 2 | U | | | < 1 | U | | | | | | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | µg/L | 3,100,000 | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,2-Trichloroethane | µg/L | 5 | | | 3.56 | | 3.48 | | | | 4.4 | J | 4.56 | J | | | 4.87 | | | | | | | |
| 1,1-Dichloroethane | µg/L | 10,000 | | | 22.1 | | 21.9 | | | | 28.8 | | 27.4 | | | | 29.1 | | | | | | | |
| 1,1-Dichloroethene | µg/L | 7 | | | 362 | | 353 | | | | 572 | | 522 | | | | 521 | | | | | | | |
| 1,1-Dichloropropene | µg/L | 2.9 | | | < 0.5 | U | < 0.5 | U | | | < 2.5 | U | < 2.5 | U | | | < 1.25 | U | | | | | | |
| 1,2,3-Trichlorobenzene | µg/L | 310 | | | < 0.3 | U | < 0.3 | U | | | < 1.5 | U | < 1.5 | U | | | < 0.75 | U | | | | | | |
| 1,2,3-Trichloropropane | µg/L | 0.041 | | | < 1 | U | < 1 | U | | | < 5 | U | < 5 | U | | | < 2.5 | U | | | | | | |
| 1,2,4-Trichlorobenzene | µg/L | 70 | | | < 0.4 | U | < 0.4 | U | | | < 2 | U | < 2 | U | | | < 1 | U | | | | | | |
| 1,2,4-Trimethylbenzene | µg/L | 5,100 | | | < 0.5 | U | < 0.5 | U | | | < 2.5 | U | < 2.5 | U | | | < 1.25 | U | | | | | | |
| 1,2-Dibromo-3-chloropropane | µg/L | 0.2 | | | < 2 | U | < 2 | U | | | < 10 | U | < 10 | U | | | < 5 | U | | | | | | |
| 1,2-Dibromoethane | µg/L | 0.05 | | | < 0.5 | U | < 0.5 | U | | | < 2.5 | U | < 2.5 | U | | | < 1.25 | U | | | | | | |
| 1,2-Dichlorobenzene | µg/L | 600 | | | < 0.25 | U | < 0.25 | U | | | < 1.25 | U | < 1.25 | U | | | < 0.626 | U | | | | | | |
| 1,2-Dichloroethane | µg/L | 5 | | | 20.1 | | 19.8 | | | | 24.9 | | 24.6 | | | | 26 | | | | | | | |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW13 | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW13-140725 | | 67WW13FD-072514 | | 67WW13-072514 | | 67WW13-141204 | | 67WW13-120414 | | 67WW13FD-120414 | | 67WW13-150211 | | 67WW13-021115 | | 67WW13-150325 | | 67WW13-032515 | | 67WW13-150519 | |
| | | Sample Date | 7/25/2014 | | 7/25/2014 | | 7/25/2014 | | 12/4/2014 | | 12/4/2014 | | 12/4/2014 | | 2/11/2015 | | 2/11/2015 | | 3/25/2015 | | 3/25/2015 | | 5/19/2015 | |
| | | Sample Purpose | REG | | FD | | REG | | REG | | REG | | FD | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,2-Dichloropropane | µg/L | 5 | | | < 0.4 | U | < 0.4 | U | | | < 2 | U | < 2 | U | | | < 1 | U | | | | | | |
| 1,3,5-Trimethylbenzene | µg/L | 5,100 | | | < 0.5 | U | < 0.5 | U | | | < 2.5 | U | < 2.5 | U | | | < 1.25 | U | | | | | | |
| 1,3-Dichlorobenzene | µg/L | 3,100 | | | < 0.5 | U | < 0.5 | U | | | < 2.5 | U | < 2.5 | U | | | < 1.25 | U | | | | | | |
| 1,3-Dichloropropane | µg/L | 29 | | | < 0.4 | U | < 0.4 | U | | | < 2 | U | < 2 | U | | | < 1 | U | | | | | | |
| 1,4-Dichlorobenzene | µg/L | 75 | | | < 0.25 | U | < 0.25 | U | | | < 1.25 | U | < 1.25 | U | | | < 0.626 | U | | | | | | |
| 2,2-Dichloropropane | µg/L | 42 | | | < 0.5 | U | < 0.5 | U | | | < 2.5 | U | < 2.5 | U | | | < 1.25 | U | | | | | | |
| 2-Butanone | µg/L | 61,000 | | | < 5 | U | < 5 | U | | | < 25 | U | < 25 | U | | | < 12.5 | U | | | | | | |
| 2-Chlorotoluene | µg/L | 2,000 | | | < 0.25 | U | < 0.25 | U | | | < 1.25 | U | < 1.25 | U | | | < 0.626 | U | | | | | | |
| 2-Hexanone | µg/L | 6,100 | | | < 5 | U | < 5 | U | | | < 25 | U | < 25 | U | | | < 12.5 | U | | | | | | |
| 4-Chlorotoluene | µg/L | 2,000 | | | < 0.5 | U | < 0.5 | U | | | < 2.5 | U | < 2.5 | U | | | < 1.25 | U | | | | | | |
| Acetone | µg/L | 92,000 | | | < 5 | U | < 5 | U | | | < 25 | U | < 25 | U | | | < 12.5 | U | | | | | | |
| Benzene | µg/L | 5 | | | < 0.25 | U | < 0.25 | U | | | < 1.25 | U | < 1.25 | U | | | < 0.626 | U | | | | | | |
| Bromobenzene | µg/L | 2,000 | | | < 0.25 | U | < 0.25 | U | | | < 1.25 | U | < 1.25 | U | | | < 0.626 | U | | | | | | |
| Bromochloromethane | µg/L | 4,100 | | | < 0.4 | U | < 0.4 | U | | | < 2 | U | < 2 | U | | | < 1 | U | | | | | | |
| Bromodichloromethane | µg/L | 4.6 | | | < 0.5 | U | < 0.5 | U | | | < 2.5 | U | < 2.5 | U | | | < 1.25 | U | | | | | | |
| Bromoform | µg/L | 36 | | | < 1 | U | < 1 | U | | | < 5 | U | < 5 | U | | | < 2.5 | U | | | | | | |
| Bromomethane | µg/L | 140 | | | < 1 | U | < 1 | U | | | < 5 | U | < 5 | U | | | < 2.5 | UJ | | | | | | |
| Carbon disulfide | µg/L | 10,000 | | | < 1 | U | < 1 | U | | | < 5 | U | < 5 | U | | | < 2.5 | U | | | | | | |
| Carbon tetrachloride | µg/L | 5 | | | < 0.5 | U | < 0.5 | U | | | < 2.5 | U | < 2.5 | U | | | < 1.25 | U | | | | | | |
| Chlorobenzene | µg/L | 100 | | | < 0.25 | U | < 0.25 | U | | | < 1.25 | U | < 1.25 | U | | | < 0.626 | U | | | | | | |
| Chloroethane | µg/L | 41,000 | | | < 1 | U | < 1 | U | | | < 5 | U | < 5 | U | | | < 2.5 | U | | | | | | |
| Chloroform | µg/L | 1,000 | | | 0.55 | J | 0.57 | J | | | 0.813 | J | 0.848 | J | | | 1.32 | J | | | | | | |
| Chloromethane | µg/L | 220 | | | < 1 | U | < 1 | U | | | < 5 | U | < 5 | U | | | < 2.5 | U | | | | | | |
| cis-1,2-Dichloroethene | µg/L | 70 | | | 1.15 | | 1.19 | | | | 1.31 | J | 1.49 | J | | | 1.6 | J | | | | | | |
| cis-1,3-Dichloropropene | µg/L | 5.3 | | | < 0.5 | U | < 0.5 | U | | | < 2.5 | U | < 2.5 | U | | | < 1.25 | U | | | | | | |
| Dibromochloromethane | µg/L | 34 | | | < 0.5 | U | < 0.5 | U | | | < 2.5 | U | < 2.5 | U | | | < 1.25 | U | | | | | | |
| Dibromomethane | µg/L | 380 | | | < 0.5 | U | < 0.5 | U | | | < 2.5 | U | < 2.5 | U | | | < 1.25 | U | | | | | | |
| Dichlorodifluoromethane | µg/L | 20,000 | | | < 0.5 | U | < 0.5 | U | | | < 2.5 | U | < 2.5 | U | | | < 1.25 | U | | | | | | |
| Ethylbenzene | µg/L | 700 | | | < 0.5 | U | < 0.5 | U | | | < 2.5 | U | < 2.5 | U | | | < 1.25 | U | | | | | | |
| Hexachlorobutadiene | µg/L | 20 | | | < 0.5 | U | < 0.5 | U | | | < 2.5 | U | < 2.5 | U | | | < 1.25 | U | | | | | | |
| Isopropylbenzene | µg/L | 10,000 | | | < 0.5 | U | < 0.5 | U | | | < 2.5 | U | < 2.5 | U | | | < 1.25 | U | | | | | | |
| m,p-Xylenes | µg/L | 10,000 | | | < 1 | U | < 1 | U | | | < 5 | U | < 5 | U | | | < 2.5 | U | | | | | | |
| Methyl isobutyl ketone | µg/L | 8,200 | | | < 5 | U | < 5 | U | | | < 25 | U | < 25 | U | | | < 12.5 | U | | | | | | |
| Methylene chloride | µg/L | 5 | | | < 0.5 | U | < 0.5 | U | | | 2.88 | J | 2.9 | J | | | < 1.25 | U | | | | | | |
| Naphthalene | µg/L | 2,000 | | | < 0.4 | U | < 0.4 | U | | | < 2 | U | < 2 | U | | | < 1 | U | | | | | | |
| n-Butylbenzene | µg/L | 4,100 | | | < 0.5 | U | < 0.5 | U | | | < 2.5 | U | < 2.5 | U | | | < 1.25 | U | | | | | | |
| n-Propylbenzene | µg/L | 4,100 | | | < 0.25 | U | < 0.25 | U | | | < 1.25 | U | < 1.25 | U | | | < 0.626 | U | | | | | | |
| o-Xylene | µg/L | 10,000 | | | < 0.5 | U | < 0.5 | U | | | < 2.5 | U | < 2.5 | U | | | < 1.25 | U | | | | | | |
| p-Isopropyltoluene | µg/L | 10,000 | | | < 0.5 | U | < 0.5 | U | | | < 2.5 | U | < 2.5 | U | | | < 1.25 | U | | | | | | |
| sec-Butylbenzene | µg/L | 4,100 | | | < 0.5 | U | < 0.5 | U | | | < 2.5 | U | < 2.5 | U | | | < 1.25 | U | | | | | | |
| Styrene | µg/L | 100 | | | < 0.25 | U | < 0.25 | U | | | < 1.25 | U | < 1.25 | U | | | < 0.626 | U | | | | | | |
| tert-Butylbenzene | µg/L | 4,100 | | | < 0.5 | U | < 0.5 | U | | | < 2.5 | U | < 2.5 | U | | | < 1.25 | U | | | | | | |
| Tetrachloroethene | µg/L | 5 | | | < 0.5 | U | < 0.5 | U | | | < 2.5 | U | < 2.5 | U | | | < 1.25 | U | | | | | | |
| Toluene | µg/L | 1,000 | | | < 0.5 | U | < 0.5 | U | | | < 2.5 | U | < 2.5 | U | | | < 1.25 | U | | | | | | |
| trans-1,2-Dichloroethene | µg/L | 100 | | | < 0.5 | U | < 0.5 | U | | | < 2.5 | U | < 2.5 | U | | | < 1.25 | U | | | | | | |
| trans-1,3-Dichloropropene | µg/L | 29 | | | < 1 | U | < 1 | U | | | < 5 | U | < 5 | U | | | < 2.5 | U | | | | | | |
| Trichloroethene | µg/L | 5 | | | 1.71 | | 1.72 | | | | 1.65 | J | 1.94 | J | | | 2.63 | | | | | | | |
| Trichlorofluoromethane | µg/L | 31,000 | | | < 0.5 | U | < 0.5 | U | | | < 2.5 | U | < 2.5 | U | | | < 1.25 | U | | | | | | |
| Vinyl chloride | µg/L | 2 | | | 0.728 | J | 0.707 | J | | | < 2.5 | U | < 2.5 | U | | | 0.653 | J | | | | | | |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW13 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW13-051915 | | 67WW13-151118 | | 67WW13-111815 | | 67WW13-151216 | | 67WW13-161215 | | 67WW13-160519 | | 67WW13-051916 | | 67WW13-112817 | | 67WW13-180501 | | 67WW13-180501FD | | 67WW13-181023 | |
| | | Sample Date | 5/19/2015 | | 11/18/2015 | | 11/18/2015 | | 12/16/2015 | | 12/16/2015 | | 5/19/2016 | | 5/19/2016 | | 11/28/2017 | | 5/1/2018 | | 5/1/2018 | | 10/23/2018 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | FD | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| **ANIONS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Chloride | mg/L | NV | 1,680 | | | | | | | | | | | | 1,660 | | 1,570 | | 1,650 | | 1,520 | | 1,420 | |
| Nitrate | mg/L | 10 | < 2 | U | | | | | | | | | | | < 2 | U | < 0.1 | U | 0.674 | | < 0.1 | U | < 0.2 | U |
| Nitrite | mg/L | 1 | 3.4 | J | | | | | | | | | | | < 2 | U | < 0.1 | U | < 0.1 | U | < 0.1 | U | < 0.2 | U |
| Sulfate | mg/L | NV | 344 | | | | | | | | | | | | 358 | | 390 | | 405 | | 370 | | 355 | |
| Sulfide | mg/L | NV | < 1 | U | | | | | | | | | | | < 1 | U | 1.28 | | < 1.5 | U | < 1.5 | U | 2.28 | |
| **TOTAL ORGANIC CARBON** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Inorganic Carbon | mg/L | NV | 224 | | | | | | | | | | | | 71.9 | | 320 | | 340 | | 350 | | 130 | |
| Total Organic Carbon | mg/L | NV | 62.4 | | | | | | | | | | | | 93.3 | | 3.4 | | 3.07 | | 3.18 | | 3.99 | |
| **DHC** | | | | | | | | | | | | | | | | | | | | | | | | |
| BVC | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dehalococcoides | cells/mL | NV | | | | | | | | | | | | | | | 0.3 | NV | 0.2 | | | | 0.4 | J |
| **FIELD TESTS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Conductivity | mS/cm | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | 1.25 | | 0.28 | | 0.28 | | 0 | | 0 | | 0.55 | | 0.55 | | 0.08 | | 0.6 | | | | 0.19 | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | 0.04 | UJ | | | | |
| Flow Rate | mL/Min | NV | | | | | | | | | | | | | | | 100 | | 100 | | | | 100 | |
| Measured well depth | Ft BTOC | NV | | | | | | | | | | | | | | | 28.63 | | 28.48 | | | | 28.75 | |
| Oxidation-Reduction Potentia | mV | NV | 219 | | 158 | | 158 | | 85 | | 85 | | 244 | | 244 | | 303 | | 339 | | | | 281 | |
| pH | SU | NV | 5.95 | | 6.69 | | 6.69 | | 6.49 | | 6.49 | | 5.38 | | 5.38 | | 5.62 | | 7.64 | | | | 5.78 | |
| Temperature | C | NV | 20.22 | | 20.18 | | 20.18 | | 18.41 | | 18.41 | | 18.85 | | 18.85 | | 20.23 | | 19.93 | | | | 18.49 | |
| Turbidity | NTU | NV | 0 | | 0 | | 0 | | 1 | | 1 | | 0 | | 0 | | 1 | | 1.5 | | | | 0 | |
| **GASES** | | | | | | | | | | | | | | | | | | | | | | | | |
| Carbon dioxide | µg/L | NV | | | | | | | | | | | | | | | 470,000 | | 870,000 | | 860,000 | | 620,000 | |
| Ethane | µg/L | NV | < 2 | U | | | | | | | | | | | < 2 | U | < 0.23 | U | < 0.47 | U | < 0.47 | U | < 0.47 | U |
| Ethylene | µg/L | NV | < 2 | U | | | | | | | | | | | < 2 | U | < 0.22 | U | < 0.55 | U | < 0.55 | U | < 0.55 | U |
| Methane | µg/L | NV | < 2 | U | | | | | | | | | | | < 2 | U | 0.32 | J | < 1 | U | < 1 | U | < 0.85 | U |
| **GENERAL CHEMISTRY** | | | | | | | | | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | | | | | | | | | | | | | | | | | | | | | 368 | |
| Ferrous Iron | mg/L | NV | < 0.04 | U | | | | | | | | | | | < 0.04 | U | | | | | | | 0.035 | J |
| **SEMIVOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,4-Dioxane | µg/L | 26 | | | | | | | | | 78.3 | | | | | | 36 | | | | | | | |
| **VOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | µg/L | 110 | < 1.25 | U | | | < 1.25 | U | | | | | | | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1,1-Trichloroethane | µg/L | 200 | < 1.25 | U | | | < 1.25 | U | | | | | | | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1,2,2-Tetrachloroethane | µg/L | 14 | < 1 | U | | | < 1 | U | | | | | | | < 0.8 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | µg/L | 3,100,000 | | | | | | | | | | | | | | | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1,2-Trichloroethane | µg/L | 5 | 5.96 | | | | 7.66 | | | | | | | | 7 | | 5.1 | | 4.8 | | 4.7 | | 6.1 | |
| 1,1-Dichloroethane | µg/L | 10,000 | 30.2 | | | | 46.3 | | | | | | | | 22.5 | | 19 | J | 15 | | 15 | | 32 | |
| 1,1-Dichloroethene | µg/L | 7 | 522 | | | | 762 | | | | | | | | 274 | | 320 | | 160 | | 170 | | 570 | |
| 1,1-Dichloropropene | µg/L | 2.9 | < 1.25 | U | | | < 1.25 | U | | | | | | | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2,3-Trichlorobenzene | µg/L | 310 | < 0.75 | U | | | < 0.75 | U | | | | | | | < 0.6 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2,3-Trichloropropane | µg/L | 0.041 | < 2.5 | U | | | < 2.5 | U | | | | | | | < 2 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2,4-Trichlorobenzene | µg/L | 70 | < 1 | U | | | < 1 | U | | | | | | | < 0.8 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2,4-Trimethylbenzene | µg/L | 5,100 | < 1.25 | U | | | < 1.25 | U | | | | | | | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2-Dibromo-3-chloropropane | µg/L | 0.2 | < 5 | U | | | < 5 | U | | | | | | | < 4 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 1 | U |
| 1,2-Dibromoethane | µg/L | 0.05 | < 1.25 | U | | | < 1.25 | U | | | | | | | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2-Dichlorobenzene | µg/L | 600 | < 0.626 | U | | | < 0.626 | U | | | | | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2-Dichloroethane | µg/L | 5 | 30.6 | | | | 42.6 | | | | | | | | 35.7 | | 32 | | 27 | | 28 | | 43 | |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW13 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW13-051915 | | 67WW13-151118 | | 67WW13-111815 | | 67WW13-151216 | | 67WW13-161215 | | 67WW13-160519 | | 67WW13-051916 | | 67WW13-112817 | | 67WW13-180501 | | 67WW13-180501FD | | 67WW13-181023 | |
| | | Sample Date | 5/19/2015 | | 11/18/2015 | | 11/18/2015 | | 12/16/2015 | | 12/16/2015 | | 5/19/2016 | | 5/19/2016 | | 11/28/2017 | | 5/1/2018 | | 5/1/2018 | | 10/23/2018 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | FD | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,2-Dichloropropane | µg/L | 5 | < 1 | U | | | < 1 | U | | | | | | | < 0.8 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,3,5-Trimethylbenzene | µg/L | 5,100 | < 1.25 | U | | | < 1.25 | U | | | | | | | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,3-Dichlorobenzene | µg/L | 3,100 | < 1.25 | U | | | < 1.25 | U | | | | | | | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,3-Dichloropropane | µg/L | 29 | < 1 | U | | | < 1 | U | | | | | | | < 0.8 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,4-Dichlorobenzene | µg/L | 75 | < 0.626 | U | | | < 0.626 | U | | | | | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 2,2-Dichloropropane | µg/L | 42 | < 1.25 | U | | | < 1.25 | U | | | | | | | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 2-Butanone | µg/L | 61,000 | < 12.5 | U | | | < 12.5 | U | | | | | | | < 10 | U | < 2 | U | < 1 | U | < 1 | U | < 1 | U |
| 2-Chlorotoluene | µg/L | 2,000 | < 0.626 | U | | | < 0.626 | U | | | | | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 2-Hexanone | µg/L | 6,100 | < 12.5 | U | | | < 12.5 | U | | | | | | | < 10 | U | < 2 | U | < 1 | U | < 1 | U | < 1 | U |
| 4-Chlorotoluene | µg/L | 2,000 | < 1.25 | U | | | < 1.25 | U | | | | | | | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Acetone | µg/L | 92,000 | < 12.5 | U | | | < 12.5 | U | | | | | | | < 10 | U | < 2 | U | < 1 | U | < 1 | U | < 2 | U |
| Benzene | µg/L | 5 | < 0.626 | U | | | < 0.626 | U | | | | | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Bromobenzene | µg/L | 2,000 | < 0.626 | U | | | < 0.626 | U | | | | | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Bromochloromethane | µg/L | 4,100 | < 1 | U | | | < 1 | U | | | | | | | < 0.8 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Bromodichloromethane | µg/L | 4.6 | < 1.25 | U | | | < 1.25 | U | | | | | | | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Bromoform | µg/L | 36 | < 2.5 | U | | | < 2.5 | U | | | | | | | < 2 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Bromomethane | µg/L | 140 | < 2.5 | U | | | < 2.5 | U | | | | | | | < 2 | U | < 1 | UJ | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Carbon disulfide | µg/L | 10,000 | < 2.5 | U | | | < 2.5 | U | | | | | | | < 2 | U | < 2 | U | < 1 | U | < 1 | U | < 1 | U |
| Carbon tetrachloride | µg/L | 5 | < 1.25 | U | | | < 1.25 | U | | | | | | | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Chlorobenzene | µg/L | 100 | < 0.626 | U | | | < 0.626 | U | | | | | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Chloroethane | µg/L | 41,000 | < 2.5 | U | | | < 2.5 | U | | | | | | | < 2 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Chloroform | µg/L | 1,000 | 1.7 | J | | | 2.27 | J | | | | | | | 1.36 | J | < 1 | U | 0.76 | J | 0.78 | J | 1.4 | |
| Chloromethane | µg/L | 220 | < 2.5 | U | | | < 2.5 | U | | | | | | | < 2 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| cis-1,2-Dichloroethene | µg/L | 70 | 2.08 | J | | | 2.75 | | | | | | | | 1.55 | J | < 1 | U | 0.99 | J | 1 | | 1.9 | |
| cis-1,3-Dichloropropene | µg/L | 5.3 | < 1.25 | U | | | < 1.25 | U | | | | | | | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Dibromochloromethane | µg/L | 34 | < 1.25 | U | | | < 1.25 | U | | | | | | | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Dibromomethane | µg/L | 380 | < 1.25 | U | | | < 1.25 | U | | | | | | | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Dichlorodifluoromethane | µg/L | 20,000 | < 1.25 | U | | | < 1.25 | U | | | | | | | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | UJ |
| Ethylbenzene | µg/L | 700 | < 1.25 | U | | | < 1.25 | U | | | | | | | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Hexachlorobutadiene | µg/L | 20 | < 1.25 | U | | | < 1.25 | U | | | | | | | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 1 | U |
| Isopropylbenzene | µg/L | 10,000 | < 1.25 | U | | | < 1.25 | U | | | | | | | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| m,p-Xylenes | µg/L | 10,000 | < 2.5 | U | | | < 2.5 | U | | | | | | | < 2 | U | < 2 | U | < 1 | U | < 1 | U | < 1 | U |
| Methyl isobutyl ketone | µg/L | 8,200 | < 12.5 | U | | | < 12.5 | U | | | | | | | < 10 | U | < 2 | U | < 1 | U | < 1 | U | < 1 | U |
| Methylene chloride | µg/L | 5 | < 1.25 | U | | | < 1.25 | U | | | | | | | < 1 | U | < 2 | UJ | < 1 | U | < 1 | U | < 1 | U |
| Naphthalene | µg/L | 2,000 | < 1 | U | | | < 1 | U | | | | | | | < 0.8 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| n-Butylbenzene | µg/L | 4,100 | < 1.25 | U | | | < 1.25 | U | | | | | | | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| n-Propylbenzene | µg/L | 4,100 | < 0.626 | U | | | < 0.626 | U | | | | | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| o-Xylene | µg/L | 10,000 | < 1.25 | U | | | < 1.25 | U | | | | | | | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| p-Isopropyltoluene | µg/L | 10,000 | < 1.25 | U | | | < 1.25 | U | | | | | | | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| sec-Butylbenzene | µg/L | 4,100 | < 1.25 | U | | | < 1.25 | U | | | | | | | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Styrene | µg/L | 100 | < 0.626 | U | | | < 0.626 | U | | | | | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| tert-Butylbenzene | µg/L | 4,100 | < 1.25 | U | | | < 1.25 | U | | | | | | | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Tetrachloroethene | µg/L | 5 | < 1.25 | U | | | < 1.25 | U | | | | | | | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Toluene | µg/L | 1,000 | < 1.25 | U | | | < 1.25 | U | | | | | | | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| trans-1,2-Dichloroethene | µg/L | 100 | < 1.25 | U | | | < 1.25 | U | | | | | | | < 1 | U | < 1 | UJ | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| trans-1,3-Dichloropropene | µg/L | 29 | < 2.5 | U | | | < 2.5 | U | | | | | | | < 2 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Trichloroethene | µg/L | 5 | 2.91 | | | | 3.32 | | | | | | | | 1.67 | J | < 1 | U | < 0.5 | U | < 0.5 | U | 2.4 | |
| Trichlorofluoromethane | µg/L | 31,000 | < 1.25 | U | | | < 1.25 | U | | | | | | | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Vinyl chloride | µg/L | 2 | 0.695 | J | | | 1.65 | J | | | | | | | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW13 | | | | | | | | 67WW14 | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW13-190501 | | 67WW13-190501-FD | | 67WW13-191028 | | 67WW13-201103 | | 67WW14-131001 | | 67WW14-100113-FD | | 67WW14-100113 | | 67WW14-140124 | | 67WW14-012414 | | 67WW14-140507 | | 67WW14-050714 | |
| | | Sample Date | 5/1/2019 | | 5/1/2019 | | 10/28/2019 | | 11/3/2020 | | 10/1/2013 | | 10/1/2013 | | 10/1/2013 | | 1/24/2014 | | 1/24/2014 | | 5/7/2014 | | 5/7/2014 | |
| | | Sample Purpose | REG | | FD | | REG | | REG | | REG | | FD | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| **ANIONS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Chloride | mg/L | NV | 1,240 | | 1,300 | | 1,280 | | 1,270 | | | | | | | | | | | | | | | |
| Nitrate | mg/L | 10 | 0.697 | | 0.657 | | < 0.2 | U | < 0.2 | U | | | | | | | | | | | | | | |
| Nitrite | mg/L | 1 | | | | | | | | | | | | | | | | | | | | | | |
| Sulfate | mg/L | NV | 284 | | 318 | | 304 | | 346 | | | | | | | | | | | | | | | |
| Sulfide | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **TOTAL ORGANIC CARBON** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Inorganic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Total Organic Carbon | mg/L | NV | 2.91 | | 3.24 | | 1.69 | | 1.45 | J | | | | | | | | | | | | | | |
| **DHC** | | | | | | | | | | | | | | | | | | | | | | | | |
| BVC | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dehalococcoides | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| **FIELD TESTS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Conductivity | mS/cm | NV | | | | | | | 4.97 | | | | | | | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | 2.77 | | | | 0.8 | | 1.28 | | 1.34 | | | | 1.34 | | 0.67 | | 0.67 | | 1.17 | | 1.17 | |
| Ferrous Iron | mg/L | NV | 0 | | | | 0.06 | | 0.9 | | | | | | | | | | | | | | | |
| Flow Rate | mL/Min | NV | 100 | | | | 100 | | 100 | | | | | | | | | | | | | | | |
| Measured well depth | Ft BTOC | NV | 28.6 | | | | 28.58 | | | | | | | | | | | | | | | | | |
| Oxidation-Reduction Potentia | mV | NV | 209 | | | | 185 | | 205 | | -60 | | | | -60 | | -37 | | -37 | | -5 | | -5 | |
| pH | SU | NV | 5.48 | | | | 6.26 | | 6.07 | | 6.47 | | | | 6.47 | | 6.52 | | 6.52 | | 5.67 | | 5.67 | |
| Temperature | C | NV | 21.37 | | | | 19.38 | | 15.93 | | 22.78 | | | | 22.78 | | 18.42 | | 18.42 | | 19.86 | | 19.86 | |
| Turbidity | NTU | NV | 0 | | | | 0 | | 0 | | 3.6 | | | | 3.6 | | 15.5 | | 15.5 | | 24.8 | | 24.8 | |
| **GASES** | | | | | | | | | | | | | | | | | | | | | | | | |
| Carbon dioxide | µg/L | NV | 840,000 | | 860,000 | | 140,000 | | 350,000 | | | | | | | | | | | | | | | |
| Ethane | µg/L | NV | < 0.47 | U | < 0.47 | U | < 0.47 | U | < 0.47 | U | | | | | | | | | | | | | | |
| Ethylene | µg/L | NV | < 0.55 | U | < 0.55 | U | < 0.55 | U | < 0.55 | U | | | | | | | | | | | | | | |
| Methane | µg/L | NV | < 1 | U | < 1 | U | < 1 | U | < 1 | U | | | | | | | | | | | | | | |
| **GENERAL CHEMISTRY** | | | | | | | | | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **SEMIVOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,4-Dioxane | µg/L | 26 | | | | | | | | | | | | | | | | | | | | | | |
| **VOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | µg/L | 110 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| 1,1,1-Trichloroethane | µg/L | 200 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| 1,1,2,2-Tetrachloroethane | µg/L | 14 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.4 | U | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | µg/L | 3,100,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | | | | | | | | | | | | |
| 1,1,2-Trichloroethane | µg/L | 5 | 3.9 | | 3.8 | | 5 | | 5.7 | | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| 1,1-Dichloroethane | µg/L | 10,000 | 14 | | 13 | | 31 | | 33 | | | | 0.304 | J | 0.197 | J | | | 0.275 | J | | | 0.538 | J |
| 1,1-Dichloroethene | µg/L | 7 | 200 | | 160 | | 640 | | 720 | | | | 2.22 | | 1.82 | J | | | 2.58 | | | | 4.27 | |
| 1,1-Dichloropropene | µg/L | 2.9 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| 1,2,3-Trichlorobenzene | µg/L | 310 | < 0.5 | U | < 0.5 | U | < 0.5 | UJ | < 1 | U | | | < 0.3 | U | < 0.3 | U | | | < 0.3 | U | | | < 0.3 | U |
| 1,2,3-Trichloropropane | µg/L | 0.041 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | < 1 | U | < 1 | U | | | < 1 | U | | | < 1 | U |
| 1,2,4-Trichlorobenzene | µg/L | 70 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | < 0.4 | U | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U |
| 1,2,4-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| 1,2-Dibromo-3-chloropropane | µg/L | 0.2 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 2 | UJ | < 2 | UJ | | | < 2 | U | | | < 2 | U |
| 1,2-Dibromoethane | µg/L | 0.05 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| 1,2-Dichlorobenzene | µg/L | 600 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U |
| 1,2-Dichloroethane | µg/L | 5 | 24 | | 23 | | 36 | | 44 | | | | 0.849 | J | 0.692 | J | | | 0.666 | J | | | 0.897 | J |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW13 | | | | | | | | 67WW14 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW13-190501 | | 67WW13-190501-FD | | 67WW13-191028 | | 67WW13-201103 | | 67WW14-131001 | | 67WW14-100113-FD | | 67WW14-100113 | | 67WW14-140124 | | 67WW14-012414 | | 67WW14-140507 | | 67WW14-050714 | |
| | | Sample Date | 5/1/2019 | | 5/1/2019 | | 10/28/2019 | | 11/3/2020 | | 10/1/2013 | | 10/1/2013 | | 10/1/2013 | | 1/24/2014 | | 1/24/2014 | | 5/7/2014 | | 5/7/2014 | |
| | | Sample Purpose | REG | | FD | | REG | | REG | | REG | | FD | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,2-Dichloropropane | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.4 | U | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U |
| 1,3,5-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| 1,3-Dichlorobenzene | µg/L | 3,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| 1,3-Dichloropropane | µg/L | 29 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.4 | U | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U |
| 1,4-Dichlorobenzene | µg/L | 75 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U |
| 2,2-Dichloropropane | µg/L | 42 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| 2-Butanone | µg/L | 61,000 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | | | 7.47 | J | 9.06 | J | | | < 5 | U | | | < 5 | U |
| 2-Chlorotoluene | µg/L | 2,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U |
| 2-Hexanone | µg/L | 6,100 | < 1 | U | < 1 | U | < 1 | U | < 2 | U | | | < 5 | U | < 5 | U | | | < 5 | U | | | < 5 | U |
| 4-Chlorotoluene | µg/L | 2,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Acetone | µg/L | 92,000 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | | | 2.59 | J | 3.27 | J | | | < 5 | U | | | < 5 | U |
| Benzene | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | | < 0.13 | U |
| Bromobenzene | µg/L | 2,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U |
| Bromochloromethane | µg/L | 4,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.4 | U | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U |
| Bromodichloromethane | µg/L | 4.6 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Bromoform | µg/L | 36 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 1 | U | < 1 | U | | | < 1 | U | | | < 1 | U |
| Bromomethane | µg/L | 140 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 1 | U | < 1 | U | | | < 1 | U | | | < 1 | U |
| Carbon disulfide | µg/L | 10,000 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | | | < 1 | U | < 1 | U | | | < 1 | U | | | < 1 | U |
| Carbon tetrachloride | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Chlorobenzene | µg/L | 100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U |
| Chloroethane | µg/L | 41,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 1 | U | < 1 | U | | | < 1 | U | | | < 1 | U |
| Chloroform | µg/L | 1,000 | < 0.5 | U | < 0.5 | U | 0.66 | J | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U |
| Chloromethane | µg/L | 220 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 1 | U | 0.64 | J | | | < 1 | U | | | < 1 | U |
| cis-1,2-Dichloroethene | µg/L | 70 | 0.94 | J | 0.81 | J | 1.8 | | 1.6 | | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| cis-1,3-Dichloropropene | µg/L | 5.3 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Dibromochloromethane | µg/L | 34 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Dibromomethane | µg/L | 380 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Dichlorodifluoromethane | µg/L | 20,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Ethylbenzene | µg/L | 700 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Hexachlorobutadiene | µg/L | 20 | < 1 | U | < 1 | U | < 0.5 | U | < 1 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Isopropylbenzene | µg/L | 10,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| m,p-Xylenes | µg/L | 10,000 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | | | < 1 | U | < 1 | U | | | < 1 | U | | | < 1 | U |
| Methyl isobutyl ketone | µg/L | 8,200 | < 1 | U | < 1 | U | < 1 | U | < 2 | U | | | < 5 | U | < 5 | U | | | < 5 | U | | | < 5 | U |
| Methylene chloride | µg/L | 5 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Naphthalene | µg/L | 2,000 | < 0.5 | U | < 0.5 | U | < 0.5 | UJ | < 0.5 | U | | | < 0.4 | U | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U |
| n-Butylbenzene | µg/L | 4,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| n-Propylbenzene | µg/L | 4,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U |
| o-Xylene | µg/L | 10,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| p-Isopropyltoluene | µg/L | 10,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | 0.353 | J | 0.431 | J | | | < 0.5 | U | | | < 0.5 | U |
| sec-Butylbenzene | µg/L | 4,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Styrene | µg/L | 100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U |
| tert-Butylbenzene | µg/L | 4,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Tetrachloroethene | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Toluene | µg/L | 1,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| trans-1,2-Dichloroethene | µg/L | 100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| trans-1,3-Dichloropropene | µg/L | 29 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 1 | U | < 1 | U | | | < 1 | U | | | < 1 | U |
| Trichloroethene | µg/L | 5 | 1.1 | | 1 | | 2.6 | | 3.1 | | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Trichlorofluoromethane | µg/L | 31,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |
| Vinyl chloride | µg/L | 2 | < 0.5 | U | < 0.5 | U | 0.82 | J | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW14 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW14-140725 | | 67WW14-072514 | | 67WW14-141203 | | 67WW14-120314 | | 67WW14-150210 | | 67WW14FD-021015 | | 67WW14-021015 | | 67WW14-150512 | | 67WW14FD-051215 | | 67WW14-051215 | | 67WW14-151118 | |
| | | Sample Date | 7/25/2014 | | 7/25/2014 | | 12/3/2014 | | 12/3/2014 | | 2/10/2015 | | 2/10/2015 | | 2/10/2015 | | 5/12/2015 | | 5/12/2015 | | 5/12/2015 | | 11/18/2015 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | FD | | REG | | REG | | FD | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| **ANIONS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Chloride | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Nitrate | mg/L | 10 | | | | | | | | | | | | | | | | | | | | | | |
| Nitrite | mg/L | 1 | | | | | | | | | | | | | | | | | | | | | | |
| Sulfate | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Sulfide | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **TOTAL ORGANIC CARBON** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Inorganic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Total Organic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **DHC** | | | | | | | | | | | | | | | | | | | | | | | | |
| BVC | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dehalococcoides | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| **FIELD TESTS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Conductivity | mS/cm | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | 0.12 | | 0.12 | | 0 | | 0 | | 0.63 | | | | 0.63 | | 0.68 | | | | 0.68 | | 0.52 | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Flow Rate | mL/Min | NV | | | | | | | | | | | | | | | | | | | | | | |
| Measured well depth | Ft BTOC | NV | | | | | | | | | | | | | | | | | | | | | | |
| Oxidation-Reduction Potentia | mV | NV | 210 | | 210 | | -8 | | -8 | | -13 | | | | -13 | | 158 | | | | 158 | | 136 | |
| pH | SU | NV | 5.34 | | 5.34 | | 6.34 | | 6.34 | | 6.79 | | | | 6.79 | | 5.57 | | | | 5.57 | | 6.58 | |
| Temperature | C | NV | 25.56 | | 25.56 | | 20.74 | | 20.74 | | 15.24 | | | | 15.24 | | 20.48 | | | | 20.48 | | 21.67 | |
| Turbidity | NTU | NV | 17.3 | | 17.3 | | 8.1 | | 8.1 | | 7 | | | | 7 | | 161 | | | | 161 | | 6.5 | |
| **GASES** | | | | | | | | | | | | | | | | | | | | | | | | |
| Carbon dioxide | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethylene | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Methane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **GENERAL CHEMISTRY** | | | | | | | | | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **SEMIVOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,4-Dioxane | µg/L | 26 | | | | | | | | | | | | | | | | | | | | | | |
| **VOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | µg/L | 110 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | |
| 1,1,1-Trichloroethane | µg/L | 200 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | |
| 1,1,2,2-Tetrachloroethane | µg/L | 14 | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | < 0.4 | U | | | < 0.4 | U | < 0.4 | U | | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | µg/L | 3,100,000 | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,2-Trichloroethane | µg/L | 5 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | |
| 1,1-Dichloroethane | µg/L | 10,000 | | | 0.58 | J | | | 0.451 | J | | | 0.369 | J | 0.434 | J | | | 0.427 | J | 0.418 | J | | |
| 1,1-Dichloroethene | µg/L | 7 | | | 3.57 | | | | 4.73 | | | | 3.61 | | 3.46 | | | | 2.93 | | 2.77 | | | |
| 1,1-Dichloropropene | µg/L | 2.9 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | |
| 1,2,3-Trichlorobenzene | µg/L | 310 | | | < 0.3 | U | | | < 0.3 | U | | | < 0.3 | U | < 0.3 | U | | | < 0.3 | U | < 0.3 | U | | |
| 1,2,3-Trichloropropane | µg/L | 0.041 | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | | | < 1 | U | < 1 | U | | |
| 1,2,4-Trichlorobenzene | µg/L | 70 | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | < 0.4 | U | | | < 0.4 | U | < 0.4 | U | | |
| 1,2,4-Trimethylbenzene | µg/L | 5,100 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | |
| 1,2-Dibromo-3-chloropropane | µg/L | 0.2 | | | < 2 | U | | | < 2 | U | | | < 2 | U | < 2 | U | | | < 2 | U | < 2 | U | | |
| 1,2-Dibromoethane | µg/L | 0.05 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | |
| 1,2-Dichlorobenzene | µg/L | 600 | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | |
| 1,2-Dichloroethane | µg/L | 5 | | | 1.31 | | | | 0.79 | J | | | 0.657 | J | 0.64 | J | | | 0.815 | J | 0.799 | J | | |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW14 | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW14-140725 | | 67WW14-072514 | | 67WW14-141203 | | 67WW14-120314 | | 67WW14-150210 | | 67WW14FD-021015 | | 67WW14-021015 | | 67WW14-150512 | | 67WW14FD-051215 | | 67WW14-051215 | | 67WW14-151118 | |
| | | Sample Date | 7/25/2014 | | 7/25/2014 | | 12/3/2014 | | 12/3/2014 | | 2/10/2015 | | 2/10/2015 | | 2/10/2015 | | 5/12/2015 | | 5/12/2015 | | 5/12/2015 | | 11/18/2015 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | FD | | REG | | REG | | FD | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,2-Dichloropropane | µg/L | 5 | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | < 0.4 | U | | | < 0.4 | U | < 0.4 | U | | |
| 1,3,5-Trimethylbenzene | µg/L | 5,100 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | |
| 1,3-Dichlorobenzene | µg/L | 3,100 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | |
| 1,3-Dichloropropane | µg/L | 29 | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | < 0.4 | U | | | < 0.4 | U | < 0.4 | U | | |
| 1,4-Dichlorobenzene | µg/L | 75 | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | |
| 2,2-Dichloropropane | µg/L | 42 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | |
| 2-Butanone | µg/L | 61,000 | | | < 5 | U | | | < 5 | U | | | < 5 | U | < 5 | U | | | < 5 | U | < 5 | UJ | | |
| 2-Chlorotoluene | µg/L | 2,000 | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | |
| 2-Hexanone | µg/L | 6,100 | | | < 5 | U | | | < 5 | U | | | < 5 | U | < 5 | U | | | < 5 | U | < 5 | UJ | | |
| 4-Chlorotoluene | µg/L | 2,000 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | |
| Acetone | µg/L | 92,000 | | | < 5 | U | | | < 5 | U | | | < 5 | U | < 5 | U | | | < 5 | U | 4 | J | | |
| Benzene | µg/L | 5 | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | |
| Bromobenzene | µg/L | 2,000 | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | |
| Bromochloromethane | µg/L | 4,100 | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | < 0.4 | U | | | < 0.4 | U | < 0.4 | U | | |
| Bromodichloromethane | µg/L | 4.6 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | |
| Bromoform | µg/L | 36 | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | | | < 1 | U | < 1 | U | | |
| Bromomethane | µg/L | 140 | | | < 1 | U | | | < 1 | U | | | < 1 | UJ | < 1 | UJ | | | < 1 | U | < 1 | U | | |
| Carbon disulfide | µg/L | 10,000 | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | | | < 1 | U | < 1 | U | | |
| Carbon tetrachloride | µg/L | 5 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | |
| Chlorobenzene | µg/L | 100 | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | |
| Chloroethane | µg/L | 41,000 | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | | | < 1 | U | < 1 | U | | |
| Chloroform | µg/L | 1,000 | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | |
| Chloromethane | µg/L | 220 | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | | | < 1 | U | < 1 | U | | |
| cis-1,2-Dichloroethene | µg/L | 70 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | |
| cis-1,3-Dichloropropene | µg/L | 5.3 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | |
| Dibromochloromethane | µg/L | 34 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | |
| Dibromomethane | µg/L | 380 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | |
| Dichlorodifluoromethane | µg/L | 20,000 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | |
| Ethylbenzene | µg/L | 700 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | |
| Hexachlorobutadiene | µg/L | 20 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | |
| Isopropylbenzene | µg/L | 10,000 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | |
| m,p-Xylenes | µg/L | 10,000 | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | | | < 1 | U | < 1 | U | | |
| Methyl isobutyl ketone | µg/L | 8,200 | | | < 5 | U | | | < 5 | U | | | < 5 | U | < 5 | U | | | < 5 | UJ | < 5 | U | | |
| Methylene chloride | µg/L | 5 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | |
| Naphthalene | µg/L | 2,000 | | | < 0.4 | U | | | < 0.4 | U | | | < 0.4 | U | < 0.4 | U | | | < 0.4 | U | < 0.4 | U | | |
| n-Butylbenzene | µg/L | 4,100 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | |
| n-Propylbenzene | µg/L | 4,100 | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | |
| o-Xylene | µg/L | 10,000 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | |
| p-Isopropyltoluene | µg/L | 10,000 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | |
| sec-Butylbenzene | µg/L | 4,100 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | |
| Styrene | µg/L | 100 | | | < 0.25 | U | | | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | | < 0.25 | U | < 0.25 | U | | |
| tert-Butylbenzene | µg/L | 4,100 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | |
| Tetrachloroethene | µg/L | 5 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | |
| Toluene | µg/L | 1,000 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | |
| trans-1,2-Dichloroethene | µg/L | 100 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | |
| trans-1,3-Dichloropropene | µg/L | 29 | | | < 1 | U | | | < 1 | U | | | < 1 | U | < 1 | U | | | < 1 | U | < 1 | U | | |
| Trichloroethene | µg/L | 5 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | |
| Trichlorofluoromethane | µg/L | 31,000 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | |
| Vinyl chloride | µg/L | 2 | | | < 0.5 | U | | | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | | |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW14 | | | | | | | | | | | | | | | | | | 67WW15 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW14-111815 | | 67WW14-160518 | | 67WW14-051816 | | 67WW14-112717 | | 67WW14-180502 | | 67WW14-181022 | | 67WW14-190502 | | 67WW14-191024 | | 67WW14-201102 | | 67WW15-160519 | | 67WW15-051916 | |
| | | Sample Date | 11/18/2015 | | 5/18/2016 | | 5/18/2016 | | 11/27/2017 | | 5/2/2018 | | 10/22/2018 | | 5/2/2019 | | 10/24/2019 | | 11/2/2020 | | 5/19/2016 | | 5/19/2016 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| **ANIONS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Chloride | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Nitrate | mg/L | 10 | | | | | | | | | | | | | | | | | | | | | | |
| Nitrite | mg/L | 1 | | | | | | | | | | | | | | | | | | | | | | |
| Sulfate | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Sulfide | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **TOTAL ORGANIC CARBON** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Inorganic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Total Organic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **DHC** | | | | | | | | | | | | | | | | | | | | | | | | |
| BVC | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dehalococcoides | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| **FIELD TESTS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Conductivity | mS/cm | NV | | | | | | | | | | | | | | | | | 2.64 | | | | | |
| Dissolved oxygen | mg/L | NV | 0.52 | | 1.04 | | 1.04 | | 1.17 | | 0.19 | | 0.66 | | 0.27 | | 0.15 | | 0.25 | | 1.5 | | 1.5 | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Flow Rate | mL/Min | NV | | | | | | | 100 | | 100 | | 100 | | 100 | | 100 | | 100 | | | | | |
| Measured well depth | Ft BTOC | NV | | | | | | | 30.58 | | 30.55 | | 30.47 | | 30.62 | | 30.52 | | | | | | | |
| Oxidation-Reduction Potentia | mV | NV | 136 | | 252 | | 252 | | 250 | | 394 | | 274 | | 228 | | -44 | | 47 | | 228 | | 228 | |
| pH | SU | NV | 6.58 | | 5.36 | | 5.36 | | 5.85 | | 5.75 | | 5.76 | | 5.89 | | 6.19 | | 5.60 | | 5.58 | | 5.58 | |
| Temperature | C | NV | 21.67 | | 19.84 | | 19.84 | | 19.19 | | 22.09 | | 21.68 | | 20.83 | | 17.99 | | 16.43 | | 18.7 | | 18.7 | |
| Turbidity | NTU | NV | 6.5 | | 172 | | 172 | | 20.7 | | 9.9 | | 0 | | 30.6 | | 3.7 | | 0 | | 6.8 | | 6.8 | |
| **GASES** | | | | | | | | | | | | | | | | | | | | | | | | |
| Carbon dioxide | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethylene | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Methane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **GENERAL CHEMISTRY** | | | | | | | | | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **SEMIVOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,4-Dioxane | µg/L | 26 | | | | | | | 17 | | | | | | | | | | | | | | | |
| **VOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | µg/L | 110 | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 10 | U |
| 1,1,1-Trichloroethane | µg/L | 200 | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 10 | U |
| 1,1,2,2-Tetrachloroethane | µg/L | 14 | < 0.4 | U | | | < 0.4 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.4 | U |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | µg/L | 3,100,000 | | | | | | | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | | |
| 1,1,2-Trichloroethane | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | 25.7 | |
| 1,1-Dichloroethane | µg/L | 10,000 | 3.7 | | | | 2.15 | | < 1 | U | < 0.5 | U | 1.3 | | 1.4 | | 1.8 | | 1.2 | | | | 57.3 | |
| 1,1-Dichloroethene | µg/L | 7 | 26.3 | | | | 10.8 | | 5.6 | | 4.2 | | 6.6 | | 5.3 | | 7.4 | | 4.9 | | | | 2460 | |
| 1,1-Dichloropropene | µg/L | 2.9 | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U |
| 1,2,3-Trichlorobenzene | µg/L | 310 | < 0.3 | U | | | < 0.3 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | < 6 | U |
| 1,2,3-Trichloropropane | µg/L | 0.041 | < 1 | U | | | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | < 1 | U |
| 1,2,4-Trichlorobenzene | µg/L | 70 | < 0.4 | U | | | < 0.4 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | < 8 | U |
| 1,2,4-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 10 | U |
| 1,2-Dibromo-3-chloropropane | µg/L | 0.2 | < 2 | U | | | < 2 | U | < 1 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 2 | U |
| 1,2-Dibromoethane | µg/L | 0.05 | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U |
| 1,2-Dichlorobenzene | µg/L | 600 | < 0.25 | U | | | < 0.25 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | < 0.25 | U |
| 1,2-Dichloroethane | µg/L | 5 | 5.83 | | | | 3.54 | | 3.1 | | 1.9 | | 2.5 | | 1.8 | | 1.5 | | < 0.5 | U | | | 86.5 | |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW14 | | | | | | | | | | | | | | | | | | 67WW15 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW14-111815 | | 67WW14-160518 | | 67WW14-051816 | | 67WW14-112717 | | 67WW14-180502 | | 67WW14-181022 | | 67WW14-190502 | | 67WW14-191024 | | 67WW14-201102 | | 67WW15-160519 | | 67WW15-051916 | |
| | | Sample Date | 11/18/2015 | | 5/18/2016 | | 5/18/2016 | | 11/27/2017 | | 5/2/2018 | | 10/22/2018 | | 5/2/2019 | | 10/24/2019 | | 11/2/2020 | | 5/19/2016 | | 5/19/2016 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,2-Dichloropropane | µg/L | 5 | < 0.4 | U | | | < 0.4 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 8 | U |
| 1,3,5-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U |
| 1,3-Dichlorobenzene | µg/L | 3,100 | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | < 0.5 | U |
| 1,3-Dichloropropane | µg/L | 29 | < 0.4 | U | | | < 0.4 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.4 | U |
| 1,4-Dichlorobenzene | µg/L | 75 | < 0.25 | U | | | < 0.25 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | 0.173 | J |
| 2,2-Dichloropropane | µg/L | 42 | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U |
| 2-Butanone | µg/L | 61,000 | < 5 | U | | | < 5 | U | < 2 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | | | < 5 | U |
| 2-Chlorotoluene | µg/L | 2,000 | < 0.25 | U | | | < 0.25 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U |
| 2-Hexanone | µg/L | 6,100 | < 5 | U | | | < 5 | U | < 2 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 2 | U | | | < 100 | U |
| 4-Chlorotoluene | µg/L | 2,000 | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | < 0.5 | U |
| Acetone | µg/L | 92,000 | < 5 | U | | | < 5 | U | < 2 | U | < 1 | U | < 2 | U | < 6.3 | U | < 1 | U | < 1 | U | | | < 5 | U |
| Benzene | µg/L | 5 | < 0.25 | U | | | < 0.25 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | 0.145 | J |
| Bromobenzene | µg/L | 2,000 | < 0.25 | U | | | < 0.25 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | < 0.25 | U |
| Bromochloromethane | µg/L | 4,100 | < 0.4 | U | | | < 0.4 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.4 | U |
| Bromodichloromethane | µg/L | 4.6 | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 10 | U |
| Bromoform | µg/L | 36 | < 1 | U | | | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 20 | U |
| Bromomethane | µg/L | 140 | < 1 | U | | | < 1 | UJ | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 20 | U |
| Carbon disulfide | µg/L | 10,000 | < 1 | U | | | < 1 | U | < 2 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | | | < 20 | U |
| Carbon tetrachloride | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U |
| Chlorobenzene | µg/L | 100 | < 0.25 | U | | | < 0.25 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U |
| Chloroethane | µg/L | 41,000 | < 1 | U | | | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 1 | U |
| Chloroform | µg/L | 1,000 | < 0.25 | U | | | < 0.25 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | 1.38 | |
| Chloromethane | µg/L | 220 | < 1 | U | | | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 1 | U |
| cis-1,2-Dichloroethene | µg/L | 70 | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | 6.1 | J |
| cis-1,3-Dichloropropene | µg/L | 5.3 | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U |
| Dibromochloromethane | µg/L | 34 | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 10 | U |
| Dibromomethane | µg/L | 380 | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 10 | U |
| Dichlorodifluoromethane | µg/L | 20,000 | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | UJ | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 10 | U |
| Ethylbenzene | µg/L | 700 | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U |
| Hexachlorobutadiene | µg/L | 20 | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 1 | U | | | < 10 | UJ |
| Isopropylbenzene | µg/L | 10,000 | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U |
| m,p-Xylenes | µg/L | 10,000 | < 1 | U | | | < 1 | U | < 2 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | | | < 1 | U |
| Methyl isobutyl ketone | µg/L | 8,200 | < 5 | U | | | < 5 | U | < 2 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 2 | U | | | < 100 | U |
| Methylene chloride | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | < 2 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | | | < 10 | U |
| Naphthalene | µg/L | 2,000 | < 0.4 | U | | | < 0.4 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | 36.7 | |
| n-Butylbenzene | µg/L | 4,100 | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | < 10 | U |
| n-Propylbenzene | µg/L | 4,100 | < 0.25 | U | | | < 0.25 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U |
| o-Xylene | µg/L | 10,000 | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U |
| p-Isopropyltoluene | µg/L | 10,000 | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U |
| sec-Butylbenzene | µg/L | 4,100 | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U |
| Styrene | µg/L | 100 | < 0.25 | U | | | < 0.25 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U |
| tert-Butylbenzene | µg/L | 4,100 | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 10 | U |
| Tetrachloroethene | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 10 | U |
| Toluene | µg/L | 1,000 | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 10 | U |
| trans-1,2-Dichloroethene | µg/L | 100 | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 10 | U |
| trans-1,3-Dichloropropene | µg/L | 29 | < 1 | U | | | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 20 | U |
| Trichloroethene | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | 5.48 | J |
| Trichlorofluoromethane | µg/L | 31,000 | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U |
| Vinyl chloride | µg/L | 2 | 0.297 | J | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | 1.07 | |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW15 | | | | | | | | | | | | 67WW16I | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW15-112717 | | 67WW15-180502 | | 67WW15-181023 | | 67WW15-190503 | | 67WW15-191024 | | 67WW15-201103 | | 67WW16-160518 | | 67WW16-051816 | | 67WW16I-112917 | | 67WW16I-180503 | | 67WW16I-181025 | |
| | | Sample Date | 11/27/2017 | | 5/2/2018 | | 10/23/2018 | | 5/3/2019 | | 10/24/2019 | | 11/3/2020 | | 5/18/2016 | | 5/18/2016 | | 11/29/2017 | | 5/3/2018 | | 10/25/2018 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| **ANIONS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Chloride | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Nitrate | mg/L | 10 | | | | | | | | | | | | | | | | | | | | | | |
| Nitrite | mg/L | 1 | | | | | | | | | | | | | | | | | | | | | | |
| Sulfate | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Sulfide | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **TOTAL ORGANIC CARBON** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Inorganic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Total Organic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **DHC** | | | | | | | | | | | | | | | | | | | | | | | | |
| BVC | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| Dehalococcoides | cells/mL | NV | | | | | | | | | | | | | | | | | | | | | | |
| **FIELD TESTS** | | | | | | | | | | | | | | | | | | | | | | | | |
| Conductivity | mS/cm | NV | | | | | | | | | | | 1.90 | | | | | | | | | | | |
| Dissolved oxygen | mg/L | NV | 1.95 | | 0 | | 0.16 | | 2.85 | | 0.03 | | 0.56 | | 0.37 | | 0.37 | | 0.41 | | 0 | | 0.14 | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Flow Rate | mL/Min | NV | 100 | | 100 | | 100 | | 100 | | 100 | | 100 | | | | | | 100 | | 100 | | 100 | |
| Measured well depth | Ft BTOC | NV | 47.4 | | 47.35 | | 47.59 | | 47.43 | | 47.3 | | | | | | | | 80.38 | | 80.23 | | 80.49 | |
| Oxidation-Reduction Potentia | mV | NV | 320 | | 395 | | 253 | | 231 | | 230 | | 224 | | 94 | | 94 | | -2 | | 85 | | 41 | |
| pH | SU | NV | 5.51 | | 5.29 | | 5.61 | | 5.43 | | 5.69 | | 5.37 | | 4.99 | | 4.99 | | 6.26 | | 6.14 | | 6.24 | |
| Temperature | C | NV | 18.27 | | 19.5 | | 18.06 | | 20.33 | | 21.62 | | 16.91 | | 18.98 | | 18.98 | | 19.76 | | 19.73 | | 17.69 | |
| Turbidity | NTU | NV | 55.9 | | 13.3 | | 2.1 | | 0 | | 0 | | 0 | | 8.7 | | 8.7 | | 6.3 | | 4.2 | | 7.6 | |
| **GASES** | | | | | | | | | | | | | | | | | | | | | | | | |
| Carbon dioxide | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ethylene | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Methane | µg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **GENERAL CHEMISTRY** | | | | | | | | | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | | | | | |
| **SEMIVOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,4-Dioxane | µg/L | 26 | 12 | | | | | | | | | | | | | | | | 0.33 | | | | | |
| **VOLATILES** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | µg/L | 110 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| 1,1,1-Trichloroethane | µg/L | 200 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| 1,1,2,2-Tetrachloroethane | µg/L | 14 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.4 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | µg/L | 3,100,000 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | | | < 1 | U | < 0.5 | U | < 0.5 | U |
| 1,1,2-Trichloroethane | µg/L | 5 | 5.6 | | 5.6 | | 6 | | 5.4 | | 6.4 | | 6.4 | | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| 1,1-Dichloroethane | µg/L | 10,000 | 11 | | 10 | | 13 | | 9.2 | | 13 | | 14 | | | | < 0.25 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| 1,1-Dichloroethene | µg/L | 7 | 510 | | 380 | | 670 | | 330 | | 640 | J | 730 | | | | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| 1,1-Dichloropropene | µg/L | 2.9 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| 1,2,3-Trichlorobenzene | µg/L | 310 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | UJ | < 1 | U | | | < 0.3 | U | < 1 | U | < 0.5 | U | < 0.5 | UJ |
| 1,2,3-Trichloropropane | µg/L | 0.041 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| 1,2,4-Trichlorobenzene | µg/L | 70 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | < 0.4 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| 1,2,4-Trimethylbenzene | µg/L | 5,100 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| 1,2-Dibromo-3-chloropropane | µg/L | 0.2 | < 1 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 2 | U | < 1 | U | < 0.5 | U | < 1 | U |
| 1,2-Dibromoethane | µg/L | 0.05 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| 1,2-Dichlorobenzene | µg/L | 600 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | < 0.25 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| 1,2-Dichloroethane | µg/L | 5 | 27 | | 26 | | 30 | | 22 | | 27 | | 29 | | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW15 | | | | | | | | | | | | 67WW16I | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW15-112717 | | 67WW15-180502 | | 67WW15-181023 | | 67WW15-190503 | | 67WW15-191024 | | 67WW15-201103 | | 67WW16-160518 | | 67WW16-051816 | | 67WW16I-112917 | | 67WW16I-180503 | | 67WW16I-181025 | |
| | | Sample Date | 11/27/2017 | | 5/2/2018 | | 10/23/2018 | | 5/3/2019 | | 10/24/2019 | | 11/3/2020 | | 5/18/2016 | | 5/18/2016 | | 11/29/2017 | | 5/3/2018 | | 10/25/2018 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,2-Dichloropropane | µg/L | 5 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.4 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| 1,3,5-Trimethylbenzene | µg/L | 5,100 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| 1,3-Dichlorobenzene | µg/L | 3,100 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| 1,3-Dichloropropane | µg/L | 29 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.4 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| 1,4-Dichlorobenzene | µg/L | 75 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | < 0.25 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| 2,2-Dichloropropane | µg/L | 42 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| 2-Butanone | µg/L | 61,000 | < 2 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | | | < 5 | U | < 2 | U | < 1 | U | < 1 | U |
| 2-Chlorotoluene | µg/L | 2,000 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| 2-Hexanone | µg/L | 6,100 | < 2 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 2 | U | | | < 5 | U | < 2 | U | < 1 | U | < 1 | U |
| 4-Chlorotoluene | µg/L | 2,000 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| Acetone | µg/L | 92,000 | < 2 | U | < 1 | U | < 2 | U | < 1 | U | < 1 | U | < 1 | U | | | < 5 | U | < 2 | U | < 1 | U | < 2 | U |
| Benzene | µg/L | 5 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| Bromobenzene | µg/L | 2,000 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | < 0.25 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| Bromochloromethane | µg/L | 4,100 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.4 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| Bromodichloromethane | µg/L | 4.6 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| Bromoform | µg/L | 36 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| Bromomethane | µg/L | 140 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| Carbon disulfide | µg/L | 10,000 | < 2 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | | | < 1 | U | < 2 | U | < 1 | U | < 1 | U |
| Carbon tetrachloride | µg/L | 5 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| Chlorobenzene | µg/L | 100 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| Chloroethane | µg/L | 41,000 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| Chloroform | µg/L | 1,000 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| Chloromethane | µg/L | 220 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| cis-1,2-Dichloroethene | µg/L | 70 | 1.5 | | 1.3 | | 1.7 | | 1.3 | | 1.7 | | 1.7 | | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| cis-1,3-Dichloropropene | µg/L | 5.3 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| Dibromochloromethane | µg/L | 34 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| Dibromomethane | µg/L | 380 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| Dichlorodifluoromethane | µg/L | 20,000 | < 1 | U | < 0.5 | U | < 0.5 | UJ | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| Ethylbenzene | µg/L | 700 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| Hexachlorobutadiene | µg/L | 20 | < 1 | U | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 1 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 1 | U |
| Isopropylbenzene | µg/L | 10,000 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| m,p-Xylenes | µg/L | 10,000 | < 2 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | | | < 1 | U | < 2 | U | < 1 | U | < 1 | U |
| Methyl isobutyl ketone | µg/L | 8,200 | < 2 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 2 | U | | | < 5 | U | < 2 | U | < 1 | U | < 1 | U |
| Methylene chloride | µg/L | 5 | < 2 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | | | < 0.5 | U | < 2 | U | < 1 | U | < 1 | U |
| Naphthalene | µg/L | 2,000 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | UJ | < 0.5 | U | | | < 0.4 | U | < 1 | U | < 0.5 | U | < 0.5 | UJ |
| n-Butylbenzene | µg/L | 4,100 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| n-Propylbenzene | µg/L | 4,100 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| o-Xylene | µg/L | 10,000 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| p-Isopropyltoluene | µg/L | 10,000 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| sec-Butylbenzene | µg/L | 4,100 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| Styrene | µg/L | 100 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.25 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| tert-Butylbenzene | µg/L | 4,100 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| Tetrachloroethene | µg/L | 5 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| Toluene | µg/L | 1,000 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| trans-1,2-Dichloroethene | µg/L | 100 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| trans-1,3-Dichloropropene | µg/L | 29 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| Trichloroethene | µg/L | 5 | < 1 | U | 1.2 | | 1.4 | | 1.1 | | 1.5 | | 2 | | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| Trichlorofluoromethane | µg/L | 31,000 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| Vinyl chloride | µg/L | 2 | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | | | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U |

# Table 2-4
## Groundwater Results 2013–2020

| | Location Code | 67WW16I | | | | | | 67WW17 | | | | | | 67WW18 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Sample ID | 67WW16I-190501 | | 67WW16I-191024 | | 67WW16I-201103 | | 67WW17-191024 | | 67WW17-201102-FD | | 67WW17-201102 | | 67WW18-191024-FD | | 67WW18-191024 | | 67WW18-201102 | |
| | Sample Date | 5/1/2019 | | 10/24/2019 | | 11/3/2020 | | 10/24/2019 | | 11/2/2020 | | 11/2/2020 | | 10/24/2019 | | 10/24/2019 | | 11/2/2020 | |
| | Sample Purpose | REG | | REG | | REG | | REG | | FD | | REG | | FD | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| **ANIONS** | | | | | | | | | | | | | | | | | | | | |
| Chloride | mg/L | NV | | | | | | | | | | | | | | | | | | |
| Nitrate | mg/L | 10 | | | | | | | | | | | | | | | | | | |
| Nitrite | mg/L | 1 | | | | | | | | | | | | | | | | | | |
| Sulfate | mg/L | NV | | | | | | | | | | | | | | | | | | |
| Sulfide | mg/L | NV | | | | | | | | | | | | | | | | | | |
| **TOTAL ORGANIC CARBON** | | | | | | | | | | | | | | | | | | | | |
| Total Inorganic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | |
| Total Organic Carbon | mg/L | NV | | | | | | | | | | | | | | | | | | |
| **DHC** | | | | | | | | | | | | | | | | | | | | |
| BVC | cells/mL | NV | | | | | | | | | | | | | | | | | | |
| Dehalococcoides | cells/mL | NV | | | | | | | | | | | | | | | | | | |
| **FIELD TESTS** | | | | | | | | | | | | | | | | | | | | |
| Conductivity | mS/cm | NV | | | | | 1.43 | | | | | | 3.15 | | | | | | 1.14 | |
| Dissolved oxygen | mg/L | NV | 1.63 | | 0.06 | | 0.14 | | 0.95 | | | | 0.76 | | | | 1.54 | | 0.36 | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | |
| Flow Rate | mL/Min | NV | 100 | | 100 | | 100 | | 100 | | | | 100 | | | | 100 | | 100 | |
| Measured well depth | Ft BTOC | NV | 80.38 | | 80.42 | | | | 29.04 | | | | | | | | 43.58 | | | |
| Oxidation-Reduction Potential | mV | NV | 18 | | -53 | | 1 | | 87 | | | | 96 | | | | 125 | | 63 | |
| pH | SU | NV | 5.35 | | 5.88 | | 6.41 | | 6.65 | | | | 5.76 | | | | 6.52 | | 5.92 | |
| Temperature | C | NV | 22.48 | | 21.45 | | 18.41 | | 20.4 | | | | 18.46 | | | | 20.26 | | 19.07 | |
| Turbidity | NTU | NV | 1.9 | | 5.8 | | 1.5 | | 0 | | | | 0 | | | | 8.1 | | 0 | |
| **GASES** | | | | | | | | | | | | | | | | | | | | |
| Carbon dioxide | µg/L | NV | | | | | | | | | | | | | | | | | | |
| Ethane | µg/L | NV | | | | | | | | | | | | | | | | | | |
| Ethylene | µg/L | NV | | | | | | | | | | | | | | | | | | |
| Methane | µg/L | NV | | | | | | | | | | | | | | | | | | |
| **GENERAL CHEMISTRY** | | | | | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | | | | | | | | | | | | | | | | | | |
| Ferrous Iron | mg/L | NV | | | | | | | | | | | | | | | | | | |
| **SEMIVOLATILES** | | | | | | | | | | | | | | | | | | | | |
| 1,4-Dioxane | µg/L | 26 | | | | | | | | | | | | | | | | | | |
| **VOLATILES** | | | | | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | µg/L | 110 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1,1-Trichloroethane | µg/L | 200 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1,2,2-Tetrachloroethane | µg/L | 14 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | µg/L | 3,100,000 | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 1 | U |
| 1,1,2-Trichloroethane | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1-Dichloroethane | µg/L | 10,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1-Dichloroethene | µg/L | 7 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1-Dichloropropene | µg/L | 2.9 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2,3-Trichlorobenzene | µg/L | 310 | < 0.5 | U | < 0.5 | UJ | < 1 | U | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 1 | U |
| 1,2,3-Trichloropropane | µg/L | 0.041 | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 1 | U |
| 1,2,4-Trichlorobenzene | µg/L | 70 | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 1 | U |
| 1,2,4-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2-Dibromo-3-chloropropane | µg/L | 0.2 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2-Dibromoethane | µg/L | 0.05 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2-Dichlorobenzene | µg/L | 600 | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 1 | U |
| 1,2-Dichloroethane | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |

# Table 2-4
## Groundwater Results 2013–2020

| | | Location Code | 67WW16I | | | | | | 67WW17 | | | | | | 67WW18 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW16I-190501 | | 67WW16I-191024 | | 67WW16I-201103 | | 67WW17-191024 | | 67WW17-201102-FD | | 67WW17-201102 | | 67WW18-191024-FD | | 67WW18-191024 | | 67WW18-201102 | |
| | | Sample Date | 5/1/2019 | | 10/24/2019 | | 11/3/2020 | | 10/24/2019 | | 11/2/2020 | | 11/2/2020 | | 10/24/2019 | | 10/24/2019 | | 11/2/2020 | |
| | | Sample Purpose | REG | | REG | | REG | | REG | | FD | | REG | | FD | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,2-Dichloropropane | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,3,5-Trimethylbenzene | µg/L | 5,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,3-Dichlorobenzene | µg/L | 3,100 | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 1 | U |
| 1,3-Dichloropropane | µg/L | 29 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,4-Dichlorobenzene | µg/L | 75 | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 1 | U |
| 2,2-Dichloropropane | µg/L | 42 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 2-Butanone | µg/L | 61,000 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| 2-Chlorotoluene | µg/L | 2,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 2-Hexanone | µg/L | 6,100 | < 1 | U | < 1 | U | < 2 | U | < 1 | U | < 2 | U | < 2 | U | < 1 | U | < 1 | U | < 2 | U |
| 4-Chlorotoluene | µg/L | 2,000 | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 1 | U |
| Acetone | µg/L | 92,000 | 3.3 | | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| Benzene | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Bromobenzene | µg/L | 2,000 | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 1 | U |
| Bromochloromethane | µg/L | 4,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Bromodichloromethane | µg/L | 4.6 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Bromoform | µg/L | 36 | < 0.5 | U | < 0.5 | U | < 0.5 | U | 2.3 | | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Bromomethane | µg/L | 140 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Carbon disulfide | µg/L | 10,000 | 0.9 | J | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| Carbon tetrachloride | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Chlorobenzene | µg/L | 100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Chloroethane | µg/L | 41,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Chloroform | µg/L | 1,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Chloromethane | µg/L | 220 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| cis-1,2-Dichloroethene | µg/L | 70 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| cis-1,3-Dichloropropene | µg/L | 5.3 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Dibromochloromethane | µg/L | 34 | < 0.5 | U | < 0.5 | U | < 0.5 | U | 2.2 | | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Dibromomethane | µg/L | 380 | < 0.5 | U | < 0.5 | U | < 0.5 | U | 0.72 | J | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Dichlorodifluoromethane | µg/L | 20,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Ethylbenzene | µg/L | 700 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Hexachlorobutadiene | µg/L | 20 | < 1 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 1 | U |
| Isopropylbenzene | µg/L | 10,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| m,p-Xylenes | µg/L | 10,000 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| Methyl isobutyl ketone | µg/L | 8,200 | < 1 | U | < 1 | U | < 2 | U | < 1 | U | < 2 | U | < 2 | U | < 1 | U | < 1 | U | < 2 | U |
| Methylene chloride | µg/L | 5 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| Naphthalene | µg/L | 2,000 | < 0.5 | U | < 0.5 | UJ | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| n-Butylbenzene | µg/L | 4,100 | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 1 | U |
| n-Propylbenzene | µg/L | 4,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| o-Xylene | µg/L | 10,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| p-Isopropyltoluene | µg/L | 10,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| sec-Butylbenzene | µg/L | 4,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Styrene | µg/L | 100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| tert-Butylbenzene | µg/L | 4,100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Tetrachloroethene | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Toluene | µg/L | 1,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| trans-1,2-Dichloroethene | µg/L | 100 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| trans-1,3-Dichloropropene | µg/L | 29 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Trichloroethene | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Trichlorofluoromethane | µg/L | 31,000 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Vinyl chloride | µg/L | 2 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |

# Table 2-4
# Groundwater Results 2013–2020

Notes:

**Bold and highlighted results indicate analyte is above the MCL/GW-Ind.**

°C - degrees Celsius

µg/L - micrograms per liter

µmhos/cm - micromhos per centimeter

µS/cm - microsiemens per centimeter

J - estimated value

U - Not detected; The analyte was analyzed for but not detected above the associated method detection limit.

cells/mL - cells per milliliter

CEQ/mL - cell equivalence per milliliter

< - The analyte was not detected above the detection limit shown

FD - field duplicate

Ft BTOC - feet below top of casting

GW-Ind - groundwater medium-specific concentration for industrial use

ID - identifier

MCL - maximum contaminant level

mg/L - milligrams per liter

mL/Min - milliliters per minute

mS/cm - millisiemens per centimeter

mV - millivolts

NTU - nephelometric turbidity unit

NV - no value established

REG - regular sample

SU - standard unit

Val Qual - validation qualifier

## Table 2-5
## Historical Contaminants of Concern

| | | | Location Code | 67WW01 | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample ID | 67WW01-981208 | | 67WW01-040912 | | 67WW01-060806 | | 67WW01-061218 | | 67WW01-053113 | | 67WW01-050714 | | 67WW01-072514 | | 67WW01-120314 | | 67WW01-021015 | | 67WW01-051915 | |
| | | | Sample Date | 12/8/1998 | | 9/12/2004 | | 8/6/2006 | | 12/18/2006 | | 5/31/2013 | | 5/7/2014 | | 7/25/2014 | | 12/3/2014 | | 2/10/2015 | | 5/19/2015 | |
| | | | Location Description | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,1,1-Trichloroethane | µg/L | 200 | | **560** | | < 5 | U | < 5 | U | < 5 | U | < 0.25 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1.25 | U |
| 1,1,2-Trichloroethane | µg/L | 5 | | **33** | | 1 | J | 0.305 | J | 0.28 | J | < 0.25 | U | < 0.5 | U | 0.29 | J | 0.483 | J | 1.44 | | 1.72 | J |
| 1,1-Dichloroethene | µg/L | 7 | | **380** | | **280** | | **153** | | **179** | | **139** | | **257** | | **224** | | **349** | | **544** | | **631** | |
| 1,2-Dichloroethane | µg/L | 5 | | **27** | | **13** | | **5.57** | J | **6.37** | | **6.68** | | **12.2** | | **10.7** | | **16.6** | | **28.7** | | **31.4** | |
| Trichloroethene | µg/L | 5 | | **6.3** | | **6** | | **5.38** | J | **5.99** | | 2.96 | | 3 | | 2.3 | | 3.36 | | 4.07 | | 3.03 | |

Notes:

**Bold and highlighted results indicate analyte is above the MCL/GW-Ind.**

µg/L - micrograms per liter

J - estimated value

U - Not detected; The analyte was analyzed for but not detected above the associated method detection limit.

< - The analyte was not detected above the detection limit shown

FD - field duplicate

GW-Ind - groundwater MSC for industrial use

ID - identifier

MCL - maximum contaminant level

MSC - medium-specific concentration

REG - regular sample

## Table 2-5
## Historical Contaminants of Concern

| | | Location Code | 67WW01 | | | | | | | | | | | | | | | | 67WW02 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW01-111915 | | 67WW01-032916 | | 67WW01-051916 | | 67WW01-112817 | | 67WW01-180503 | | 67WW01-190503 | | 67WW01-191024 | | 67WW01-201103 | | 67WW02-981208 | | 67WW02-981208FD | |
| | | Sample Date | 11/19/2015 | | 3/29/2016 | | 5/19/2016 | | 11/28/2017 | | 5/3/2018 | | 5/3/2019 | | 10/24/2019 | | 11/3/2020 | | 12/8/1998 | | 12/8/1998 | |
| | | Location Description | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | FD | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,1,1-Trichloroethane | µg/L | 200 | < 1.25 | U | < 0.5 | U | < 2.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | 100 | | 100 | |
| 1,1,2-Trichloroethane | µg/L | 5 | 2.14 | J | 2.67 | | 1.62 | J | < 1 | U | 1.2 | | 1.4 | | 0.53 | J | < 0.5 | U | **6.4** | | **5.9** | J |
| 1,1-Dichloroethene | µg/L | 7 | **694** | | **728** | | **714** | | **250** | | **450** | | **280** | | **70** | | **49** | | 2.4 | | < 10 | U |
| 1,2-Dichloroethane | µg/L | 5 | **38.6** | | **52.6** | | **43.3** | | **28** | | **22** | | **21** | | **7.6** | | **6.1** | | < 1 | U | < 10 | U |
| Trichloroethene | µg/L | 5 | 2.84 | | 4 | | 3.28 | J | 2.1 | | 1.7 | | 1.3 | | 0.53 | J | < 0.5 | U | < 1 | U | < 10 | U |

Notes:

**Bold and highlighted results indicate analyte is above the MCL/GW-Ind.**

µg/L - micrograms per liter

J - estimated value

U - Not detected; The analyte was analyzed for but not detected above the associated method detection limit.

< - The analyte was not detected above the detection limit shown

FD - field duplicate

GW-Ind - groundwater MSC for industrial use

ID - identifier

MCL - maximum contaminant level

MSC - medium-specific concentration

REG - regular sample

## Table 2-5
## Historical Contaminants of Concern

| | | Location Code | 67WW02 | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW02-040912 | | 67WW02-060806 | | 67WW02-061218 | | 67WW02-053113 | | 67WW02-092713 | | 67WW02-012314 | | 67WW02-050614 | | 67WW02-072414 | | 67WW02-120314 | | 67WW02-021015 | |
| | | Sample Date | 9/12/2004 | | 8/6/2006 | | 12/18/2006 | | 5/31/2013 | | 9/27/2013 | | 1/23/2014 | | 5/6/2014 | | 7/24/2014 | | 12/3/2014 | | 2/10/2015 | |
| | | Location Description | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,1,1-Trichloroethane | µg/L | 200 | < 5 | U | < 5 | U | < 5 | U | < 0.25 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1,2-Trichloroethane | µg/L | 5 | < 5 | U | < 5 | U | < 5 | U | < 0.25 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1-Dichloroethene | µg/L | 7 | < 5 | U | < 5 | U | < 5 | U | < 0.5 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | 3.59 | |
| 1,2-Dichloroethane | µg/L | 5 | < 5 | U | < 5 | U | < 5 | U | < 0.25 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Trichloroethene | µg/L | 5 | < 5 | U | < 5 | U | < 5 | U | < 0.25 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |

Notes:

**Bold and highlighted results indicate analyte is above the MCL/GW-Ind.**

µg/L - micrograms per liter

J - estimated value

U - Not detected; The analyte was analyzed for but not detected above the associated method detection limit.

< - The analyte was not detected above the detection limit shown

FD - field duplicate

GW-Ind - groundwater MSC for industrial use

ID - identifier

MCL - maximum contaminant level

MSC - medium-specific concentration

REG - regular sample

## Table 2-5
## Historical Contaminants of Concern

| | | | Location Code | | 67WW02 | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample ID | 67WW02-051215 | | 67WW02FD-051215 | | 67WW02-111915 | | 67WW02-051916 | | 67WW02FD-051916 | | 67WW02-112817 | | 67WW02-180503 | | 67WW02-180503FD | | 67WW02-181025 | | 67WW02-190501 | |
| | | | Sample Date | 5/12/2015 | | 5/12/2015 | | 11/19/2015 | | 5/19/2016 | | 5/19/2016 | | 11/28/2017 | | 5/3/2018 | | 5/3/2018 | | 10/25/2018 | | 5/1/2019 | |
| | | | Location Description | REG | | FD | | REG | | REG | | FD | | REG | | REG | | FD | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,1,1-Trichloroethane | µg/L | 200 | | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1,2-Trichloroethane | µg/L | 5 | | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | 1.2 | |
| 1,1-Dichloroethene | µg/L | 7 | | **13.2** | | **13** | | 0.857 | J | **67.6** | | **66.3** | | < 1 | U | **190** | | **190** | | 6.9 | | **180** | |
| 1,2-Dichloroethane | µg/L | 5 | | < 0.5 | U | < 0.5 | U | < 0.5 | U | 0.377 | J | 0.321 | J | < 1 | U | 2 | | 1.9 | | < 0.5 | U | 4.7 | |
| Trichloroethene | µg/L | 5 | | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | 0.87 | J |

Notes:

**Bold and highlighted results indicate analyte is above the MCL/GW-Ind.**

µg/L - micrograms per liter

J - estimated value

U - Not detected; The analyte was analyzed for but not detected above the associated method detection limit.

< - The analyte was not detected above the detection limit shown

FD - field duplicate

GW-Ind - groundwater MSC for industrial use

ID - identifier

MCL - maximum contaminant level

MSC - medium-specific concentration

REG - regular sample

## Table 2-5
## Historical Contaminants of Concern

| | | Location Code | 67WW02 | | | | 67WW03 | | | | | | | | | | | | | | 67WW04 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW02-191024 | | 67WW02-201102 | | 67WW03-981208 | | 67WW03-040912 | | 67WW03-060809 | | 67WW03-061218 | | 67WW03-051215 | | 67WW03-032916 | | 67WW03-051916 | | 67WW04-001219 | |
| | | Sample Date | 10/24/2019 | | 11/2/2020 | | 12/8/1998 | | 9/12/2004 | | 8/9/2006 | | 12/18/2006 | | 5/12/2015 | | 3/29/2016 | | 5/19/2016 | | 12/19/2000 | |
| | | Location Description | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,1,1-Trichloroethane | µg/L | 200 | < 0.5 | U | < 0.5 | U | **1,800** | | < 5 | U | < 5 | U | < 5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.1 | U |
| 1,1,2-Trichloroethane | µg/L | 5 | < 0.5 | U | 1 | | **24** | | < 5 | U | < 5 | U | < 5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.1 | U |
| 1,1-Dichloroethene | µg/L | 7 | **34** | | **220** | | **36** | | < 5 | U | < 5 | U | < 5 | U | < 1 | U | < 1 | U | < 1 | U | < 0.2 | U |
| 1,2-Dichloroethane | µg/L | 5 | < 0.5 | U | **5.5** | | < 20 | U | < 5 | U | < 5 | U | < 5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.1 | U |
| Trichloroethene | µg/L | 5 | < 0.5 | U | 0.83 | J | < 20 | U | < 5 | U | < 5 | U | < 5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.1 | U |

Notes:

**Bold and highlighted results indicate analyte is above the MCL/GW-Ind.**

µg/L - micrograms per liter

J - estimated value

U - Not detected; The analyte was analyzed for but not detected above the associated method detection limit.

< - The analyte was not detected above the detection limit shown

FD - field duplicate

GW-Ind - groundwater MSC for industrial use

ID - identifier

MCL - maximum contaminant level

MSC - medium-specific concentration

REG - regular sample

## Table 2-5
## Historical Contaminants of Concern

| | | Location Code | 67WW04 | | 67WW05 | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW04-040912 | | 67WW05-001219 | | 67WW05-040912 | | 67WW05-060808 | | 67WW05-061217 | | 67WW05-053113 | | 67WW05-092813 | | 67WW05-012314 | | 67WW05-050614 | | 67WW05-072414 | |
| | | Sample Date | 9/12/2004 | | 12/19/2000 | | 9/12/2004 | | 8/8/2006 | | 12/17/2006 | | 5/31/2013 | | 9/28/2013 | | 1/23/2014 | | 5/6/2014 | | 7/24/2014 | |
| | | Location Description | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,1,1-Trichloroethane | µg/L | 200 | < 5 | U | < 0.1 | U | < 5 | U | < 5 | U | < 5 | U | < 0.25 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1,2-Trichloroethane | µg/L | 5 | < 5 | U | < 0.1 | U | < 5 | U | < 5 | U | < 5 | U | < 0.25 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1-Dichloroethene | µg/L | 7 | < 5 | U | < 0.2 | U | < 5 | U | < 5 | U | < 5 | U | < 0.5 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| 1,2-Dichloroethane | µg/L | 5 | < 5 | U | < 0.1 | U | < 5 | U | < 5 | U | < 5 | U | < 0.25 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Trichloroethene | µg/L | 5 | 1 | J | < 0.1 | U | < 5 | U | < 5 | U | < 5 | U | < 0.25 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |

Notes:

**Bold and highlighted results indicate analyte is above the MCL/GW-Ind.**

µg/L - micrograms per liter

J - estimated value

U - Not detected; The analyte was analyzed for but not detected above the associated method detection limit.

< - The analyte was not detected above the detection limit shown

FD - field duplicate

GW-Ind - groundwater MSC for industrial use

ID - identifier

MCL - maximum contaminant level

MSC - medium-specific concentration

REG - regular sample

## Table 2-5
## Historical Contaminants of Concern

| | | | Location Code | 67WW05 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample ID | 67WW05-120314 | | 67WW05-021015 | | 67WW05-051215 | | 67WW05-111915 | | 67WW05-051916 | | 67WW05-112817 | | 67WW05-180503 | | 67WW05-181025 | | 67WW05-181025-FD | | 67WW05-190502 | |
| | | | Sample Date | 12/3/2014 | | 2/10/2015 | | 5/12/2015 | | 11/19/2015 | | 5/19/2016 | | 11/28/2017 | | 5/3/2018 | | 10/25/2018 | | 10/25/2018 | | 5/2/2019 | |
| | | | Location Description | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | FD | | REG | |
| **Parameter** | **Units** | **MCL/GW-Ind** | | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** | **Result** | **Val Qual** |
| 1,1,1-Trichloroethane | µg/L | 200 | | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1,2-Trichloroethane | µg/L | 5 | | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1-Dichloroethene | µg/L | 7 | | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2-Dichloroethane | µg/L | 5 | | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Trichloroethene | µg/L | 5 | | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |

Notes:

**Bold and highlighted results indicate analyte is above the MCL/GW-Ind.**

µg/L - micrograms per liter

J - estimated value

U - Not detected; The analyte was analyzed for but not detected above the associated method detection limit.

< - The analyte was not detected above the detection limit shown

FD - field duplicate

GW-Ind - groundwater MSC for industrial use

ID - identifier

MCL - maximum contaminant level

MSC - medium-specific concentration

REG - regular sample

## Table 2-5
## Historical Contaminants of Concern

| | | Location Code | 67WW05 | | | | 67WW06 | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW05-191024 | | 67WW05-201102 | | 67WW06-001219 | | 67WW06-001219FD | | 67WW06-040912 | | 67WW06-060808 | | 67WW06-061218 | | 67WW06-100806 | | 67WW06-053113 | | 67WW06-053113-FD | |
| | | Sample Date | 10/24/2019 | | 11/2/2020 | | 12/19/2000 | | 12/19/2000 | | 9/12/2004 | | 8/8/2006 | | 12/18/2006 | | 8/6/2010 | | 5/31/2013 | | 5/31/2013 | |
| | | Location Description | REG | | REG | | REG | | FD | | REG | | REG | | REG | | REG | | REG | | FD | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,1,1-Trichloroethane | µg/L | 200 | < 0.5 | U | < 0.5 | U | < 0.1 | U | < 0.1 | U | < 5 | U | < 5 | U | < 5 | U | < 0.25 | U | < 0.25 | U | < 0.25 | U |
| 1,1,2-Trichloroethane | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.1 | U | < 0.1 | U | < 5 | U | < 5 | U | < 5 | U | < 0.25 | U | < 0.25 | U | < 0.25 | U |
| 1,1-Dichloroethene | µg/L | 7 | < 0.5 | U | < 0.5 | U | < 0.2 | U | < 0.2 | U | < 5 | U | < 5 | U | < 5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2-Dichloroethane | µg/L | 5 | < 0.5 | U | < 0.5 | U | 3.51 | | 3.5 | | < 5 | U | 3.02 | J | 1.62 | J | 2.39 | | 2.25 | | 2.2 | |
| Trichloroethene | µg/L | 5 | < 0.5 | U | < 0.5 | U | 0.14 | J | 0.15 | J | < 5 | U | < 5 | U | < 5 | U | < 0.25 | U | < 0.25 | U | < 0.25 | U |

Notes:

**Bold and highlighted results indicate analyte is above the MCL/GW-Ind.**

µg/L - micrograms per liter

J - estimated value

U - Not detected; The analyte was analyzed for but not detected above the associated method detection limit.

< - The analyte was not detected above the detection limit shown

FD - field duplicate

GW-Ind - groundwater MSC for industrial use

ID - identifier

MCL - maximum contaminant level

MSC - medium-specific concentration

REG - regular sample

## Table 2-5
## Historical Contaminants of Concern

| | | Location Code | 67WW06 | | | | | | 67WW07 | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW06-092813 | | 67WW06-012414 | | 67WW06-112917 | | 67WW07-001219 | | 67WW07-040912 | | 67WW07-060808 | | 67WW07-061218 | | 67WW07-053113 | | 67WW07-092713 | | 67WW07-012314 | |
| | | Sample Date | 9/28/2013 | | 1/24/2014 | | 11/29/2017 | | 12/19/2000 | | 9/12/2004 | | 8/8/2006 | | 12/18/2006 | | 5/31/2013 | | 9/27/2013 | | 1/23/2014 | |
| | | Location Description | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,1,1-Trichloroethane | µg/L | 200 | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.1 | U | < 5 | U | < 5 | U | < 5 | U | < 0.25 | U | < 0.5 | U | < 0.5 | U |
| 1,1,2-Trichloroethane | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.1 | U | < 5 | U | < 5 | U | < 5 | U | < 0.25 | U | < 0.5 | U | < 0.5 | U |
| 1,1-Dichloroethene | µg/L | 7 | < 1 | U | 0.752 | J | < 1 | U | < 0.2 | U | < 5 | U | < 5 | U | < 5 | U | < 0.5 | U | < 1 | U | < 1 | U |
| 1,2-Dichloroethane | µg/L | 5 | 1.77 | | 2.03 | | 1 | | 2.28 | | < 5 | U | < 5 | U | 1.65 | J | 1.67 | | 1.77 | | 1.35 | |
| Trichloroethene | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.1 | U | < 5 | U | < 5 | U | < 5 | U | < 0.25 | U | < 0.5 | U | < 0.5 | U |

Notes:

**Bold and highlighted results indicate analyte is above the MCL/GW-Ind.**

µg/L - micrograms per liter

J - estimated value

U - Not detected; The analyte was analyzed for but not detected above the associated method detection limit.

< - The analyte was not detected above the detection limit shown

FD - field duplicate

GW-Ind - groundwater MSC for industrial use

ID - identifier

MCL - maximum contaminant level

MSC - medium-specific concentration

REG - regular sample

## Table 2-5
## Historical Contaminants of Concern

| | | | Location Code | | 67WW07 | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample ID | 67WW07-050614 | | 67WW07-072514 | | 67WW07-120314 | | 67WW07-021015 | | 67WW07-051215 | | 67WW07-111915 | | 67WW07-051916 | | 67WW07-112917 | | 67WW07-180503 | | 67WW07-181025 | |
| | | | Sample Date | 5/6/2014 | | 7/25/2014 | | 12/3/2014 | | 2/10/2015 | | 5/12/2015 | | 11/19/2015 | | 5/19/2016 | | 11/29/2017 | | 5/3/2018 | | 10/25/2018 | |
| | | | Location Description | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,1,1-Trichloroethane | µg/L | 200 | | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| 1,1,2-Trichloroethane | µg/L | 5 | | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| 1,1-Dichloroethene | µg/L | 7 | | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| 1,2-Dichloroethane | µg/L | 5 | | 1.44 | | 1.39 | | 1.19 | | 1.04 | | 0.817 | J | 0.601 | J | 0.33 | J | < 1 | U | < 0.5 | U | < 0.5 | U |
| Trichloroethene | µg/L | 5 | | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U |

Notes:

**Bold and highlighted results indicate analyte is above the MCL/GW-Ind.**

µg/L - micrograms per liter

J - estimated value

U - Not detected; The analyte was analyzed for but not detected above the associated method detection limit.

< - The analyte was not detected above the detection limit shown

FD - field duplicate

GW-Ind - groundwater MSC for industrial use

ID - identifier

MCL - maximum contaminant level

MSC - medium-specific concentration

REG - regular sample

## Table 2-5
## Historical Contaminants of Concern

| | | Location Code | 67WW07 | | | | | | 67WW08 | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW07-190503 | | 67WW07-191028 | | 67WW07-201102 | | 67WW08-060313 | | 67WW08-100213 | | 67WW08-012314 | | 67WW08-050714 | | 67WW08-072414 | | 67WW08-120414 | | 67WW08-021115 | |
| | | Sample Date | 5/3/2019 | | 10/28/2019 | | 11/2/2020 | | 6/3/2013 | | 10/2/2013 | | 1/23/2014 | | 5/7/2014 | | 7/24/2014 | | 12/4/2014 | | 2/11/2015 | |
| | | Location Description | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,1,1-Trichloroethane | µg/L | 200 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.25 | U | < 5 | U | < 2.5 | U | < 5 | U | < 5 | U | < 5 | U | < 5 | U |
| 1,1,2-Trichloroethane | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | 4.25 | | **5.08** | J | **6.7** | | **5.01** | J | **7.74** | J | **7.36** | J | **6.96** | J |
| 1,1-Dichloroethene | µg/L | 7 | < 0.5 | U | < 0.5 | U | < 0.5 | U | **1,390** | J | **1,120** | | **1,340** | | **1,590** | | **1,890** | | **2,320** | | **1,930** | |
| 1,2-Dichloroethane | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | **64.3** | R | **76.5** | | **89.9** | | **101** | | **98.9** | | **106** | | **104** | |
| Trichloroethene | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | 2.86 | | < 5 | U | 3.12 | J | 4.41 | J | 3.14 | J | 3.55 | J | 3.15 | J |

Notes:

**Bold and highlighted results indicate analyte is above the MCL/GW-Ind.**

µg/L - micrograms per liter

J - estimated value

U - Not detected; The analyte was analyzed for but not detected above the associated method detection limit.

< - The analyte was not detected above the detection limit shown

FD - field duplicate

GW-Ind - groundwater MSC for industrial use

ID - identifier

MCL - maximum contaminant level

MSC - medium-specific concentration

REG - regular sample

## Table 2-5
## Historical Contaminants of Concern

| | | Location Code | 67WW08 | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW08-051915 | | 67WW08-111915 | | 67WW08-051916 | | 67WW08-112817 | | 67WW08-112817-FD | | 67WW08-180501 | | 67WW08-181023 | | 67WW08-181023-FD | | 67WW08-190501 | | 67WW08-191028 | |
| | | Sample Date | 5/19/2015 | | 11/19/2015 | | 5/19/2016 | | 11/28/2017 | | 11/28/2017 | | 5/1/2018 | | 10/23/2018 | | 10/23/2018 | | 5/1/2019 | | 10/28/2019 | |
| | | Location Description | REG | | REG | | REG | | REG | | FD | | REG | | REG | | FD | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,1,1-Trichloroethane | µg/L | 200 | < 5 | U | < 5 | U | < 5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1,2-Trichloroethane | µg/L | 5 | 4.5 | J | 4.67 | J | 2.76 | J | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1-Dichloroethene | µg/L | 7 | **1,570** | | **1,710** | | **1,130** | | **340** | | **350** | | **300** | | **160** | | **160** | | **110** | | **63** | |
| 1,2-Dichloroethane | µg/L | 5 | **85.6** | | **77.6** | | **56.1** | | **13** | | **13** | | **11** | | **6.5** | | **6.2** | | **5.1** | | 2.3 | |
| Trichloroethene | µg/L | 5 | < 5 | U | < 5 | U | < 5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |

Notes:

**Bold and highlighted results indicate analyte is above the MCL/GW-Ind.**

µg/L - micrograms per liter

J - estimated value

U - Not detected; The analyte was analyzed for but not detected above the associated method detection limit.

< - The analyte was not detected above the detection limit shown

FD - field duplicate

GW-Ind - groundwater MSC for industrial use

ID - identifier

MCL - maximum contaminant level

MSC - medium-specific concentration

REG - regular sample

## Table 2-5
## Historical Contaminants of Concern

| | | Location Code | 67WW08 | | | | | | 67WW09 | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW08-191028-FD | | 67WW08-201103 | | 67WW08-201103-FD | | 67WW10-060113 | | 67WW09-060113 | | 67WW09-092813 | | 67WW09-012414 | | 67WW09-072514 | | 67WW09-120414 | | 67WW09-021115 | |
| | | Sample Date | 10/28/2019 | | 11/3/2020 | | 11/3/2020 | | 6/1/2013 | | 6/3/2013 | | 9/28/2013 | | 1/24/2014 | | 7/25/2014 | | 12/4/2014 | | 2/11/2015 | |
| | | Location Description | FD | | REG | | FD | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,1,1-Trichloroethane | µg/L | 200 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.25 | U | < 0.25 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1,2-Trichloroethane | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.25 | U | < 0.25 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1-Dichloroethene | µg/L | 7 | **65** | | **50** | | **44** | | < 0.5 | U | **16.1** | | **17.5** | | **20.8** | | **8.93** | | **11.6** | | **8.17** | |
| 1,2-Dichloroethane | µg/L | 5 | 2.4 | | 1.8 | | 1.6 | | < 0.25 | U | < 0.25 | U | 0.414 | J | 0.347 | J | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Trichloroethene | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.25 | U | < 0.25 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |

Notes:

**Bold and highlighted results indicate analyte is above the MCL/GW-Ind.**

µg/L - micrograms per liter

J - estimated value

U - Not detected; The analyte was analyzed for but not detected above the associated method detection limit.

< - The analyte was not detected above the detection limit shown

FD - field duplicate

GW-Ind - groundwater MSC for industrial use

ID - identifier

MCL - maximum contaminant level

MSC - medium-specific concentration

REG - regular sample

## Table 2-5
## Historical Contaminants of Concern

| | | | Location Code | | 67WW09 | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample ID | 67WW09FD-021115 | | 67WW09-051915 | | 67WW09-111815 | | 67WW09FD-111815 | | 67WW09-051816 | | 67WW09FD-051816 | | 67WW09-112717 | | 67WW09-180502 | | 67WW09-181023 | | 67WW09-190503 | |
| | | | Sample Date | 2/11/2015 | | 5/19/2015 | | 11/18/2015 | | 11/18/2015 | | 5/18/2016 | | 5/18/2016 | | 11/27/2017 | | 5/2/2018 | | 10/23/2018 | | 5/3/2019 | |
| | | | Location Description | FD | | REG | | REG | | FD | | REG | | FD | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,1,1-Trichloroethane | µg/L | 200 | | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1,2-Trichloroethane | µg/L | 5 | | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1-Dichloroethene | µg/L | 7 | | **8.29** | | 2.71 | | 1.66 | J | 1.62 | J | < 1 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2-Dichloroethane | µg/L | 5 | | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Trichloroethene | µg/L | 5 | | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |

Notes:

**Bold and highlighted results indicate analyte is above the MCL/GW-Ind.**

µg/L - micrograms per liter

J - estimated value

U - Not detected; The analyte was analyzed for but not detected above the associated method detection limit.

< - The analyte was not detected above the detection limit shown

FD - field duplicate

GW-Ind - groundwater MSC for industrial use

ID - identifier

MCL - maximum contaminant level

MSC - medium-specific concentration

REG - regular sample

## Table 2-5
## Historical Contaminants of Concern

| | | Location Code | 67WW09 | | | | 67WW09A | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW09-191024 | | 67WW09-201103 | | 67WW09A-092713 | | 67WW09A-092713- | | 67WW09A-012314 | | 67WW09A-050614 | | 67WW09A-072414 | | 67WW09AFD-072414 | | 67WW09A-120314 | | 67WW09AFD-120314 | |
| | | Sample Date | 10/24/2019 | | 11/3/2020 | | 9/27/2013 | | 9/27/2013 | | 1/23/2014 | | 5/6/2014 | | 7/24/2014 | | 7/24/2014 | | 12/3/2014 | | 12/3/2014 | |
| | | Location Description | REG | | REG | | REG | | FD | | REG | | REG | | REG | | FD | | REG | | FD | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,1,1-Trichloroethane | µg/L | 200 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1,2-Trichloroethane | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1-Dichloroethene | µg/L | 7 | < 0.5 | U | < 0.5 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| 1,2-Dichloroethane | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Trichloroethene | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |

Notes:

**Bold and highlighted results indicate analyte is above the MCL/GW-Ind.**

µg/L - micrograms per liter

J - estimated value

U - Not detected; The analyte was analyzed for but not detected above the associated method detection limit.

< - The analyte was not detected above the detection limit shown

FD - field duplicate

GW-Ind - groundwater MSC for industrial use

ID - identifier

MCL - maximum contaminant level

MSC - medium-specific concentration

REG - regular sample

## Table 2-5
## Historical Contaminants of Concern

| | | | Location Code | | 67WW09A | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample ID | | 67WW09A-021015 | | 67WW09A-051215 | | 67WW09A-111815 | | 67WW09A-051816 | | 67WW09A-112917 | | 67WW09A-180503 | | 67WW09A-181025 | | 67WW09A-190502 | | 67WW09A-191028 | | 67WW09A-201102 | |
| | | | Sample Date | | 2/10/2015 | | 5/12/2015 | | 11/18/2015 | | 5/18/2016 | | 11/29/2017 | | 5/3/2018 | | 10/25/2018 | | 5/2/2019 | | 10/28/2019 | | 11/2/2020 | |
| | | | Location Description | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,1,1-Trichloroethane | µg/L | 200 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1,2-Trichloroethane | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1-Dichloroethene | µg/L | 7 | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2-Dichloroethane | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Trichloroethene | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |

Notes:

**Bold and highlighted results indicate analyte is above the MCL/GW-Ind.**

µg/L - micrograms per liter

J - estimated value

U - Not detected; The analyte was analyzed for but not detected above the associated method detection limit.

< - The analyte was not detected above the detection limit shown

FD - field duplicate

GW-Ind - groundwater MSC for industrial use

ID - identifier

MCL - maximum contaminant level

MSC - medium-specific concentration

REG - regular sample

## Table 2-5
## Historical Contaminants of Concern

| | | | Location Code | | 67WW10 | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample ID | 67WW10-092713 | | 67WW10-012414 | | 67WW10-050614 | | 67WW10-072414 | | 67WW10-120314 | | 67WW10-021015 | | 67WW10-051215 | | 67WW10-111815 | | 67WW10-051816 | | 67WW10-112917 | |
| | | | Sample Date | 9/27/2013 | | 1/24/2014 | | 5/6/2014 | | 7/24/2014 | | 12/3/2014 | | 2/10/2015 | | 5/12/2015 | | 11/18/2015 | | 5/18/2016 | | 11/29/2017 | |
| | | | Location Description | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,1,1-Trichloroethane | µg/L | 200 | | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U |
| 1,1,2-Trichloroethane | µg/L | 5 | | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U |
| 1,1-Dichloroethene | µg/L | 7 | | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| 1,2-Dichloroethane | µg/L | 5 | | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U |
| Trichloroethene | µg/L | 5 | | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U |

Notes:

**Bold and highlighted results indicate analyte is above the MCL/GW-Ind.**

µg/L - micrograms per liter

J - estimated value

U - Not detected; The analyte was analyzed for but not detected above the associated method detection limit.

< - The analyte was not detected above the detection limit shown

FD - field duplicate

GW-Ind - groundwater MSC for industrial use

ID - identifier

MCL - maximum contaminant level

MSC - medium-specific concentration

REG - regular sample

## Table 2-5
## Historical Contaminants of Concern

| | | Location Code | 67WW10 | | | | | | | | | | 67WW11 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW10-180503 | | 67WW10-181022 | | 67WW10-190502 | | 67WW10-191028 | | 67WW10-201102 | | 67WW11-060113 | | 67WW11-060113-FD | | 67WW11-100213 | | 67WW11 FD-012314 | | 67WW11-012314 | |
| | | Sample Date | 5/3/2018 | | 10/22/2018 | | 5/2/2019 | | 10/28/2019 | | 11/2/2020 | | 6/1/2013 | | 6/1/2013 | | 10/2/2013 | | 1/23/2014 | | 1/23/2014 | |
| | | Location Description | REG | | REG | | REG | | REG | | REG | | REG | | FD | | REG | | FD | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,1,1-Trichloroethane | µg/L | 200 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.25 | U | < 0.25 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1,2-Trichloroethane | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.25 | U | < 0.25 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1-Dichloroethene | µg/L | 7 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | **47.1** | | **46.8** | | **42.8** | | **43** | | **38.8** | |
| 1,2-Dichloroethane | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | 0.869 | J | 0.85 | J | 0.799 | J | 0.823 | J | 0.748 | J |
| Trichloroethene | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.25 | U | < 0.25 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |

Notes:

**Bold and highlighted results indicate analyte is above the MCL/GW-Ind.**

µg/L - micrograms per liter

J - estimated value

U - Not detected; The analyte was analyzed for but not detected above the associated method detection limit.

< - The analyte was not detected above the detection limit shown

FD - field duplicate

GW-Ind - groundwater MSC for industrial use

ID - identifier

MCL - maximum contaminant level

MSC - medium-specific concentration

REG - regular sample

## Table 2-5
## Historical Contaminants of Concern

| | | | Location Code | | 67WW11 | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample ID | 67WW11FD-012314 | | 67WW11-072414 | | 67WW11-120414 | | 67WW11-021115 | | 67WW11-051915 | | 67WW11-111915 | | 67WW11-051916 | | 67WW11-112717 | | 67WW11-180502 | | 67WW11-181023 | |
| | | | Sample Date | 1/23/2014 | | 7/24/2014 | | 12/4/2014 | | 2/11/2015 | | 5/19/2015 | | 11/19/2015 | | 5/19/2016 | | 11/27/2017 | | 5/2/2018 | | 10/23/2018 | |
| | | | Location Description | FD | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,1,1-Trichloroethane | µg/L | 200 | | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| 1,1,2-Trichloroethane | µg/L | 5 | | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U |
| 1,1-Dichloroethene | µg/L | 7 | | **43** | | **34.5** | | **37.5** | | **30.4** | | **21.6** | | **28.5** | | **19.3** | | 5.2 | | 5.5 | | 6.1 | |
| 1,2-Dichloroethane | µg/L | 5 | | 0.823 | J | 0.684 | J | 0.567 | J | 0.559 | J | 0.518 | J | 0.513 | J | 0.396 | J | < 1 | U | < 0.5 | U | < 0.5 | U |
| Trichloroethene | µg/L | 5 | | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U |

Notes:

**Bold and highlighted results indicate analyte is above the MCL/GW-Ind.**

µg/L - micrograms per liter

J - estimated value

U - Not detected; The analyte was analyzed for but not detected above the associated method detection limit.

< - The analyte was not detected above the detection limit shown

FD - field duplicate

GW-Ind - groundwater MSC for industrial use

ID - identifier

MCL - maximum contaminant level

MSC - medium-specific concentration

REG - regular sample

## Table 2-5
## Historical Contaminants of Concern

| | | Location Code | 67WW11 | | | | | | 67WW12 | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW11-190501 | | 67WW11-191024 | | 67WW11-201103 | | 67WW12-060113 | | 67WW12-100113 | | 67WW12-012414 | | 67WW12-050614 | | 67WW12-072514 | | 67WW12-120314 | | 67WW12-021015 | |
| | | Sample Date | 5/1/2019 | | 10/24/2019 | | 11/3/2020 | | 6/1/2013 | | 10/1/2013 | | 1/24/2014 | | 5/6/2014 | | 7/25/2014 | | 12/3/2014 | | 2/10/2015 | |
| | | Location Description | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,1,1-Trichloroethane | µg/L | 200 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.25 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1,2-Trichloroethane | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.25 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1-Dichloroethene | µg/L | 7 | 2.8 | | 1.9 | | 1.2 | | < 0.5 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U | < 1 | U |
| 1,2-Dichloroethane | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.25 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Trichloroethene | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.25 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |

Notes:

**Bold and highlighted results indicate analyte is above the MCL/GW-Ind.**

µg/L - micrograms per liter

J - estimated value

U - Not detected; The analyte was analyzed for but not detected above the associated method detection limit.

< - The analyte was not detected above the detection limit shown

FD - field duplicate

GW-Ind - groundwater MSC for industrial use

ID - identifier

MCL - maximum contaminant level

MSC - medium-specific concentration

REG - regular sample

## Table 2-5
## Historical Contaminants of Concern

| | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Location Code | 67WW12 | | | | | | | | | | | | | | | | | | |
| | | Sample ID | 67WW12-051215 | | 67WW12FFD-111815 | | 67WW12-111815 | | 67WW12-051816 | | 67WW12-112917 | | 67WW12-112917-FD | | 67WW12-180503 | | 67WW12-181022 | | 67WW12-190502 | | 67WW12-191028 | |
| | | Sample Date | 5/12/2015 | | 11/18/2015 | | 11/18/2015 | | 5/18/2016 | | 11/29/2017 | | 11/29/2017 | | 5/3/2018 | | 10/22/2018 | | 5/2/2019 | | 10/28/2019 | |
| | | Location Description | REG | | FD | | REG | | REG | | REG | | FD | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,1,1-Trichloroethane | µg/L | 200 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1,2-Trichloroethane | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1-Dichloroethene | µg/L | 7 | < 1 | U | < 1 | U | < 1 | U | 0.681 | J | 2.2 | | 1.8 | | < 0.5 | U | 4.8 | | 2.1 | | **17** | |
| 1,2-Dichloroethane | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Trichloroethene | µg/L | 5 | < 0.5 | U | | | < 0.5 | U | < 0.5 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |

Notes:

**Bold and highlighted results indicate analyte is above the MCL/GW-Ind.**

µg/L - micrograms per liter

J - estimated value

U - Not detected; The analyte was analyzed for but not detected above the associated method detection limit.

< - The analyte was not detected above the detection limit shown

FD - field duplicate

GW-Ind - groundwater MSC for industrial use

ID - identifier

MCL - maximum contaminant level

MSC - medium-specific concentration

REG - regular sample

## Table 2-5
## Historical Contaminants of Concern

| | | | Location Code | 67WW12 | | 67WW13 | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample ID | 67WW12-201102 | | 67WW13-053113 | | 67WW13-100113 | | 67WW13-012414 | | 67WW13FD-012414 | | 67WW13-050614 | | 67WW13FD-050614 | | 67WW13-072514 | | 67WW13FD-072514 | | 67WW13-120414 | |
| | | | Sample Date | 11/2/2020 | | 5/31/2013 | | 10/1/2013 | | 1/24/2014 | | 1/24/2014 | | 5/6/2014 | | 5/6/2014 | | 7/25/2014 | | 7/25/2014 | | 12/4/2014 | |
| | | | Location Description | REG | | REG | | REG | | REG | | FD | | REG | | FD | | REG | | FD | | REG | |
| Parameter | Units | MCL/GW-Ind | | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,1,1-Trichloroethane | µg/L | 200 | | < 0.5 | U | < 0.25 | U | < 0.5 | U | < 1.25 | U | < 1.25 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 2.5 | U |
| 1,1,2-Trichloroethane | µg/L | 5 | | < 0.5 | U | 2.91 | J | 3.37 | | 2.99 | | 3.01 | | 1.99 | J | 1.95 | J | 3.48 | | 3.56 | | 4.4 | J |
| 1,1-Dichloroethene | µg/L | 7 | | **40** | | **498** | | **515** | | **572** | | **569** | | **240** | | **228** | | **353** | | **362** | | **572** | |
| 1,2-Dichloroethane | µg/L | 5 | | < 0.5 | U | **19.9** | | **23.8** | | **22.9** | | **22.9** | | **13.7** | | **12.9** | | **19.8** | | **20.1** | | **24.9** | |
| Trichloroethene | µg/L | 5 | | < 0.5 | U | 2.71 | J | 2.81 | | 2.86 | | 2.99 | | 1.25 | J | 1.27 | J | 1.72 | | 1.71 | | 1.65 | J |

Notes:

**Bold and highlighted results indicate analyte is above the MCL/GW-Ind.**

µg/L - micrograms per liter

J - estimated value

U - Not detected; The analyte was analyzed for but not detected above the associated method detection limit.

< - The analyte was not detected above the detection limit shown

FD - field duplicate

GW-Ind - groundwater MSC for industrial use

ID - identifier

MCL - maximum contaminant level

MSC - medium-specific concentration

REG - regular sample

## Table 2-5
## Historical Contaminants of Concern

| | | | Location Code | | 67WW13 | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample ID | 67WW13FD-120414 | | 67WW13-021115 | | 67WW13-051915 | | 67WW13-111815 | | 67WW13-051916 | | 67WW13-112817 | | 67WW13-180501 | | 67WW13-180501FD | | 67WW13-181023 | | 67WW13-190501 | |
| | | | Sample Date | 12/4/2014 | | 2/11/2015 | | 5/19/2015 | | 11/18/2015 | | 5/19/2016 | | 11/28/2017 | | 5/1/2018 | | 5/1/2018 | | 10/23/2018 | | 5/1/2019 | |
| | | | Location Description | FD | | REG | | REG | | REG | | REG | | REG | | REG | | FD | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,1,1-Trichloroethane | µg/L | 200 | | < 2.5 | U | < 1.25 | U | < 1.25 | U | < 1.25 | U | < 1 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1,2-Trichloroethane | µg/L | 5 | | 4.56 | J | 4.87 | | **5.96** | | **7.66** | | **7** | | **5.1** | | 4.8 | | 4.7 | | **6.1** | | 3.9 | |
| 1,1-Dichloroethene | µg/L | 7 | | **522** | | **521** | | **522** | | **762** | | **274** | | **320** | | **160** | | **170** | | **570** | | **200** | |
| 1,2-Dichloroethane | µg/L | 5 | | **24.6** | | **26** | | **30.6** | | **42.6** | | **35.7** | | **32** | | **27** | | **28** | | **43** | | **24** | |
| Trichloroethene | µg/L | 5 | | 1.94 | J | 2.63 | | 2.91 | | 3.32 | | 1.67 | J | < 1 | U | < 0.5 | U | < 0.5 | U | 2.4 | | 1.1 | |

Notes:

**Bold and highlighted results indicate analyte is above the MCL/GW-Ind.**

µg/L - micrograms per liter

J - estimated value

U - Not detected; The analyte was analyzed for but not detected above the associated method detection limit.

< - The analyte was not detected above the detection limit shown

FD - field duplicate

GW-Ind - groundwater MSC for industrial use

ID - identifier

MCL - maximum contaminant level

MSC - medium-specific concentration

REG - regular sample

## Table 2-5
## Historical Contaminants of Concern

| | | | Location Code | 67WW13 | | | | | | 67WW14 | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample ID | 67WW13-190501-FD | | 67WW13-191028 | | 67WW13-201103 | | 67WW14-100113 | | 67WW14-100113-FD | | 67WW14-012414 | | 67WW14-050714 | | 67WW14-072514 | | 67WW14-120314 | | 67WW14-021015 | |
| | | | Sample Date | 5/1/2019 | | 10/28/2019 | | 11/3/2020 | | 10/1/2013 | | 10/1/2013 | | 1/24/2014 | | 5/7/2014 | | 7/25/2014 | | 12/3/2014 | | 2/10/2015 | |
| | | | Location Description | FD | | REG | | REG | | REG | | FD | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,1,1-Trichloroethane | µg/L | 200 | | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1,2-Trichloroethane | µg/L | 5 | | 3.8 | | 5 | | **5.7** | | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1-Dichloroethene | µg/L | 7 | | **160** | | **640** | | **720** | | 1.82 | J | 2.22 | | 2.58 | | 4.27 | | 3.57 | | 4.73 | | 3.46 | |
| 1,2-Dichloroethane | µg/L | 5 | | **23** | | **36** | | **44** | | 0.692 | J | 0.849 | J | 0.666 | J | 0.897 | J | 1.31 | | 0.79 | J | 0.64 | J |
| Trichloroethene | µg/L | 5 | | 1 | | 2.6 | | 3.1 | | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |

Notes:

**Bold and highlighted results indicate analyte is above the MCL/GW-Ind.**

µg/L - micrograms per liter

J - estimated value

U - Not detected; The analyte was analyzed for but not detected above the associated method detection limit.

< - The analyte was not detected above the detection limit shown

FD - field duplicate

GW-Ind - groundwater MSC for industrial use

ID - identifier

MCL - maximum contaminant level

MSC - medium-specific concentration

REG - regular sample

## Table 2-5
## Historical Contaminants of Concern

| | | Location Code | 67WW14 | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW14FD-021015 | | 67WW14-051215 | | 67WW14FD-051215 | | 67WW14-111815 | | 67WW14-051816 | | 67WW14-112717 | | 67WW14-180502 | | 67WW14-181022 | | 67WW14-190502 | | 67WW14-191024 | |
| | | Sample Date | 2/10/2015 | | 5/12/2015 | | 5/12/2015 | | 11/18/2015 | | 5/18/2016 | | 11/27/2017 | | 5/2/2018 | | 10/22/2018 | | 5/2/2019 | | 10/24/2019 | |
| | | Location Description | FD | | REG | | FD | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,1,1-Trichloroethane | µg/L | 200 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1,2-Trichloroethane | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1-Dichloroethene | µg/L | 7 | 3.61 | | 2.77 | | 2.93 | | **26.3** | J | **10.8** | | 5.6 | | 4.2 | | 6.6 | | 5.3 | | **7.4** | |
| 1,2-Dichloroethane | µg/L | 5 | 0.657 | J | 0.799 | J | 0.815 | J | **5.83** | | 3.54 | | 3.1 | | 1.9 | | 2.5 | | 1.8 | | 1.5 | |
| Trichloroethene | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |

Notes:

**Bold and highlighted results indicate analyte is above the MCL/GW-Ind.**

µg/L - micrograms per liter

J - estimated value

U - Not detected; The analyte was analyzed for but not detected above the associated method detection limit.

< - The analyte was not detected above the detection limit shown

FD - field duplicate

GW-Ind - groundwater MSC for industrial use

ID - identifier

MCL - maximum contaminant level

MSC - medium-specific concentration

REG - regular sample

## Table 2-5
## Historical Contaminants of Concern

| | | Location Code | 67WW14 | | 67WW15 | | | | | | | | | | | | 67WW16I | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW14-201102 | | 67WW15-051916 | | 67WW15-112717 | | 67WW15-180502 | | 67WW15-181023 | | 67WW15-190503 | | 67WW15-191024 | | 67WW15-201103 | | 67WW16-051816 | | 67WW16I-112917 | |
| | | Sample Date | 11/2/2020 | | 5/19/2016 | | 11/27/2017 | | 5/2/2018 | | 10/23/2018 | | 5/3/2019 | | 10/24/2019 | | 11/3/2020 | | 5/18/2016 | | 11/29/2017 | |
| | | Location Description | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,1,1-Trichloroethane | µg/L | 200 | < 0.5 | U | < 0.5 | U | < 1 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 1 | U |
| 1,1,2-Trichloroethane | µg/L | 5 | < 0.5 | U | **22.7** | | **5.6** | | **5.6** | | **6** | | **5.4** | | **6.4** | | **6.4** | | < 0.5 | U | < 1 | U |
| 1,1-Dichloroethene | µg/L | 7 | 4.9 | | **2,460** | | **510** | | **380** | | **670** | | **330** | | **640** | J | **730** | | < 1 | U | < 1 | U |
| 1,2-Dichloroethane | µg/L | 5 | < 0.5 | U | **117** | | **27** | | **26** | | **30** | | **22** | | **27** | | **29** | | < 0.5 | U | < 1 | U |
| Trichloroethene | µg/L | 5 | < 0.5 | U | **5.48** | J | < 1 | U | 1.2 | | 1.4 | | 1.1 | | 1.5 | | 2 | | < 0.5 | U | < 1 | U |

Notes:

**Bold and highlighted results indicate analyte is above the MCL/GW-Ind.**

µg/L - micrograms per liter

J - estimated value

U - Not detected; The analyte was analyzed for but not detected above the associated method detection limit.

< - The analyte was not detected above the detection limit shown

FD - field duplicate

GW-Ind - groundwater MSC for industrial use

ID - identifier

MCL - maximum contaminant level

MSC - medium-specific concentration

REG - regular sample

## Table 2-5
## Historical Contaminants of Concern

| | | Location Code | 67WW16I | | | | | | | | | | 67WW17 | | | | | | 67WW18 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 67WW16I-180503 | | 67WW16I-181025 | | 67WW16I-190501 | | 67WW16I-191024 | | 67WW16I-201103 | | 67WW17-191024 | | 67WW17-201102 | | 67WW17-201102-FD | | 67WW18-191024 | | 67WW18-191024-FD | | 67WW18-201102 | |
| | | Sample Date | 5/3/2018 | | 10/25/2018 | | 5/1/2019 | | 10/24/2019 | | 11/3/2020 | | 10/24/2019 | | 11/2/2020 | | 11/2/2020 | | 10/24/2019 | | 10/24/2019 | | 11/2/2020 | |
| | | Location Description | REG | | REG | | REG | | REG | | REG | | REG | | REG | | FD | | REG | | FD | | REG | |
| Parameter | Units | MCL/GW-Ind | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| 1,1,1-Trichloroethane | µg/L | 200 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1,2-Trichloroethane | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,1-Dichloroethene | µg/L | 7 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| 1,2-Dichloroethane | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |
| Trichloroethene | µg/L | 5 | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U | < 0.5 | U |

Notes:

**Bold and highlighted results indicate analyte is above the MCL/GW-Ind.**

µg/L - micrograms per liter

J - estimated value

U - Not detected; The analyte was analyzed for but not detected above the associated method detection limit.

< - The analyte was not detected above the detection limit shown

FD - field duplicate

GW-Ind - groundwater MSC for industrial use

ID - identifier

MCL - maximum contaminant level

MSC - medium-specific concentration

REG - regular sample

## Table 2-6
## Well Maintenance Activities, Year 7 RA-O

| Well ID | Date Inspected | Pads | Bollards | Protective Casings | Locks | Date Mowed | Photos | Comments |
|---|---|---|---|---|---|---|---|---|
| 67WW01 | 11/03/20 | Good | Good | Good | In Place | 10/27/20 | Yes | |
| 67WW02 | 11/02/20 | Good | Good | Good | In Place | 10/27/20 | Yes | |
| 67WW03 | 11/02/20 | Good | Good | Good | In Place | 10/27/20 | Yes | |
| 67WW04 | 11/03/20 | Good | Good | Good | In Place | 10/27/20 | Yes | |
| 67WW05 | 11/02/20 | Good | Good | Good | In Place | 10/27/20 | Yes | |
| 67WW06 | 11/02/20 | Good | Good | Good | In Place | 10/27/20 | Yes | |
| 67WW07 | 11/02/20 | Good | Good | Good | In Place | 10/27/20 | Yes | |
| 67WW08 | 11/03/20 | Good | Good | Good | In Place | 10/27/20 | Yes | |
| 67WW09 | 11/03/20 | Good | Good | Good | In Place | 10/27/20 | Yes | |
| 67WW09A | 11/02/20 | Good | Good | Good | In Place | 10/27/20 | Yes | |
| 67WW10 | 11/02/20 | Good | Good | Good | In Place | 10/27/20 | Yes | |
| 67WW11 | 11/03/20 | Good | Good | Good | In Place | 10/27/20 | Yes | |
| 67WW12 | 11/02/20 | Good | Good | Good | In Place | 10/27/20 | Yes | |
| 67WW13 | 11/03/20 | Good | Good | Good | In Place | 10/27/20 | Yes | |
| 67WW14 | 11/02/20 | Good | Good | Good | In Place | 10/27/20 | Yes | |
| 67WW15 | 11/03/20 | Good | Good | Good | In Place | 10/27/20 | Yes | |
| 67WW16I | 11/03/20 | Good | Good | Good | In Place | 10/27/20 | Yes | |
| 67WW17 | 11/02/20 | Good | Good | Good | In Place | 10/27/20 | Yes | |
| 67WW18 | 11/02/20 | Good | Good | Good | In Place | 10/27/20 | Yes | |

Notes:

ID - identifier

RA-O - remedial action operation

## Table 2-7
## Year 8 RA-O Sampling – 2021

| Monitoring Well ID | VOCs | Field Parameters [a] | MNA Parameters [b] | Water Levels |
|---|---|---|---|---|
| 67WW01 | X | X | | X |
| 67WW02 | X | X | | X |
| 67WW03 | X | X | | X |
| 67WW04 [c] | Gauge for water levels only | | | X |
| 67WW05 | X | X | | X |
| 67WW06 [d] | Gauge for water levels only | | | X |
| 67WW07 | X | X | | X |
| 67WW08 | X | X | X | X |
| 67WW09 | X | X | | X |
| 67WW09A | X | X | | X |
| 67WW10 | X | X | | X |
| 67WW11 | X | X | | X |
| 67WW12 | X | X | | X |
| 67WW13 | X | X | X | X |
| 67WW14 | X | X | | X |
| 67WW15 | X | X | | X |
| 67WW16I | X | X | | X |
| 67WW17 | X | X | | X |
| 67WW18 | X | X | | X |

Notes:

[a] Field parameters to be monitored for all wells: pH, temperature, conductivity, turbidity, oxidation-reduction potential (ORP), dissolved oxygen (DO), and ferrous iron.

[b] MNA parameters include nitrate, sulfate, chloride, TOC, dissolved gases (methane, ethane, ethene), carbon dioxide, and dissolved iron.

[c] 67WW04 was replaced by 67WW09A and 67WW10.

[d] 67WW06 was eliminated in May 2018 due to the close proximity of 67WW07.

X - Well will be analyzed for that parameter.

ID - identifier

MNA - monitored natural attenuation

RA-O - remedial action operation

TOC - total organic carbon

VOCs - volatile organic compounds

## Table 3-1
## Mann-Kendall Trend Summary – LHAAP-67

| Monitoring Well | Well Location | 1,1-DCE | 1,2-DCA | 1,1,2-TCA |
|---|---|---|---|---|
| 67WW01 | In Plume | **Stable** | **No Trend** | NA |
| 67WW02 | Downgradient | **Increasing** | **Increasing** | NA |
| 67WW08 | Upgradient | **Decreasing** | **Decreasing** | NA |
| 67WW12 | Cross gradient - East | **Increasing** | NA | NA |
| 67WW13 | In Plume | **No Trend** | **Increasing** | **Increasing** |
| 67WW14 | Cross gradient - West | **Increasing** | NA | NA |
| 67WW15 | In Plume | **Stable** | **Stable** | **No Trend** |

Notes:

DCA - dichloroethane

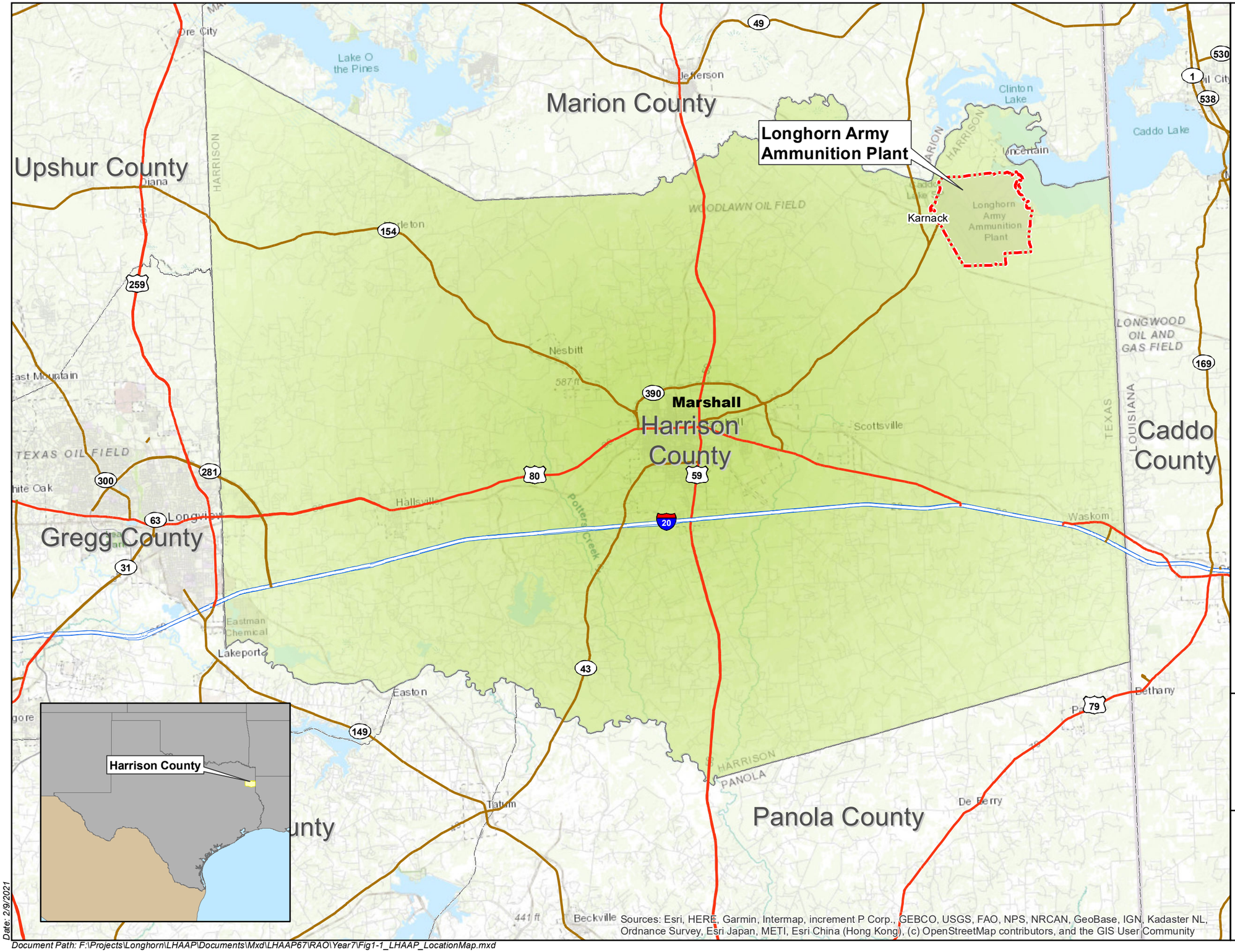
DCE - dichloroethene

MCL - maximum contaminant level

NA - Not analyzed because concentrations are below the MCL.

TCA - trichloroethane

# Figures




Notes:
1. LHAAP = Longhorn Army Ammunition Plant
2. RA-O = Remedial Action Operations

N

0 2 4 Miles

U.S. ARMY CORP OF ENGINEERS
TULSA DISTRICT
TULSA, OKLAHOMA

bhate APTIM

Figure 1-1

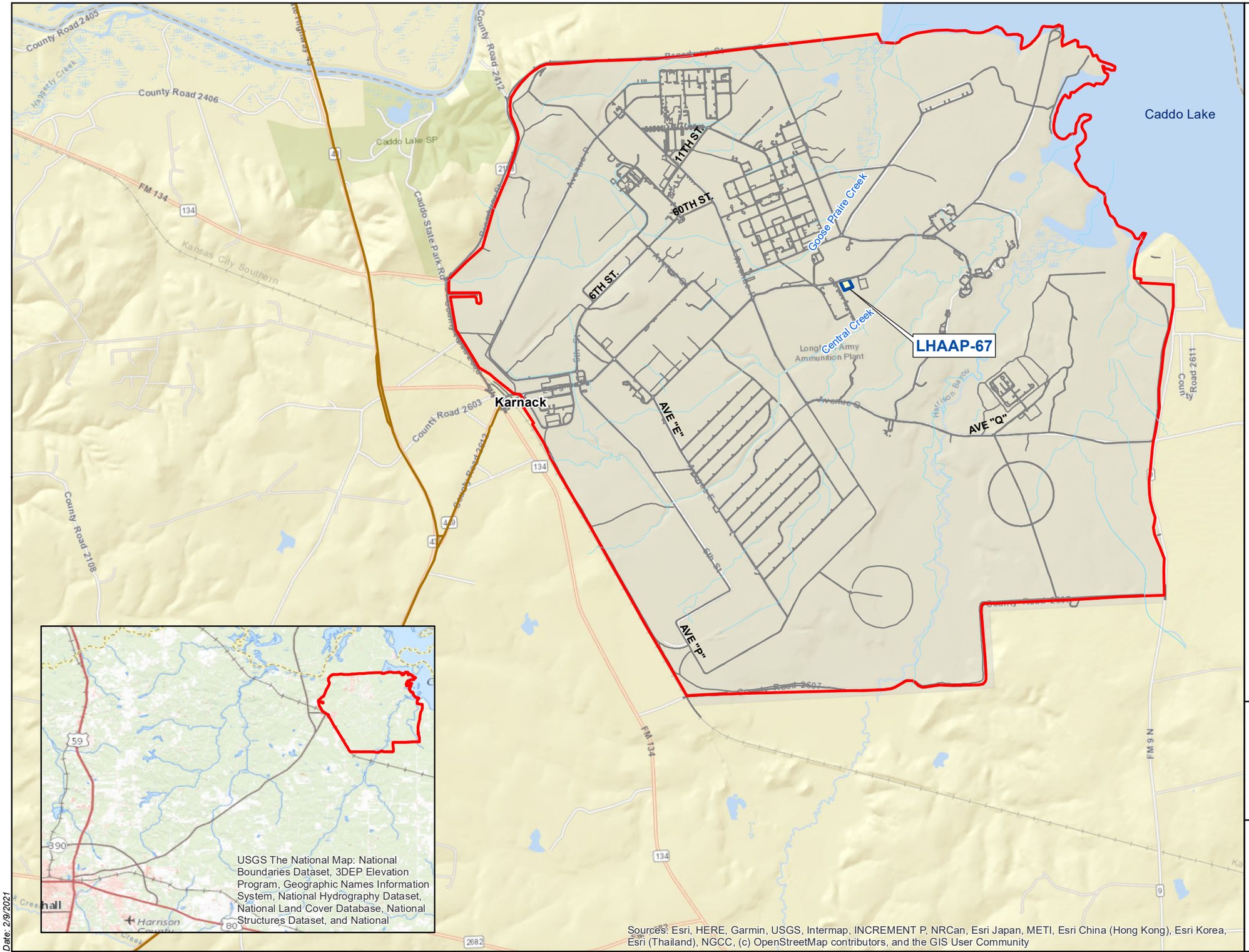
LHAAP Location Map
Seventh Annual RA-O Report
LHAAP-67

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Date: 2/9/2021

*Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP67\RAO\Year7\Fig1-1_LHAAP_LocationMap.mxd*




U.S. ARMY CORP OF ENGINEERS
TULSA DISTRICT
TULSA, OKLAHOMA

bhate APTIM

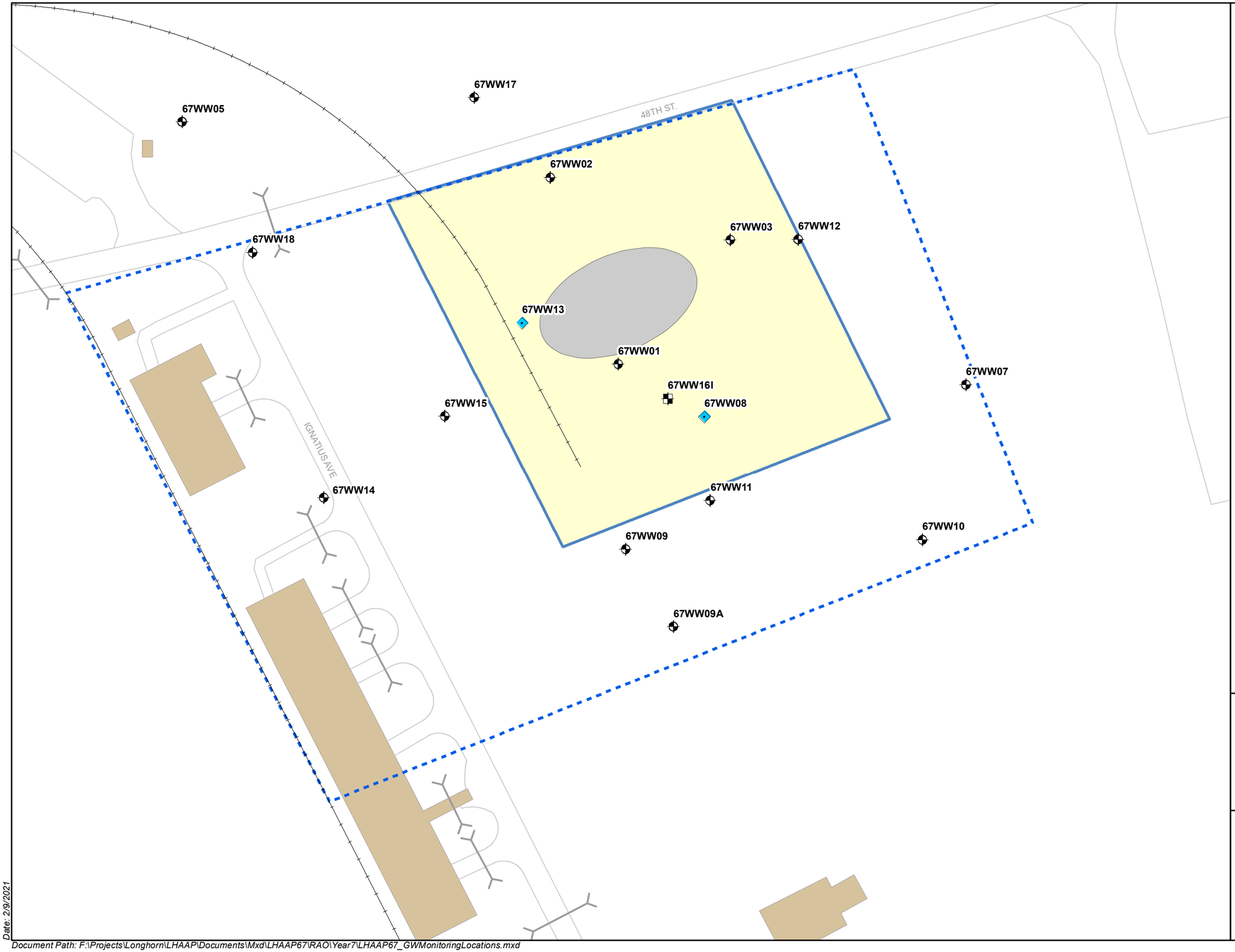
Figure 1-2

LHAAP Site Vicinity Map
Seventh Annual RA-O Report
LHAAP-67

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 2/9/2021

*Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP67\RAO\Year7\LHAAP67_SiteLocationMap.mxd*




U.S. ARMY CORP OF ENGINEERS
TULSA DISTRICT
TULSA, OKLAHOMA

bhate APTIM

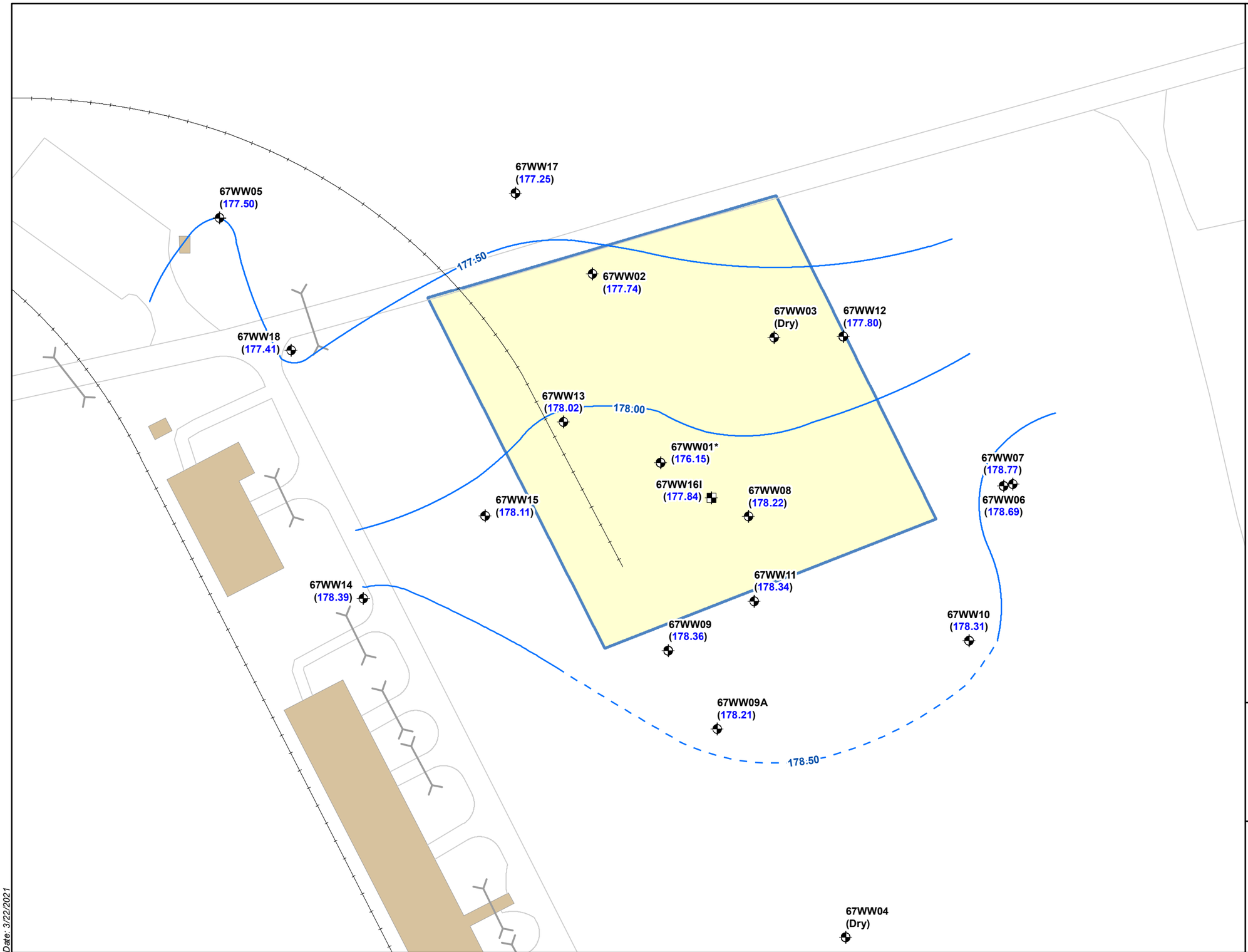
Figure 2-1

Groundwater Monitoring Well Locations
Seventh Annual RA-O Report
LHAAP-67

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 2/9/2021

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP67\RAO\Year7\LHAAP67_GWMonitoringLocations.mxd




Shallow Monitoring Well
Intermediate Monitoring Well
Former Railroad Location
Groundwater Contour
(*Dashed where inferred*)
Culvert
Roads
Buildings

Notes:
1. LHAAP = Longhorn Army Ammunition Plant
2. RA-O = Remedial Action Operations
3. Groundwater elevations are presented in feet above mean sea level (MSL).
4. * = 67WW01 appears anomalous and was not used to create the potentiometric contours.

N

0 30 60
Feet

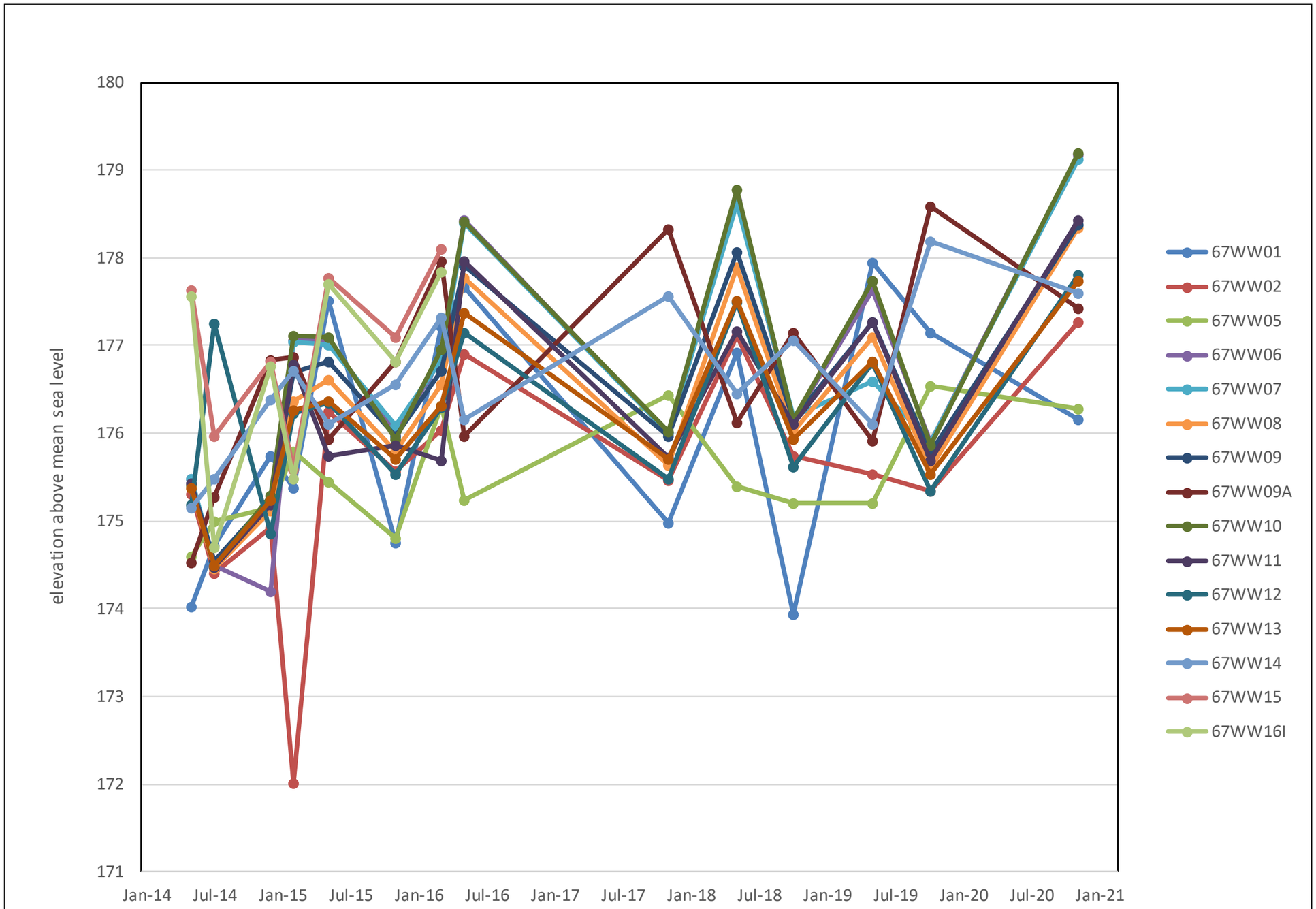
U.S. ARMY CORP OF ENGINEERS
TULSA DISTRICT
TULSA, OKLAHOMA

bhate APTIM

Figure 2-2
Shallow Zone Potentiometric Map - November 2020
Seventh Annual RA-O Report
LHAAP-67
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

*Date: 3/22/2021*

*Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP67\RAO\Year7\LHAAP67_ShallowZone_Pot_Nov2020.mxd*




Notes:
1. LHAAP = Longhorn Army Ammunition Plant
2. RA-O = Remedial Action Operations

U.S. ARMY CORP OF ENGINEERS
TULSA DISTRICT
TULSA, OKLAHOMA

bhate APTIM

Figure 2-3
Groundwater Elevations
2014-2020
Seventh Annual RA-O Report
LHAAP-67

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 2/9/2021

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP67\RAO\Year7\LHAAP67_GW_Elevations.mxd

| 67WW05 | | |
|---|---|---|
| Analyte | MCL | Nov 2020 |
| 1,1,1-Trichloroethane | 200 | < 0.5 U |
| 1,1,2-Trichloroethane | 5 | < 0.5 U |
| 1,1-Dichloroethene | 7 | < 0.5 U |
| 1,2-Dichloroethane | 5 | < 0.5 U |
| cis-1,2-Dichloroethene | 70 | < 0.5 U |
| Trichloroethene | 5 | < 0.5 U |
| Vinyl chloride | 2 | < 0.5 U |

| 67WW02 | | |
|---|---|---|
| Analyte | MCL | Nov 2020 |
| 1,1,1-Trichloroethane | 200 | < 0.5 U |
| 1,1,2-Trichloroethane | 5 | 1 |
| 1,1-Dichloroethene | 7 | **220** |
| 1,2-Dichloroethane | 5 | **5.5** |
| cis-1,2-Dichloroethene | 70 | < 0.5 U |
| Trichloroethene | 5 | 0.83 J |
| Vinyl chloride | 2 | < 0.5 U |

| 67WW17 | | |
|---|---|---|
| Analyte | MCL | Nov 2020 |
| 1,1,1-Trichloroethane | 200 | < 0.5 U |
| 1,1,2-Trichloroethane | 5 | < 0.5 U |
| 1,1-Dichloroethene | 7 | < 0.5 U |
| 1,2-Dichloroethane | 5 | < 0.5 U |
| cis-1,2-Dichloroethene | 70 | < 0.5 U |
| Trichloroethene | 5 | < 0.5 U |
| Vinyl chloride | 2 | < 0.5 U |

| 67WW01 | | |
|---|---|---|
| Analyte | MCL | Nov 2020 |
| 1,1,1-Trichloroethane | 200 | < 0.5 U |
| 1,1,2-Trichloroethane | 5 | < 0.5 U |
| 1,1-Dichloroethene | 7 | **49** |
| 1,2-Dichloroethane | 5 | **6.1** |
| cis-1,2-Dichloroethene | 70 | < 0.5 U |
| Trichloroethene | 5 | < 0.5 U |
| Vinyl chloride | 2 | < 0.5 U |

| 67WW12 | | |
|---|---|---|
| Analyte | MCL | Nov 2020 |
| 1,1,1-Trichloroethane | 200 | < 0.5 U |
| 1,1,2-Trichloroethane | 5 | < 0.5 U |
| 1,1-Dichloroethene | 7 | **40** |
| 1,2-Dichloroethane | 5 | < 0.5 U |
| cis-1,2-Dichloroethene | 70 | < 0.5 U |
| Trichloroethene | 5 | < 0.5 U |
| Vinyl chloride | 2 | < 0.5 U |

| 67WW16I | | |
|---|---|---|
| Analyte | MCL | Nov 2020 |
| 1,1,1-Trichloroethane | 200 | < 0.5 U |
| 1,1,2-Trichloroethane | 5 | < 0.5 U |
| 1,1-Dichloroethene | 7 | < 0.5 U |
| 1,2-Dichloroethane | 5 | < 0.5 U |
| cis-1,2-Dichloroethene | 70 | < 0.5 U |
| Trichloroethene | 5 | < 0.5 U |
| Vinyl chloride | 2 | < 0.5 U |

| 67WW18 | | |
|---|---|---|
| Analyte | MCL | Nov 2020 |
| 1,1,1-Trichloroethane | 200 | < 0.5 U |
| 1,1,2-Trichloroethane | 5 | < 0.5 U |
| 1,1-Dichloroethene | 7 | < 0.5 U |
| 1,2-Dichloroethane | 5 | < 0.5 U |
| cis-1,2-Dichloroethene | 70 | < 0.5 U |
| Trichloroethene | 5 | < 0.5 U |
| Vinyl chloride | 2 | < 0.5 U |

| 67WW08 | | |
|---|---|---|
| Analyte | MCL | Nov 2020 |
| 1,1,1-Trichloroethane | 200 | < 0.5 U |
| 1,1,2-Trichloroethane | 5 | < 0.5 U |
| 1,1-Dichloroethene | 7 | **50** |
| 1,2-Dichloroethane | 5 | 1.8 |
| cis-1,2-Dichloroethene | 70 | < 0.5 U |
| Trichloroethene | 5 | < 0.5 U |
| Vinyl chloride | 2 | < 0.5 U |

| 67WW13 | | |
|---|---|---|
| Analyte | MCL | Nov 2020 |
| 1,1,1-Trichloroethane | 200 | < 0.5 U |
| 1,1,2-Trichloroethane | 5 | **5.7** |
| 1,1-Dichloroethene | 7 | **720** |
| 1,2-Dichloroethane | 5 | **44** |
| cis-1,2-Dichloroethene | 70 | 1.6 |
| Trichloroethene | 5 | 3.1 |
| Vinyl chloride | 2 | < 0.5 U |

| 67WW14 | | |
|---|---|---|
| Analyte | MCL | Nov 2020 |
| 1,1,1-Trichloroethane | 200 | < 0.5 U |
| 1,1,2-Trichloroethane | 5 | < 0.5 U |
| 1,1-Dichloroethene | 7 | 4.9 |
| 1,2-Dichloroethane | 5 | < 0.5 U |
| cis-1,2-Dichloroethene | 70 | < 0.5 U |
| Trichloroethene | 5 | < 0.5 U |
| Vinyl chloride | 2 | < 0.5 U |

| 67WW15 | | |
|---|---|---|
| Analyte | MCL | Nov 2020 |
| 1,1,1-Trichloroethane | 200 | < 0.5 U |
| 1,1,2-Trichloroethane | 5 | **6.4** |
| 1,1-Dichloroethene | 7 | **730** |
| 1,2-Dichloroethane | 5 | **29** |
| cis-1,2-Dichloroethene | 70 | 1.7 |
| Trichloroethene | 5 | 2 |
| Vinyl chloride | 2 | < 0.5 U |

| 67WW09 | | |
|---|---|---|
| Analyte | MCL | Nov 2020 |
| 1,1,1-Trichloroethane | 200 | < 0.5 U |
| 1,1,2-Trichloroethane | 5 | < 0.5 U |
| 1,1-Dichloroethene | 7 | < 0.5 U |
| 1,2-Dichloroethane | 5 | < 0.5 U |
| cis-1,2-Dichloroethene | 70 | < 0.5 U |
| Trichloroethene | 5 | < 0.5 U |
| Vinyl chloride | 2 | < 0.5 U |

| 67WW11 | | |
|---|---|---|
| Analyte | MCL | Nov 2020 |
| 1,1,1-Trichloroethane | 200 | < 0.5 U |
| 1,1,2-Trichloroethane | 5 | < 0.5 U |
| 1,1-Dichloroethene | 7 | 1.2 |
| 1,2-Dichloroethane | 5 | < 0.5 U |
| cis-1,2-Dichloroethene | 70 | < 0.5 U |
| Trichloroethene | 5 | < 0.5 U |
| Vinyl chloride | 2 | < 0.5 U |

| 67WW09A | | |
|---|---|---|
| Analyte | MCL | Nov 2020 |
| 1,1,1-Trichloroethane | 200 | < 0.5 U |
| 1,1,2-Trichloroethane | 5 | < 0.5 U |
| 1,1-Dichloroethene | 7 | < 0.5 U |
| 1,2-Dichloroethane | 5 | < 0.5 U |
| cis-1,2-Dichloroethene | 70 | < 0.5 U |
| Trichloroethene | 5 | < 0.5 U |
| Vinyl chloride | 2 | < 0.5 U |

| 67WW07 | | |
|---|---|---|
| Analyte | MCL | Nov 2020 |
| 1,1,1-Trichloroethane | 200 | < 0.5 U |
| 1,1,2-Trichloroethane | 5 | < 0.5 U |
| 1,1-Dichloroethene | 7 | < 0.5 U |
| 1,2-Dichloroethane | 5 | < 0.5 U |
| cis-1,2-Dichloroethene | 70 | < 0.5 U |
| Trichloroethene | 5 | < 0.5 U |
| Vinyl chloride | 2 | < 0.5 U |

| 67WW10 | | |
|---|---|---|
| Analyte | MCL | Nov 2020 |
| 1,1,1-Trichloroethane | 200 | < 0.5 U |
| 1,1,2-Trichloroethane | 5 | < 0.5 U |
| 1,1-Dichloroethene | 7 | < 0.5 U |
| 1,2-Dichloroethane | 5 | < 0.5 U |
| cis-1,2-Dichloroethene | 70 | < 0.5 U |
| Trichloroethene | 5 | < 0.5 U |
| Vinyl chloride | 2 | < 0.5 U |

67WW03
Dry

67WW06

67WW04

7-µg/L

5-µg/L

- Current MNA Parameter Analysis Well Location
- Shallow Monitoring Well
- Intermediate Monitoring Well
- Former Railroad Location
- 1,1,2-Trichloroethane Contour
- 1,1-Dichloroethene Contour (*Dashed where inferred*)
- 1,2-Dichloroethane Contour
- Groundwater Flow Direction
- Culvert
- Roads
- Buildings
- LHAAP-67 Site Boundary

Note:
1. Data Qualifiers:
J = Estimated value; analyte concentration was less than the limit of quantification.
U = Analyte was not detected
2. Result highlighted yellow indicates results exceeds MCL.
3. MCL = Maximum Contaminant Level
4. All concentrations are in microgram per liter (µg/L)
5. RA-O = Remedial Action Operations
6. LHAAP = Longhorn Army Ammunition Plant
7. 67WW16I is an intermediate well and data was not used for contour lines

Monitoring wells 67WW04 and 67WW06 are no longer part of the RA-O monitoring network.

N

0 35 70 Feet

U.S. ARMY CORP OF ENGINEERS
TULSA DISTRICT
TULSA, OKLAHOMA

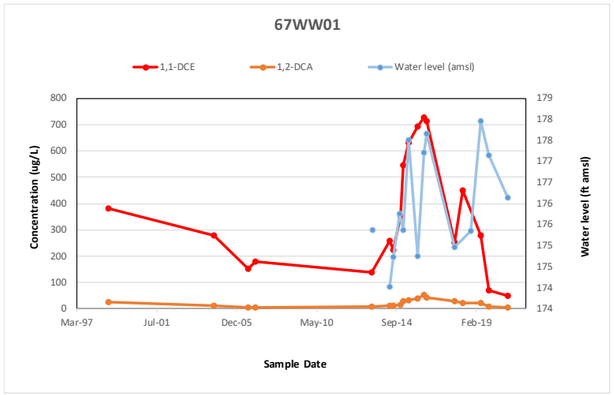
bhate APTIM

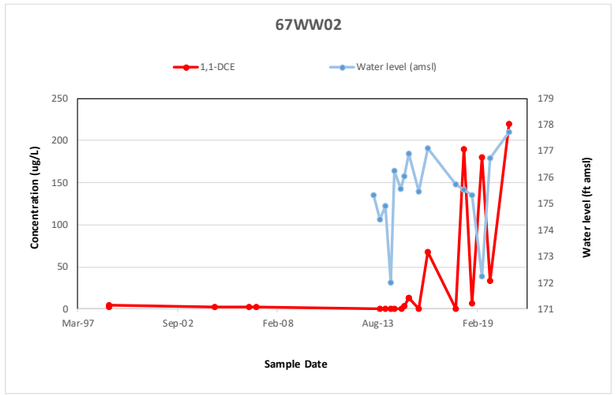
Figure 2-4
Groundwater Results
November 2020
Seventh Annual RA-O Report
LHAAP-67

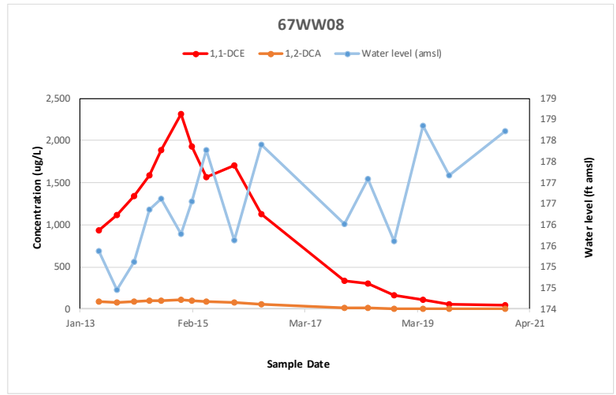
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

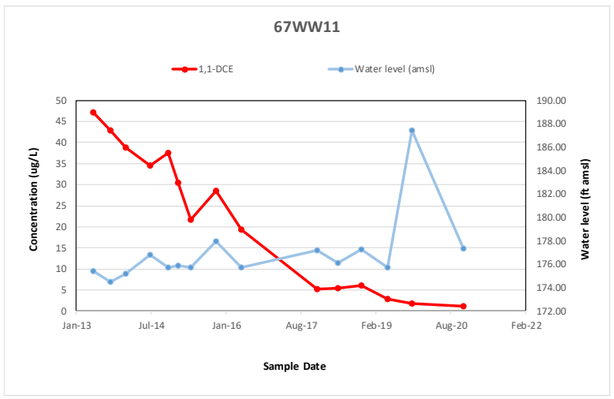
Date: 2/10/2021

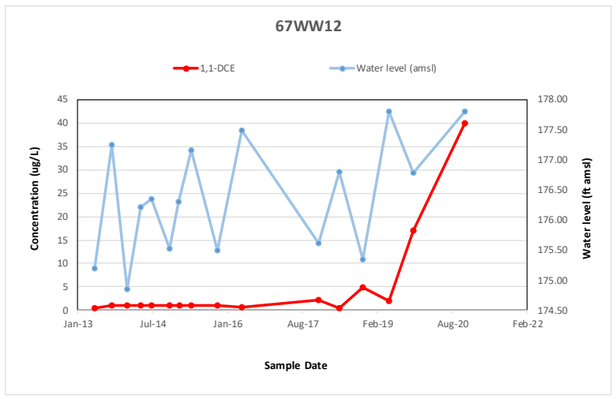
Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP67\RAO\Year7\LHAAP67_VOCsShallowZoneNov2020_GW.mxd

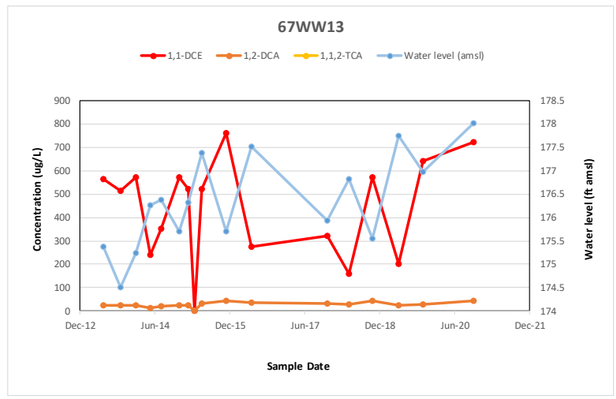


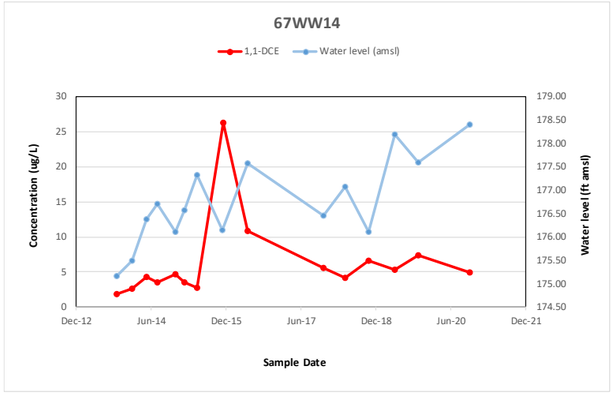



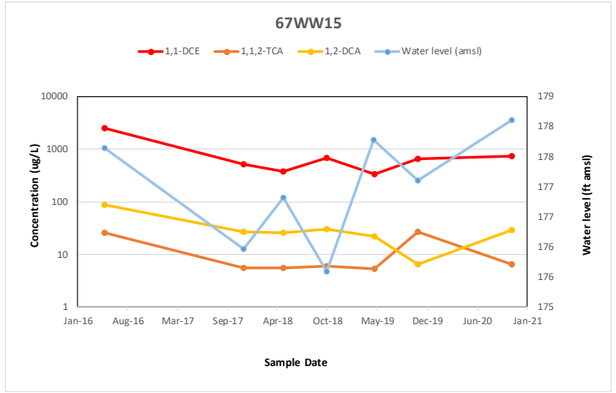




Cleanup Levels:
1,1-Dichlorothene (1,1-DCE) = 7 µg/L
1,2-Dichlorethane (1,2-DCA) = 5 µg/L
1,1,2-Trichloroethane (1,1,20TCA) = 5 µg/L

Notes:
1. LHAAP = Longhorn Army Ammunition Plant
2. RA-O = Remedial Action Operations

U.S. ARMY CORP OF ENGINEERS
TULSA DISTRICT
TULSA, OKLAHOMA

bhate APTIM

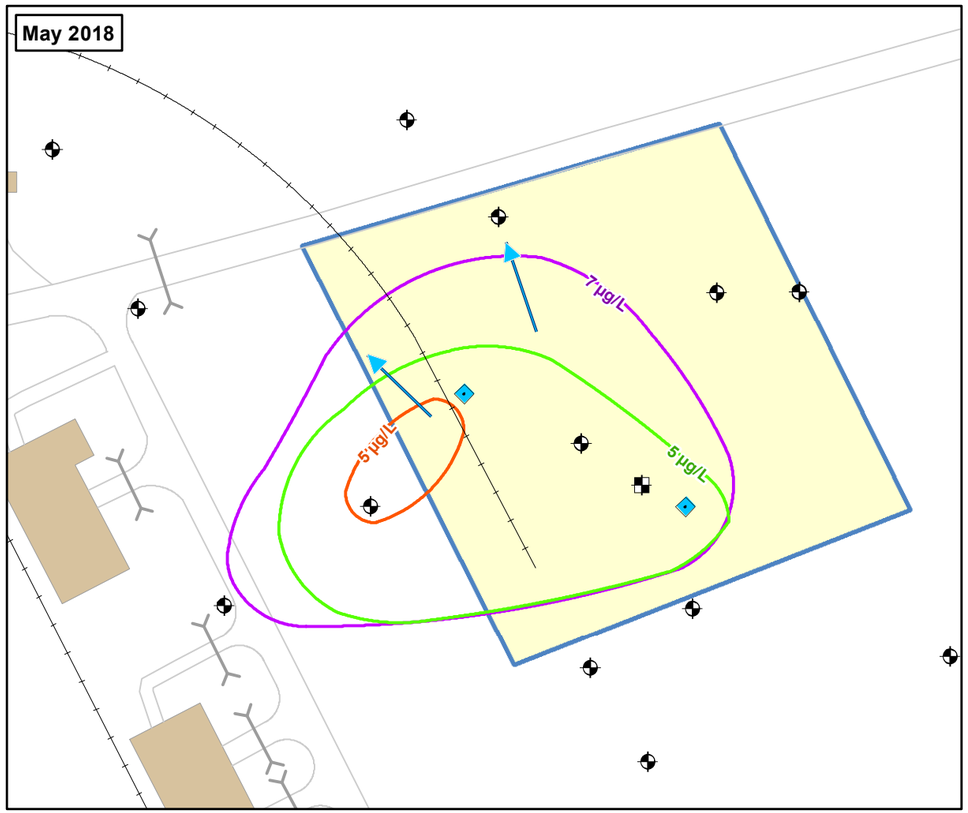
Figure 3-1

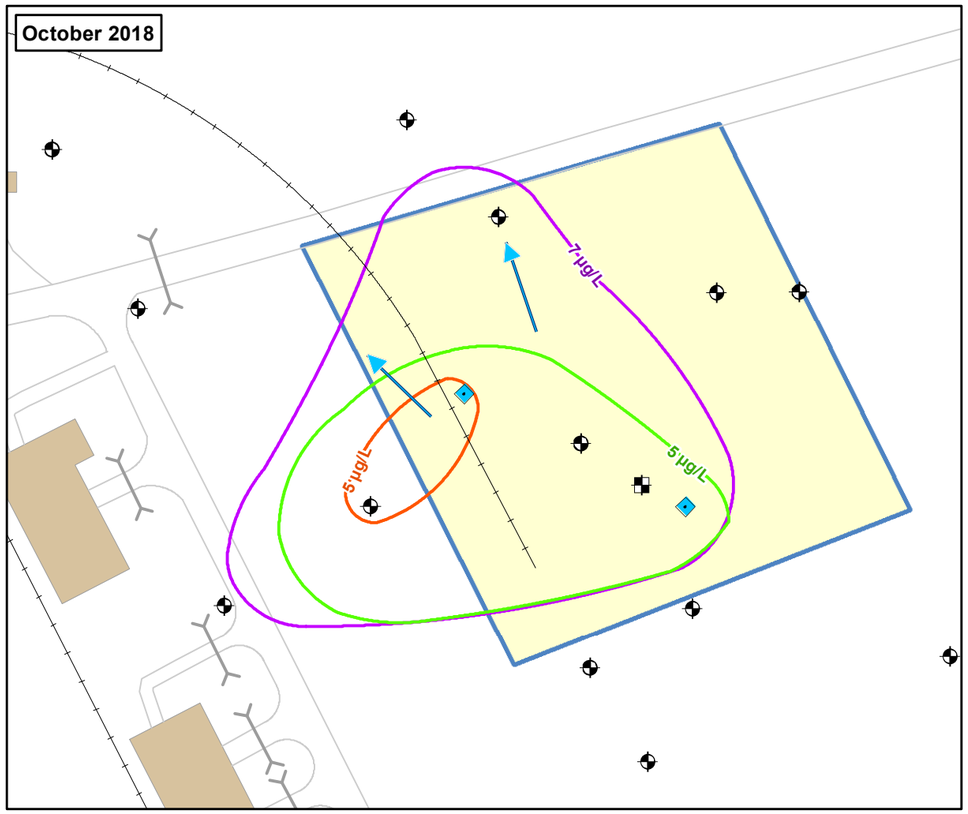
COC Concentrations
Seventh Annual RA-O Report
LHAAP-67

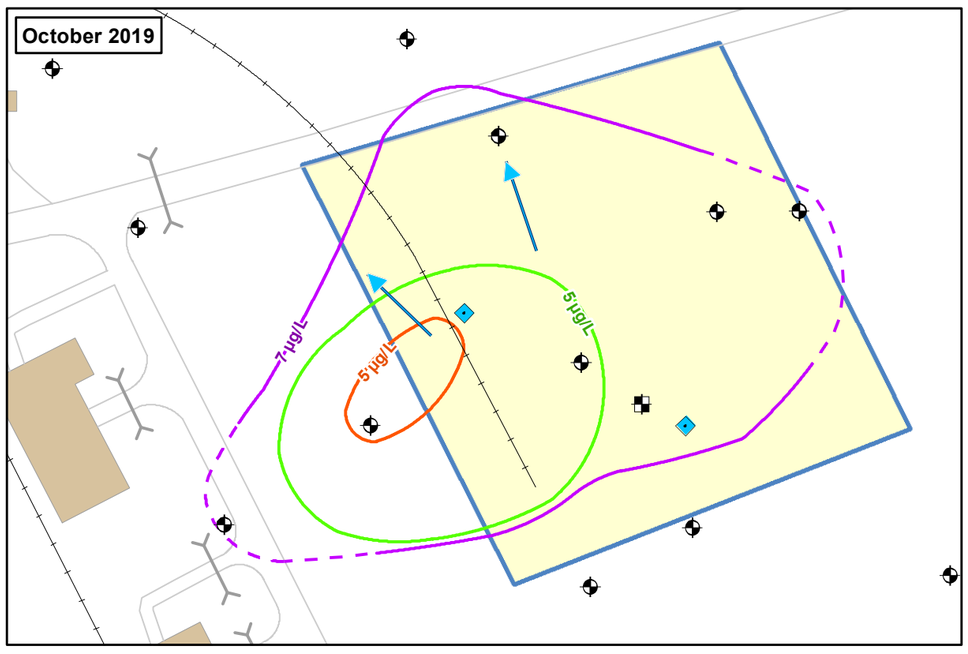
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

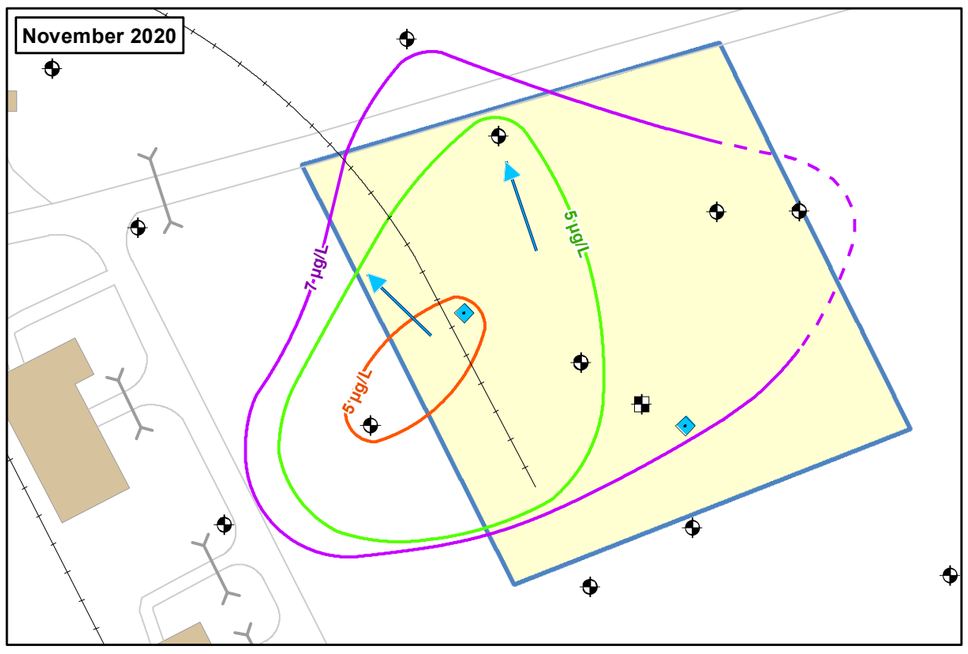
Date: 2/9/2021

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP67\RAO\Year7\LHAAP67_COC_Concentrations.mxd




- Current MNA Parameter Analysis Well Location
- Shallow Monitoring Well
- Intermediate Monitoring Well
- Former Railroad Location
- Groundwater Flow Direction
- 1,1,2-Trichloroethane Contour
- 1,1-Dichloroethene Contour (*Dashed where inferred*)
- 1,2-Dichloroethane Contour
- Culvert
- Roads
- Buildings
- LHAAP-67 Site Boundary

Notes:
1. LHAAP = Longhorn Army Ammunition Plant
2. RA-O = Remedial Action Operations

N

0 35 70 Feet

U.S. ARMY CORP OF ENGINEERS
TULSA DISTRICT
TULSA, OKLAHOMA

bhate APTIM

Figure 3-2

Plume Stability
Seventh Annual RA-O Report
LHAAP-67

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 2/10/2021

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP67\RAO\Year7\LHAAP67_PlumeStability.mxd

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Draft Final • Rev 0 • July 2021

# Appendix A

# Annual LUC Compliance Certification and Documentation

## Sample Annual Land Use Control Compliance Certification Documentation

In accordance with the Remedial Design dated _____ for LHAAP-67 a certification of site was conducted by APTim [indicate transferee] on 12/22/20.

A summary of land use control mechanisms is as follows:

Groundwater restriction – restriction of the use of groundwater to environmental monitoring and testing until cleanup levels are met [Indicate whether groundwater restrictions are still required at LHAAP-67]

A summary of compliance with land use and restriction covenants is as follows:

No use of groundwater, installation of new groundwater wells, or tampering with existing wells at LHAAP-67.

I, the undersigned, do document that the certification was performed as indicated above, and that the above information is true and correct to the best of my knowledge, information, and belief.

Date: DECEMBER 22, 2020

Name/Title: Scott Beesinger / Senior Field Tech

Signature: Scott Beesinger

Annual compliance certification forms shall be completed no later than March 1 of each year for the previous calendar year.

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Draft Final • Rev 0 • July 2021

# Appendix B

# Groundwater Sampling Forms

(Note: A few of the sample collection logs for the November 2020 sampling event have been revised to correct screened interval values that were written on the form in the field based on a table that was later determined to contain erroneous information. The screened interval values recorded in the field have been crossed out and replaced with the correct screened intervals for each well.)

APTIM

# Sample Collection Log



Project Name: **Longhorn AAP**
Project No: **501032**

Location ID: **67WW01**
Sampler(s): Scott Bessinger

**FIELD CONDITIONS** Clear

## SAMPLING INFORMATION

**Sample No:** 67WW01-201103 **DATE/TIME:** 11/3/200856 **Pump Inlet Depth:** 25.50

**Sampling Method:** LF **Sample Purpose:** REG **Sample Matrix:** GW

**Appearance of Sample** | **Assoc. QC Samples** | **Decontamination Procedures**

| Chain of Custody | COC Notes | Lab | Analyses | Container | Preserv |
|---|---|---|---|---|---|
| | | ALSHT | VOCs in Water by 8260B | 3 x 40 mL Glass | HCL<pH2 |

## WELL AND PURGING INFORMATION

Measuring Point : Top of Casing
Purging Method/Equipment: Low flow/Bladder Pump

Casing ID (in.): 4"
Purge Start Date/Time: 11/3/20 0900

Depth to Water - Initial (DTWi) (ft) 24.77
Purge End Date/Time: 11/3/20 0930

Depth to Well Bottom (ft) 27.00
Discharge Tube Length: NA PID Reading: NA

LGeorge 02/11/2021
Screen Interval (ft): ~~17.25 - 26.98~~
14.68-24.68 ft BTOC
Discharge Tube Diameter: 1/4" Immersible Layer: Y (N)

Approximate depth of pump inlet*(ft): 25.50 Pump Start Time: 0900

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DEPTH TO WATER - 24.77

APTIM

# Sample Collection Log



| Location ID: 67WW01 | | | | | Sample No: 67WW01-201103 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date of Reading | Time of Reading | Purge Rate | Total Purge | DTW | Cond. | Temp. | pH | Turbidity | ORP | DO |
| | | (ml/min) | (L) | (ft) | (mS/cm) | (°C) | | (NTU) | (mV) | (mg/L) |
| | Purge Stabilization Criteria | - | - | Drawdown limit 0.3 ft | ±10% 3.95 | | ±0.1 units | No criteria | | ± 10% or 0.2 mg/L |
| 11/3/20 | 0905 | 100 | .5 | 24.85 | [illegible] | 16.75 | 6.93 | 191 | 148 | 0.83 |
| | 0910 | 100 | 1.0 | 24.91 | 4.38 | 17.50 | 6.87 | 178 | 65 | 0.25 |
| | 0915 | 100 | 1.5 | 24.95 | 4.42 | 17.78 | 6.25 | 170 | 57 | 0.11 |
| | 0920 | 100 | 2.0 | 24.98 | 4.43 | 17.84 | 6.24 | 169 | 56 | 0.11 |
| | 0925 | 100 | 2.5 | 25.00 | 4.43 | 17.87 | 6.23 | 168 | 55 | 0.10 |
| ↓ | 0930 | 100 | 3.0 | 25.02 | 4.44 | 17.90 | 6.23 | 168 | 55 | 0.10 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

# Sample Collection Log



Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **67WW02**

Sampler(s): Scott Baesinger

**FIELD CONDITIONS** CLEAR

**SAMPLING INFORMATION**

**Sample No:** 67WW02-20111102 **DATE/TIME:** 11/2/20 1228 **Pump Inlet Depth:** 22.92

**Sampling Method:** LF **Sample Purpose:** REG **Sample Matrix:** GW

| Appearance of Sample | Assoc. QC Samples | Decontamination Procedures |
|---|---|---|
| | | |

| Chain of Custody | COC Notes | Lab | Analyses | Container | Preserv |
|---|---|---|---|---|---|
| | | ALSHT | VOCs in Water by 8260B | 3 x 40 mL Glass | HCL<pH2 |

**WELL AND PURGING INFORMATION**

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/BLADDER Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/2/20 1235

Depth to Water - Initial (DTWi) (ft) 21.95

Purge End Date/Time: 11/2/20 1305

Depth to Well Bottom (ft) 27.80

Discharge Tube Length: NA

PID Reading: NA

L George 02/11/2021

Screen Interval (ft): ~~18.05-27.78~~

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

18.08-28.08 ft BTOC

Approximate depth of pump inlet*(ft): 22.92

Pump Start Time: 1235

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DEPTH TO WATER - 21.95

APTIM

# Sample Collection Log



| Location ID: 67WW02 | | Sample No: 67WW02-2011 02 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date of Reading | Time of Reading | Purge Rate | Total Purge | DTW | Cond. | Temp. | pH | Turbidity | ORP | DO |
| | | (ml/min) | (L) | (ft) | (mS/cm) | (°C) | | (NTU) | (mV) | (mg/L) |
| | Purge Stabilization Criteria | - | - | Drawdown limit 0.3 ft | ±10% | | ±0.1 units | No criteria | | ± 10% or 0.2 mg/L |
| 11/2/20 | 1240 | 100 | .5 | 22.02 | 4.42 | 19.65 | 6.69 | 31.2 | 70 | 0.80 |
| | 1245 | 100 | 1.0 | 22.08 | 4.40 | 19.81 | 6.67 | 24.5 | 60 | 0.28 |
| | 1250 | 100 | 1.5 | 22.12 | 4.40 | 19.85 | 6.67 | 21.6 | 54 | 0.18 |
| | 1255 | 100 | 2.0 | 22.15 | 4.41 | 19.90 | 6.68 | 21.1 | 53 | 0.17 |
| | 1300 | 100 | 2.5 | 22.17 | 4.42 | 19.96 | 6.68 | 20.5 | 52 | 0.17 |
| ↓ | 1305 | 100 | 3.0 | 22.19 | 4.42 | 20.00 | 6.68 | 20.2 | 51 | 0.17 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

# Sample Collection Log



Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **67WW03**

Sampler(s): Scott Bessinger

## FIELD CONDITIONS

CLEAR

## SAMPLING INFORMATION

**Sample No:** 67WW03-201102 **DATE/TIME:** 11/2/20 1226 **Pump Inlet Depth:** 20.09

**Sampling Method:** LF **Sample Purpose:** REG **Sample Matrix:** GW

**Appearance of Sample** | **Assoc. QC Samples** | **Decontamination Procedures**

| Chain of Custody | COC Notes | Lab | Analyses | Container | Preserv |
|---|---|---|---|---|---|
| | | ALSHT | VOCs in Water by 8260B | 3 x 40 mL Glass | HCL<pH2 |

## WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Lowflow /BLADDER Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/2/20 NA

Depth to Water - Initial (DTWi) (ft) DRY

Purge End Date/Time: 11/2/20 NA

Depth to Well Bottom (ft) 24.89

Discharge Tube Length: NA PID Reading: NA

L George 02/11/2021

Screen Interval (ft): ~~15.27-24.90~~ 16.32-26.32 ft BTOC

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 20.09

Pump Start Time: NA

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DEPTH TO WATER- DRY

APTIM

# Sample Collection Log



| Location ID: 67WW03 | | | | Sample No: 67WW03-201102 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date of Reading | Time of Reading | Purge Rate | Total Purge | DTW | Cond. | Temp. | pH | Turbidity | ORP | DO |
| | | (ml/min) | (L) | (ft) | (mS/cm) | (°C) | | (NTU) | (mV) | (mg/L) |
| | Purge Stabilization Criteria | - | - | Drawdown limit 0.3 ft | ±10% | | ±0.1 units | No criteria | | ± 10% or 0.2 mg/L |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | DRY WELL | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

# Sample Collection Log



Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **67WW05**

Sampler(s): Scott Beasinger

**FIELD CONDITIONS** CLEAR

**SAMPLING INFORMATION**

**Sample No:** 67WW05-201102 **DATE/TIME:** 11/2/20 0726 **Pump Inlet Depth:** 24.52

**Sampling Method:** LF **Sample Purpose:** REG **Sample Matrix:** GW

**Appearance of Sample** **Assoc. QC Samples** **Decontamination Procedures**

| Chain of Custody | COC Notes | Lab | Analyses | Container | Preserv |
|---|---|---|---|---|---|
| | | ALSHT | VOCs in Water by 8260B | 3 x 40 mL Glass | HCL<pH2 |

**WELL AND PURGING INFORMATION**

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/BLADDER Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/2/20 0735

Depth to Water - Initial (DTWi) (ft) 23.50

Purge End Date/Time: 11/2/20 0805

Depth to Well Bottom (ft) 30.05

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 19.52-29.52

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 24.52

Pump Start Time: 0735

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DEPTH TO WATER- 23.50

APTIM

# Sample Collection Log



| Location ID: 67WW05 | | | | | | | | | | Sample No: 67WW05-201102 |
|---|---|---|---|---|---|---|---|---|---|---|
| Date of Reading | Time of Reading | Purge Rate | Total Purge | DTW | Cond. | Temp. | pH | Turbidity | ORP | DO |
| | | (ml/min) | (L) | (ft) | (mS/cm) | (°C) | | (NTU) | (mV) | (mg/L) |
| | Purge Stabilization Criteria | - | - | Drawdown limit 0.3 ft | ±10% | | ±0.1 units | No criteria | | ± 10% or 0.2 mg/L |
| 11/2/20 | 0740 | 100 | .5 | 23.57 | 3.02 | 16.52 | 6.08 | 121 | 60 | 0.85 |
| | 0745 | 100 | 1.0 | 23.63 | 3.02 | 17.12 | 6.07 | 108 | 45 | 0.70 |
| | 0750 | 100 | 1.5 | 23.67 | 3.02 | 17.44 | 6.10 | 97.7 | 33 | 0.60 |
| | 0755 | 100 | 2.0 | 23.70 | 3.02 | 17.56 | 6.11 | 97.2 | 32 | 0.59 |
| | 0800 | 100 | 2.5 | 23.72 | 3.03 | 17.63 | 6.11 | 96.6 | 31 | 0.59 |
| ↓ | 0805 | 100 | 3.0 | 23.74 | 3.03 | 17.69 | 6.11 | 96.1 | 31 | 0.58 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

# Sample Collection Log



Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **67WW07**

Sampler(s): Scott Baggsinger

## FIELD CONDITIONS

CLEAR

## SAMPLING INFORMATION

**Sample No:** 67WW07-2011**02**

**DATE/TIME:** 11/2/20 1102

**Pump Inlet Depth:** 22.80

**Sampling Method:** LF

**Sample Purpose:** REG

**Sample Matrix:** GW

**Appearance of Sample**

**Assoc. QC Samples**

**Decontamination Procedures**

| Chain of Custody | COC Notes | Lab | Analyses | Container | Preserv |
|---|---|---|---|---|---|
| | | ALSHT | VOCs in Water by 8260B | 3 x 40 mL Glass | HCL<pH2 |

## WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/BLADDER Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/2/20 1110

Depth to Water - Initial (DTWi) (ft) 22.07

Purge End Date/Time: 11/2/20 1140

Depth to Well Bottom (ft) 27.81

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 17.80-27.80

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 22.80

Pump Start Time: 1110

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DEPTH TO WATER-22.07

APTIM

# Sample Collection Log



| Location ID: 67WW07 | | | | Sample No: 67WW07-2011 02 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date of Reading | Time of Reading | Purge Rate | Total Purge | DTW | Cond. | Temp. | pH | Turbidity | ORP | DO |
| | | (ml/min) | (L) | (ft) | (mS/cm) | (°C) | | (NTU) | (mV) | (mg/L) |
| | Purge Stabilization Criteria | - | - | Drawdown limit 0.3 ft | ±10% | | ±0.1 units | No criteria | | ± 10% or 0.2 mg/L |
| 11/2/20 | 1115 | 100 | .5 | 22.15 | 2.13 | 20.19 | 6.57 | 36.2 | 35 | 0.76 |
| | 1120 | 100 | 1.0 | 22.20 | 1.79 | 20.10 | 6.45 | 2.3 | 35 | 0.22 |
| | 1125 | 100 | 1.5 | 22.24 | 1.73 | 20.06 | 6.39 | 1.2 | 36 | 0.06 |
| | 1130 | 100 | 2.0 | 22.27 | 1.72 | 20.01 | 6.38 | 0.6 | 37 | 0.06 |
| | 1135 | 100 | 2.5 | 22.29 | 1.72 | 19.98 | 6.37 | 0.0 | 38 | 0.05 |
| ↓ | 1140 | 100 | 3.0 | 22.30 | 1.72 | 19.95 | 6.37 | 0.0 | 38 | 0.05 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

# Sample Collection Log



Project Name: **Longhorn AAP**

Location ID: **67WW08**

Project No: **501032**

Sampler(s): Scott Beggsinger

## FIELD CONDITIONS

CLEAR

## SAMPLING INFORMATION

**Sample No:** 67WW08-201103 **DATE/TIME:** 11/3/20 1022 **Pump Inlet Depth:** 38.27

**Sampling Method:** LF **Sample Purpose:** REG **Sample Matrix:** GW

**Appearance of Sample** | **Assoc. QC Samples** | **Decontamination Procedures**

| Chain of Custody | COC Notes | Lab | Analyses | Container | Preserv |
|---|---|---|---|---|---|
| | | ALSHT | Anions (chloride/nitrate/sulfate) in Water by SW9056 | 1 x 125 mL HPDE | Cool 4C |
| | | ALSHT | Carbon Dioxide in Water by RSK175 | 3 x 40 mL Glass | Cool 4C |
| | | ALSHT | Dissolved Gases in Water by RSK175 | 3 x 40 mL Glass | HCL<pH2 |
| | | ALSHT | TOC in Water by SM5310C | 2 x 40 mL Amber | H2SO4 |
| | | ALSHT | VOCs in Water by 8260B | 3 x 40 mL Glass | HCL<pH2 |

## WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/BLADDER Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/3/20 1030

Depth to Water - Initial (DTWi) (ft) 21.80

Purge End Date/Time: 11/3/20 1100

Depth to Well Bottom (ft) 52.08

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 26.02 - 50.52

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 38.27

Pump Start Time: 1030

Ferrous Iron (Required (Y) or N) 1.06 mg/L

2ND DEPTH TO WATER - 21.80

APTIM

# Sample Collection Log



| Location ID: 67WW08 | | | | Sample No: 67WW08-201103 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date of Reading | Time of Reading | Purge Rate | Total Purge | DTW | Cond. | Temp. | pH | Turbidity | ORP | DO |
| | | ml/min | L | ft | mS/cm | C | | NTU | mV | mg/L |
| | Purge Stabili ati on Criteria | - | - | Dra do n limit 0.3 ft | _10 | | _0.1 units | No criteria | | _ 10 or 0.2 mg/L |
| 11/3/20 | 1035 | 100 | .5 | 21.87 | 6.19 | 17.51 | 6.31 | 5.5 | 33 | 0.73 |
| | 1040 | 100 | 1.0 | 21.93 | 6.63 | 18.07 | 6.00 | 4.1 | 50 | 0.42 |
| | 1045 | 100 | 1.5 | 21.97 | 6.73 | 18.44 | 5.95 | 3.2 | 60 | 0.34 |
| | 1050 | 100 | 2.0 | 21.99 | 6.73 | 18.51 | 5.94 | 2.0 | 61 | 0.33 |
| | 1055 | 100 | 2.5 | 22.01 | 6.74 | 18.59 | 5.94 | 1.5 | 62 | 0.33 |
| | 1100 | 100 | 3.0 | 22.02 | 6.74 | 18.65 | 5.94 | 0.8 | 62 | 0.32 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Logged by: _____ Date: _____

QC d by: _____ Date: _____

APTIM

# Sample Collection Log



Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **67WW08**

Sampler(s): Scott Beesinger

**FIELD CONDITIONS** CLEAR

**SAMPLING INFORMATION**

**Sample No:** 67WW08-201103-FD **DATE/TIME:** 11/3/20 1022 **Pump Inlet Depth:** 38.27

**Sampling Method:** LF **Sample Purpose:** FD **Sample Matrix:** GW

**Appearance of Sample** | **Assoc. QC Samples** | **Decontamination Procedures**

| Chain of Custody | COC Notes | Lab | Analyses | Container | Preserv |
|---|---|---|---|---|---|
| | | ALSHT | Anions (chloride/nitrate/sulfate) in Water by SW9056 | 1 x 125 mL HPDE | Cool 4C |
| | | ALSHT | Carbon Dioxide in Water by RSK175 | 3 x 40 mL Glass | Cool 4C |
| | | ALSHT | Dissolved Gases in Water by RSK175 | 3 x 40 mL Glass | HCL<pH2 |
| | | ALSHT | TOC in Water by SM5310C | 2 x 40 mL Amber | H2SO4 |
| | | ALSHT | VOCs in Water by 8260B | 3 x 40 mL Glass | HCL<pH2 |

**WELL AND PURGING INFORMATION**

Measuring Point : Top of Casing

Casing ID (in.): 4"

Depth to Water - Initial (DTWi) (ft) 21.80

Depth to Well Bottom (ft) 52.08

Screen Interval (ft): 26.02 - 50.52

Approximate depth of pump inlet*(ft): 38.27

Ferrous Iron (Required (Y) or N) 1.06 mg/L

Purging Method/Equipment: Low flow/BLADDER Pump

Purge Start Date/Time: 11/3/20 1030

Purge End Date/Time: 11/3/20 1100

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Pump Start Time: 1030

2ND DEPTH TO WATER - 21.80

APTIM

# Sample Collection Log



| Location ID: 67WW08 | | Sample No: 67WW08-201103-FD | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date of Reading | Time of Reading | Purge Rate | Total Purge | DTW | Cond. | Temp. | pH | Turbidity | ORP | DO |
| | | (ml/min) | (L) | (ft) | (mS/cm) | (°C) | | (NTU) | (mV) | (mg/L) |
| | Purge Stabilization Criteria | - | - | Drawdown limit 0.3 ft | ±10% | | ±0.1 units | No criteria | | ± 10% or 0.2 mg/L |
| 11/3/20 | 1035 | 100 | .5 | 21.87 | 6.19 | 17.51 | 6.31 | 5.5 | 38 | 0.73 |
| | 1040 | 100 | 1.0 | 21.93 | 6.63 | 18.07 | 6.00 | 4.1 | 50 | 0.42 |
| | 1045 | 100 | 1.5 | 21.97 | 6.73 | 18.44 | 5.95 | 3.2 | 60 | 0.34 |
| | 1050 | 100 | 2.0 | 21.99 | 6.73 | 18.51 | 5.94 | 2.0 | 61 | 0.33 |
| | 1055 | 100 | 2.5 | 22.01 | 6.74 | 18.59 | 5.94 | 1.5 | 62 | 0.33 |
| | 1100 | 100 | 3.0 | 22.02 | 6.74 | 18.65 | 5.94 | 0.8 | 62 | 0.32 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

# Sample Collection Log



Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **67WW09**

Sampler(s): Scott Bassinger

**FIELD CONDITIONS** CLEAR

**SAMPLING INFORMATION**

**Sample No:** 67WW09-201103 **DATE/TIME:** 11/3/20 0812 **Pump Inlet Depth:** 26.74

**Sampling Method:** LF **Sample Purpose:** REG **Sample Matrix:** GW

| Appearance of Sample | Assoc. QC Samples | Decontamination Procedures |
|---|---|---|
| | | |

| Chain of Custody | COC Notes | Lab | Analyses | Container | Preserv |
|---|---|---|---|---|---|
| | | ALSHT | VOCs in Water by 8260B | 3 x 40 mL Glass | HCL<pH2 |

**WELL AND PURGING INFORMATION**

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/BLADDER Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/3/20 0820

Depth to Water - Initial (DTWi) (ft) 19.85

Purge End Date/Time: 11/3/20 0850

Depth to Well Bottom (ft) 37.82

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 16.99 - 36.49

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 26.74

Pump Start Time: 0820

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DEPTH TO WATER - 19.85

APTIM

# Sample Collection Log



Location ID: 67WW09 Sample No: 67WW09-201103

| Date of Reading | Time of Reading | Purge Rate | Total Purge | DTW | Cond. | Temp. | pH | Turbidity | ORP | DO |
|---|---|---|---|---|---|---|---|---|---|---|
| | | (ml/min) | (L) | (ft) | (mS/cm) | (°C) | | (NTU) | (mV) | (mg/L) |
| | Purge Stabilization Criteria | - | - | Drawdown limit 0.3 ft | ±10% | | ±0.1 units | No criteria | | ± 10% or 0.2 mg/L |
| 11/3/20 | 0825 | 100 | .5 | 19.92 | 3.24 | 16.88 | 6.15 | 2.3 | 205 | 0.88 |
| | 0830 | 100 | 1.0 | 19.98 | 3.23 | 17.38 | 6.20 | 1.1 | 197 | 0.49 |
| | 0835 | 100 | 1.5 | 20.02 | 3.23 | 17.61 | 6.18 | 0.5 | 193 | 0.44 |
| | 0840 | 100 | 2.0 | 20.05 | 3.24 | 17.69 | 6.17 | 0.0 | 192 | 0.43 |
| | 0845 | 100 | 2.5 | 20.08 | 3.24 | 17.78 | 6.17 | 0.0 | 192 | 0.43 |
| ↓ | 0850 | 100 | 3.0 | 20.10 | 3.24 | 17.87 | 6.17 | 0.0 | 191 | 0.42 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

# Sample Collection Log



Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **67WW09A**

Sampler(s): Scott Beesinger

**FIELD CONDITIONS** CLEAR

**SAMPLING INFORMATION**

**Sample No:** 67WW09A-201102 **DATE/TIME:** 11/2/20 0938 **Pump Inlet Depth:** 31.18

**Sampling Method:** LF **Sample Purpose:** REG **Sample Matrix:** GW

| Appearance of Sample | Assoc. QC Samples | Decontamination Procedures |
|---|---|---|
| | | |

| Chain of Custody | COC Notes | Lab | Analyses | Container | Preserv |
|---|---|---|---|---|---|
| | | ALSHT | VOCs in Water by 8260B | 3 x 40 mL Glass | HCL<pH2 |

**WELL AND PURGING INFORMATION**

Measuring Point : Top of Casing

Casing ID (in.): 2"

Depth to Water - Initial (DTWi) (ft) 24.72

Depth to Well Bottom (ft) 38.63

Screen Interval (ft): 23.33 - 38.03

Approximate depth of pump inlet*(ft): 31.18

Ferrous Iron (Required Y or (N)) _____ mg/L

Purging Method/Equipment: Low flow/BLADDER Pump

Purge Start Date/Time: 11/2/20 0945

Purge End Date/Time: 11/2/20 1015

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Pump Start Time: 0945

2ND DEPTH TO WATER - 24.72

APTIM

# Sample Collection Log



Location ID: 67WW09A  Sample No: 67WW09A-201102

| Date of Reading | Time of Reading | Purge Rate | Total Purge | DTW | Cond. | Temp. | pH | Turbidity | ORP | DO |
|---|---|---|---|---|---|---|---|---|---|---|
| | | (ml/min) | (L) | (ft) | (mS/cm) | (°C) | | (NTU) | (mV) | (mg/L) |
| | Purge Stabilization Criteria | - | - | Drawdown limit 0.3 ft | ±10% | | ±0.1 units | No criteria | | ± 10% or 0.2 mg/L |
| 11/2/20 | 0950 | 100 | .5 | 24.80 | 3.82 | 18.05 | 6.61 | 0.6 | 100 | 0.73 |
| | 0955 | 100 | 1.0 | 24.86 | 4.25 | 19.07 | 6.49 | 0.0 | 92 | 0.21 |
| | 1000 | 100 | 1.5 | 24.90 | 4.91 | 19.65 | 6.45 | 0.0 | 77 | 0.07 |
| | 1005 | 100 | 2.0 | 24.93 | 4.92 | 19.72 | 6.45 | 0.0 | 76 | 0.07 |
| | 1010 | 100 | 2.5 | 24.96 | 4.93 | 19.80 | 6.44 | 0.0 | 76 | 0.06 |
| ↓ | 1015 | 100 | 3.0 | 24.98 | 4.93 | 19.86 | 6.44 | 0.0 | 75 | 0.06 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

# Sample Collection Log



Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **67WW10**

Sampler(s): Scott Beggingar

**FIELD CONDITIONS** CLEAR

**SAMPLING INFORMATION**

**Sample No:** 67WW10-20111102 **DATE/TIME:** 11/2/20 1021 **Pump Inlet Depth:** 37.46

**Sampling Method:** LF **Sample Purpose:** REG **Sample Matrix:** GW

**Appearance of Sample** **Assoc. QC Samples** **Decontamination Procedures**

| Chain of Custody | COC Notes | Lab | Analyses | Container | Preserv |
|---|---|---|---|---|---|
| | | ALSHT | VOCs in Water by 8260B | 3 x 40 mL Glass | HCL<pH2 |

**WELL AND PURGING INFORMATION**

Measuring Point : Top of Casing

Purging Method/Equipment: Lowflow/BLADDAR Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/2/20 1025

Depth to Water - Initial (DTWi) (ft) 23.20

Purge End Date/Time: 11/2/20 1055

Depth to Well Bottom (ft) 50.91

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 22.71 - 52.21

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 37.46

Pump Start Time: 1025

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DEPTH TO WATER - 23.20

APTIM

# Sample Collection Log



| Location ID: 67WW10 | | Sample No: 67WW10-201102 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date of Reading | Time of Reading | Purge Rate | Total Purge | DTW | Cond. | Temp. | pH | Turbidity | ORP | DO |
| | | (ml/min) | (L) | (ft) | (mS/cm) | (°C) | | (NTU) | (mV) | (mg/L) |
| | Purge Stabilization Criteria | - | - | Drawdown limit 0.3 ft | ±10% | | ±0.1 units | No criteria | | ± 10% or 0.2 mg/L |
| 11/2/20 | 1030 | 100 | .5 | 23.27 | 5.33 | 20.45 | 6.32 | 68.3 | 94 | 0.75 |
| | 1035 | 100 | 1.0 | 23.32 | 5.48 | 19.87 | 5.80 | 62.5 | 108 | 0.24 |
| | 1040 | 100 | 1.5 | 23.35 | 5.56 | 19.50 | 5.65 | 58.8 | 113 | 0.16 |
| | 1045 | 100 | 2.0 | 23.37 | 5.57 | 19.44 | 5.64 | 58.3 | 114 | 0.15 |
| | 1050 | 100 | 2.5 | 23.38 | 5.58 | 19.39 | 5.63 | 57.6 | 115 | 0.15 |
| | 1055 | 100 | 3.0 | 23.39 | 5.58 | 19.34 | 5.62 | 57.1 | 115 | 0.15 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

# Sample Collection Log



Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **67WW11**

Sampler(s): Scott Bassinger

**FIELD CONDITIONS** CLEAR

**SAMPLING INFORMATION**

**Sample No:** 67WW11-2011 03 **DATE/TIME:** 11/3/20 1117 **Pump Inlet Depth:** 35.18

**Sampling Method:** LF **Sample Purpose:** REG **Sample Matrix:** GW

**Appearance of Sample** | **Assoc. QC Samples** | **Decontamination Procedures**

| Chain of Custody | COC Notes | Lab | Analyses | Container | Preserv |
|---|---|---|---|---|---|
| | | ALSHT | VOCs in Water by 8260B | 3 x 40 mL Glass | HCL<pH2 |

**WELL AND PURGING INFORMATION**

Measuring Point : Top of Casing

Casing ID (in.): 4"

Depth to Water - Initial (DTWi) (ft) 21.30

Depth to Well Bottom (ft) 46.85

Screen Interval (ft): 22.93 - 47.43

Approximate depth of pump inlet*(ft): 35.18

Ferrous Iron (Required Y or (N)) _____ mg/L

Purging Method/Equipment: Low flow / BLADDER Pump

Purge Start Date/Time: 11/3/20 1125

Purge End Date/Time: 11/3/20 1155

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Pump Start Time: 1125

2ND DEPTH TO WATER - 21.30

APTIM

# Sample Collection Log



| Location ID: 67WW11 | | | | Sample No: 67WW11-201103 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date of Reading | Time of Reading | Purge Rate | Total Purge | DTW | Cond. | Temp. | pH | Turbidity | ORP | DO |
| | | ml/min | L | ft | mS/cm | C | | NTU | mV | mg/L |
| | Purge Stabili ati on Criteria | - | - | Dra do n limit 0.3 ft | _10 | | _0.1 units | No criteria | | _ 10 or 0.2 mg/L |
| 11/3/20 | 1130 | 100 | .5 | 21.37 | 4.68 | 19.45 | 6.67 | 4.1 | 8 | 0.73 |
| | 1135 | 100 | 1.0 | 21.43 | 4.81 | 19.61 | 6.48 | 2.9 | 20 | 0.21 |
| | 1140 | 100 | 1.5 | 21.47 | 4.85 | 19.80 | 6.40 | 1.3 | 27 | 0.06 |
| | 1145 | 100 | 2.0 | 21.50 | 4.86 | 19.83 | 6.39 | 0.7 | 28 | 0.06 |
| | 1150 | 100 | 2.5 | 21.52 | 4.86 | 19.87 | 6.38 | 0.0 | 28 | 0.06 |
| ↓ | 1155 | 100 | 3.0 | 21.54 | 4.87 | 19.92 | 6.38 | 0.0 | 29 | 0.05 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Logged by: _____ Date: _____

QC d by: _____ Date: _____

APTIM

# Sample Collection Log



Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **67WW12**

Sampler(s): Scott Beggsinger

**FIELD CONDITIONS** CLEAR

**SAMPLING INFORMATION**

**Sample No:** 67WW12-2011**02** **DATE/TIME:** 11/2/20 1146 **Pump Inlet Depth:** 31.33

**Sampling Method:** LF **Sample Purpose:** REG **Sample Matrix:** GW

| Appearance of Sample | Assoc. QC Samples | Decontamination Procedures |
|---|---|---|
| | | |

| Chain of Custody | COC Notes | Lab | Analyses | Container | Preserv |
|---|---|---|---|---|---|
| | | ALSHT | VOCs in Water by 8260B | 3 x 40 mL Glass | HCL<pH2 |

**WELL AND PURGING INFORMATION**

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/BLADDER Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/2/20 1150

Depth to Water - Initial (DTWi) (ft) 23.85

Purge End Date/Time: 11/2/20 1220

Depth to Well Bottom (ft) 36.85

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 26.58 - 36.08

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 31.33

Pump Start Time: 1150

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DEPTH TO WATER - 23.85

APTIM

# Sample Collection Log



Location ID: 67WW12 Sample No: 67WW12-2011 02

| Date of Reading | Time of Reading | Purge Rate | Total Purge | DTW | Cond. | Temp. | pH | Turbidity | ORP | DO |
|---|---|---|---|---|---|---|---|---|---|---|
| | | (ml/min) | (L) | (ft) | (mS/cm) | (°C) | | (NTU) | (mV) | (mg/L) |
| | Purge Stabilization Criteria | - | - | Drawdown limit 0.3 ft | ±10% | | ±0.1 units | No criteria | | ± 10% or 0.2 mg/L |
| 11/2/20 | 1155 | 100 | .5 | 23.82 | 4.33 | 19.88 | 6.60 | 1.9 | 42 | 0.67 |
| | 1200 | 100 | 1.0 | 23.88 | 4.63 | 19.51 | 6.42 | 1.0 | 48 | 0.20 |
| | 1205 | 100 | 1.5 | 23.92 | 5.08 | 19.34 | 6.33 | 0.5 | 53 | 0.08 |
| | 1210 | 100 | 2.0 | 23.95 | 5.09 | 19.28 | 6.32 | 0.0 | 54 | 0.08 |
| | 1215 | 100 | 2.5 | 23.97 | 5.10 | 19.22 | 6.32 | 0.0 | 55 | 0.07 |
| | 1220 | 100 | 3.0 | 23.99 | 5.10 | 19.17 | 6.31 | 0.0 | 55 | 0.07 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

# Sample Collection Log



Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **67WW13**

Sampler(s): Scott Baesinger

**FIELD CONDITIONS** CLEAR

**SAMPLING INFORMATION**

**Sample No:** 67WW13-2011 03 **DATE/TIME:** 11/3/20 0627 **Pump Inlet Depth:** ~~20.75~~

**Sampling Method:** LF **Sample Purpose:** REG **Sample Matrix:** GW

| Appearance of Sample | Assoc. QC Samples | Decontamination Procedures |
|---|---|---|
| | | |

| Chain of Custody | COC Notes | Lab | Analyses | Container | Preserv |
|---|---|---|---|---|---|
| | | ALSHT | Anions (chloride/nitrate/sulfate) in Water by SW 0 6 | 1 x 12 mL HPDE | Cool 4C |
| | | ALSHT | Carbon Dioxide in Water by RS 1 | 3 x 40 mL Glass | Cool 4C |
| | | ALSHT | Dissolved Gases in Water by RS 1 | 3 x 40 mL Glass | HCL<pH2 |
| | | ALSHT | TOC in Water by SM 310C | 2 x 40 mL Amber | H2SO4 |
| | | ALSHT | VOCs in Water by 8260B | 3 x 40 mL Glass | HCL<pH2 |

**WELL AND PURGING INFORMATION**

Measuring Point : Top of Casing

Purging Method/Equipment: Low Flow/Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/3/20 0640

Depth to Water - Initial (DTWi) (ft) ~~19.90~~

Purge End Date/Time: 11/3/20 0710

Depth to Well Bottom (ft) 28.55

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 12.57 - 27.07

Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Approximate depth of pump inlet*(ft): ~~20~~ 20.75 Pump Start Time: 0640

Ferrous Iron (Required Y or N) 0.90 mg/L

2ND DEPTH TO WATER - 19.90

APTIM

# Sample Collection Log



Location ID: 67WW13 Sample No: 67WW13-201103

| Date of Reading | Time of Reading | Purge Rate | Total Purge | DTW | Cond. | Temp. | pH | Turbidity | ORP | DO |
|---|---|---|---|---|---|---|---|---|---|---|
| | | (ml/min) | (L) | (ft) | (mS/cm) | (°C) | | (NTU) | (mV) | (mg/L) |
| | Purge Stabilization Criteria | - | - | Drawdown limit 0.3 ft | ±10% | | ±0.1 units | No criteria | | ± 10% or 0.2 mg/L |
| 11/3/20 | 0645 | 100 | .5 | 19.97 | 4.94 | 14.95 | 6.59 | 0.7 | 200 | 1.55 |
| | 0650 | 100 | 1.0 | 20.03 | 4.95 | 15.66 | 6.27 | 0.0 | 203 | 1.39 |
| | 0655 | 100 | 1.5 | 20.07 | 4.96 | 15.80 | 6.10 | 0.0 | 204 | 1.34 |
| | 0700 | 100 | 2.0 | 20.10 | 4.96 | 15.83 | 6.09 | 0.0 | 205 | 1.32 |
| | 0705 | 100 | 2.5 | 20.12 | 4.97 | 15.88 | 6.08 | 0.0 | 205 | 1.30 |
| ↓ | 0710 | 100 | 3.0 | 20.14 | 4.97 | 15.93 | 6.07 | 0.0 | 205 | 1.28 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

# Sample Collection Log



Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **67WW13**

Sampler(s): Scott Beesinger

## FIELD CONDITIONS

CLEAR

## SAMPLING INFORMATION

**Sample No:** 67WW13-201103-MS **DATE/TIME:** 11/3/20 0627 **Pump Inlet Depth:** 20.75

**Sampling Method:** LF **Sample Purpose:** MS **Sample Matrix:** GW

**Appearance of Sample** | **Assoc. QC Samples** | **Decontamination Procedures**

| Chain of Custody | COC Notes | Lab | Analyses | Container | Preserv |
|---|---|---|---|---|---|
| | | ALSHT | Anions (chloride/nitrate/sulfate) in Water by SW9056 | 1 x 125 mL HPDE | Cool 4C |
| | | ALSHT | Carbon Dioxide in Water by RSK175 | 3 x 40 mL Glass | Cool 4C |
| | | ALSHT | Dissolved Gases in Water by RSK175 | 3 x 40 mL Glass | HCL<pH2 |
| | | ALSHT | TOC in Water by SM5310C | 2 x 40 mL Amber | H2SO4 |
| | | ALSHT | VOCs in Water by 8260B | 3 x 40 mL Glass | HCL<pH2 |

## WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/3/20 0640

Depth to Water - Initial (DTWi) (ft) 19.90

Purge End Date/Time: 11/3/20 0710

Depth to Well Bottom (ft) 28.55

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 12.57 - 27.07

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 20.75 Pump Start Time: 0640

Ferrous Iron (Required (Y) or N) 0.90 mg/L

2ND DEPTH TO WATER - 19.90

APTIM

# Sample Collection Log



| Location ID: 67WW13 | | Sample No: 67WW13-201103-MS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date of Reading | Time of Reading | Purge Rate | Total Purge | DTW | Cond. | Temp. | pH | Turbidity | ORP | DO |
| | | (ml/min) | (L) | (ft) | (mS/cm) | (°C) | | (NTU) | (mV) | (mg/L) |
| | Purge Stabilization Criteria | - | - | Drawdown limit 0.3 ft | ±10% | | ±0.1 units | No criteria | | ± 10% or 0.2 mg/L |
| 11/3/20 | 0645 | 100 | .5 | 19.97 | 4.94 | 14.95 | 6.59 | 0.7 | 200 | 1.55 |
| | 0650 | 100 | 1.0 | 20.03 | 4.95 | 15.66 | 6.27 | 0.0 | 203 | 1.39 |
| | 0655 | 100 | 1.5 | 20.07 | 4.96 | 15.80 | 6.10 | 0.0 | 204 | 1.34 |
| | 0700 | 100 | 2.0 | 20.10 | 4.96 | 15.83 | 6.09 | 0.0 | 205 | 1.32 |
| | 0705 | 100 | 2.5 | 20.12 | 4.97 | 15.88 | 6.08 | 0.0 | 205 | 1.30 |
| ↓ | 0710 | 100 | 3.0 | 20.14 | 4.97 | 15.93 | 6.07 | 0.0 | 205 | 1.28 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

# Sample Collection Log



Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **67WW13**

Sampler(s): Scott Baysinger

## FIELD CONDITIONS

CLEAR

## SAMPLING INFORMATION

**Sample No:** 67WW13-201103-MSD **DATE/TIME:** 11/3/20 0627 **Pump Inlet Depth:** 19.82

**Sampling Method:** LF **Sample Purpose:** MSD **Sample Matrix:** GW

**Appearance of Sample** | **Assoc. QC Samples** | **Decontamination Procedures**

| Chain of Custody | COC Notes | Lab | Analyses | Container | Preserv |
|---|---|---|---|---|---|
| | | ALSHT | Anions (chloride/nitrate/sulfate) in Water by SW9056 | 1 x 125 mL HPDE | Cool 4C |
| | | ALSHT | Carbon Dioxide in Water by RSK175 | 3 x 40 mL Glass | Cool 4C |
| | | ALSHT | Dissolved Gases in Water by RSK175 | 3 x 40 mL Glass | HCL<pH2 |
| | | ALSHT | TOC in Water by SM5310C | 2 x 40 mL Amber | H2SO4 |
| | | ALSHT | VOCs in Water by 8260B | 3 x 40 mL Glass | HCL<pH2 |

## WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low Flow/Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/3/20 0640

Depth to Water - Initial (DTWi) (ft) 19.90

Purge End Date/Time: 11/3/20 0710

Depth to Well Bottom (ft) 28.55

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 12.57 - 27.07

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 19.82

Pump Start Time: 0640

Ferrous Iron (Required (Y) or N) 0.90 mg/L

2ND DEPTH TO WATER - 19.90

APTIM

# Sample Collection Log



| Location ID: 67WW13 | | Sample No: 67WW13-201103-MSD | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date of Reading | Time of Reading | Purge Rate | Total Purge | DTW | Cond. | Temp. | pH | Turbidity | ORP | DO |
| | | (ml/min) | (L) | (ft) | (mS/cm) | (°C) | | (NTU) | (mV) | (mg/L) |
| | Purge Stabilization Criteria | - | - | Drawdown limit 0.3 ft | ±10% | | ±0.1 units | No criteria | | ± 10% or 0.2 mg/L |
| 11/3/20 | 0645 | 100 | .5 | 19.97 | 4.94 | 14.95 | 6.59 | 0.7 | 200 | 1.59 |
| | 0650 | 100 | 1.0 | 20.03 | 4.95 | 15.66 | 6.27 | 0.0 | 203 | 1.39 |
| | 0655 | 100 | 1.5 | 20.07 | 4.96 | 15.80 | 6.10 | 0.0 | 204 | 1.34 |
| | 0700 | 100 | 2.0 | 20.10 | 4.96 | 15.83 | 6.09 | 0.0 | 205 | 1.32 |
| | 0705 | 100 | 2.5 | 20.12 | 4.97 | 15.88 | 6.08 | 0.0 | 205 | 1.30 |
| | 0710 | 100 | 3.0 | 20.14 | 4.97 | 15.93 | 6.07 | 0.0 | 205 | 1.28 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

# Sample Collection Log



Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **67WW14**

Sampler(s): Scott Beesinger

**FIELD CONDITIONS** CLEAR

**SAMPLING INFORMATION**

**Sample No:** 67WW14-201102 **DATE/TIME:** 11/2/20 0640 **Pump Inlet Depth:** 21.94

**Sampling Method:** LF **Sample Purpose:** REG **Sample Matrix:** GW

| Appearance of Sample | Assoc. QC Samples | Decontamination Procedures |
|---|---|---|
| | | |

| Chain of Custody | COC Notes | Lab | Analyses | Container | Preserv |
|---|---|---|---|---|---|
| | | ALSHT | VOCs in Water by 8260B | 3 x 40 mL Glass | HCL<pH2 |

**WELL AND PURGING INFORMATION**

Measuring Point : Top of Casing

Casing ID (in.): 2"

Depth to Water - Initial (DTWi) (ft) 18.57

Depth to Well Bottom (ft) 30.52

Screen Interval (ft): 14.44 - 29.44

Approximate depth of pump inlet*(ft): 21.94

Ferrous Iron (Required Y or (N) _____ mg/L

Purging Method/Equipment: Low flow / BLADDER Pump

Purge Start Date/Time: 11/2/20 0650

Purge End Date/Time: 11/2/20 0720

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y /(N)

Pump Start Time: 0650

2ND DEPTH TO WATER - 18.57

APTIM

# Sample Collection Log



| Location ID: 67WW14 | | | | Sample No: 67WW14-2011 02 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date of Reading | Time of Reading | Purge Rate | Total Purge | DTW | Cond. | Temp. | pH | Turbidity | ORP | DO |
| | | ml/min | L | ft | mS/cm | C | | NTU | mV | mg/L |
| | Purge Stabili ati on Criteria | - | - | Dra do n limit 0.3 ft | _10 | | _0.1 units | No criteria | | _ 10 or 0.2 mg/L |
| 11/2/20 | 0655 | 100 | .5 | 18.65 | 2.71 | 15.12 | 6.33 | 11.5 | 54 | 0.90 |
| | 0700 | 100 | 1.0 | 18.71 | 2.65 | 15.78 | 5.75 | 5.9 | 58 | 0.52 |
| | 0705 | 100 | 1.5 | 18.75 | 2.65 | 16.20 | 5.63 | 2.1 | 49 | 0.27 |
| | 0710 | 100 | 2.0 | 18.77 | 2.64 | 16.28 | 5.62 | 0.9 | 48 | 0.26 |
| | 0715 | 100 | 2.5 | 18.79 | 2.64 | 16.36 | 5.61 | 0.3 | 48 | 0.25 |
| ↓ | 0720 | 100 | 3.0 | 18.81 | 2.64 | 16.43 | 5.60 | 0.0 | 47 | 0.25 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Logged by: _____ Date: _____

QC d by: _____ Date: _____

APTIM

# Sample Collection Log



Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **67WW15**

Sampler(s): Scott Bassinger

**FIELD CONDITIONS** CLEAR

**SAMPLING INFORMATION**

**Sample No:** 67WW15-201103 **DATE/TIME:** 11/3/20 0733 **Pump Inlet Depth:** 41.63

**Sampling Method:** LF **Sample Purpose:** REG **Sample Matrix:** GW

| Appearance of Sample | Assoc. QC Samples | Decontamination Procedures |
|---|---|---|
| | | |

| Chain of Custody | COC Notes | Lab | Analyses | Container | Preserv |
|---|---|---|---|---|---|
| | | ALSHT | VOCs in Water by 8260B | 3 x 40 mL Glass | HCL<pH2 |

**WELL AND PURGING INFORMATION**

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/BLADDER Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/3/20 0740

Depth to Water - Initial (DTWi) (ft) 21.71

Purge End Date/Time: 11/3/20 0810

Depth to Well Bottom (ft) 47.30

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 36.78 - 46.48

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 41.63

Pump Start Time: 0740

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DEPTH TO WATER - 21.71

APTIM

# Sample Collection Log



| Location ID: 67WW15 | | | | Sample No: 67WW15-2011 03 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date of Reading | Time of Reading | Purge Rate | Total Purge | DTW | Cond. | Temp. | pH | Turbidity | ORP | DO |
| | | (ml/min) | (L) | (ft) | (mS/cm) | (°C) | | (NTU) | (mV) | (mg/L) |
| | Purge Stabilization Criteria | - | - | Drawdown limit 0.3 ft | ±10% | | ±0.1 units | No criteria | | ± 10% or 0.2 mg/L |
| 11/3/20 | 0745 | 100 | .5 | 21.78 | 1.96 | 16.21 | 6.11 | 1.7 | 194 | 0.95 |
| | 0750 | 100 | 1.0 | 21.83 | 1.92 | 16.71 | 5.55 | 0.6 | 224 | 0.63 |
| | 0755 | 100 | 1.5 | 21.87 | 1.90 | 16.77 | 5.39 | 0.0 | 222 | 0.58 |
| | 0800 | 100 | 2.0 | 21.89 | 1.90 | 16.84 | 5.38 | 0.0 | 223 | 0.57 |
| | 0805 | 100 | 2.5 | 21.91 | 1.90 | 16.88 | 5.37 | 0.0 | 224 | 0.57 |
| | 0810 | 100 | 3.0 | 21.92 | 1.90 | 16.91 | 5.37 | 0.0 | 224 | 0.56 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

# Sample Collection Log



Project Name: **Longhorn AAP**

Location ID: **67WW16I**

Project No: **501032**

Sampler(s): Scott Beesinger

**FIELD CONDITIONS** Clear

**SAMPLING INFORMATION**

**Sample No:** 67WW16I-201103 **DATE/TIME:** 11/3/20 0937 **Pump Inlet Depth:** 74.94

**Sampling Method:** LF **Sample Purpose:** REG **Sample Matrix:** GW

| Appearance of Sample | Assoc. QC Samples | Decontamination Procedures |
|---|---|---|
| | | |

| Chain of Custody | COC Notes | Lab | Analyses | Container | Preserv |
|---|---|---|---|---|---|
| | | ALSHT | VOCs in Water by 8260B | 3 x 40 mL Glass | HCL<pH2 |

**WELL AND PURGING INFORMATION**

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/3/20 0945

Depth to Water - Initial (DTWi) (ft) 21.67

Purge End Date/Time: 11/3/20 1015

Depth to Well Bottom (ft) 80.40

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 70.09-79.79

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 74.94

Pump Start Time: 0945

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DEPTH TO WATER- 21.67

APTIM

# Sample Collection Log



| Location ID: 67WW16I | | Sample No: 67WW16I-201103 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date of Reading | Time of Reading | Purge Rate | Total Purge | DTW | Cond. | Temp. | pH | Turbidity | ORP | DO |
| | | (ml/min) | (L) | (ft) | (mS/cm) | (°C) | | (NTU) | (mV) | (mg/L) |
| | Purge Stabilization Criteria | - | - | Drawdown limit 0.3 ft | ±10% | | ±0.1 units | No criteria | | ± 10% or 0.2 mg/L |
| 11/3/20 | 0950 | 100 | .5 | 21.73 | 1.39 | 16.98 | 6.76 | 7.7 | 0 | 0.89 |
| | 0955 | 100 | 1.0 | 21.78 | 1.42 | 17.95 | 6.53 | 3.9 | 5 | 0.33 |
| | 1000 | 100 | 1.5 | 21.81 | 1.42 | 18.22 | 6.43 | 3.0 | 2 | 0.15 |
| | 1005 | 100 | 2.0 | 21.83 | 1.43 | 18.29 | 6.42 | 2.5 | 2 | 0.15 |
| | 1010 | 100 | 2.5 | 21.84 | 1.43 | 18.35 | 6.42 | 2.1 | 1 | 0.14 |
| | 1015 | 100 | 3.0 | 21.84 | 1.43 | 18.41 | 6.41 | 1.5 | 1 | 0.14 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

# Sample Collection Log



Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **67WW17**

Sampler(s): Scott Baysinger

**FIELD CONDITIONS** CLEAR

**SAMPLING INFORMATION**

**Sample No:** 67WW17-2011 02 **DATE/TIME:** 11/2/20 0857 **Pump Inlet Depth:** 25.40

**Sampling Method:** LF **Sample Purpose:** REG **Sample Matrix:** GW

**Appearance of Sample** | **Assoc. QC Samples** | **Decontamination Procedures**

| Chain of Custody | COC Notes | Lab | Analyses | Container | Preserv |
|---|---|---|---|---|---|
| | | ALSHT | VOCs in Water by 8260B | 3 x 40 mL Glass | HCL<pH2 |

**WELL AND PURGING INFORMATION**

Measuring Point : Top of Casing

Purging Method/Equipment: Lowflow / BLADDER PUMP

Casing ID (in.): 4"

Purge Start Date/Time: 11/2/20 0900

Depth to Water - Initial (DTWi) (ft) 22.48

Purge End Date/Time: 11/2/20 0930

Depth to Well Bottom (ft) 29.45

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 20.40 - 30.40

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 25.40

Pump Start Time: 0900

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DEPTH TO WATER - 22.48

APTIM

# Sample Collection Log



| Location ID: 67WW17 | | | | Sample No: 67WW17-201102 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date of Reading | Time of Reading | Purge Rate | Total Purge | DTW | Cond. | Temp. | pH | Turbidity | ORP | DO |
| | | (ml/min) | (L) | (ft) | (mS/cm) | (°C) | | (NTU) | (mV) | (mg/L) |
| | Purge Stabilization Criteria | - | - | Drawdown limit 0.3 ft | ±10% | | ±0.1 units | No criteria | | ± 10% or 0.2 mg/L |
| 11/2/20 | 0905 | 100 | .5 | 22.55 | 3.08 | 16.85 | 6.54 | 3.4 | 55 | 1.12 |
| | 0910 | 100 | 1.0 | 22.61 | 3.11 | 17.85 | 6.15 | 1.8 | 74 | 0.91 |
| | 0915 | 100 | 1.5 | 22.65 | 3.14 | 18.21 | 5.78 | 0.7 | 93 | 0.79 |
| | 0920 | 100 | 2.0 | 22.68 | 3.15 | 18.28 | 5.77 | 0.0 | 94 | 0.78 |
| | 0925 | 100 | 2.5 | 22.70 | 3.15 | 18.37 | 5.76 | 0.0 | 95 | 0.77 |
| ↓ | 0930 | 100 | 3.0 | 22.72 | 3.15 | 18.46 | 5.76 | 0.0 | 96 | 0.76 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

# Sample Collection Log



Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **67WW17**

Sampler(s): Scott Baessinger

**FIELD CONDITIONS** CLEAR

**SAMPLING INFORMATION**

**Sample No:** 67WW17-201102-FD **DATE/TIME:** 11/2/20 0851 **Pump Inlet Depth:** 25.40

**Sampling Method:** LF **Sample Purpose:** FD **Sample Matrix:** GW

| Appearance of Sample | Assoc. QC Samples | Decontamination Procedures |
|---|---|---|
| | | |

| Chain of Custody | COC Notes | Lab | Analyses | Container | Preserv |
|---|---|---|---|---|---|
| | | ALSHT | VOCs in Water by 8260B | 3 x 40 mL Glass | HCL<pH2 |

**WELL AND PURGING INFORMATION**

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/BLADDER PUMP

Casing ID (in.): 4"

Purge Start Date/Time: 11/2/20 0900

Depth to Water - Initial (DTWi) (ft) 22.48

Purge End Date/Time: 11/2/20 0930

Depth to Well Bottom (ft) 29.45

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 20.40 - 30.40

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 25.40

Pump Start Time: 0900

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DEPTH TO WATER - 22.48

APTIM

# Sample Collection Log



| Location ID: 67WW17 | | Sample No: 67WW17-201102-FD | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date of Reading | Time of Reading | Purge Rate | Total Purge | DTW | Cond. | Temp. | pH | Turbidity | ORP | DO |
| | | (ml/min) | (L) | (ft) | (mS/cm) | (°C) | | (NTU) | (mV) | (mg/L) |
| | Purge Stabilization Criteria | - | - | Drawdown limit 0.3 ft | ±10% | | ±0.1 units | No criteria | | ± 10% or 0.2 mg/L |
| 11/2/20 | 0905 | 100 | .5 | 22.55 | 3.08 | 16.85 | 6.54 | 3.4 | 55 | 1.12 |
| | 0910 | 100 | 1.0 | 22.61 | 3.11 | 17.85 | 6.15 | 1.8 | 74 | 0.91 |
| | 0915 | 100 | 1.5 | 22.65 | 3.14 | 18.24 | 5.78 | 0.7 | 93 | 0.79 |
| | 0920 | 100 | 2.0 | 22.68 | 3.15 | 18.28 | 5.77 | 0.0 | 94 | 0.78 |
| | 0925 | 100 | 2.5 | 22.70 | 3.15 | 18.37 | 5.76 | 0.0 | 95 | 0.77 |
| | 0930 | 100 | 3.0 | 22.72 | 3.15 | 18.46 | 5.76 | 0.0 | 96 | 0.76 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

# Sample Collection Log



Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **67WW18**

Sampler(s): Scott Baggingar

**FIELD CONDITIONS** CLEAR

**SAMPLING INFORMATION**

**Sample No:** 67WW18-201102 **DATE/TIME:** 11/2/20 0811 **Pump Inlet Depth:** 37.61

**Sampling Method:** LF **Sample Purpose:** REG **Sample Matrix:** GW

**Appearance of Sample** | **Assoc. QC Samples** | **Decontamination Procedures**

| Chain of Custody | COC Notes | Lab | Analyses | Container | Preserv |
|---|---|---|---|---|---|
| | | ALSHT | VOCs in Water by 8260B | 3 x 40 mL Glass | HCL<pH2 |

**WELL AND PURGING INFORMATION**

Measuring Point : Top of Casing

Casing ID (in.): 4"

Depth to Water - Initial (DTWi) (ft) 21.49

Depth to Well Bottom (ft) 43.40

Screen Interval (ft): 37.61 - 42.61

Approximate depth of pump inlet*(ft): 37.61

Ferrous Iron (Required Y or N) _____ mg/L

Purging Method/Equipment: Low flow/BLADDER Pump

Purge Start Date/Time: 11/2/20 0815

Purge End Date/Time: 11/2/20 0845

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Pump Start Time: 0815

2ND DEPTH TO WATER - 21.49

APTIM

# Sample Collection Log



Location ID: 67WW18 Sample No: 67WW18-201102

| Date of Reading | Time of Reading | Purge Rate | Total Purge | DTW | Cond. | Temp. | pH | Turbidity | ORP | DO |
|---|---|---|---|---|---|---|---|---|---|---|
| | | ml/min | L | ft | mS/cm | C | | NTU | mV | mg/L |
| | Purge Stabili ati on Criteria | - | - | Dra do n limit 0.3 ft | _10 | | _0.1 units | No criteria | | _ 10 or 0.2 mg/L |
| 11/2/20 | 0820 | 100 | .5 | 21.56 | 1.68 | 18.79 | 6.37 | 5.4 | 28 | 0.70 |
| | 0825 | 100 | 1.0 | 21.62 | 1.20 | 18.72 | 6.12 | 2.9 | 43 | 0.37 |
| | 0830 | 100 | 1.5 | 21.66 | 1.16 | 18.88 | 5.95 | 1.2 | 60 | 0.37 |
| | 0835 | 100 | 2.0 | 21.68 | 1.15 | 18.95 | 5.94 | 0.7 | 61 | 0.36 |
| | 0840 | 100 | 2.5 | 21.70 | 1.14 | 19.02 | 5.93 | 0.0 | 62 | 0.36 |
| | 0845 | 100 | 3.0 | 21.71 | 1.14 | 19.07 | 5.92 | 0.0 | 63 | 0.36 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Logged by: _____ Date: _____

QC d by: _____ Date: _____

01042685

# EQUIPMENT CALIBRATION DAILY LOG

Date: 11/2/20

Project Number: 501032

Project Name: LHAAP-67

Recorded By: Scott Beesinger

## PID

Model:

Bulb: 10.6 meV

Equipment ID #:

| | Parameter | Standard | Exp. Date | Lot# | Morning Calibration | Evening Check | Additional Calib./Check (if necessary) |
|---|---|---|---|---|---|---|---|
| | | | | | Time: | Time: | Time: |
| | | | | | Initials: | Initials: | Initials: |
| First Point Calibration | Vapor conc. (ppm) | 0.0 (ambient air) | NA | NA | Value: | Value: | Value: |
| Second Point Calibration | Vapor conc. (ppm) | (isobutylene) | | | Value: | Value: | Value: |

## COMB. GAS/$O_2$ METER

Model:

Equipment ID #:

| | Parameter | Standard | Exp. Date | Lot# | Morning Calibration | Evening Check | Additional Calib./Check (if necessary) |
|---|---|---|---|---|---|---|---|
| | | | | | Time: | Time: | Time: |
| | | | | | Initials: | Initials: | Initials: |
| First Point Calibration | O2 (%) | | | | Value: | Value: | Value: |
| | % LEL Pentane | | | | Value: | Value: | Value: |

## WATER QUALITY METER

Model: U-52 HORIBA

Equipment ID #:

| | Parameter | Standard | Exp. Date | Lot# | Morning Calibration/Check | Evening Check (one point only) | Additional Calib./Check (if necessary) |
|---|---|---|---|---|---|---|---|
| | | | | | Time: 0620 | Time: | Time: |
| | | | | | Initials: SB | Initials: | Initials: |
| First Point Calibration (Auto) | pH | 4.00 | 11/20 | 9GK061 | Value: 4.00 | Value: | Value: |
| | Conductivity (mS/cm) | 4.49 | | | Value: 4.49 | Value: | Value: |
| | Turbidity (NTU) | 0 | | | Value: 0.0 | Value: | Value: |
| | DO (mg/L) | 8.9-9.1 (ambient air) | NA | NA | Value: 9.01 | Value: | Value: |
| Second Point Calibration | pH | 6.86 | | | Value: | Value: | Value: |
| | Conductivity (mS/cm) | 53.7 | | | Value: | Value: | Value: |
| | Turbidity (NTU) | 100 | | | Value: | Value: | Value: |
| Third Point Calibration | pH | 9.18 | | | Value: | Value: | Value: |
| | Conductivity (mS/cm) | 53.7 | | | Value: | Value: | Value: |
| | Turbidity (NTU) | 100 | | | Value: | Value: | Value: |

Additional Remarks:

01042686

# EQUIPMENT CALIBRATION DAILY LOG

| | | | |
|---|---|---|---|
| Date: | 11/3/20 | Project Name: | LHAAP-67 |
| Project Number: | 501032 | Recorded By: | Scott Beesinger |

| | | | | | Morning Calibration | Evening Check | Additional Calib./Check (if necessary) |
|---|---|---|---|---|---|---|---|
| PID | Model: | | Bulb: 10.6 meV | | | | |
| | Equipment ID #: | | | | | | |
| | Parameter | Standard | Exp. Date | Lot# | Time: | Time: | Time: |
| | | | | | Initials: | Initials: | Initials: |
| First Point Calibration | Vapor conc. (ppm) | 0.0 (ambient air) | NA | NA | Value: | Value: | Value: |
| Second Point Calibration | Vapor conc. (ppm) | (isobutylene) | | | Value: | Value: | Value: |

| | | | | | Morning Calibration | Evening Check | Additional Calib./Check (if necessary) |
|---|---|---|---|---|---|---|---|
| COMB. GAS/$O_2$ METER | Model: | | | | | | |
| | Equipment ID #: | | | | | | |
| | Parameter | Standard | Exp. Date | Lot# | Time: | Time: | Time: |
| | | | | | Initials: | Initials: | Initials: |
| First Point Calibration | O2 (%) | | | | Value: | Value: | Value: |
| | % LEL Pentane | | | | Value: | Value: | Value: |

| | | | | | Morning Calibration/Check | Evening Check (one point only) | Additional Calib./Check (if necessary) |
|---|---|---|---|---|---|---|---|
| WATER QUALITY METER | Model: U-52 HORIBA | | | | | | |
| | Equipment ID #: | | | | | | |
| | Parameter | Standard | Exp. Date | Lot# | Time: 0605 | Time: | Time: |
| | | | | | Initials: SB | Initials: | Initials: |
| First Point Calibration (Auto) | pH | 4.00 | 11/20 | 9GK061 | Value: 4.00 | Value: | Value: |
| | Conductivity (mS/cm) | 4.49 | | | Value: 4.49 | Value: | Value: |
| | Turbidity (NTU) | 0 | | | Value: 0.0 | Value: | Value: |
| | DO (mg/L) | 8.9-9.1 (ambient air) | NA | NA | Value: 9.03 | Value: | Value: |
| Second Point Calibration | pH | 6.86 | | | Value: | Value: | Value: |
| | Conductivity (mS/cm) | 53.7 | | | Value: | Value: | Value: |
| | Turbidity (NTU) | 100 | | | Value: | Value: | Value: |
| Third Point Calibration | pH | 9.18 | | | Value: | Value: | Value: |
| | Conductivity (mS/cm) | 53.7 | | | Value: | Value: | Value: |
| | Turbidity (NTU) | 100 | | | Value: | Value: | Value: |

Additional Remarks:

## Groundwater Elevation Data, LHAAP-67

| Well ID | Top of Casing Elevation | Ground Surface Elevation (ft MSL) | Depth to Water (ft from TOC) | Screen Interval (ft from TOC) | | Screen Interval (ft MSL) | | Ground Water Elevation (ft MSL) |
|---|---|---|---|---|---|---|---|---|
| | | | | Top | Bottom | Top | Bottom | |
| 67WW01 [c,d] | 200.92 | 198.21 | 24.77 | 17.25 | 26.98 | 183.67 | 173.94 | gauge and sample |
| 67WW02 [c,d] | 199.69 | 196.61 | 21.95 | 18.05 | 27.78 | 181.64 | 171.91 | gauge and sample |
| 67WW03 [c] | 200.44 | 198.12 | DRY | 15.27 | 24.9 | 185.17 | 175.54 | gauge and sample |
| 67WW04 [a] | 203.76 | 200.5 | DRY | 14.26 | 24.26 | 189.5 | 179.5 | gauge only |
| 67WW05 [a] | 201 | 197.48 | 23.50 | 19.52 | 29.52 | 181.48 | 171.48 | gauge and sample |
| 67WW06 [a] | 200.81 | 196.95 | 22.12 | 41.86 | 51.86 | 158.95 | 148.95 | gauge only |
| 67WW07 [a] | 200.84 | 197.04 | 22.07 | 17.8 | 27.8 | 183.04 | 173.04 | gauge and sample |
| 67WW08 [b,d] | 200.02 | 197.60 | 21.80 | 26.02 | 50.52 | 174 | 149.5 | gauge and sample |
| 67WW09 [b] | 198.21 | 195.72 | 19.85 | 16.99 | 36.49 | 181.22 | 161.72 | gauge and sample |
| 67WW09A [b] | 202.93 | 200.4 | 24.72 | 23.33 | 38.03 | 179.6 | 164.9 | gauge and sample |
| 67WW10 [b] | 201.51 | 198.8 | 23.20 | 22.71 | 52.21 | 178.8 | 149.3 | gauge and sample |
| 67WW11 [b] | 199.64 | 197.21 | 21.30 | 22.93 | 47.43 | 176.71 | 152.21 | gauge and sample |
| 67WW12 [b] | 201.65 | 199.07 | 23.85 | 26.58 | 36.08 | 175.07 | 165.57 | gauge and sample |
| 67WW13 | 197.92 | 195.85 | 19.90 | 12.57 | 27.07 | 185.35 | 170.85 | gauge and sample |
| 67WW14 | 196.96 | 194.52 | 18.57 | 14.44 | 29.44 | 182.52 | 167.52 | gauge and sample |
| 67WW15 | 199.82 | 197.24 | 21.71 | 36.78 | 46.48 | 163.04 | 153.34 | gauge and sample |
| 67WW16I [e] | 199.51 | 197.12 | 21.67 | 70.09 | 79.79 | 129.42 | 119.72 | gauge and sample |
| 67WW17 | 199.73 | 196.33 | 22.48 | 20,4 | 30.40 | NA | NA | gauge and sample |
| 67WW18 | 198.9 | 195.29 | 21.49 | 32.61 | 42.61 | NA | NA | gauge and sample |

Notes:

Elevations are reported as feet above mean sea level (ft MSL).

[a] Screen information calculated from Data Gap Investigation Report (Shaw 2007).

[b] Screen information calculated from well construction detail forms.

[c] Well screen top and bottom depths and elevations for monitoring wells 67WW01, 67WW02, and 67WW03 were revised/confirmed with a downhole camera survey performed

[d] Monitoring wells 67WW01, 67WW02, and 67WW08 were re-surveyed in September 2016 and elevations in the table for these wells are based on the re-survey results

[e] Intermediate zone monitoring well

Dry - insufficient or no water in well
MSL - mean sea level
ft - feet
TOC - top of casing

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Draft Final • Rev 0 • July 2021

# Appendix C

# Laboratory Analytical Data Package

**(Provided electronically on CD and the Portal)**

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887
www.alsglobal.com

# WorkOrder: HS20110128

## LHAAP 67 November 2020

## Aptim Environmental & Infrastucture, Inc.

Susan Huang
2500 City West Blvd., Suite 1700
Houston TX 77042

**14-Jan-2020**

ALS Environmental
ALS Group USA, Corp
10450 Stancliff Road, Suite 210
Houston, TX 77099
**T :** +1 281 530 5656
**F :** +1 281 530 5887
**www.alsglobal.com**

# Table of Contents

HS20110128 Cover Page
- CoverPage
- HS20110128 LHAAP 67 November 2020 Final REV01
  - CoverLetter
  - Sample Summary
  - CaseNarrative
  - 67WW14-201102
  - 67WW05-201102
  - 67WW18-201102
  - 67WW17-201102
  - 67WW17-201102-FD
  - 67WW09A-201102
  - 67WW10-201102
  - 67WW07-201102
  - 67WW12-201102
  - 67WW02-201102
  - 67WW13-201103
  - 67WW15-201103
  - 67WW09-201103
  - 67WW01-201103
  - 67WW16I-201103
  - 67WW08-201103

# Table of Contents (continued)


- 67WW08-201103-FD
- 67WW11-201103
- Trip Blank-201103
- Dates Report
- QC
- Acronyms
- Certifications
- SampleReceiptCheckList
- COC
- HS20110128 ALS Kelso Report K2010200_Tier II
- HS20110128 ALS Simi Valley Tier II Report P2006296

HS20110128 8260_W_DOD Raw Data REV01

HS20110128 Wet Chem Raw Data (9056_anions_W)

- HS20110128 1
- HS20110128 2
- HS20110128 3

HS20110128 1 ALS Kelso Tier IV Report K2010200

- Table of Contents
- Case Narrative
- Chain of Custody
- General Chemistry
- Raw Data

HS20110128  ALS Simi Valley Report P2006296 Tier IV

- LABORATORY REPORT
- CASE NARRATIVE
- CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS
- DETAIL SUMMARY
- CHAIN OF CUSTODY
- SAMPLE ACCEPTANCE CHECK FORM
- RSK 175 TCD
- RSK 175 FID
- RAW DATA RSK 175 TCD
- RAW DATA RSK 175 FID

# HS20110128 LHAAP 67 November 2020 Final REV01

ALS WO# HS20110128

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

January 06, 2021

Susan Huang
Aptim Environmental & Infrastucture, Inc.
2500 City West Blvd., Suite 1700
Houston, TX 77042

Work Order: **HS20110128**

Laboratory Results for: **LHAAP 67 November 2020**

Dear Susan Huang,

ALS Environmental received 19 sample(s) on Nov 04, 2020 for the analysis presented in the following report.

This is a REVISED REPORT. Please see the Case Narrative for discussion concerning this revision.

Regards,

**Generated By: RJ.MODASHIA**
RJ Modashia
Project Manager

**ALS Houston, US** Date: 06-Jan-21

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** LHAAP 67 November 2020
**Work Order:** HS20110128

## SAMPLE SUMMARY

| Lab Samp ID | Client Sample ID | Matrix | TagNo | Collection Date | Date Received | Hold |
|---|---|---|---|---|---|---|
| HS20110128-01 | 67WW14-201102 | Groundwater | | 02-Nov-2020 07:20 | 04-Nov-2020 09:30 | ☐ |
| HS20110128-02 | 67WW05-201102 | Groundwater | | 02-Nov-2020 08:05 | 04-Nov-2020 09:30 | ☐ |
| HS20110128-03 | 67WW18-201102 | Groundwater | | 02-Nov-2020 08:45 | 04-Nov-2020 09:30 | ☐ |
| HS20110128-04 | 67WW17-201102 | Groundwater | | 02-Nov-2020 09:30 | 04-Nov-2020 09:30 | ☐ |
| HS20110128-05 | 67WW17-201102-FD | Groundwater | | 02-Nov-2020 09:30 | 04-Nov-2020 09:30 | ☐ |
| HS20110128-06 | 67WW09A-201102 | Groundwater | | 02-Nov-2020 10:15 | 04-Nov-2020 09:30 | ☐ |
| HS20110128-07 | 67WW10-201102 | Groundwater | | 02-Nov-2020 10:55 | 04-Nov-2020 09:30 | ☐ |
| HS20110128-08 | 67WW07-201102 | Groundwater | | 02-Nov-2020 11:40 | 04-Nov-2020 09:30 | ☐ |
| HS20110128-09 | 67WW12-201102 | Groundwater | | 02-Nov-2020 12:20 | 04-Nov-2020 09:30 | ☐ |
| HS20110128-10 | 67WW02-201102 | Groundwater | | 02-Nov-2020 13:05 | 04-Nov-2020 09:30 | ☐ |
| HS20110128-11 | 67WW13-201103 | Groundwater | | 03-Nov-2020 07:10 | 04-Nov-2020 09:30 | ☐ |
| HS20110128-12 | 67WW15-201103 | Groundwater | | 03-Nov-2020 08:10 | 04-Nov-2020 09:30 | ☐ |
| HS20110128-13 | 67WW09-201103 | Groundwater | | 03-Nov-2020 08:50 | 04-Nov-2020 09:30 | ☐ |
| HS20110128-14 | 67WW01-201103 | Groundwater | | 03-Nov-2020 09:30 | 04-Nov-2020 09:30 | ☐ |
| HS20110128-15 | 67WW16I-201103 | Groundwater | | 03-Nov-2020 10:15 | 04-Nov-2020 09:30 | ☐ |
| HS20110128-16 | 67WW08-201103 | Groundwater | | 03-Nov-2020 11:00 | 04-Nov-2020 09:30 | ☐ |
| HS20110128-17 | 67WW08-201103-FD | Groundwater | | 03-Nov-2020 11:00 | 04-Nov-2020 09:30 | ☐ |
| HS20110128-18 | 67WW11-201103 | Groundwater | | 03-Nov-2020 11:55 | 04-Nov-2020 09:30 | ☐ |
| HS20110128-19 | Trip Blank-201103 | Water | CG-100620-221 | 03-Nov-2020 00:00 | 04-Nov-2020 09:30 | ☐ |

**Revision:**1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

**Client:** Aptim Environmental & Infrastucture, Inc. **CASE NARRATIVE**
**Project:** LHAAP 67 November 2020
**Work Order:** HS20110128

## Work Order Comments

- REV01: Revised to update the compound list for 8260 VOC
- The analysis for Methane, Methene, Ethane and CO2 by RSK175 was subcontracted to ALS Simi Valley, CA. Final report attached.
- The analysis for Perchlorate was subcontracted to ALS Salt Lake City, UT. Final report attached.

## Work Order Comments

- The analysis for Methane, Methene, Ethane and CO2 by RSK175 was subcontracted to ALS Simi Valley, CA. Final report attached.
- The analysis for TOC was subcontracted to ALS Kelso, WA. Final report attached.

## GCMS Volatiles by Method SW8260

### Batch ID: R372190

**Sample ID: 67WW13-201103 (HS20110128-11MS)**

- MS/MSD failed QC limits for some compounds due to background sample.

### Batch ID: R372274

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

## WetChemistry by Method SW9056

### Batch ID: R372041

**Sample ID: 67WW08-201103 (HS20110128-16)**

- Sample ran at 2X due to high concentration of Chloride

**Sample ID: 67WW08-201103-FD (HS20110128-17)**

- Sample ran at 2X due to high concentration of Chloride

**Sample ID: 67WW13-201103 (HS20110128-11)**

- Sample ran at 2X due to high concentration of Chloride

**Sample ID: 67WW13-201103 (HS20110128-11MS)**

- The MS and/or MSD recovery was outside of the control limits; however, the result in the parent sample is greater than 4x the spike amount. (Chloride,Sulfate)


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW14-201102 Lab ID:HS20110128-01
Collection Date: 02-Nov-2020 07:20 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 1,1,2-Trichlor-1,2,2-trifluoroethane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| **1,1-Dichloroethane** | **1.2** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 00:49 |
| **1,1-Dichloroethene** | **4.9** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 00:49 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 1,2,3-Trichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 1,2,3-Trichloropropane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 1,2,4-Trichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 1,2-Dichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 1,3-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 1,4-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 2-Hexanone | 2.0 | U | 1.0 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 4-Chlorotoluene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 4-Methyl-2-pentanone | 2.0 | U | 0.70 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Acetone | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Bromobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW14-201102 Lab ID:HS20110128-01
Collection Date: 02-Nov-2020 07:20 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: PC |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Methylene chloride | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| n-Butylbenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| *Surr: 1,2-Dichloroethane-d4* | *86.0* | | | **0** | *81-118* | *%REC* | *1* | *07-Nov-2020 00:49* |
| *Surr: 4-Bromofluorobenzene* | *87.7* | | | **0** | *85-114* | *%REC* | *1* | *07-Nov-2020 00:49* |
| *Surr: Dibromofluoromethane* | *84.8* | | | **0** | *80-119* | *%REC* | *1* | *07-Nov-2020 00:49* |
| *Surr: Toluene-d8* | *101* | | | **0** | *89-112* | *%REC* | *1* | *07-Nov-2020 00:49* |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2020
Sample ID: 67WW05-201102
Collection Date: 02-Nov-2020 08:05

**ANALYTICAL REPORT**
WorkOrder:HS20110128
Lab ID:HS20110128-02
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 1,1,2-Trichlor-1,2,2-trifluoroethane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 1,1-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 1,1-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 1,2,3-Trichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 1,2,3-Trichloropropane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 1,2,4-Trichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 1,2-Dichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 1,3-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 1,4-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 2-Hexanone | 2.0 | U | 1.0 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 4-Chlorotoluene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 4-Methyl-2-pentanone | 2.0 | U | 0.70 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Acetone | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Bromobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW05-201102 Lab ID:HS20110128-02
Collection Date: 02-Nov-2020 08:05 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: PC |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Methylene chloride | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| n-Butylbenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| *Surr: 1,2-Dichloroethane-d4* | *88.7* | | | **0** | *81-118* | *%REC* | *1* | *07-Nov-2020 01:10* |
| *Surr: 4-Bromofluorobenzene* | *90.9* | | | **0** | *85-114* | *%REC* | *1* | *07-Nov-2020 01:10* |
| *Surr: Dibromofluoromethane* | *87.3* | | | **0** | *80-119* | *%REC* | *1* | *07-Nov-2020 01:10* |
| *Surr: Toluene-d8* | *101* | | | **0** | *89-112* | *%REC* | *1* | *07-Nov-2020 01:10* |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW18-201102 Lab ID:HS20110128-03
Collection Date: 02-Nov-2020 08:45 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 1,1,2-Trichlor-1,2,2-trifluoroethane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 1,1-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 1,1-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 1,2,3-Trichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 1,2,3-Trichloropropane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 1,2,4-Trichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 1,2-Dichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 1,3-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 1,4-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 2-Hexanone | 2.0 | U | 1.0 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 4-Chlorotoluene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 4-Methyl-2-pentanone | 2.0 | U | 0.70 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Acetone | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Bromobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW18-201102 Lab ID:HS20110128-03
Collection Date: 02-Nov-2020 08:45 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: PC |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Methylene chloride | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| n-Butylbenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| *Surr: 1,2-Dichloroethane-d4* | *87.6* | | | **0** | *81-118* | *%REC* | *1* | *07-Nov-2020 01:31* |
| *Surr: 4-Bromofluorobenzene* | *87.6* | | | **0** | *85-114* | *%REC* | *1* | *07-Nov-2020 01:31* |
| *Surr: Dibromofluoromethane* | *87.7* | | | **0** | *80-119* | *%REC* | *1* | *07-Nov-2020 01:31* |
| *Surr: Toluene-d8* | *102* | | | **0** | *89-112* | *%REC* | *1* | *07-Nov-2020 01:31* |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW17-201102 Lab ID:HS20110128-04
Collection Date: 02-Nov-2020 09:30 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 1,1,2-Trichlor-1,2,2-trifluoroethane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 1,1-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 1,1-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 1,2,3-Trichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 1,2,3-Trichloropropane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 1,2,4-Trichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 1,2-Dichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 1,3-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 1,4-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 2-Hexanone | 2.0 | U | 1.0 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 4-Chlorotoluene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 4-Methyl-2-pentanone | 2.0 | U | 0.70 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Acetone | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Bromobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW17-201102 Lab ID:HS20110128-04
Collection Date: 02-Nov-2020 09:30 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: PC |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Methylene chloride | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| n-Butylbenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| *Surr: 1,2-Dichloroethane-d4* | *86.7* | | | **0** | *81-118* | *%REC* | *1* | *07-Nov-2020 01:52* |
| *Surr: 4-Bromofluorobenzene* | *91.9* | | | **0** | *85-114* | *%REC* | *1* | *07-Nov-2020 01:52* |
| *Surr: Dibromofluoromethane* | *82.8* | | | **0** | *80-119* | *%REC* | *1* | *07-Nov-2020 01:52* |
| *Surr: Toluene-d8* | *99.6* | | | **0** | *89-112* | *%REC* | *1* | *07-Nov-2020 01:52* |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW17-201102-FD Lab ID:HS20110128-05
Collection Date: 02-Nov-2020 09:30 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 1,1,2-Trichlor-1,2,2-trifluoroethane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 1,1-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 1,1-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 1,2,3-Trichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 1,2,3-Trichloropropane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 1,2,4-Trichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 1,2-Dichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 1,3-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 1,4-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 2-Hexanone | 2.0 | U | 1.0 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 4-Chlorotoluene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 4-Methyl-2-pentanone | 2.0 | U | 0.70 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Acetone | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Bromobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW17-201102-FD Lab ID:HS20110128-05
Collection Date: 02-Nov-2020 09:30 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: PC |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Methylene chloride | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| n-Butylbenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| *Surr: 1,2-Dichloroethane-d4* | *86.6* | | | **0** | *81-118* | *%REC* | *1* | *07-Nov-2020 02:13* |
| *Surr: 4-Bromofluorobenzene* | *87.0* | | | **0** | *85-114* | *%REC* | *1* | *07-Nov-2020 02:13* |
| *Surr: Dibromofluoromethane* | *86.2* | | | **0** | *80-119* | *%REC* | *1* | *07-Nov-2020 02:13* |
| *Surr: Toluene-d8* | *101* | | | **0** | *89-112* | *%REC* | *1* | *07-Nov-2020 02:13* |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW09A-201102 Lab ID:HS20110128-06
Collection Date: 02-Nov-2020 10:15 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 1,1,2-Trichlor-1,2,2-trifluoroethane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 1,1-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 1,1-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 1,2,3-Trichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 1,2,3-Trichloropropane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 1,2,4-Trichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 1,2-Dichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 1,3-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 1,4-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 2-Hexanone | 2.0 | U | 1.0 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 4-Chlorotoluene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 4-Methyl-2-pentanone | 2.0 | U | 0.70 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Acetone | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Bromobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW09A-201102 Lab ID:HS20110128-06
Collection Date: 02-Nov-2020 10:15 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: PC |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Methylene chloride | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| n-Butylbenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| *Surr: 1,2-Dichloroethane-d4* | *88.8* | | | **0** | *81-118* | *%REC* | *1* | *07-Nov-2020 02:34* |
| *Surr: 4-Bromofluorobenzene* | *89.5* | | | **0** | *85-114* | *%REC* | *1* | *07-Nov-2020 02:34* |
| *Surr: Dibromofluoromethane* | *85.9* | | | **0** | *80-119* | *%REC* | *1* | *07-Nov-2020 02:34* |
| *Surr: Toluene-d8* | *100* | | | **0** | *89-112* | *%REC* | *1* | *07-Nov-2020 02:34* |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW10-201102 Lab ID:HS20110128-07
Collection Date: 02-Nov-2020 10:55 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 1,1,2-Trichlor-1,2,2-trifluoroethane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 1,1-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 1,1-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 1,2,3-Trichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 1,2,3-Trichloropropane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 1,2,4-Trichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 1,2-Dichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 1,3-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 1,4-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 2-Hexanone | 2.0 | U | 1.0 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 4-Chlorotoluene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 4-Methyl-2-pentanone | 2.0 | U | 0.70 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Acetone | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Bromobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW10-201102 Lab ID:HS20110128-07
Collection Date: 02-Nov-2020 10:55 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: PC |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Methylene chloride | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| n-Butylbenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| *Surr: 1,2-Dichloroethane-d4* | *85.6* | | | **0** | *81-118* | *%REC* | *1* | *07-Nov-2020 02:55* |
| *Surr: 4-Bromofluorobenzene* | *89.2* | | | **0** | *85-114* | *%REC* | *1* | *07-Nov-2020 02:55* |
| *Surr: Dibromofluoromethane* | *85.4* | | | **0** | *80-119* | *%REC* | *1* | *07-Nov-2020 02:55* |
| *Surr: Toluene-d8* | *100* | | | **0** | *89-112* | *%REC* | *1* | *07-Nov-2020 02:55* |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW07-201102 Lab ID:HS20110128-08
Collection Date: 02-Nov-2020 11:40 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 1,1,2-Trichlor-1,2,2-trifluoroethane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 1,1-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 1,1-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 1,2,3-Trichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 1,2,3-Trichloropropane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 1,2,4-Trichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 1,2-Dichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 1,3-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 1,4-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 2-Hexanone | 2.0 | U | 1.0 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 4-Chlorotoluene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 4-Methyl-2-pentanone | 2.0 | U | 0.70 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Acetone | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Bromobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW07-201102 Lab ID:HS20110128-08
Collection Date: 02-Nov-2020 11:40 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: PC |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Methylene chloride | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| n-Butylbenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| *Surr: 1,2-Dichloroethane-d4* | *87.6* | | | **0** | *81-118* | *%REC* | *1* | *07-Nov-2020 03:16* |
| *Surr: 4-Bromofluorobenzene* | *87.3* | | | **0** | *85-114* | *%REC* | *1* | *07-Nov-2020 03:16* |
| *Surr: Dibromofluoromethane* | *86.6* | | | **0** | *80-119* | *%REC* | *1* | *07-Nov-2020 03:16* |
| *Surr: Toluene-d8* | *99.0* | | | **0** | *89-112* | *%REC* | *1* | *07-Nov-2020 03:16* |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW12-201102 Lab ID:HS20110128-09
Collection Date: 02-Nov-2020 12:20 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 1,1,2-Trichlor-1,2,2-trifluoroethane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| **1,1-Dichloroethane** | **1.1** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 03:37 |
| **1,1-Dichloroethene** | **40** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 03:37 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 1,2,3-Trichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 1,2,3-Trichloropropane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 1,2,4-Trichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 1,2-Dichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 1,3-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 1,4-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 2-Hexanone | 2.0 | U | 1.0 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 4-Chlorotoluene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 4-Methyl-2-pentanone | 2.0 | U | 0.70 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Acetone | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Bromobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW12-201102 Lab ID:HS20110128-09
Collection Date: 02-Nov-2020 12:20 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: PC |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Methylene chloride | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| n-Butylbenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| *Surr: 1,2-Dichloroethane-d4* | *89.5* | | | **0** | *81-118* | *%REC* | *1* | *07-Nov-2020 03:37* |
| *Surr: 4-Bromofluorobenzene* | *89.1* | | | **0** | *85-114* | *%REC* | *1* | *07-Nov-2020 03:37* |
| *Surr: Dibromofluoromethane* | *87.1* | | | **0** | *80-119* | *%REC* | *1* | *07-Nov-2020 03:37* |
| *Surr: Toluene-d8* | *99.9* | | | **0** | *89-112* | *%REC* | *1* | *07-Nov-2020 03:37* |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW02-201102 Lab ID:HS20110128-10
Collection Date: 02-Nov-2020 13:05 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| 1,1,2-Trichlor-1,2,2-trifluoroethane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| **1,1,2-Trichloroethane** | **1.0** | | **0.30** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 03:58 |
| **1,1-Dichloroethane** | **7.6** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 03:58 |
| **1,1-Dichloroethene** | **220** | | **1.0** | **2.5** | **5.0** | **UG/L** | 5 | 09-Nov-2020 16:41 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| 1,2,3-Trichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| 1,2,3-Trichloropropane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| 1,2,4-Trichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| 1,2-Dichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| **1,2-Dichloroethane** | **5.5** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 03:58 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| 1,3-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| 1,4-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| 2-Hexanone | 2.0 | U | 1.0 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| 4-Chlorotoluene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| 4-Methyl-2-pentanone | 2.0 | U | 0.70 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Acetone | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Bromobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW02-201102 Lab ID:HS20110128-10
Collection Date: 02-Nov-2020 13:05 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: PC |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Methylene chloride | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| n-Butylbenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| **Trichloroethene** | **0.83** | J | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 03:58 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| *Surr: 1,2-Dichloroethane-d4* | *88.8* | | | **0** | *81-118* | *%REC* | *1* | *07-Nov-2020 03:58* |
| *Surr: 1,2-Dichloroethane-d4* | *93.8* | | | **0** | *81-118* | *%REC* | *5* | *09-Nov-2020 16:41* |
| *Surr: 4-Bromofluorobenzene* | *93.2* | | | **0** | *85-114* | *%REC* | *1* | *07-Nov-2020 03:58* |
| *Surr: 4-Bromofluorobenzene* | *98.2* | | | **0** | *85-114* | *%REC* | *5* | *09-Nov-2020 16:41* |
| *Surr: Dibromofluoromethane* | *84.1* | | | **0** | *80-119* | *%REC* | *1* | *07-Nov-2020 03:58* |
| *Surr: Dibromofluoromethane* | *88.5* | | | **0** | *80-119* | *%REC* | *5* | *09-Nov-2020 16:41* |
| *Surr: Toluene-d8* | *102* | | | **0** | *89-112* | *%REC* | *1* | *07-Nov-2020 03:58* |
| *Surr: Toluene-d8* | *103* | | | **0** | *89-112* | *%REC* | *5* | *09-Nov-2020 16:41* |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW13-201103 Lab ID:HS20110128-11
Collection Date: 03-Nov-2020 07:10 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| 1,1,2-Trichlor-1,2,2-trifluoroethane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| **1,1,2-Trichloroethane** | **5.7** | | **0.30** | **0.50** | **1.0** | **ug/L** | 1 | 06-Nov-2020 23:24 |
| **1,1-Dichloroethane** | **33** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 06-Nov-2020 23:24 |
| **1,1-Dichloroethene** | **720** | | **2.0** | **5.0** | **10** | **UG/L** | 10 | 09-Nov-2020 17:02 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| 1,2,3-Trichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| 1,2,3-Trichloropropane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| 1,2,4-Trichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| 1,2-Dichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| **1,2-Dichloroethane** | **44** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 06-Nov-2020 23:24 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| 1,3-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| 1,4-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| 2-Hexanone | 2.0 | U | 1.0 | 2.0 | 2.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| 4-Chlorotoluene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| 4-Methyl-2-pentanone | 2.0 | U | 0.70 | 2.0 | 2.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Acetone | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Bromobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW13-201103 Lab ID:HS20110128-11
Collection Date: 03-Nov-2020 07:10 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: PC |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| **cis-1,2-Dichloroethene** | **1.6** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 06-Nov-2020 23:24 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Methylene chloride | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| n-Butylbenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| **Trichloroethene** | **3.1** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 06-Nov-2020 23:24 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| *Surr: 1,2-Dichloroethane-d4* | *86.7* | | | **0** | *81-118* | *%REC* | *1* | *06-Nov-2020 23:24* |
| *Surr: 1,2-Dichloroethane-d4* | *96.3* | | | **0** | *81-118* | *%REC* | *10* | *09-Nov-2020 17:02* |
| *Surr: 4-Bromofluorobenzene* | *89.8* | | | **0** | *85-114* | *%REC* | *1* | *06-Nov-2020 23:24* |
| *Surr: 4-Bromofluorobenzene* | *88.2* | | | **0** | *85-114* | *%REC* | *10* | *09-Nov-2020 17:02* |
| *Surr: Dibromofluoromethane* | *83.4* | | | **0** | *80-119* | *%REC* | *1* | *06-Nov-2020 23:24* |
| *Surr: Dibromofluoromethane* | *82.5* | | | **0** | *80-119* | *%REC* | *10* | *09-Nov-2020 17:02* |
| *Surr: Toluene-d8* | *100* | | | **0** | *89-112* | *%REC* | *1* | *06-Nov-2020 23:24* |
| *Surr: Toluene-d8* | *101* | | | **0** | *89-112* | *%REC* | *10* | *09-Nov-2020 17:02* |
| **ANIONS BY SW9056A** | | **Method:SW9056** | | | | | | Analyst: YP |
| **Chloride** | **1,270** | | **20.0** | **50.0** | **50.0** | **mg/L** | 100 | 04-Nov-2020 19:50 |
| Nitrogen, Nitrate (As N) | 0.200 | U | 0.0600 | 0.200 | 0.200 | mg/L | 2 | 04-Nov-2020 15:19 |
| **Sulfate** | **346** | | **20.0** | **50.0** | **50.0** | **mg/L** | 100 | 04-Nov-2020 19:50 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2020
Sample ID: 67WW13-201103
Collection Date: 03-Nov-2020 07:10

**ANALYTICAL REPORT**
WorkOrder:HS20110128
Lab ID:HS20110128-11
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **SUBCONTRACT ANALYSIS - RSK** | | **Method:NA** | | | | | | Analyst: SUBCA |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 19-Nov-2020 15:53 |
| **SUBCONTRACT ANALYSIS - TOC ANALYSIS** | | **Method:NA** | | | | | | Analyst: SUBK |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 18-Nov-2020 17:20 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW15-201103 Lab ID:HS20110128-12
Collection Date: 03-Nov-2020 08:10 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| 1,1,2-Trichlor-1,2,2-trifluoroethane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| **1,1,2-Trichloroethane** | **6.4** | | **0.30** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 04:19 |
| **1,1-Dichloroethane** | **14** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 04:19 |
| **1,1-Dichloroethene** | **730** | | **2.0** | **5.0** | **10** | **UG/L** | 10 | 09-Nov-2020 17:23 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| 1,2,3-Trichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| 1,2,3-Trichloropropane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| 1,2,4-Trichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| 1,2-Dichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| **1,2-Dichloroethane** | **29** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 04:19 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| 1,3-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| 1,4-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| 2-Hexanone | 2.0 | U | 1.0 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| 4-Chlorotoluene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| 4-Methyl-2-pentanone | 2.0 | U | 0.70 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Acetone | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Bromobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW15-201103 Lab ID:HS20110128-12
Collection Date: 03-Nov-2020 08:10 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: PC |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| **cis-1,2-Dichloroethene** | **1.7** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 04:19 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Methylene chloride | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| n-Butylbenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| **Trichloroethene** | **2.0** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 04:19 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| *Surr: 1,2-Dichloroethane-d4* | *83.2* | | | **0** | *81-118* | *%REC* | *1* | *07-Nov-2020 04:19* |
| *Surr: 1,2-Dichloroethane-d4* | *96.1* | | | **0** | *81-118* | *%REC* | *10* | *09-Nov-2020 17:23* |
| *Surr: 4-Bromofluorobenzene* | *87.6* | | | **0** | *85-114* | *%REC* | *1* | *07-Nov-2020 04:19* |
| *Surr: 4-Bromofluorobenzene* | *94.9* | | | **0** | *85-114* | *%REC* | *10* | *09-Nov-2020 17:23* |
| *Surr: Dibromofluoromethane* | *82.3* | | | **0** | *80-119* | *%REC* | *1* | *07-Nov-2020 04:19* |
| *Surr: Dibromofluoromethane* | *88.8* | | | **0** | *80-119* | *%REC* | *10* | *09-Nov-2020 17:23* |
| *Surr: Toluene-d8* | *104* | | | **0** | *89-112* | *%REC* | *1* | *07-Nov-2020 04:19* |
| *Surr: Toluene-d8* | *99.1* | | | **0** | *89-112* | *%REC* | *10* | *09-Nov-2020 17:23* |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW09-201103 Lab ID:HS20110128-13
Collection Date: 03-Nov-2020 08:50 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 1,1,2-Trichlor-1,2,2-trifluoroethane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 1,1-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 1,1-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 1,2,3-Trichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 1,2,3-Trichloropropane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 1,2,4-Trichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 1,2-Dichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 1,3-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 1,4-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 2-Hexanone | 2.0 | U | 1.0 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 4-Chlorotoluene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 4-Methyl-2-pentanone | 2.0 | U | 0.70 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Acetone | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Bromobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW09-201103 Lab ID:HS20110128-13
Collection Date: 03-Nov-2020 08:50 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: PC |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Methylene chloride | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| n-Butylbenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| *Surr: 1,2-Dichloroethane-d4* | *88.0* | | | **0** | *81-118* | *%REC* | *1* | *07-Nov-2020 04:40* |
| *Surr: 4-Bromofluorobenzene* | *92.1* | | | **0** | *85-114* | *%REC* | *1* | *07-Nov-2020 04:40* |
| *Surr: Dibromofluoromethane* | *86.8* | | | **0** | *80-119* | *%REC* | *1* | *07-Nov-2020 04:40* |
| *Surr: Toluene-d8* | *101* | | | **0** | *89-112* | *%REC* | *1* | *07-Nov-2020 04:40* |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW01-201103 Lab ID:HS20110128-14
Collection Date: 03-Nov-2020 09:30 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| 1,1,2-Trichlor-1,2,2-trifluoroethane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| **1,1-Dichloroethane** | **2.6** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 05:01 |
| **1,1-Dichloroethene** | **49** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 05:01 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| 1,2,3-Trichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| 1,2,3-Trichloropropane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| 1,2,4-Trichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| 1,2-Dichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| **1,2-Dichloroethane** | **6.1** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 05:01 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| 1,3-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| 1,4-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| 2-Hexanone | 2.0 | U | 1.0 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| 4-Chlorotoluene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| 4-Methyl-2-pentanone | 2.0 | U | 0.70 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Acetone | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Bromobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW01-201103 Lab ID:HS20110128-14
Collection Date: 03-Nov-2020 09:30 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: PC |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Methylene chloride | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| n-Butylbenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| *Surr: 1,2-Dichloroethane-d4* | *87.5* | | | **0** | *81-118* | *%REC* | *1* | *07-Nov-2020 05:01* |
| *Surr: 4-Bromofluorobenzene* | *90.1* | | | **0** | *85-114* | *%REC* | *1* | *07-Nov-2020 05:01* |
| *Surr: Dibromofluoromethane* | *83.2* | | | **0** | *80-119* | *%REC* | *1* | *07-Nov-2020 05:01* |
| *Surr: Toluene-d8* | *103* | | | **0** | *89-112* | *%REC* | *1* | *07-Nov-2020 05:01* |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW16I-201103 Lab ID:HS20110128-15
Collection Date: 03-Nov-2020 10:15 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 1,1,2-Trichlor-1,2,2-trifluoroethane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 1,1-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 1,1-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 1,2,3-Trichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 1,2,3-Trichloropropane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 1,2,4-Trichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 1,2-Dichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 1,3-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 1,4-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 2-Hexanone | 2.0 | U | 1.0 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 4-Chlorotoluene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 4-Methyl-2-pentanone | 2.0 | U | 0.70 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Acetone | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Bromobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW16I-201103 Lab ID:HS20110128-15
Collection Date: 03-Nov-2020 10:15 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: PC |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Methylene chloride | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| n-Butylbenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| *Surr: 1,2-Dichloroethane-d4* | *87.2* | | | **0** | *81-118* | *%REC* | *1* | *07-Nov-2020 05:23* |
| *Surr: 4-Bromofluorobenzene* | *89.8* | | | **0** | *85-114* | *%REC* | *1* | *07-Nov-2020 05:23* |
| *Surr: Dibromofluoromethane* | *84.5* | | | **0** | *80-119* | *%REC* | *1* | *07-Nov-2020 05:23* |
| *Surr: Toluene-d8* | *101* | | | **0** | *89-112* | *%REC* | *1* | *07-Nov-2020 05:23* |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW08-201103 Lab ID:HS20110128-16
Collection Date: 03-Nov-2020 11:00 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| 1,1,2-Trichlor-1,2,2-trifluoroethane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| **1,1-Dichloroethane** | **7.3** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 05:44 |
| **1,1-Dichloroethene** | **50** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 05:44 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| 1,2,3-Trichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| 1,2,3-Trichloropropane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| 1,2,4-Trichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| 1,2-Dichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| **1,2-Dichloroethane** | **1.8** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 05:44 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| 1,3-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| 1,4-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| 2-Hexanone | 2.0 | U | 1.0 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| 4-Chlorotoluene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| 4-Methyl-2-pentanone | 2.0 | U | 0.70 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Acetone | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Bromobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW08-201103 Lab ID:HS20110128-16
Collection Date: 03-Nov-2020 11:00 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: PC |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Methylene chloride | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| n-Butylbenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| *Surr: 1,2-Dichloroethane-d4* | *87.6* | | | **0** | *81-118* | *%REC* | *1* | *07-Nov-2020 05:44* |
| *Surr: 4-Bromofluorobenzene* | *90.9* | | | **0** | *85-114* | *%REC* | *1* | *07-Nov-2020 05:44* |
| *Surr: Dibromofluoromethane* | *88.9* | | | **0** | *80-119* | *%REC* | *1* | *07-Nov-2020 05:44* |
| *Surr: Toluene-d8* | *101* | | | **0** | *89-112* | *%REC* | *1* | *07-Nov-2020 05:44* |
| **ANIONS BY SW9056A** | | **Method:SW9056** | | | | | | Analyst: YP |
| **Chloride** | **1,830** | | **20.0** | **50.0** | **50.0** | **mg/L** | 100 | 04-Nov-2020 20:08 |
| Nitrogen, Nitrate (As N) | 0.200 | U | 0.0600 | 0.200 | 0.200 | mg/L | 2 | 04-Nov-2020 15:37 |
| **Sulfate** | **521** | | **20.0** | **50.0** | **50.0** | **mg/L** | 100 | 04-Nov-2020 20:08 |
| **SUBCONTRACT ANALYSIS - RSK** | | **Method:NA** | | | | | | Analyst: SUBCA |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 19-Nov-2020 15:53 |
| **SUBCONTRACT ANALYSIS - TOC ANALYSIS** | | **Method:NA** | | | | | | Analyst: SUBK |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 18-Nov-2020 17:20 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW08-201103-FD Lab ID:HS20110128-17
Collection Date: 03-Nov-2020 11:00 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| 1,1,2-Trichlor-1,2,2-trifluoroethane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| **1,1-Dichloroethane** | **7.1** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 06:05 |
| **1,1-Dichloroethene** | **44** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 06:05 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| 1,2,3-Trichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| 1,2,3-Trichloropropane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| 1,2,4-Trichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| 1,2-Dichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| **1,2-Dichloroethane** | **1.6** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 06:05 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| 1,3-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| 1,4-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| 2-Hexanone | 2.0 | U | 1.0 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| 4-Chlorotoluene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| 4-Methyl-2-pentanone | 2.0 | U | 0.70 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Acetone | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Bromobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW08-201103-FD Lab ID:HS20110128-17
Collection Date: 03-Nov-2020 11:00 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: PC |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Methylene chloride | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| n-Butylbenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| *Surr: 1,2-Dichloroethane-d4* | *88.0* | | | **0** | *81-118* | *%REC* | *1* | *07-Nov-2020 06:05* |
| *Surr: 4-Bromofluorobenzene* | *89.1* | | | **0** | *85-114* | *%REC* | *1* | *07-Nov-2020 06:05* |
| *Surr: Dibromofluoromethane* | *85.5* | | | **0** | *80-119* | *%REC* | *1* | *07-Nov-2020 06:05* |
| *Surr: Toluene-d8* | *102* | | | **0** | *89-112* | *%REC* | *1* | *07-Nov-2020 06:05* |
| **ANIONS BY SW9056A** | | **Method:SW9056** | | | | | | Analyst: YP |
| **Chloride** | **1,810** | | **20.0** | **50.0** | **50.0** | **mg/L** | 100 | 04-Nov-2020 20:26 |
| Nitrogen, Nitrate (As N) | 0.200 | U | 0.0600 | 0.200 | 0.200 | mg/L | 2 | 04-Nov-2020 15:55 |
| **Sulfate** | **500** | | **20.0** | **50.0** | **50.0** | **mg/L** | 100 | 04-Nov-2020 20:26 |
| **SUBCONTRACT ANALYSIS - RSK** | | **Method:NA** | | | | | | Analyst: SUBCA |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 19-Nov-2020 15:53 |
| **SUBCONTRACT ANALYSIS - TOC ANALYSIS** | | **Method:NA** | | | | | | Analyst: SUBK |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 18-Nov-2020 17:20 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW11-201103 Lab ID:HS20110128-18
Collection Date: 03-Nov-2020 11:55 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 1,1,2-Trichlor-1,2,2-trifluoroethane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| **1,1-Dichloroethane** | **1.3** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 06:26 |
| **1,1-Dichloroethene** | **1.2** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 06:26 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 1,2,3-Trichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 1,2,3-Trichloropropane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 1,2,4-Trichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 1,2-Dichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 1,3-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 1,4-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 2-Hexanone | 2.0 | U | 1.0 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 4-Chlorotoluene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 4-Methyl-2-pentanone | 2.0 | U | 0.70 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Acetone | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Bromobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW11-201103 Lab ID:HS20110128-18
Collection Date: 03-Nov-2020 11:55 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: PC |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Methylene chloride | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| n-Butylbenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| *Surr: 1,2-Dichloroethane-d4* | *87.1* | | | **0** | *81-118* | *%REC* | *1* | *07-Nov-2020 06:26* |
| *Surr: 4-Bromofluorobenzene* | *93.2* | | | **0** | *85-114* | *%REC* | *1* | *07-Nov-2020 06:26* |
| *Surr: Dibromofluoromethane* | *84.6* | | | **0** | *80-119* | *%REC* | *1* | *07-Nov-2020 06:26* |
| *Surr: Toluene-d8* | *102* | | | **0** | *89-112* | *%REC* | *1* | *07-Nov-2020 06:26* |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: Trip Blank-201103 Lab ID:HS20110128-19
Collection Date: 03-Nov-2020 00:00 Matrix:Water

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 1,1,2-Trichlor-1,2,2-trifluoroethane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 1,1-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 1,1-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 1,2,3-Trichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 1,2,3-Trichloropropane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 1,2,4-Trichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 1,2-Dichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 1,3-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 1,4-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 2-Hexanone | 2.0 | U | 1.0 | 2.0 | 2.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 4-Chlorotoluene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 4-Methyl-2-pentanone | 2.0 | U | 0.70 | 2.0 | 2.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Acetone | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Bromobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: Trip Blank-201103 Lab ID:HS20110128-19
Collection Date: 03-Nov-2020 00:00 Matrix:Water

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: PC |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Methylene chloride | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| n-Butylbenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| *Surr: 1,2-Dichloroethane-d4* | *86.2* | | | **0** | *81-118* | *%REC* | *1* | *06-Nov-2020 23:03* |
| *Surr: 4-Bromofluorobenzene* | *90.0* | | | **0** | *85-114* | *%REC* | *1* | *06-Nov-2020 23:03* |
| *Surr: Dibromofluoromethane* | *83.8* | | | **0** | *80-119* | *%REC* | *1* | *06-Nov-2020 23:03* |
| *Surr: Toluene-d8* | *100* | | | **0** | *89-112* | *%REC* | *1* | *06-Nov-2020 23:03* |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** LHAAP 67 November 2020
**WorkOrder:** HS20110128

**DATES REPORT**

| Sample ID | Client Samp ID | Collection Date | Leachate Date | Prep Date | Analysis Date | DF |
|---|---|---|---|---|---|---|
| **Batch ID:** R372041 ( 0 ) | **Test Name :** ANIONS BY SW9056A | | | | **Matrix:** Groundwater | |
| HS20110128-11 | 67WW13-201103 | 03 Nov 2020 07:10 | | | 04 Nov 2020 19:50 | 100 |
| HS20110128-11 | 67WW13-201103 | 03 Nov 2020 07:10 | | | 04 Nov 2020 15:19 | 2 |
| HS20110128-16 | 67WW08-201103 | 03 Nov 2020 11:00 | | | 04 Nov 2020 20:08 | 100 |
| HS20110128-16 | 67WW08-201103 | 03 Nov 2020 11:00 | | | 04 Nov 2020 15:37 | 2 |
| HS20110128-17 | 67WW08-201103-FD | 03 Nov 2020 11:00 | | | 04 Nov 2020 20:26 | 100 |
| HS20110128-17 | 67WW08-201103-FD | 03 Nov 2020 11:00 | | | 04 Nov 2020 15:55 | 2 |
| **Batch ID:** R372190 ( 0 ) | **Test Name :** VOLATILES ORGANICS BY METHOD 8260C | | | | **Matrix:** Water | |
| HS20110128-19 | Trip Blank-201103 | 03 Nov 2020 00:00 | | | 06 Nov 2020 23:03 | 1 |
| **Batch ID:** R372190 ( 0 ) | **Test Name :** VOLATILES ORGANICS BY METHOD 8260C | | | | **Matrix:** Groundwater | |
| HS20110128-01 | 67WW14-201102 | 02 Nov 2020 07:20 | | | 07 Nov 2020 00:49 | 1 |
| HS20110128-02 | 67WW05-201102 | 02 Nov 2020 08:05 | | | 07 Nov 2020 01:10 | 1 |
| HS20110128-03 | 67WW18-201102 | 02 Nov 2020 08:45 | | | 07 Nov 2020 01:31 | 1 |
| HS20110128-04 | 67WW17-201102 | 02 Nov 2020 09:30 | | | 07 Nov 2020 01:52 | 1 |
| HS20110128-05 | 67WW17-201102-FD | 02 Nov 2020 09:30 | | | 07 Nov 2020 02:13 | 1 |
| HS20110128-06 | 67WW09A-201102 | 02 Nov 2020 10:15 | | | 07 Nov 2020 02:34 | 1 |
| HS20110128-07 | 67WW10-201102 | 02 Nov 2020 10:55 | | | 07 Nov 2020 02:55 | 1 |
| HS20110128-08 | 67WW07-201102 | 02 Nov 2020 11:40 | | | 07 Nov 2020 03:16 | 1 |
| HS20110128-09 | 67WW12-201102 | 02 Nov 2020 12:20 | | | 07 Nov 2020 03:37 | 1 |
| HS20110128-10 | 67WW02-201102 | 02 Nov 2020 13:05 | | | 07 Nov 2020 03:58 | 1 |
| HS20110128-11 | 67WW13-201103 | 03 Nov 2020 07:10 | | | 06 Nov 2020 23:24 | 1 |
| HS20110128-12 | 67WW15-201103 | 03 Nov 2020 08:10 | | | 07 Nov 2020 04:19 | 1 |
| HS20110128-13 | 67WW09-201103 | 03 Nov 2020 08:50 | | | 07 Nov 2020 04:40 | 1 |
| HS20110128-14 | 67WW01-201103 | 03 Nov 2020 09:30 | | | 07 Nov 2020 05:01 | 1 |
| HS20110128-15 | 67WW16I-201103 | 03 Nov 2020 10:15 | | | 07 Nov 2020 05:23 | 1 |
| HS20110128-16 | 67WW08-201103 | 03 Nov 2020 11:00 | | | 07 Nov 2020 05:44 | 1 |
| HS20110128-17 | 67WW08-201103-FD | 03 Nov 2020 11:00 | | | 07 Nov 2020 06:05 | 1 |
| HS20110128-18 | 67WW11-201103 | 03 Nov 2020 11:55 | | | 07 Nov 2020 06:26 | 1 |
| **Batch ID:** R372274 ( 0 ) | **Test Name :** VOLATILES ORGANICS BY METHOD 8260C | | | | **Matrix:** Groundwater | |
| HS20110128-10 | 67WW02-201102 | 02 Nov 2020 13:05 | | | 09 Nov 2020 16:41 | 5 |
| HS20110128-11 | 67WW13-201103 | 03 Nov 2020 07:10 | | | 09 Nov 2020 17:02 | 10 |
| HS20110128-12 | 67WW15-201103 | 03 Nov 2020 08:10 | | | 09 Nov 2020 17:23 | 10 |
| **Batch ID:** R372897 ( 0 ) | **Test Name :** SUBCONTRACT ANALYSIS - TOC ANALYSIS | | | | **Matrix:** Groundwater | |
| HS20110128-11 | 67WW13-201103 | 03 Nov 2020 07:10 | | | 18 Nov 2020 17:20 | 1 |
| HS20110128-16 | 67WW08-201103 | 03 Nov 2020 11:00 | | | 18 Nov 2020 17:20 | 1 |
| HS20110128-17 | 67WW08-201103-FD | 03 Nov 2020 11:00 | | | 18 Nov 2020 17:20 | 1 |

**Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** LHAAP 67 November 2020
**WorkOrder:** HS20110128

**DATES REPORT**

| Sample ID | Client Samp ID | Collection Date | Leachate Date | Prep Date | Analysis Date | DF |
|---|---|---|---|---|---|---|
| **Batch ID:** R372994 ( 0 ) | **Test Name :** SUBCONTRACT ANALYSIS - RSK | | | | **Matrix:** Groundwater | |
| HS20110128-11 | 67WW13-201103 | 03 Nov 2020 07:10 | | | 19 Nov 2020 15:53 | 1 |
| HS20110128-16 | 67WW08-201103 | 03 Nov 2020 11:00 | | | 19 Nov 2020 15:53 | 1 |
| HS20110128-17 | 67WW08-201103-FD | 03 Nov 2020 11:00 | | | 19 Nov 2020 15:53 | 1 |

**Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** LHAAP 67 November 2020
**WorkOrder:** HS20110128

**QC BATCH REPORT**

**Batch ID:** R372190 ( 0 ) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

**MBLK** Sample ID: **VBLKW-201106** Units: **ug/L** Analysis Date: **06-Nov-2020 22:42**
Client ID: Run ID: **VOA6_372190** SeqNo: **5911331** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 0.50 | 1.0 | | | | | | | | U |
| 1,1,1-Trichloroethane | 0.50 | 1.0 | | | | | | | | U |
| 1,1,2,2-Tetrachloroethane | 0.50 | 1.0 | | | | | | | | U |
| 1,1,2-Trichlor-1,2,2-trifluoroethane | 1.0 | 1.0 | | | | | | | | U |
| 1,1,2-Trichloroethane | 0.50 | 1.0 | | | | | | | | U |
| 1,1-Dichloroethane | 0.50 | 1.0 | | | | | | | | U |
| 1,1-Dichloroethene | 0.50 | 1.0 | | | | | | | | U |
| 1,1-Dichloropropene | 0.50 | 1.0 | | | | | | | | U |
| 1,2,3-Trichlorobenzene | 1.0 | 1.0 | | | | | | | | U |
| 1,2,3-Trichloropropane | 1.0 | 1.0 | | | | | | | | U |
| 1,2,4-Trichlorobenzene | 1.0 | 1.0 | | | | | | | | U |
| 1,2,4-Trimethylbenzene | 0.50 | 1.0 | | | | | | | | U |
| 1,2-Dibromo-3-chloropropane | 0.50 | 1.0 | | | | | | | | U |
| 1,2-Dibromoethane | 0.50 | 1.0 | | | | | | | | U |
| 1,2-Dichlorobenzene | 1.0 | 1.0 | | | | | | | | U |
| 1,2-Dichloroethane | 0.50 | 1.0 | | | | | | | | U |
| 1,2-Dichloropropane | 0.50 | 1.0 | | | | | | | | U |
| 1,3,5-Trimethylbenzene | 0.50 | 1.0 | | | | | | | | U |
| 1,3-Dichlorobenzene | 1.0 | 1.0 | | | | | | | | U |
| 1,3-Dichloropropane | 0.50 | 1.0 | | | | | | | | U |
| 1,4-Dichlorobenzene | 1.0 | 1.0 | | | | | | | | U |
| 2,2-Dichloropropane | 0.50 | 1.0 | | | | | | | | U |
| 2-Butanone | 1.0 | 2.0 | | | | | | | | U |
| 2-Chlorotoluene | 0.50 | 1.0 | | | | | | | | U |
| 2-Hexanone | 2.0 | 2.0 | | | | | | | | U |
| 4-Chlorotoluene | 1.0 | 1.0 | | | | | | | | U |
| 4-Isopropyltoluene | 0.50 | 1.0 | | | | | | | | U |
| 4-Methyl-2-pentanone | 2.0 | 2.0 | | | | | | | | U |
| Acetone | 1.0 | 2.0 | | | | | | | | U |
| Benzene | 0.50 | 1.0 | | | | | | | | U |
| Bromobenzene | 1.0 | 1.0 | | | | | | | | U |
| Bromochloromethane | 0.50 | 1.0 | | | | | | | | U |
| Bromodichloromethane | 0.50 | 1.0 | | | | | | | | U |
| Bromoform | 0.50 | 1.0 | | | | | | | | U |

**Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** LHAAP 67 November 2020
**WorkOrder:** HS20110128

**QC BATCH REPORT**

**Batch ID:** R372190 ( 0 ) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

**MBLK** Sample ID: **VBLKW-201106** Units: **ug/L** Analysis Date: **06-Nov-2020 22:42**
Client ID: Run ID: **VOA6_372190** SeqNo: **5911331** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Bromomethane | 0.50 | 1.0 | | | | | | | | U |
| Carbon disulfide | 1.0 | 2.0 | | | | | | | | U |
| Carbon tetrachloride | 0.50 | 1.0 | | | | | | | | U |
| Chlorobenzene | 0.50 | 1.0 | | | | | | | | U |
| Chloroethane | 0.50 | 1.0 | | | | | | | | U |
| Chloroform | 0.50 | 1.0 | | | | | | | | U |
| Chloromethane | 0.50 | 1.0 | | | | | | | | U |
| cis-1,2-Dichloroethene | 0.50 | 1.0 | | | | | | | | U |
| cis-1,3-Dichloropropene | 0.50 | 1.0 | | | | | | | | U |
| Dibromochloromethane | 0.50 | 1.0 | | | | | | | | U |
| Dibromomethane | 0.50 | 1.0 | | | | | | | | U |
| Dichlorodifluoromethane | 0.50 | 1.0 | | | | | | | | U |
| Ethylbenzene | 0.50 | 1.0 | | | | | | | | U |
| Hexachlorobutadiene | 1.0 | 1.0 | | | | | | | | U |
| Isopropylbenzene | 0.50 | 1.0 | | | | | | | | U |
| m,p-Xylene | 1.0 | 2.0 | | | | | | | | U |
| Methylene chloride | 1.0 | 2.0 | | | | | | | | U |
| Naphthalene | 0.50 | 1.0 | | | | | | | | U |
| n-Butylbenzene | 1.0 | 1.0 | | | | | | | | U |
| n-Propylbenzene | 0.50 | 1.0 | | | | | | | | U |
| o-Xylene | 0.50 | 1.0 | | | | | | | | U |
| sec-Butylbenzene | 0.50 | 1.0 | | | | | | | | U |
| Styrene | 0.50 | 1.0 | | | | | | | | U |
| tert-Butylbenzene | 0.50 | 1.0 | | | | | | | | U |
| Tetrachloroethene | 0.50 | 1.0 | | | | | | | | U |
| Toluene | 0.50 | 1.0 | | | | | | | | U |
| trans-1,2-Dichloroethene | 0.50 | 1.0 | | | | | | | | U |
| trans-1,3-Dichloropropene | 0.50 | 1.0 | | | | | | | | U |
| Trichloroethene | 0.50 | 1.0 | | | | | | | | U |
| Trichlorofluoromethane | 0.50 | 1.0 | | | | | | | | U |
| Vinyl chloride | 0.50 | 1.0 | | | | | | | | U |
| *Surr: 1,2-Dichloroethane-d4* | *43.07* | *1.0* | *50* | *0* | *86.1* | *81 - 118* | | | | |
| *Surr: 4-Bromofluorobenzene* | *44.19* | *1.0* | *50* | *0* | *88.4* | *85 - 114* | | | | |
| *Surr: Dibromofluoromethane* | *41.97* | *1.0* | *50* | *0* | *83.9* | *80 - 119* | | | | |

**Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** LHAAP 67 November 2020
**WorkOrder:** HS20110128

**QC BATCH REPORT**

**Batch ID:** R372190 ( 0 ) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

**MBLK** Sample ID: **VBLKW-201106** Units: **ug/L** Analysis Date: **06-Nov-2020 22:42**
Client ID: Run ID: **VOA6_372190** SeqNo: **5911331** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| *Surr: Toluene-d8* | *50.61* | *1.0* | *50* | *0* | *101* | *89 - 112* | | | | |

**Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** LHAAP 67 November 2020
**WorkOrder:** HS20110128

**QC BATCH REPORT**

**Batch ID:** R372190 ( 0 ) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

**LCS** Sample ID: **VLCSW-201106** Units: **ug/L** Analysis Date: **06-Nov-2020 22:00**
Client ID: Run ID: **VOA6_372190** SeqNo: **5911330** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 18.67 | 1.0 | 20 | 0 | 93.3 | 78 - 124 | | | | |
| 1,1,1-Trichloroethane | 19.55 | 1.0 | 20 | 0 | 97.7 | 74 - 131 | | | | |
| 1,1,2,2-Tetrachloroethane | 20.68 | 1.0 | 20 | 0 | 103 | 71 - 121 | | | | |
| 1,1,2-Trichlor-1,2,2-trifluoroethane | 20.64 | 1.0 | 20 | 0 | 103 | 70 - 136 | | | | |
| 1,1,2-Trichloroethane | 19.71 | 1.0 | 20 | 0 | 98.5 | 80 - 119 | | | | |
| 1,1-Dichloroethane | 19.5 | 1.0 | 20 | 0 | 97.5 | 77 - 125 | | | | |
| 1,1-Dichloroethene | 21.24 | 1.0 | 20 | 0 | 106 | 71 - 131 | | | | |
| 1,1-Dichloropropene | 19.47 | 1.0 | 20 | 0 | 97.4 | 78 - 125 | | | | |
| 1,2,3-Trichlorobenzene | 20.78 | 1.0 | 20 | 0 | 104 | 69 - 129 | | | | |
| 1,2,3-Trichloropropane | 19.52 | 1.0 | 20 | 0 | 97.6 | 73 - 122 | | | | |
| 1,2,4-Trichlorobenzene | 21.9 | 1.0 | 20 | 0 | 110 | 69 - 130 | | | | |
| 1,2,4-Trimethylbenzene | 21.02 | 1.0 | 20 | 0 | 105 | 76 - 124 | | | | |
| 1,2-Dibromo-3-chloropropane | 18.73 | 1.0 | 20 | 0 | 93.7 | 62 - 128 | | | | |
| 1,2-Dibromoethane | 18.93 | 1.0 | 20 | 0 | 94.7 | 77 - 121 | | | | |
| 1,2-Dichlorobenzene | 19.32 | 1.0 | 20 | 0 | 96.6 | 80 - 119 | | | | |
| 1,2-Dichloroethane | 18.95 | 1.0 | 20 | 0 | 94.7 | 73 - 128 | | | | |
| 1,2-Dichloropropane | 19.83 | 1.0 | 20 | 0 | 99.1 | 78 - 122 | | | | |
| 1,3,5-Trimethylbenzene | 20.01 | 1.0 | 20 | 0 | 100 | 75 - 124 | | | | |
| 1,3-Dichlorobenzene | 20.76 | 1.0 | 20 | 0 | 104 | 80 - 119 | | | | |
| 1,3-Dichloropropane | 19.25 | 1.0 | 20 | 0 | 96.3 | 80 - 119 | | | | |
| 1,4-Dichlorobenzene | 20.41 | 1.0 | 20 | 0 | 102 | 79 - 118 | | | | |
| 2,2-Dichloropropane | 18.33 | 1.0 | 20 | 0 | 91.6 | 60 - 139 | | | | |
| 2-Butanone | 40.59 | 2.0 | 40 | 0 | 101 | 56 - 143 | | | | |
| 2-Chlorotoluene | 19.45 | 1.0 | 20 | 0 | 97.2 | 79 - 122 | | | | |
| 2-Hexanone | 36.87 | 2.0 | 40 | 0 | 92.2 | 57 - 139 | | | | |
| 4-Chlorotoluene | 19.11 | 1.0 | 20 | 0 | 95.6 | 78 - 122 | | | | |
| 4-Isopropyltoluene | 20.55 | 1.0 | 20 | 0 | 103 | 77 - 127 | | | | |
| 4-Methyl-2-pentanone | 36.04 | 2.0 | 40 | 0 | 90.1 | 67 - 130 | | | | |
| Acetone | 45.71 | 2.0 | 40 | 0 | 114 | 39 - 160 | | | | |
| Benzene | 19.34 | 1.0 | 20 | 0 | 96.7 | 79 - 120 | | | | |
| Bromobenzene | 20.05 | 1.0 | 20 | 0 | 100 | 80 - 120 | | | | |
| Bromochloromethane | 20.73 | 1.0 | 20 | 0 | 104 | 78 - 123 | | | | |
| Bromodichloromethane | 19.46 | 1.0 | 20 | 0 | 97.3 | 79 - 125 | | | | |
| Bromoform | 18.1 | 1.0 | 20 | 0 | 90.5 | 66 - 130 | | | | |

**Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** LHAAP 67 November 2020
**WorkOrder:** HS20110128

**QC BATCH REPORT**

**Batch ID:** R372190 ( 0 ) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

**LCS** Sample ID: **VLCSW-201106** Units: **ug/L** Analysis Date: **06-Nov-2020 22:00**
Client ID: Run ID: **VOA6_372190** SeqNo: **5911330** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Bromomethane | 21.45 | 1.0 | 20 | 0 | 107 | 53 - 141 | | | | |
| Carbon disulfide | 39.44 | 2.0 | 40 | 0 | 98.6 | 64 - 133 | | | | |
| Carbon tetrachloride | 18.34 | 1.0 | 20 | 0 | 91.7 | 72 - 136 | | | | |
| Chlorobenzene | 18.81 | 1.0 | 20 | 0 | 94.1 | 82 - 118 | | | | |
| Chloroethane | 22.42 | 1.0 | 20 | 0 | 112 | 60 - 138 | | | | |
| Chloroform | 20.62 | 1.0 | 20 | 0 | 103 | 79 - 124 | | | | |
| Chloromethane | 22.32 | 1.0 | 20 | 0 | 112 | 50 - 139 | | | | |
| cis-1,2-Dichloroethene | 19.97 | 1.0 | 20 | 0 | 99.9 | 78 - 123 | | | | |
| cis-1,3-Dichloropropene | 18.67 | 1.0 | 20 | 0 | 93.3 | 75 - 124 | | | | |
| Dibromochloromethane | 18.93 | 1.0 | 20 | 0 | 94.6 | 74 - 126 | | | | |
| Dibromomethane | 20.18 | 1.0 | 20 | 0 | 101 | 79 - 123 | | | | |
| Dichlorodifluoromethane | 19.78 | 1.0 | 20 | 0 | 98.9 | 32 - 152 | | | | |
| Ethylbenzene | 19.4 | 1.0 | 20 | 0 | 97.0 | 79 - 121 | | | | |
| Hexachlorobutadiene | 22 | 1.0 | 20 | 0 | 110 | 66 - 134 | | | | |
| Isopropylbenzene | 19.73 | 1.0 | 20 | 0 | 98.6 | 72 - 131 | | | | |
| m,p-Xylene | 39.02 | 2.0 | 40 | 0 | 97.5 | 80 - 121 | | | | |
| Methylene chloride | 20.56 | 2.0 | 20 | 0 | 103 | 74 - 124 | | | | |
| Naphthalene | 23.53 | 1.0 | 20 | 0 | 118 | 61 - 128 | | | | |
| n-Butylbenzene | 20.55 | 1.0 | 20 | 0 | 103 | 75 - 128 | | | | |
| n-Propylbenzene | 20.8 | 1.0 | 20 | 0 | 104 | 76 - 126 | | | | |
| o-Xylene | 19.18 | 1.0 | 20 | 0 | 95.9 | 78 - 122 | | | | |
| sec-Butylbenzene | 21.18 | 1.0 | 20 | 0 | 106 | 77 - 126 | | | | |
| Styrene | 20.64 | 1.0 | 20 | 0 | 103 | 78 - 123 | | | | |
| tert-Butylbenzene | 21.32 | 1.0 | 20 | 0 | 107 | 78 - 124 | | | | |
| Tetrachloroethene | 19.95 | 1.0 | 20 | 0 | 99.7 | 74 - 129 | | | | |
| Toluene | 17.44 | 1.0 | 20 | 0 | 87.2 | 80 - 121 | | | | |
| trans-1,2-Dichloroethene | 19.64 | 1.0 | 20 | 0 | 98.2 | 75 - 124 | | | | |
| trans-1,3-Dichloropropene | 19.54 | 1.0 | 20 | 0 | 97.7 | 73 - 127 | | | | |
| Trichloroethene | 20.4 | 1.0 | 20 | 0 | 102 | 79 - 123 | | | | |
| Trichlorofluoromethane | 19.99 | 1.0 | 20 | 0 | 100.0 | 65 - 141 | | | | |
| Vinyl chloride | 20.79 | 1.0 | 20 | 0 | 104 | 58 - 137 | | | | |
| *Surr: 1,2-Dichloroethane-d4* | *49.34* | *1.0* | *50* | *0* | *98.7* | *81 - 118* | | | | |
| *Surr: 4-Bromofluorobenzene* | *48.16* | *1.0* | *50* | *0* | *96.3* | *85 - 114* | | | | |
| *Surr: Dibromofluoromethane* | *49.56* | *1.0* | *50* | *0* | *99.1* | *80 - 119* | | | | |

**Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** LHAAP 67 November 2020
**WorkOrder:** HS20110128

**QC BATCH REPORT**

**Batch ID:** R372190 ( 0 ) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

**LCS** Sample ID: **VLCSW-201106** Units: **ug/L** Analysis Date: **06-Nov-2020 22:00**
Client ID: Run ID: **VOA6_372190** SeqNo: **5911330** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| *Surr: Toluene-d8* | *49.32* | *1.0* | *50* | *0* | *98.6* | *89 - 112* | | | | |

**Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** LHAAP 67 November 2020
**WorkOrder:** HS20110128

**QC BATCH REPORT**

**Batch ID:** R372190 ( 0 ) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

**MS** Sample ID: **HS20110128-11MS** Units: **ug/L** Analysis Date: **06-Nov-2020 23:45**
Client ID: **67WW13-201103** Run ID: **VOA6_372190** SeqNo: **5911334** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 22.72 | 1.0 | 20 | 0 | 114 | 78 - 124 | | | | |
| 1,1,1-Trichloroethane | 22.67 | 1.0 | 20 | 0 | 113 | 74 - 131 | | | | |
| 1,1,2,2-Tetrachloroethane | 23.3 | 1.0 | 20 | 0 | 116 | 71 - 121 | | | | |
| 1,1,2-Trichlor-1,2,2-trifluoroethane | 29.68 | 1.0 | 20 | 0 | 148 | 70 - 136 | | | | S |
| 1,1,2-Trichloroethane | 27.1 | 1.0 | 20 | 5.721 | 107 | 80 - 119 | | | | |
| 1,1-Dichloroethane | 54.27 | 1.0 | 20 | 33.01 | 106 | 77 - 125 | | | | |
| 1,1-Dichloroethene | 827.2 | 1.0 | 20 | 883.5 | -281 | 71 - 131 | | | | SEO |
| 1,1-Dichloropropene | 25.09 | 1.0 | 20 | 0 | 125 | 78 - 125 | | | | S |
| 1,2,3-Trichlorobenzene | 19.9 | 1.0 | 20 | 0 | 99.5 | 69 - 129 | | | | |
| 1,2,3-Trichloropropane | 23.31 | 1.0 | 20 | 0 | 117 | 73 - 122 | | | | |
| 1,2,4-Trichlorobenzene | 21.7 | 1.0 | 20 | 0 | 108 | 69 - 130 | | | | |
| 1,2,4-Trimethylbenzene | 26.43 | 1.0 | 20 | 0 | 132 | 76 - 124 | | | | S |
| 1,2-Dibromo-3-chloropropane | 21.41 | 1.0 | 20 | 0 | 107 | 62 - 128 | | | | |
| 1,2-Dibromoethane | 22.31 | 1.0 | 20 | 0 | 112 | 77 - 121 | | | | |
| 1,2-Dichlorobenzene | 23.86 | 1.0 | 20 | 0 | 119 | 80 - 119 | | | | S |
| 1,2-Dichloroethane | 64.66 | 1.0 | 20 | 43.92 | 104 | 73 - 128 | | | | |
| 1,2-Dichloropropane | 23.73 | 1.0 | 20 | 0 | 119 | 78 - 122 | | | | |
| 1,3,5-Trimethylbenzene | 24.95 | 1.0 | 20 | 0 | 125 | 75 - 124 | | | | S |
| 1,3-Dichlorobenzene | 23.9 | 1.0 | 20 | 0 | 119 | 80 - 119 | | | | S |
| 1,3-Dichloropropane | 22.22 | 1.0 | 20 | 0 | 111 | 80 - 119 | | | | |
| 1,4-Dichlorobenzene | 24.24 | 1.0 | 20 | 0 | 121 | 79 - 118 | | | | S |
| 2,2-Dichloropropane | 21.46 | 1.0 | 20 | 0 | 107 | 60 - 139 | | | | |
| 2-Butanone | 36.41 | 2.0 | 40 | 0 | 91.0 | 56 - 143 | | | | |
| 2-Chlorotoluene | 25.01 | 1.0 | 20 | 0 | 125 | 79 - 122 | | | | S |
| 2-Hexanone | 38.57 | 2.0 | 40 | 0 | 96.4 | 57 - 139 | | | | |
| 4-Chlorotoluene | 23.67 | 1.0 | 20 | 0 | 118 | 78 - 122 | | | | |
| 4-Isopropyltoluene | 26.77 | 1.0 | 20 | 0 | 134 | 77 - 127 | | | | S |
| 4-Methyl-2-pentanone | 39.51 | 2.0 | 40 | 0 | 98.8 | 67 - 130 | | | | |
| Acetone | 33.99 | 2.0 | 40 | 0 | 85.0 | 39 - 160 | | | | |
| Benzene | 23.49 | 1.0 | 20 | 0 | 117 | 79 - 120 | | | | |
| Bromobenzene | 24.52 | 1.0 | 20 | 0 | 123 | 80 - 120 | | | | S |
| Bromochloromethane | 22.63 | 1.0 | 20 | 0 | 113 | 78 - 123 | | | | |
| Bromodichloromethane | 22.89 | 1.0 | 20 | 0 | 114 | 79 - 125 | | | | |
| Bromoform | 21.25 | 1.0 | 20 | 0 | 106 | 66 - 130 | | | | |

**Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** LHAAP 67 November 2020
**WorkOrder:** HS20110128

**QC BATCH REPORT**

**Batch ID:** R372190 ( 0 ) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

**MS** Sample ID: **HS20110128-11MS** Units: **ug/L** Analysis Date: **06-Nov-2020 23:45**
Client ID: **67WW13-201103** Run ID: **VOA6_372190** SeqNo: **5911334** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Bromomethane | 22.78 | 1.0 | 20 | 0 | 114 | 53 - 141 | | | | |
| Carbon disulfide | 41 | 2.0 | 40 | 0 | 103 | 64 - 133 | | | | |
| Carbon tetrachloride | 23.4 | 1.0 | 20 | 0 | 117 | 72 - 136 | | | | |
| Chlorobenzene | 22.11 | 1.0 | 20 | 0 | 111 | 82 - 118 | | | | |
| Chloroethane | 23.13 | 1.0 | 20 | 0 | 116 | 60 - 138 | | | | |
| Chloroform | 22.13 | 1.0 | 20 | 0 | 111 | 79 - 124 | | | | |
| Chloromethane | 25.49 | 1.0 | 20 | 0 | 127 | 50 - 139 | | | | |
| cis-1,2-Dichloroethene | 23.2 | 1.0 | 20 | 1.618 | 108 | 78 - 123 | | | | |
| cis-1,3-Dichloropropene | 23.23 | 1.0 | 20 | 0 | 116 | 75 - 124 | | | | |
| Dibromochloromethane | 22.83 | 1.0 | 20 | 0 | 114 | 74 - 126 | | | | |
| Dibromomethane | 24.09 | 1.0 | 20 | 0 | 120 | 79 - 123 | | | | |
| Dichlorodifluoromethane | 24.59 | 1.0 | 20 | 0 | 123 | 32 - 152 | | | | |
| Ethylbenzene | 22.91 | 1.0 | 20 | 0 | 115 | 79 - 121 | | | | |
| Hexachlorobutadiene | 24.74 | 1.0 | 20 | 0 | 124 | 66 - 134 | | | | |
| Isopropylbenzene | 24.6 | 1.0 | 20 | 0 | 123 | 72 - 131 | | | | |
| m,p-Xylene | 48.39 | 2.0 | 40 | 0 | 121 | 80 - 121 | | | | |
| Methylene chloride | 20.88 | 2.0 | 20 | 0 | 104 | 74 - 124 | | | | |
| Naphthalene | 18.3 | 1.0 | 20 | 0 | 91.5 | 61 - 128 | | | | |
| n-Butylbenzene | 24.9 | 1.0 | 20 | 0 | 125 | 75 - 128 | | | | |
| n-Propylbenzene | 26.69 | 1.0 | 20 | 0 | 133 | 76 - 126 | | | | S |
| o-Xylene | 23.7 | 1.0 | 20 | 0 | 118 | 78 - 122 | | | | |
| sec-Butylbenzene | 26.84 | 1.0 | 20 | 0 | 134 | 77 - 126 | | | | S |
| Styrene | 23.77 | 1.0 | 20 | 0 | 119 | 78 - 123 | | | | |
| tert-Butylbenzene | 27.32 | 1.0 | 20 | 0 | 137 | 78 - 124 | | | | S |
| Tetrachloroethene | 25.34 | 1.0 | 20 | 0 | 127 | 74 - 129 | | | | |
| Toluene | 21.3 | 1.0 | 20 | 0 | 107 | 80 - 121 | | | | |
| trans-1,2-Dichloroethene | 21.33 | 1.0 | 20 | 0 | 107 | 75 - 124 | | | | |
| trans-1,3-Dichloropropene | 22.29 | 1.0 | 20 | 0 | 111 | 73 - 127 | | | | |
| Trichloroethene | 28.04 | 1.0 | 20 | 3.123 | 125 | 79 - 123 | | | | S |
| Trichlorofluoromethane | 23.66 | 1.0 | 20 | 0 | 118 | 65 - 141 | | | | |
| Vinyl chloride | 23.21 | 1.0 | 20 | 0 | 116 | 58 - 137 | | | | |
| *Surr: 1,2-Dichloroethane-d4* | *42.25* | *1.0* | *50* | *0* | *84.5* | *81 - 118* | | | | |
| *Surr: 4-Bromofluorobenzene* | *48.44* | *1.0* | *50* | *0* | *96.9* | *85 - 114* | | | | |
| *Surr: Dibromofluoromethane* | *42.82* | *1.0* | *50* | *0* | *85.6* | *80 - 119* | | | | |

**Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** LHAAP 67 November 2020
**WorkOrder:** HS20110128

**QC BATCH REPORT**

**Batch ID:** R372190 ( 0 ) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

**MS** Sample ID: **HS20110128-11MS** Units: **ug/L** Analysis Date: **06-Nov-2020 23:45**
Client ID: **67WW13-201103** Run ID: **VOA6_372190** SeqNo: **5911334** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| *Surr: Toluene-d8* | *47.91* | *1.0* | *50* | *0* | *95.8* | *89 - 112* | | | | |

**Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** LHAAP 67 November 2020
**WorkOrder:** HS20110128

**QC BATCH REPORT**

**Batch ID:** R372190 ( 0 ) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

**MSD** Sample ID: **HS20110128-11MSD** Units: **ug/L** Analysis Date: **07-Nov-2020 00:06**
Client ID: **67WW13-201103** Run ID: **VOA6_372190** SeqNo: **5911335** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | RPD %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 22.92 | 1.0 | 20 | 0 | 115 | 78 - 124 | 22.72 | 0.853 | 20 | |
| 1,1,1-Trichloroethane | 21.27 | 1.0 | 20 | 0 | 106 | 74 - 131 | 22.67 | 6.39 | 20 | |
| 1,1,2,2-Tetrachloroethane | 25.69 | 1.0 | 20 | 0 | 128 | 71 - 121 | 23.3 | 9.75 | 20 | S |
| 1,1,2-Trichlor-1,2,2-trifluoroethane | 27.59 | 1.0 | 20 | 0 | 138 | 70 - 136 | 29.68 | 7.3 | 20 | S |
| 1,1,2-Trichloroethane | 29 | 1.0 | 20 | 5.721 | 116 | 80 - 119 | 27.1 | 6.76 | 20 | |
| 1,1-Dichloroethane | 53.78 | 1.0 | 20 | 33.01 | 104 | 77 - 125 | 54.27 | 0.9 | 20 | |
| 1,1-Dichloroethene | 783.3 | 1.0 | 20 | 883.5 | -501 | 71 - 131 | 827.2 | 5.46 | 20 | SEO |
| 1,1-Dichloropropene | 23.01 | 1.0 | 20 | 0 | 115 | 78 - 125 | 25.09 | 8.65 | 20 | |
| 1,2,3-Trichlorobenzene | 22.4 | 1.0 | 20 | 0 | 112 | 69 - 129 | 19.9 | 11.8 | 20 | |
| 1,2,3-Trichloropropane | 24.19 | 1.0 | 20 | 0 | 121 | 73 - 122 | 23.31 | 3.7 | 20 | |
| 1,2,4-Trichlorobenzene | 23.07 | 1.0 | 20 | 0 | 115 | 69 - 130 | 21.7 | 6.13 | 20 | |
| 1,2,4-Trimethylbenzene | 26.38 | 1.0 | 20 | 0 | 132 | 76 - 124 | 26.43 | 0.171 | 20 | S |
| 1,2-Dibromo-3-chloropropane | 24.74 | 1.0 | 20 | 0 | 124 | 62 - 128 | 21.41 | 14.4 | 20 | |
| 1,2-Dibromoethane | 22.71 | 1.0 | 20 | 0 | 114 | 77 - 121 | 22.31 | 1.76 | 20 | |
| 1,2-Dichlorobenzene | 24.64 | 1.0 | 20 | 0 | 123 | 80 - 119 | 23.86 | 3.24 | 20 | S |
| 1,2-Dichloroethane | 66.19 | 1.0 | 20 | 43.92 | 111 | 73 - 128 | 64.66 | 2.35 | 20 | |
| 1,2-Dichloropropane | 22.85 | 1.0 | 20 | 0 | 114 | 78 - 122 | 23.73 | 3.77 | 20 | |
| 1,3,5-Trimethylbenzene | 25.68 | 1.0 | 20 | 0 | 128 | 75 - 124 | 24.95 | 2.9 | 20 | S |
| 1,3-Dichlorobenzene | 25.06 | 1.0 | 20 | 0 | 125 | 80 - 119 | 23.9 | 4.76 | 20 | S |
| 1,3-Dichloropropane | 22.85 | 1.0 | 20 | 0 | 114 | 80 - 119 | 22.22 | 2.77 | 20 | |
| 1,4-Dichlorobenzene | 25.37 | 1.0 | 20 | 0 | 127 | 79 - 118 | 24.24 | 4.52 | 20 | S |
| 2,2-Dichloropropane | 20.16 | 1.0 | 20 | 0 | 101 | 60 - 139 | 21.46 | 6.25 | 20 | |
| 2-Butanone | 37.12 | 2.0 | 40 | 0 | 92.8 | 56 - 143 | 36.41 | 1.93 | 20 | |
| 2-Chlorotoluene | 25.19 | 1.0 | 20 | 0 | 126 | 79 - 122 | 25.01 | 0.716 | 20 | S |
| 2-Hexanone | 40.28 | 2.0 | 40 | 0 | 101 | 57 - 139 | 38.57 | 4.32 | 20 | |
| 4-Chlorotoluene | 24.23 | 1.0 | 20 | 0 | 121 | 78 - 122 | 23.67 | 2.36 | 20 | |
| 4-Isopropyltoluene | 27.01 | 1.0 | 20 | 0 | 135 | 77 - 127 | 26.77 | 0.904 | 20 | S |
| 4-Methyl-2-pentanone | 41.19 | 2.0 | 40 | 0 | 103 | 67 - 130 | 39.51 | 4.14 | 20 | |
| Acetone | 34.06 | 2.0 | 40 | 0 | 85.2 | 39 - 160 | 33.99 | 0.198 | 20 | |
| Benzene | 22.63 | 1.0 | 20 | 0 | 113 | 79 - 120 | 23.49 | 3.75 | 20 | |
| Bromobenzene | 24.49 | 1.0 | 20 | 0 | 122 | 80 - 120 | 24.52 | 0.128 | 20 | S |
| Bromochloromethane | 23.35 | 1.0 | 20 | 0 | 117 | 78 - 123 | 22.63 | 3.1 | 20 | |
| Bromodichloromethane | 23.24 | 1.0 | 20 | 0 | 116 | 79 - 125 | 22.89 | 1.5 | 20 | |
| Bromoform | 21.49 | 1.0 | 20 | 0 | 107 | 66 - 130 | 21.25 | 1.1 | 20 | |

**Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** LHAAP 67 November 2020
**WorkOrder:** HS20110128

**QC BATCH REPORT**

**Batch ID:** R372190 ( 0 ) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

**MSD** Sample ID: **HS20110128-11MSD** Units: **ug/L** Analysis Date: **07-Nov-2020 00:06**
Client ID: **67WW13-201103** Run ID: **VOA6_372190** SeqNo: **5911335** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | RPD %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Bromomethane | 21.6 | 1.0 | 20 | 0 | 108 | 53 - 141 | 22.78 | 5.31 | 20 | |
| Carbon disulfide | 40.49 | 2.0 | 40 | 0 | 101 | 64 - 133 | 41 | 1.25 | 20 | |
| Carbon tetrachloride | 23.19 | 1.0 | 20 | 0 | 116 | 72 - 136 | 23.4 | 0.889 | 20 | |
| Chlorobenzene | 22.24 | 1.0 | 20 | 0 | 111 | 82 - 118 | 22.11 | 0.594 | 20 | |
| Chloroethane | 24.55 | 1.0 | 20 | 0 | 123 | 60 - 138 | 23.13 | 5.94 | 20 | |
| Chloroform | 21.84 | 1.0 | 20 | 0 | 109 | 79 - 124 | 22.13 | 1.34 | 20 | |
| Chloromethane | 24.13 | 1.0 | 20 | 0 | 121 | 50 - 139 | 25.49 | 5.49 | 20 | |
| cis-1,2-Dichloroethene | 23.15 | 1.0 | 20 | 1.618 | 108 | 78 - 123 | 23.2 | 0.211 | 20 | |
| cis-1,3-Dichloropropene | 22.04 | 1.0 | 20 | 0 | 110 | 75 - 124 | 23.23 | 5.27 | 20 | |
| Dibromochloromethane | 23.52 | 1.0 | 20 | 0 | 118 | 74 - 126 | 22.83 | 3 | 20 | |
| Dibromomethane | 24.01 | 1.0 | 20 | 0 | 120 | 79 - 123 | 24.09 | 0.337 | 20 | |
| Dichlorodifluoromethane | 24.31 | 1.0 | 20 | 0 | 122 | 32 - 152 | 24.59 | 1.14 | 20 | |
| Ethylbenzene | 23.15 | 1.0 | 20 | 0 | 116 | 79 - 121 | 22.91 | 1.02 | 20 | |
| Hexachlorobutadiene | 27.92 | 1.0 | 20 | 0 | 140 | 66 - 134 | 24.74 | 12.1 | 20 | S |
| Isopropylbenzene | 23.81 | 1.0 | 20 | 0 | 119 | 72 - 131 | 24.6 | 3.24 | 20 | |
| m,p-Xylene | 46.86 | 2.0 | 40 | 0 | 117 | 80 - 121 | 48.39 | 3.21 | 20 | |
| Methylene chloride | 20.23 | 2.0 | 20 | 0 | 101 | 74 - 124 | 20.88 | 3.16 | 20 | |
| Naphthalene | 23.37 | 1.0 | 20 | 0 | 117 | 61 - 128 | 18.3 | 24.3 | 20 | R |
| n-Butylbenzene | 25.23 | 1.0 | 20 | 0 | 126 | 75 - 128 | 24.9 | 1.32 | 20 | |
| n-Propylbenzene | 27.05 | 1.0 | 20 | 0 | 135 | 76 - 126 | 26.69 | 1.35 | 20 | S |
| o-Xylene | 22.73 | 1.0 | 20 | 0 | 114 | 78 - 122 | 23.7 | 4.16 | 20 | |
| sec-Butylbenzene | 27.11 | 1.0 | 20 | 0 | 136 | 77 - 126 | 26.84 | 0.991 | 20 | S |
| Styrene | 22.5 | 1.0 | 20 | 0 | 113 | 78 - 123 | 23.77 | 5.48 | 20 | |
| tert-Butylbenzene | 27.27 | 1.0 | 20 | 0 | 136 | 78 - 124 | 27.32 | 0.167 | 20 | S |
| Tetrachloroethene | 25.32 | 1.0 | 20 | 0 | 127 | 74 - 129 | 25.34 | 0.0555 | 20 | |
| Toluene | 20.74 | 1.0 | 20 | 0 | 104 | 80 - 121 | 21.3 | 2.69 | 20 | |
| trans-1,2-Dichloroethene | 20.76 | 1.0 | 20 | 0 | 104 | 75 - 124 | 21.33 | 2.7 | 20 | |
| trans-1,3-Dichloropropene | 23.96 | 1.0 | 20 | 0 | 120 | 73 - 127 | 22.29 | 7.23 | 20 | |
| Trichloroethene | 26.52 | 1.0 | 20 | 3.123 | 117 | 79 - 123 | 28.04 | 5.6 | 20 | |
| Trichlorofluoromethane | 22.4 | 1.0 | 20 | 0 | 112 | 65 - 141 | 23.66 | 5.46 | 20 | |
| Vinyl chloride | 21.64 | 1.0 | 20 | 0 | 108 | 58 - 137 | 23.21 | 7.02 | 20 | |
| *Surr: 1,2-Dichloroethane-d4* | *43.35* | *1.0* | *50* | *0* | *86.7* | *81 - 118* | *42.25* | *2.59* | *20* | |
| *Surr: 4-Bromofluorobenzene* | *46.5* | *1.0* | *50* | *0* | *93.0* | *85 - 114* | *48.44* | *4.09* | *20* | |
| *Surr: Dibromofluoromethane* | *42.27* | *1.0* | *50* | *0* | *84.5* | *80 - 119* | *42.82* | *1.31* | *20* | |

**Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** LHAAP 67 November 2020
**WorkOrder:** HS20110128

**QC BATCH REPORT**

**Batch ID:** R372190 ( 0 ) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

**MSD** Sample ID: **HS20110128-11MSD** Units: **ug/L** Analysis Date: **07-Nov-2020 00:06**
Client ID: **67WW13-201103** Run ID: **VOA6_372190** SeqNo: **5911335** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| *Surr: Toluene-d8* | *48.78* | *1.0* | *50* | *0* | *97.6* | *89 - 112* | *47.91* | *1.8* | *20* | |

**The following samples were analyzed in this batch:**

| | | | |
|---|---|---|---|
| HS20110128-01 | HS20110128-02 | HS20110128-03 | HS20110128-04 |
| HS20110128-05 | HS20110128-06 | HS20110128-07 | HS20110128-08 |
| HS20110128-09 | HS20110128-10 | HS20110128-11 | HS20110128-12 |
| HS20110128-13 | HS20110128-14 | HS20110128-15 | HS20110128-16 |
| HS20110128-17 | HS20110128-18 | HS20110128-19 | |

**Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** LHAAP 67 November 2020
**WorkOrder:** HS20110128

**QC BATCH REPORT**

**Batch ID:** R372274 ( 0 ) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

**MBLK** Sample ID: **VBLKW-201109** Units: **UG/L** Analysis Date: **09-Nov-2020 15:38**
Client ID: Run ID: **VOA6_372274** SeqNo: **5824039** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethene | 0.50 | 1.0 | | | | | | | | U |
| *Surr: 1,2-Dichloroethane-d4* | *46.49* | *1.0* | *50* | *0* | *93.0* | *81 - 118* | | | | |
| *Surr: 4-Bromofluorobenzene* | *45.3* | *1.0* | *50* | *0* | *90.6* | *85 - 114* | | | | |
| *Surr: Dibromofluoromethane* | *42.83* | *1.0* | *50* | *0* | *85.7* | *80 - 119* | | | | |
| *Surr: Toluene-d8* | *50.29* | *1.0* | *50* | *0* | *101* | *89 - 112* | | | | |

**LCS** Sample ID: **VLCSW-201109** Units: **UG/L** Analysis Date: **09-Nov-2020 14:56**
Client ID: Run ID: **VOA6_372274** SeqNo: **5824038** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethene | 20.4 | 1.0 | 20 | 0 | 102 | 71 - 131 | | | | |
| *Surr: 1,2-Dichloroethane-d4* | *53.92* | *1.0* | *50* | *0* | *108* | *81 - 118* | | | | |
| *Surr: 4-Bromofluorobenzene* | *47.33* | *1.0* | *50* | *0* | *94.7* | *85 - 114* | | | | |
| *Surr: Dibromofluoromethane* | *48.77* | *1.0* | *50* | *0* | *97.5* | *80 - 119* | | | | |
| *Surr: Toluene-d8* | *47.3* | *1.0* | *50* | *0* | *94.6* | *89 - 112* | | | | |

**MS** Sample ID: **HS20110264-01MS** Units: **UG/L** Analysis Date: **09-Nov-2020 17:44**
Client ID: Run ID: **VOA6_372274** SeqNo: **5824044** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethene | 25.58 | 1.0 | 20 | 0 | 128 | 71 - 131 | | | | |
| *Surr: 1,2-Dichloroethane-d4* | *48.61* | *1.0* | *50* | *0* | *97.2* | *81 - 118* | | | | |
| *Surr: 4-Bromofluorobenzene* | *48.4* | *1.0* | *50* | *0* | *96.8* | *85 - 114* | | | | |
| *Surr: Dibromofluoromethane* | *47.42* | *1.0* | *50* | *0* | *94.8* | *80 - 119* | | | | |
| *Surr: Toluene-d8* | *49.77* | *1.0* | *50* | *0* | *99.5* | *89 - 112* | | | | |

**Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** LHAAP 67 November 2020
**WorkOrder:** HS20110128

**QC BATCH REPORT**

**Batch ID:** R372274 ( 0 ) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

**MSD** Sample ID: **HS20110264-01MSD** Units: **UG/L** Analysis Date: **09-Nov-2020 18:05**
Client ID: Run ID: **VOA6_372274** SeqNo: **5824045** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethene | 23.16 | 1.0 | 20 | 0 | 116 | 71 - 131 | 25.58 | 9.91 | 20 | |
| *Surr: 1,2-Dichloroethane-d4* | *46.36* | *1.0* | *50* | *0* | *92.7* | *81 - 118* | *48.61* | *4.73* | *20* | |
| *Surr: 4-Bromofluorobenzene* | *48.65* | *1.0* | *50* | *0* | *97.3* | *85 - 114* | *48.4* | *0.519* | *20* | |
| *Surr: Dibromofluoromethane* | *45.3* | *1.0* | *50* | *0* | *90.6* | *80 - 119* | *47.42* | *4.56* | *20* | |
| *Surr: Toluene-d8* | *49.46* | *1.0* | *50* | *0* | *98.9* | *89 - 112* | *49.77* | *0.628* | *20* | |

**The following samples were analyzed in this batch:** HS20110128-10 HS20110128-11 HS20110128-12

**Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** LHAAP 67 November 2020
**WorkOrder:** HS20110128

**QC BATCH REPORT**

**Batch ID:** R372041 ( 0 ) **Instrument:** ICS-Integrion **Method:** ANIONS BY SW9056A

**MBLK** Sample ID: **MBLK-110320** Units: **mg/L** Analysis Date: **03-Nov-2020 13:46**
Client ID: Run ID: **ICS-Integrion_372041** SeqNo: **5817805** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 0.500 | 0.500 | | | | | | | | U |
| Nitrogen, Nitrate (As N) | 0.100 | 0.100 | | | | | | | | U |
| Sulfate | 0.500 | 0.500 | | | | | | | | U |

**LCS** Sample ID: **LCS-110320** Units: **mg/L** Analysis Date: **03-Nov-2020 14:04**
Client ID: Run ID: **ICS-Integrion_372041** SeqNo: **5817806** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 19.72 | 0.500 | 20 | 0 | 98.6 | 80 - 120 | | | | |
| Nitrogen, Nitrate (As N) | 4.06 | 0.100 | 4 | 0 | 102 | 80 - 120 | | | | |
| Sulfate | 18.98 | 0.500 | 20 | 0 | 94.9 | 80 - 120 | | | | |

**MS** Sample ID: **HS20110128-11MS** Units: **mg/L** Analysis Date: **04-Nov-2020 19:14**
Client ID: **67WW13-201103** Run ID: **ICS-Integrion_372041** SeqNo: **5817837** PrepDate: DF: **2**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 1163 | 1.00 | 20 | 1158 | 24.8 | 80 - 120 | | | | SEO |
| Nitrogen, Nitrate (As N) | 4.551 | 0.200 | 4 | 0 | 114 | 80 - 120 | | | | |
| Sulfate | 291.6 | 1.00 | 20 | 278.3 | 66.7 | 80 - 120 | | | | SEO |

**MSD** Sample ID: **HS20110128-11MSD** Units: **mg/L** Analysis Date: **04-Nov-2020 19:32**
Client ID: **67WW13-201103** Run ID: **ICS-Integrion_372041** SeqNo: **5817838** PrepDate: DF: **2**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 1166 | 1.00 | 20 | 1158 | 42.5 | 80 - 120 | 1163 | 0.304 | 20 | SEO |
| Nitrogen, Nitrate (As N) | 4.455 | 0.200 | 4 | 0 | 111 | 80 - 120 | 4.551 | 2.13 | 20 | |
| Sulfate | 294.3 | 1.00 | 20 | 278.3 | 79.7 | 80 - 120 | 291.6 | 0.893 | 20 | SEO |

**The following samples were analyzed in this batch:** HS20110128-11 HS20110128-16 HS20110128-17

**Revision:** 1


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** LHAAP 67 November 2020
**WorkOrder:** **HS20110128**

**QUALIFIERS, ACRONYMS, UNITS**

| Qualifier | Description |
|---|---|
| * | Value exceeds Regulatory Limit |
| a | Not accredited |
| B | Analyte detected in the associated Method Blank above the Reporting Limit |
| E | Value above quantitation range |
| H | Analyzed outside of Holding Time |
| J | Analyte detected below quantitation limit |
| M | Manually integrated, see raw data for justification |
| n | Not offered for accreditation |
| ND | Not Detected at the Reporting Limit |
| O | Sample amount is > 4 times amount spiked |
| P | Dual Column results percent difference > 40% |
| R | RPD above laboratory control limit |
| S | Spike Recovery outside laboratory control limits |
| U | Analyzed but not detected above the MDL/SDL |

| Acronym | Description |
|---|---|
| DCS | Detectability Check Study |
| DUP | Method Duplicate |
| LCS | Laboratory Control Sample |
| LCSD | Laboratory Control Sample Duplicate |
| MBLK | Method Blank |
| MDL | Method Detection Limit |
| MQL | Method Quantitation Limit |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| PDS | Post Digestion Spike |
| PQL | Practical Quantitaion Limit |
| SD | Serial Dilution |
| SDL | Sample Detection Limit |
| TRRP | Texas Risk Reduction Program |


RIGHT SOLUTIONS | RIGHT PARTNER

## CERTIFICATIONS,ACCREDITATIONS & LICENSES

| Agency | Number | Expire Date |
|---|---|---|
| Arkansas | 20-030-0 | 26-Mar-2021 |
| California | 2919, 2020-2021 | 30-Apr-2021 |
| Dept of Defense | PJLA L20-507 | 22-Dec-2021 |
| Florida | E87611-30-07/01/2020 | 30-Jun-2021 |
| Illinois | 2000322020-4 | 09-May-2021 |
| Kansas | E-10352 2020-2021 | 31-Jul-2021 |
| Kentucky | 123043, 2020-2021 | 30-Apr-2021 |
| Louisiana | 03087, 2020-2021 | 30-Jun-2021 |
| North Carolina | 624-2021 | 31-Dec-2021 |
| North Dakota | R-193 2020-2021 | 30-Apr-2021 |
| Oklahoma | 2020-165 | 31-Aug-2021 |
| Texas | T104704231-20-26 | 30-Apr-2021 |


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

## Sample Receipt Checklist

**Work Order ID:** HS20110128 **Date/Time Received:** 04-Nov-2020 09:30

**Client Name:** CBI-Houston **Received by:** Jared R. Makan

| **Completed By:** | /S/ Paresh M. Giga | 04-Nov-2020 13:24 | **Reviewed by:** | /S/ RJ Modashia | 04-Nov-2020 16:07 |
|---|---|---|---|---|---|
| | eSignature | Date/Time | | eSignature | Date/Time |

Matrices: **GW/Water** Carrier name: **FedEx**

| | | | | | | |
|---|---|---|---|---|---|---|
| Shipping container/cooler in good condition? | Yes | ☑ | No | ☐ | Not Present | ☐ |
| Custody seals intact on shipping container/cooler? | Yes | ☑ | No | ☐ | Not Present | ☐ |
| Custody seals intact on sample bottles? | Yes | ☐ | No | ☐ | Not Present | ☑ |
| VOA/TX1005/TX1006 Solids in hermetically sealed vials? | Yes | ☐ | No | ☐ | Not Present | ☑ |
| Chain of custody present? | Yes | ☑ | No | ☐ | 3 Page(s) | |
| Chain of custody signed when relinquished and received? | Yes | ☑ | No | ☐ | COC IDs:none | |
| Samplers name present on COC? | Yes | ☐ | No | ☑ | | |
| Chain of custody agrees with sample labels? | Yes | ☑ | No | ☐ | | |
| Samples in proper container/bottle? | Yes | ☑ | No | ☐ | | |
| Sample containers intact? | Yes | ☑ | No | ☐ | | |
| Sufficient sample volume for indicated test? | Yes | ☑ | No | ☐ | | |
| All samples received within holding time? | Yes | ☑ | No | ☐ | | |
| Container/Temp Blank temperature in compliance? | Yes | ☑ | No | ☐ | | |

| | | |
|---|---|---|
| Temperature(s)/Thermometer(s): | 1.3C U/C | IR31 |
| Cooler(s)/Kit(s): | 46501 | |
| Date/Time sample(s) sent to storage: | 11/4/2020 14:00 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Water - VOA vials have zero headspace? | Yes | ☑ | No | ☐ | No VOA vials submitted | ☐ |
| Water - pH acceptable upon receipt? | Yes | ☐ | No | ☐ | N/A | ☑ |
| pH adjusted? | Yes | ☐ | No | ☐ | N/A | ☑ |

pH adjusted by:

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:


RIGHT SOLUTIONS | RIGHT PARTNER

# CHAIN OF CUSTODY

Name Of Lab Shipping To: ALS 10450 Stancliff Rd. Suite 210 Houston, TX. 77099 (281) 530-5656 ATTN: R.J Modashia



Project: APTIM
LONGHORN ARMY AMMN. PLANT (LHAAP)
GROUNDWATER TREATMENT PLANT (GWTP)
KARNACK, TEXAS

Project No. 501032

Job: **LHAAP 67 November 2020**

Prepared By: Scott Beesinger

P.O. Number

HS20110128

Aptim Environmental & Infrastucture, Inc.
Longhorn Army Ammunition Plant 67 November 2020

| Field Sample I.D. / Time | Sample Matrix | Date / | MS / MSD | No. OF CONTAINERS | VOC by SW 8260B | TOC by SM5310C | MEE by RSK 175 | Carbon Dioxide by RSK 175 | Anions (Chloride, Sulfate, and Nitrate) by SW9056 | | | | | Remarks (Preservatives, etc.) | Lab I.D.# |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 67WW14-201102 | WG | 11/2/20/0720 | | 3 | X | | | | | | | | | | |
| 67WW05-201102 | WG | 11/2/20/0805 | | 3 | X | | | | | | | | | | |
| 67WW18-201102 | WG | 11/2/20/0845 | | 3 | X | | | | | | | | | | |
| 67WW17-201102 | WG | 11/2/20/0930 | | 3 | X | | | | | | | | | | |
| 67WW17-201102-FD | WG | 11/2/20/0930 | | 3 | X | | | | | | | | | | |
| 67WW09A-201102 | WG | 11/2/20/1015 | | 3 | X | | | | | | | | | | |
| 67WW10-201102 | WG | 11/2/20/1055 | | 3 | X | | | | | | | | | | |
| 67WW07-201102 | WG | 11/2/20/1140 | | 3 | X | | | | | | | | | | |

**Additional Remarks: Standard TAT on all parameters. Please email results to Susan.Huang@aptim.com and invoices to fedinvoices@aptim.com**

| Relinquished By: | Date | Time | Received By: | Date | Time | Relinquished By: | Date | Time | Received By: | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Scott Beesinger | 11/3/20 | 1430 | | | | | | | | | |

**For Lab Use Only**

| Received At Lab By: | Date | Time | Airbill No. | Opened By: | Date | Time | Temp of Container | Seal No. | Condition |
|---|---|---|---|---|---|---|---|---|---|
| J. Runcorn | 11/4/20 | 09.30 | | | | | | | |

Remarks:
Cooler 4650 1M3I
Temp 1.3°C CFO

(Word) S:\1-ces\Forms\Chain of Custody - BiWeekly

RIGHT SOLUTIONS | RIGHT PARTNER

# CHAIN OF CUSTODY

Name Of Lab Shipping To: ALS 10450 Stancliff Rd. Suite 210 Houston, TX. 77099 (281) 530-5656 ATTN: R.J Modashia

Page 1 of 1

**Project:** APTIM
LONGHORN ARMY AMMN. PLANT (LHAAP)
GROUNDWATER TREATMENT PLANT (GWTP)
KARNACK, TEXAS

**Project No.** 501032

**Job:** **LHAAP 67 November 2020**

**Prepared By:** Scott Beesinger

**P.O. Number**

HS20110128
Aptim Environmental & Infrastucture, Inc.
Longhorn Army Ammunition Plant: 67 November 2020

| Field Sample I.D. / Time | Sample Matrix | Date / | MS / MSD | No. OF CONTAINERS | VOC by SW 8260B | TOC by SM5310C | MEE by RSK 175 | Carbon Dioxide by RSK 175 | Anions (Chloride, Sulfate, and Nitrate) by SW9056 | | | | | Remarks (Preservatives, etc.) | Lab I.D.# |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 67WW12-201102 | WG | 11/2/20/1220 | | 3 | X | | | | | | | | | | |
| 67WW02-201102 | WG | 11/2/20/1305 | | 3 | X | | | | | | | | | | |
| 67WW13-201103 | WG | 11/3/20/0710 | | 12 | X | X | X | X | X | | | | | | |
| 67WW13-201103-MS | WG | 11/3/20/0710 | | 12 | X | X | X | X | X | | | | | | |
| 67WW13-201103-MSD | WG | 11/3/20/0710 | | 12 | X | X | X | X | X | | | | | | |
| 67WW15-201103 | WG | 11/3/20/0810 | | 3 | X | | | | | | | | | | |
| 67WW09-201103 | WG | 11/3/20/0850 | | 3 | X | | | | | | | | | | |
| 67WW01-201103 | WG | 11/3/20/0930 | | 3 | X | | | | | | | | | | |

**Additional Remarks:** **Standard TAT on all parameters. Please email results to Susan.Huang@aptim.com and invoices to fedinvoices@aptim.com**

| Relinquished By: | Date | Time | Received By: | Date | Time | Relinquished By: | Date | Time | Received By: | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Scott Beesinger | 11/3/20 | 1430 | | | | | | | | | |

**For Lab Use Only**

| Received At Lab By: | Date | Time | Airbill No. | Opened By: | Date | Time | Temp of Container | Seal No. | Condition |
|---|---|---|---|---|---|---|---|---|---|
| J. Macedo | 11/4/20 | 09:30 | | | | | | | |

Remarks:
Cooler 4650, 1431
Temp 1.3°C CFO

(Word) S:\I-ces\Forms\Chain of Custody - BiWeekly



RIGHT SOLUTIONS | RIGHT PARTNER

# CHAIN OF CUSTODY

Name Of Lab Shipping To: ALS 10450 Stancliff Rd. Suite 210 Houston, TX. 77099 (281) 530-5656 ATTN: R.J Modasbia



**Project:** APTIM
LONGHORN ARMY AMMN. PLANT (LHAAP)
GROUNDWATER TREATMENT PLANT (GWTP)
KARNACK, TEXAS

**Project No.** 501032

**Job:** LHAAP 67 November 2020

**Prepared By:** Scott Beesinger

**P.O. Number**

HS20110128
Aptim Environmental & Infrastucture, Inc.
Longhorn Army Ammunition Plant 67 November 2020

| Field Sample I.D. | Time | Sample Matrix | Date / | MS / MSD | No. OF CONTAINERS | VOC by SW 8260B | TOC by SM5310C | MEE by RSK 175 | Carbon Dioxide by RSK 175 | Anions (Chloride, Sulfate, and Nitrate) by SW9056 | Remarks (Preservatives, etc.) | Lab I.D.# |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 67WW16I-201103 | | WG | 11/3/20/1015 | | 3 | X | | | | | | |
| 67WW08-201103 | | WG | 11/3/20/1100 | | 12 | X | X | X | X | X | | |
| 67WW08-201103-FD | | WG | 11/3/20/1100 | | 12 | X | X | X | X | X | | |
| 67WW11-201103 | | WG | 11/3/20/1155 | | 3 | X | | | | | | |
| TRIPBLANK-201103 | | W | 11/3/20 | | 2 | X | | | | | | |

**Additional Remarks:** Standard TAT on all parameters. Please email results to Susan.Huang@aptim.com and invoices to fedinvoices@aptim.com

| Relinquished By: | Date | Time | Received By: | Date | Time | Relinquished By: | Date | Time | Received By: | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Scott Beesinger | 11/3/20 | 1430 | | | | | | | | | |

**For Lab Use Only**

| Received At Lab By: | Date | Time | Airbill No. | Opened By: | Date | Time | Temp of Container | Seal No. | Condition |
|---|---|---|---|---|---|---|---|---|---|
| J. Marcum | 11/4/20 | 09:30 | | | | | | | |

Remarks:
Cooler 4654 IR31
Temp 1.3°C CF0

(Word) S:\I-ces\Forms\Chain of Custody - BiWeekly



RIGHT SOLUTIONS | RIGHT PARTNER

ALS
10450 Stanciff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

46501

CUSTODY SEAL

Date: 11/3/20 Time: 1830
Name: Scott Ellis
Company: BHI-LS

Received By:
Date: 11/4/20

FedEx
TRK# 0221 1891 8881 9580

WED – 04 NOV 10:30A
PRIORITY OVERNIGHT

AB SGRA 46501

77099
TX-US IAH

9476872 11/03 5691/5100/3766



RIGHT SOLUTIONS | RIGHT PARTNER

ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
**T :** +1 360 577 7222
**F :** +1 360 636 1068
**www.alsglobal.com**

November 18, 2020 **Analytical Report for Service Request No:** K2010200

RJ Modashia
ALS Laboratory Group
10450 Stancliff Road
Suite 210
Houston, TX 77099-4338

**RE: ALS Houston DOD TOC / HS20110128**

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory November 05, 2020
For your reference, these analyses have been assigned our service request number **K2010200.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3350. You may also contact me via email at Kelley.Lovejoy@alsglobal.com.

Respectfully submitted,

**ALS Group USA, Corp. dba ALS Environmental**

for Kelley Lovejoy
Project Manager


RIGHT SOLUTIONS | RIGHT PARTNER

ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
**T :** +1 360 577 7222
**F :** +1 360 636 1068
**www.alsglobal.com**

# Table of Contents

Acronyms
Qualifiers
State Certifications, Accreditations, And Licenses
Case Narrative
Chain of Custody
General Chemistry

## Acronyms

| | |
|---|---|
| ASTM | American Society for Testing and Materials |
| A2LA | American Association for Laboratory Accreditation |
| CARB | California Air Resources Board |
| CAS Number | Chemical Abstract Service registry Number |
| CFC | Chlorofluorocarbon |
| CFU | Colony-Forming Unit |
| DEC | Department of Environmental Conservation |
| DEQ | Department of Environmental Quality |
| DHS | Department of Health Services |
| DOE | Department of Ecology |
| DOH | Department of Health |
| EPA | U. S. Environmental Protection Agency |
| ELAP | Environmental Laboratory Accreditation Program |
| GC | Gas Chromatography |
| GC/MS | Gas Chromatography/Mass Spectrometry |
| LOD | Limit of Detection |
| LOQ | Limit of Quantitation |
| LUFT | Leaking Underground Fuel Tank |
| M | Modified |
| MCL | Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA. |
| MDL | Method Detection Limit |
| MPN | Most Probable Number |
| MRL | Method Reporting Limit |
| NA | Not Applicable |
| NC | Not Calculated |
| NCASI | National Council of the Paper Industry for Air and Stream Improvement |
| ND | Not Detected |
| NIOSH | National Institute for Occupational Safety and Health |
| PQL | Practical Quantitation Limit |
| RCRA | Resource Conservation and Recovery Act |
| SIM | Selected Ion Monitoring |
| TPH | Total Petroleum Hydrocarbons |
| tr | Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL. |


RIGHT SOLUTIONS | RIGHT PARTNER

## Inorganic Data Qualifiers

| | |
|---|---|
| * | The result is an outlier. See case narrative. |
| # | The control limit criteria is not applicable. See case narrative. |
| B | The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards. |
| E | The result is an estimate amount because the value exceeded the instrument calibration range. |
| J | The result is an estimated value. |
| U | The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution. |
| i | The MRL/MDL or LOQ/LOD is elevated due to a matrix interference. |
| X | See case narrative. |
| Q | See case narrative. One or more quality control criteria was outside the limits. |
| H | The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory. |

## Metals Data Qualifiers

| | |
|---|---|
| # | The control limit criteria is not applicable. See case narrative. |
| J | The result is an estimated value. |
| E | The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample. |
| M | The duplicate injection precision was not met. |
| N | The Matrix Spike sample recovery is not within control limits. See case narrative. |
| S | The reported value was determined by the Method of Standard Additions (MSA). |
| U | The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution. |
| W | The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance. |
| i | The MRL/MDL or LOQ/LOD is elevated due to a matrix interference. |
| X | See case narrative. |
| + | The correlation coefficient for the MSA is less than 0.995. |
| Q | See case narrative. One or more quality control criteria was outside the limits. |

## Organic Data Qualifiers

| | |
|---|---|
| * | The result is an outlier. See case narrative. |
| # | The control limit criteria is not applicable. See case narrative. |
| A | A tentatively identified compound, a suspected aldol-condensation product. |
| B | The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards. |
| C | The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data. |
| D | The reported result is from a dilution. |
| E | The result is an estimated value. |
| J | The result is an estimated value. |
| N | The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed. |
| P | The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results. |
| U | The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution. |
| i | The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference. |
| X | See case narrative. |
| Q | See case narrative. One or more quality control criteria was outside the limits. |

## Additional Petroleum Hydrocarbon Specific Qualifiers

| | |
|---|---|
| F | The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard. |
| L | The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard. |
| H | The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard. |
| O | The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard. |
| Y | The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard. |
| Z | The chromatographic fingerprint does not resemble a petroleum product. |


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso**
**State Certifications, Accreditations, and Licenses**

| Agency | Web Site | Number |
|---|---|---|
| Alaska DEH | http://dec.alaska.gov/eh/lab/cs/csapproval.htm | UST-040 |
| Arizona DHS | http://www.azdhs.gov/lab/license/env.htm | AZ0339 |
| Arkansas - DEQ | http://www.adeq.state.ar.us/techsvs/labcert.htm | 88-0637 |
| California DHS (ELAP) | http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx | 2795 |
| DOD ELAP | http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm | L16-58-R4 |
| Florida DOH | http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm | E87412 |
| Hawaii DOH | http://health.hawaii.gov/ | - |
| ISO 17025 | http://www.pjlabs.com/ | L16-57 |
| Louisiana DEQ | http://www.deq.louisiana.gov/page/la-lab-accreditation | 03016 |
| Maine DHS | http://www.maine.gov/dhhs/ | WA01276 |
| Minnesota DOH | http://www.health.state.mn.us/accreditation | 053-999-457 |
| Nevada DEP | http://ndep.nv.gov/bsdw/labservice.htm | WA01276 |
| New Jersey DEP | http://www.nj.gov/dep/enforcement/oqa.html | WA005 |
| New York - DOH | https://www.wadsworth.org/regulatory/elap | 12060 |
| North Carolina DEQ | https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification | 605 |
| Oklahoma DEQ | http://www.deq.state.ok.us/CSDnew/labcert.htm | 9801 |
| Oregon – DEQ (NELAP) | http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx | WA100010 |
| South Carolina DHEC | http://www.scdhec.gov/environment/EnvironmentalLabCertification/ | 61002 |
| Texas CEQ | http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html | T104704427 |
| Washington DOE | http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html | C544 |
| Wyoming (EPA Region 8) | https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water- | - |
| Kelso Laboratory Website | www.alsglobal.com | NA |

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

# Case Narrative

**ALS Environmental—Kelso Laboratory**
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

1317 South 13th Ave, Kelso, WA 98626 | 1-360-577-7222 | www.alsglobal.com

**Client:** ALS Environmental - US
**Project:** ALS Houston DOD TOC
**Sample Matrix:** Ground Water

**Service Request:** K2010200
**Date Received:** 11/05/2020

## CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier level II requested by the client.

**Sample Receipt:**

Three ground water samples were received for analysis at ALS Environmental on 11/05/2020. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

**General Chemistry:**

No significant anomalies were noted with this analysis.

Approved by Noe D. Diaz Date 11/18/2020



RIGHT SOLUTIONS | RIGHT PARTNER

# Chain of Custody

**ALS Environmental—Kelso Laboratory**
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER



RIGHT SOLUTIONS | RIGHT PARTNER

K20110200

10450 Stancliff Rd, Ste 210
Houston, TX 77099
**T:** +1 281 530 5656
**F:** +1 281 530 5887
**www.alsglobal.com**

# Subcontract Chain of Custody

**SAMPLING STATE:** **Dept of Defense** **COC ID:** **15101**

**SUBCONTRACT TO:**

ALS Environmental Kelso
1317 S. 13th Avenue
Kelso, WA 98626

**Phone:** +1 360 501 3312

**CUSTOMER INFORMATION:**

| | |
|---|---|
| **Company:** | ALS Houston |
| **Contact:** | RJ Modashia |
| **Address:** | 10450 Stancliff Rd, Ste 210 |
| **Phone:** | +1 281 530 5656 |
| **Email:** | RJ.Modashia@alsglobal.com |
| **Alternate Contact:** | |
| **Email:** | |

**INVOICE INFORMATION:**

| | |
|---|---|
| **Company:** | ALS Houston |
| **Contact:** | Accounts Payable |
| **Address:** | 10450 Stancliff Rd, Ste 210 |
| **Phone:** | +1 281 530 5656 |
| **Reference:** | HS20110128 |
| **TSR:** | Sonia West |

| | LAB SAMPLE ID | CLIENT SAMPLE ID | MATRIX | COLLECT DATE |
|---|---|---|---|---|
| | ANALYSIS REQUESTED | | | DUE DATE |
| 1. | **HS20110128-11** | **67WW13-201103** | **Groundwater** | **03 Nov 2020 07:10** |
| | TOC: Provide Level II & DOD Level IV/EQuIS APTIM EDD | | | 18 Nov 2020 |
| 2. | **HS20110128-16** | **67WW08-201103** | **Groundwater** | **03 Nov 2020 11:00** |
| | TOC: Provide Level II & DOD Level IV/EQuIS APTIM EDD | | | 18 Nov 2020 |
| 3. | **HS20110128-17** | **67WW08-201103-FD** | **Groundwater** | **03 Nov 2020 11:00** |
| | TOC: Provide Level II & DOD Level IV/EQuIS APTIM EDD | | | 18 Nov 2020 |

**Comments:** Please analyze for the analysis listed above.
Send report to the emails shown above.
HS20110128-11 = MS/MSD

**QC Level:** DOD IV (DoD Data Package)

Relinquished By: J. Modashia Date/Time: 11/04/20 18:00

Received By: Date/Time: 11/5/20 1015

Cooler ID(s): Temperature(s):

PM KL

# Cooler Receipt and Preservation Form

Client ALS-Houston Service Request K20 10200

Received: 11/5/20 Opened: 11/5/20 By: BR Unloaded: 11/5/20 By: BR

1. Samples were received via? *USPS* (*Fed Ex*) *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) (*Cooler*) *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? 2 front
   If present, were custody seals intact? (Y) N If present, were they signed and dated? (Y) N
4. Was a Temperature Blank present in cooler? NA (Y) N If yes, notate the temperature in the appropriate column below:
   If no, take the temperature of a representative sample bottle contained within the cooler; notate in the column "Sample Temp":
5. Were samples received within the method specified temperature ranges? NA (Y) N
   If no, were they received on ice and same day as collected? If not, notate the cooler # below and notify the PM. (NA) Y N

If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*

| Temp Blank | Sample Temp | IR Gun | Cooler #/COC ID / NA | Out of temp indicate with "X" | PM Notified If out of temp | Tracking Number NA | Filed |
|---|---|---|---|---|---|---|---|
| 0.9 | — | IR01 | | — | — | 189188824946 | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

6. Packing material: *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Dry Ice* *Sleeves* _____
7. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
8. Were samples received in good condition (unbroken) NA (Y) N
9. Were all sample labels complete (ie, analysis, preservation, etc.)? NA (Y) N
10. Did all sample labels and tags agree with custody papers? NA (Y) N
11. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
12. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA (Y) N
13. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
14. Was C12/Res negative? (NA) Y N

| Sample ID on Bottle | Sample ID on COC | Identified by: |
|---|---|---|
| | | |
| | | |
| | | |

| Sample ID | Bottle Count Bottle Type | Head-space | Broke | pH | Reagent | Volume added | Reagent Lot Number | Initials | Time |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

Notes, Discrepancies, Resolutions: _____


RIGHT SOLUTIONS | RIGHT PARTNER

# General Chemistry

**ALS Environmental—Kelso Laboratory**
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Group USA, Corp.**
**dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | K2010200 |
| **Project:** | ALS Houston DOD TOC/HS20110128 | **Date Collected:** | 11/3/20 |
| **Sample Matrix:** | Ground Water | **Date Received:** | 11/5/20 |
| **Analysis Method:** | SM 5310 C | **Units:** | mg/L |
| **Prep Method:** | None | **Basis:** | NA |

**Carbon, Total Organic**

| Sample Name | Lab Code | Result | LOQ | LOD | MDL | Dil. | Date Analyzed | Q |
|---|---|---|---|---|---|---|---|---|
| 67WW13-201103 | K2010200-001 | **1.45** | 0.50 | 0.20 | 0.07 | 1 | 11/11/20 17:58 | |
| 67WW08-201103 | K2010200-002 | **1.17** | 0.50 | 0.20 | 0.07 | 1 | 11/11/20 17:58 | |
| 67WW08-201103-FD | K2010200-003 | **1.21** | 0.50 | 0.20 | 0.07 | 1 | 11/11/20 17:58 | |
| Method Blank | K2010200-MB | ND U | 0.50 | 0.20 | 0.07 | 1 | 11/11/20 17:58 | |


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | K2010200 |
| **Project** | ALS Houston DOD TOC/HS20110128 | **Date Collected:** | 11/03/20 |
| **Sample Matrix:** | Ground Water | **Date Received:** | 11/05/20 |
| | | **Date Analyzed:** | 11/11/20 |

## Replicate Sample Summary
## General Chemistry Parameters

| | | | |
|---|---|---|---|
| **Sample Name:** | 67WW13-201103 | **Units:** | mg/L |
| **Lab Code:** | K2010200-001 | **Basis:** | NA |

| Analyte Name | Analysis Method | LOQ | LOD | MDL | Sample Result | Duplicate Sample K2010200-001DUP Result | Average | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, Total Organic | SM 5310 C | 0.50 | 0.20 | 0.07 | 1.45 | 1.28 | 1.36 | 12 # | 10 |

**Results flagged with an asterisk (*) indicate values outside control criteria.**

**Results flagged with a pound (#) indicate the control criteria is not applicable.**

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | K2010200 |
| **Project:** | ALS Houston DOD TOC/HS20110128 | **Date Collected:** | 11/03/20 |
| **Sample Matrix:** | Ground Water | **Date Received:** | 11/05/20 |
| | | **Date Analyzed:** | 11/11/20 |
| | | **Date Extracted:** | NA |

## Matrix Spike Summary
## Carbon, Total Organic

| | | | |
|---|---|---|---|
| **Sample Name:** | 67WW13-201103 | **Units:** | mg/L |
| **Lab Code:** | K2010200-001 | **Basis:** | NA |
| **Analysis Method:** | SM 5310 C | | |
| **Prep Method:** | None | | |

### Matrix Spike
K2010200-001MS

| Analyte Name | Sample Result | Result | Spike Amount | % Rec | % Rec Limits |
|---|---|---|---|---|---|
| Carbon, Total Organic | 1.45 | 23.4 | 25.0 | 88 | 83-117 |

**Results flagged with an asterisk (*) indicate values outside control criteria.**

**Results flagged with a pound (#) indicate the control criteria is not applicable.**

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

**Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.**



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | K2010200 |
| **Project:** | ALS Houston DOD TOC/HS20110128 | **Date Analyzed:** | 11/11/20 |
| **Sample Matrix:** | Ground Water | **Date Extracted:** | NA |

**Lab Control Sample Summary**
**Carbon, Total Organic**

| | | | |
|---|---|---|---|
| **Analysis Method:** | SM 5310 C | **Units:** | mg/L |
| **Prep Method:** | None | **Basis:** | NA |
| | | **Analysis Lot:** | 703161 |

| Sample Name | Lab Code | Result | Spike Amount | % Rec | % Rec Limits |
|---|---|---|---|---|---|
| Lab Control Sample | K2010200-LCS | 25.9 | 25.0 | 104 | 83-117 |


RIGHT SOLUTIONS | RIGHT PARTNER

# LABORATORY REPORT

November 19, 2020

RJ Modashia
ALS Laboratory Group
10450 Stancliff Road Suite 210
Houston, TX 77099-4338

**RE: HS20110128**

Dear RJ:

Enclosed are the results of the samples submitted to our laboratory on November 5, 2020. For your reference, these analyses have been assigned our service request number P2006296.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

**ALS | Environmental**

*By Hayden Akers at 1:15 pm, Nov 19, 2020*

Hayden Akers
Project Manager

Client: ALS Laboratory Group Service Request No: P2006296
Project: HS20110128

## CASE NARRATIVE

The samples were received intact under chain of custody on November 5, 2020 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Carbon Dioxide Analysis

The samples were analyzed for carbon dioxide using a gas chromatograph equipped with a thermal conductivity detector (TCD). A known amount of liquid was displaced by injecting 8.0 milliliters of helium creating a headspace in the sample vial. Each sample vial was agitated using a sonic disrupter for fifteen minutes and then allowed to equilibrate for at least four hours. A volume of the headspace was withdrawn using a gas-tight syringe and analyzed using a manual injection technique. The amount of dissolved gases (carbon dioxide) in the original sample was calculated using Henry's Law. This method was performed with guidance from RSK 175 as described in laboratory SOP VOA-DISGAS. This analyte is included on the laboratory's NELAP and DoD-ELAP scope of accreditation.

The recovery and relative percent difference for the matrix spike and its duplicate were outside of the DoD control criteria due to matrix interference. However all quality control criteria were within laboratory limits of the laboratory control sample and its duplicate.

Manual integrations were performed on the following sample(s) and analyte(s). Refer to the raw data for additional information.

| Sample Identification(s) | Analyte(s) |
|---|---|
| P2006296-LCS | Carbon dioxide |
| P2006296-LCSD | Carbon dioxide |
| P2006296-002 | Carbon dioxide |

Methane, Ethene and Ethane Analysis

The samples were also analyzed for methane, ethene, and ethane using a gas chromatograph equipped with a flame ionization detector (FID). A known amount of liquid was displaced by injecting 8.0 milliliters of helium creating a headspace in the sample vial. Each sample vial was agitated using a sonic disrupter for fifteen minutes and then allowed to equilibrate for at least two hours. A volume of the headspace was withdrawn using a gas-tight syringe and analyzed using a manual injection technique. The amount of dissolved gases (methane, ethene and ethane) in the original sample was calculated using Henry's Law. This method was performed with guidance from RSK 175. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the laboratory's NELAP or DoD-ELAP accreditation.


RIGHT SOLUTIONS | RIGHT PARTNER

The recovery for methane for the matrix spike duplicate was below DoD criteria. However the recovery was within laboratory limits and also all quality control parameters were within limits of the laboratory control sample and its duplicate.

No manual integrations were performed. Refer to the raw data for additional information.

---

*The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.*

*Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.*

ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

| Agency | Web Site | Number |
|---|---|---|
| Alaska DEC | http://dec.alaska.gov/eh/lab.aspx | 17-019 |
| Arizona DHS | http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home | AZ0694 |
| Florida DOH (NELAP) | http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html | E871020 |
| Louisiana DEQ (NELAP) | http://www.deq.louisiana.gov/page/la-lab-accreditation | 05071 |
| Maine DHHS | http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml | 2018027 |
| Minnesota DOH (NELAP) | http://www.health.state.mn.us/accreditation | 1776326 |
| New Jersey DEP (NELAP) | http://www.nj.gov/dep/enforcement/oqa.html | CA009 |
| New York DOH (NELAP) | http://www.wadsworth.org/labcert/elap/elap.html | 11221 |
| Oregon PHD (NELAP) | http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx | 4068-007 |
| Pennsylvania DEP | http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx | 68-03307 (Registration) |
| PJLA (DoD ELAP) | http://www.pjlabs.com/search-accredited-labs | 65818 (Testing) |
| Texas CEQ (NELAP) | http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html | T104704413-19-10 |
| Utah DOH (NELAP) | http://health.utah.gov/lab/lab_cert_env | CA016272019-10 |
| Washington DOE | http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html | C946 |

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

**ALS ENVIRONMENTAL**

DETAIL SUMMARY REPORT

Client: ALS Laboratory Group
Project ID: HS20110128

Service Request: P2006296

Date Received: 11/5/2020
Time Received: 09:20

| Client Sample ID | Lab Code | Matrix | Date Collected | Time Collected | RSK 175 - CO2 | RSK 175 - Gases |
|---|---|---|---|---|---|---|
| 67WW13-201103 | P2006296-001 | Water | 11/3/2020 | 07:10 | X | X |
| 67WW08-201103 | P2006296-002 | Water | 11/3/2020 | 11:00 | X | X |
| 67WW08-201103-FD | P2006296-003 | Water | 11/3/2020 | 11:00 | X | X |


RIGHT SOLUTIONS | RIGHT PARTNER

PJ05 6296

10450 Stancliff Rd, Ste 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887
www.alsglobal.com

# Subcontract Chain of Custody

**SAMPLING STATE:** **Dept of Defense** **COC ID:** **15100**

**SUBCONTRACT TO:**

ALS Environmental
2655 Park Center Drive, Suite A
Simi Valley, CA 93065

**Phone:** +1 805 526 7161

**CUSTOMER INFORMATION:**

| | |
|---|---|
| **Company:** | ALS Houston |
| **Contact:** | RJ Modashia |
| **Address:** | 10450 Stancliff Rd, Ste 210 |
| **Phone:** | +1 281 530 5656 |
| **Email:** | RJ.Modashia@alsglobal.com |
| **Alternate Contact:** | |
| **Email:** | |

**INVOICE INFORMATION:**

| | |
|---|---|
| **Company:** | ALS Houston |
| **Contact:** | Accounts Payable |
| **Address:** | 10450 Stancliff Rd, Ste 210 |
| **Phone:** | +1 281 530 5656 |
| **Reference:** | HS20110128 |
| **TSR:** | Sonia West |

| | LAB SAMPLE ID | CLIENT SAMPLE ID | MATRIX | COLLECT DATE |
|---|---|---|---|---|
| | ANALYSIS REQUESTED | | | DUE DATE |
| 1. | **HS20110128-11** | **67WW13-201103** | **Groundwater** | **03 Nov 2020 07:10** |
| | MEE + CO2. Provide DOD LV II & IV pdf separate. EDD. EQuIS 5.0 - Longhorn | | Equis | 18 Nov 2020 |
| 2. | **HS20110128-16** | **67WW08-201103** | **Groundwater** | **03 Nov 2020 11:00** |
| | MEE + CO2. Provide DOD LV II & IV pdf separate. EDD. EQuIS 5.0 - Longhorn | | Equis | 18 Nov 2020 |
| 3. | **HS20110128-17** | **67WW08-201103-FD** | **Groundwater** | **03 Nov 2020 11:00** |
| | MEE + CO2. Provide DOD LV II & IV pdf separate. EDD. EQuIS 5.0 - Longhorn | | Equis | 18 Nov 2020 |

**Comments:** Please analyze for the analysis listed above.
Send report to the emails shown above.
3 x Neat Vials & 3 x HCL Vials
HS20110128-11 = MS/MSD

**QC Level:** DOD IV (DoD Data Package)

Relinquished By: J Modashia Date/Time: 11/04/20 18:00

Received By: Date/Time: 11-5-20 0820

Cooler ID(s): Temperature(s): 2° wet

# ALS Environmental
## Sample Acceptance Check Form

Client: ALS Laboratory Group  Work order: P2006296

Project: HS20110128

Sample(s) received on: 11/5/2020  Date opened: 11/5/2020  by: ADAVID

***Note:*** This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

| | | Yes | No | N/A |
|---|---|---|---|---|
| 1 | Were **sample containers** properly marked with client sample ID? | ☒ | ☐ | ☐ |
| 2 | Did **sample containers** arrive in good condition? | ☒ | ☐ | ☐ |
| 3 | Were **chain-of-custody** papers used and filled out? | ☒ | ☐ | ☐ |
| 4 | Did **sample container labels** and/or tags agree with custody papers? | ☒ | ☐ | ☐ |
| 5 | Was **sample volume** received adequate for analysis? | ☒ | ☐ | ☐ |
| 6 | Are samples within specified holding times? | ☒ | ☐ | ☐ |
| 7 | Was proper **temperature** (thermal preservation) of cooler at receipt adhered to? | ☒ | ☐ | ☐ |
| | Cooler Temperature: ° C  Blank Temperature: 2° C | Wet Ic | | |
| 8 | Were **custody seals** on outside of cooler/Box/Container? | ☒ | ☐ | ☐ |
| | Location of seal(s)? Cooler lid. Sealing Lid? | ☒ | ☐ | ☐ |
| | Were signature and date included? | ☒ | ☐ | ☐ |
| | Were seals intact? | ☒ | ☐ | ☐ |
| 9 | Do containers have appropriate **preservation**, according to method/SOP or Client specified information? | ☒ | ☐ | ☐ |
| | Is there a client indication that the submitted samples are **pH** preserved? | ☒ | ☐ | ☐ |
| | Were **VOA vials** checked for presence/absence of air bubbles? | ☒ | ☐ | ☐ |
| | Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it? | ☐ | ☒ | ☐ |
| 10 | **Tubes:** Are the tubes capped and intact? | ☐ | ☐ | ☒ |
| 11 | **Badges:** Are the badges properly capped and intact? | ☐ | ☐ | ☒ |
| | Are dual bed badges separated and individually capped and intact? | ☐ | ☐ | ☒ |

| Lab Sample ID | Container Description | Required pH * | Received pH | Adjusted pH | VOA Headspace (Presence/Absence) | Receipt / Preservation Comments |
|---|---|---|---|---|---|---|
| P2006296-001.01 | 40mL VOA NP | | 7 | | A | wh 11/17/20 |
| P2006296-001.02 | 40mL VOA NP | | 7 | | A | wh 11/17/20 |
| P2006296-001.03 | 40mL VOA NP | | 7 | | A | wh 11/17/20 |
| P2006296-001.04 | 40ml VOA HCL | | 1 | | A | wh 11/17/20 |
| P2006296-001.05 | 40ml VOA HCL | | 1 | | A | wh 11/17/20 |
| P2006296-001.06 | 40ml VOA HCL | | 1 | | A | wh 11/17/20 |
| P2006296-002.01 | 40mL VOA NP | | 7 | | A | wh 11/17/20 |
| P2006296-002.02 | 40mL VOA NP | | | | A | |
| P2006296-002.03 | 40mL VOA NP | | | | A | |
| P2006296-002.04 | 40ml VOA HCL | | 1 | | A | wh 11/17/20 |
| P2006296-002.05 | 40ml VOA HCL | | | | A | |
| P2006296-002.06 | 40ml VOA HCL | | | | A | |
| P2006296-003.01 | 40mL VOA NP | | 7 | | A | wh 11/17/20 |
| P2006296-003.02 | 40mL VOA NP | | | | A | |
| P2006296-003.03 | 40mL VOA NP | | | | A | |

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)


RIGHT SOLUTIONS | RIGHT PARTNER

# ALS Environmental
## Sample Acceptance Check Form

Client: ALS Laboratory Group  Work order: P2006296

Project: HS20110128

Sample(s) received on: 11/5/2020  Date opened: 11/5/2020  by: ADAVID

| Lab Sample ID | Container Description | Required pH * | Received pH | Adjusted pH | VOA Headspace (Presence/Absence) | Receipt / Preservation Comments |
|---|---|---|---|---|---|---|
| P2006296-003.04 | 40ml VOA HCL | | 1 | | A | wh 11/17/20 |
| P2006296-003.05 | 40ml VOA HCL | | | | A | |
| P2006296-003.06 | 40ml VOA HCL | | | | A | |

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)



RIGHT SOLUTIONS | RIGHT PARTNER

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS



**Client:** **ALS Laboratory Group**
**Client Sample ID:** **67WW13-201103**
**Client Project ID:** **HS20110128**

ALS Project ID: P2006296
ALS Sample ID: P2006296-001

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 11/03/20
Date Received: 11/05/20
Date Analyzed: 11/17/20
Volume(s) Analyzed: 0.10 ml(s)

| CAS # | Compound | Result µg/L | LOQ µg/L | LOD µg/L | MDL µg/L | Data Qualifier |
|---|---|---|---|---|---|---|
| 74-82-8 | Methane | 1.0 | 1.3 | 1.0 | 0.51 | **U** |
| 74-85-1 | Ethene | 0.55 | 1.0 | 0.55 | 0.24 | **U** |
| 74-84-0 | Ethane | 0.47 | 0.60 | 0.47 | 0.16 | **U** |

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS ENVIRONMENTAL**

RESULTS OF ANALYSIS



**Client:** **ALS Laboratory Group**
**Client Sample ID:** **67WW08-201103**
**Client Project ID:** **HS20110128**

ALS Project ID: P2006296
ALS Sample ID: P2006296-002

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 11/03/20
Date Received: 11/05/20
Date Analyzed: 11/17/20
Volume(s) Analyzed: 0.10 ml(s)

| CAS # | Compound | Result µg/L | LOQ µg/L | LOD µg/L | MDL µg/L | Data Qualifier |
|---|---|---|---|---|---|---|
| 74-82-8 | Methane | **1.2** | 1.3 | 1.0 | 0.51 | **J** |
| 74-85-1 | Ethene | 0.55 | 1.0 | 0.55 | 0.24 | **U** |
| 74-84-0 | Ethane | 0.47 | 0.60 | 0.47 | 0.16 | **U** |

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.


RIGHT SOLUTIONS | RIGHT PARTNER

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS



**Client:** **ALS Laboratory Group**
**Client Sample ID:** **67WW08-201103-FD**
**Client Project ID:** **HS20110128**

ALS Project ID: P2006296
ALS Sample ID: P2006296-003

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 11/03/20
Date Received: 11/05/20
Date Analyzed: 11/17/20
Volume(s) Analyzed: 0.10 ml(s)

| CAS # | Compound | Result µg/L | LOQ µg/L | LOD µg/L | MDL µg/L | Data Qualifier |
|---|---|---|---|---|---|---|
| 74-82-8 | Methane | **1.0** | 1.3 | 1.0 | 0.51 | **J** |
| 74-85-1 | Ethene | 0.55 | 1.0 | 0.55 | 0.24 | **U** |
| 74-84-0 | Ethane | 0.47 | 0.60 | 0.47 | 0.16 | **U** |

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS ENVIRONMENTAL**

RESULTS OF ANALYSIS



**Client:** **ALS Laboratory Group**
**Client Sample ID:** **Method Control Sample**
**Client Project ID:** **HS20110128**

ALS Project ID: P2006296
ALS Sample ID: P201117-MB

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 11/17/20
Volume(s) Analyzed: 0.10 ml(s)

| CAS # | Compound | Result µg/L | LOQ µg/L | LOD µg/L | MDL µg/L | Data Qualifier |
|---|---|---|---|---|---|---|
| 74-82-8 | Methane | 1.0 | 1.3 | 1.0 | 0.51 | **U** |
| 74-85-1 | Ethene | 0.55 | 1.0 | 0.55 | 0.24 | **U** |
| 74-84-0 | Ethane | 0.47 | 0.60 | 0.47 | 0.16 | **U** |

The Method Control Sample is laboratory water carried through the entire analytical process.
U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.


RIGHT SOLUTIONS | RIGHT PARTNER

# ALS ENVIRONMENTAL

MATRIX SPIKE / DUPLICATE MATRIX SPIKE SUMMARY



**Client:** **ALS Laboratory Group**
**Client Sample ID:** **67WW13-201103**
**Client Project ID:** **HS20110128**

ALS Project ID: P2006296
ALS Sample ID: P2006296-001MS
P2006296-001DMS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 11/3/20
Date Received: 11/5/20
Date Analyzed: 11/17/20
Volume(s) Analyzed: 0.10 ml(s)

| CAS # | Compound | Spike Amount MS / DMS µg/L | Sample Amount µg/L | Result MS µg/L | Result DMS µg/L | % Recovery MS | % Recovery DMS | DOD Acceptance Limits | RPD | RPD Limit | Data Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 74-82-8 | Methane | 169 | ND | 128 | 122 | **76** | **72** | 73-125 | 5 | 30 | **N** |
| 74-85-1 | Ethene | 294 | ND | 275 | 260 | **94** | **88** | 72-133 | 7 | 30 | |
| 74-84-0 | Ethane | 317 | ND | 262 | 248 | **83** | **78** | 74-131 | 6 | 30 | |

N = The matrix spike recovery is not within control limits. See case narrative.


RIGHT SOLUTIONS | RIGHT PARTNER

# ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY



**Client:** **ALS Laboratory Group**
**Client Sample ID:** **Duplicate Lab Control Sample**
**Client Project ID:** **HS20110128**

ALS Project ID: P2006296
ALS Sample ID: P201117-LCS
P201117-DLCS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 11/17/20
Volume(s) Analyzed: 0.10 ml(s)

| CAS # | Compound | Spike Amount LCS / DLCS µg/L | Result$_1$ LCS µg/L | Result$_1$ DLCS µg/L | % Recovery LCS | % Recovery DLCS | DOD Acceptance Limits | RPD | RPD Limit | Data Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 74-82-8 | Methane | 2.52 | 2.60 | 2.70 | **103** | **107** | 73-125 | 4 | 26 | |
| 74-85-1 | Ethene | 4.40 | 5.19 | 5.13 | **118** | **117** | 72-133 | 0.9 | 11 | |
| 74-84-0 | Ethane | 4.72 | 5.08 | 5.03 | **108** | **107** | 74-131 | 0.9 | 10 | |

$_1$ = The concentration shown includes a subtraction of the Method Control Sample value, even if the result is less than the MRL.


RIGHT SOLUTIONS | RIGHT PARTNER

**ALS ENVIRONMENTAL**

RESULTS OF ANALYSIS



**Client:** **ALS Laboratory Group**
**Client Project ID:** **HS20110128** ALS Project ID: P2006296

## Carbon Dioxide

Test Code: RSK 175
Instrument ID: HP5890A/GC10/TCD
Analyst: Wade Henton
Matrix: Liquid
Test Notes:

Date(s) Collected: 11/3/20
Date Received: 11/5/20
Date Analyzed: 11/17/20

| Client Sample ID | ALS Sample ID | Injection Volume ml(s) | Result µg/L | LOQ µg/L | LOD µg/L | MDL µg/L | Data Qualifier |
|---|---|---|---|---|---|---|---|
| 67WW13-201103 | P2006296-001 | 0.10 | **350,000** | 1,000 | 860 | 370 | |
| 67WW08-201103 | P2006296-002 | 0.10 | **270,000** | 1,000 | 860 | 370 | |
| 67WW08-201103-FD | P2006296-003 | 0.10 | **270,000** | 1,000 | 860 | 370 | |
| Method Control Sample | P201117-MB | 0.10 | 860 | 1,000 | 860 | 370 | **U** |

The Method Control Sample is laboratory water carried through the entire analytical process.
U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.


RIGHT SOLUTIONS | RIGHT PARTNER

# ALS ENVIRONMENTAL

MATRIX SPIKE / DUPLICATE MATRIX SPIKE SUMMARY



**Client:** **ALS Laboratory Group**
**Client Sample ID:** **67WW13-201103**
**Client Project ID:** **HS20110128**

ALS Project ID: P2006296
ALS Sample ID: P2006296-001MS
P2006296-001DMS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/TCD
Analyst: Wade Henton
Matrix: Liquid
Test Notes:

Date Collected: 11/3/2020
Date Received: 11/5/2020
Date Analyzed: 11/17/2020
Volume(s) Analyzed: 0.10 ml(s)

| CAS # | Compound | Spike Amount MS / DMS ug/L | Sample Amount ug/L | Result MS ug/L | Result DMS ug/L | % Recovery MS | % Recovery DMS | DOD Acceptance Limits | RPD | RPD Limit | Data Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 124-38-9 | Carbon Dioxide | 22,900 | 346,000 | 380,000 | 405,000 | **148** | **258** | 80-122 | 54 | 30 | **N, R** |

R = Duplicate precision not met.
N = The matrix spike sample recovery is not within control limits. See case narrative.


RIGHT SOLUTIONS | RIGHT PARTNER

# ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY



**Client:** **ALS Laboratory Group**
**Client Sample ID:** **Duplicate Lab Control Sample**
**Client Project ID:** **HS20110128**

ALS Project ID: P2006296
ALS Sample ID: P201117-DLCS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/TCD
Analyst: Wade Henton
Matrix: Liquid
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 11/17/20
Volume(s) Analyzed: NA ml(s)

| CAS # | Compound | Spike Amount LCS / DLCS ug/L | Result[1] LCS ug/L | Result[1] DLCS ug/L | % Recovery LCS | % Recovery DLCS | DOD Acceptance Limits | RPD | RPD Limit | Data Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 124-38-9 | Carbon Dioxide | 22,900 | 19,400 | 18,700 | **85** | **82** | 80-122 | 4 | 12 | |

[1] = The concentration shown includes a subtraction of the Method Control Sample value, even if the result is less than the MRL.


RIGHT SOLUTIONS | RIGHT PARTNER

# HS20110128 8260_W_DOD Raw Data REV01

ALS WO# HS20110128

# MSVOA06 -Logbook

**Batch:** 42316 **Analyst:** Devak Giga

**Date:** 11-03-2020 **Reviewer:**

**Method:** 8260 **Laboratory:** Houston

**Comments:**

| # | Samp ID | Type | Analyzed | DF | Init Wt/Vol | Final Vol | File ID | Matrix | Status | pH |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | BFB | TUNE | 11-03-2020 11:40 am | 1.00 | 0.00 mL | 0.00 mL | X110301.D | Liquid | Y | NA |
| | *Auto find/ purged* | | | | | | | | | |
| 2 | VSTD000.25 | ICAL1 | 11-03-2020 12:01 pm | 1.00 | 5.00 mL | 0.00 mL | X110302.D | Liquid | Y | NA |
| | *010 uL cal std/100 mL DI* | | | | | | | | | |
| 3 | VSTD000.5 | ICAL2 | 11-03-2020 12:43 pm | 1.00 | 5.00 mL | 0.00 mL | X110303.D | Liquid | Y | NA |
| | *0.10 uL cal std/50 mL DI* | | | | | | | | | |
| 4 | VSTD001 | ICAL3 | 11-03-2020 01:04 pm | 1.00 | 5.00 mL | 0.00 mL | X110304.D | Liquid | Y | NA |
| | *0.20 uL cal std/50 mL DI* | | | | | | | | | |
| 5 | VSTD002 | ICAL4 | 11-03-2020 01:24 pm | 1.00 | 5.00 mL | 0.00 mL | X110305.D | Liquid | Y | NA |
| | *0.4 uL cal std/50 mL DI* | | | | | | | | | |
| 6 | VSTD005 | ICAL5 | 11-03-2020 01:45 pm | 1.00 | 5.00 mL | 0.00 mL | X110306.D | Liquid | Y | NA |
| | *1.0 uL cal std/50 mL DI* | | | | | | | | | |
| 7 | VSTD020 | ICAL6 | 11-03-2020 02:06 pm | 1.00 | 5.00 mL | 0.00 mL | X110307.D | Liquid | Y | NA |
| | *4.0 uL cal std/50 mL DI* | | | | | | | | | |
| 8 | VSTD050 | ICAL7 | 11-03-2020 02:27 pm | 1.00 | 5.00 mL | 0.00 mL | X110308.D | Liquid | Y | NA |
| | *10 uL cal std/50 mL DI* | | | | | | | | | |
| 9 | VSTD100 | ICAL8 | 11-03-2020 02:48 pm | 1.00 | 5.00 mL | 0.00 mL | X110309.D | Liquid | Y | NA |
| | *20 uL cal std/50 mL DI* | | | | | | | | | |
| 10 | VSTD150 | ICAL9 | 11-03-2020 03:09 pm | 1.00 | 5.00 mL | 0.00 mL | X110310.D | Liquid | Y | NA |
| | *30 uL cal std/50 mL DI* | | | | | | | | | |
| 11 | VSTD200 | ICAL | 11-03-2020 03:30 pm | 1.00 | 5.00 mL | 0.00 mL | X110311.D | Liquid | Y | NA |
| | *40 uL cal std/50 mL DI* | | | | | | | | | |
| 12 | BLANK | SAMP | 11-03-2020 03:51 pm | 1.00 | 5.00 mL | 0.00 mL | X110312.D | Liquid | Y | NA |
| 13 | BLANK | SAMP | 11-03-2020 04:12 pm | 1.00 | 5.00 mL | 0.00 mL | X110313.D | Liquid | Y | NA |
| 14 | ICV | ICV | 11-03-2020 04:33 pm | 1.00 | 5.00 mL | 0.00 mL | X110314.D | Liquid | Y | NA |
| | *10 uL ical std/50 mL DI* | | | | | | | | | |
| 15 | BLANK | SAMP | 11-03-2020 04:54 pm | 1.00 | 5.00 mL | 0.00 mL | X110315.D | Liquid | Y | NA |
| 16 | VLCSW-201103 | LCS | 11-03-2020 05:15 pm | 1.00 | 5.00 mL | 0.00 mL | X110316.D | Liquid | Y | NA |
| | *4.0 uL cal std/50 mL DI* | | | | | | | | | |
| 17 | BLK | SAMP | 11-03-2020 05:36 pm | 1.00 | 5.00 mL | 0.00 mL | X110317.D | Liquid | Y | NA |
| 18 | BLK | SAMP | 11-03-2020 05:57 pm | 1.00 | 5.00 mL | 0.00 mL | X110318.D | Liquid | Y | NA |
| 19 | VBLKW-201103 | MBLK | 11-03-2020 06:18 pm | 1.00 | 5.00 mL | 0.00 mL | X110319.D | Liquid | Y | NA |
| 20 | HS20101149-02 | SAMP | 11-03-2020 06:39 pm | 1.00 | 5.00 mL | 0.00 mL | X110320.D | Liquid | Y | <2 |
| 21 | HS20101149-01 | SAMP | 11-03-2020 07:00 pm | 1.00 | 5.00 mL | 0.00 mL | X110321.D | Liquid | Y | <2 |
| 22 | HS20101123-12 | SAMP | 11-03-2020 07:21 pm | 1.00 | 5.00 mL | 0.00 mL | X110322.D | Liquid | Y | NA |
| 23 | HS20101123-01 | SAMP | 11-03-2020 07:42 pm | 1.00 | 5.00 mL | 0.00 mL | X110323.D | Liquid | Y | NA |
| 24 | HS20101123-01MS | MS | 11-03-2020 08:04 pm | 1.00 | 5.00 mL | 0.00 mL | X110324.D | Liquid | Y | NA |
| | *3.5 uL cal std/40 mL samp* | | | | | | | | | |
| 25 | HS20101123-01MSD | MSD | 11-03-2020 08:25 pm | 1.00 | 5.00 mL | 0.00 mL | X110325.D | Liquid | Y | NA |
| | *3.5 uL cal std/40 mL samp* | | | | | | | | | |
| 26 | HS20101123-01 | SAMP | 11-03-2020 08:46 pm | 5.00 | 5.00 mL | 0.00 mL | X110326.D | Liquid | Y | NA |
| 27 | HS20101123-02 | SAMP | 11-03-2020 09:07 pm | 1.00 | 5.00 mL | 0.00 mL | X110327.D | Liquid | Y | NA |
| 28 | HS20101123-03 | SAMP | 11-03-2020 09:28 pm | 1.00 | 5.00 mL | 0.00 mL | X110328.D | Liquid | Y | NA |
| 29 | HS20101123-04 | SAMP | 11-03-2020 09:49 pm | 1.00 | 5.00 mL | 0.00 mL | X110329.D | Liquid | Y | NA |
| 30 | CCV-END | CCV | 11-03-2020 10:10 pm | 1.00 | 5.00 mL | 0.00 mL | X110330.D | Liquid | Y | NA |
| | *10 uL cal std/50 mL DI* | | | | | | | | | |
| 31 | BFB | TUNE | 11-03-2020 10:31 pm | 1.00 | 0.00 mL | 0.00 mL | Y110301a.D | Liquid | Y | NA |
| 32 | BFB | TUNE | 11-03-2020 10:52 pm | 1.00 | 0.00 mL | 0.00 mL | Y110302.D | Liquid | Y | NA |
| 33 | CCV | CCV | 11-03-2020 11:13 pm | 1.00 | 5.00 mL | 0.00 mL | Y110303.D | Liquid | Y | NA |

# MSVOA06 -Logbook

| # | Samp ID | Type | Analyzed | DF | Init Wt/Vol | Final Vol | File ID | Matrix | Status | pH |
|---|---|---|---|---|---|---|---|---|---|---|
| 34 | BLANK | SAMP | 11-03-2020 11:34 pm | 1.00 | 5.00 mL | 0.00 mL | Y110304.D | Liquid | Y | NA |
| 35 | VLCSW-201103 | LCS | 11-03-2020 11:55 pm | 1.00 | 5.00 mL | 0.00 mL | Y110305.D | Liquid | Y | NA |
| 36 | BLK | SAMP | 11-04-2020 12:16 am | 1.00 | 5.00 mL | 0.00 mL | Y110306.D | Liquid | Y | NA |
| 37 | VBLKW-201103 | MBLK | 11-04-2020 12:37 am | 1.00 | 5.00 mL | 0.00 mL | Y110307.D | Liquid | Y | NA |
| 38 | HS20101240-10 | SAMP | 11-04-2020 12:58 am | 1.00 | 5.00 mL | 0.00 mL | Y110308.D | Liquid | Y | NA |
| 39 | HS20101123-10 | SAMP | 11-04-2020 01:19 am | 500.0( | 5.00 mL | 0.00 mL | Y110309.D | Liquid | Y | NA |
| 40 | HS20101123-11 | SAMP | 11-04-2020 01:40 am | 500.0( | 5.00 mL | 0.00 mL | Y110310.D | Liquid | Y | NA |
| 41 | HS20101240-09 | SAMP | 11-04-2020 02:01 am | 500.0( | 5.00 mL | 0.00 mL | Y110311.D | Liquid | Y | NA |
| 42 | HS20101123-05 | SAMP | 11-04-2020 02:22 am | 5.00 | 5.00 mL | 0.00 mL | Y110312.D | Liquid | Y | NA |
| 43 | HS20101123-05 | SAMP | 11-04-2020 02:43 am | 25.00 | 5.00 mL | 0.00 mL | Y110313.D | Liquid | Y | NA |
| 44 | HS20101123-05MS | MS | 11-04-2020 03:04 am | 25.00 | 5.00 mL | 0.00 mL | Y110314.D | Liquid | Y | NA |
| 45 | HS20101123-05MSD | MSD | 11-04-2020 03:25 am | 25.00 | 5.00 mL | 0.00 mL | Y110315.D | Liquid | Y | NA |
| 46 | BLK | SAMP | 11-04-2020 03:46 am | 1.00 | 5.00 mL | 0.00 mL | Y110316.D | Liquid | Y | NA |
| 47 | HS20101240-01 | SAMP | 11-04-2020 04:07 am | 1.00 | 5.00 mL | 0.00 mL | Y110317.D | Liquid | Y | NA |
| 48 | HS20101240-02 | SAMP | 11-04-2020 04:29 am | 1.00 | 5.00 mL | 0.00 mL | Y110318.D | Liquid | Y | NA |
| 49 | HS20101240-03 | SAMP | 11-04-2020 04:50 am | 1.00 | 5.00 mL | 0.00 mL | Y110319.D | Liquid | Y | NA |
| 50 | HS20101240-06 | SAMP | 11-04-2020 05:11 am | 1.00 | 5.00 mL | 0.00 mL | Y110320.D | Liquid | Y | NA |
| 51 | HS20101240-04 | SAMP | 11-04-2020 05:32 am | 1.00 | 5.00 mL | 0.00 mL | Y110321.D | Liquid | Y | NA |
| 52 | HS20101240-04 | SAMP | 11-04-2020 05:53 am | 10.00 | 5.00 mL | 0.00 mL | Y110322.D | Liquid | Y | NA |
| 53 | HS20101123-06 | SAMP | 11-04-2020 06:14 am | 5.00 | 5.00 mL | 0.00 mL | Y110323.D | Liquid | Y | NA |
| 54 | HS20101123-06 | SAMP | 11-04-2020 06:35 am | 25.00 | 5.00 mL | 0.00 mL | Y110324.D | Liquid | Y | NA |
| 55 | HS20101123-07 | SAMP | 11-04-2020 06:56 am | 5.00 | 5.00 mL | 0.00 mL | Y110325.D | Liquid | Y | NA |
| 56 | HS20101123-07 | SAMP | 11-04-2020 07:17 am | 50.00 | 5.00 mL | 0.00 mL | Y110326.D | Liquid | Y | NA |
| 57 | HS20101123-08 | SAMP | 11-04-2020 07:38 am | 5.00 | 5.00 mL | 0.00 mL | Y110327.D | Liquid | Y | NA |
| 58 | HS20101123-08 | SAMP | 11-04-2020 07:59 am | 50.00 | 5.00 mL | 0.00 mL | Y110328.D | Liquid | Y | NA |
| 59 | HS20101123-09 | SAMP | 11-04-2020 08:20 am | 50.00 | 5.00 mL | 0.00 mL | Y110329.D | Liquid | Y | NA |
| 60 | HS20101123-09 | SAMP | 11-04-2020 08:41 am | 500.0( | 5.00 mL | 0.00 mL | Y110330.D | Liquid | Y | NA |
| 61 | CCV-END | CCV | 11-04-2020 09:02 am | 1.00 | 5.00 mL | 0.00 mL | Y110331.D | Liquid | Y | NA |

| Chemical | Value |
|---|---|
| SURR SPK ID | 31106-51-06 |
| IS ID | 31106-51-03 |
| CAL STD ID | 31106-54-01/02 |
| BFB ID | 31106-51-06 |
| pH Paper | 634-64-*10 |

# FORM 3
## WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20110128

Matrix Spike - Sample No.: ICV

| COMPOUND | SPIKE ADDED (ug/L) | SAMPLE AMOUNT () | % REC # | QC. LIMITS REC. |
|---|---|---|---|---|
| cis-1,3-Dichloropropene | 50.00 | 50.39 | 101 | 80-120 |
| trans-1,3-Dichloroprope | 50.00 | 51.77 | 104 | 80-120 |
| 1,3-Dichlorobenzene | 50.00 | 47.54 | 95 | 80-120 |
| 2,2-Dichloropropane | 50.00 | 48.07 | 96 | 80-120 |
| 1,1-Dichloropropene | 50.00 | 47.56 | 95 | 80-120 |
| Dibromomethane | 50.00 | 49.77 | 100 | 80-120 |
| 1,2-Dibromoethane | 50.00 | 47.81 | 96 | 80-120 |
| trans-1,2-Dichloroethen | 50.00 | 45.78 | 92 | 80-120 |
| 1,1,1,2-Tetrachloroetha | 50.00 | 47.00 | 94 | 80-120 |
| 1,1,1-Trichloroethane | 50.00 | 47.63 | 95 | 80-120 |
| 1,1,2,2-Tetrachloroetha | 50.00 | 48.95 | 98 | 80-120 |
| Toluene | 50.00 | 42.99 | 86 | 80-120 |
| 1,1,2-Trichloroethane | 50.00 | 47.47 | 95 | 80-120 |
| 1,1-Dichloroethane | 50.00 | 47.54 | 95 | 80-120 |
| 1,1-Dichloroethene | 50.00 | 47.17 | 94 | 80-120 |
| Trichlorofluoromethane | 50.00 | 46.74 | 93 | 80-120 |
| 1,2,3-Trichlorobenzene | 50.00 | 59.72 | 119 | 80-120 |
| Tetrachloroethene | 50.00 | 45.62 | 91 | 80-120 |
| 1,2,4-Trichlorobenzene | 50.00 | 55.59 | 111 | 80-120 |
| 1,2,4-Trimethylbenzene | 50.00 | 49.35 | 99 | 80-120 |
| tert-Butylbenzene | 50.00 | 46.17 | 92 | 80-120 |
| Trichloroethene | 50.00 | 49.82 | 100 | 80-120 |
| 1,2-Dichlorobenzene | 50.00 | 48.17 | 96 | 80-120 |
| 1,2-Dichloroethane | 50.00 | 48.80 | 98 | 80-120 |
| 1,2-Dichloropropane | 50.00 | 45.70 | 91 | 80-120 |
| 1,3,5-Trimethylbenzene | 50.00 | 47.59 | 95 | 80-120 |
| 1,3-Dichloropropane | 50.00 | 46.05 | 92 | 80-120 |
| 1,4-Dichlorobenzene | 50.00 | 48.35 | 97 | 80-120 |

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

* Values outside of QC limits

COMMENTS: _____

_____

FORM III VOA

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20110128

Matrix Spike - Sample No.: ICV

| COMPOUND | SPIKE ADDED (ug/L) | SAMPLE AMOUNT () | % REC # | QC. LIMITS REC. |
|---|---|---|---|---|
| 2-Butanone | 100.00 | 106.06 | 106 | 80-120 |
| 2-Chlorotoluene | 50.00 | 46.44 | 93 | 80-120 |
| 2-Hexanone | 100.00 | 89.67 | 90 | 80-120 |
| 4-Chlorotoluene | 50.00 | 46.72 | 93 | 80-120 |
| Styrene | 50.00 | 51.43 | 103 | 80-120 |
| 4-Methyl-2-Pentanone | 100.00 | 93.77 | 94 | 80-120 |
| Acetone | 100.00 | 119.63 | 120 | 80-120 |
| Benzene | 50.00 | 46.99 | 94 | 80-120 |
| Bromobenzene | 50.00 | 45.21 | 90 | 80-120 |
| Bromochloromethane | 50.00 | 48.42 | 97 | 80-120 |
| Bromodichloromethane | 50.00 | 49.94 | 100 | 80-120 |
| Bromoform | 50.00 | 43.20 | 86 | 80-120 |
| Bromomethane | 50.00 | 46.78 | 94 | 80-120 |
| Carbon Disulfide | 100.00 | 92.20 | 92 | 80-120 |
| Carbon Tetrachloride | 50.00 | 49.72 | 99 | 80-120 |
| Chlorobenzene | 50.00 | 46.28 | 92 | 80-120 |
| Chloroethane | 50.00 | 44.95 | 90 | 80-120 |
| Chloroform | 50.00 | 46.96 | 94 | 80-120 |
| Chloromethane | 50.00 | 50.02 | 100 | 80-120 |
| cis-1,2-Dichloroethene | 50.00 | 47.87 | 96 | 80-120 |
| Dibromochloromethane | 50.00 | 50.15 | 100 | 80-120 |
| Dichlorodifluoromethane | 50.00 | 52.73 | 105 | 80-120 |
| Ethylbenzene | 50.00 | 47.80 | 96 | 80-120 |
| Hexachlorobutadiene | 50.00 | 52.32 | 105 | 80-120 |
| Isopropylbenzene | 50.00 | 44.31 | 89 | 80-120 |
| m,p-Xylenes | 100.00 | 102.37 | 102 | 80-120 |
| Methylene Chloride | 50.00 | 45.39 | 91 | 80-120 |
| n-Butylbenzene | 50.00 | 44.86 | 90 | 80-120 |

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

* Values outside of QC limits

COMMENTS: _____

_____

FORM III VOA

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20110128

Matrix Spike - Sample No.: ICV

| COMPOUND | SPIKE ADDED (ug/L) | SAMPLE AMOUNT () | % REC # | QC. LIMITS REC. |
|---|---|---|---|---|
| n-Propylbenzene | 50.00 | 48.09 | 96 | 80-120 |
| Naphthalene | 50.00 | 59.94 | 120 | 80-120 |
| o-Xylene | 50.00 | 49.24 | 98 | 80-120 |
| sec-Butylbenzene | 50.00 | 45.15 | 90 | 80-120 |
| Vinyl Chloride | 50.00 | 49.52 | 99 | 80-120 |
| 1,2,3-Trichloropropane | 50.00 | 49.07 | 98 | 80-120 |
| p-Isopropyltoluene | 50.00 | 49.28 | 98 | 80-120 |
| 1,2-Dibromo-3-Chloropro | 50.00 | 55.06 | 110 | 80-120 |
| Freon TF | 50.00 | 45.39 | 91 | 80-120 |

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

* Values outside of QC limits

COMMENTS: _____

_____

FORM III VOA

# FORM 5
## VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
## BROMOFLUOROBENZENE (BFB)

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20110128

Lab File ID: X110301 BFB Injection Date: 11/03/20

Instrument ID: VOA6 BFB Injection Time: 1140

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) N

| m/e | ION ABUNDANCE CRITERIA | % RELATIVE ABUNDANCE |
|---|---|---|
| 50 | 15.0 - 40.0% of mass 95 | 26.5 |
| 75 | 30.0 - 60.0% of mass 95 | 57.7 |
| 95 | Base Peak, 100% relative abundance | 100.0 |
| 96 | 5.0 - 9.0% of mass 95 | 6.7 |
| 173 | Less than 2.0% of mass 174 | 1.3 ( 1.6)1 |
| 174 | Greater than 50.0% of mass 95 | 82.0 |
| 175 | 5.0 - 9.0% of mass 174 | 6.5 ( 7.9)1 |
| 176 | 95.0 - 101.0% of mass 174 | 78.9 ( 96.3)1 |
| 177 | 5.0 - 9.0% of mass 176 | 4.5 ( 5.7)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 | VSTD000.25 | VSTD000.25 | X110302 | 11/03/20 | 1201 |
| 02 | VSTD000.5 | VSTD000.5 | X110303 | 11/03/20 | 1243 |
| 03 | VSTD001 | VSTD001 | X110304 | 11/03/20 | 1304 |
| 04 | VSTD002 | VSTD002 | X110305 | 11/03/20 | 1324 |
| 05 | VSTD005 | VSTD005 | X110306 | 11/03/20 | 1345 |
| 06 | VSTD020 | VSTD020 | X110307 | 11/03/20 | 1406 |
| 07 | VSTD050 | VSTD050 | X110308 | 11/03/20 | 1427 |
| 08 | VSTD100 | VSTD100 | X110309 | 11/03/20 | 1448 |
| 09 | VSTD150 | VSTD150 | X110310 | 11/03/20 | 1509 |
| 10 | VSTD200 | VSTD200 | X110311 | 11/03/20 | 1530 |
| 11 | ICV | ICV | X110314 | 11/03/20 | 1633 |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |
| 16 | | | | | |
| 17 | | | | | |
| 18 | | | | | |
| 19 | | | | | |
| 20 | | | | | |
| 21 | | | | | |
| 22 | | | | | |

# FORM 6
## VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20110128

Instrument ID: VOA6 Calibration Date(s): 11/03/20 11/03/20

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1201 1530

LAB FILE ID: RF0.25: X110302 RF0.5: X110303 RF1: X110304
RF2: X110305 RF5: X110306 RF20: X110307

| COMPOUND | RF0.25 | RF0.5 | RF1 | RF2 | RF5 | RF20 |
|---|---|---|---|---|---|---|
| cis-1,3-Dichloropropene | | 0.555 | 0.555 | 0.606 | 0.565 | 0.521 |
| trans-1,3-Dichloropropene | | 0.505 | 0.434 | 0.446 | 0.482 | 0.473 |
| 1,3-Dichlorobenzene | | 1.878 | 1.622 | 1.375 | 1.316 | 1.309 |
| 2,2-Dichloropropane | | 1.236 | 1.097 | 1.053 | 1.008 | 0.841 |
| 1,1-Dichloropropene | | 0.587 | 0.468 | 0.530 | 0.456 | 0.381 |
| Dibromomethane | | 0.234 | 0.228 | 0.300 | 0.292 | 0.238 |
| 1,2-Dibromoethane | | 0.442 | 0.390 | 0.310 | 0.345 | 0.367 |
| trans-1,2-Dichloroethene | | 0.674 | 0.606 | 0.639 | 0.562 | 0.511 |
| 1,1,1,2-Tetrachloroethane | | 0.414 | 0.388 | 0.299 | 0.336 | 0.313 |
| 1,1,1-Trichloroethane | | 1.186 | 0.964 | 1.031 | 0.989 | 0.887 |
| 1,1,2,2-Tetrachloroethane | | 1417 | 1837 | 3824 | 10630 | 40864 |
| Toluene | | 2.297 | 2.090 | 1.978 | 1.740 | 1.477 |
| 1,1,2-Trichloroethane | | 0.396 | 0.324 | 0.281 | 0.290 | 0.275 |
| 1,1-Dichloroethane | | 1.450 | 1.221 | 1.098 | 1.248 | 1.028 |
| 1,1-Dichloroethene | | 1.141 | 1.038 | 0.937 | 0.959 | 0.839 |
| Trichlorofluoromethane | | 2.234 | 2.132 | 1.965 | 1.836 | 1.654 |
| 1,2,3-Trichlorobenzene | | 370 | 511 | 1012 | 2533 | 8500 |
| Tetrachloroethene | | 0.332 | 0.300 | 0.240 | 0.252 | 0.216 |
| 1,2,4-Trichlorobenzene | | 448 | 1196 | 2022 | 4083 | 15476 |
| 1,2,4-Trimethylbenzene | | 3.271 | 2.645 | 2.483 | 2.450 | 2.480 |
| tert-Butylbenzene | | 3197 | 4630 | 9232 | 20057 | 78132 |
| Trichloroethene | | 0.415 | 0.317 | 0.377 | 0.319 | 0.290 |
| 1,2-Dichlorobenzene | | 1.564 | 1.358 | 1.354 | 1.301 | 1.238 |
| 1,2-Dichloroethane | | 0.666 | 0.598 | 0.531 | 0.549 | 0.490 |
| 1,2-Dichloropropane | | 0.479 | 0.383 | 0.377 | 0.386 | 0.345 |
| 1,3,5-Trimethylbenzene | | 3.313 | 2.742 | 2.746 | 2.266 | 2.382 |
| 1,3-Dichloropropane | | 0.732 | 0.640 | 0.594 | 0.599 | 0.567 |
| 1,4-Dichlorobenzene | | 1.675 | 1.640 | 1.634 | 1.468 | 1.405 |
| 2-Butanone | | 0.238 | 0.229 | 0.230 | 0.240 | 0.216 |
| 2-Chlorotoluene | | 2.999 | 2.505 | 2.360 | 2.254 | 2.060 |
| 2-Hexanone | | 2217 | 2282 | 5963 | 14581 | 61091 |
| 4-Chlorotoluene | | 3.757 | 2.811 | 2.726 | 2.631 | 2.548 |
| Styrene | | 1.143 | 0.959 | 0.938 | 0.941 | 1.024 |
| 4-Methyl-2-Pentanone | | 0.475 | 0.328 | 0.348 | 0.392 | 0.351 |
| Acetone | | 3564 | 3869 | 6814 | 13265 | 43227 |
| Benzene | | 1.791 | 1.521 | 1.407 | 1.367 | 1.215 |
| Bromobenzene | | 1.068 | 1.030 | 0.876 | 0.824 | 0.811 |
| Bromochloromethane | | 0.265 | 0.362 | 0.357 | 0.384 | 0.301 |
| Bromodichloromethane | | 0.652 | 0.496 | 0.559 | 0.510 | 0.445 |
| Bromoform | | 543 | 772 | 1884 | 4618 | 20267 |
| Bromomethane | | 1.097 | 0.978 | 0.937 | 0.915 | 0.774 |
| Carbon Disulfide | | 1.826 | 1.783 | 1.822 | 1.734 | 1.526 |
| Carbon Tetrachloride | | 0.490 | 0.504 | 0.471 | 0.433 | 0.364 |
| Chlorobenzene | | 1.191 | 1.217 | 1.010 | 0.969 | 0.944 |

# FORM 6
## VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2011012

Instrument ID: VOA6 Calibration Date(s): 11/03/20 11/03/20

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1201 1530

LAB FILE ID: RF0.25: X110302 RF0.5: X110303 RF1: X110304
RF2: X110305 RF5: X110306 RF20: X110307

| COMPOUND | RF0.25 | RF0.5 | RF1 | RF2 | RF5 | RF20 |
|---|---|---|---|---|---|---|
| Chloroethane | | 0.849 | 0.977 | 0.931 | 0.814 | 0.655 |
| Chloroform | | 1.342 | 1.228 | 1.457 | 1.300 | 1.142 |
| Chloromethane | | 1628 | 2614 | 4801 | 11006 | 37225 |
| cis-1,2-Dichloroethene | | 0.899 | 0.654 | 0.758 | 0.744 | 0.638 |
| Dibromochloromethane | | 0.386 | 0.338 | 0.326 | 0.345 | 0.355 |
| Dichlorodifluoromethane | | 0.665 | 0.653 | 0.627 | 0.665 | 0.544 |
| Ethylbenzene | | 0.625 | 0.598 | 0.534 | 0.447 | 0.438 |
| Hexachlorobutadiene | | 348 | 486 | 1206 | 2539 | 8666 |
| Isopropylbenzene | | 4684 | 7329 | 13777 | 31967 | 125533 |
| m,p-Xylenes | | 0.720 | 0.603 | 0.543 | 0.580 | 0.570 |
| Methylene Chloride | | 0.727 | 0.763 | 0.707 | 0.716 | 0.592 |
| n-Butylbenzene | | 3247 | 5444 | 11381 | 22870 | 94869 |
| n-Propylbenzene | | 5.006 | 3.812 | 3.874 | 3.443 | 3.384 |
| Naphthalene | | 632 | 1364 | 2622 | 6669 | 22879 |
| o-Xylene | | 0.665 | 0.587 | 0.608 | 0.567 | 0.556 |
| sec-Butylbenzene | | 4540 | 7265 | 13806 | 29458 | 115155 |
| Vinyl Chloride | | 1.215 | 1.206 | 1.116 | 1.106 | 0.992 |
| 1,2,3-Trichloropropane | | 0.780 | 0.800 | 0.658 | 0.685 | 0.707 |
| p-Isopropyltoluene | | 2.596 | 2.546 | 2.722 | 2.339 | 2.228 |
| 1,2-Dibromo-3-Chloropropane | | | 69 | 195 | 741 | 2714 |
| Freon TF | | 1.113 | 1.056 | 0.939 | 0.829 | 0.742 |
| 4-Bromofluorobenzene | | 1396 | 2114 | 4690 | 11013 | 41523 |
| Dibromofluoromethane | | 0.661 | 0.697 | 0.668 | 0.638 | 0.615 |
| Toluene-d8 | | 1.597 | 1.287 | 1.252 | 1.177 | 1.190 |
| 1,2-Dichloroethane-d4 | | 1490 | 2593 | 5018 | 11874 | 44472 |

# FORM 6
## VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2011012

Instrument ID: VOA6 Calibration Date(s): 11/03/20 11/03/20

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1201 1530

LAB FILE ID: RF50: X110308 RF100: X110309 RF150: X110310
RF200: X110311

| COMPOUND | RF50 | RF100 | RF150 | RF200 |
|---|---|---|---|---|
| cis-1,3-Dichloropropene | 0.559 | 0.550 | 0.562 | 0.547 |
| trans-1,3-Dichloropropene | 0.510 | 0.539 | 0.509 | 0.531 |
| 1,3-Dichlorobenzene | 1.333 | 1.419 | 1.439 | 1.497 |
| 2,2-Dichloropropane | 0.928 | 0.994 | 1.087 | 1.066 |
| 1,1-Dichloropropene | 0.441 | 0.449 | 0.451 | 0.434 |
| Dibromomethane | 0.250 | 0.242 | 0.245 | 0.245 |
| 1,2-Dibromoethane | 0.360 | 0.378 | 0.381 | 0.401 |
| trans-1,2-Dichloroethene | 0.575 | 0.639 | 0.689 | 0.711 |
| 1,1,1,2-Tetrachloroethane | 0.342 | 0.375 | 0.356 | 0.386 |
| 1,1,1-Trichloroethane | 0.985 | 1.065 | 1.151 | 1.136 |
| 1,1,2,2-Tetrachloroethane | 107818 | 223385 | 340740 | 491582 |
| Toluene | 1.546 | 1.672 | 1.784 | 1.884 |
| 1,1,2-Trichloroethane | 0.299 | 0.302 | 0.295 | 0.314 |
| 1,1-Dichloroethane | 1.069 | 1.180 | 1.236 | 1.287 |
| 1,1-Dichloroethene | 0.852 | 0.872 | 0.924 | 0.927 |
| Trichlorofluoromethane | 1.659 | 1.757 | 1.849 | 1.872 |
| 1,2,3-Trichlorobenzene | 26867 | 54420 | 92101 | 134528 |
| Tetrachloroethene | 0.263 | 0.285 | 0.286 | 0.302 |
| 1,2,4-Trichlorobenzene | 49484 | 104687 | 173285 | 250652 |
| 1,2,4-Trimethylbenzene | 2.663 | 2.992 | 3.048 | 3.141 |
| tert-Butylbenzene | 255346 | 626984 | 1005736 | 1422110 |
| Trichloroethene | 0.323 | 0.318 | 0.319 | 0.320 |
| 1,2-Dichlorobenzene | 1.297 | 1.352 | 1.436 | 1.521 |
| 1,2-Dichloroethane | 0.532 | 0.495 | 0.501 | 0.490 |
| 1,2-Dichloropropane | 0.345 | 0.340 | 0.334 | 0.340 |
| 1,3,5-Trimethylbenzene | 2.738 | 2.968 | 3.207 | 3.313 |
| 1,3-Dichloropropane | 0.601 | 0.596 | 0.581 | 0.603 |
| 1,4-Dichlorobenzene | 1.418 | 1.495 | 1.475 | 1.523 |
| 2-Butanone | 0.216 | 0.246 | 0.227 | 0.249 |
| 2-Chlorotoluene | 2.067 | 2.232 | 2.292 | 2.364 |
| 2-Hexanone | 169392 | 370165 | 562101 | 809663 |
| 4-Chlorotoluene | 2.749 | 2.982 | 3.181 | 3.309 |
| Styrene | 1.084 | 1.243 | 1.347 | |
| 4-Methyl-2-Pentanone | 0.368 | 0.378 | 0.378 | 0.400 |
| Acetone | 87016 | 169628 | 230937 | 315772 |
| Benzene | 1.316 | 1.344 | 1.308 | 1.299 |
| Bromobenzene | 0.802 | 0.817 | 0.840 | 0.849 |
| Bromochloromethane | 0.333 | 0.348 | 0.373 | 0.376 |
| Bromodichloromethane | 0.500 | 0.474 | 0.496 | 0.491 |
| Bromoform | 56683 | 133700 | 217258 | 300900 |
| Bromomethane | 0.777 | 0.905 | 1.059 | |
| Carbon Disulfide | 1.622 | 1.688 | 1.865 | 1.910 |
| Carbon Tetrachloride | 0.428 | 0.445 | 0.446 | 0.447 |
| Chlorobenzene | 0.965 | 1.046 | 1.091 | 1.184 |

# FORM 6
## VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2011012

Instrument ID: VOA6 Calibration Date(s): 11/03/20 11/03/20

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1201 1530

LAB FILE ID: RF50: X110308 RF100: X110309 RF150: X110310
RF200: X110311

| COMPOUND | RF50 | RF100 | RF150 | RF200 |
|---|---|---|---|---|
| Chloroethane | 0.657 | 0.685 | 0.744 | 0.778 |
| Chloroform | 1.201 | 1.246 | 1.298 | 1.301 |
| Chloromethane | 97255 | 217141 | 339041 | 432608 |
| cis-1,2-Dichloroethene | 0.689 | 0.703 | 0.758 | 0.755 |
| Dibromochloromethane | 0.378 | 0.391 | 0.399 | 0.408 |
| Dichlorodifluoromethane | 0.570 | 0.691 | 0.710 | 0.701 |
| Ethylbenzene | 0.504 | 0.553 | 0.581 | 0.599 |
| Hexachlorobutadiene | 31815 | 74152 | 115884 | 168470 |
| Isopropylbenzene | 378050 | 912871 | 1491458 | |
| m,p-Xylenes | 0.650 | 0.735 | 0.793 | |
| Methylene Chloride | 0.616 | 0.656 | 0.697 | 0.705 |
| n-Butylbenzene | 336254 | 808796 | 1360339 | 1951034 |
| n-Propylbenzene | 3.710 | 4.066 | 4.227 | 4.304 |
| Naphthalene | 71142 | 144587 | 248976 | 363990 |
| o-Xylene | 0.623 | 0.684 | 0.744 | 0.789 |
| sec-Butylbenzene | 381699 | 940164 | 1526507 | 2142350 |
| Vinyl Chloride | 1.014 | 1.087 | 1.098 | 1.108 |
| 1,2,3-Trichloropropane | 0.697 | 0.692 | 0.632 | 0.666 |
| p-Isopropyltoluene | 2.770 | 2.964 | 3.023 | 3.116 |
| 1,2-Dibromo-3-Chloropropane | 7134 | 14813 | 23770 | 32792 |
| Freon TF | 0.822 | 0.878 | 0.922 | 0.914 |
| 4-Bromofluorobenzene | 114211 | 252308 | 414999 | 565367 |
| Dibromofluoromethane | 0.667 | 0.679 | 0.735 | 0.700 |
| Toluene-d8 | 1.283 | 1.388 | 1.411 | 1.435 |
| 1,2-Dichloroethane-d4 | 128500 | 253050 | 404360 | |

FORM VI VOA

# FORM 6
## VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2011012

Instrument ID: VOA6 Calibration Date(s): 11/03/20 11/03/20

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1201 1530

| COMPOUND | CURVE | COEFFICENTS A0 | A1 | A2 | %RSD OR R^2 | MAX %RSD OR R^2 |
|---|---|---|---|---|---|---|
| cis-1,3-Dichloropropene | AVRG | | 0.55780943 | | 3.955 | 15.000 |
| trans-1,3-Dichloropropene | AVRG | | 0.49211543 | | 7.391 | 15.000 |
| 1,3-Dichlorobenzene | AVRG | | 1.46537724 | | 12.558 | 15.000 |
| 2,2-Dichloropropane | AVRG | | 1.03457358 | | 10.794 | 15.000 |
| 1,1-Dichloropropene | AVRG | | 0.46627025 | | 12.750 | 15.000 |
| Dibromomethane | AVRG | | 0.25275475 | | 10.153 | 15.000 |
| 1,2-Dibromoethane | AVRG | | 0.37495263 | | 9.802 | 15.000 |
| trans-1,2-Dichloroethene | AVRG | | 0.62293308 | | 10.488 | 15.000 |
| 1,1,1,2-Tetrachloroethane | AVRG | | 0.35670595 | | 10.518 | 15.000 |
| 1,1,1-Trichloroethane | AVRG | | 1.04399886 | | 9.473 | 15.000 |
| 1,1,2,2-Tetrachloroethane | LINR | -1.18e-002 | 1.22607927 | | 0.9988660 | 0.9900000 |
| Toluene | AVRG | | 1.82980395 | | 14.346 | 15.000 |
| 1,1,2-Trichloroethane | AVRG | | 0.30839143 | | 11.677 | 15.000 |
| 1,1-Dichloroethane | AVRG | | 1.20185017 | | 10.670 | 15.000 |
| 1,1-Dichloroethene | AVRG | | 0.94335689 | | 10.151 | 15.000 |
| Trichlorofluoromethane | AVRG | | 1.88440525 | | 10.508 | 15.000 |
| 1,2,3-Trichlorobenzene | LINR | 3.538e-002 | 4.50090118 | | 0.9962012 | 0.9900000 |
| Tetrachloroethene | AVRG | | 0.27525384 | | 12.943 | 15.000 |
| 1,2,4-Trichlorobenzene | LINR | 3.525e-002 | 2.40273119 | | 0.9974951 | 0.9900000 |
| 1,2,4-Trimethylbenzene | AVRG | | 2.79709892 | | 11.338 | 15.000 |
| tert-Butylbenzene | LINR | 4.988e-002 | 0.41728152 | | 0.9983081 | 0.9900000 |
| Trichloroethene | AVRG | | 0.33320083 | | 11.461 | 15.000 |
| 1,2-Dichlorobenzene | AVRG | | 1.37998821 | | 7.772 | 15.000 |
| 1,2-Dichloroethane | AVRG | | 0.53912868 | | 10.962 | 15.000 |
| 1,2-Dichloropropane | AVRG | | 0.37001393 | | 12.328 | 15.000 |
| 1,3,5-Trimethylbenzene | AVRG | | 2.85281152 | | 13.381 | 15.000 |
| 1,3-Dichloropropane | AVRG | | 0.61260091 | | 7.998 | 15.000 |
| 1,4-Dichlorobenzene | AVRG | | 1.52588695 | | 6.557 | 15.000 |
| 2-Butanone | AVRG | | 0.23243307 | | 5.170 | 15.000 |
| 2-Chlorotoluene | AVRG | | 2.34840479 | | 12.008 | 15.000 |
| 2-Hexanone | LINR | 7.417e-002 | 2.84952067 | | 0.9976837 | 0.9900000 |
| 4-Chlorotoluene | AVRG | | 2.96611559 | | 13.086 | 15.000 |
| Styrene | AVRG | | 1.08499974 | | 13.894 | 15.000 |
| 4-Methyl-2-Pentanone | AVRG | | 0.37984642 | | 11.098 | 15.000 |
| Acetone | LINR | -0.1746572 | 3.95328097 | | 0.9984390 | 0.9900000 |
| Benzene | AVRG | | 1.39659388 | | 12.173 | 15.000 |
| Bromobenzene | AVRG | | 0.87979464 | | 11.244 | 15.000 |
| Bromochloromethane | AVRG | | 0.34435784 | | 11.365 | 15.000 |
| Bromodichloromethane | AVRG | | 0.51371499 | | 11.709 | 15.000 |
| Bromoform | LINR | 6.227e-002 | 3.78260975 | | 0.9973049 | 0.9900000 |
| Bromomethane | AVRG | | 0.93048543 | | 12.546 | 15.000 |
| Carbon Disulfide | AVRG | | 1.75295469 | | 7.027 | 15.000 |
| Carbon Tetrachloride | AVRG | | 0.44767391 | | 9.012 | 15.000 |
| Chlorobenzene | AVRG | | 1.06851845 | | 9.991 | 15.000 |

FORM VI VOA

# FORM 6
## VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2011012

Instrument ID: VOA6 Calibration Date(s): 11/03/20 11/03/20

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1201 1530

| COMPOUND | CURVE | COEFFICENTS A0 | A1 | A2 | %RSD OR R^2 | MAX %RSD OR R^2 |
|---|---|---|---|---|---|---|
| Chloroethane | AVRG | | 0.78782987 | | 14.767 | 15.000 |
| Chloroform | AVRG | | 1.27939613 | | 7.057 | 15.000 |
| Chloromethane | LINR | 1.757e-002 | 1.38746336 | | 0.9973772 | 0.9900000 |
| cis-1,2-Dichloroethene | AVRG | | 0.73325309 | | 10.535 | 15.000 |
| Dibromochloromethane | AVRG | | 0.36952464 | | 7.956 | 15.000 |
| Dichlorodifluoromethane | AVRG | | 0.64746942 | | 8.872 | 15.000 |
| Ethylbenzene | AVRG | | 0.54207886 | | 12.387 | 15.000 |
| Hexachlorobutadiene | LINR | 4.656e-002 | 3.55079816 | | 0.9979368 | 0.9900000 |
| Isopropylbenzene | LINR | 5.23e-002 | 0.57225016 | | 0.9958485 | 0.9900000 |
| m,p-Xylenes | AVRG | | 0.64929693 | | 13.963 | 15.000 |
| Methylene Chloride | AVRG | | 0.68649235 | | 8.025 | 15.000 |
| n-Butylbenzene | LINR | 7.209e-002 | 0.30552156 | | 0.9964224 | 0.9900000 |
| n-Propylbenzene | AVRG | | 3.98059418 | | 12.499 | 15.000 |
| Naphthalene | LINR | 4.279e-002 | 1.66365308 | | 0.9954951 | 0.9900000 |
| o-Xylene | AVRG | | 0.64704750 | | 12.405 | 15.000 |
| sec-Butylbenzene | LINR | 5.28e-002 | 0.27632223 | | 0.9981941 | 0.9900000 |
| Vinyl Chloride | AVRG | | 1.10477653 | | 6.709 | 15.000 |
| 1,2,3-Trichloropropane | AVRG | | 0.70208557 | | 7.819 | 15.000 |
| p-Isopropyltoluene | AVRG | | 2.70057524 | | 11.256 | 15.000 |
| 1,2-Dibromo-3-Chloropropane | LINR | -6.79e-003 | 18.1373969 | | 0.9996332 | 0.9900000 |
| Freon TF | AVRG | | 0.91286483 | | 12.667 | 15.000 |
| 4-Bromofluorobenzene | 2ORDR | 6.046e-003 | 2.31167671 | -0.1639271 | 0.9997602 | 0.9900000 |
| Dibromofluoromethane | AVRG | | 0.67335658 | | 5.250 | 15.000 |
| Toluene-d8 | AVRG | | 1.33549893 | | 10.085 | 15.000 |
| 1,2-Dichloroethane-d4 | 2ORDR | -9.78e-003 | 1.33740959 | -8.05e-002 | 0.9996886 | 0.9900000 |

FORM VI VOA

Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110301.D



Date : 03-NOV-2020 11:40

Client ID: BFB

Instrument: voa6.i

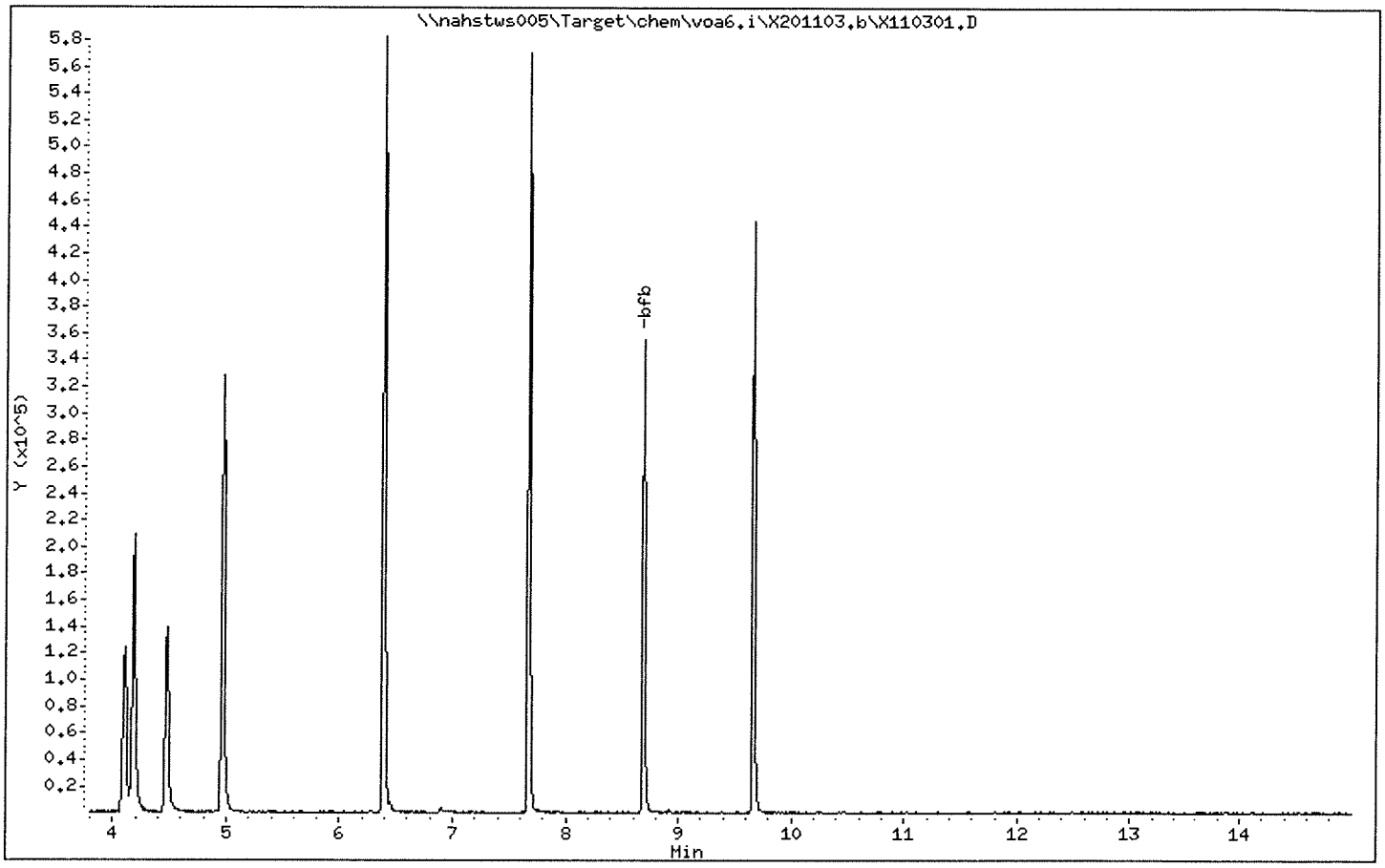
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110301.D



Date : 03-NOV-2020 11:40

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

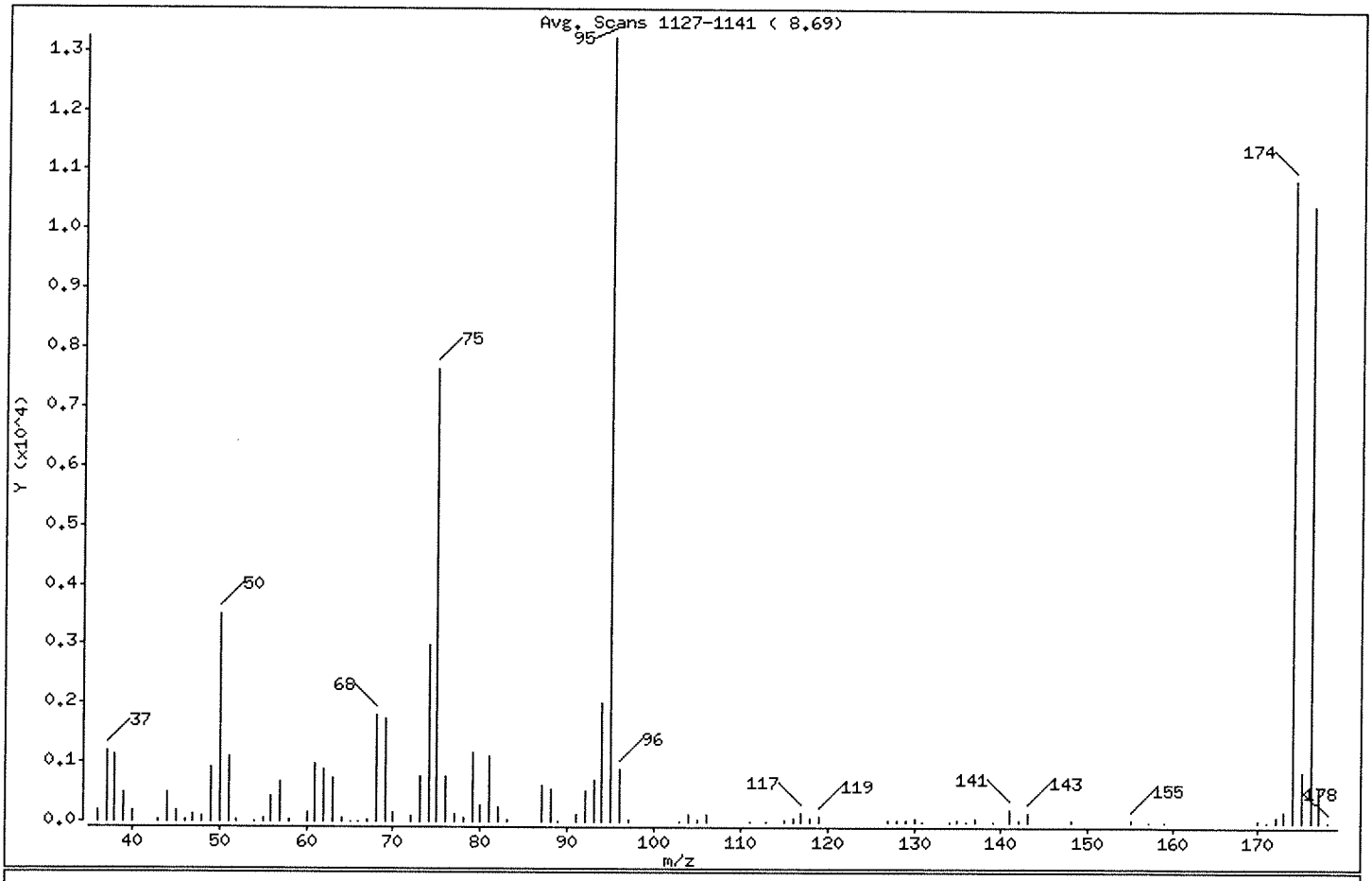
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb




| m/e | ION ABUNDANCE CRITERIA | % RELATIVE ABUNDANCE |
|---|---|---|
| | | |
| 95 | Base Peak, 100% relative abundance | 100.00 |
| 50 | 15.00 - 40.00% of mass 95 | 26.52 |
| 75 | 30.00 - 60.00% of mass 95 | 57.75 |
| 96 | 5.00 - 9.00% of mass 95 | 6.71 |
| 173 | Less than 2.00% of mass 174 | 1.32 ( 1.61) |
| 174 | Greater than 50.00% of mass 95 | 81.97 |
| 175 | 5.00 - 9.00% of mass 174 | 6.45 ( 7.87) |
| 176 | 95.00 - 101.00% of mass 174 | 78.92 ( 96.28) |
| 177 | 5.00 - 9.00% of mass 176 | 4.53 ( 5.75) |

Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110301.D



Date : 03-NOV-2020 11:40

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

Data File: X110301.D
Spectrum: Avg. Scans 1127-1141 ( 8.69)
Location of Maximum: 95.00
Number of points: 90

| m/z | Y | m/z | Y | m/z | Y | m/z | Y |
|---|---|---|---|---|---|---|---|
| 36.00 | 185 | 63.00 | 745 | 91.00 | 120 | 134.00 | 4 |
| 37.00 | 1197 | 64.00 | 71 | 92.00 | 528 | 135.00 | 31 |
| 38.00 | 1127 | 65.00 | 14 | 93.00 | 713 | 136.00 | 5 |
| 39.00 | 487 | 66.00 | 6 | 94.00 | 2013 | 137.00 | 53 |
| 40.00 | 173 | 67.00 | 42 | 95.00 | 13233 | 139.00 | 4 |
| 43.00 | 32 | 68.00 | 1785 | 96.00 | 888 | 141.00 | 210 |
| 44.00 | 480 | 69.00 | 1734 | 97.00 | 28 | 142.00 | 28 |
| 45.00 | 181 | 70.00 | 151 | 103.00 | 9 | 143.00 | 160 |
| 46.00 | 40 | 72.00 | 93 | 104.00 | 117 | 148.00 | 27 |
| 47.00 | 125 | 73.00 | 763 | 105.00 | 30 | 155.00 | 41 |
| 48.00 | 105 | 74.00 | 2992 | 106.00 | 114 | 157.00 | 15 |
| 49.00 | 906 | 75.00 | 7642 | 111.00 | 4 | 159.00 | 6 |
| 50.00 | 3510 | 76.00 | 747 | 113.00 | 10 | 170.00 | 36 |
| 51.00 | 1099 | 77.00 | 116 | 115.00 | 20 | 171.00 | 15 |
| 52.00 | 44 | 78.00 | 67 | 116.00 | 55 | 172.00 | 79 |
| 54.00 | 8 | 79.00 | 1145 | 117.00 | 138 | 173.00 | 175 |
| 55.00 | 76 | 80.00 | 279 | 118.00 | 52 | 174.00 | 10847 |
| 56.00 | 436 | 81.00 | 1110 | 119.00 | 100 | 175.00 | 854 |
| 57.00 | 659 | 82.00 | 238 | 127.00 | 17 | 176.00 | 10443 |
| 58.00 | 31 | 83.00 | 26 | 128.00 | 37 | 177.00 | 600 |
| 60.00 | 166 | 87.00 | 603 | 129.00 | 38 | 178.00 | 14 |
| 61.00 | 965 | 88.00 | 560 | 130.00 | 60 | | |
| 62.00 | 880 | 89.00 | 6 | 131.00 | 3 | | |

Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110302.D Page 1
Report Date: 13-Jan-2021 15:44

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201103.b\X110302.D
Lab Smp Id: VSTD000.25 Client Smp ID: VSTD000.25
Inj Date : 03-NOV-2020 12:01
Operator : PC Inst ID: voa6.i
Smp Info : VSTD000.25;VSTD000.25;1;1;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201103.b\8260W.m
Meth Date : 13-Jan-2021 15:44 voa6.i Quant Type: ISTD
Cal Date : 03-NOV-2020 15:30 Cal File: X110311.D
Als bottle: 2 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

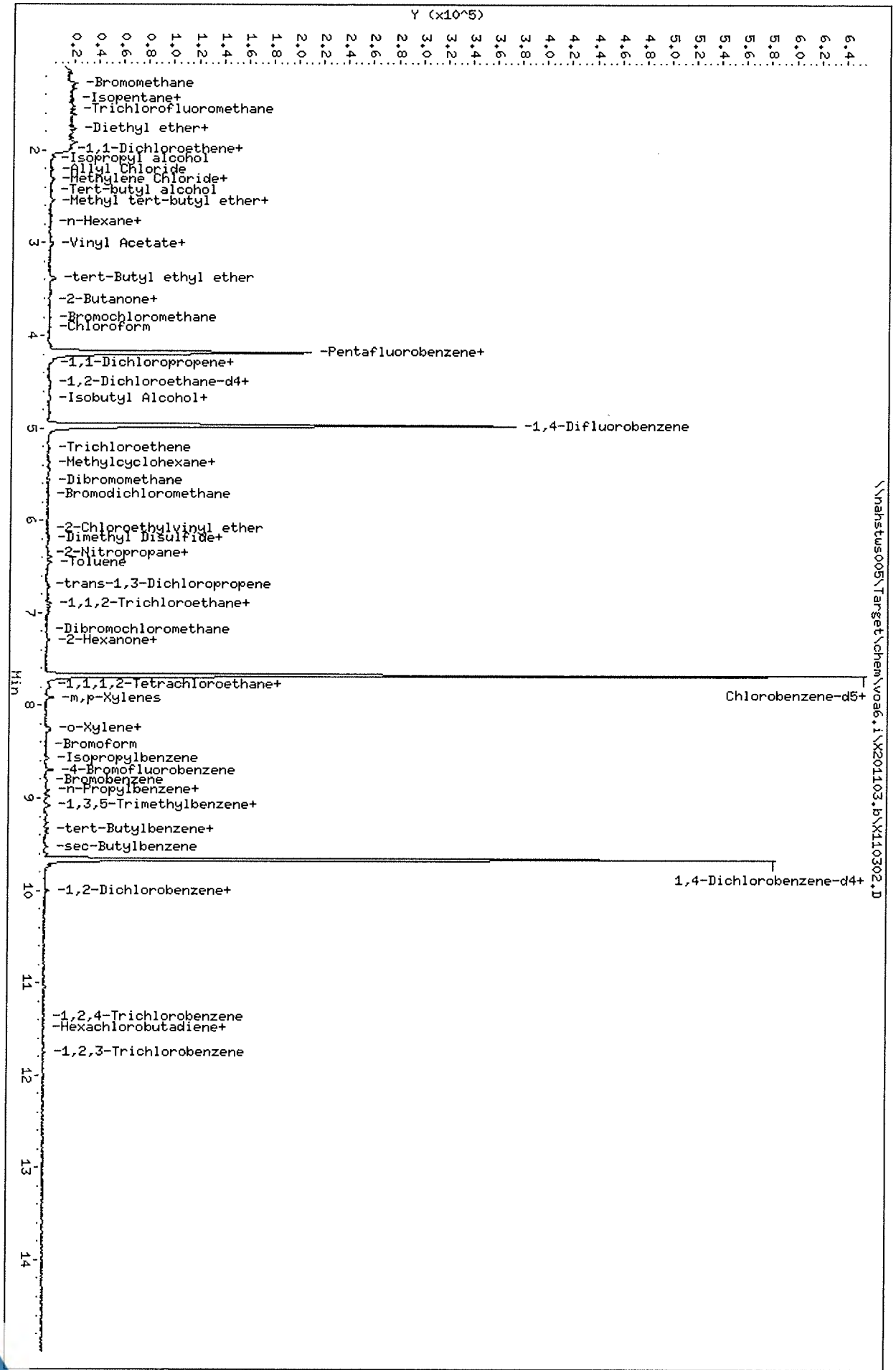
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.189 | 4.189 | (1.000) | 149848 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 4.970 | 4.970 | (1.000) | 278125 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 7.670 | 7.670 | (1.000) | 261293 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 9.662 | 9.662 | (1.000) | 109498 | 50.0000 | |
| $ 35 1,2-Dichloroethane-d4 | 65 | 4.497 | 4.497 | (1.074) | 928 | 0.25000 | (Ta) |
| $ 69 4-Bromofluorobenzene | 95 | 8.702 | 8.702 | (1.134) | 1826 | 0.25000 | 1.10(a) |
| $ 30 Dibromofluoromethane | 113 | 4.110 | 4.110 | (0.981) | 841 | 0.25000 | 0.41(aM) |
| $ 48 Toluene-d8 | 98 | 6.403 | 6.403 | (0.835) | 2652 | 0.25000 | 0.37(Ta) |
| 60 1,1,1,2-Tetrachloroethane | 131 | 7.778 | 7.778 | (1.014) | 519 | 0.25000 | 0.27(aM) |
| 31 1,1,1-Trichloroethane | 97 | 4.103 | 4.103 | (0.979) | 622 | 0.25000 | 0.19(a) |
| 68 1,1,2,2-Tetrachloroethane | 83 | 8.845 | 8.845 | (0.915) | 547 | 0.25000 | (aM) |
| 138 Freon TF | 101 | 1.919 | 1.919 | (0.458) | 801 | 0.25000 | 0.29(a) |
| 53 1,1,2-Trichloroethane | 83 | 6.847 | 6.847 | (0.893) | 405 | 0.25000 | 0.25(aM) |
| 22 1,1-Dichloroethane | 63 | 2.943 | 2.943 | (0.703) | 1138 | 0.25000 | 0.31(aM) |
| 11 1,1-Dichloroethene | 96 | 1.911 | 1.911 | (0.456) | 1028 | 0.25000 | 0.36(a) |
| 32 1,1-Dichloropropene | 75 | 4.290 | 4.290 | (0.863) | 938 | 0.25000 | 0.36(a) |
| 93 1,2,3-Trichlorobenzene | 180 | 11.753 | 11.753 | (1.216) | 95 | 0.25000 | 1.96(aM) |
| 71 1,2,3-Trichloropropane | 75 | 8.874 | 8.874 | (0.918) | 435 | 0.25000 | 0.28(aM) |
| 90 1,2,4-Trichlorobenzene | 180 | 11.359 | 11.359 | (1.176) | 228 | 0.25000 | 2.01(aM) |
| 79 1,2,4-Trimethylbenzene | 105 | 9.382 | 9.382 | (0.971) | 1643 | 0.25000 | 0.26(a) |
| 57 1,2-Dibromoethane | 107 | 7.269 | 7.269 | (0.948) | 370 | 0.25000 | 0.18(aM) |
| 88 1,2-Dichlorobenzene | 146 | 9.998 | 9.998 | (1.035) | 699 | 0.25000 | 0.23(a) |

Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110302.D Page 2
Report Date: 13-Jan-2021 15:44

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 33 | 1,2-Dichloroethane | 62 | 4.576 | 4.576 | (0.921) | 567 | 0.25000 | 0.18 (aM) |
| 42 | 1,2-Dichloropropane | 63 | 5.443 | 5.443 | (1.095) | 623 | 0.25000 | 0.30 (aM) |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.074 | 9.074 | (0.939) | 1416 | 0.25000 | 0.22 (a) |
| 83 | 1,3-Dichlorobenzene | 146 | 9.612 | 9.612 | (0.995) | 752 | 0.25000 | 0.23 (aM) |
| 54 | 1,3-Dichloropropane | 76 | 6.990 | 6.990 | (0.911) | 957 | 0.25000 | 0.29 (aM) |
| 84 | 1,4-Dichlorobenzene | 146 | 9.683 | 9.683 | (1.002) | 882 | 0.25000 | 0.26 (a) |
| 26 | 2,2-Dichloropropane | 77 | 3.523 | 3.523 | (0.841) | 869 | 0.25000 | 0.28 (aM) |
| 24 | 2-Butanone | 43 | 3.616 | 3.616 | (0.863) | 323 | 0.50000 | 0.46 (aM) |
| 76 | 2-Chlorotoluene | 91 | 8.981 | 8.981 | (0.930) | 1752 | 0.25000 | 0.34 (a) |
| 52 | 2-Hexanone | 43 | 7.234 | 7.234 | (0.943) | 495 | 0.50000 | 3.97 (TaM) |
| 77 | 4-Chlorotoluene | 91 | 9.082 | 9.082 | (0.940) | 1793 | 0.25000 | 0.27 (a) |
| 82 | p-Isopropyltoluene | 119 | 9.655 | 9.655 | (0.999) | 1464 | 0.25000 | 0.24 (aM) |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.345 | 6.345 | (0.827) | 1232 | 0.50000 | 0.62 (aM) |
| 10 | Acetone | 43 | 1.983 | 1.983 | (0.473) | 3056 | 0.50000 | (aM) |
| 37 | Benzene | 78 | 4.519 | 4.519 | (0.909) | 2148 | 0.25000 | 0.27 (a) |
| 74 | Bromobenzene | 156 | 8.824 | 8.824 | (0.913) | 587 | 0.25000 | 0.30 (aM) |
| 29 | Bromochloromethane | 128 | 3.810 | 3.810 | (0.909) | 172 | 0.25000 | 0.16 (aM) |
| 39 | Bromodichloromethane | 83 | 5.722 | 5.722 | (1.151) | 789 | 0.25000 | 0.27 (aM) |
| 66 | Bromoform | 173 | 8.415 | 8.415 | (1.097) | 175 | 0.25000 | 3.23 (aM) |
| 6 | Bromomethane | 94 | 1.338 | 1.338 | (0.320) | 1031 | 0.25000 | 0.36 (aM) |
| 19 | Carbon Disulfide | 76 | 2.069 | 2.069 | (0.494) | 3196 | 0.50000 | 0.60 (aM) |
| 34 | Carbon Tetrachloride | 117 | 4.261 | 4.261 | (0.857) | 613 | 0.25000 | 0.24 (aM) |
| 59 | Chlorobenzene | 112 | 7.699 | 7.699 | (1.004) | 1728 | 0.25000 | 0.30 (a) |
| 7 | Chloroethane | 64 | 1.403 | 1.403 | (0.335) | 749 | 0.25000 | 0.31 (aMH) |
| 28 | Chloroform | 83 | 3.917 | 3.917 | (0.935) | 1211 | 0.25000 | 0.31 (a) |
| 3 | Chloromethane | 50 | 1.073 | 1.073 | (0.256) | 777 | 0.25000 | 1.23 (aM) |
| 27 | cis-1,2-Dichloroethene | 96 | 3.523 | 3.523 | (0.841) | 519 | 0.25000 | 0.23 (aM) |
| 46 | cis-1,3-Dichloropropene | 75 | 6.166 | 6.166 | (1.241) | 1015 | 0.25000 | 0.32 (aM) |
| 55 | Dibromochloromethane | 129 | 7.183 | 7.183 | (0.937) | 431 | 0.25000 | 0.22 (aM) |
| 44 | Dibromomethane | 93 | 5.572 | 5.572 | (1.121) | 413 | 0.25000 | 0.29 (aM) |
| 2 | Dichlorodifluoromethane | 85 | 0.966 | 0.966 | (0.231) | 457 | 0.25000 | 0.23 (aM) |
| 61 | Ethylbenzene | 106 | 7.807 | 7.807 | (1.018) | 557 | 0.25000 | 0.19 (aM) |
| 91 | Hexachlorobutadiene | 225 | 11.481 | 11.481 | (1.188) | 52 | 0.25000 | 2.41 (aM) |
| 67 | Isopropylbenzene | 105 | 8.566 | 8.566 | (1.117) | 1922 | 0.25000 | 2.82 (aM) |
| 62 | m,p-Xylenes | 106 | 7.914 | 7.914 | (1.032) | 2023 | 0.50000 | 0.59 (a) |
| 17 | Methylene Chloride | 84 | 2.313 | 2.313 | (0.552) | 711 | 0.25000 | 0.34 (aM) |
| 87 | n-Butylbenzene | 91 | 9.998 | 9.998 | (1.035) | 1325 | 0.25000 | 3.78 (aM) |
| 73 | n-Propylbenzene | 91 | 8.917 | 8.917 | (0.923) | 2084 | 0.25000 | 0.23 (a) |
| 92 | Naphthalene | 128 | 11.574 | 11.574 | (1.198) | 138 | 0.25000 | 2.24 (aM) |
| 63 | o-Xylene | 106 | 8.251 | 8.251 | (1.076) | 936 | 0.25000 | 0.27 (a) |
| 81 | sec-Butylbenzene | 105 | 9.526 | 9.526 | (0.986) | 1554 | 0.25000 | 2.83 (aM) |
| 64 | Styrene | 104 | 8.272 | 8.272 | (1.078) | 1368 | 0.25000 | 0.24 (aM) |
| 78 | tert-Butylbenzene | 119 | 9.339 | 9.339 | (0.967) | 1532 | 0.25000 | 2.78 (Ta) |
| 56 | Tetrachloroethene | 164 | 6.933 | 6.933 | (0.904) | 461 | 0.25000 | 0.32 (aM) |
| 50 | Toluene | 91 | 6.460 | 6.460 | (0.842) | 1816 | 0.25000 | 0.18 (aM) |
| 20 | trans-1,2-Dichloroethene | 96 | 2.527 | 2.527 | (0.603) | 541 | 0.25000 | 0.28 (aM) |
| 51 | trans-1,3-Dichloropropene | 75 | 6.689 | 6.689 | (1.346) | 622 | 0.25000 | 0.22 (aM) |
| 38 | Trichloroethene | 130 | 5.214 | 5.214 | (1.049) | 548 | 0.25000 | 0.29 (aM) |
| 8 | Trichlorofluoromethane | 101 | 1.560 | 1.560 | (0.373) | 1444 | 0.25000 | 0.25 (a) |
| 5 | Vinyl Chloride | 62 | 1.145 | 1.145 | (0.273) | 1079 | 0.25000 | 0.32 (aMH) |

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.




Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110302.D
Date : 03-NOV-2020 12:01
Client ID: VSTD000.25
Sample Info: VSTD000.25;VSTD000.25;1;1;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D Page 1
Report Date: 13-Jan-2021 15:44

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Lab Smp Id: VSTD000.5 Client Smp ID: VSTD000.5
Inj Date : 03-NOV-2020 12:43
Operator : PC Inst ID: voa6.i
Smp Info : VSTD000.5;VSTD000.5;1;2;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201103.b\8260W.m
Meth Date : 13-Jan-2021 15:44 voa6.i Quant Type: ISTD
Cal Date : 03-NOV-2020 12:01 Cal File: X110302.D
Als bottle: 4 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

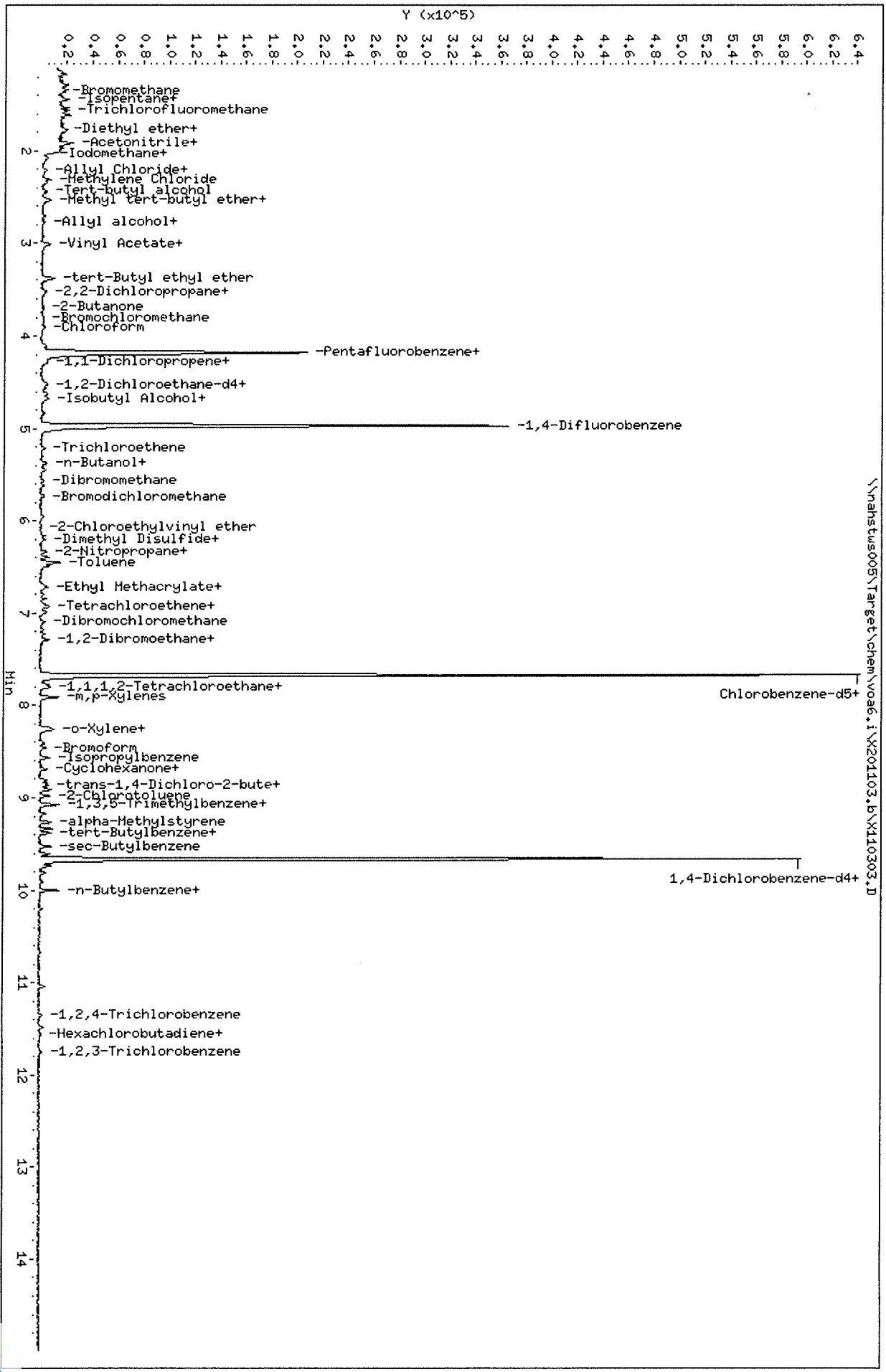
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.189 | 4.189 | (1.000) | 148094 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 4.970 | 4.970 | (1.000) | 267010 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 7.671 | 7.671 | (1.000) | 253498 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 9.662 | 9.662 | (1.000) | 108599 | 50.0000 | |
| $ 35 1,2-Dichloroethane-d4 | 65 | 4.490 | 4.490 | (1.072) | 1490 | 0.50000 | 0.18(Ta) |
| $ 69 4-Bromofluorobenzene | 95 | 8.695 | 8.695 | (1.134) | 1396 | 0.50000 | 0.93(aM) |
| $ 30 Dibromofluoromethane | 113 | 4.111 | 4.111 | (0.981) | 979 | 0.50000 | 0.49(a) |
| $ 48 Toluene-d8 | 98 | 6.388 | 6.388 | (0.833) | 4048 | 0.50000 | 0.59(Ta) |
| 60 1,1,1,2-Tetrachloroethane | 131 | 7.778 | 7.778 | (1.014) | 1050 | 0.50000 | 0.58(aM) |
| 31 1,1,1-Trichloroethane | 97 | 4.096 | 4.096 | (0.978) | 1757 | 0.50000 | 0.56(aM) |
| 68 1,1,2,2-Tetrachloroethane | 83 | 8.845 | 8.845 | (0.915) | 1417 | 0.50000 | 0.21(aM) |
| 138 Freon TF | 101 | 1.919 | 1.919 | (0.458) | 1648 | 0.50000 | 0.60(a) |
| 53 1,1,2-Trichloroethane | 83 | 6.847 | 6.847 | (0.893) | 1003 | 0.50000 | 0.64(aM) |
| 22 1,1-Dichloroethane | 63 | 2.929 | 2.929 | (0.699) | 2147 | 0.50000 | 0.60(aM) |
| 11 1,1-Dichloroethene | 96 | 1.912 | 1.912 | (0.456) | 1690 | 0.50000 | 0.60(aM) |
| 32 1,1-Dichloropropene | 75 | 4.283 | 4.283 | (0.862) | 1568 | 0.50000 | 0.62(aM) |
| 93 1,2,3-Trichlorobenzene | 180 | 11.746 | 11.746 | (1.216) | 370 | 0.50000 | 2.53(aM) |
| 71 1,2,3-Trichloropropane | 75 | 8.867 | 8.867 | (0.918) | 847 | 0.50000 | 0.55(aMH) |
| 90 1,2,4-Trichlorobenzene | 180 | 11.345 | 11.345 | (1.174) | 448 | 0.50000 | 2.25(aM) |
| 79 1,2,4-Trimethylbenzene | 105 | 9.383 | 9.383 | (0.971) | 3552 | 0.50000 | 0.58(aM) |
| 57 1,2-Dibromoethane | 107 | 7.270 | 7.270 | (0.948) | 1121 | 0.50000 | 0.58(a) |
| 88 1,2-Dichlorobenzene | 146 | 9.999 | 9.999 | (1.035) | 1698 | 0.50000 | 0.56(aM) |

Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D Page 2
Report Date: 13-Jan-2021 15:44

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 33 | 1,2-Dichloroethane | 62 | 4.562 | 4.562 | (0.918) | 1777 | 0.50000 | 0.61(aM) |
| 42 | 1,2-Dichloropropane | 63 | 5.443 | 5.443 | (1.095) | 1279 | 0.50000 | 0.64(aM) |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.075 | 9.075 | (0.939) | 3598 | 0.50000 | 0.58(a) |
| 83 | 1,3-Dichlorobenzene | 146 | 9.612 | 9.612 | (0.995) | 2039 | 0.50000 | 0.64(aM) |
| 54 | 1,3-Dichloropropane | 76 | 6.990 | 6.990 | (0.911) | 1856 | 0.50000 | 0.59(aM) |
| 84 | 1,4-Dichlorobenzene | 146 | 9.691 | 9.691 | (1.003) | 1819 | 0.50000 | 0.54(aM) |
| 26 | 2,2-Dichloropropane | 77 | 3.516 | 3.516 | (0.839) | 1831 | 0.50000 | 0.59(aM) |
| 24 | 2-Butanone | 43 | 3.609 | 3.609 | (0.862) | 704 | 1.00000 | 1.02(aM) |
| 76 | 2-Chlorotoluene | 91 | 8.981 | 8.981 | (0.930) | 3257 | 0.50000 | 0.63(aM) |
| 52 | 2-Hexanone | 43 | 7.219 | 7.219 | (0.941) | 2217 | 1.00000 | 4.95(aM) |
| 77 | 4-Chlorotoluene | 91 | 9.075 | 9.075 | (0.939) | 4080 | 0.50000 | 0.63(aM) |
| 82 | p-Isopropyltoluene | 119 | 9.655 | 9.655 | (0.999) | 2819 | 0.50000 | 0.48(aM) |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.331 | 6.331 | (0.825) | 2407 | 1.00000 | 1.24(aM) |
| 10 | Acetone | 43 | 1.983 | 1.983 | (0.473) | 3564 | 1.00000 | (aM) |
| 37 | Benzene | 78 | 4.519 | 4.519 | (0.909) | 4782 | 0.50000 | 0.64(aM) |
| 74 | Bromobenzene | 156 | 8.810 | 8.810 | (0.912) | 1160 | 0.50000 | 0.60(aM) |
| 29 | Bromochloromethane | 128 | 3.810 | 3.810 | (0.909) | 392 | 0.50000 | 0.38(aM) |
| 39 | Bromodichloromethane | 83 | 5.744 | 5.744 | (1.156) | 1742 | 0.50000 | 0.63(aM) |
| 66 | Bromoform | 173 | 8.416 | 8.416 | (1.097) | 543 | 0.50000 | 3.51(aM) |
| 6 | Bromomethane | 94 | 1.346 | 1.346 | (0.321) | 1625 | 0.50000 | 0.58(aM) |
| 19 | Carbon Disulfide | 76 | 2.076 | 2.076 | (0.496) | 5407 | 1.00000 | 1.04(a) |
| 34 | Carbon Tetrachloride | 117 | 4.283 | 4.283 | (0.862) | 1308 | 0.50000 | 0.54(aM) |
| 59 | Chlorobenzene | 112 | 7.699 | 7.699 | (1.004) | 3020 | 0.50000 | 0.55(a) |
| 7 | Chloroethane | 64 | 1.403 | 1.403 | (0.335) | 1257 | 0.50000 | 0.53(aM) |
| 28 | Chloroform | 83 | 3.917 | 3.917 | (0.935) | 1987 | 0.50000 | 0.52(a) |
| 3 | Chloromethane | 50 | 1.081 | 1.081 | (0.258) | 1628 | 0.50000 | 1.64(aM) |
| 27 | cis-1,2-Dichloroethene | 96 | 3.523 | 3.523 | (0.841) | 1332 | 0.50000 | 0.61(aM) |
| 46 | cis-1,3-Dichloropropene | 75 | 6.159 | 6.159 | (1.239) | 1481 | 0.50000 | 0.49(aM) |
| 55 | Dibromochloromethane | 129 | 7.184 | 7.184 | (0.937) | 978 | 0.50000 | 0.52(a) |
| 44 | Dibromomethane | 93 | 5.572 | 5.572 | (1.121) | 625 | 0.50000 | 0.46(aM) |
| 2 | Dichlorodifluoromethane | 85 | 0.973 | 0.973 | (0.232) | 985 | 0.50000 | 0.51(aM) |
| 61 | Ethylbenzene | 106 | 7.814 | 7.814 | (1.019) | 1584 | 0.50000 | 0.57(aH) |
| 91 | Hexachlorobutadiene | 225 | 11.474 | 11.474 | (1.188) | 348 | 0.50000 | 2.89(aM) |
| 67 | Isopropylbenzene | 105 | 8.566 | 8.566 | (1.117) | 4684 | 0.50000 | 3.14(a) |
| 62 | m,p-Xylenes | 106 | 7.907 | 7.907 | (1.031) | 3648 | 1.00000 | 1.10(a) |
| 17 | Methylene Chloride | 84 | 2.306 | 2.306 | (0.550) | 1077 | 0.50000 | 0.52(aM) |
| 87 | n-Butylbenzene | 91 | 9.999 | 9.999 | (1.035) | 3247 | 0.50000 | 4.06(a) |
| 73 | n-Propylbenzene | 91 | 8.917 | 8.917 | (0.923) | 5436 | 0.50000 | 0.62(a) |
| 92 | Naphthalene | 128 | 11.553 | 11.553 | (1.196) | 632 | 0.50000 | 2.62(aM) |
| 63 | o-Xylene | 106 | 8.244 | 8.244 | (1.075) | 1686 | 0.50000 | 0.51(a) |
| 81 | sec-Butylbenzene | 105 | 9.526 | 9.526 | (0.986) | 4540 | 0.50000 | 3.21(aM) |
| 64 | Styrene | 104 | 8.265 | 8.265 | (1.078) | 2898 | 0.50000 | 0.52(aM) |
| 78 | tert-Butylbenzene | 119 | 9.340 | 9.340 | (0.967) | 3197 | 0.50000 | 3.10(aM) |
| 56 | Tetrachloroethene | 164 | 6.933 | 6.933 | (0.904) | 841 | 0.50000 | 0.60(a) |
| 50 | Toluene | 91 | 6.453 | 6.453 | (0.841) | 5824 | 0.50000 | 0.62(aM) |
| 20 | trans-1,2-Dichloroethene | 96 | 2.549 | 2.549 | (0.609) | 998 | 0.50000 | 0.54(aM) |
| 51 | trans-1,3-Dichloropropene | 75 | 6.689 | 6.689 | (1.346) | 1348 | 0.50000 | 0.51(aM) |
| 38 | Trichloroethene | 130 | 5.207 | 5.207 | (1.048) | 1109 | 0.50000 | 0.62(aM) |
| 8 | Trichlorofluoromethane | 101 | 1.561 | 1.561 | (0.373) | 3308 | 0.50000 | 0.59(a) |
| 5 | Vinyl Chloride | 62 | 1.138 | 1.138 | (0.272) | 1800 | 0.50000 | 0.55(aM) |

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.



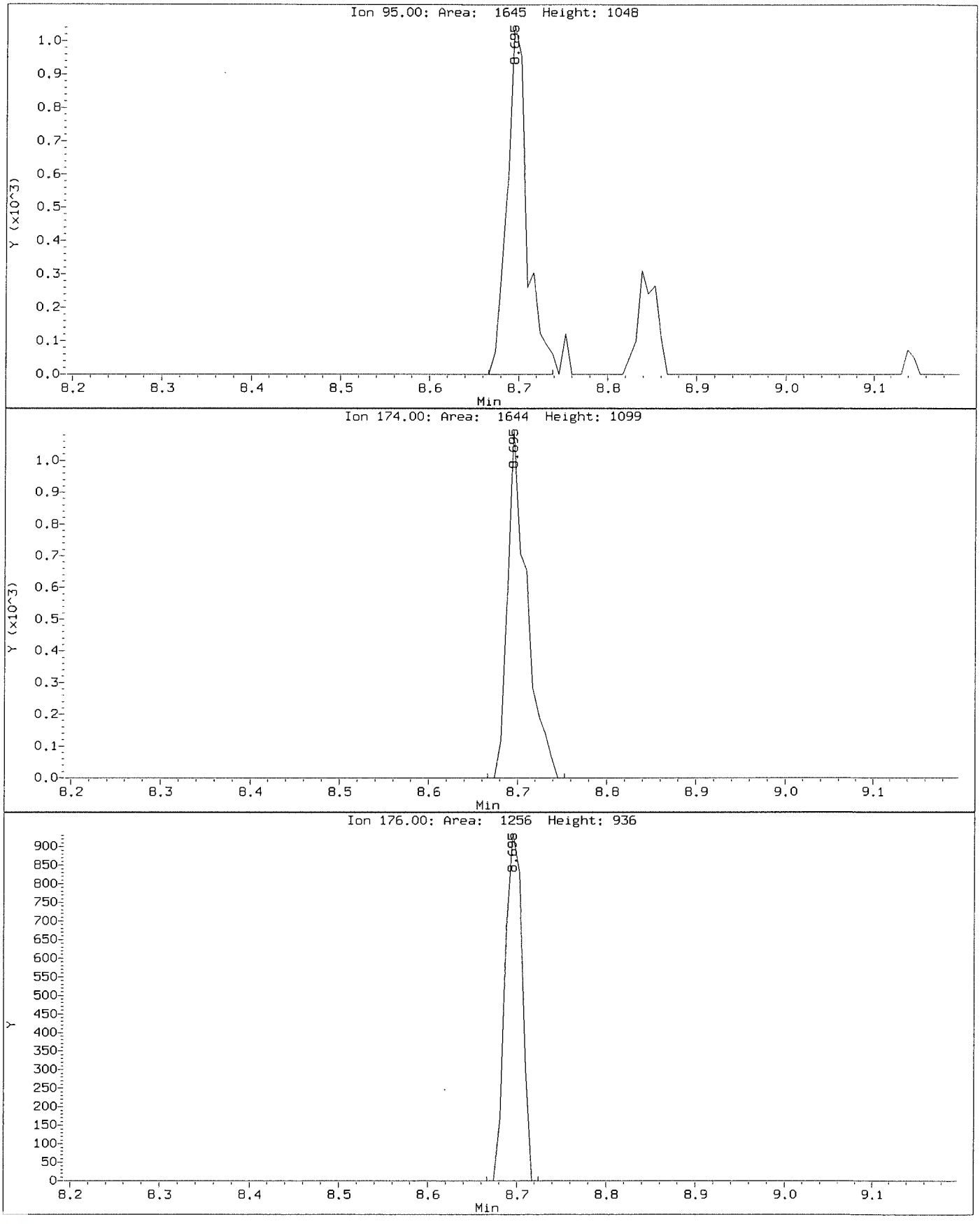

Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Date : 03-NOV-2020 12:43
Client ID: VSTD000,5
Sample Info: VSTD000,5;VSTD000,5;1;2;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

\\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D

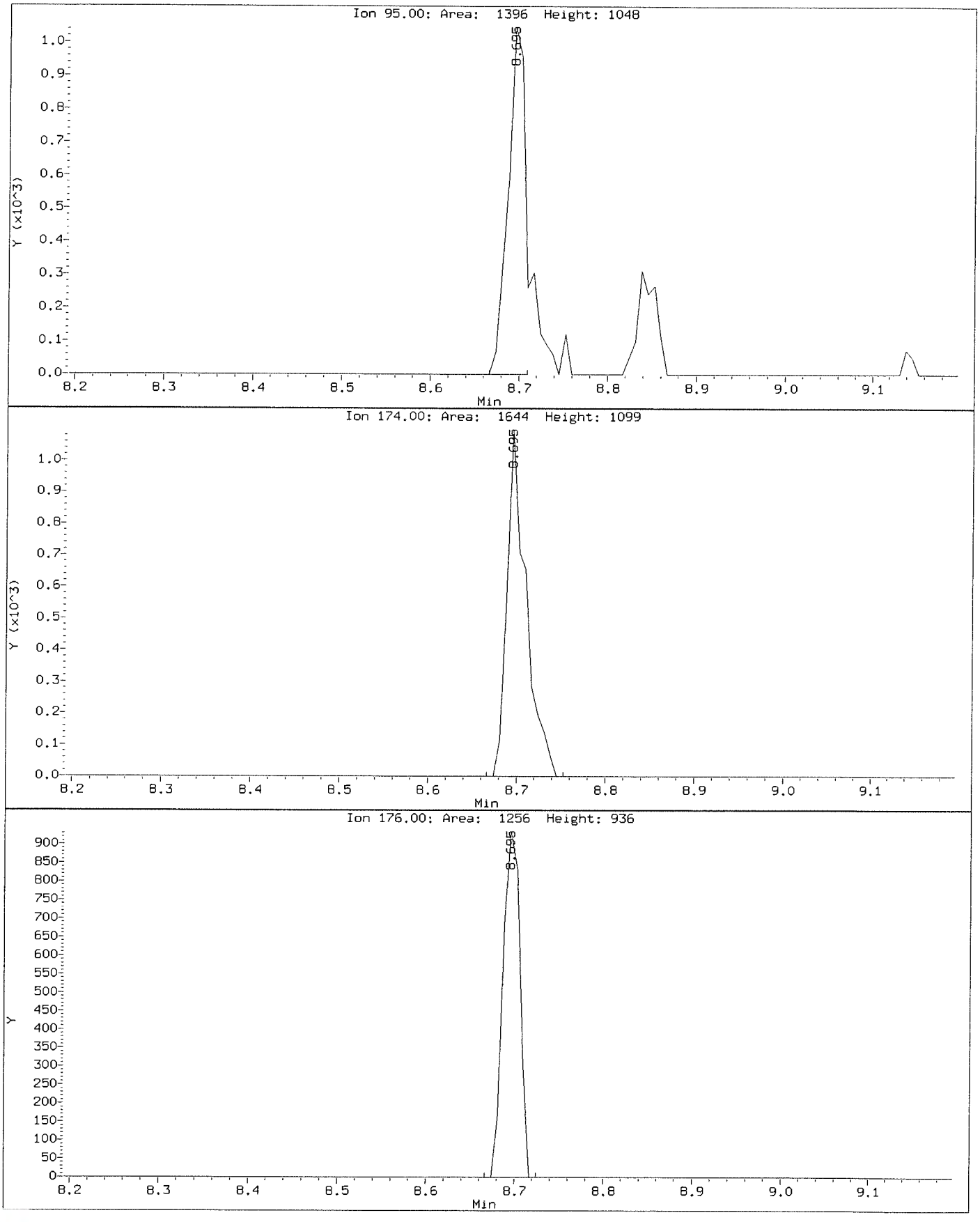
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 4-Bromofluorobenzene
CAS Number: 460-00-4



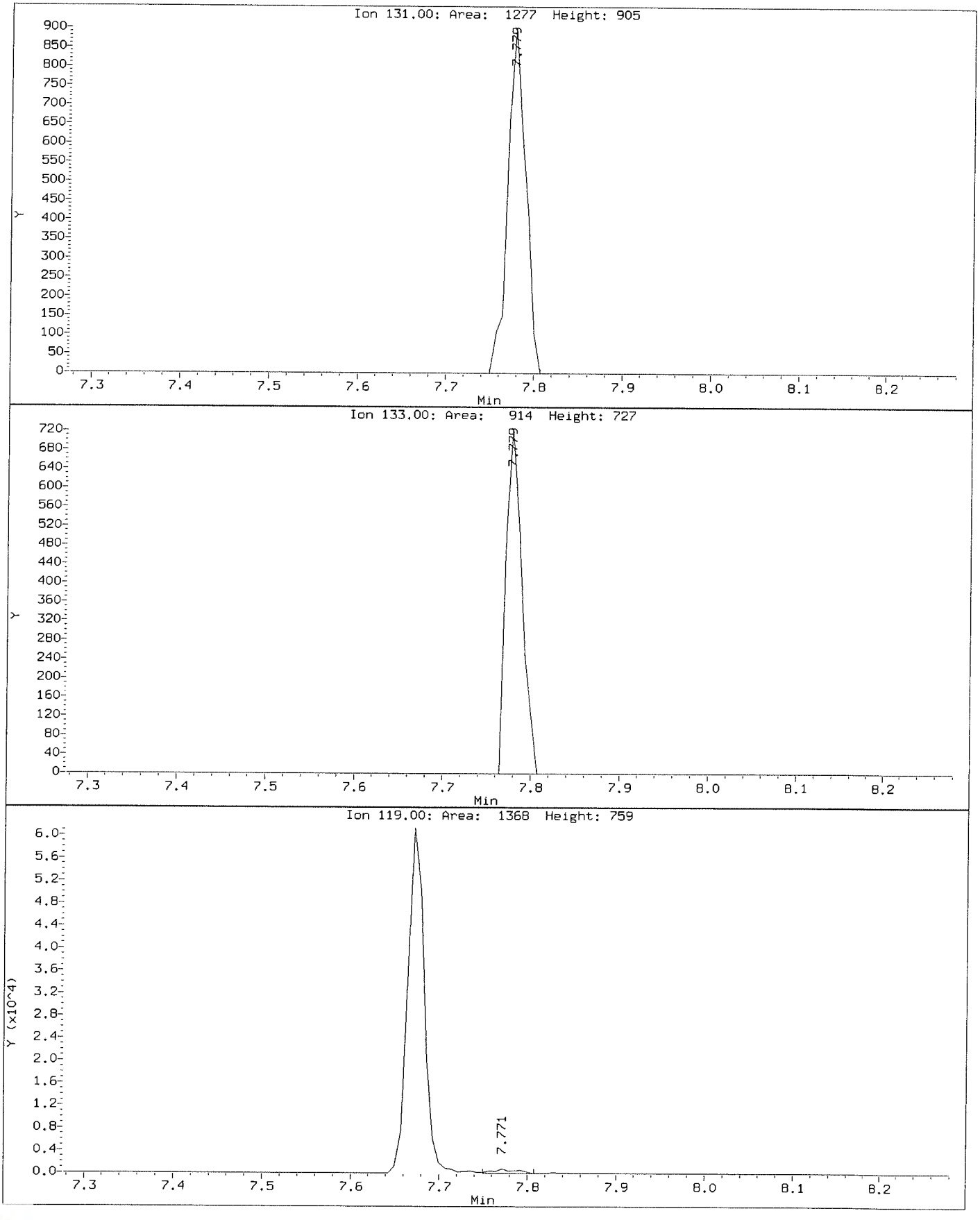
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 4-Bromofluorobenzene
CAS Number: 460-00-4



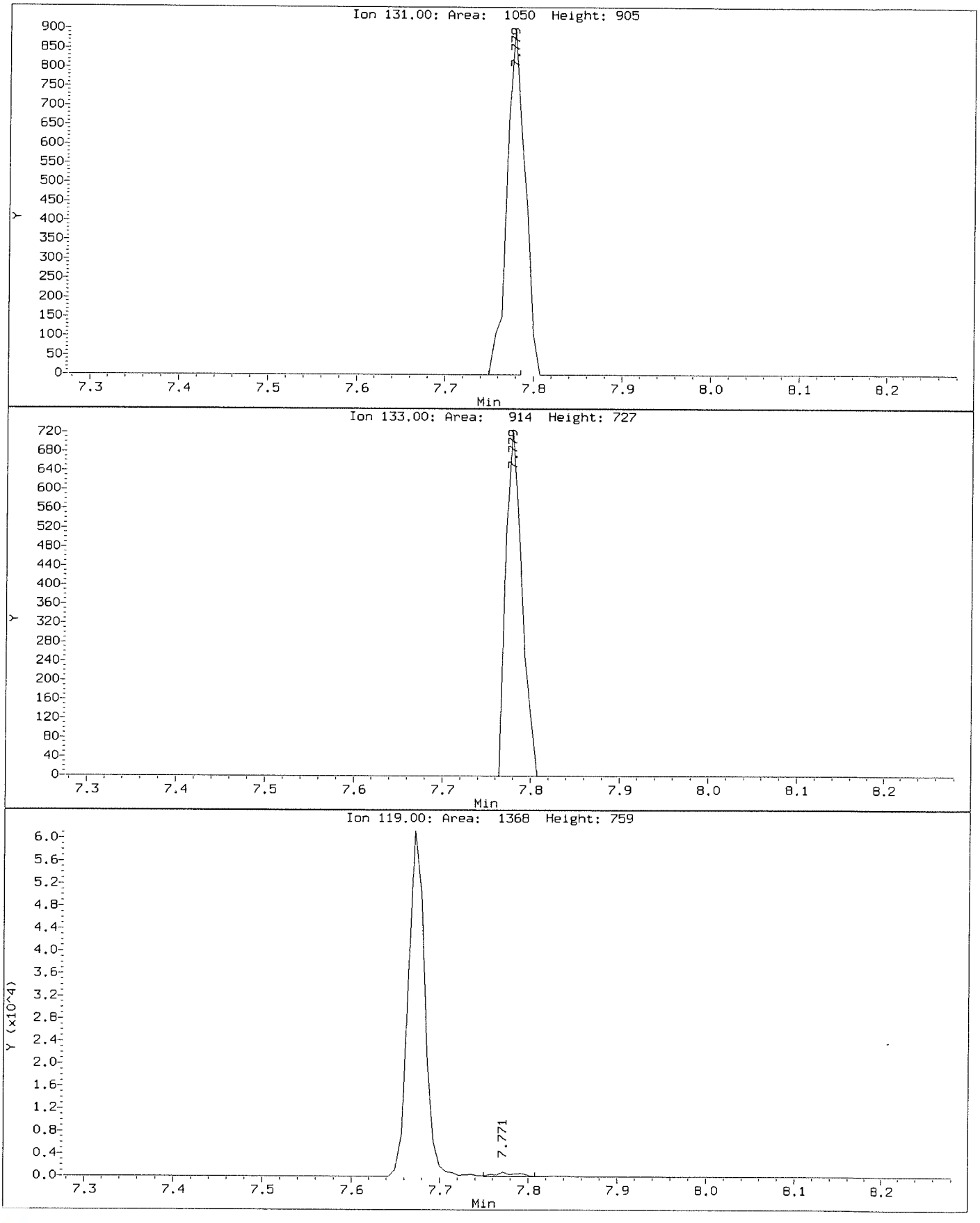
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,1,1,2-Tetrachloroethane
CAS Number: 630-20-6



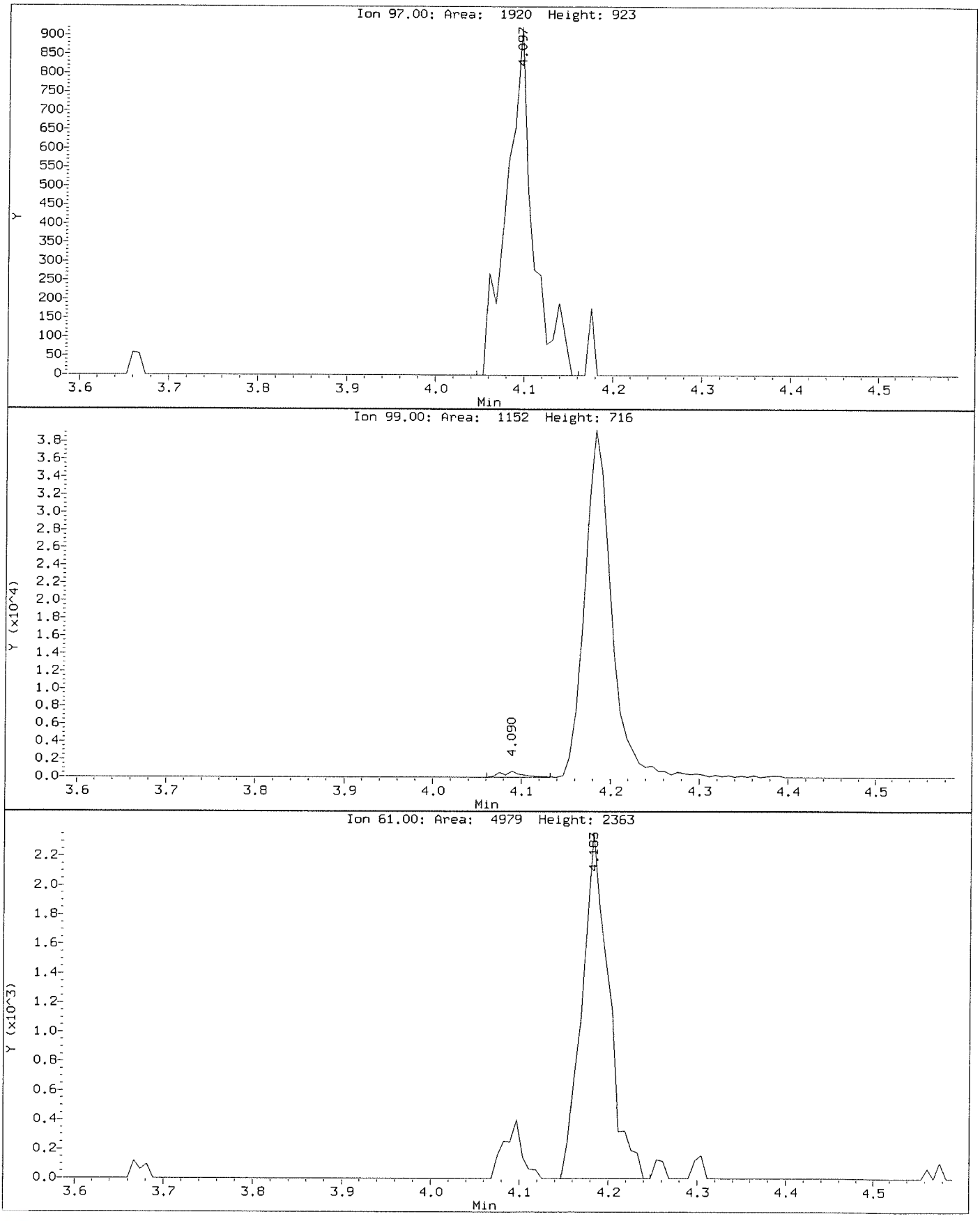
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,1,1,2-Tetrachloroethane
CAS Number: 630-20-6



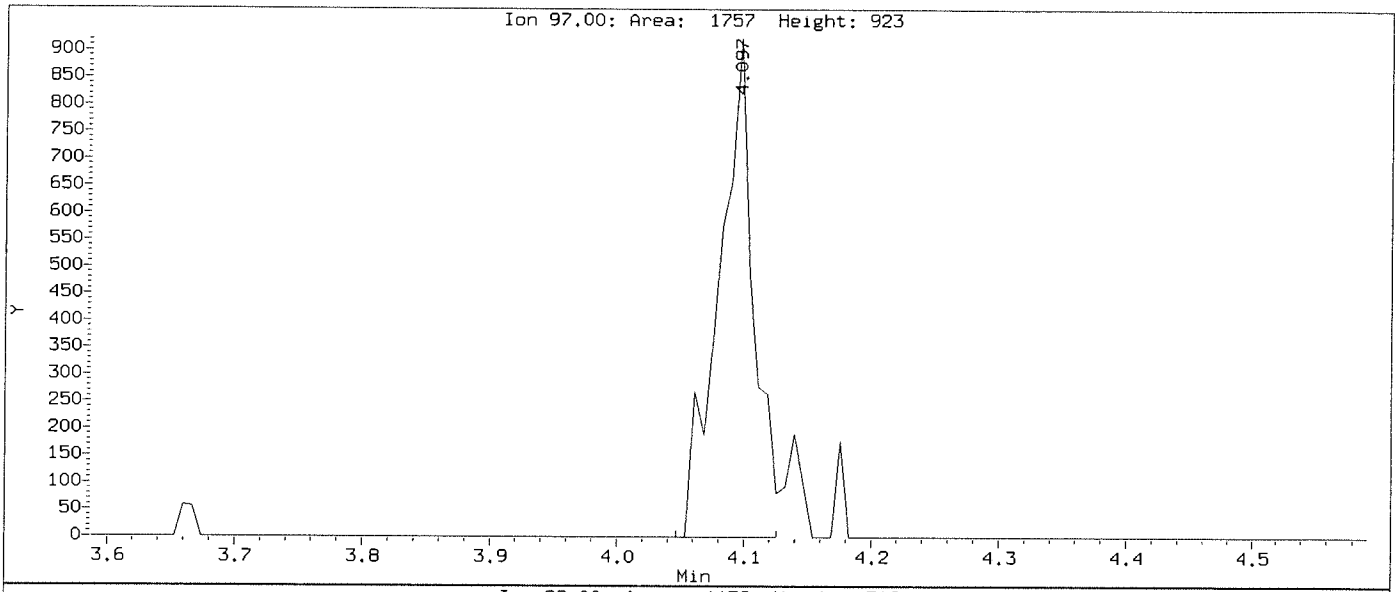
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

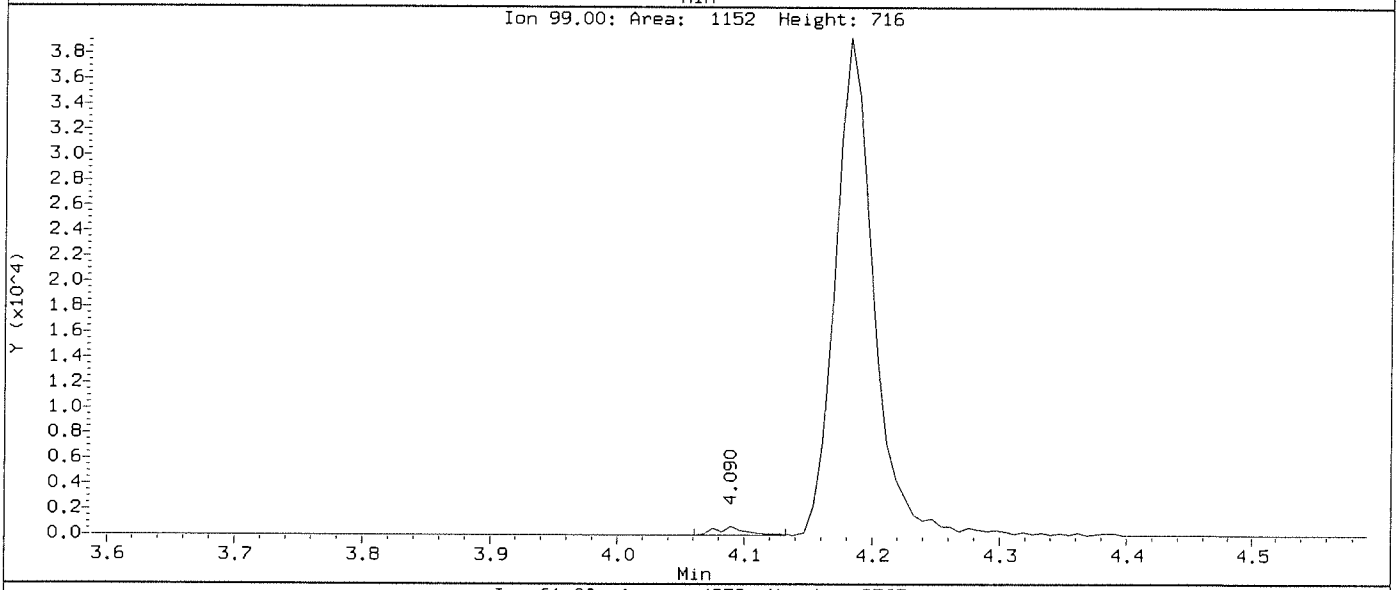
Compound: 1,1,1-Trichloroethane
CAS Number: 71-55-6

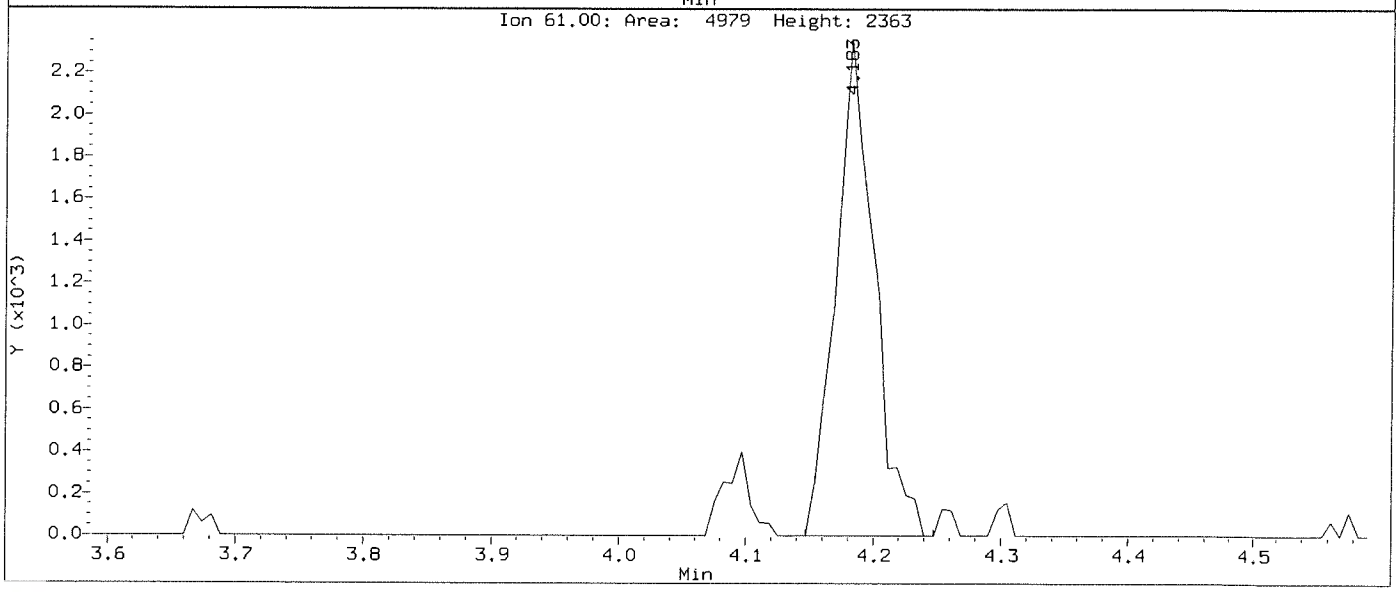


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,1,1-Trichloroethane
CAS Number: 71-55-6

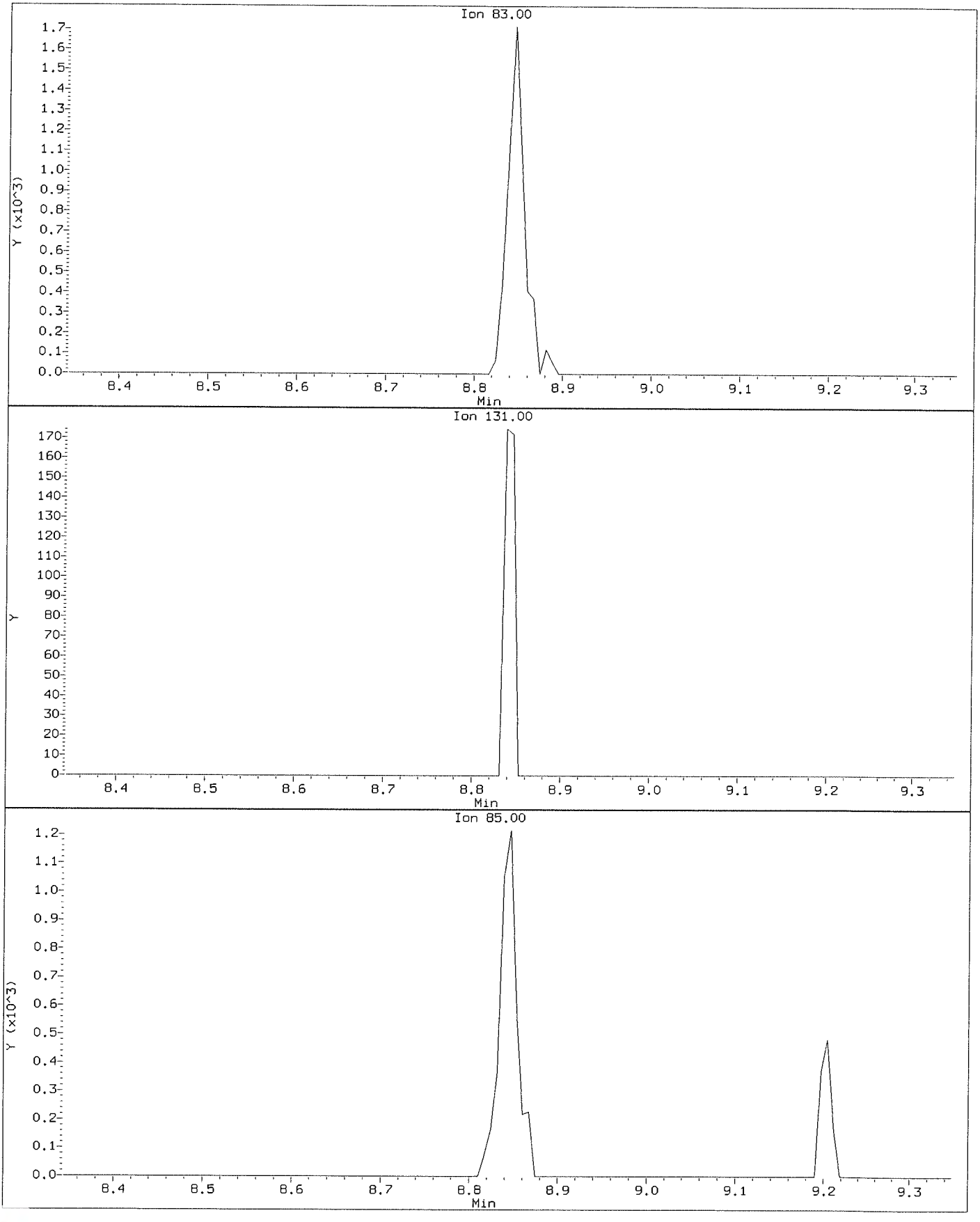


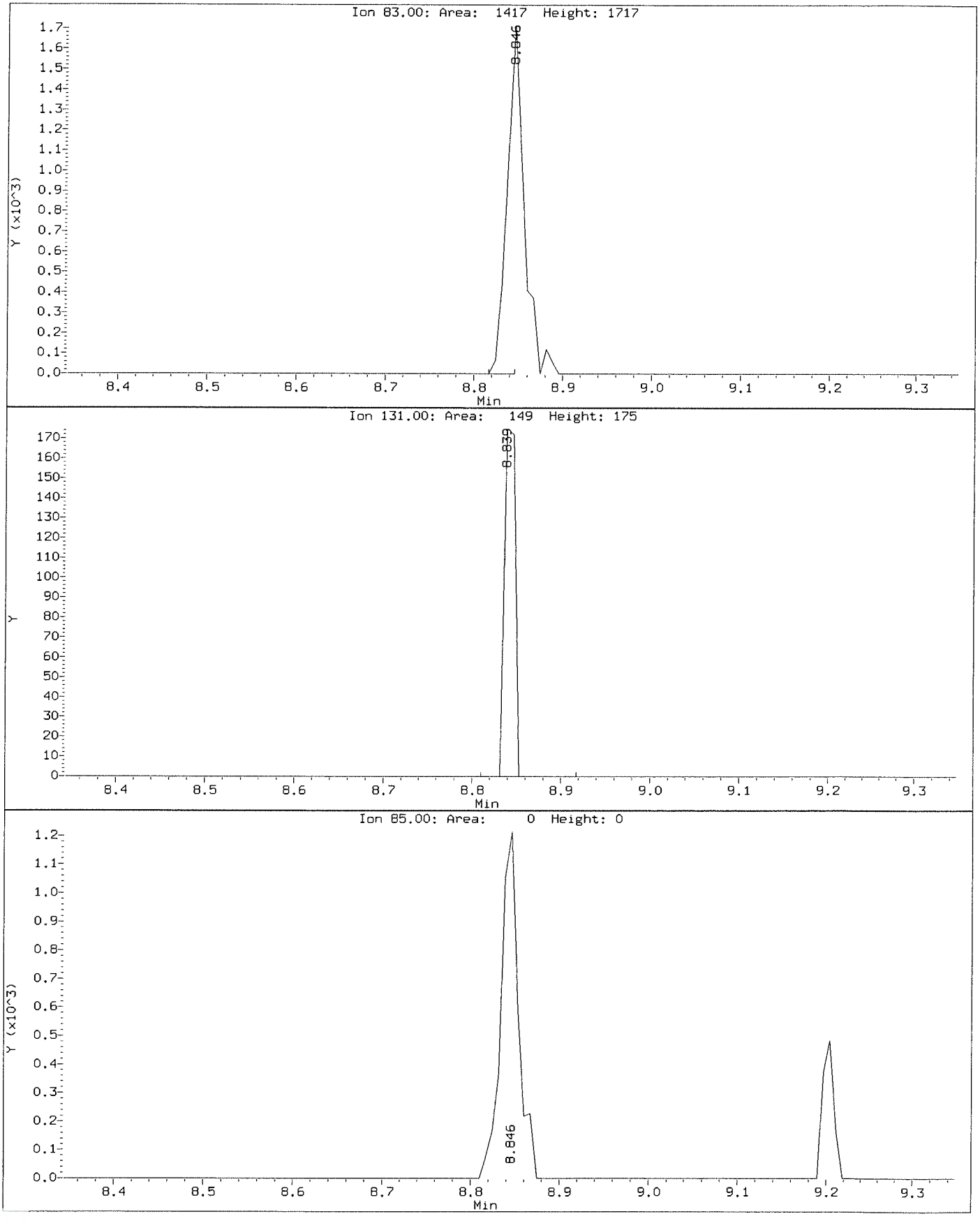
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



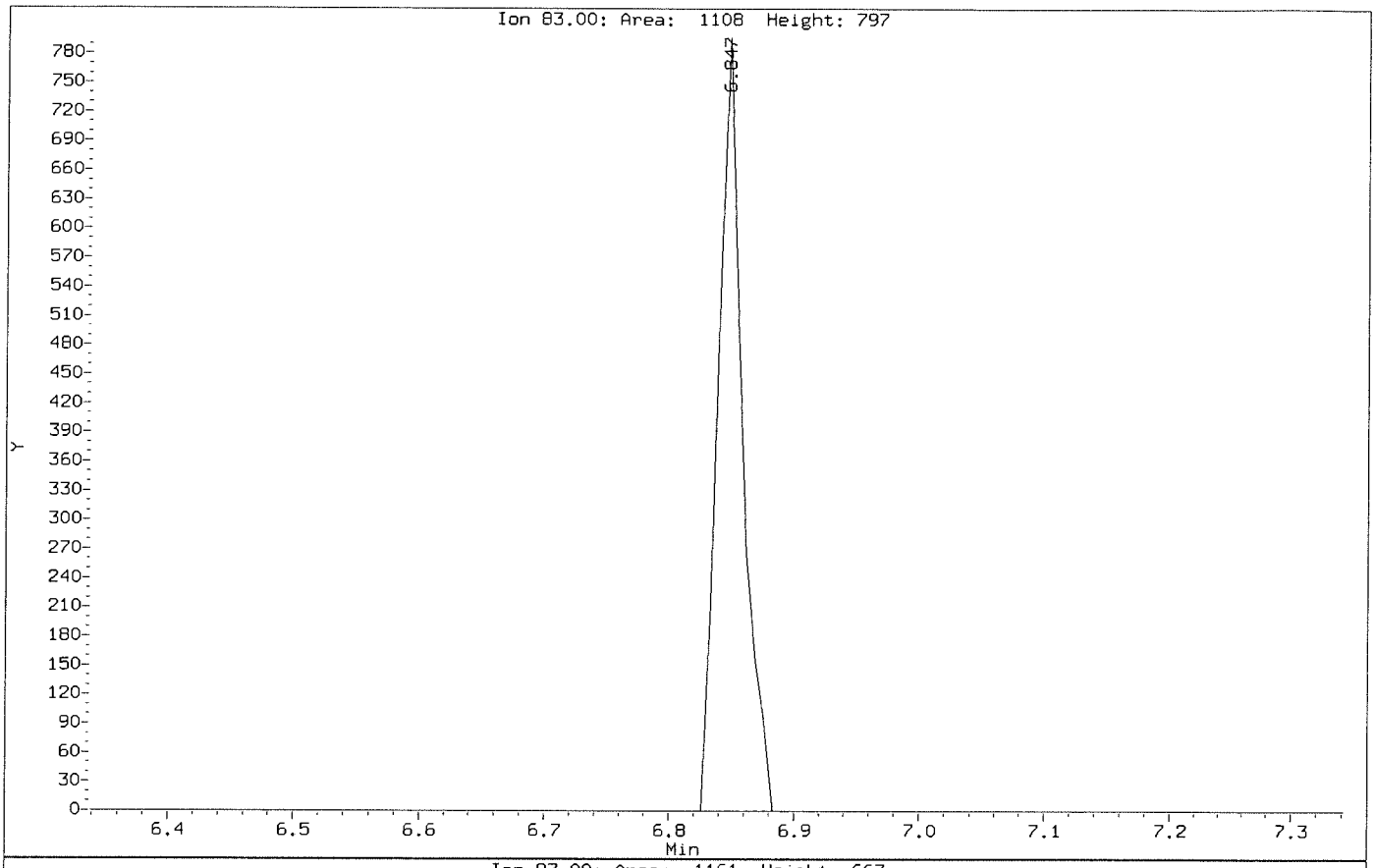
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

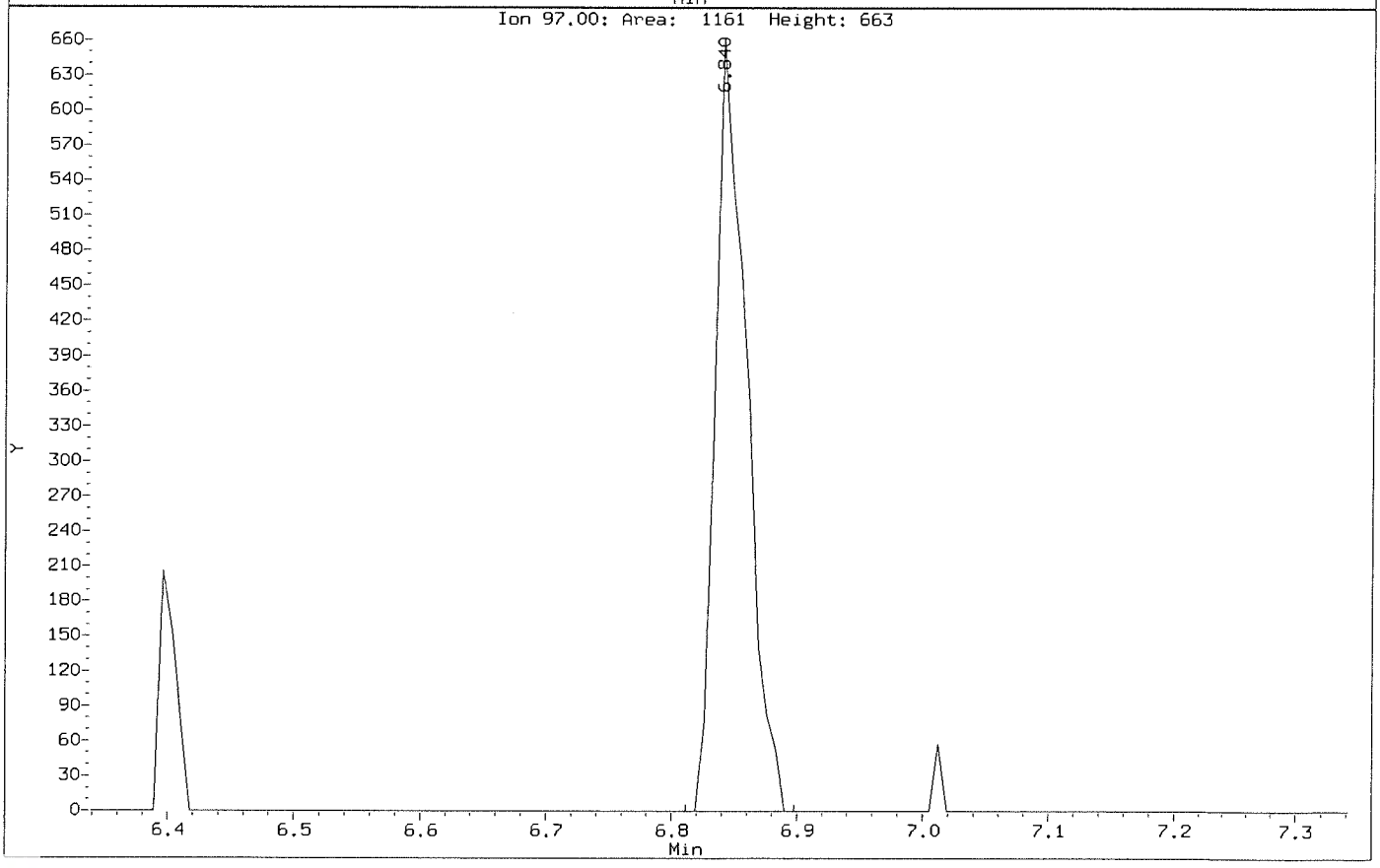
Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

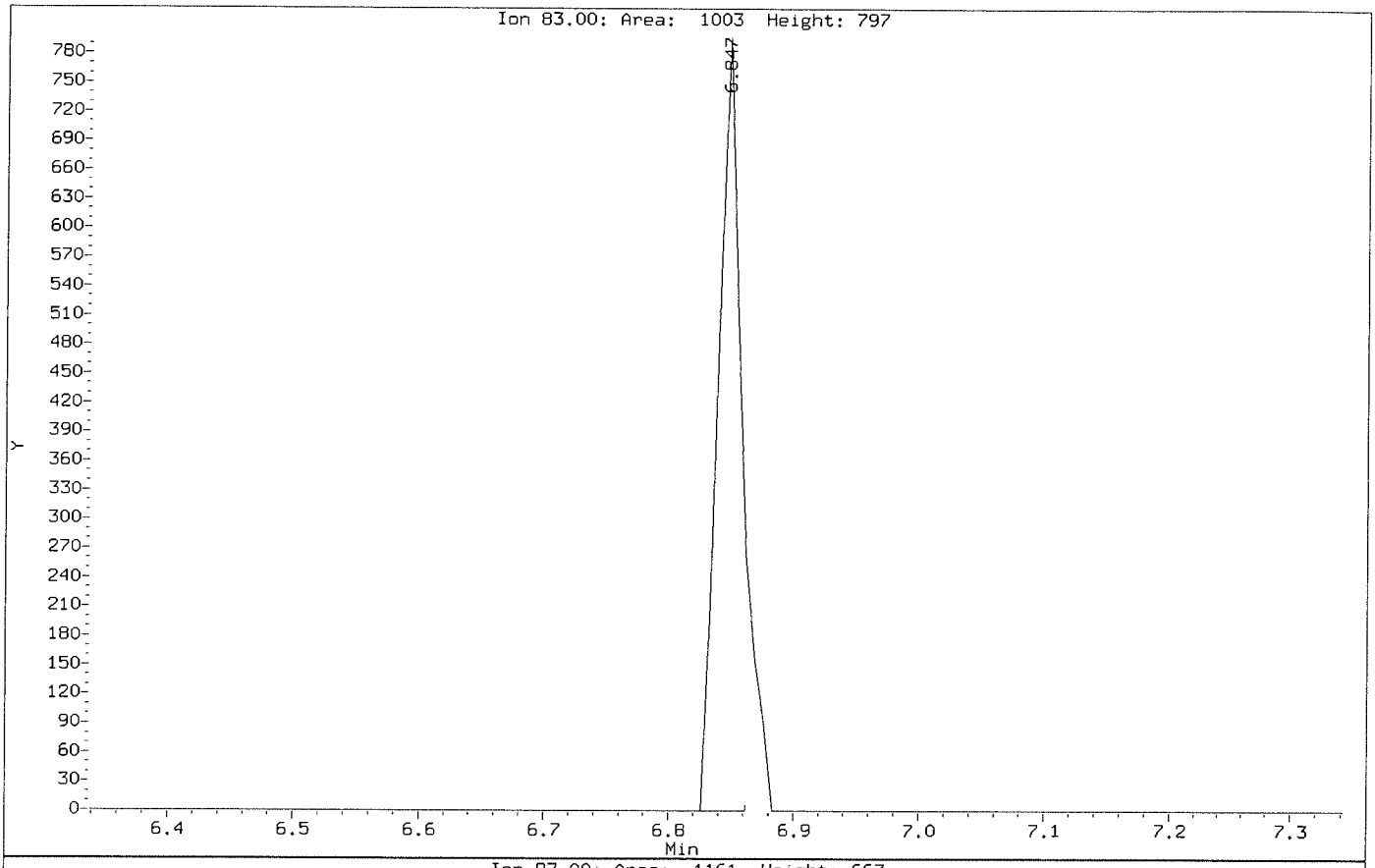
Compound: 1,1,2-Trichloroethane
CAS Number: 79-00-5

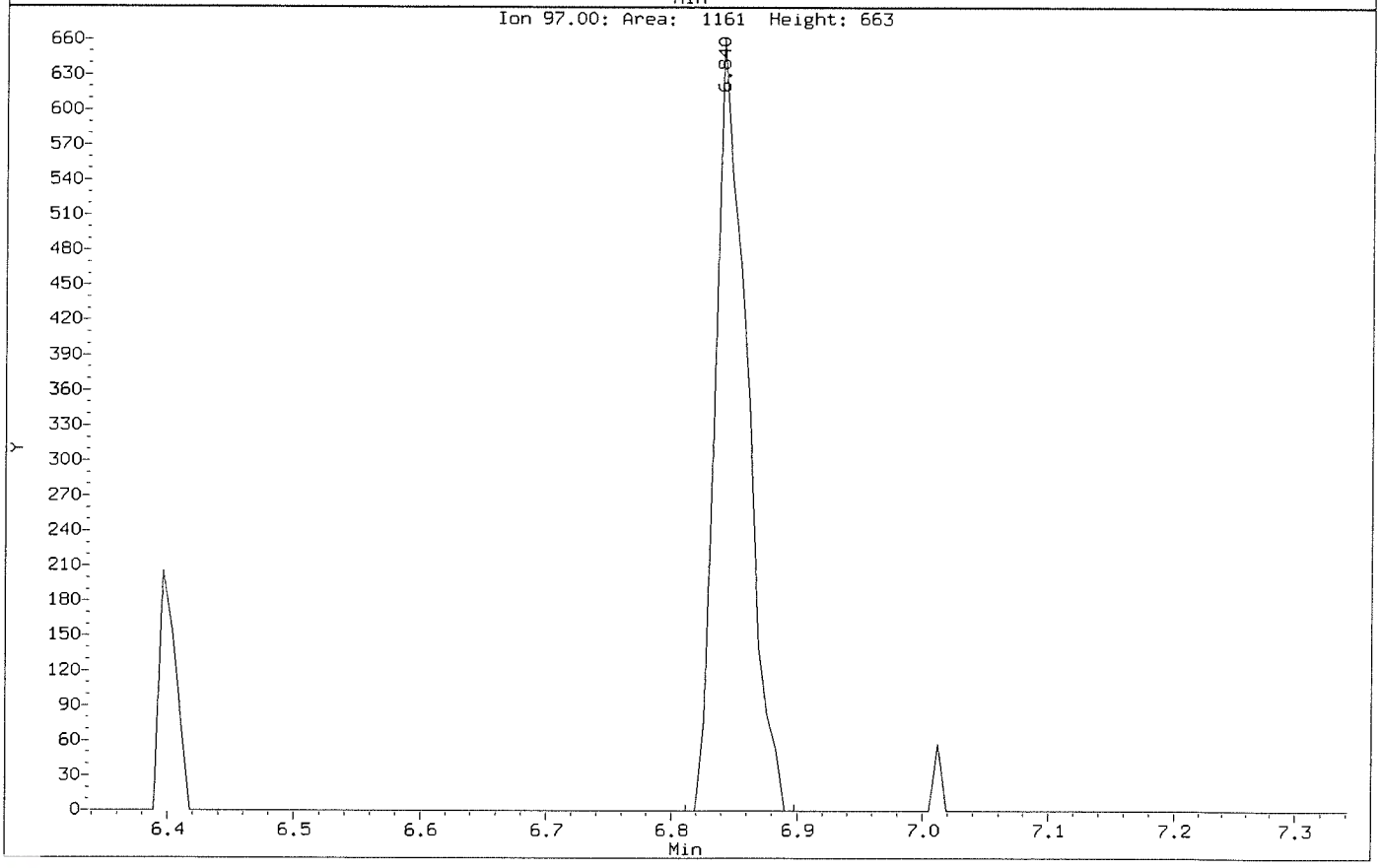


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

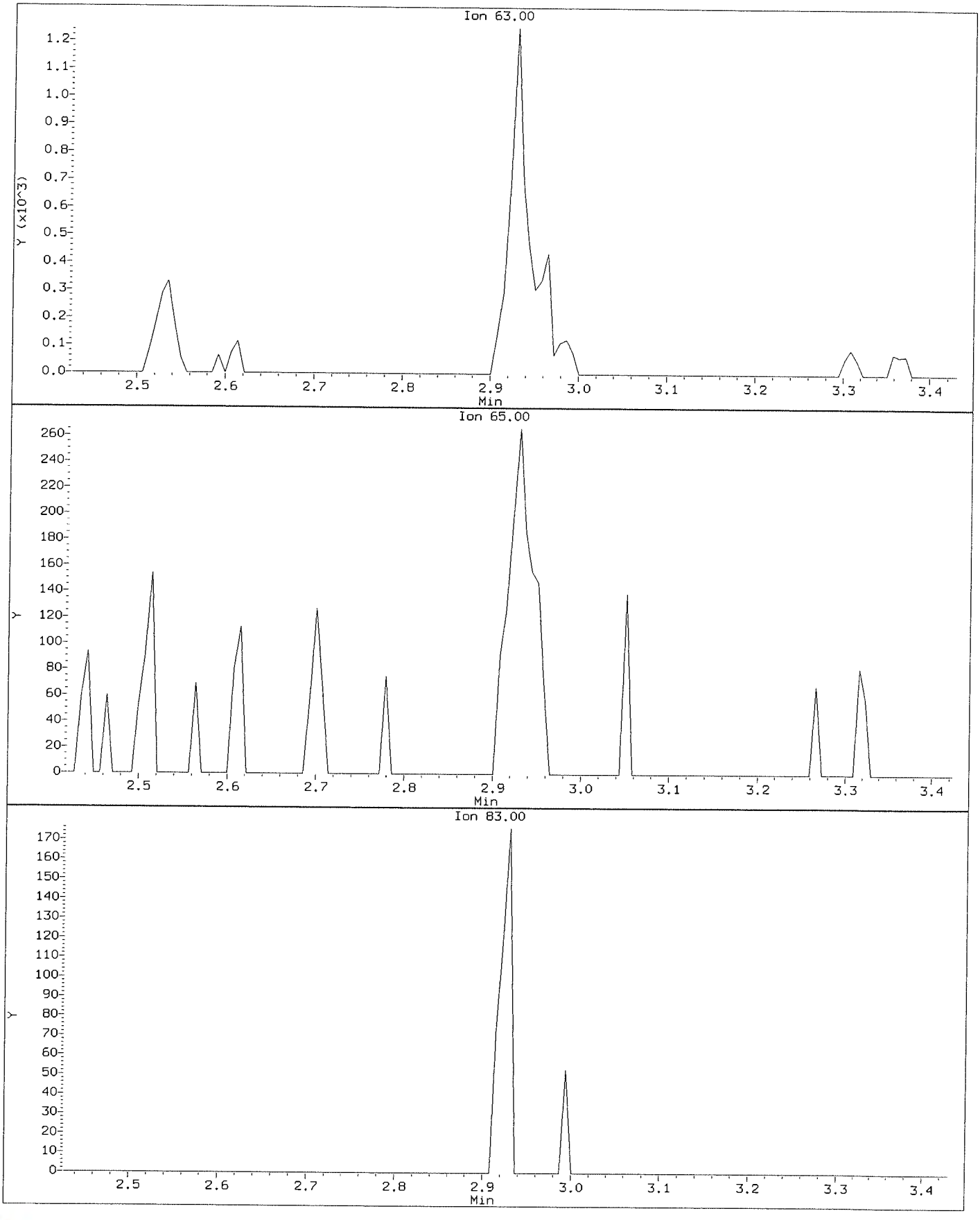
Compound: 1,1,2-Trichloroethane
CAS Number: 79-00-5



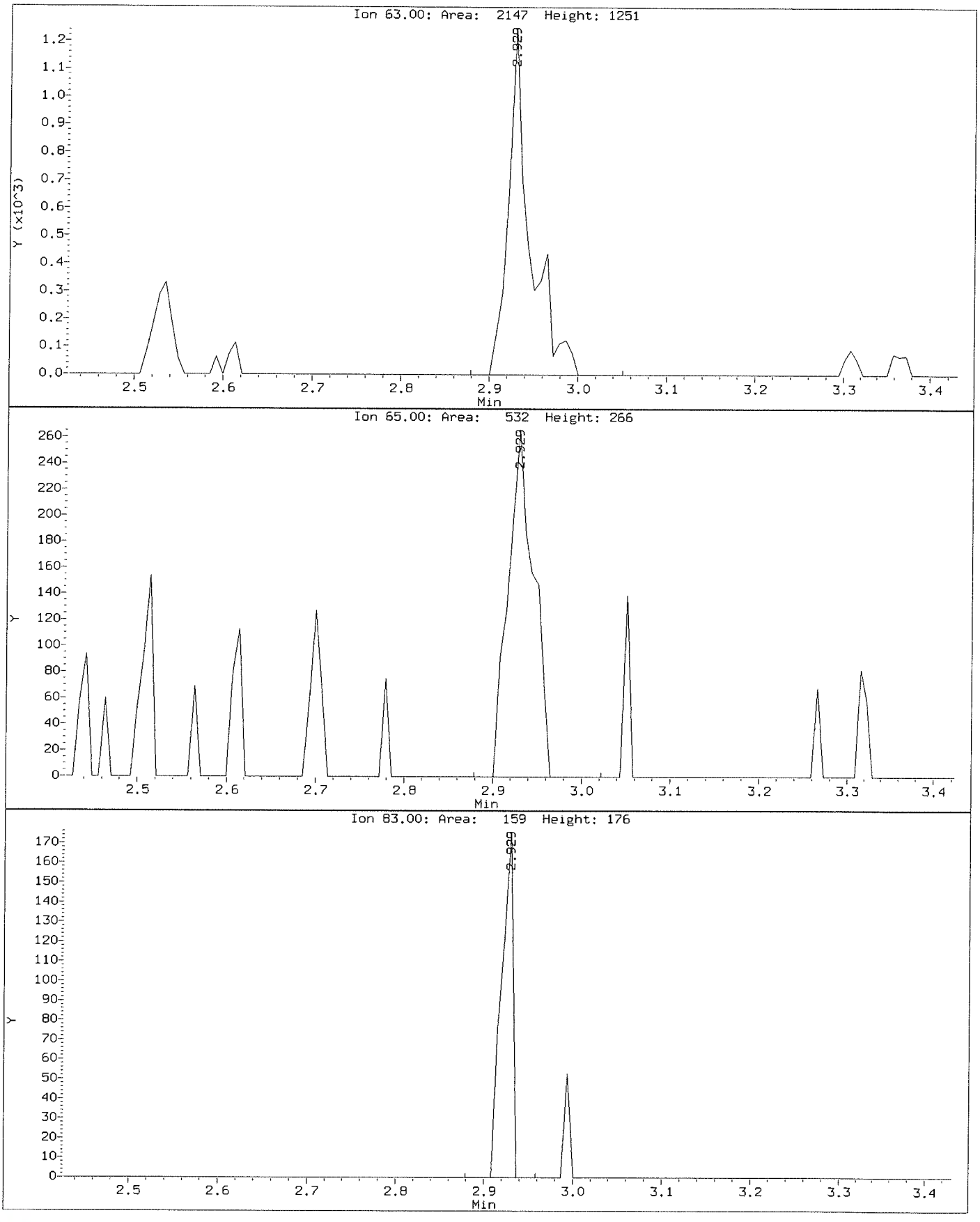
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,1-Dichloroethane
CAS Number: 75-34-3



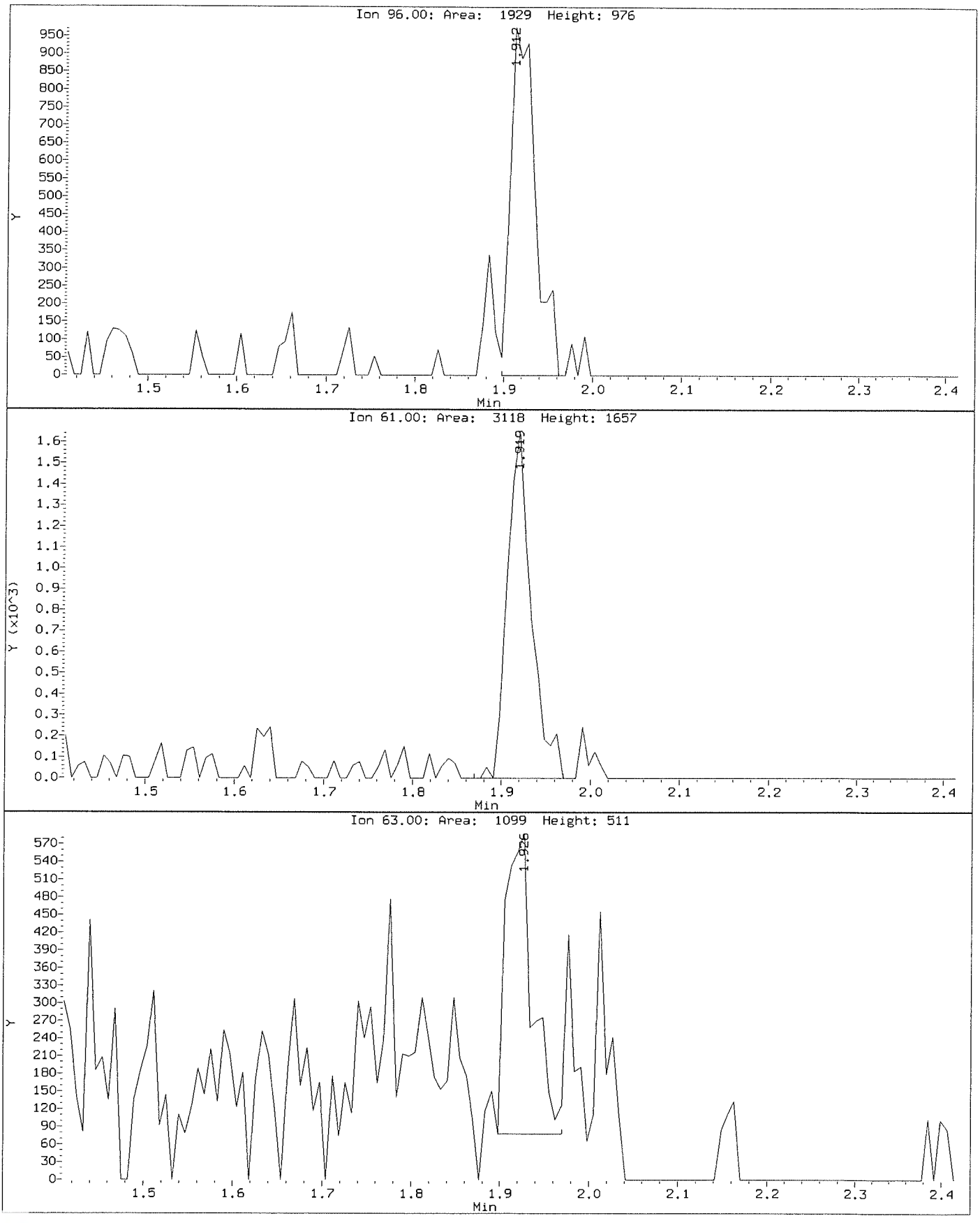
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,1-Dichloroethane
CAS Number: 75-34-3



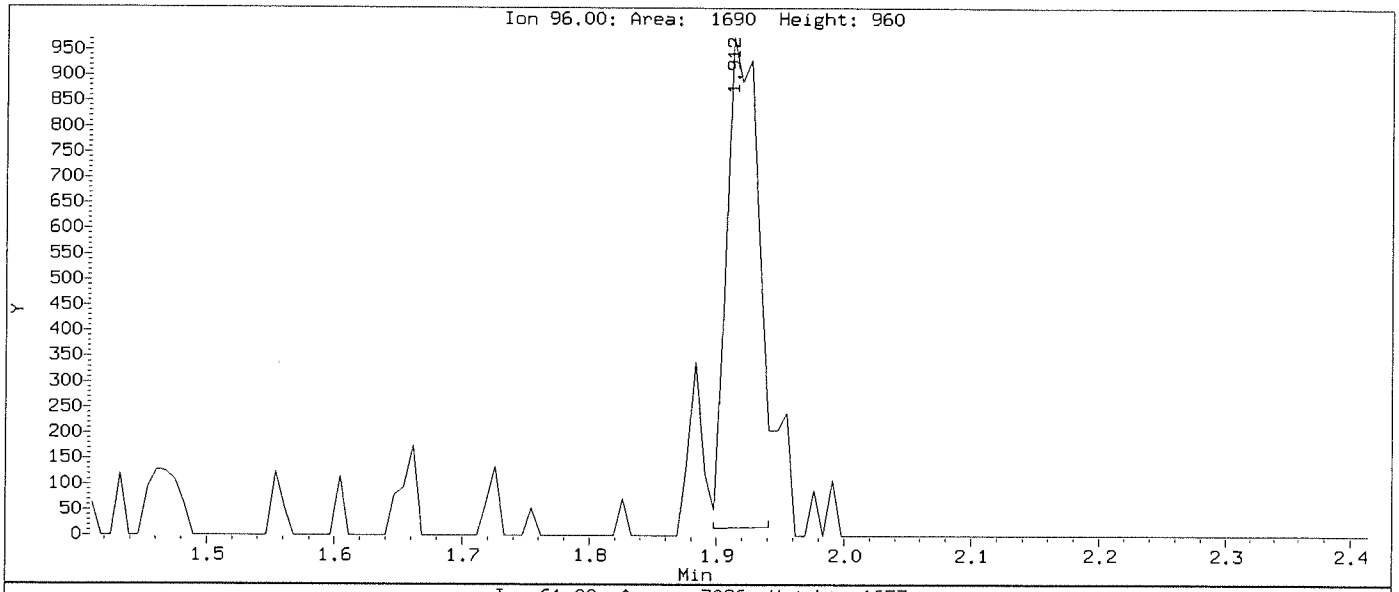
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

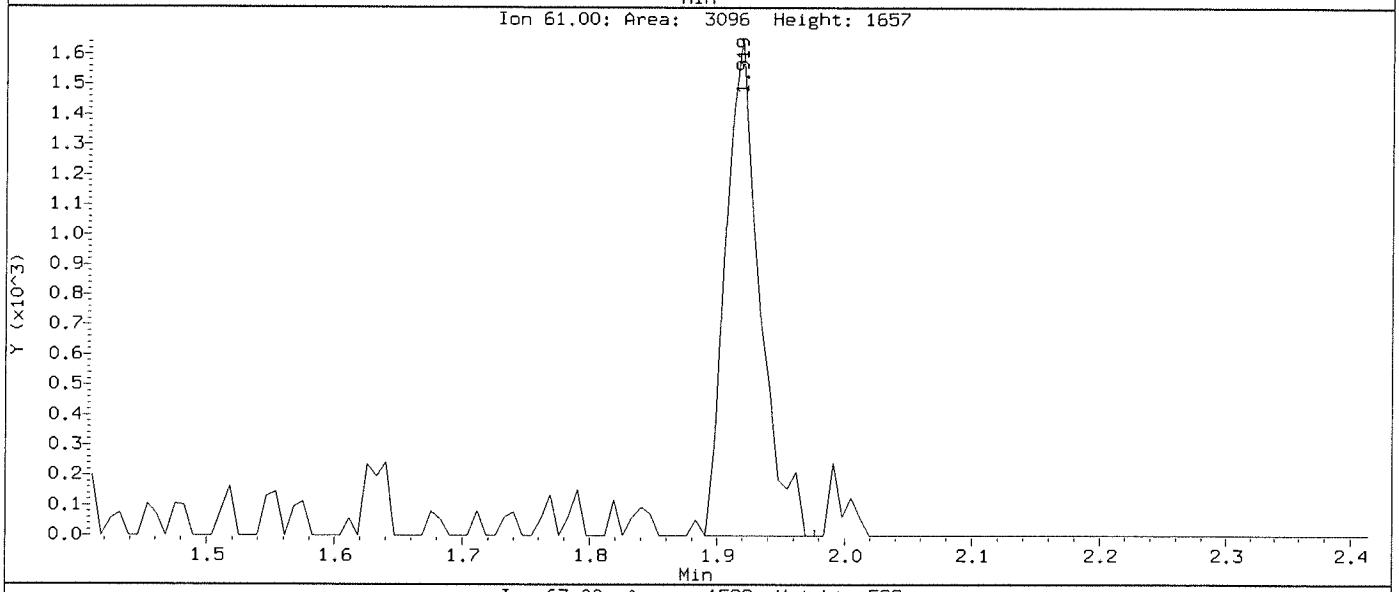
Compound: 1,1-Dichloroethene
CAS Number: 75-35-4

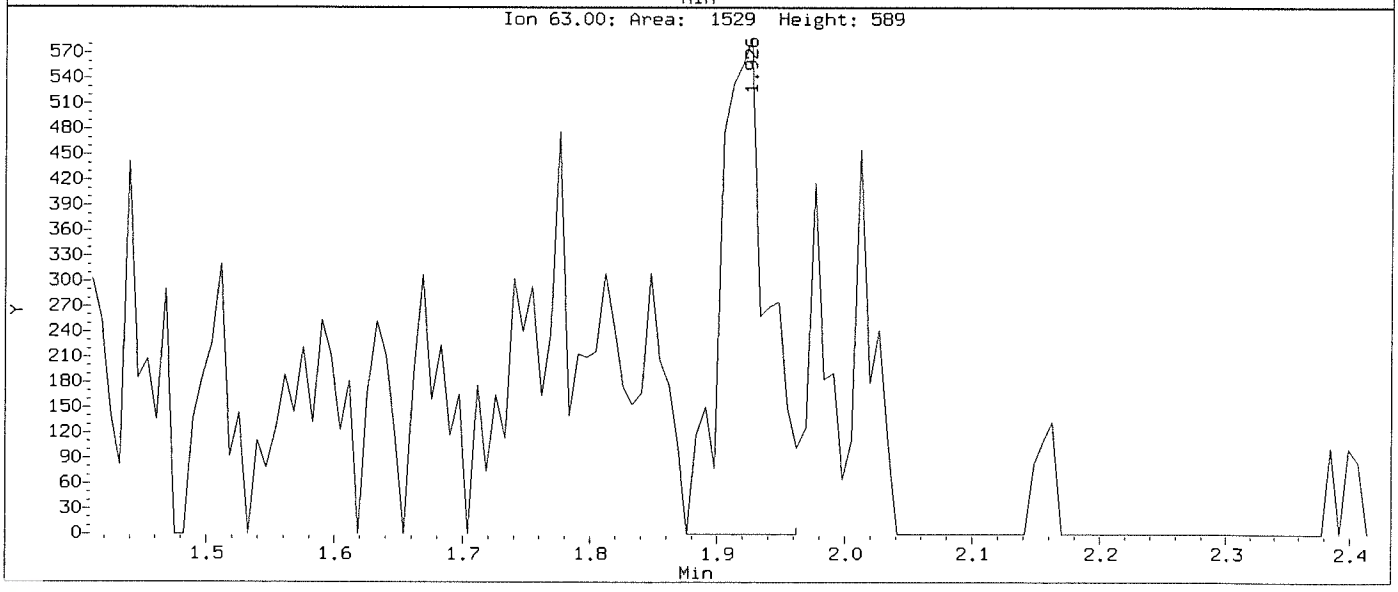


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,1-Dichloroethene
CAS Number: 75-35-4

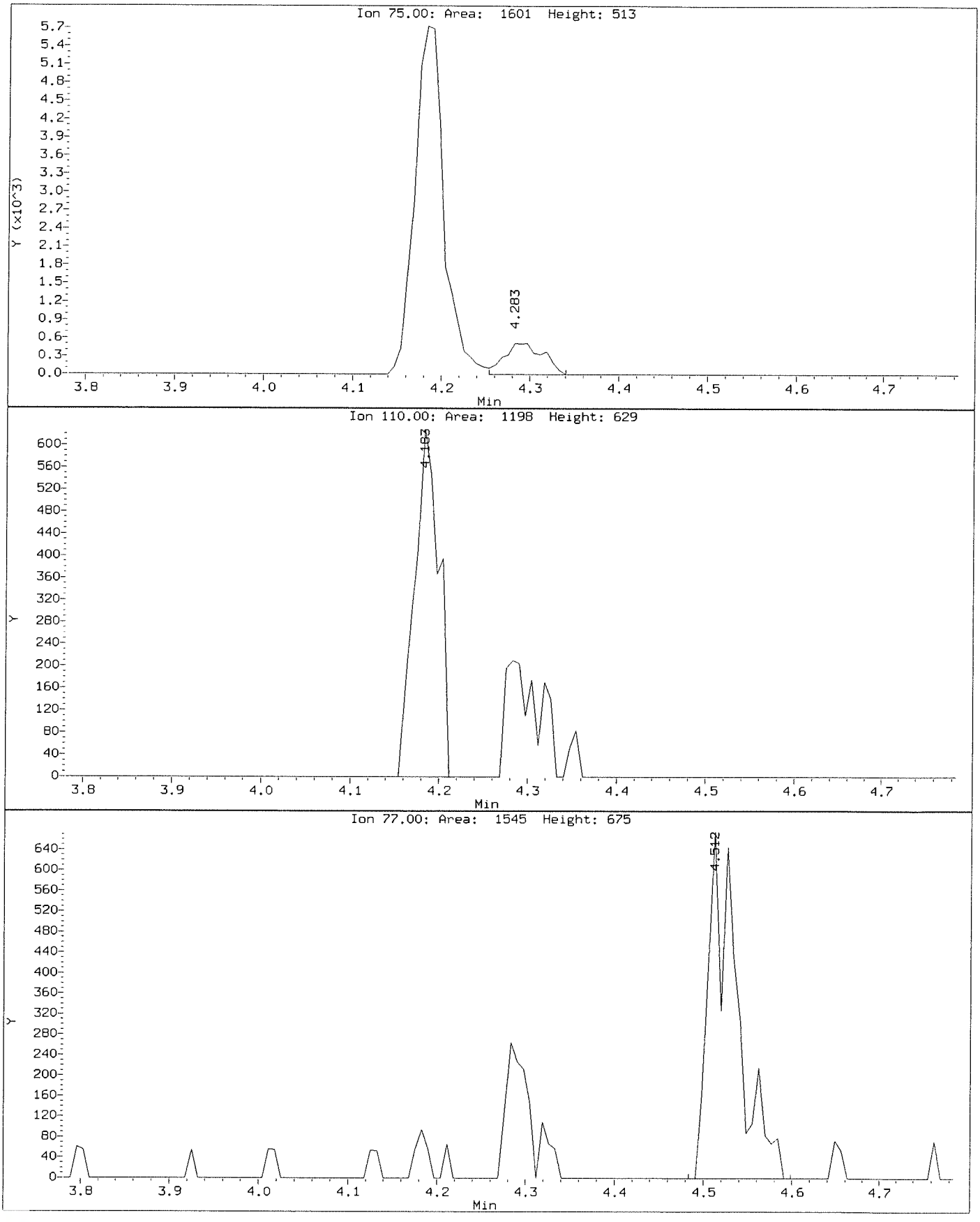


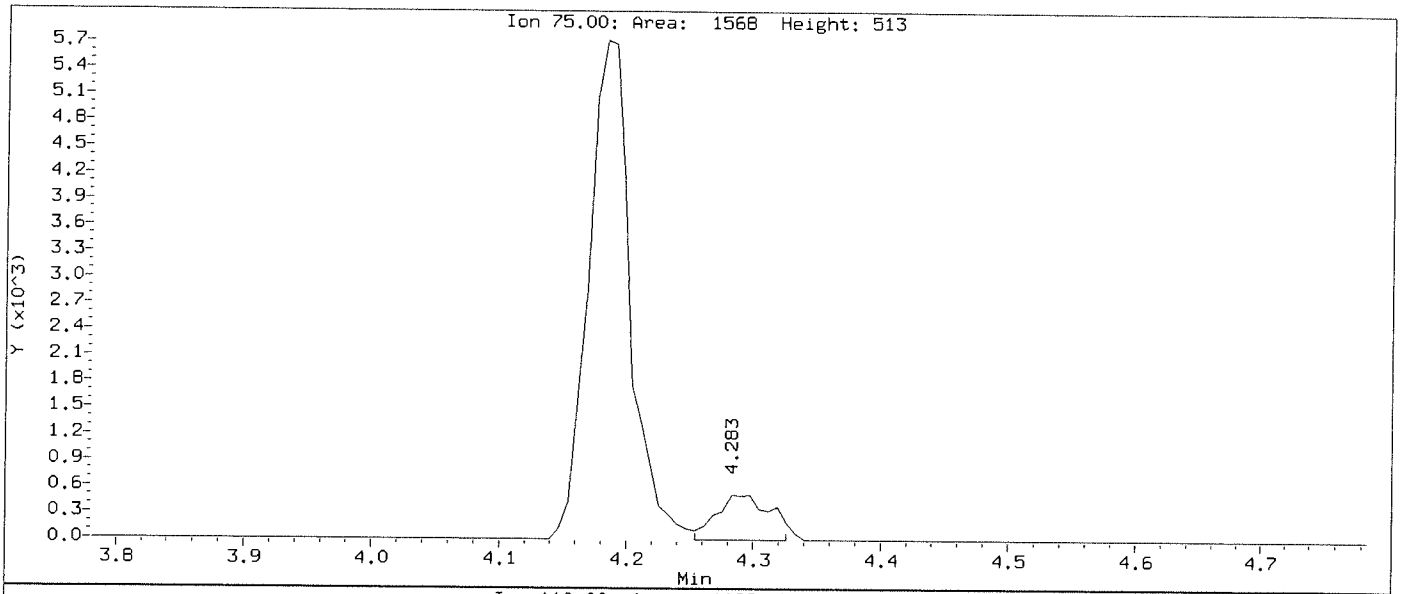
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

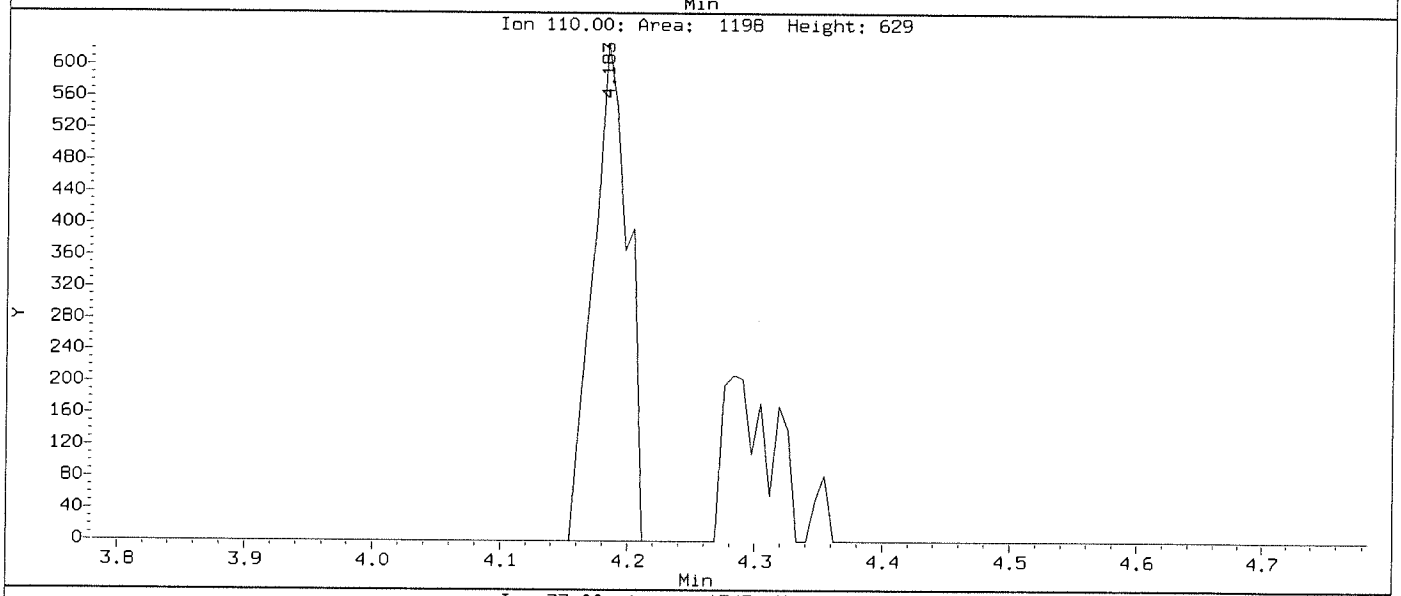
Compound: 1,1-Dichloropropene
CAS Number: 563-58-6

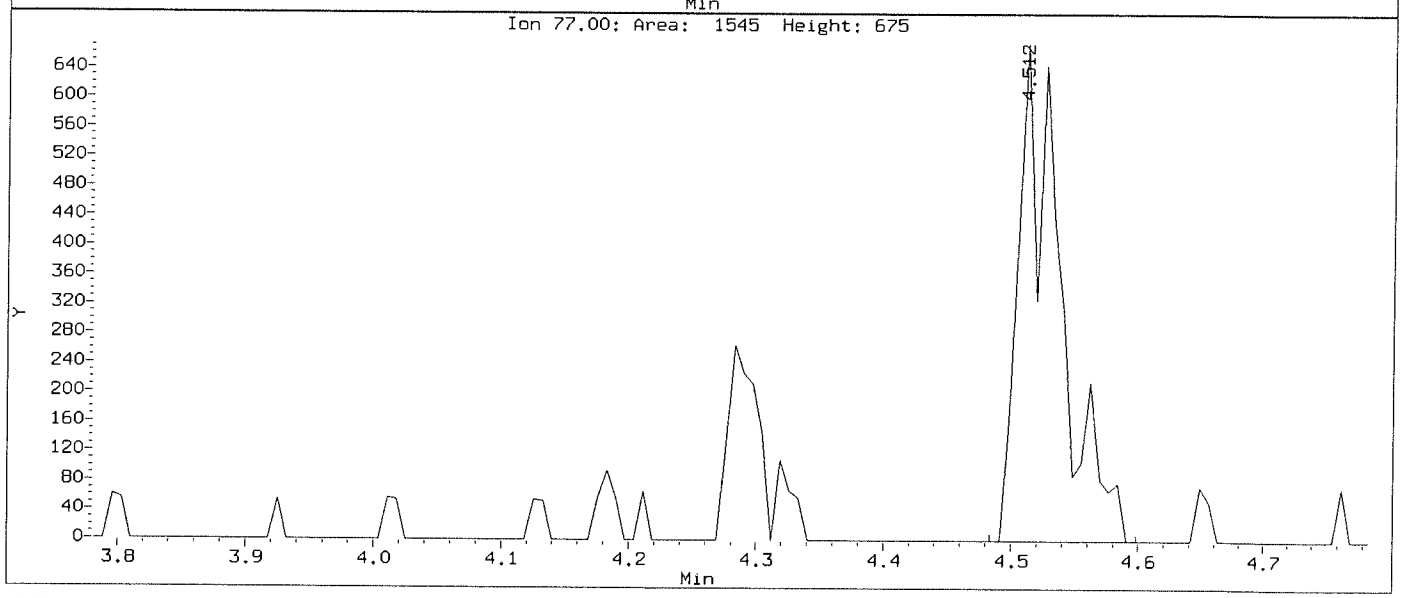


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,1-Dichloropropene
CAS Number: 563-58-6

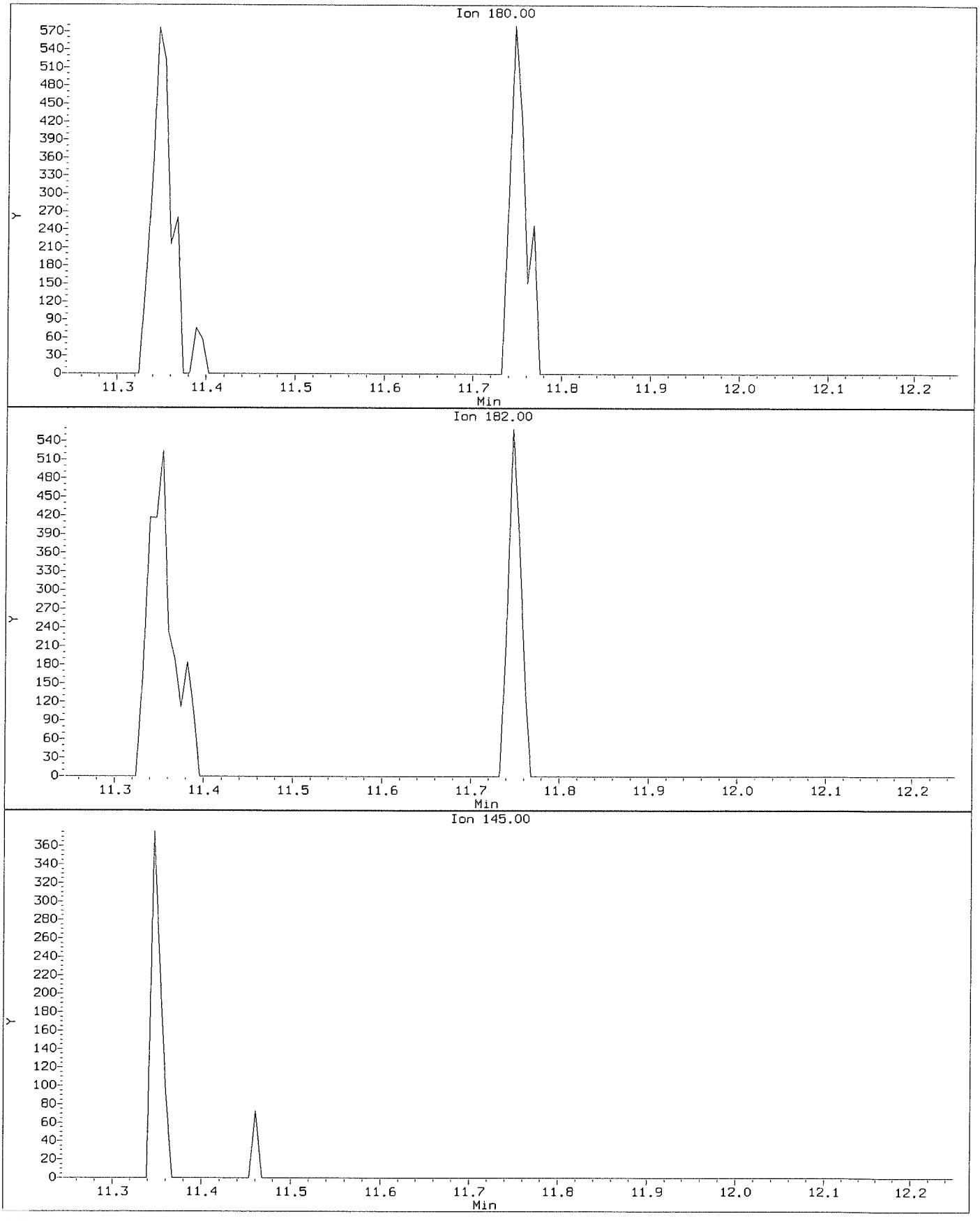


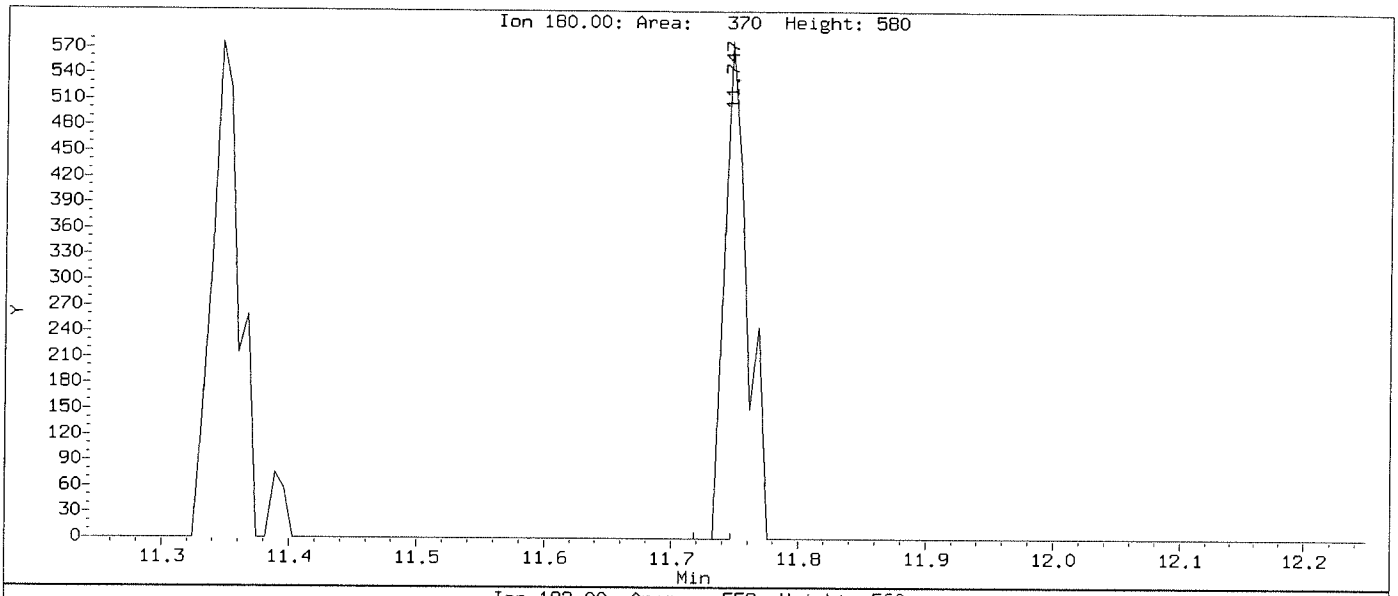
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

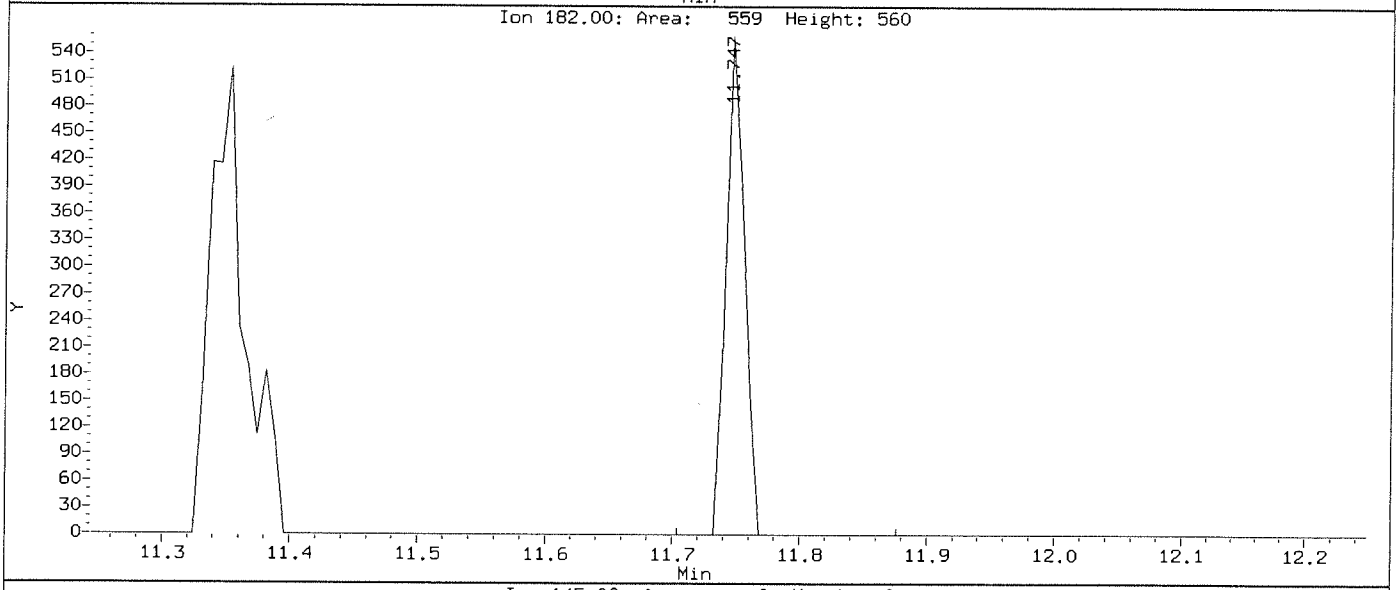
Compound: 1,2,3-Trichlorobenzene
CAS Number: 87-61-6

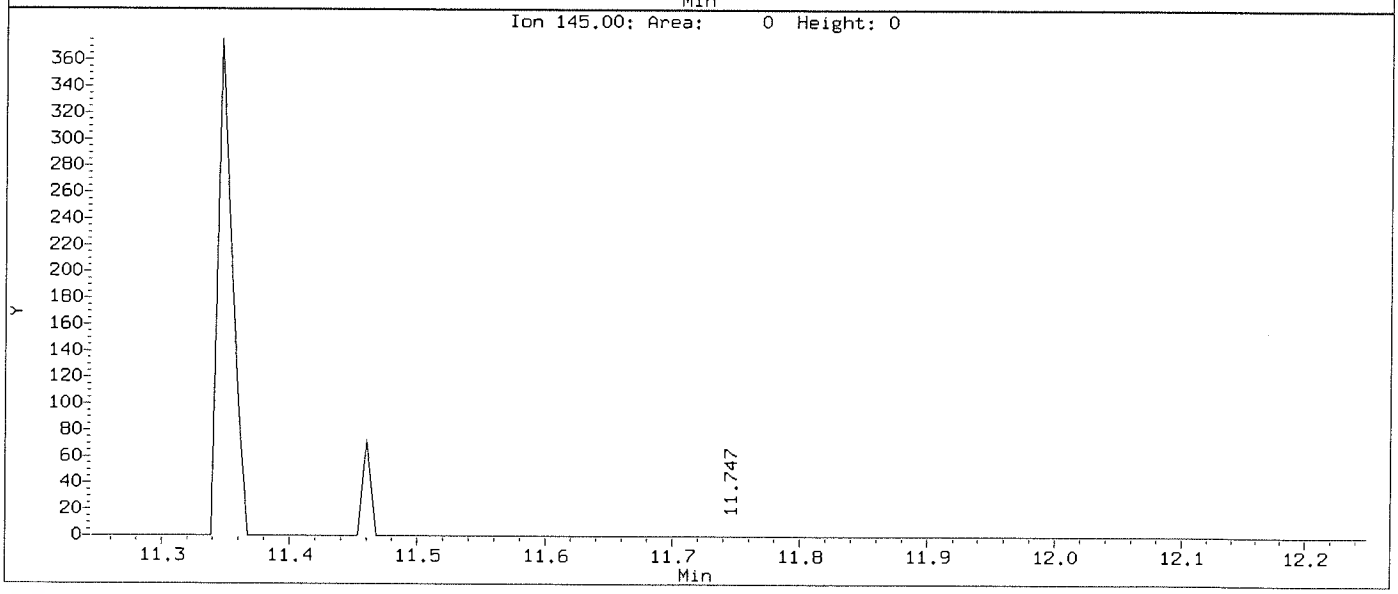


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,3-Trichlorobenzene
CAS Number: 87-61-6

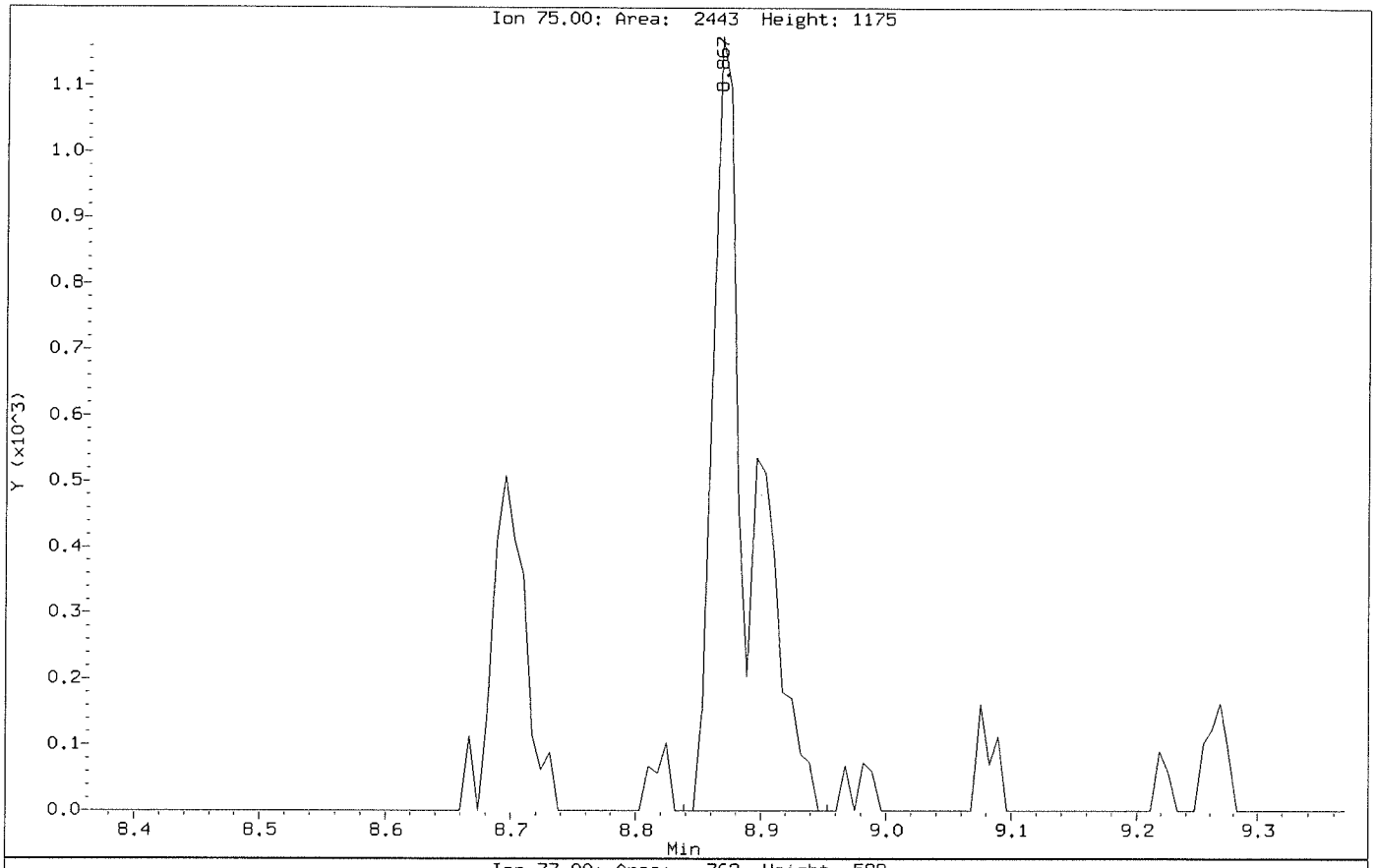


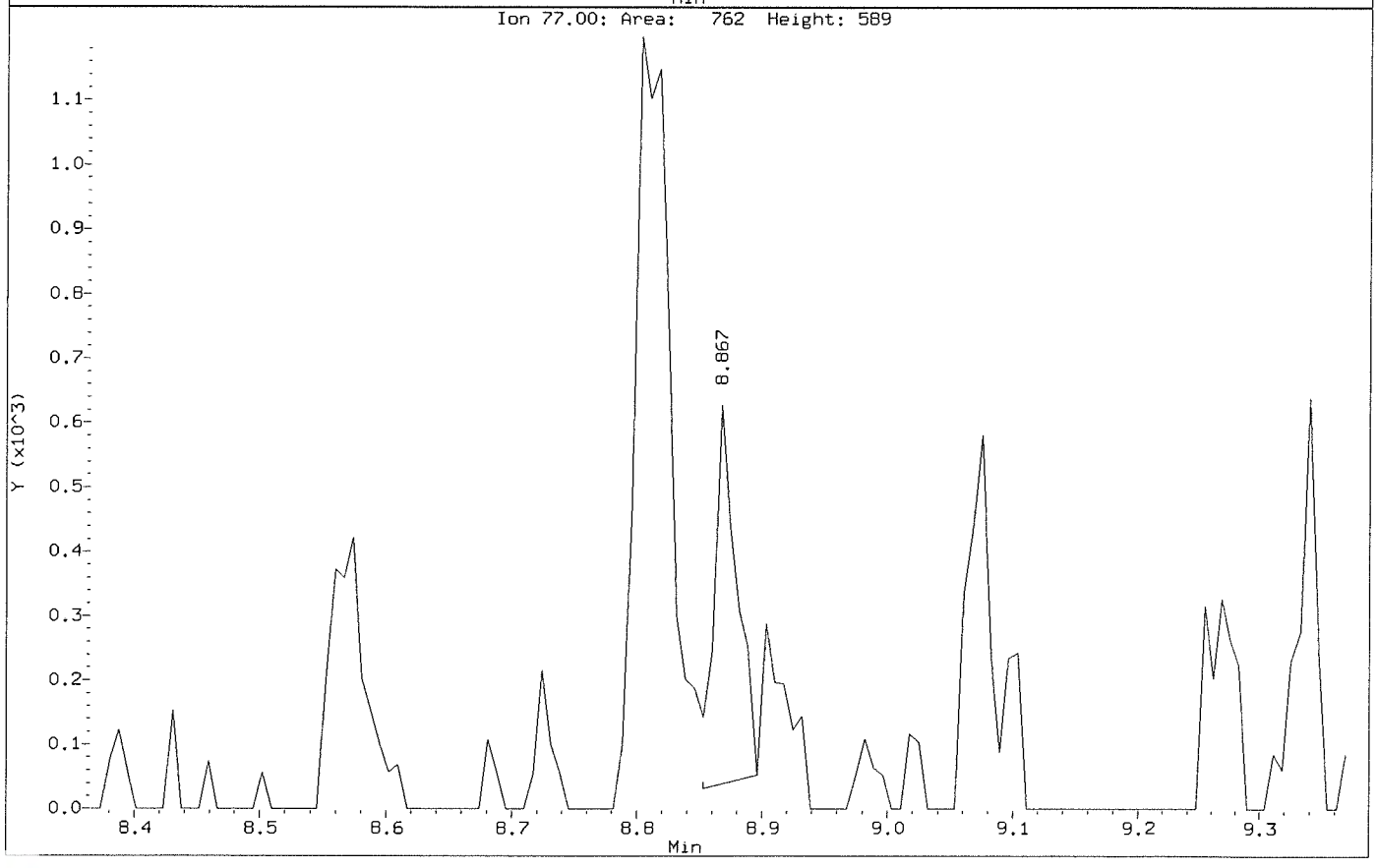



Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

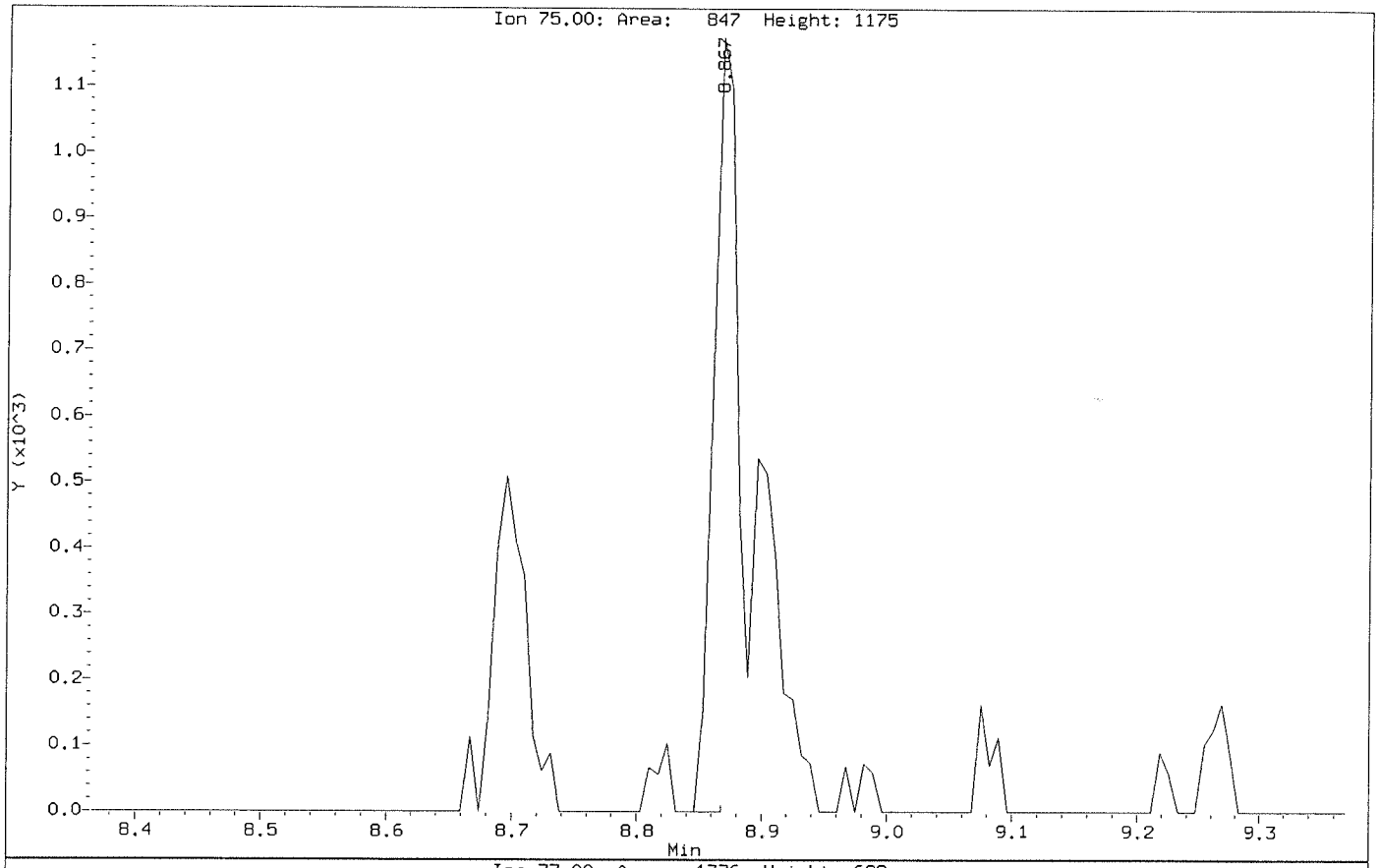
Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4

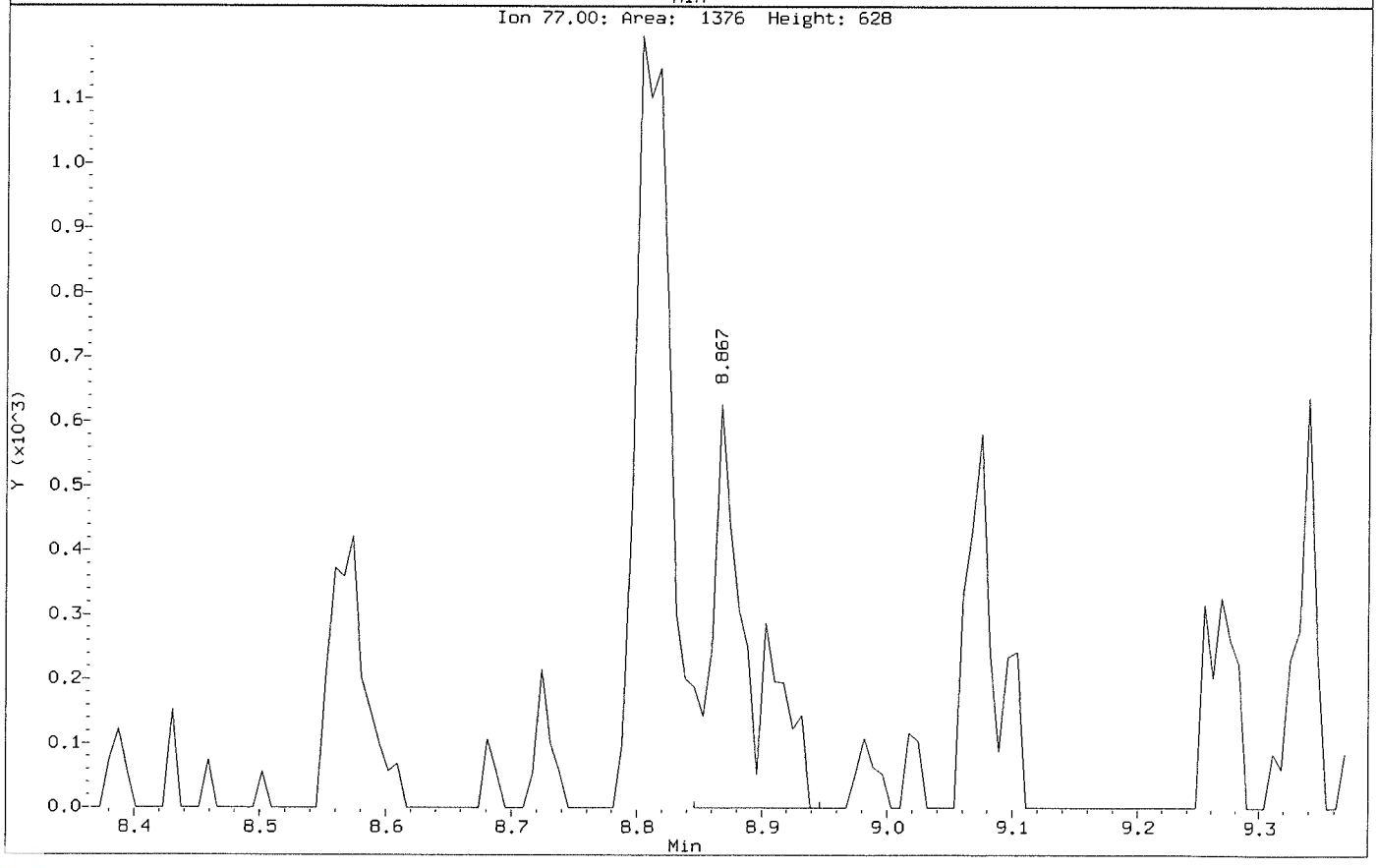


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

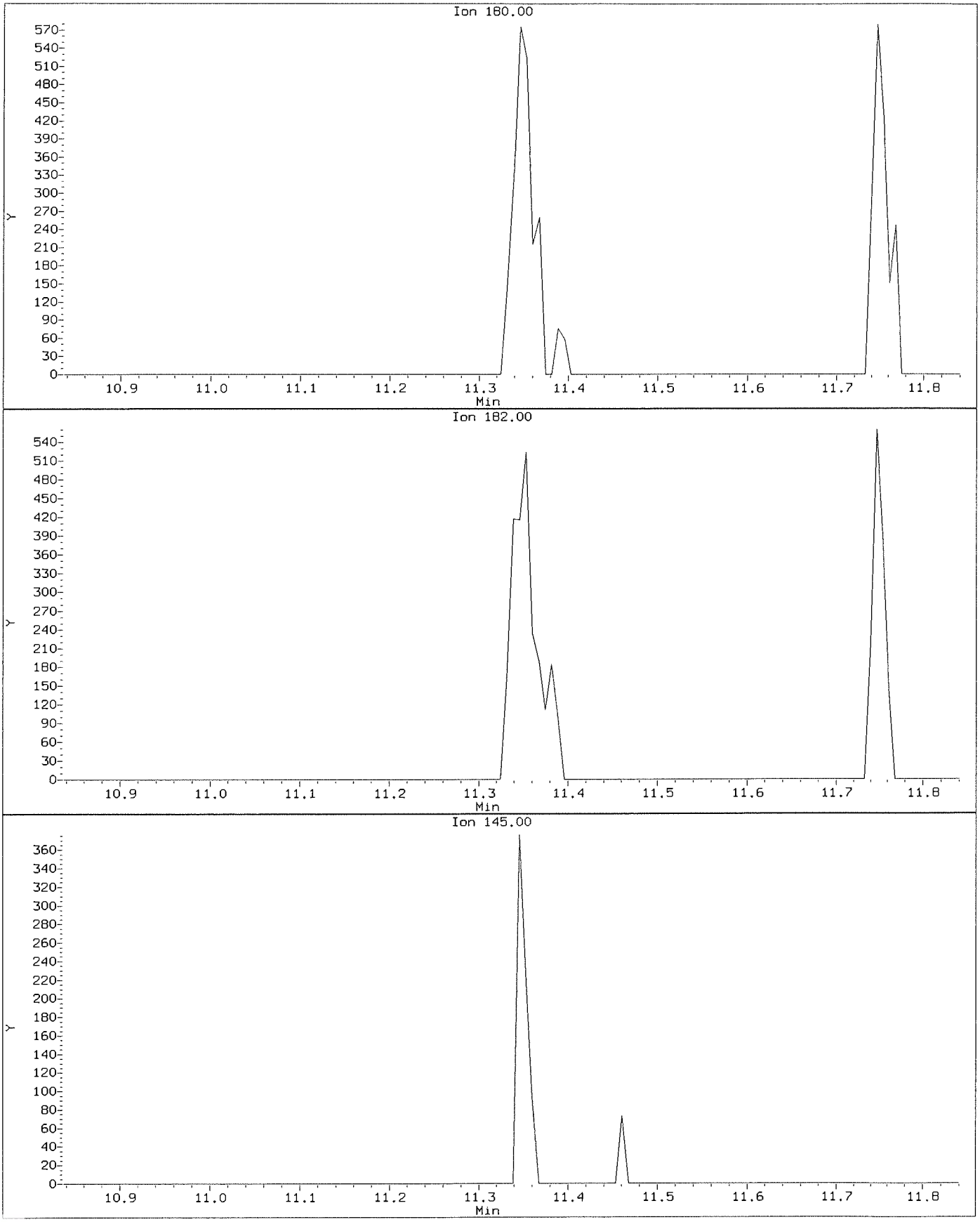
Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



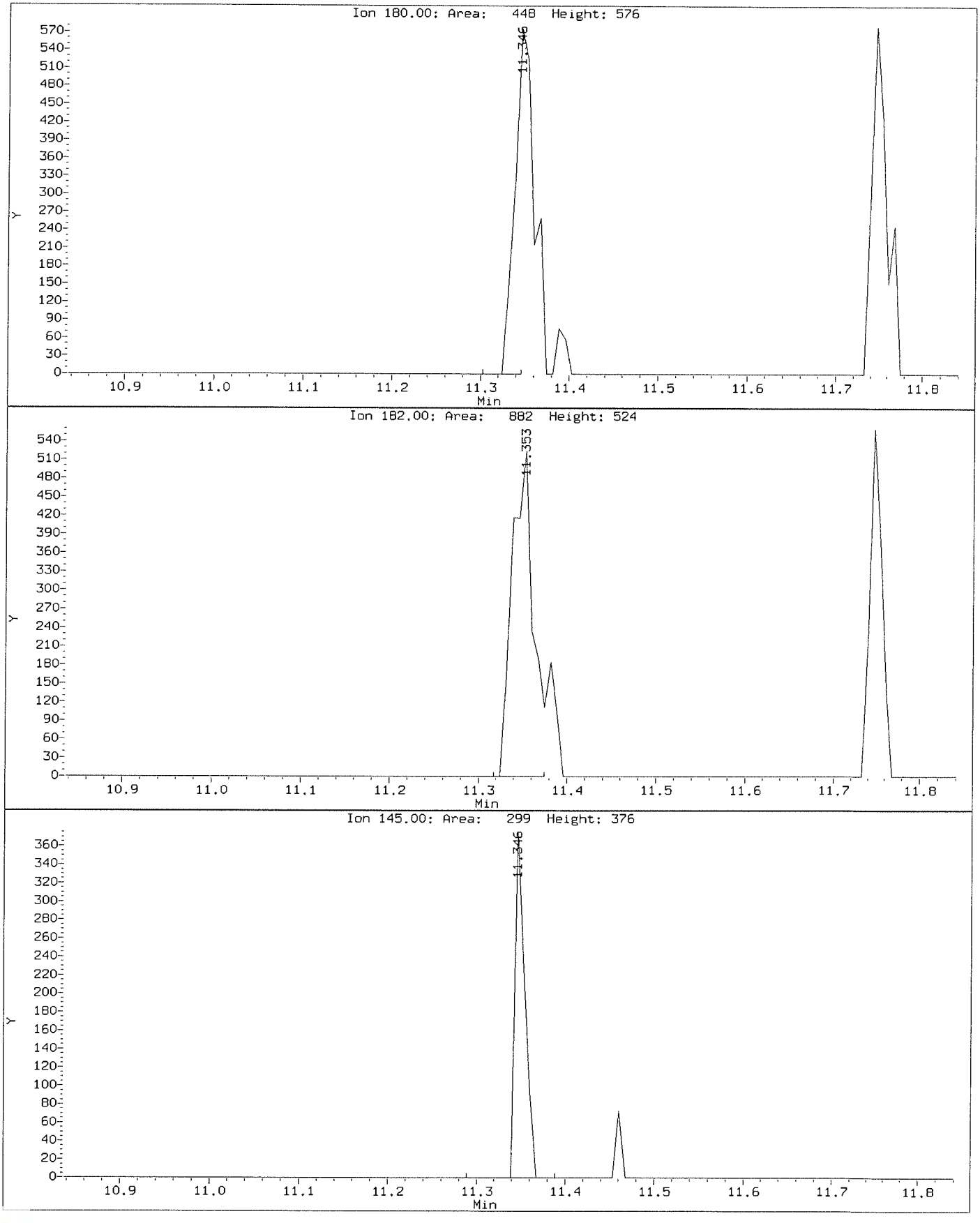
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1



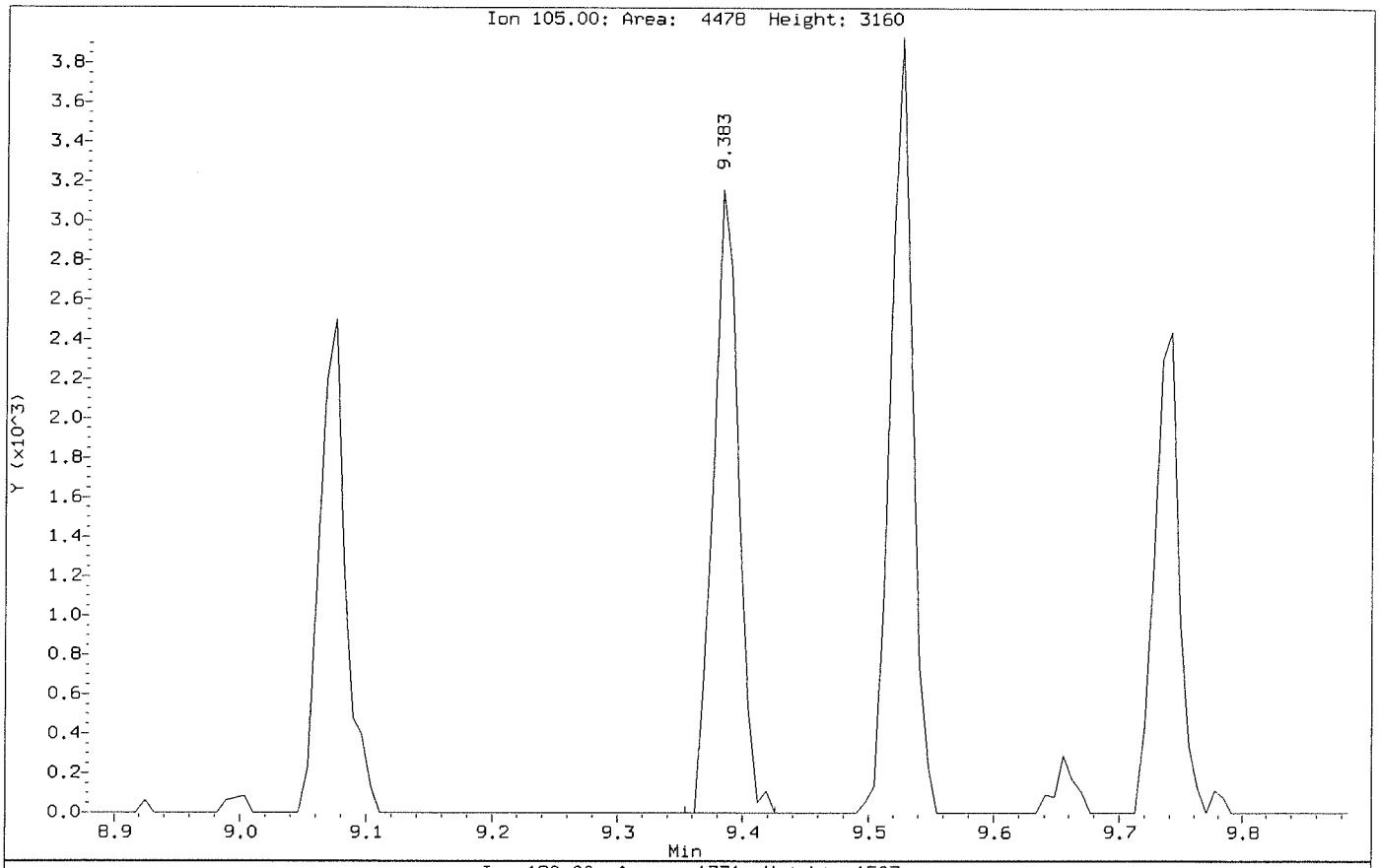
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

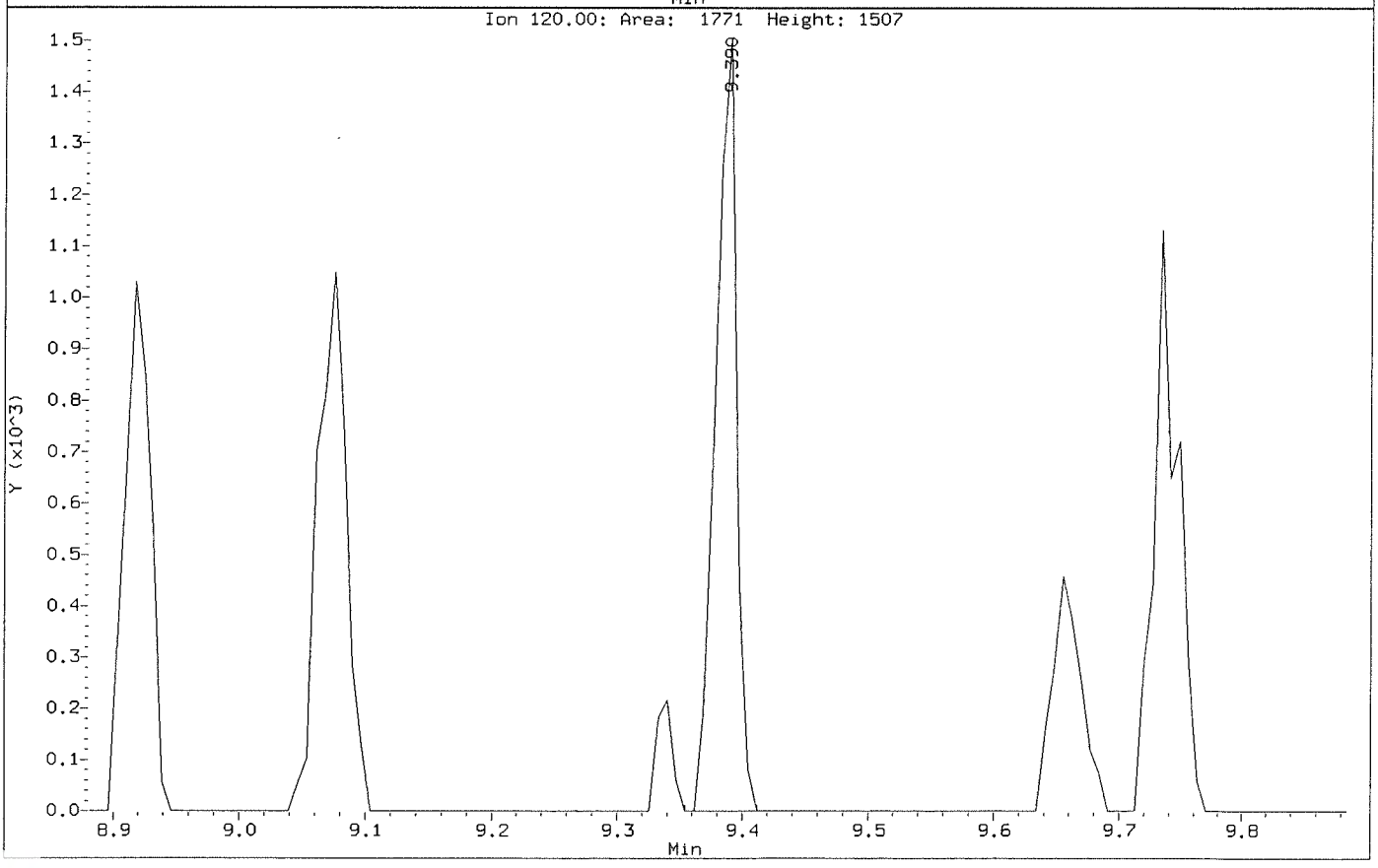
Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1



Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

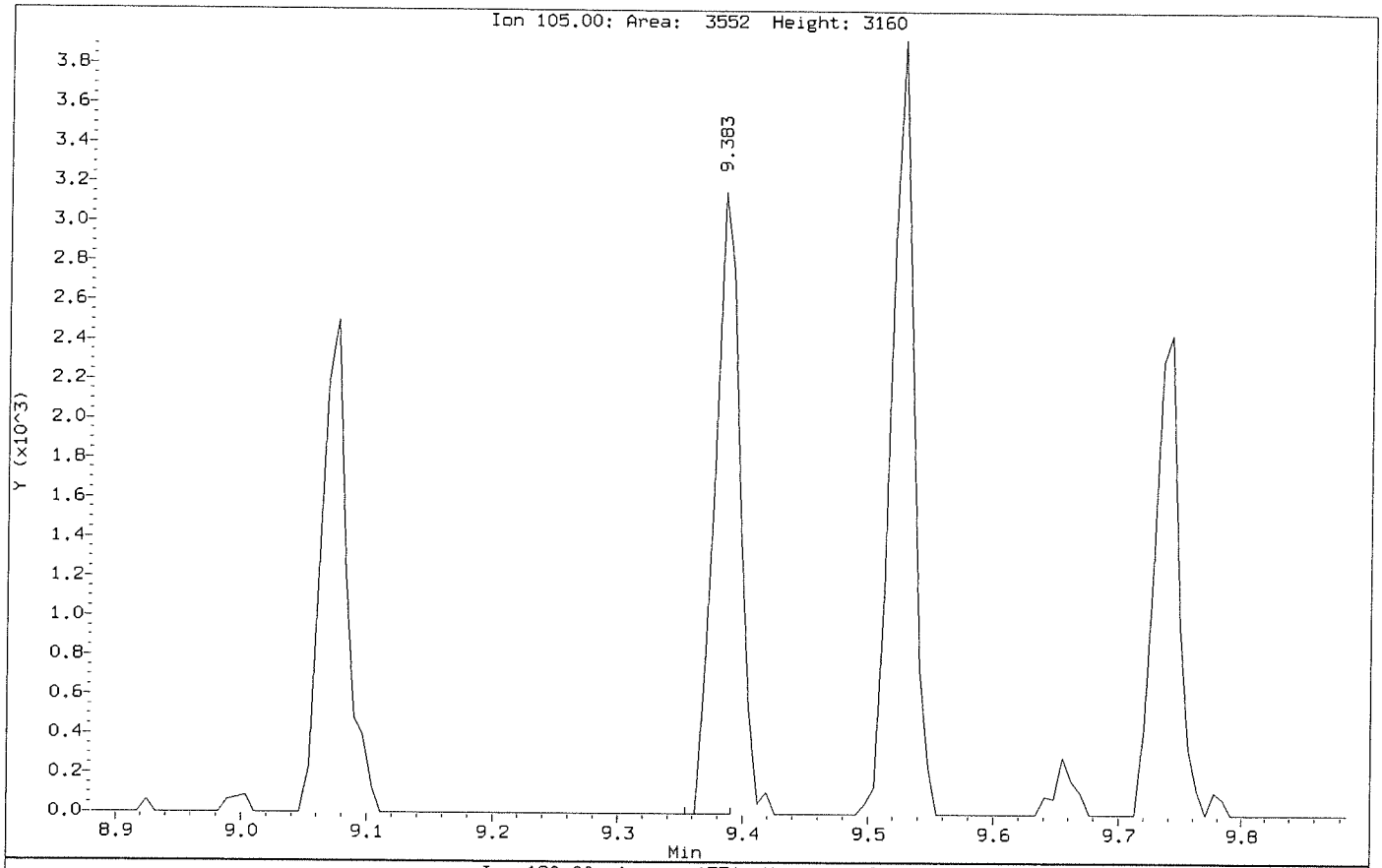
Compound: 1,2,4-Trimethylbenzene
CAS Number: 95-63-6

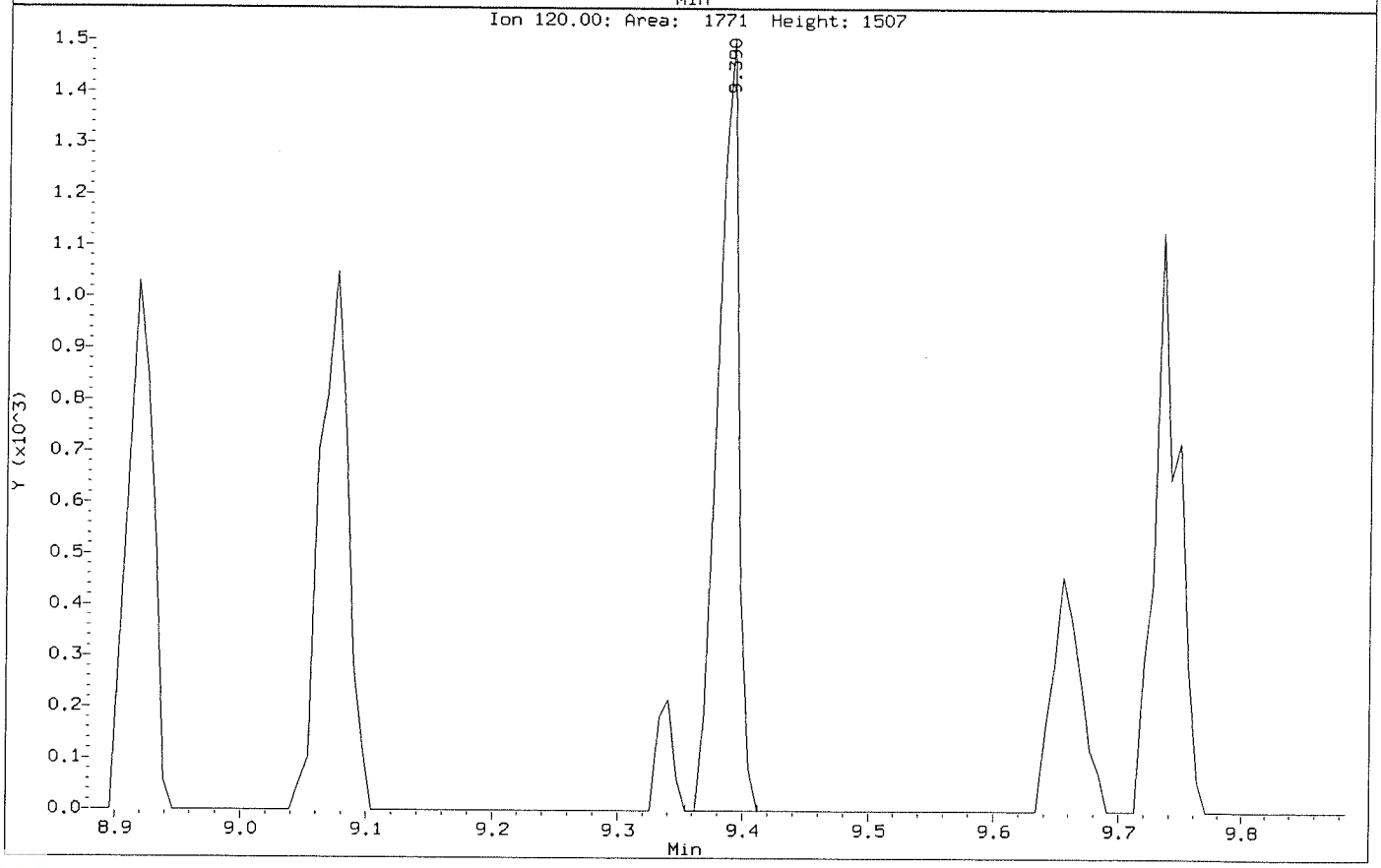


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

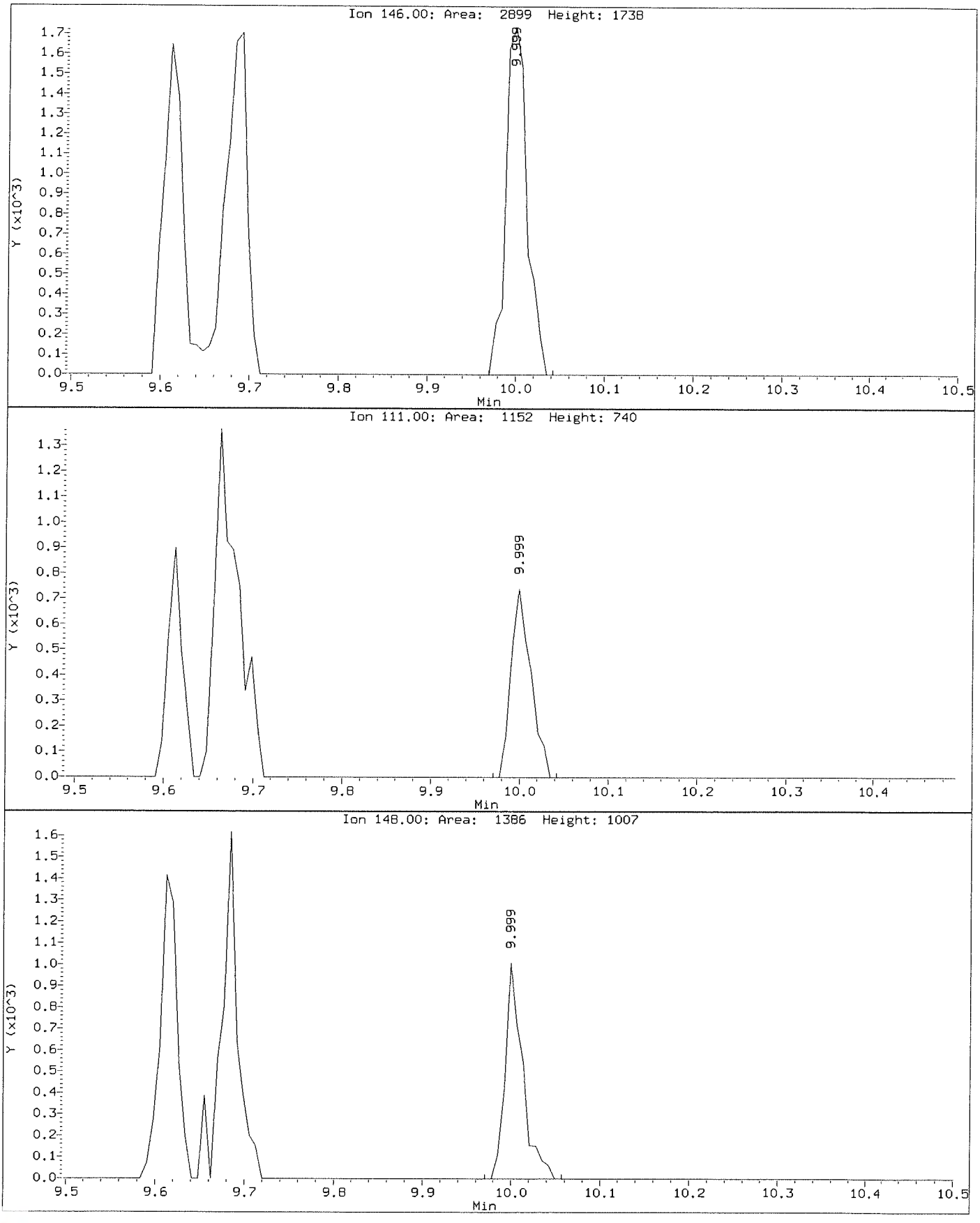
Compound: 1,2,4-Trimethylbenzene
CAS Number: 95-63-6



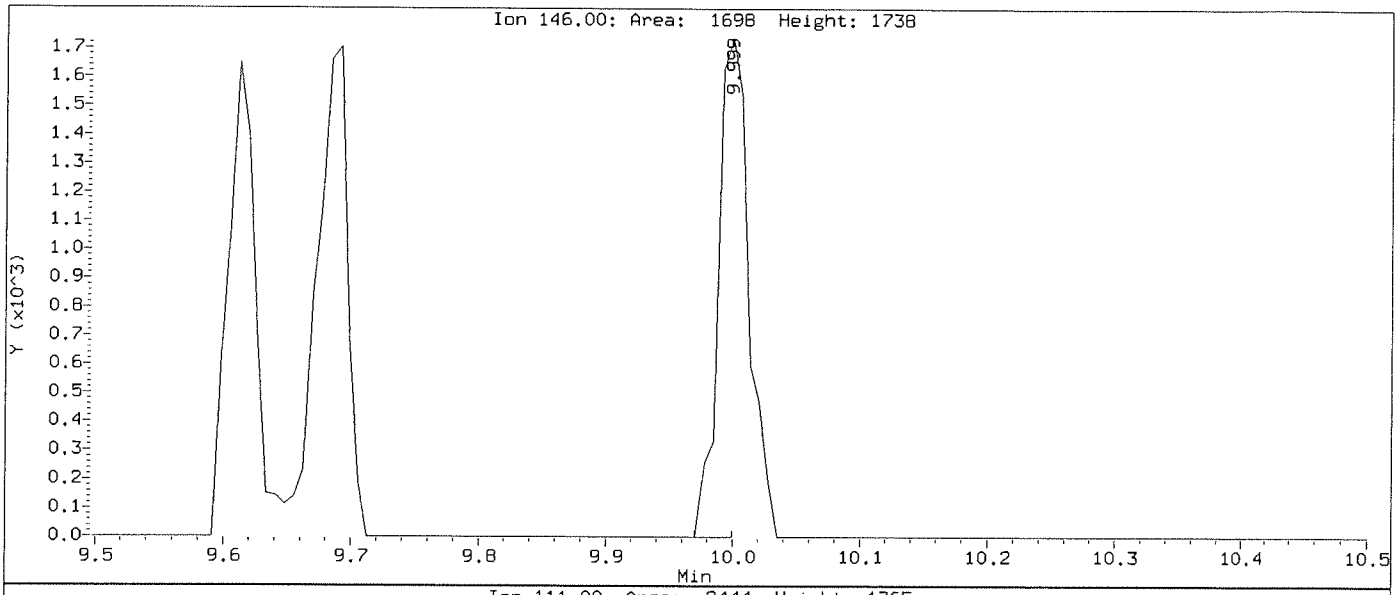
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

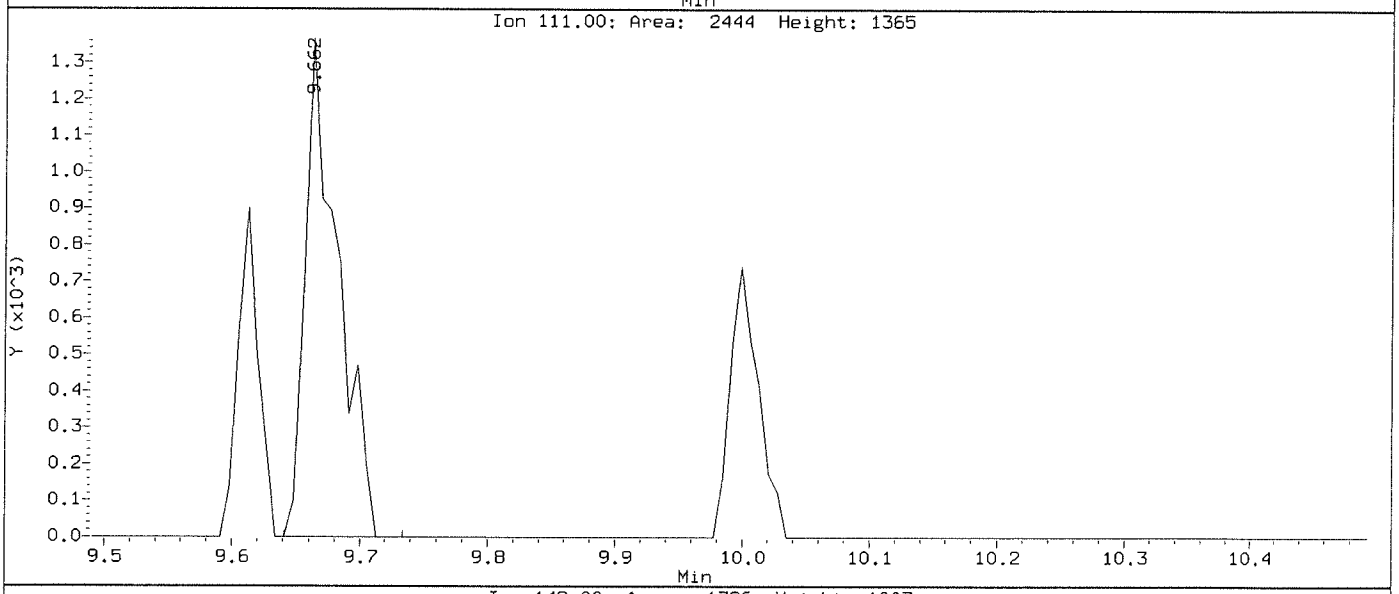
Compound: 1,2-Dichlorobenzene
CAS Number: 95-50-1

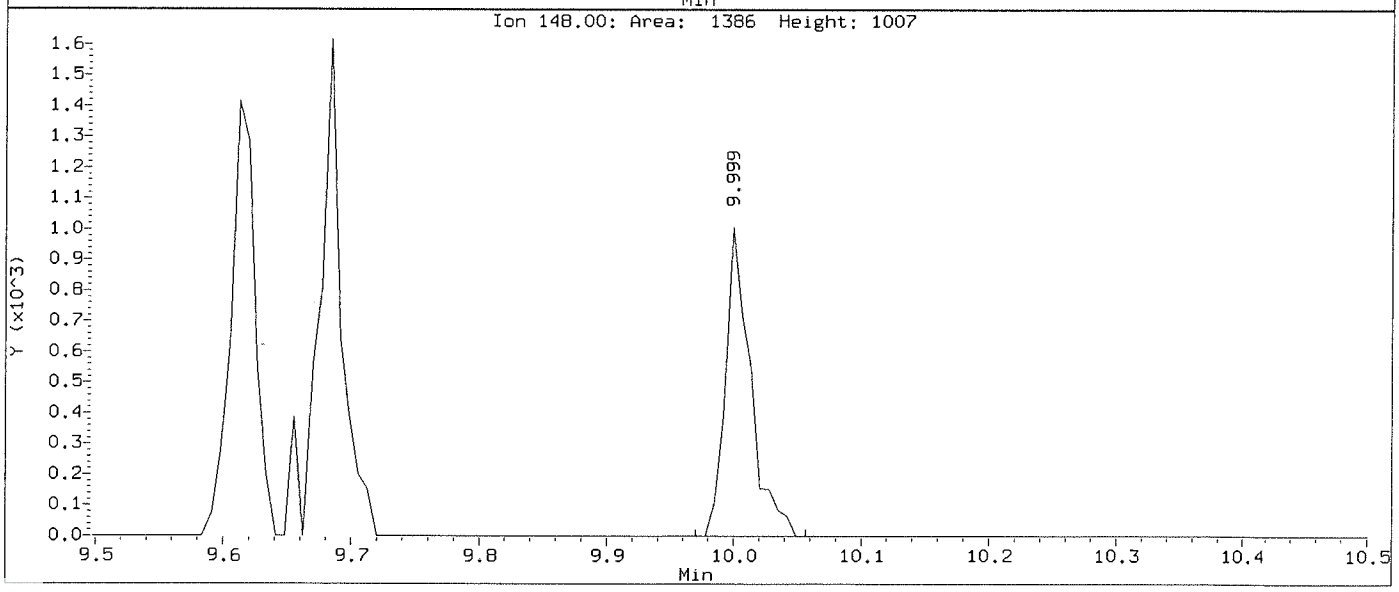


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2-Dichlorobenzene
CAS Number: 95-50-1

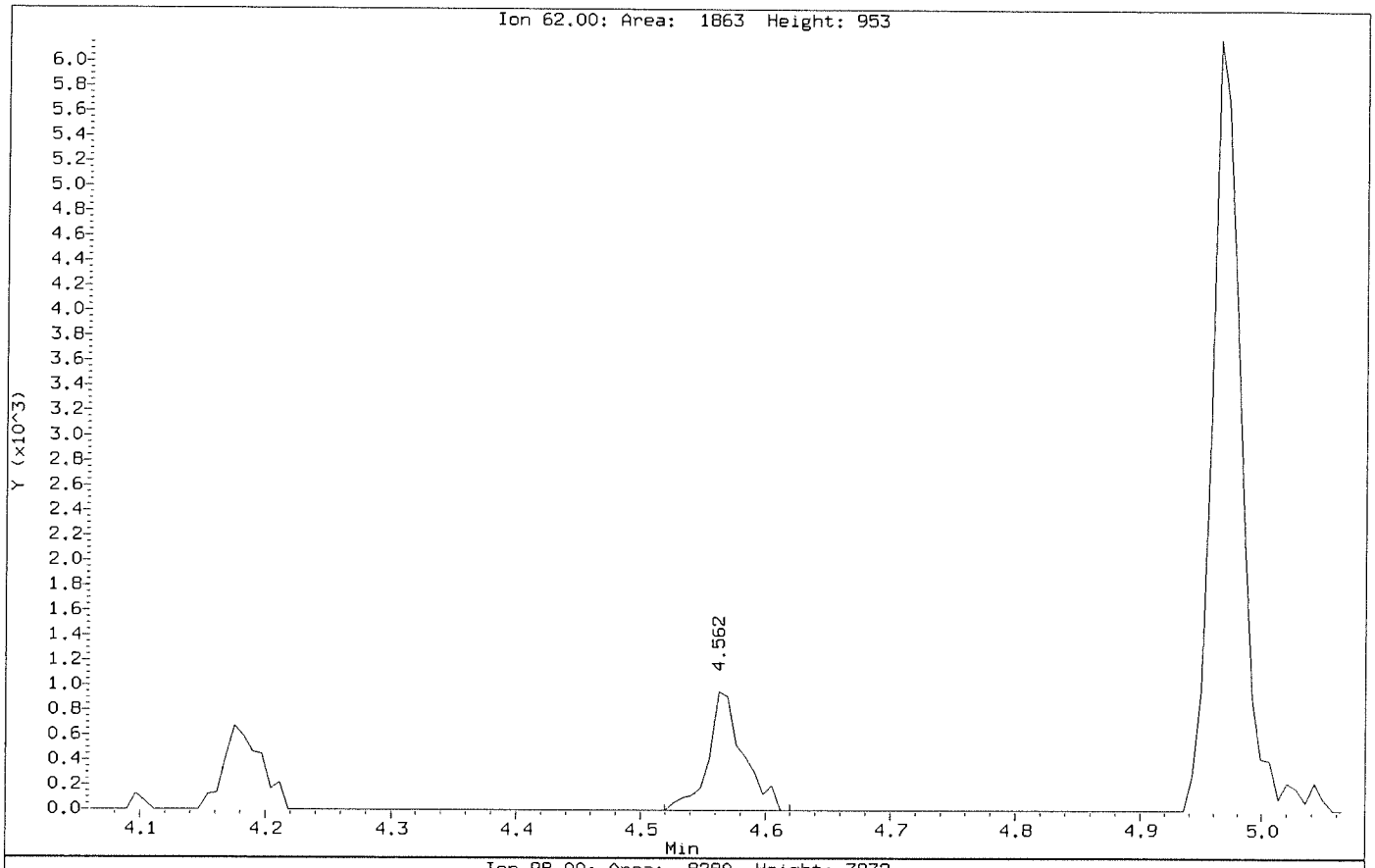


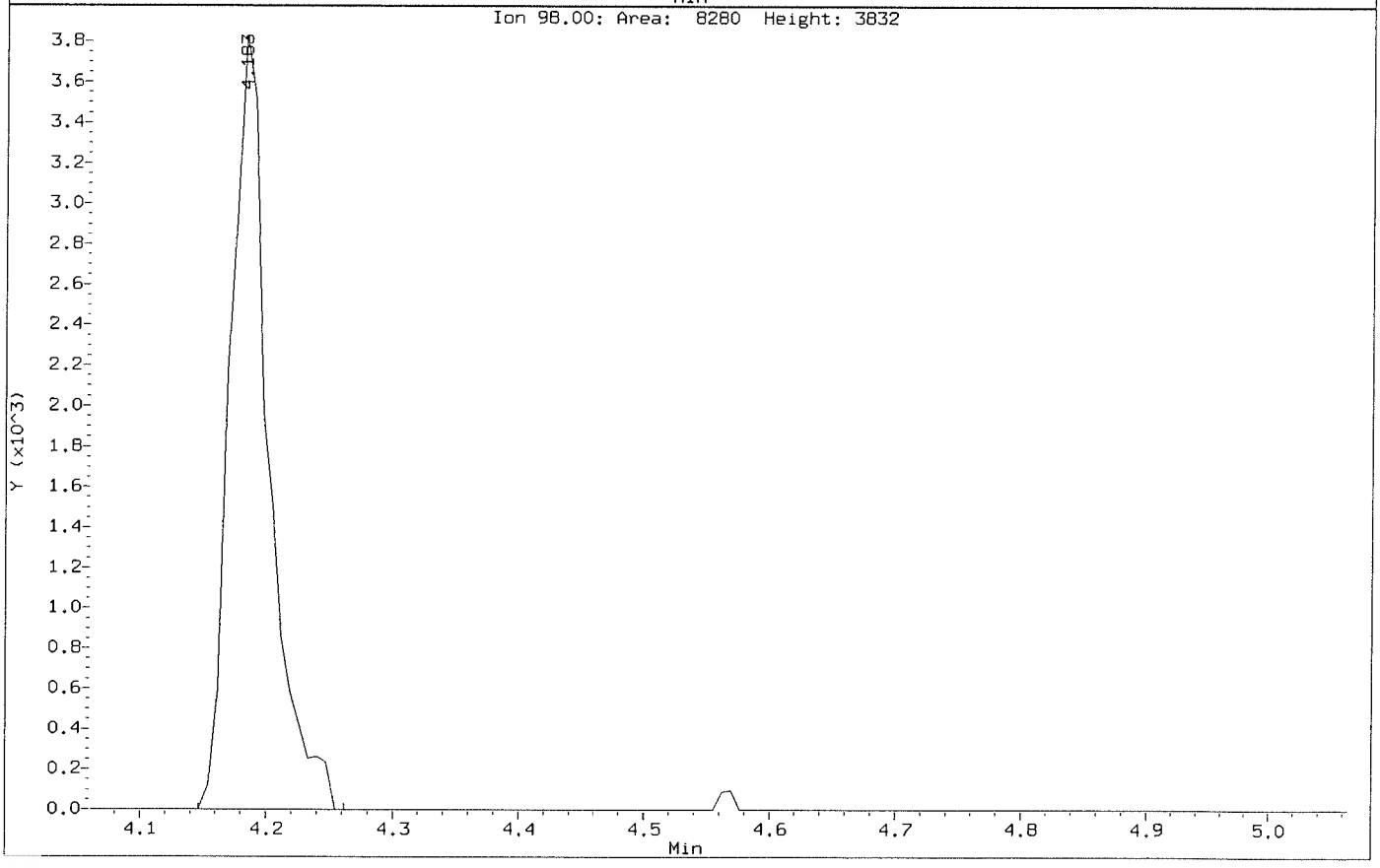



Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

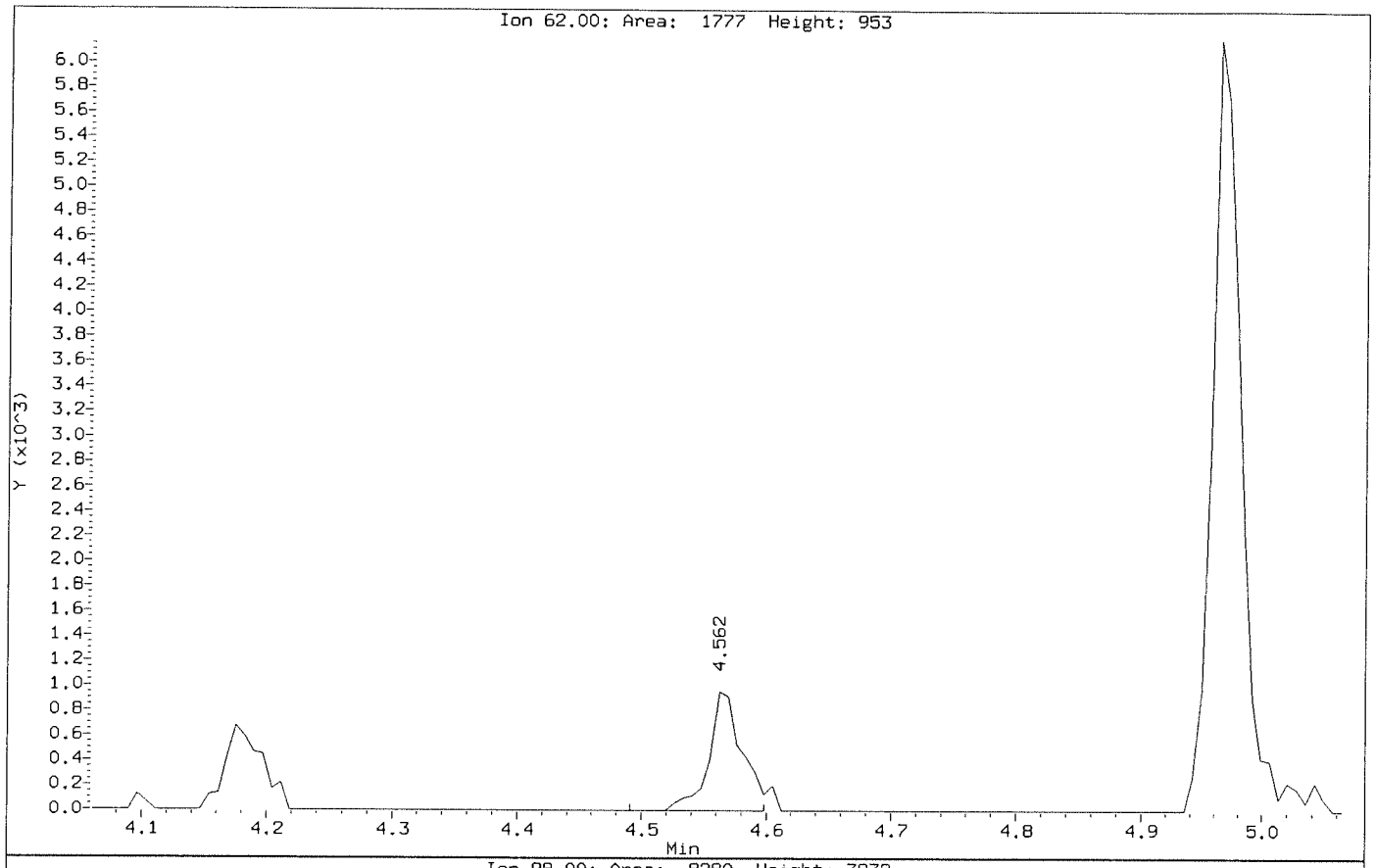
Compound: 1,2-Dichloroethane
CAS Number: 107-06-2

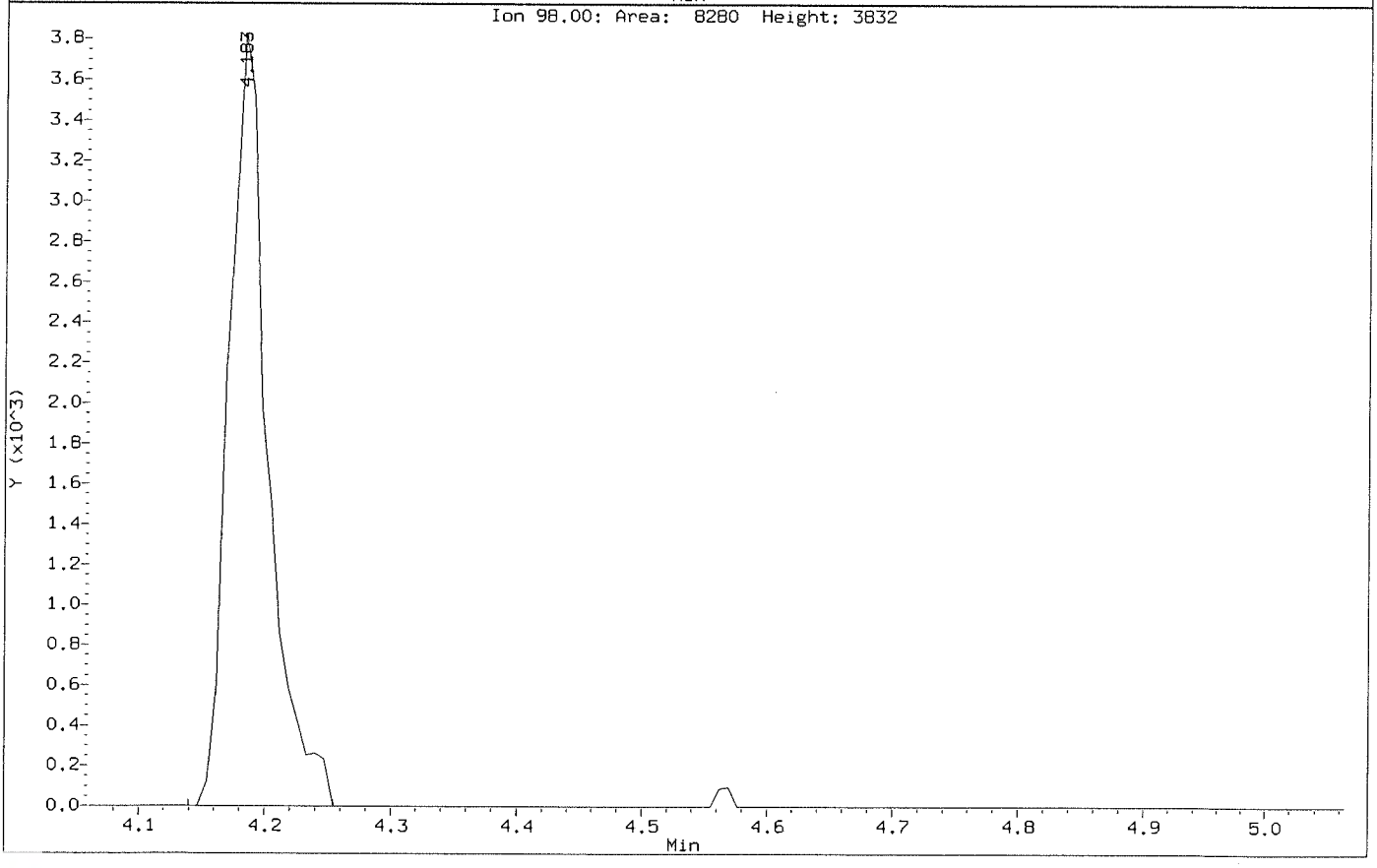


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

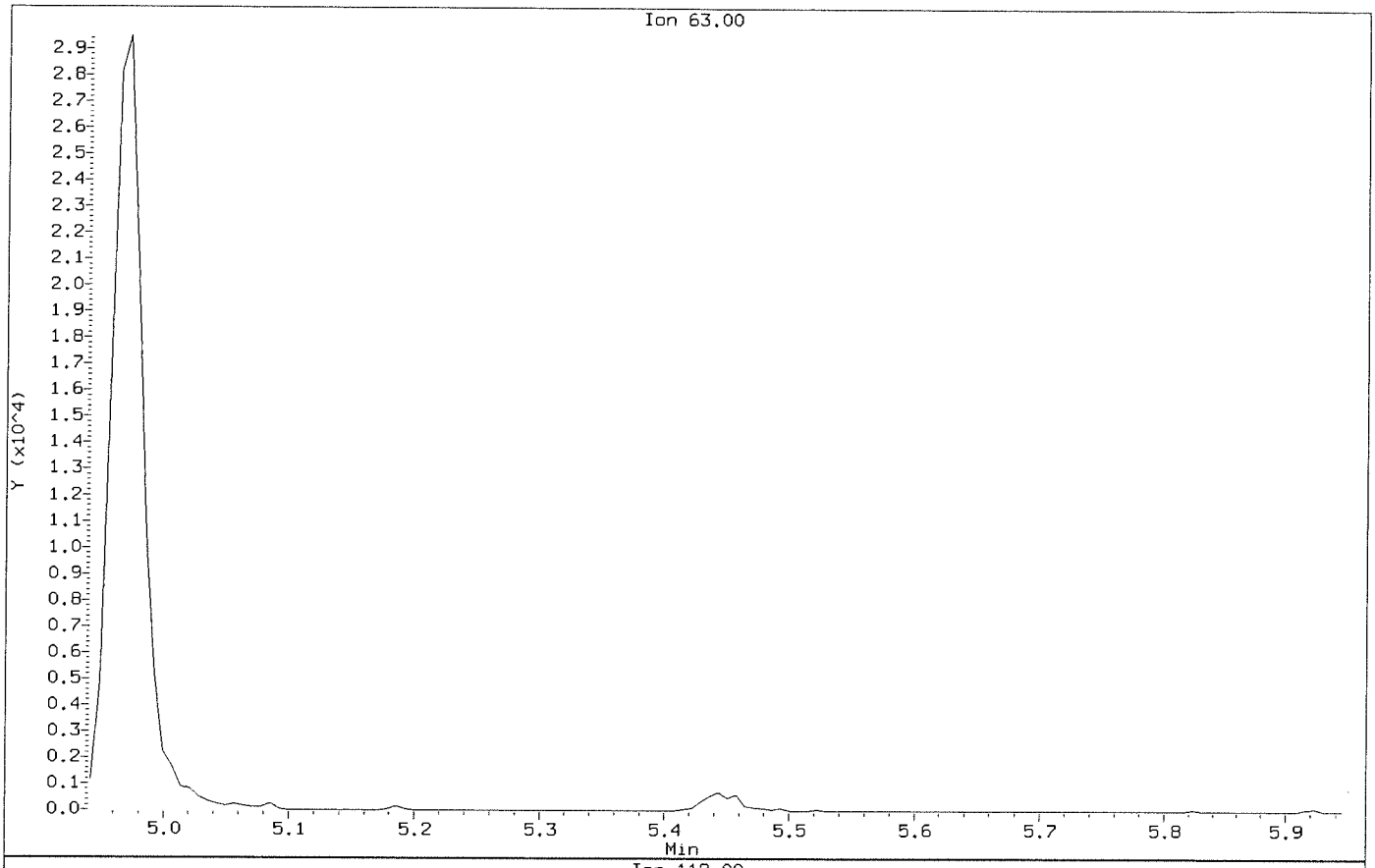
Compound: 1,2-Dichloroethane
CAS Number: 107-06-2

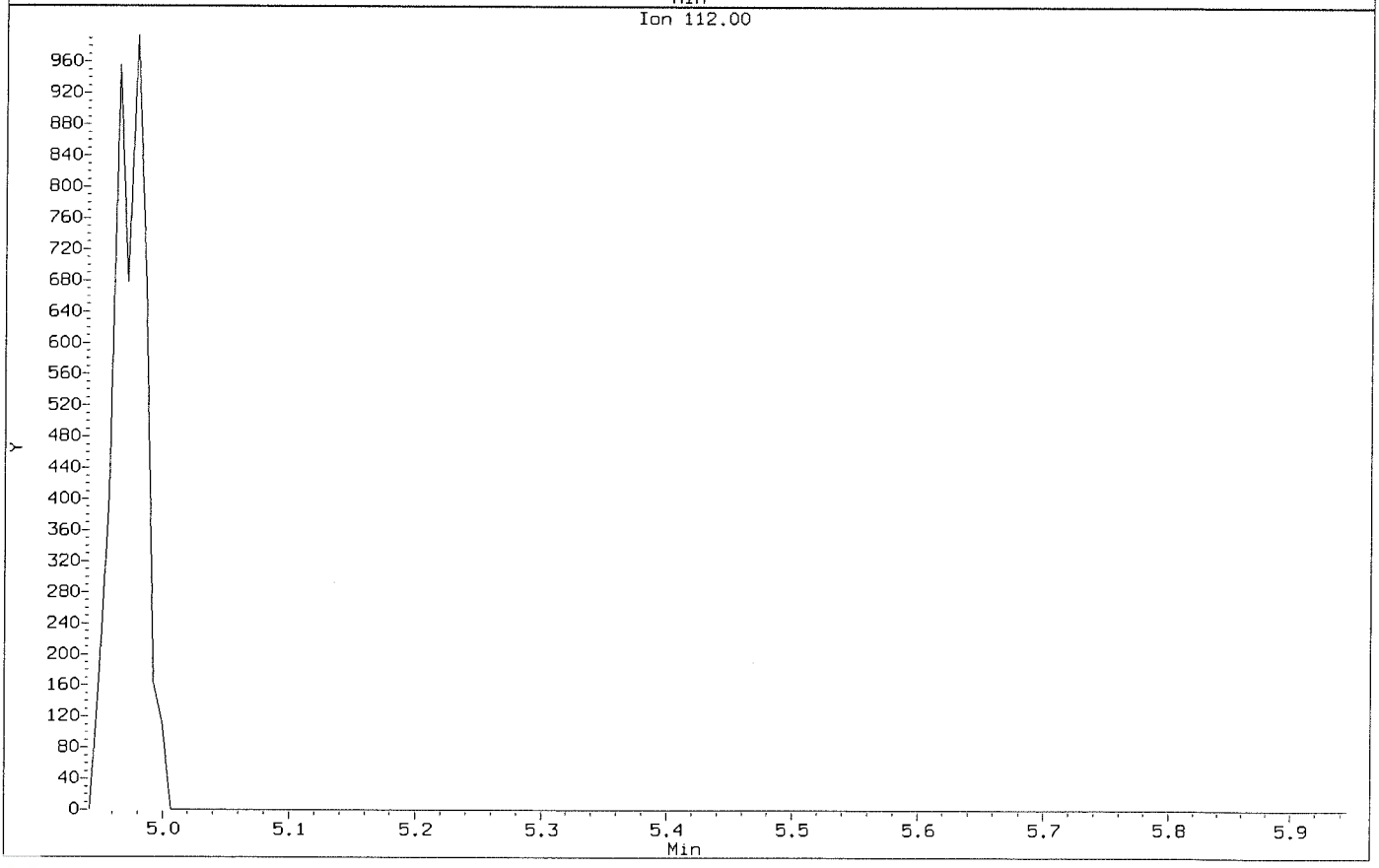


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

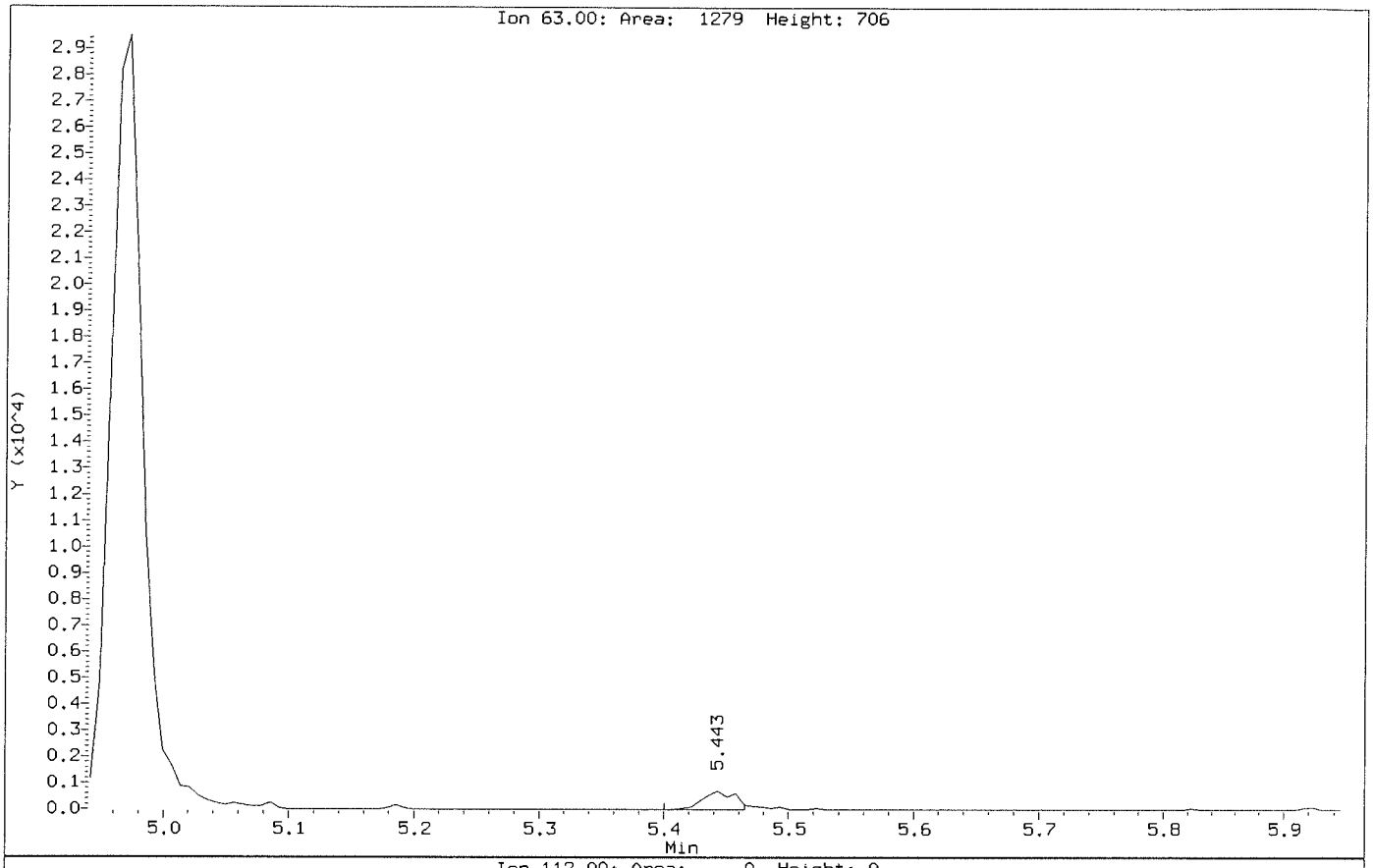
Compound: 1,2-Dichloropropane
CAS Number: 78-87-5

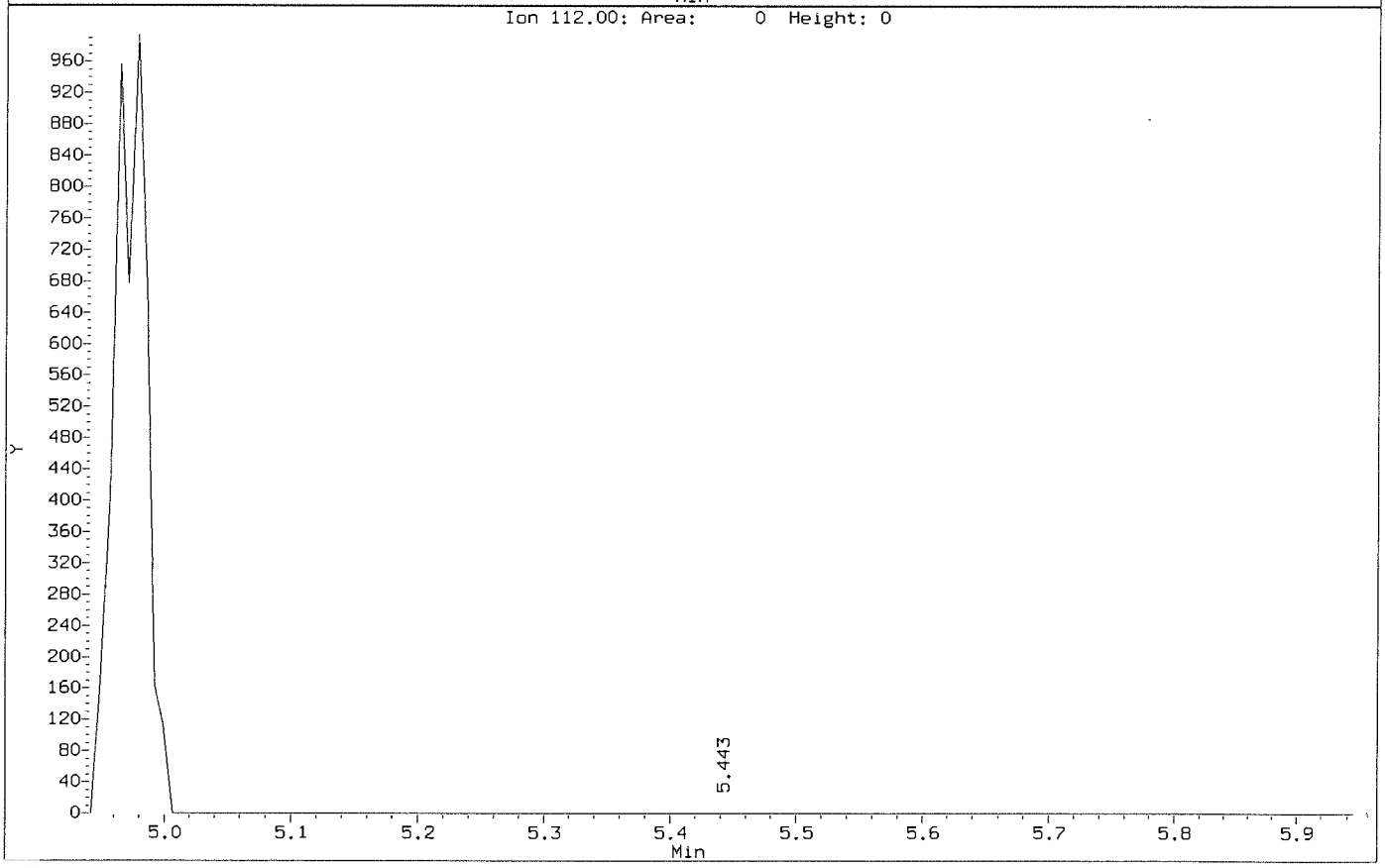


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

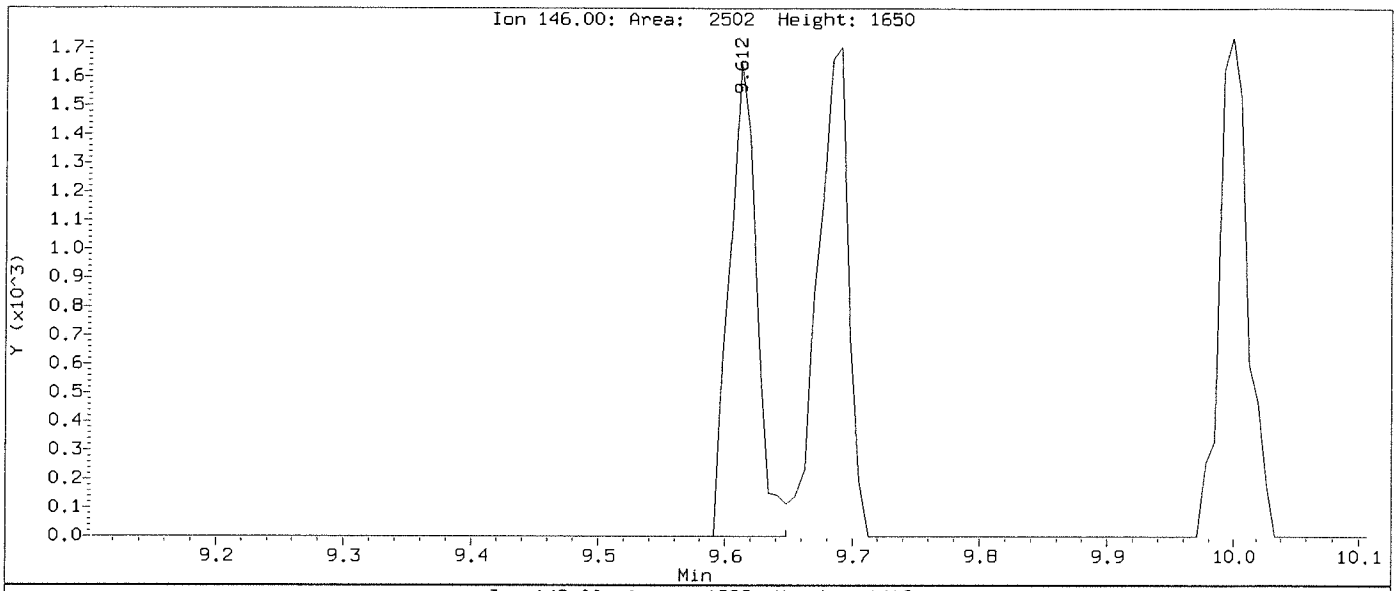
Compound: 1,2-Dichloropropane
CAS Number: 78-87-5

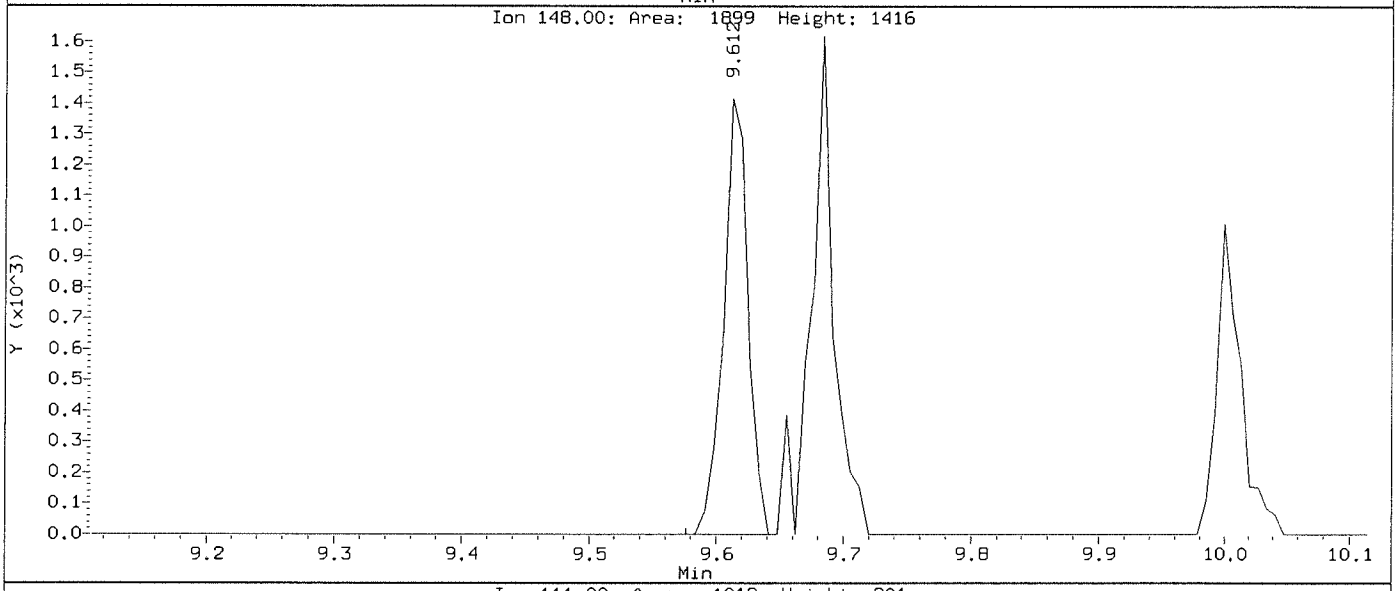


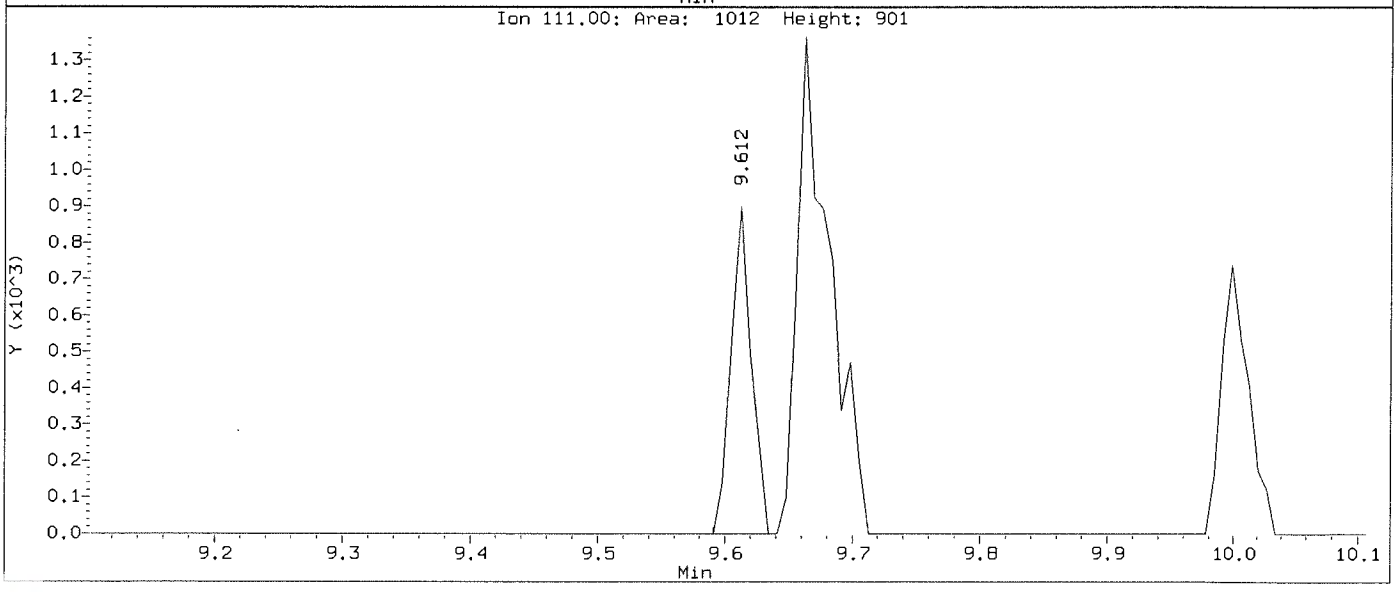



Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,3-Dichlorobenzene
CAS Number: 541-73-1

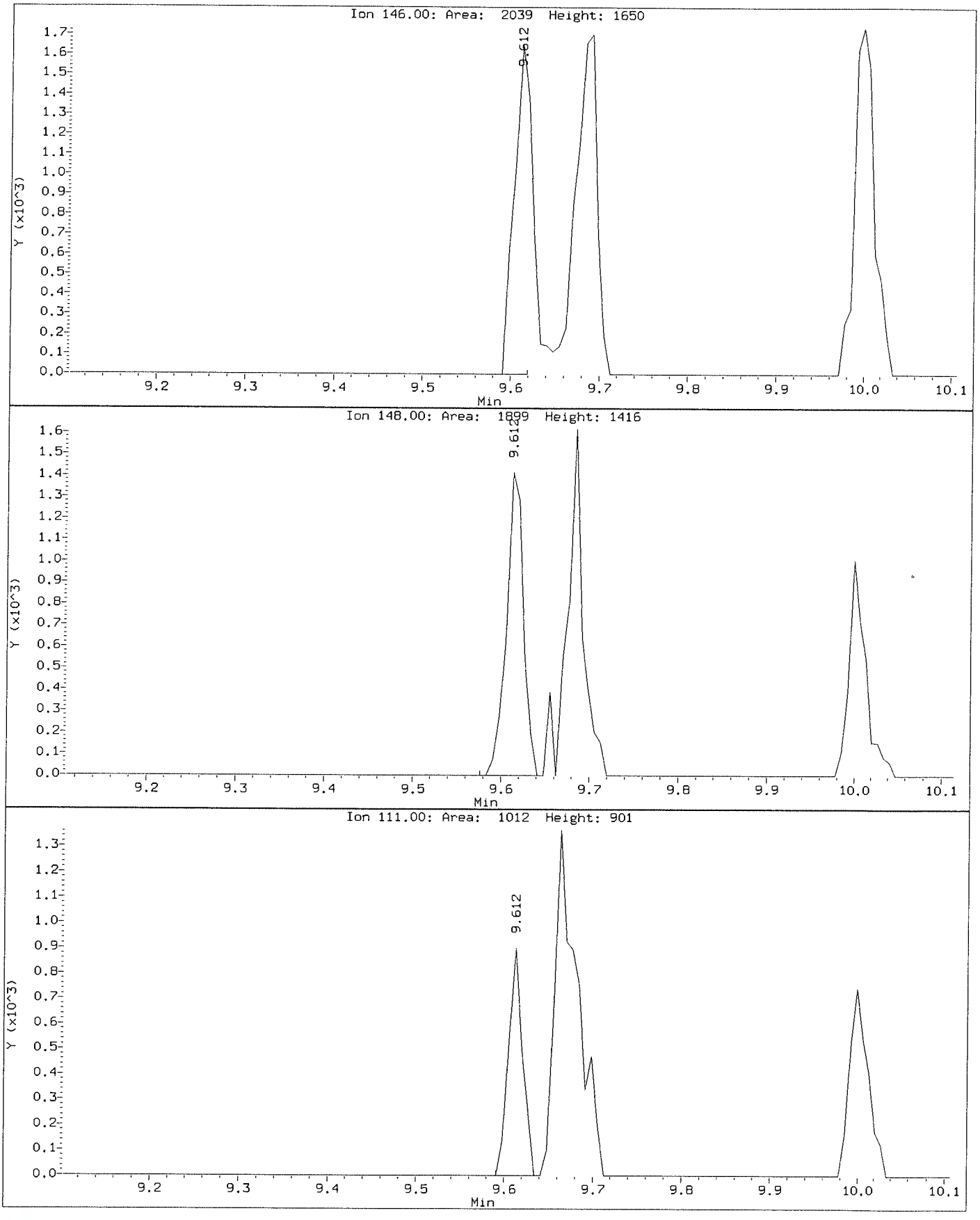


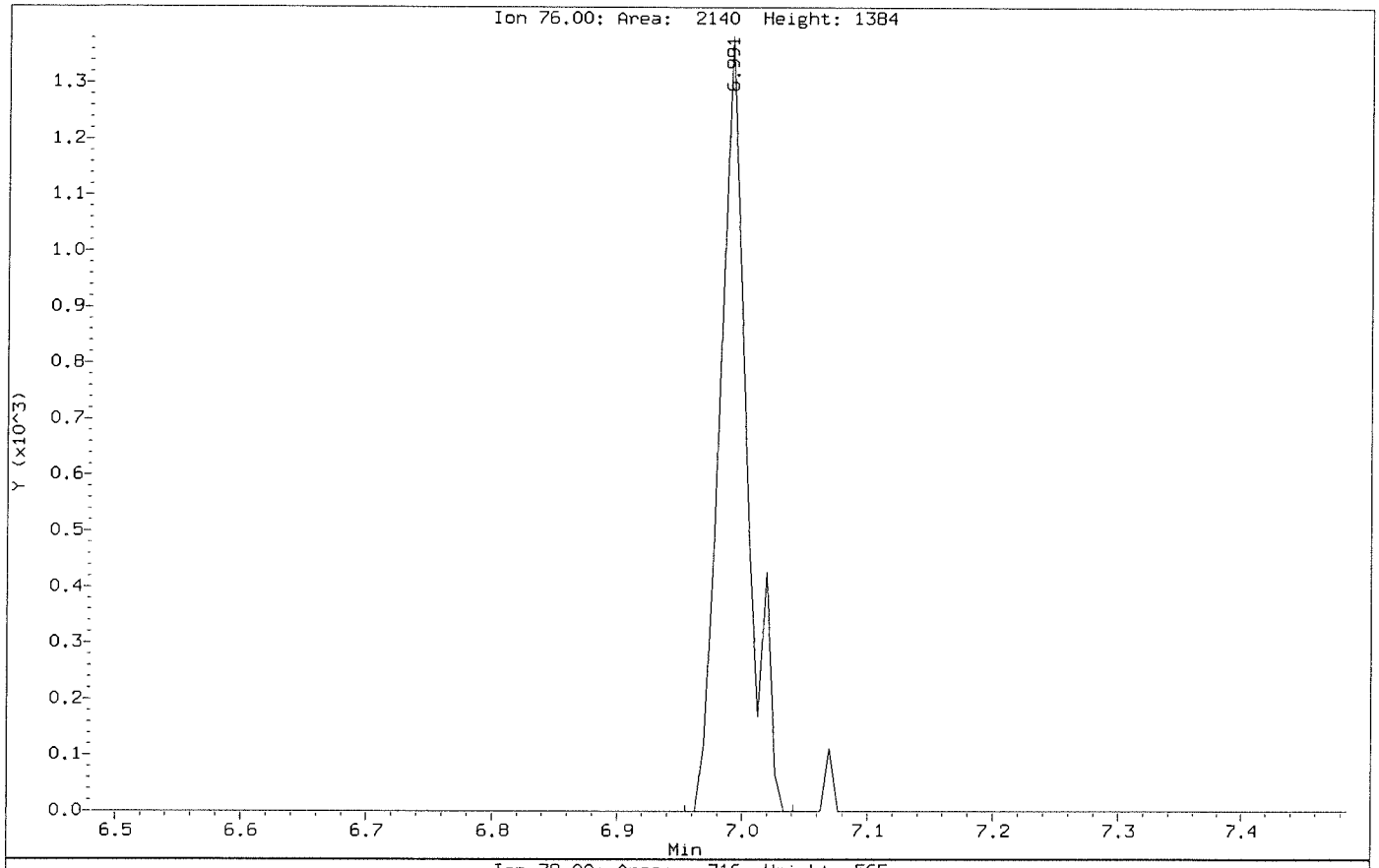
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

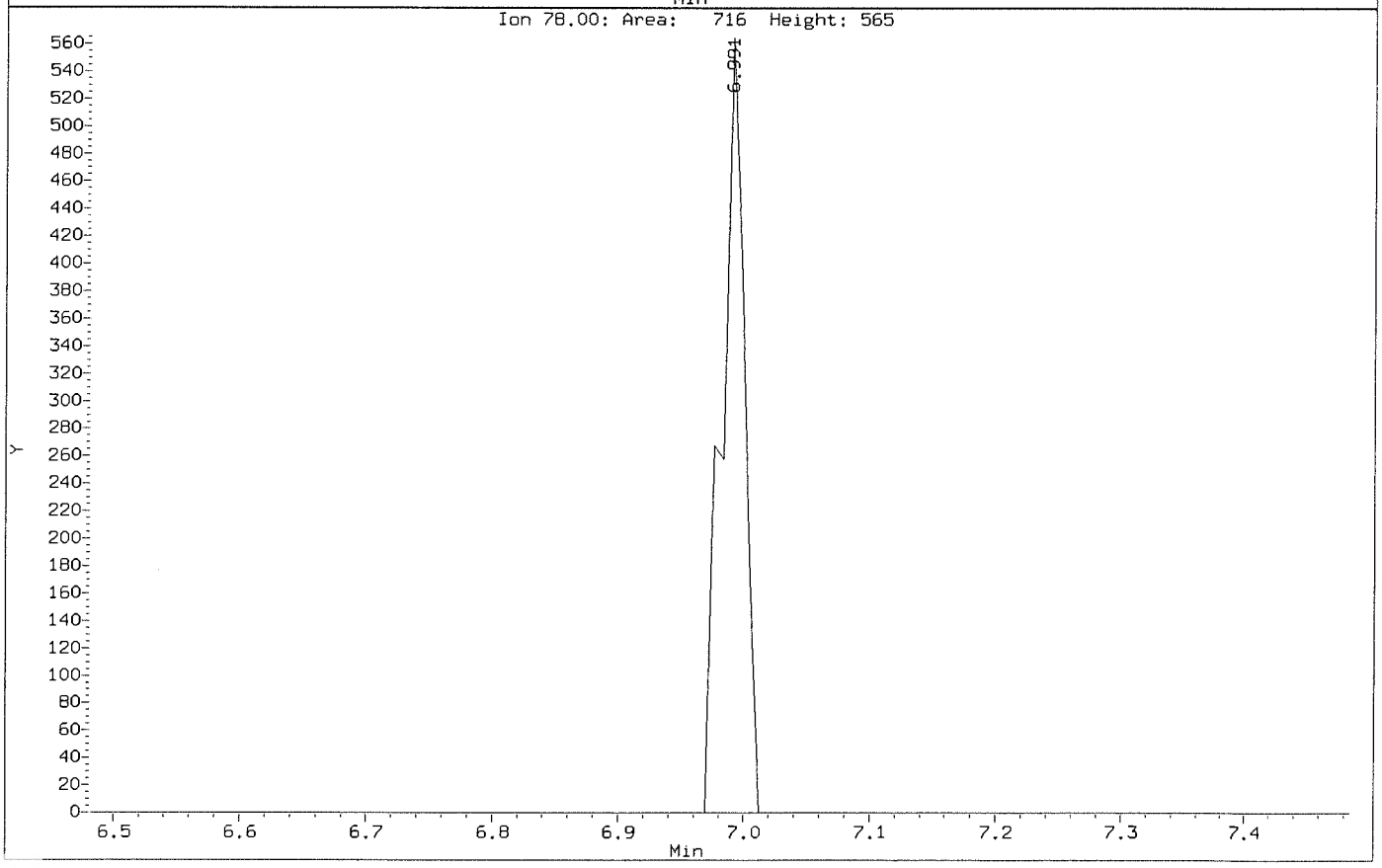
Compound: 1,3-Dichlorobenzene
CAS Number: 541-73-1



Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

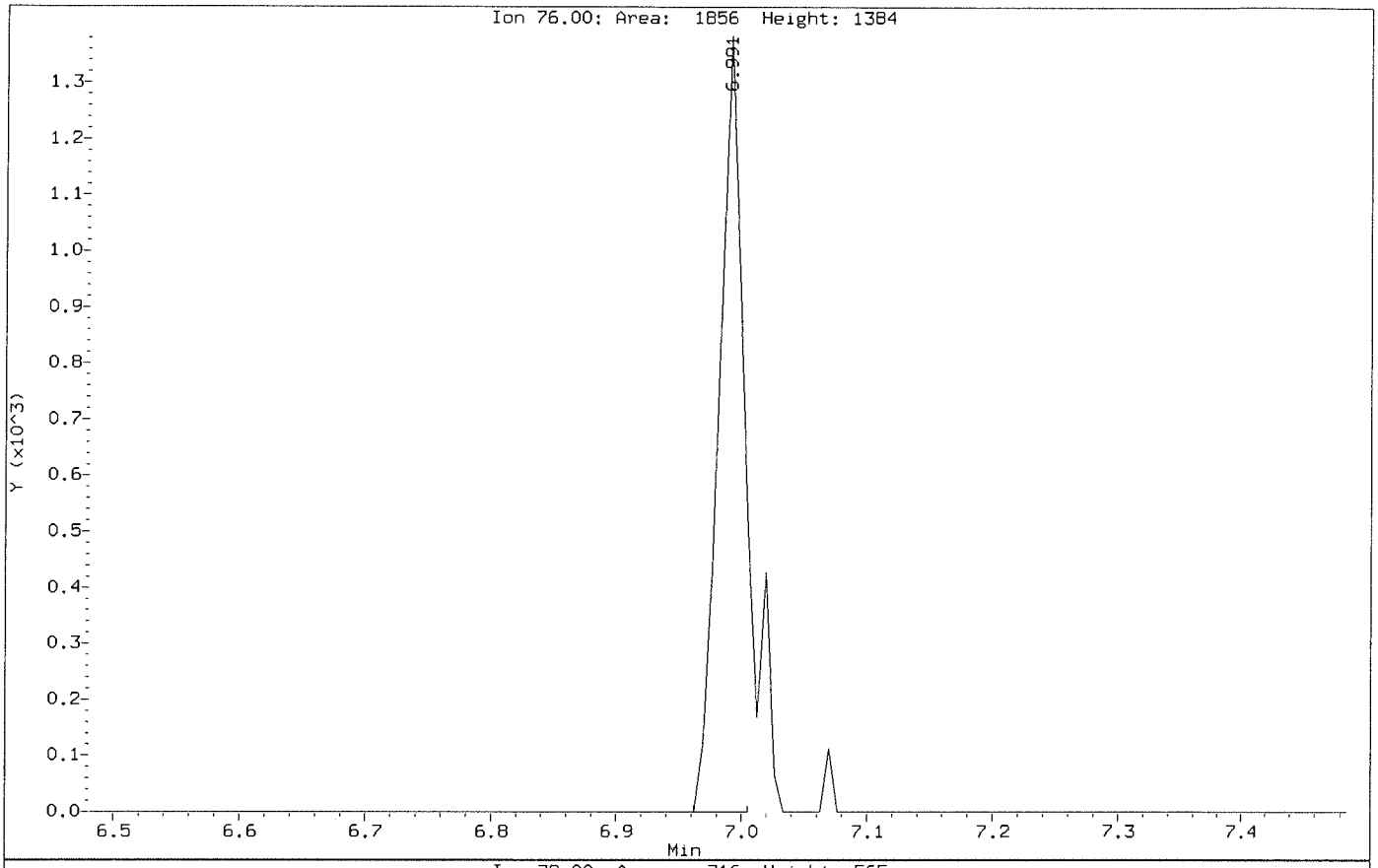
Compound: 1,3-Dichloropropane
CAS Number: 142-28-9

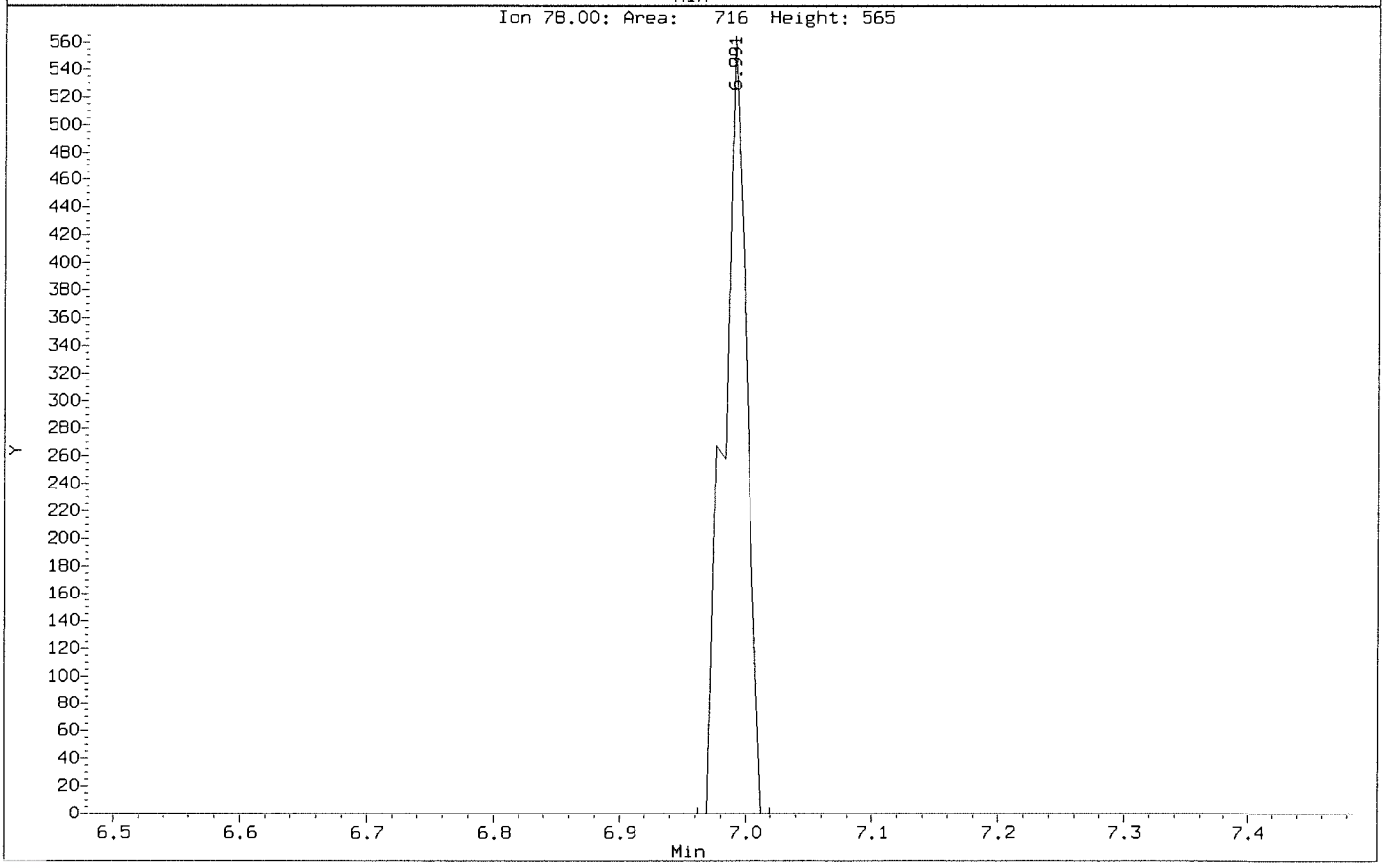


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

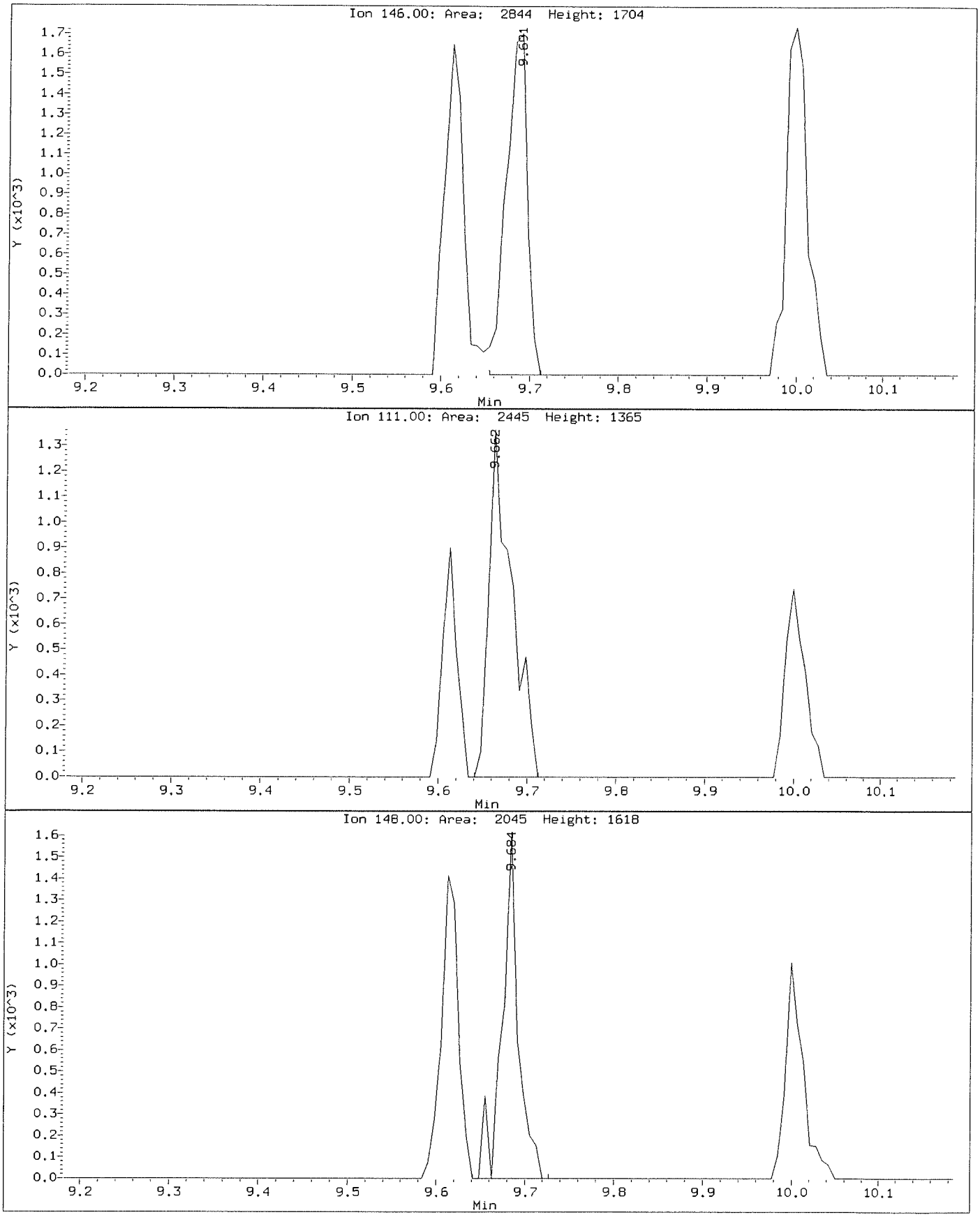
Compound: 1,3-Dichloropropane
CAS Number: 142-28-9



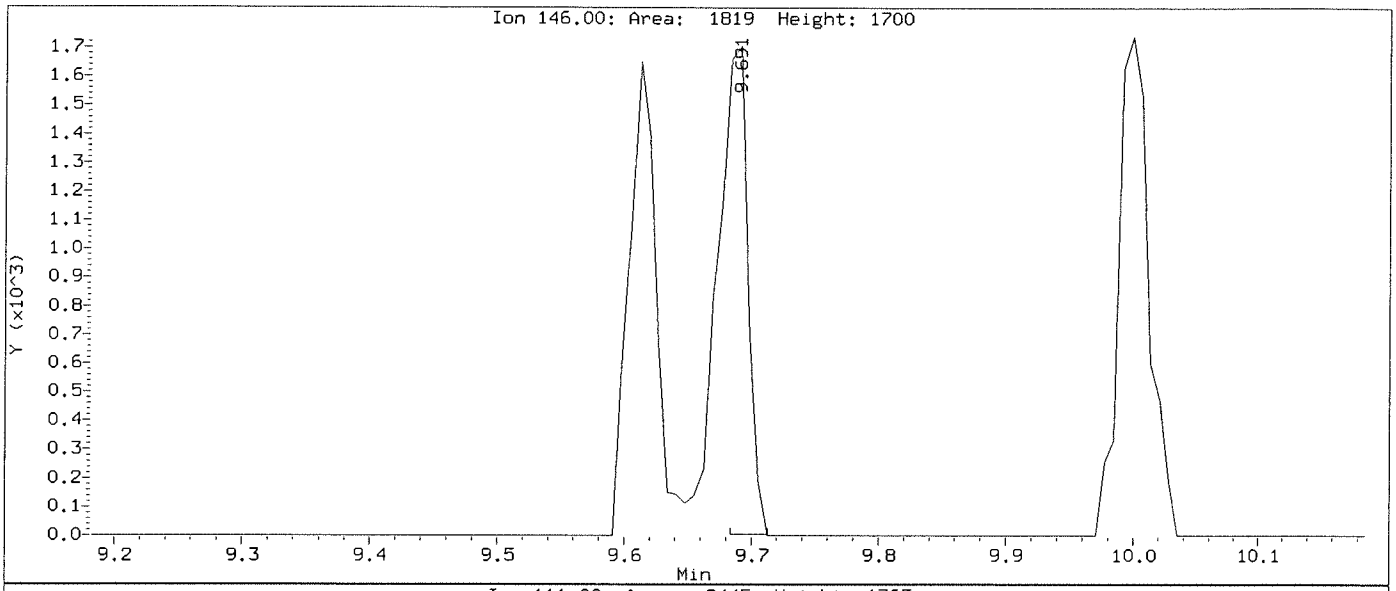
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

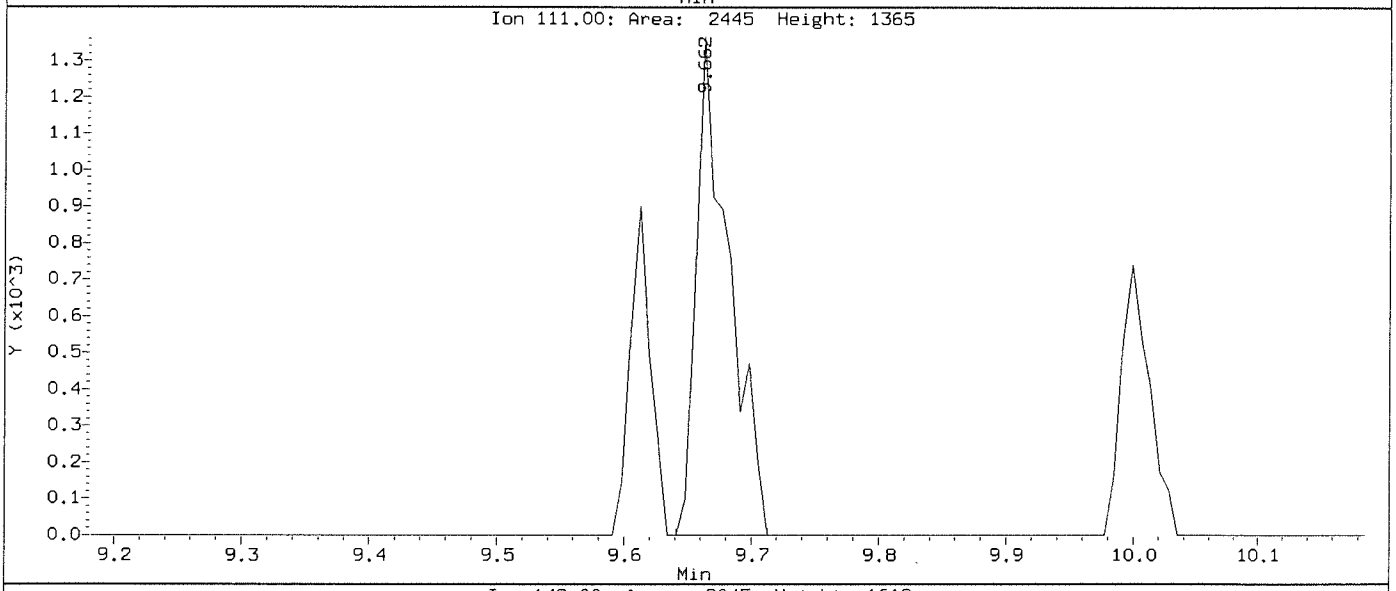
Compound: 1,4-Dichlorobenzene
CAS Number: 106-46-7

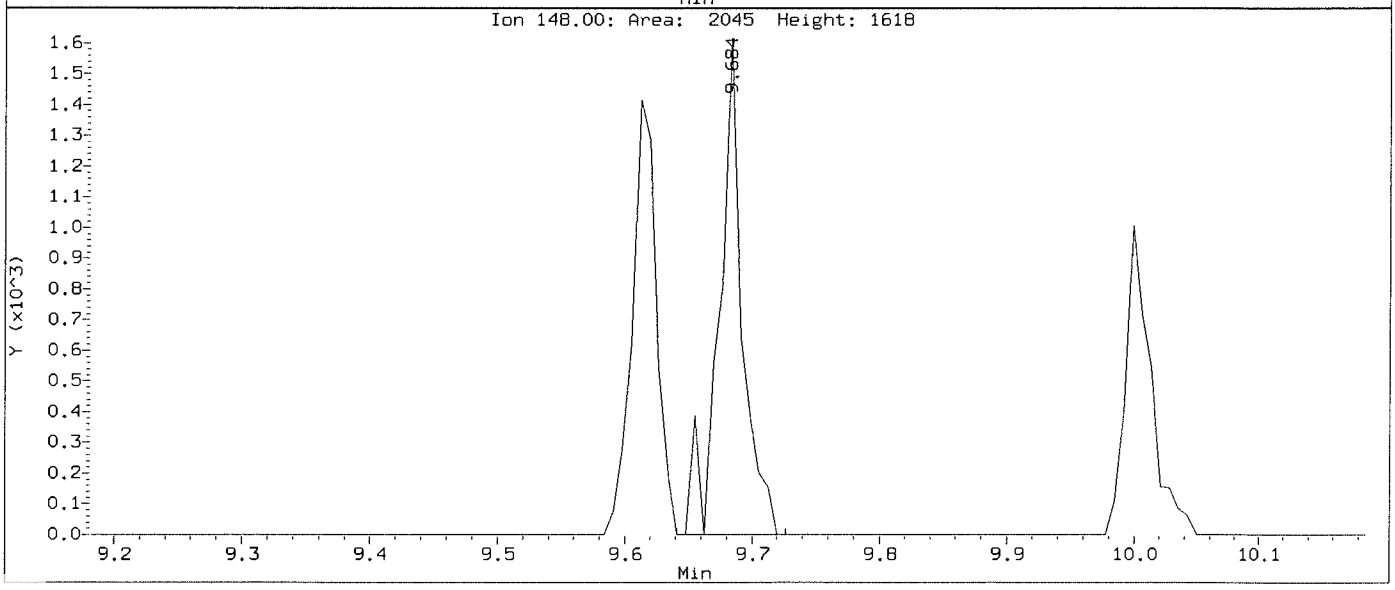


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,4-Dichlorobenzene
CAS Number: 106-46-7

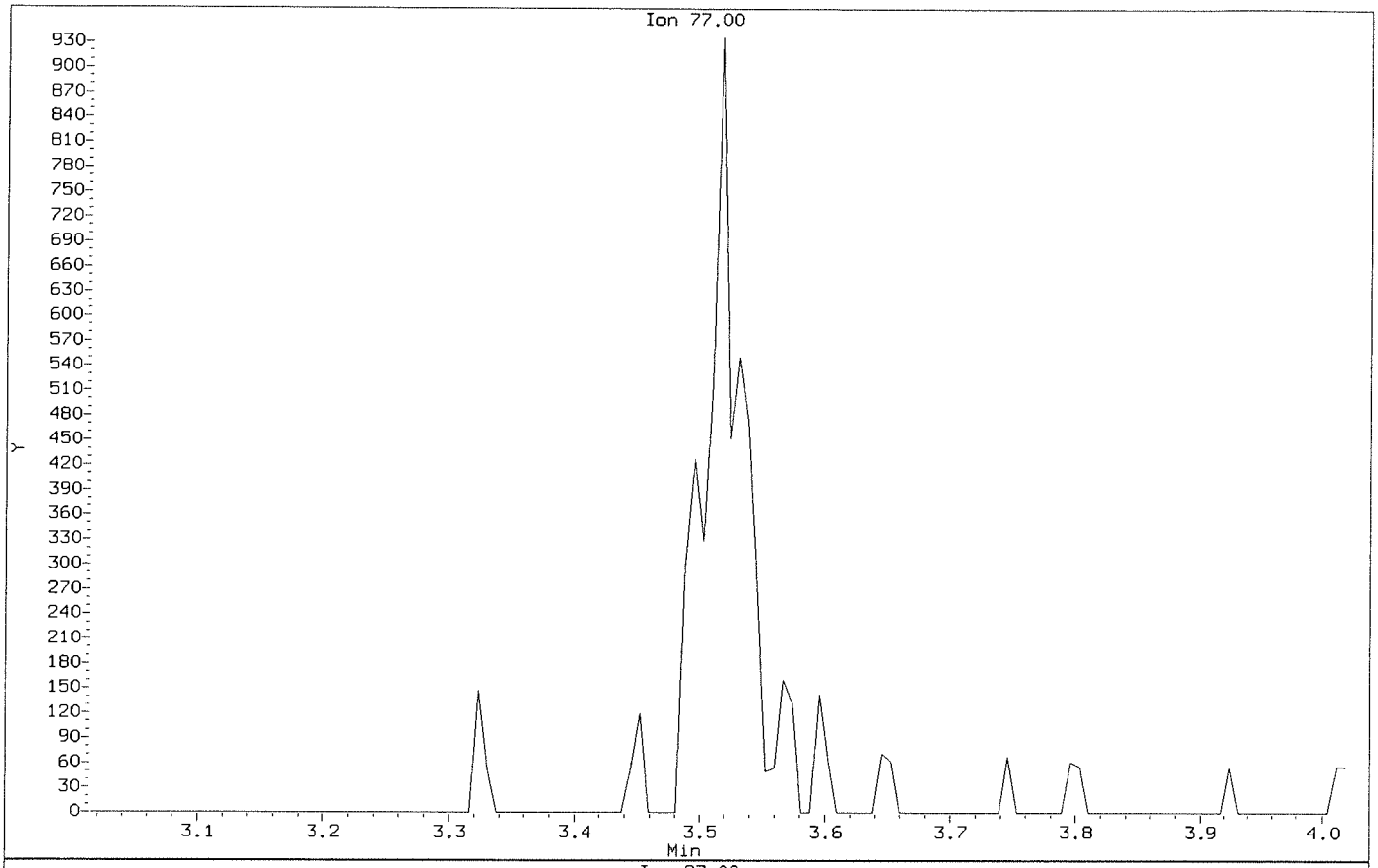


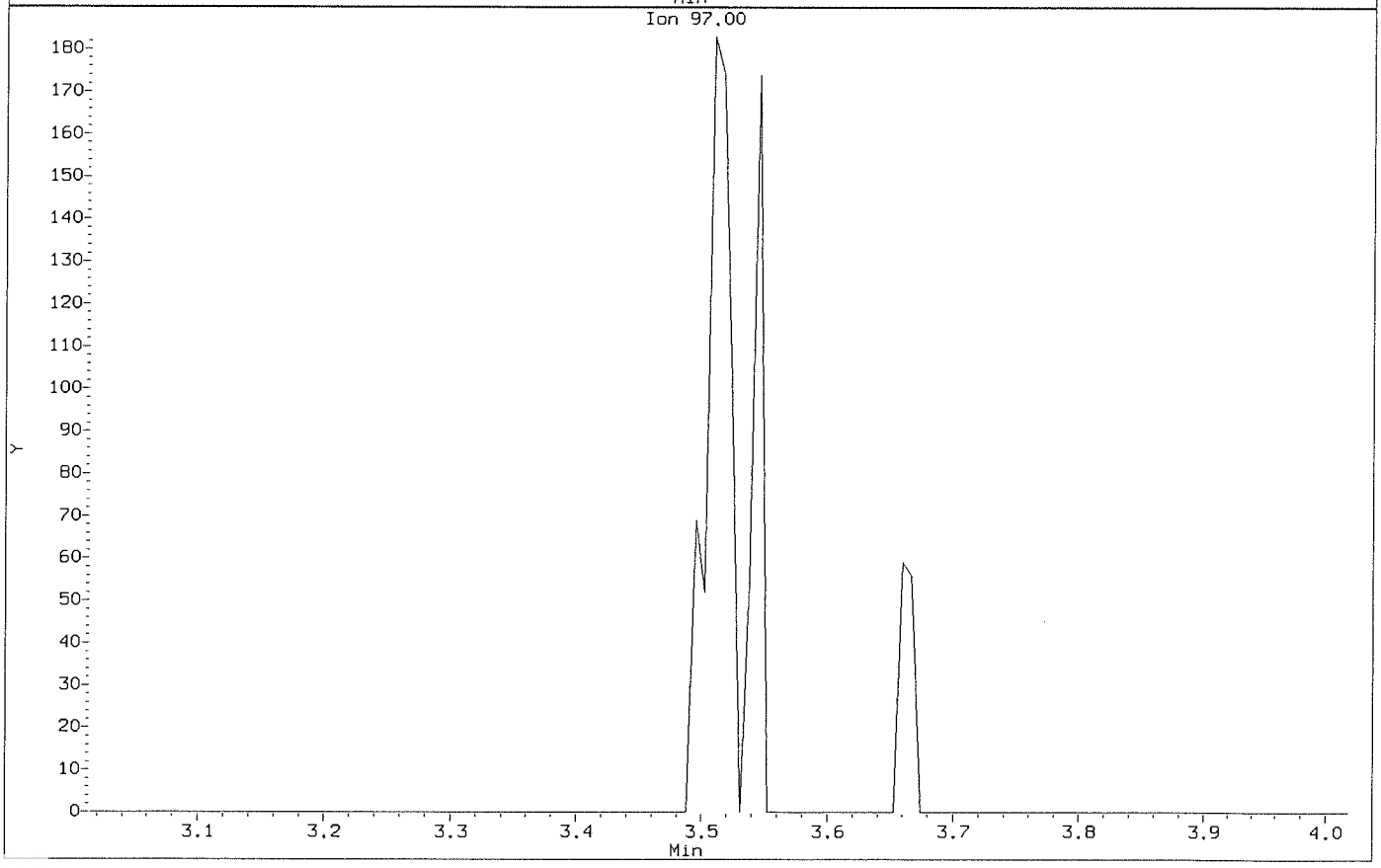



Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

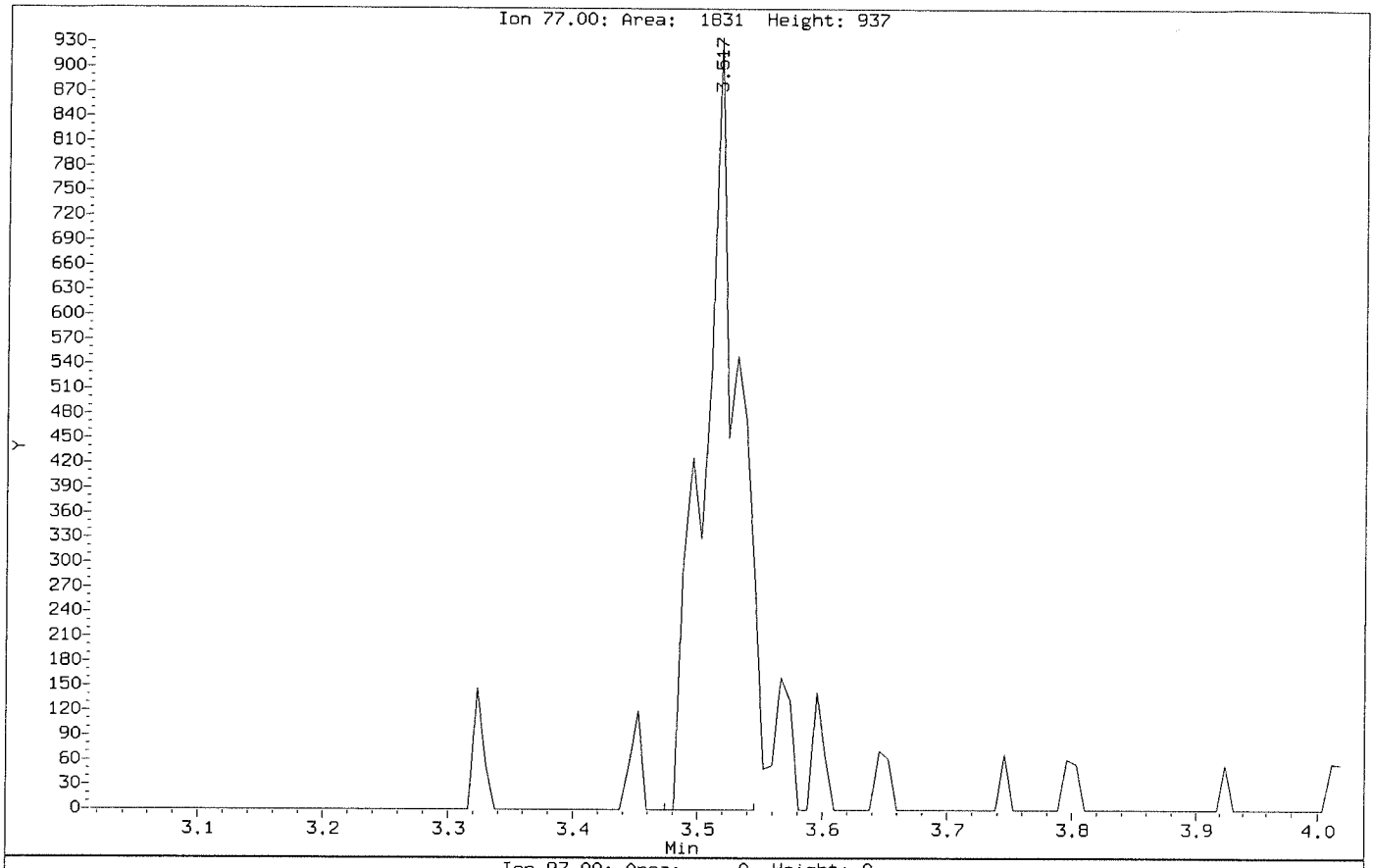
Compound: 2,2-Dichloropropane
CAS Number: 594-20-7

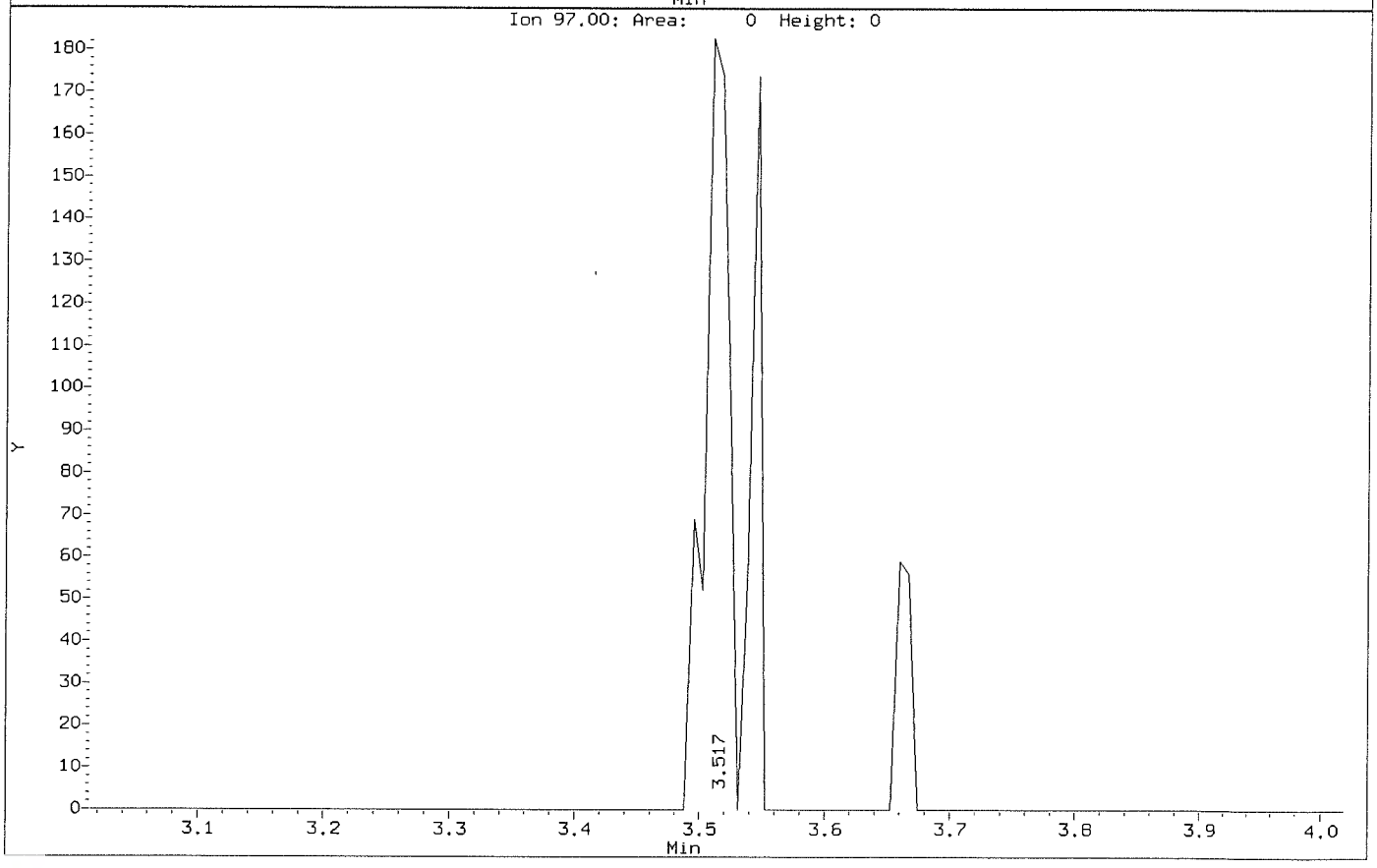


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

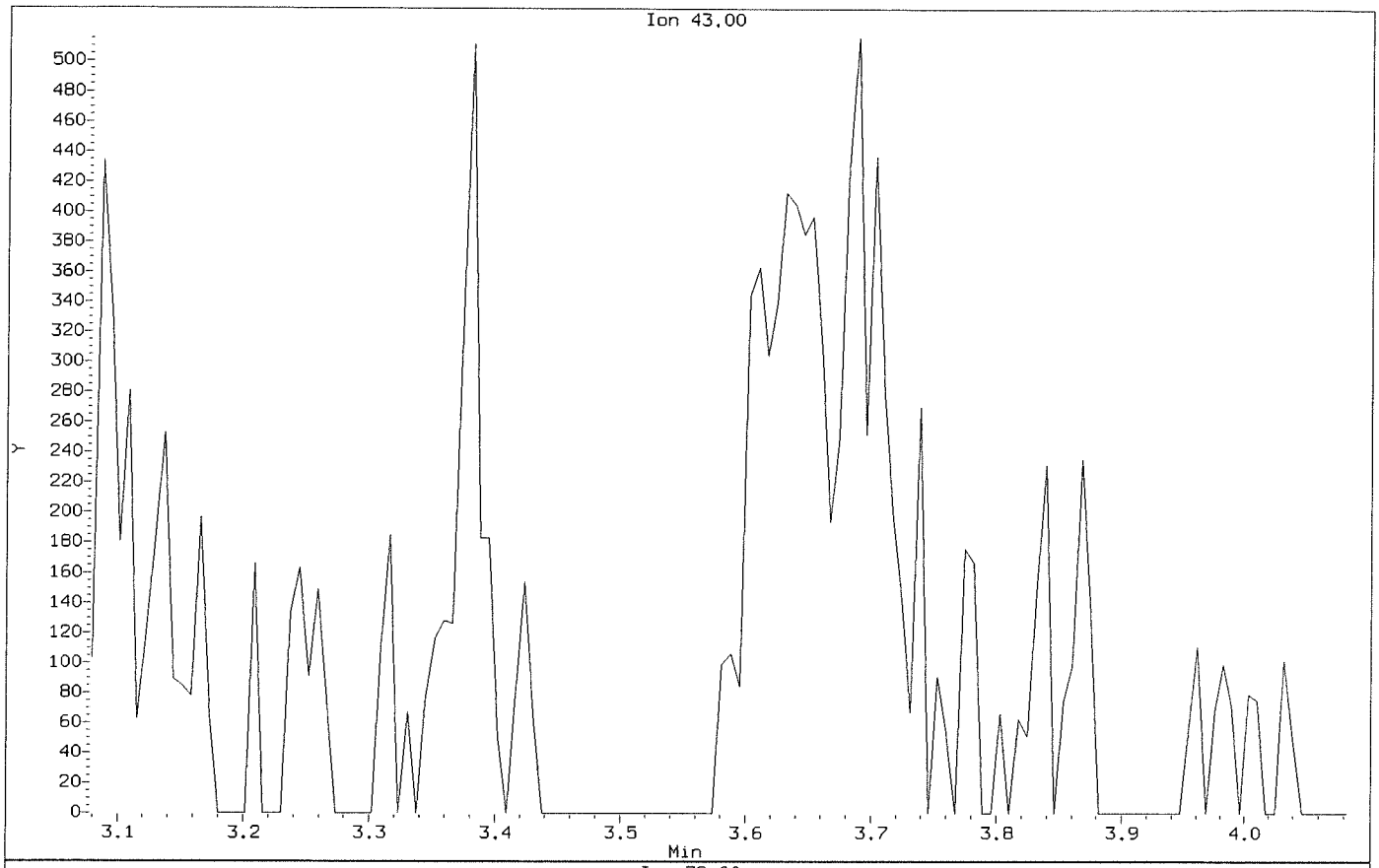
Compound: 2,2-Dichloropropane
CAS Number: 594-20-7

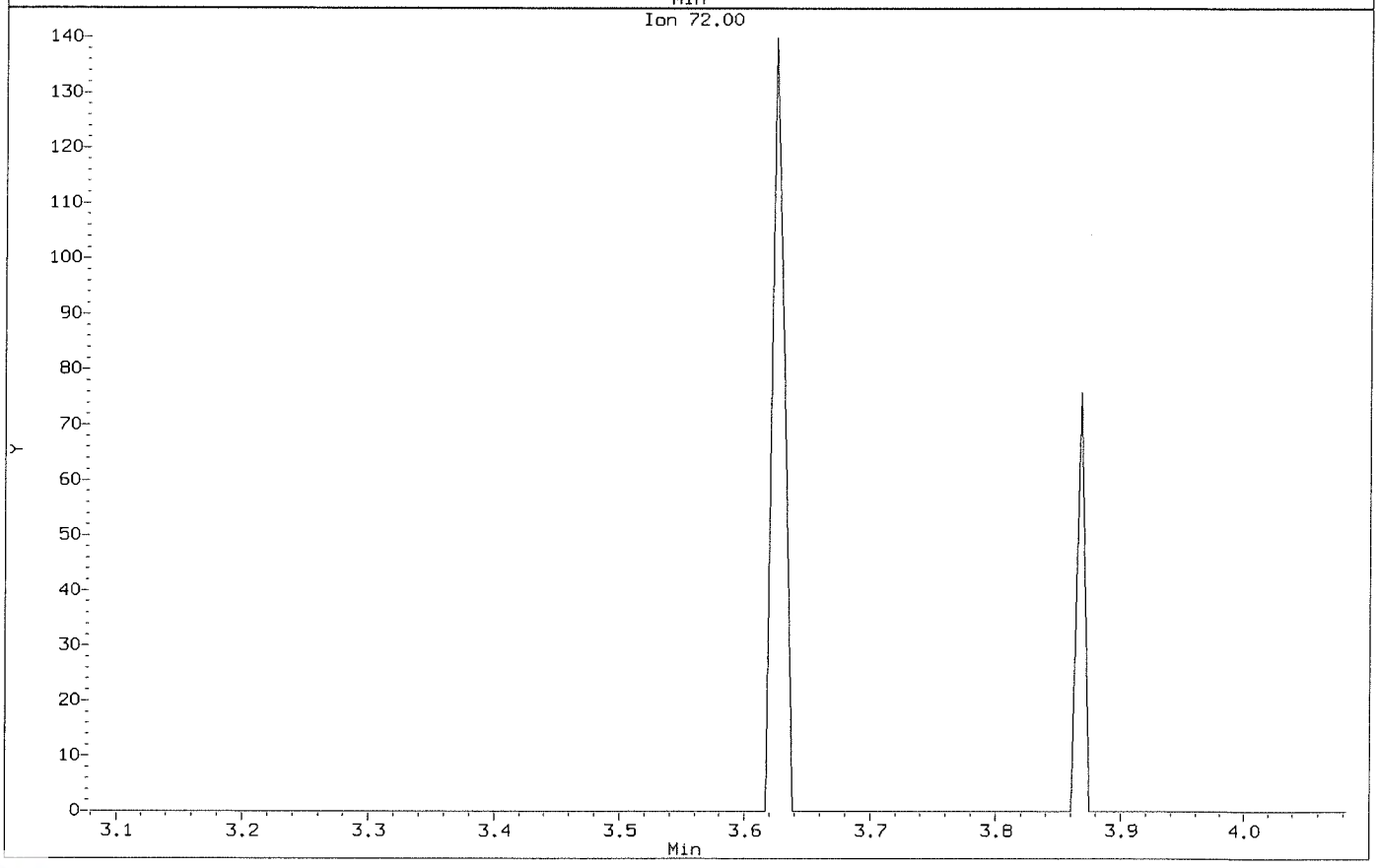


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

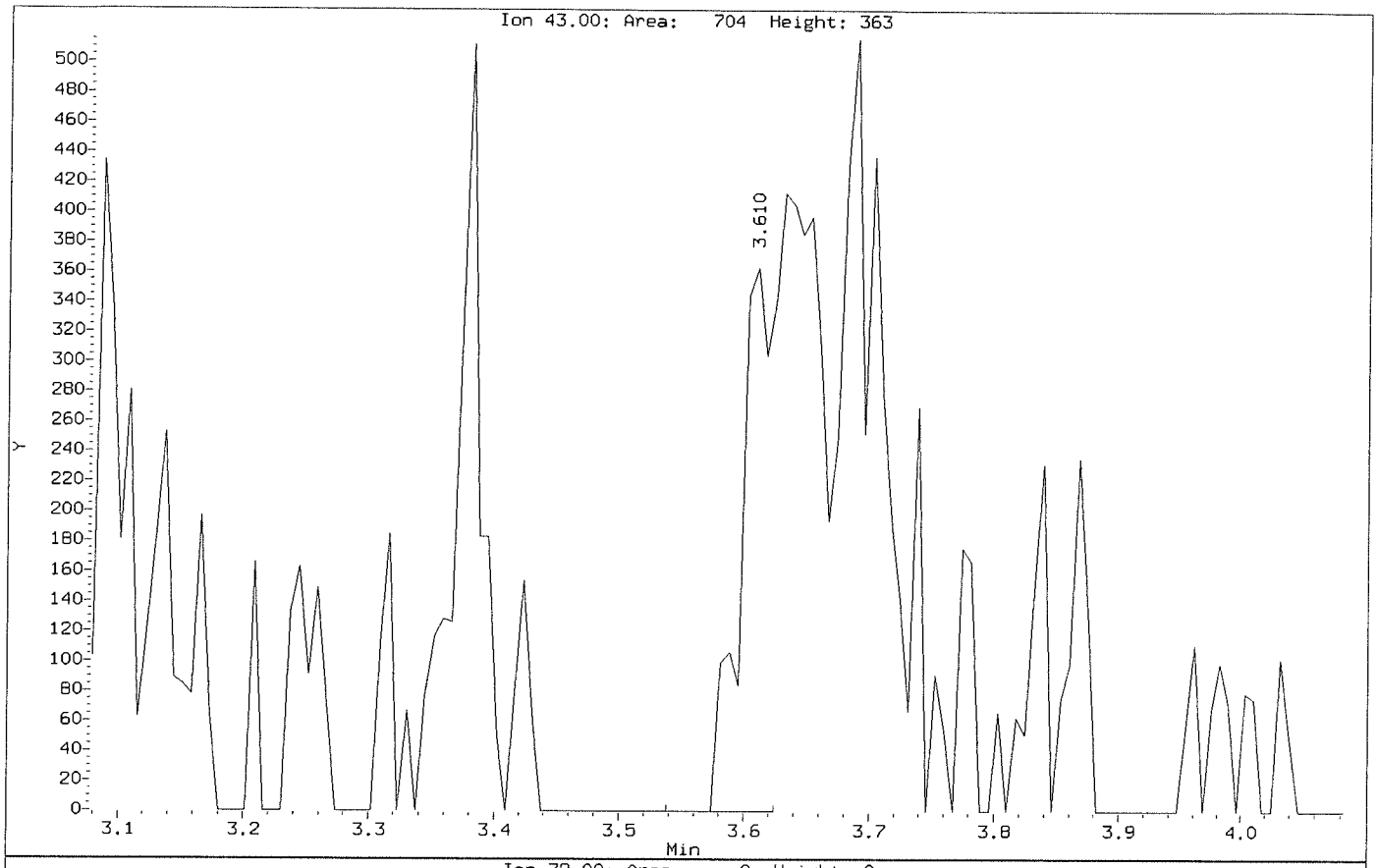
Compound: 2-Butanone
CAS Number: 78-93-3

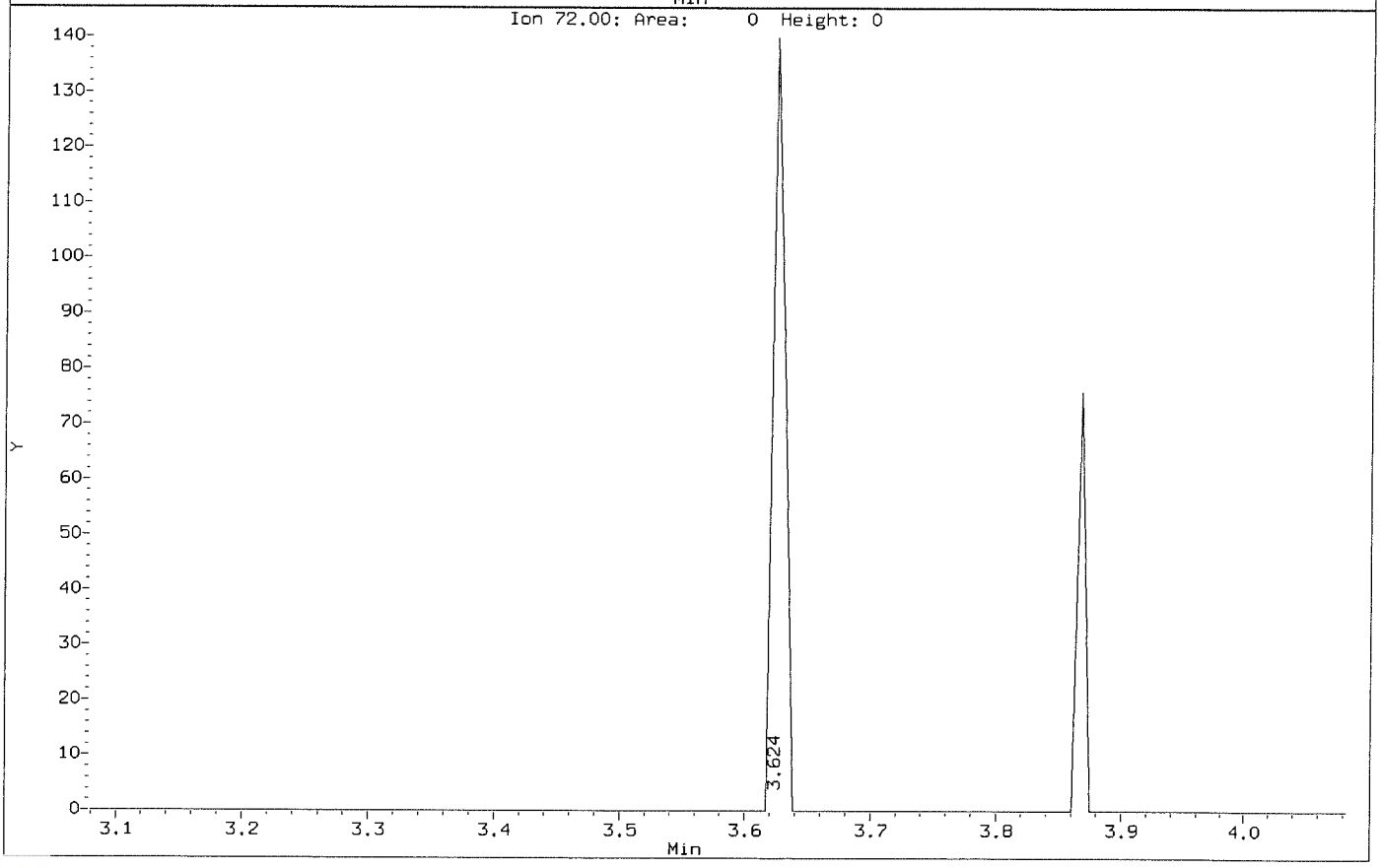


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

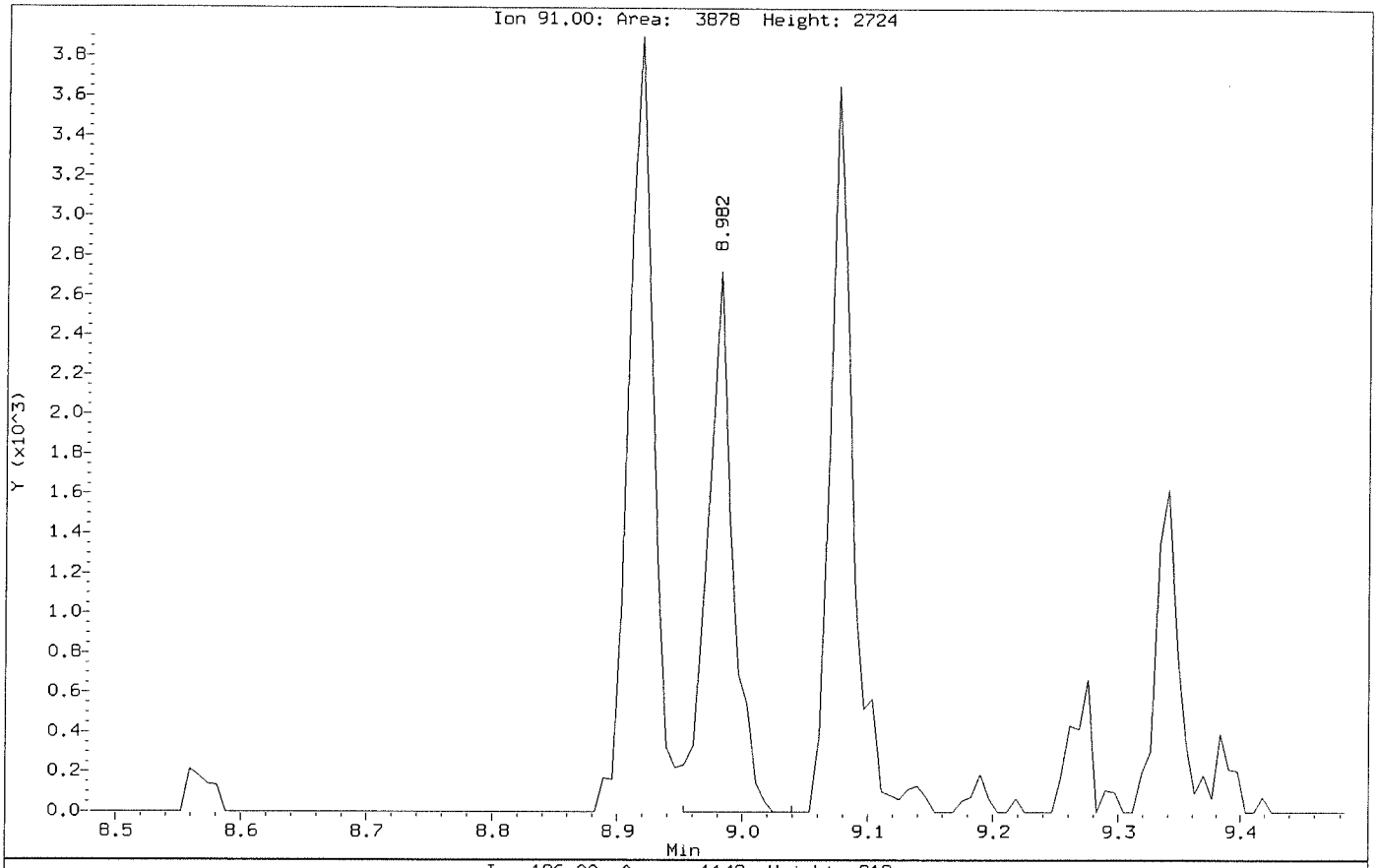
Compound: 2-Butanone
CAS Number: 78-93-3

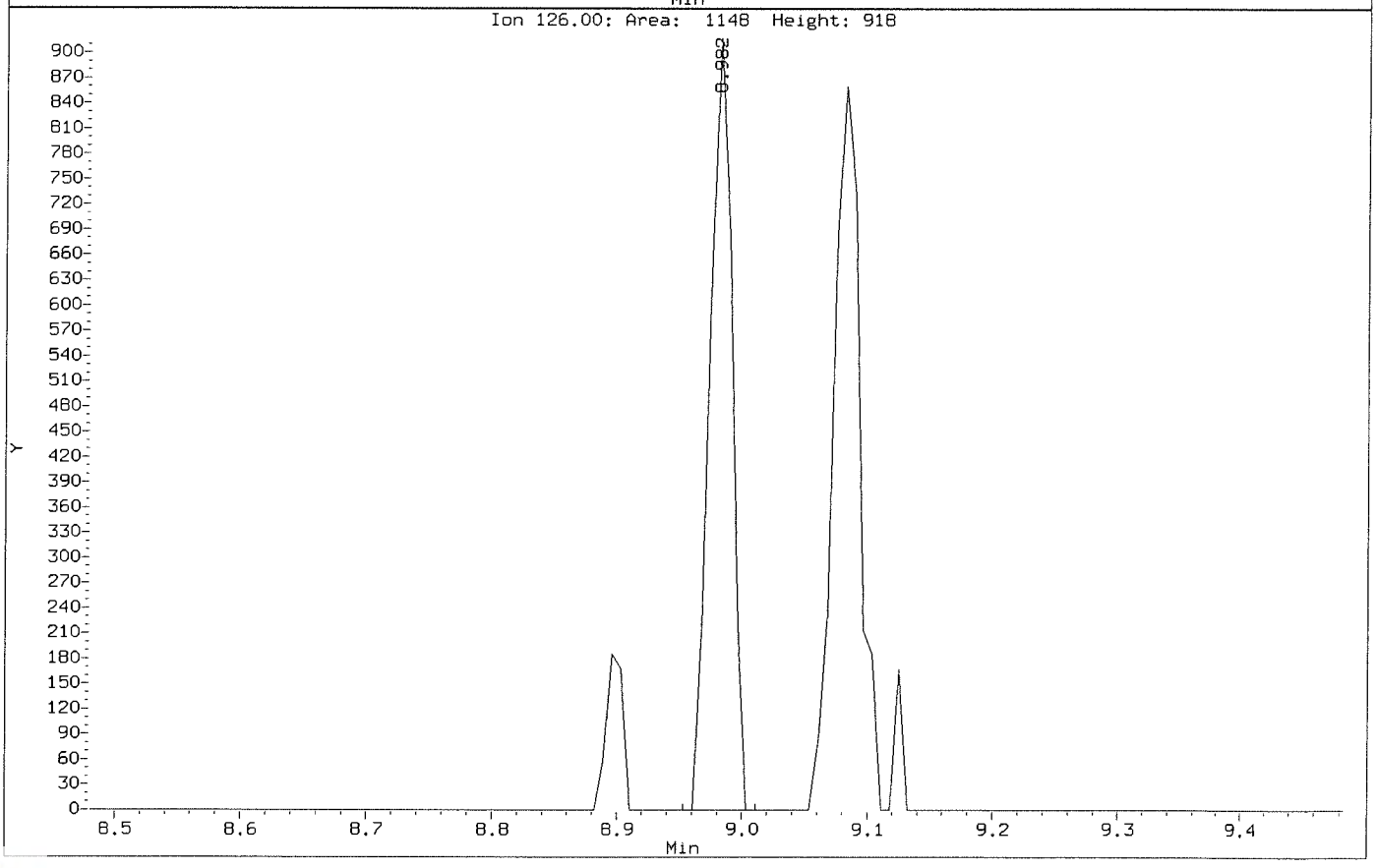


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

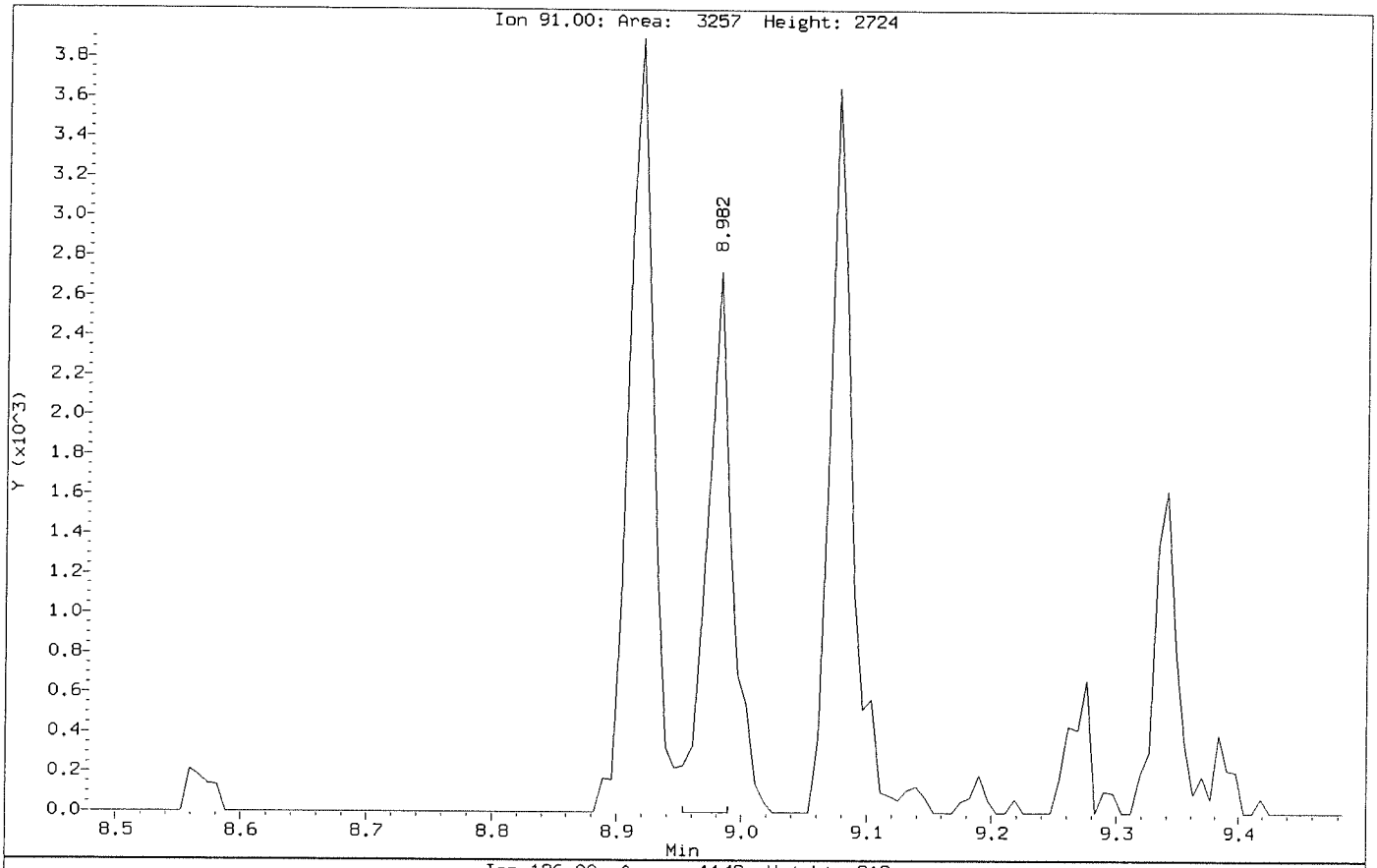
Compound: 2-Chlorotoluene
CAS Number: 95-49-8

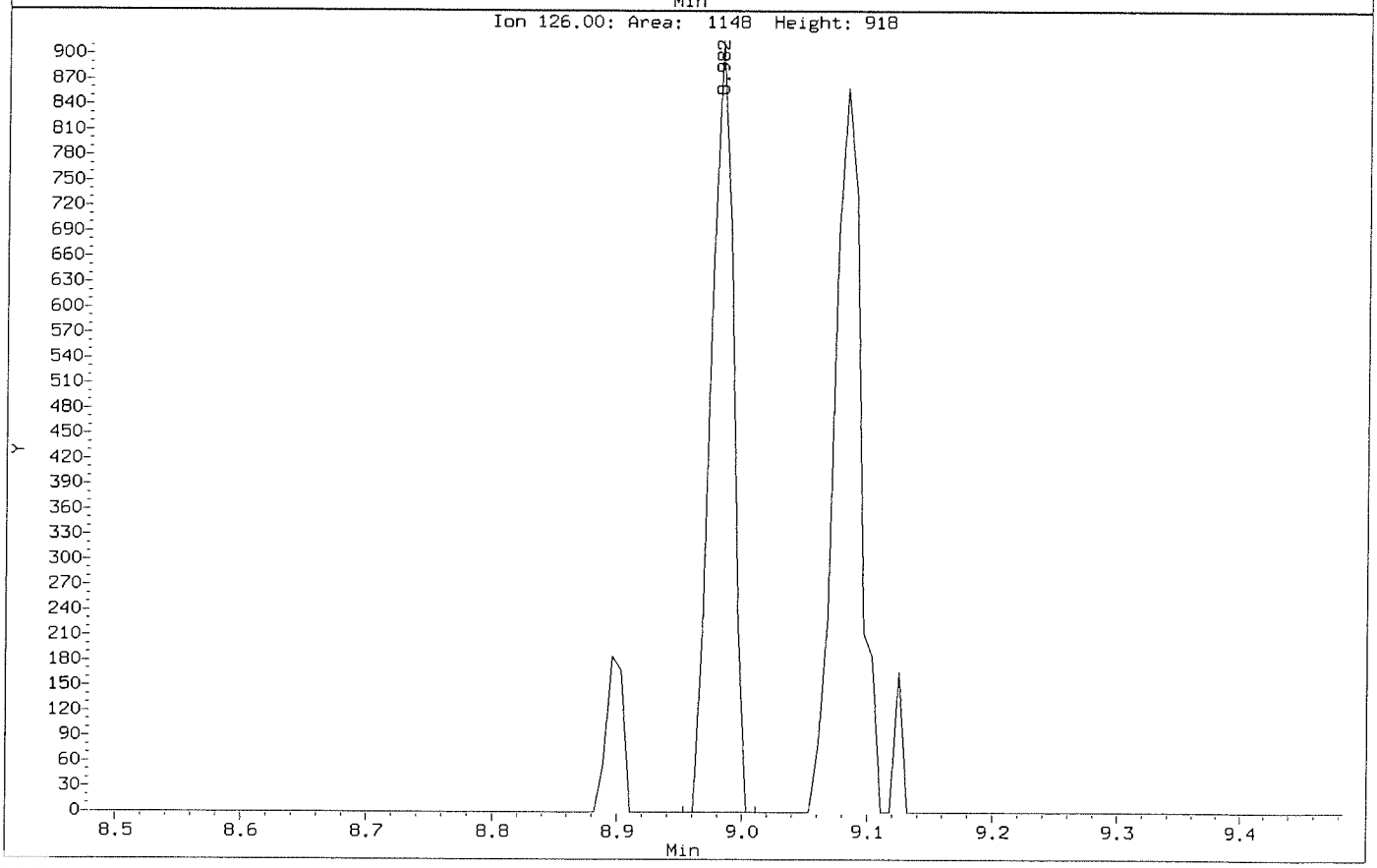


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

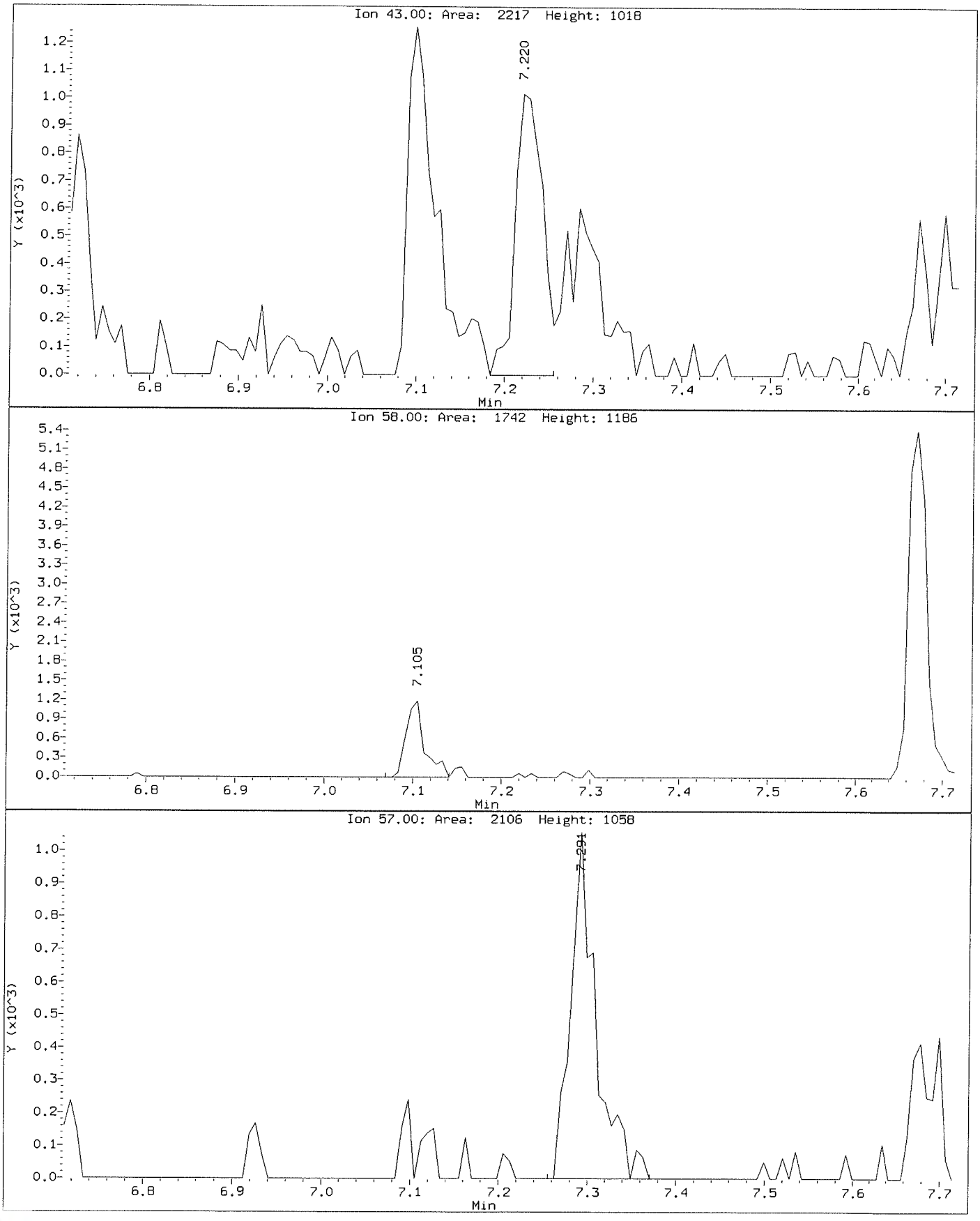
Compound: 2-Chlorotoluene
CAS Number: 95-49-8



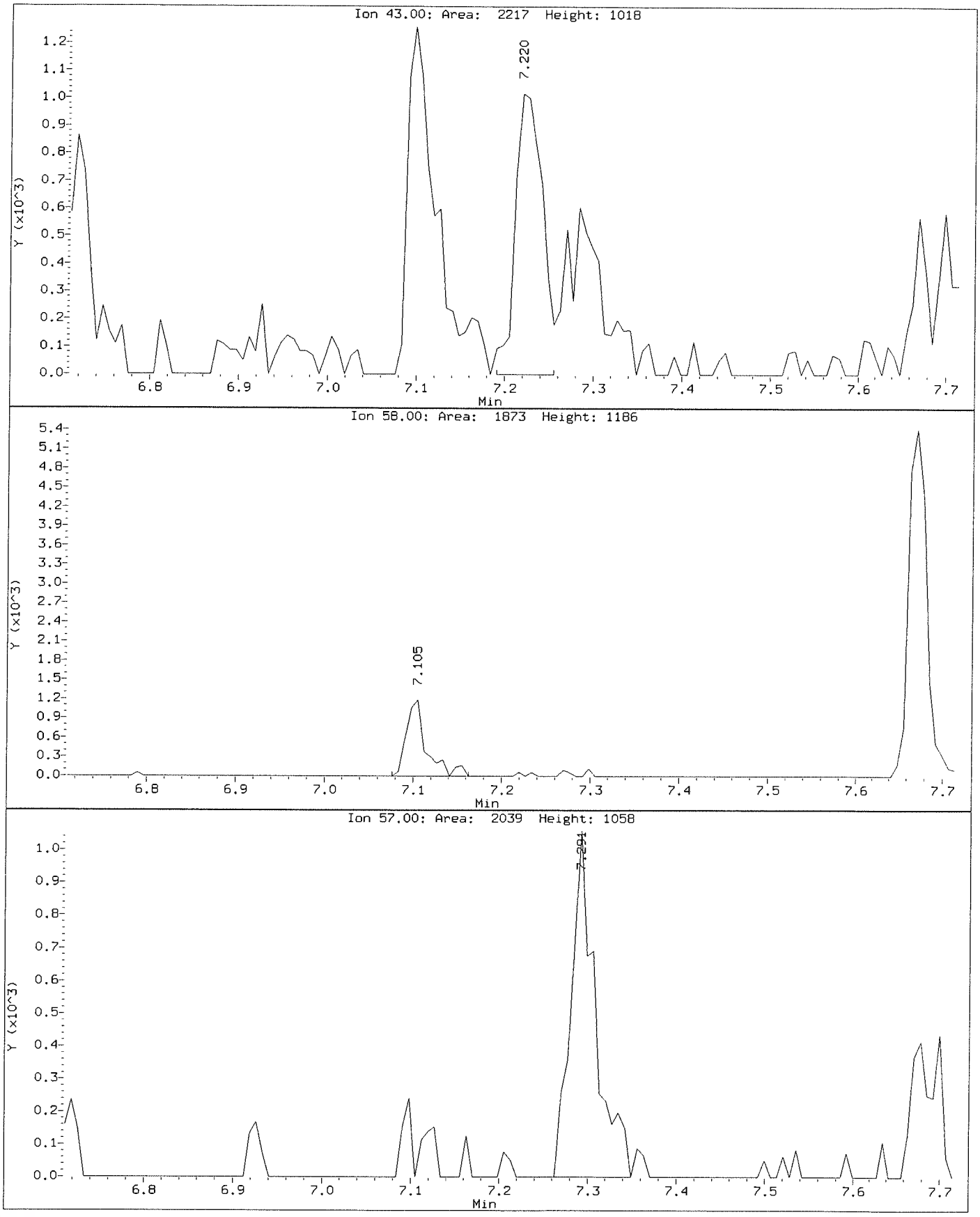
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 2-Hexanone
CAS Number: 591-78-6



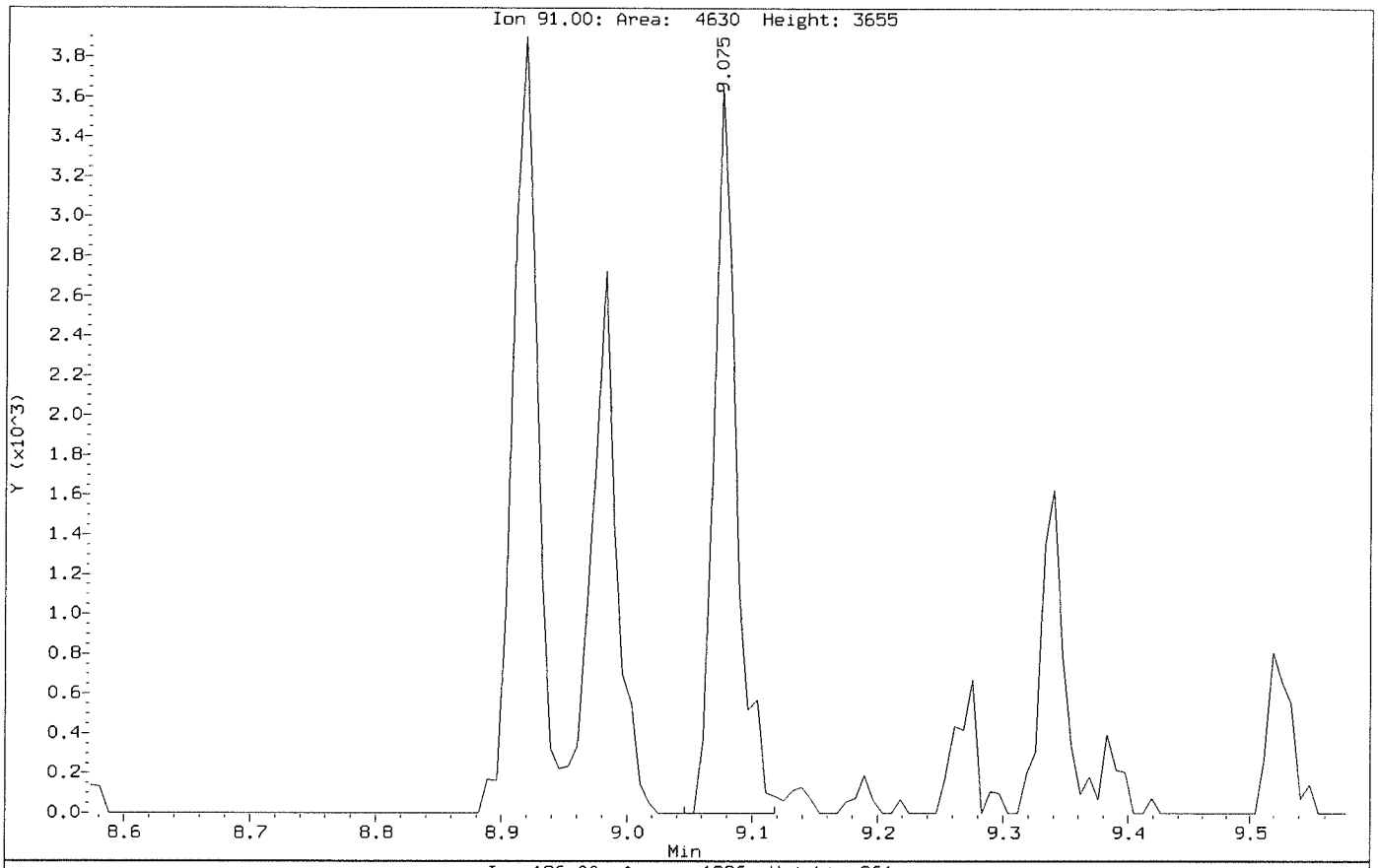
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

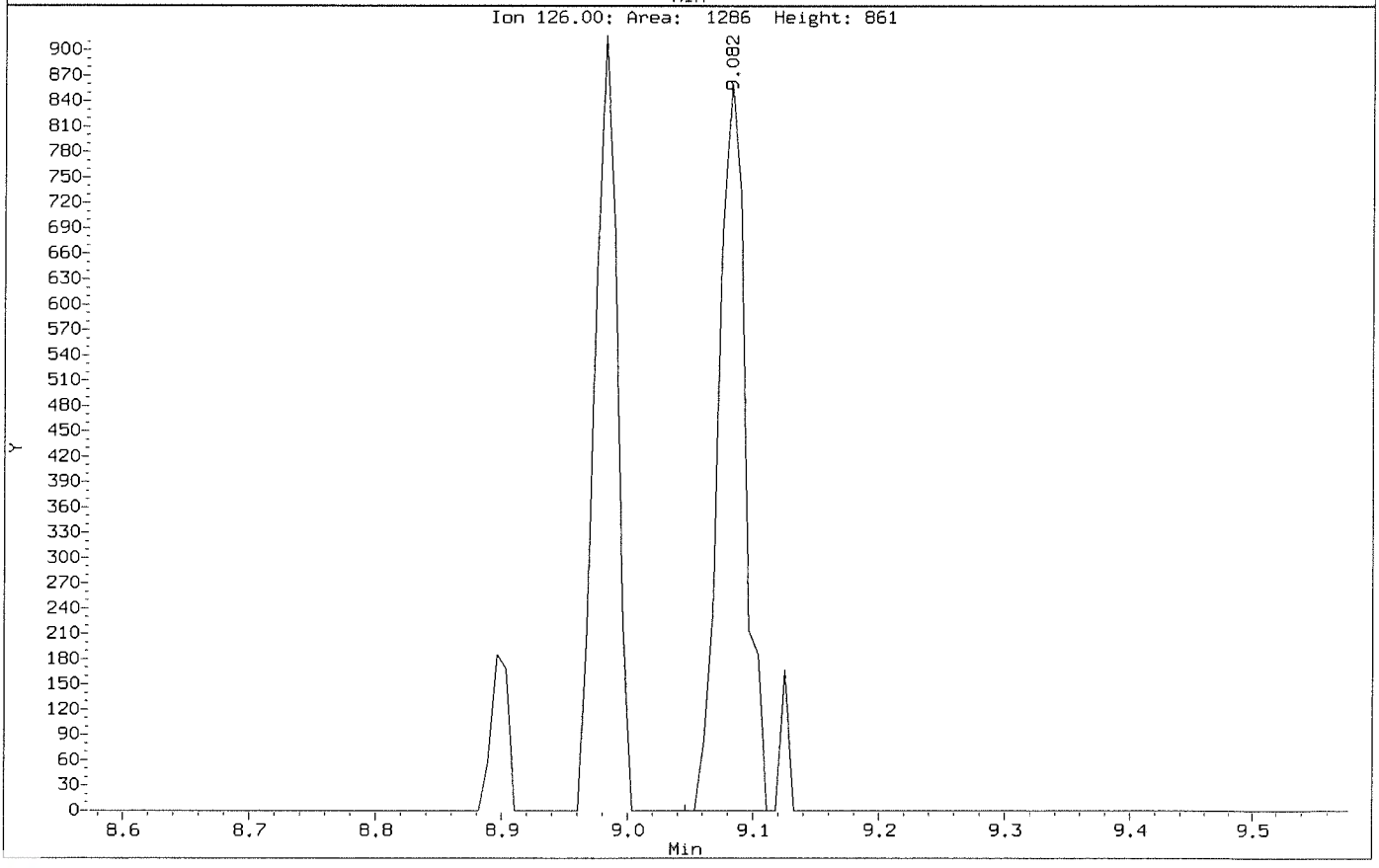
Compound: 2-Hexanone
CAS Number: 591-78-6



Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

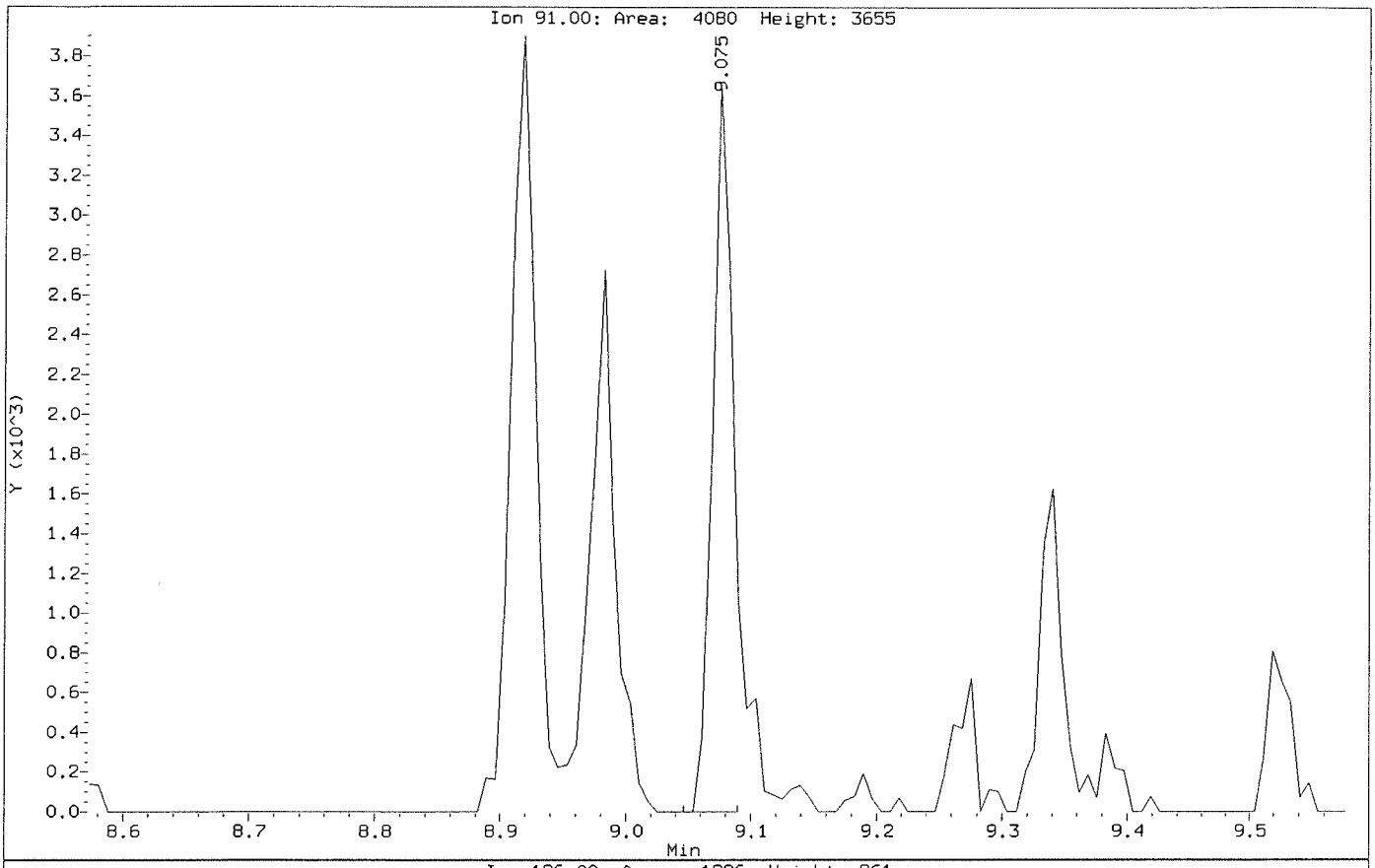
Compound: 4-Chlorotoluene
CAS Number: 106-43-4

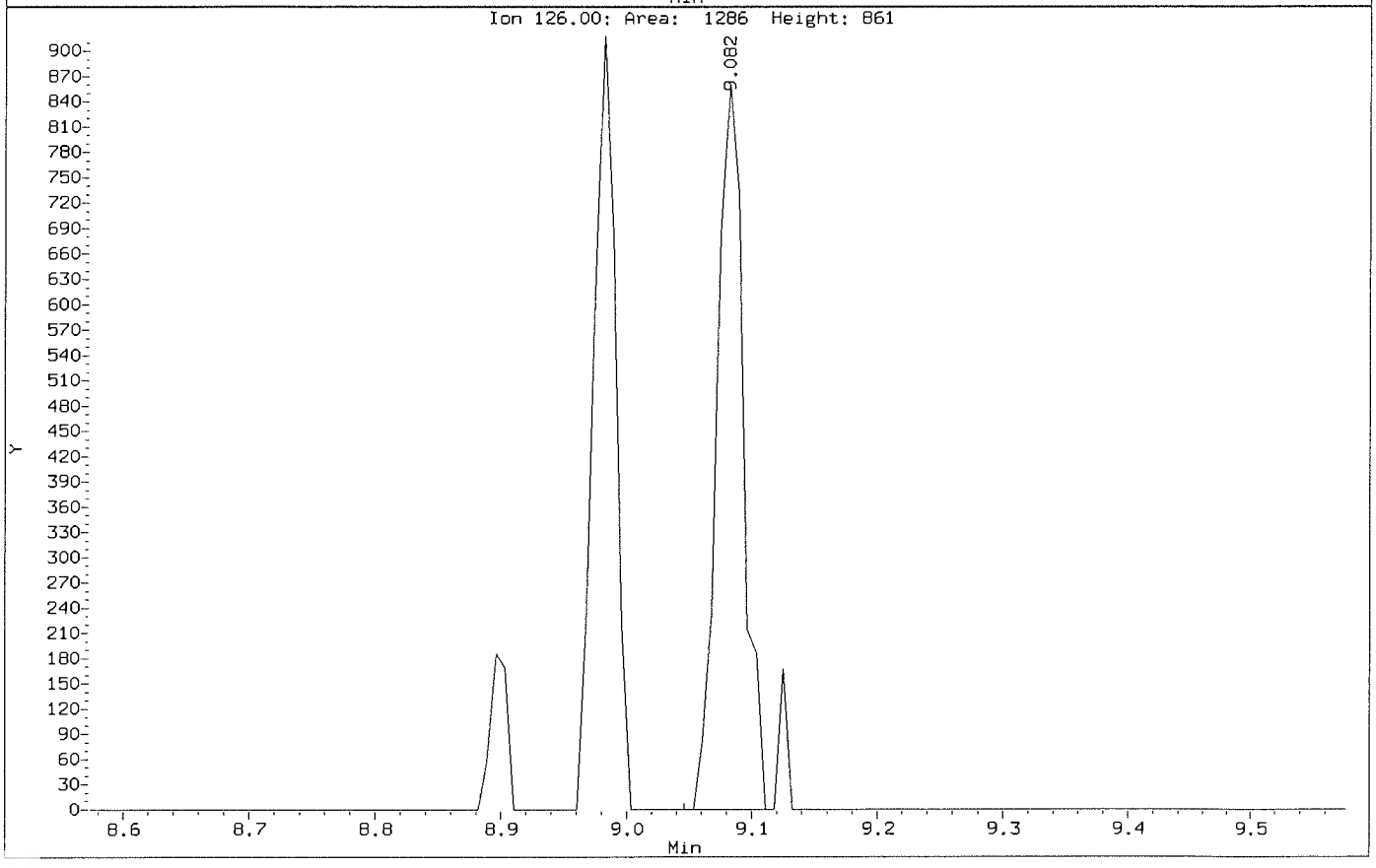


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

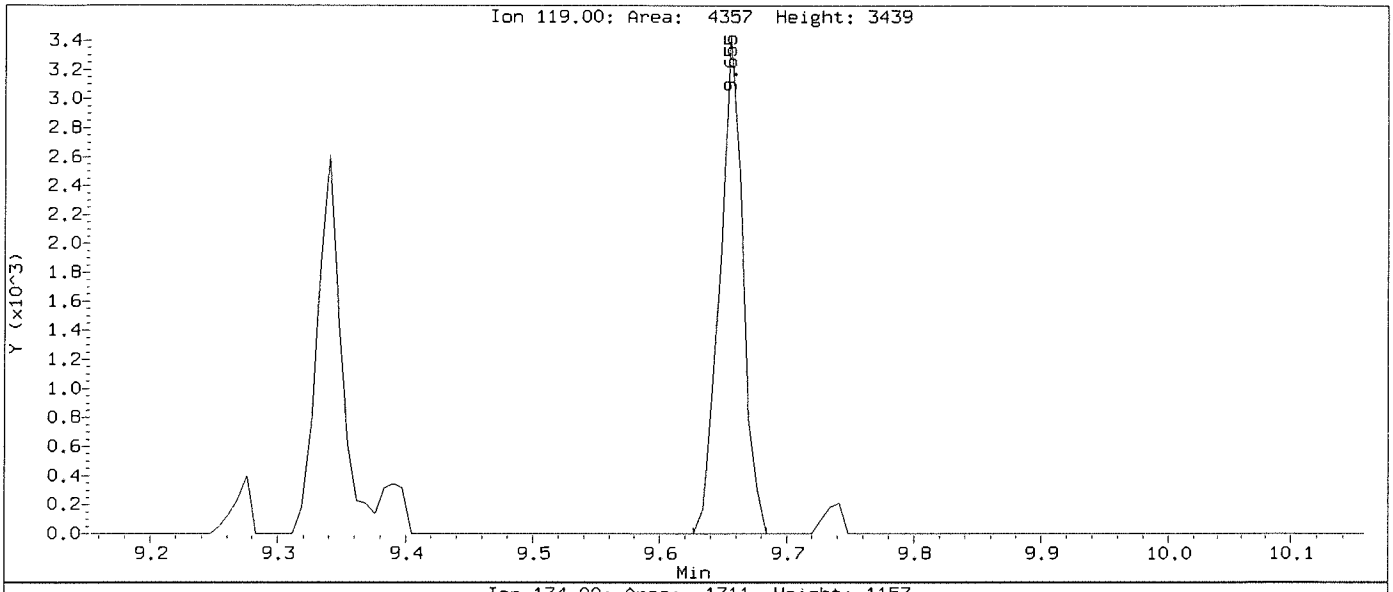
Compound: 4-Chlorotoluene
CAS Number: 106-43-4

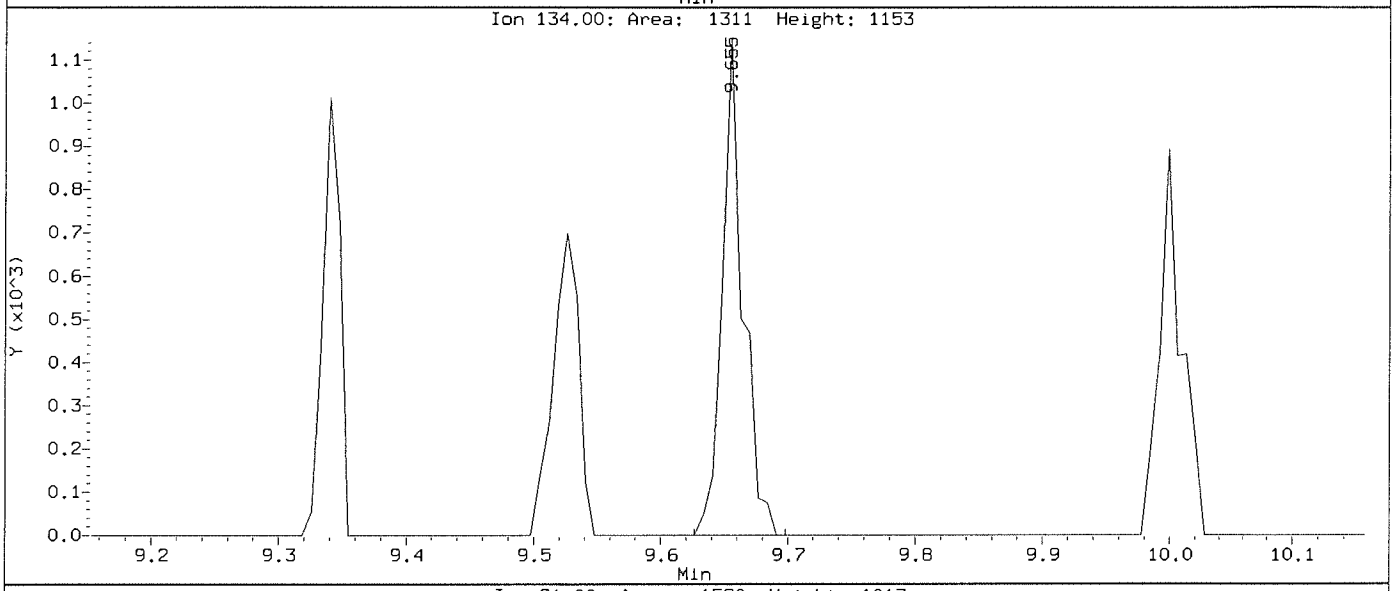


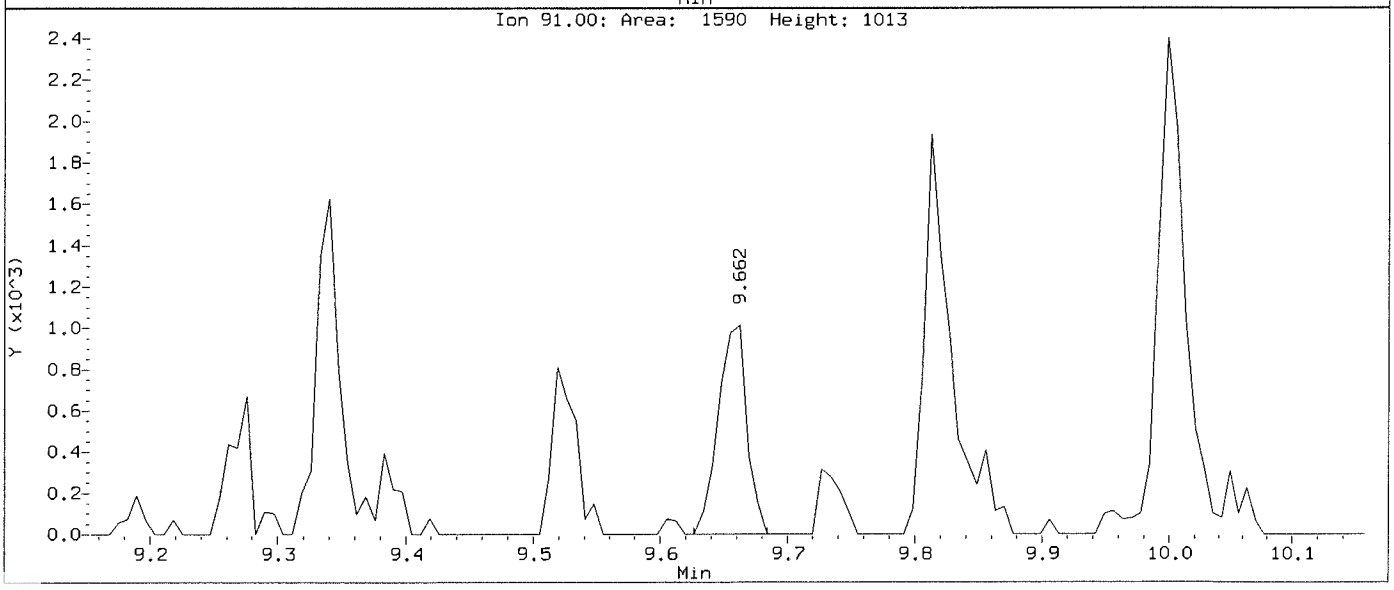



Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: p-Isopropyltoluene
CAS Number: 99-87-6

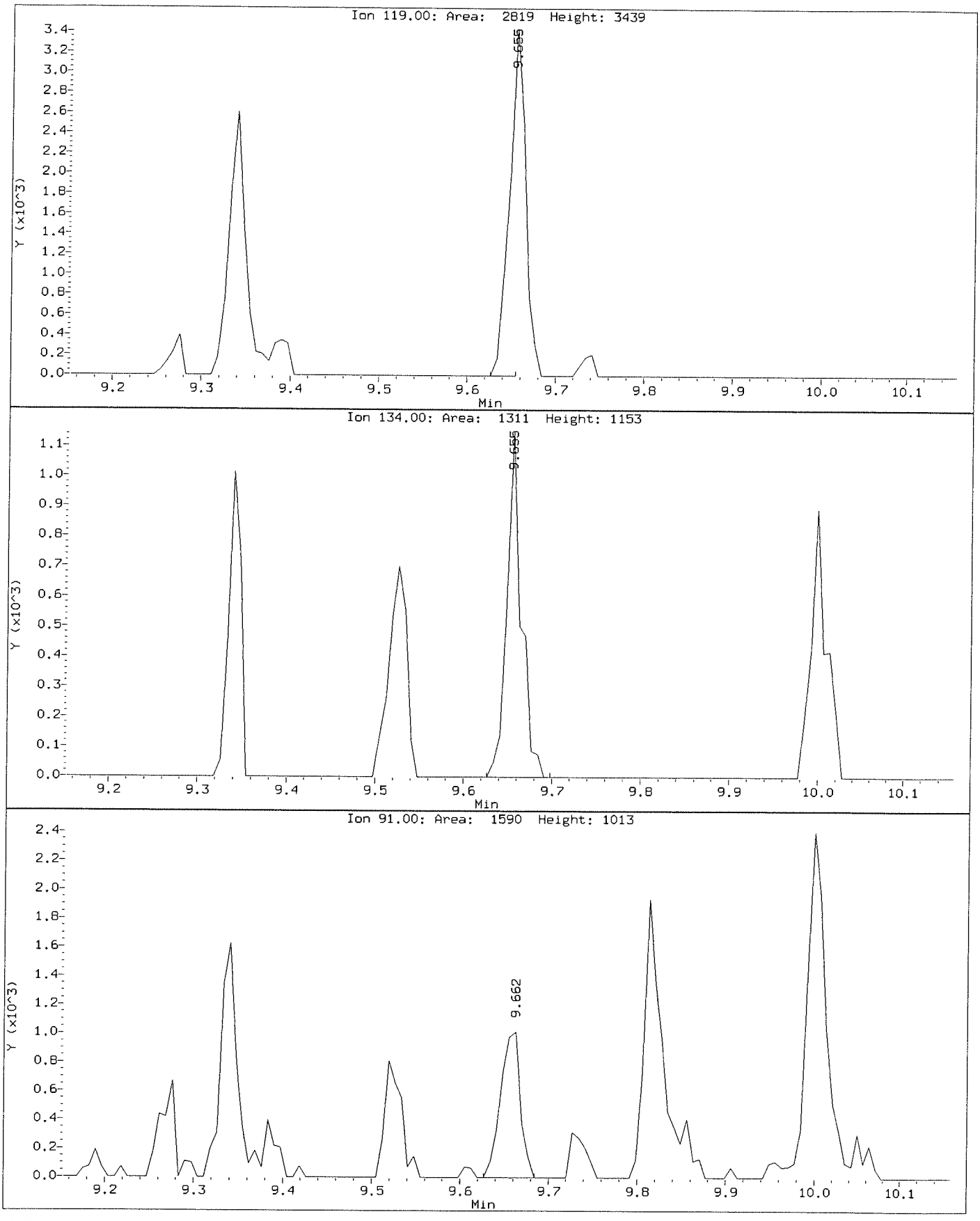


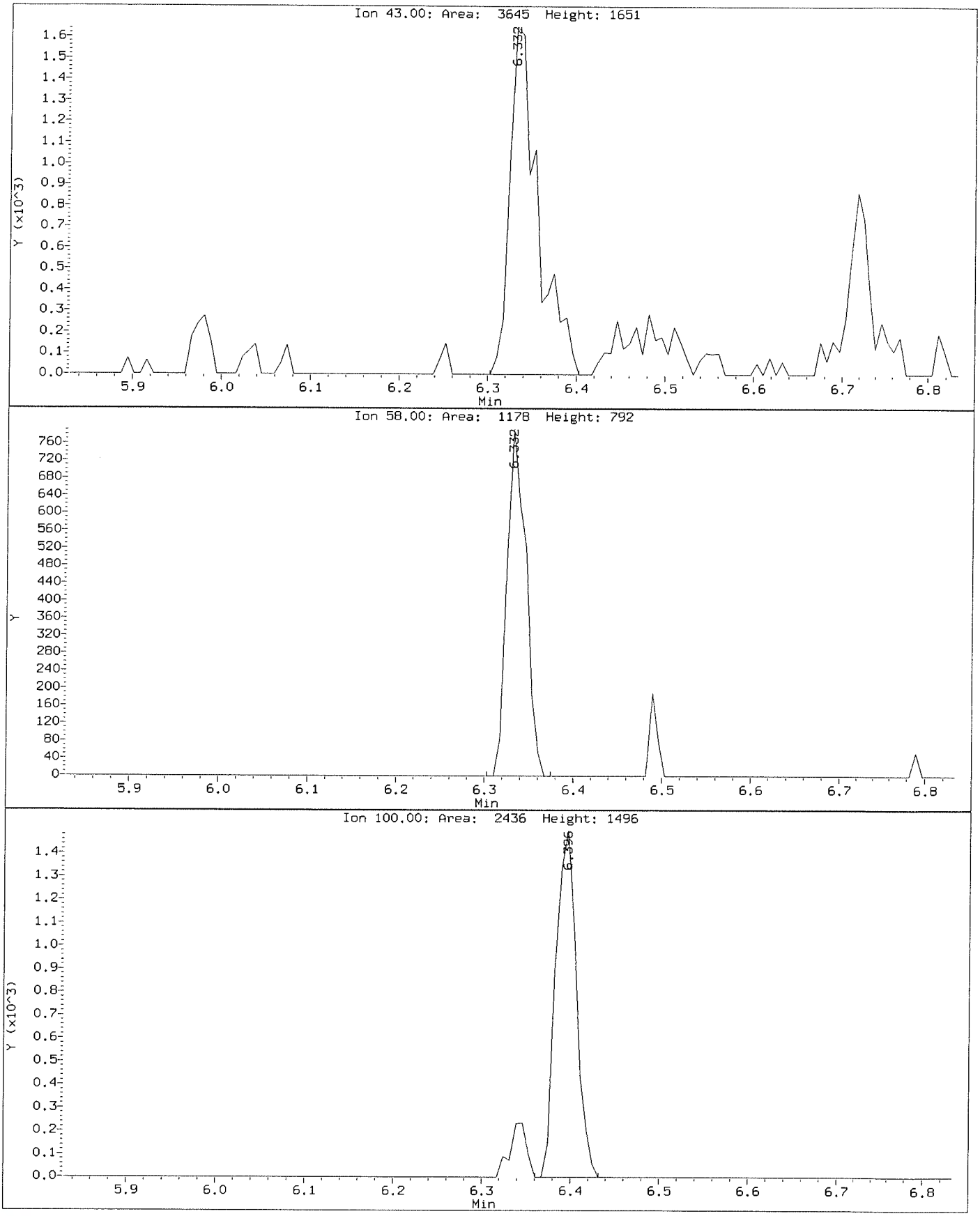
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: p-Isopropyltoluene
CAS Number: 99-87-6



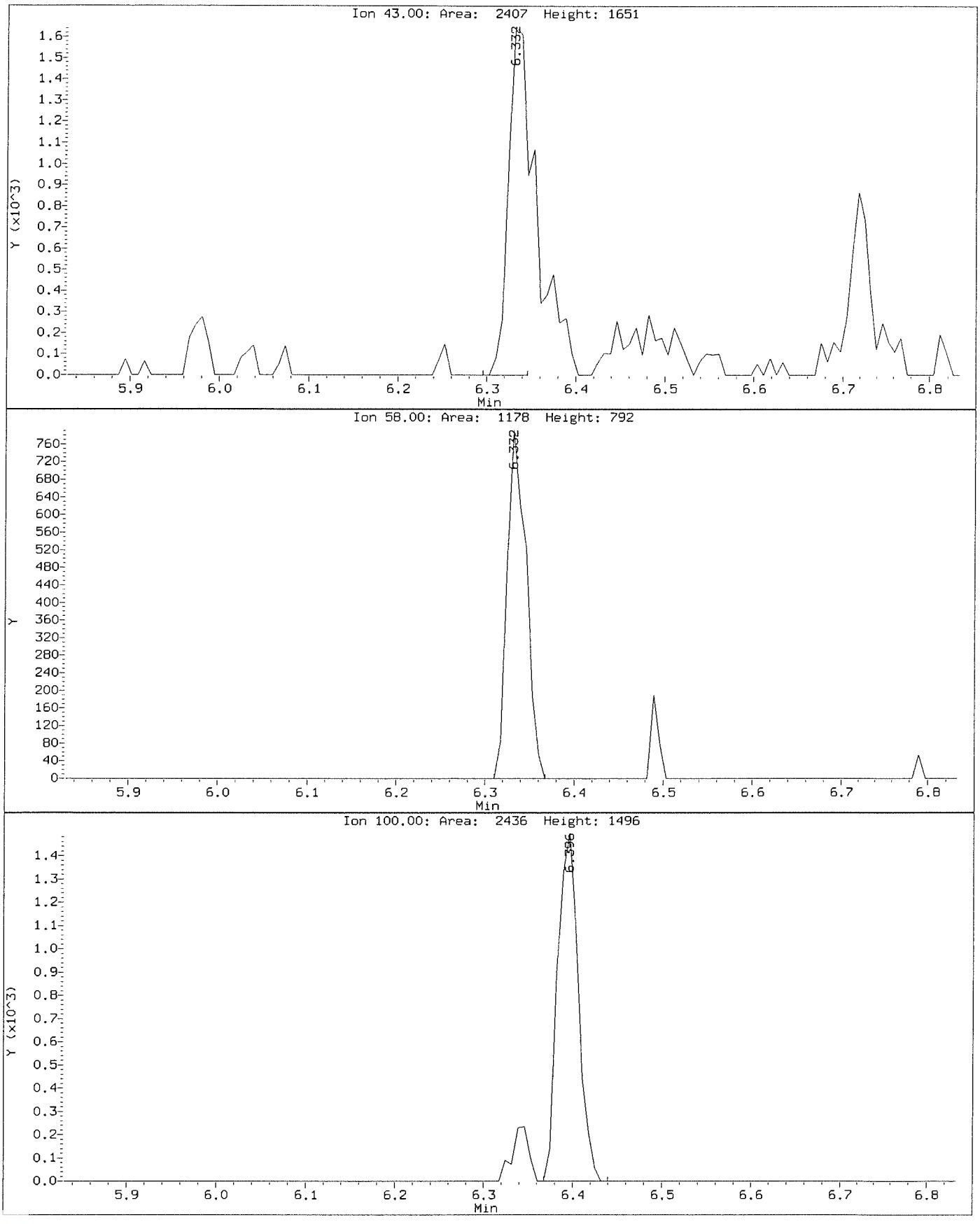
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 4-Methyl-2-Pentanone
CAS Number: 108-10-1



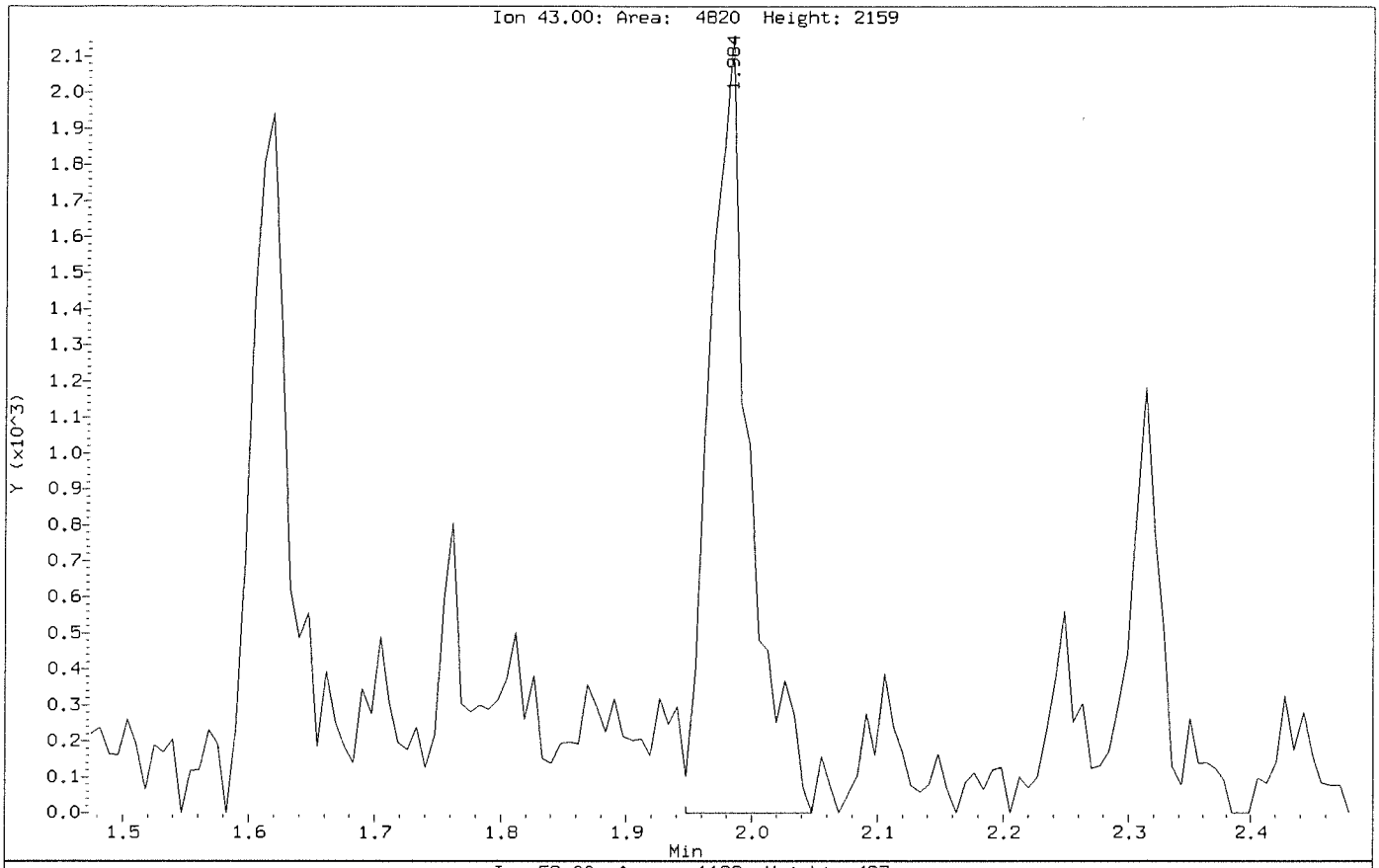
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

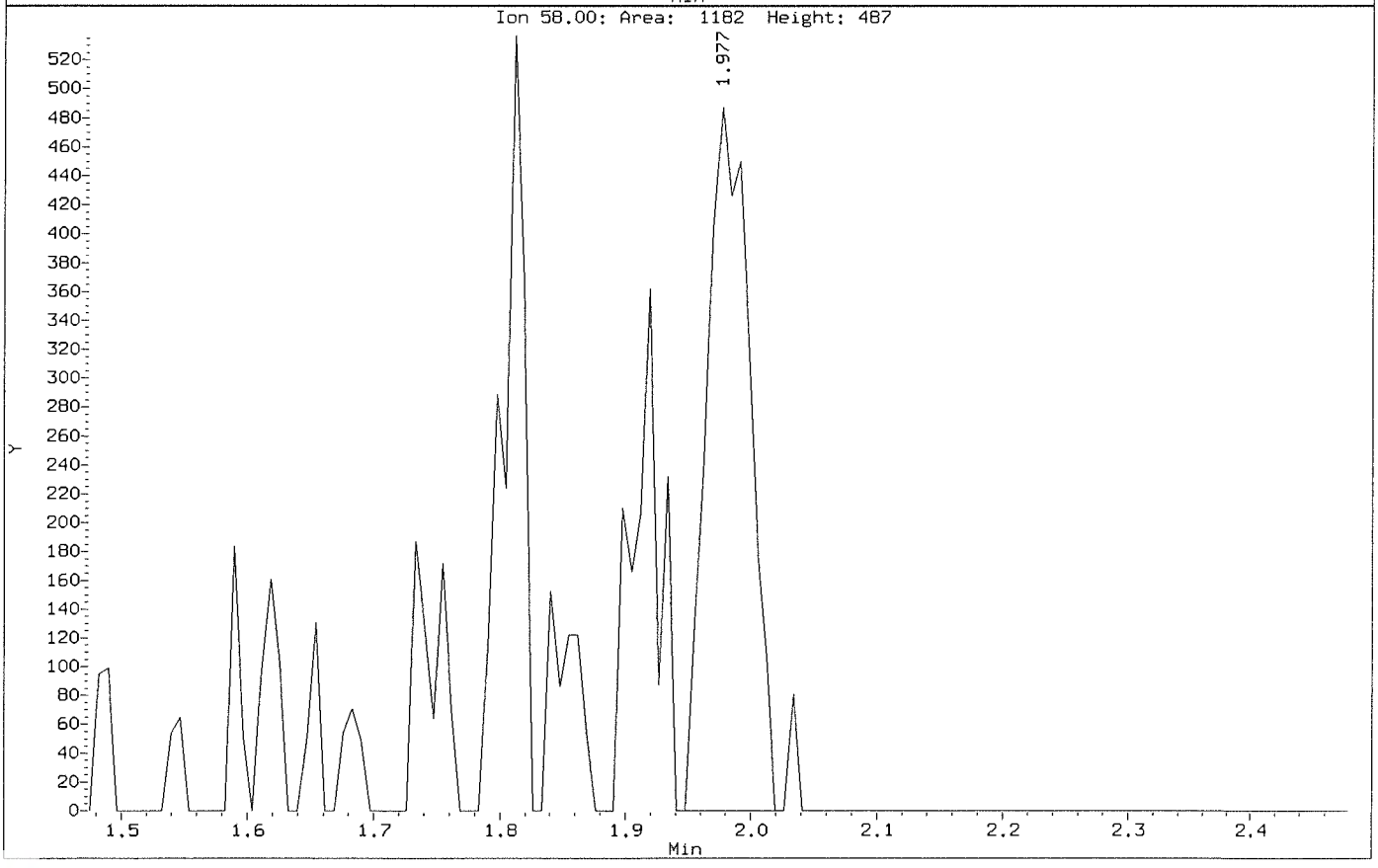
Compound: 4-Methyl-2-Pentanone
CAS Number: 108-10-1



Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

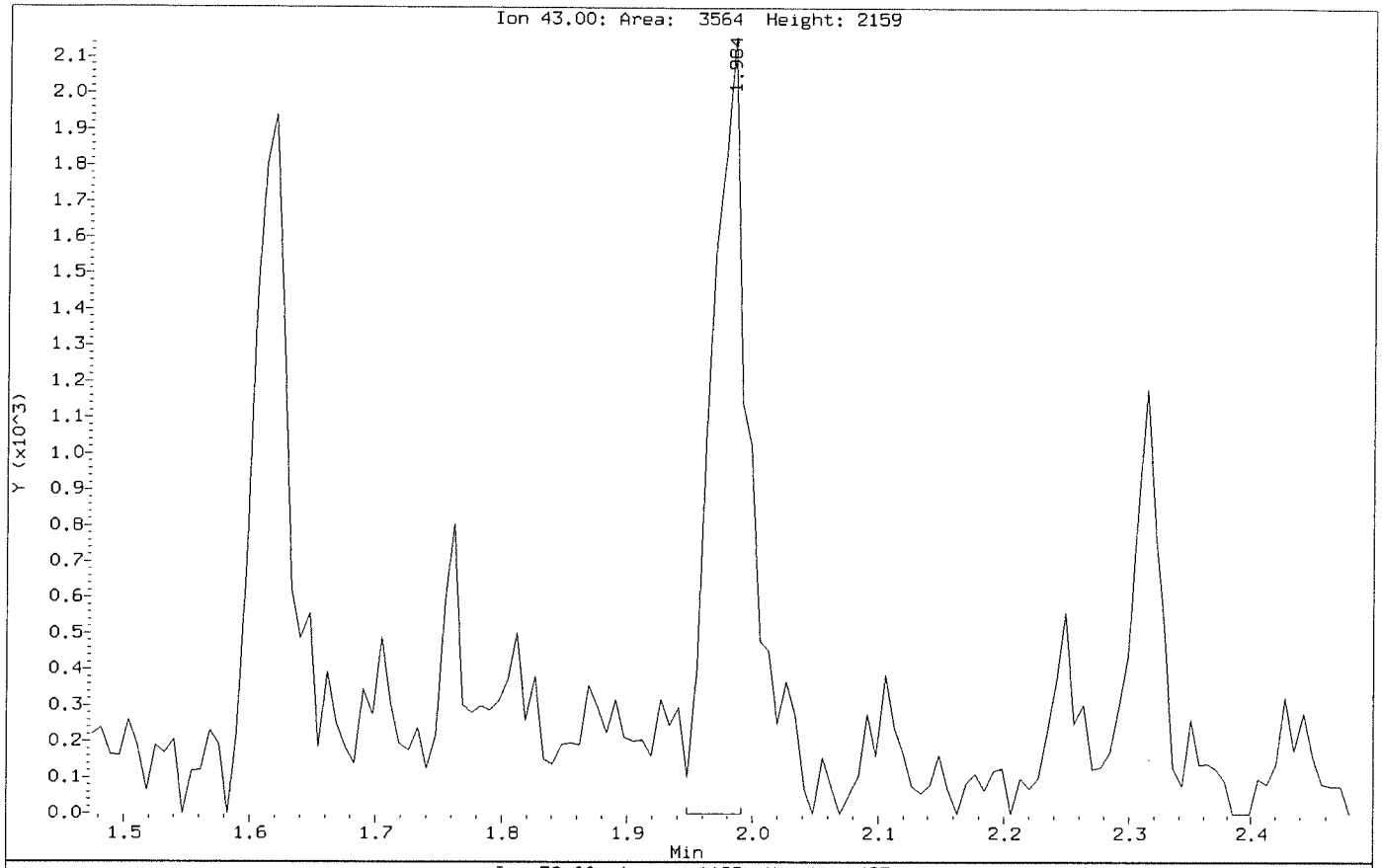
Compound: Acetone
CAS Number: 67-64-1

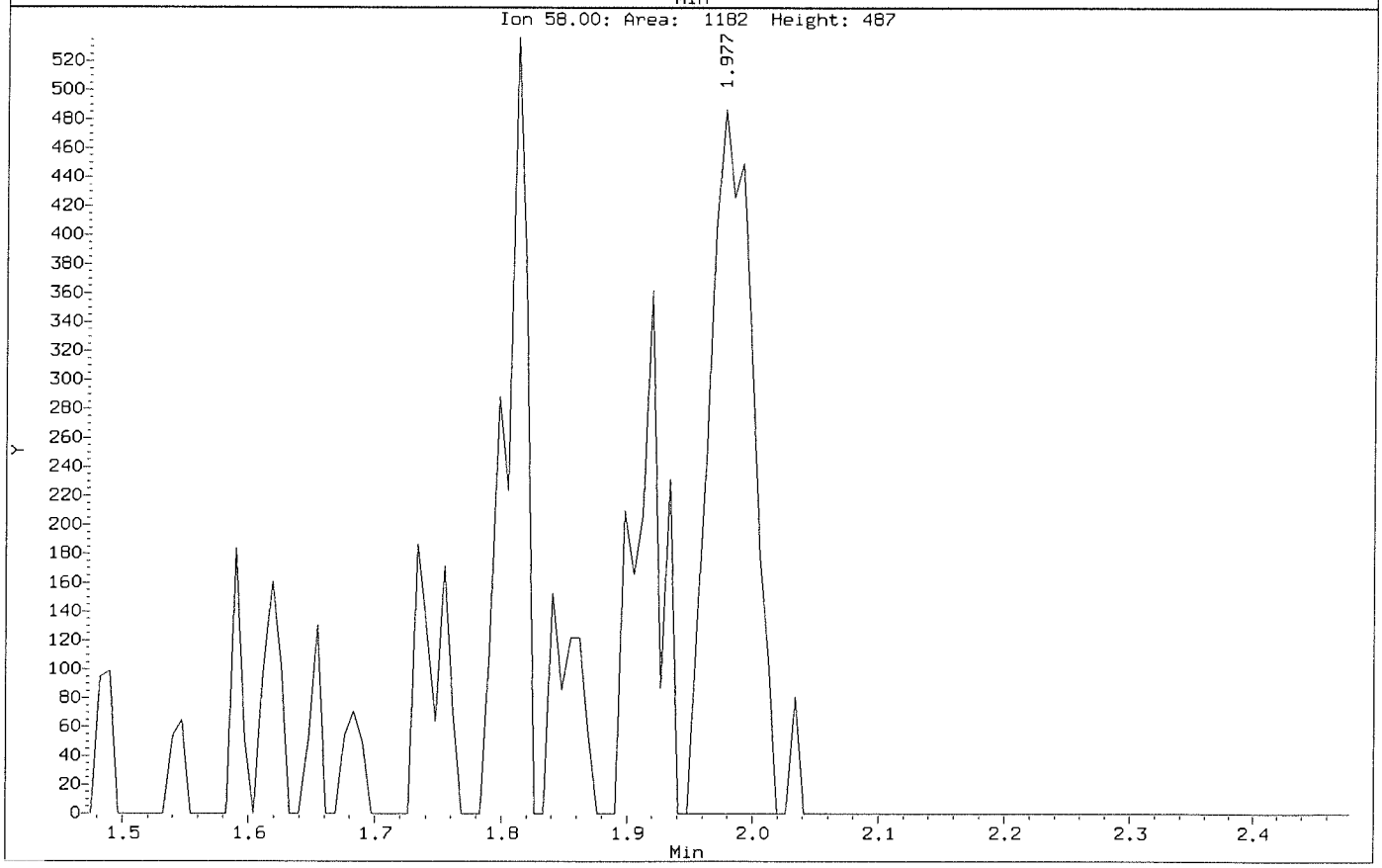


Data File: \\nahstws005\Target\chem\voa6.1\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.1
Client Sample ID: VSTD000.5

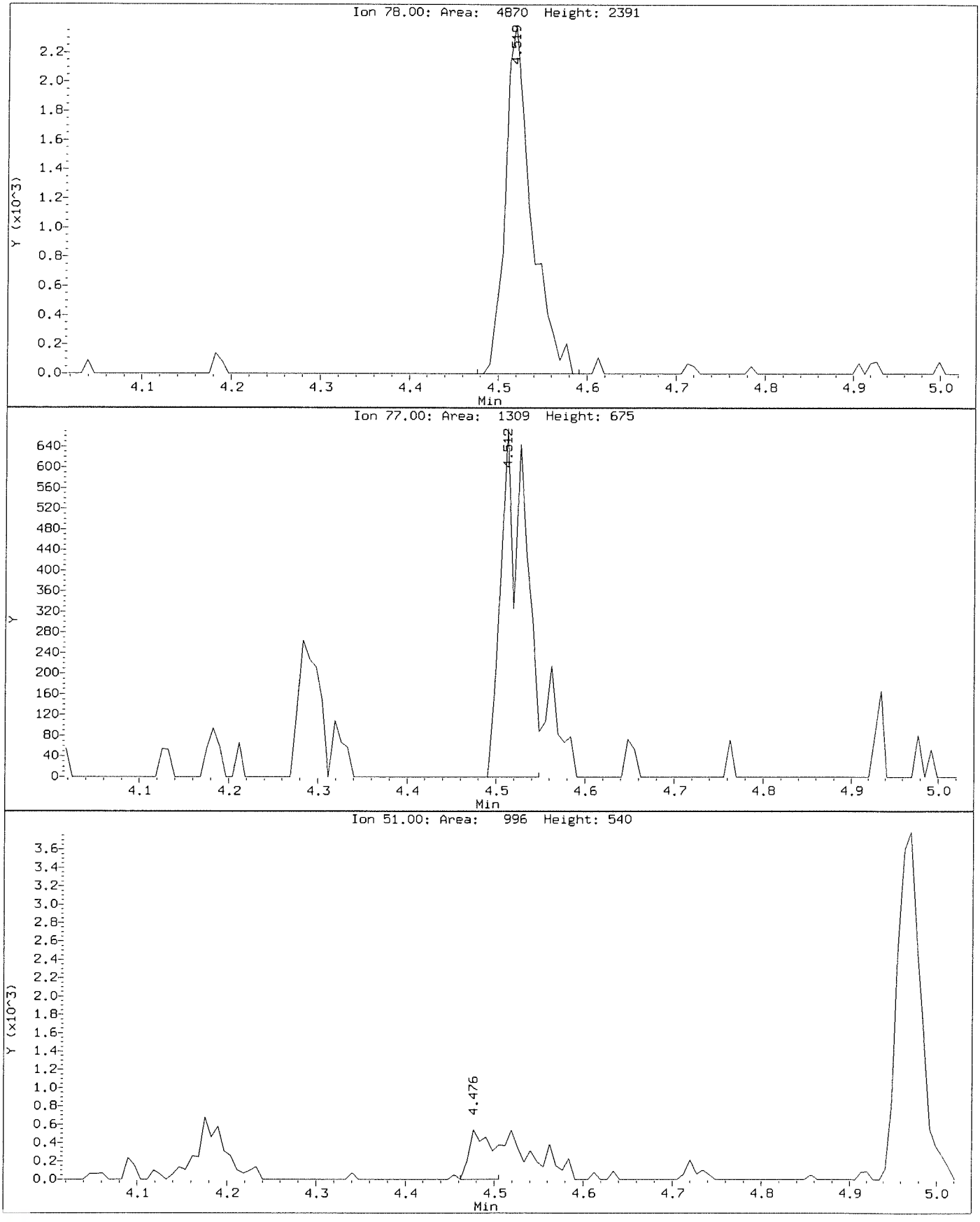
Compound: Acetone
CAS Number: 67-64-1



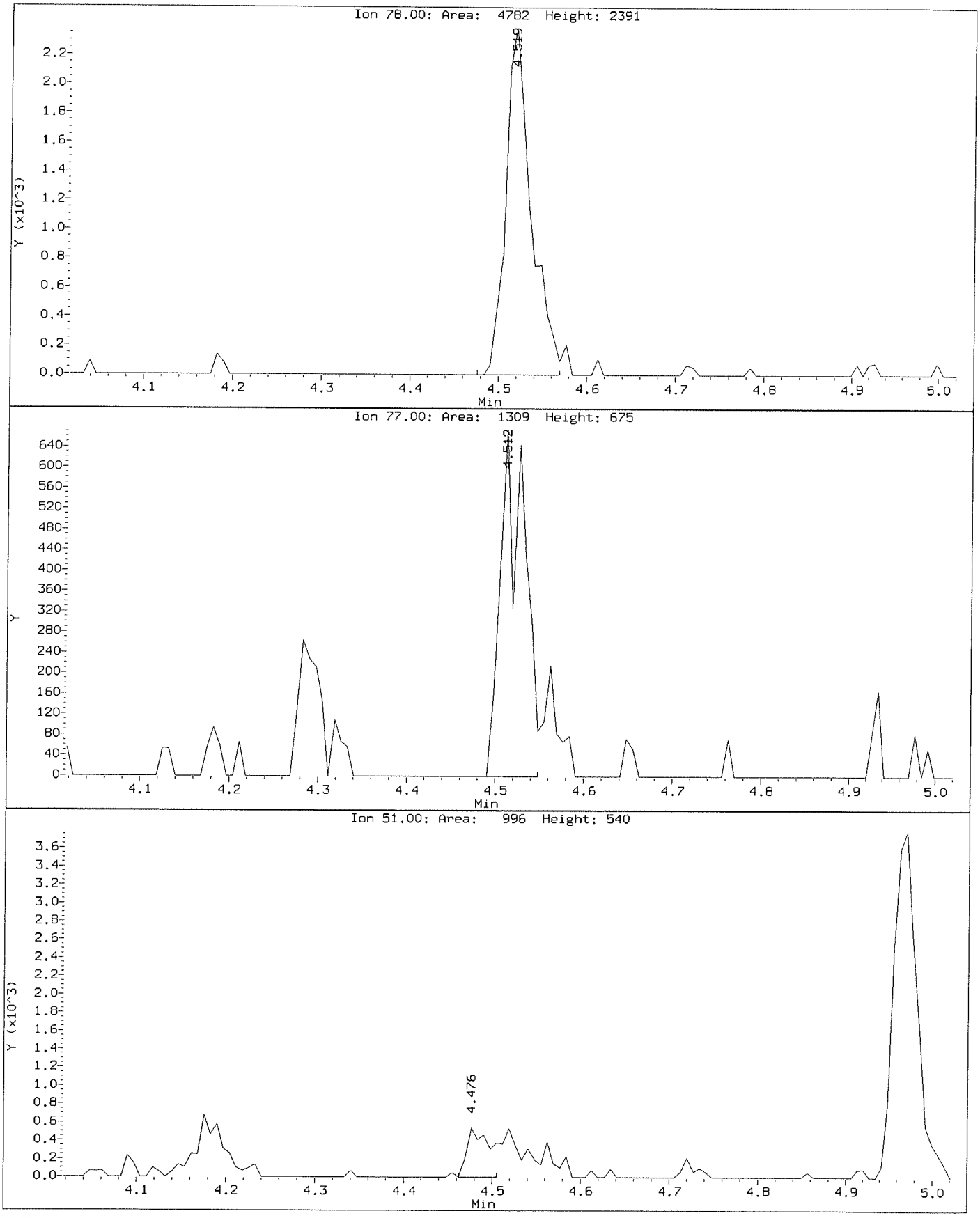
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Benzene
CAS Number: 71-43-2



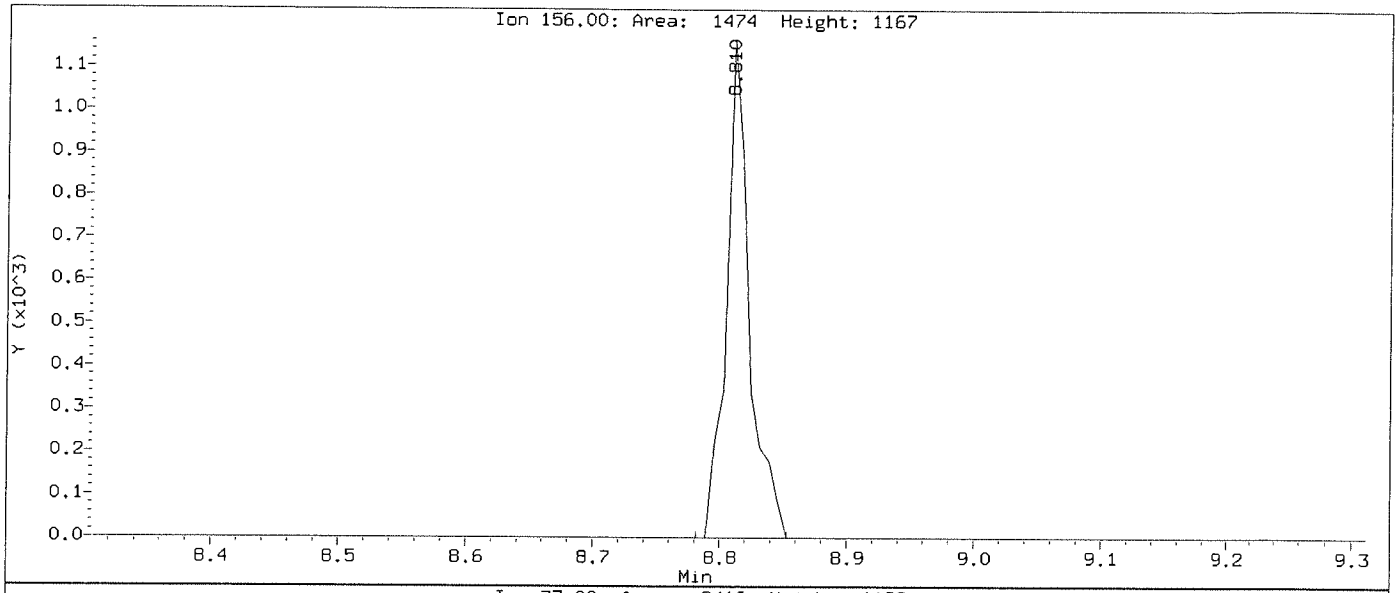
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

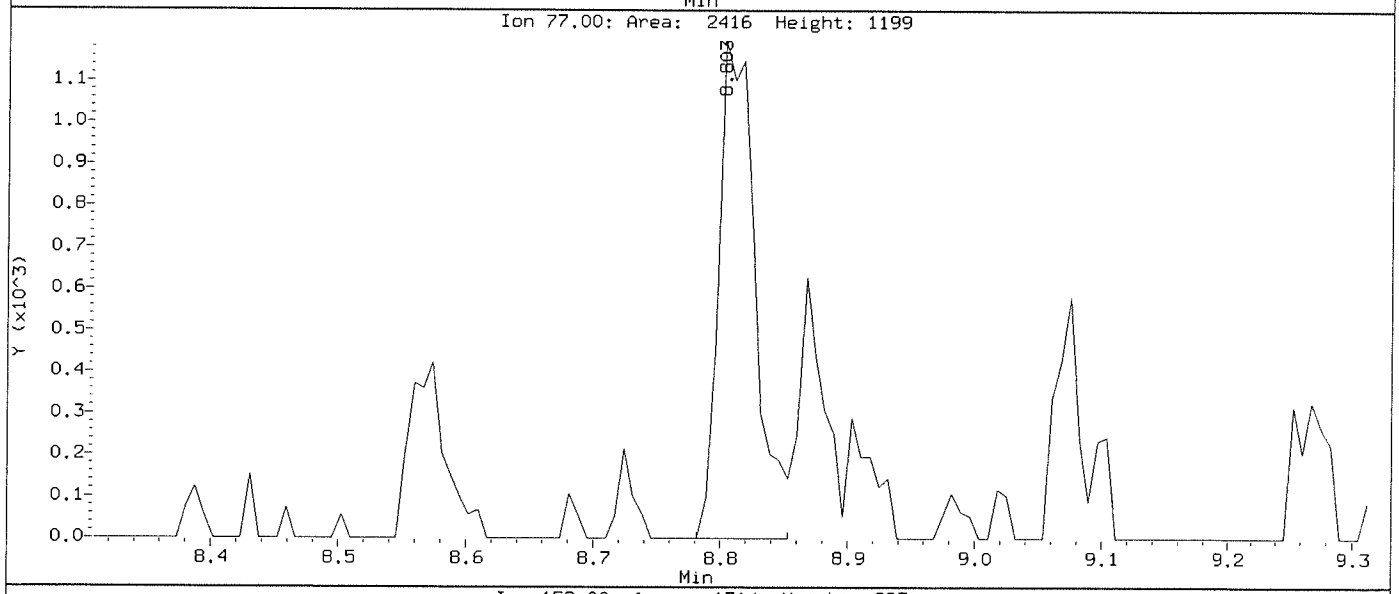
Compound: Benzene
CAS Number: 71-43-2

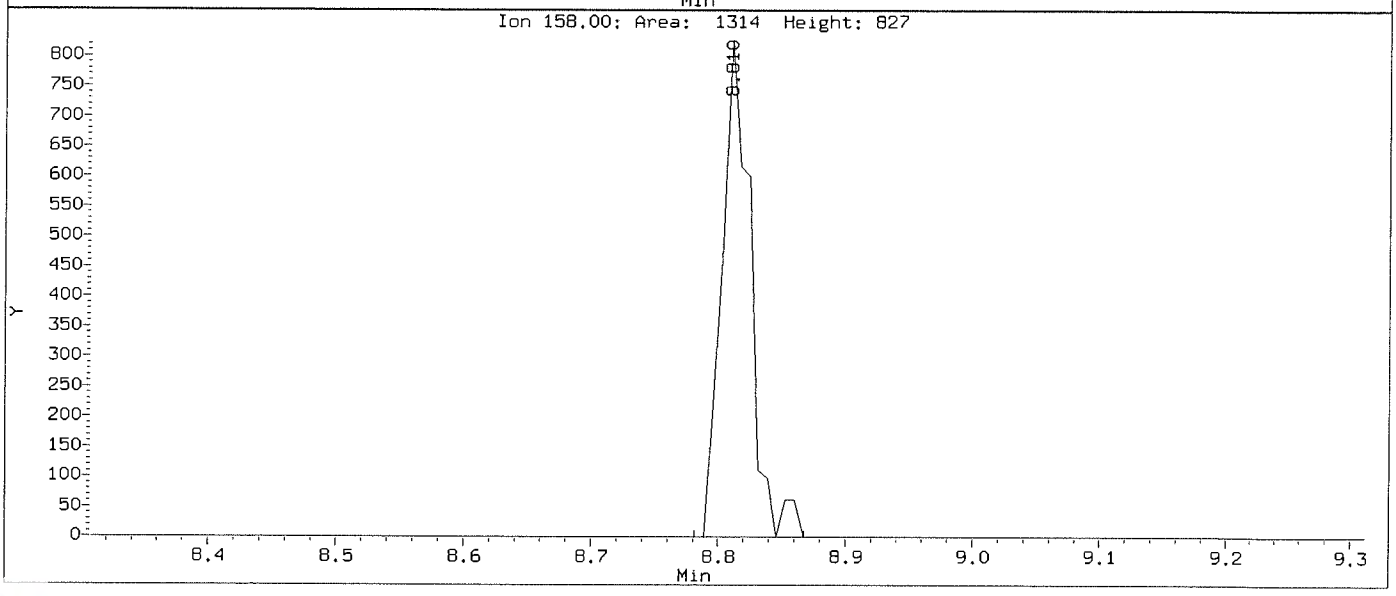


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Bromobenzene
CAS Number: 108-86-1

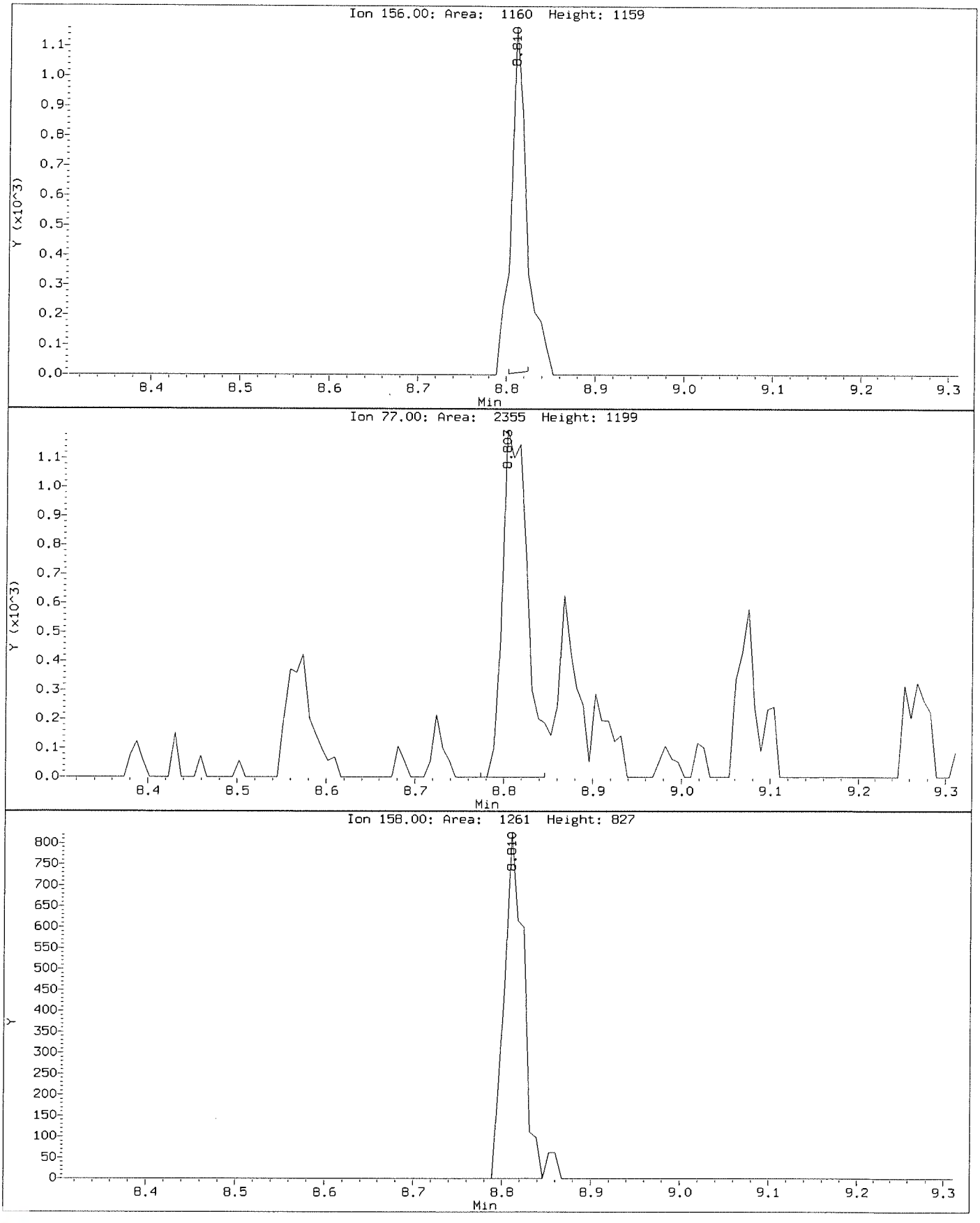


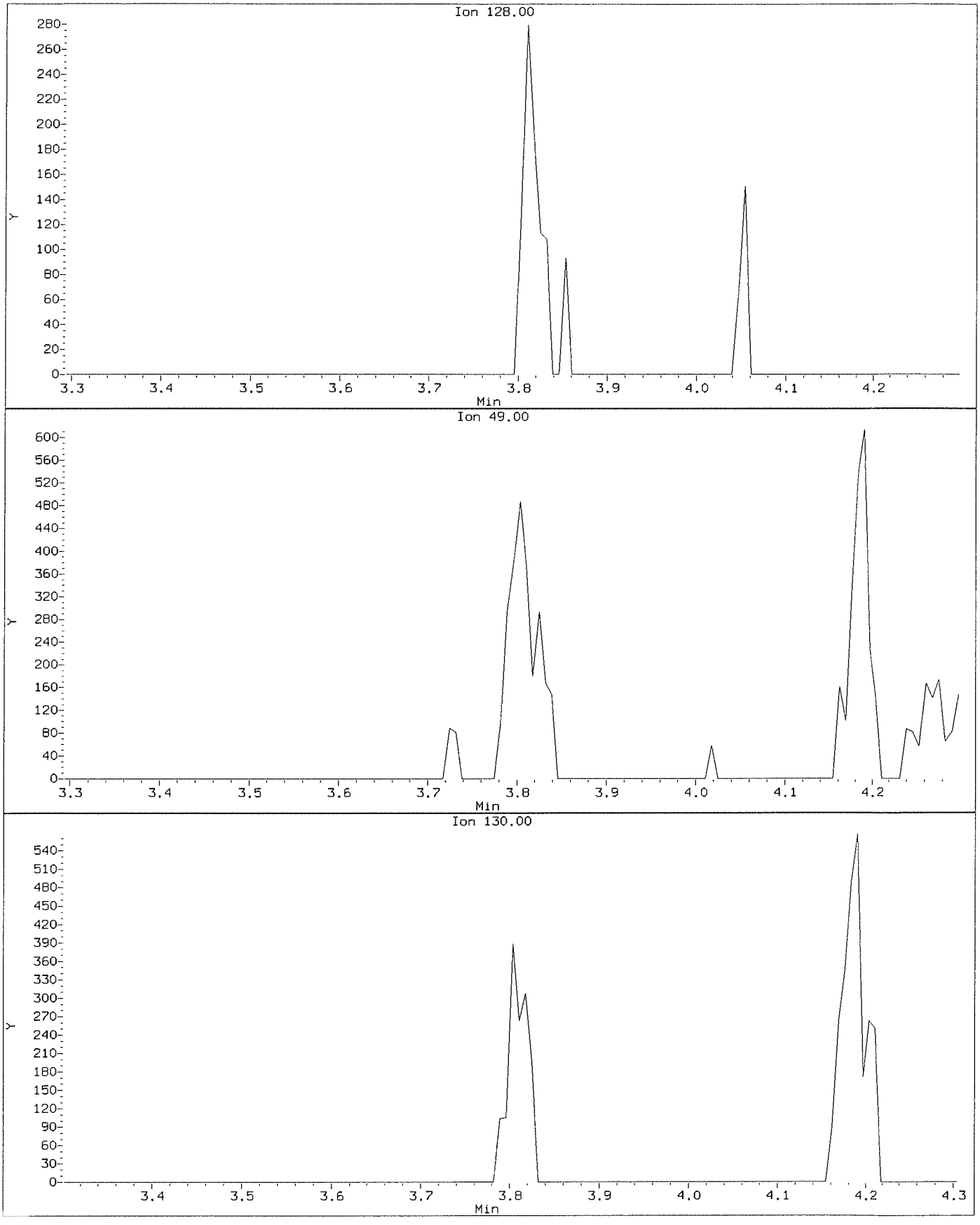
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Bromobenzene
CAS Number: 108-86-1



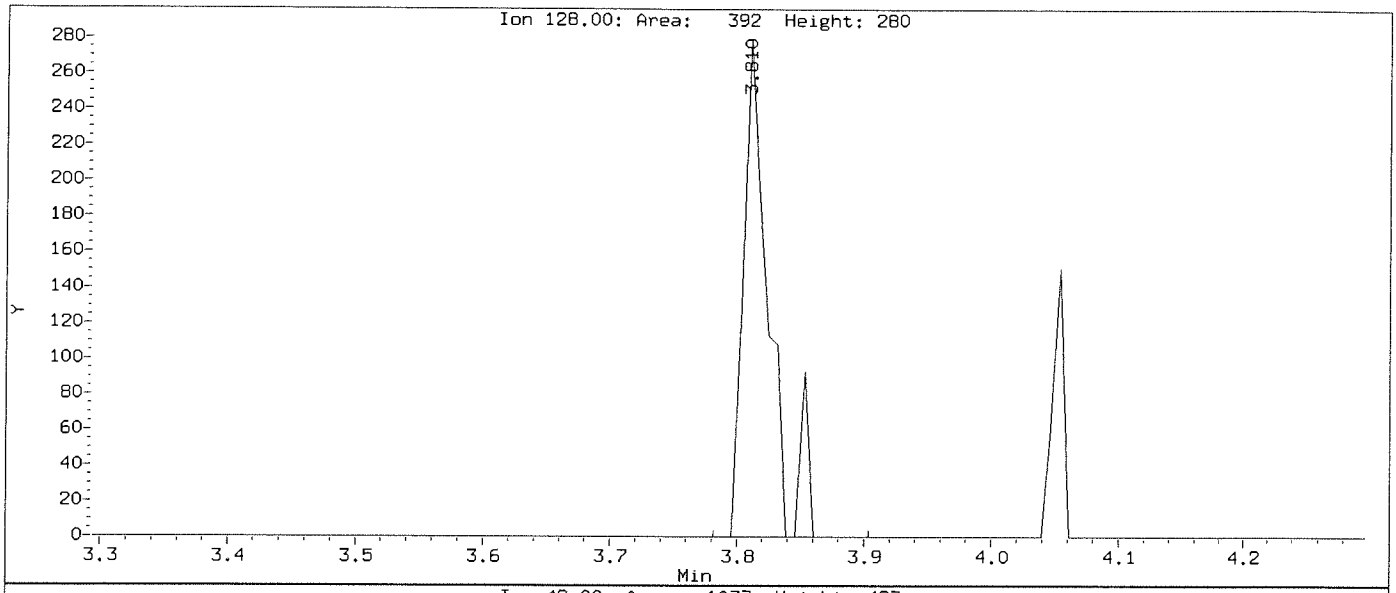
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

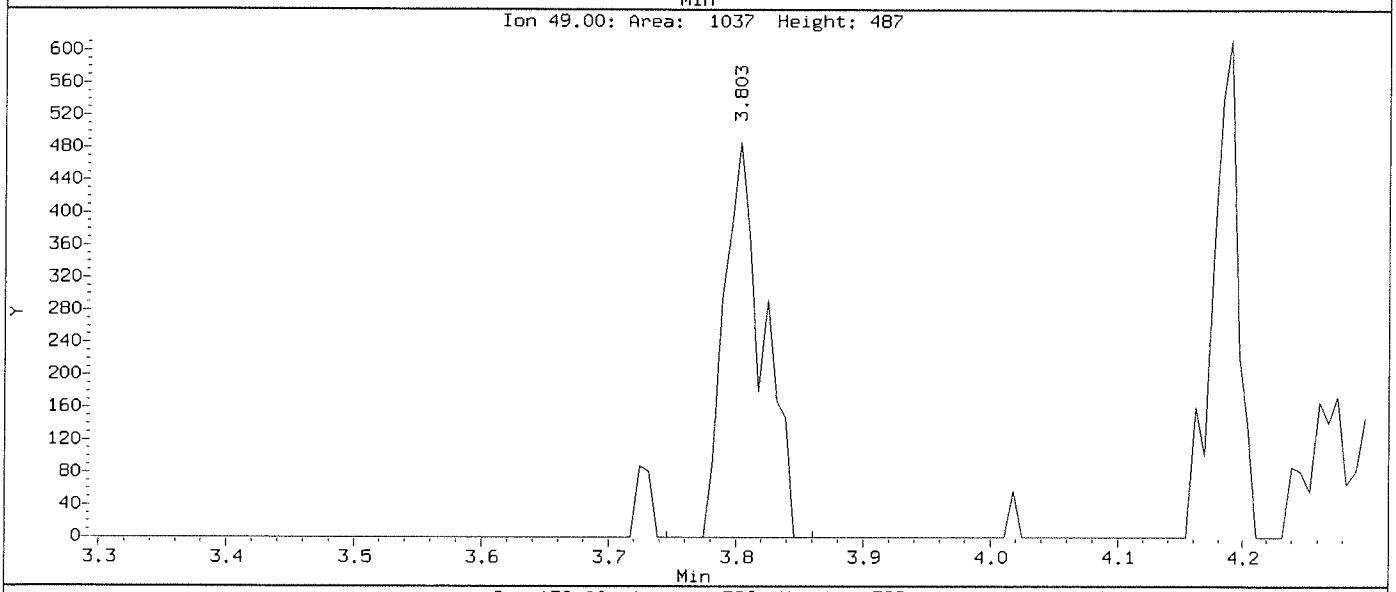
Compound: Bromochloromethane
CAS Number: 74-97-5

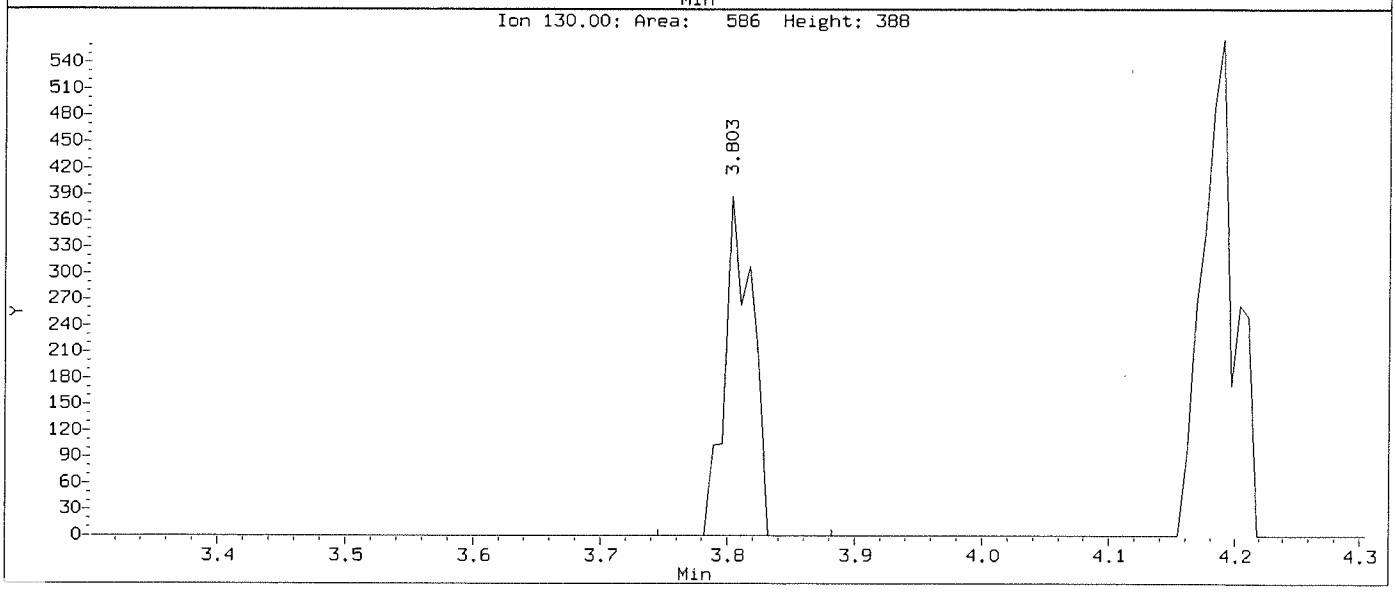


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Bromochloromethane
CAS Number: 74-97-5

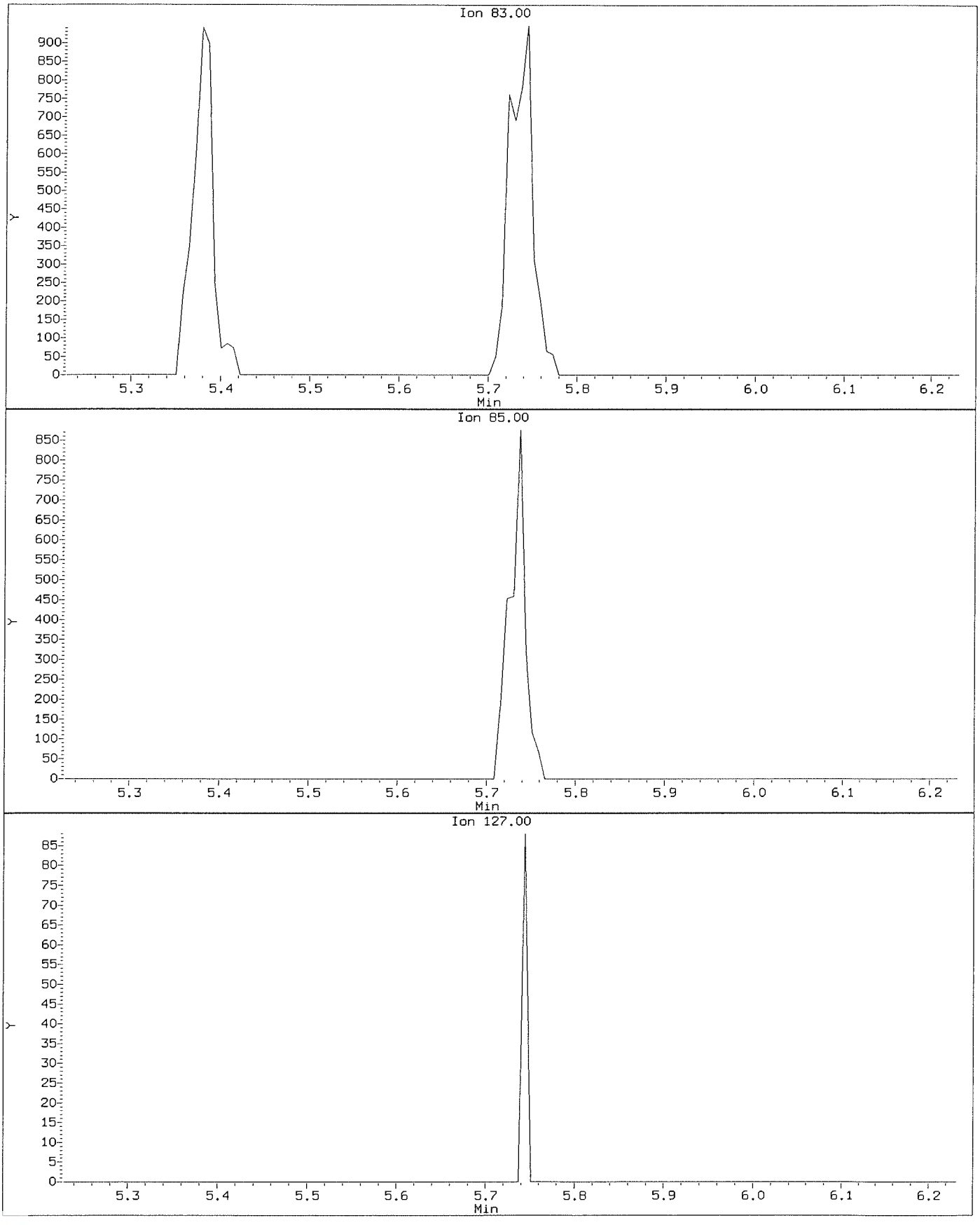


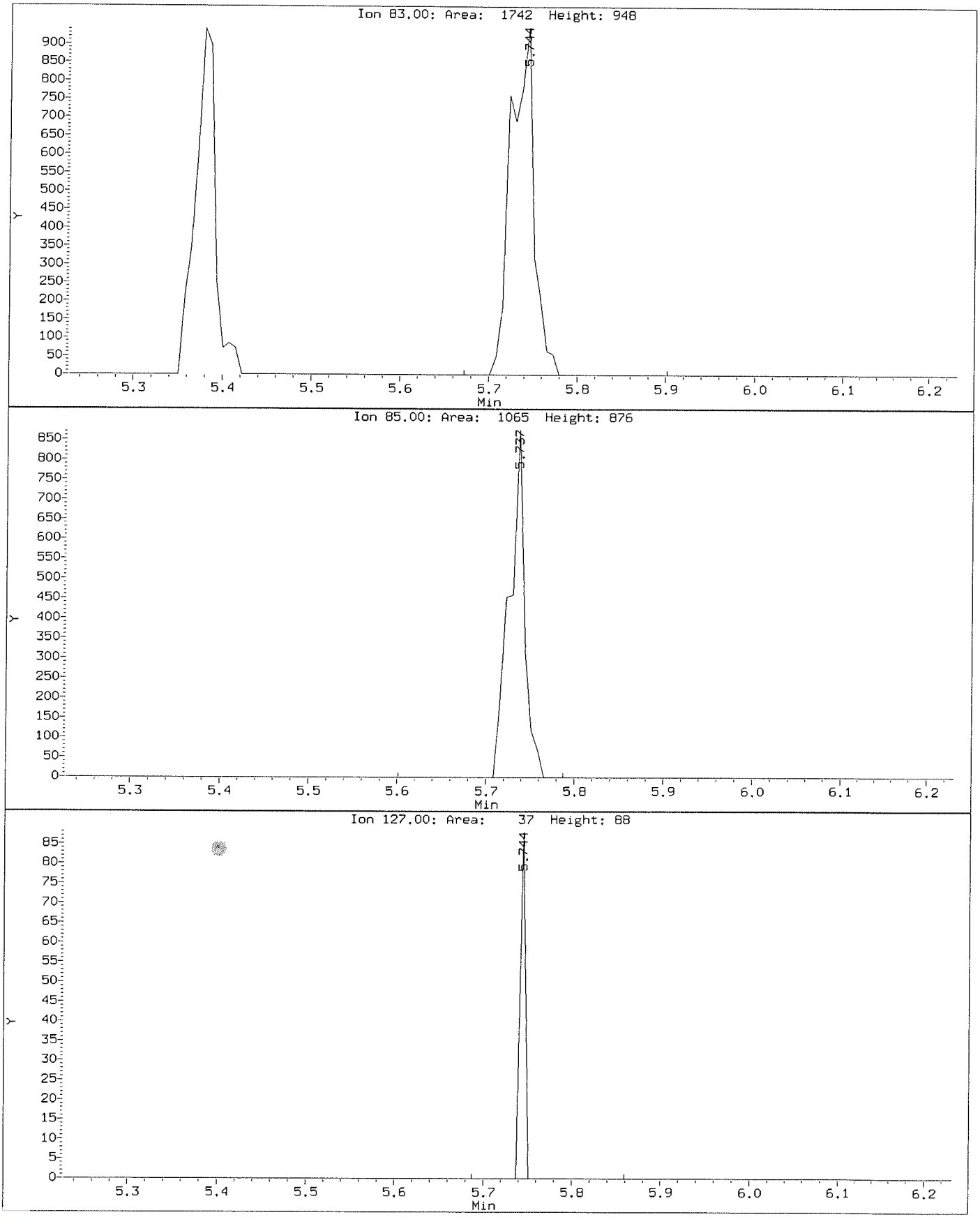
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Bromodichloromethane
CAS Number: 75-27-4



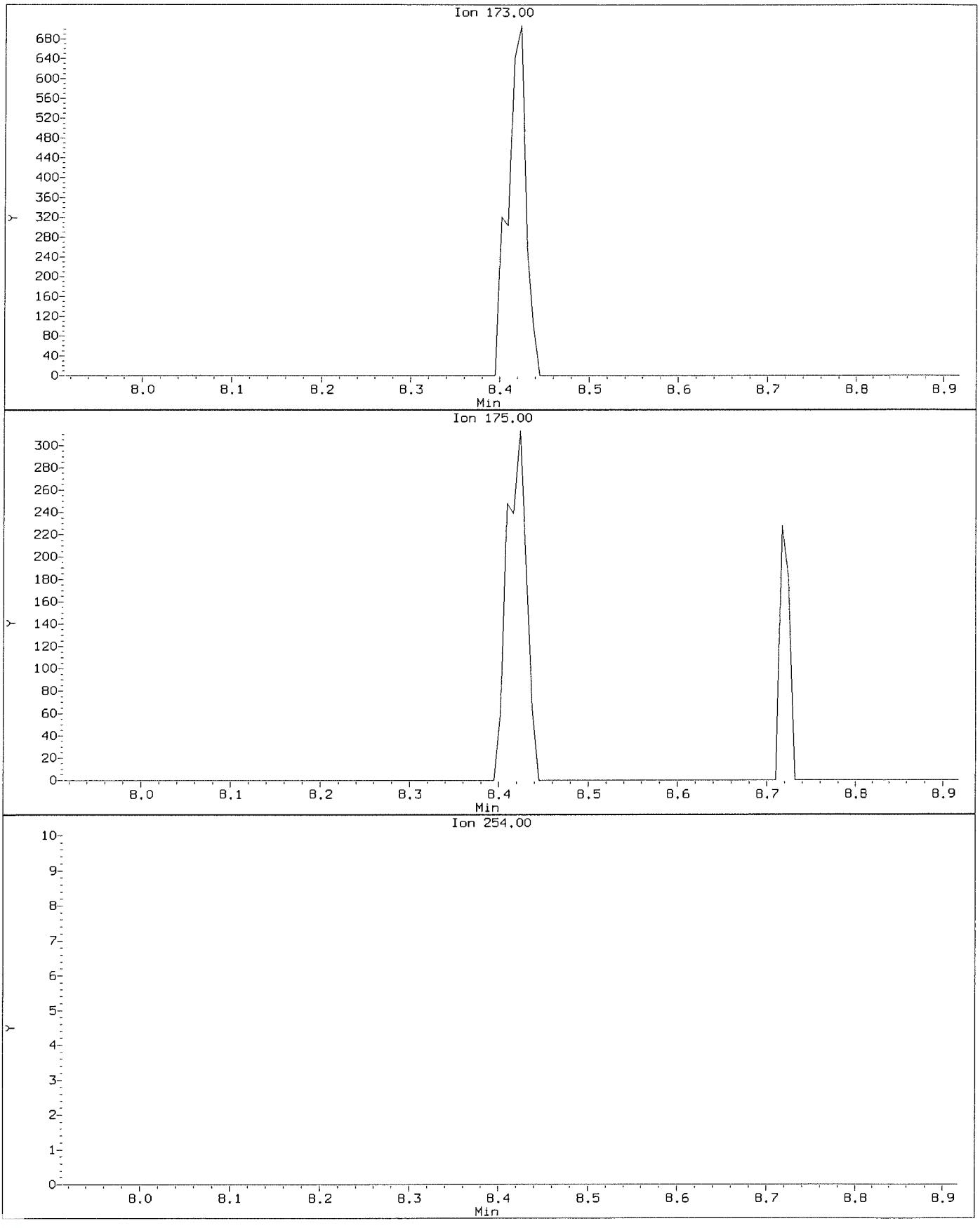
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Bromodichloromethane
CAS Number: 75-27-4



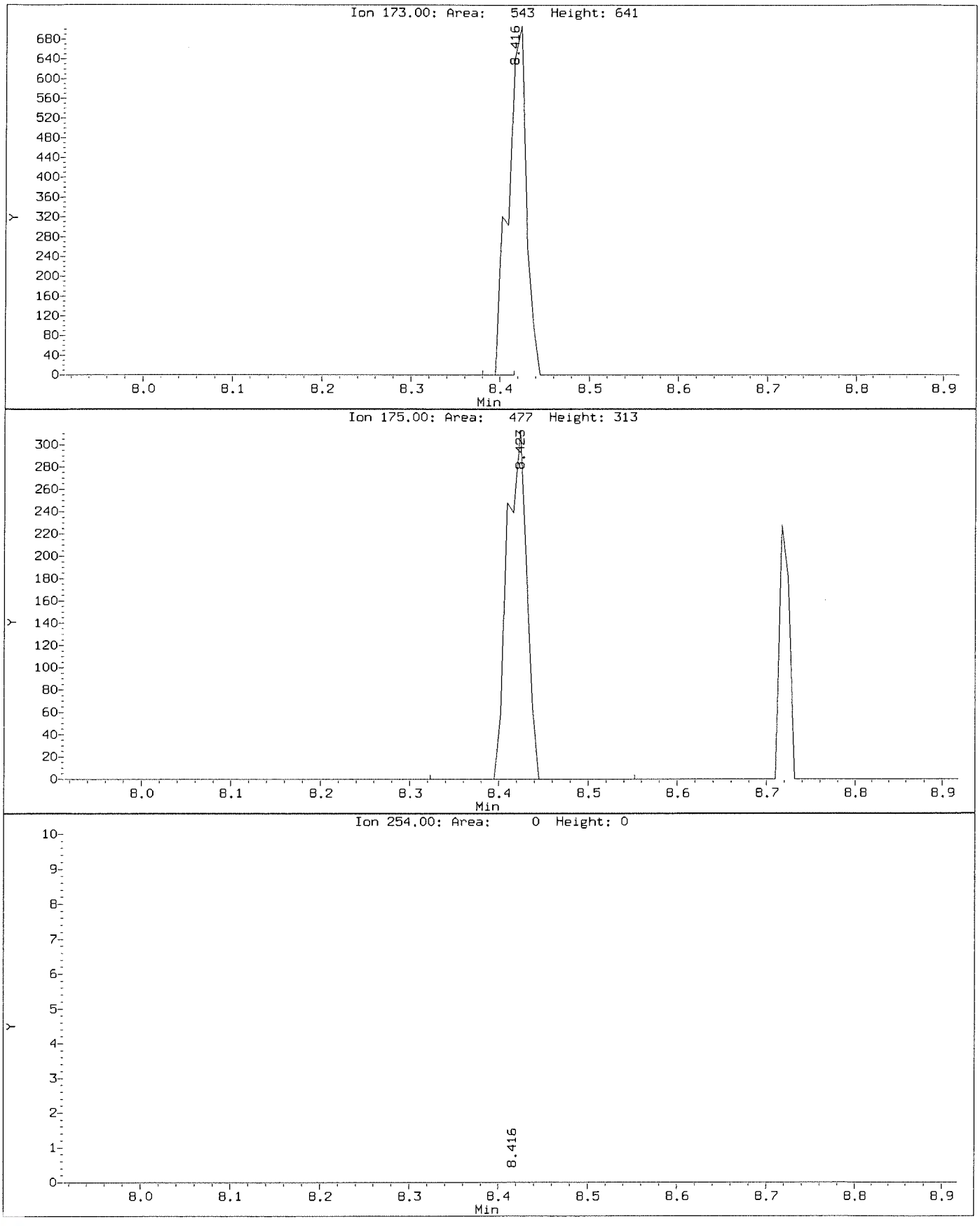
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Bromoform
CAS Number: 75-25-2



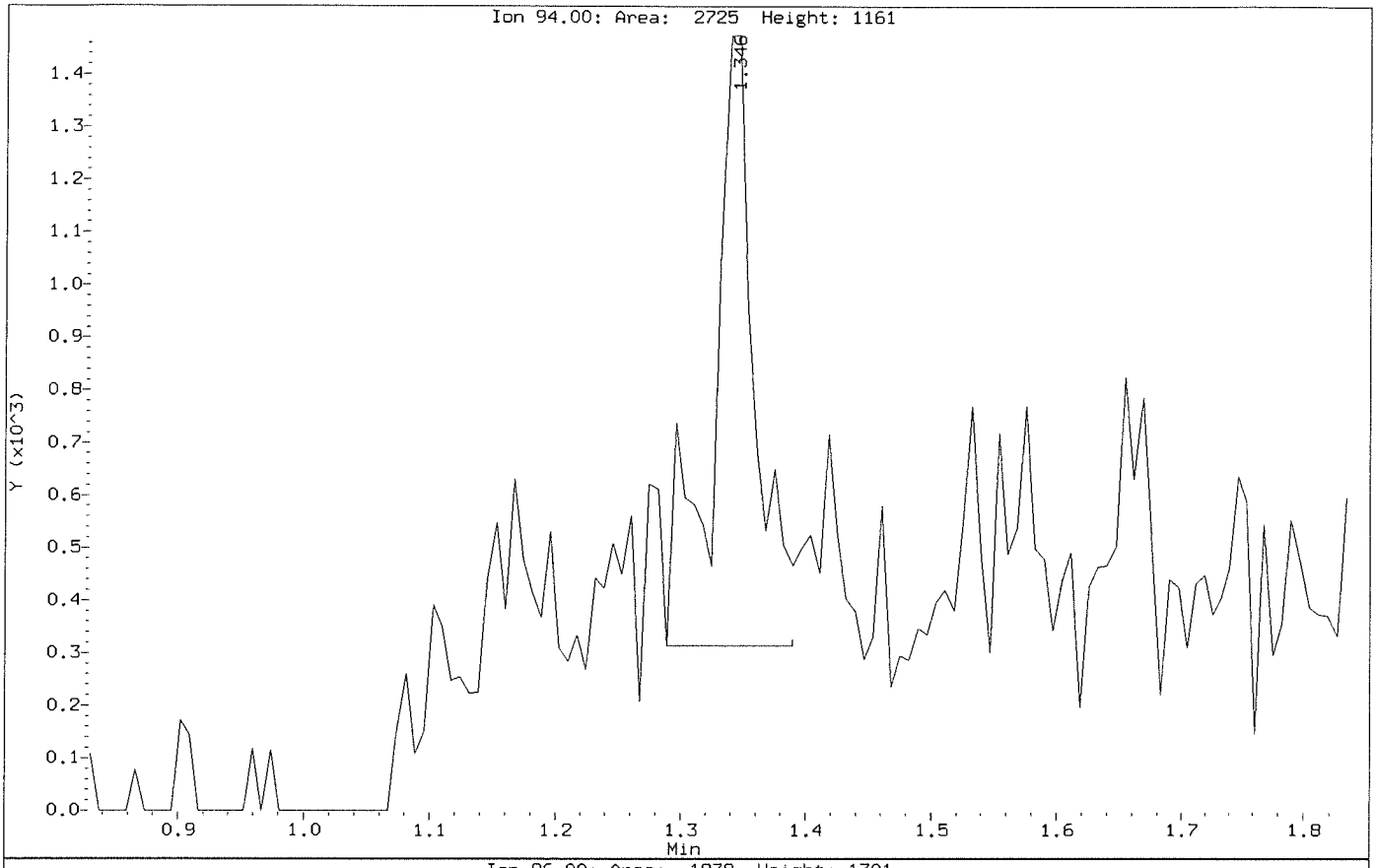
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

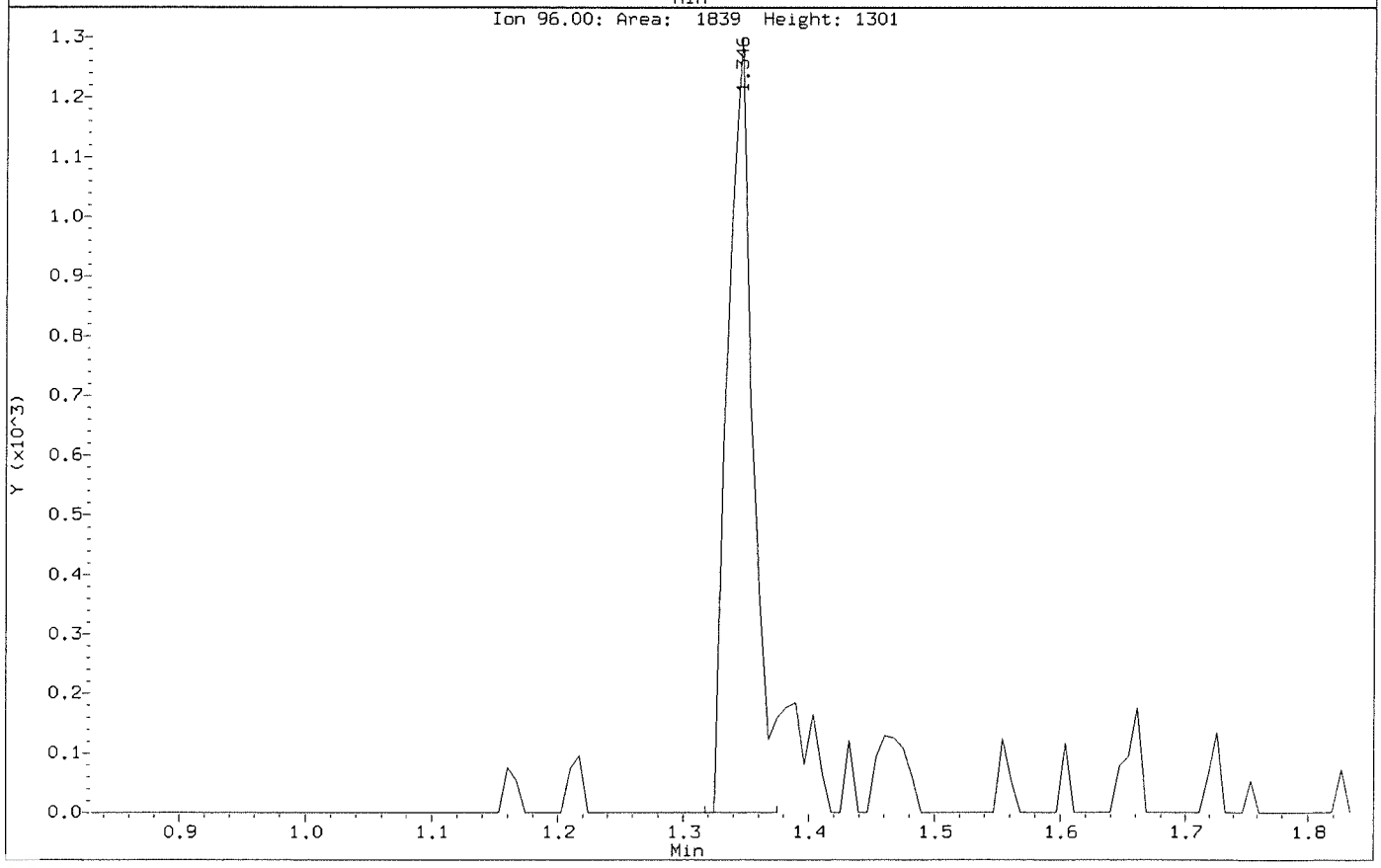
Compound: Bromoform
CAS Number: 75-25-2



Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

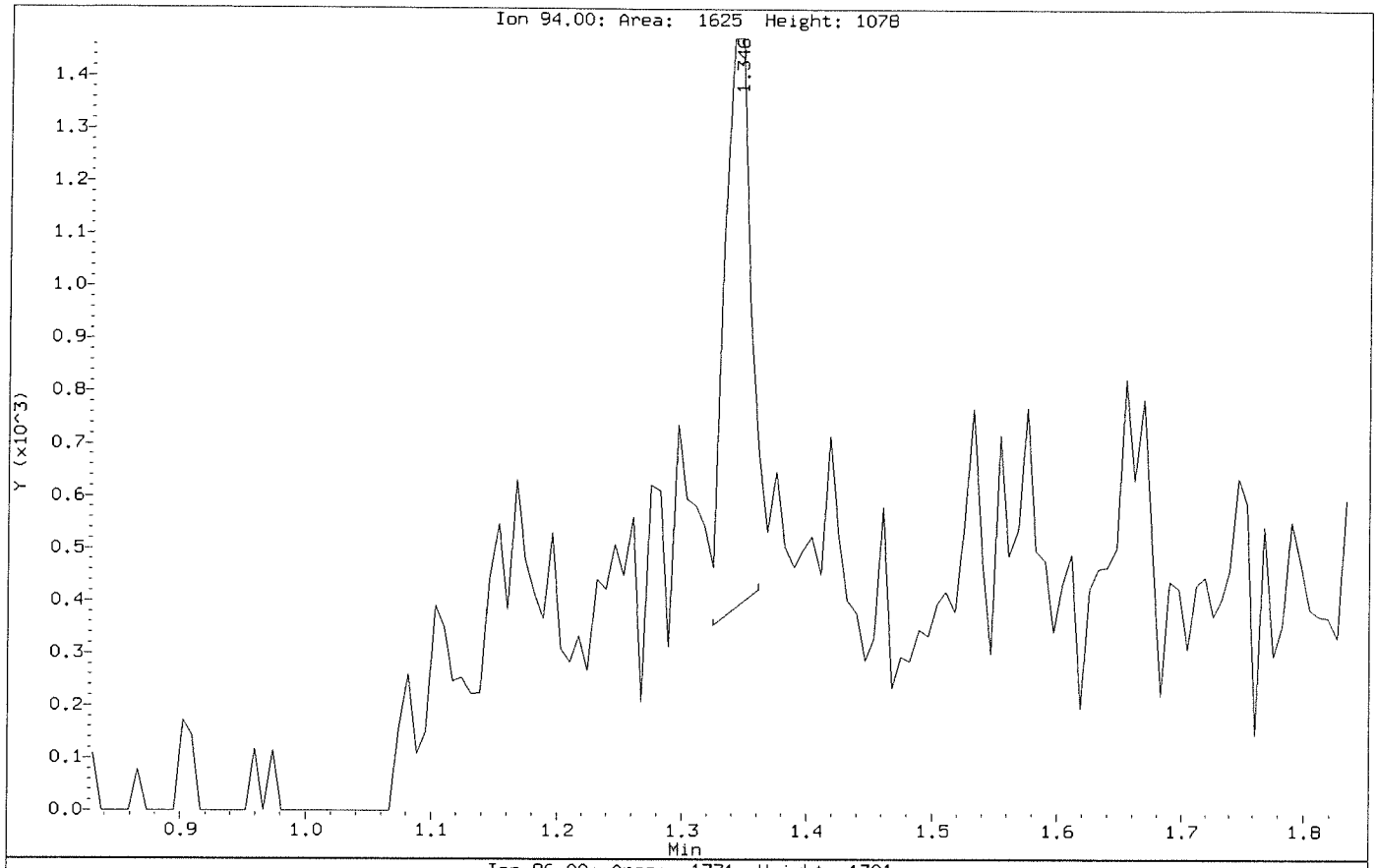
Compound: Bromomethane
CAS Number: 74-83-9

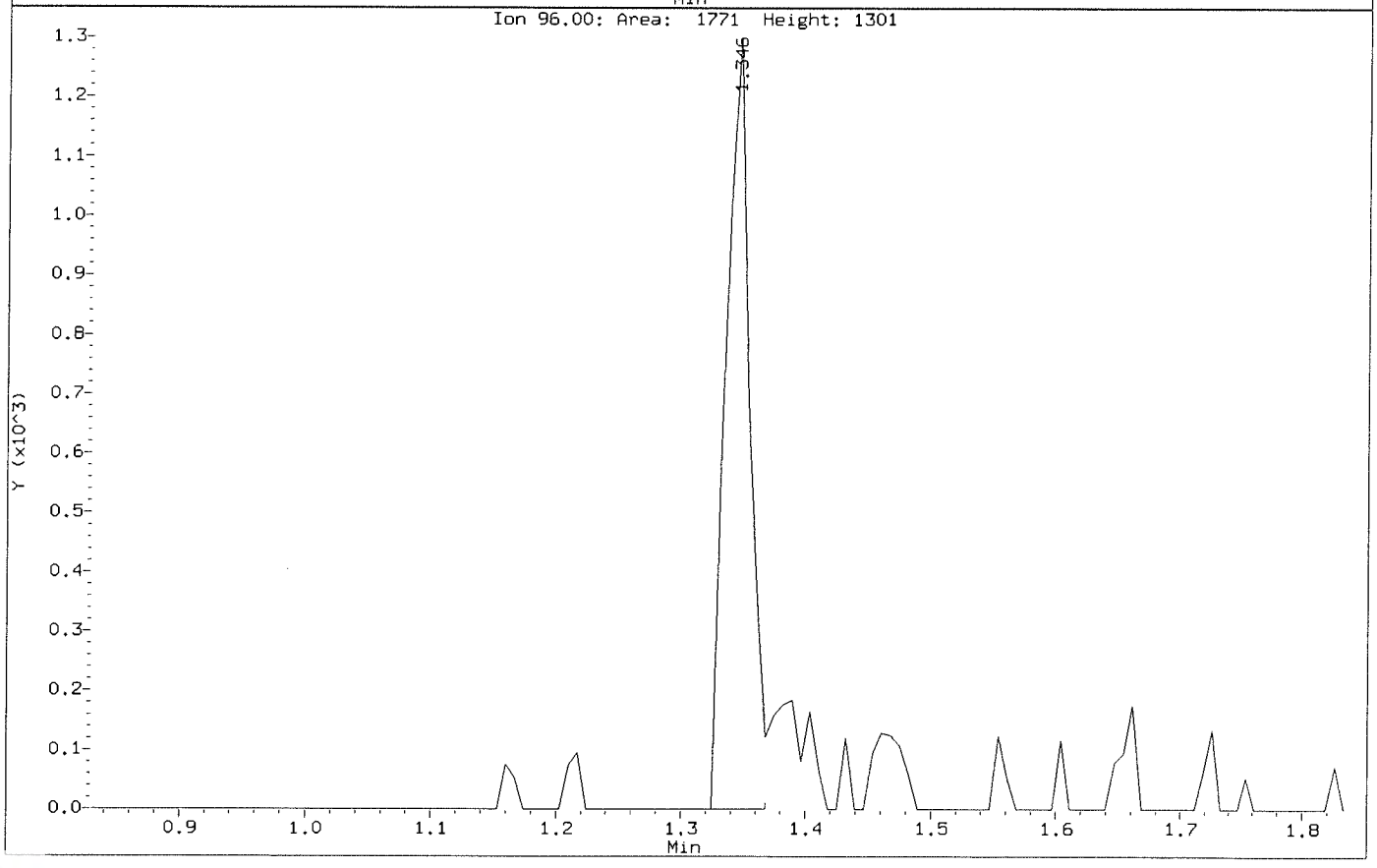


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

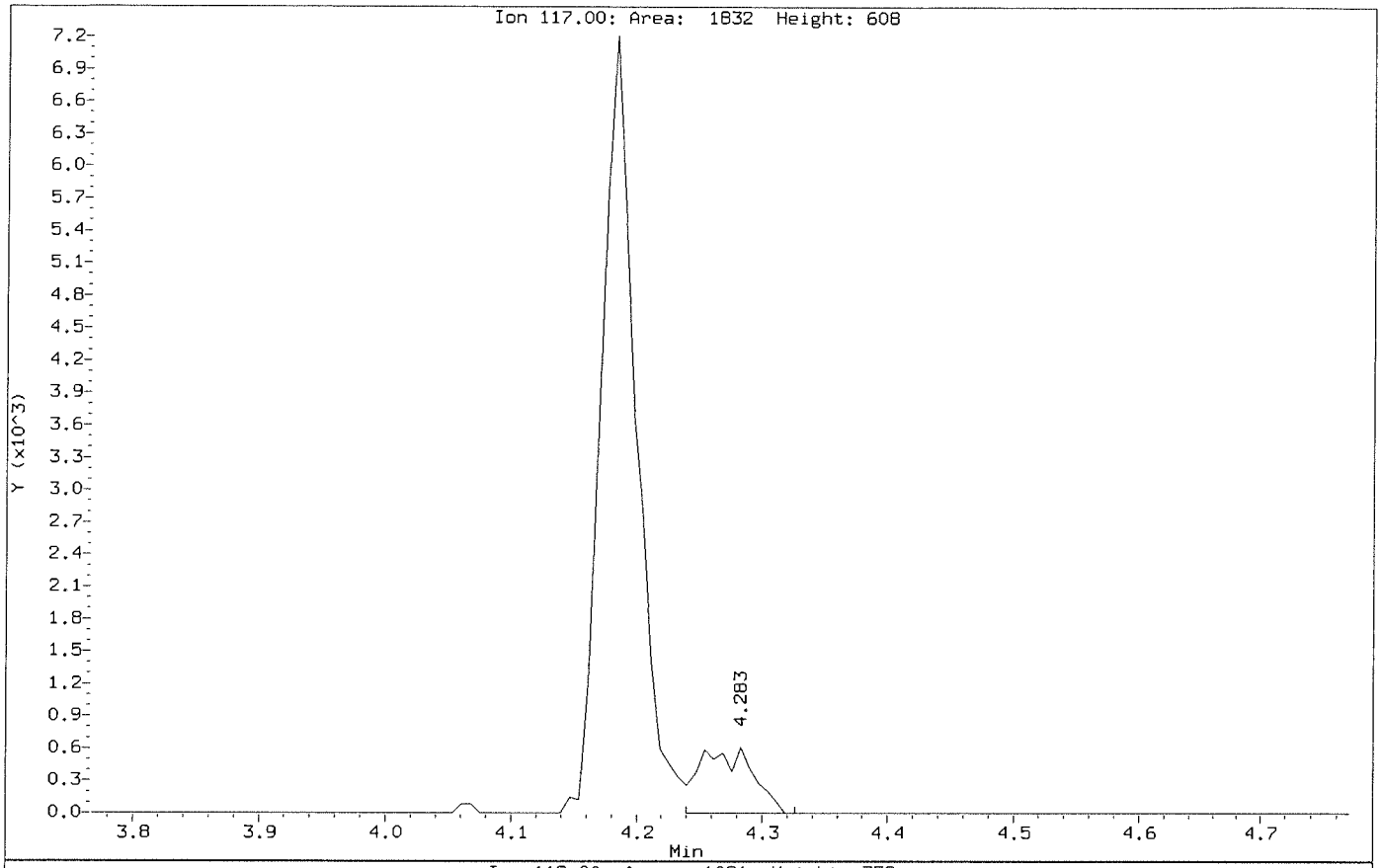
Compound: Bromomethane
CAS Number: 74-83-9

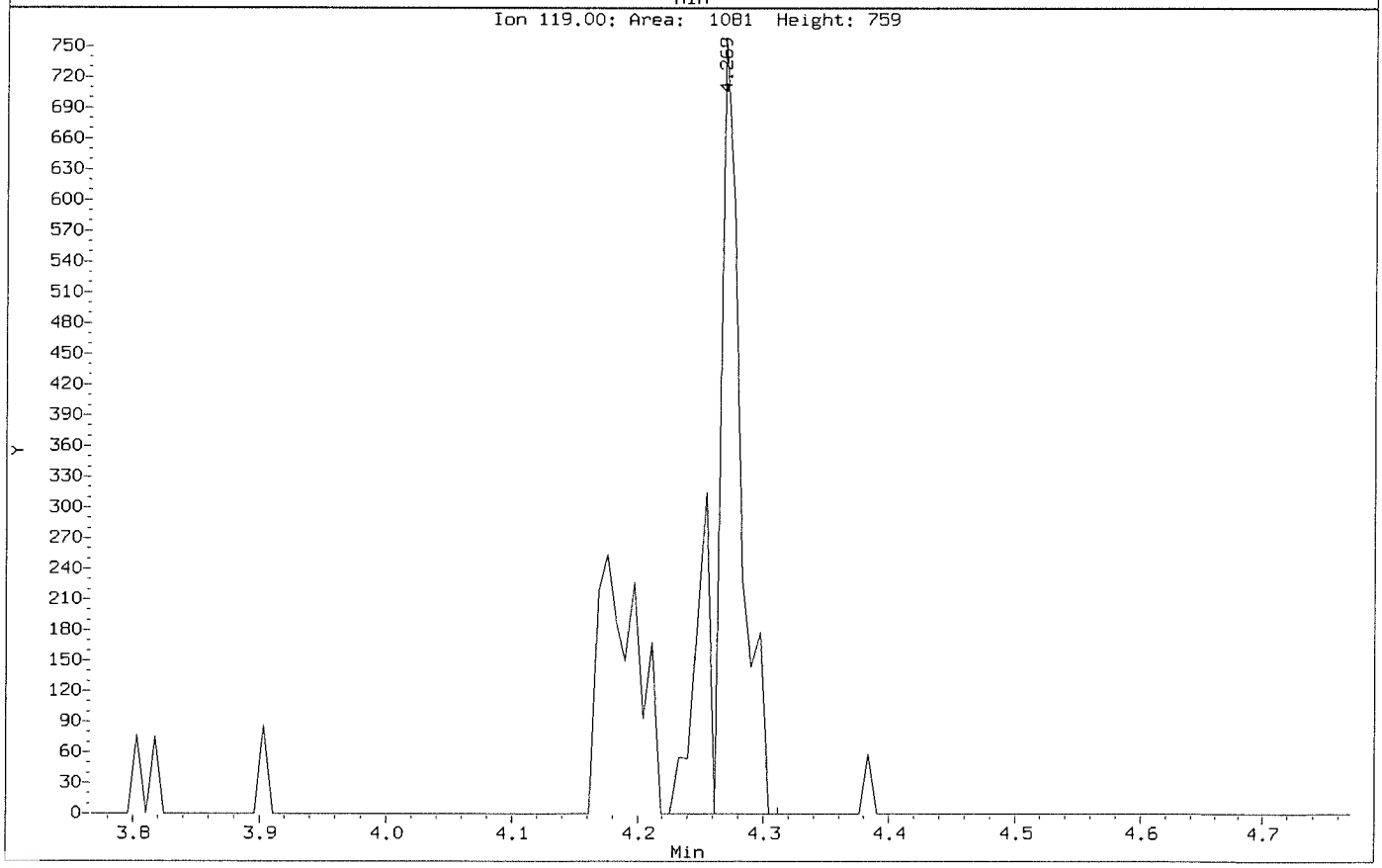


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

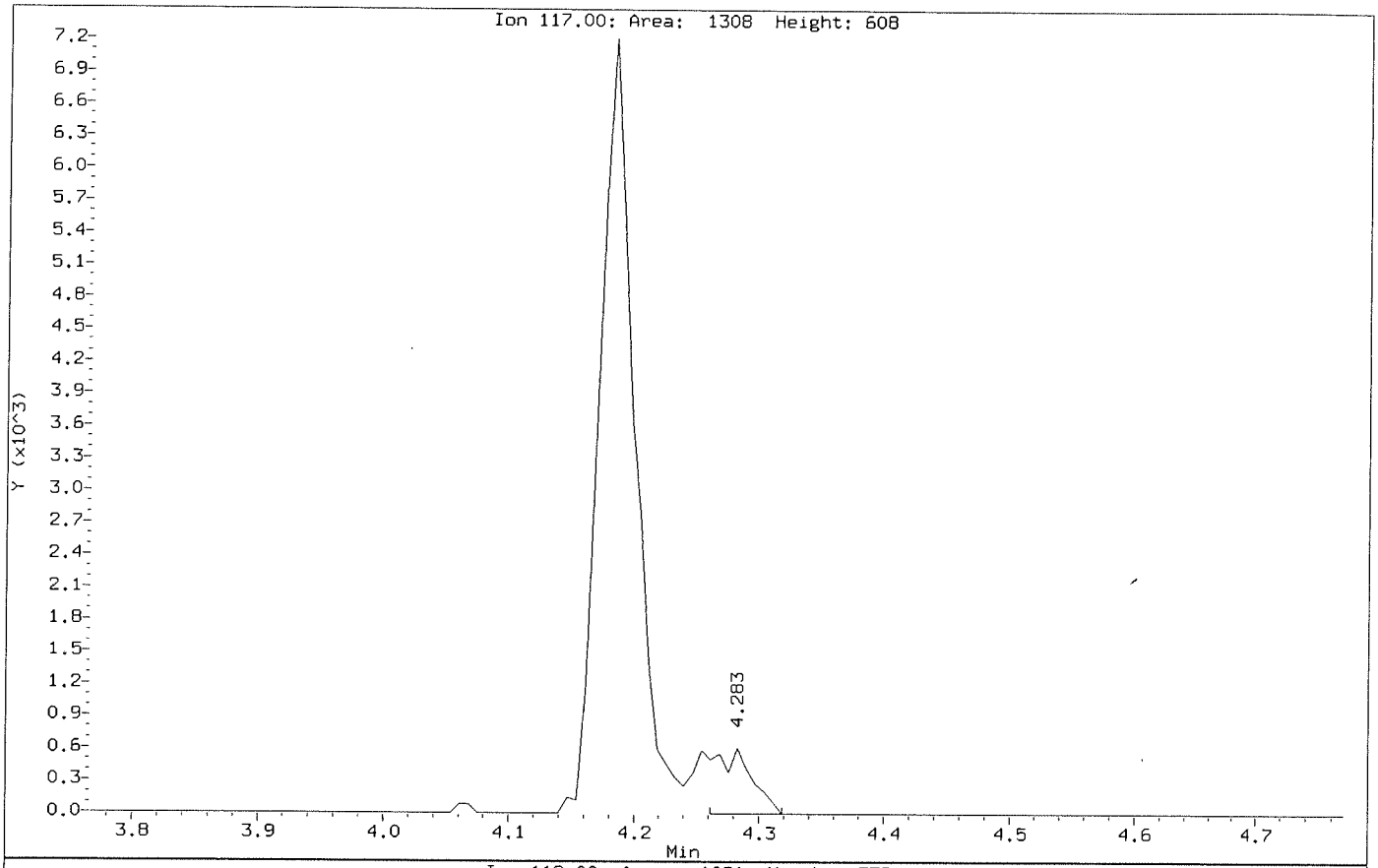
Compound: Carbon Tetrachloride
CAS Number: 56-23-5

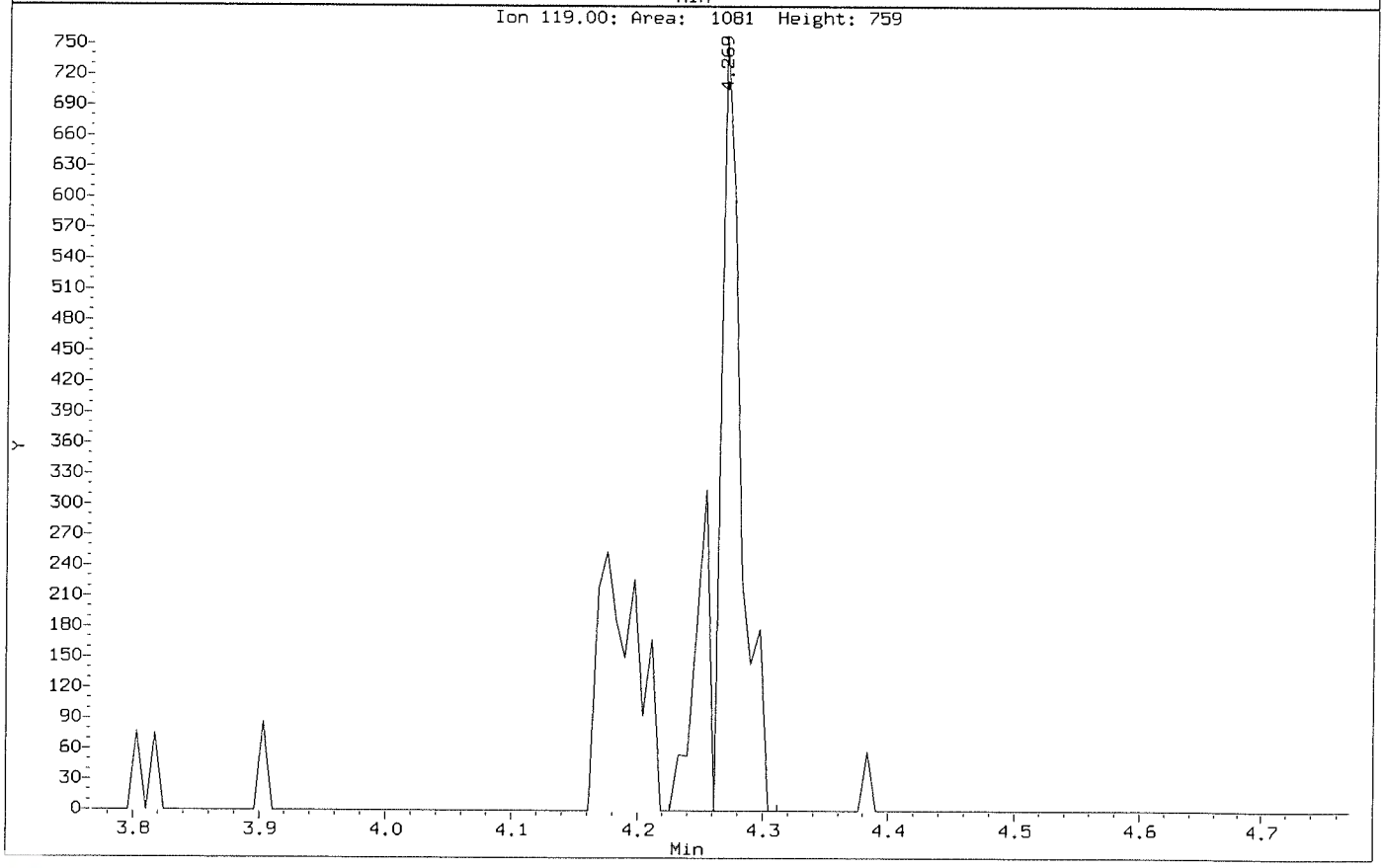


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

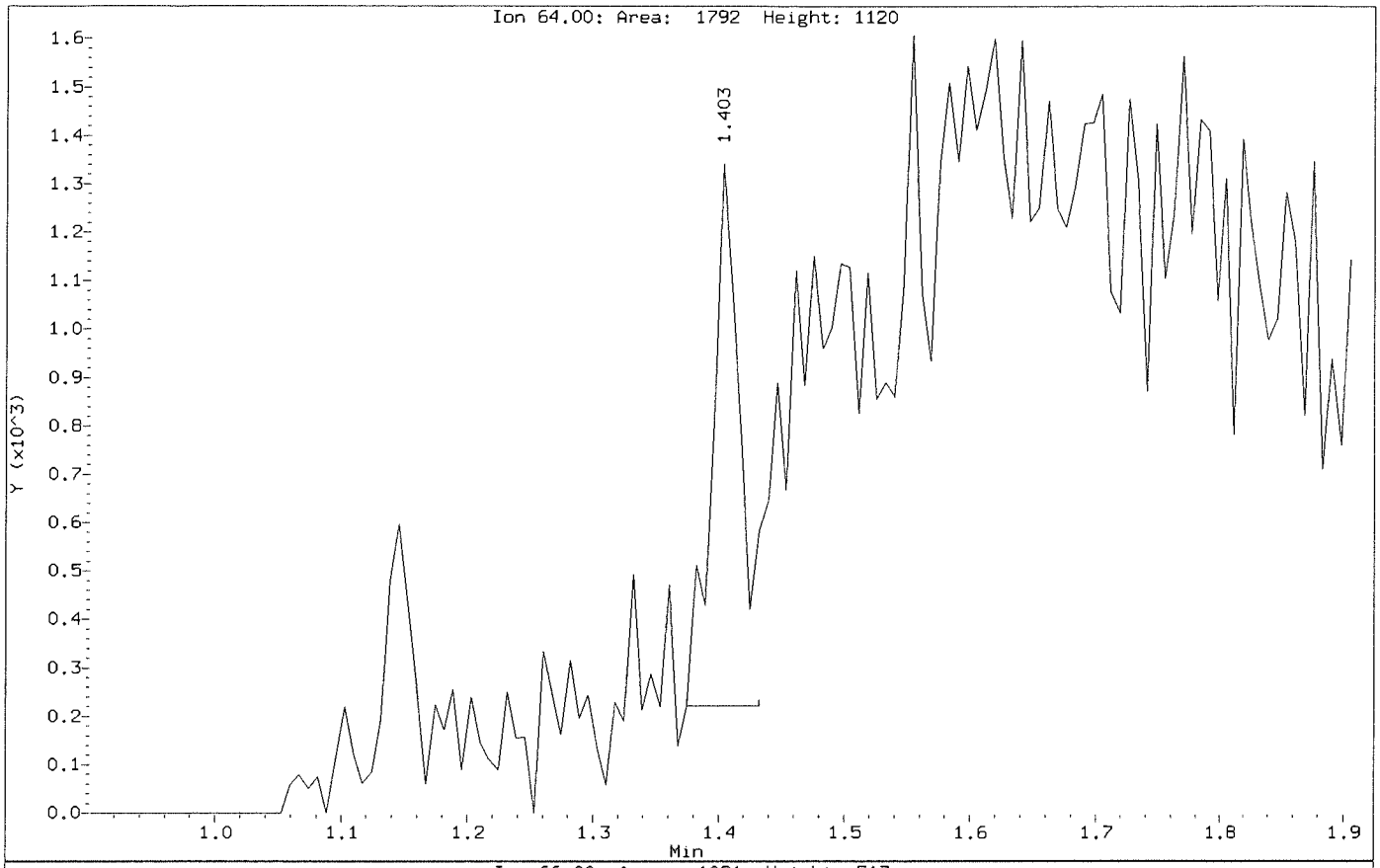
Compound: Carbon Tetrachloride
CAS Number: 56-23-5

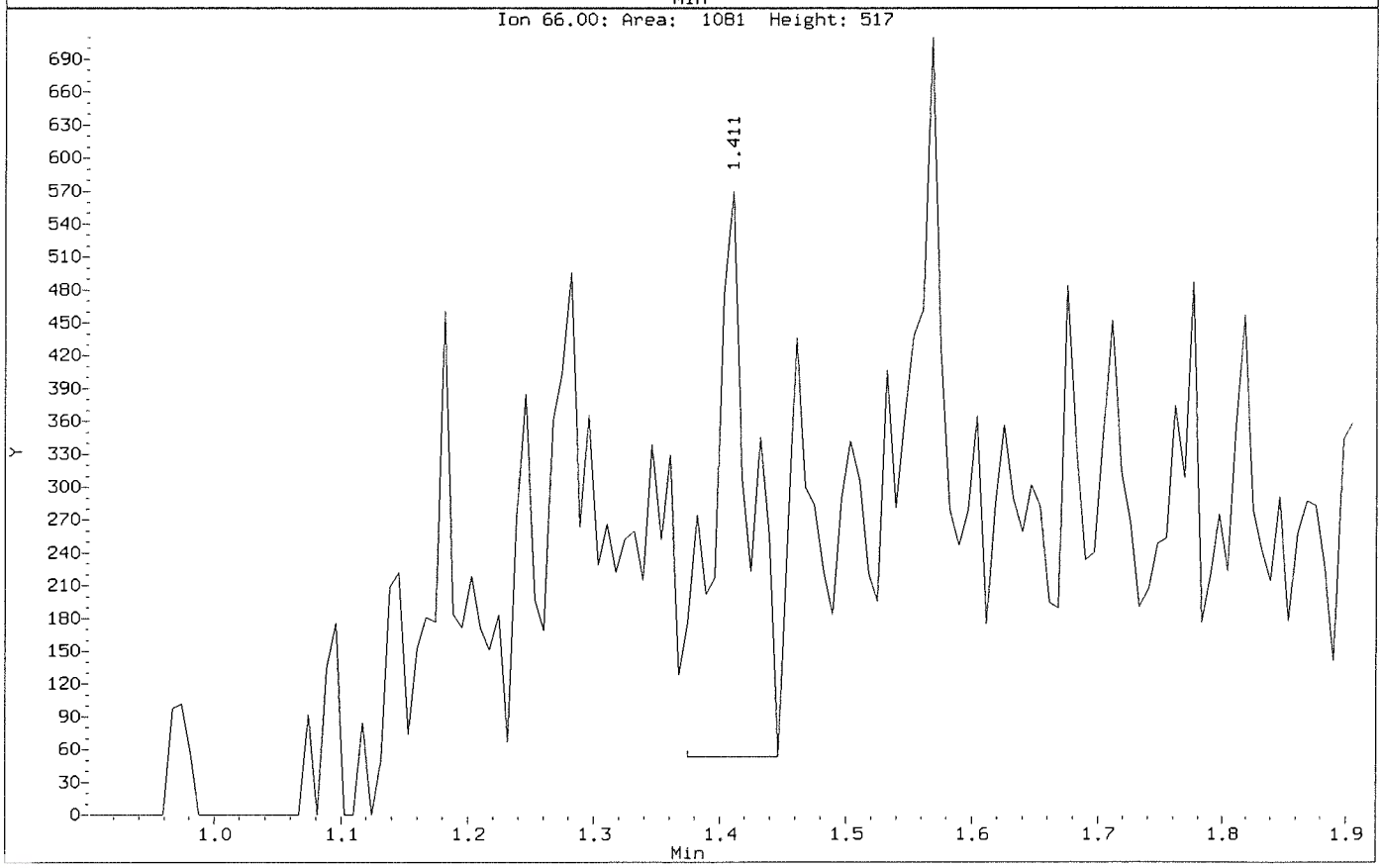


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

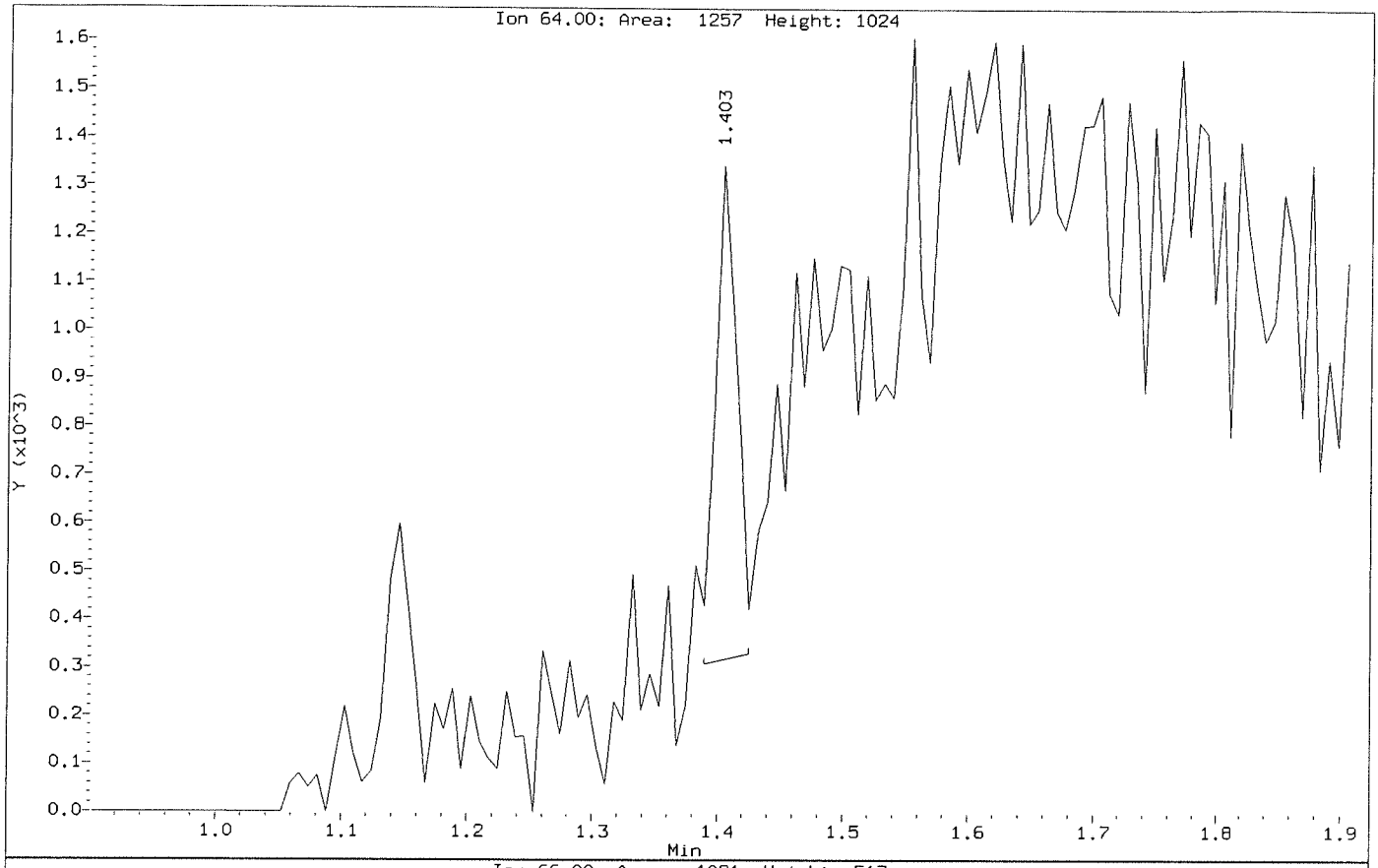
Compound: Chloroethane
CAS Number: 75-00-3

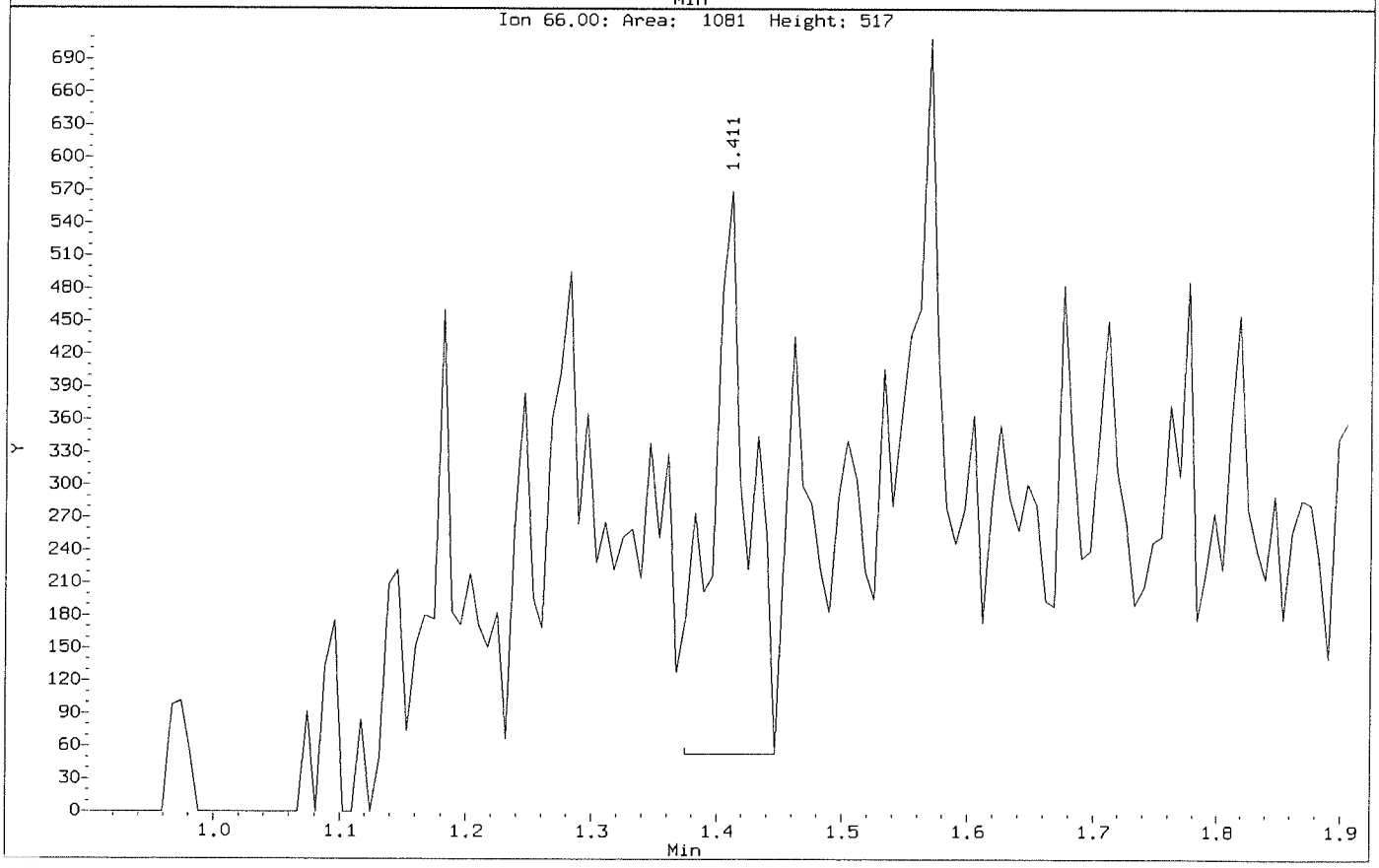


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

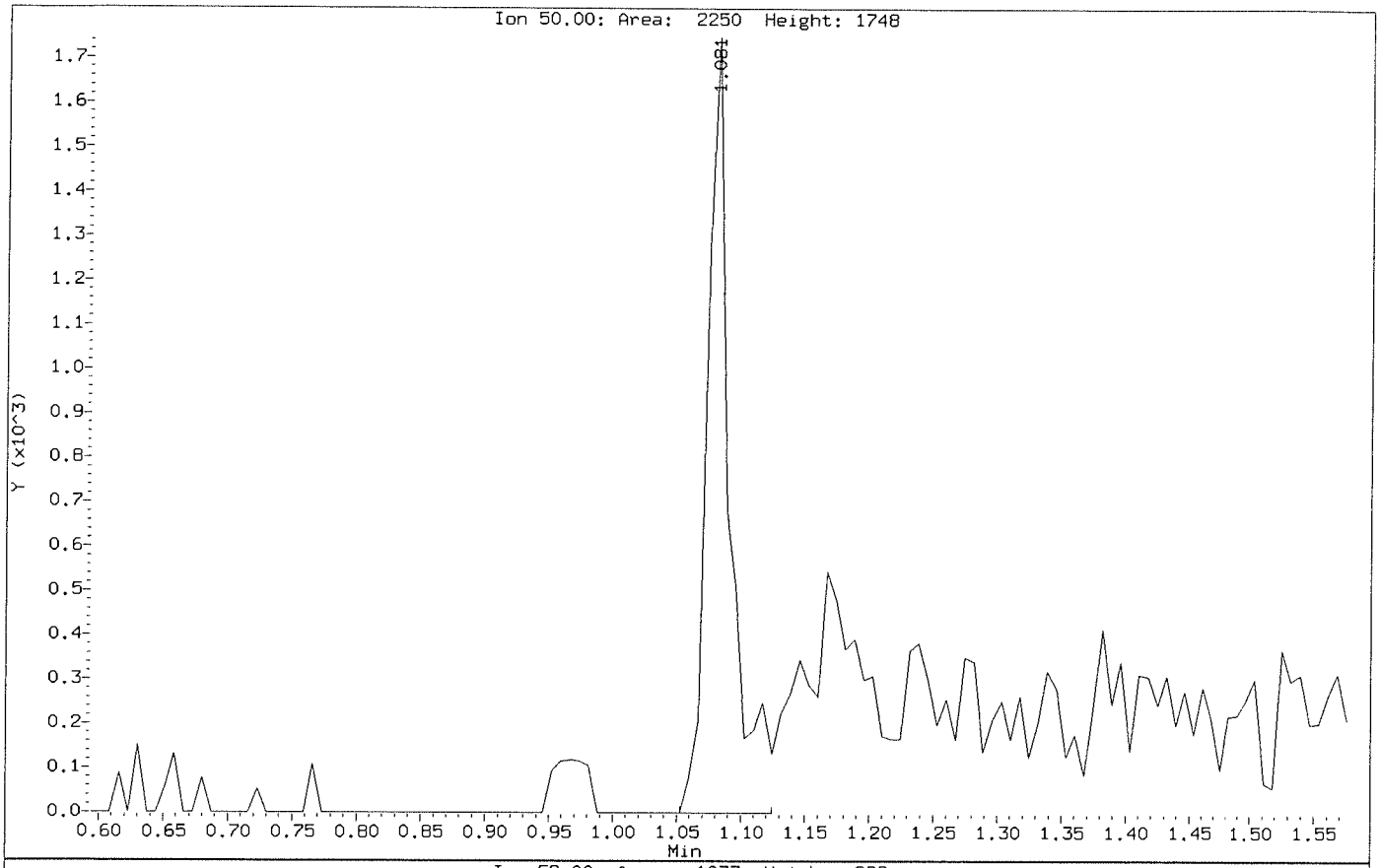
Compound: Chloroethane
CAS Number: 75-00-3

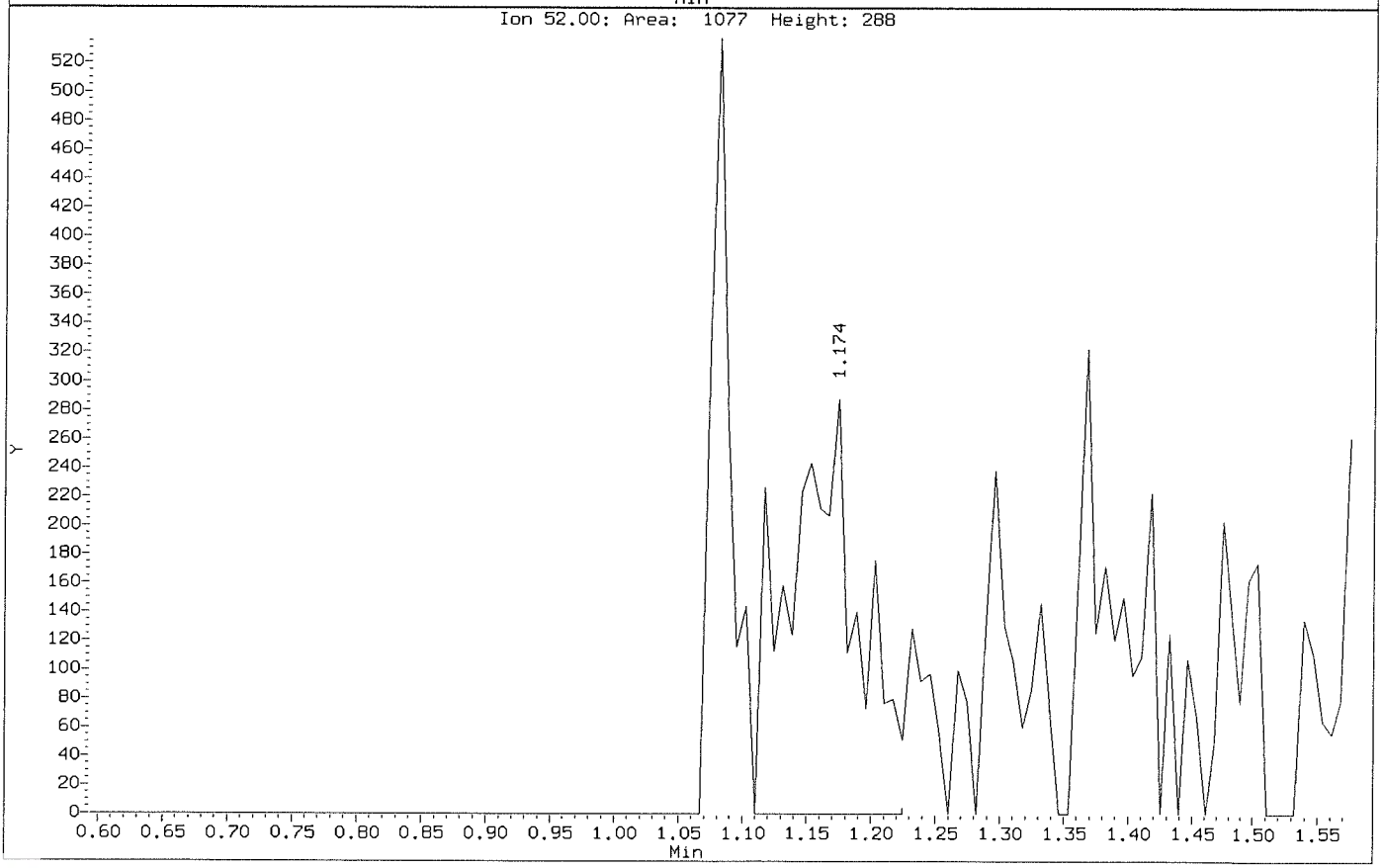


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

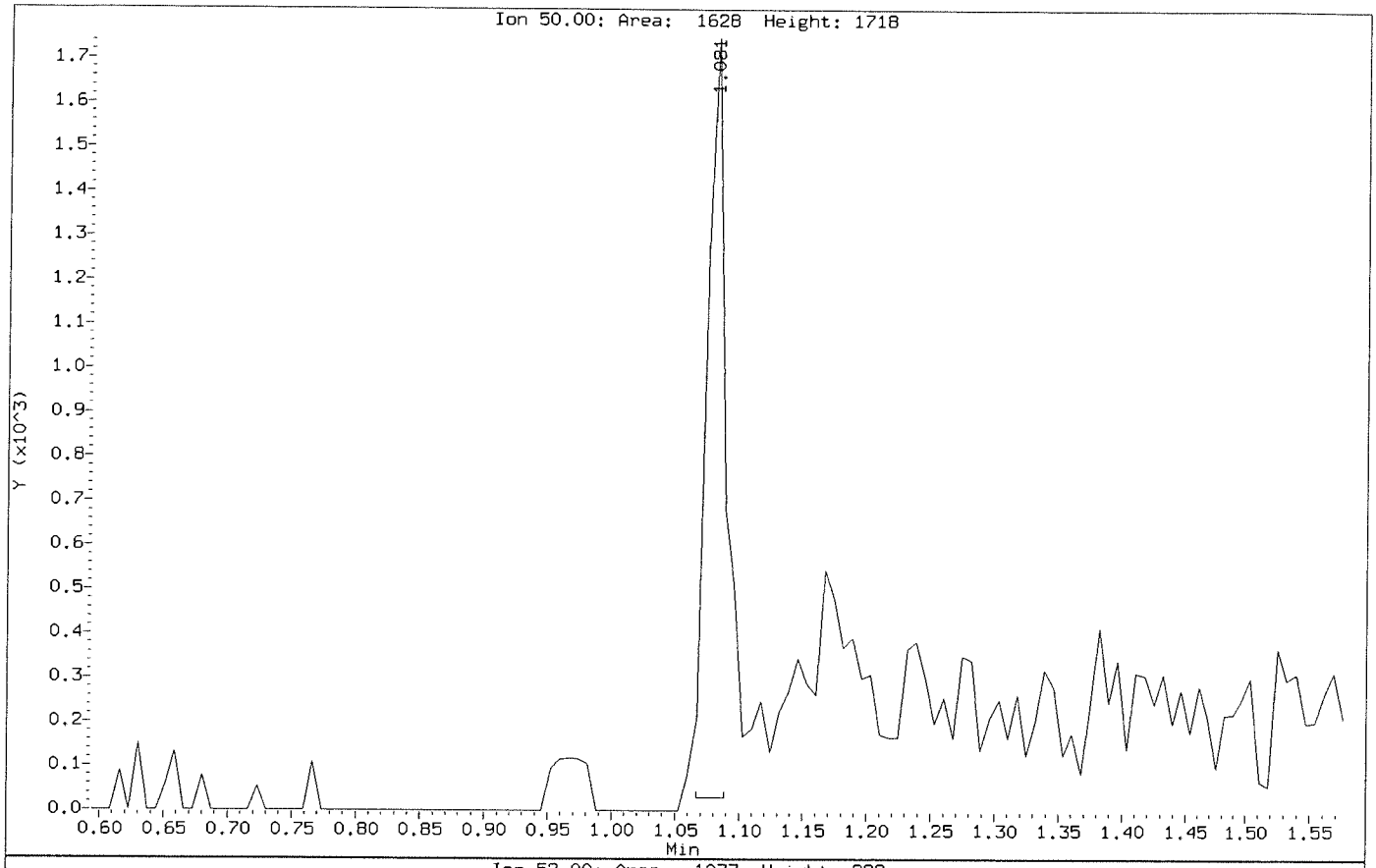
Compound: Chloromethane
CAS Number: 74-87-3

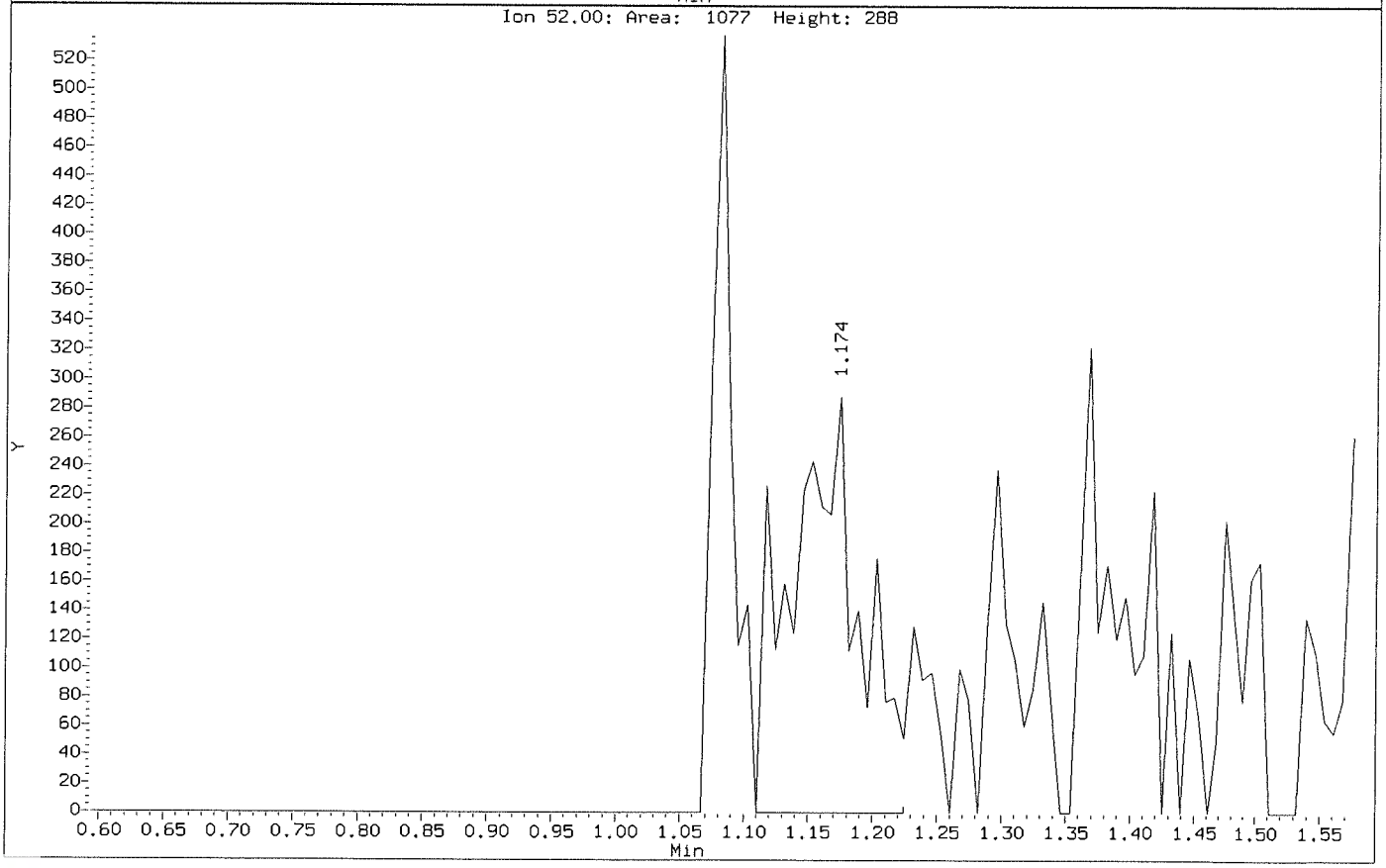


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

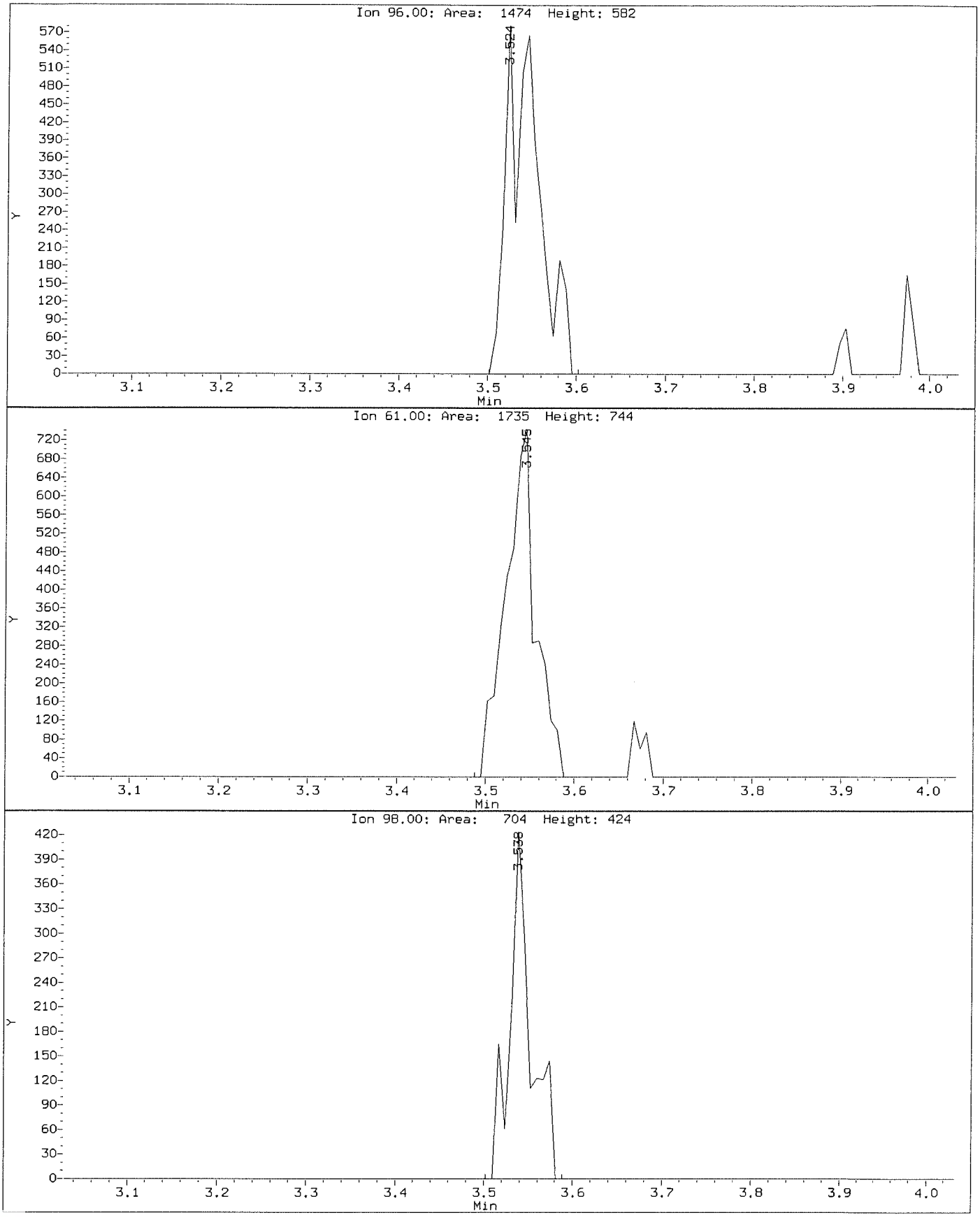
Compound: Chloromethane
CAS Number: 74-87-3



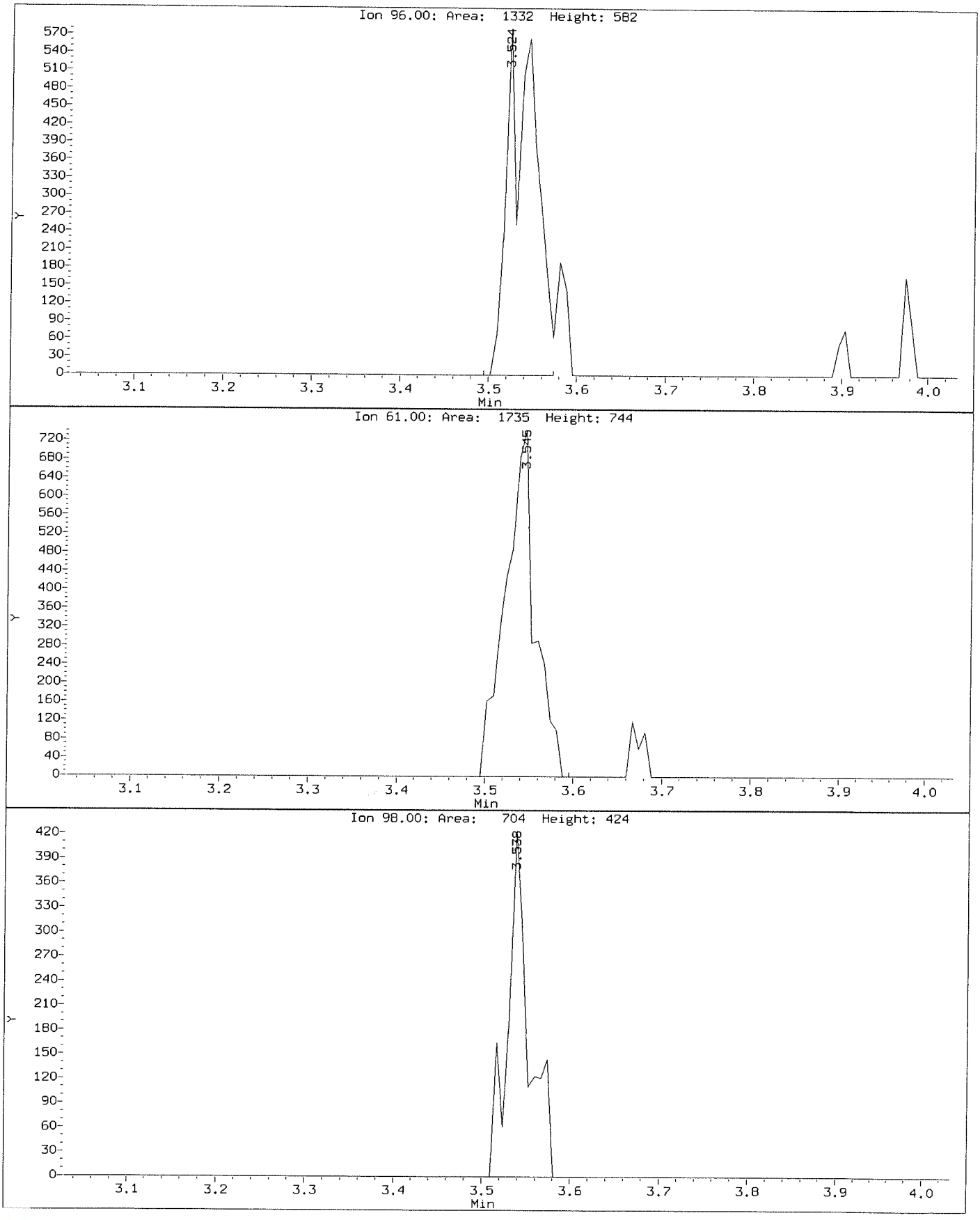
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: cis-1,2-Dichloroethene
CAS Number: 156-59-2



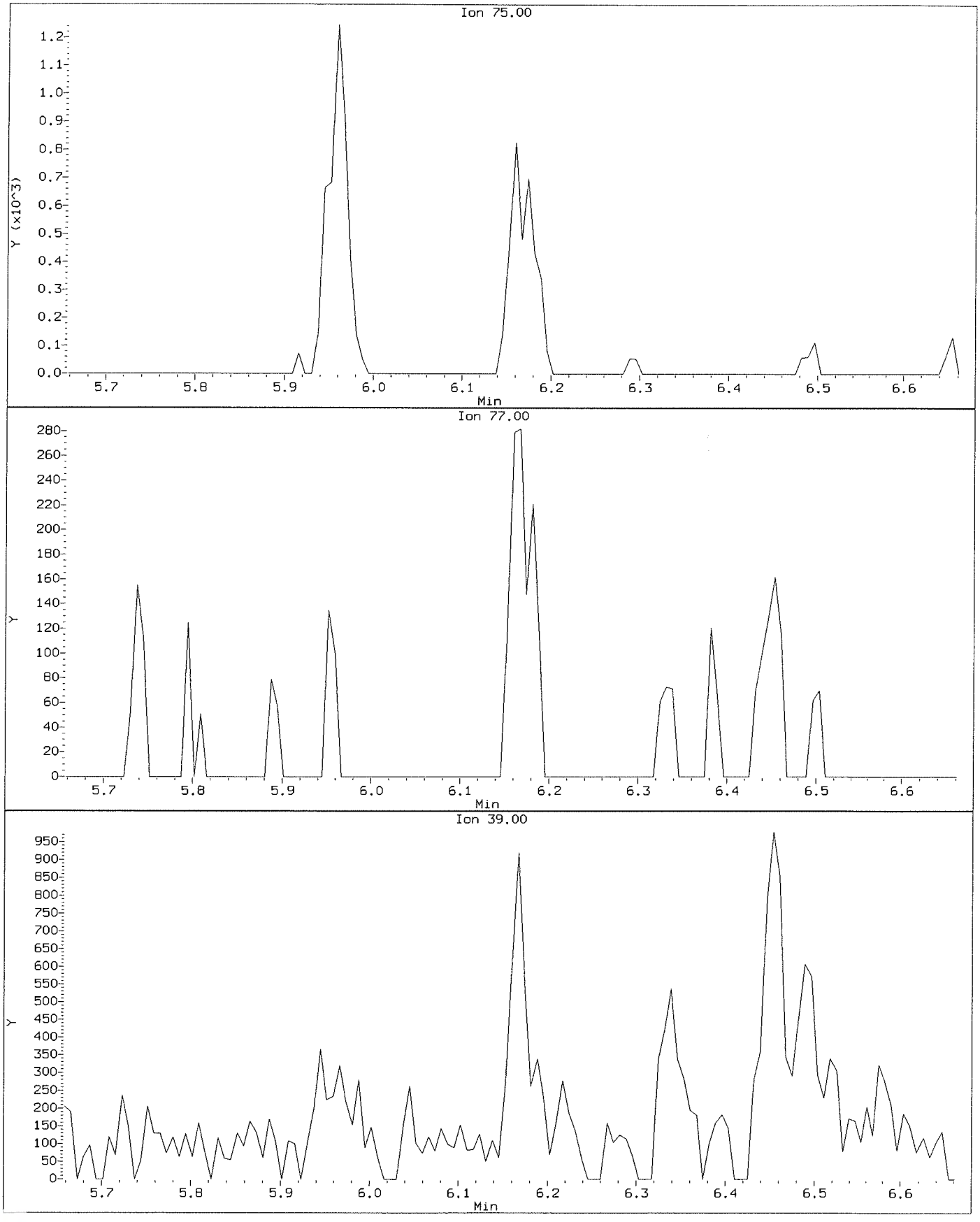
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: cis-1,2-Dichloroethene
CAS Number: 156-59-2



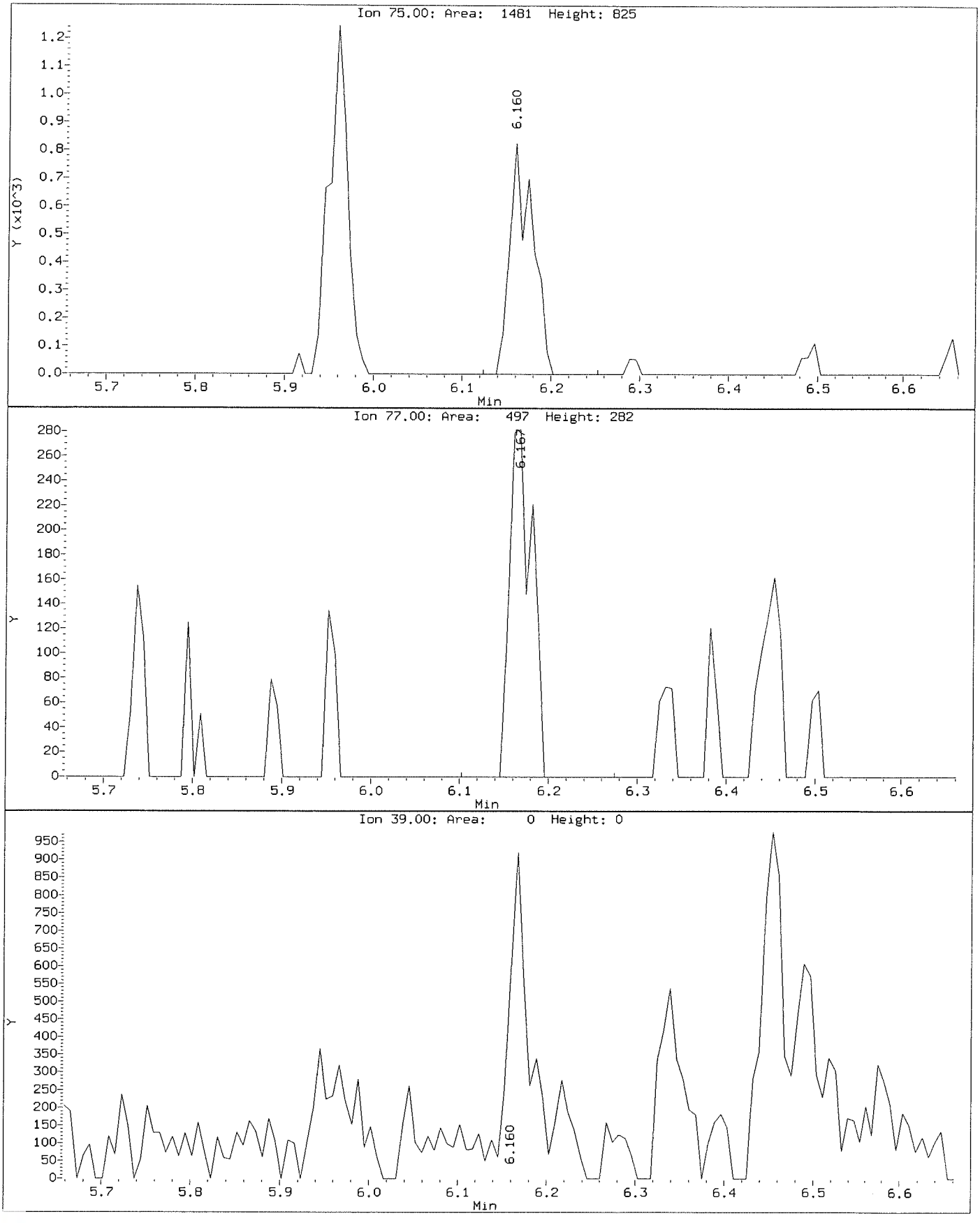
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: cis-1,3-Dichloropropene
CAS Number: 10061-01-5



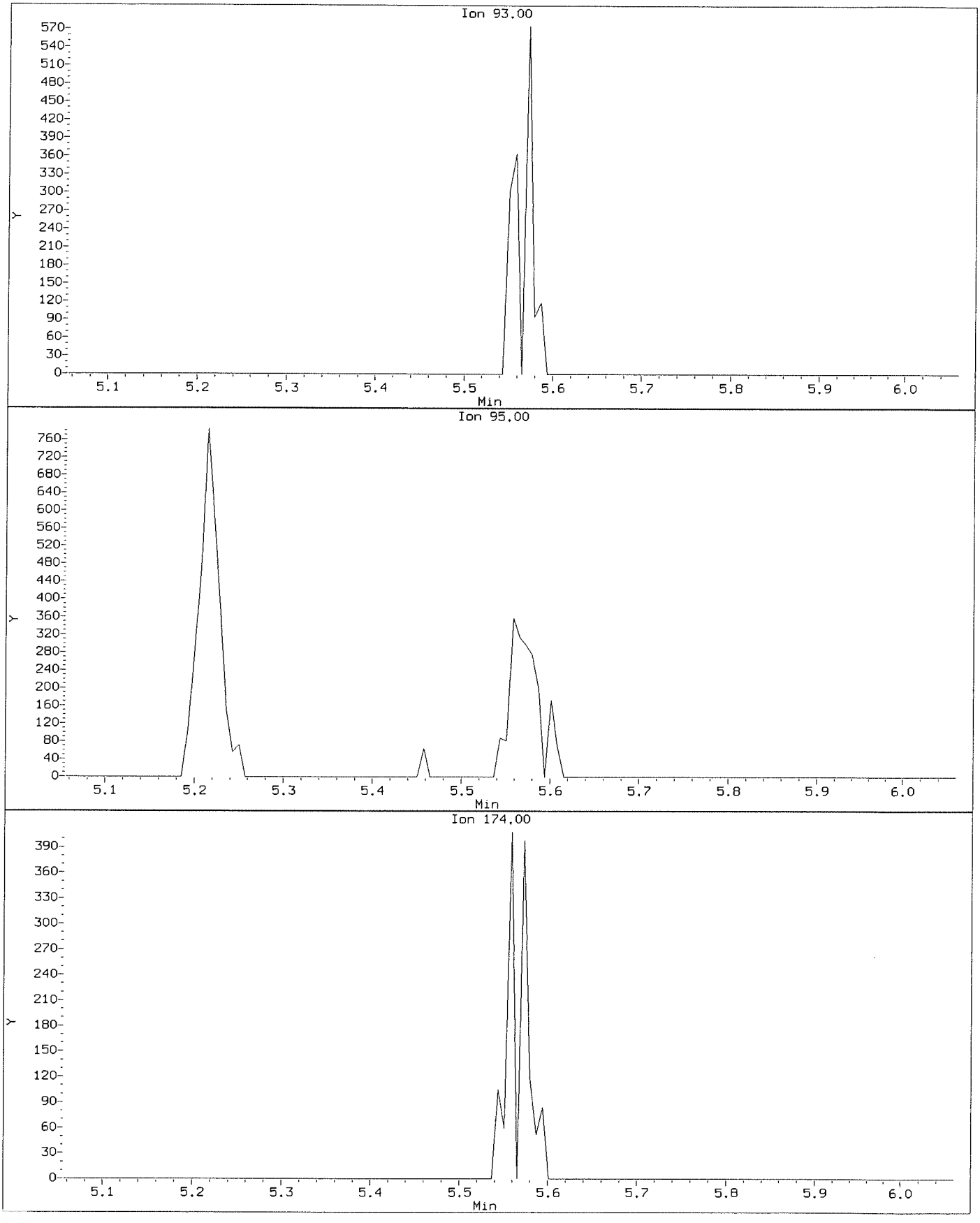
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: cis-1,3-Dichloropropene
CAS Number: 10061-01-5



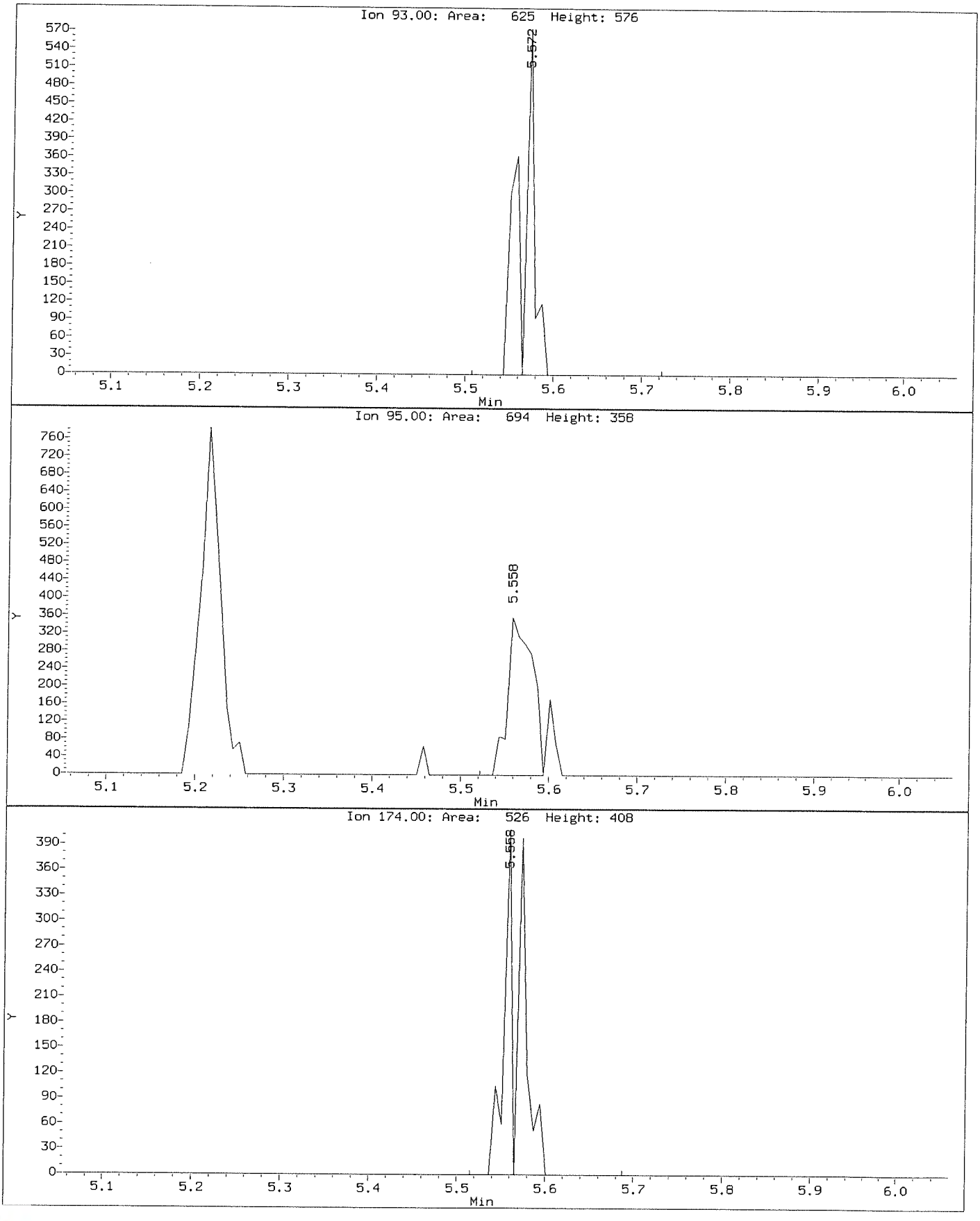
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Dibromomethane
CAS Number: 74-95-3



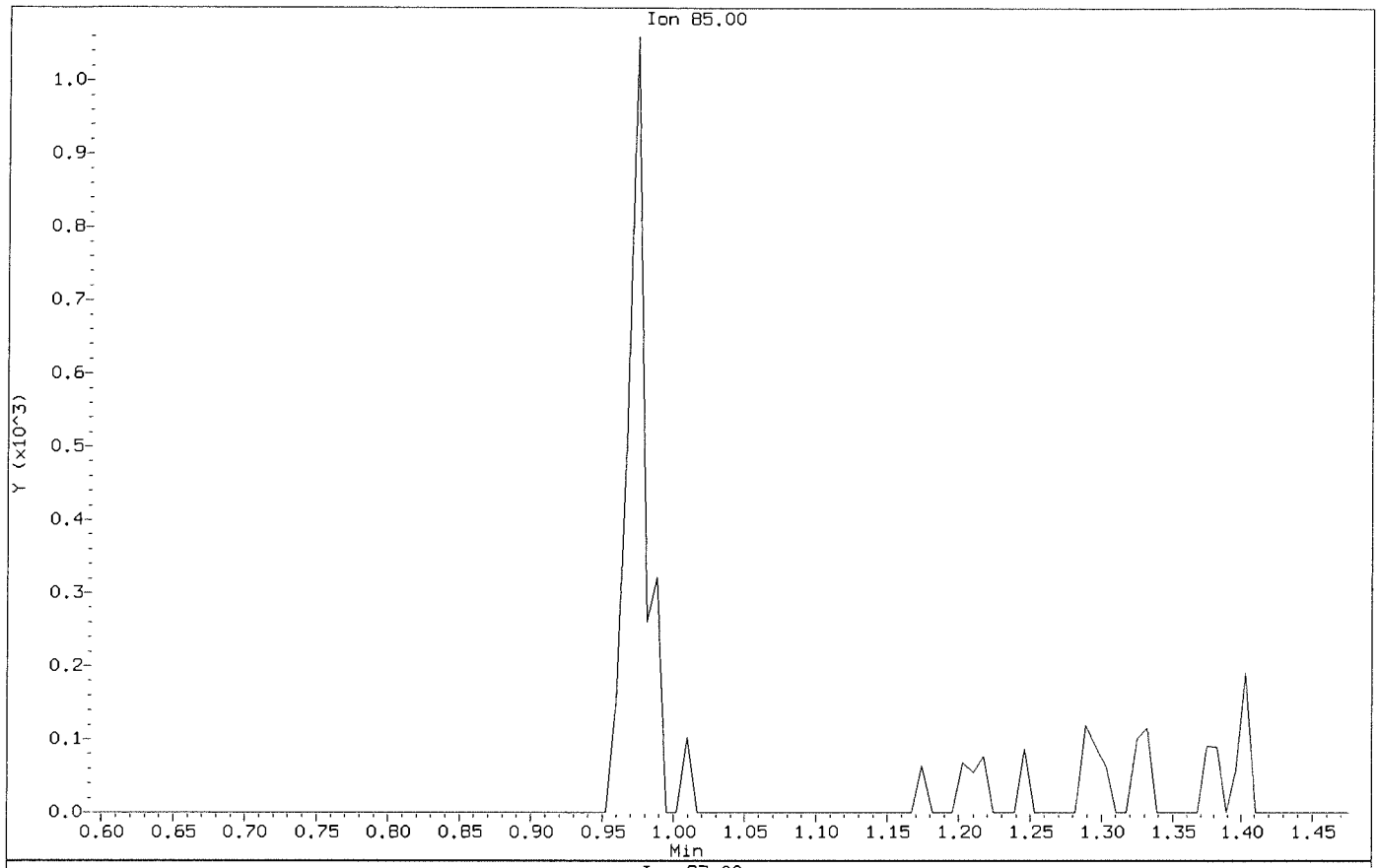
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

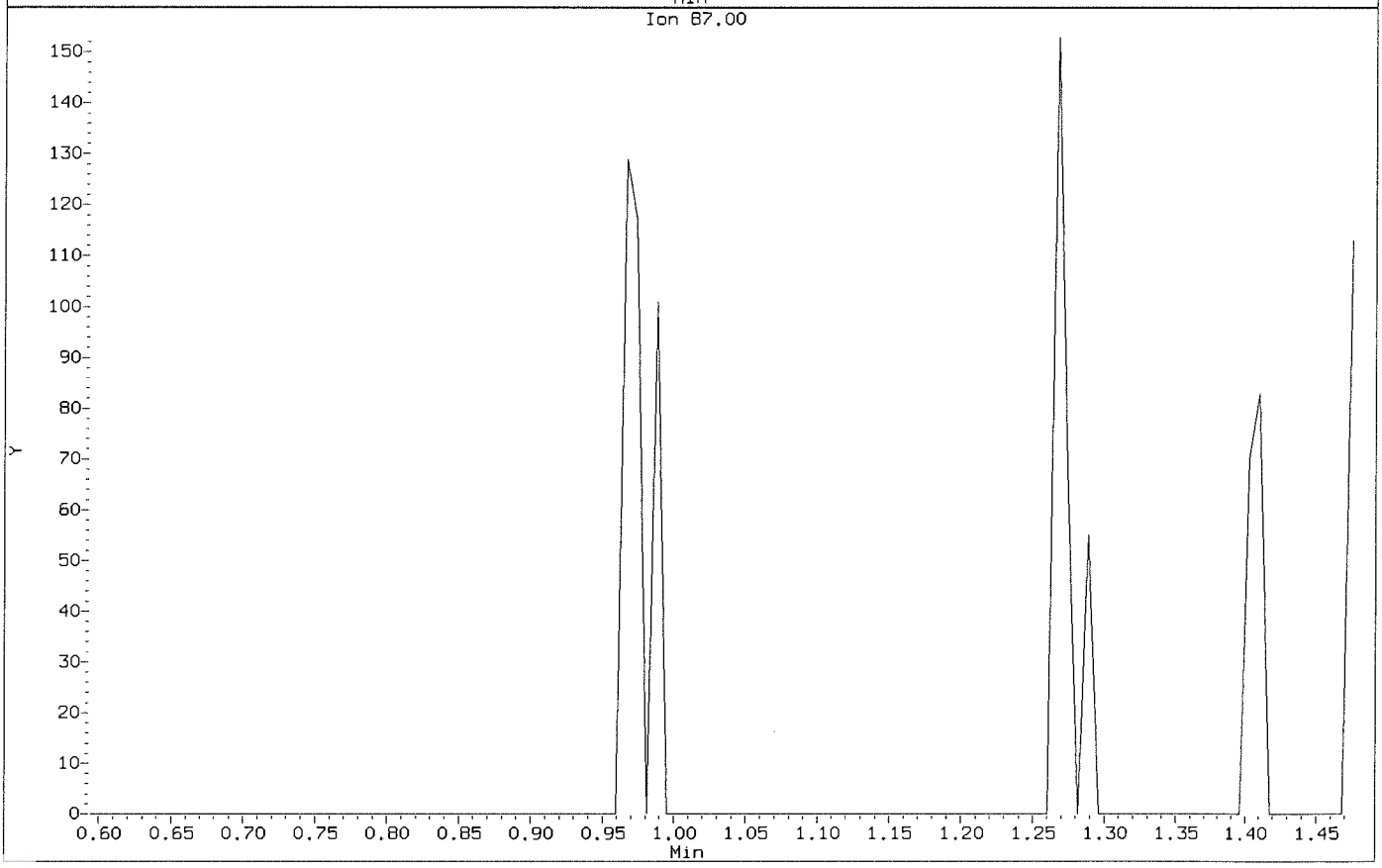
Compound: Dibromomethane
CAS Number: 74-95-3



Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

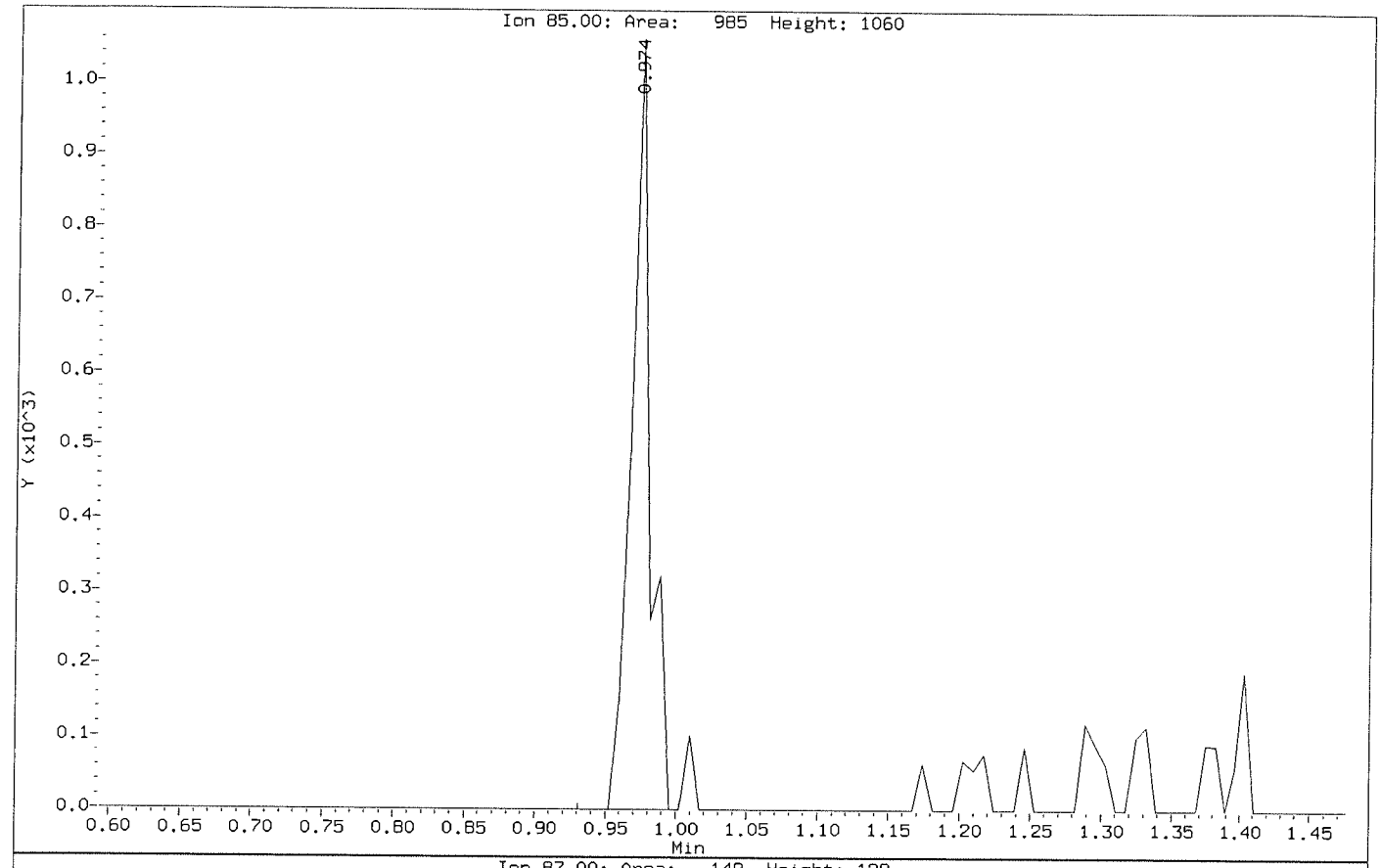
Compound: Dichlorodifluoromethane
CAS Number: 75-71-8

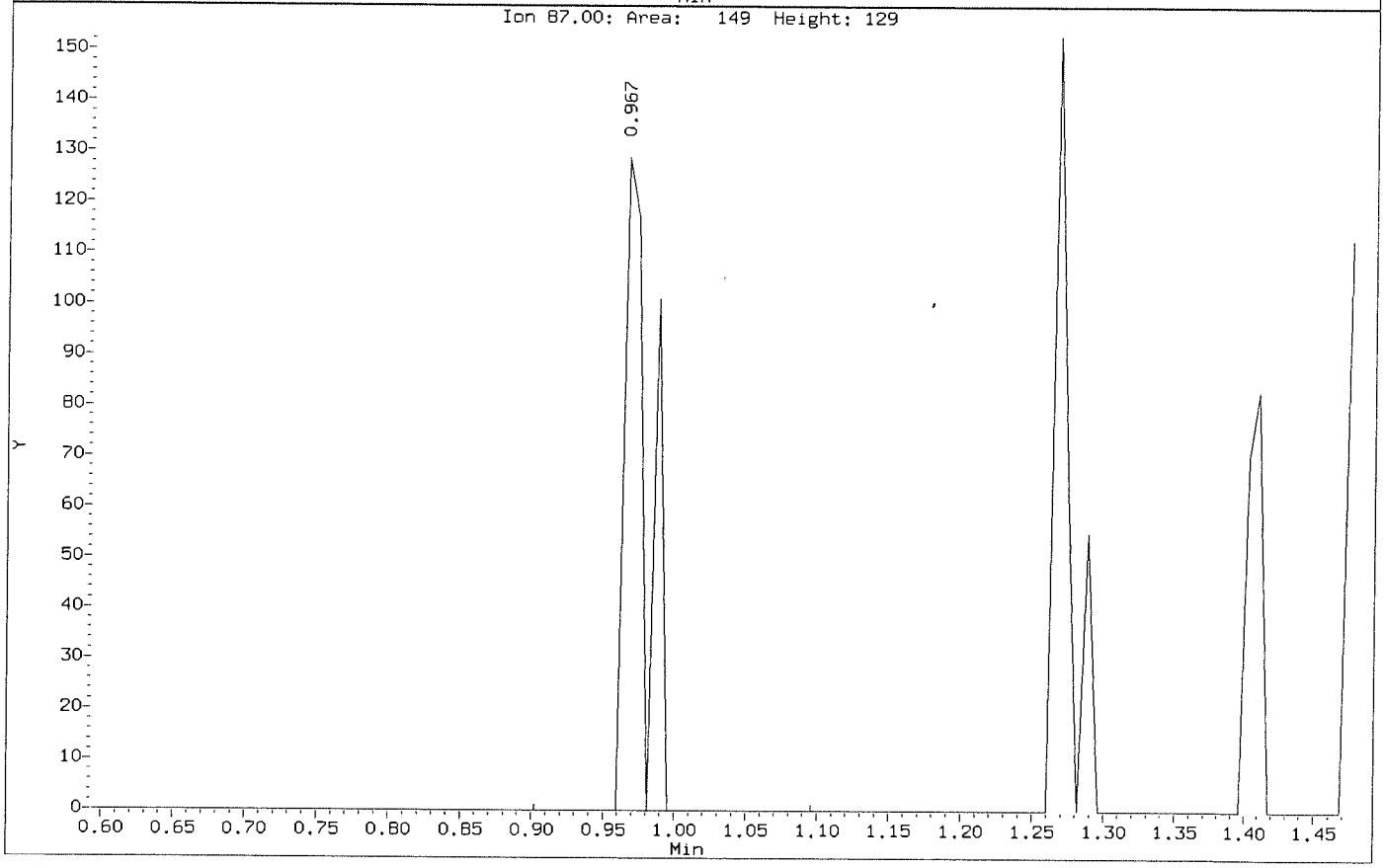


Data File: \\mahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

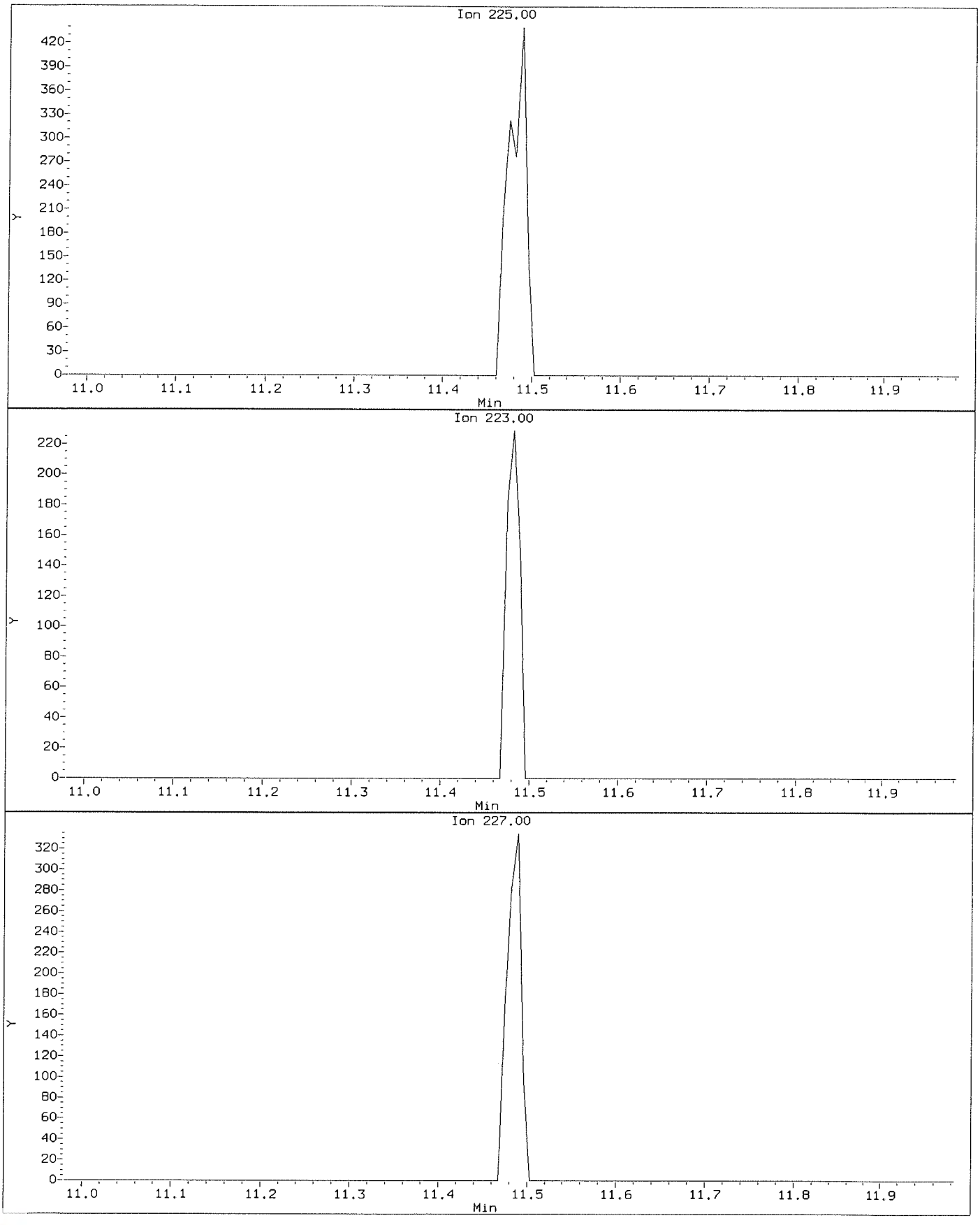
Compound: Dichlorodifluoromethane
CAS Number: 75-71-8



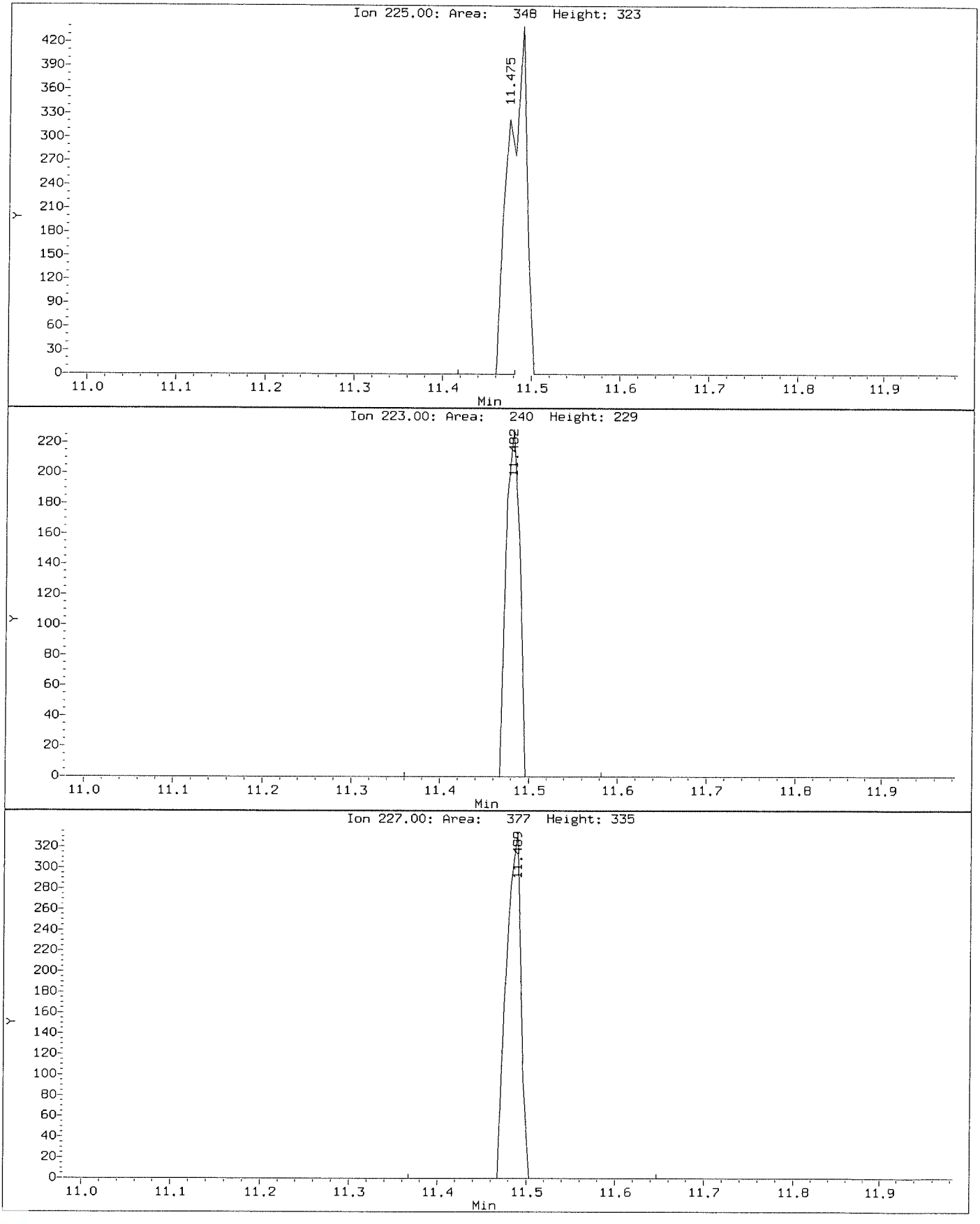
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Hexachlorobutadiene
CAS Number: 87-68-3



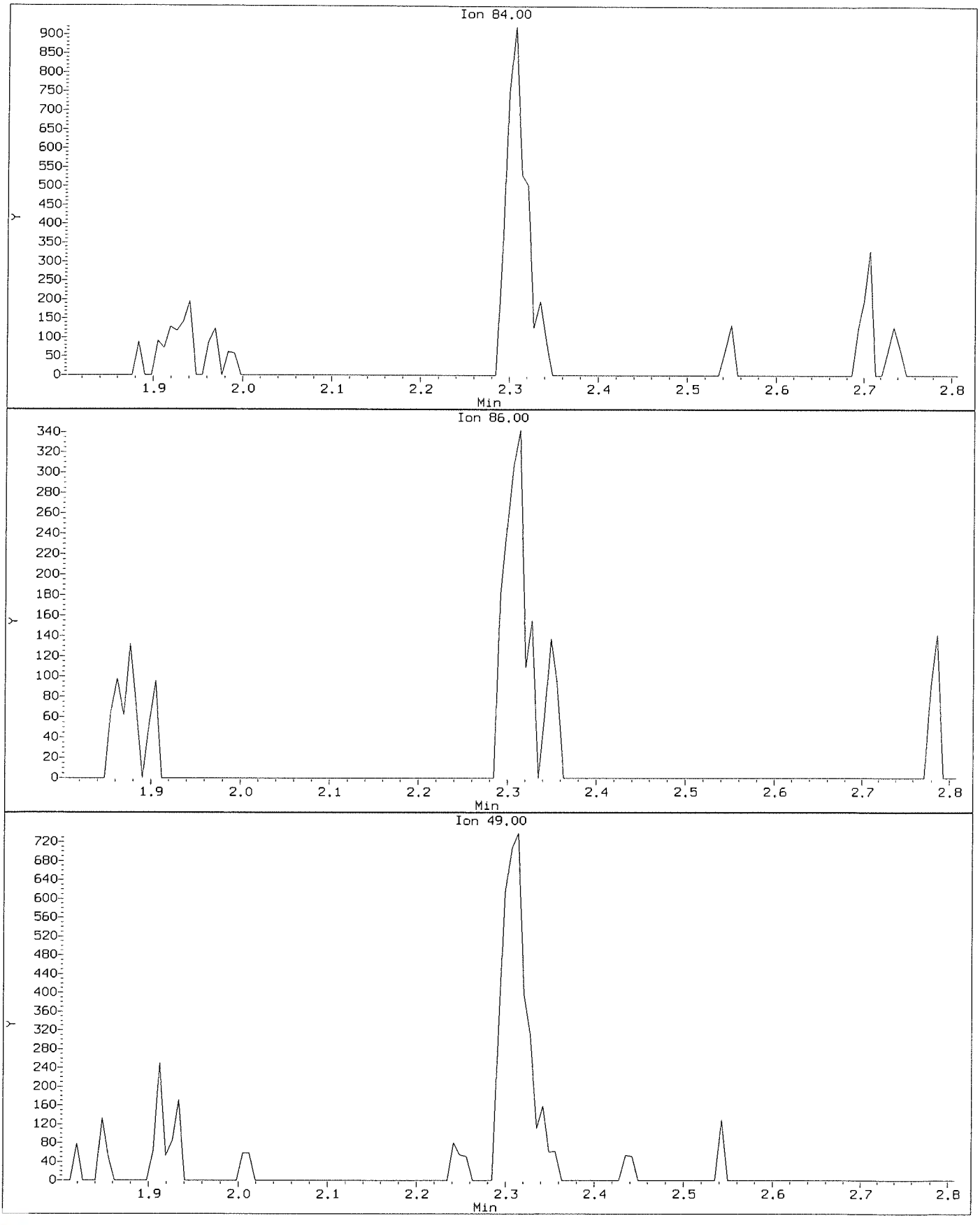
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Hexachlorobutadiene
CAS Number: 87-68-3



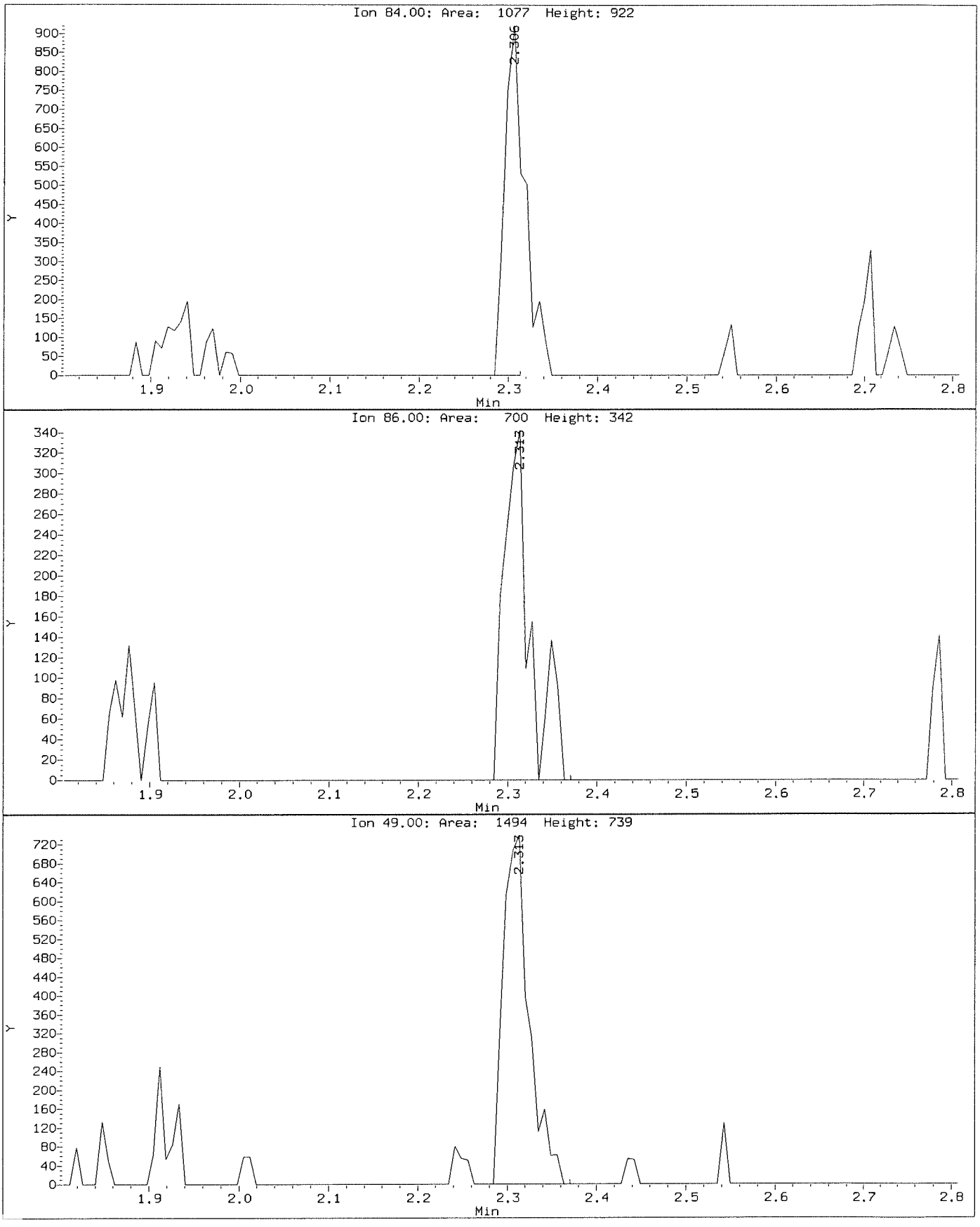
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Methylene Chloride
CAS Number: 75-09-2



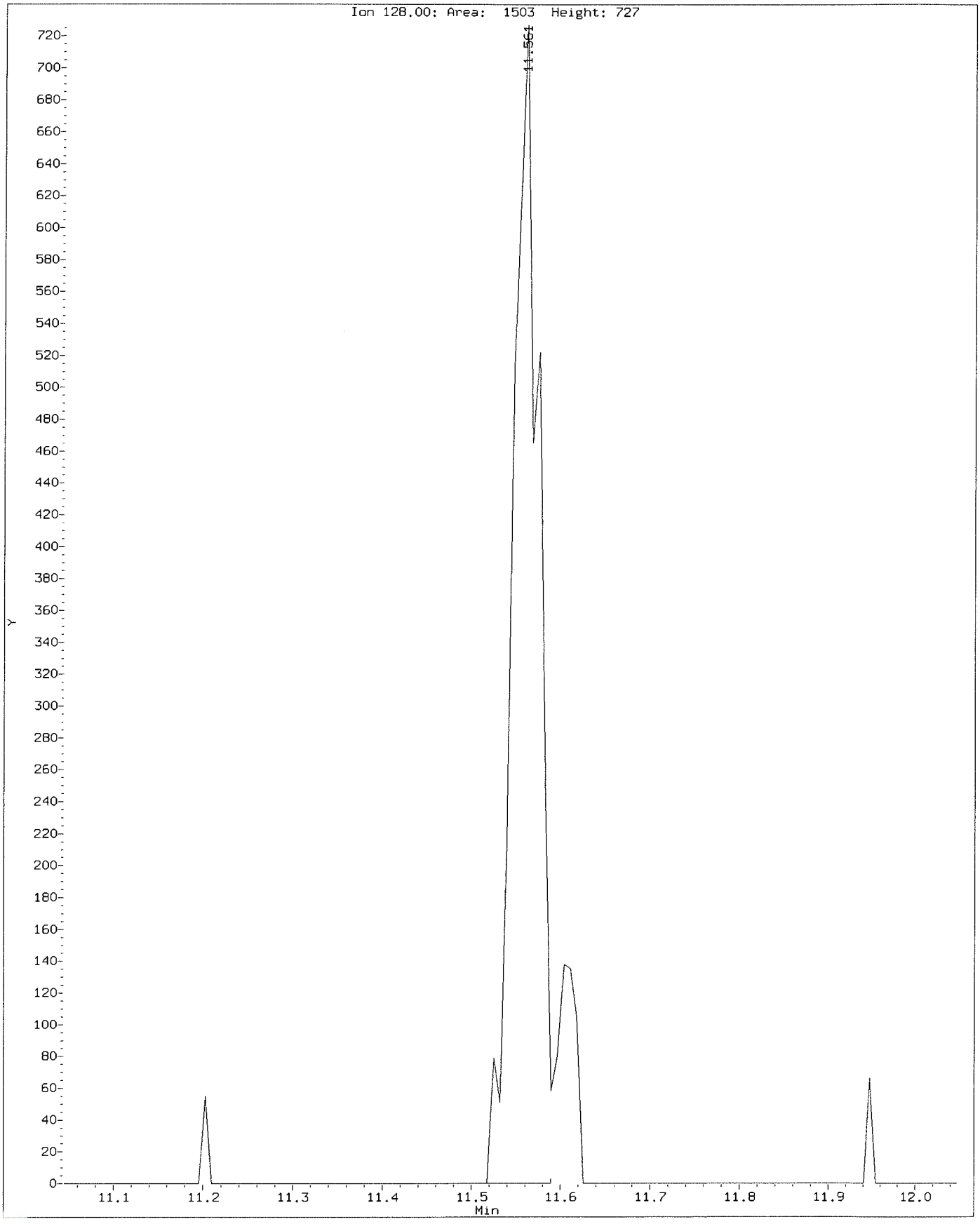
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Methylene Chloride
CAS Number: 75-09-2



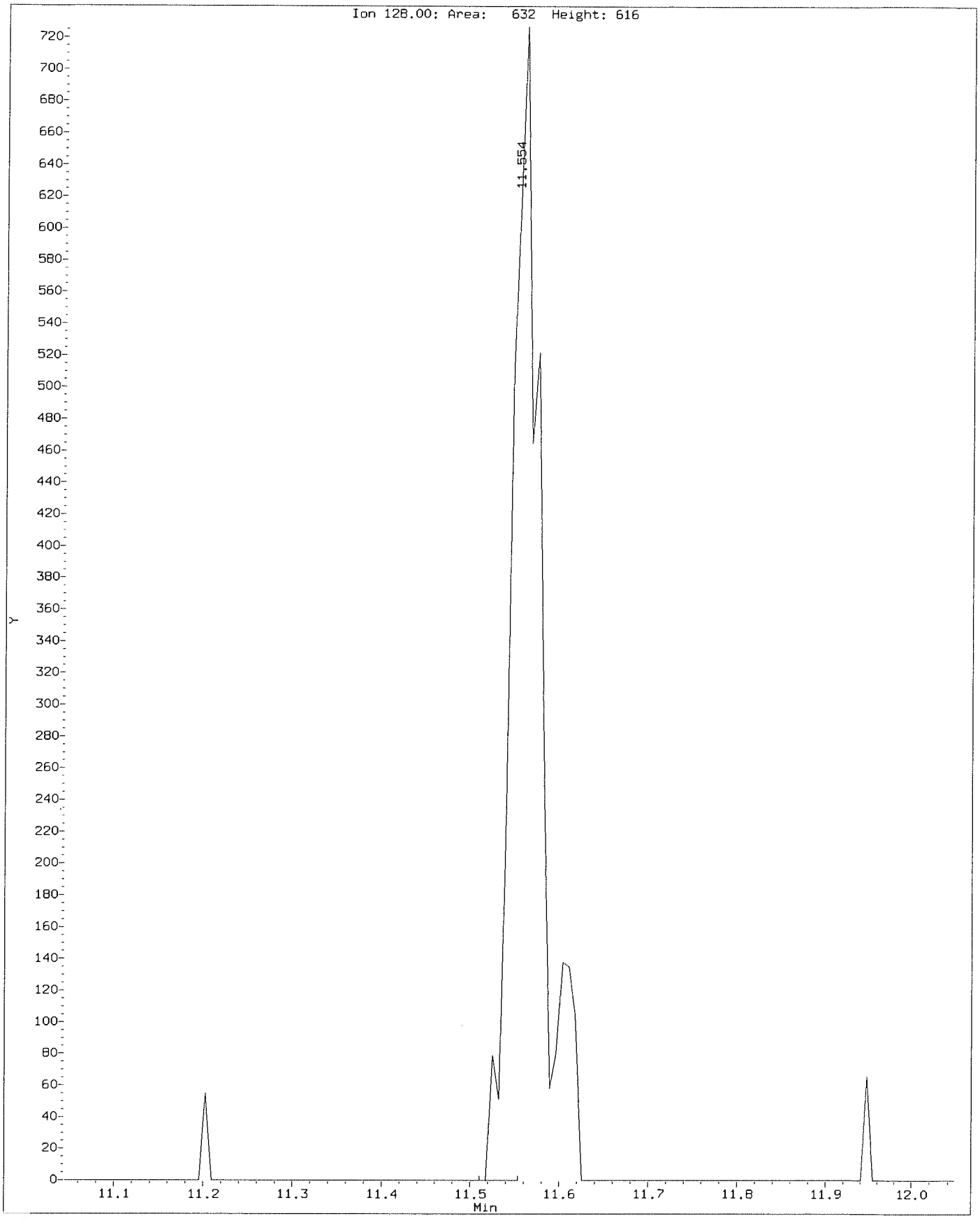
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Naphthalene
CAS Number: 91-20-3



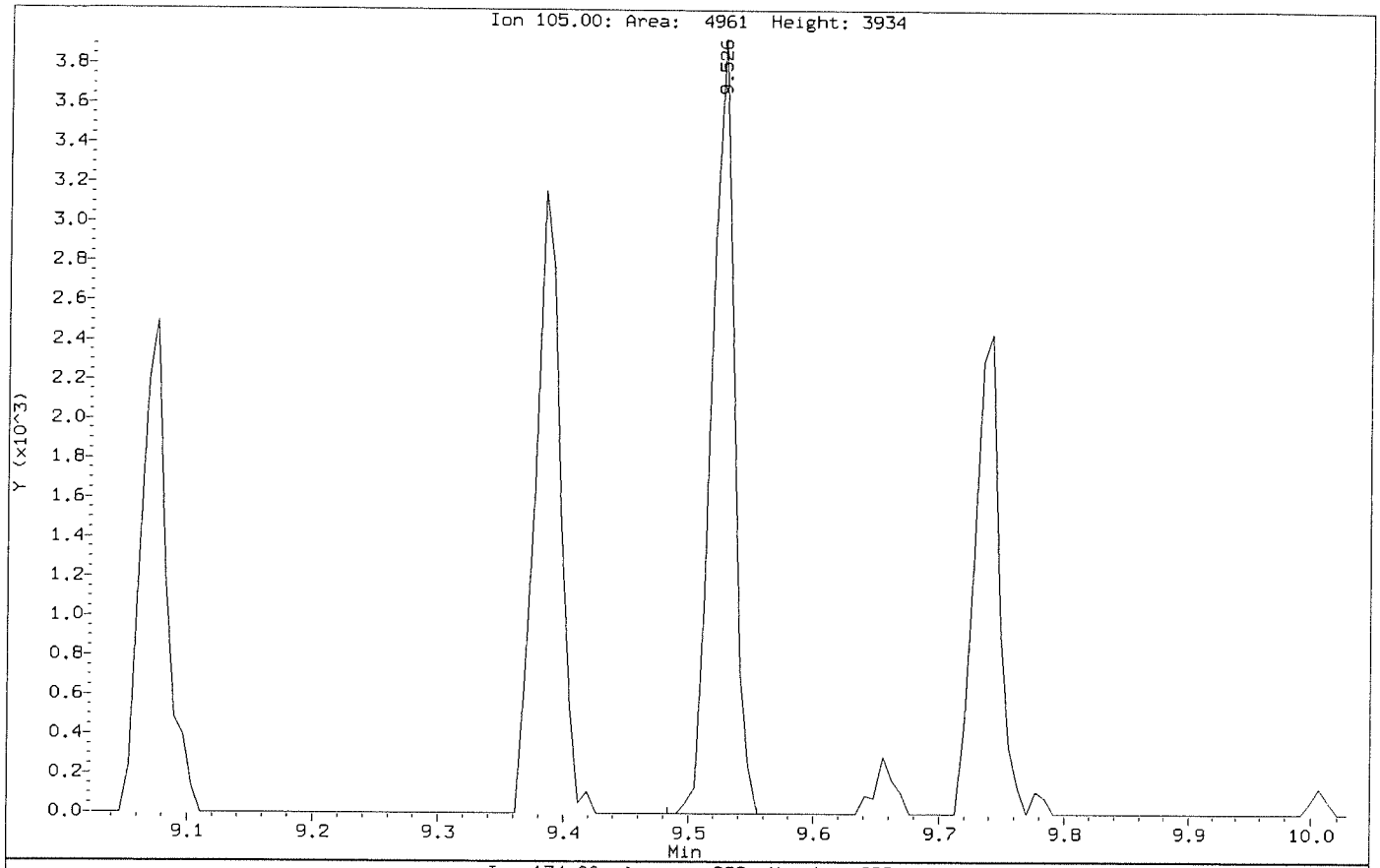
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

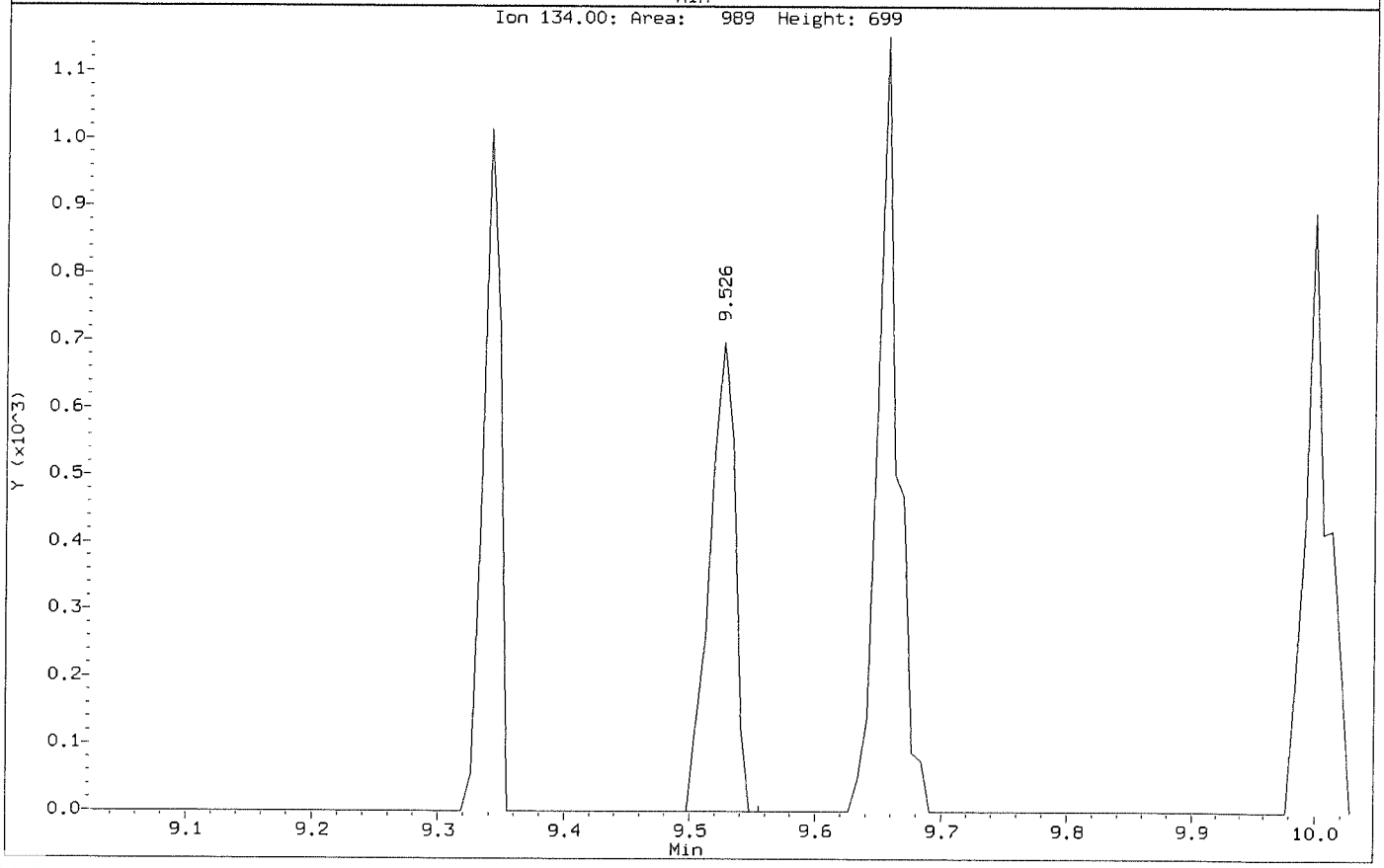
Compound: Naphthalene
CAS Number: 91-20-3



Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

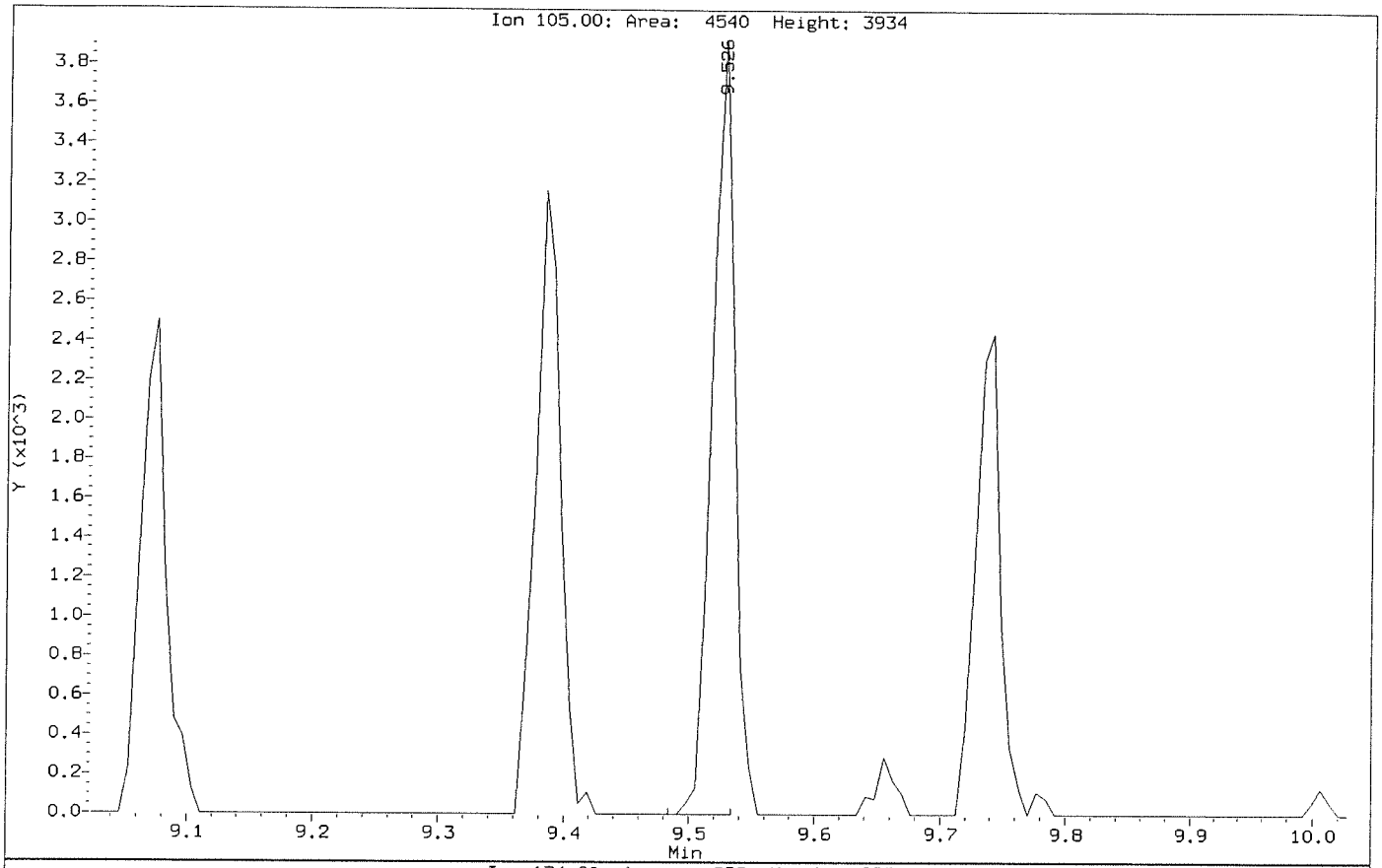
Compound: sec-Butylbenzene
CAS Number: 135-98-8

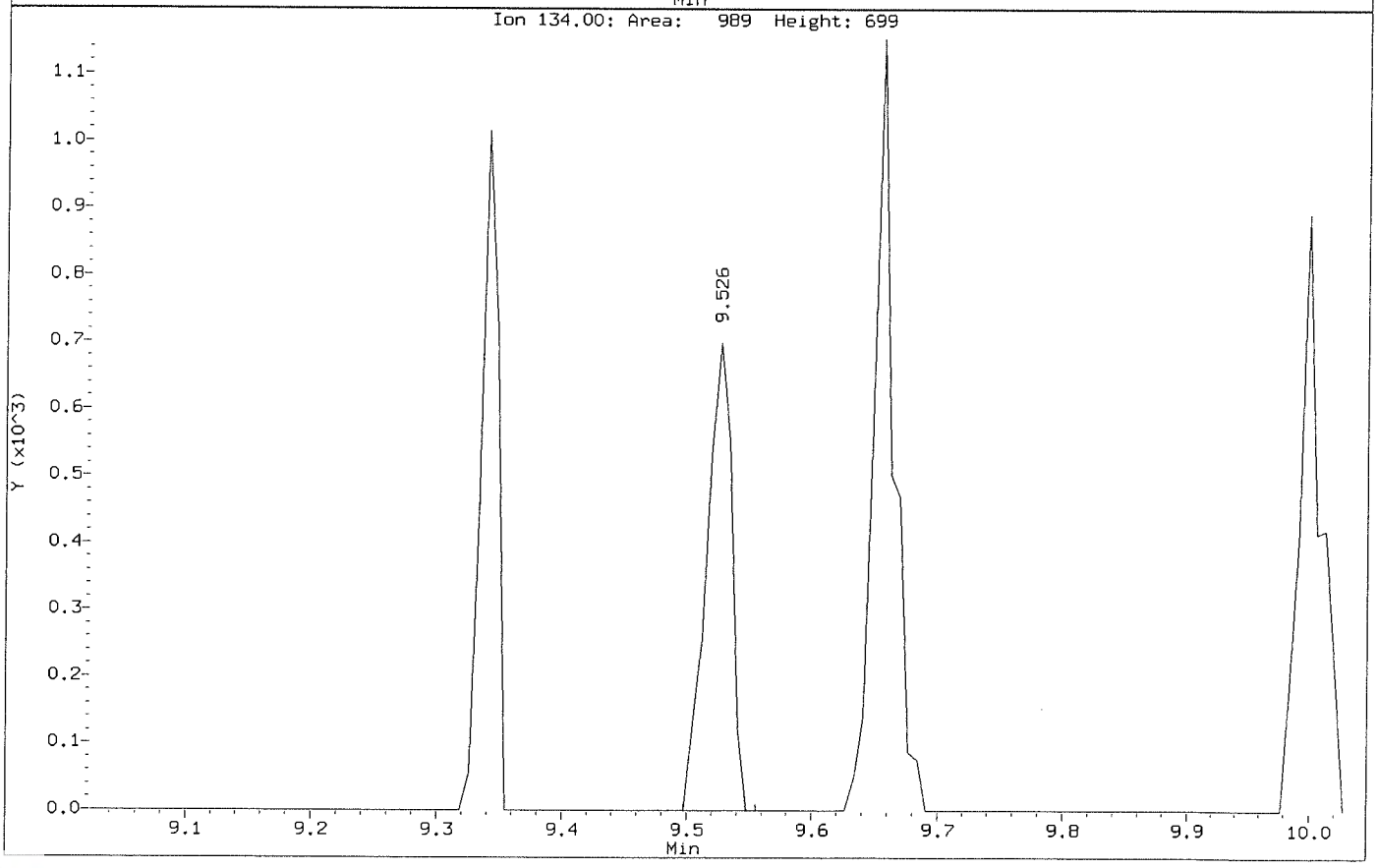


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

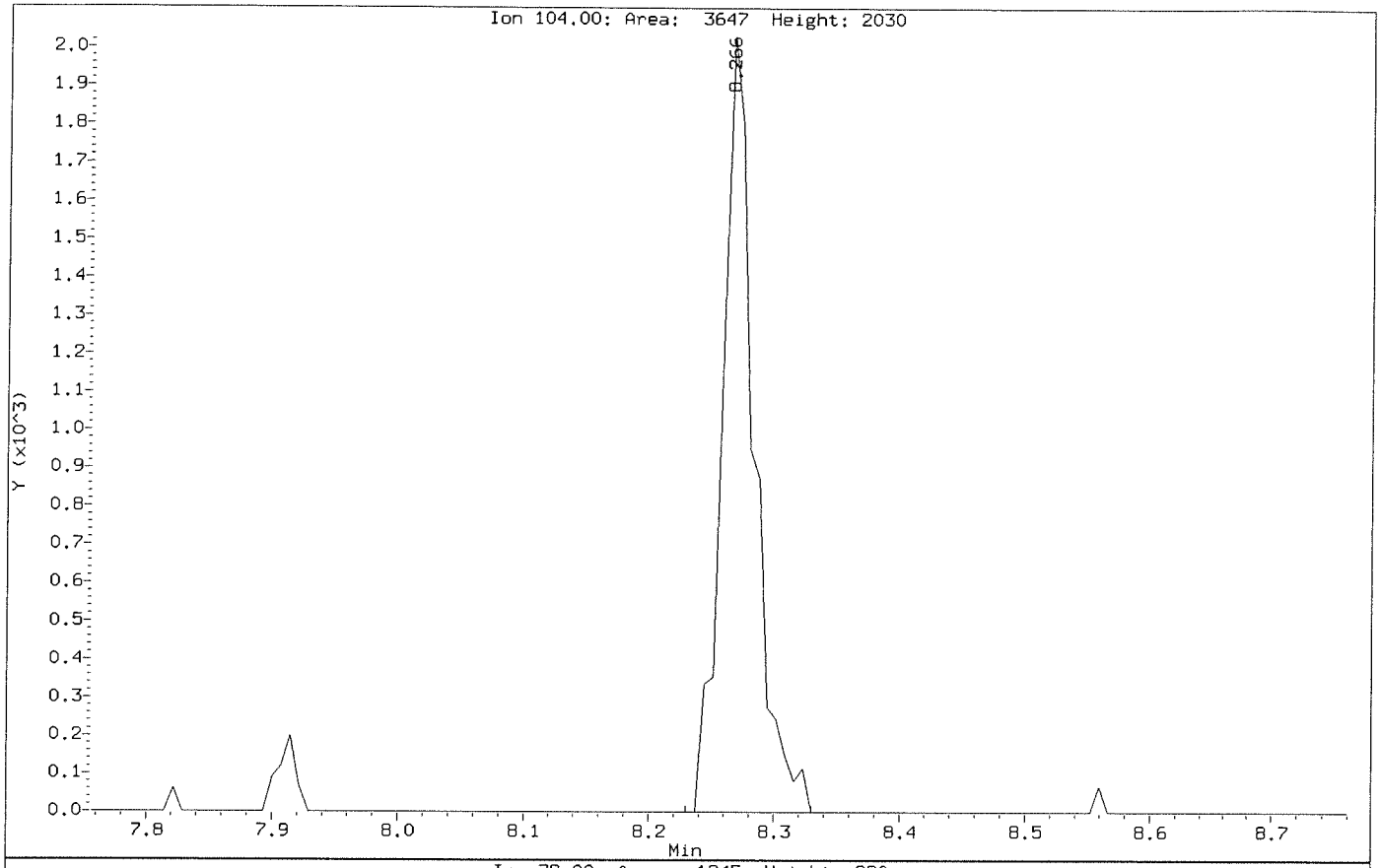
Compound: sec-Butylbenzene
CAS Number: 135-98-8

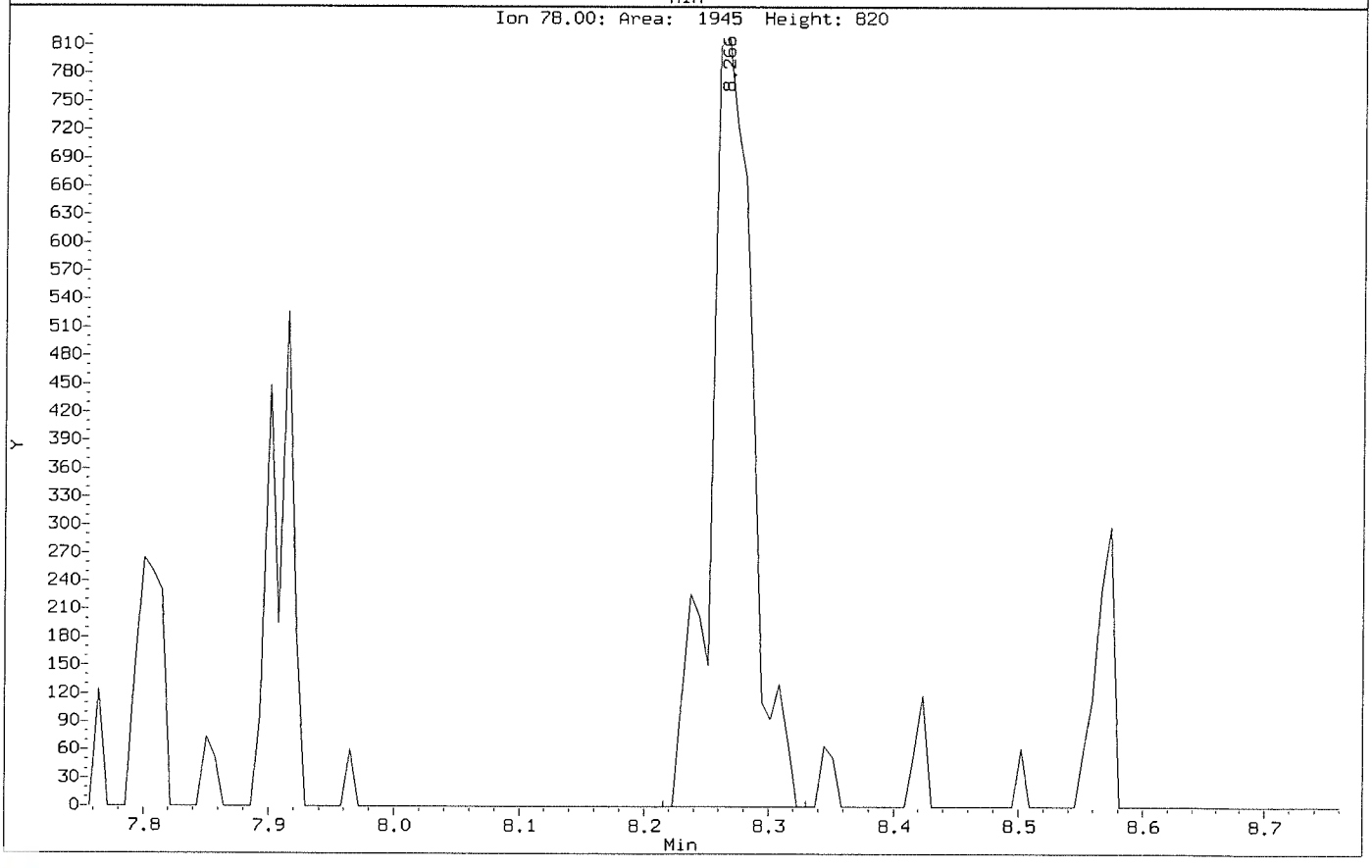


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

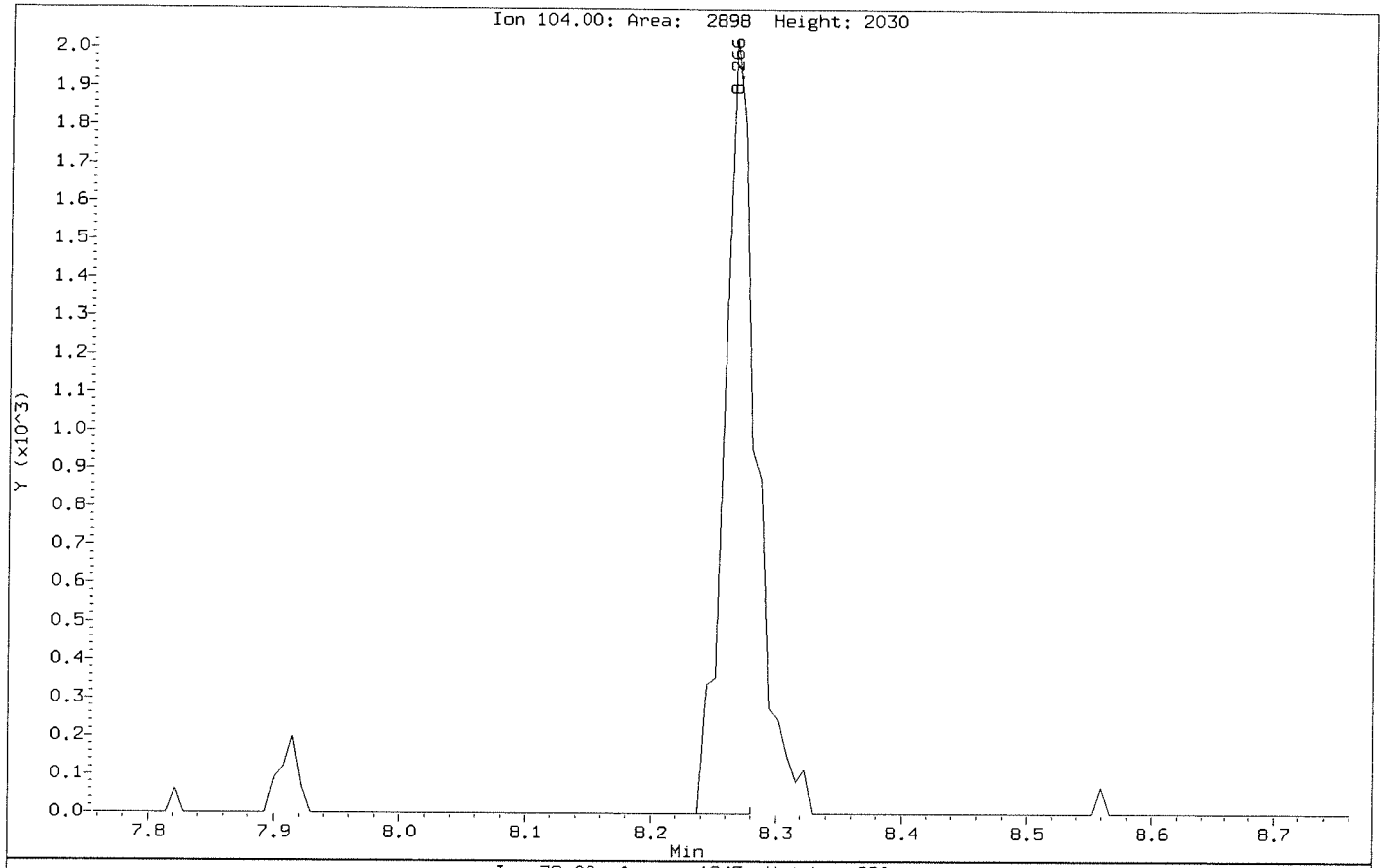
Compound: Styrene
CAS Number: 100-42-5

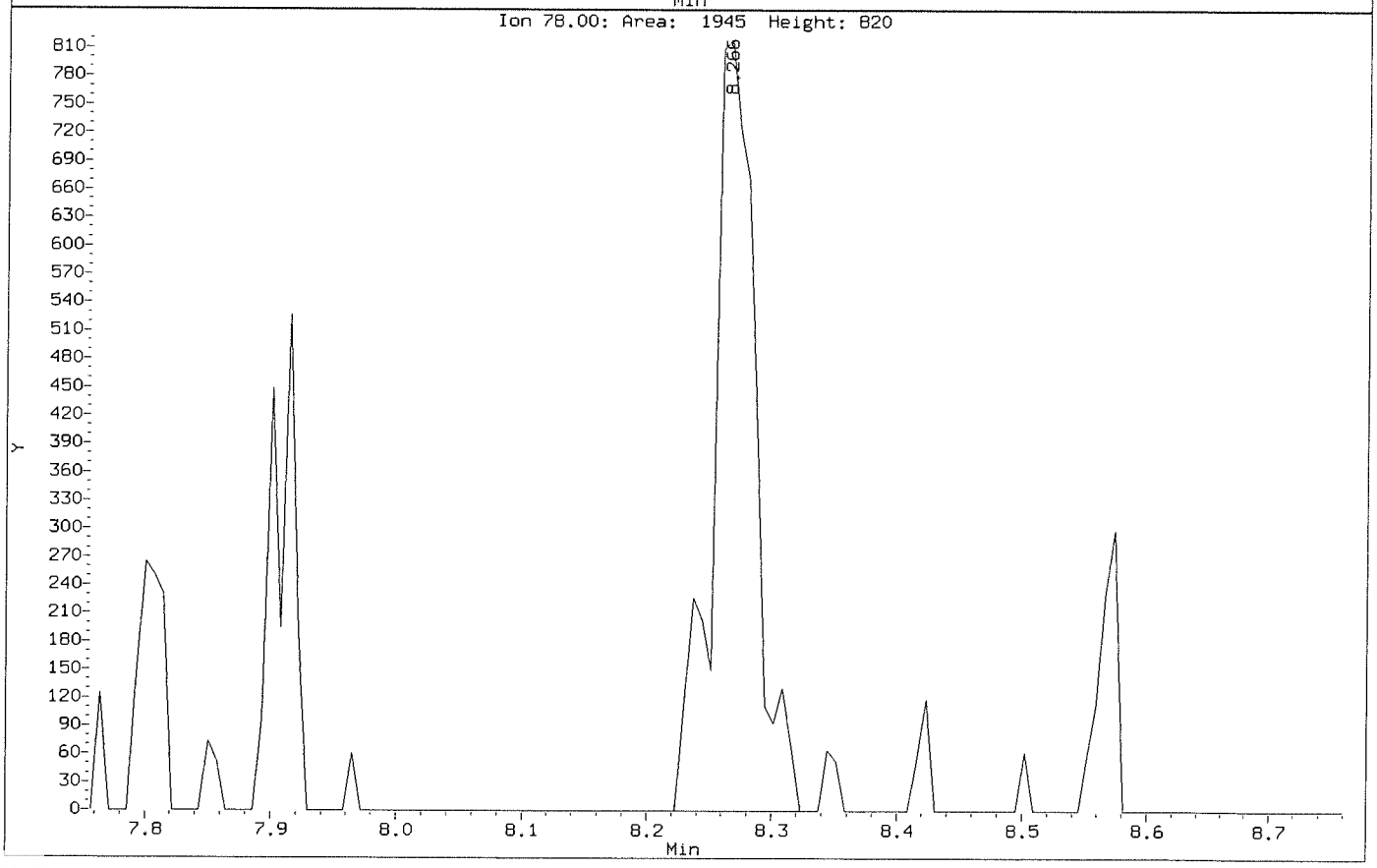


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

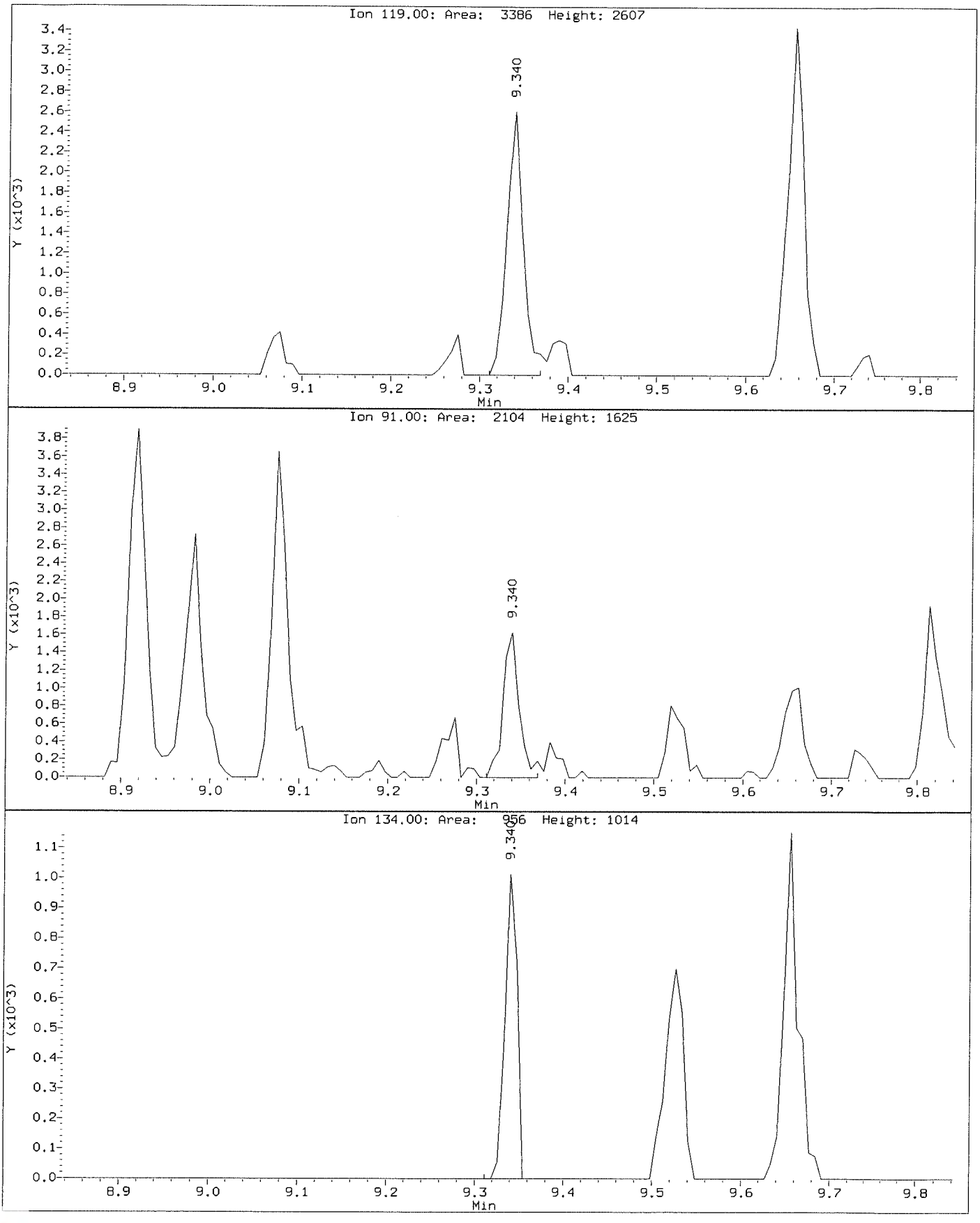
Compound: Styrene
CAS Number: 100-42-5



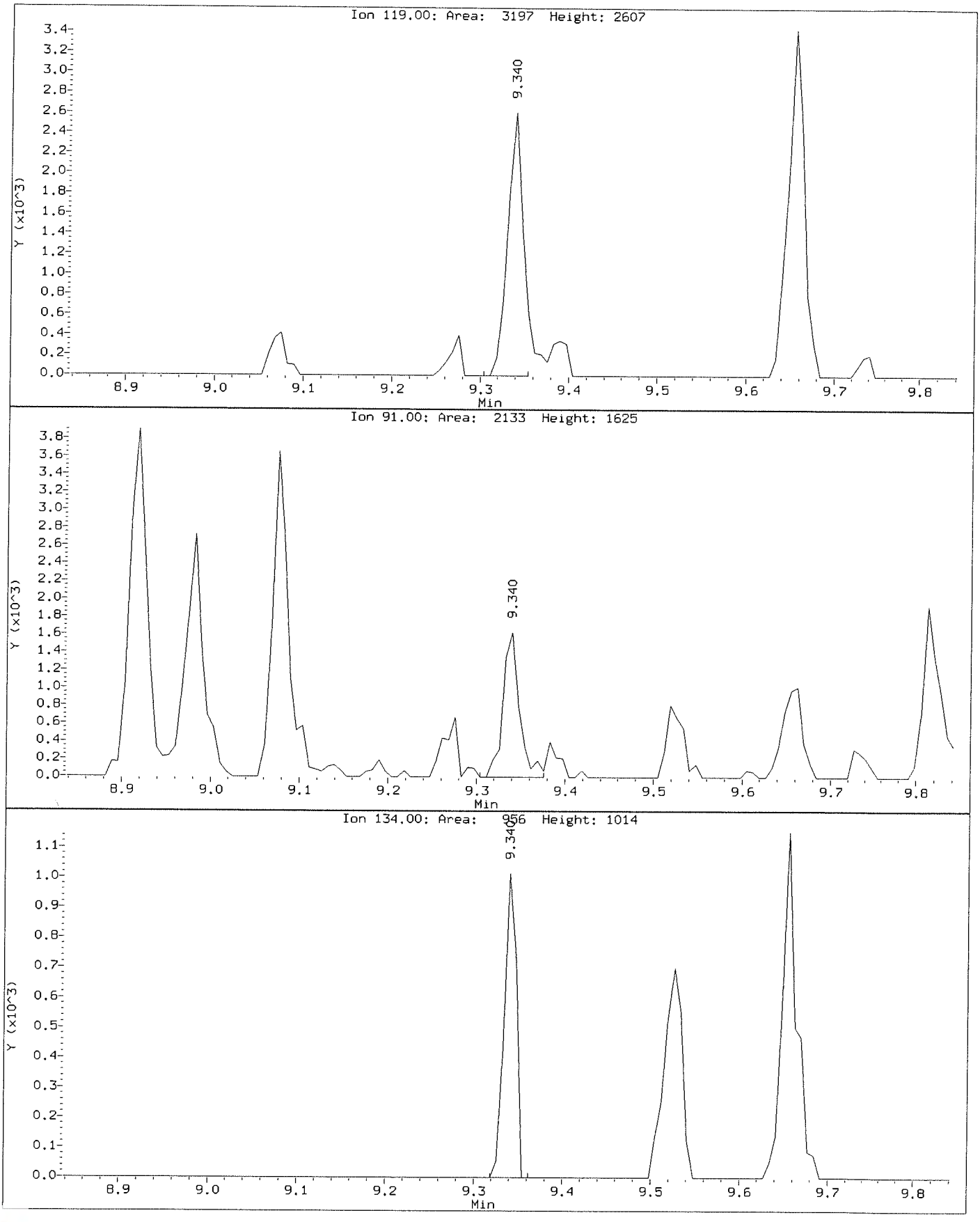
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: tert-Butylbenzene
CAS Number: 98-06-6



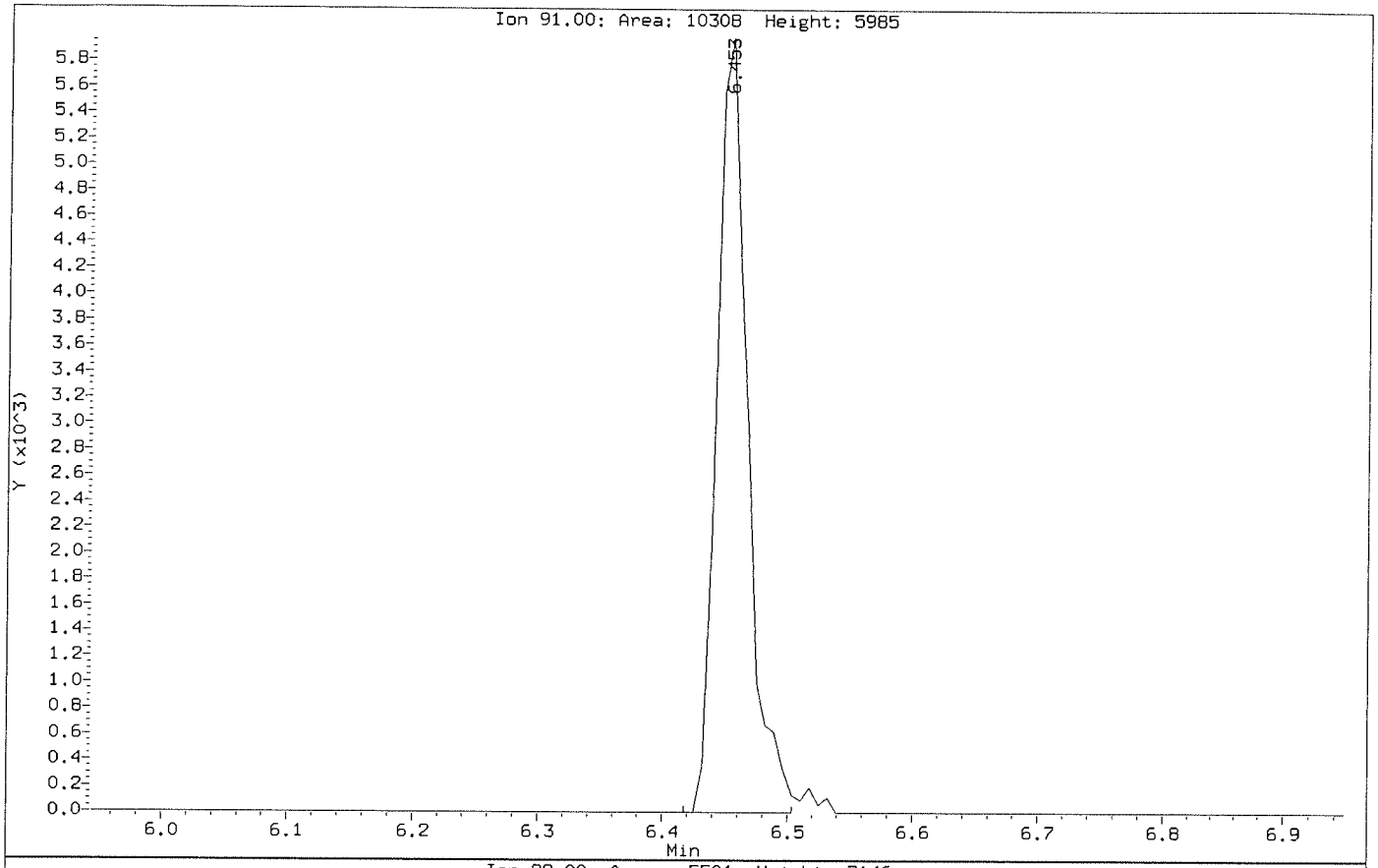
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

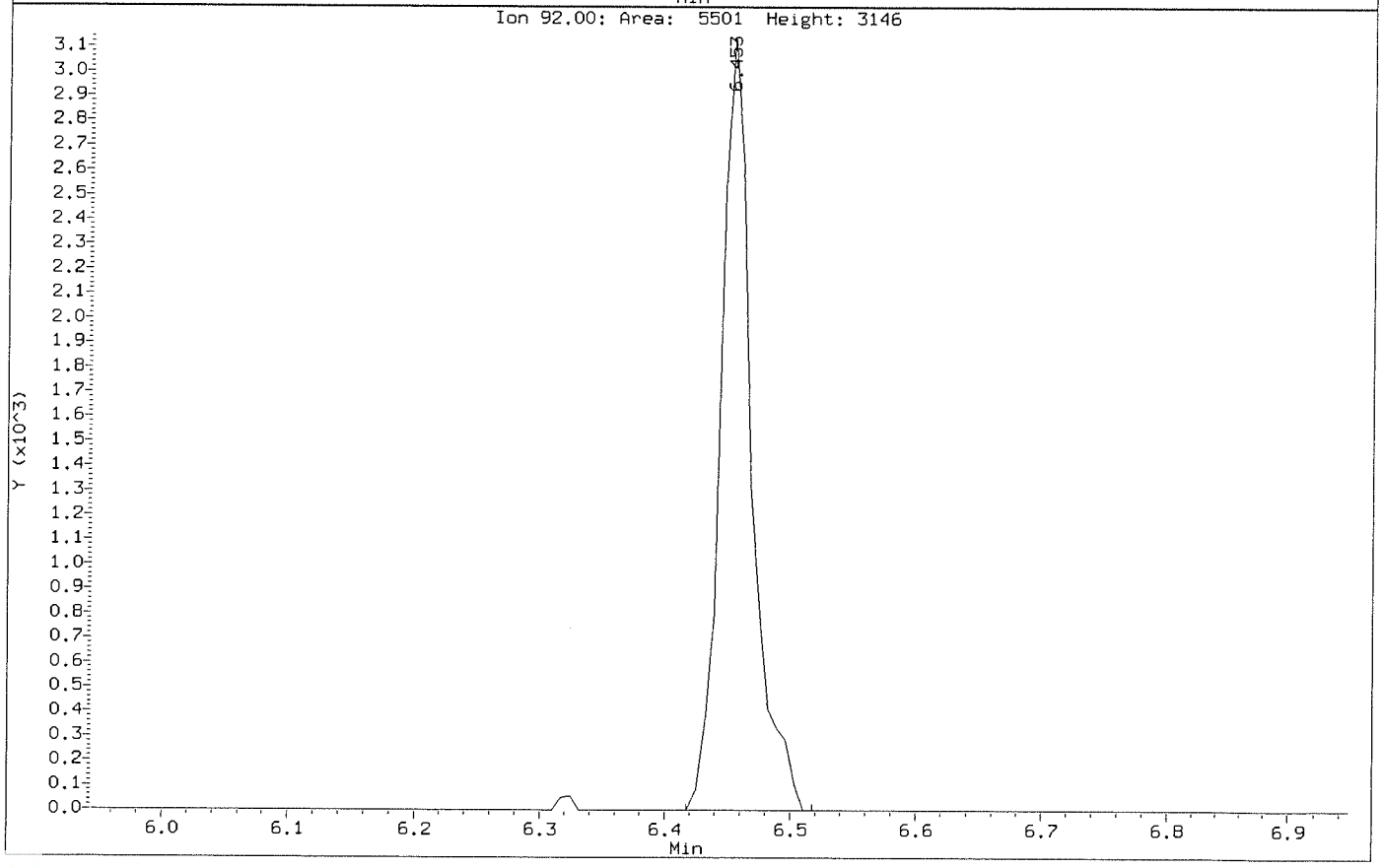
Compound: tert-Butylbenzene
CAS Number: 98-06-6



Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

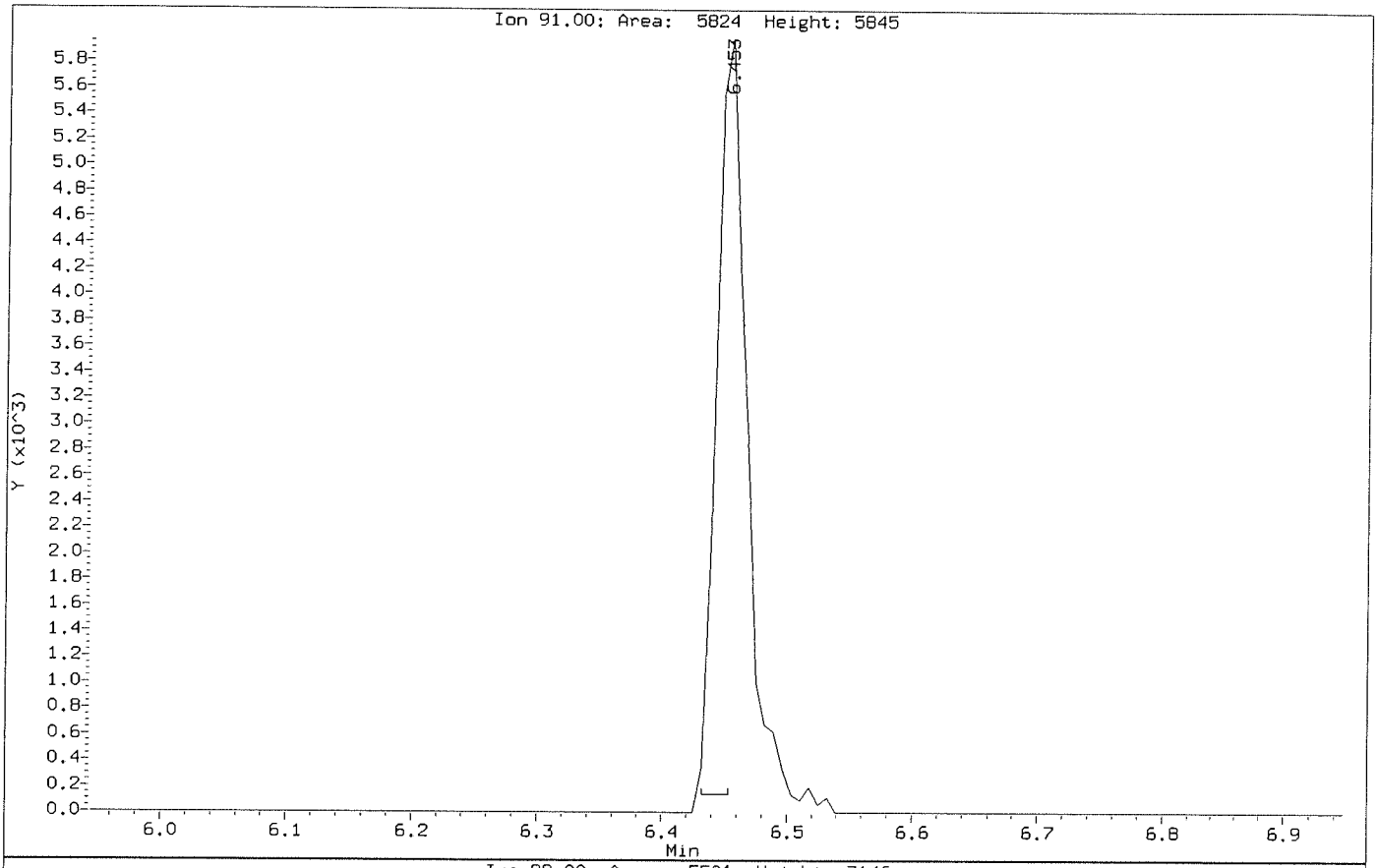
Compound: Toluene
CAS Number: 108-88-3

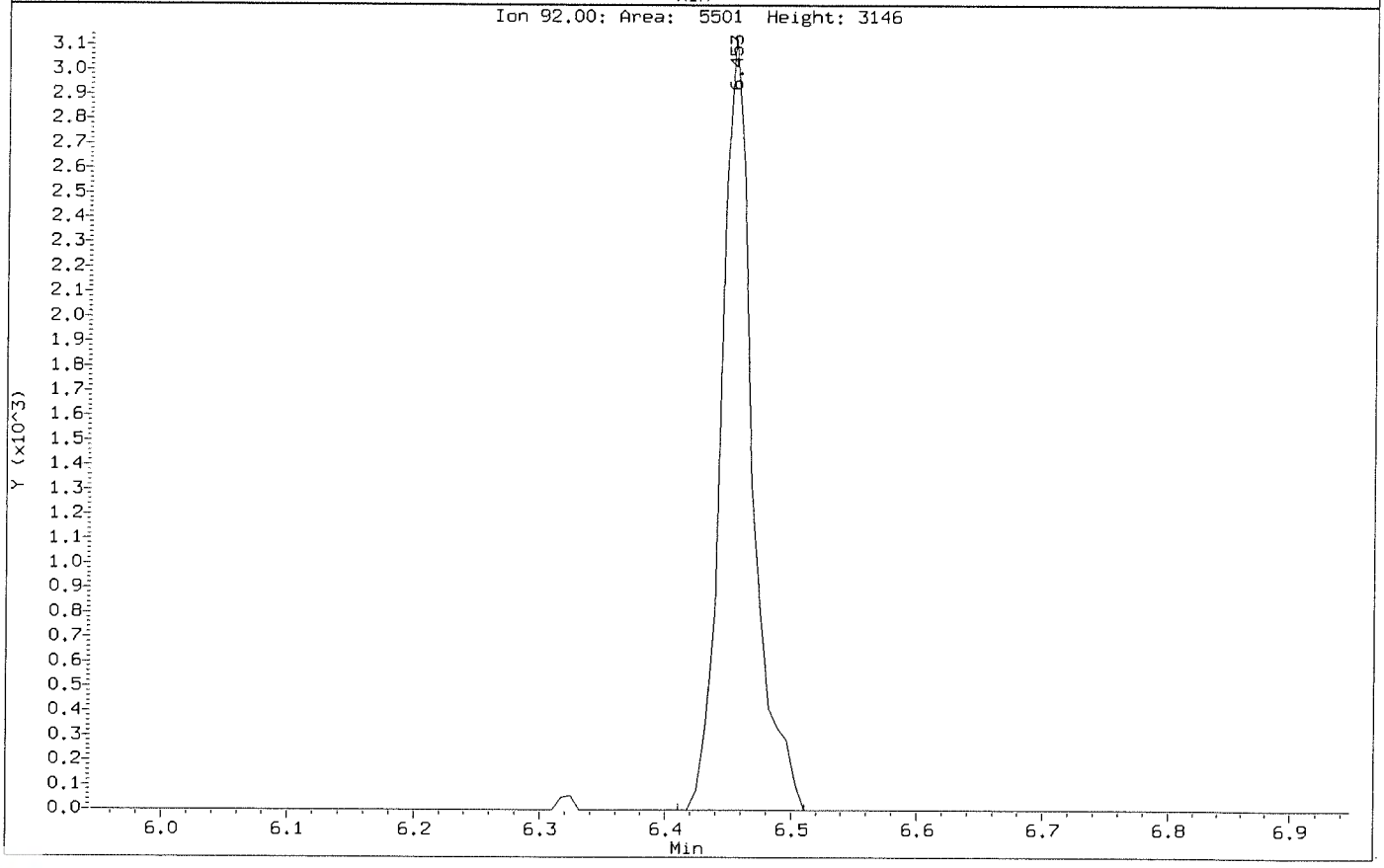


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

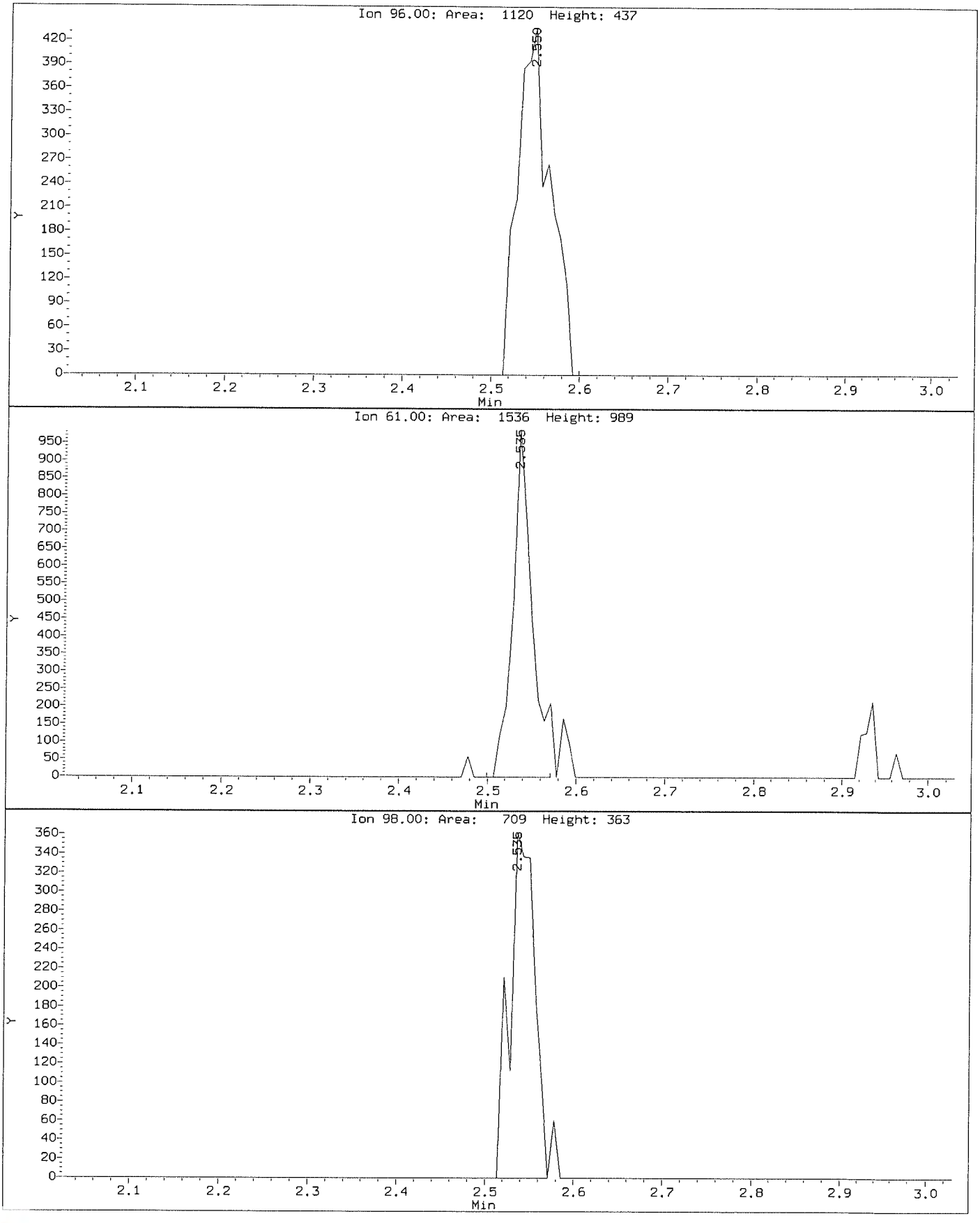
Compound: Toluene
CAS Number: 108-88-3



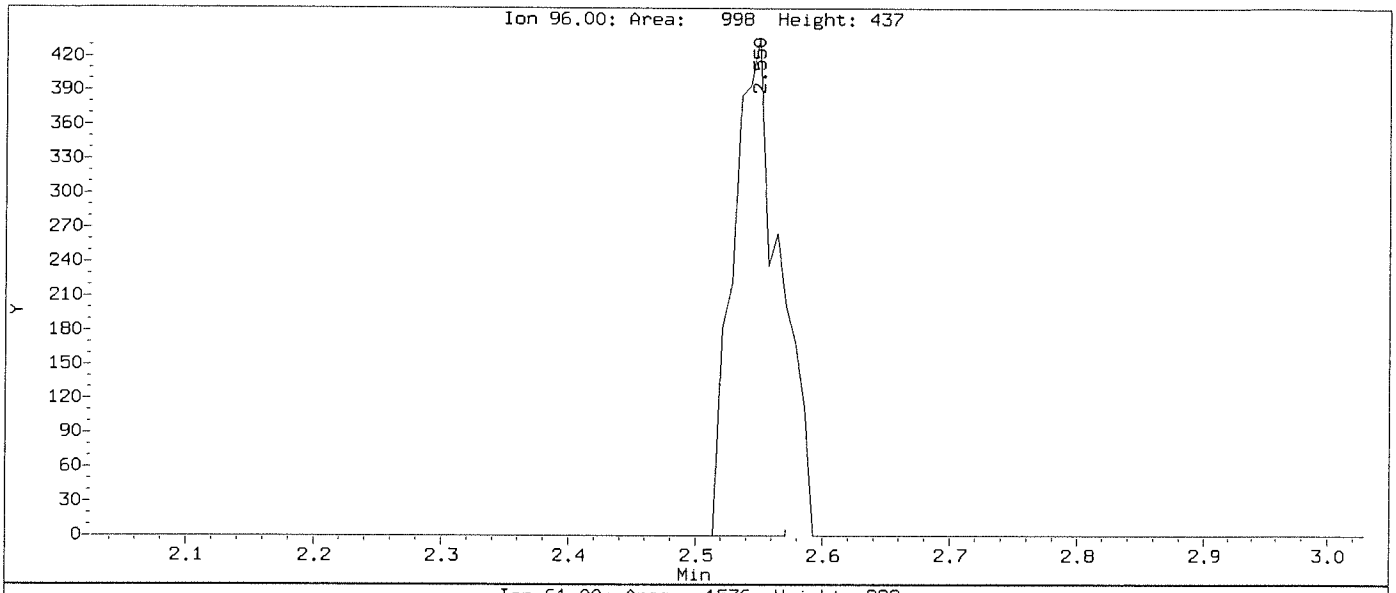
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

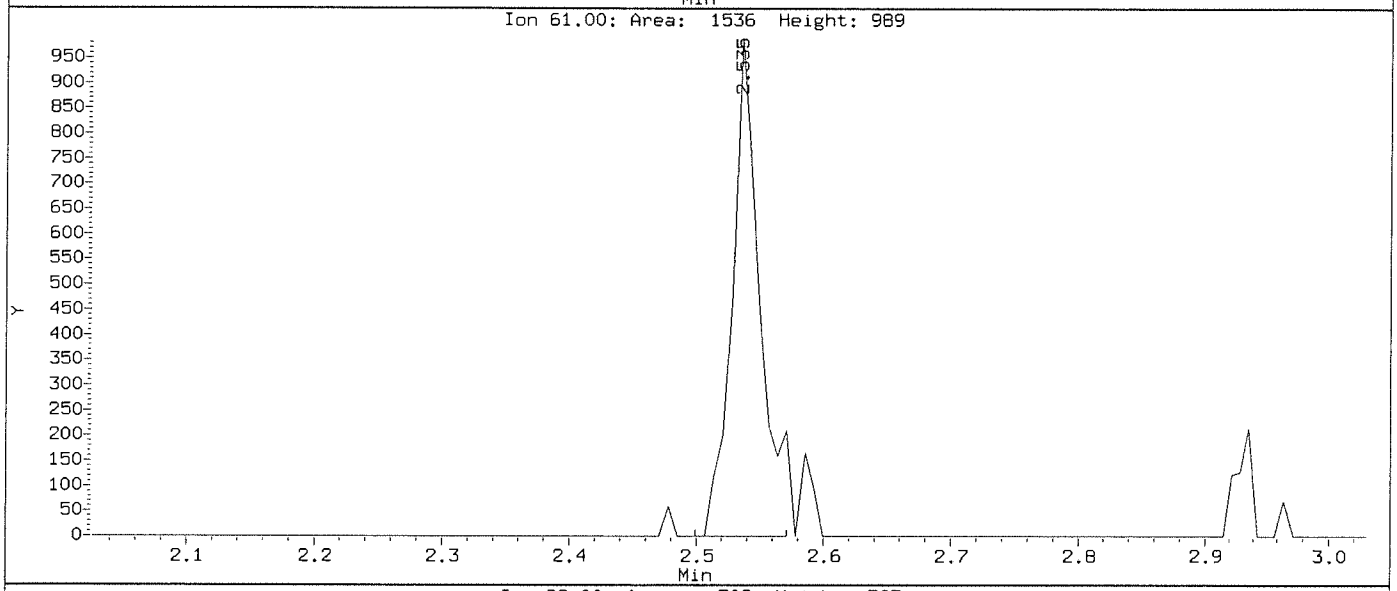
Compound: trans-1,2-Dichloroethene
CAS Number: 156-60-5

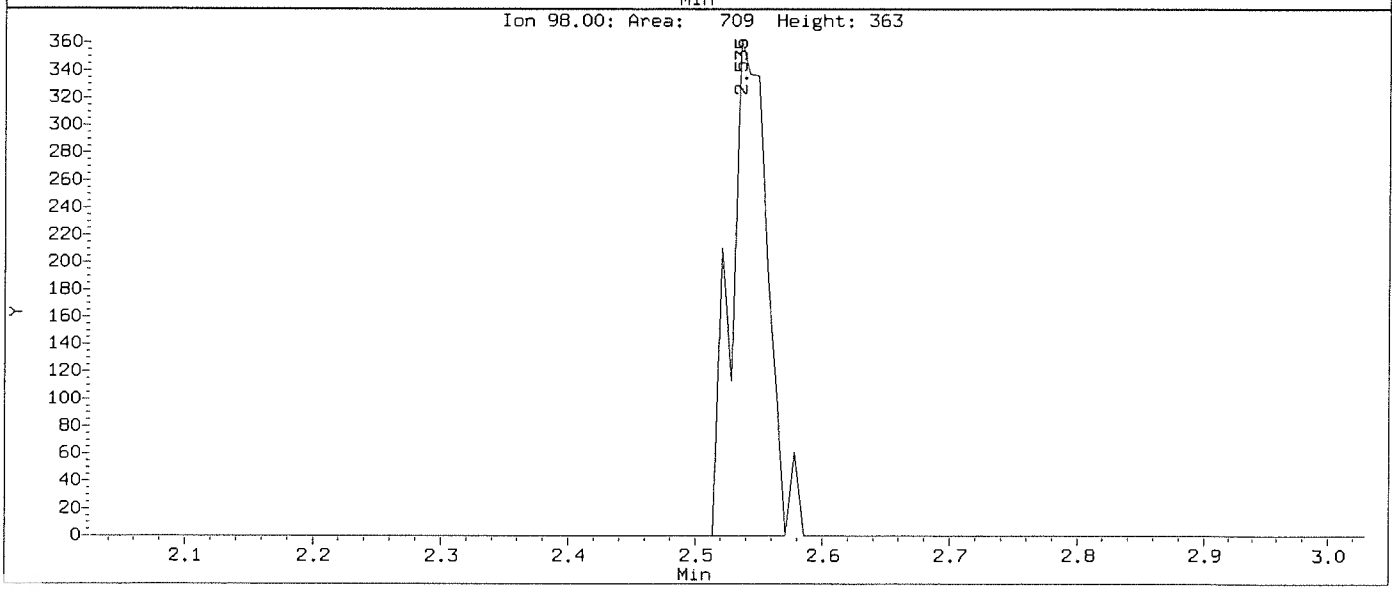


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: trans-1,2-Dichloroethene
CAS Number: 156-60-5

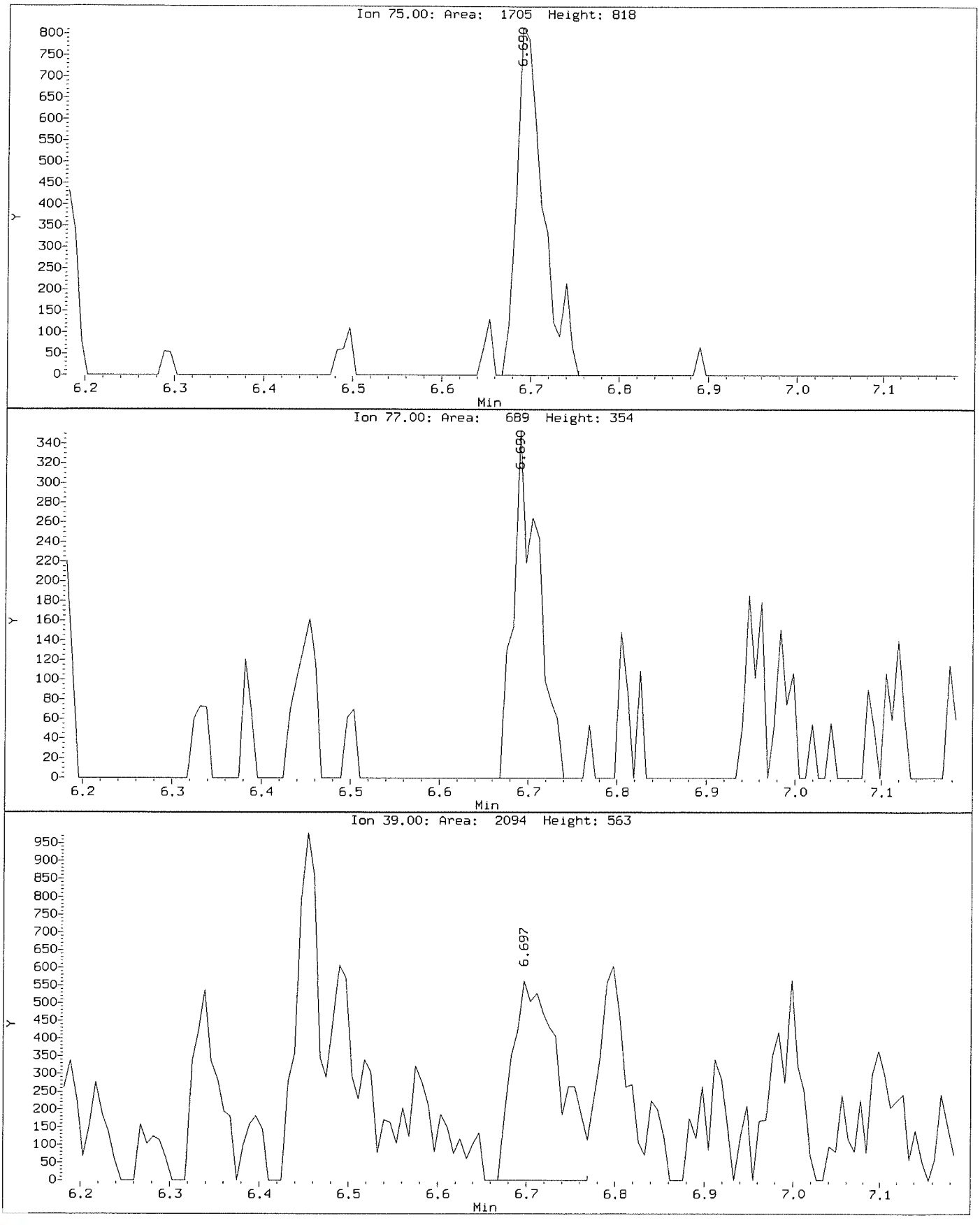


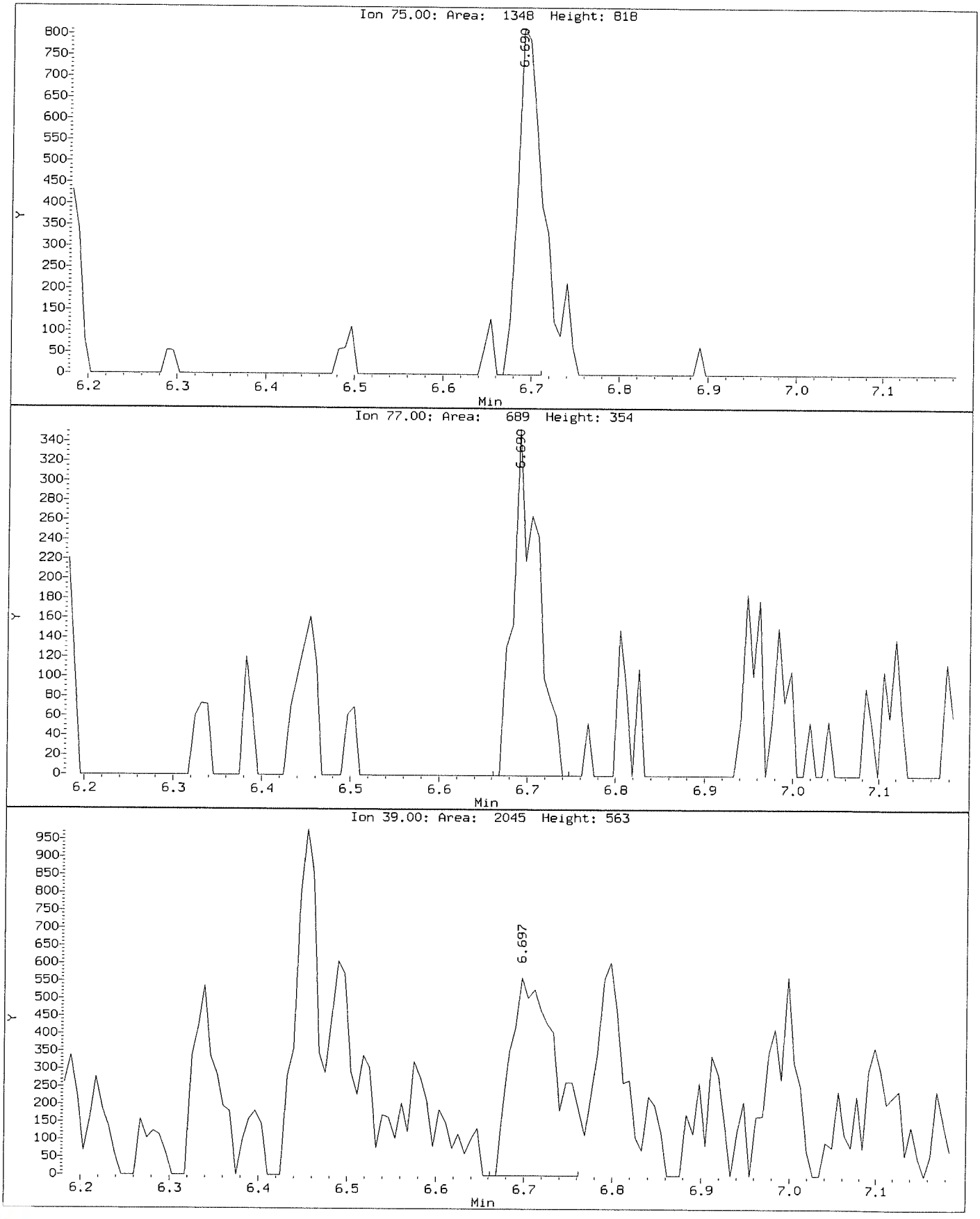
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: trans-1,3-Dichloropropene
CAS Number: 10061-02-6



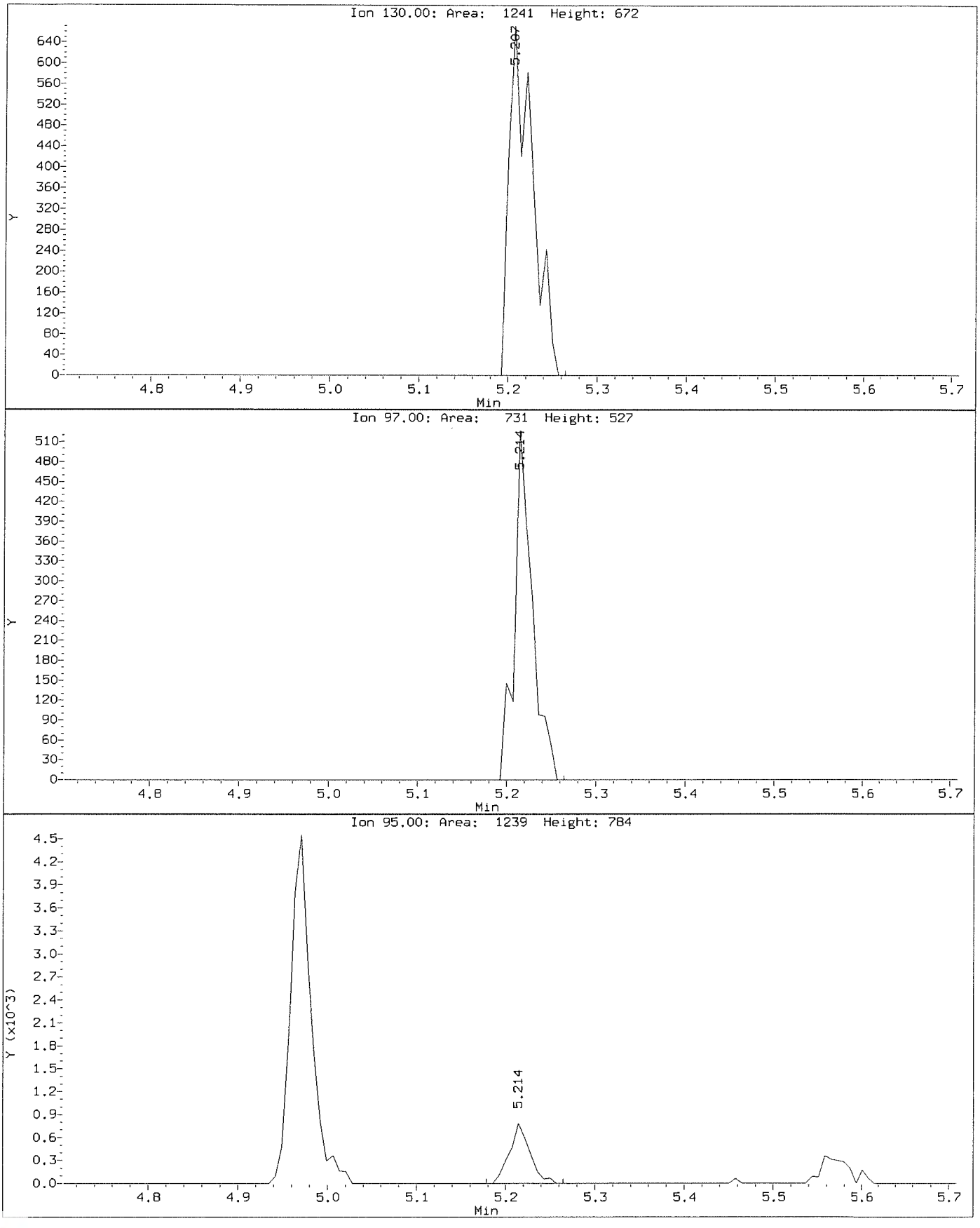
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: trans-1,3-Dichloropropene
CAS Number: 10061-02-6



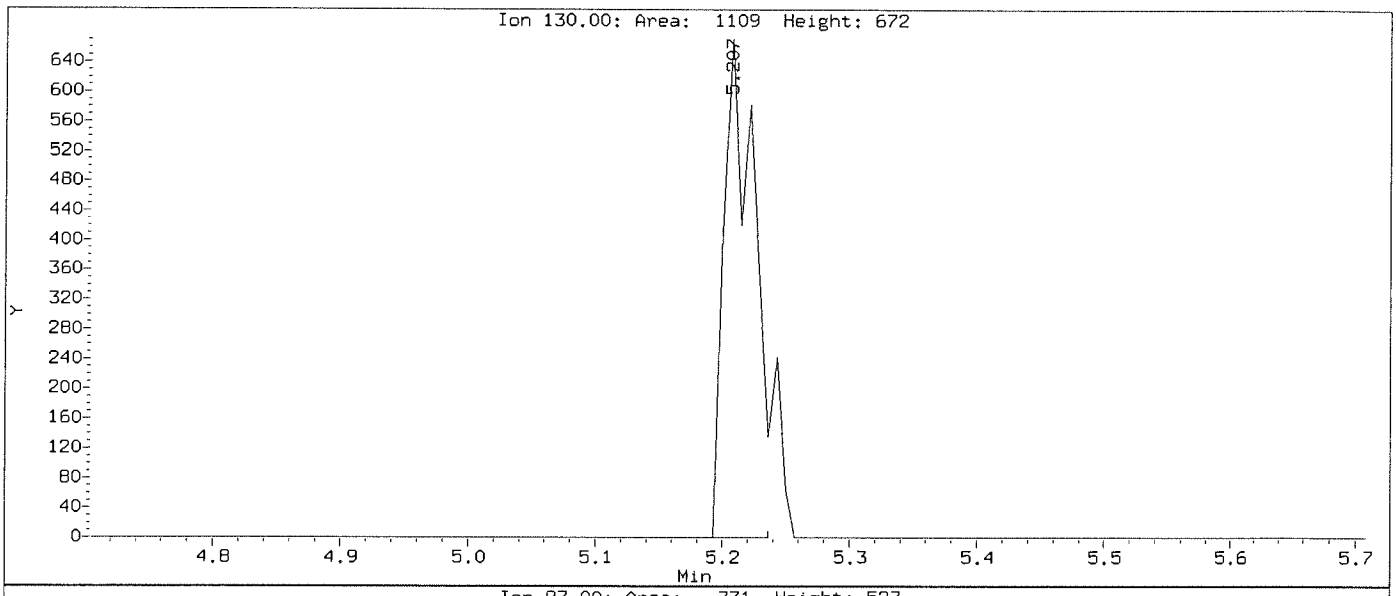
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

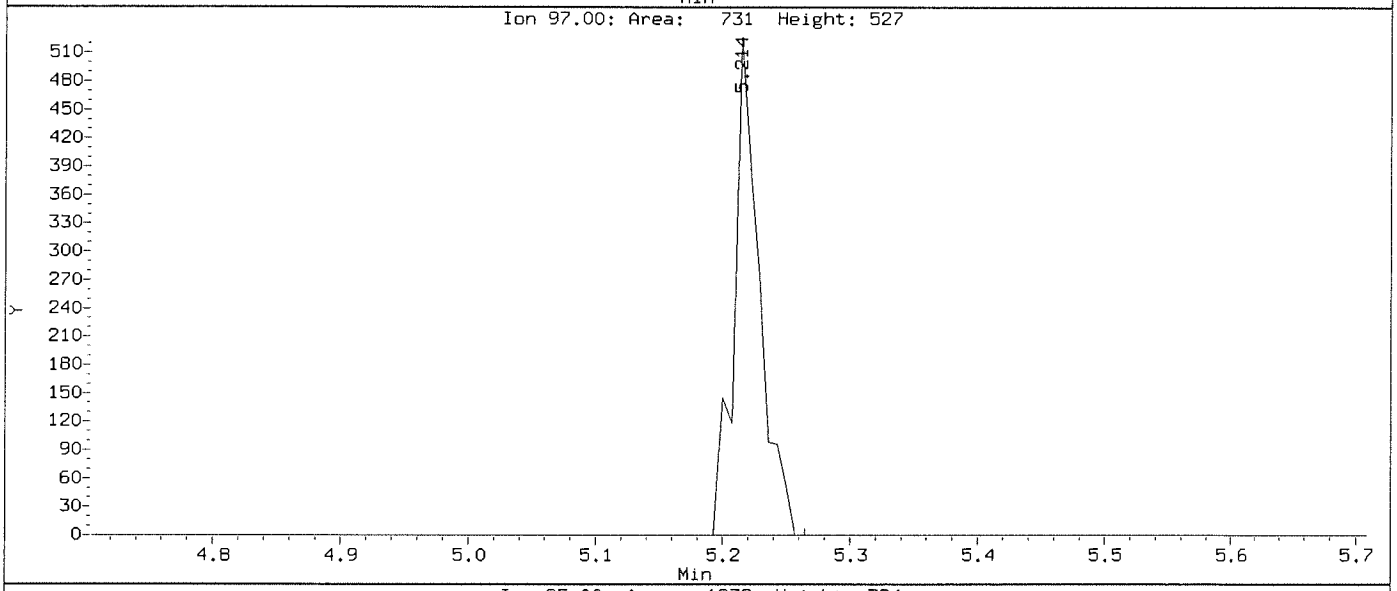
Compound: Trichloroethene
CAS Number: 79-01-6

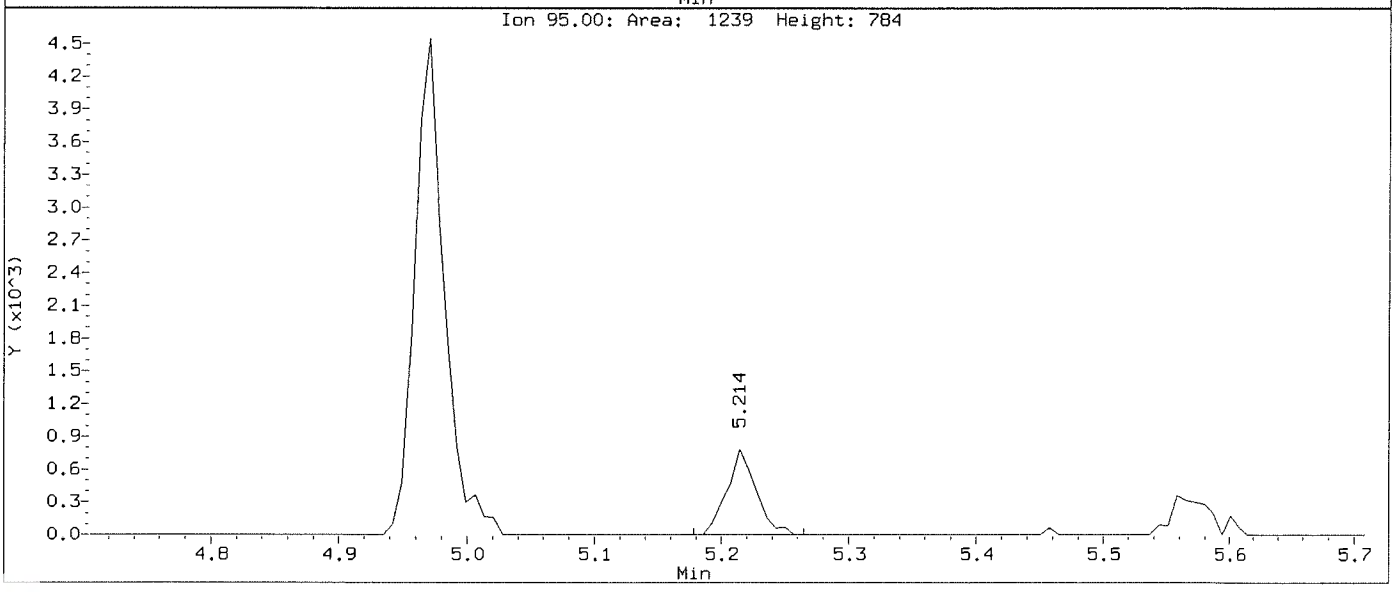


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Trichloroethene
CAS Number: 79-01-6

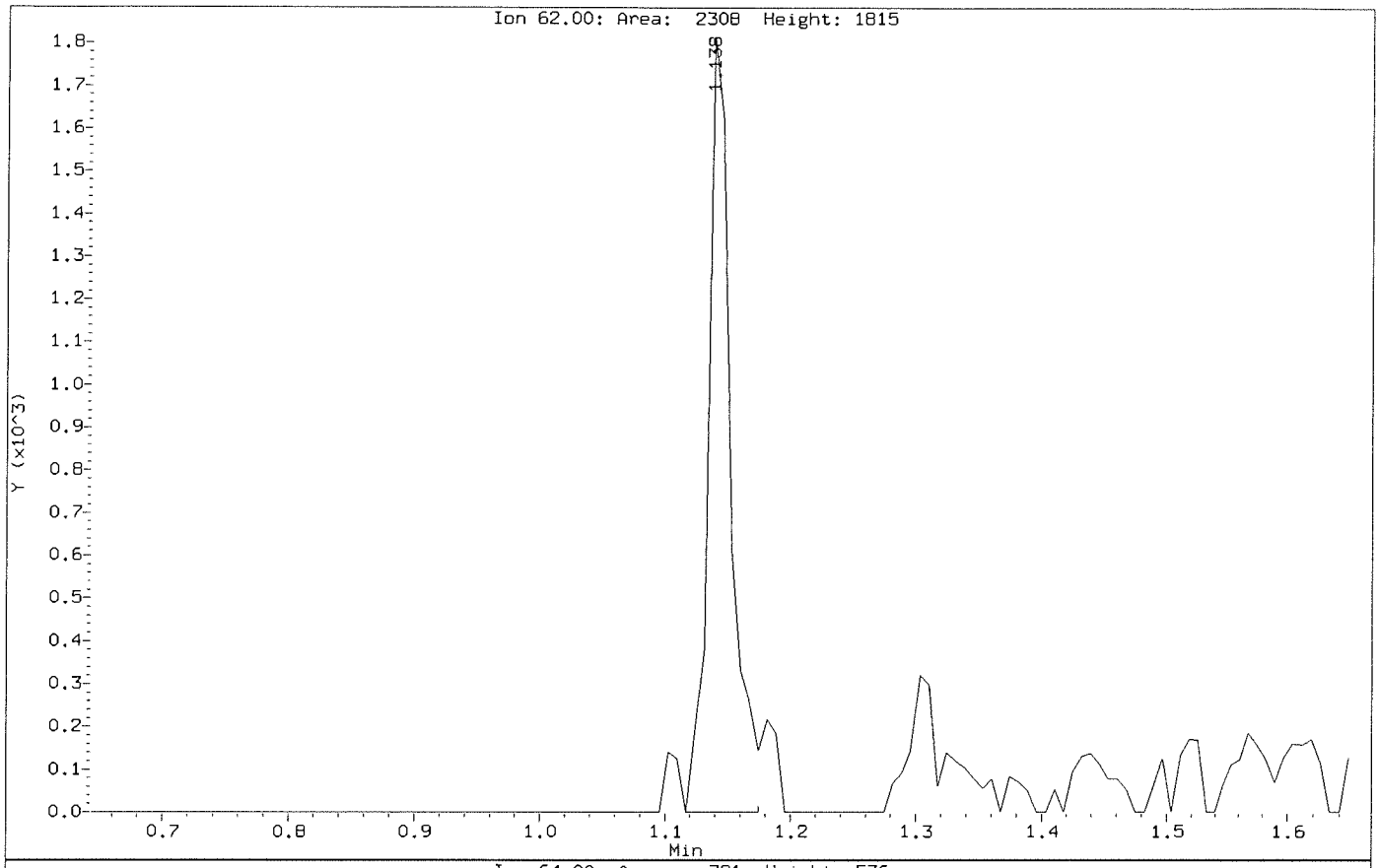


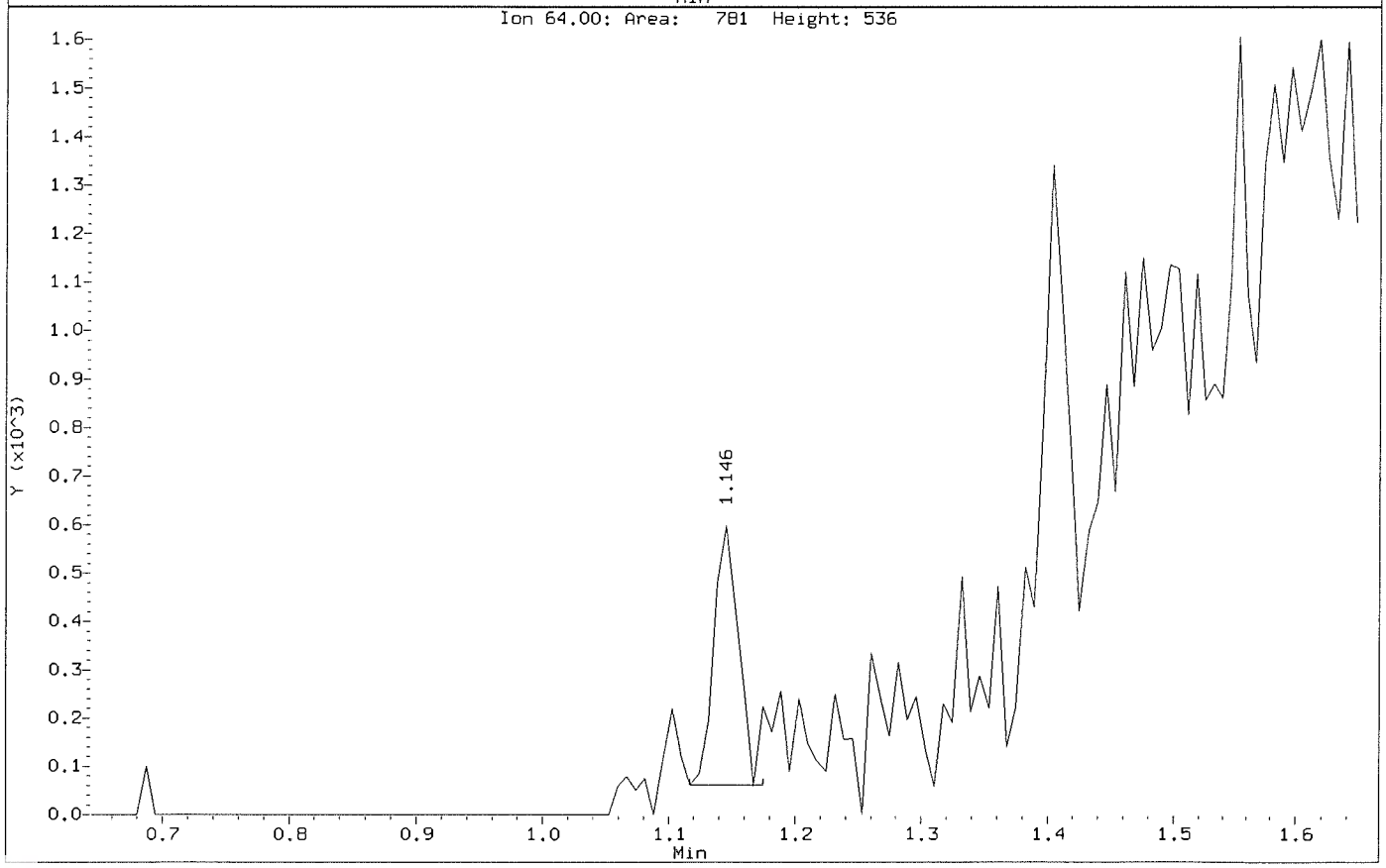



Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

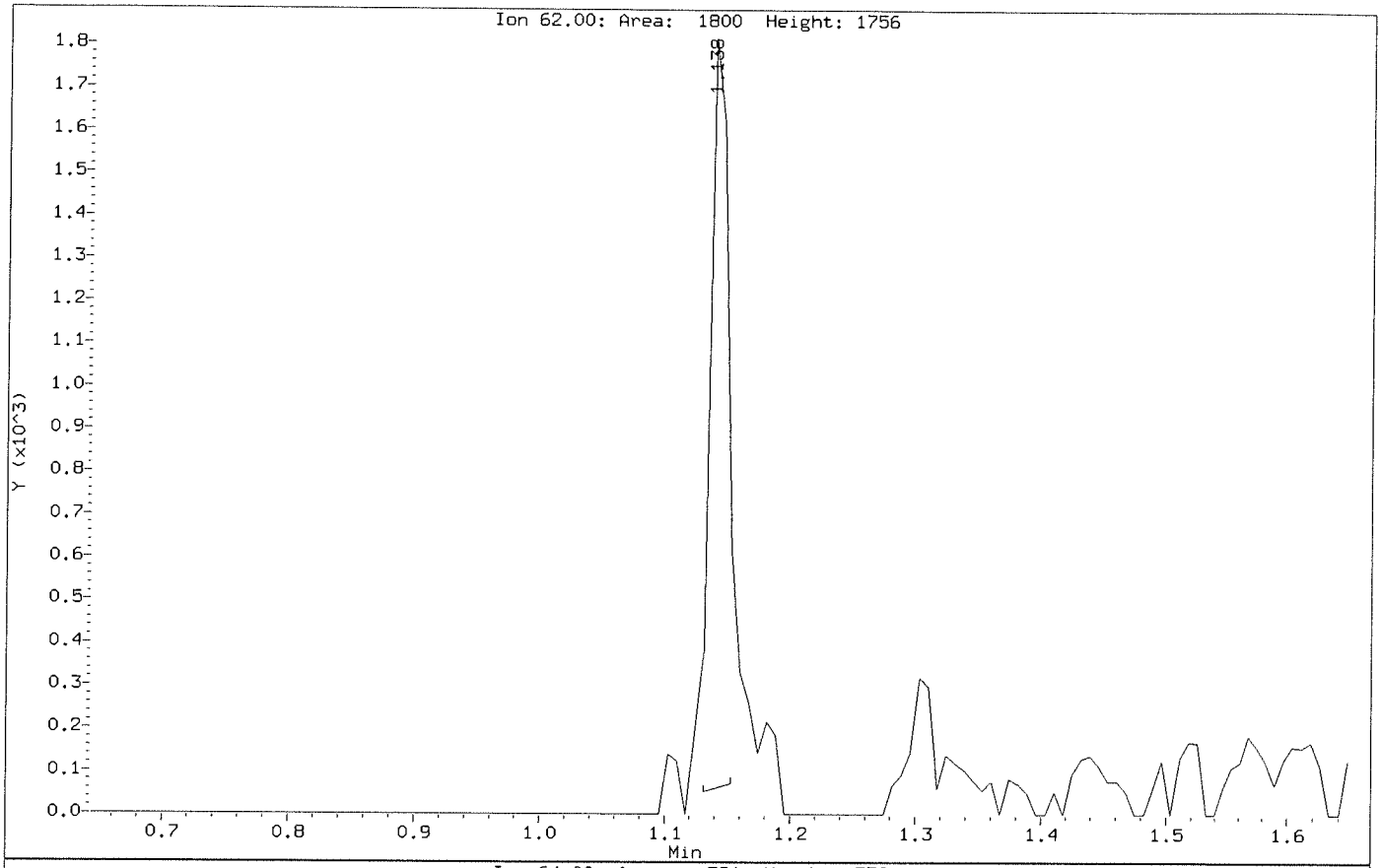
Compound: Vinyl Chloride
CAS Number: 75-01-4

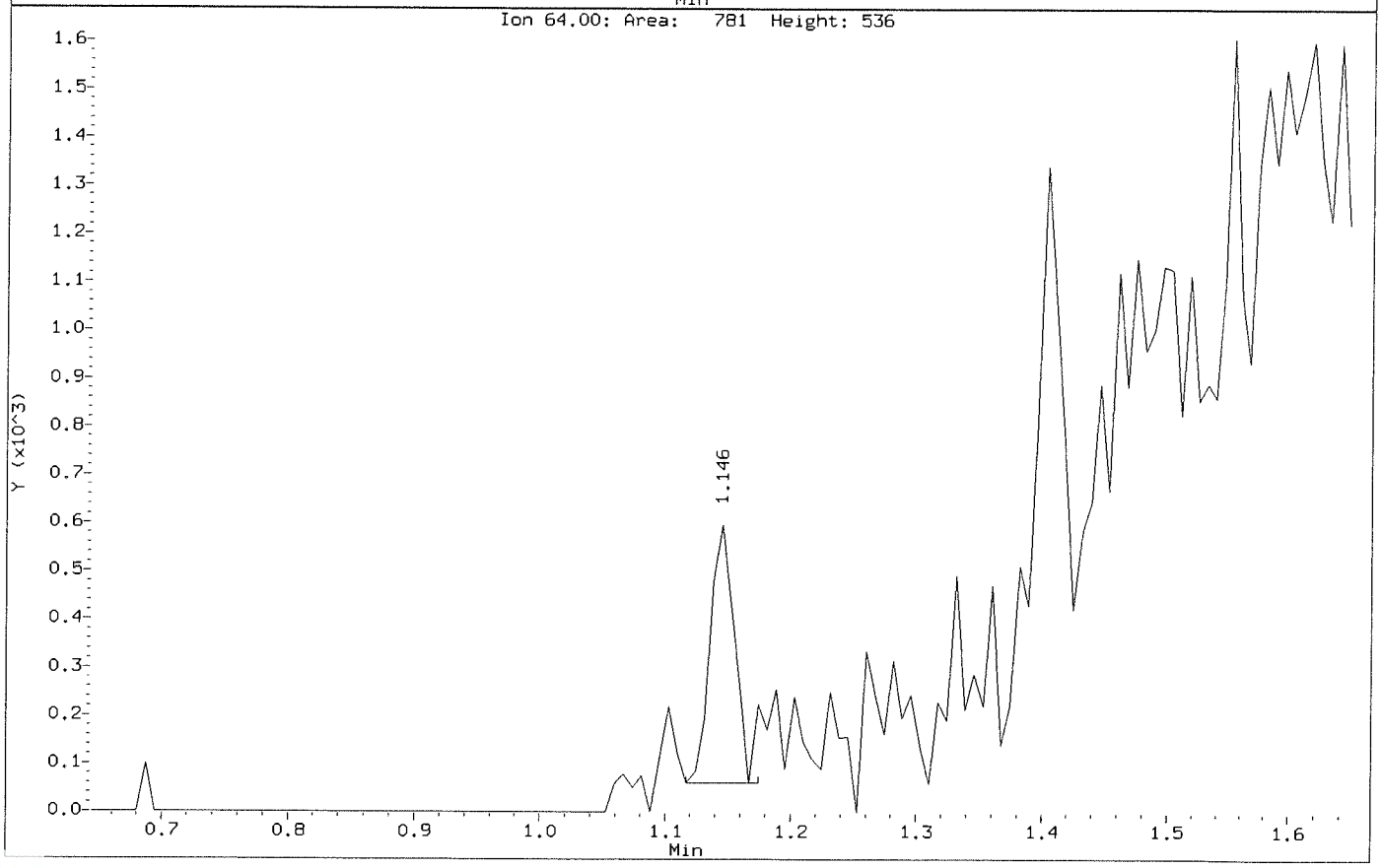


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110303.D
Injection Date: 03-NOV-2020 12:43
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Vinyl Chloride
CAS Number: 75-01-4



ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201103.b\X110304.D
Lab Smp Id: VSTD001 Client Smp ID: VSTD001
Inj Date : 03-NOV-2020 13:04
Operator : PC Inst ID: voa6.i
Smp Info : VSTD001;VSTD001;1;3;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201103.b\8260W.m
Meth Date : 13-Jan-2021 15:44 voa6.i Quant Type: ISTD
Cal Date : 03-NOV-2020 12:43 Cal File: X110303.D
Als bottle: 5 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

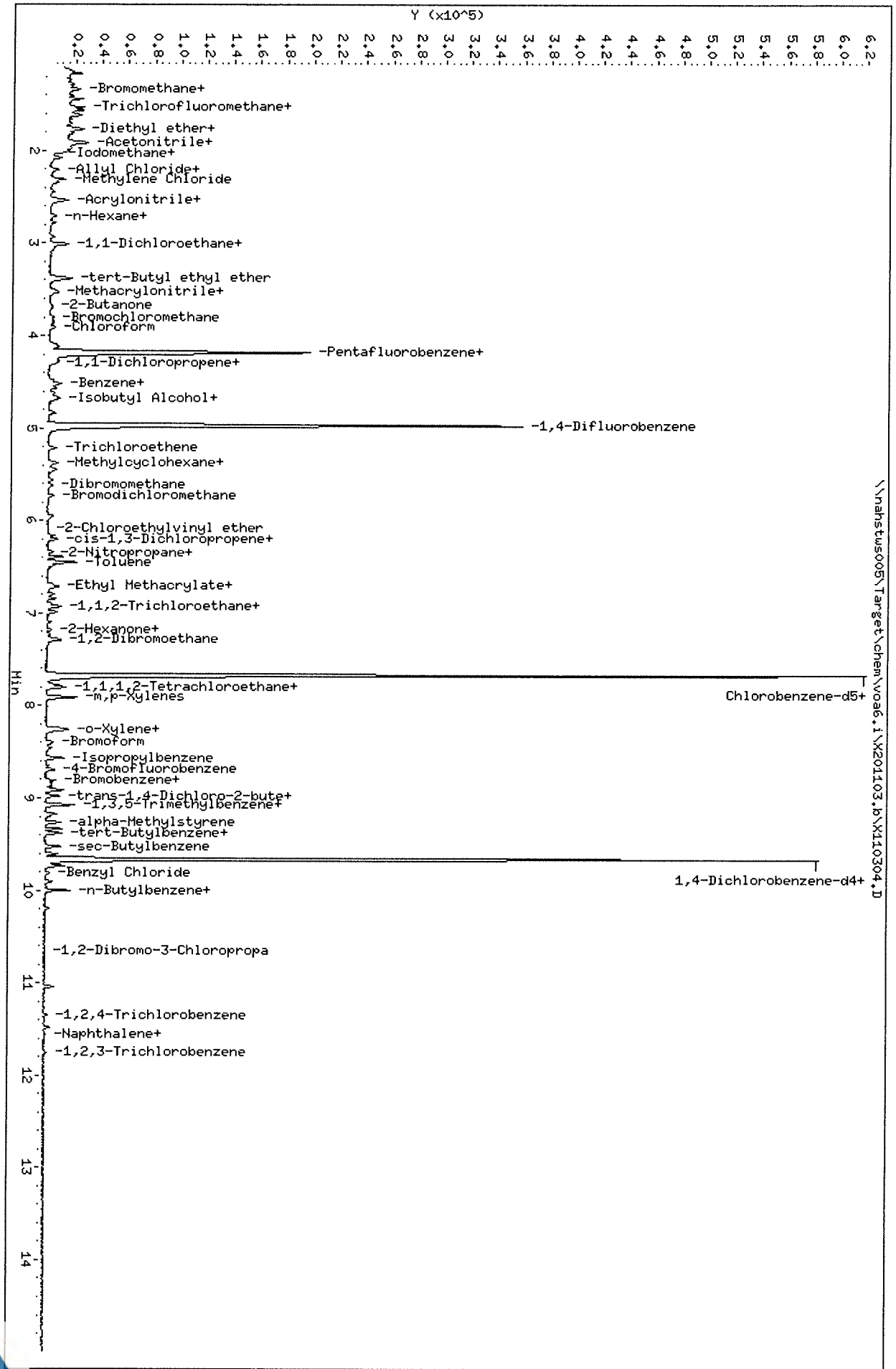
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.182 | 4.182 | (1.000) | 140540 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 4.970 | 4.970 | (1.000) | 259506 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 7.671 | 7.671 | (1.000) | 246266 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 9.662 | 9.662 | (1.000) | 105397 | 50.0000 | |
| $ 35 1,2-Dichloroethane-d4 | 65 | 4.483 | 4.483 | (1.072) | 2593 | 1.00000 | 0.74(TaM) |
| $ 69 4-Bromofluorobenzene | 95 | 8.695 | 8.695 | (1.134) | 2114 | 1.00000 | 1.29(a) |
| $ 30 Dibromofluoromethane | 113 | 4.103 | 4.103 | (0.981) | 1960 | 1.00000 | 1.03(a) |
| $ 48 Toluene-d8 | 98 | 6.388 | 6.388 | (0.833) | 6340 | 1.00000 | 0.96(a) |
| 60 1,1,1,2-Tetrachloroethane | 131 | 7.778 | 7.778 | (1.014) | 1911 | 1.00000 | 1.08(a) |
| 31 1,1,1-Trichloroethane | 97 | 4.096 | 4.096 | (0.979) | 2711 | 1.00000 | 0.92(a) |
| 68 1,1,2,2-Tetrachloroethane | 83 | 8.838 | 8.838 | (0.915) | 1837 | 1.00000 | 0.47(aM) |
| 138 Freon TF | 101 | 1.919 | 1.919 | (0.459) | 2968 | 1.00000 | 1.15(aM) |
| 53 1,1,2-Trichloroethane | 83 | 6.847 | 6.847 | (0.893) | 1596 | 1.00000 | 1.05(a) |
| 22 1,1-Dichloroethane | 63 | 2.929 | 2.929 | (0.700) | 3433 | 1.00000 | 1.01(Ta) |
| 11 1,1-Dichloroethene | 96 | 1.926 | 1.926 | (0.461) | 2918 | 1.00000 | 1.10(aM) |
| 32 1,1-Dichloropropene | 75 | 4.290 | 4.290 | (0.863) | 2429 | 1.00000 | 1.00(a) |
| 93 1,2,3-Trichlorobenzene | 180 | 11.754 | 11.754 | (1.216) | 511 | 1.00000 | 2.86(aM) |
| 71 1,2,3-Trichloropropane | 75 | 8.867 | 8.867 | (0.918) | 1686 | 1.00000 | 1.13(aMH) |
| 90 1,2,4-Trichlorobenzene | 180 | 11.352 | 11.352 | (1.175) | 1196 | 1.00000 | 3.12(aM) |
| 79 1,2,4-Trimethylbenzene | 105 | 9.383 | 9.383 | (0.971) | 5576 | 1.00000 | 0.94(a) |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 10.658 | 10.658 | (1.103) | 69 | 1.00000 | 0.25(aM) |
| 57 1,2-Dibromoethane | 107 | 7.269 | 7.269 | (0.948) | 1923 | 1.00000 | 1.04(a) |

Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110304.D Page 2
Report Date: 13-Jan-2021 15:44

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| 88 1,2-Dichlorobenzene | 146 | 9.999 | 9.999 | (1.035) | 2862 | 1.00000 | 0.98(a) |
| 33 1,2-Dichloroethane | 62 | 4.569 | 4.569 | (0.919) | 3106 | 1.00000 | 1.11(aM) |
| 42 1,2-Dichloropropane | 63 | 5.443 | 5.443 | (1.095) | 1987 | 1.00000 | 1.03(aM) |
| 75 1,3,5-Trimethylbenzene | 105 | 9.075 | 9.075 | (0.939) | 5780 | 1.00000 | 0.96(a) |
| 83 1,3-Dichlorobenzene | 146 | 9.612 | 9.612 | (0.995) | 3420 | 1.00000 | 1.10(a) |
| 54 1,3-Dichloropropane | 76 | 6.983 | 6.983 | (0.910) | 3155 | 1.00000 | 1.04(a) |
| 84 1,4-Dichlorobenzene | 146 | 9.691 | 9.691 | (1.003) | 3457 | 1.00000 | 1.07(a) |
| 26 2,2-Dichloropropane | 77 | 3.516 | 3.516 | (0.841) | 3084 | 1.00000 | 1.06(a) |
| 24 2-Butanone | 43 | 3.631 | 3.631 | (0.868) | 1288 | 2.00000 | 1.97(aM) |
| 76 2-Chlorotoluene | 91 | 8.974 | 8.974 | (0.929) | 5281 | 1.00000 | 1.06(a) |
| 52 2-Hexanone | 43 | 7.226 | 7.226 | (0.942) | 2282 | 2.00000 | 5.02 |
| 77 4-Chlorotoluene | 91 | 9.075 | 9.075 | (0.939) | 5926 | 1.00000 | 0.94(a) |
| 82 p-Isopropyltoluene | 119 | 9.655 | 9.655 | (0.999) | 5368 | 1.00000 | 0.94(a) |
| 45 4-Methyl-2-Pentanone | 43 | 6.345 | 6.345 | (0.827) | 3233 | 2.00000 | 1.72(a) |
| 10 Acetone | 43 | 1.969 | 1.969 | (0.471) | 3869 | 2.00000 | (aM) |
| 37 Benzene | 78 | 4.519 | 4.519 | (0.909) | 7894 | 1.00000 | 1.08(a) |
| 74 Bromobenzene | 156 | 8.809 | 8.809 | (0.912) | 2171 | 1.00000 | 1.17(a) |
| 29 Bromochloromethane | 128 | 3.803 | 3.803 | (0.909) | 1019 | 1.00000 | 1.05(a) |
| 39 Bromodichloromethane | 83 | 5.729 | 5.729 | (1.153) | 2575 | 1.00000 | 0.96(aM) |
| 66 Bromoform | 173 | 8.423 | 8.423 | (1.098) | 772 | 1.00000 | 3.70(aM) |
| 6 Bromomethane | 94 | 1.338 | 1.338 | (0.320) | 2749 | 1.00000 | 1.05(aM) |
| 19 Carbon Disulfide | 76 | 2.076 | 2.076 | (0.497) | 10025 | 2.00000 | 2.03(a) |
| 34 Carbon Tetrachloride | 117 | 4.275 | 4.275 | (0.860) | 2614 | 1.00000 | 1.12(aM) |
| 59 Chlorobenzene | 112 | 7.692 | 7.692 | (1.003) | 5993 | 1.00000 | 1.13(a) |
| 7 Chloroethane | 64 | 1.403 | 1.403 | (0.336) | 2747 | 1.00000 | 1.24(aM) |
| 28 Chloroform | 83 | 3.917 | 3.917 | (0.937) | 3452 | 1.00000 | 0.95(a) |
| 3 Chloromethane | 50 | 1.081 | 1.081 | (0.258) | 2614 | 1.00000 | 2.16(aM) |
| 27 cis-1,2-Dichloroethene | 96 | 3.538 | 3.538 | (0.846) | 1838 | 1.00000 | 0.89(a) |
| 46 cis-1,3-Dichloropropene | 75 | 6.166 | 6.166 | (1.241) | 2882 | 1.00000 | 0.99(a) |
| 55 Dibromochloromethane | 129 | 7.183 | 7.183 | (0.937) | 1663 | 1.00000 | 0.91(a) |
| 44 Dibromomethane | 93 | 5.565 | 5.565 | (1.120) | 1182 | 1.00000 | 0.90(a) |
| 2 Dichlorodifluoromethane | 85 | 0.973 | 0.973 | (0.233) | 1836 | 1.00000 | 1.00(a) |
| 61 Ethylbenzene | 106 | 7.800 | 7.800 | (1.017) | 2944 | 1.00000 | 1.10(aH) |
| 91 Hexachlorobutadiene | 225 | 11.481 | 11.481 | (1.188) | 486 | 1.00000 | 3.14(aM) |
| 67 Isopropylbenzene | 105 | 8.566 | 8.566 | (1.117) | 7329 | 1.00000 | 3.46(a) |
| 62 m,p-Xylenes | 106 | 7.907 | 7.907 | (1.031) | 5943 | 2.00000 | 1.85(a) |
| 17 Methylene Chloride | 84 | 2.305 | 2.305 | (0.551) | 2145 | 1.00000 | 1.11(a) |
| 87 n-Butylbenzene | 91 | 9.999 | 9.999 | (1.035) | 5444 | 1.00000 | 4.39(a) |
| 73 n-Propylbenzene | 91 | 8.917 | 8.917 | (0.923) | 8035 | 1.00000 | 0.95(a) |
| 92 Naphthalene | 128 | 11.560 | 11.560 | (1.196) | 1364 | 1.00000 | 3.21(a) |
| 63 o-Xylene | 106 | 8.244 | 8.244 | (1.075) | 2891 | 1.00000 | 0.90(a) |
| 81 sec-Butylbenzene | 105 | 9.526 | 9.526 | (0.986) | 7265 | 1.00000 | 3.59(a) |
| 64 Styrene | 104 | 8.265 | 8.265 | (1.078) | 4725 | 1.00000 | 0.88(a) |
| 78 tert-Butylbenzene | 119 | 9.340 | 9.340 | (0.967) | 4630 | 1.00000 | 3.41(a) |
| 56 Tetrachloroethene | 164 | 6.933 | 6.933 | (0.904) | 1480 | 1.00000 | 1.09(a) |
| 50 Toluene | 91 | 6.453 | 6.453 | (0.841) | 10292 | 1.00000 | 1.14(aM) |
| 20 trans-1,2-Dichloroethene | 96 | 2.535 | 2.535 | (0.606) | 1705 | 1.00000 | 0.97(a) |
| 51 trans-1,3-Dichloropropene | 75 | 6.689 | 6.689 | (1.346) | 2250 | 1.00000 | 0.88(a) |
| 38 Trichloroethene | 130 | 5.206 | 5.206 | (1.048) | 1646 | 1.00000 | 0.95(a) |
| 8 Trichlorofluoromethane | 101 | 1.561 | 1.561 | (0.373) | 5994 | 1.00000 | 1.13(a) |
| 5 Vinyl Chloride | 62 | 1.138 | 1.138 | (0.272) | 3389 | 1.00000 | 1.09(aM) |

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.

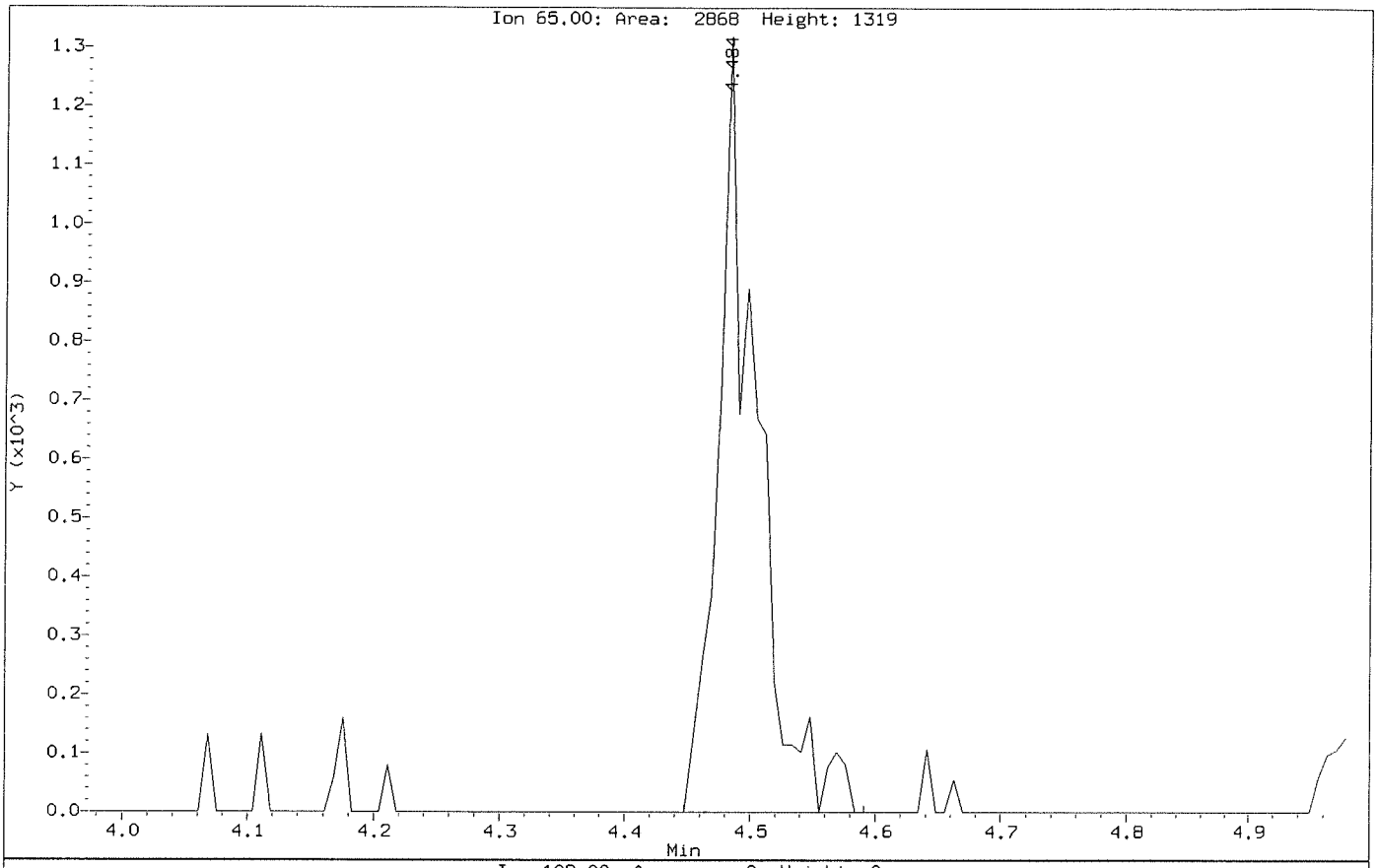


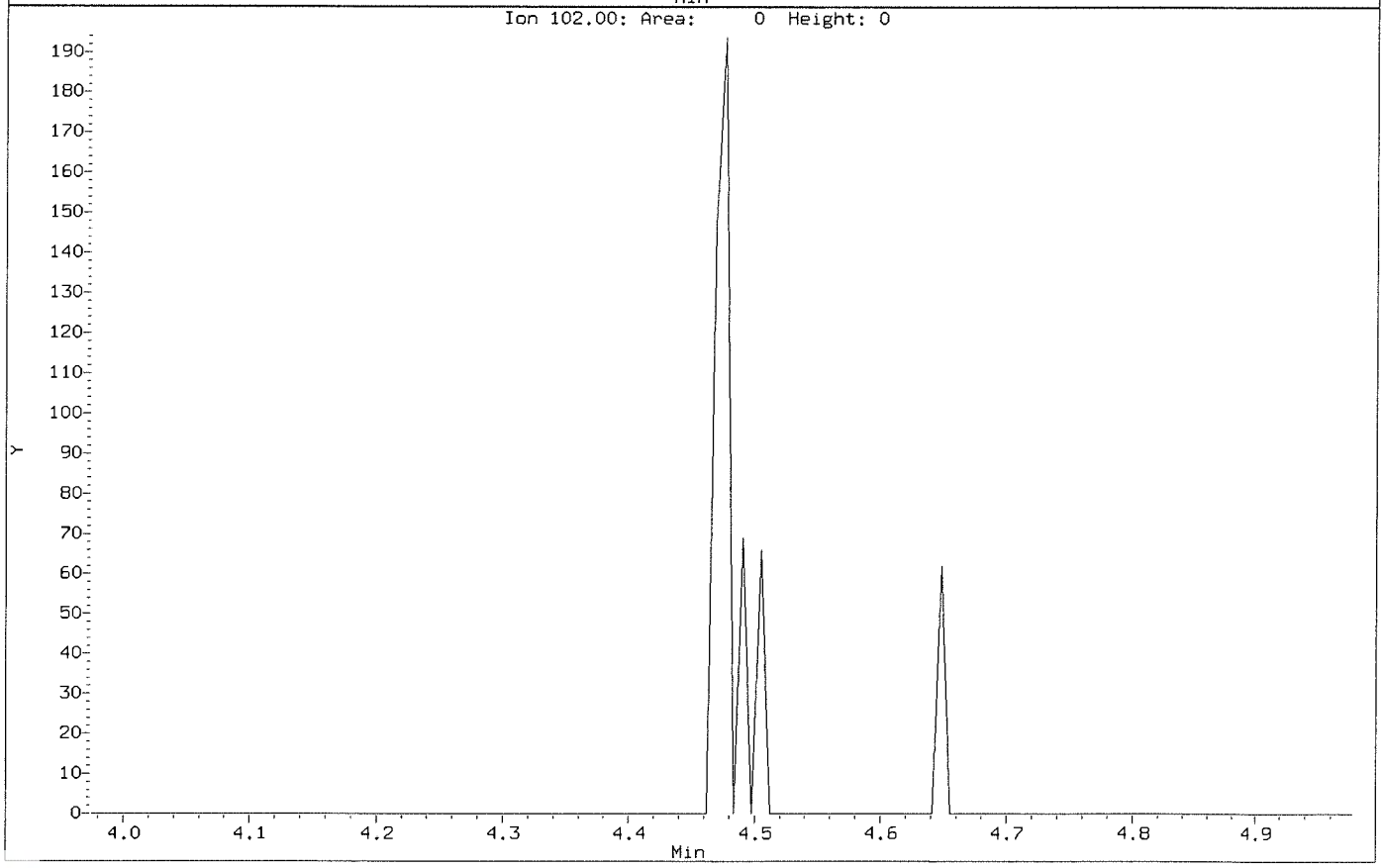

Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110304.D
Date : 03-NOV-2020 13:04
Client ID: VSTD001
Sample Info: VSTD001;VSTD001;1;3;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110304.D
Injection Date: 03-NOV-2020 13:04
Instrument: voa6.i
Client Sample ID: VSTD001

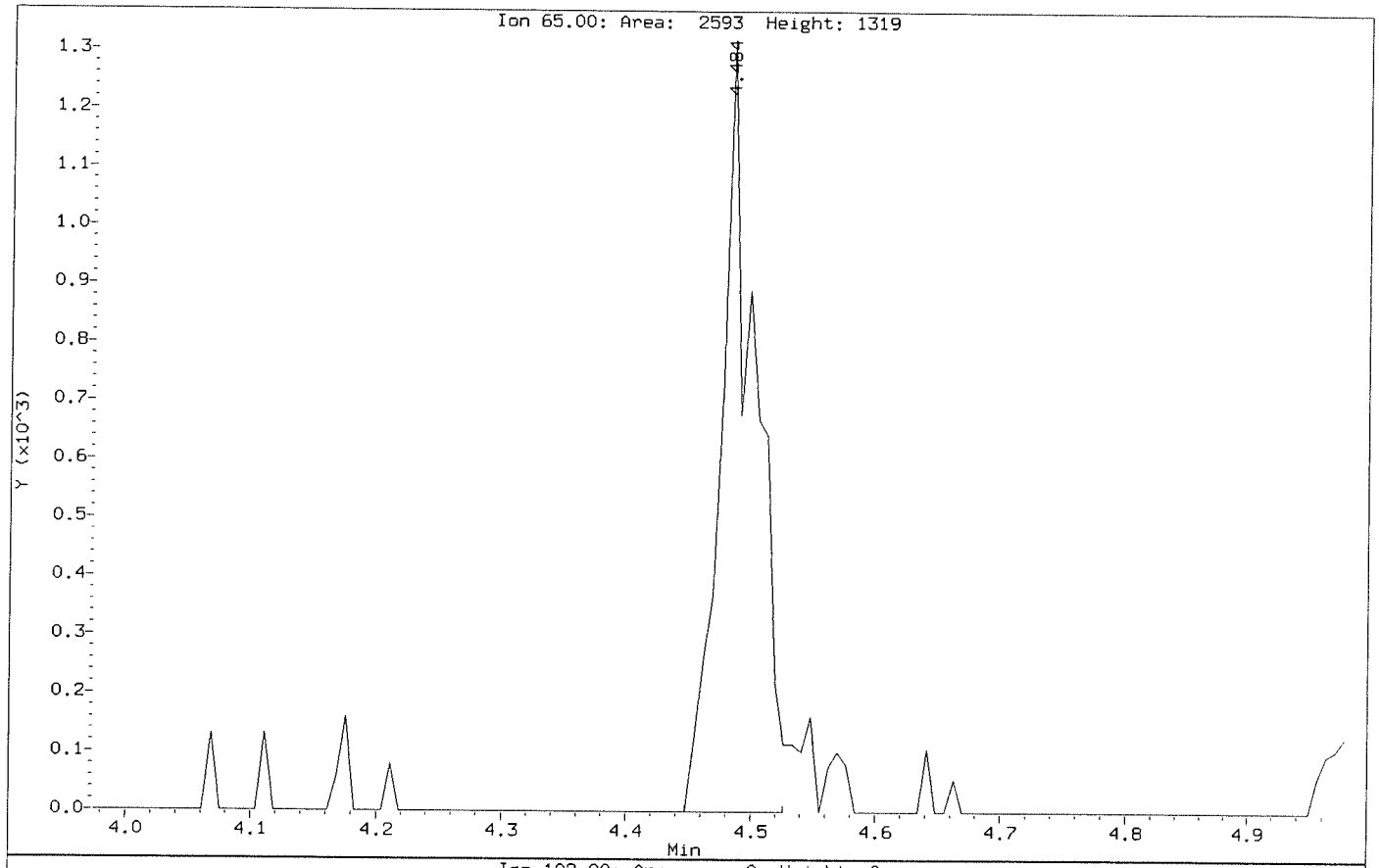
Compound: 1,2-Dichloroethane-d4
CAS Number: 17060-07-0

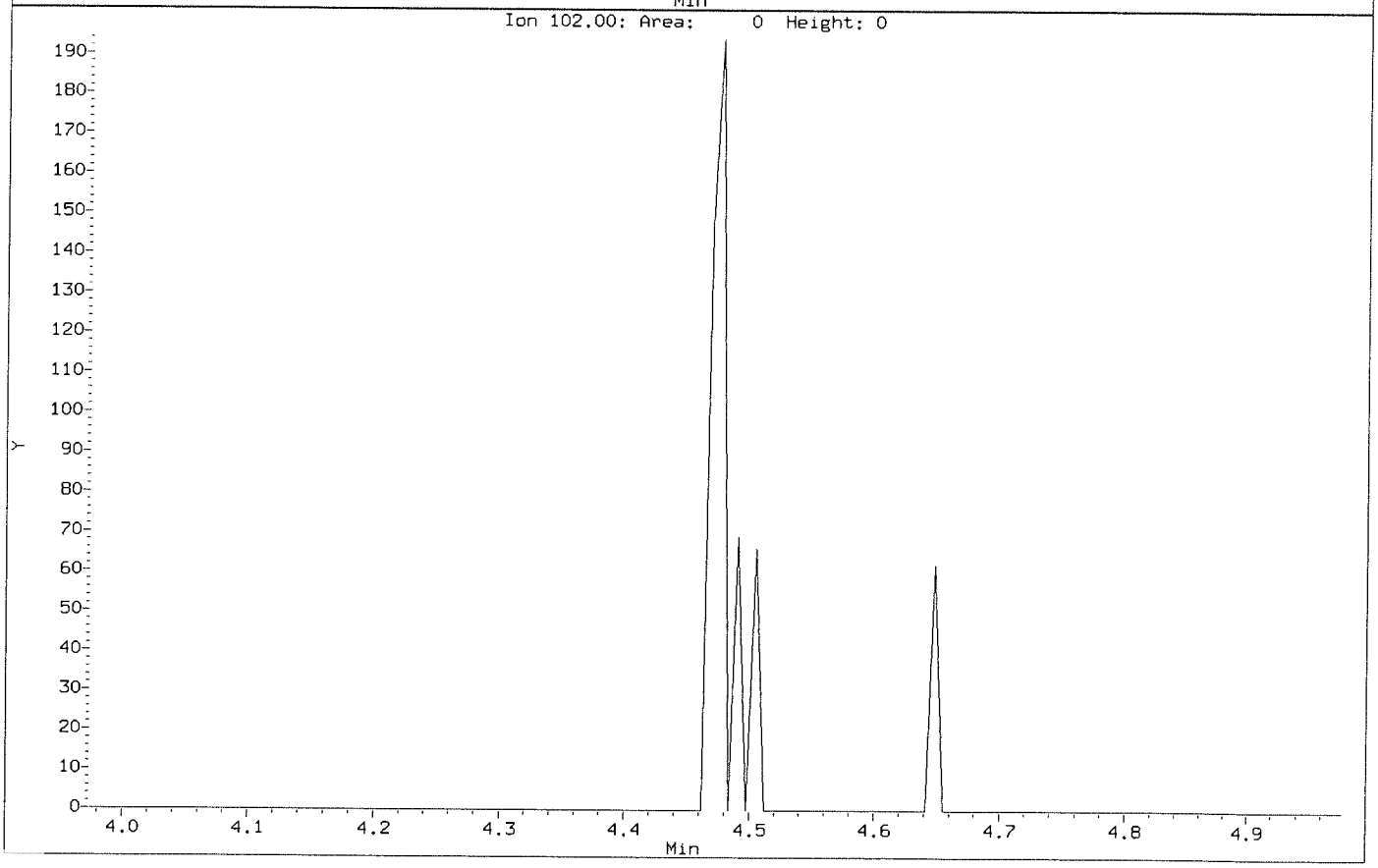


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110304.D
Injection Date: 03-NOV-2020 13:04
Instrument: voa6.i
Client Sample ID: VSTD001

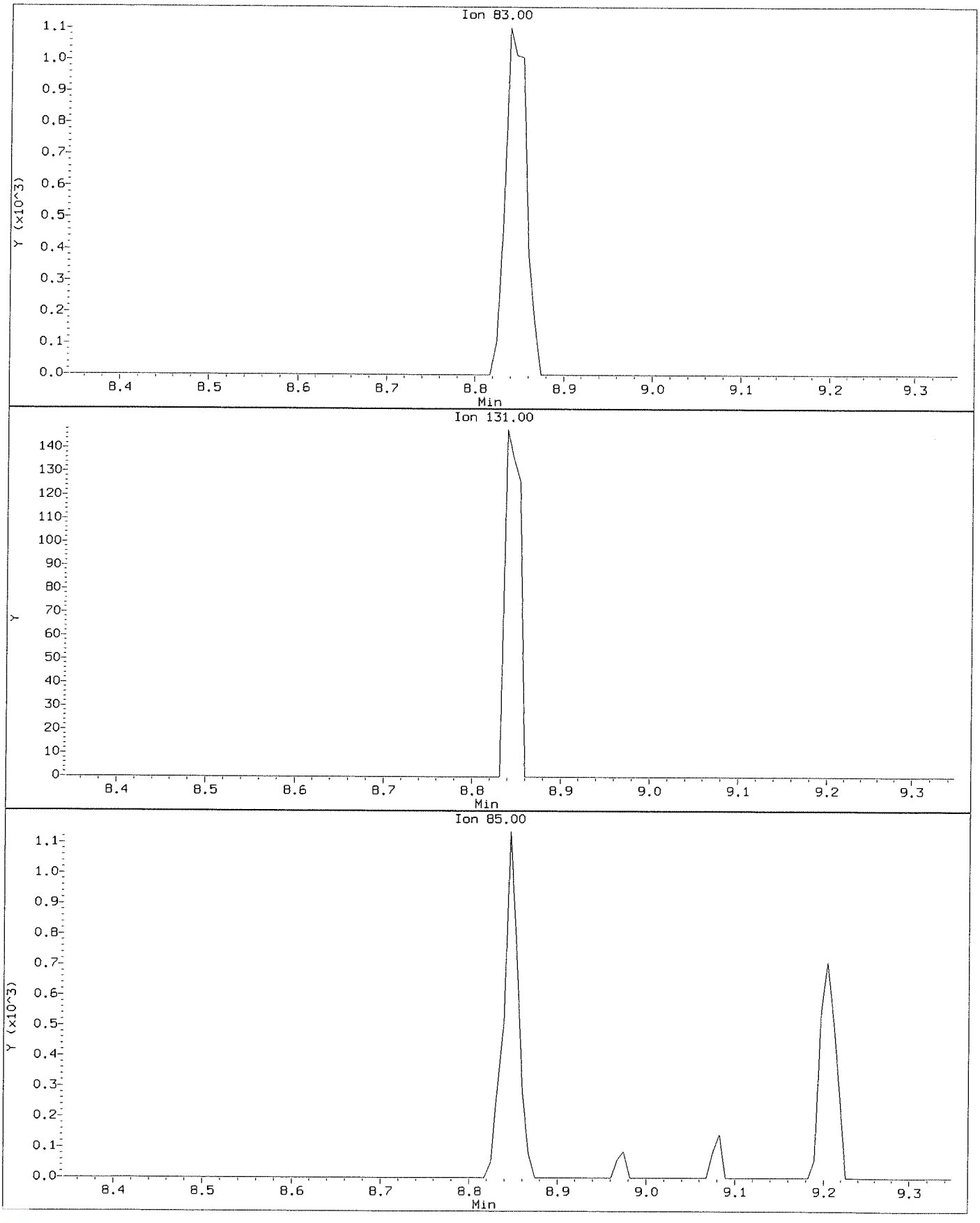
Compound: 1,2-Dichloroethane-d4
CAS Number: 17060-07-0



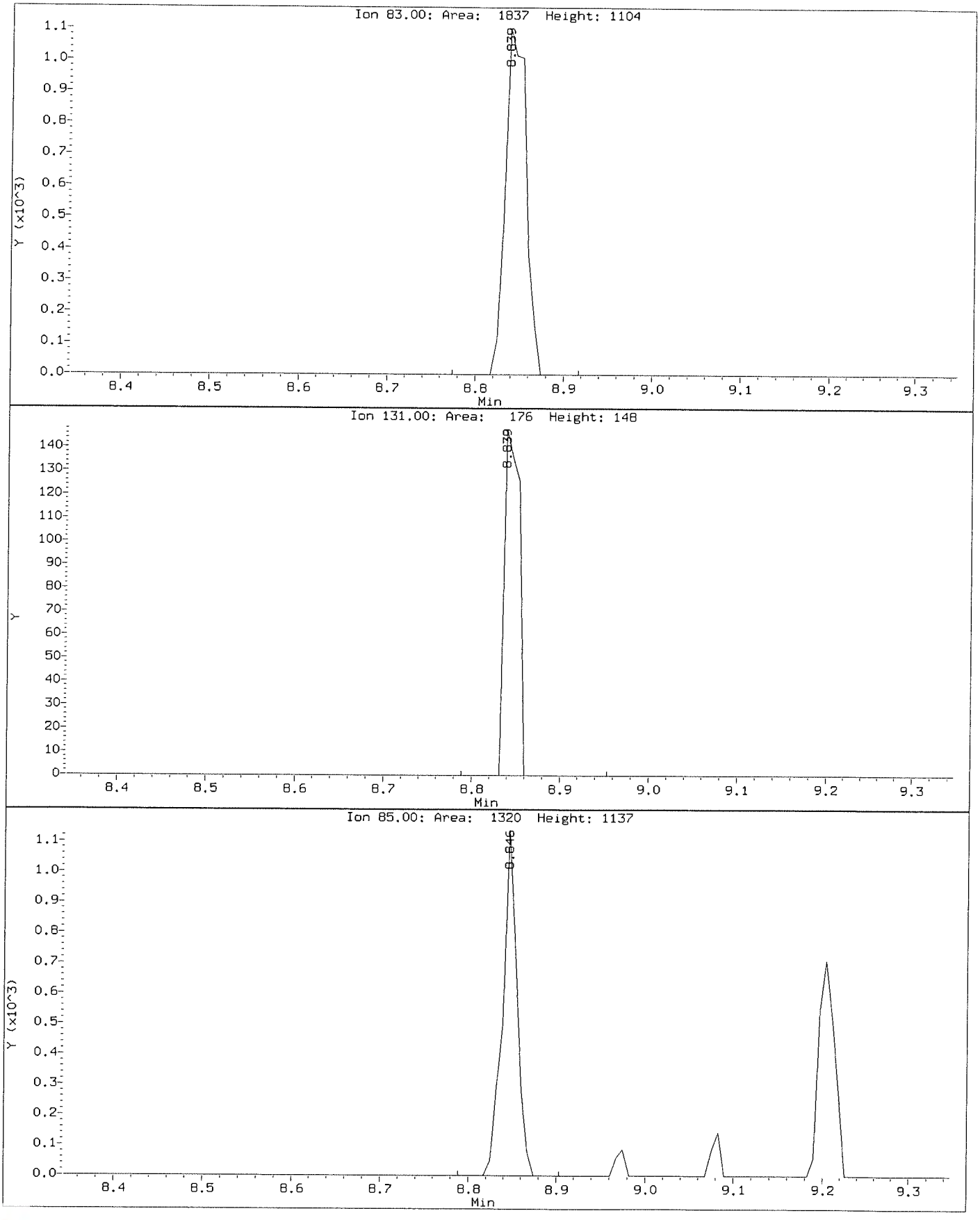
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110304.D
Injection Date: 03-NOV-2020 13:04
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



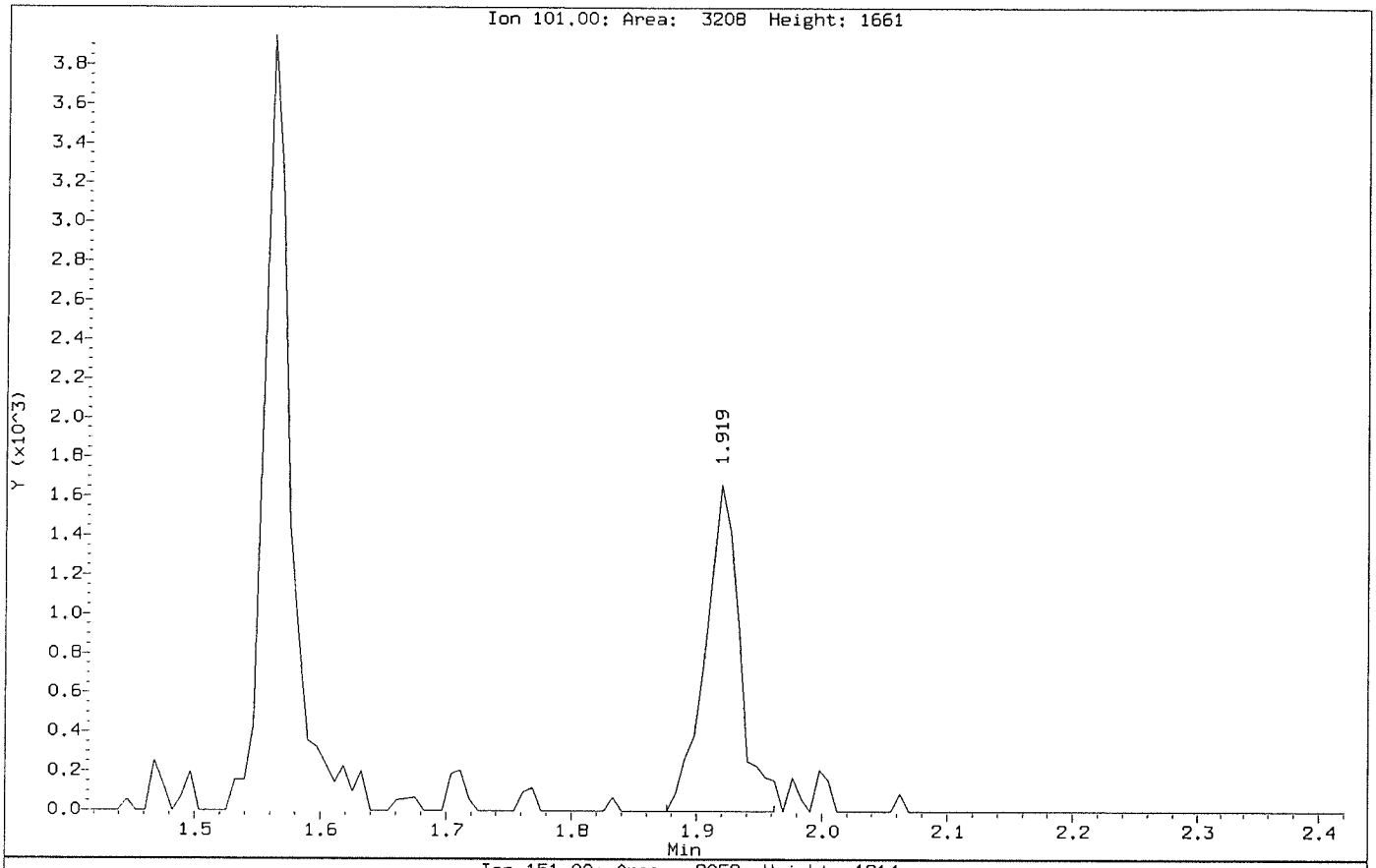
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110304.D
Injection Date: 03-NOV-2020 13:04
Instrument: voa6.i
Client Sample ID: VSTD001

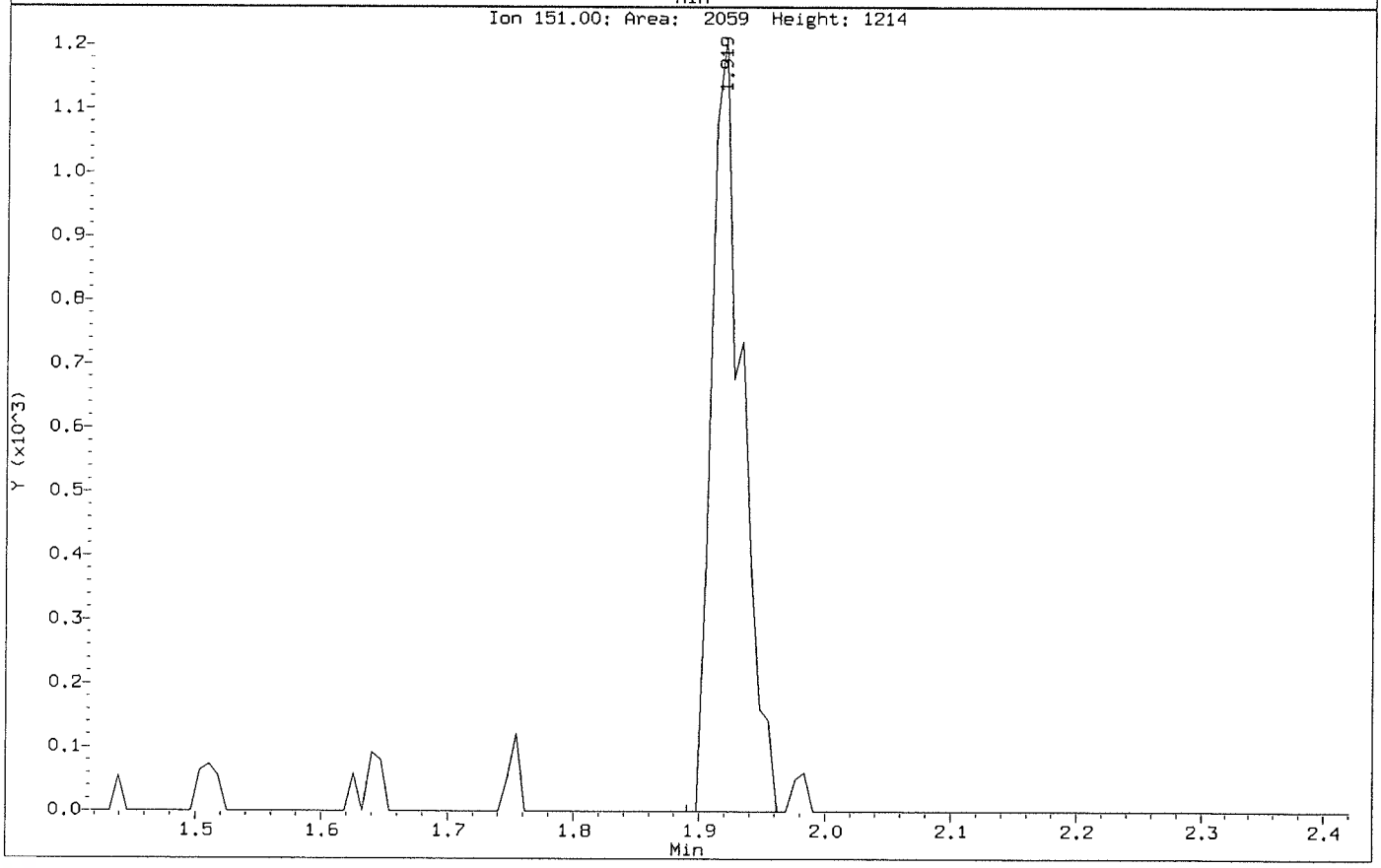
Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110304.D
Injection Date: 03-NOV-2020 13:04
Instrument: voa6.i
Client Sample ID: VSTD001

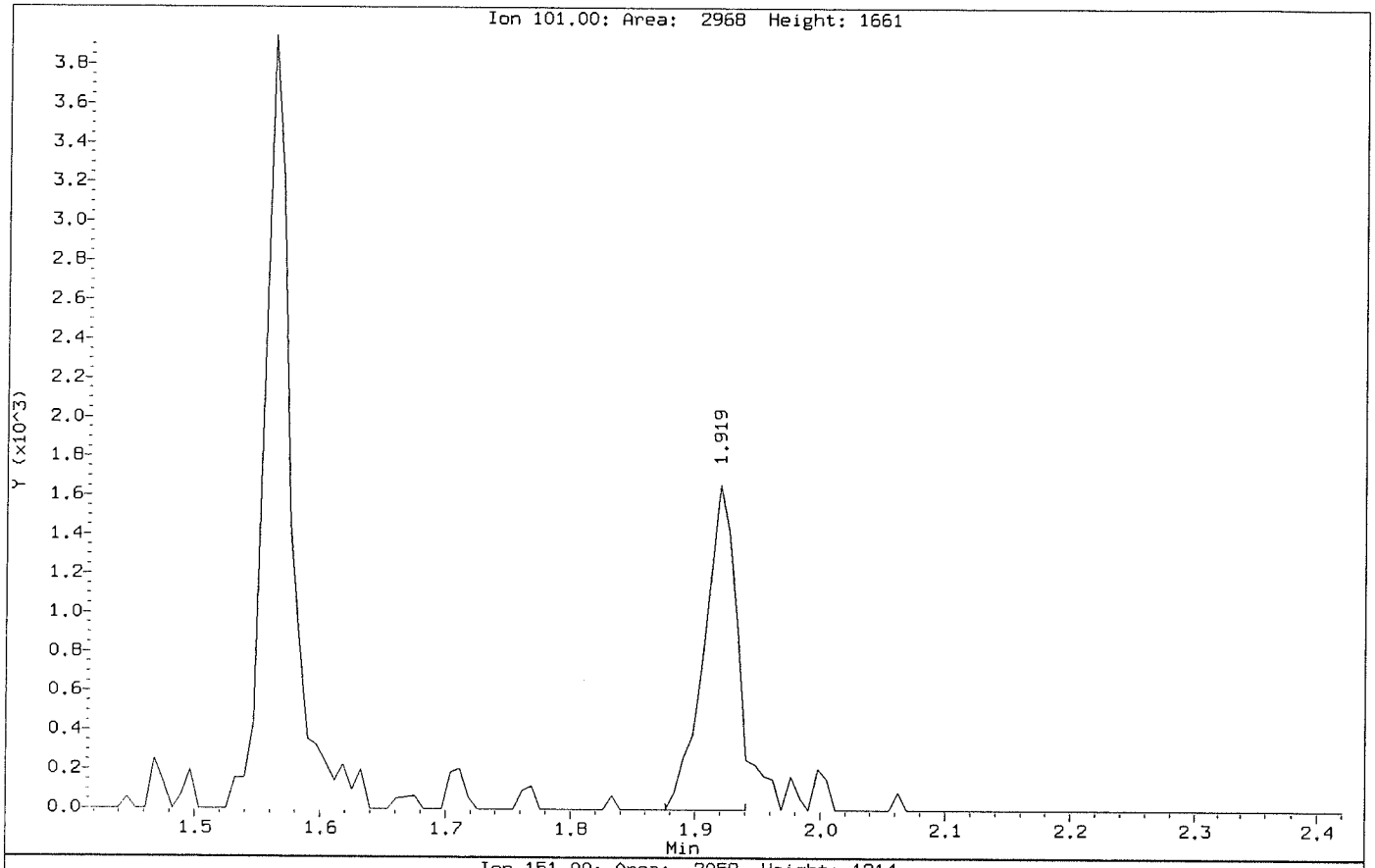
Compound: Freon TF
CAS Number: 76-13-1

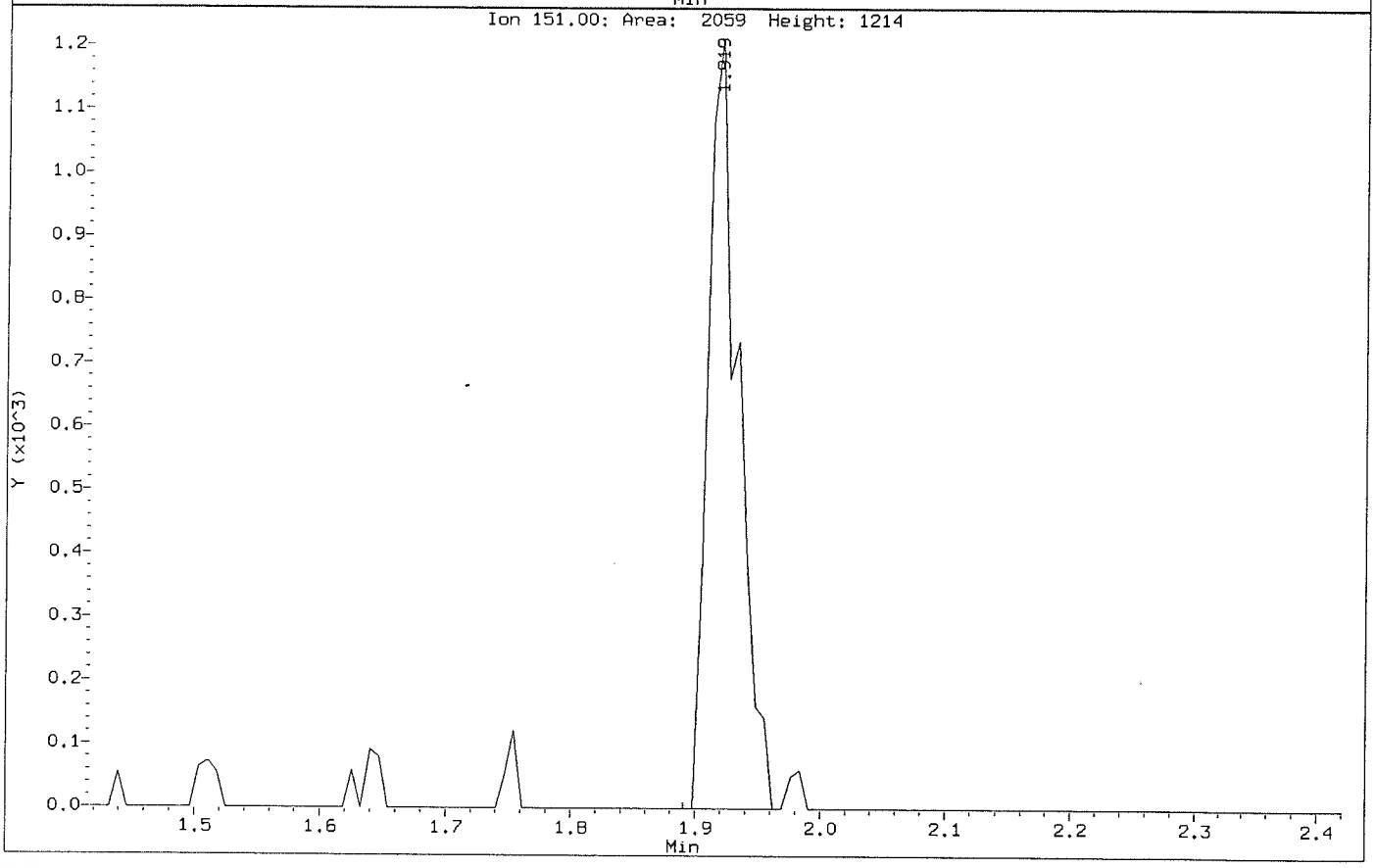


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110304.D
Injection Date: 03-NOV-2020 13:04
Instrument: voa6.i
Client Sample ID: VSTD001

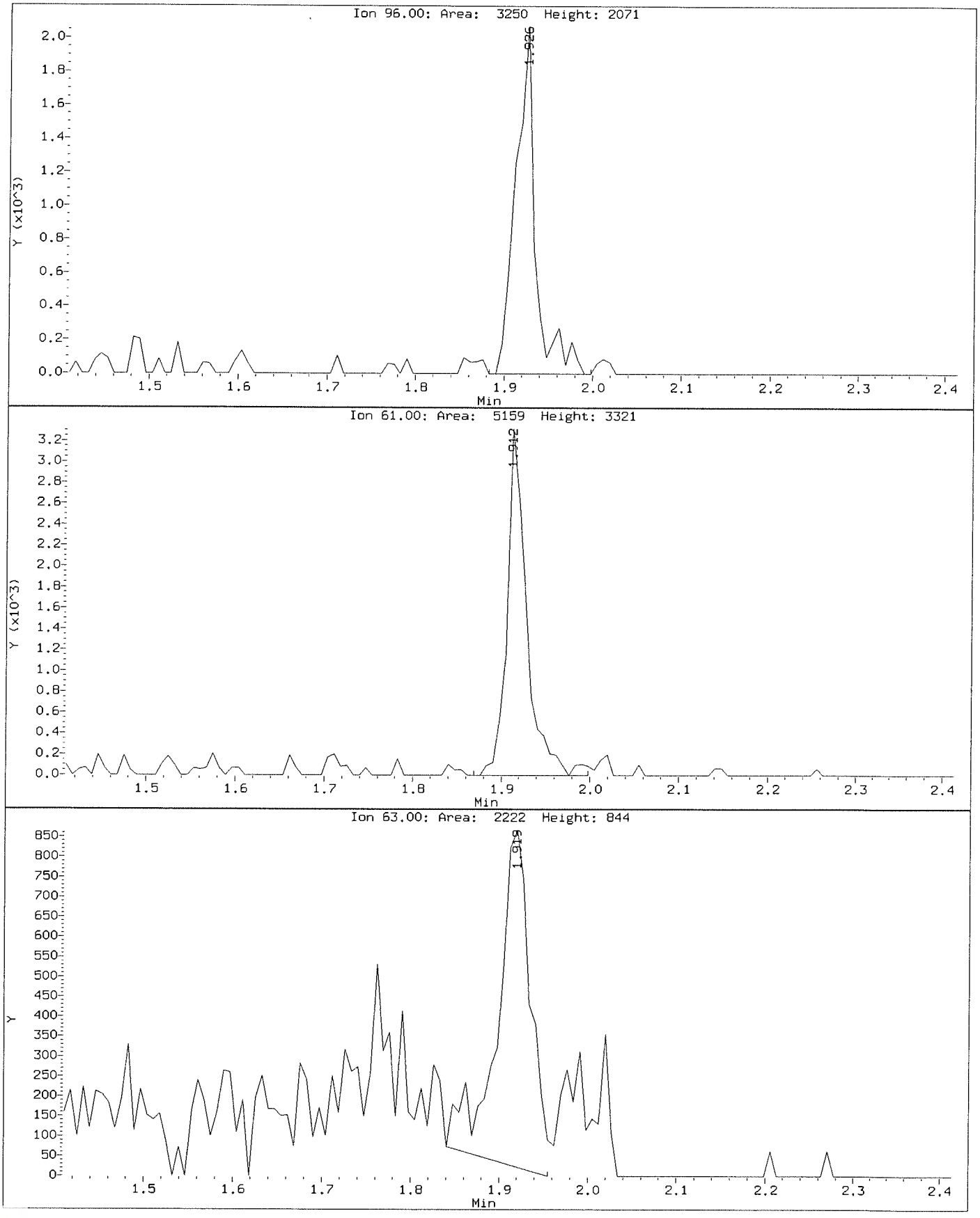
Compound: Freon TF
CAS Number: 76-13-1



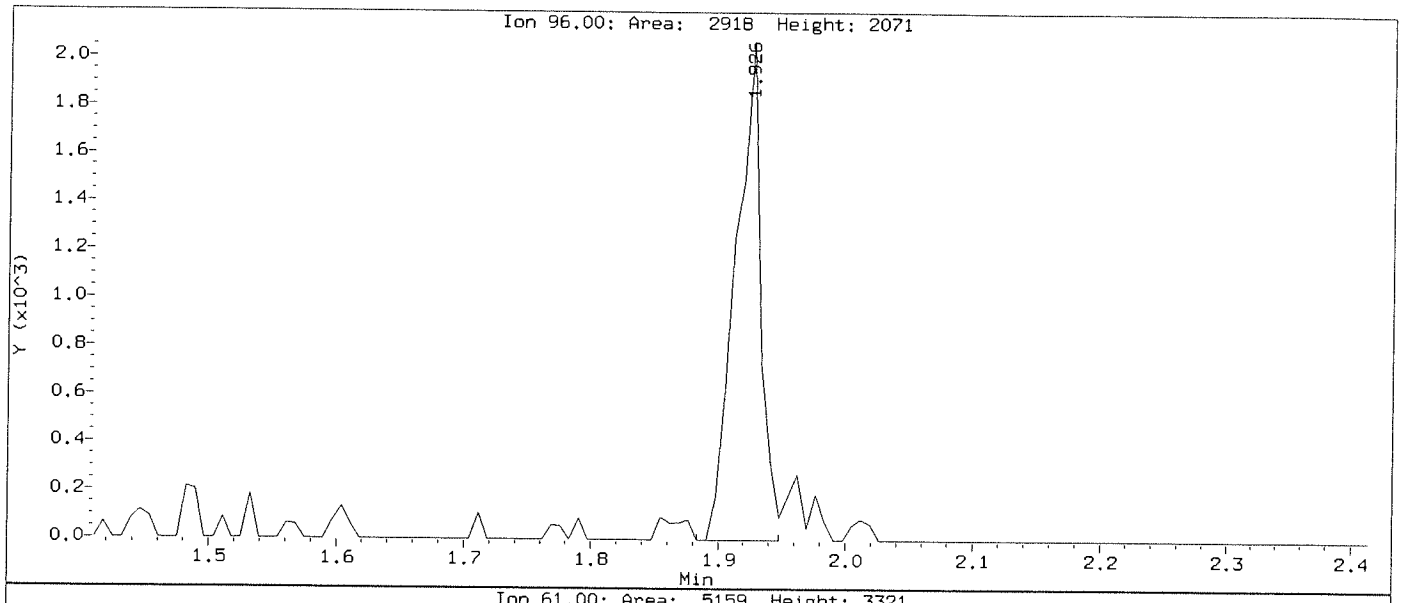
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110304.D
Injection Date: 03-NOV-2020 13:04
Instrument: voa6.i
Client Sample ID: VSTD001

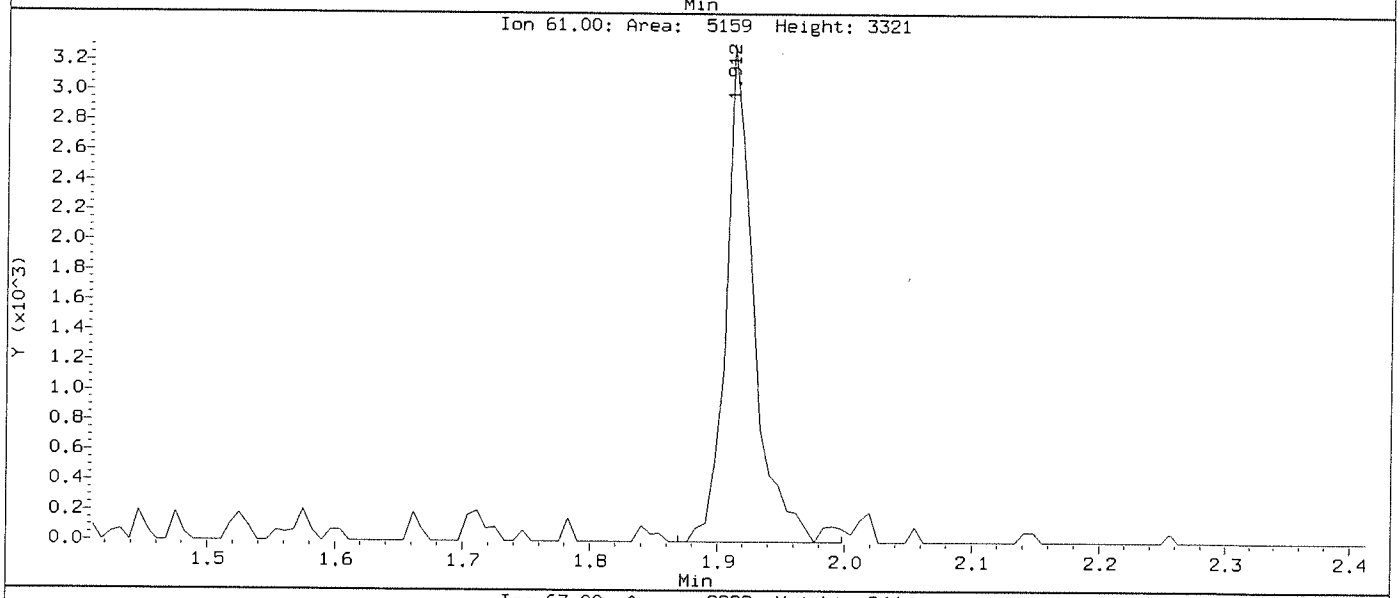
Compound: 1,1-Dichloroethene
CAS Number: 75-35-4

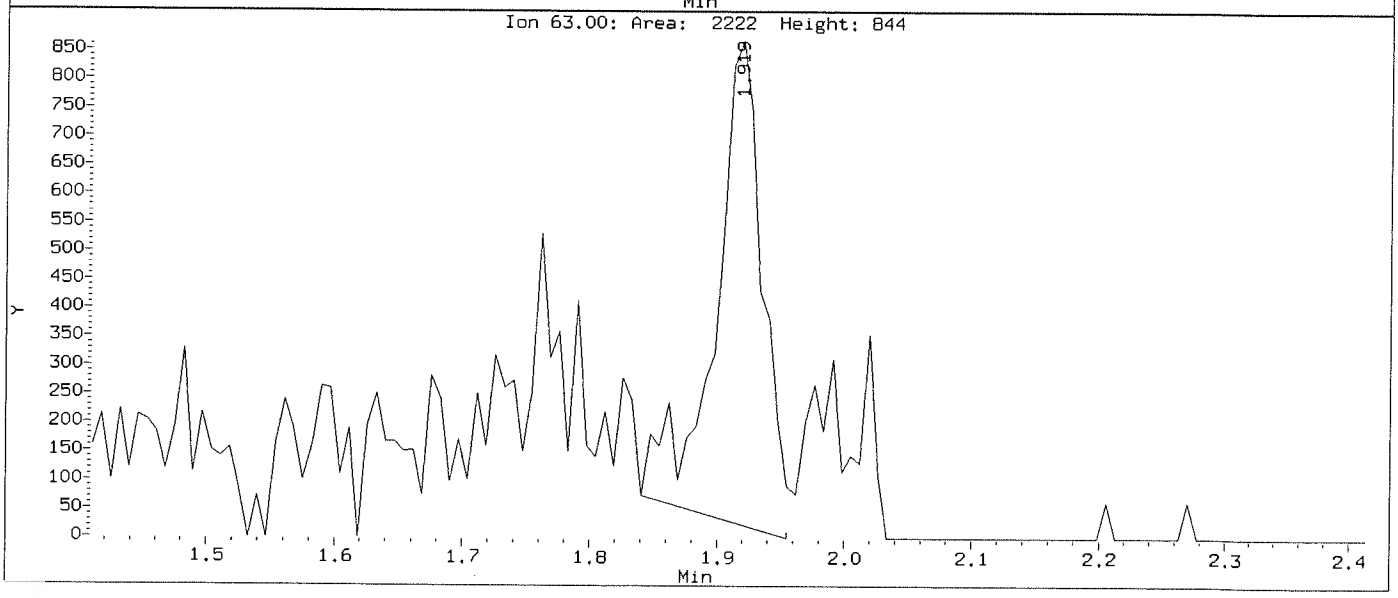


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110304.D
Injection Date: 03-NOV-2020 13:04
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,1-Dichloroethene
CAS Number: 75-35-4

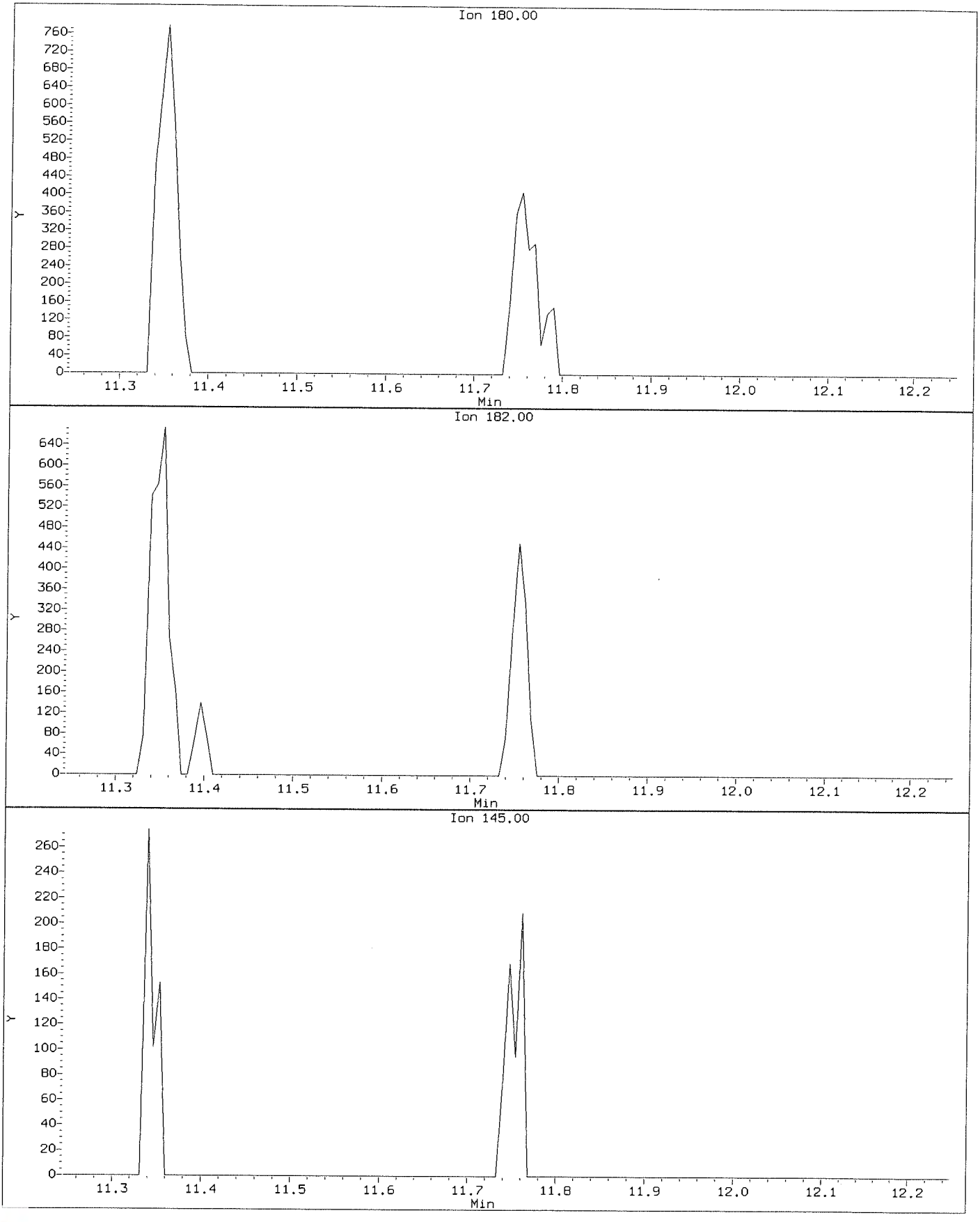


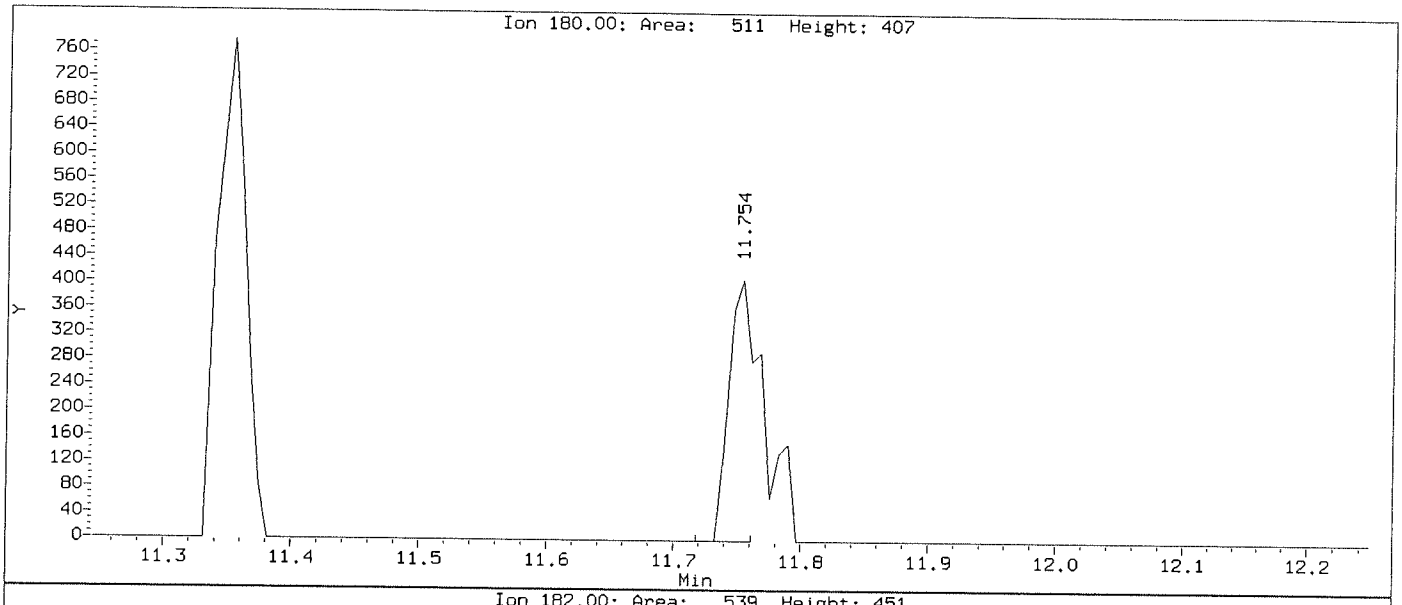
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110304.D
Injection Date: 03-NOV-2020 13:04
Instrument: voa6.i
Client Sample ID: VSTD001

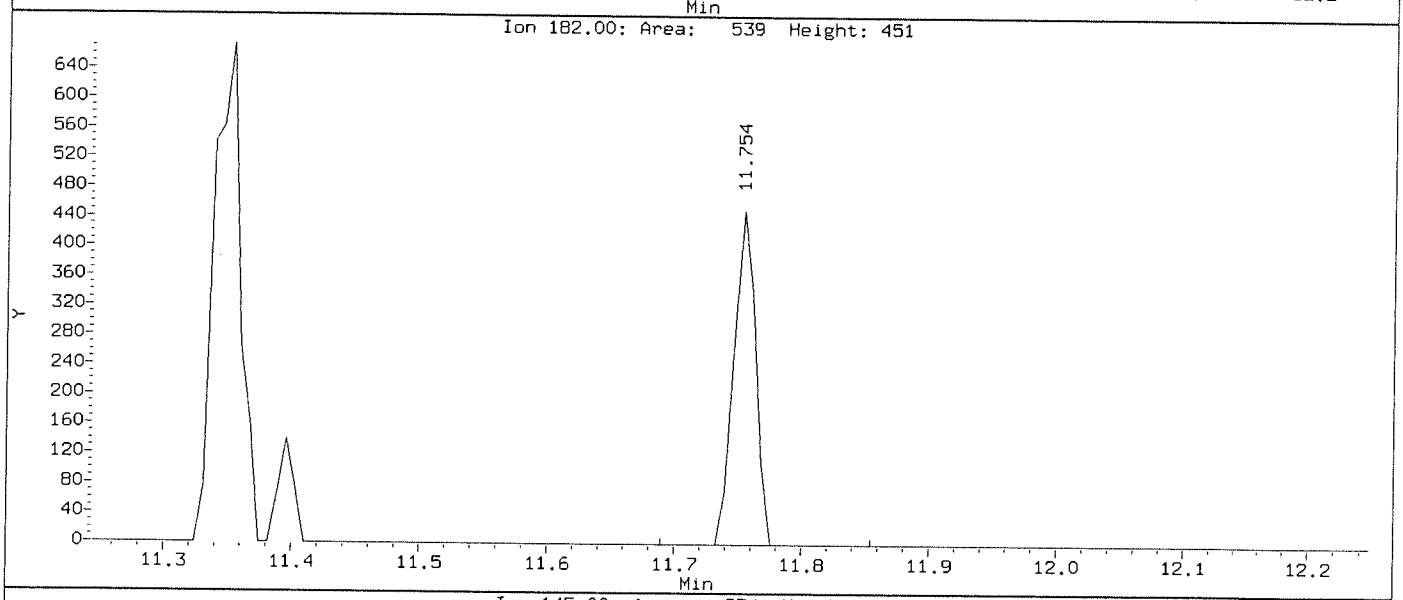
Compound: 1,2,3-Trichlorobenzene
CAS Number: 87-61-6

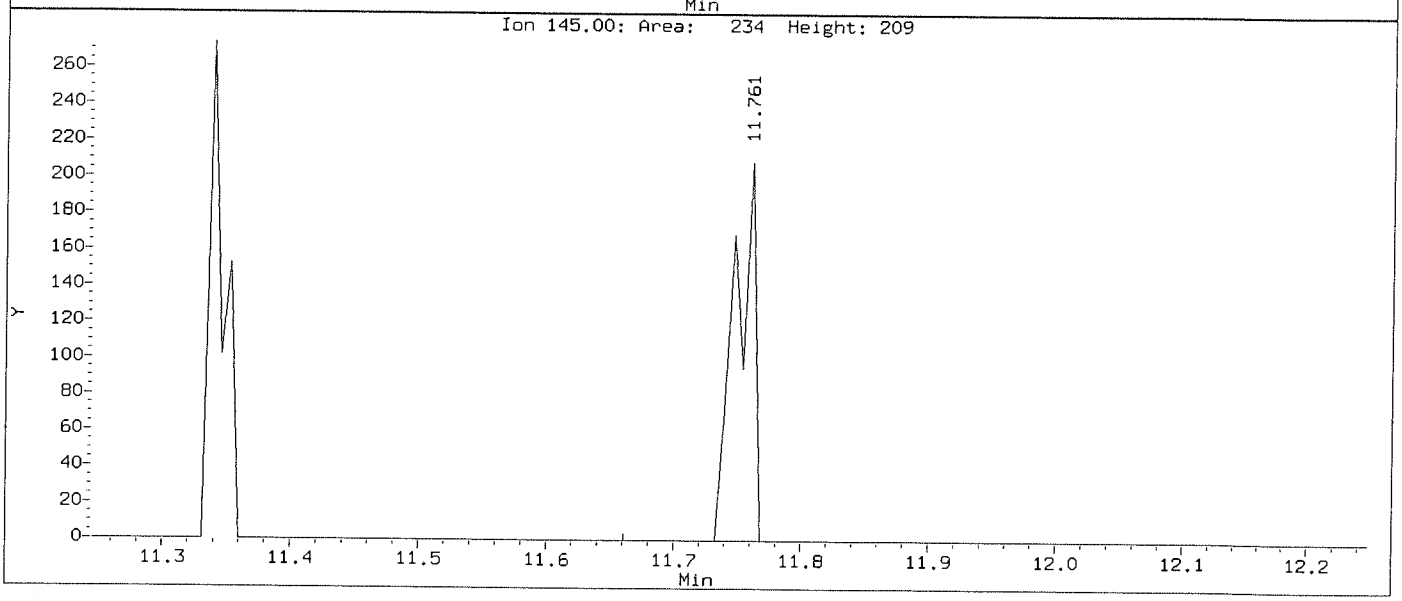


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110304.D
Injection Date: 03-NOV-2020 13:04
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2,3-Trichlorobenzene
CAS Number: 87-61-6

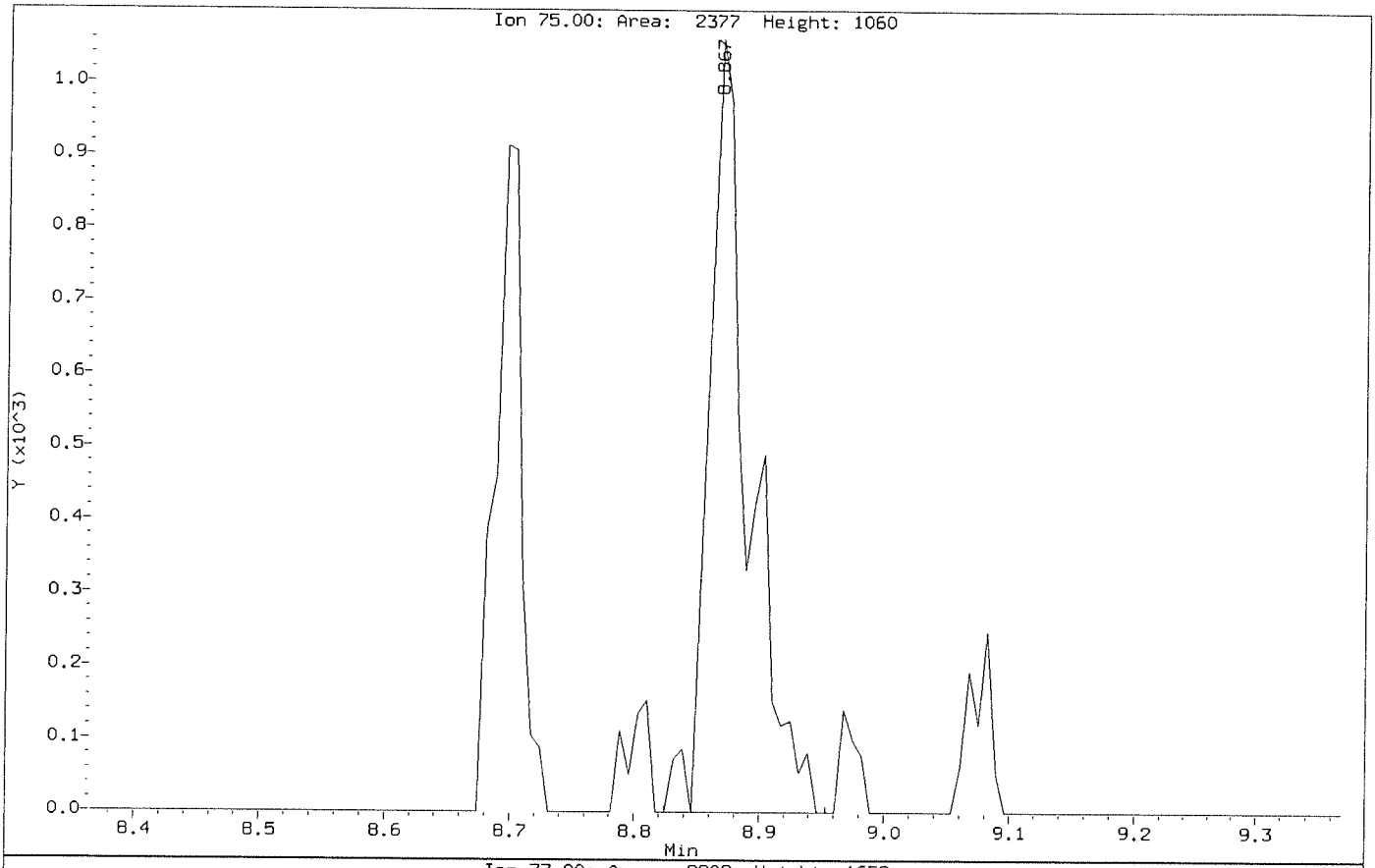


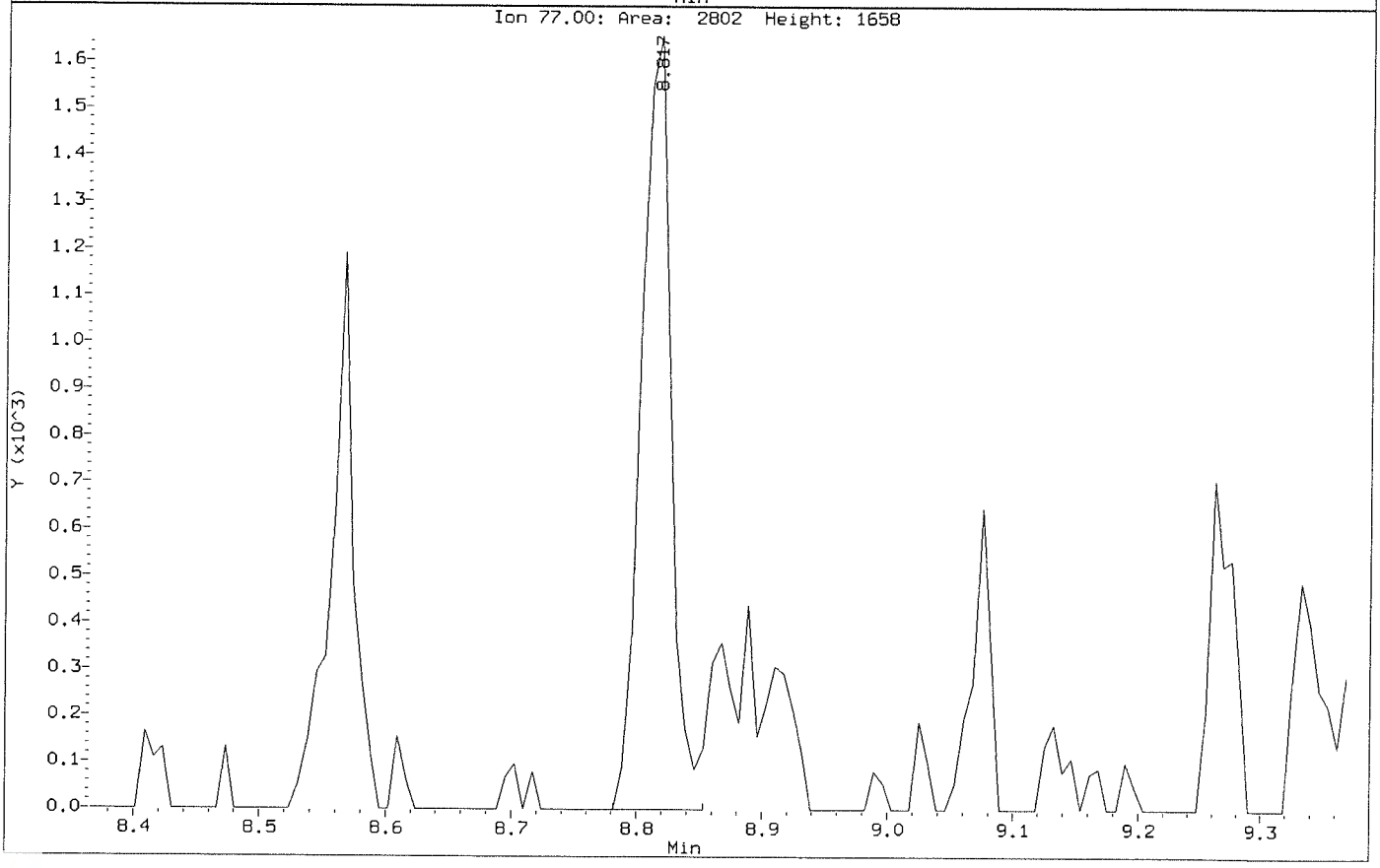



Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110304.D
Injection Date: 03-NOV-2020 13:04
Instrument: voa6.i
Client Sample ID: VSTD001

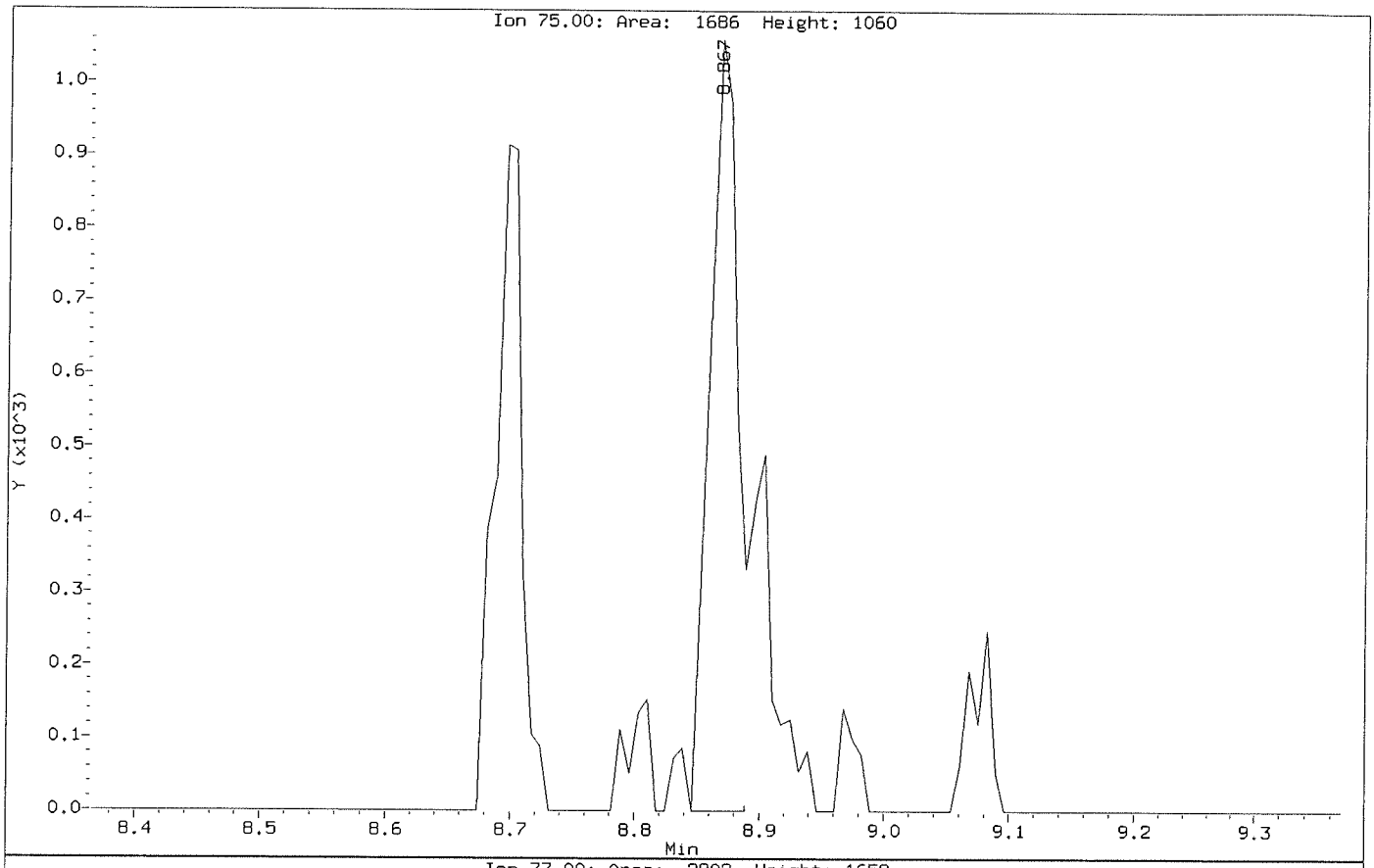
Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4

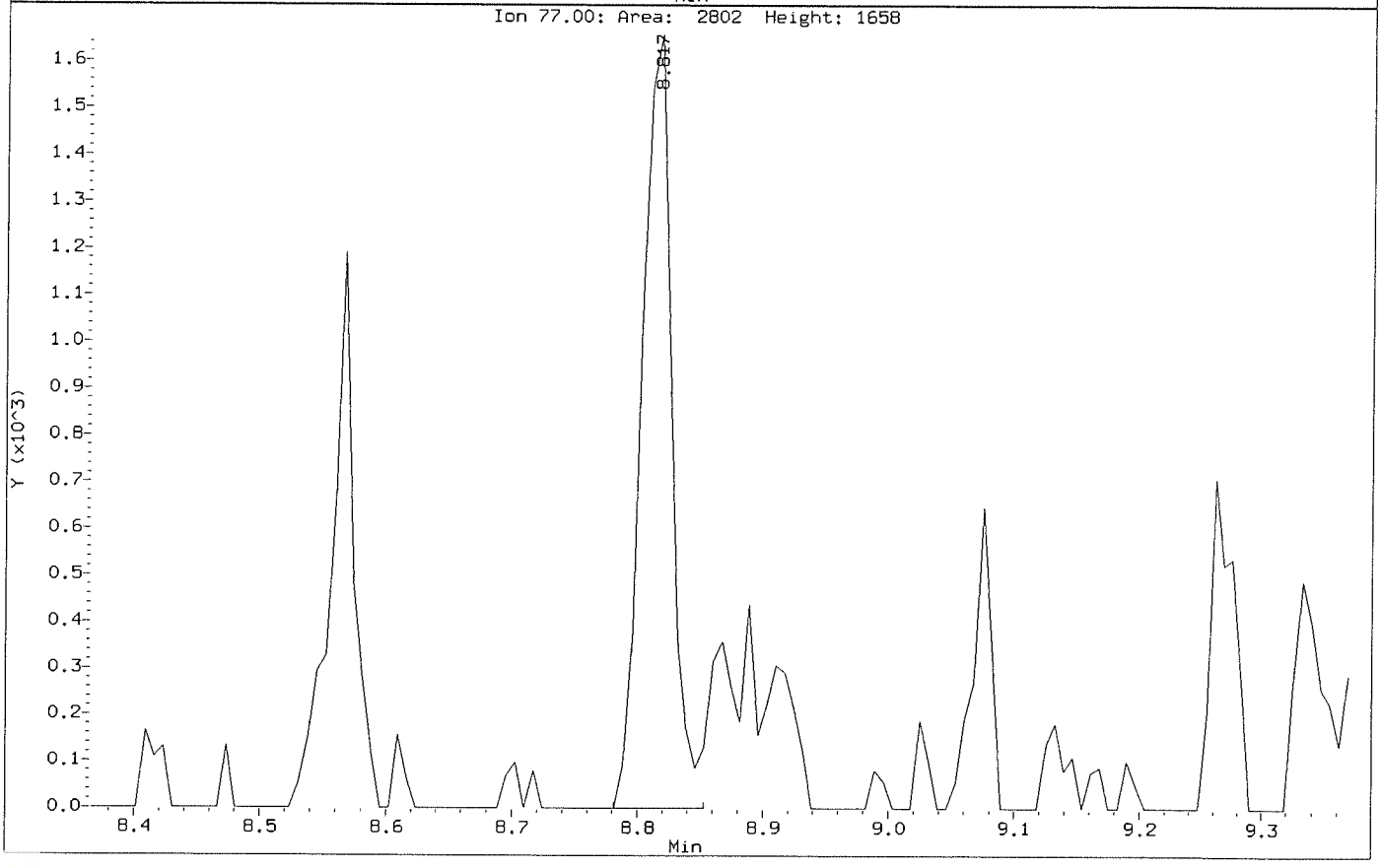


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110304.D
Injection Date: 03-NOV-2020 13:04
Instrument: voa6.i
Client Sample ID: VSTD001

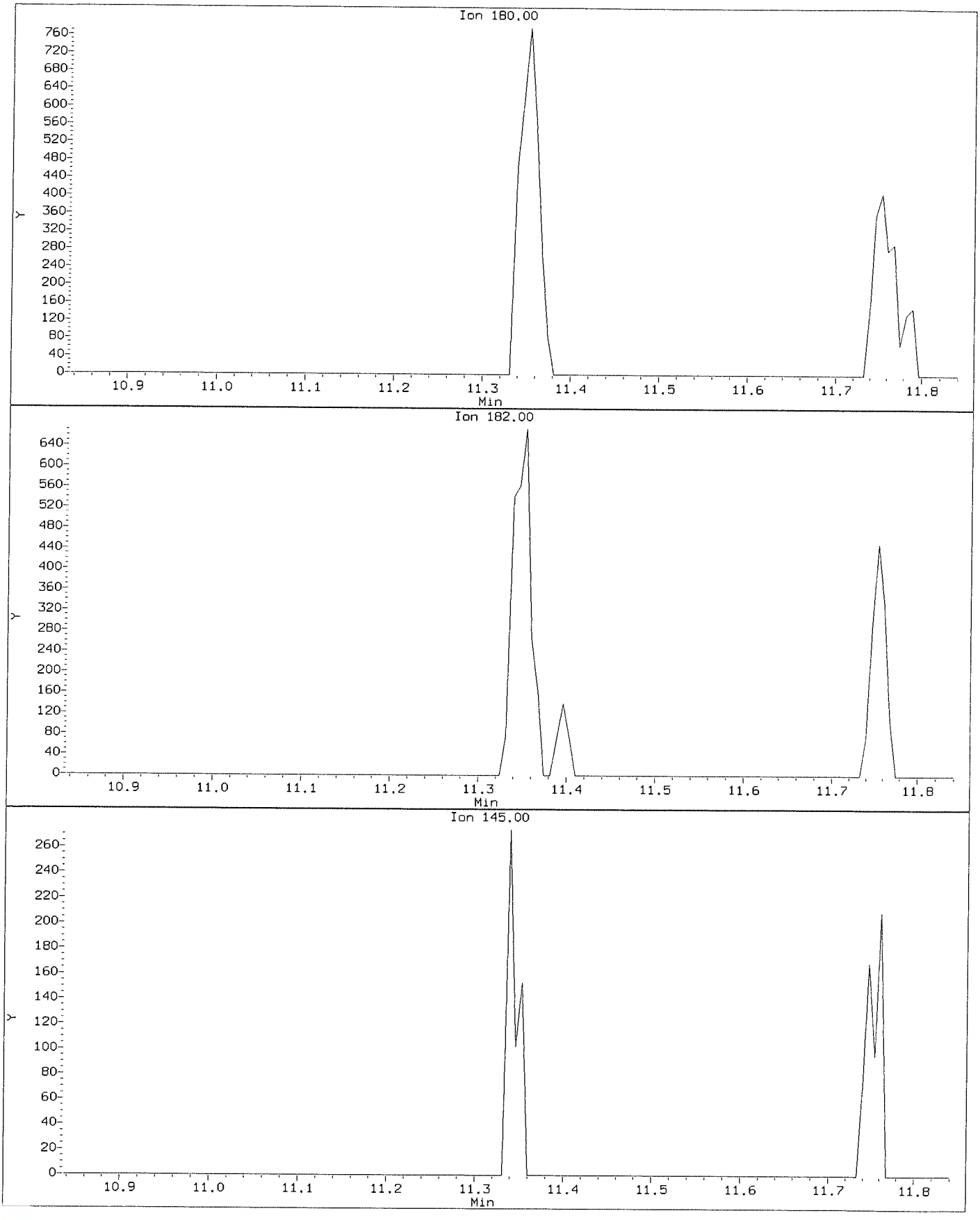
Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



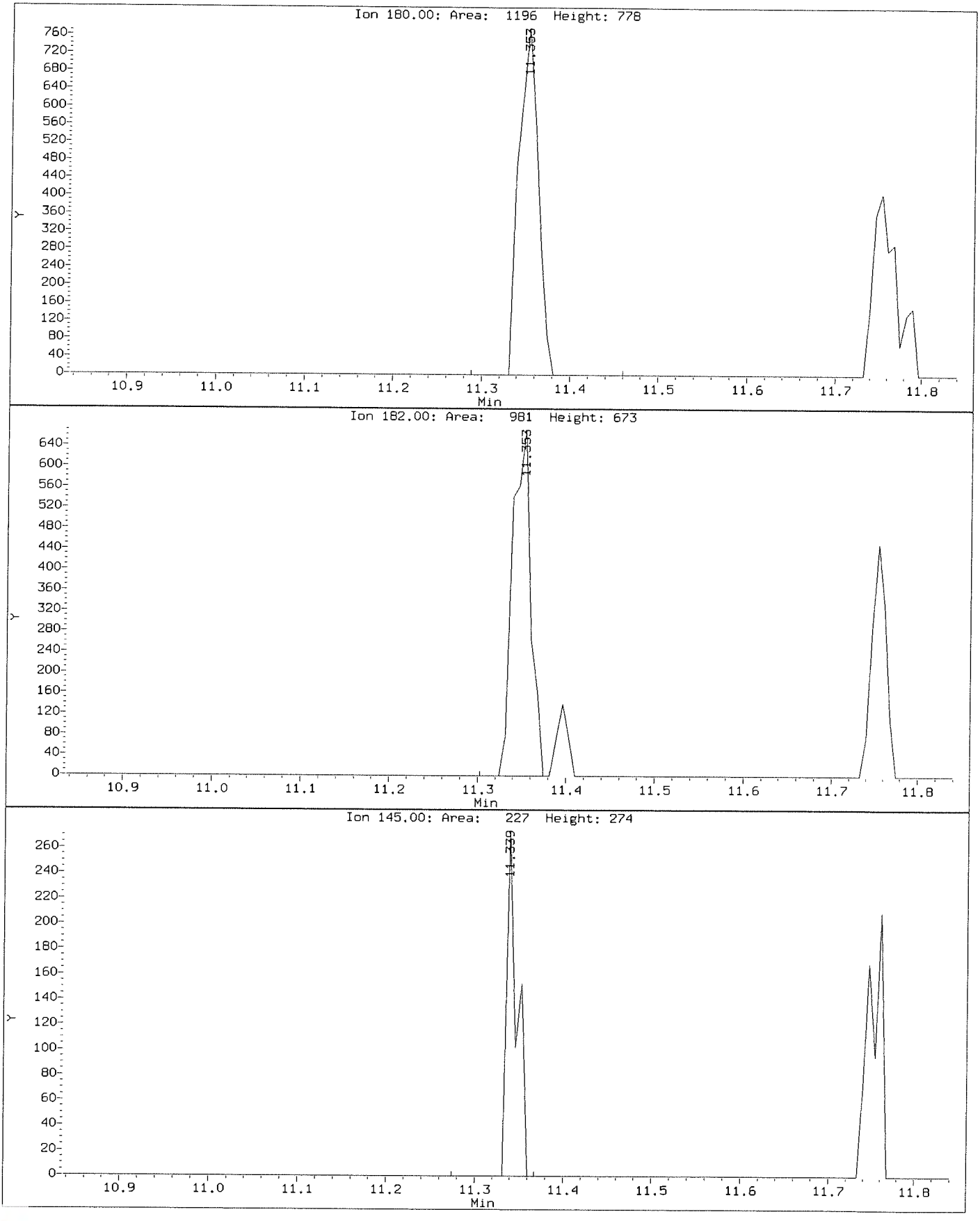
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110304.D
Injection Date: 03-NOV-2020 13:04
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1



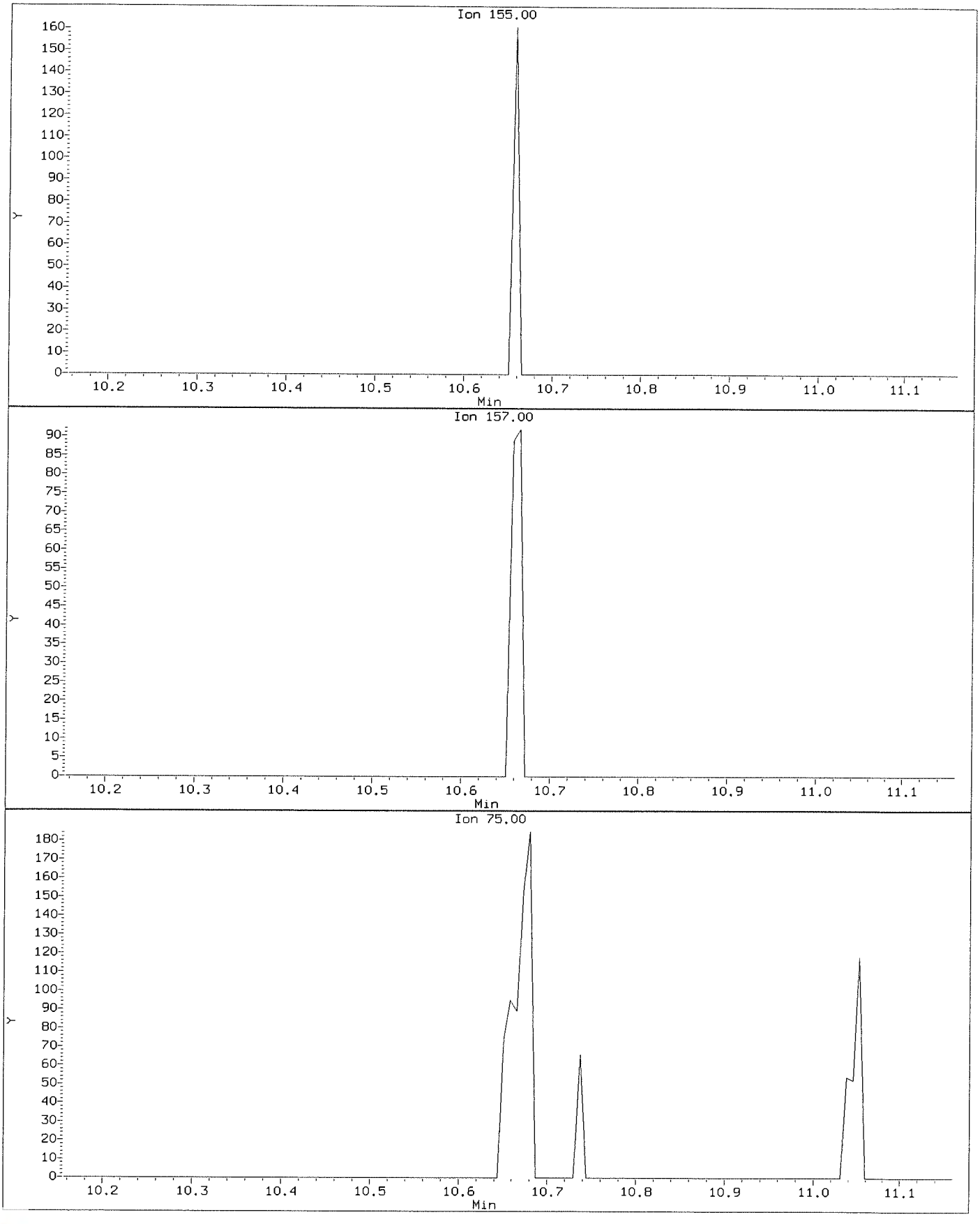
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110304.D
Injection Date: 03-NOV-2020 13:04
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1



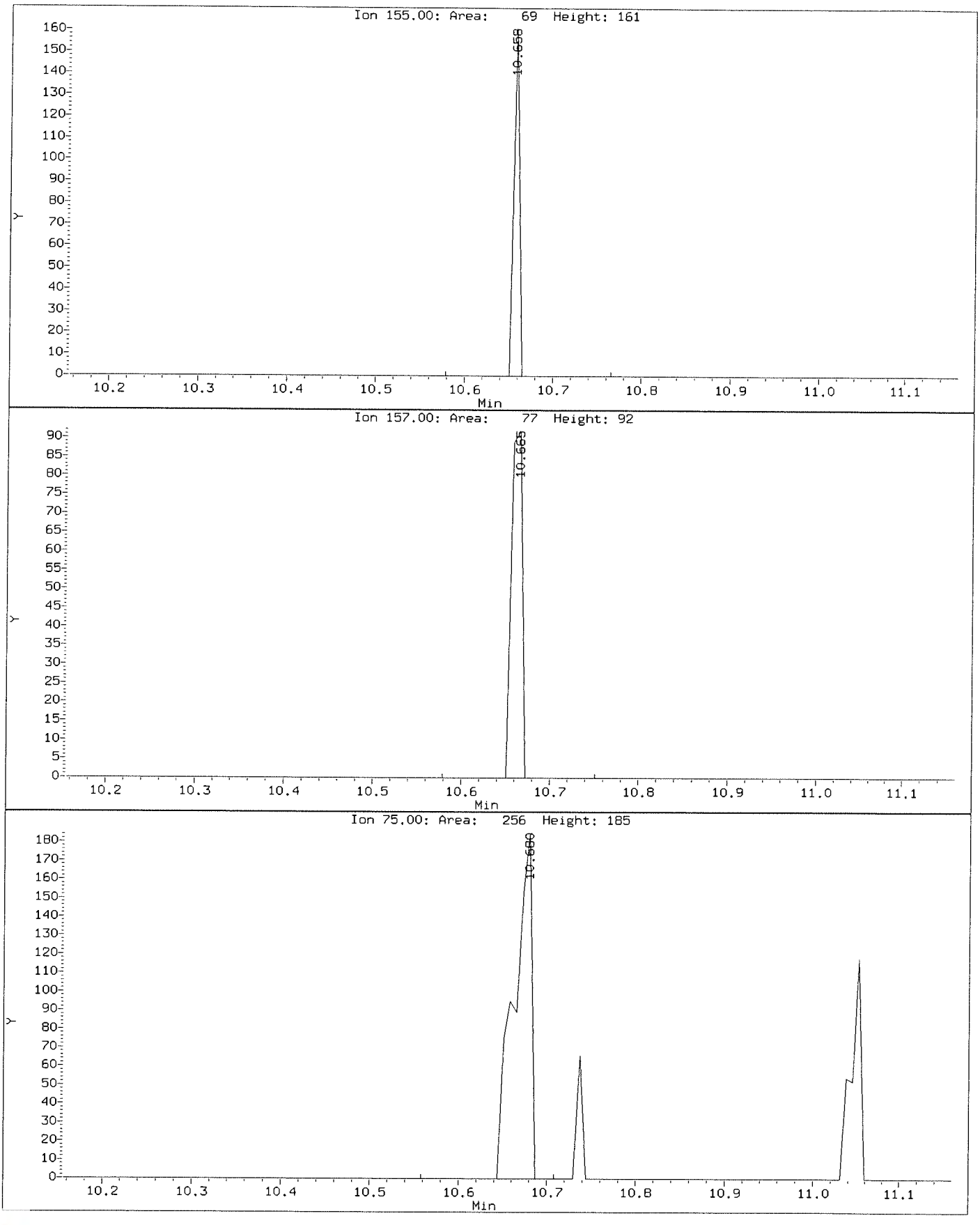
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110304.D
Injection Date: 03-NOV-2020 13:04
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8



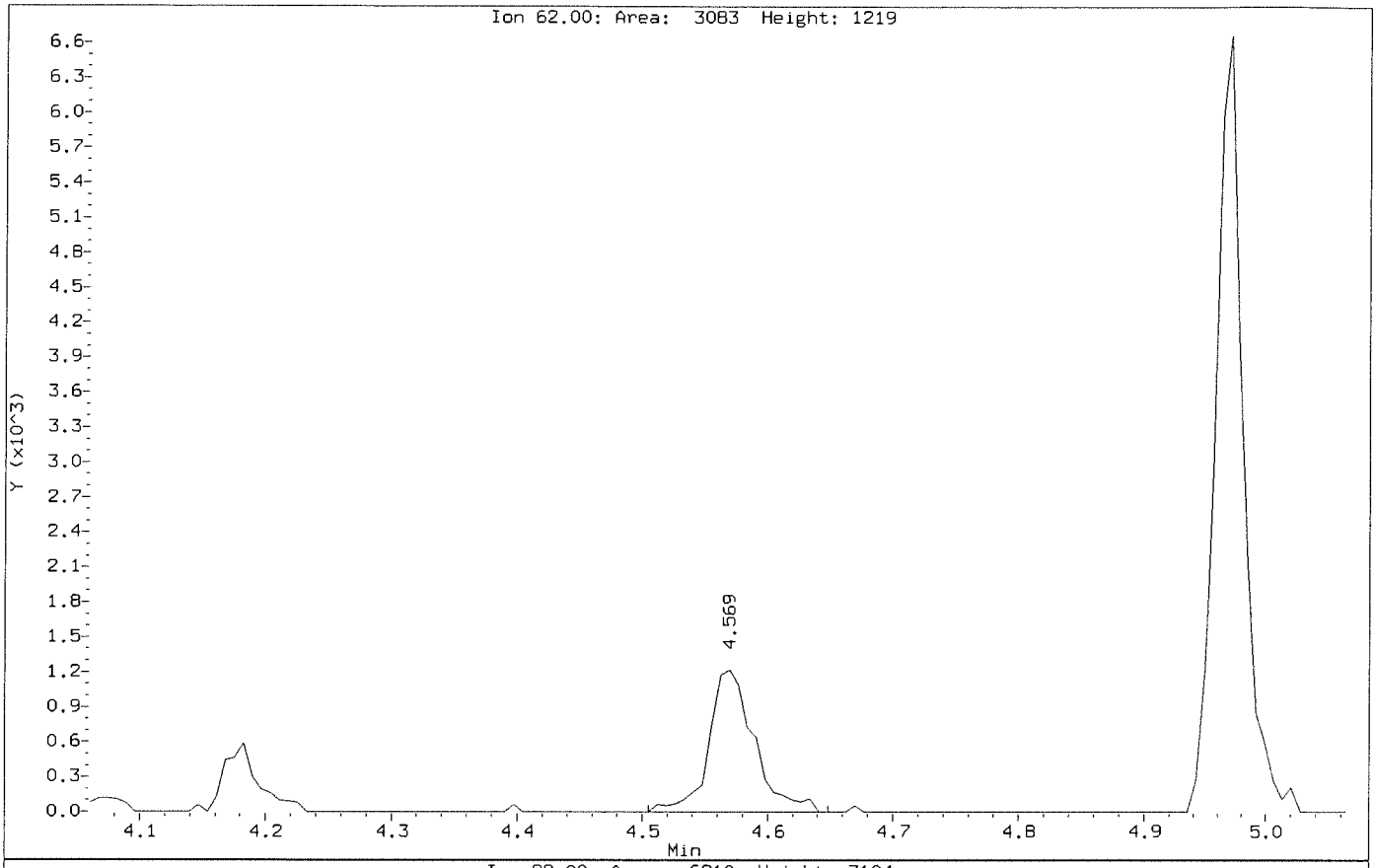
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110304.D
Injection Date: 03-NOV-2020 13:04
Instrument: voa6.i
Client Sample ID: VSTD001

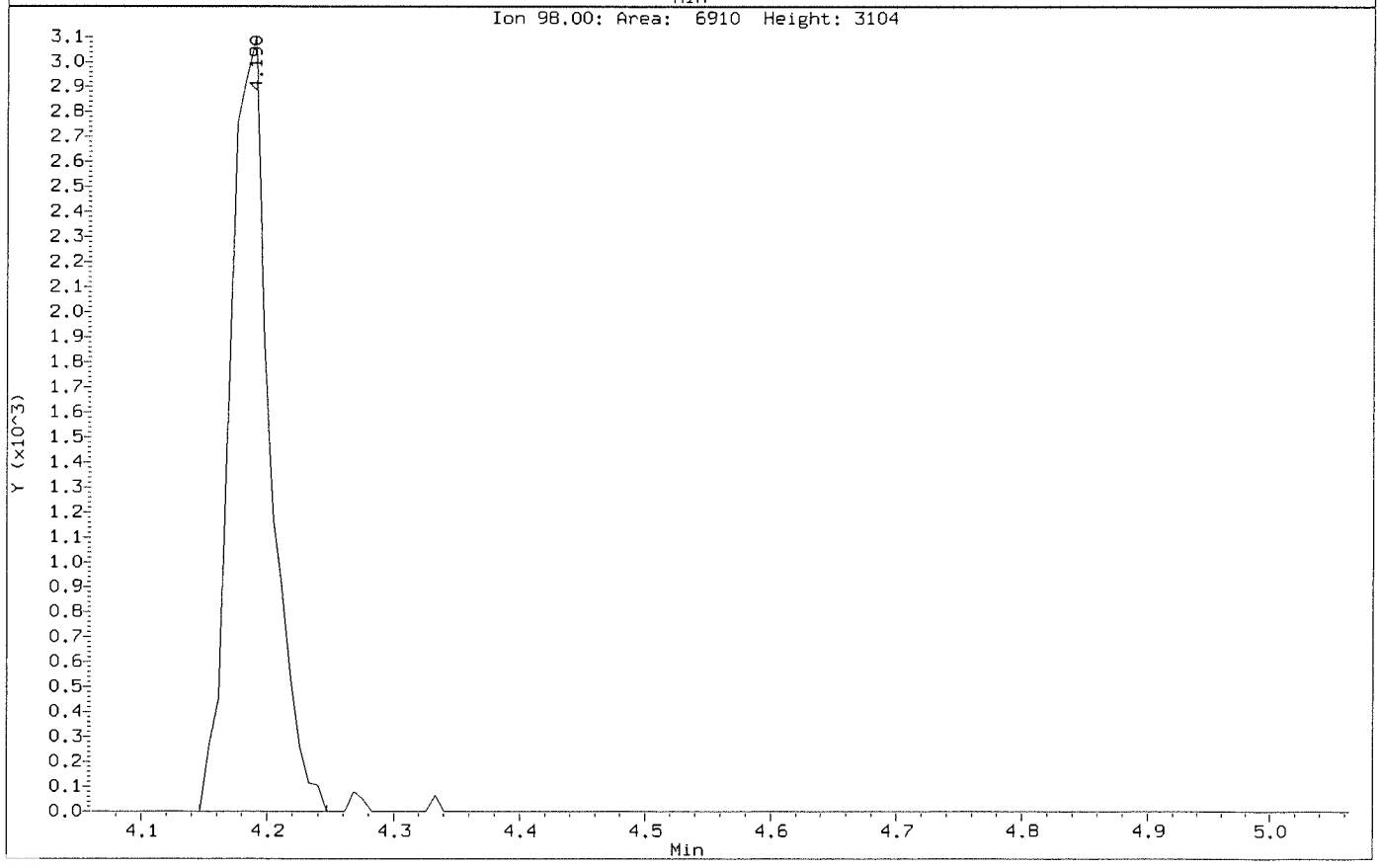
Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8



Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110304.D
Injection Date: 03-NOV-2020 13:04
Instrument: voa6.i
Client Sample ID: VSTD001

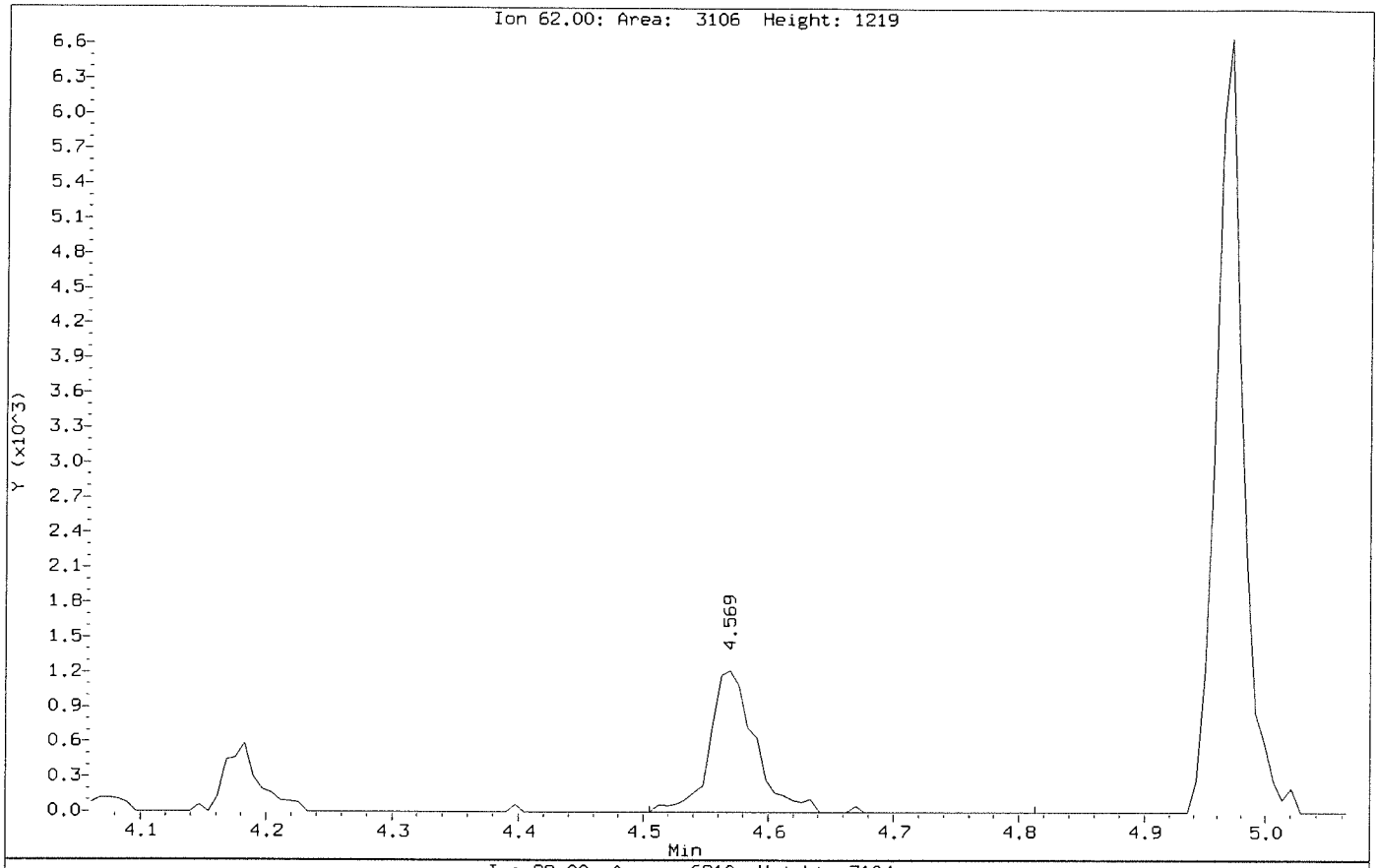
Compound: 1,2-Dichloroethane
CAS Number: 107-06-2

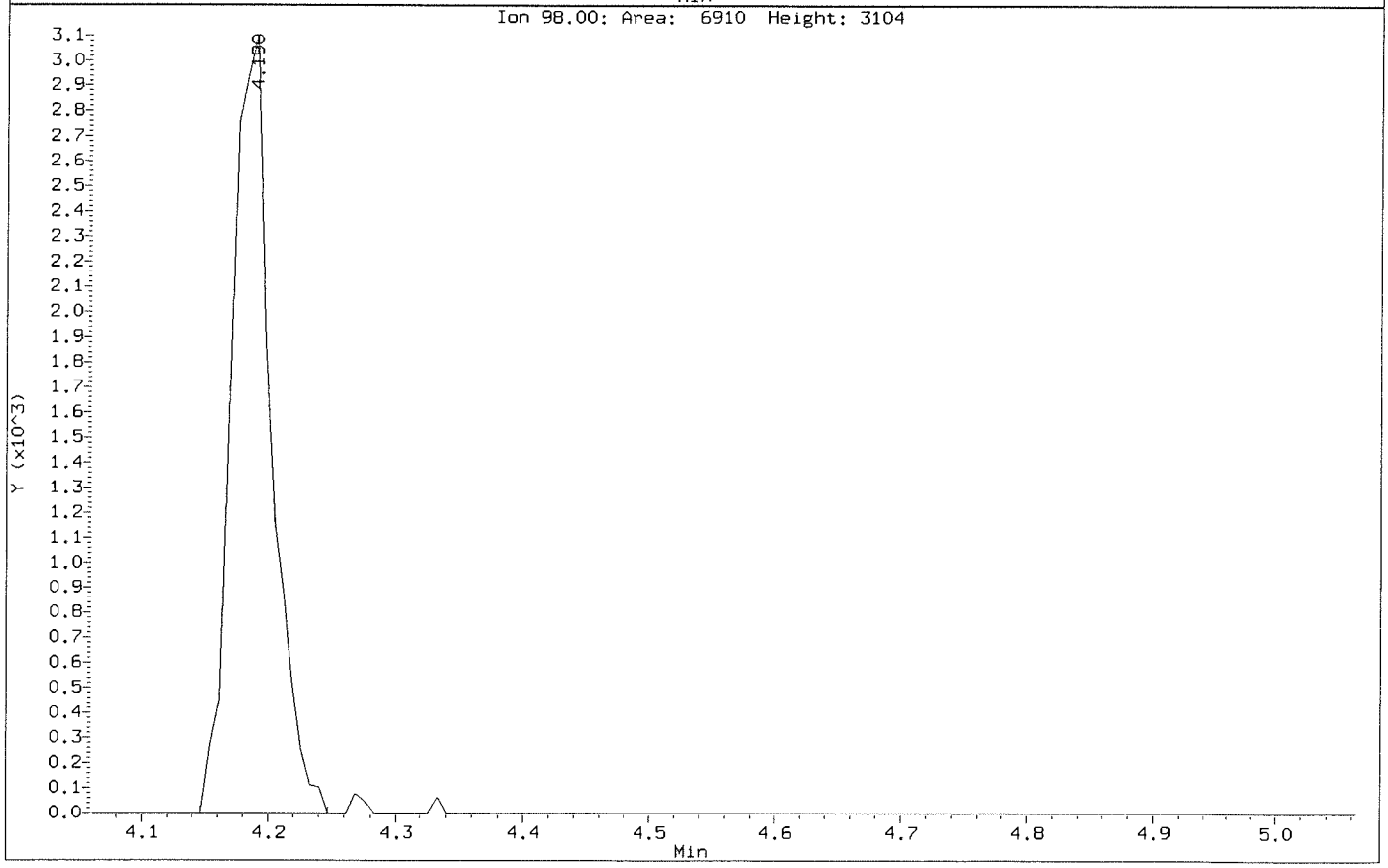


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110304.D
Injection Date: 03-NOV-2020 13:04
Instrument: voa6.i
Client Sample ID: VSTD001

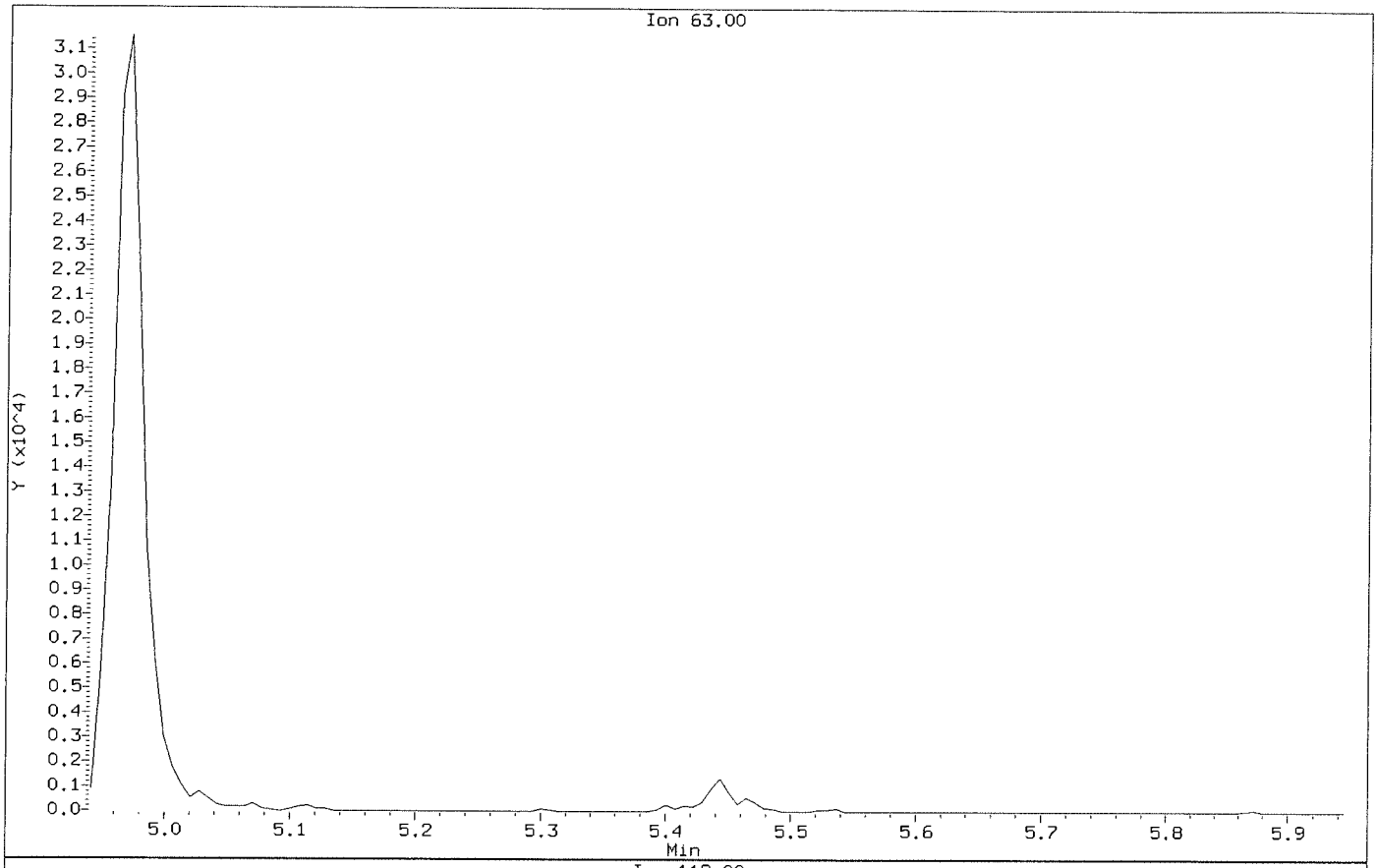
Compound: 1,2-Dichloroethane
CAS Number: 107-06-2

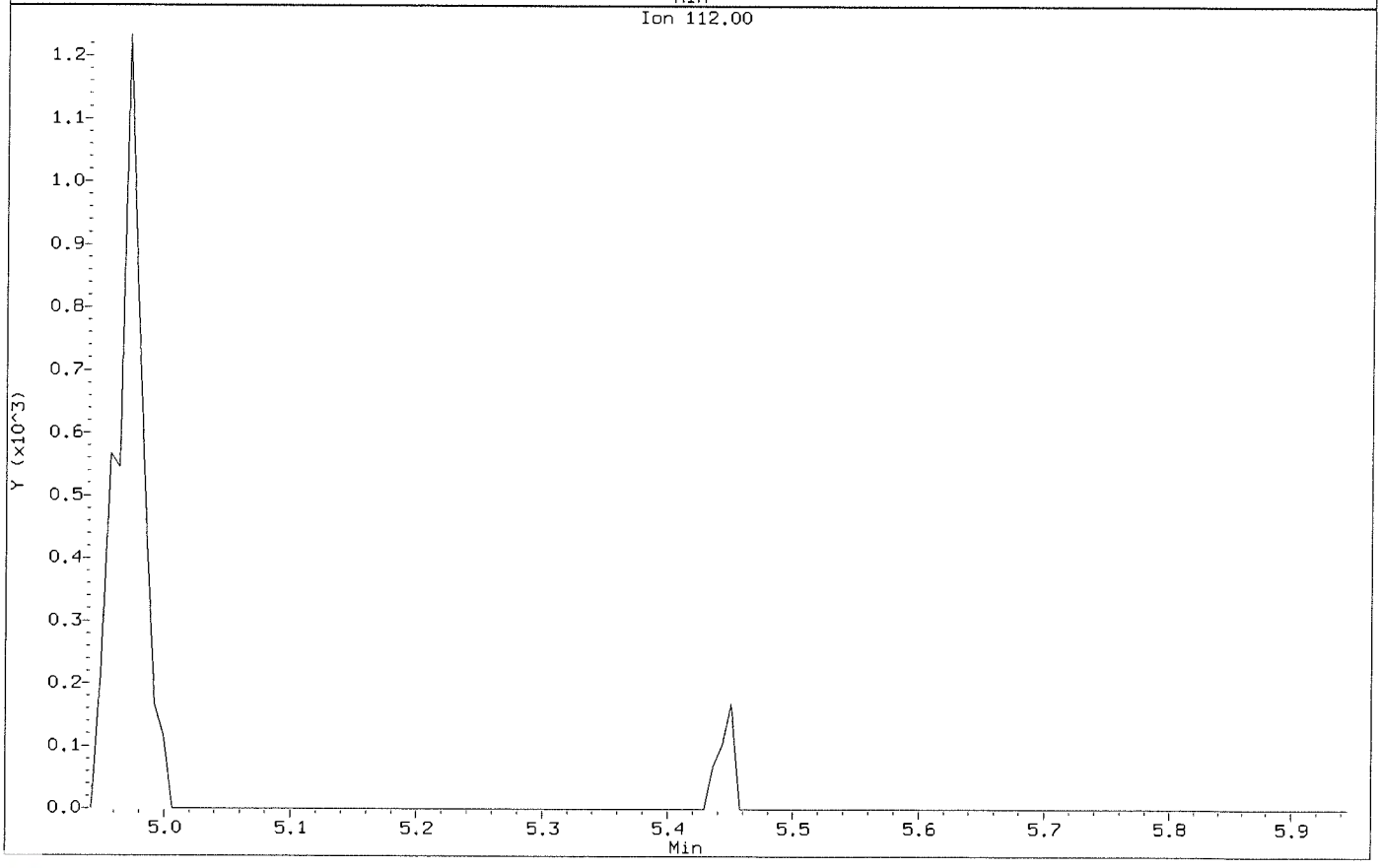


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110304.D
Injection Date: 03-NOV-2020 13:04
Instrument: voa6.i
Client Sample ID: VSTD001

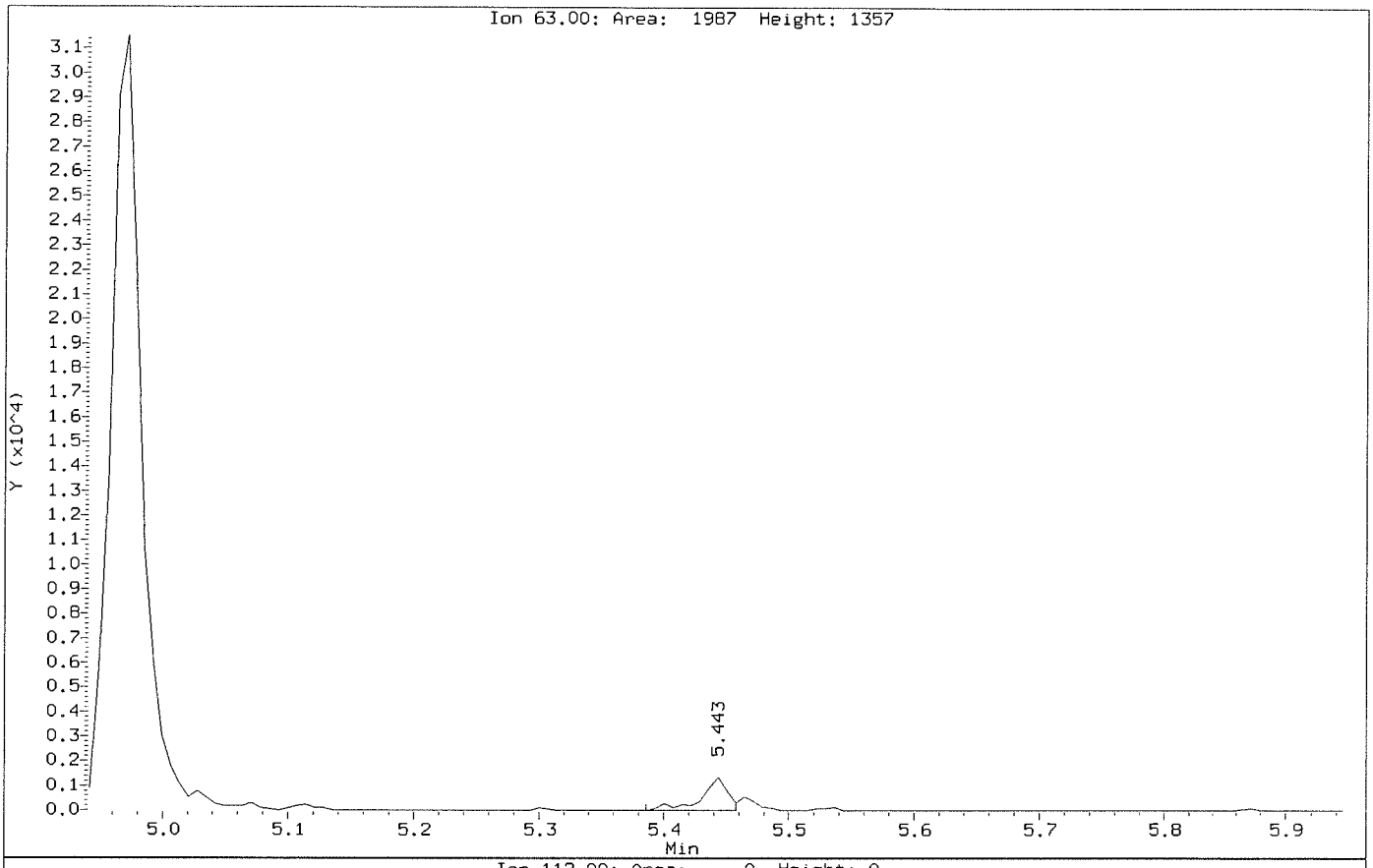
Compound: 1,2-Dichloropropane
CAS Number: 78-87-5

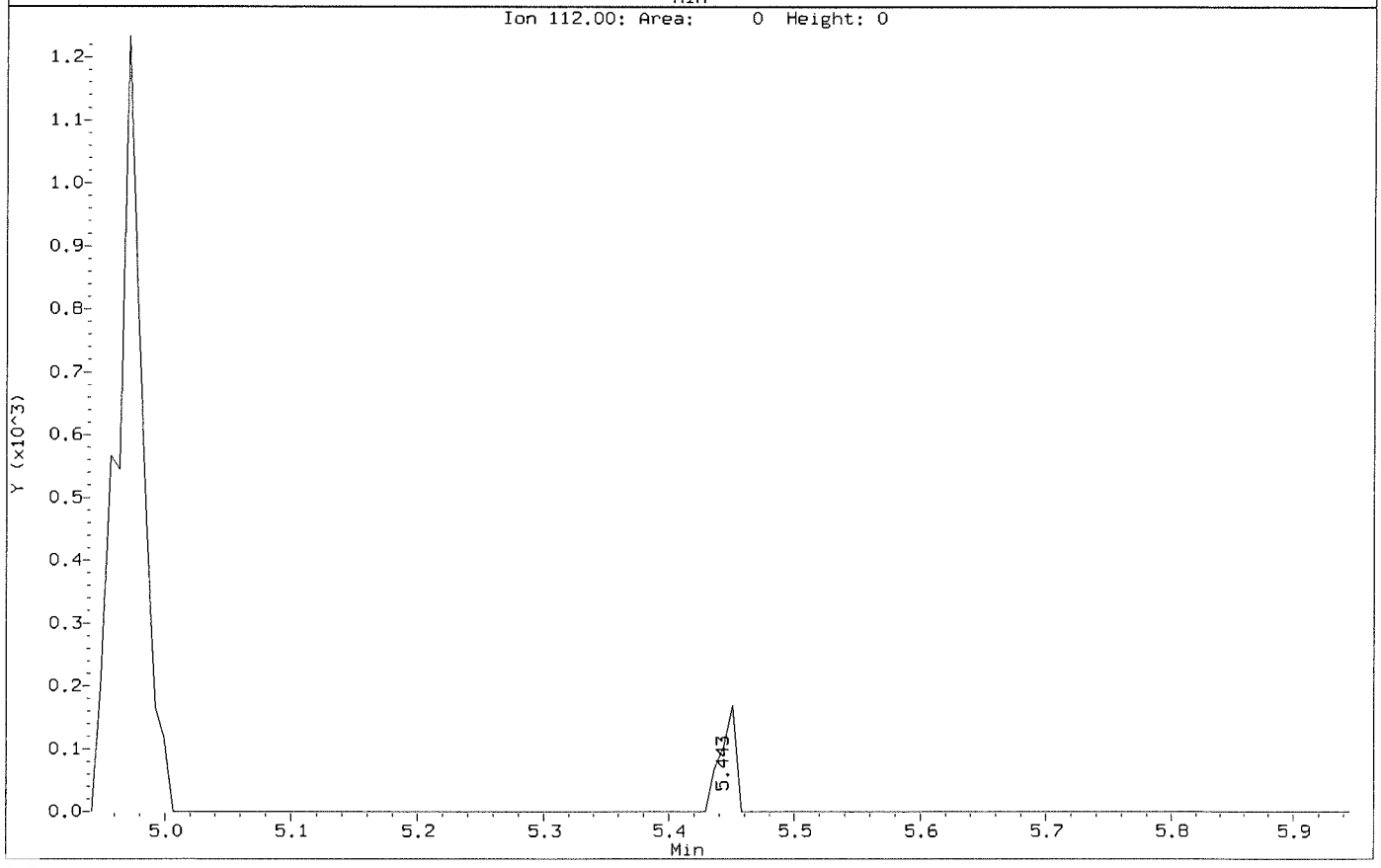


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110304.D
Injection Date: 03-NOV-2020 13:04
Instrument: voa6.i
Client Sample ID: VSTD001

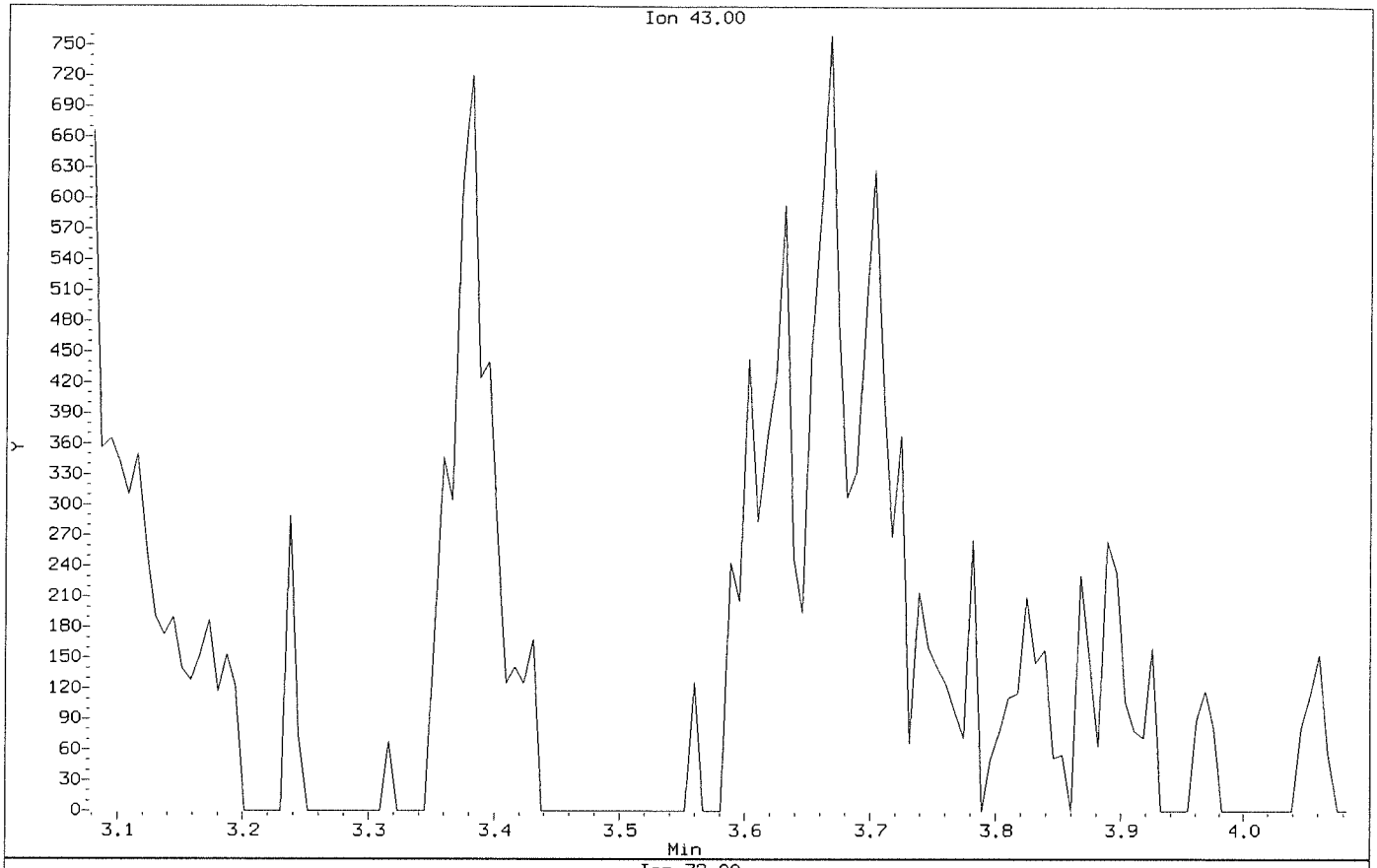
Compound: 1.2-Dichloropropane
CAS Number: 78-87-5

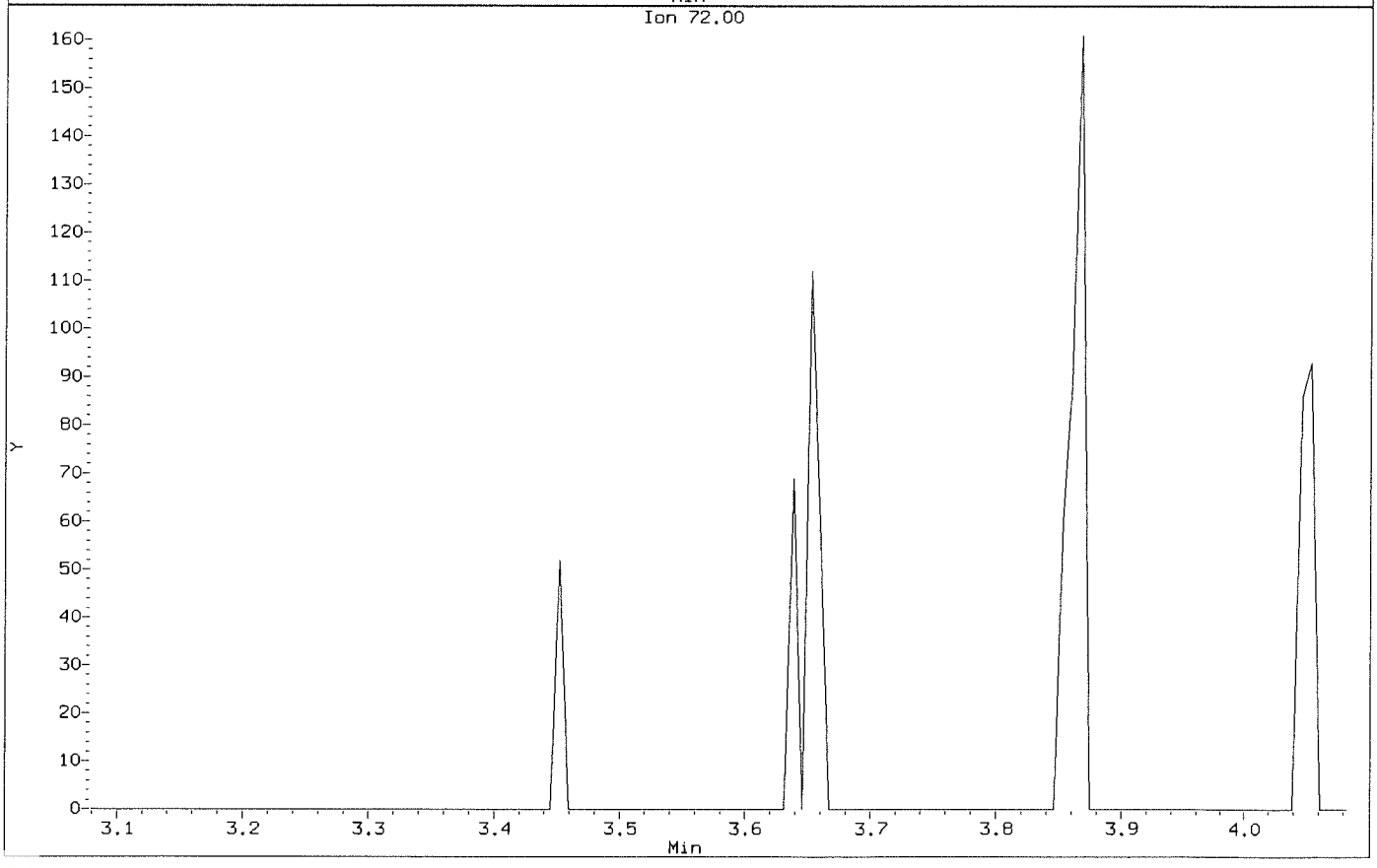


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110304.D
Injection Date: 03-NOV-2020 13:04
Instrument: voa6.i
Client Sample ID: VSTD001

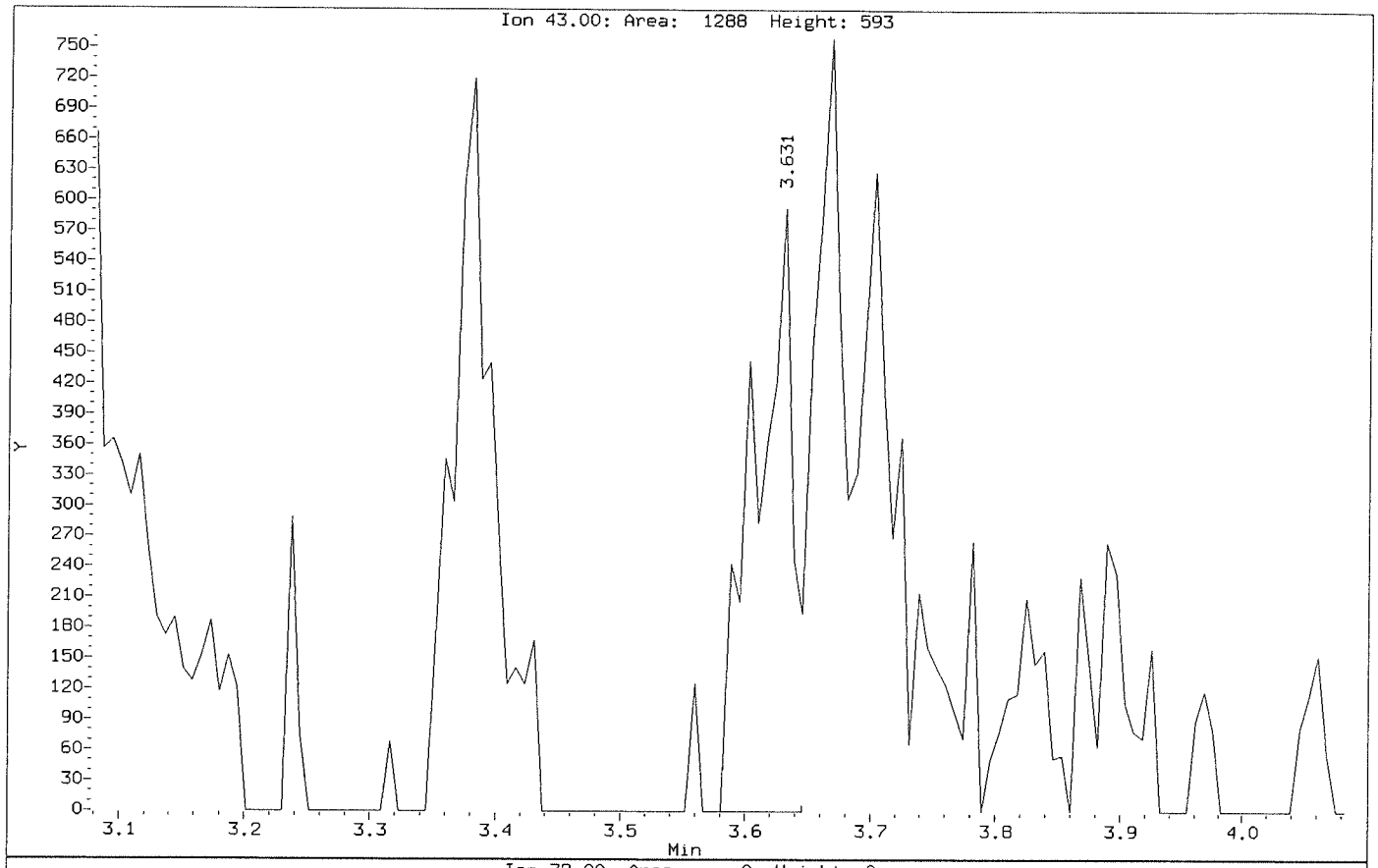
Compound: 2-Butanone
CAS Number: 78-93-3

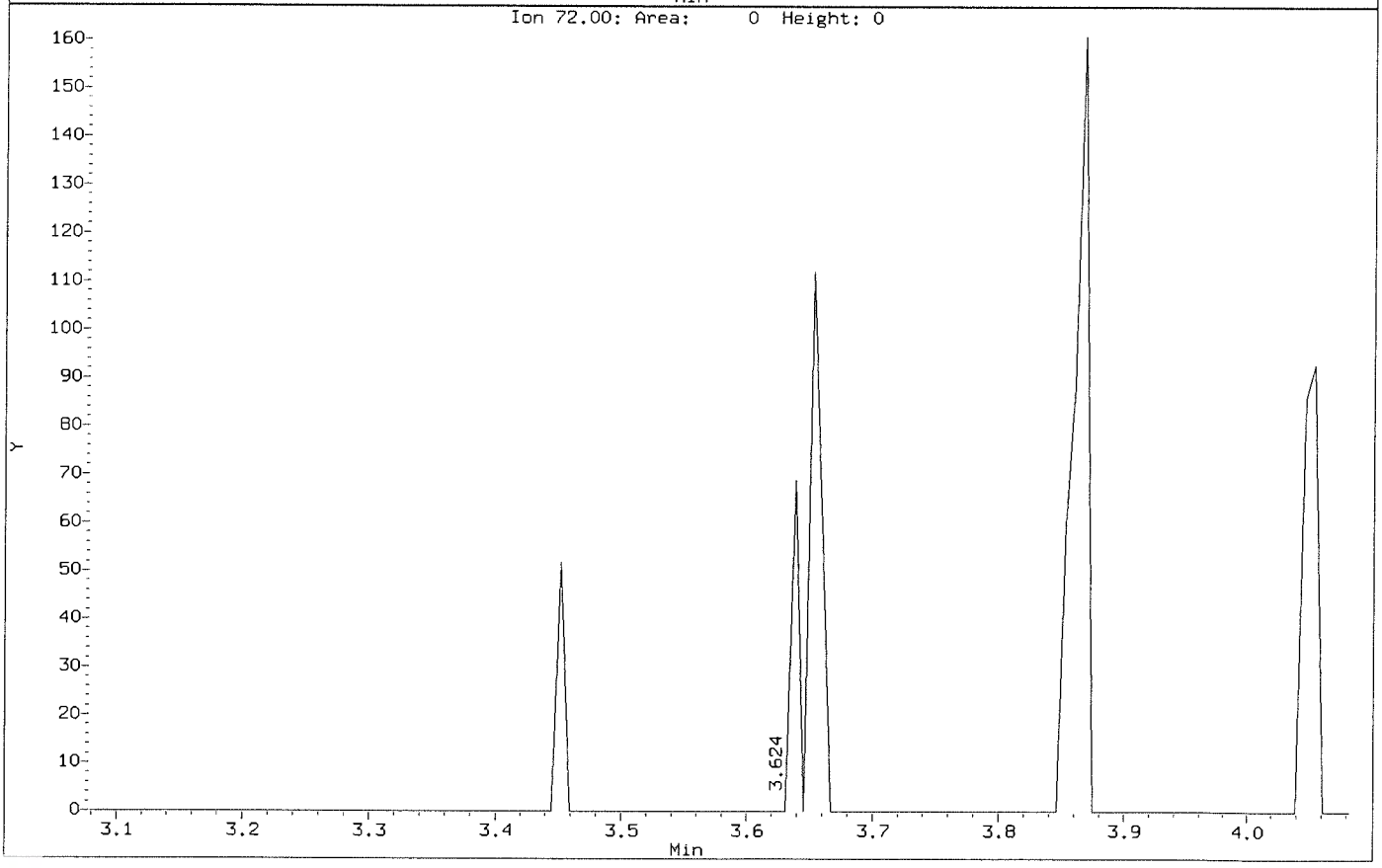


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110304.D
Injection Date: 03-NOV-2020 13:04
Instrument: voa6.i
Client Sample ID: VSTD001

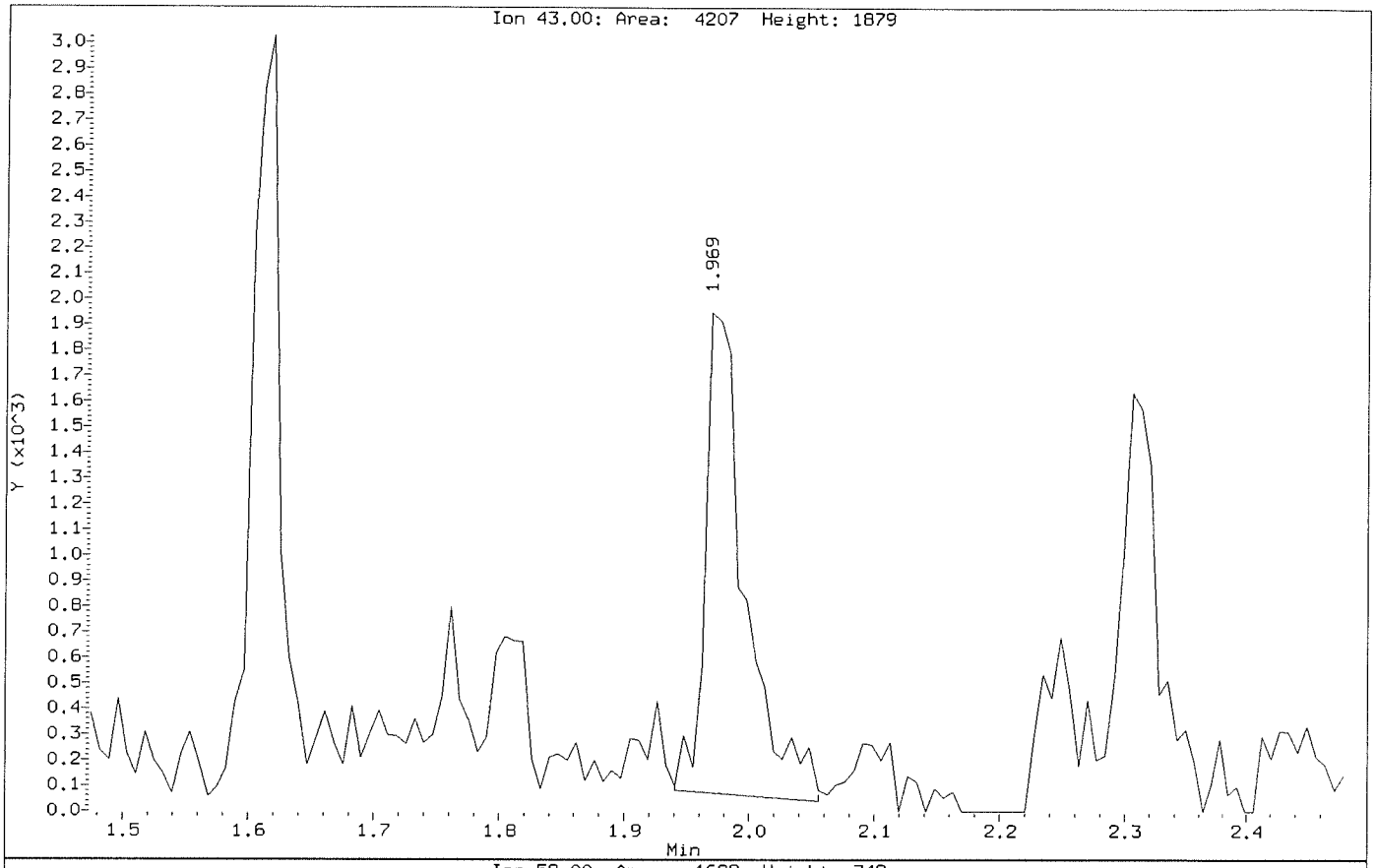
Compound: 2-Butanone
CAS Number: 78-93-3

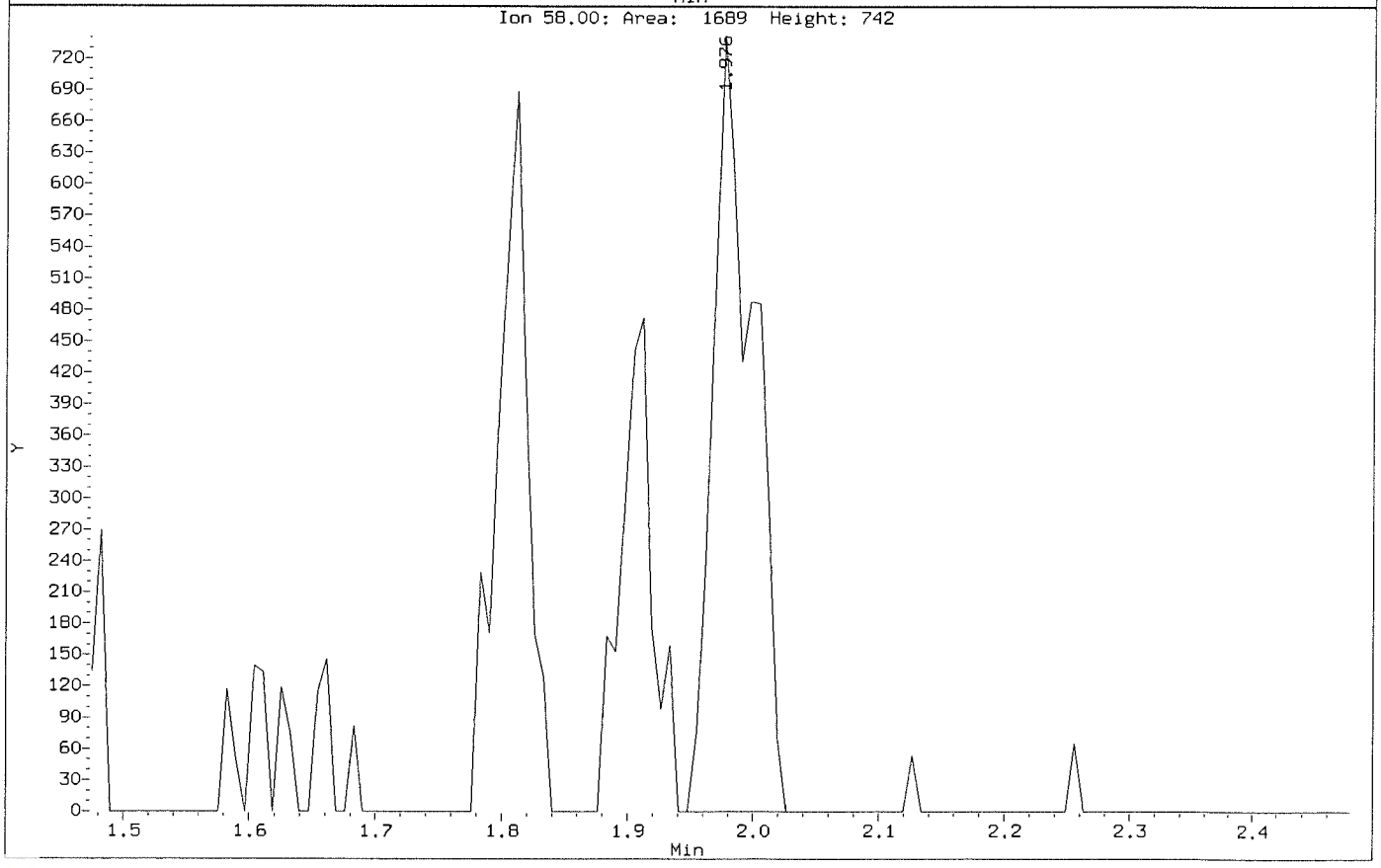


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110304.D
Injection Date: 03-NOV-2020 13:04
Instrument: voa6.i
Client Sample ID: VSTD001

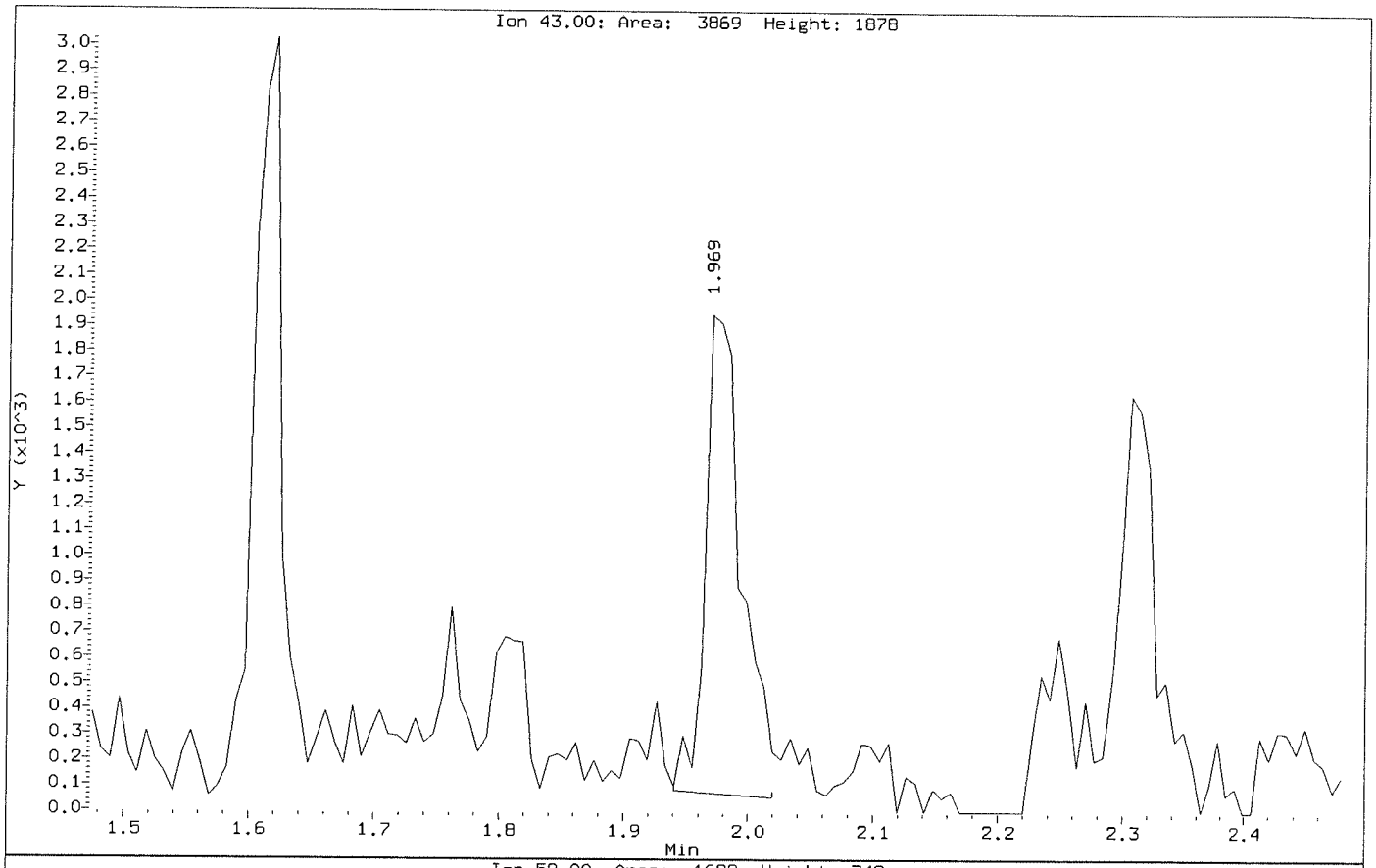
Compound: Acetone
CAS Number: 67-64-1

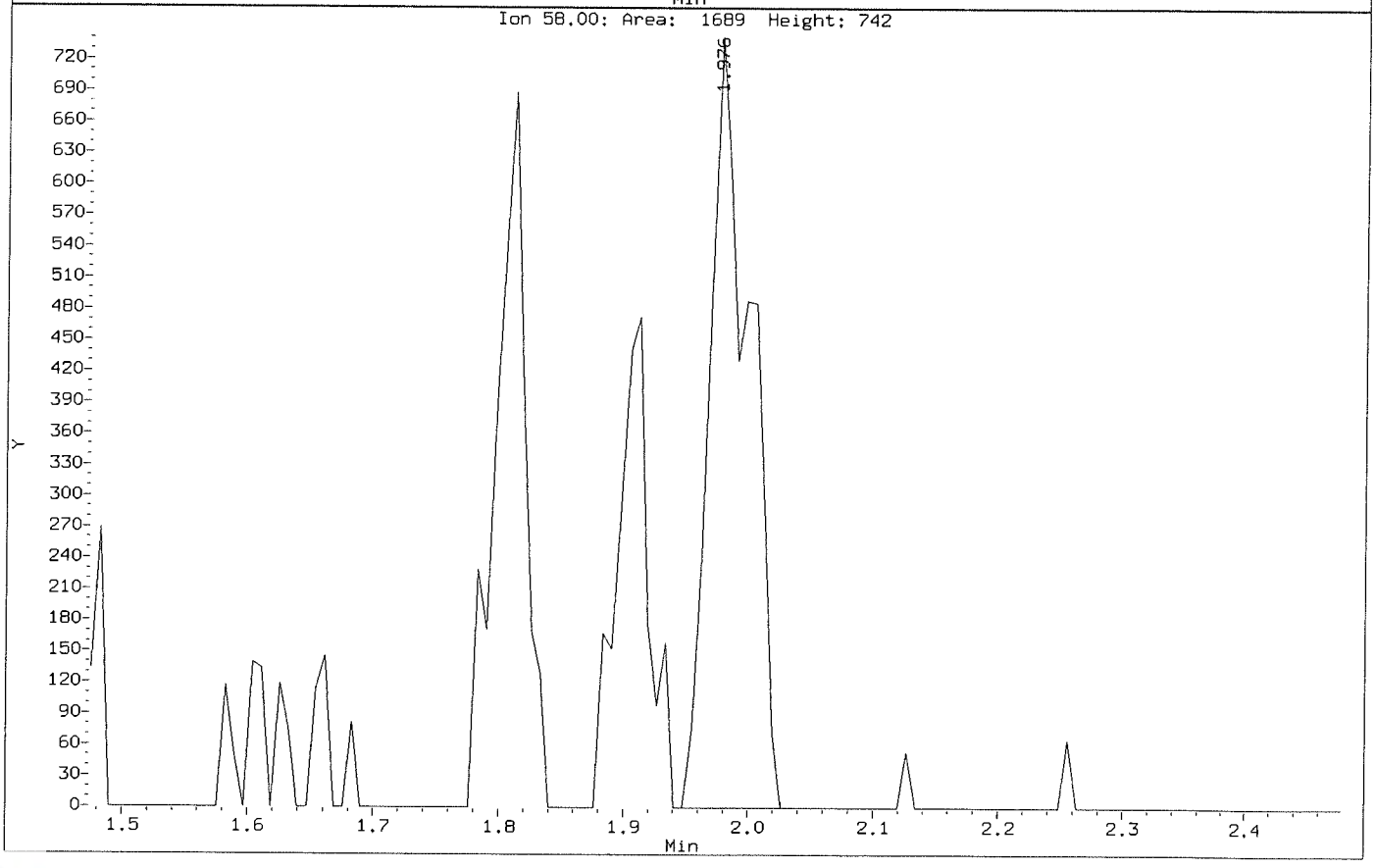


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110304.D
Injection Date: 03-NOV-2020 13:04
Instrument: voa6.i
Client Sample ID: VSTD001

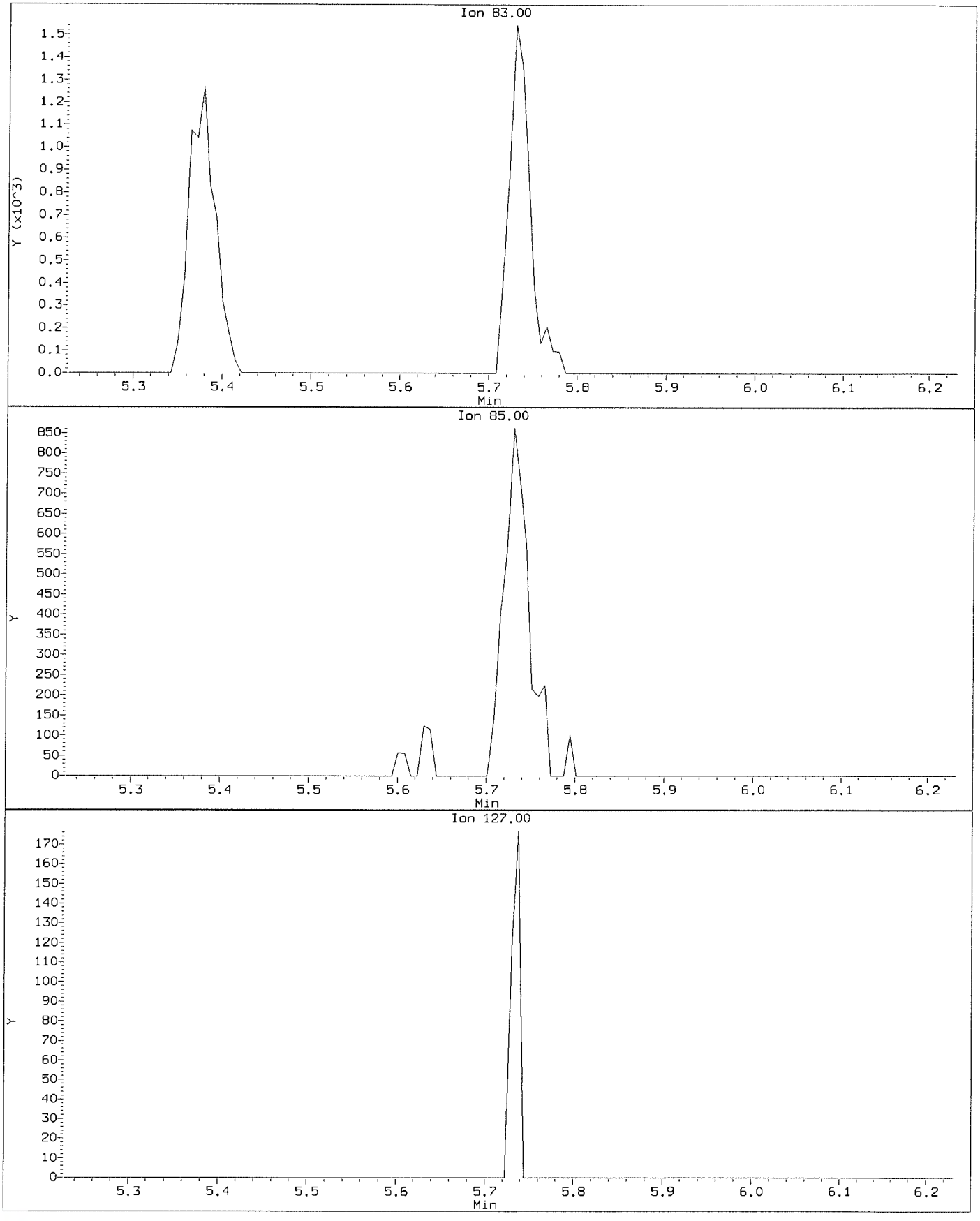
Compound: Acetone
CAS Number: 67-64-1



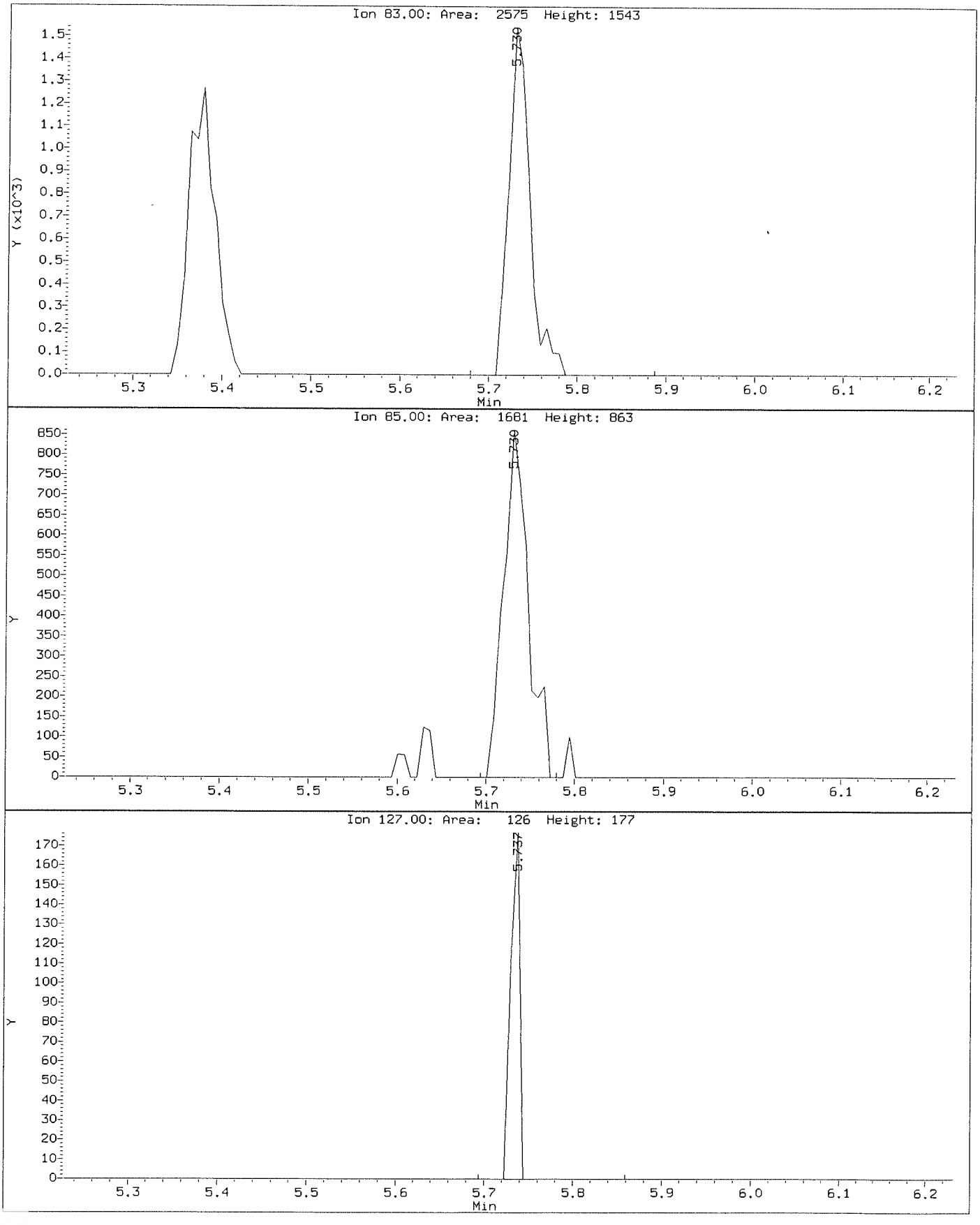
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110304.D
Injection Date: 03-NOV-2020 13:04
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Bromodichloromethane
CAS Number: 75-27-4



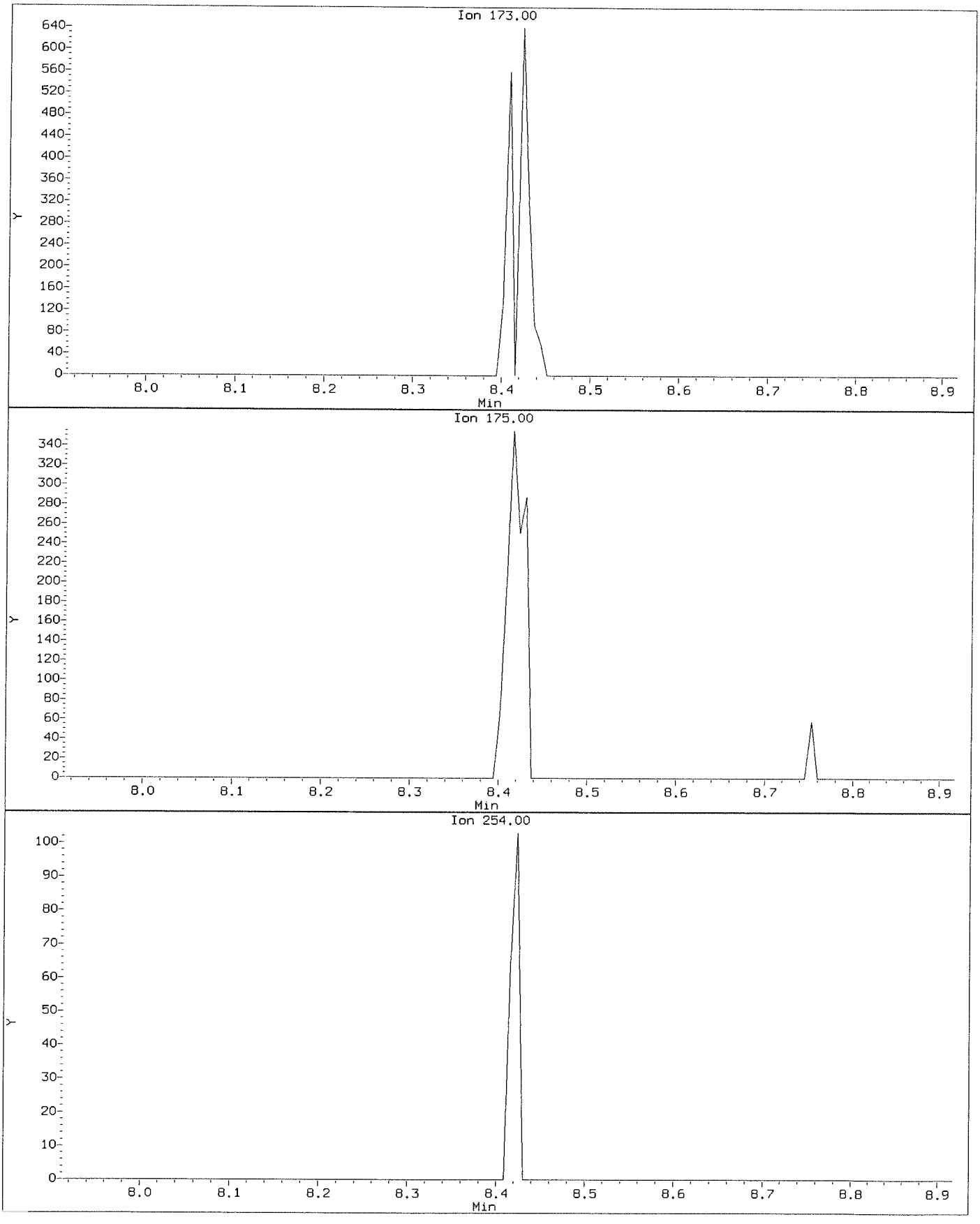
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110304.D
Injection Date: 03-NOV-2020 13:04
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Bromodichloromethane
CAS Number: 75-27-4



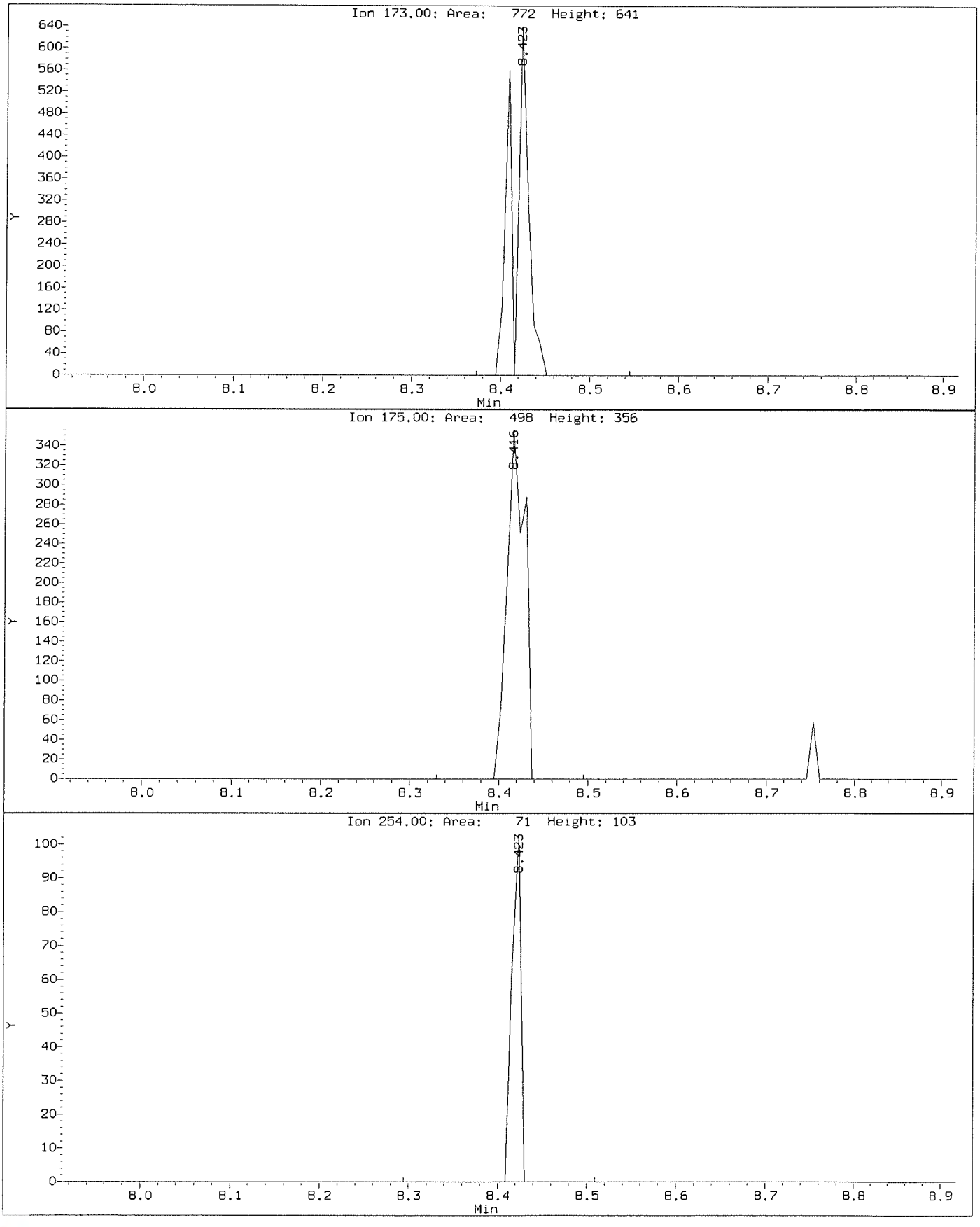
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110304.D
Injection Date: 03-NOV-2020 13:04
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Bromoform
CAS Number: 75-25-2



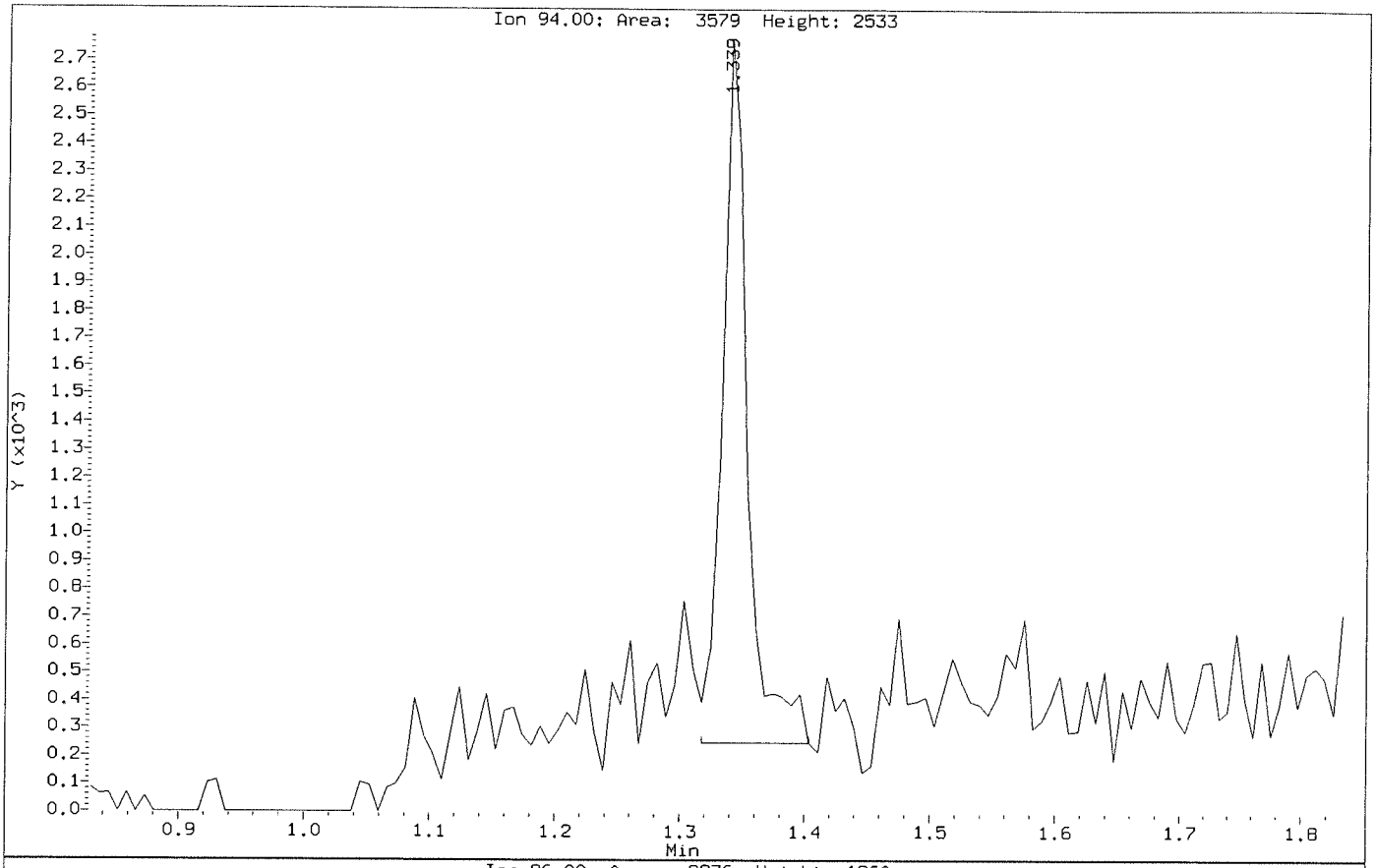
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110304.D
Injection Date: 03-NOV-2020 13:04
Instrument: voa6.i
Client Sample ID: VSTD001

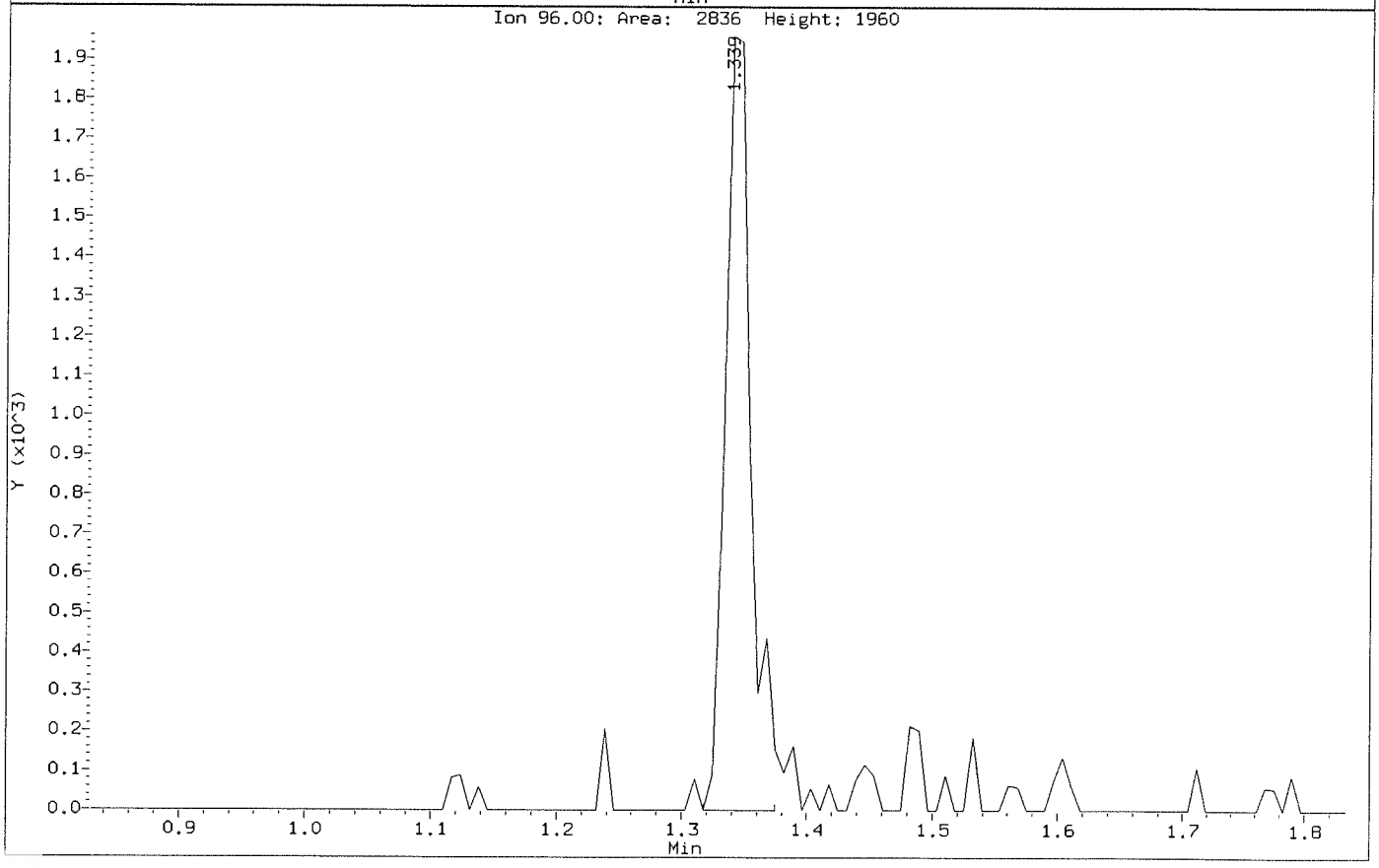
Compound: Bromoform
CAS Number: 75-25-2



Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110304.D
Injection Date: 03-NOV-2020 13:04
Instrument: voa6.i
Client Sample ID: VSTD001

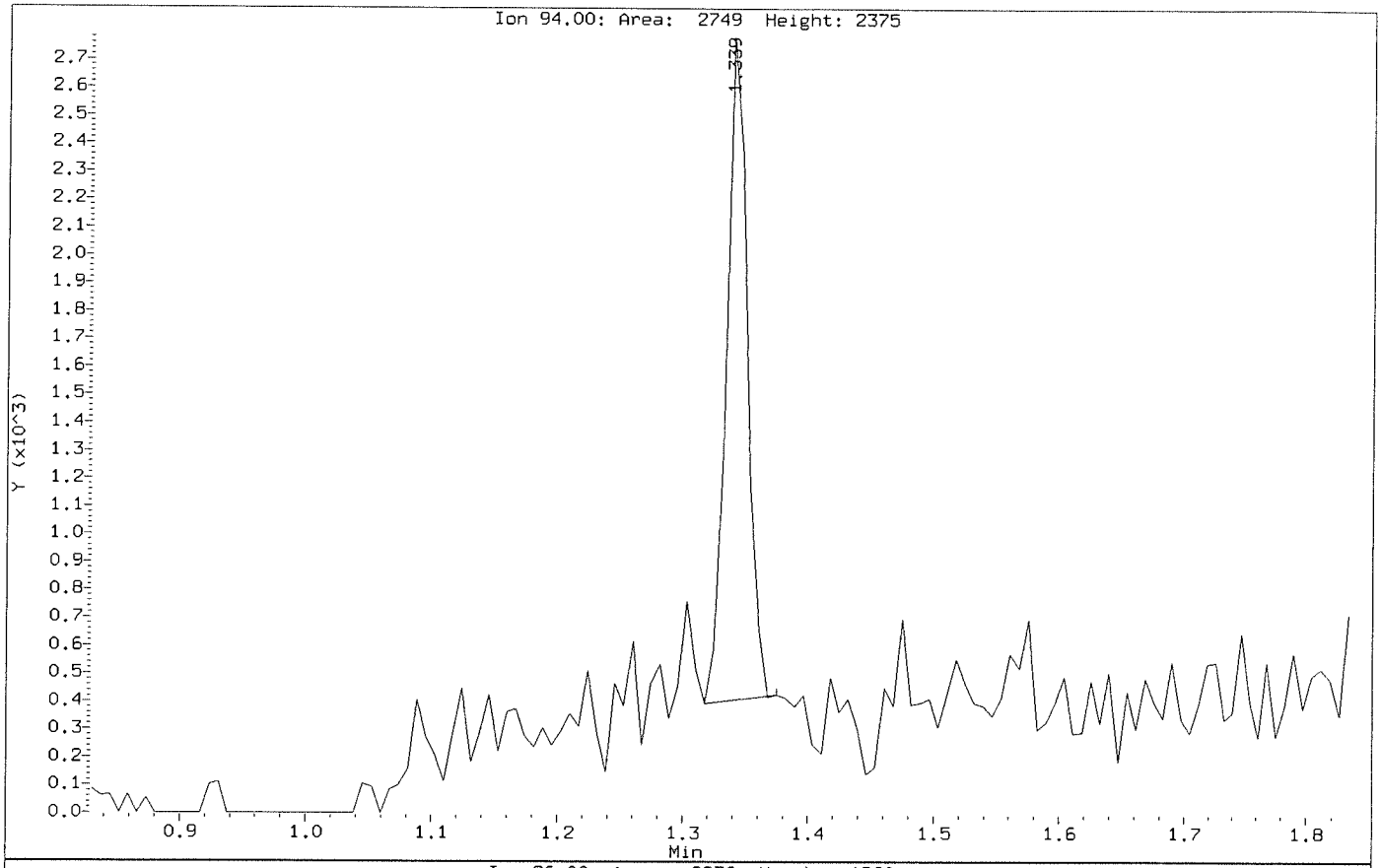
Compound: Bromomethane
CAS Number: 74-83-9

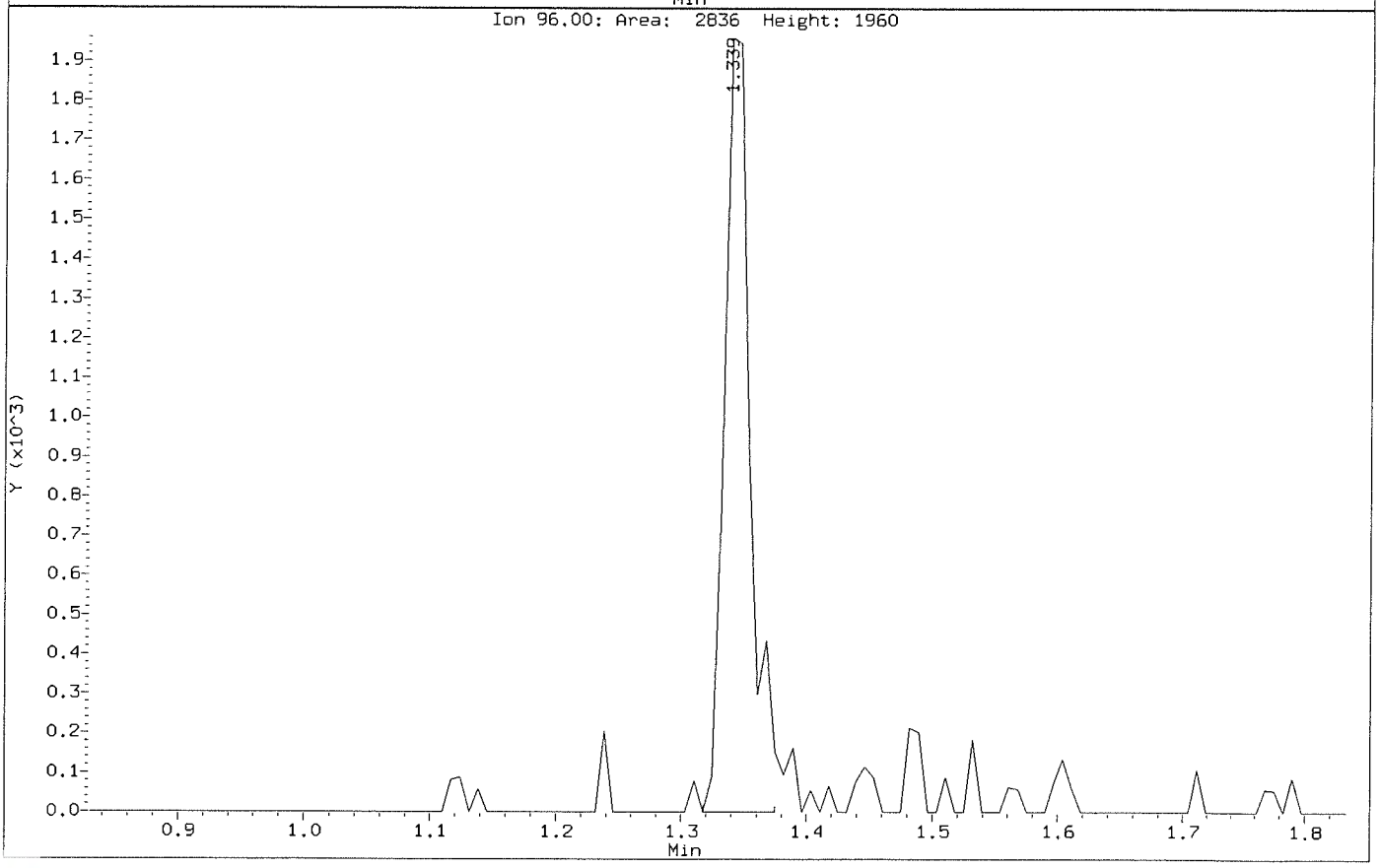


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110304.D
Injection Date: 03-NOV-2020 13:04
Instrument: voa6.i
Client Sample ID: VSTD001

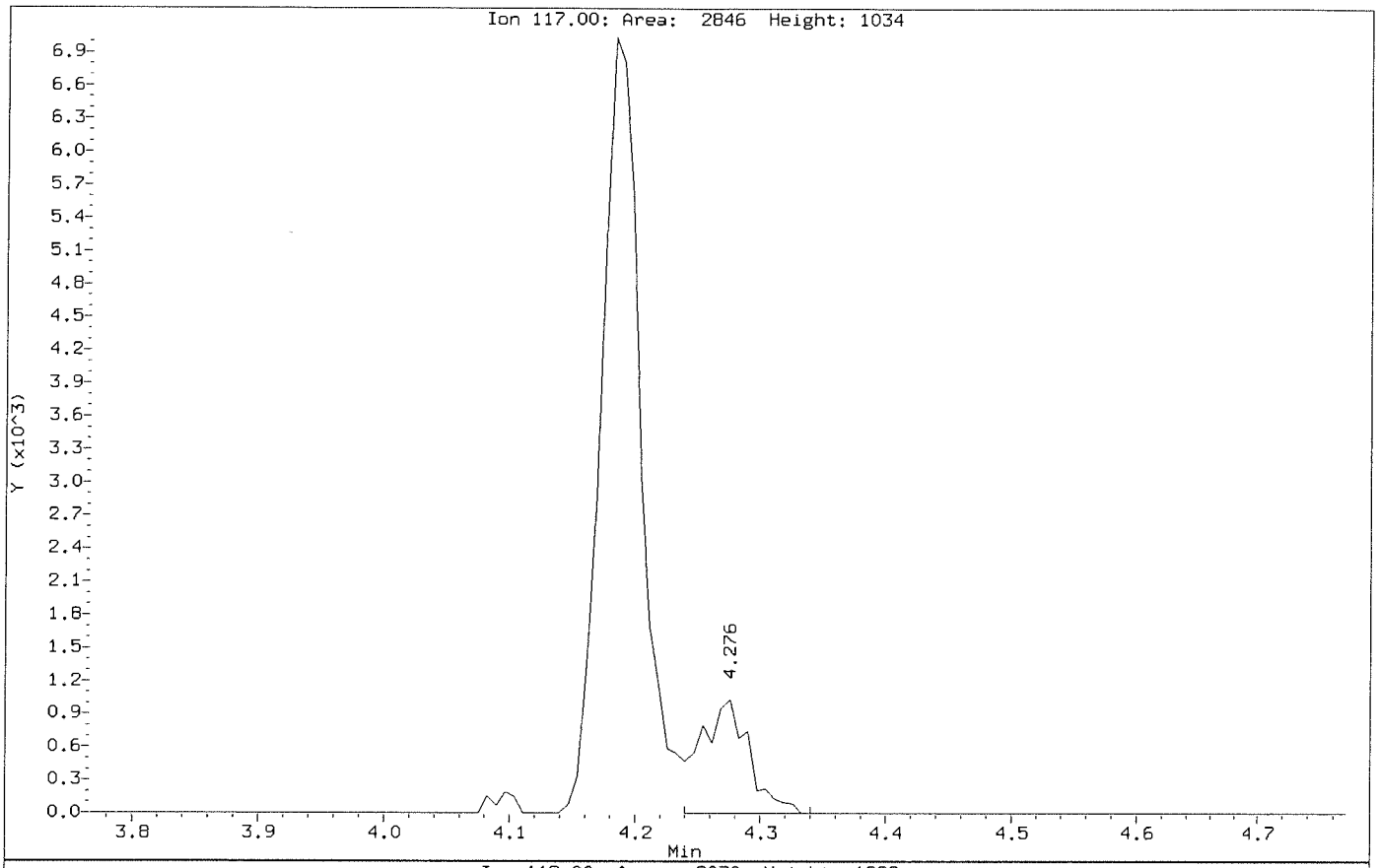
Compound: Bromomethane
CAS Number: 74-83-9

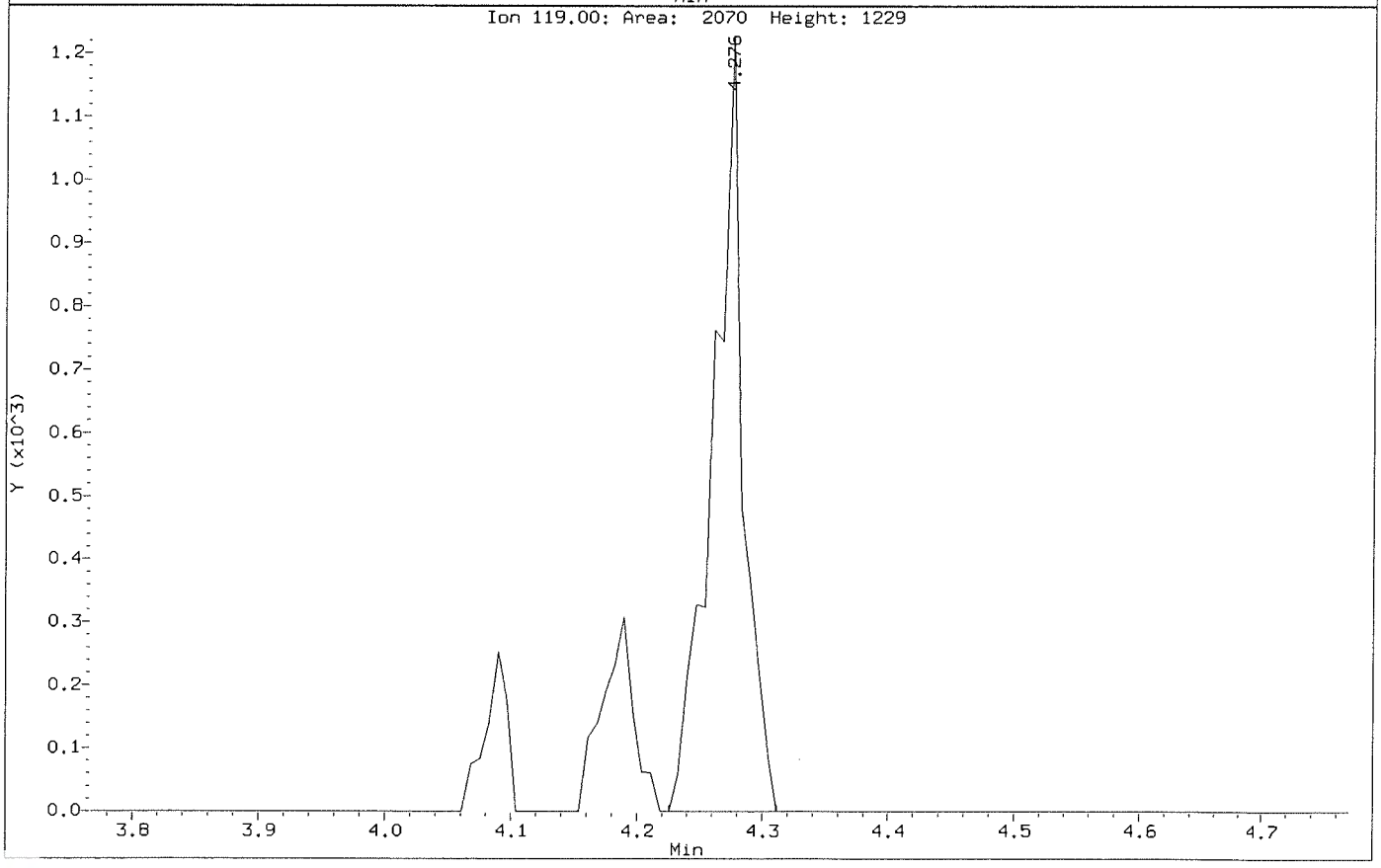


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110304.D
Injection Date: 03-NOV-2020 13:04
Instrument: voa6.i
Client Sample ID: VSTD001

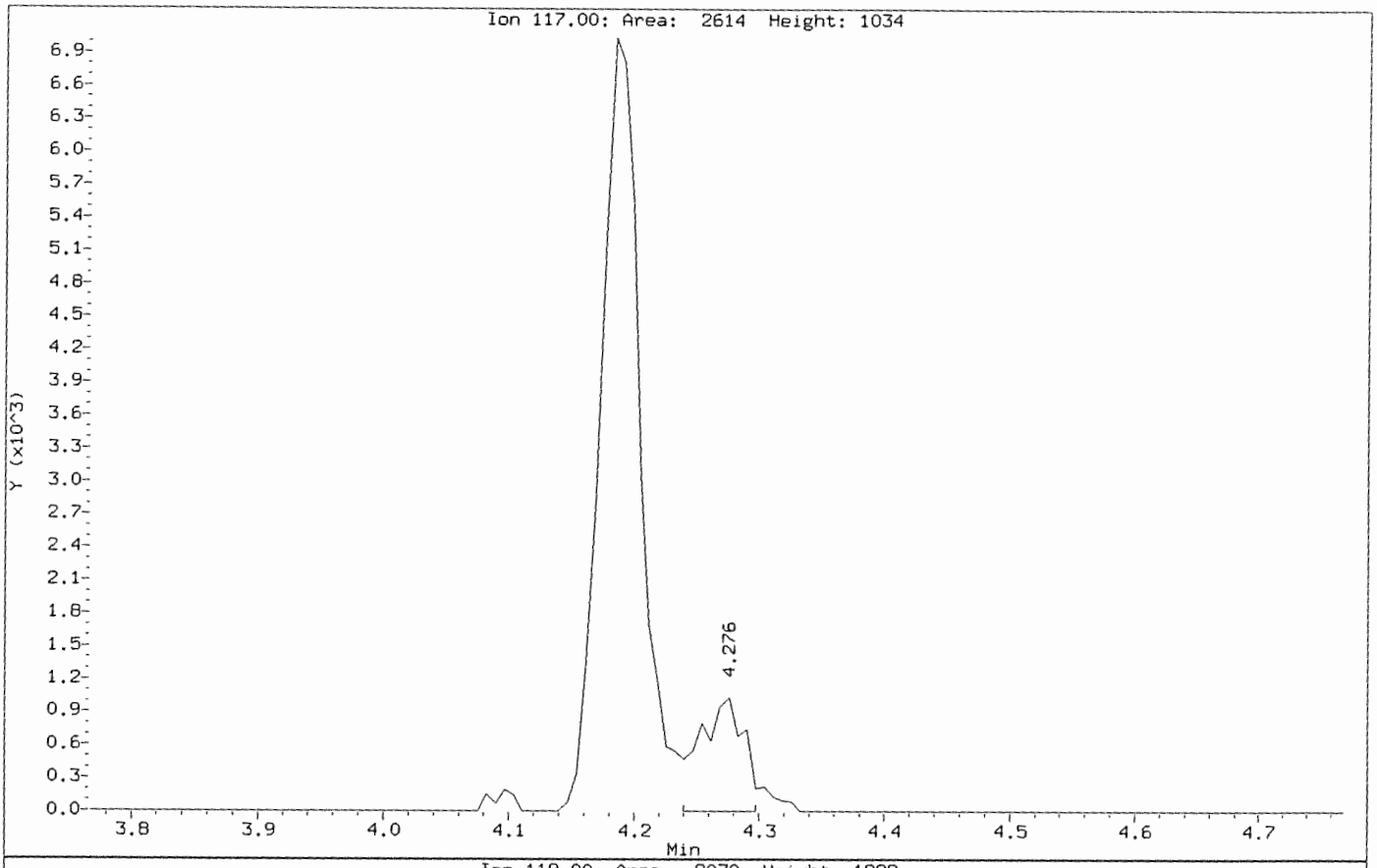
Compound: Carbon Tetrachloride
CAS Number: 56-23-5

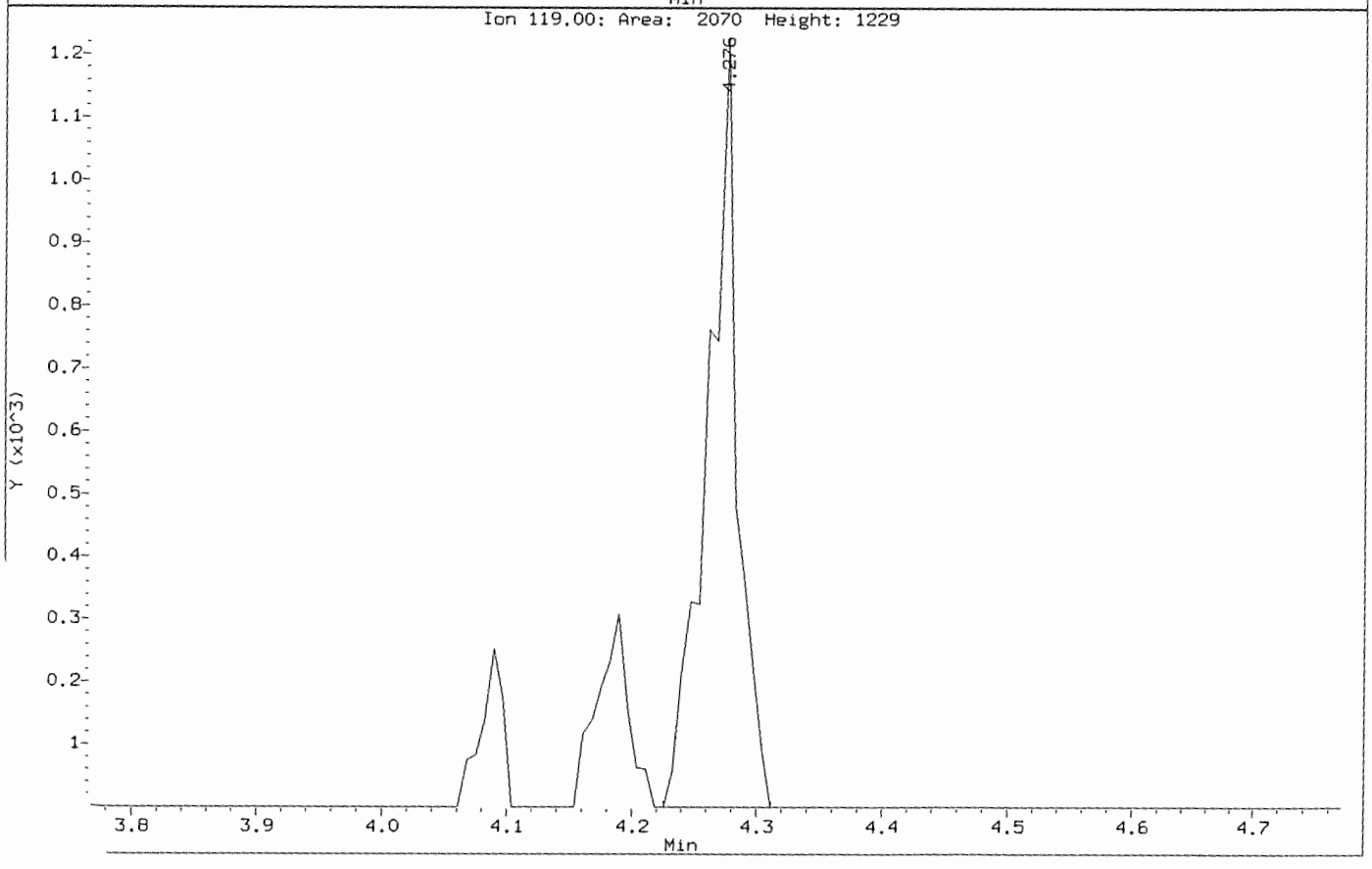


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110304.D
Injection Date: 03-NOV-2020 13:04
Instrument: voa6.i
Client Sample ID: VSTD001

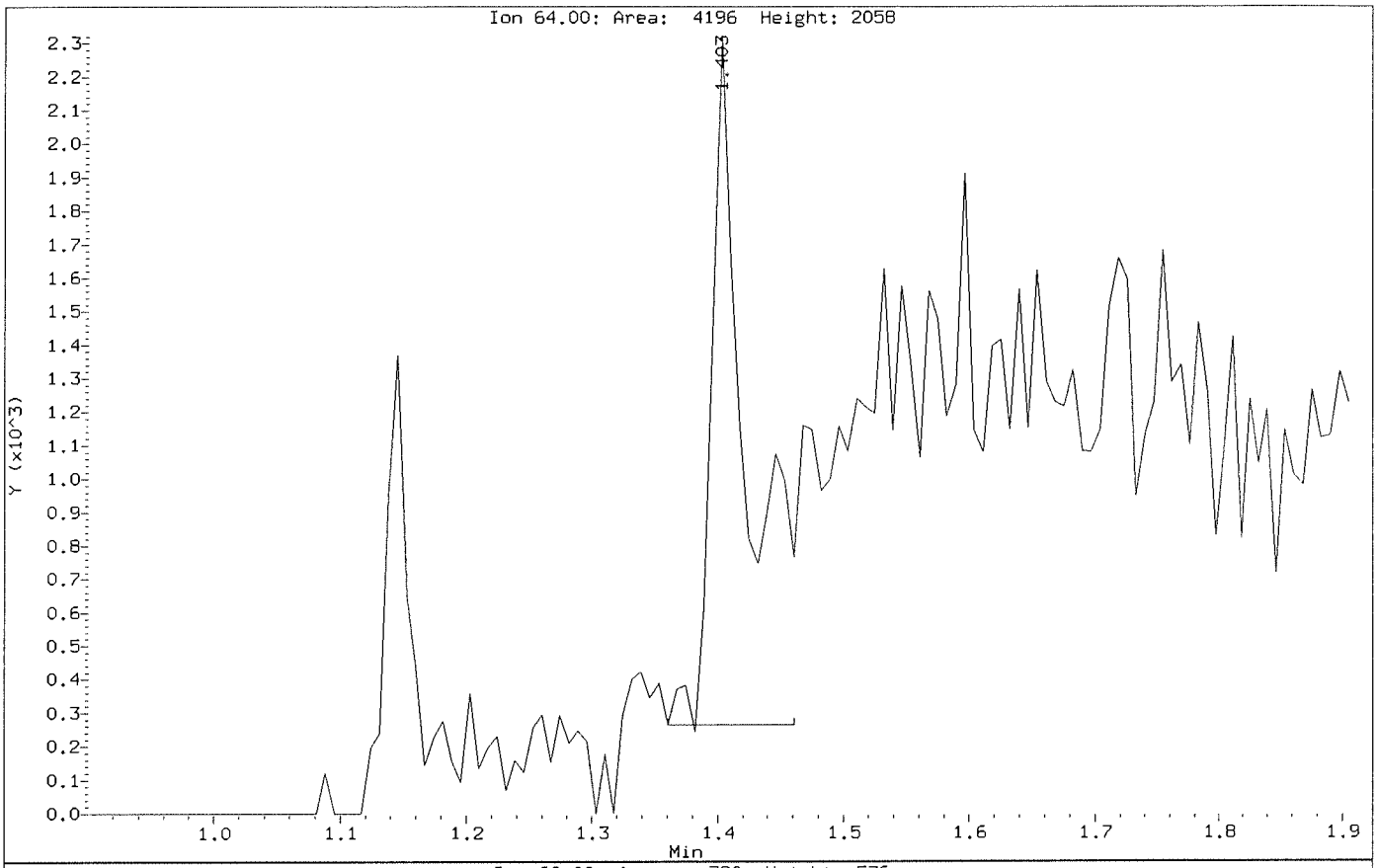
Compound: Carbon Tetrachloride
CAS Number: 56-23-5

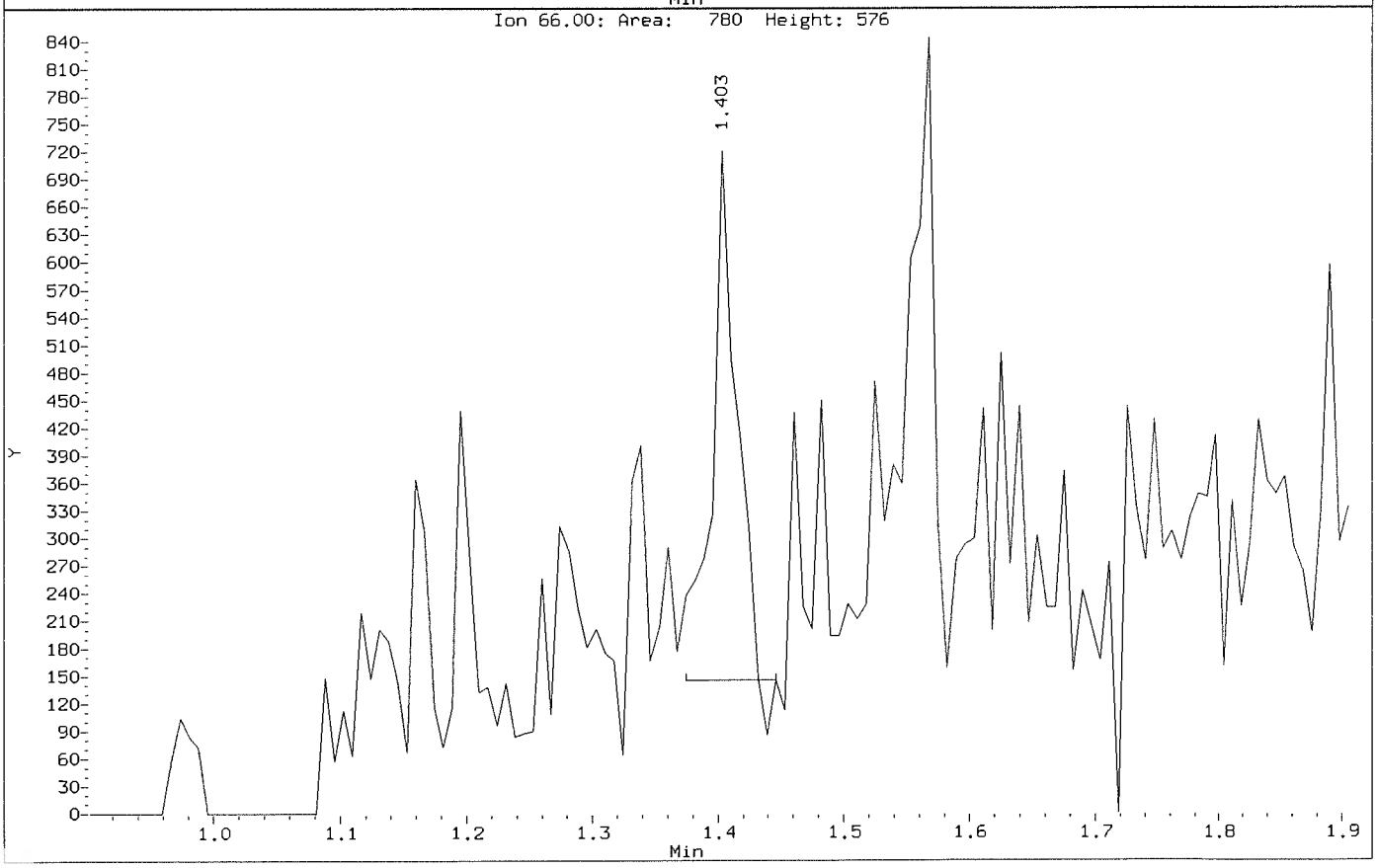


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110304.D
Injection Date: 03-NOV-2020 13:04
Instrument: voa6.i
Client Sample ID: VSTD001

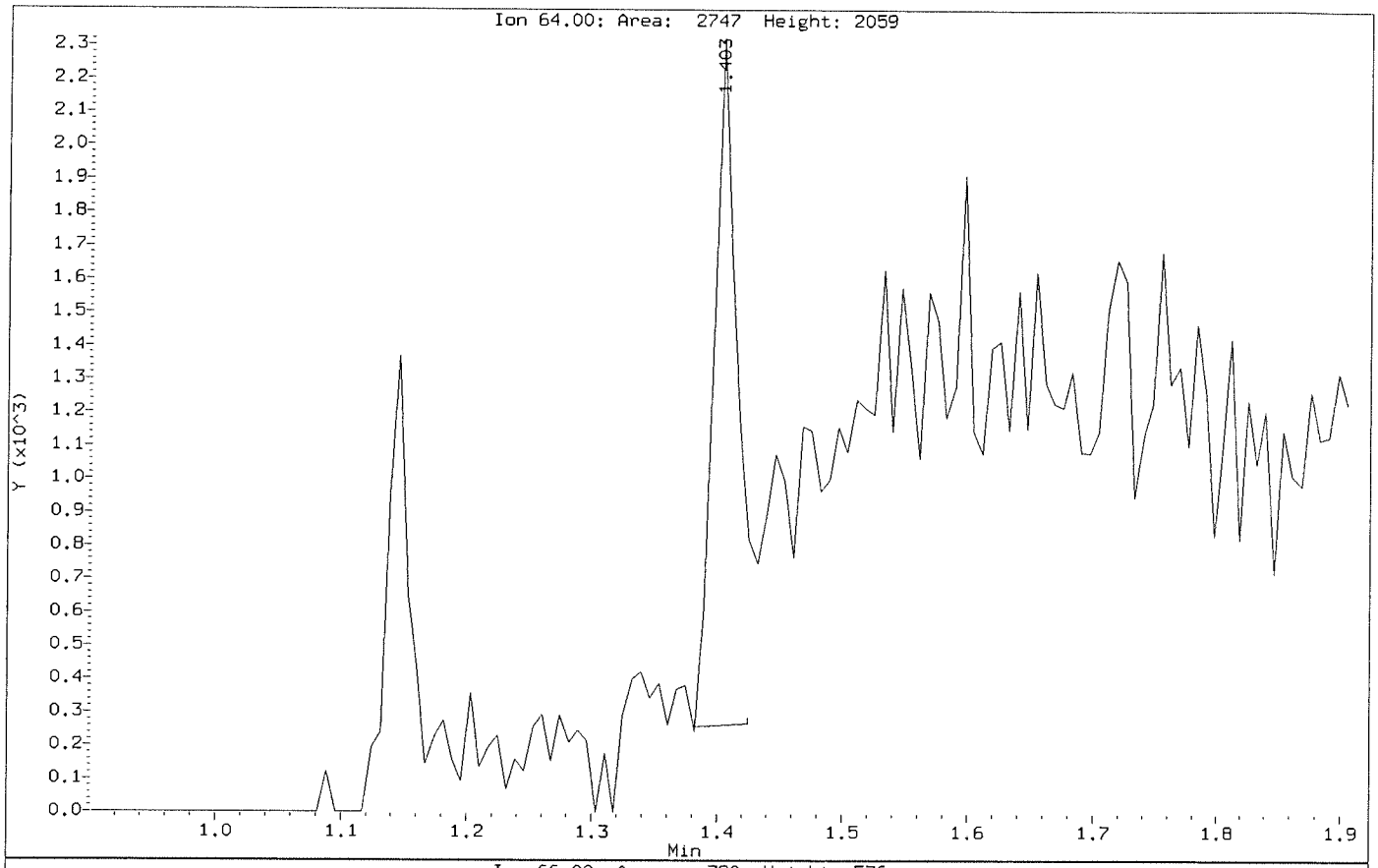
Compound: Chloroethane
CAS Number: 75-00-3

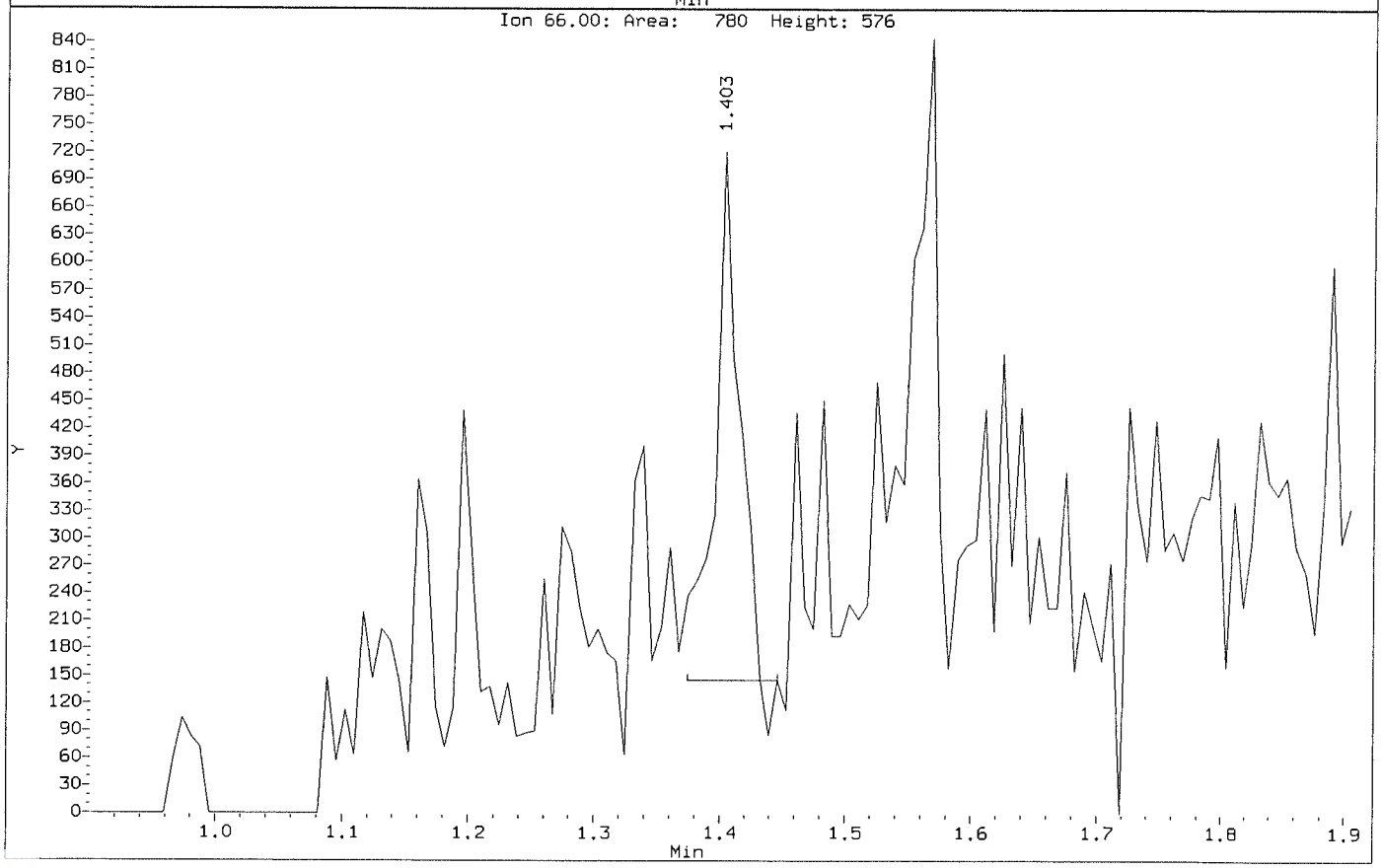


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110304.D
Injection Date: 03-NOV-2020 13:04
Instrument: voa6.i
Client Sample ID: VSTD001

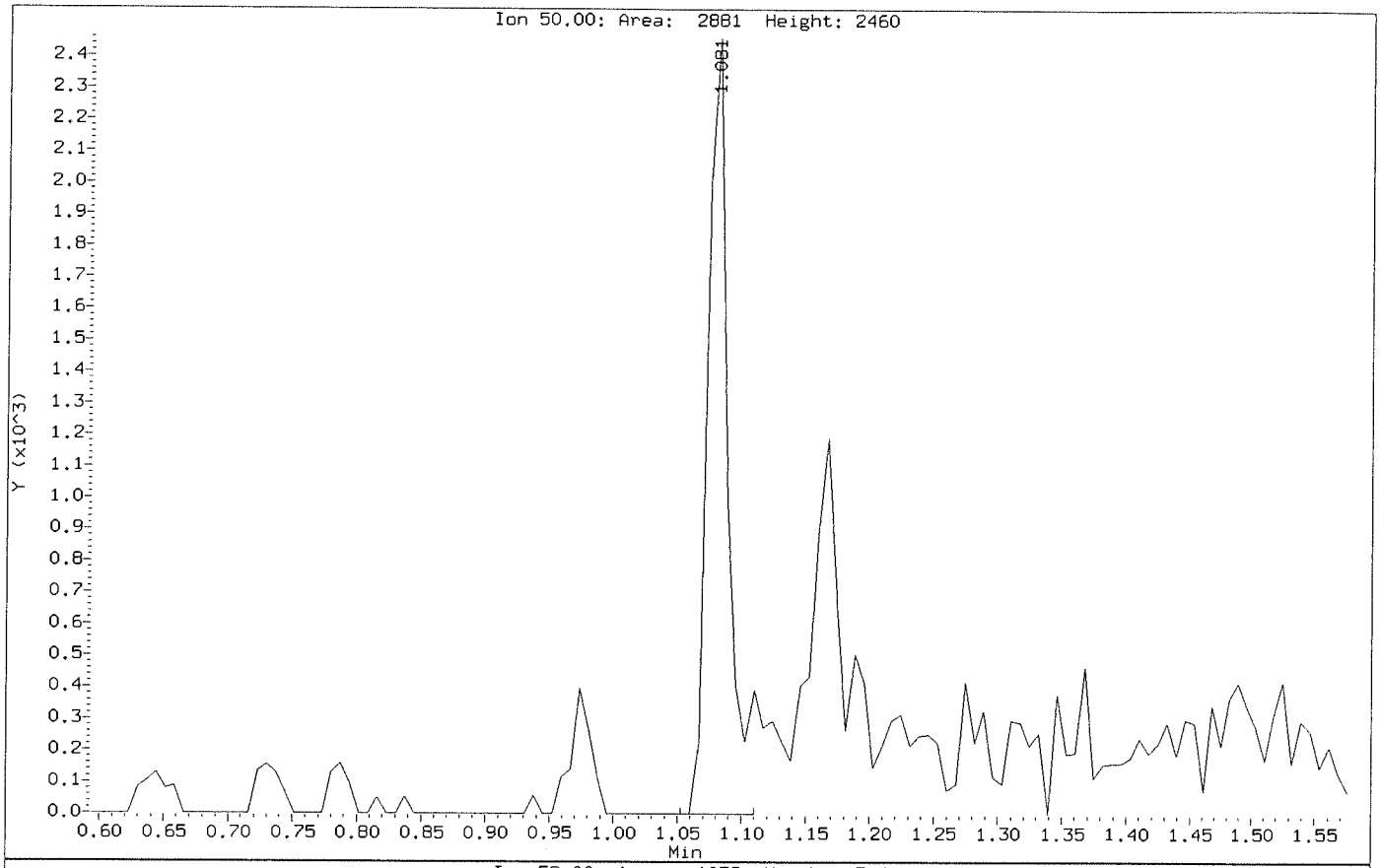
Compound: Chloroethane
CAS Number: 75-00-3

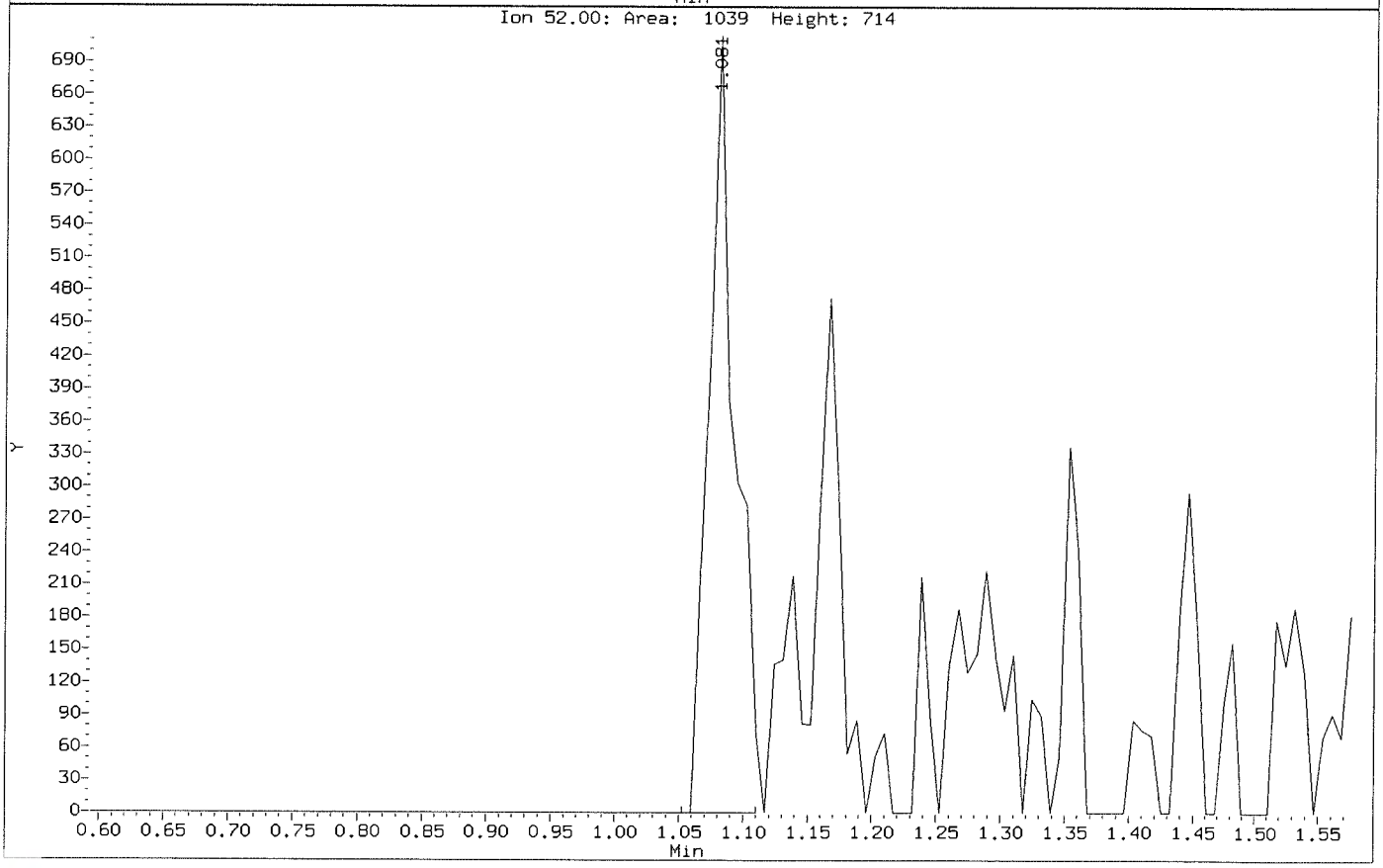


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110304.D
Injection Date: 03-NOV-2020 13:04
Instrument: voa6.i
Client Sample ID: VSTD001

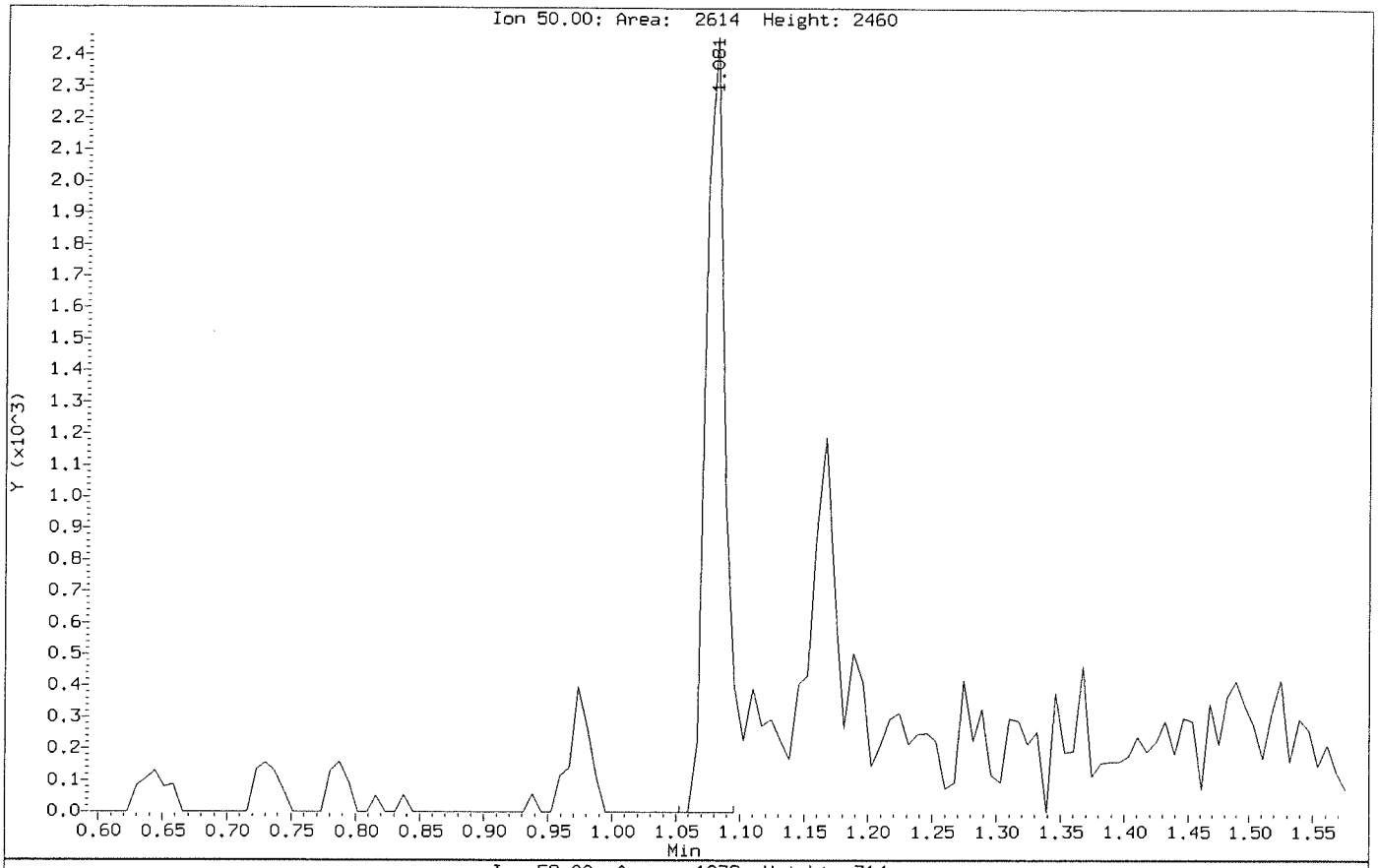
Compound: Chloromethane
CAS Number: 74-87-3

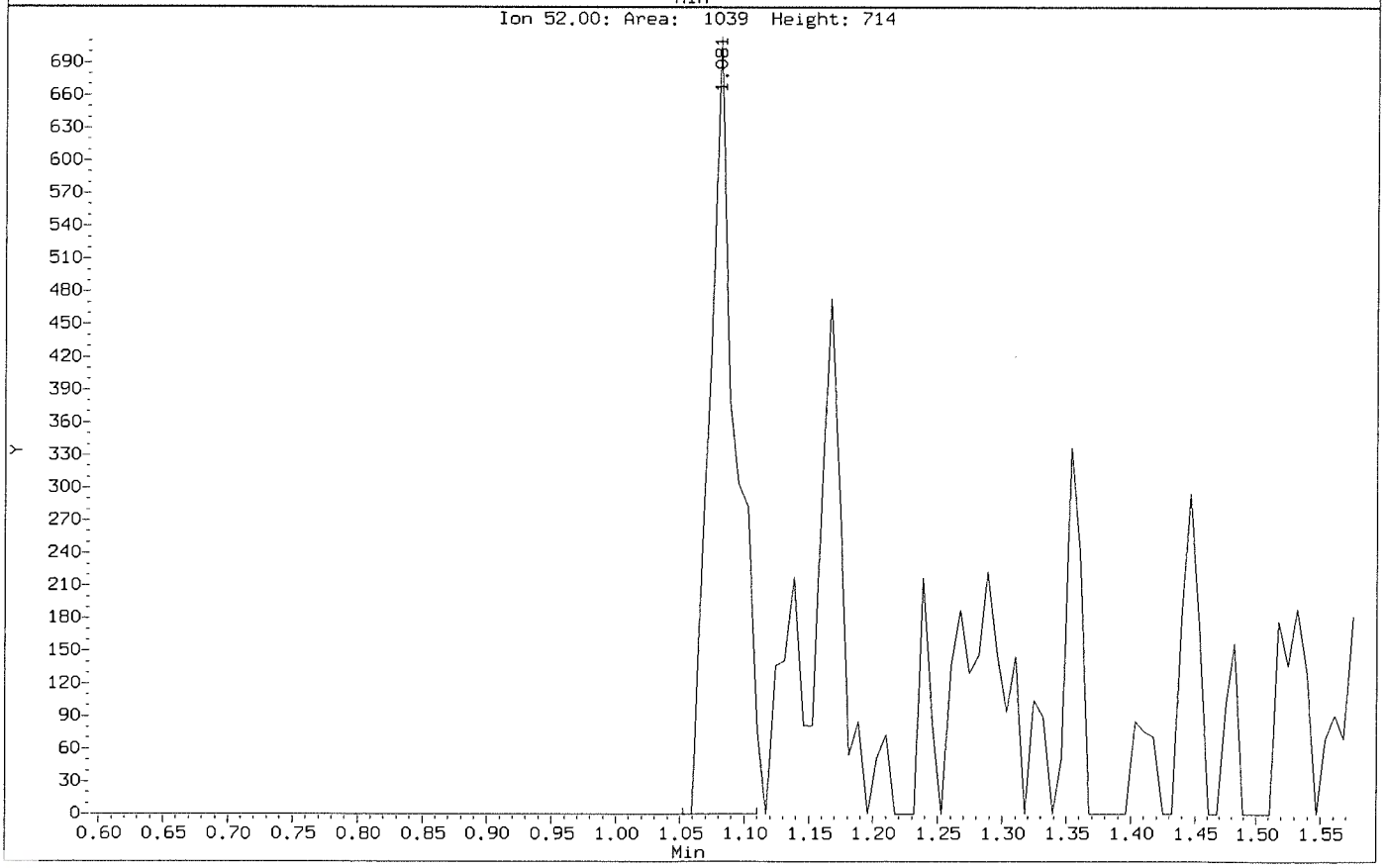


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110304.D
Injection Date: 03-NOV-2020 13:04
Instrument: voa6.i
Client Sample ID: VSTD001

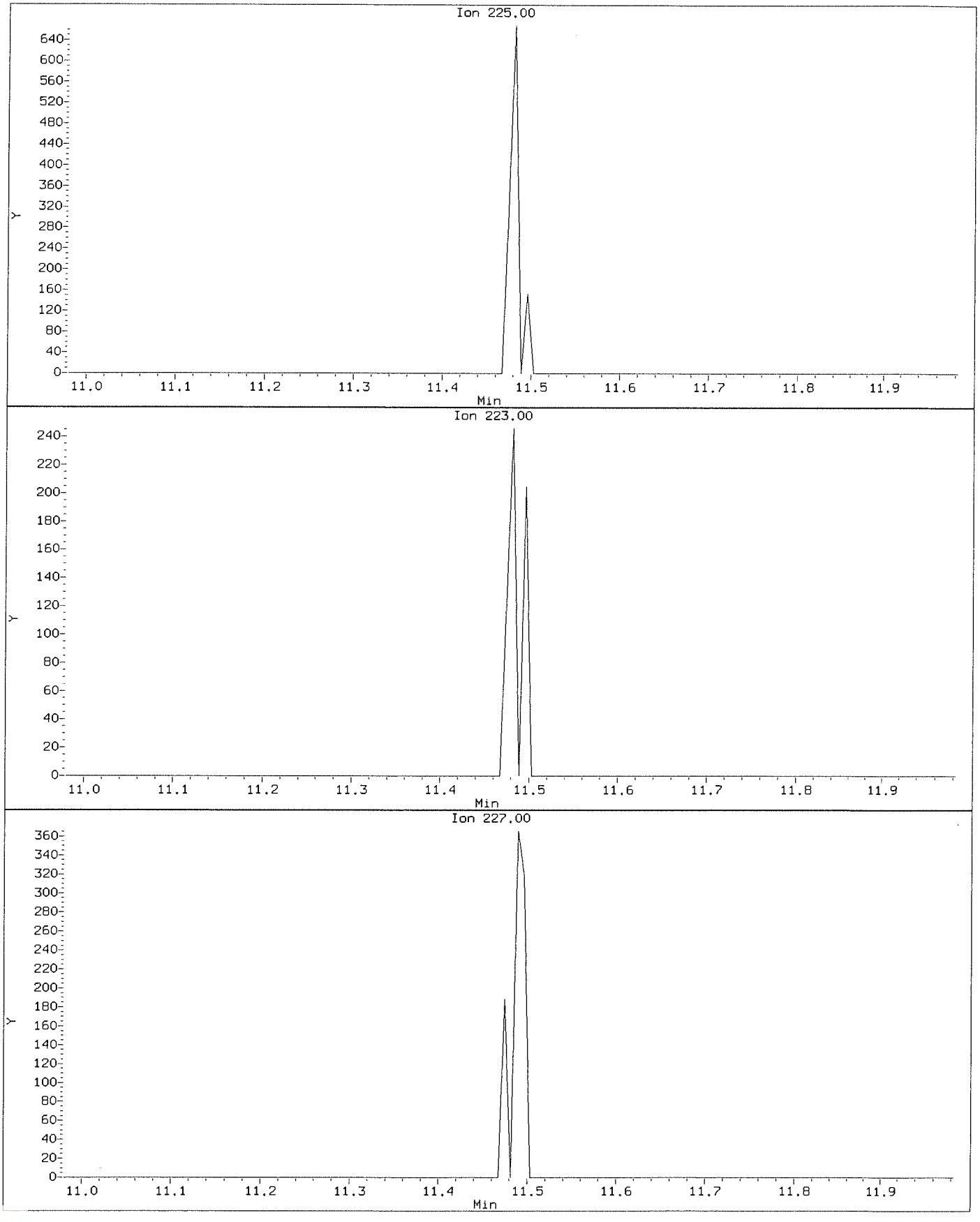
Compound: Chloromethane
CAS Number: 74-87-3



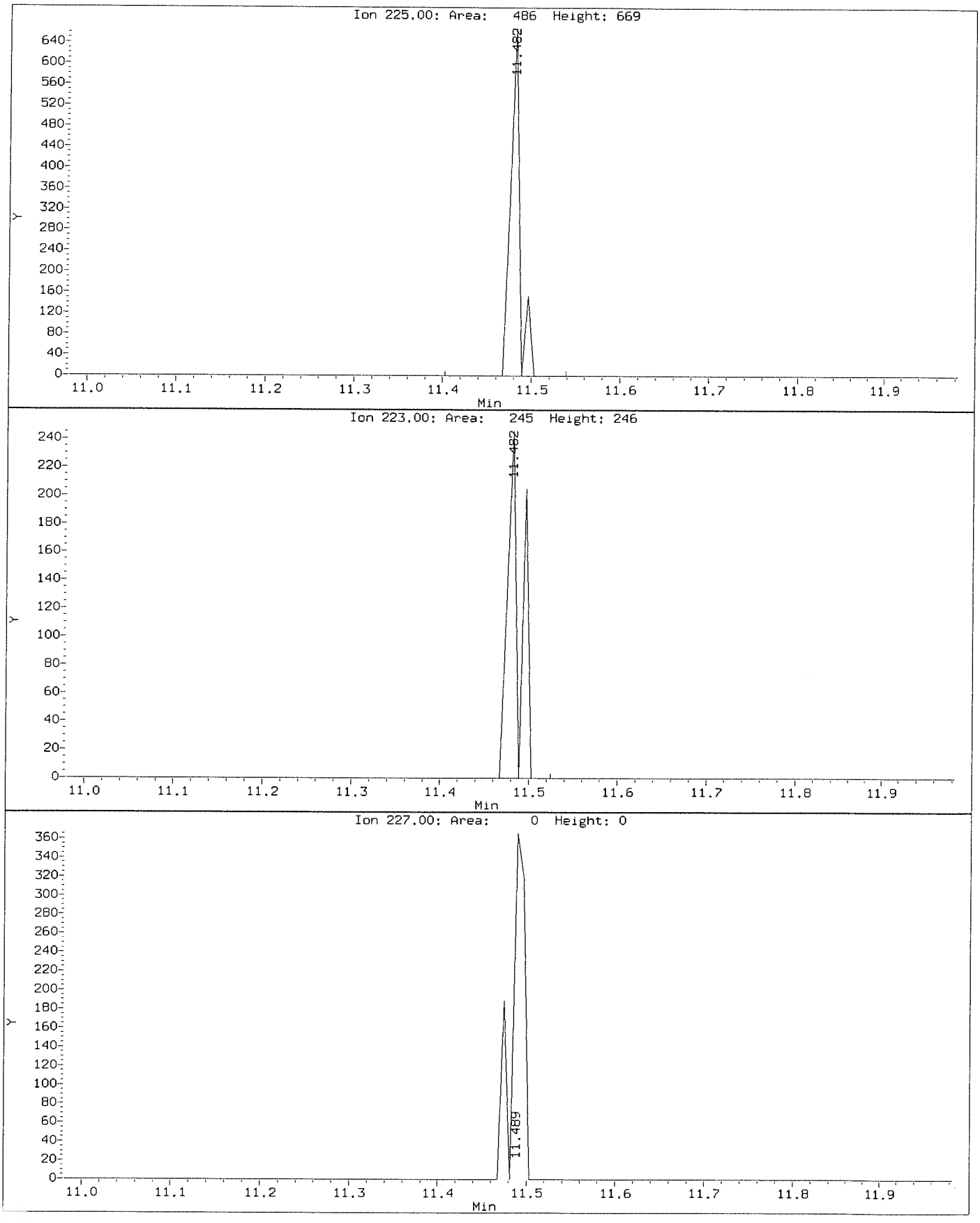
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110304.D
Injection Date: 03-NOV-2020 13:04
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Hexachlorobutadiene
CAS Number: 87-68-3



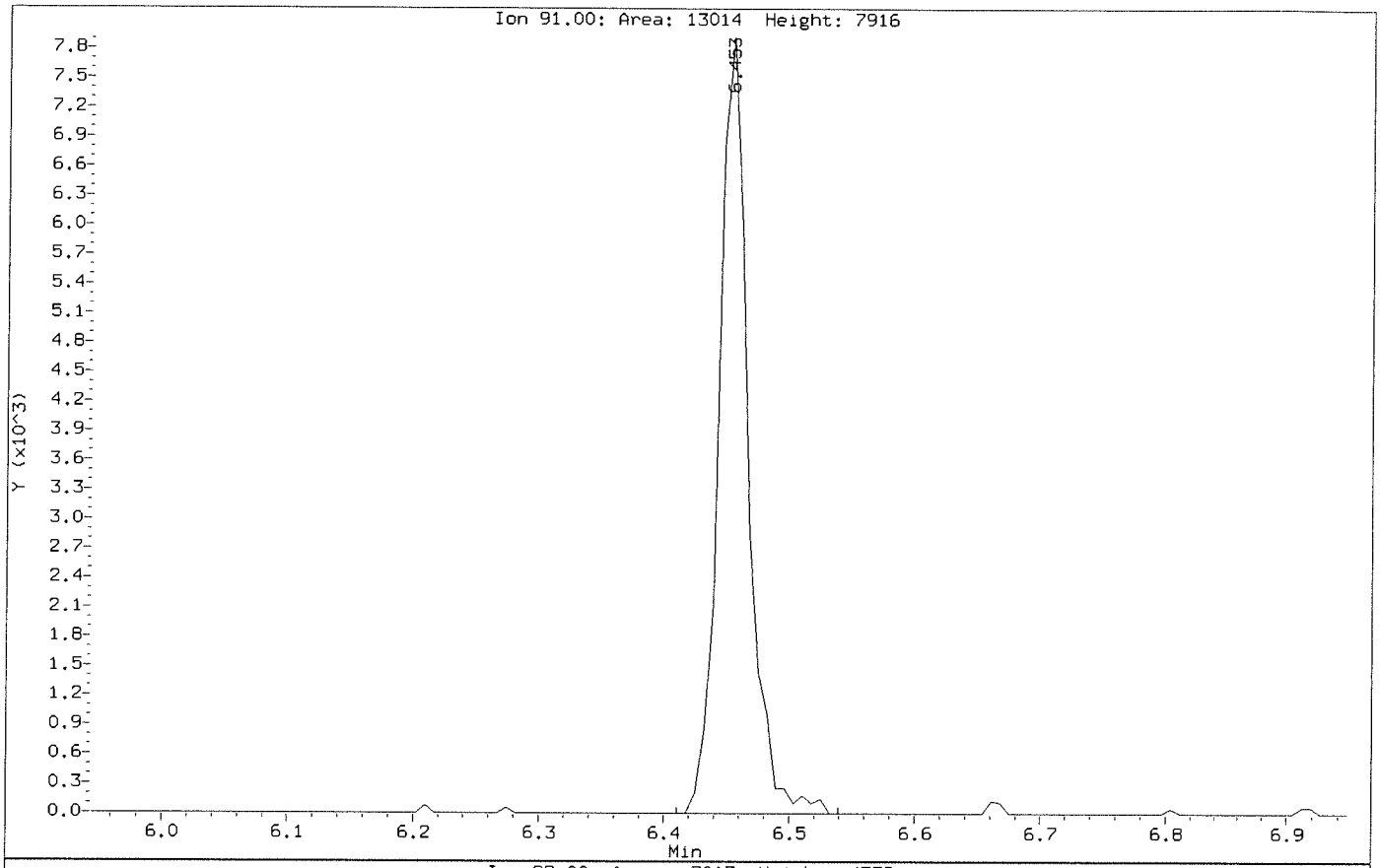
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110304.D
Injection Date: 03-NOV-2020 13:04
Instrument: voa6.i
Client Sample ID: VSTD001

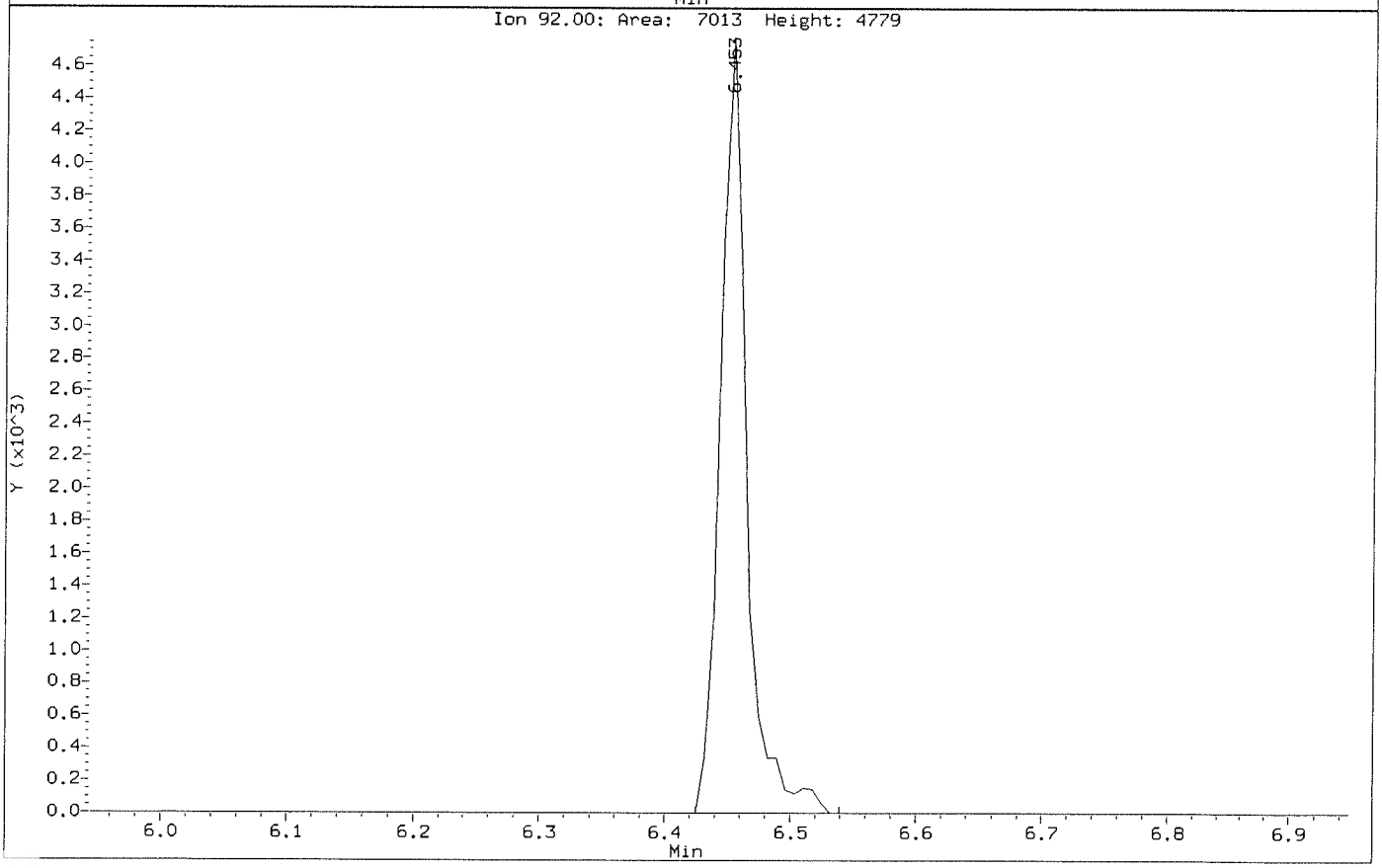
Compound: Hexachlorobutadiene
CAS Number: 87-68-3



Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110304.D
Injection Date: 03-NOV-2020 13:04
Instrument: voa6.i
Client Sample ID: VSTD001

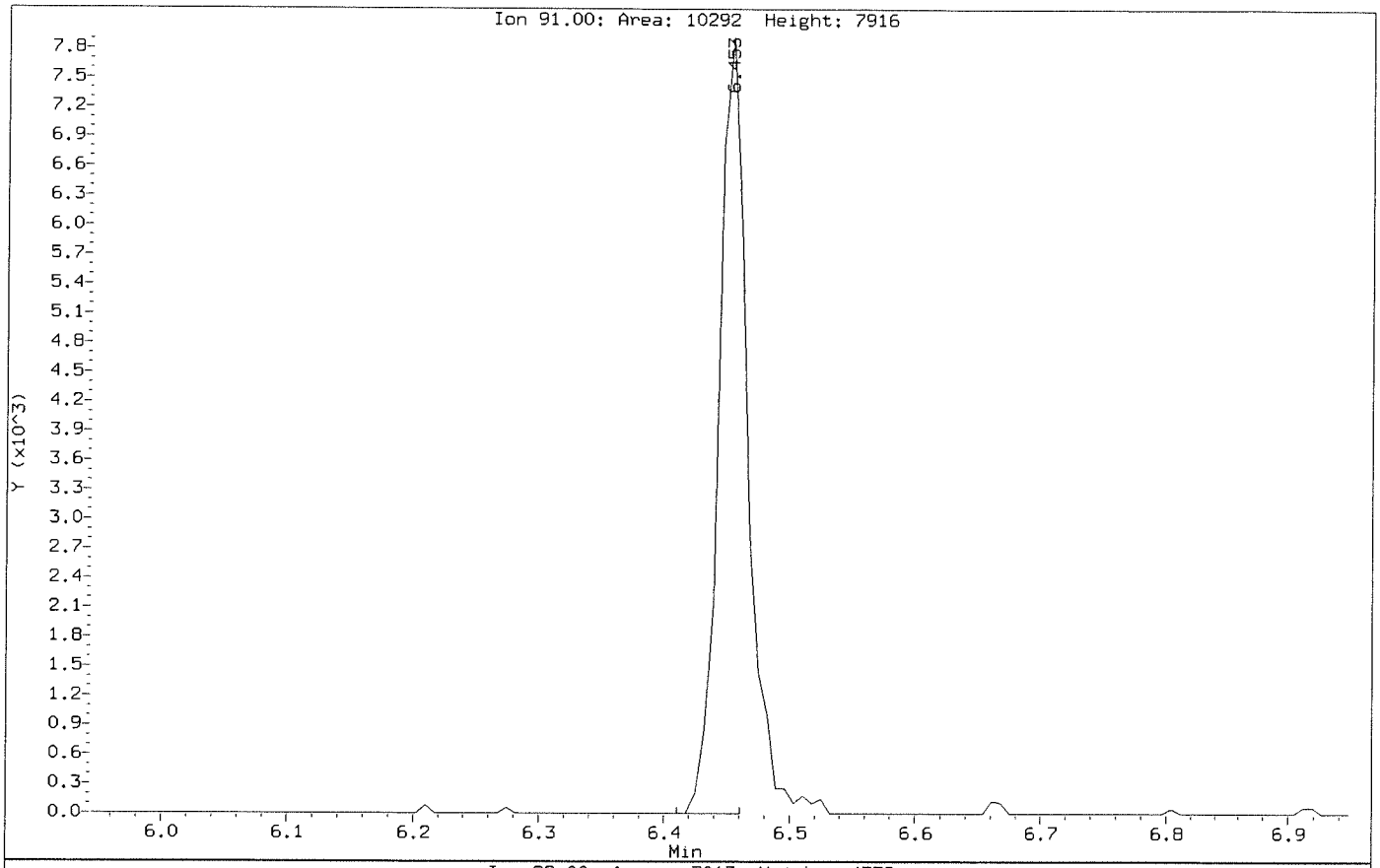
Compound: Toluene
CAS Number: 108-88-3

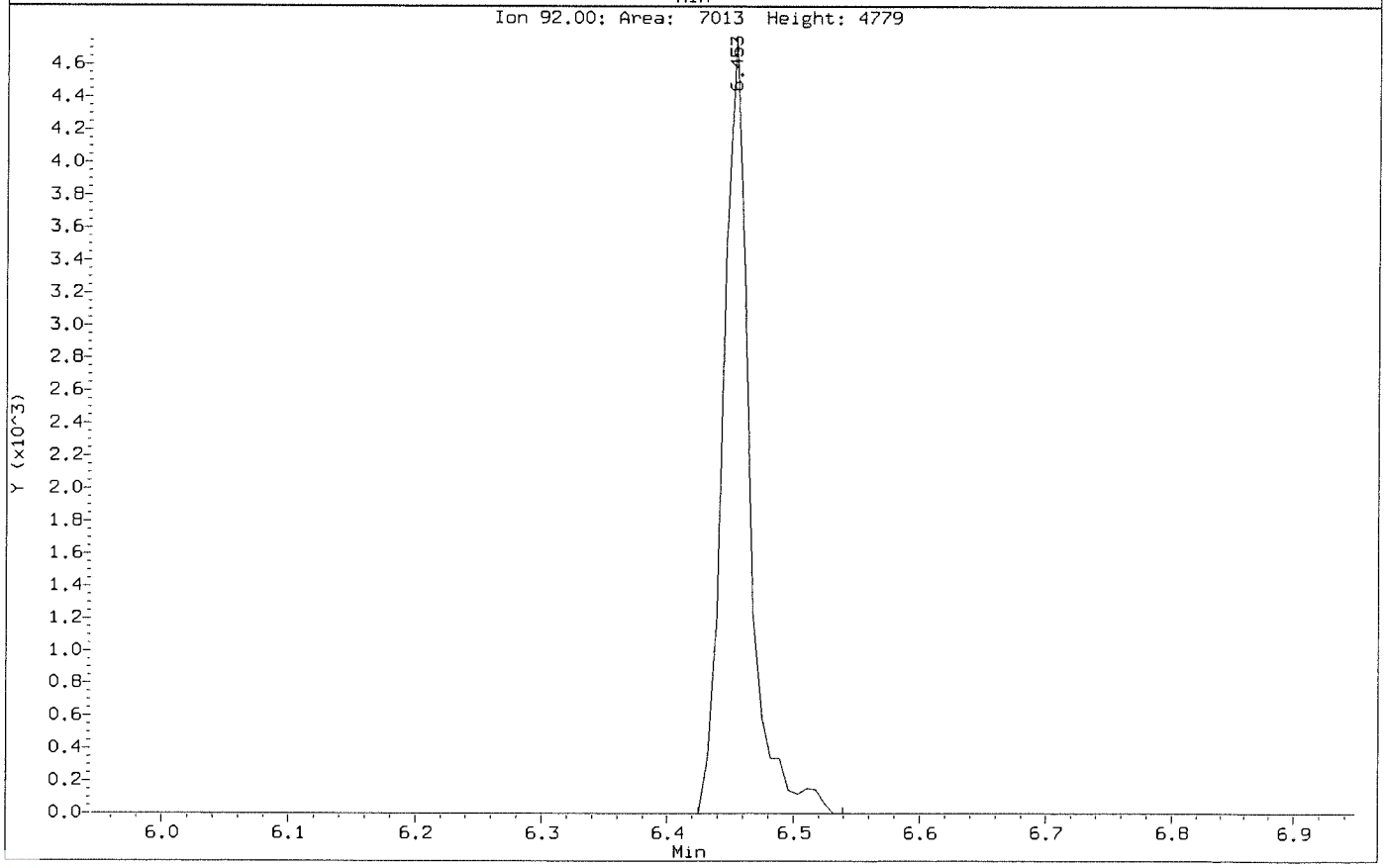


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110304.D
Injection Date: 03-NOV-2020 13:04
Instrument: voa6.i
Client Sample ID: VSTD001

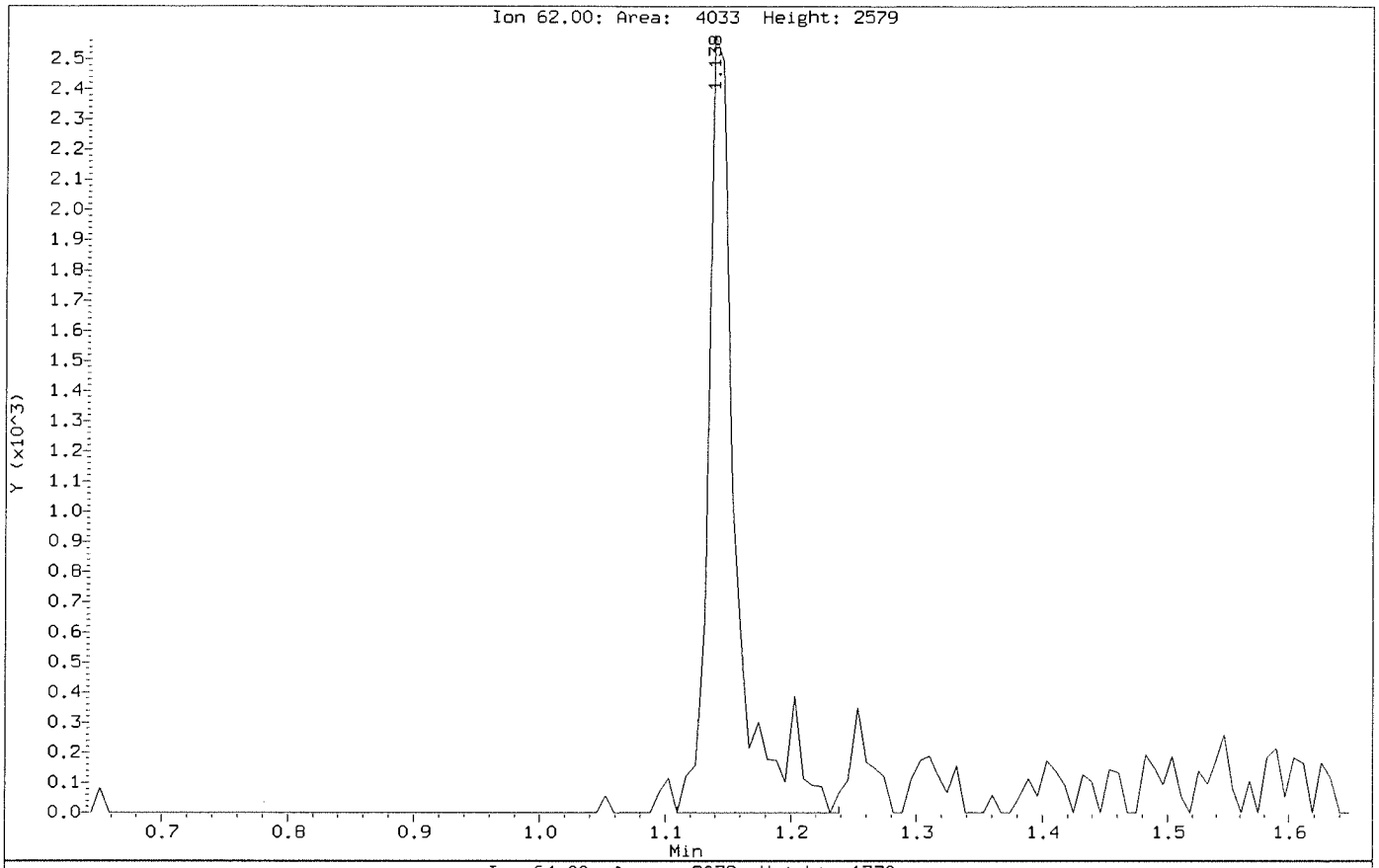
Compound: Toluene
CAS Number: 108-88-3

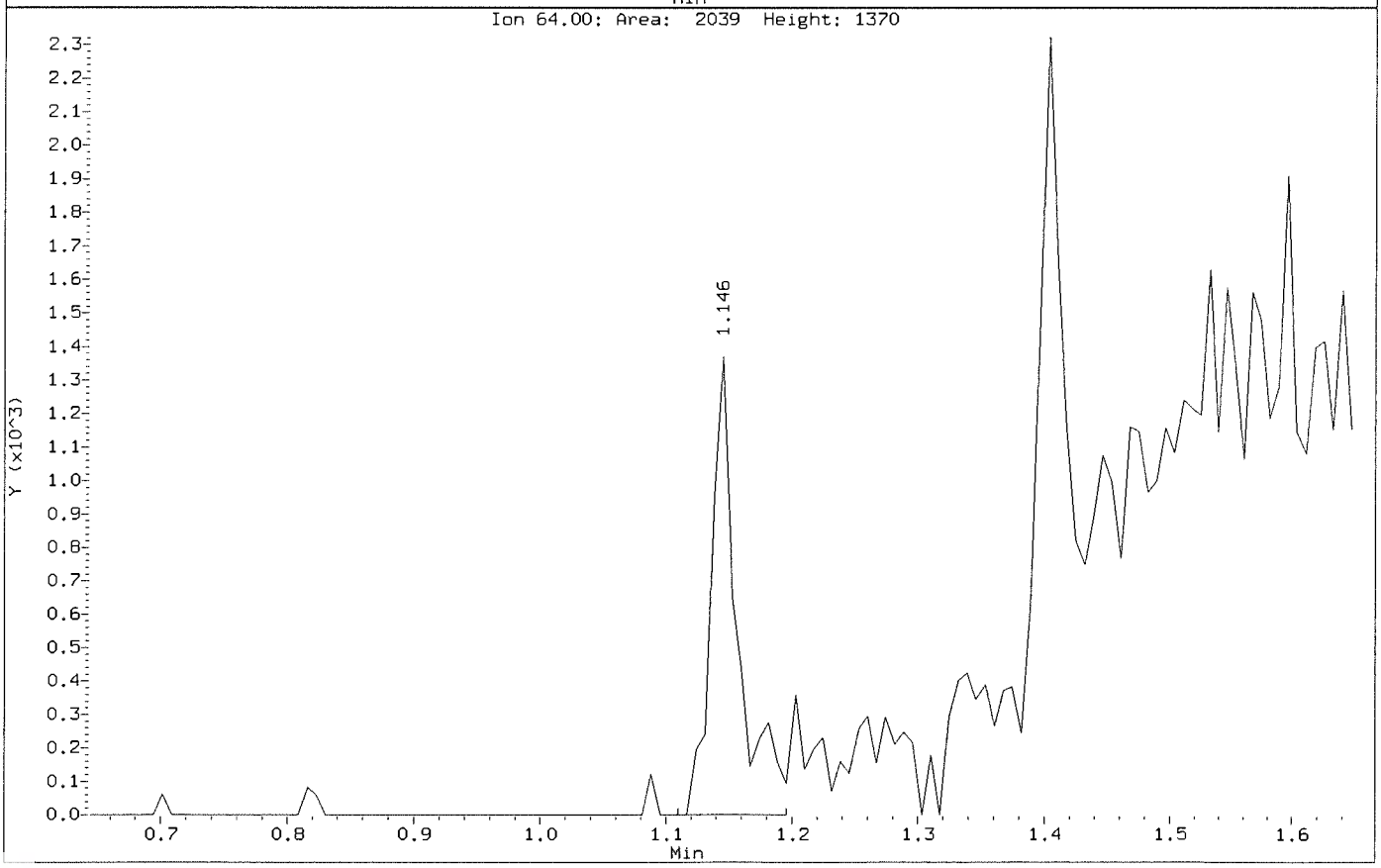


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110304.D
Injection Date: 03-NOV-2020 13:04
Instrument: voa6.i
Client Sample ID: VSTD001

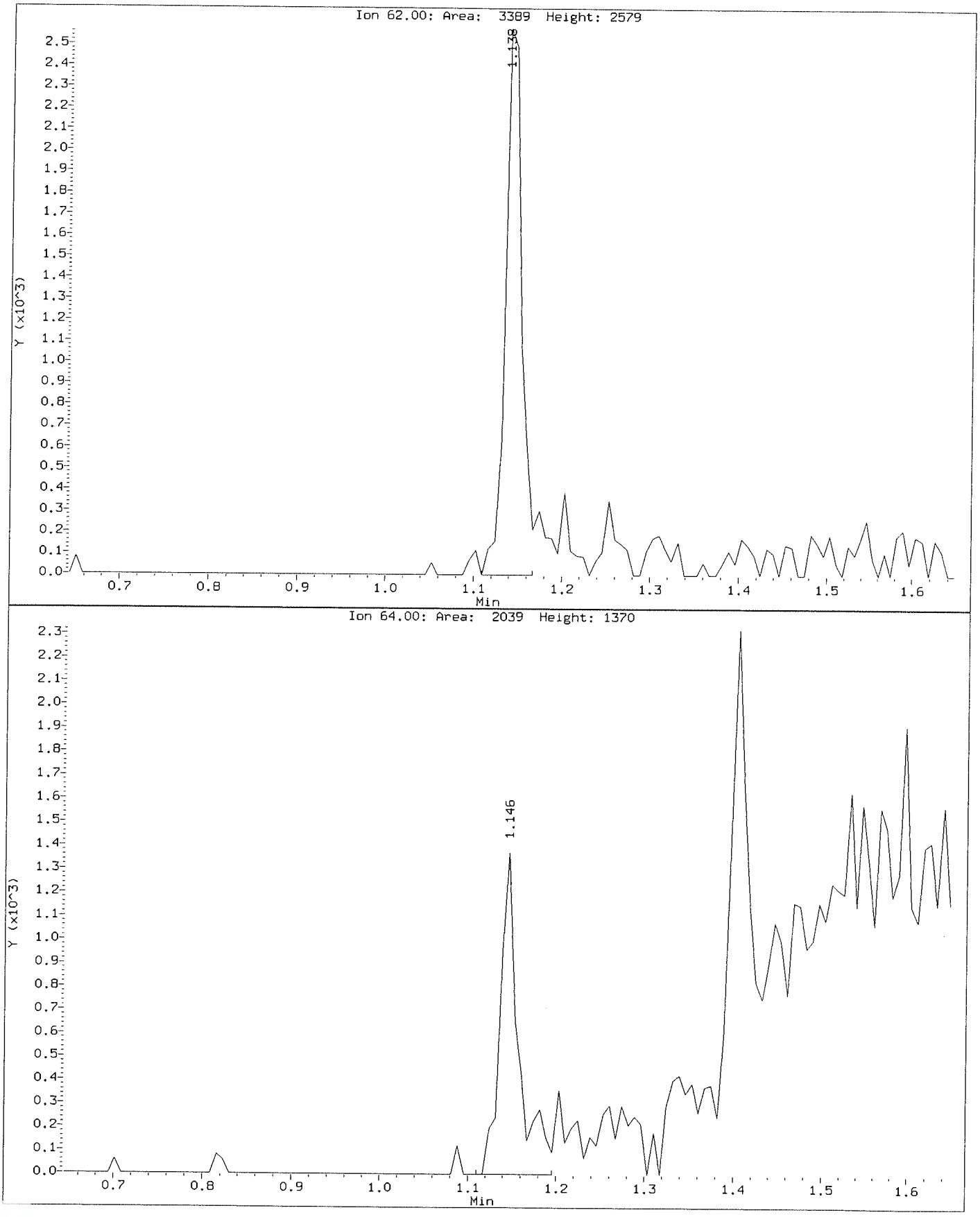
Compound: Vinyl Chloride
CAS Number: 75-01-4



Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110304.D
Injection Date: 03-NOV-2020 13:04
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Vinyl Chloride
CAS Number: 75-01-4



Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110305.D Page 1
Report Date: 13-Jan-2021 15:44

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201103.b\X110305.D
Lab Smp Id: VSTD002 Client Smp ID: VSTD002
Inj Date : 03-NOV-2020 13:24
Operator : PC Inst ID: voa6.i
Smp Info : VSTD002;VSTD002;1;4;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201103.b\8260W.m
Meth Date : 13-Jan-2021 15:44 voa6.i Quant Type: ISTD
Cal Date : 03-NOV-2020 13:04 Cal File: X110304.D
Als bottle: 6 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

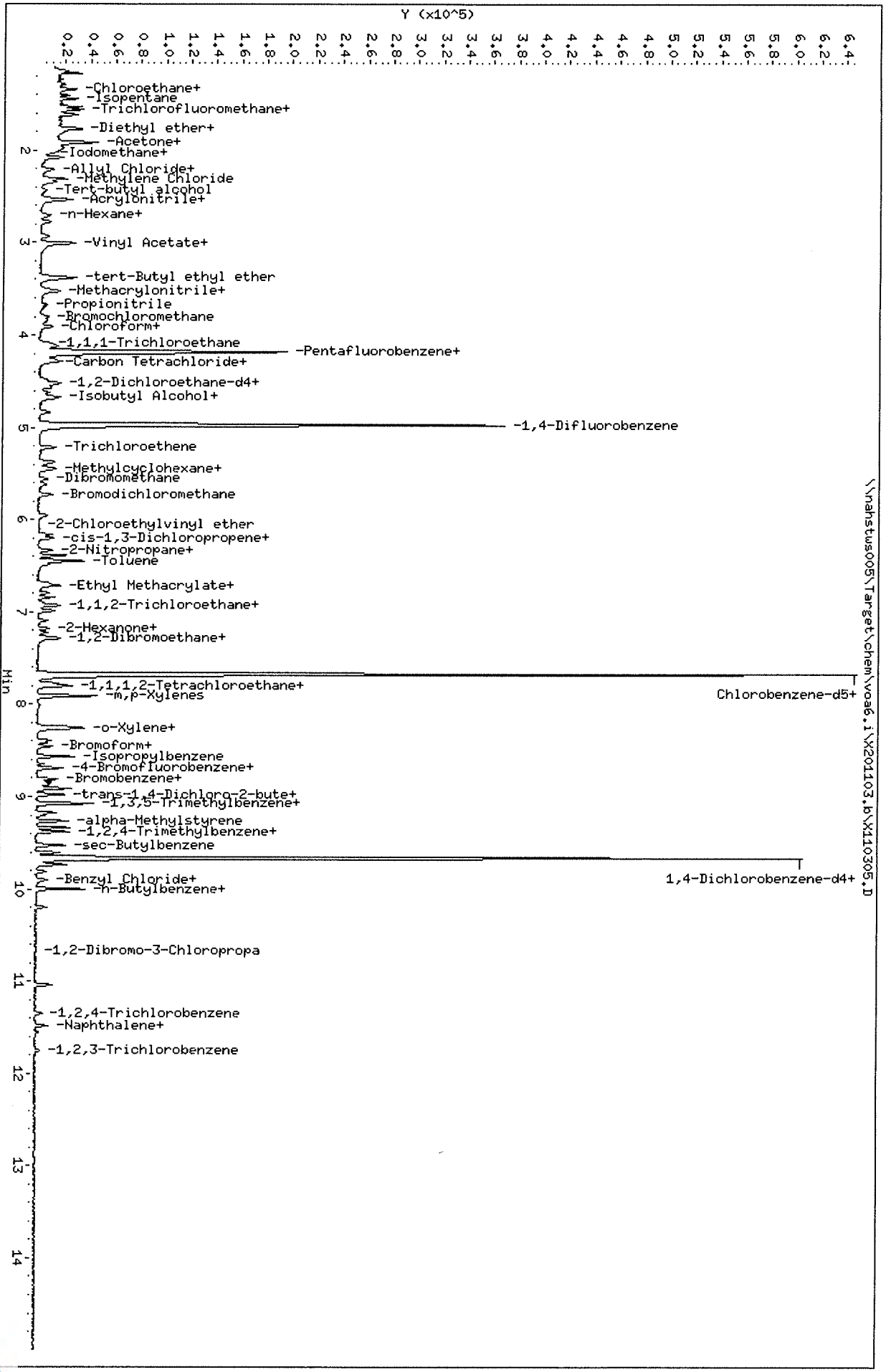
| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.182 | 4.182 | (1.000) | 138290 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 4.970 | 4.970 | (1.000) | 259024 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 7.671 | 7.671 | (1.000) | 248739 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 9.662 | 9.662 | (1.000) | 106098 | 50.0000 | |
| $ 35 1,2-Dichloroethane-d4 | 65 | 4.483 | 4.483 | (1.072) | 5018 | 2.00000 | 1.93(a) |
| $ 69 4-Bromofluorobenzene | 95 | 8.695 | 8.695 | (1.134) | 4690 | 2.00000 | 2.47(a) |
| $ 30 Dibromofluoromethane | 113 | 4.103 | 4.103 | (0.981) | 3693 | 2.00000 | 1.98(a) |
| $ 48 Toluene-d8 | 98 | 6.388 | 6.388 | (0.833) | 12459 | 2.00000 | 1.87(a) |
| 60 1,1,1,2-Tetrachloroethane | 131 | 7.778 | 7.778 | (1.014) | 2979 | 2.00000 | 1.67(a) |
| 31 1,1,1-Trichloroethane | 97 | 4.082 | 4.082 | (0.976) | 5702 | 2.00000 | 1.97(a) |
| 68 1,1,2,2-Tetrachloroethane | 83 | 8.845 | 8.845 | (0.915) | 3824 | 2.00000 | 1.62(aM) |
| 138 Freon TF | 101 | 1.919 | 1.919 | (0.459) | 5194 | 2.00000 | 2.05(a) |
| 53 1,1,2-Trichloroethane | 83 | 6.847 | 6.847 | (0.893) | 2796 | 2.00000 | 1.82(a) |
| 22 1,1-Dichloroethane | 63 | 2.929 | 2.929 | (0.700) | 6075 | 2.00000 | 1.82(a) |
| 11 1,1-Dichloroethene | 96 | 1.919 | 1.919 | (0.459) | 5185 | 2.00000 | 1.98(a) |
| 32 1,1-Dichloropropene | 75 | 4.290 | 4.290 | (0.863) | 5488 | 2.00000 | 2.27(aM) |
| 93 1,2,3-Trichlorobenzene | 180 | 11.746 | 11.746 | (1.216) | 1012 | 2.00000 | 3.91(aM) |
| 71 1,2,3-Trichloropropane | 75 | 8.874 | 8.874 | (0.918) | 2793 | 2.00000 | 1.87(aMH) |
| 90 1,2,4-Trichlorobenzene | 180 | 11.352 | 11.352 | (1.175) | 2022 | 2.00000 | 4.05(aM) |
| 79 1,2,4-Trimethylbenzene | 105 | 9.382 | 9.382 | (0.971) | 10539 | 2.00000 | 1.77(a) |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 10.665 | 10.665 | (1.104) | 195 | 2.00000 | 1.32(aM) |
| 57 1,2-Dibromoethane | 107 | 7.269 | 7.269 | (0.948) | 3087 | 2.00000 | 1.65(a) |

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 88 | 1,2-Dichlorobenzene | 146 | 9.998 | 9.998 | (1.035) | 5745 | 2.00000 | 1.96(a) |
| 33 | 1,2-Dichloroethane | 62 | 4.569 | 4.569 | (0.919) | 5501 | 2.00000 | 1.96(aM) |
| 42 | 1,2-Dichloropropane | 63 | 5.443 | 5.443 | (1.095) | 3903 | 2.00000 | 2.03(aM) |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.074 | 9.074 | (0.939) | 11653 | 2.00000 | 1.92(a) |
| 83 | 1,3-Dichlorobenzene | 146 | 9.612 | 9.612 | (0.995) | 5834 | 2.00000 | 1.87(a) |
| 54 | 1,3-Dichloropropane | 76 | 6.990 | 6.990 | (0.911) | 5906 | 2.00000 | 1.93(a) |
| 84 | 1,4-Dichlorobenzene | 146 | 9.683 | 9.683 | (1.002) | 6935 | 2.00000 | 2.14(a) |
| 26 | 2,2-Dichloropropane | 77 | 3.516 | 3.516 | (0.841) | 5827 | 2.00000 | 2.03(a) |
| 24 | 2-Butanone | 43 | 3.588 | 3.588 | (0.858) | 2551 | 4.00000 | 3.96(aM) |
| 76 | 2-Chlorotoluene | 91 | 8.981 | 8.981 | (0.930) | 10018 | 2.00000 | 2.01(a) |
| 52 | 2-Hexanone | 43 | 7.219 | 7.219 | (0.941) | 5963 | 4.00000 | 7.12 |
| 77 | 4-Chlorotoluene | 91 | 9.074 | 9.074 | (0.939) | 11569 | 2.00000 | 1.83(a) |
| 82 | p-Isopropyltoluene | 119 | 9.655 | 9.655 | (0.999) | 11552 | 2.00000 | 2.01(a) |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.331 | 6.331 | (0.825) | 6934 | 4.00000 | 3.66(a) |
| 10 | Acetone | 43 | 1.983 | 1.983 | (0.474) | 6814 | 4.00000 | 1.00(a) |
| 37 | Benzene | 78 | 4.519 | 4.519 | (0.909) | 14575 | 2.00000 | 2.01(a) |
| 74 | Bromobenzene | 156 | 8.809 | 8.809 | (0.912) | 3717 | 2.00000 | 1.99(a) |
| 29 | Bromochloromethane | 128 | 3.810 | 3.810 | (0.911) | 1977 | 2.00000 | 2.07(a) |
| 39 | Bromodichloromethane | 83 | 5.729 | 5.729 | (1.153) | 5791 | 2.00000 | 2.17(aM) |
| 66 | Bromoform | 173 | 8.423 | 8.423 | (1.098) | 1884 | 2.00000 | 4.54(Ta) |
| 6 | Bromomethane | 94 | 1.338 | 1.338 | (0.320) | 5183 | 2.00000 | 2.01(aM) |
| 19 | Carbon Disulfide | 76 | 2.076 | 2.076 | (0.497) | 20159 | 4.00000 | 4.15(a) |
| 34 | Carbon Tetrachloride | 117 | 4.275 | 4.275 | (0.860) | 4884 | 2.00000 | 2.10(a) |
| 59 | Chlorobenzene | 112 | 7.699 | 7.699 | (1.004) | 10046 | 2.00000 | 1.88(a) |
| 7 | Chloroethane | 64 | 1.403 | 1.403 | (0.336) | 5151 | 2.00000 | 2.36(a) |
| 28 | Chloroform | 83 | 3.910 | 3.910 | (0.935) | 8058 | 2.00000 | 2.27(a) |
| 3 | Chloromethane | 50 | 1.073 | 1.073 | (0.257) | 4801 | 2.00000 | 3.28(aM) |
| 27 | cis-1,2-Dichloroethene | 96 | 3.537 | 3.537 | (0.846) | 4196 | 2.00000 | 2.06(a) |
| 46 | cis-1,3-Dichloropropene | 75 | 6.166 | 6.166 | (1.241) | 6278 | 2.00000 | 2.17(a) |
| 55 | Dibromochloromethane | 129 | 7.176 | 7.176 | (0.936) | 3239 | 2.00000 | 1.76(a) |
| 44 | Dibromomethane | 93 | 5.557 | 5.557 | (1.118) | 3114 | 2.00000 | 2.37(a) |
| 2 | Dichlorodifluoromethane | 85 | 0.973 | 0.973 | (0.233) | 3469 | 2.00000 | 1.93(a) |
| 61 | Ethylbenzene | 106 | 7.799 | 7.799 | (1.017) | 5316 | 2.00000 | 1.97(aH) |
| 91 | Hexachlorobutadiene | 225 | 11.481 | 11.481 | (1.188) | 1206 | 2.00000 | 4.34(aM) |
| 67 | Isopropylbenzene | 105 | 8.566 | 8.566 | (1.117) | 13777 | 2.00000 | 4.19(a) |
| 62 | m,p-Xylenes | 106 | 7.907 | 7.907 | (1.031) | 10809 | 4.00000 | 3.34(aM) |
| 17 | Methylene Chloride | 84 | 2.305 | 2.305 | (0.551) | 3913 | 2.00000 | 2.06(a) |
| 87 | n-Butylbenzene | 91 | 9.998 | 9.998 | (1.035) | 11381 | 2.00000 | 5.24 |
| 73 | n-Propylbenzene | 91 | 8.917 | 8.917 | (0.923) | 16441 | 2.00000 | 1.94(a) |
| 92 | Naphthalene | 128 | 11.553 | 11.553 | (1.196) | 2622 | 2.00000 | 4.19(a) |
| 63 | o-Xylene | 106 | 8.244 | 8.244 | (1.075) | 6045 | 2.00000 | 1.87(a) |
| 81 | sec-Butylbenzene | 105 | 9.526 | 9.526 | (0.986) | 13806 | 2.00000 | 4.43(a) |
| 64 | Styrene | 104 | 8.265 | 8.265 | (1.078) | 9334 | 2.00000 | 1.72(a) |
| 78 | tert-Butylbenzene | 119 | 9.339 | 9.339 | (0.967) | 9232 | 2.00000 | 4.30(aM) |
| 56 | Tetrachloroethene | 164 | 6.933 | 6.933 | (0.904) | 2392 | 2.00000 | 1.74(a) |
| 50 | Toluene | 91 | 6.453 | 6.453 | (0.841) | 19681 | 2.00000 | 2.16(aM) |
| 20 | trans-1,2-Dichloroethene | 96 | 2.535 | 2.535 | (0.606) | 3535 | 2.00000 | 2.05(a) |
| 51 | trans-1,3-Dichloropropene | 75 | 6.689 | 6.689 | (1.346) | 4619 | 2.00000 | 1.81(a) |
| 38 | Trichloroethene | 130 | 5.214 | 5.214 | (1.049) | 3905 | 2.00000 | 2.26(aM) |
| 8 | Trichlorofluoromethane | 101 | 1.560 | 1.560 | (0.373) | 10872 | 2.00000 | 2.08(a) |
| 5 | Vinyl Chloride | 62 | 1.145 | 1.145 | (0.274) | 6176 | 2.00000 | 2.02(aM) |

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.

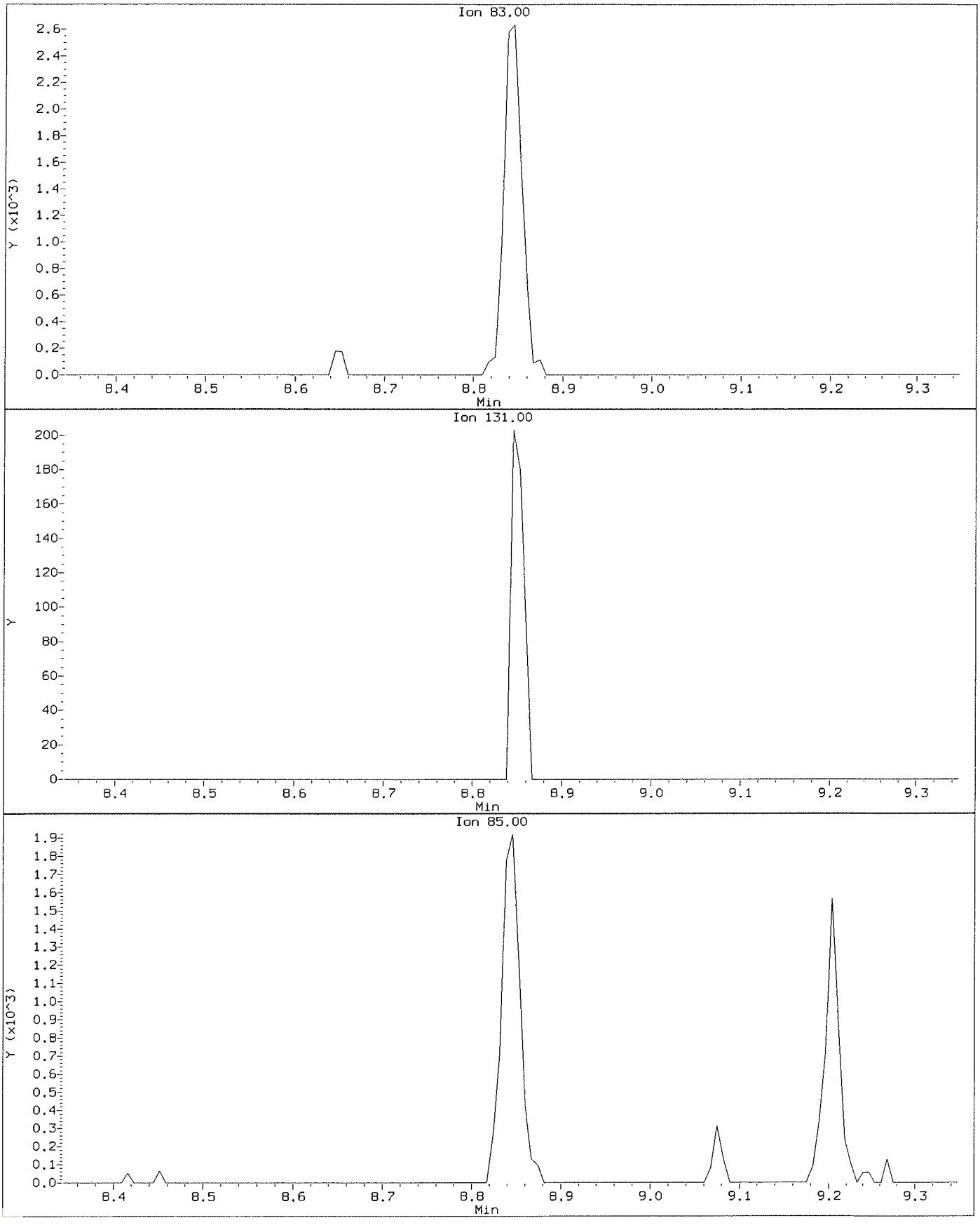



Data File: \\nahstus005\Target\chem\voa6.i\X201103.b\X110305.D
Date : 03-NOV-2020 13:24
Client ID: VSTD002
Sample Info: VSTD002;VSTD002;1;4;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

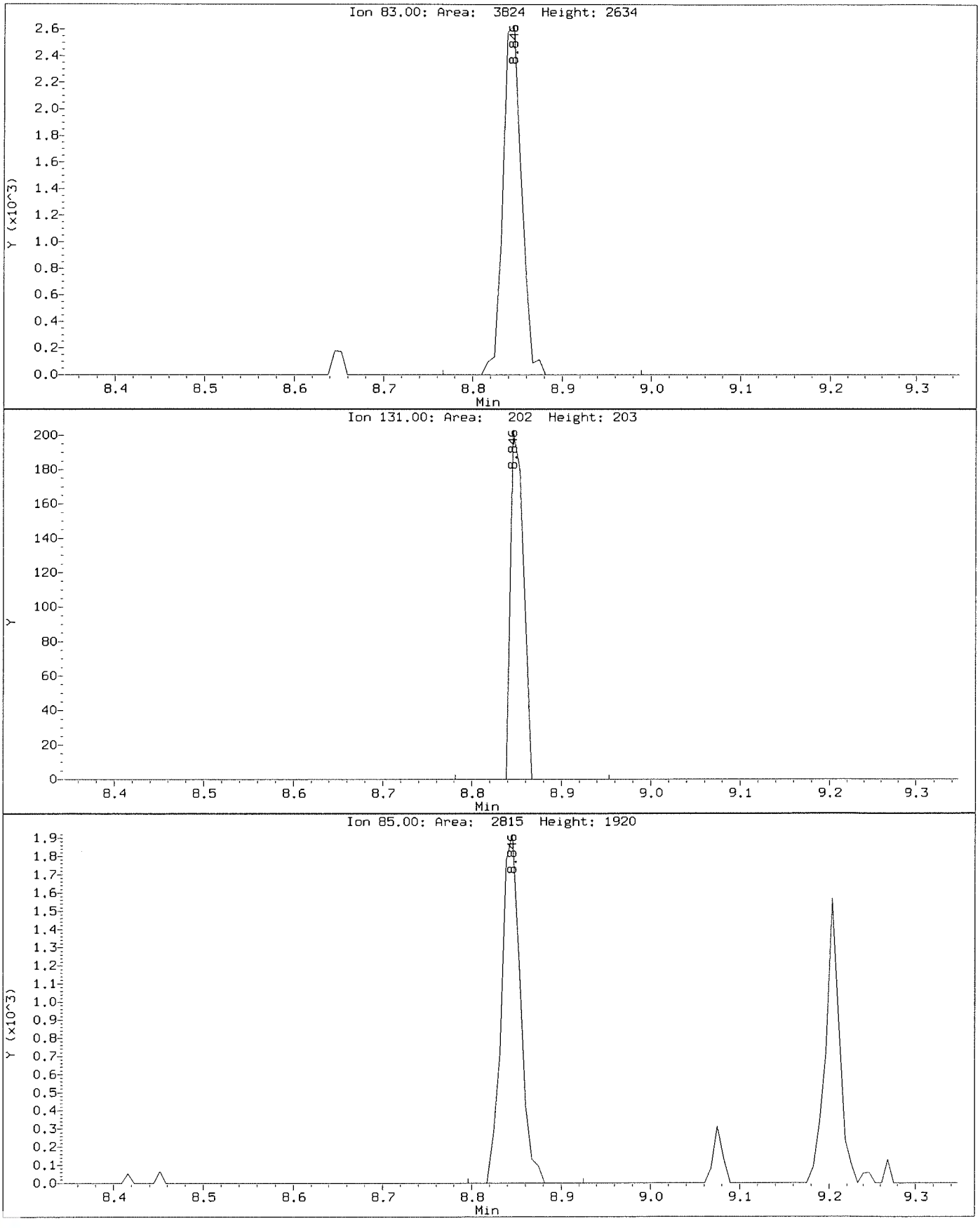
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110305.D
Injection Date: 03-NOV-2020 13:24
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



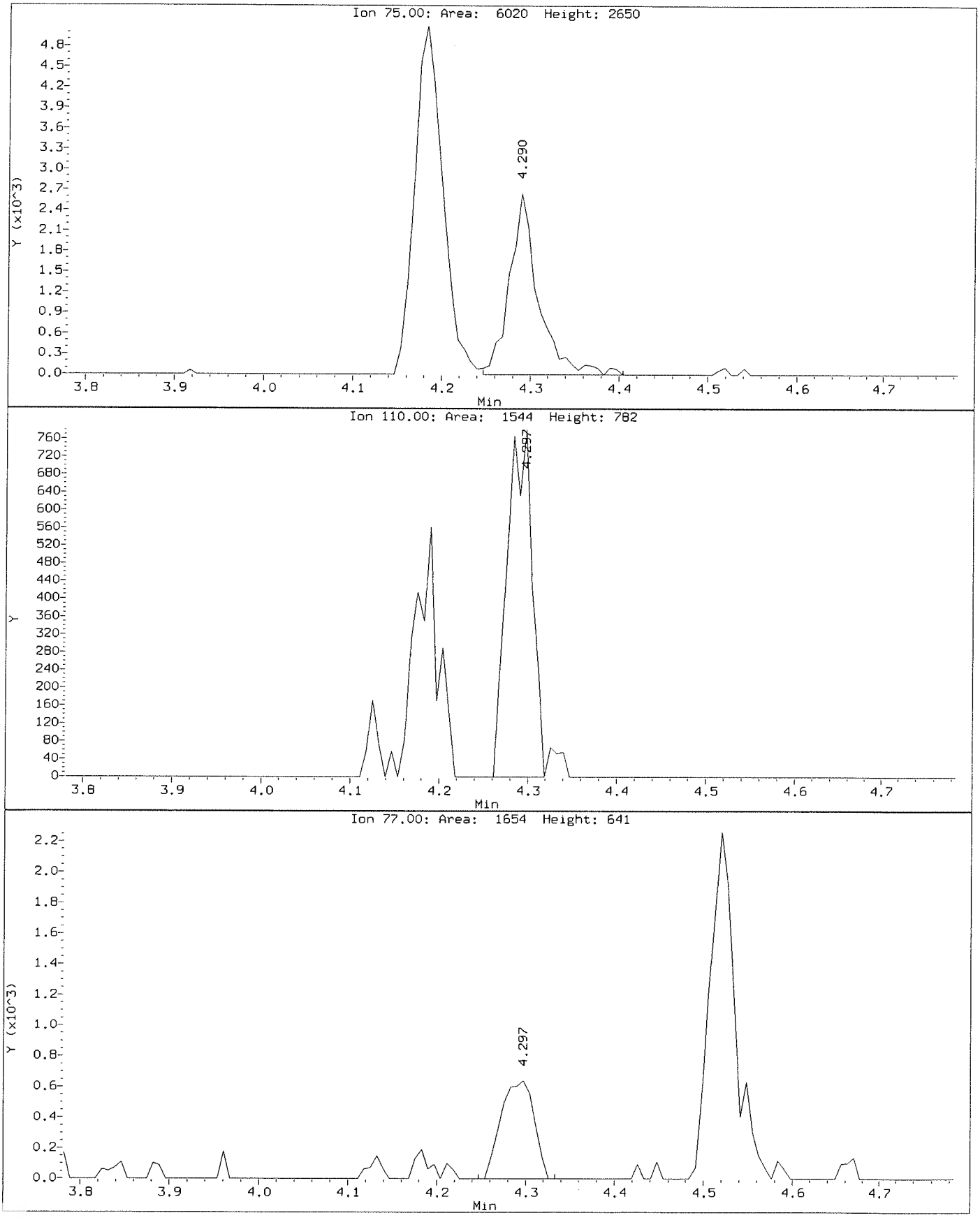
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110305.D
Injection Date: 03-NOV-2020 13:24
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



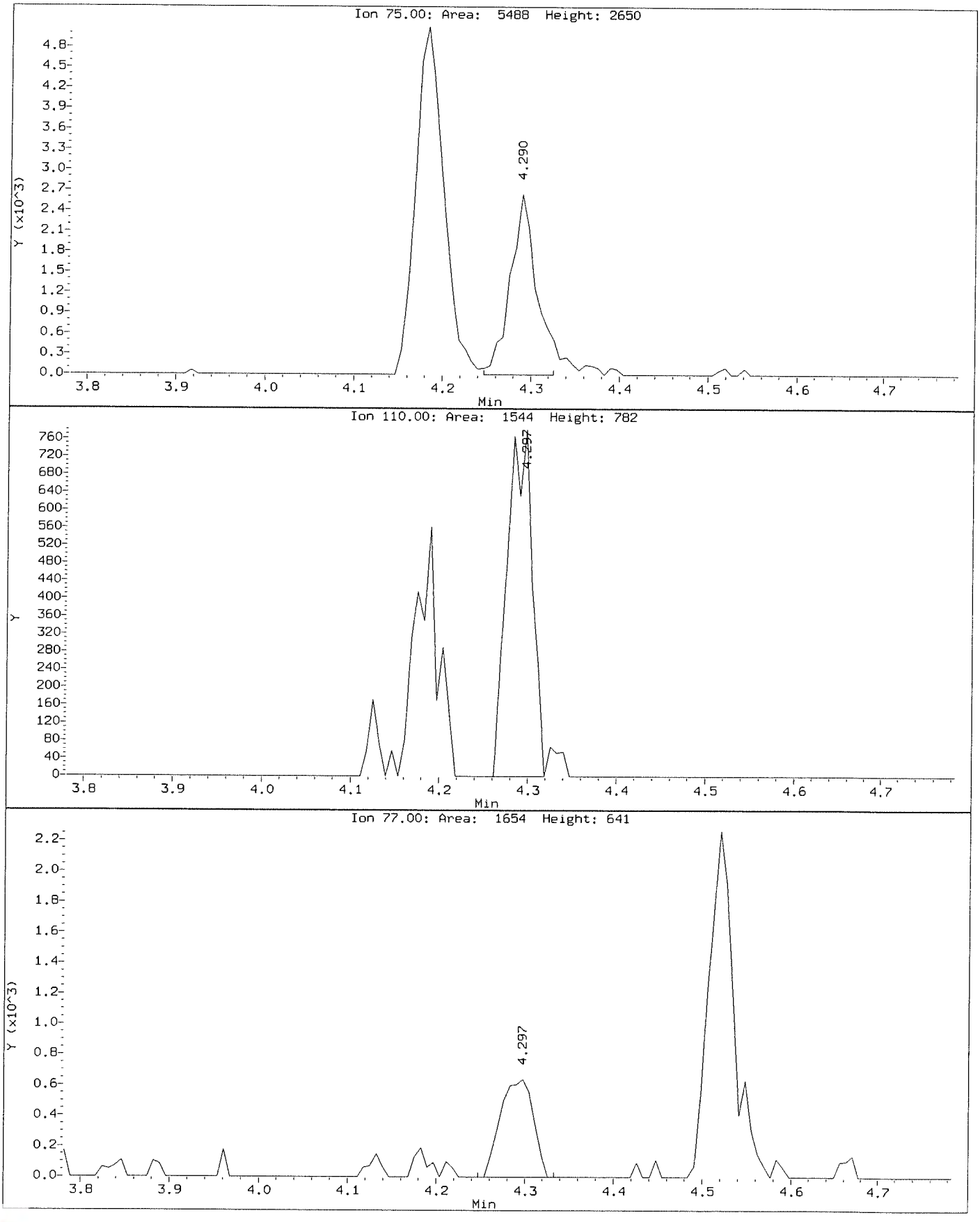
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110305.D
Injection Date: 03-NOV-2020 13:24
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: 1,1-Dichloropropene
CAS Number: 563-58-6



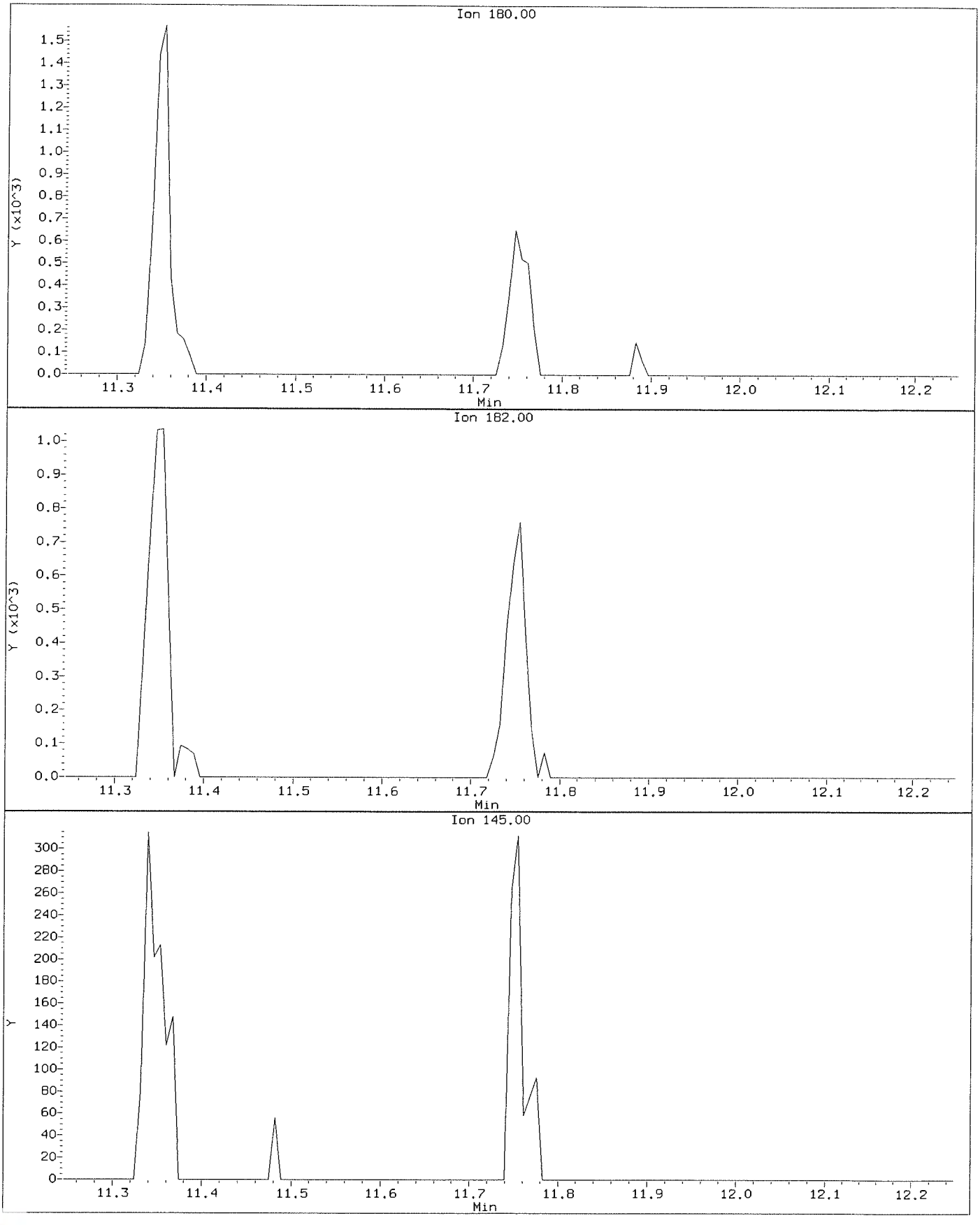
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110305.D
Injection Date: 03-NOV-2020 13:24
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: 1,1-Dichloropropene
CAS Number: 563-58-6



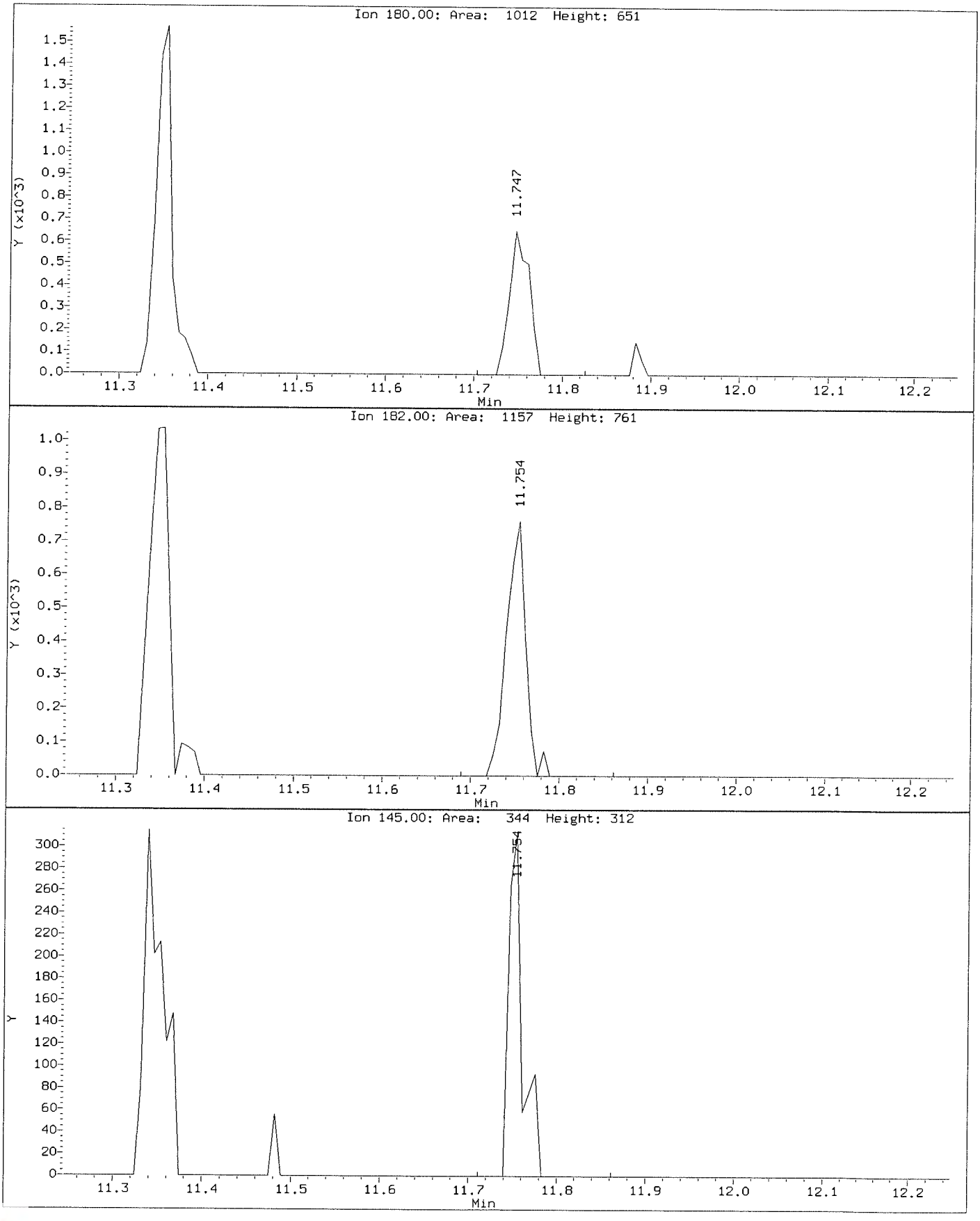
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110305.D
Injection Date: 03-NOV-2020 13:24
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: 1,2,3-Trichlorobenzene
CAS Number: 87-61-6



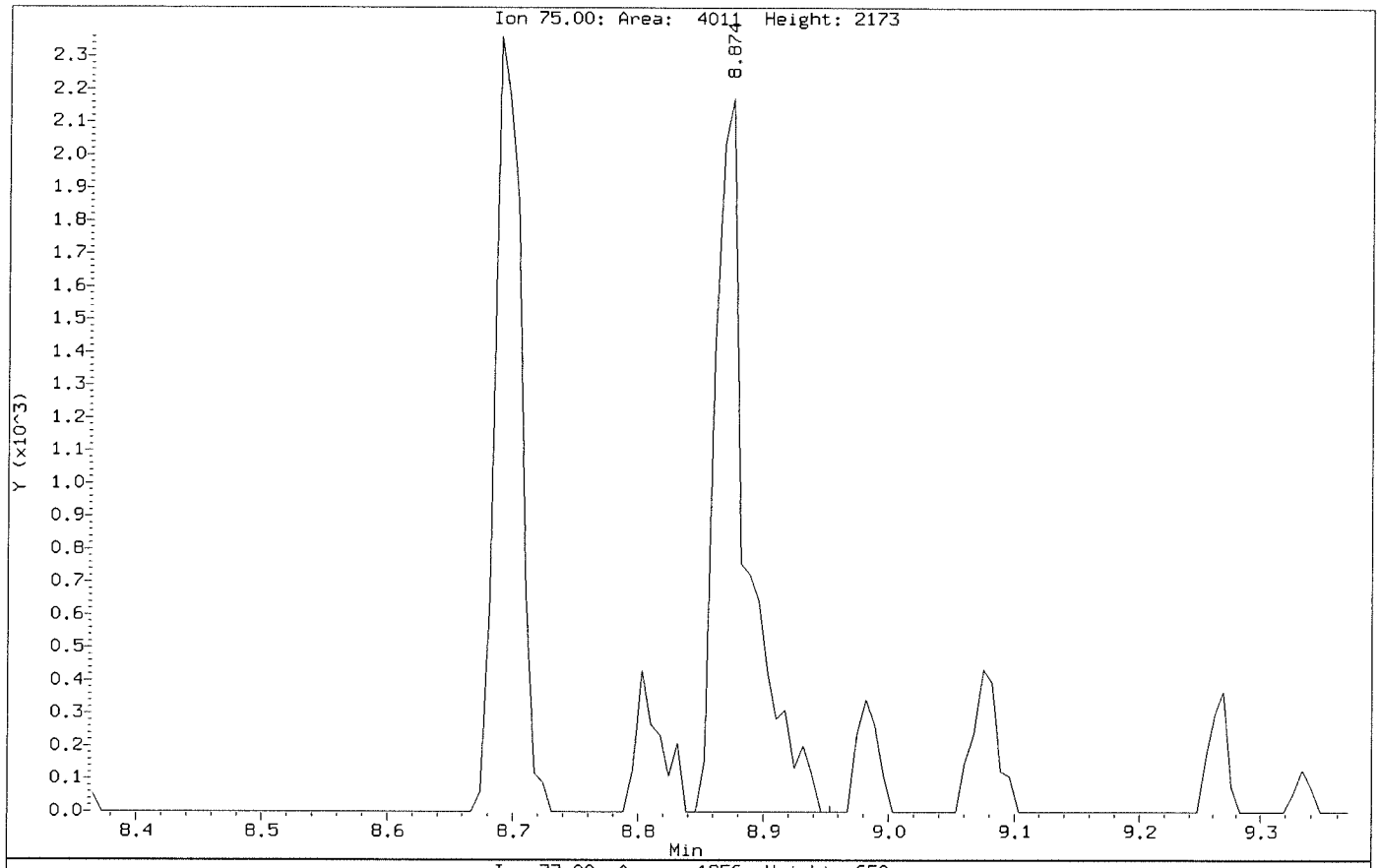
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110305.D
Injection Date: 03-NOV-2020 13:24
Instrument: voa6.i
Client Sample ID: VSTD002

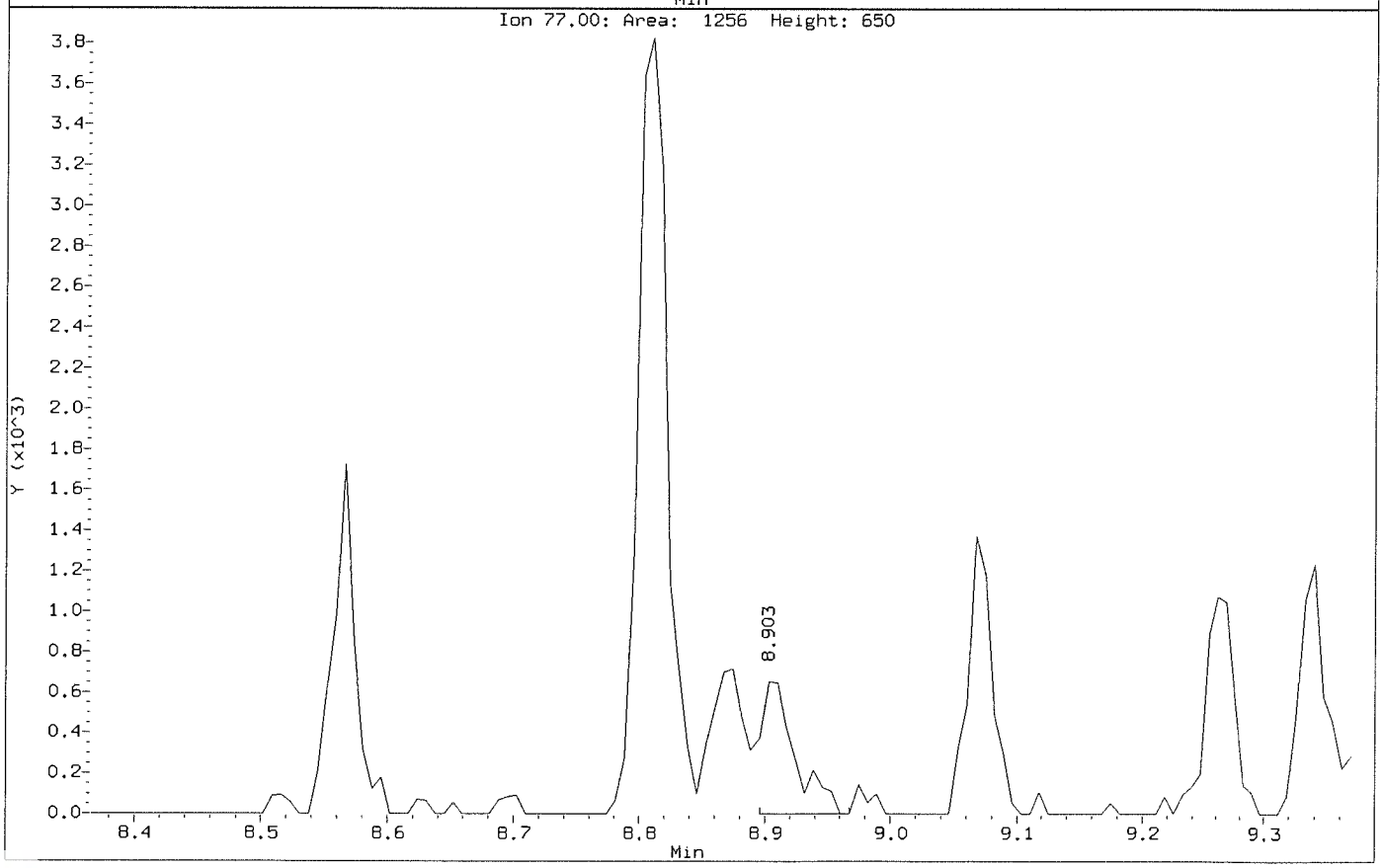
Compound: 1,2,3-Trichlorobenzene
CAS Number: 87-61-6



Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110305.D
Injection Date: 03-NOV-2020 13:24
Instrument: voa6.i
Client Sample ID: VSTD002

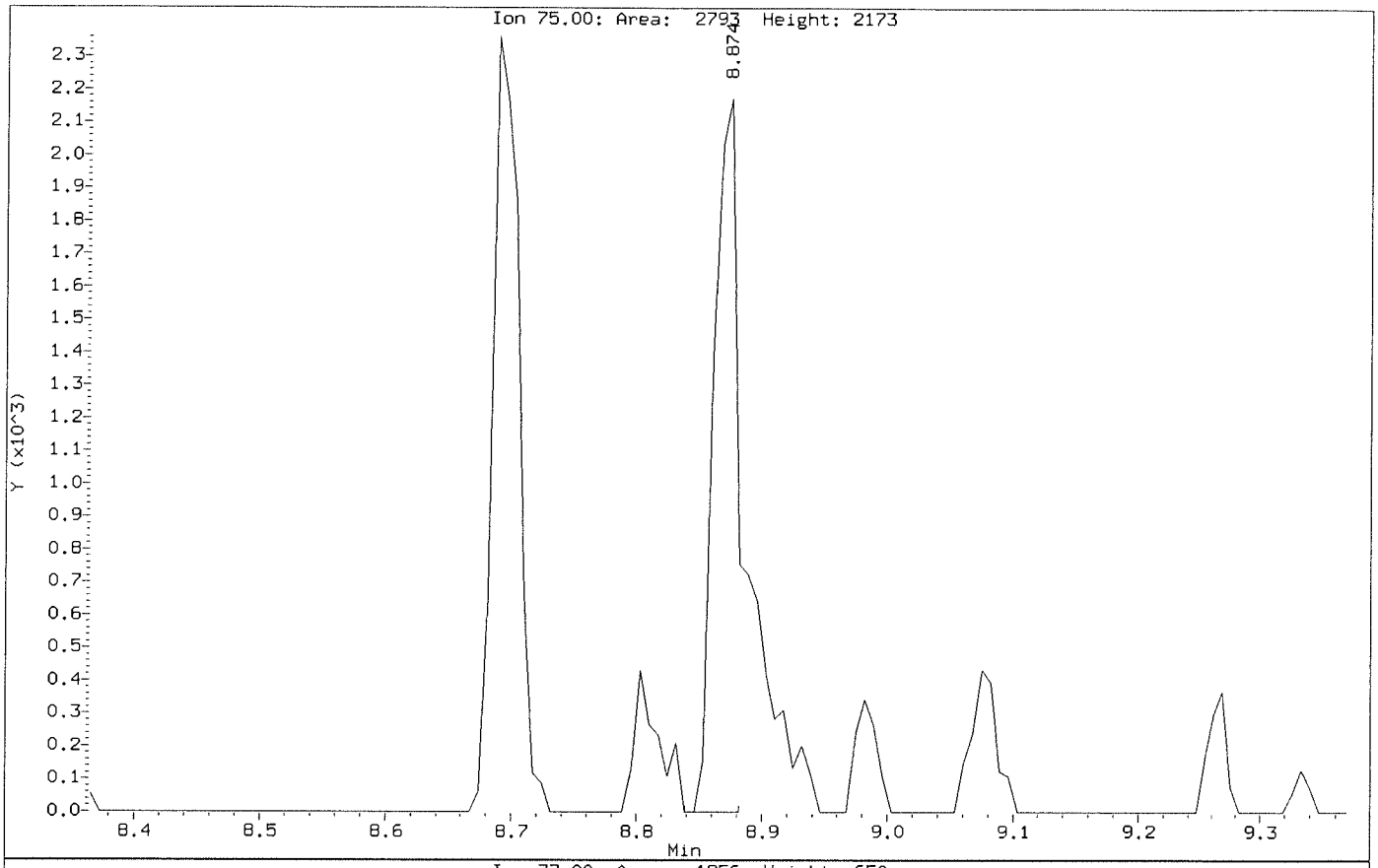
Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4

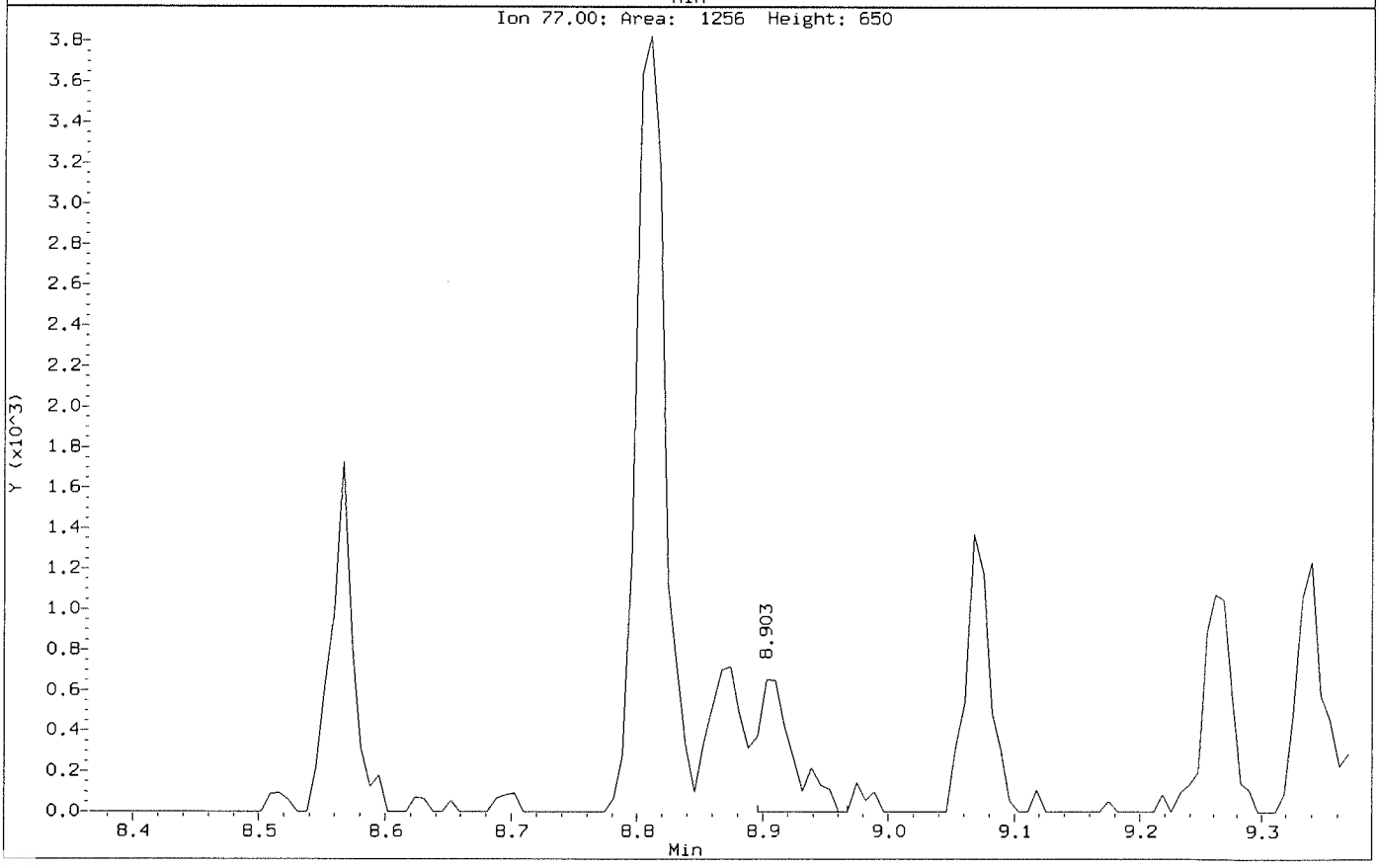


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110305.D
Injection Date: 03-NOV-2020 13:24
Instrument: voa6.i
Client Sample ID: VSTD002

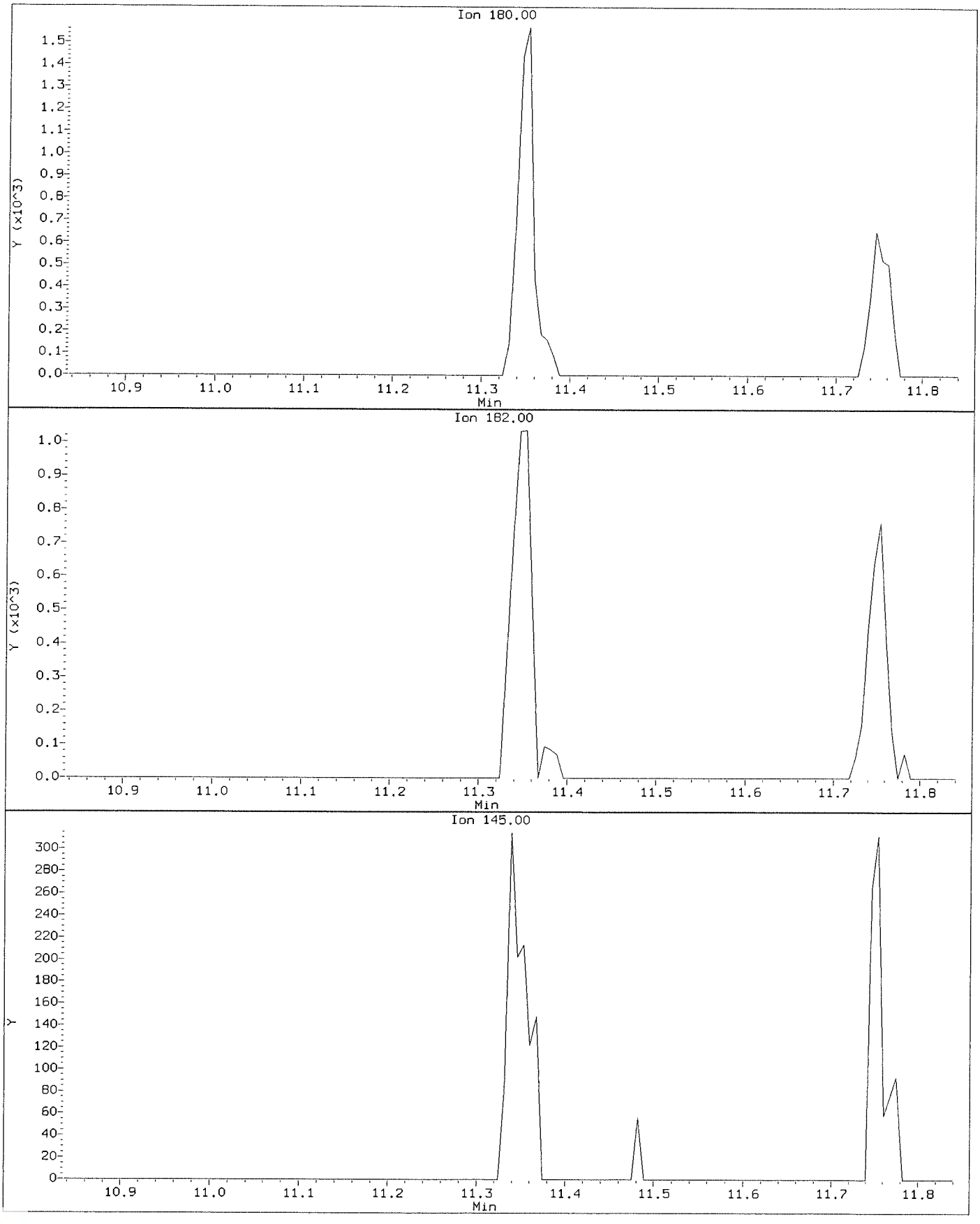
Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



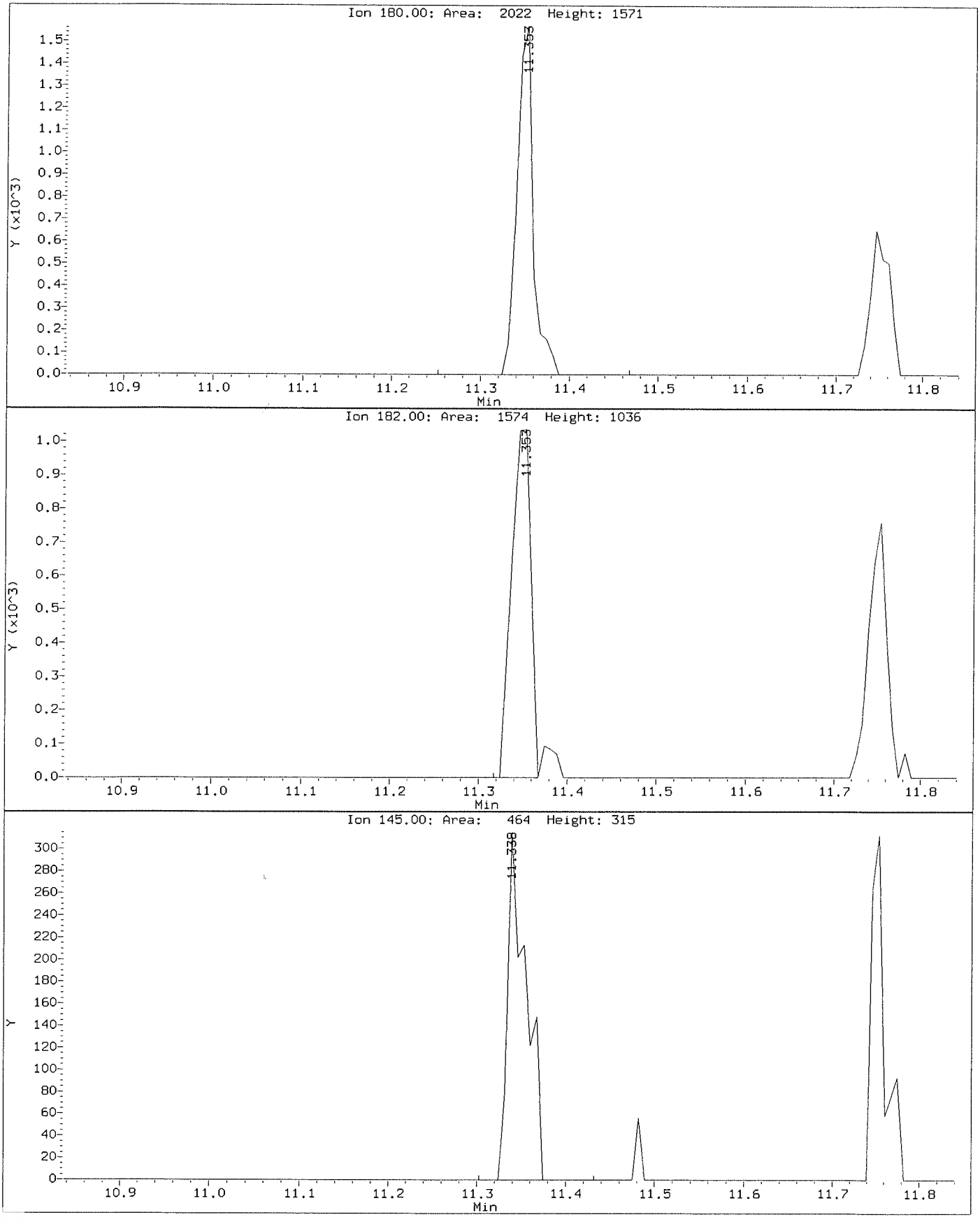
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110305.D
Injection Date: 03-NOV-2020 13:24
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1



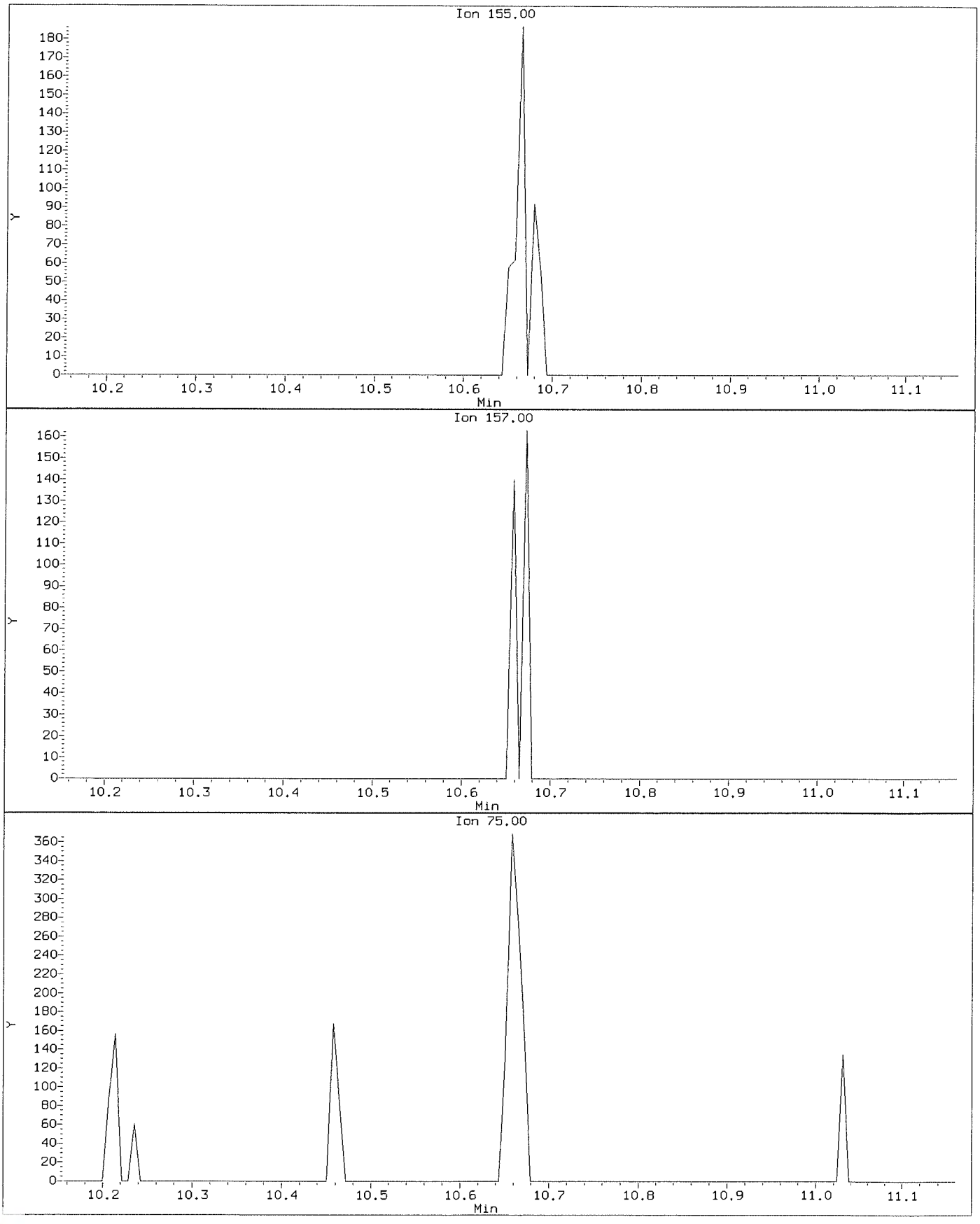
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110305.D
Injection Date: 03-NOV-2020 13:24
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1



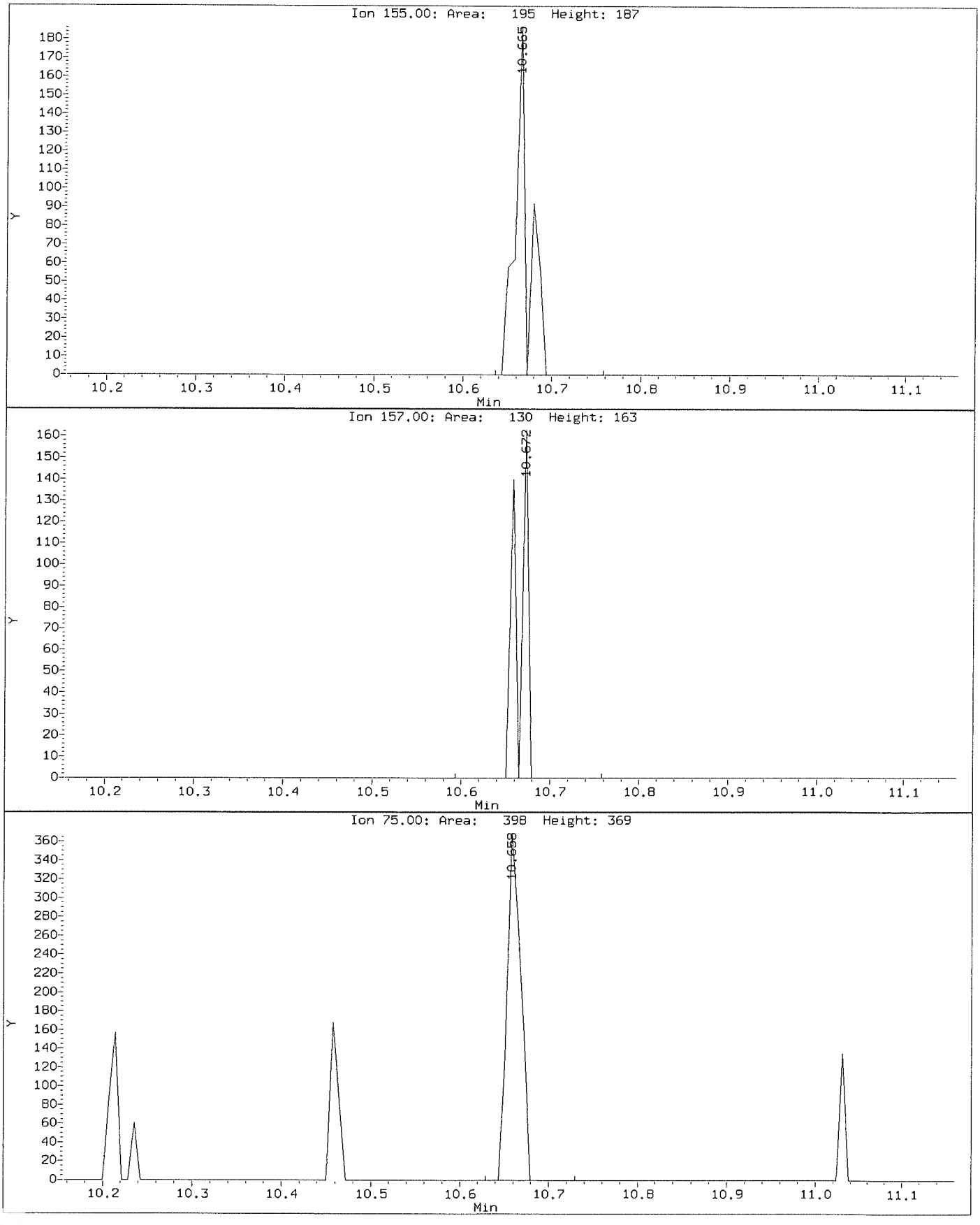
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110305.D
Injection Date: 03-NOV-2020 13:24
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8



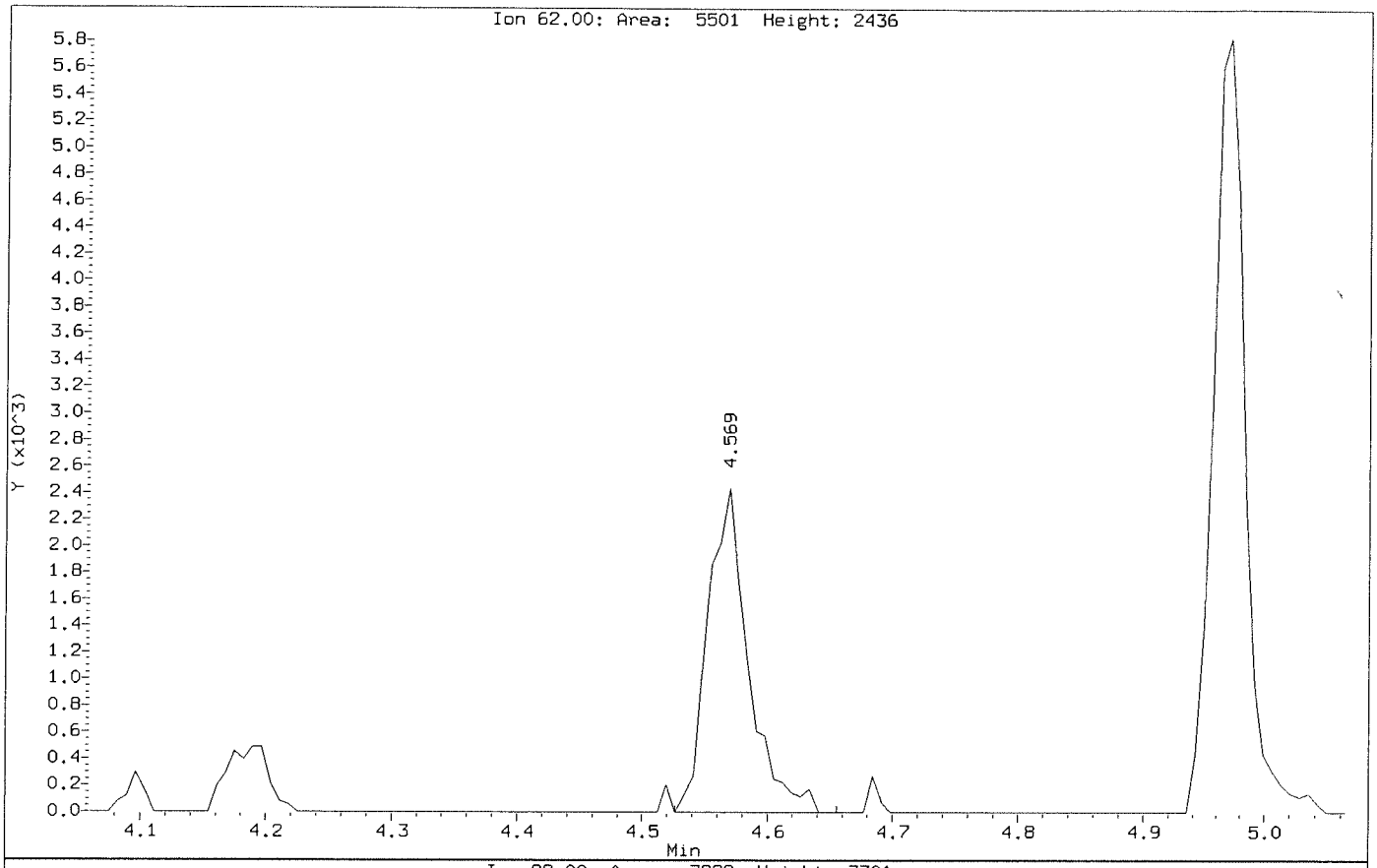
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110305.D
Injection Date: 03-NOV-2020 13:24
Instrument: voa6.i
Client Sample ID: VSTD002

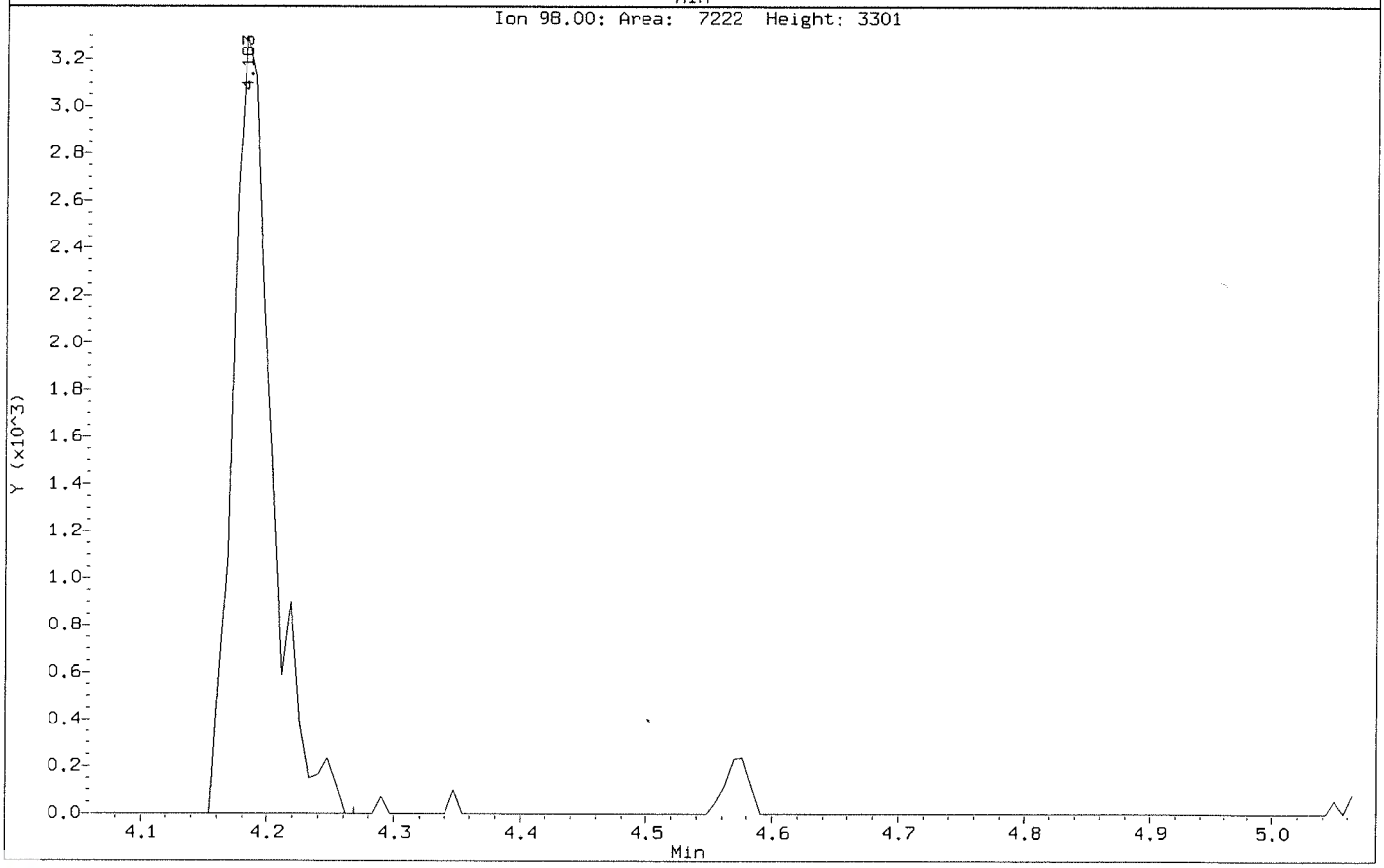
Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8



Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110305.D
Injection Date: 03-NOV-2020 13:24
Instrument: voa6.i
Client Sample ID: VSTD002

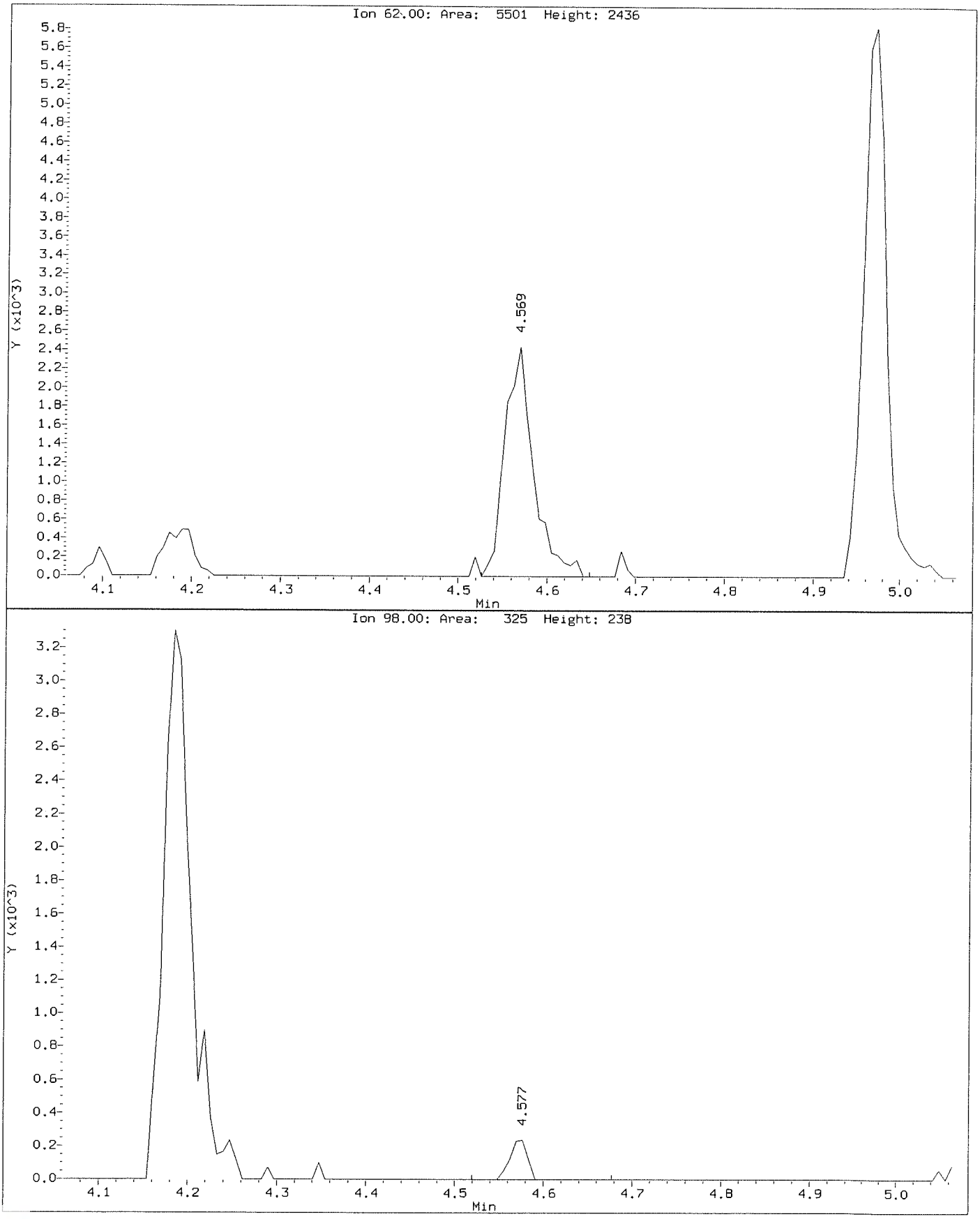
Compound: 1,2-Dichloroethane
CAS Number: 107-06-2



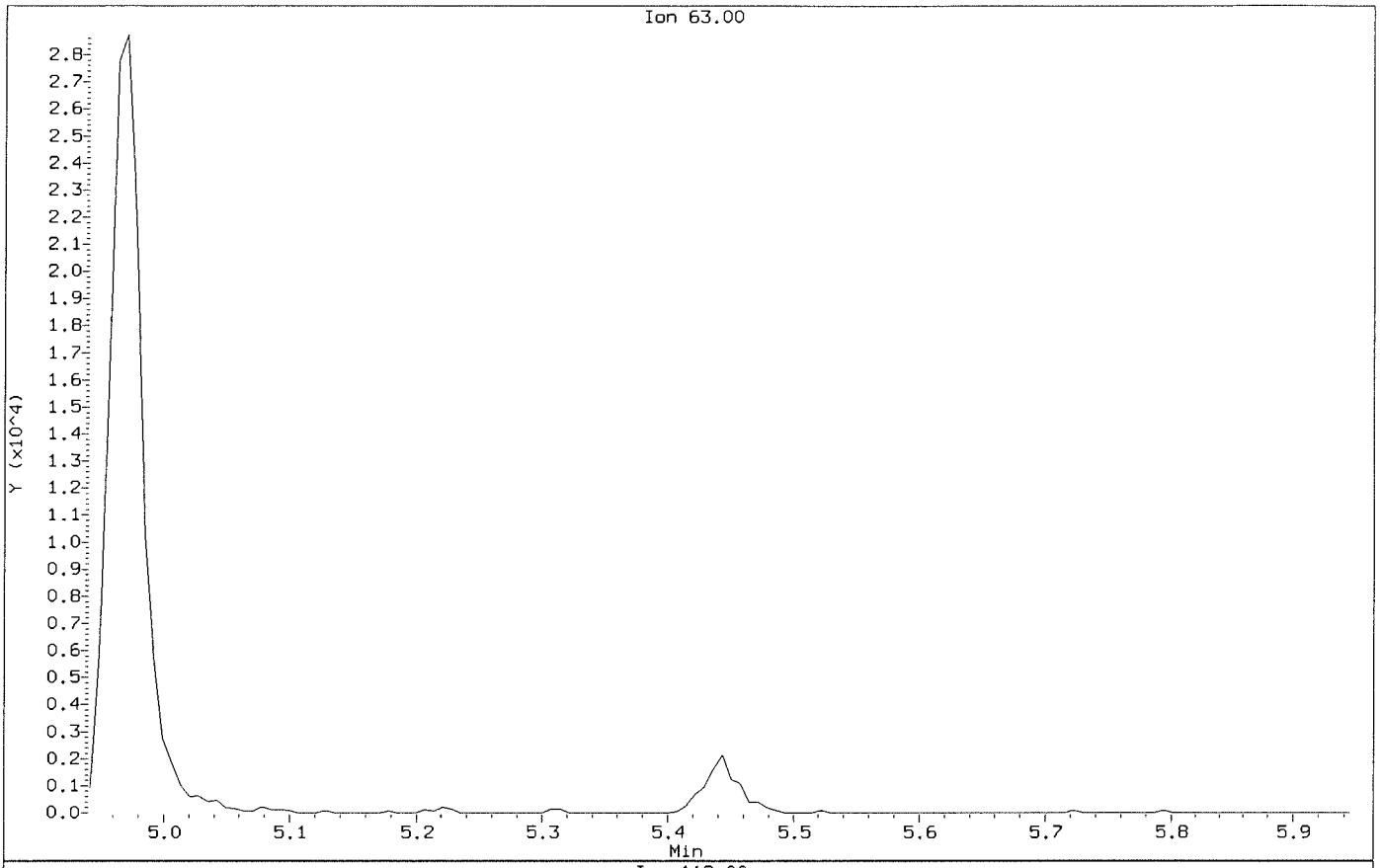
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110305.D
Injection Date: 03-NOV-2020 13:24
Instrument: voa6.i
Client Sample ID: VSTD002

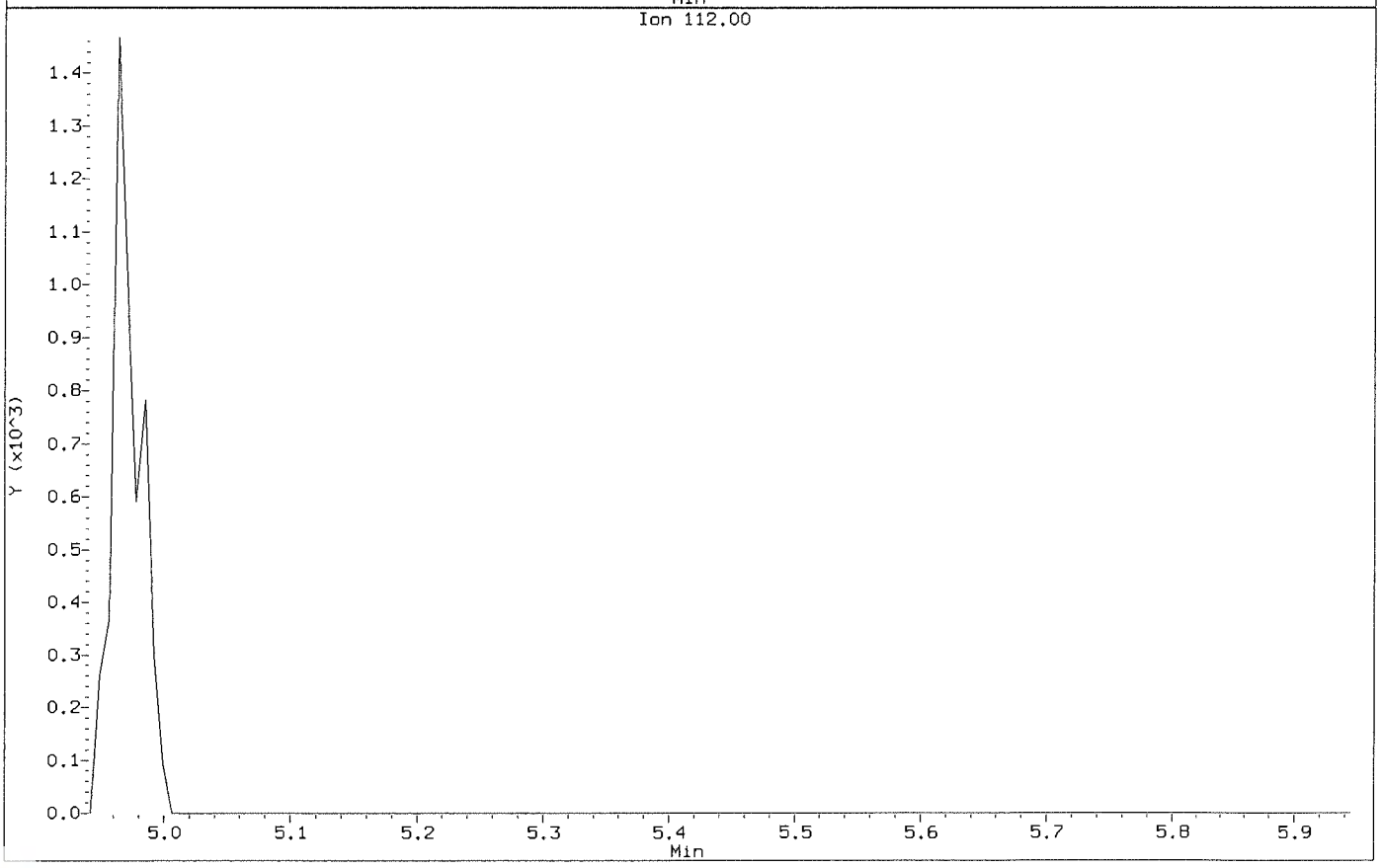
Compound: 1,2-Dichloroethane
CAS Number: 107-06-2



Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110305.D
Injection Date: 03-NOV-2020 13:24
Instrument: voa6.i
Client Sample ID: VSTD002

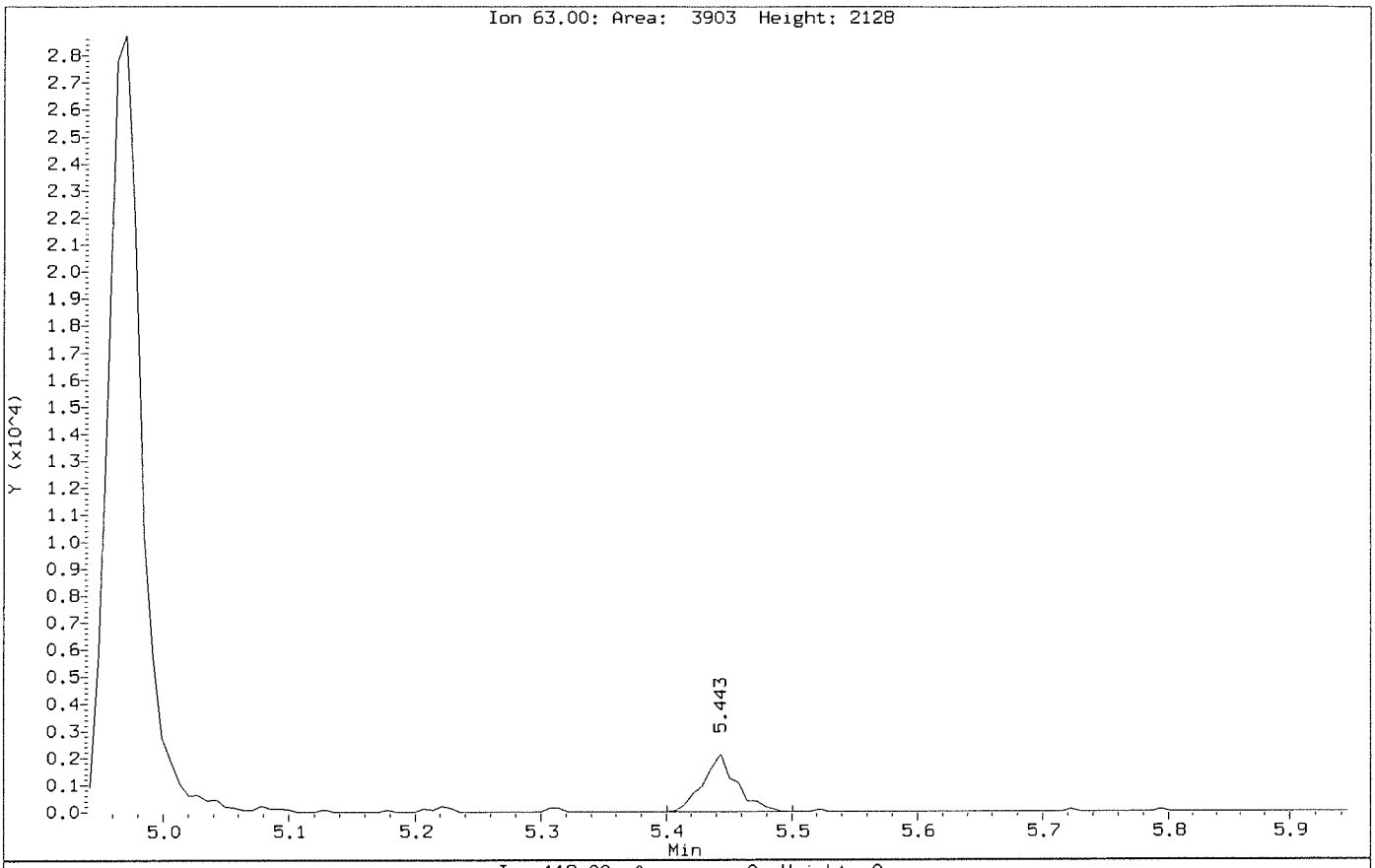
Compound: 1,2-Dichloropropane
CAS Number: 78-87-5

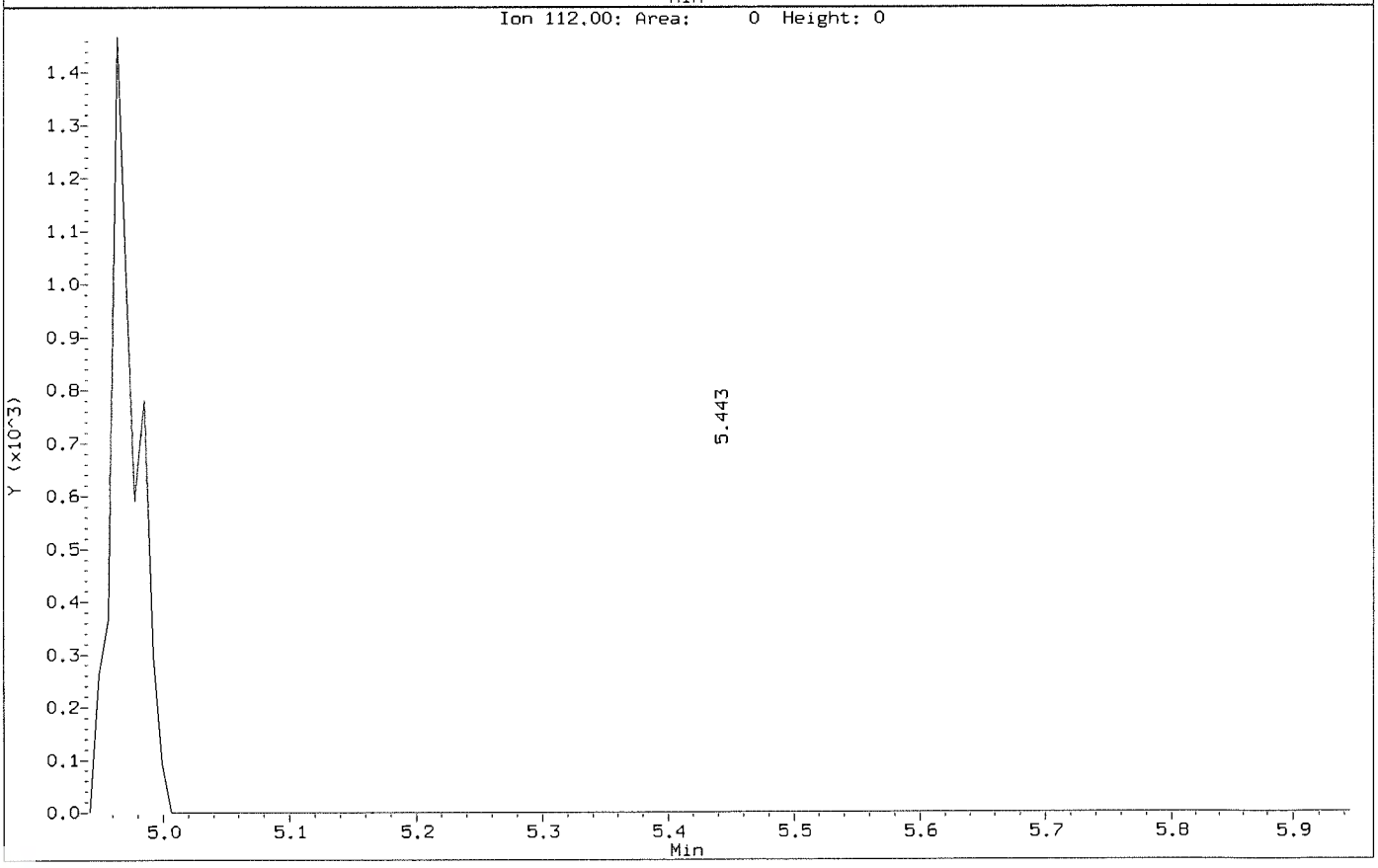


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110305.D
Injection Date: 03-NOV-2020 13:24
Instrument: voa6.i
Client Sample ID: VSTD002

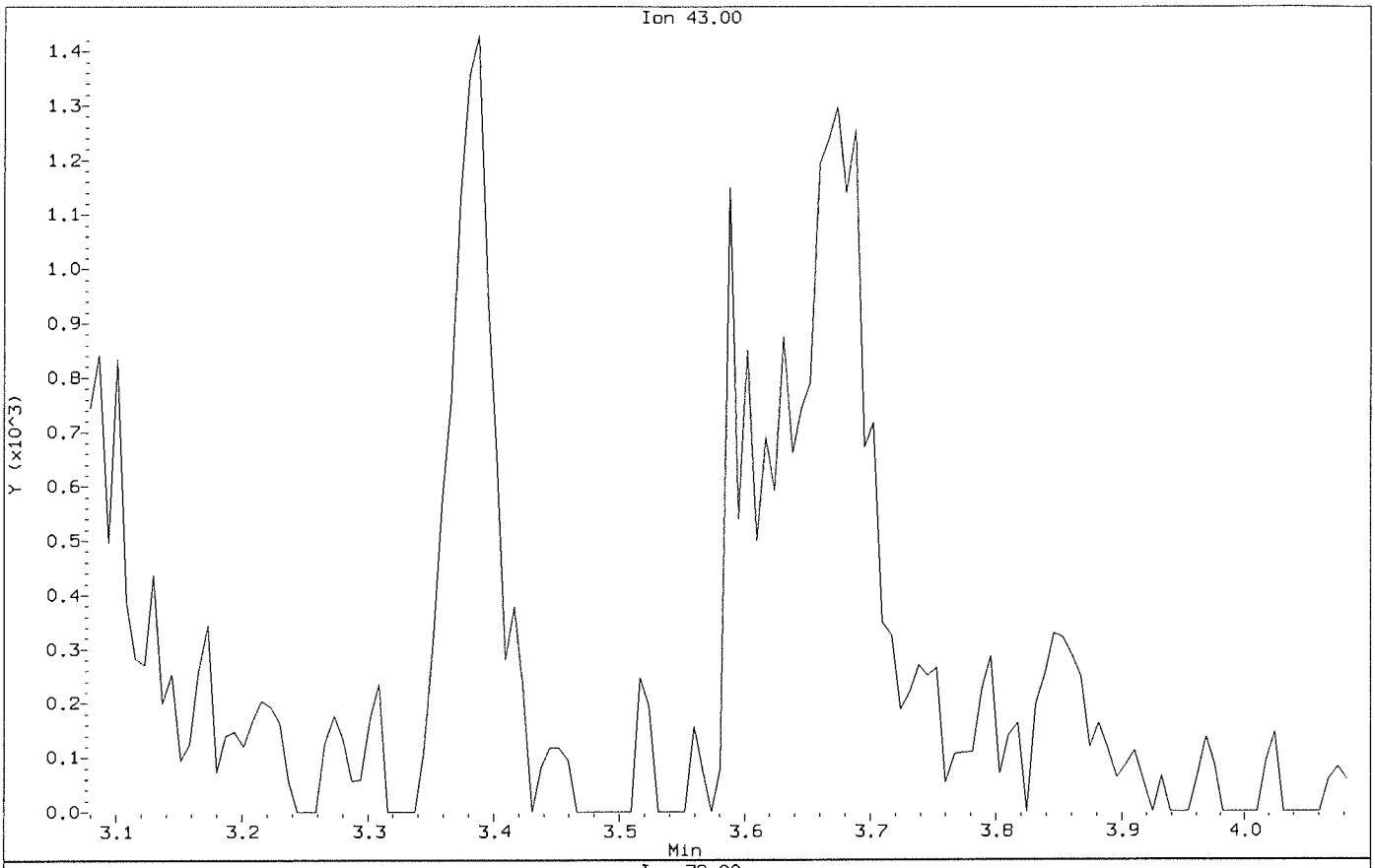
Compound: 1,2-Dichloropropane
CAS Number: 78-87-5

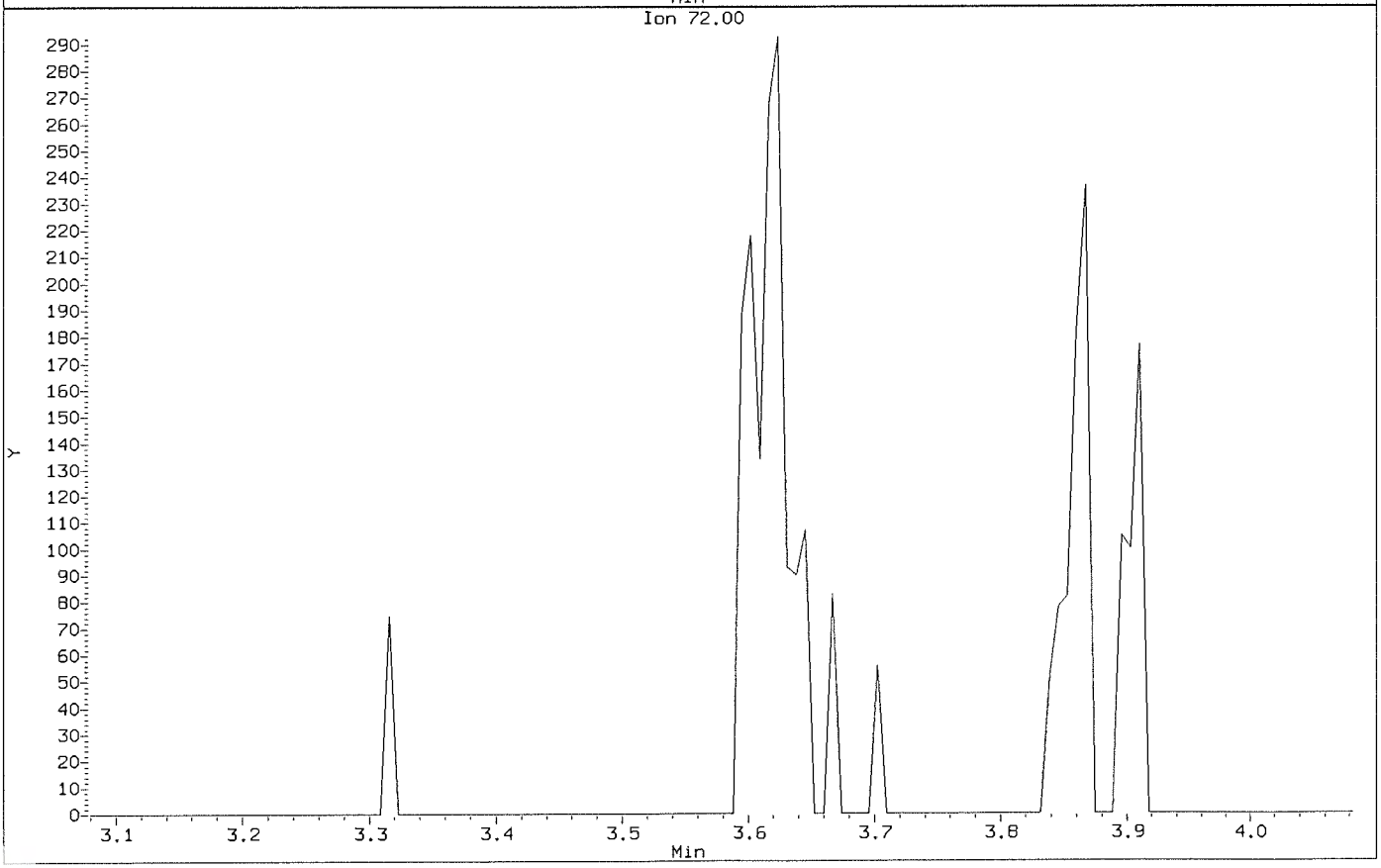


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110305.D
Injection Date: 03-NOV-2020 13:24
Instrument: voa6.i
Client Sample ID: VSTD002

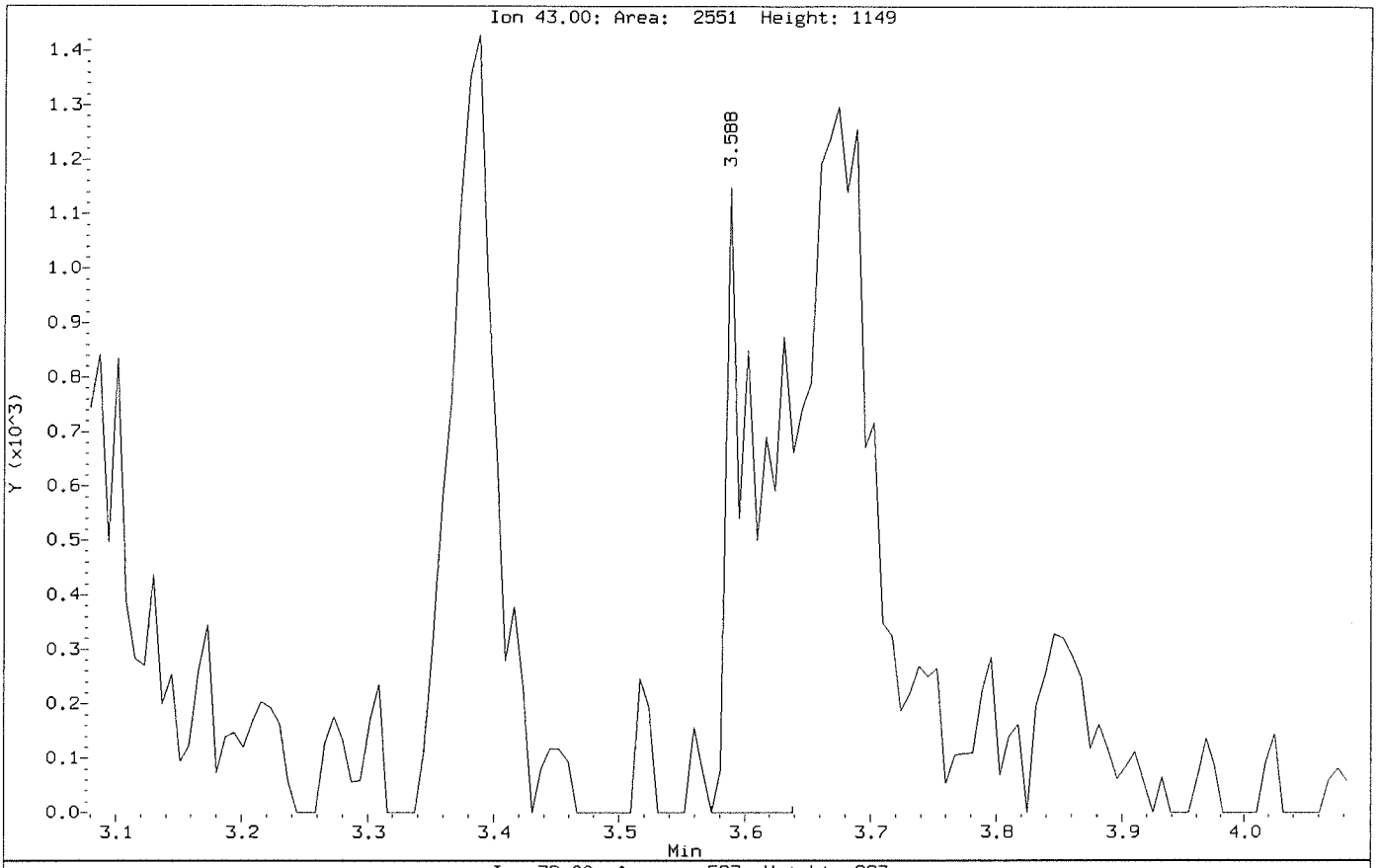
Compound: 2-Butanone
CAS Number: 78-93-3

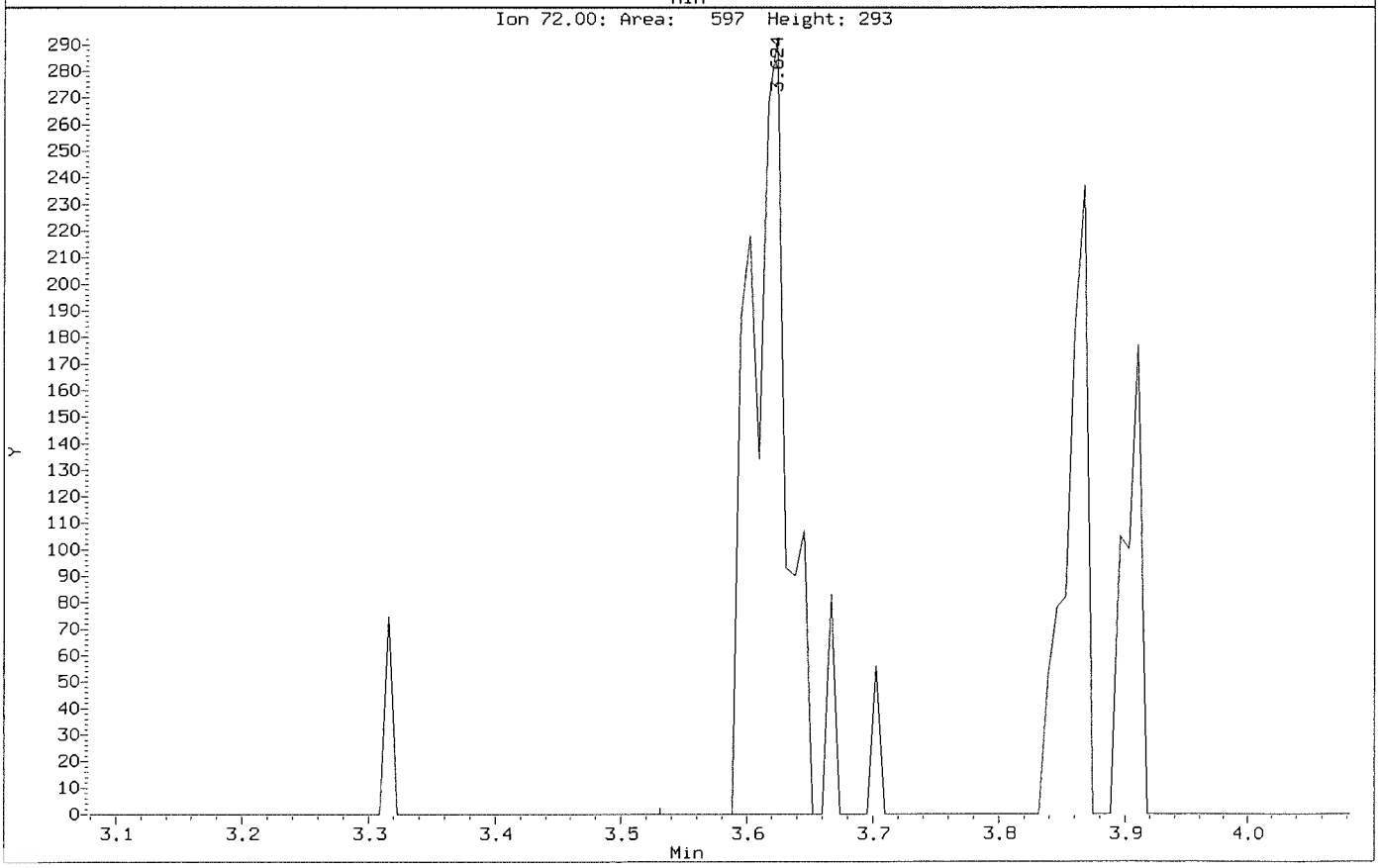


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110305.D
Injection Date: 03-NOV-2020 13:24
Instrument: voa6.i
Client Sample ID: VSTD002

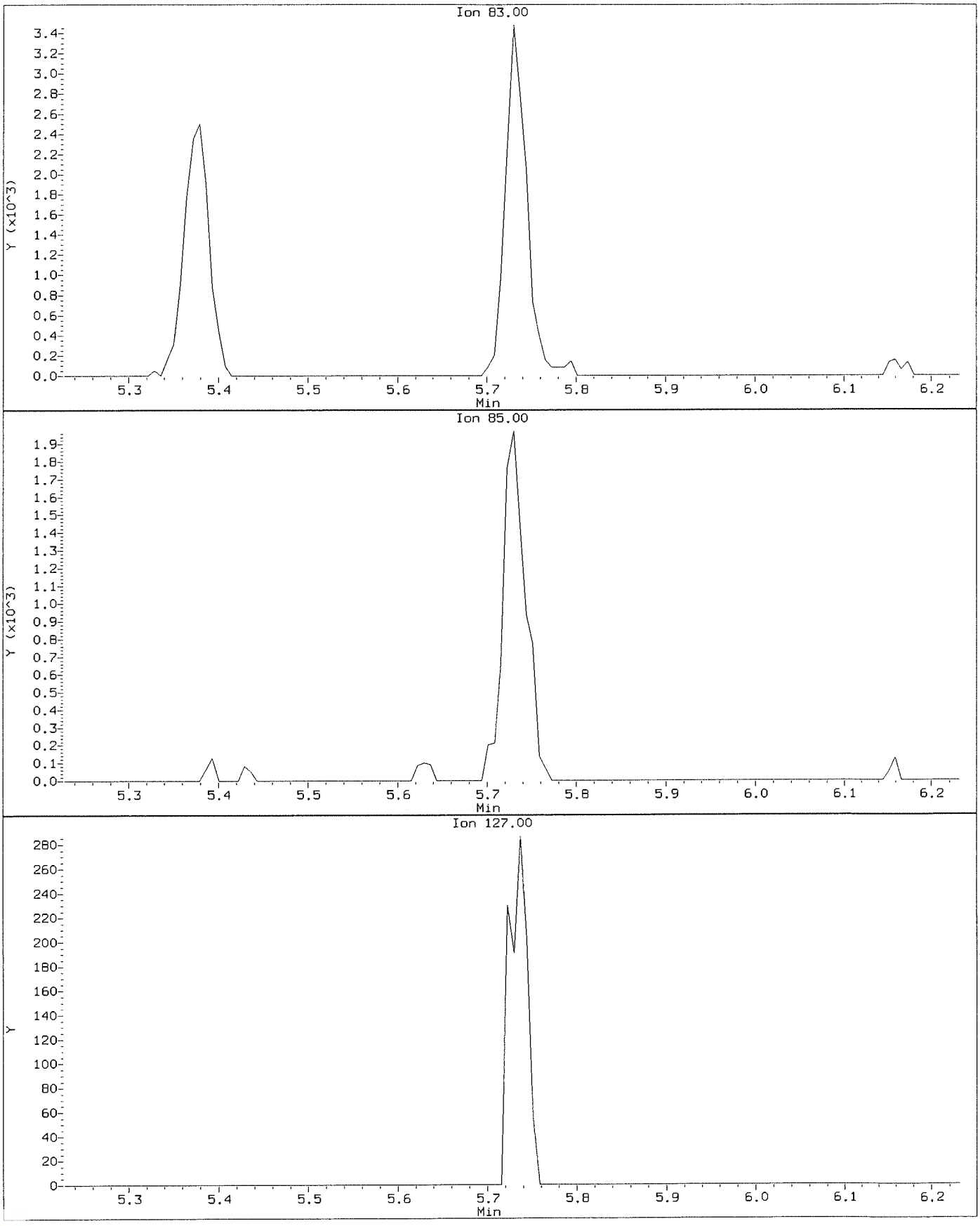
Compound: 2-Butanone
CAS Number: 78-93-3



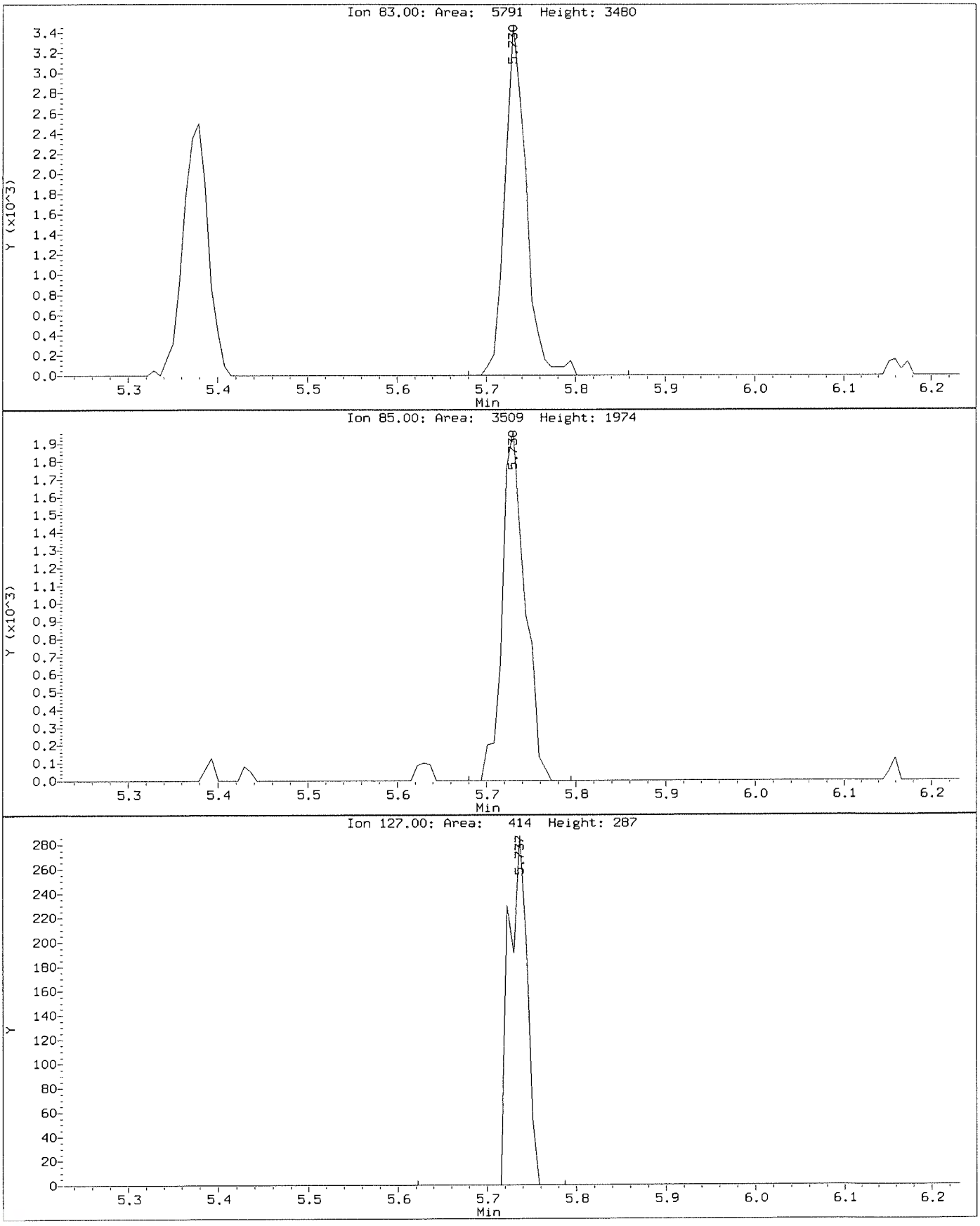
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110305.D
Injection Date: 03-NOV-2020 13:24
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: Bromodichloromethane
CAS Number: 75-27-4



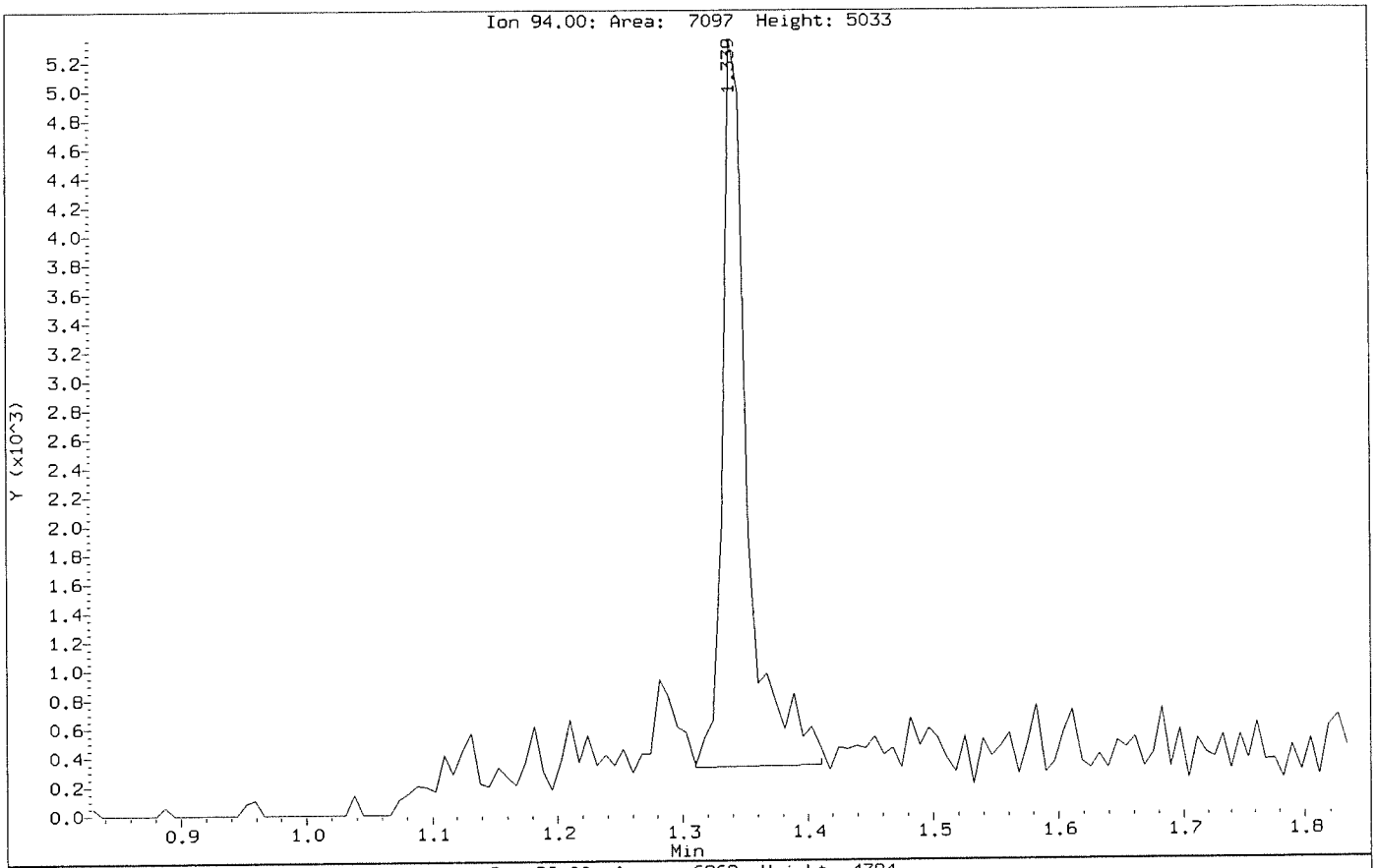
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110305.D
Injection Date: 03-NOV-2020 13:24
Instrument: voa6.i
Client Sample ID: VSTD002

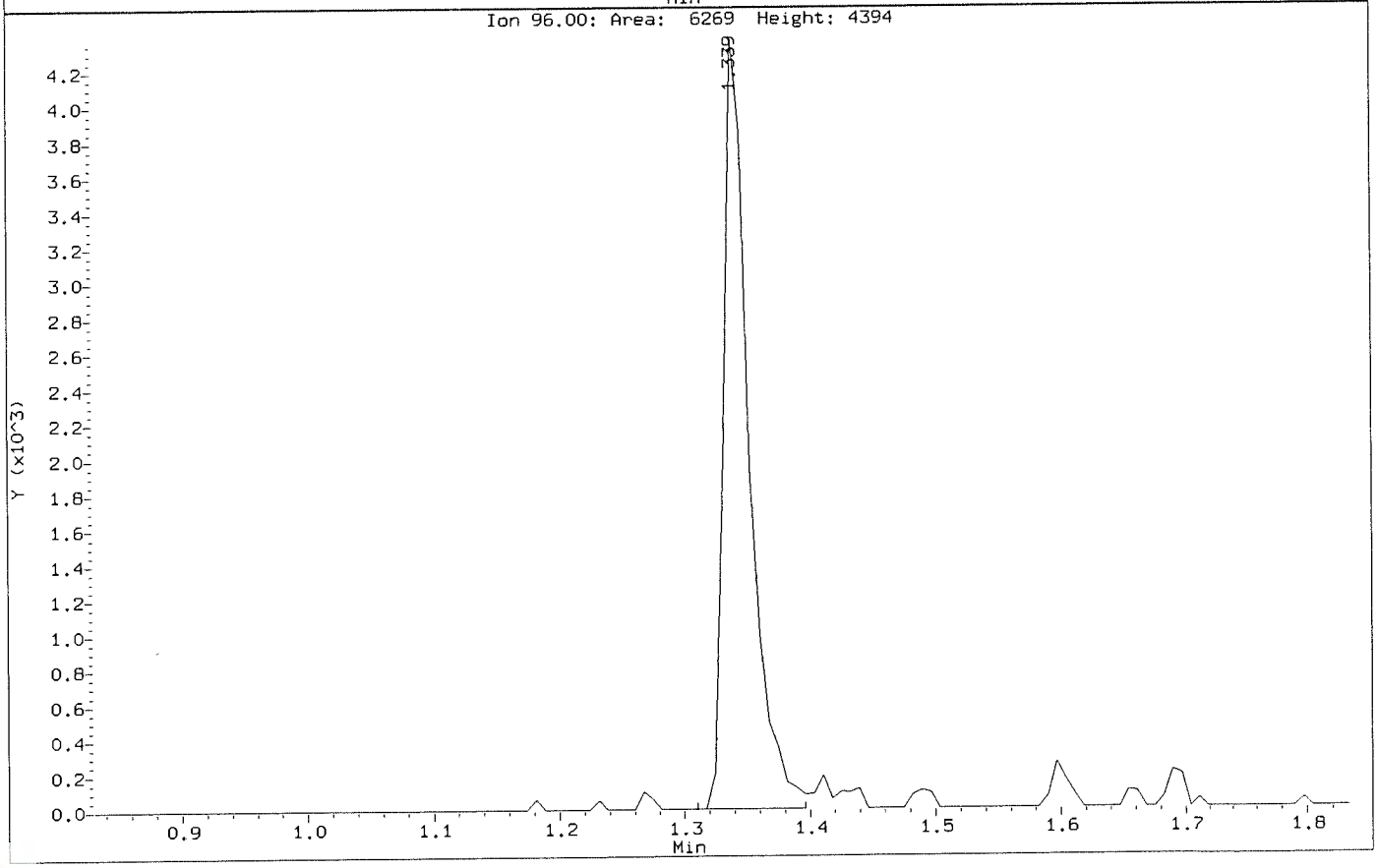
Compound: Bromodichloromethane
CAS Number: 75-27-4



Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110305.D
Injection Date: 03-NOV-2020 13:24
Instrument: voa6.i
Client Sample ID: VSTD002

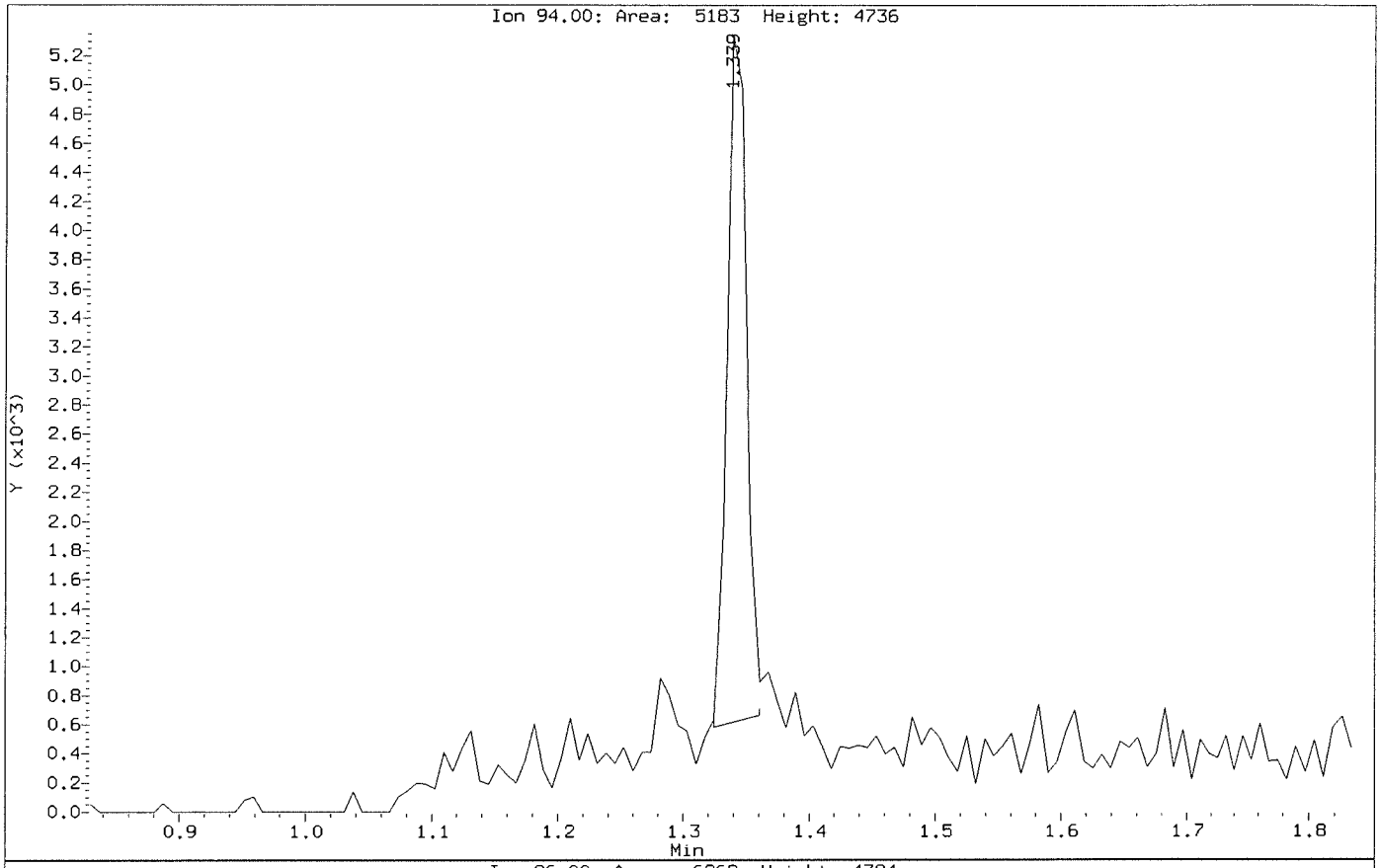
Compound: Bromomethane
CAS Number: 74-83-9

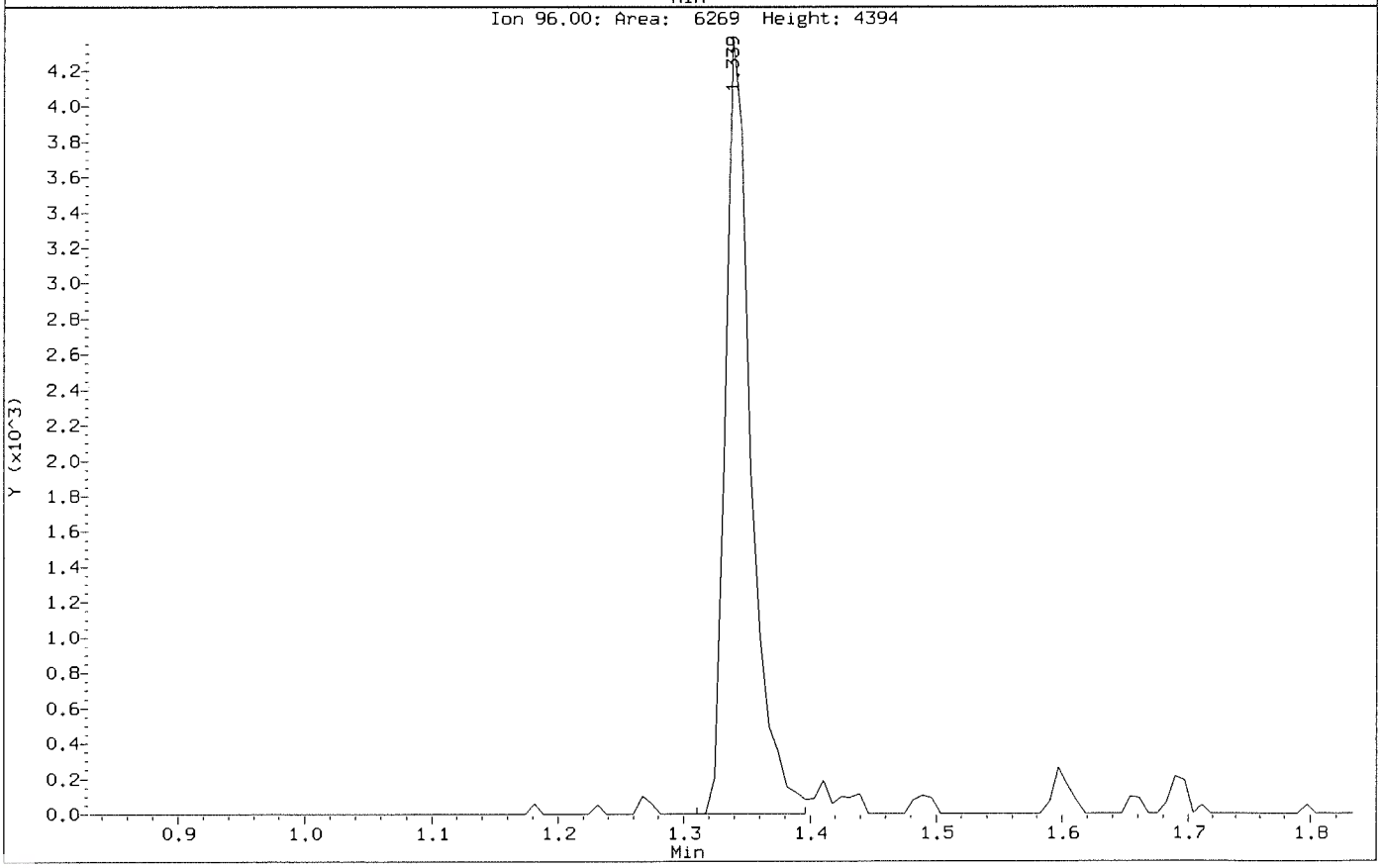


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110305.D
Injection Date: 03-NOV-2020 13:24
Instrument: voa6.i
Client Sample ID: VSTD002

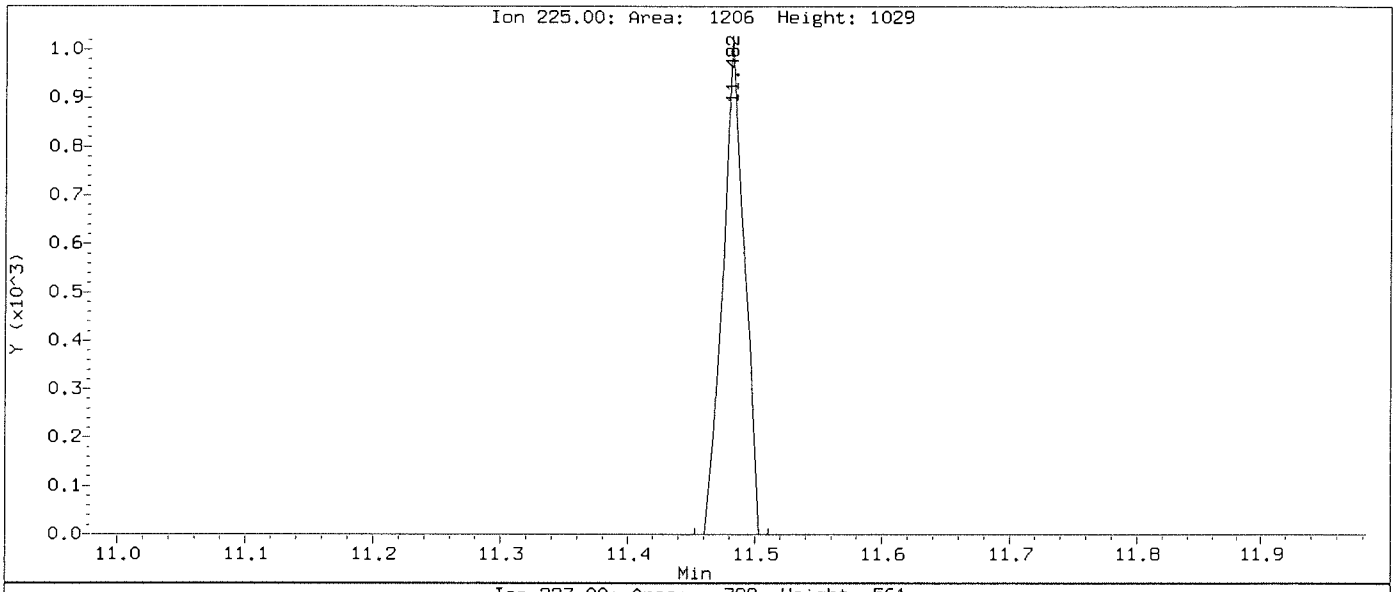
Compound: Bromomethane
CAS Number: 74-83-9

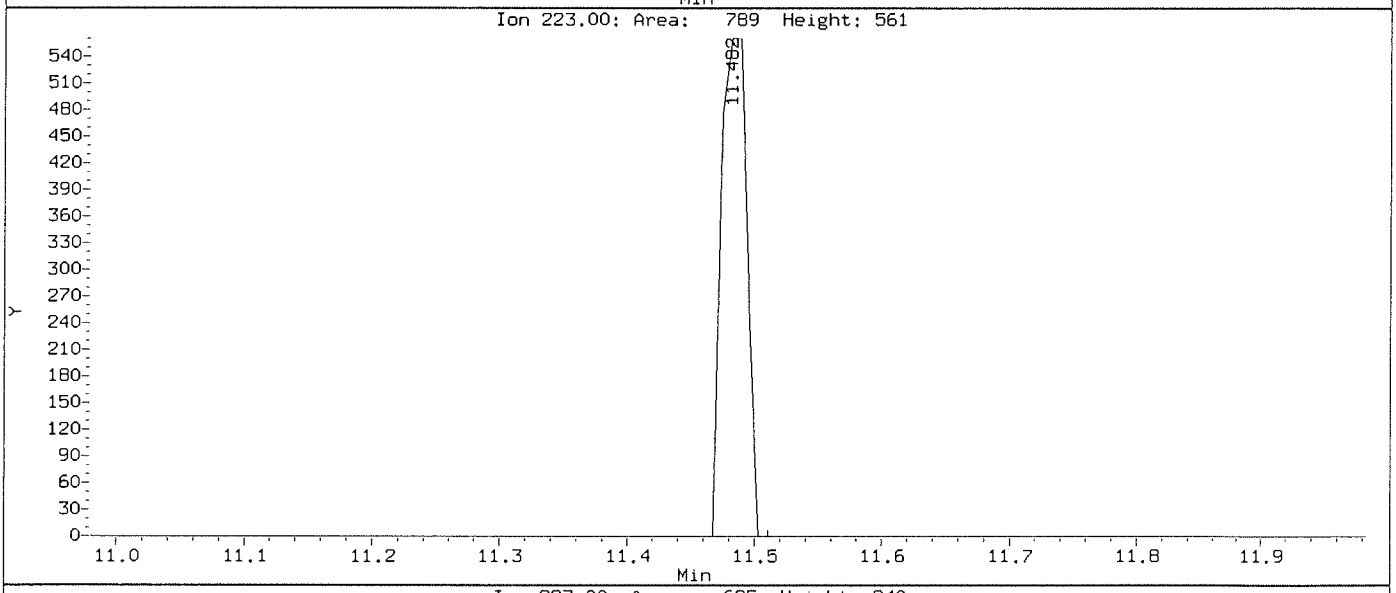


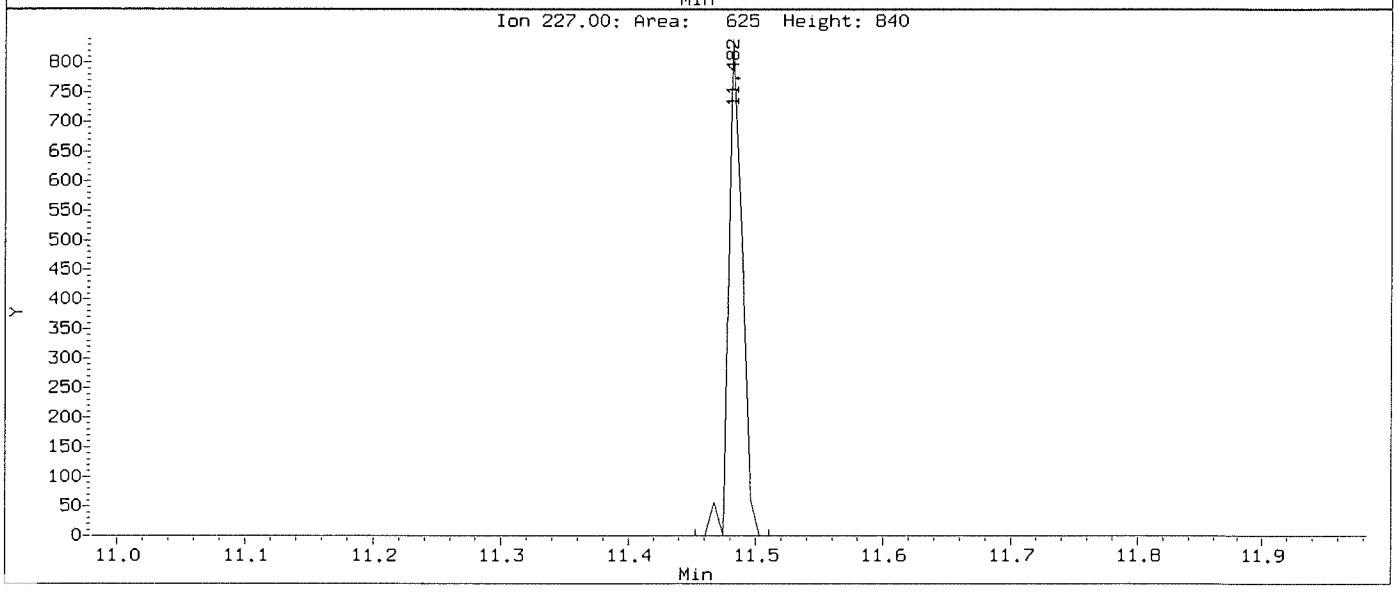



Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110305.D
Injection Date: 03-NOV-2020 13:24
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: Hexachlorobutadiene
CAS Number: 87-68-3

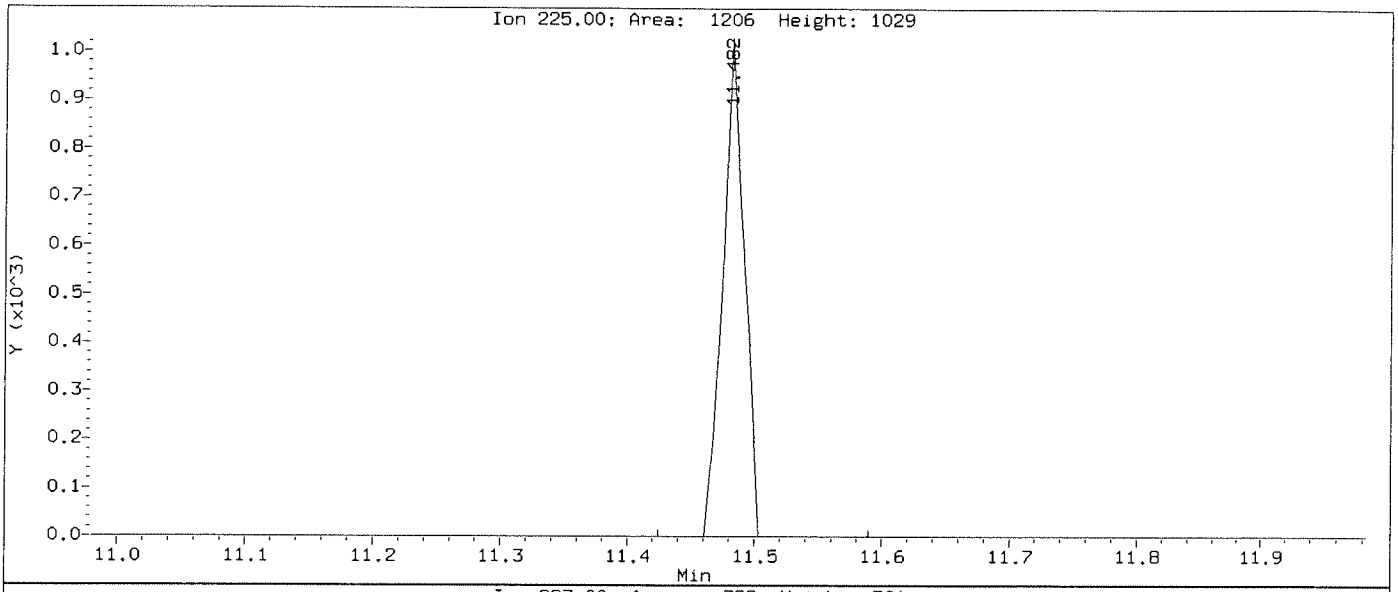


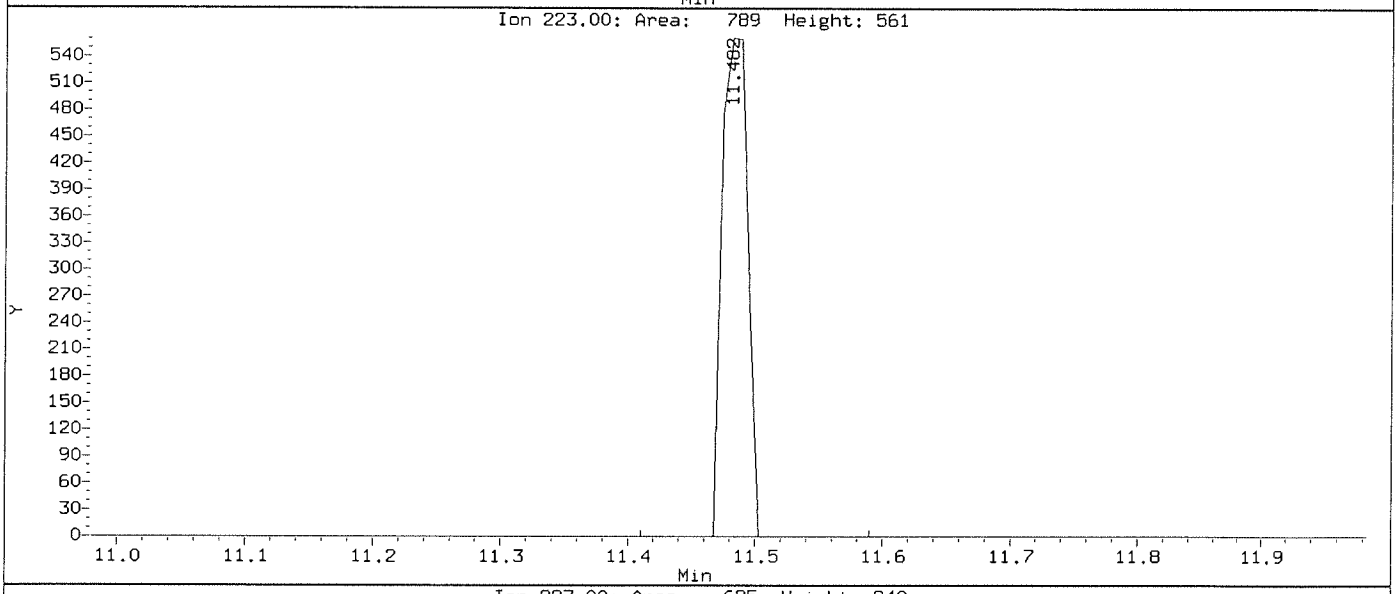



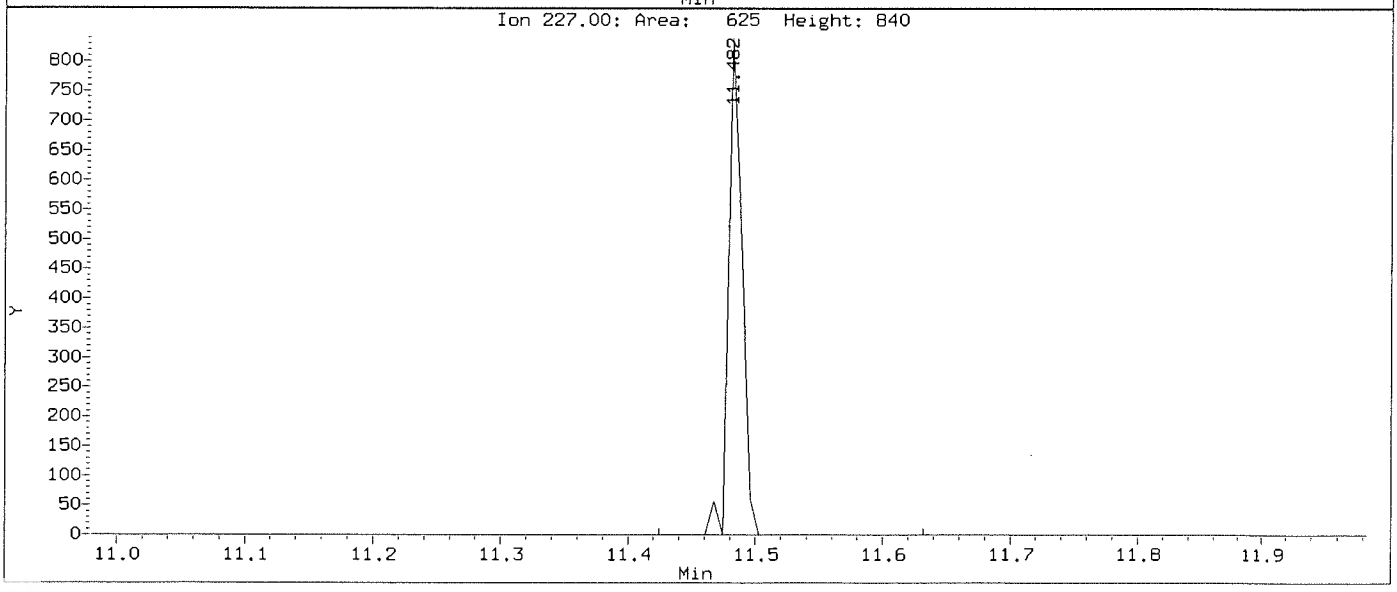



Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110305.D
Injection Date: 03-NOV-2020 13:24
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: Hexachlorobutadiene
CAS Number: 87-68-3

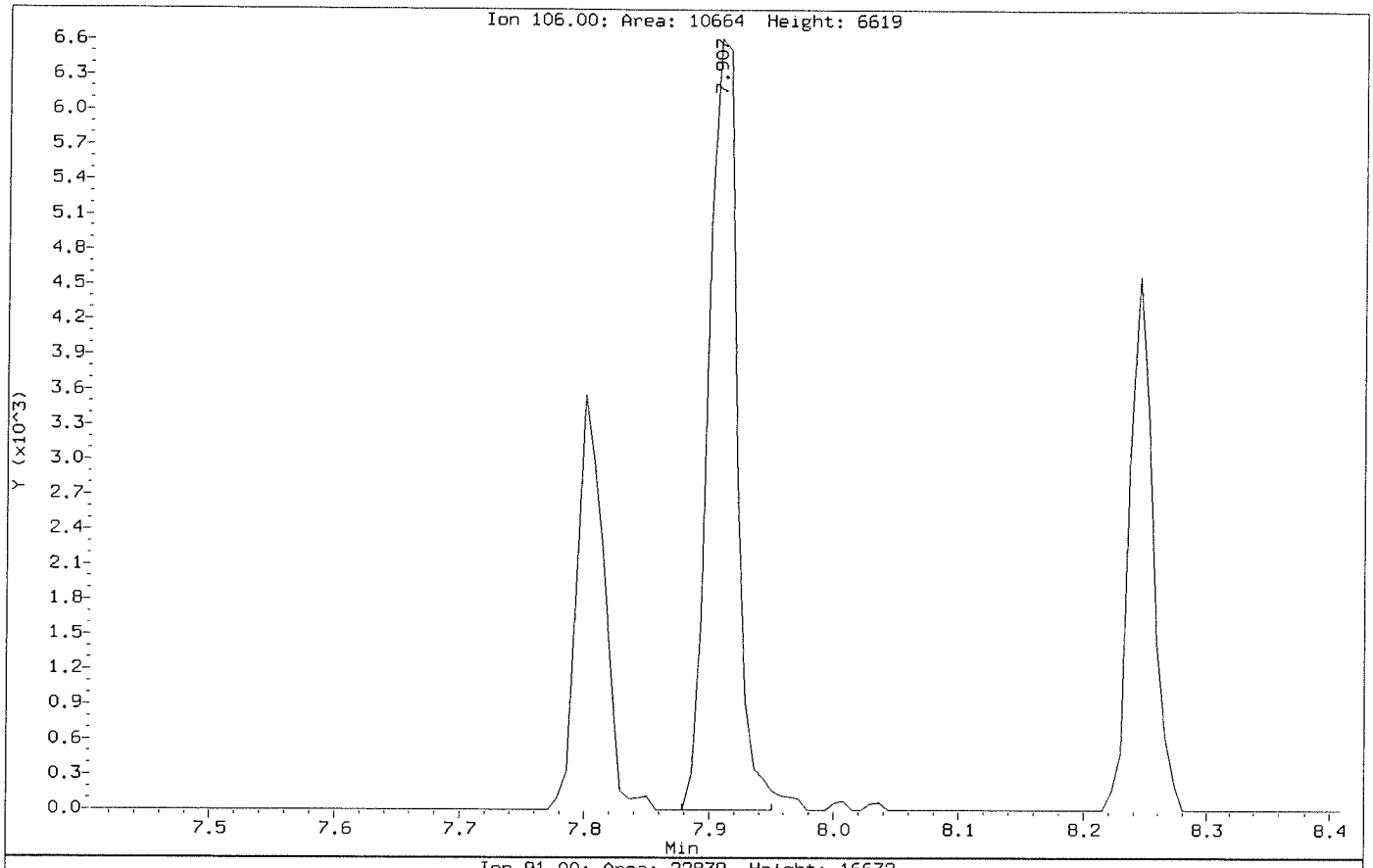


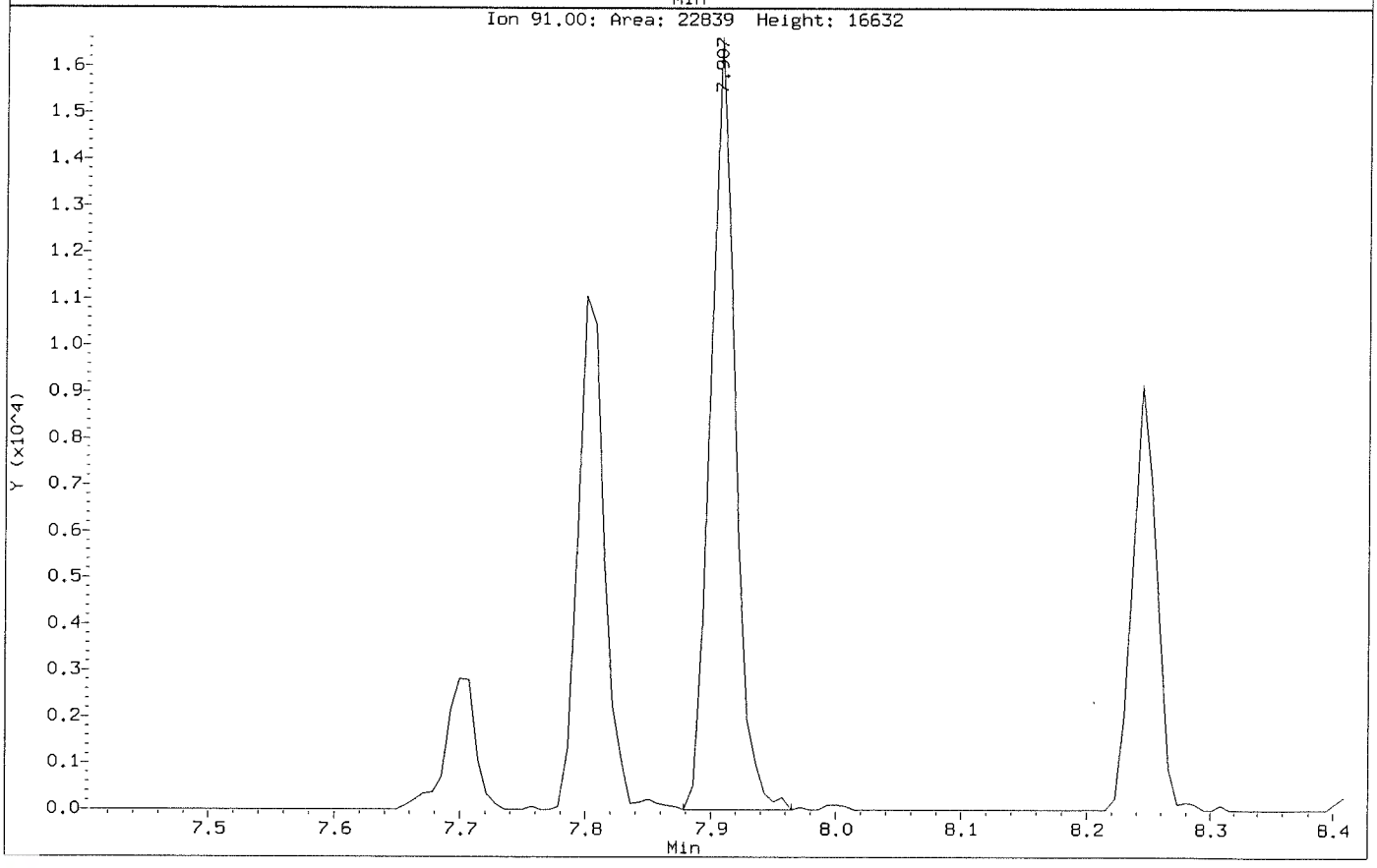



Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110305.D
Injection Date: 03-NOV-2020 13:24
Instrument: voa6.i
Client Sample ID: VSTD002

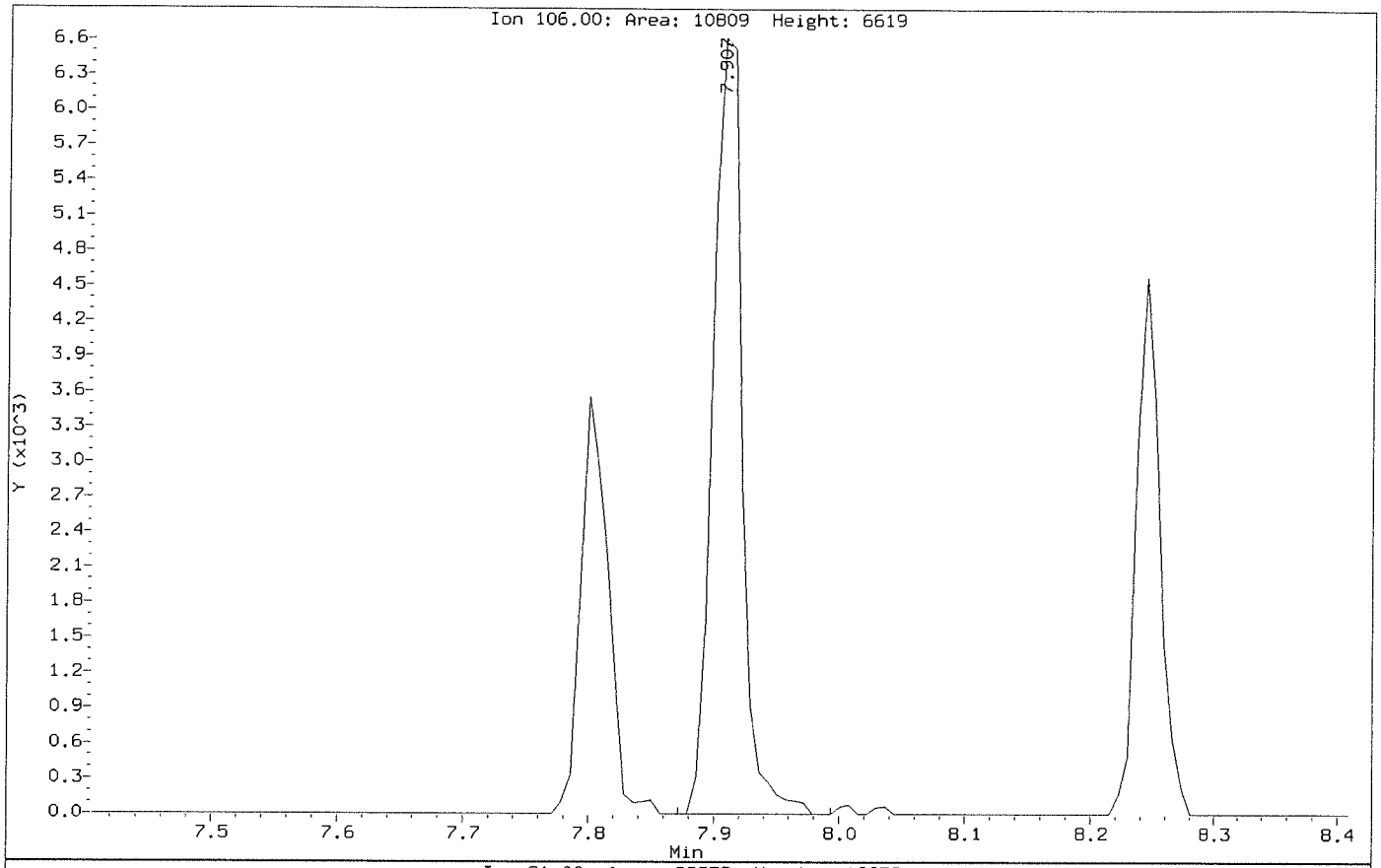
Compound: m,p-Xylenes
CAS Number:

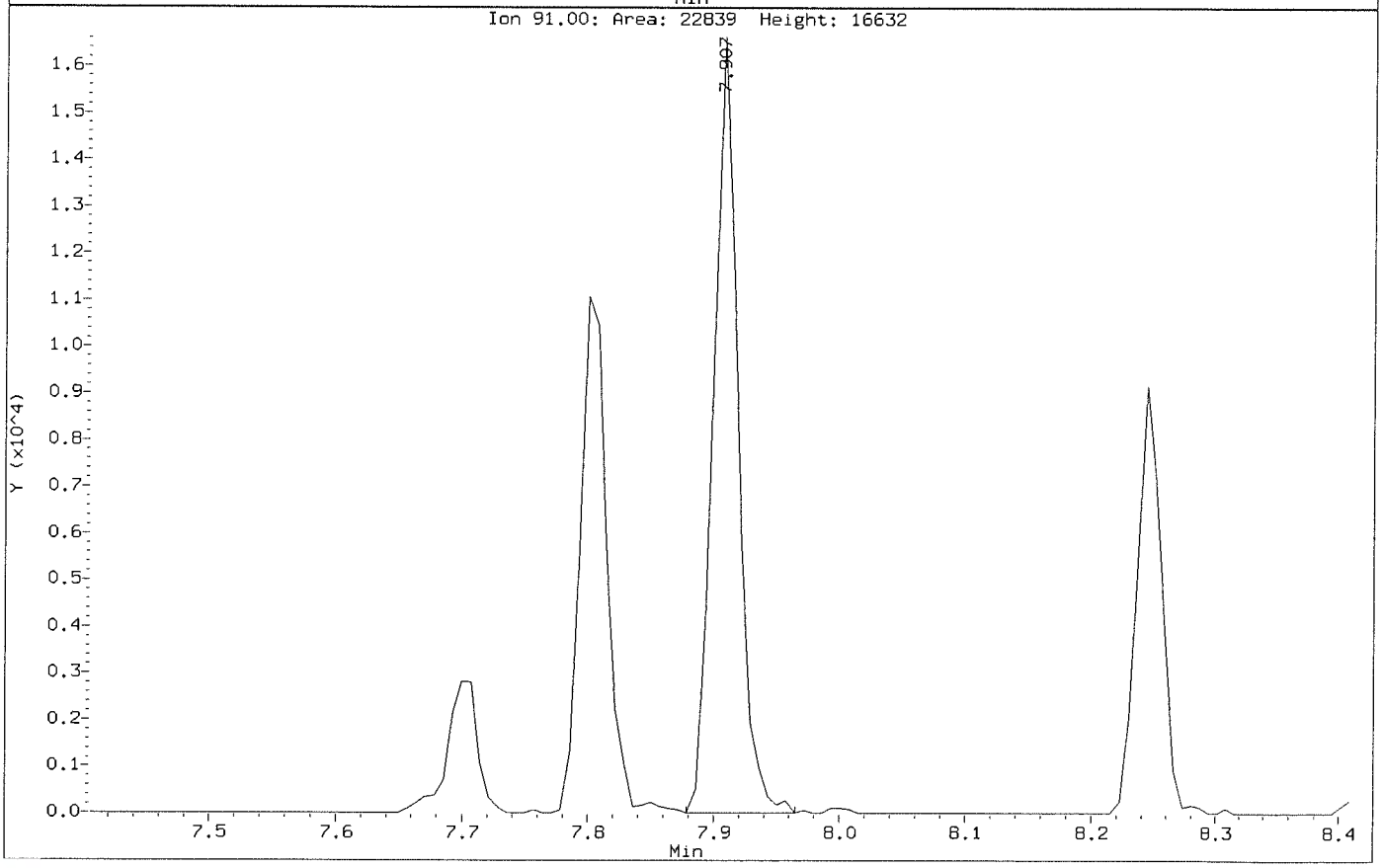


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110305.D
Injection Date: 03-NOV-2020 13:24
Instrument: voa6.i
Client Sample ID: VSTD002

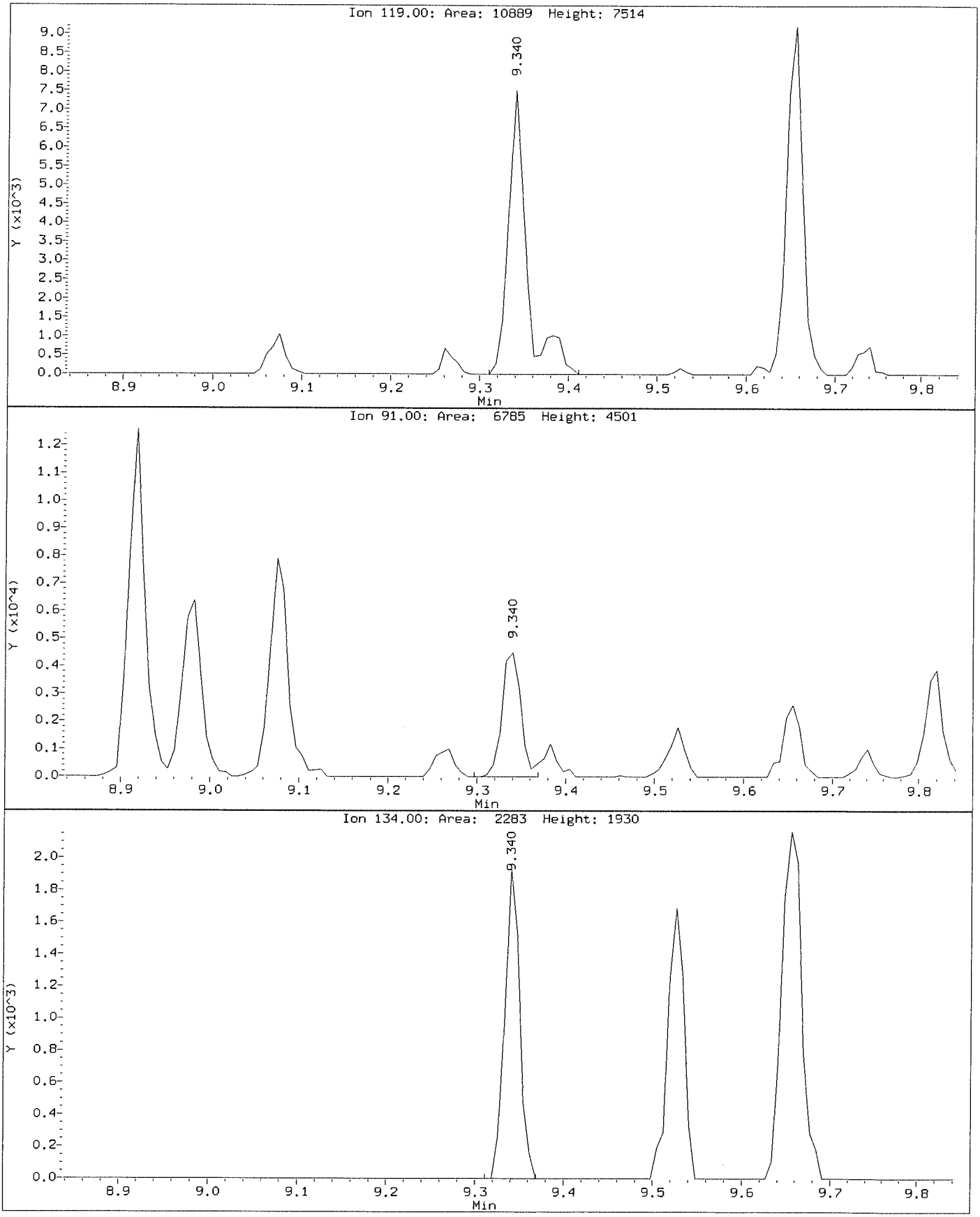
Compound: m,p-Xylenes
CAS Number:



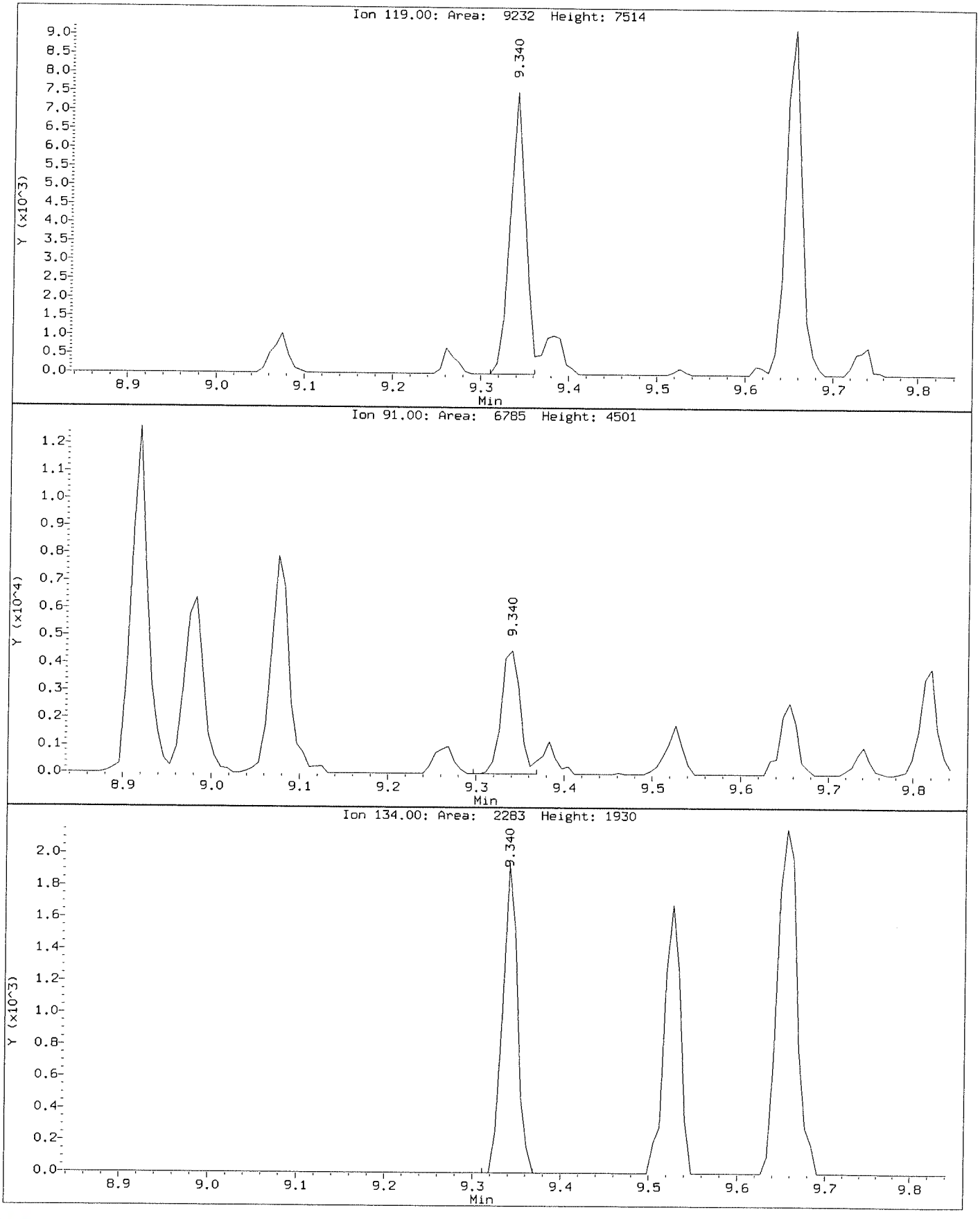
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110305.D
Injection Date: 03-NOV-2020 13:24
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: tert-Butylbenzene
CAS Number: 98-06-6



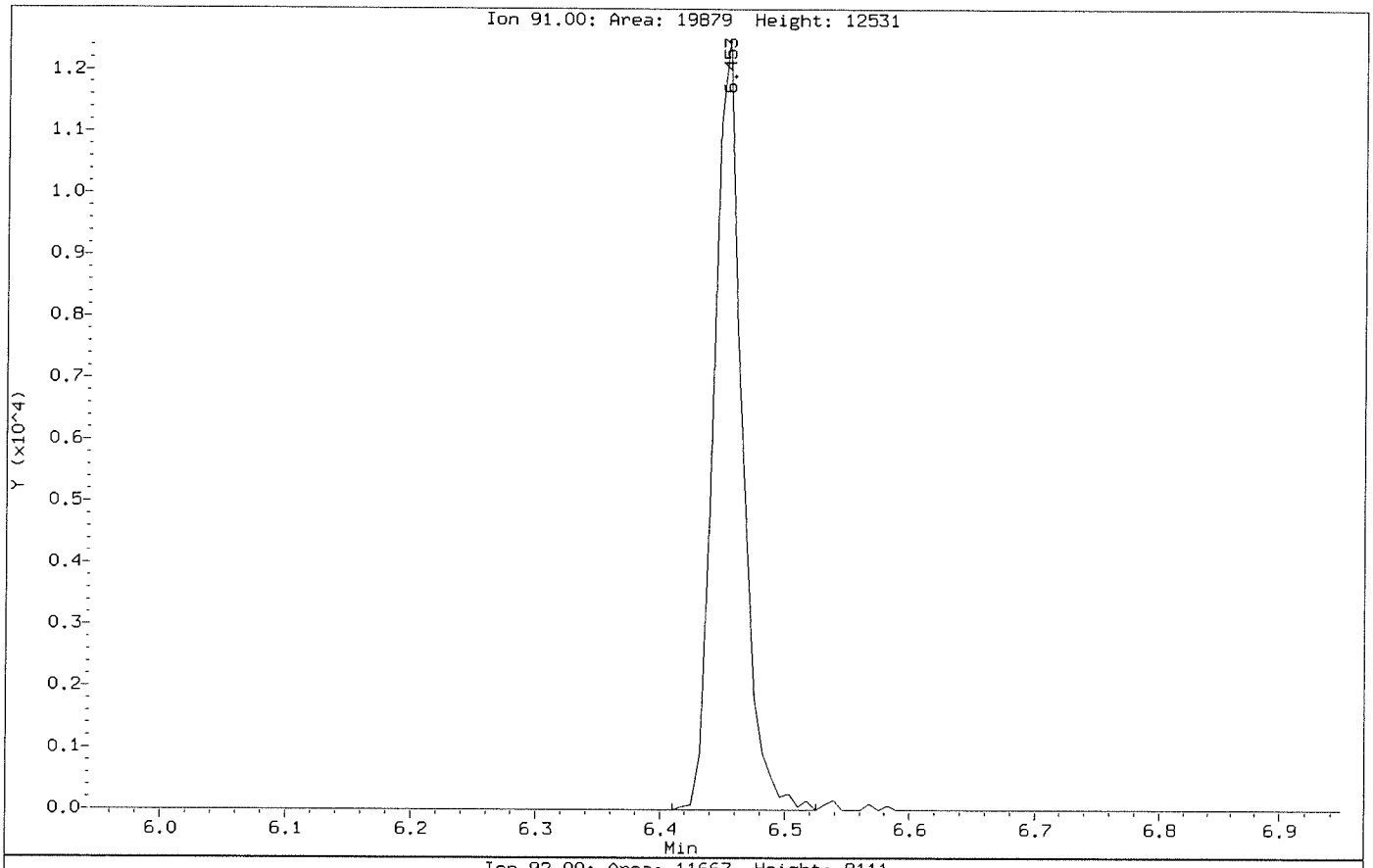
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110305.D
Injection Date: 03-NOV-2020 13:24
Instrument: voa6.i
Client Sample ID: VSTD002

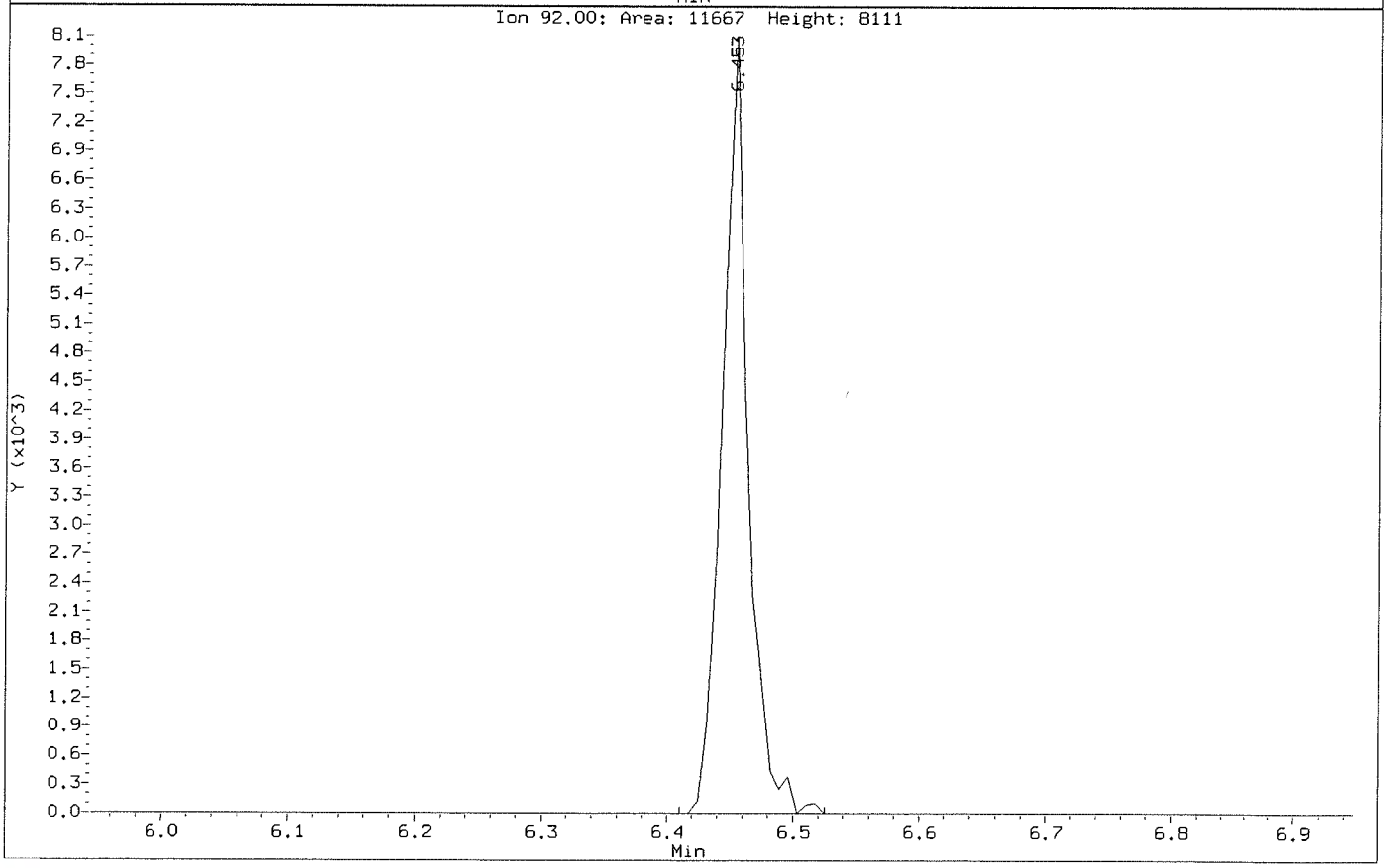
Compound: tert-Butylbenzene
CAS Number: 98-06-6



Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110305.D
Injection Date: 03-NOV-2020 13:24
Instrument: voa6.i
Client Sample ID: VSTD002

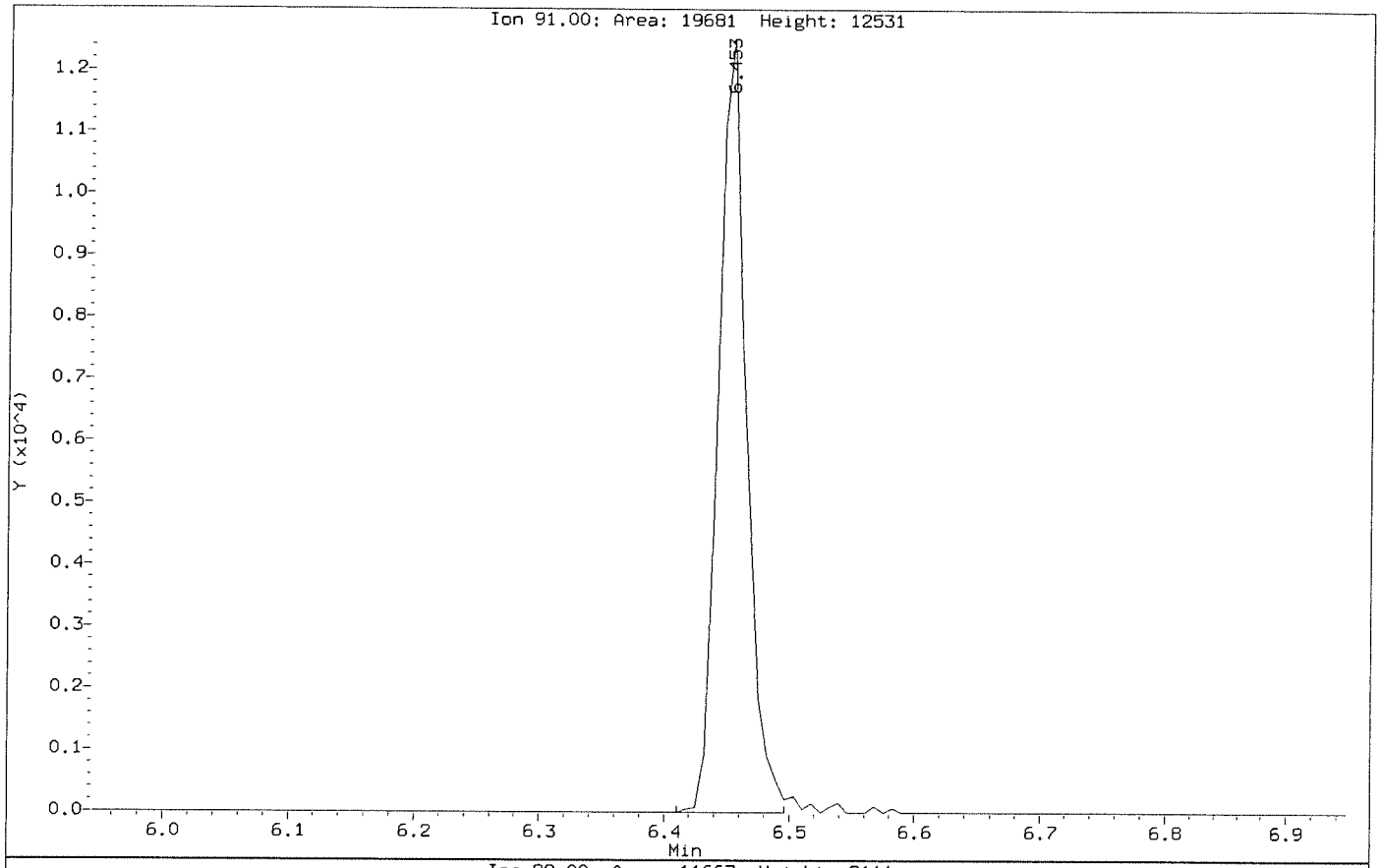
Compound: Toluene
CAS Number: 108-88-3

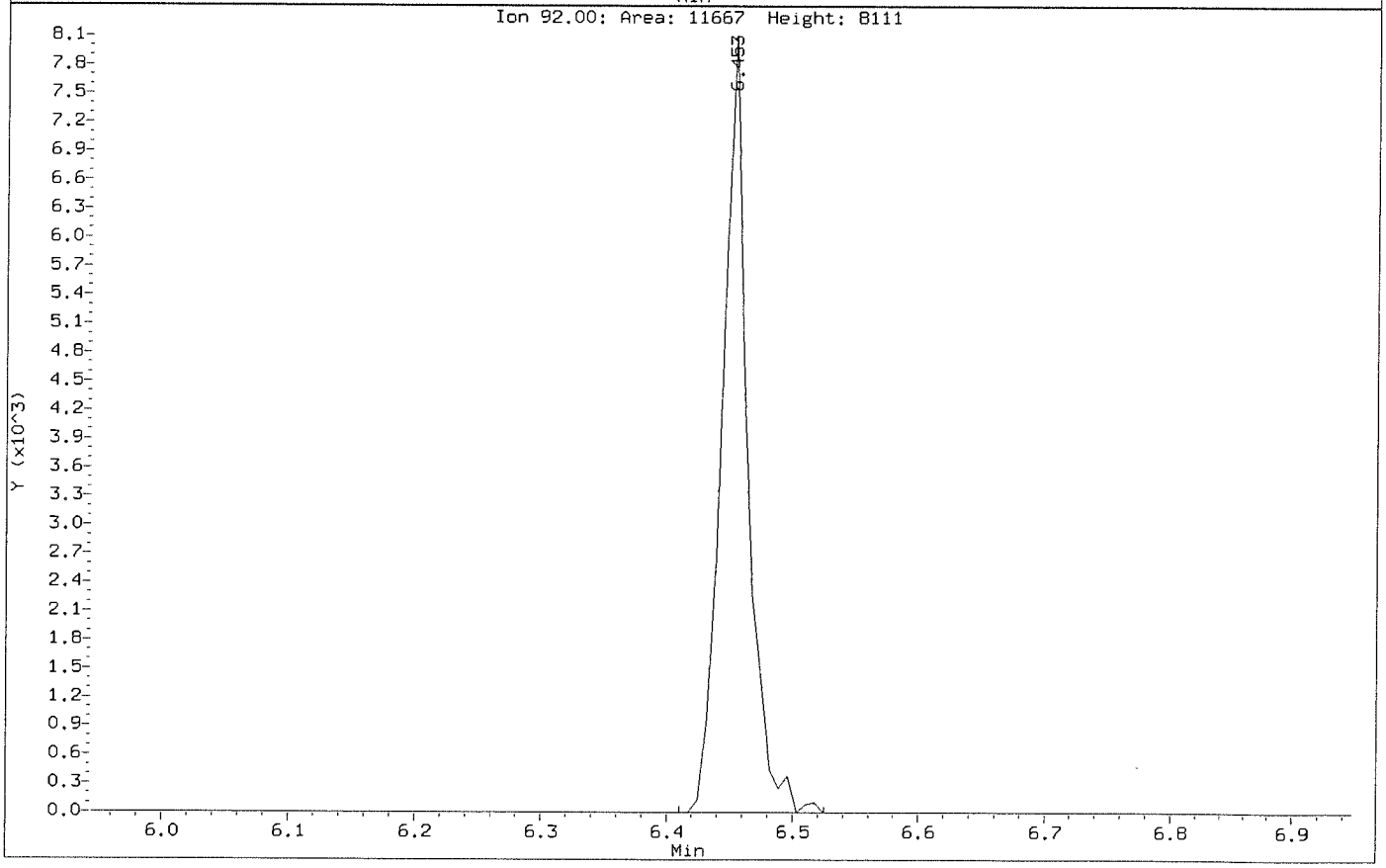


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110305.D
Injection Date: 03-NOV-2020 13:24
Instrument: voa6.i
Client Sample ID: VSTD002

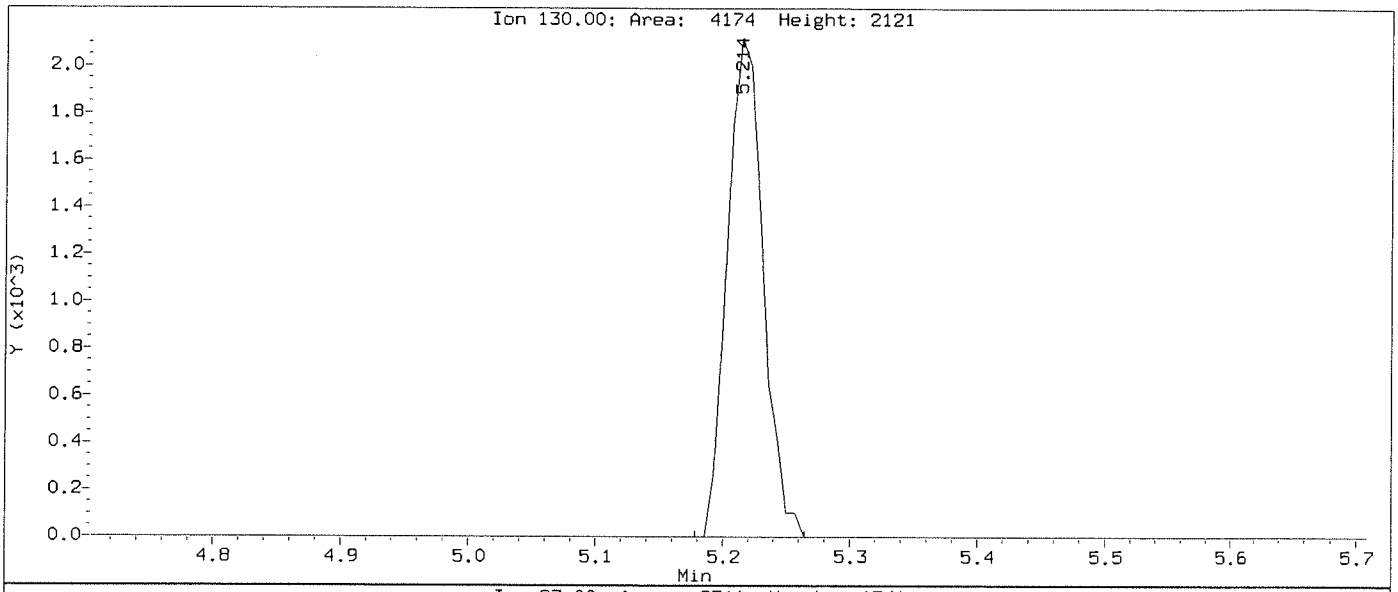
Compound: Toluene
CAS Number: 108-88-3

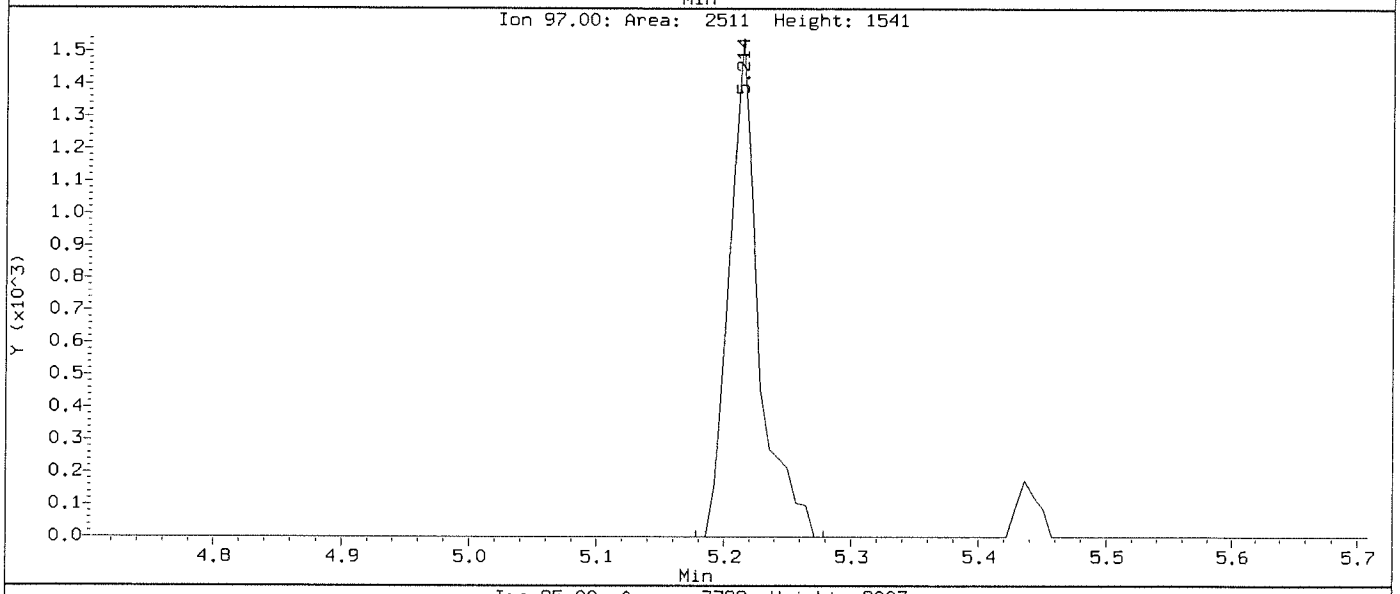


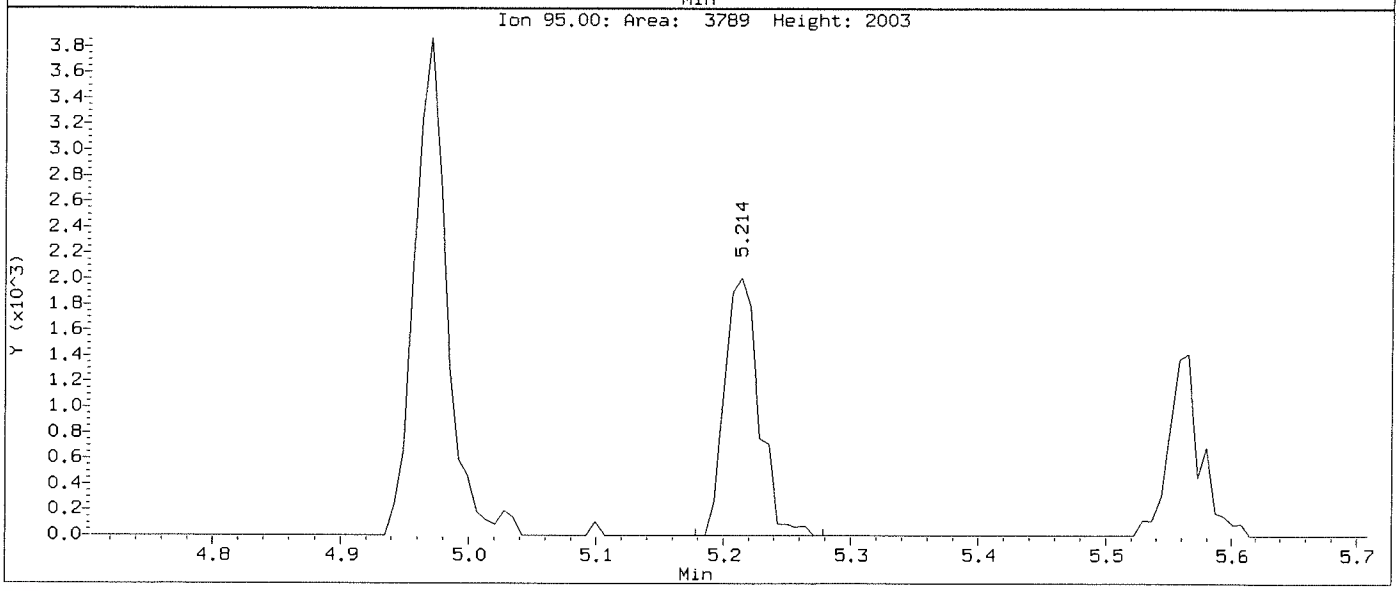



Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110305.D
Injection Date: 03-NOV-2020 13:24
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: Trichloroethene
CAS Number: 79-01-6

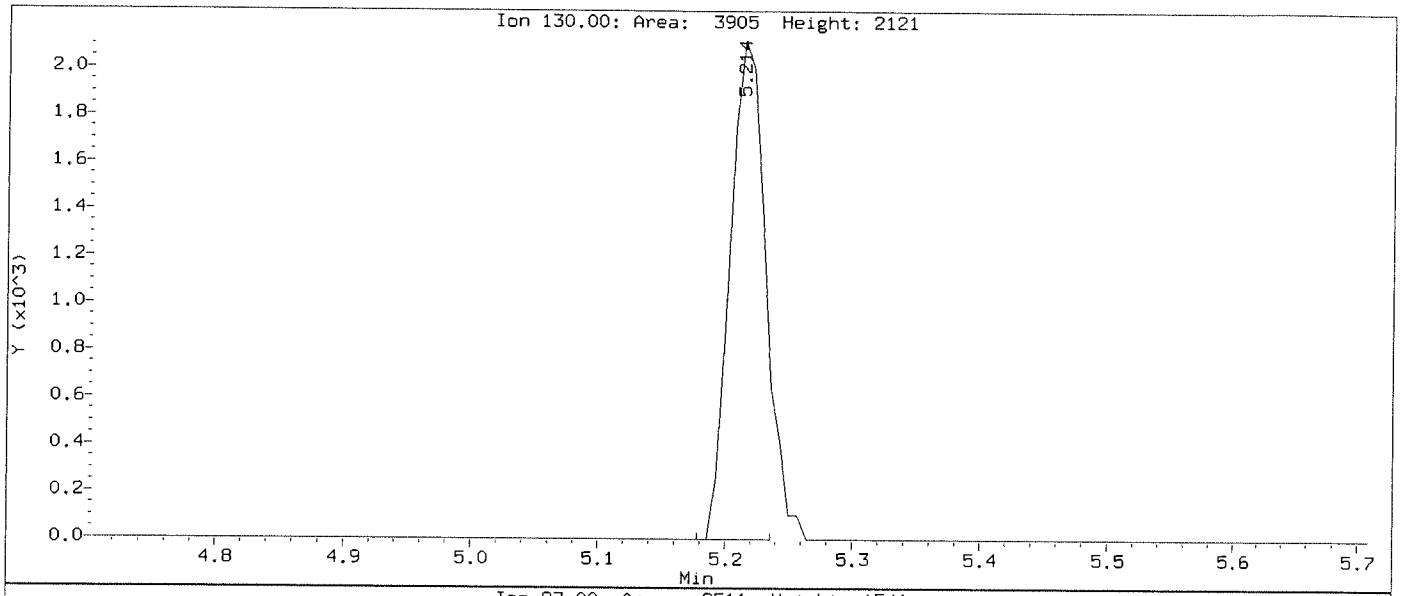


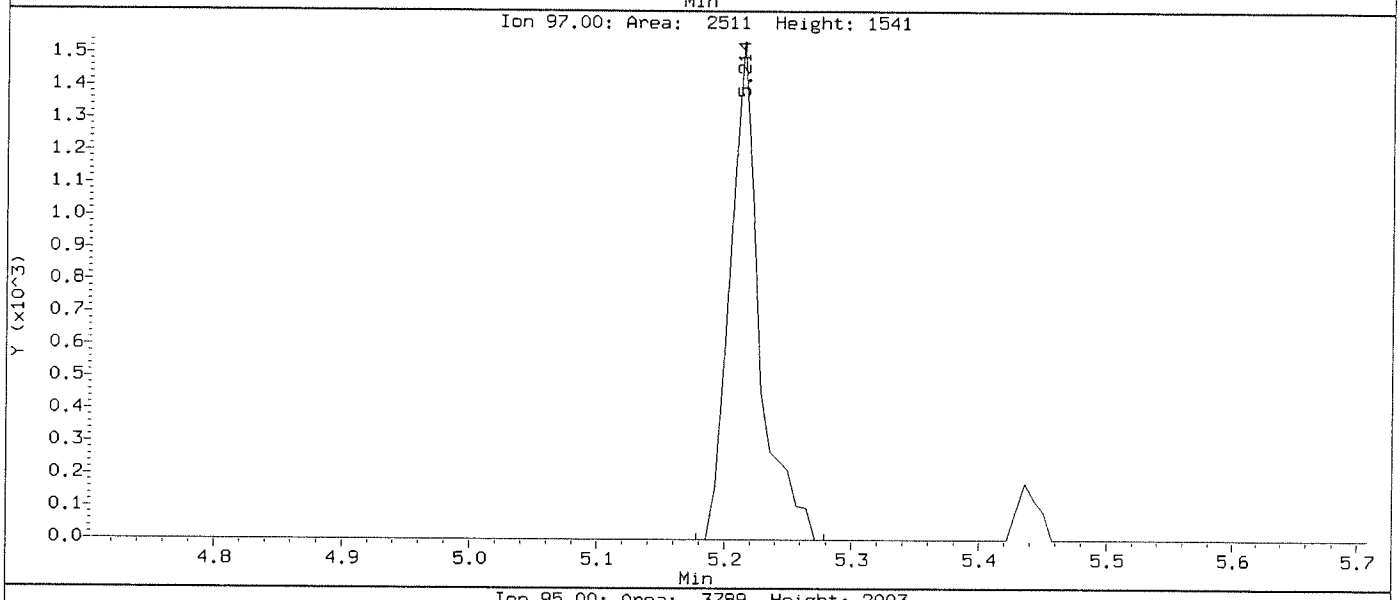



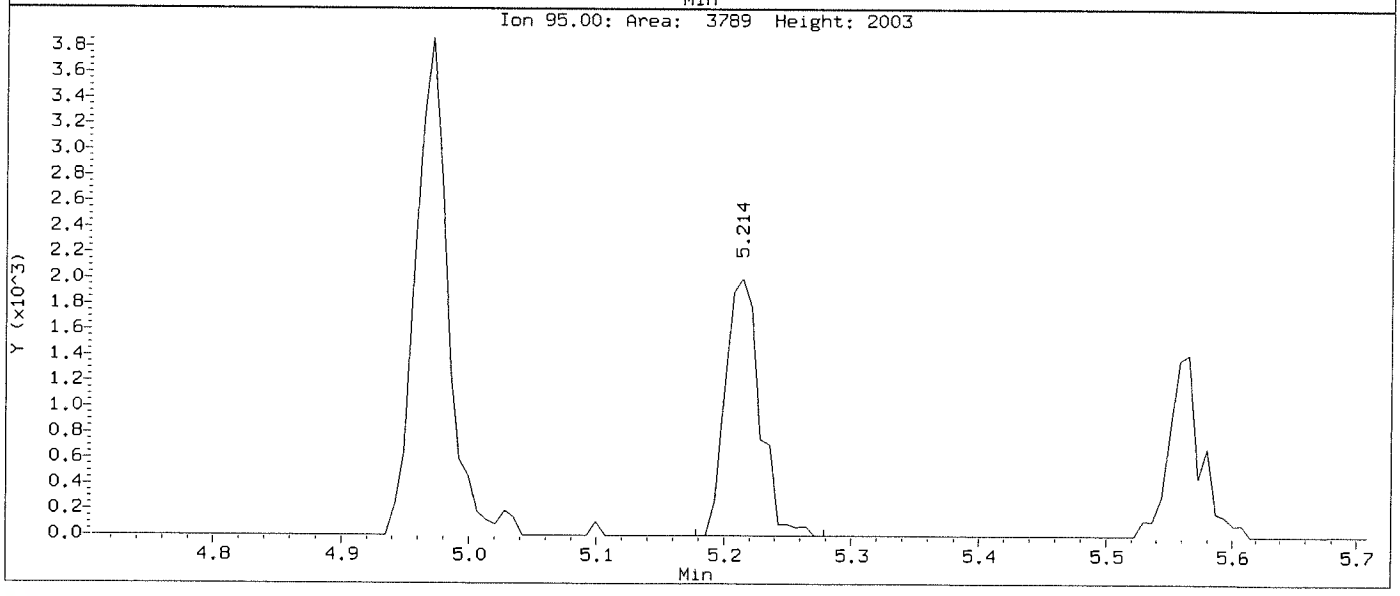



Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110305.D
Injection Date: 03-NOV-2020 13:24
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: Trichloroethene
CAS Number: 79-01-6

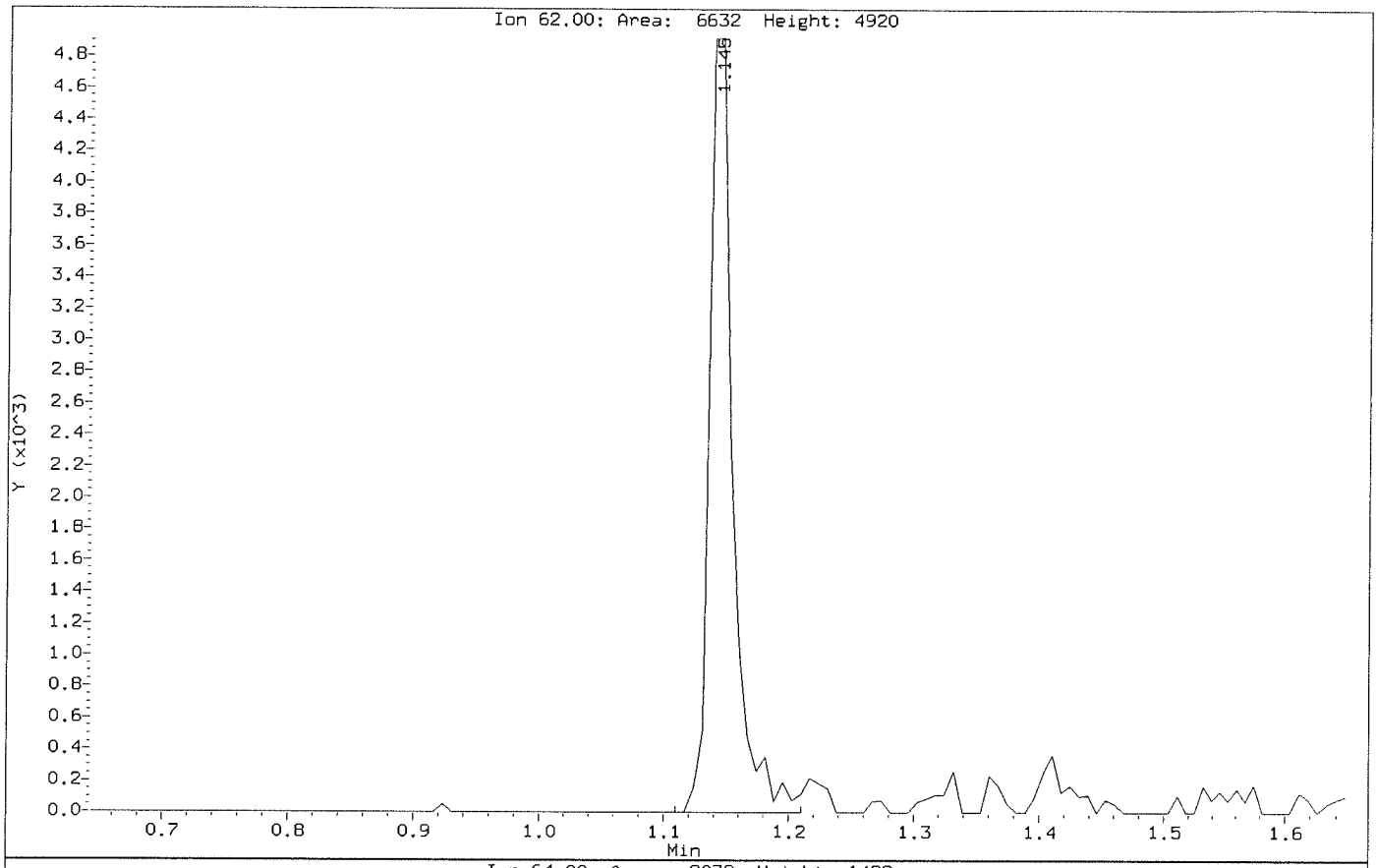


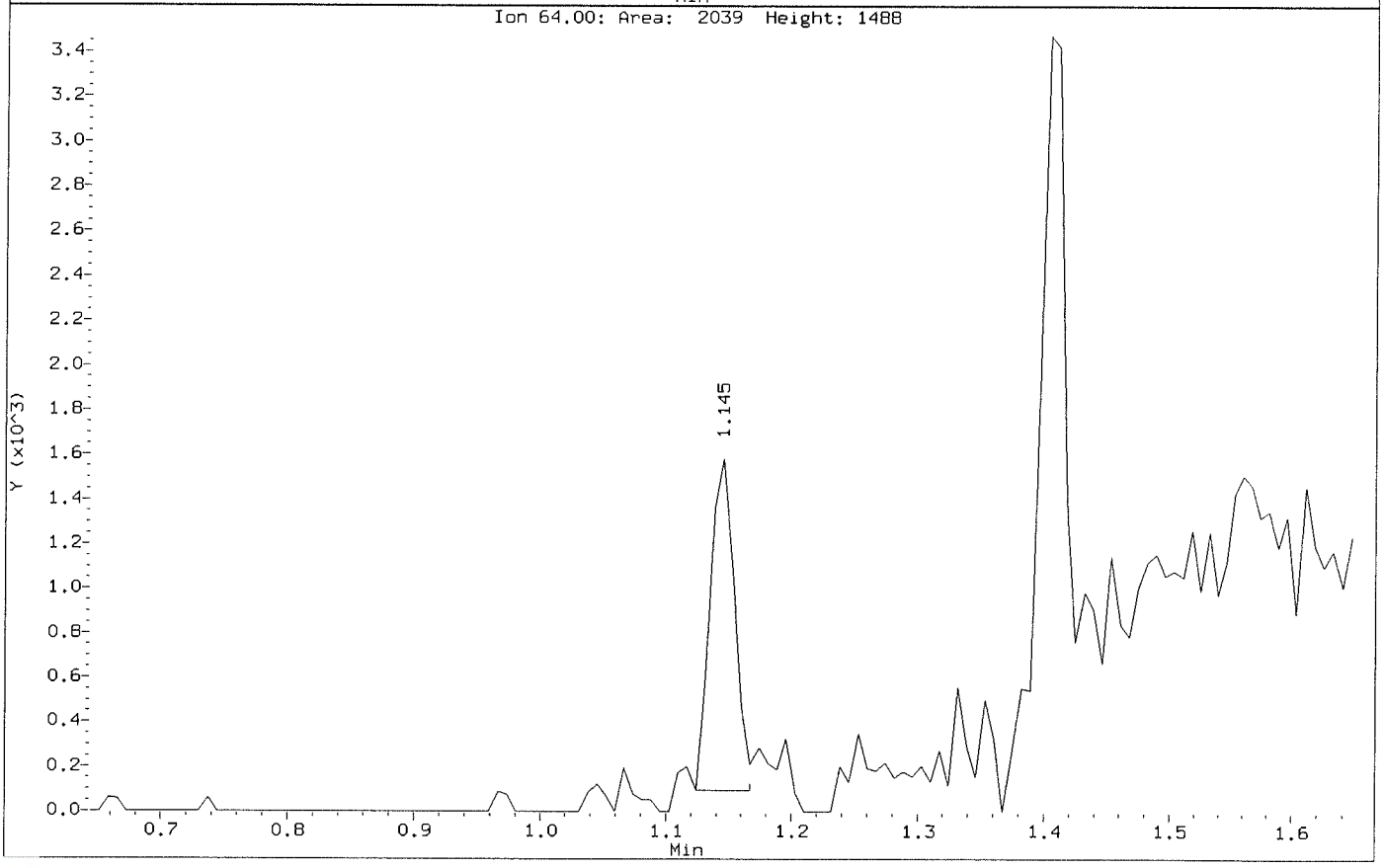



Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110305.D
Injection Date: 03-NOV-2020 13:24
Instrument: voa6.i
Client Sample ID: VSTD002

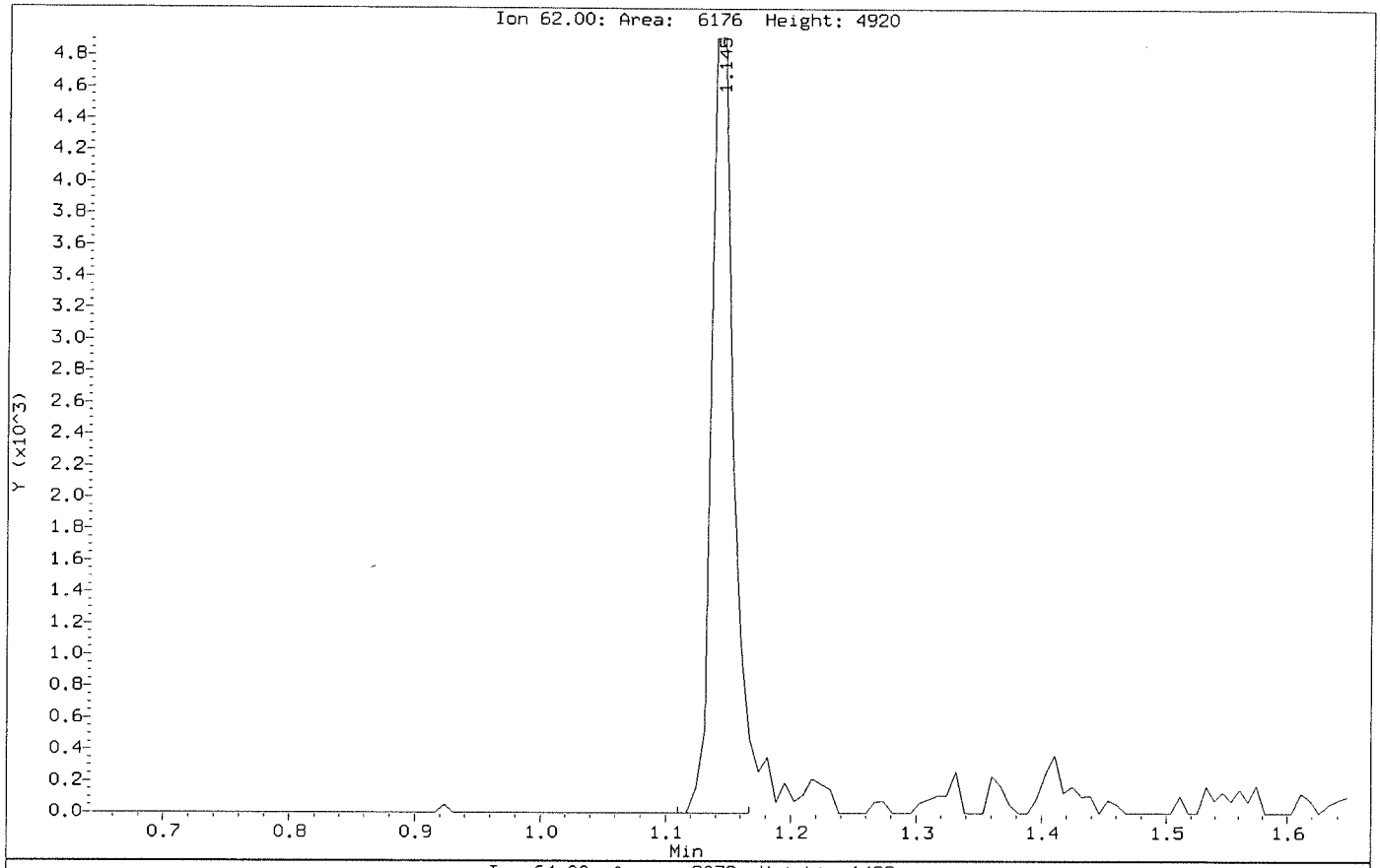
Compound: Vinyl Chloride
CAS Number: 75-01-4

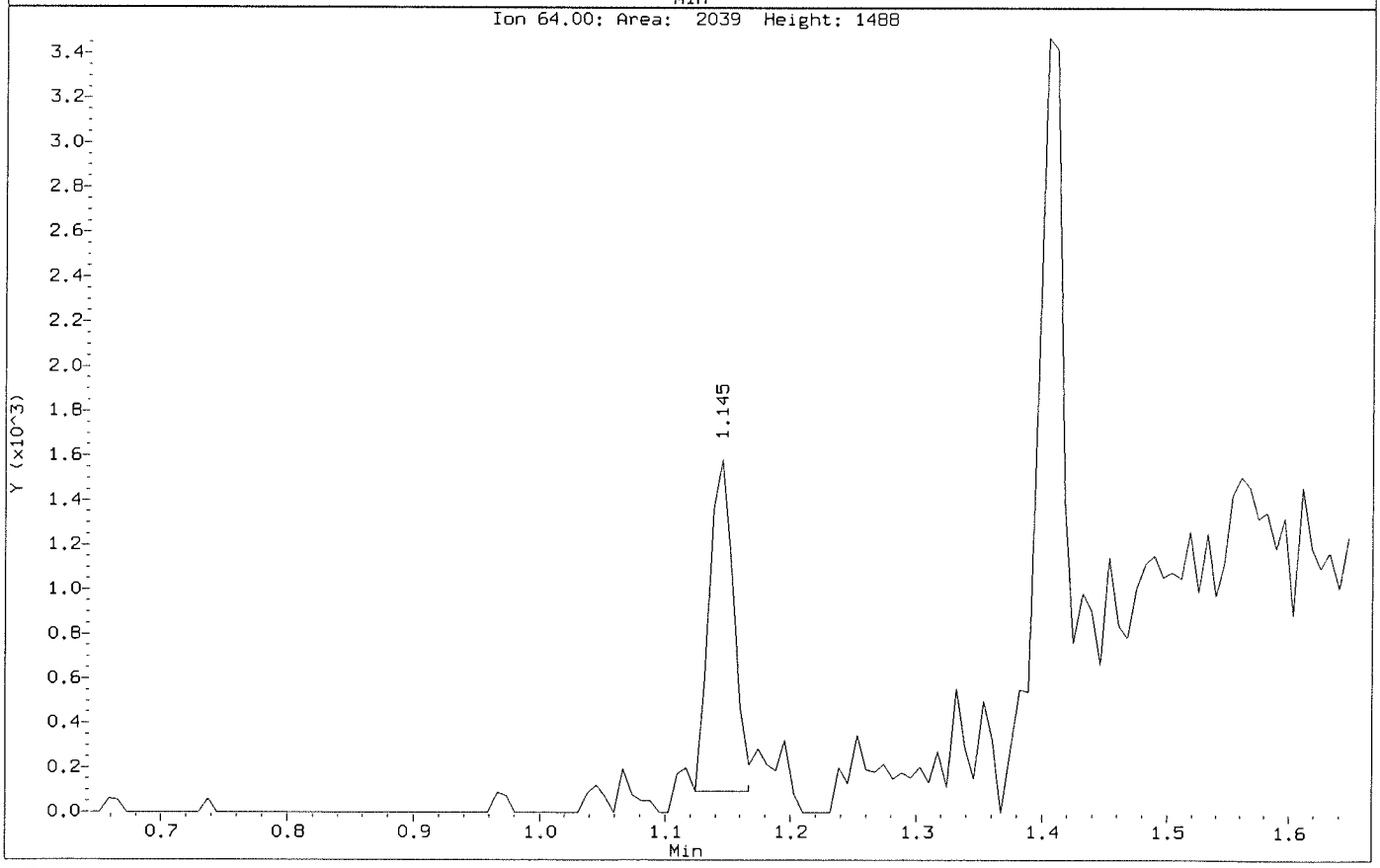


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110305.D
Injection Date: 03-NOV-2020 13:24
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: Vinyl Chloride
CAS Number: 75-01-4



Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110306.D Page 1
Report Date: 13-Jan-2021 15:44

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201103.b\X110306.D
Lab Smp Id: VSTD005 Client Smp ID: VSTD005
Inj Date : 03-NOV-2020 13:45
Operator : PC Inst ID: voa6.i
Smp Info : VSTD005;VSTD005;1;5;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201103.b\8260W.m
Meth Date : 13-Jan-2021 15:44 voa6.i Quant Type: ISTD
Cal Date : 03-NOV-2020 13:24 Cal File: X110305.D
Als bottle: 7 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

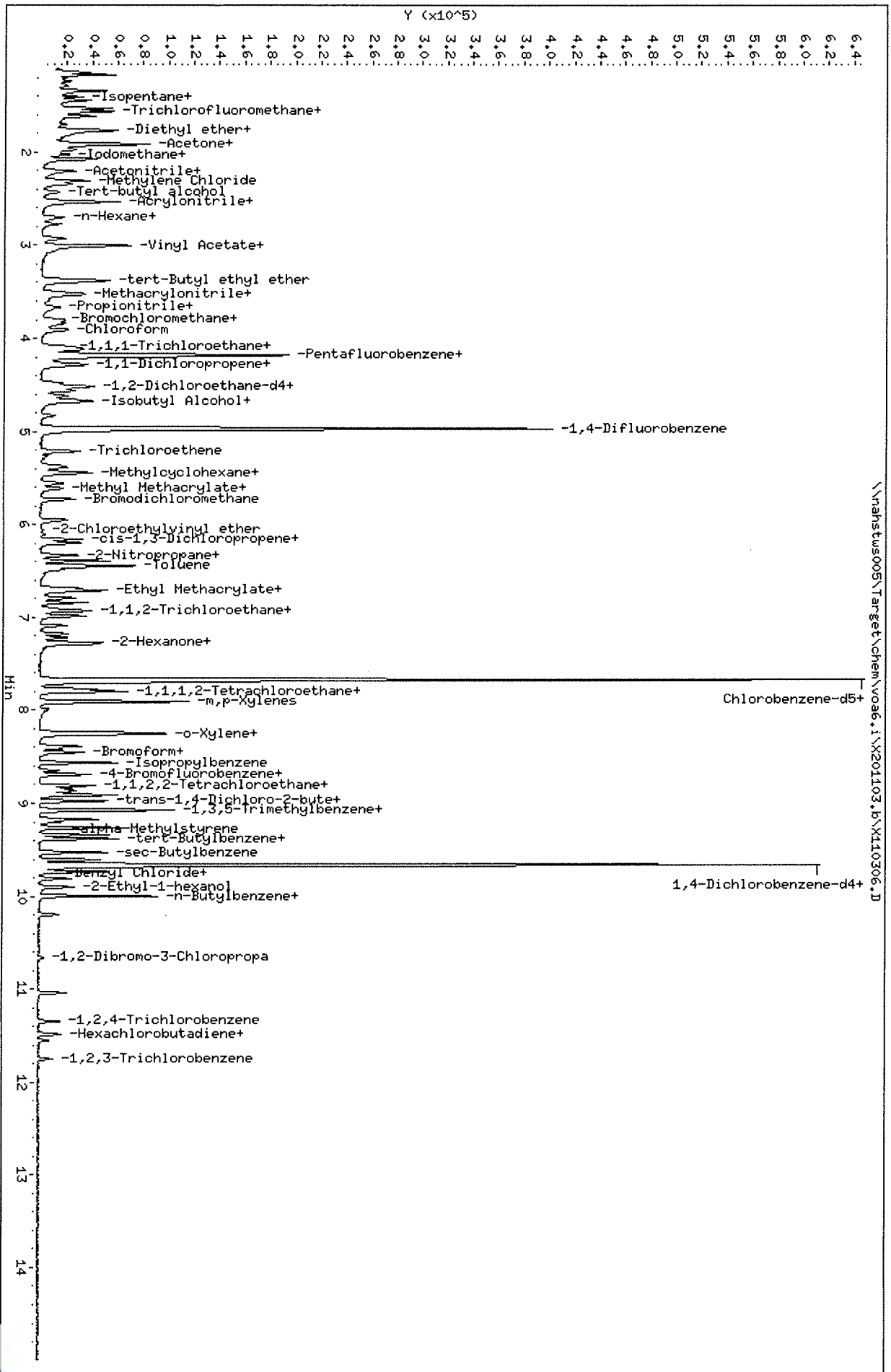
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.182 | 4.182 | (1.000) | 138955 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 4.970 | 4.970 | (1.000) | 261095 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 7.671 | 7.671 | (1.000) | 246486 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 9.662 | 9.662 | (1.000) | 109468 | 50.0000 | |
| $ 35 1,2-Dichloroethane-d4 | 65 | 4.476 | 4.476 | (1.070) | 11874 | 5.00000 | 5.19 |
| $ 69 4-Bromofluorobenzene | 95 | 8.688 | 8.688 | (1.133) | 11013 | 5.00000 | 5.45 |
| $ 30 Dibromofluoromethane | 113 | 4.103 | 4.103 | (0.981) | 8863 | 5.00000 | 4.73(a) |
| $ 48 Toluene-d8 | 98 | 6.388 | 6.388 | (0.833) | 29006 | 5.00000 | 4.40(a) |
| 60 1,1,1,2-Tetrachloroethane | 131 | 7.778 | 7.778 | (1.014) | 8285 | 5.00000 | 4.71(a) |
| 31 1,1,1-Trichloroethane | 97 | 4.082 | 4.082 | (0.976) | 13747 | 5.00000 | 4.73(a) |
| 68 1,1,2,2-Tetrachloroethane | 83 | 8.838 | 8.838 | (0.915) | 10630 | 5.00000 | 5.36 |
| 138 Freon TF | 101 | 1.919 | 1.919 | (0.459) | 11518 | 5.00000 | 4.54(a) |
| 53 1,1,2-Trichloroethane | 83 | 6.840 | 6.840 | (0.892) | 7145 | 5.00000 | 4.69(a) |
| 22 1,1-Dichloroethane | 63 | 2.929 | 2.929 | (0.700) | 17341 | 5.00000 | 5.19 |
| 11 1,1-Dichloroethene | 96 | 1.919 | 1.919 | (0.459) | 13327 | 5.00000 | 5.08 |
| 32 1,1-Dichloropropene | 75 | 4.283 | 4.283 | (0.862) | 11913 | 5.00000 | 4.89(a) |
| 93 1,2,3-Trichlorobenzene | 180 | 11.746 | 11.746 | (1.216) | 2533 | 5.00000 | 6.97 |
| 71 1,2,3-Trichloropropane | 75 | 8.867 | 8.867 | (0.918) | 7499 | 5.00000 | 4.87(aMH) |
| 90 1,2,4-Trichlorobenzene | 180 | 11.345 | 11.345 | (1.174) | 4083 | 5.00000 | 6.24 |
| 79 1,2,4-Trimethylbenzene | 105 | 9.383 | 9.383 | (0.971) | 26821 | 5.00000 | 4.37(a) |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 10.658 | 10.658 | (1.103) | 741 | 5.00000 | 5.79 |
| 57 1,2-Dibromoethane | 107 | 7.270 | 7.270 | (0.948) | 8509 | 5.00000 | 4.60(a) |

Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110306.D Page 2
Report Date: 13-Jan-2021 15:44

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| 88 1,2-Dichlorobenzene | 146 | 9.999 | 9.999 | (1.035) | 14241 | 5.00000 | 4.71(a) |
| 33 1,2-Dichloroethane | 62 | 4.562 | 4.562 | (0.918) | 14332 | 5.00000 | 5.09(M) |
| 42 1,2-Dichloropropane | 63 | 5.443 | 5.443 | (1.095) | 10091 | 5.00000 | 5.22(M) |
| 75 1,3,5-Trimethylbenzene | 105 | 9.067 | 9.067 | (0.938) | 24800 | 5.00000 | 3.97(a) |
| 83 1,3-Dichlorobenzene | 146 | 9.605 | 9.605 | (0.994) | 14409 | 5.00000 | 4.49(a) |
| 54 1,3-Dichloropropane | 76 | 6.983 | 6.983 | (0.910) | 14767 | 5.00000 | 4.88(a) |
| 84 1,4-Dichlorobenzene | 146 | 9.683 | 9.683 | (1.002) | 16065 | 5.00000 | 4.80(a) |
| 26 2,2-Dichloropropane | 77 | 3.516 | 3.516 | (0.841) | 14015 | 5.00000 | 4.87(a) |
| 24 2-Butanone | 43 | 3.602 | 3.602 | (0.861) | 6685 | 10.0000 | 10.34 |
| 76 2-Chlorotoluene | 91 | 8.974 | 8.974 | (0.929) | 24673 | 5.00000 | 4.79(a) |
| 52 2-Hexanone | 43 | 7.219 | 7.219 | (0.941) | 14581 | 10.0000 | 12.13 |
| 77 4-Chlorotoluene | 91 | 9.075 | 9.075 | (0.939) | 28797 | 5.00000 | 4.43(a) |
| 82 p-Isopropyltoluene | 119 | 9.655 | 9.655 | (0.999) | 25607 | 5.00000 | 4.33(a) |
| 45 4-Methyl-2-Pentanone | 43 | 6.331 | 6.331 | (0.825) | 19349 | 10.0000 | 10.33 |
| 10 Acetone | 43 | 1.976 | 1.976 | (0.473) | 13265 | 10.0000 | 10.13 |
| 37 Benzene | 78 | 4.519 | 4.519 | (0.909) | 35701 | 5.00000 | 4.89(a) |
| 74 Bromobenzene | 156 | 8.810 | 8.810 | (0.912) | 9020 | 5.00000 | 4.68(a) |
| 29 Bromochloromethane | 128 | 3.795 | 3.795 | (0.908) | 5329 | 5.00000 | 5.56 |
| 39 Bromodichloromethane | 83 | 5.729 | 5.729 | (1.153) | 13327 | 5.00000 | 4.96(a) |
| 66 Bromoform | 173 | 8.416 | 8.416 | (1.097) | 4618 | 5.00000 | 6.65(T) |
| 6 Bromomethane | 94 | 1.339 | 1.339 | (0.320) | 12720 | 5.00000 | 4.91(aM) |
| 19 Carbon Disulfide | 76 | 2.069 | 2.069 | (0.495) | 48187 | 10.0000 | 9.89 |
| 34 Carbon Tetrachloride | 117 | 4.268 | 4.268 | (0.859) | 11317 | 5.00000 | 4.84(a) |
| 59 Chlorobenzene | 112 | 7.699 | 7.699 | (1.004) | 23875 | 5.00000 | 4.53(a) |
| 7 Chloroethane | 64 | 1.403 | 1.403 | (0.336) | 11318 | 5.00000 | 5.16(H) |
| 28 Chloroform | 83 | 3.910 | 3.910 | (0.935) | 18068 | 5.00000 | 5.08 |
| 3 Chloromethane | 50 | 1.074 | 1.074 | (0.257) | 11006 | 5.00000 | 6.37 |
| 27 cis-1,2-Dichloroethene | 96 | 3.538 | 3.538 | (0.846) | 10335 | 5.00000 | 5.07 |
| 46 cis-1,3-Dichloropropene | 75 | 6.159 | 6.159 | (1.239) | 14744 | 5.00000 | 5.06 |
| 55 Dibromochloromethane | 129 | 7.184 | 7.184 | (0.937) | 8501 | 5.00000 | 4.66(a) |
| 44 Dibromomethane | 93 | 5.558 | 5.558 | (1.118) | 7626 | 5.00000 | 5.77 |
| 2 Dichlorodifluoromethane | 85 | 0.973 | 0.973 | (0.233) | 9243 | 5.00000 | 5.13 |
| 61 Ethylbenzene | 106 | 7.807 | 7.807 | (1.018) | 11027 | 5.00000 | 4.12(aH) |
| 91 Hexachlorobutadiene | 225 | 11.489 | 11.489 | (1.189) | 2539 | 5.00000 | 6.44 |
| 67 Isopropylbenzene | 105 | 8.566 | 8.566 | (1.117) | 31967 | 5.00000 | 6.32 |
| 62 m,p-Xylenes | 106 | 7.907 | 7.907 | (1.031) | 28591 | 10.0000 | 8.93 |
| 17 Methylene Chloride | 84 | 2.306 | 2.306 | (0.551) | 9949 | 5.00000 | 5.21 |
| 87 n-Butylbenzene | 91 | 9.999 | 9.999 | (1.035) | 22870 | 5.00000 | 6.79 |
| 73 n-Propylbenzene | 91 | 8.917 | 8.917 | (0.923) | 37694 | 5.00000 | 4.32(a) |
| 92 Naphthalene | 128 | 11.553 | 11.553 | (1.196) | 6669 | 5.00000 | 7.20 |
| 63 o-Xylene | 106 | 8.244 | 8.244 | (1.075) | 13980 | 5.00000 | 4.38(a) |
| 81 sec-Butylbenzene | 105 | 9.526 | 9.526 | (0.986) | 29458 | 5.00000 | 6.35 |
| 64 Styrene | 104 | 8.265 | 8.265 | (1.078) | 23194 | 5.00000 | 4.33(a) |
| 78 tert-Butylbenzene | 119 | 9.340 | 9.340 | (0.967) | 20057 | 5.00000 | 6.31 |
| 56 Tetrachloroethene | 164 | 6.933 | 6.933 | (0.904) | 6222 | 5.00000 | 4.58(a) |
| 50 Toluene | 91 | 6.453 | 6.453 | (0.841) | 42883 | 5.00000 | 4.75(a) |
| 20 trans-1,2-Dichloroethene | 96 | 2.535 | 2.535 | (0.606) | 7804 | 5.00000 | 4.50(a) |
| 51 trans-1,3-Dichloropropene | 75 | 6.682 | 6.682 | (1.344) | 12581 | 5.00000 | 4.89(a) |
| 38 Trichloroethene | 130 | 5.207 | 5.207 | (1.048) | 8320 | 5.00000 | 4.78(a) |
| 8 Trichlorofluoromethane | 101 | 1.561 | 1.561 | (0.373) | 25518 | 5.00000 | 4.87(a) |
| 5 Vinyl Chloride | 62 | 1.145 | 1.145 | (0.274) | 15367 | 5.00000 | 5.00(MH) |

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.



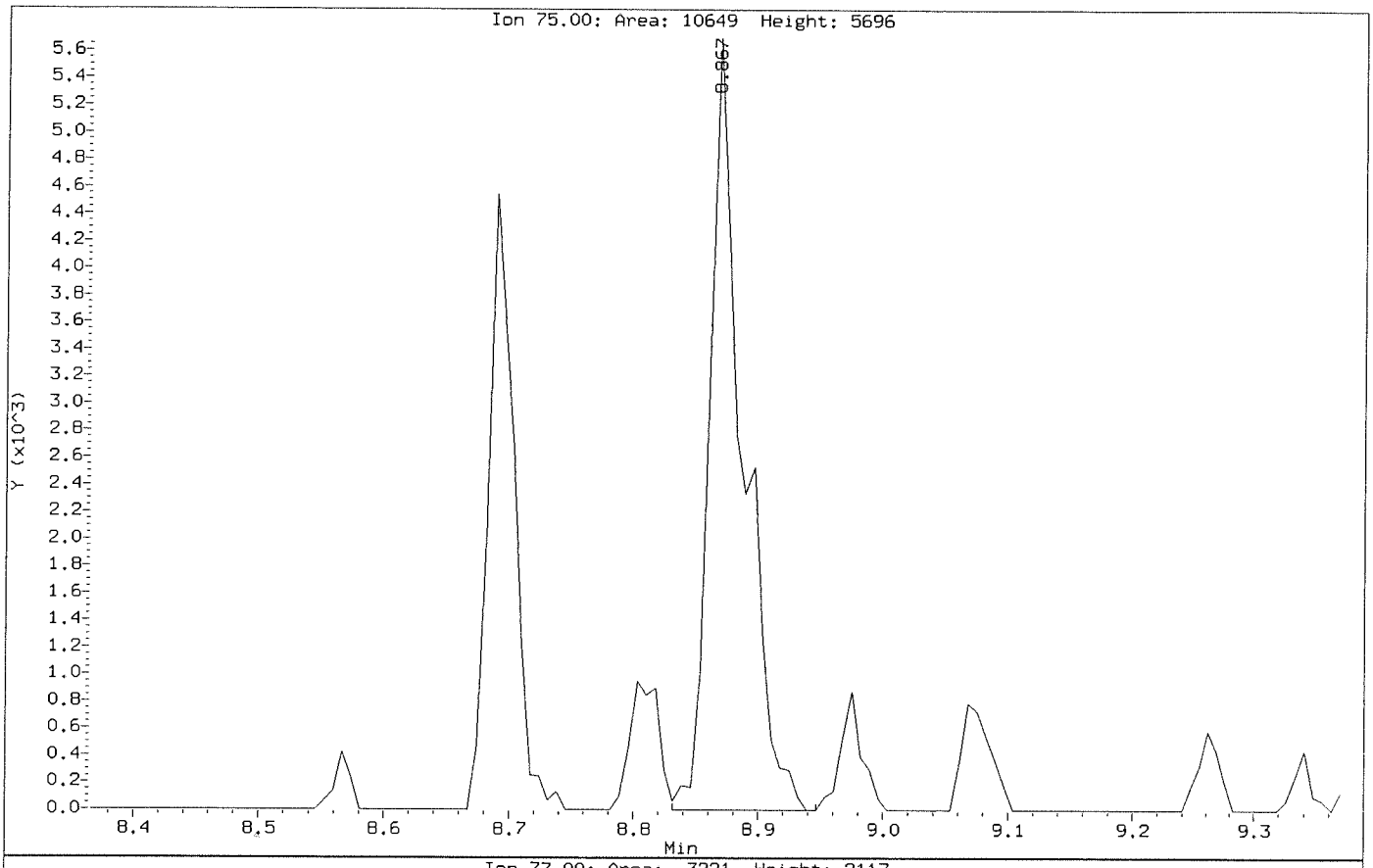

Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110306.D
Date : 03-NOV-2020 13:45
Client ID: VSTD005
Sample Info: VSTD005;VSTD005;1;5;
Purge Volume: 5.0
Column phase: DB624

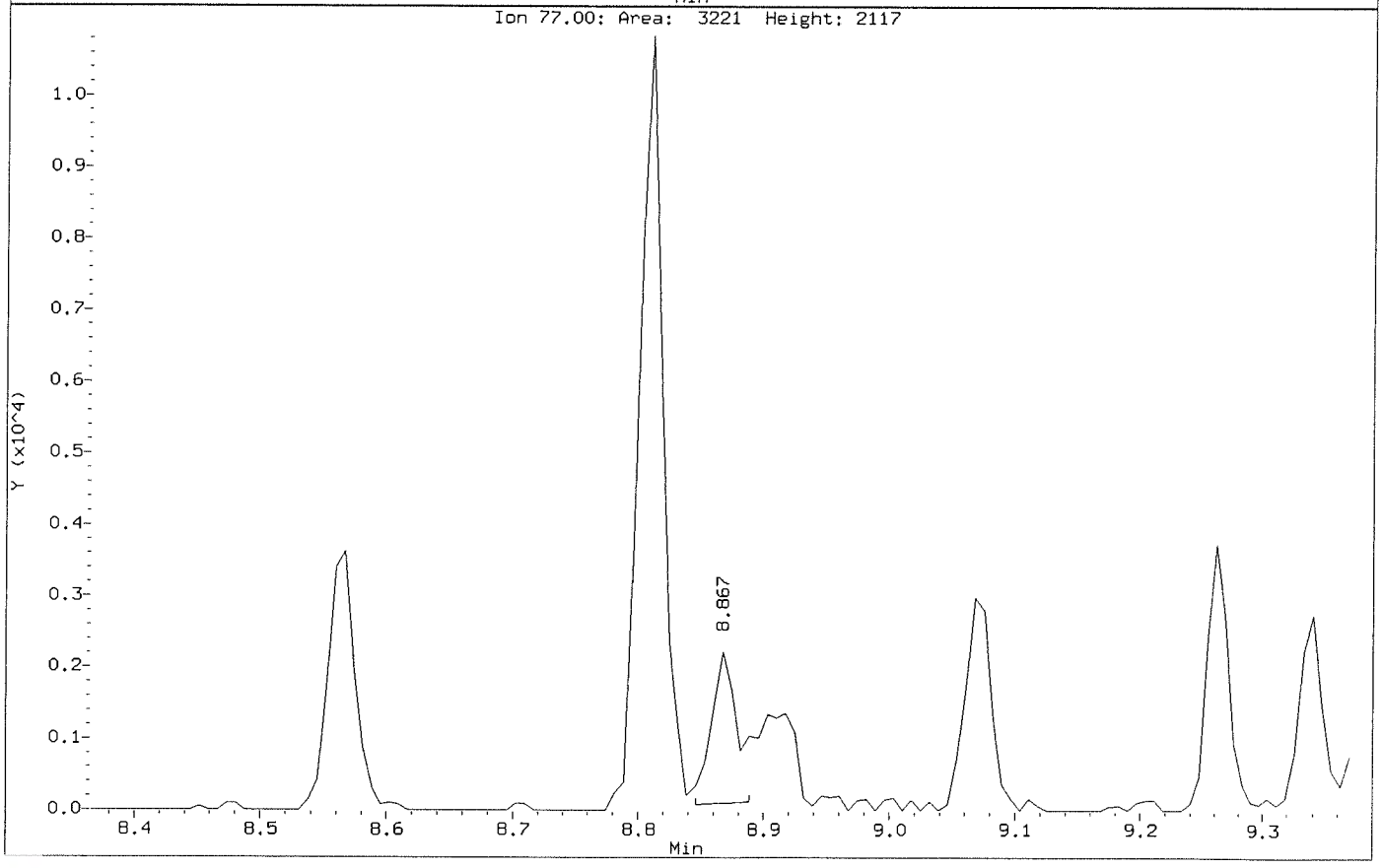
Instrument: voa6.i
Operator: PC
Column diameter: 0.18

\\nahstws005\Target\chem\voa6.i\X201103.b\X110306.D

Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110306.D
Injection Date: 03-NOV-2020 13:45
Instrument: voa6.i
Client Sample ID: VSTD005

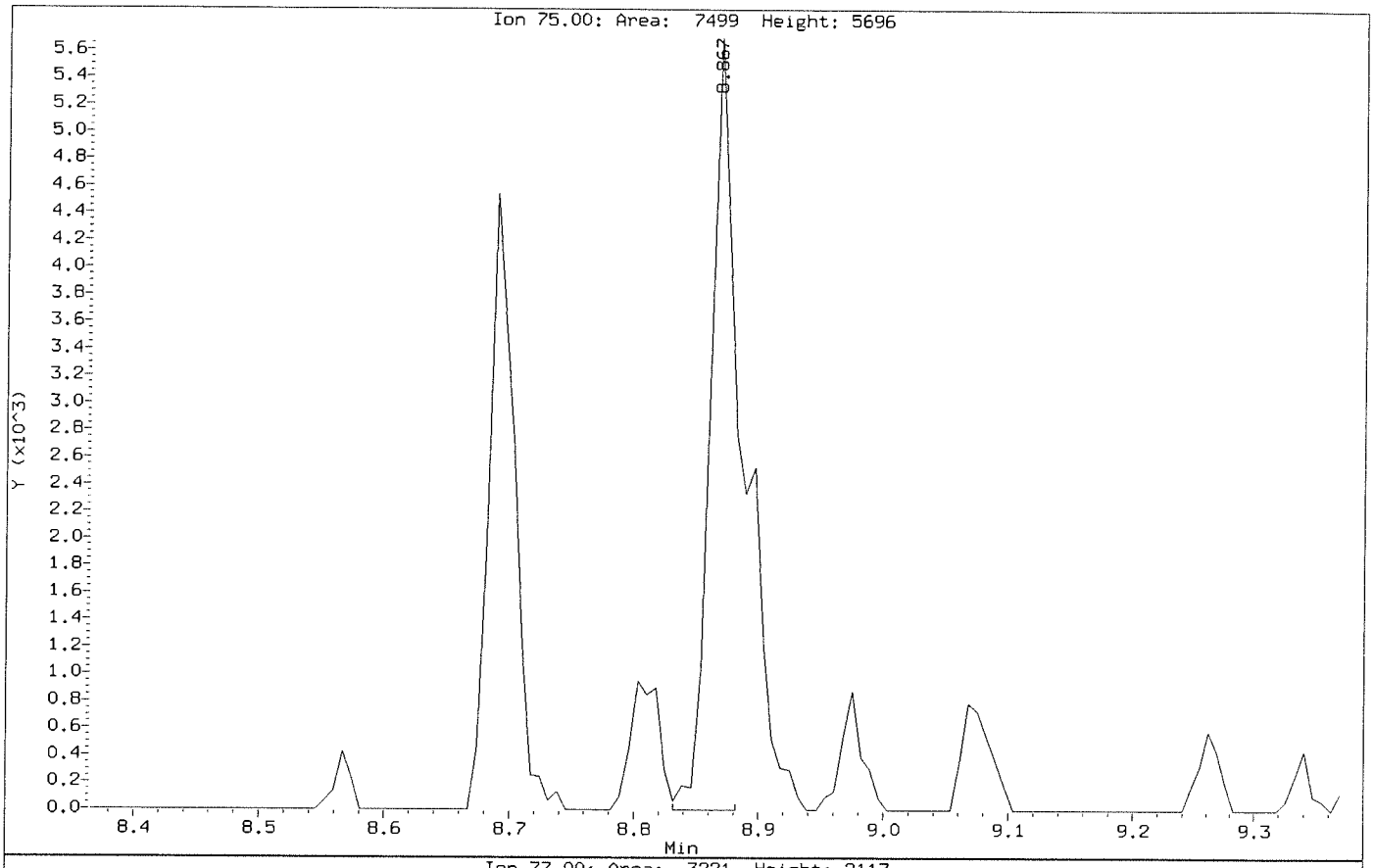
Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4

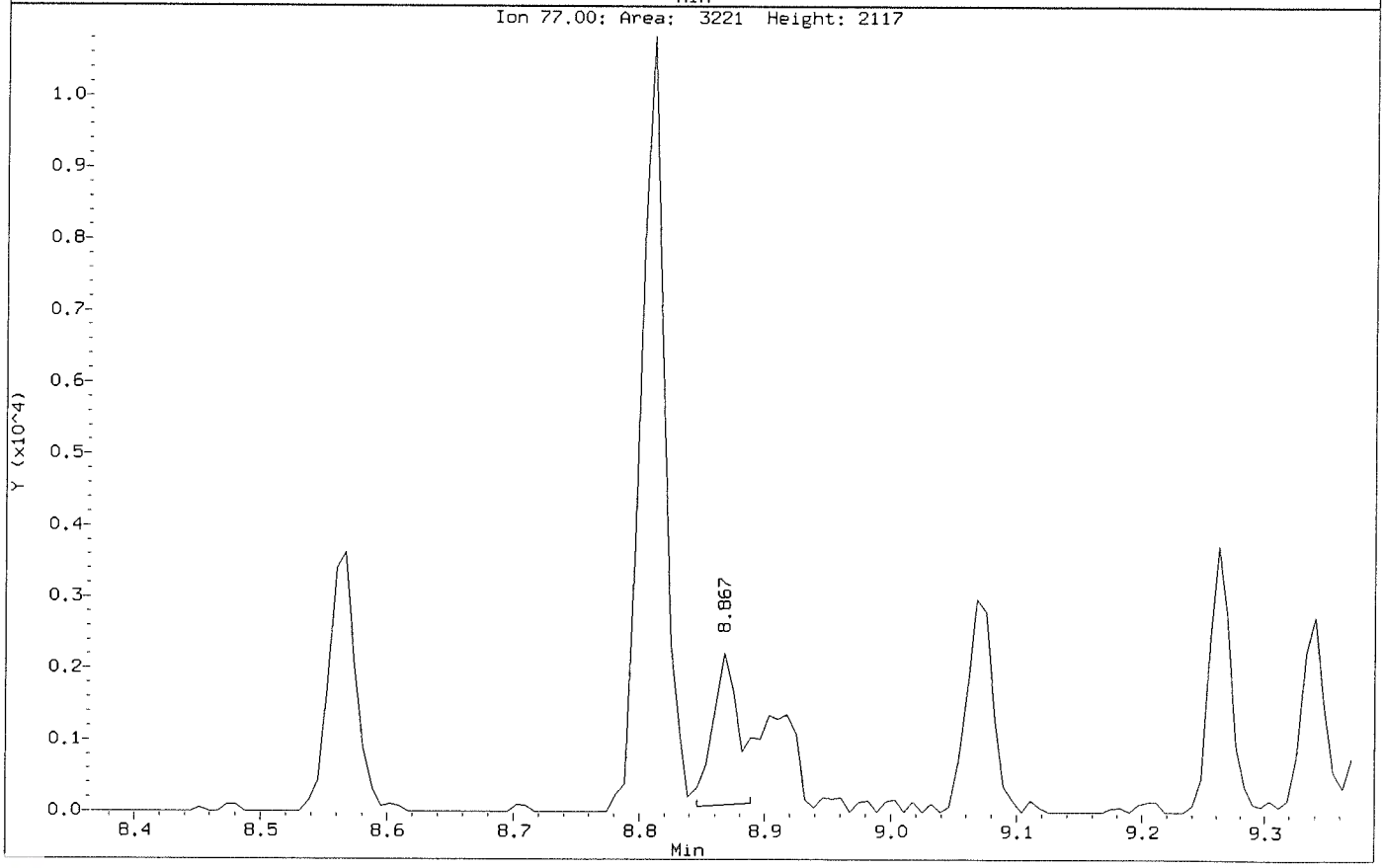


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110306.D
Injection Date: 03-NOV-2020 13:45
Instrument: voa6.i
Client Sample ID: VSTD005

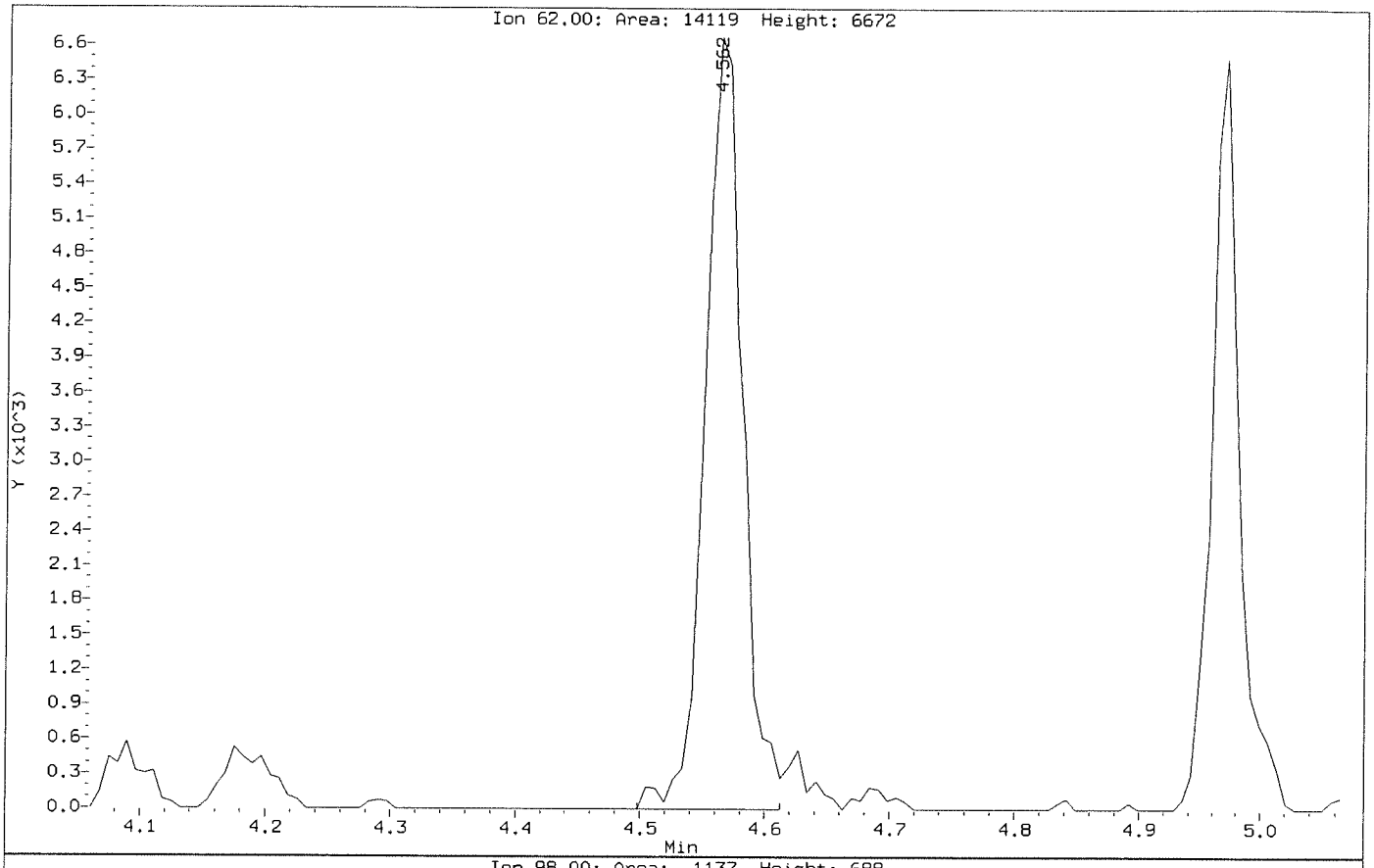
Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4

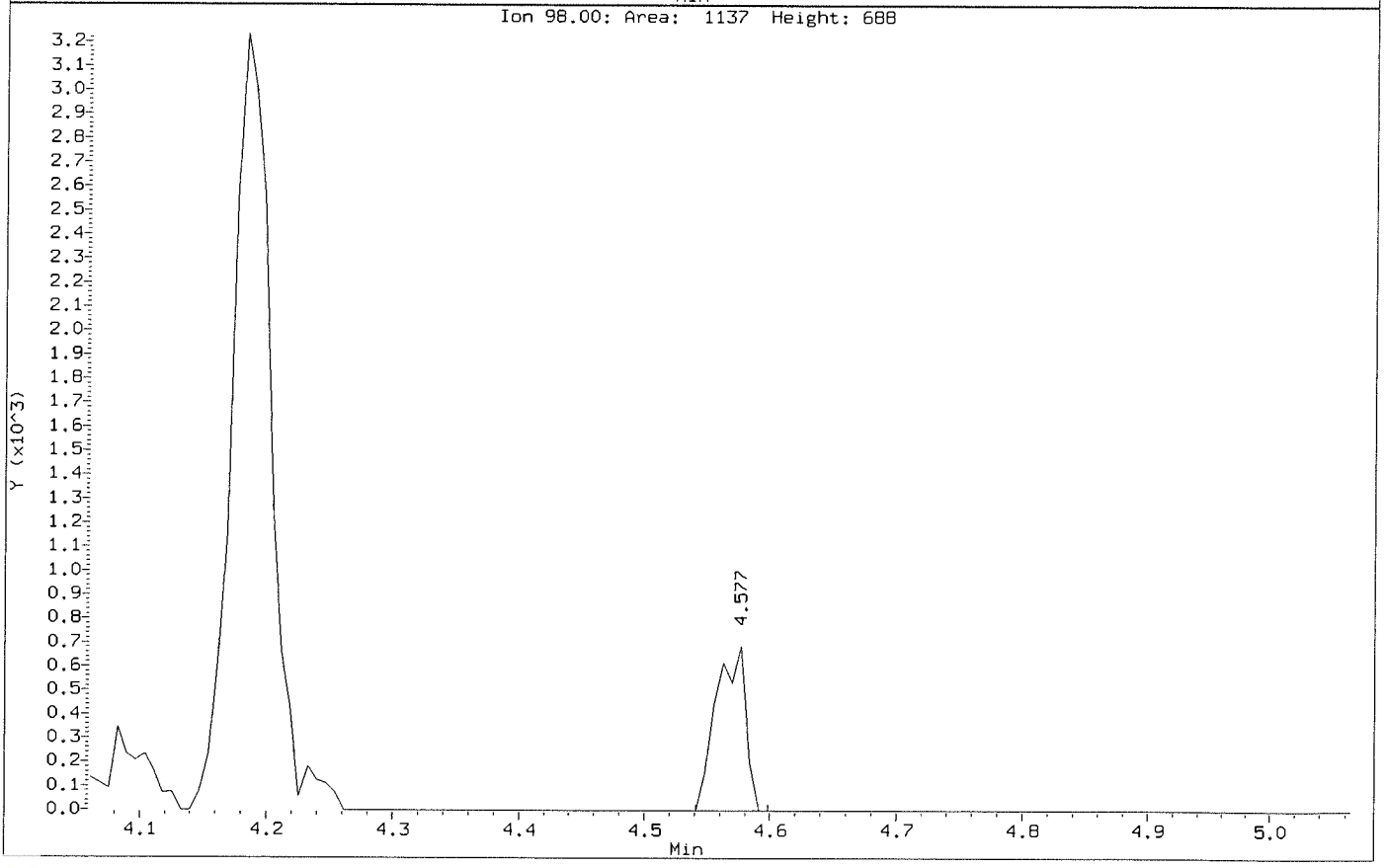


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110306.D
Injection Date: 03-NOV-2020 13:45
Instrument: voa6.i
Client Sample ID: VSTD005

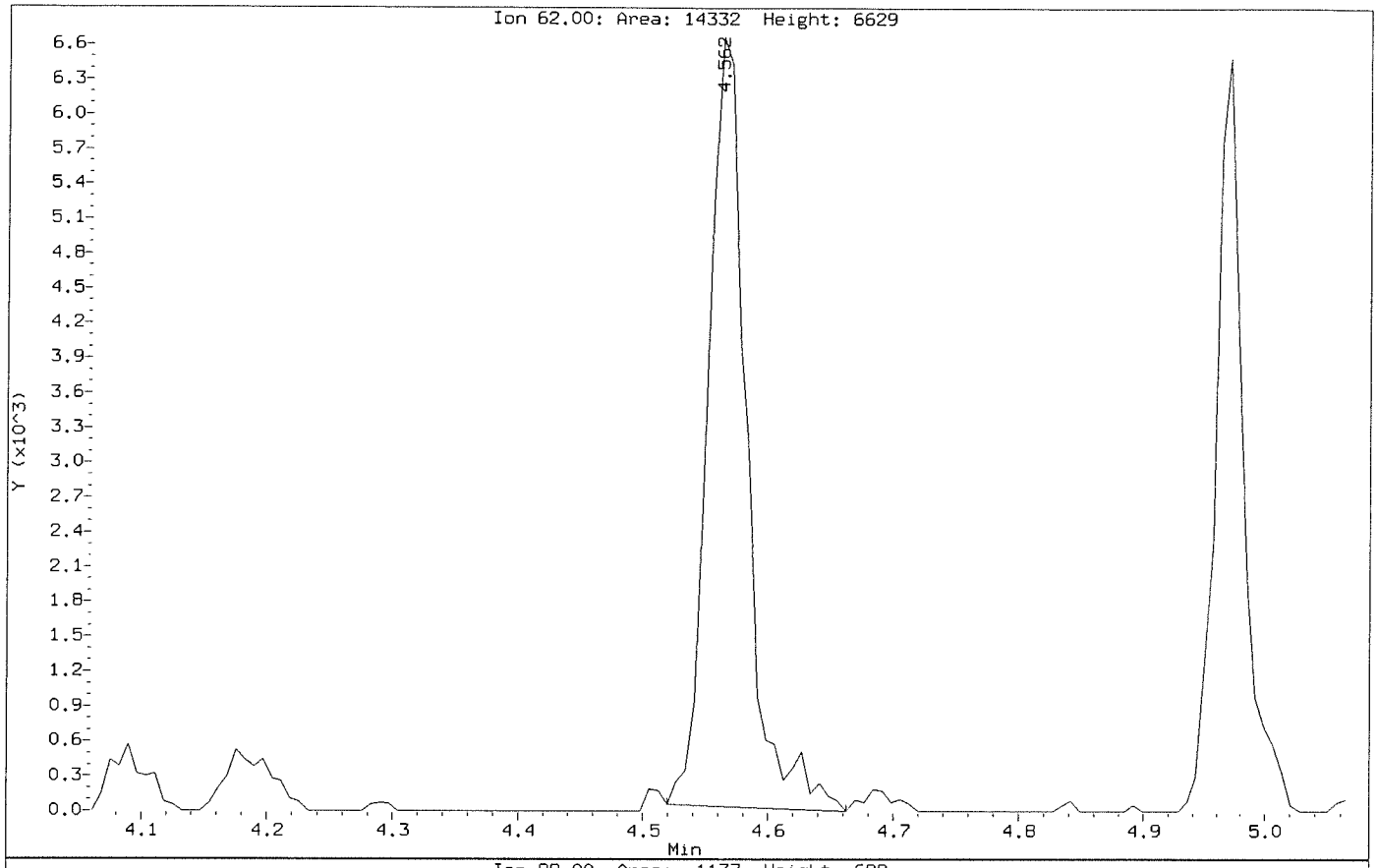
Compound: 1,2-Dichloroethane
CAS Number: 107-06-2

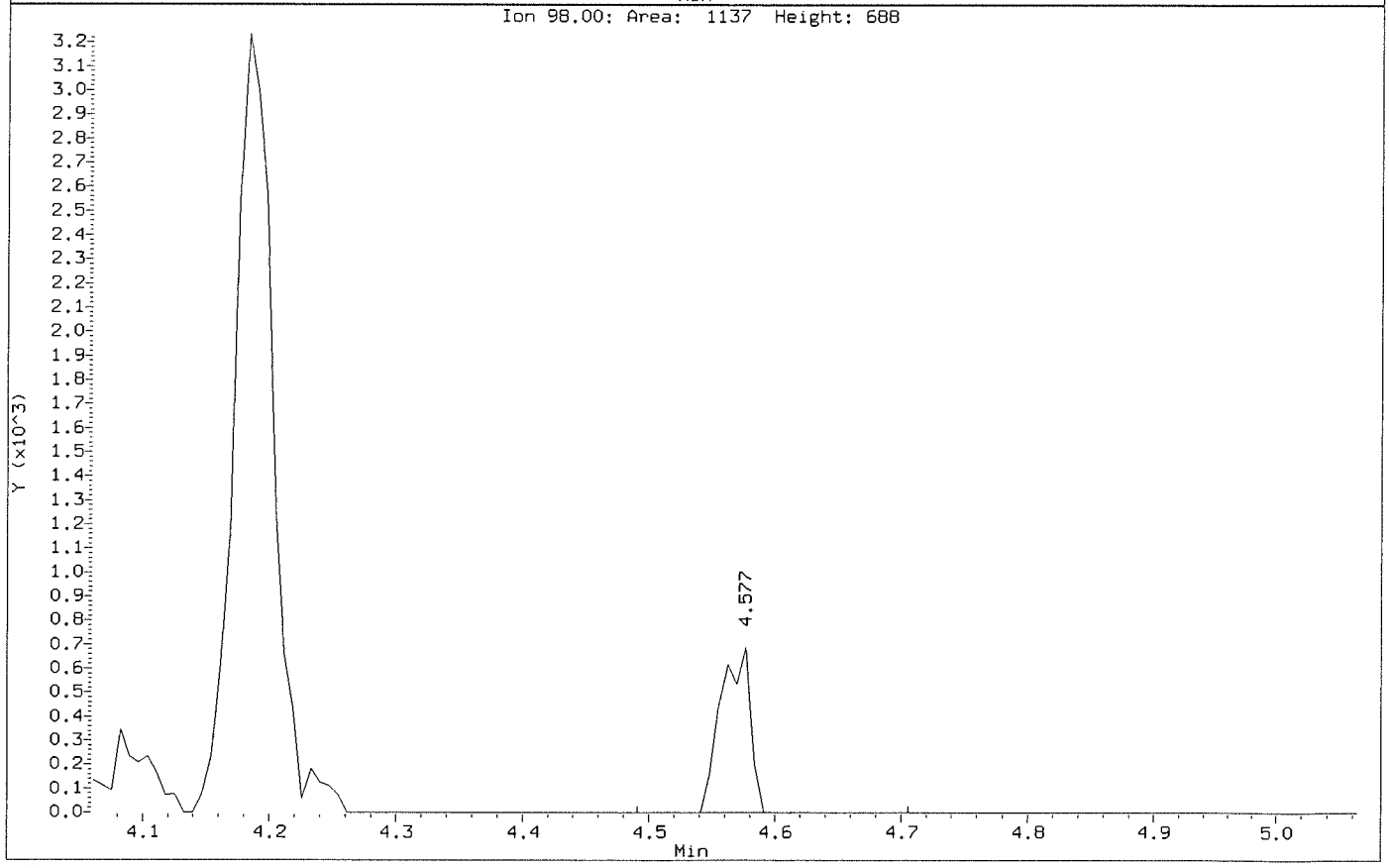


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110306.D
Injection Date: 03-NOV-2020 13:45
Instrument: voa6.i
Client Sample ID: VSTD005

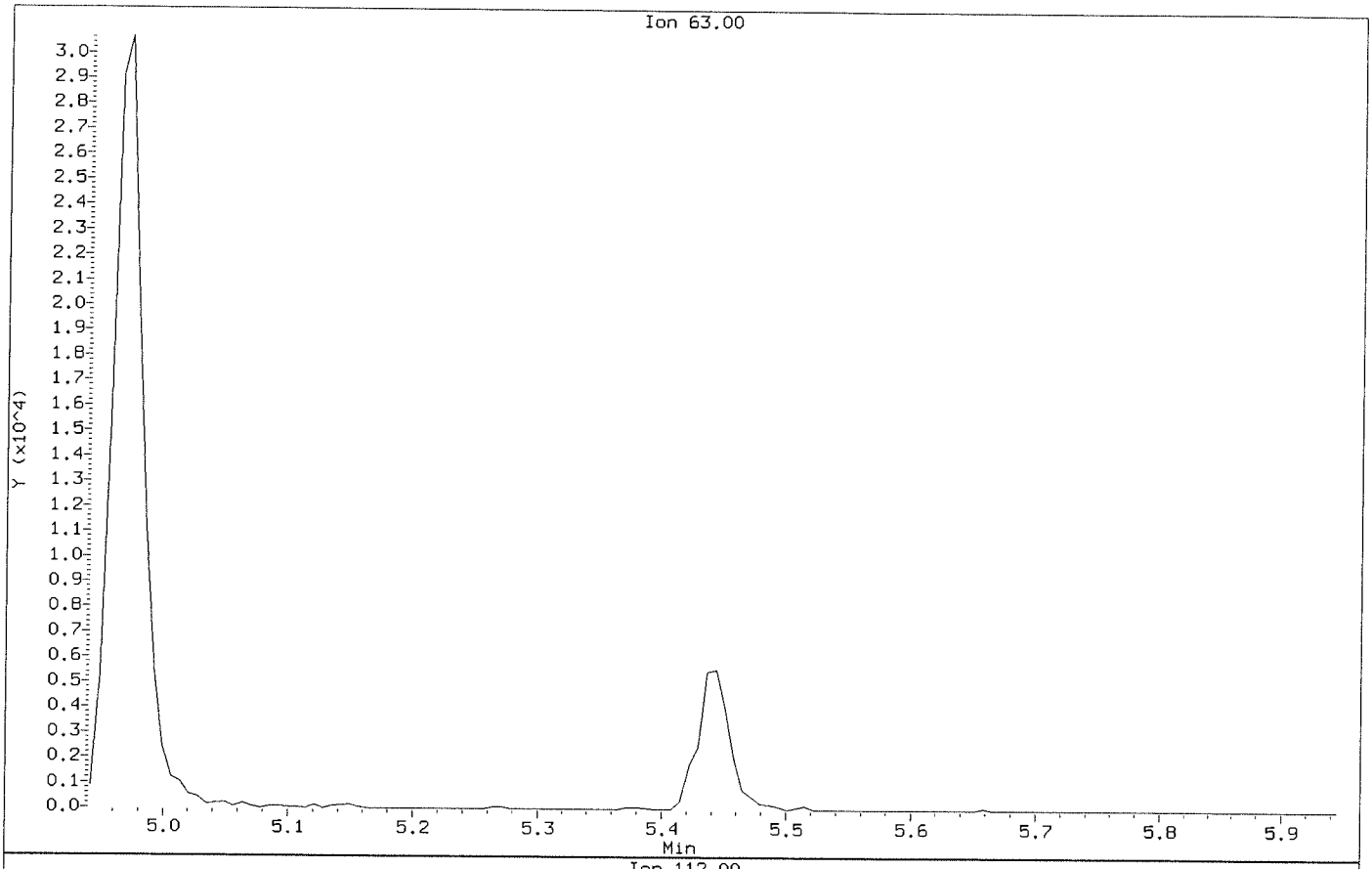
Compound: 1,2-Dichloroethane
CAS Number: 107-06-2

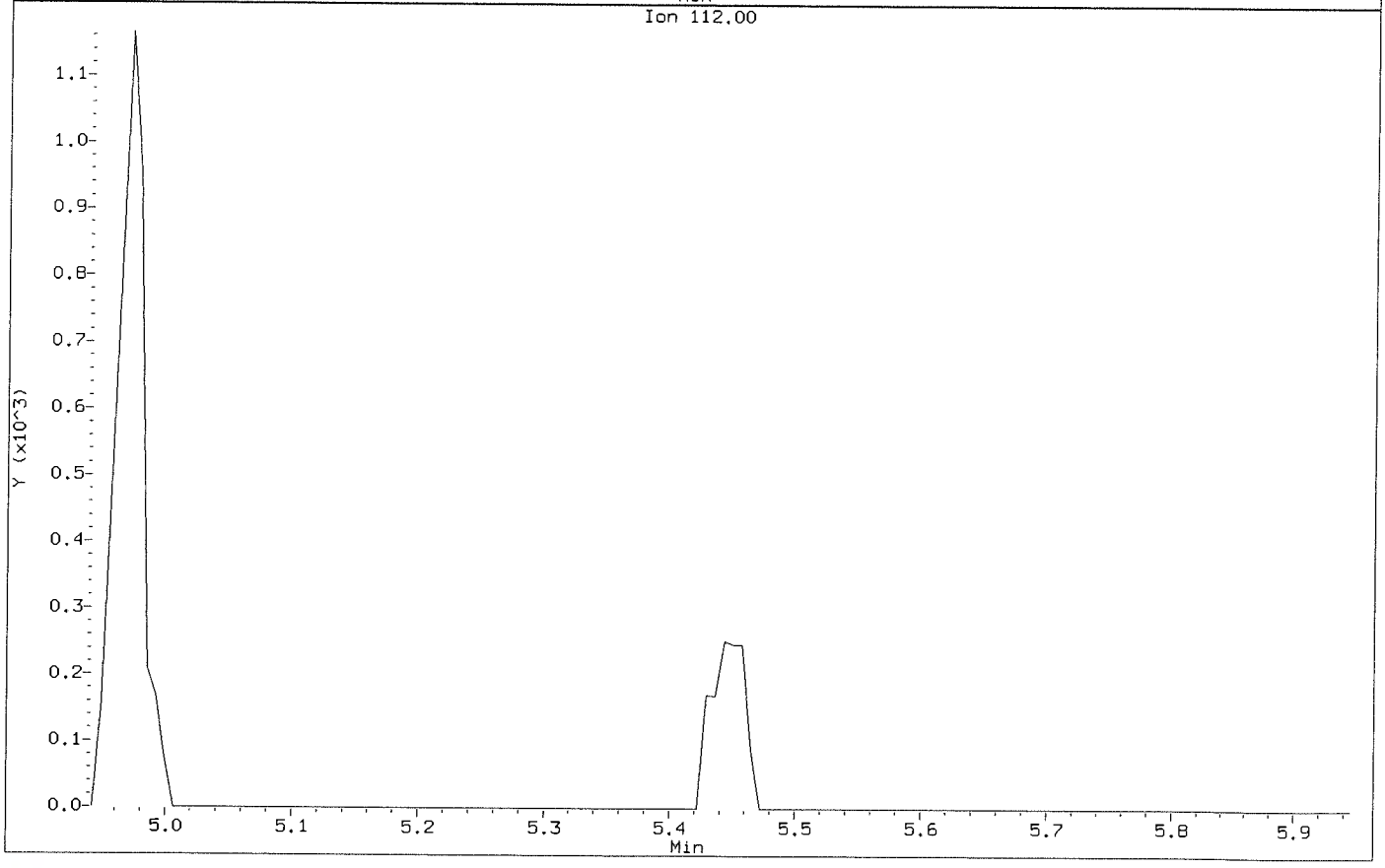


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110306.D
Injection Date: 03-NOV-2020 13:45
Instrument: voa6.i
Client Sample ID: VSTD005

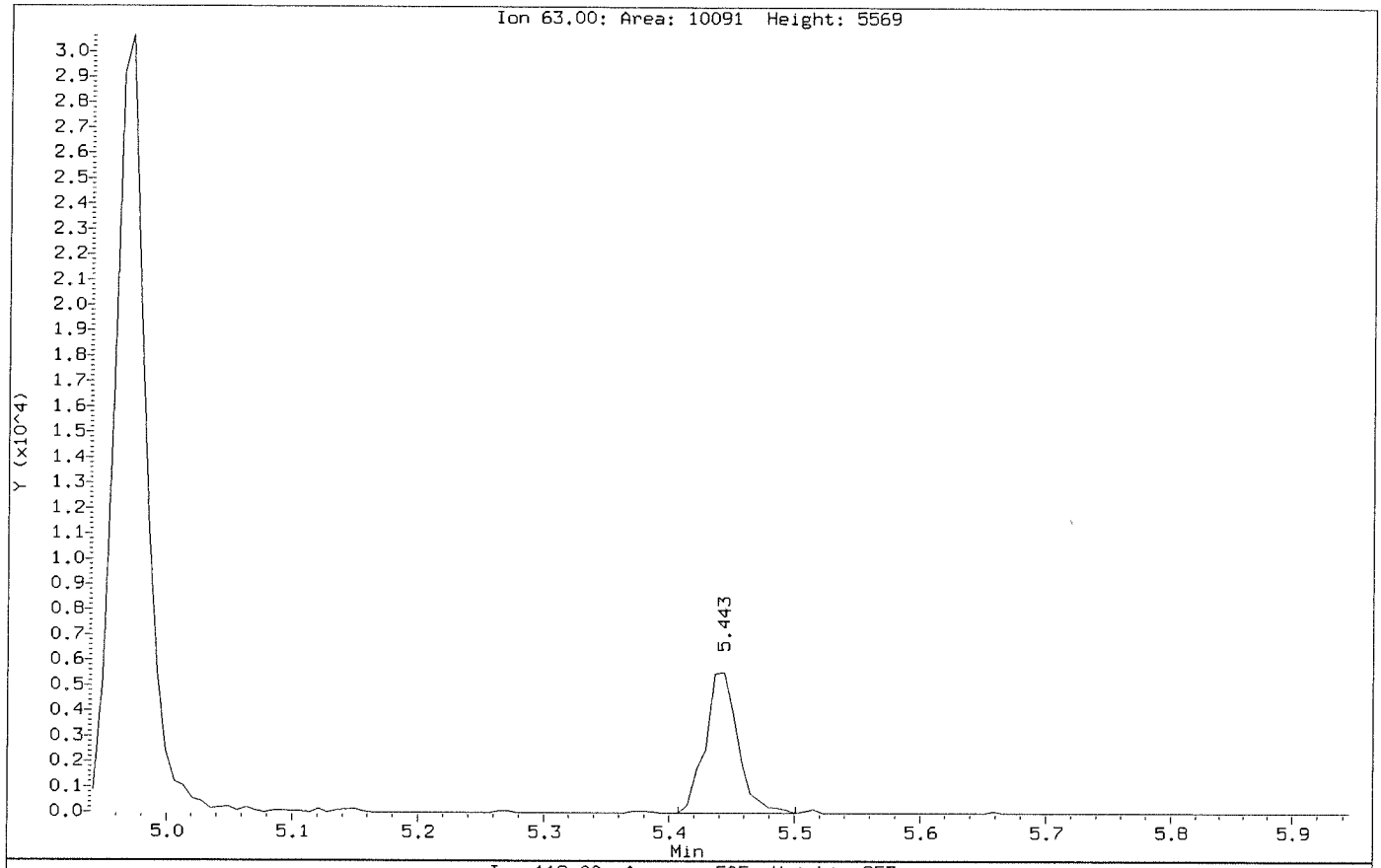
Compound: 1,2-Dichloropropane
CAS Number: 78-87-5

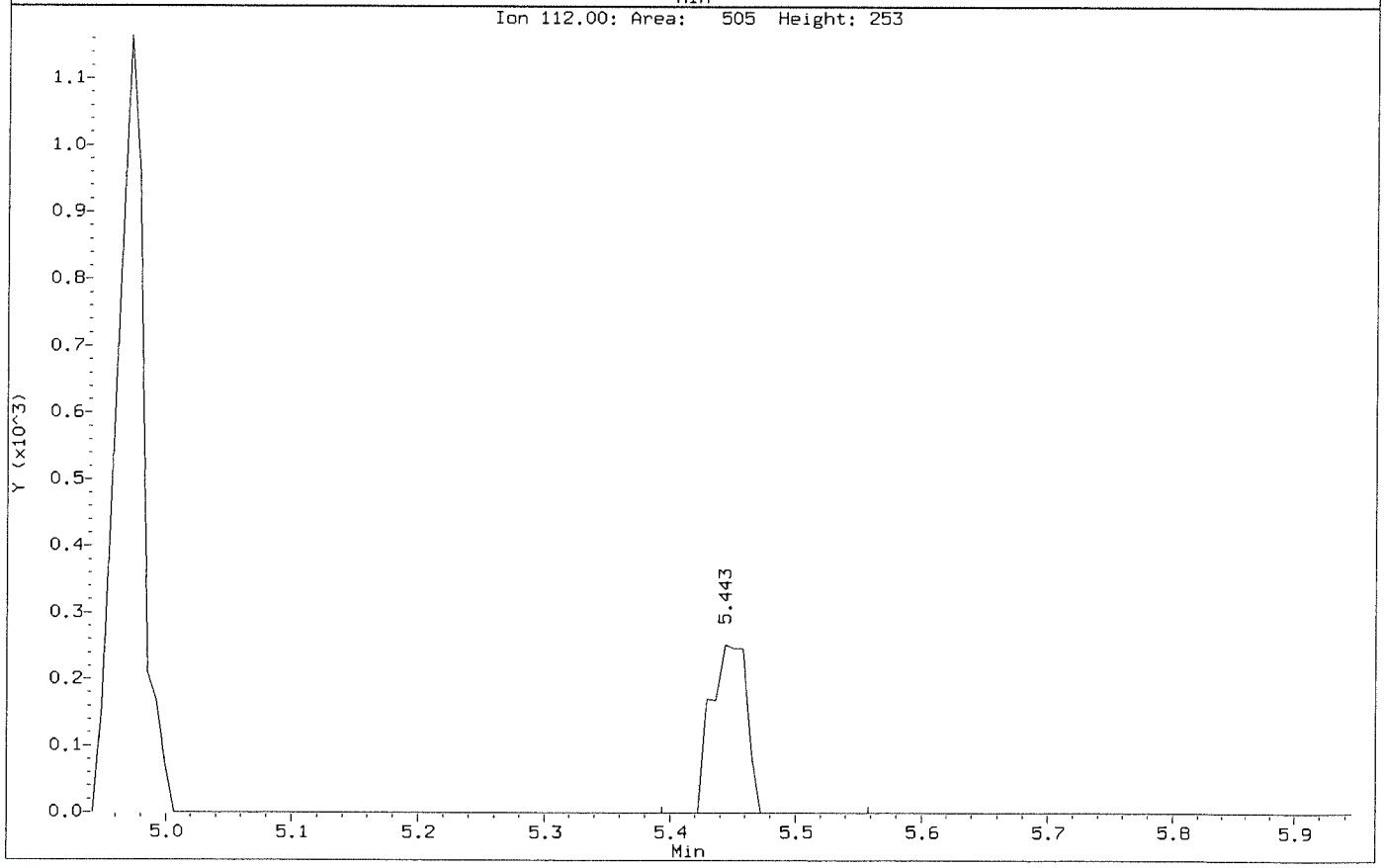


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110306.D
Injection Date: 03-NOV-2020 13:45
Instrument: voa6.i
Client Sample ID: VSTD005

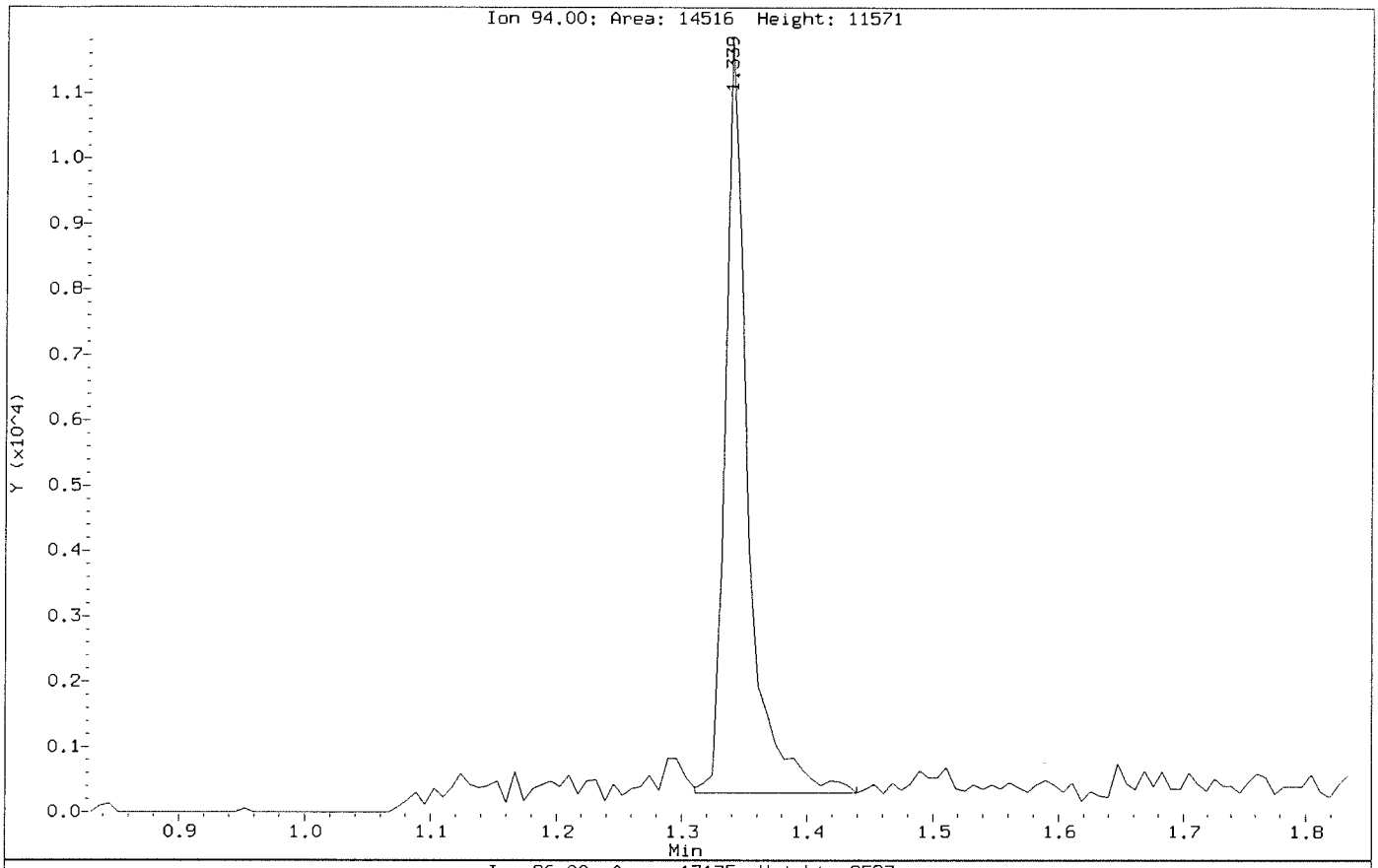
Compound: 1,2-Dichloropropane
CAS Number: 78-87-5

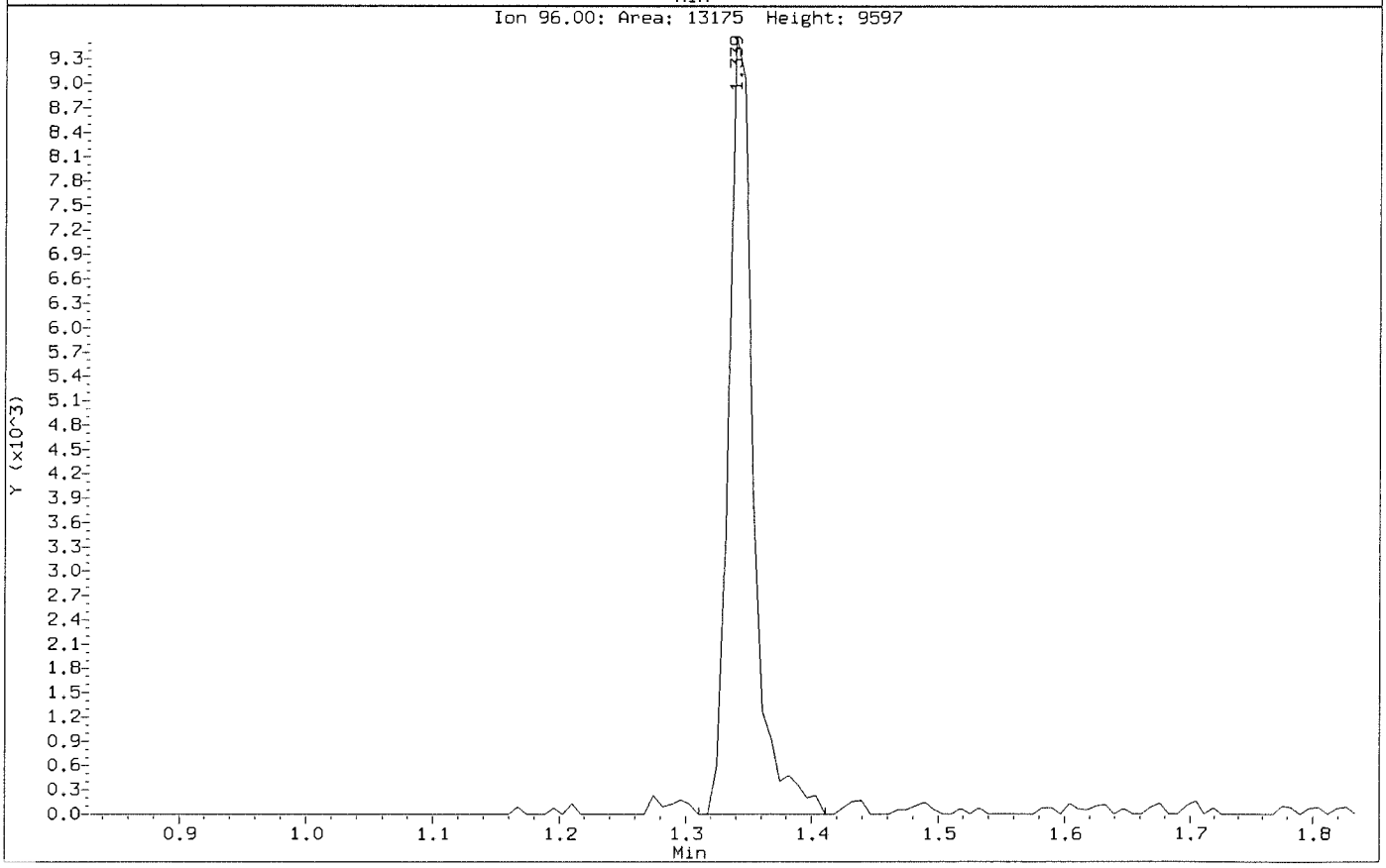


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110306.D
Injection Date: 03-NOV-2020 13:45
Instrument: voa6.i
Client Sample ID: VSTD005

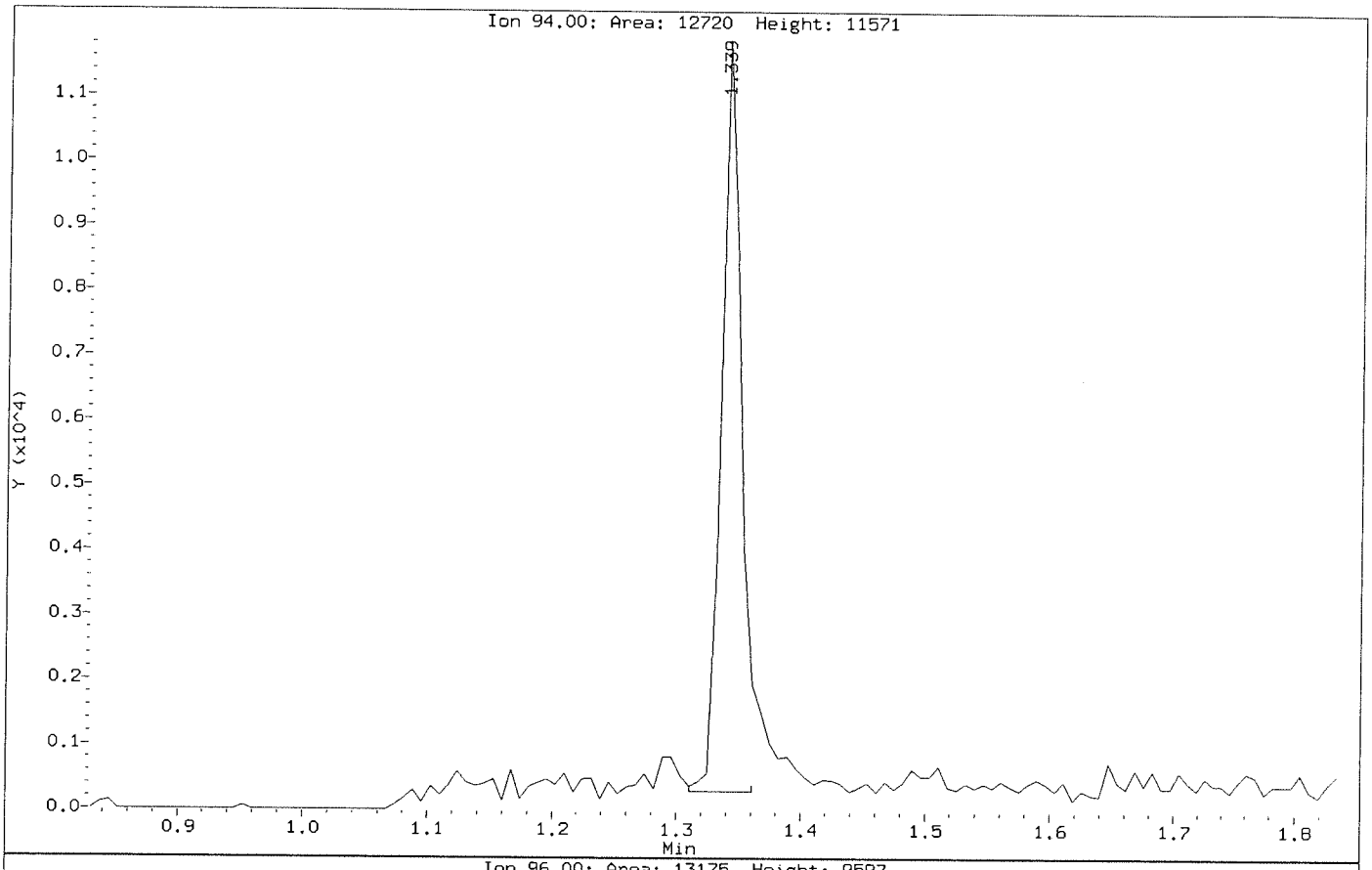
Compound: Bromomethane
CAS Number: 74-83-9

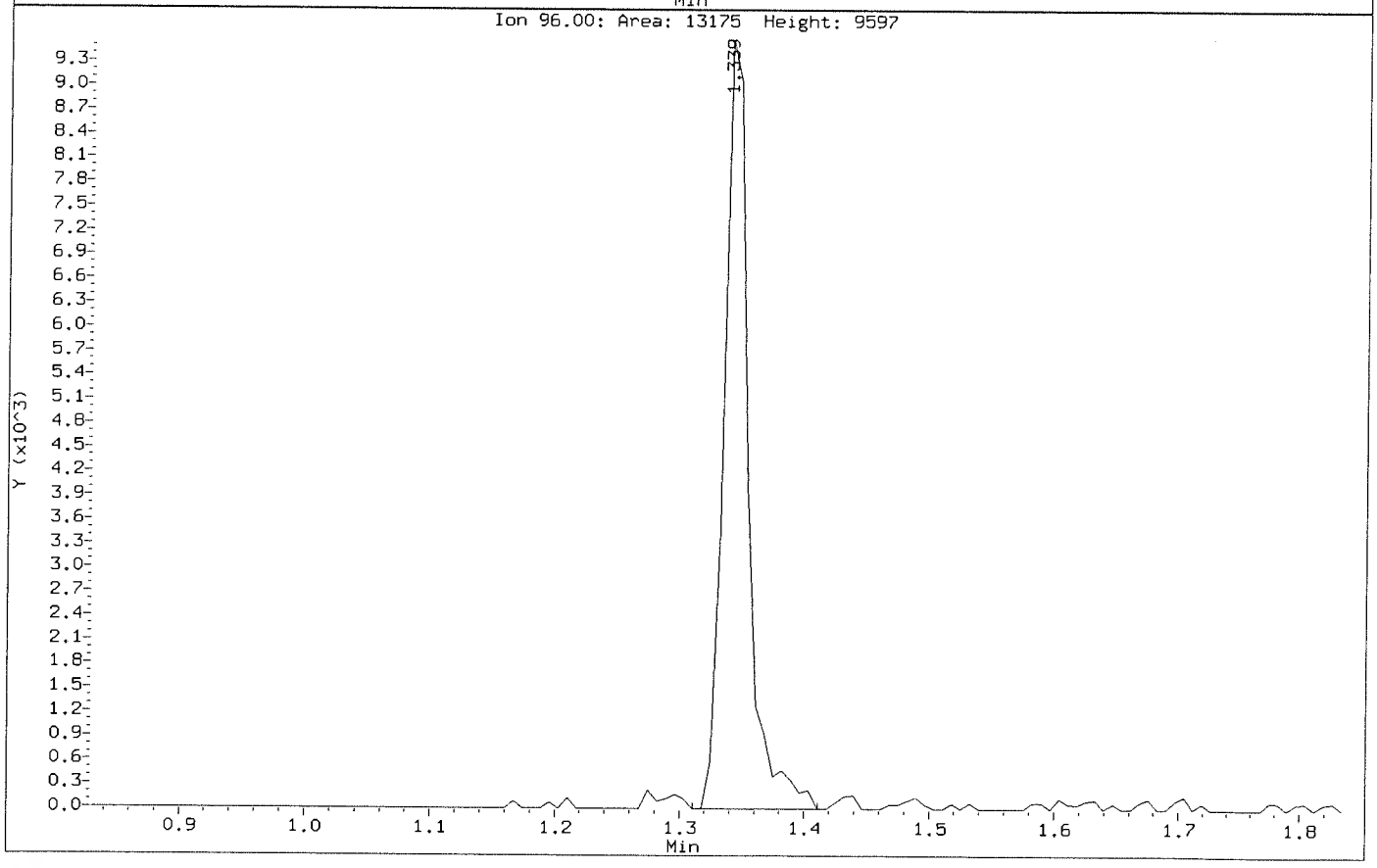


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110306.D
Injection Date: 03-NOV-2020 13:45
Instrument: voa6.i
Client Sample ID: VSTD005

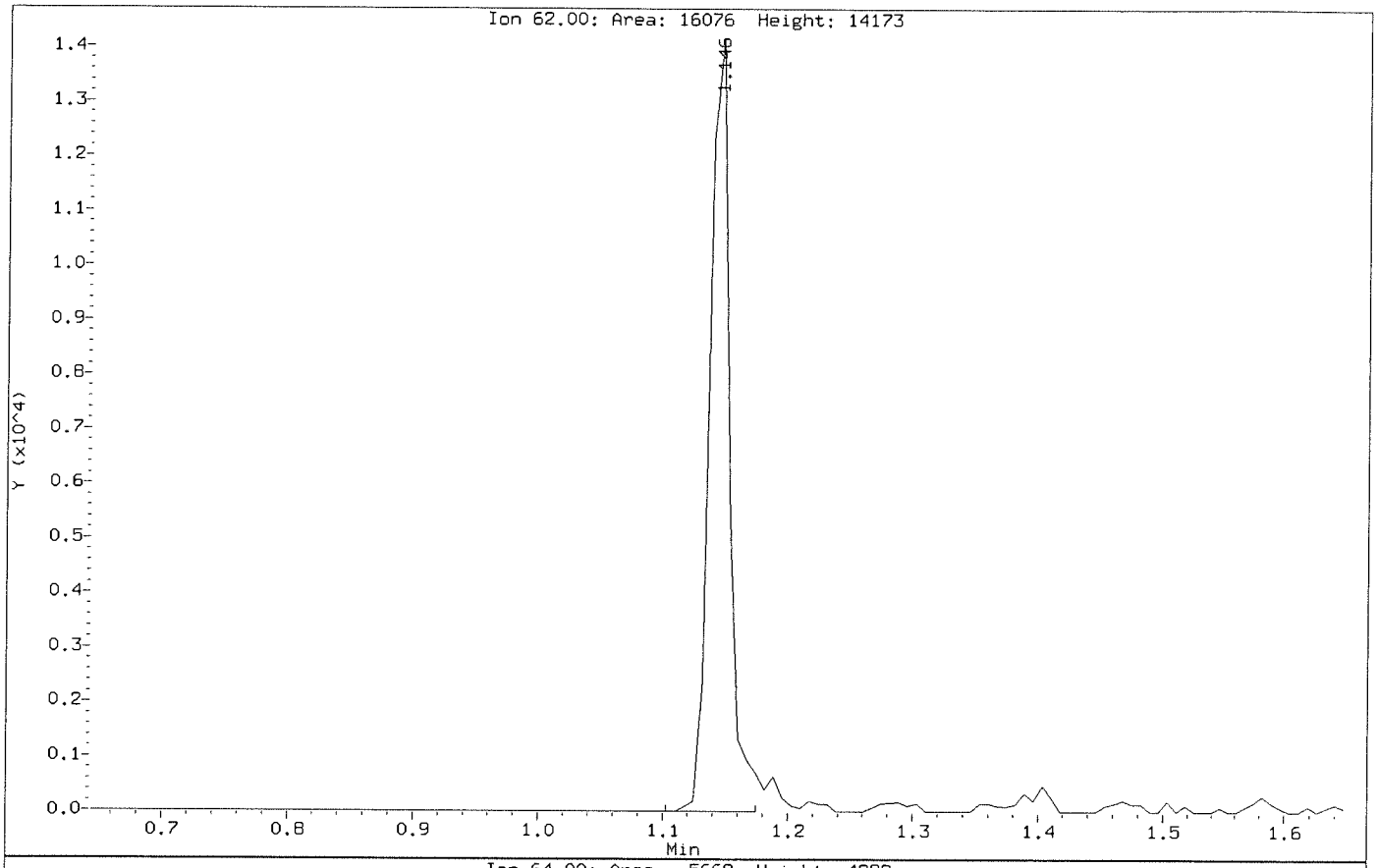
Compound: Bromomethane
CAS Number: 74-83-9

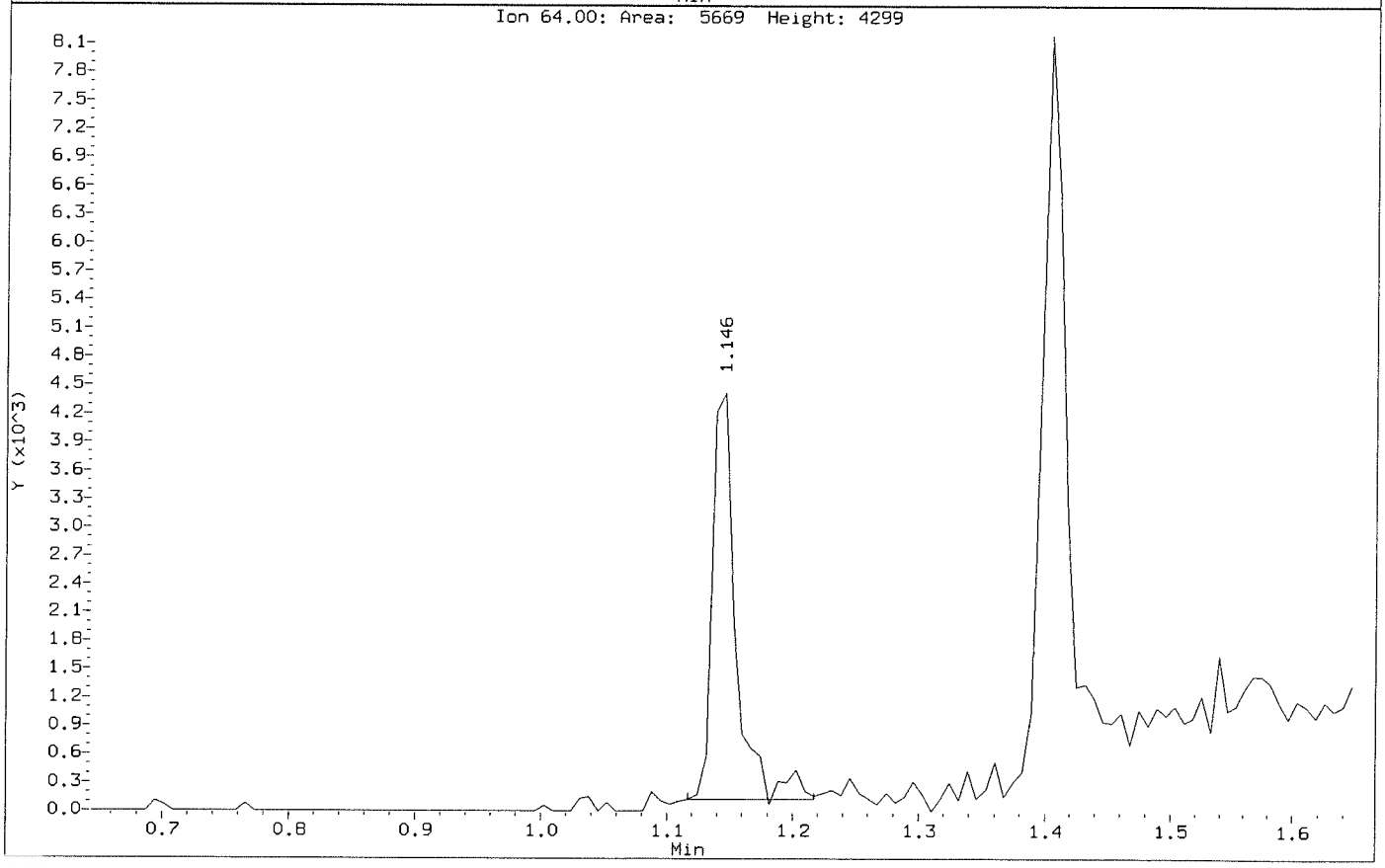


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110306.D
Injection Date: 03-NOV-2020 13:45
Instrument: voa6.i
Client Sample ID: VSTD005

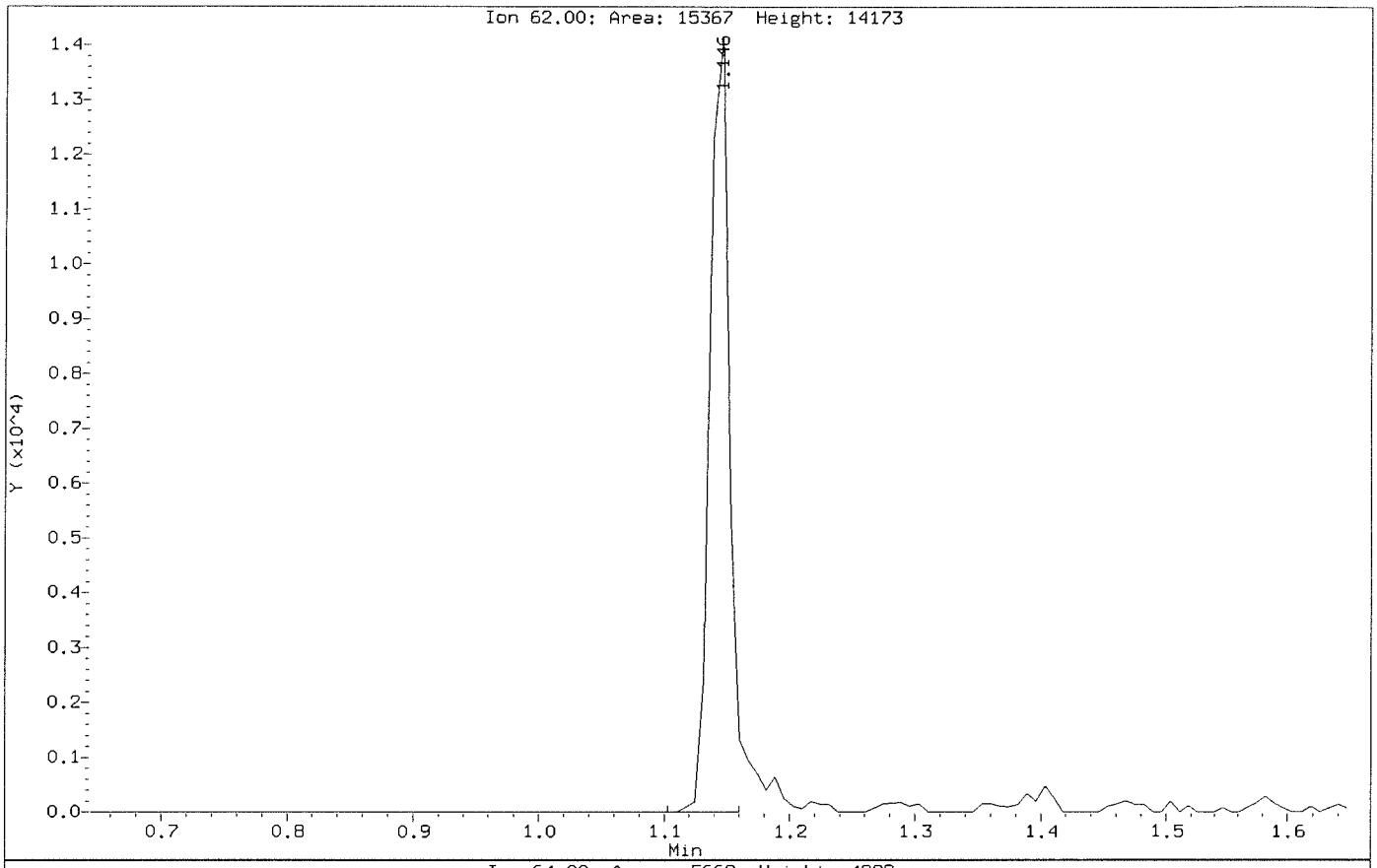
Compound: Vinyl Chloride
CAS Number: 75-01-4

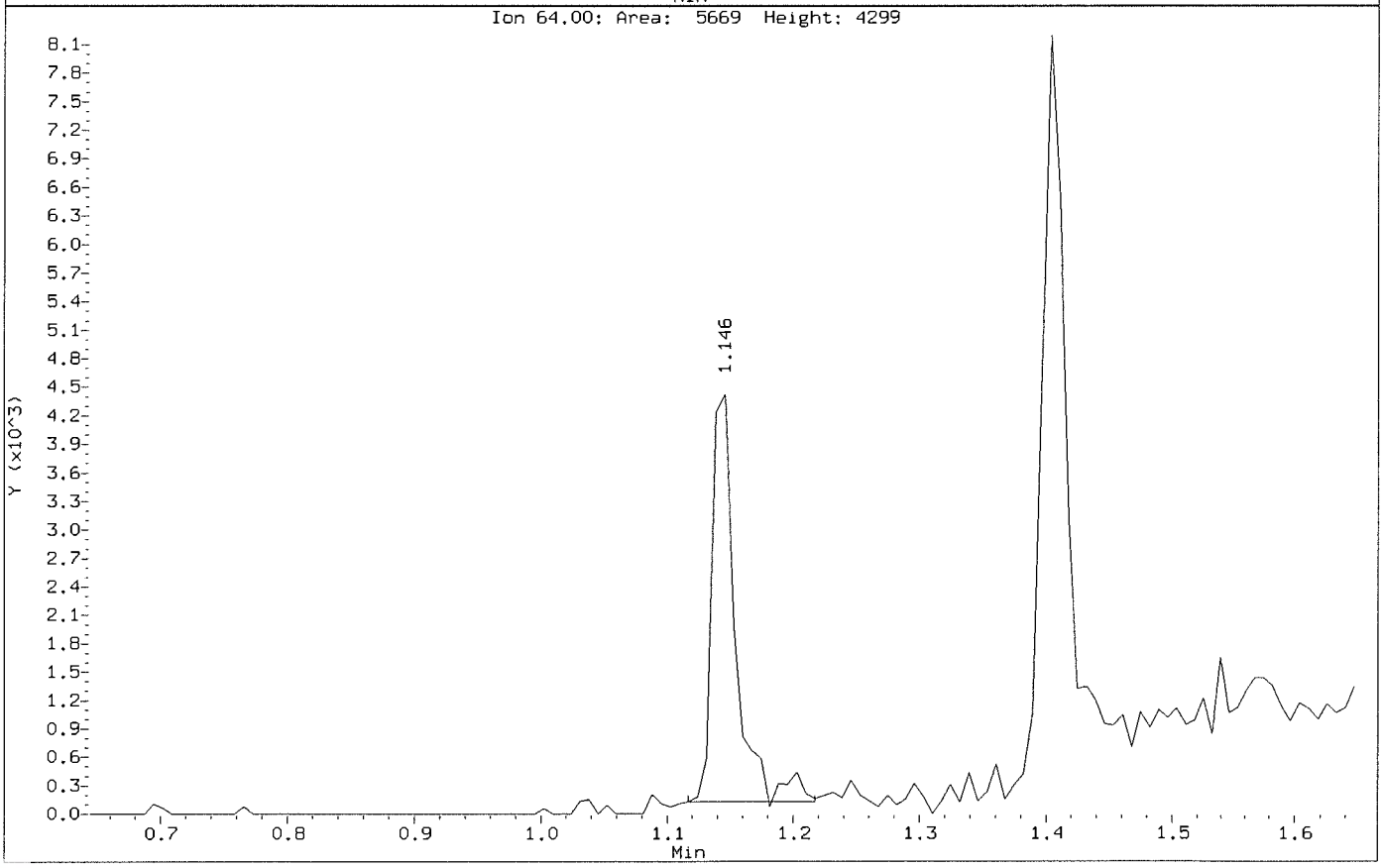


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110306.D
Injection Date: 03-NOV-2020 13:45
Instrument: voa6.i
Client Sample ID: VSTD005

Compound: Vinyl Chloride
CAS Number: 75-01-4



Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110307.D Page 1
Report Date: 13-Jan-2021 15:44

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201103.b\X110307.D
Lab Smp Id: VSTD020 Client Smp ID: VSTD020
Inj Date : 03-NOV-2020 14:06
Operator : PC Inst ID: voa6.i
Smp Info : VSTD020;VSTD020;1;6;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201103.b\8260W.m
Meth Date : 13-Jan-2021 15:44 voa6.i Quant Type: ISTD
Cal Date : 03-NOV-2020 13:45 Cal File: X110306.D
Als bottle: 8 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

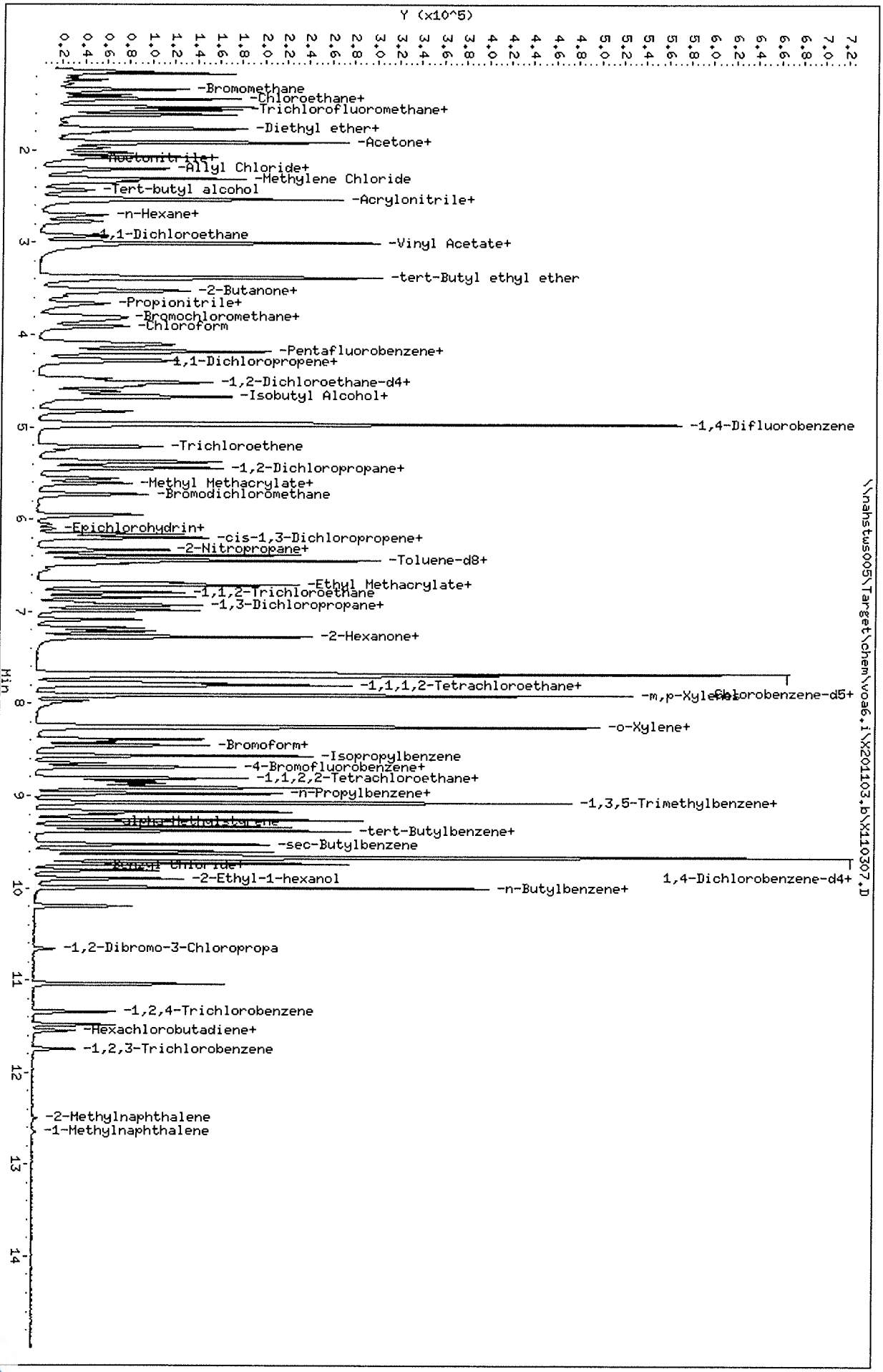
| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| * 1 | Pentafluorobenzene | 168 | 4.182 | 4.182 | (1.000) | 144595 | 50.0000 | |
| * 36 | 1,4-Difluorobenzene | 114 | 4.970 | 4.970 | (1.000) | 268568 | 50.0000 | |
| * 47 | Chlorobenzene-d5 | 117 | 7.670 | 7.670 | (1.000) | 253730 | 50.0000 | |
| * 70 | 1,4-Dichlorobenzene-d4 | 152 | 9.662 | 9.662 | (1.000) | 113802 | 50.0000 | |
| $ 35 | 1,2-Dichloroethane-d4 | 65 | 4.476 | 4.476 | (1.070) | 44472 | 20.0000 | 19.69 |
| $ 69 | 4-Bromofluorobenzene | 95 | 8.688 | 8.688 | (1.133) | 41523 | 20.0000 | 18.99 |
| $ 30 | Dibromofluoromethane | 113 | 4.103 | 4.103 | (0.981) | 35558 | 20.0000 | 18.26 |
| $ 48 | Toluene-d8 | 98 | 6.388 | 6.388 | (0.833) | 120740 | 20.0000 | 17.81 |
| 60 | 1,1,1,2-Tetrachloroethane | 131 | 7.778 | 7.778 | (1.014) | 31796 | 20.0000 | 17.56 |
| 31 | 1,1,1-Trichloroethane | 97 | 4.089 | 4.089 | (0.978) | 51326 | 20.0000 | 17.00 |
| 68 | 1,1,2,2-Tetrachloroethane | 83 | 8.845 | 8.845 | (0.915) | 40864 | 20.0000 | 21.42 |
| 138 | Freon TF | 101 | 1.918 | 1.918 | (0.459) | 42908 | 20.0000 | 16.25 |
| 53 | 1,1,2-Trichloroethane | 83 | 6.839 | 6.839 | (0.892) | 27961 | 20.0000 | 17.86 |
| 22 | 1,1-Dichloroethane | 63 | 2.928 | 2.928 | (0.700) | 59439 | 20.0000 | 17.10 |
| 11 | 1,1-Dichloroethene | 96 | 1.918 | 1.918 | (0.459) | 48541 | 20.0000 | 17.79 |
| 32 | 1,1-Dichloropropene | 75 | 4.289 | 4.289 | (0.863) | 40936 | 20.0000 | 16.34 |
| 93 | 1,2,3-Trichlorobenzene | 180 | 11.746 | 11.746 | (1.216) | 8500 | 20.0000 | 18.57 |
| 71 | 1,2,3-Trichloropropane | 75 | 8.867 | 8.867 | (0.918) | 32197 | 20.0000 | 20.14(MH) |
| 90 | 1,2,4-Trichlorobenzene | 180 | 11.338 | 11.338 | (1.173) | 15476 | 20.0000 | 18.09 |
| 79 | 1,2,4-Trimethylbenzene | 105 | 9.382 | 9.382 | (0.971) | 112884 | 20.0000 | 17.73 |
| 89 | 1,2-Dibromo-3-Chloropropane | 155 | 10.657 | 10.657 | (1.103) | 2714 | 20.0000 | 21.28 |
| 57 | 1,2-Dibromoethane | 107 | 7.262 | 7.262 | (0.947) | 37219 | 20.0000 | 19.56 |

Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110307.D Page 2
Report Date: 13-Jan-2021 15:44

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 88 | 1,2-Dichlorobenzene | 146 | 9.998 | 9.998 | (1.035) | 56332 | 20.0000 | 17.93 |
| 33 | 1,2-Dichloroethane | 62 | 4.562 | 4.562 | (0.918) | 52637 | 20.0000 | 18.17(M) |
| 42 | 1,2-Dichloropropane | 63 | 5.443 | 5.443 | (1.095) | 37099 | 20.0000 | 18.66 |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.067 | 9.067 | (0.938) | 108442 | 20.0000 | 16.70 |
| 83 | 1,3-Dichlorobenzene | 146 | 9.604 | 9.604 | (0.994) | 59583 | 20.0000 | 17.86 |
| 54 | 1,3-Dichloropropane | 76 | 6.983 | 6.983 | (0.910) | 57547 | 20.0000 | 18.51 |
| 84 | 1,4-Dichlorobenzene | 146 | 9.683 | 9.683 | (1.002) | 63974 | 20.0000 | 18.42 |
| 26 | 2,2-Dichloropropane | 77 | 3.516 | 3.516 | (0.841) | 48643 | 20.0000 | 16.25 |
| 24 | 2-Butanone | 43 | 3.587 | 3.587 | (0.858) | 24965 | 40.0000 | 37.14 |
| 76 | 2-Chlorotoluene | 91 | 8.974 | 8.974 | (0.929) | 93782 | 20.0000 | 17.54 |
| 52 | 2-Hexanone | 43 | 7.212 | 7.212 | (0.940) | 61091 | 40.0000 | 38.01 |
| 77 | 4-Chlorotoluene | 91 | 9.074 | 9.074 | (0.939) | 116014 | 20.0000 | 17.18 |
| 82 | p-Isopropyltoluene | 119 | 9.655 | 9.655 | (0.999) | 101444 | 20.0000 | 16.50 |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.324 | 6.324 | (0.824) | 71258 | 40.0000 | 36.96 |
| 10 | Acetone | 43 | 1.976 | 1.976 | (0.473) | 43227 | 40.0000 | 50.35 |
| 37 | Benzene | 78 | 4.519 | 4.519 | (0.909) | 130565 | 20.0000 | 17.40 |
| 74 | Bromobenzene | 156 | 8.809 | 8.809 | (0.912) | 36920 | 20.0000 | 18.43 |
| 29 | Bromochloromethane | 128 | 3.802 | 3.802 | (0.909) | 17398 | 20.0000 | 17.47 |
| 39 | Bromodichloromethane | 83 | 5.729 | 5.729 | (1.153) | 47793 | 20.0000 | 17.32 |
| 66 | Bromoform | 173 | 8.415 | 8.415 | (1.097) | 20267 | 20.0000 | 18.22(T) |
| 6 | Bromomethane | 94 | 1.338 | 1.338 | (0.320) | 44801 | 20.0000 | 16.64(M) |
| 19 | Carbon Disulfide | 76 | 2.069 | 2.069 | (0.495) | 176548 | 40.0000 | 34.82 |
| 34 | Carbon Tetrachloride | 117 | 4.268 | 4.268 | (0.859) | 39126 | 20.0000 | 16.27 |
| 59 | Chlorobenzene | 112 | 7.699 | 7.699 | (1.004) | 95804 | 20.0000 | 17.66 |
| 7 | Chloroethane | 64 | 1.403 | 1.403 | (0.336) | 37862 | 20.0000 | 16.61 |
| 28 | Chloroform | 83 | 3.910 | 3.910 | (0.935) | 66080 | 20.0000 | 17.86 |
| 3 | Chloromethane | 50 | 1.080 | 1.080 | (0.258) | 37225 | 20.0000 | 18.73 |
| 27 | cis-1,2-Dichloroethene | 96 | 3.537 | 3.537 | (0.846) | 36891 | 20.0000 | 17.39 |
| 46 | cis-1,3-Dichloropropene | 75 | 6.159 | 6.159 | (1.239) | 56004 | 20.0000 | 18.69 |
| 55 | Dibromochloromethane | 129 | 7.176 | 7.176 | (0.936) | 36071 | 20.0000 | 19.23 |
| 44 | Dibromomethane | 93 | 5.557 | 5.557 | (1.118) | 25538 | 20.0000 | 18.81 |
| 2 | Dichlorodifluoromethane | 85 | 0.973 | 0.973 | (0.233) | 31467 | 20.0000 | 16.80 |
| 61 | Ethylbenzene | 106 | 7.799 | 7.799 | (1.017) | 44437 | 20.0000 | 16.15(H) |
| 91 | Hexachlorobutadiene | 225 | 11.481 | 11.481 | (1.188) | 8666 | 20.0000 | 15.84 |
| 67 | Isopropylbenzene | 105 | 8.566 | 8.566 | (1.117) | 125533 | 20.0000 | 16.77 |
| 62 | m,p-Xylenes | 106 | 7.907 | 7.907 | (1.031) | 115687 | 40.0000 | 35.11 |
| 17 | Methylene Chloride | 84 | 2.305 | 2.305 | (0.551) | 34217 | 20.0000 | 17.23 |
| 87 | n-Butylbenzene | 91 | 9.998 | 9.998 | (1.035) | 94869 | 20.0000 | 16.33 |
| 73 | n-Propylbenzene | 91 | 8.917 | 8.917 | (0.923) | 154045 | 20.0000 | 17.00 |
| 92 | Naphthalene | 128 | 11.546 | 11.546 | (1.195) | 22879 | 20.0000 | 18.86 |
| 63 | o-Xylene | 106 | 8.243 | 8.243 | (1.075) | 56474 | 20.0000 | 17.19 |
| 81 | sec-Butylbenzene | 105 | 9.526 | 9.526 | (0.986) | 115155 | 20.0000 | 16.62 |
| 64 | Styrene | 104 | 8.258 | 8.258 | (1.077) | 103951 | 20.0000 | 18.87 |
| 78 | tert-Butylbenzene | 119 | 9.339 | 9.339 | (0.967) | 78132 | 20.0000 | 16.81 |
| 56 | Tetrachloroethene | 164 | 6.933 | 6.933 | (0.904) | 21904 | 20.0000 | 15.68 |
| 50 | Toluene | 91 | 6.446 | 6.446 | (0.840) | 149878 | 20.0000 | 16.14 |
| 20 | trans-1,2-Dichloroethene | 96 | 2.534 | 2.534 | (0.606) | 29539 | 20.0000 | 16.39 |
| 51 | trans-1,3-Dichloropropene | 75 | 6.682 | 6.682 | (1.344) | 50801 | 20.0000 | 19.21 |
| 38 | Trichloroethene | 130 | 5.213 | 5.213 | (1.049) | 31185 | 20.0000 | 17.42 |
| 8 | Trichlorofluoromethane | 101 | 1.560 | 1.560 | (0.373) | 95690 | 20.0000 | 17.55 |
| 5 | Vinyl Chloride | 62 | 1.145 | 1.145 | (0.274) | 57375 | 20.0000 | 17.95(H) |

QC Flag Legend

T - Target compound detected outside RT window.
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.

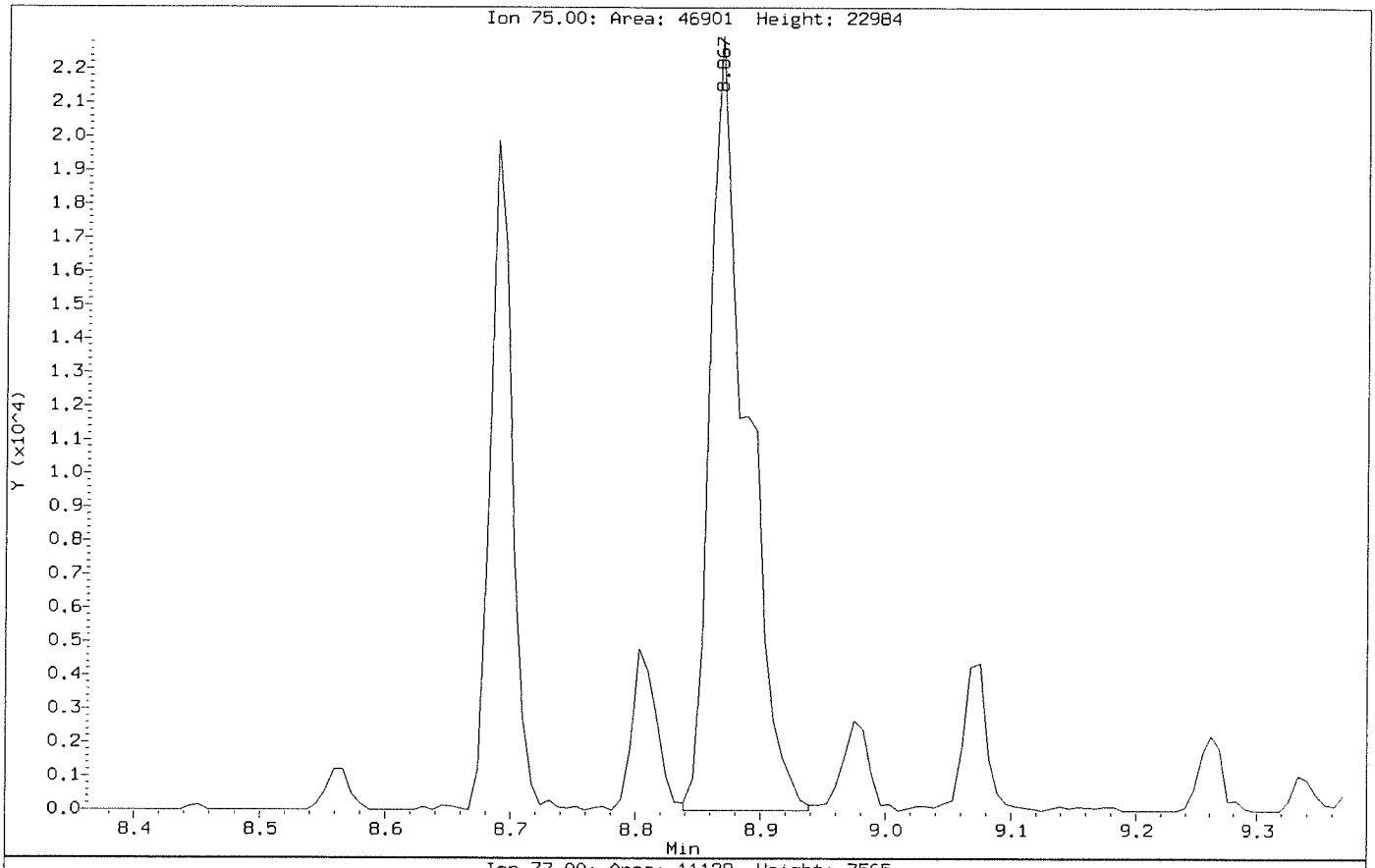


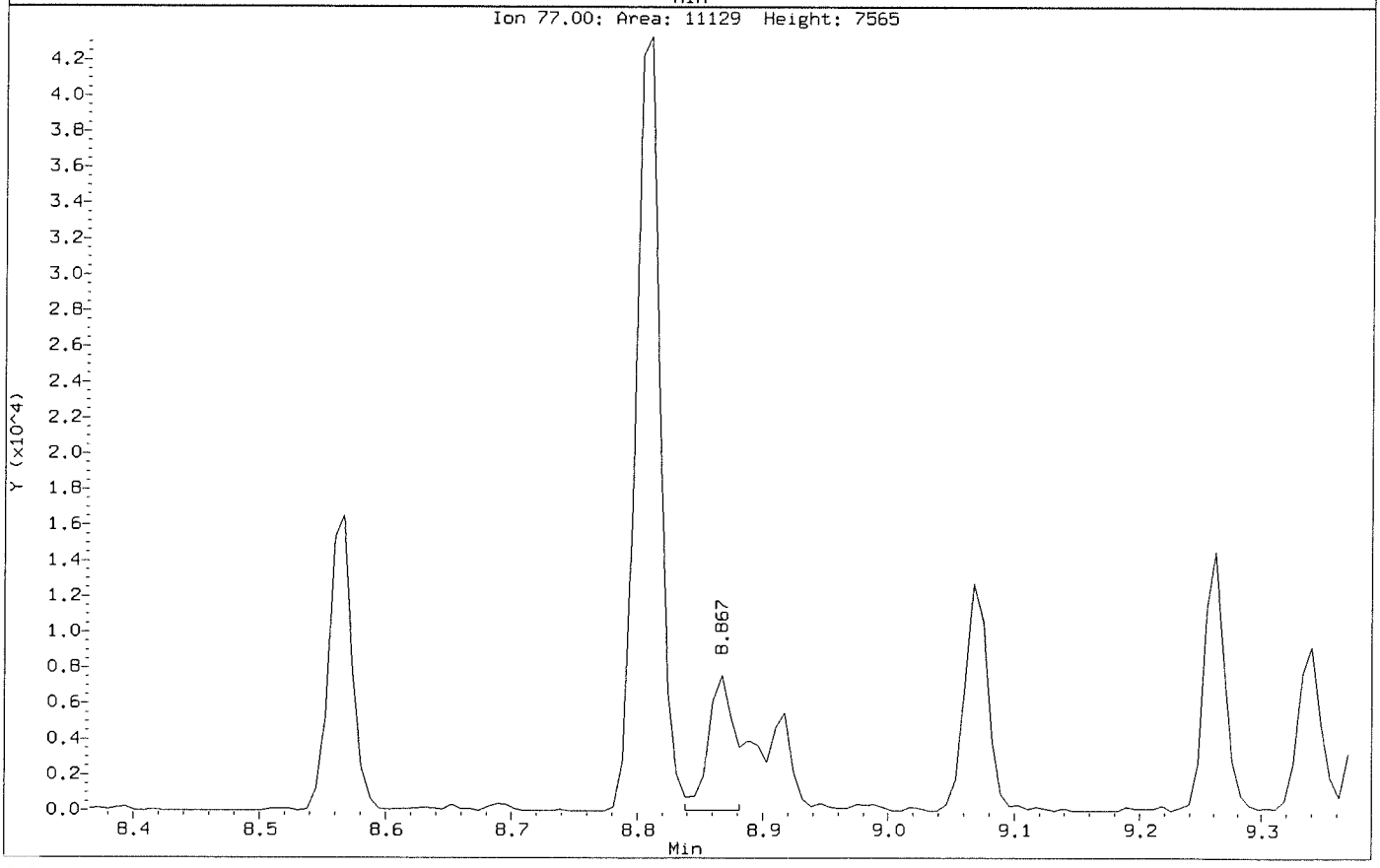

Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110307.D
Date : 03-NOV-2020 14:06
Client ID: VSTD020
Sample Info: VSTD020;VSTD020;1;6;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110307.D
Injection Date: 03-NOV-2020 14:06
Instrument: voa6.i
Client Sample ID: VSTD020

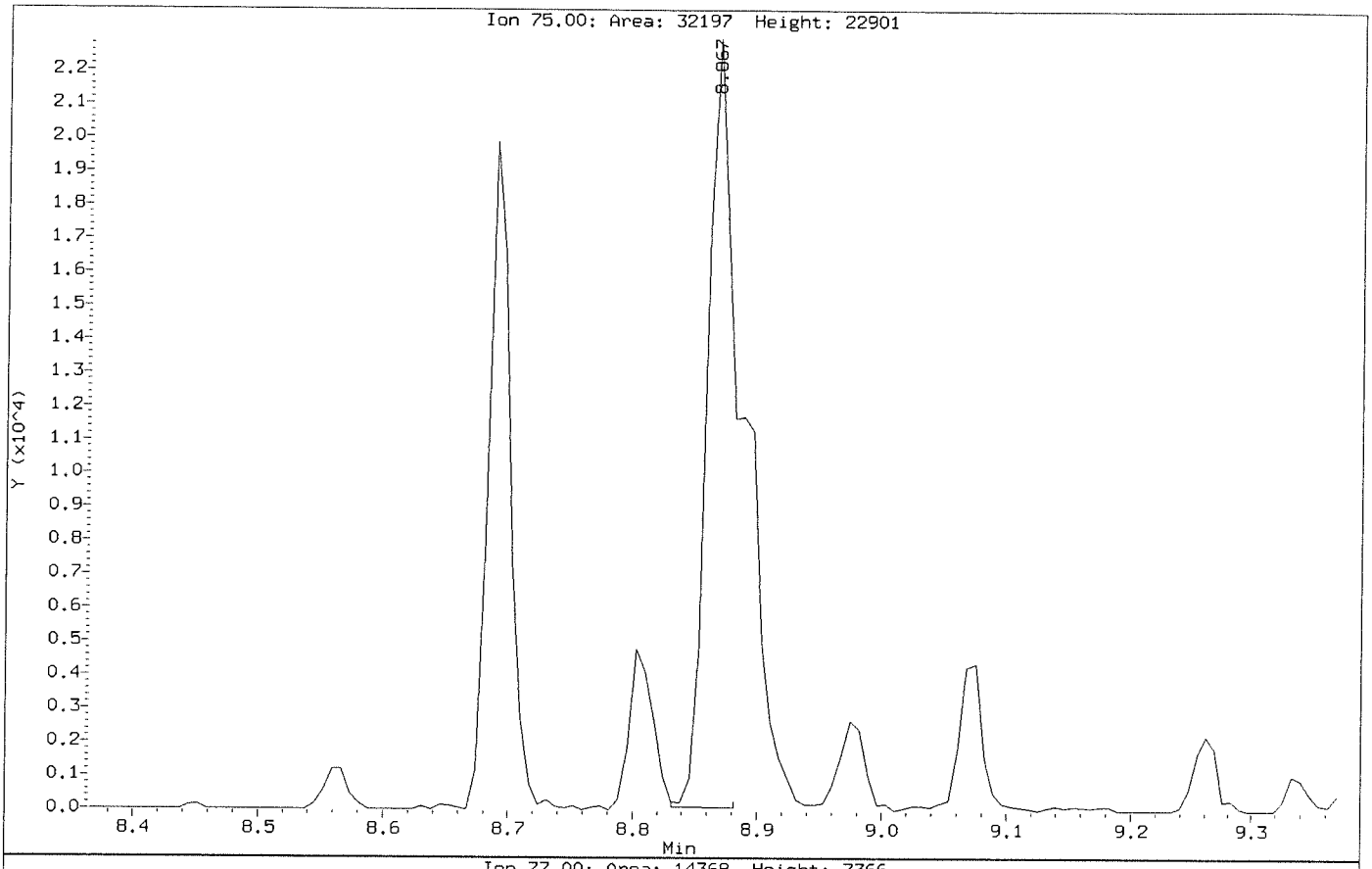
Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4

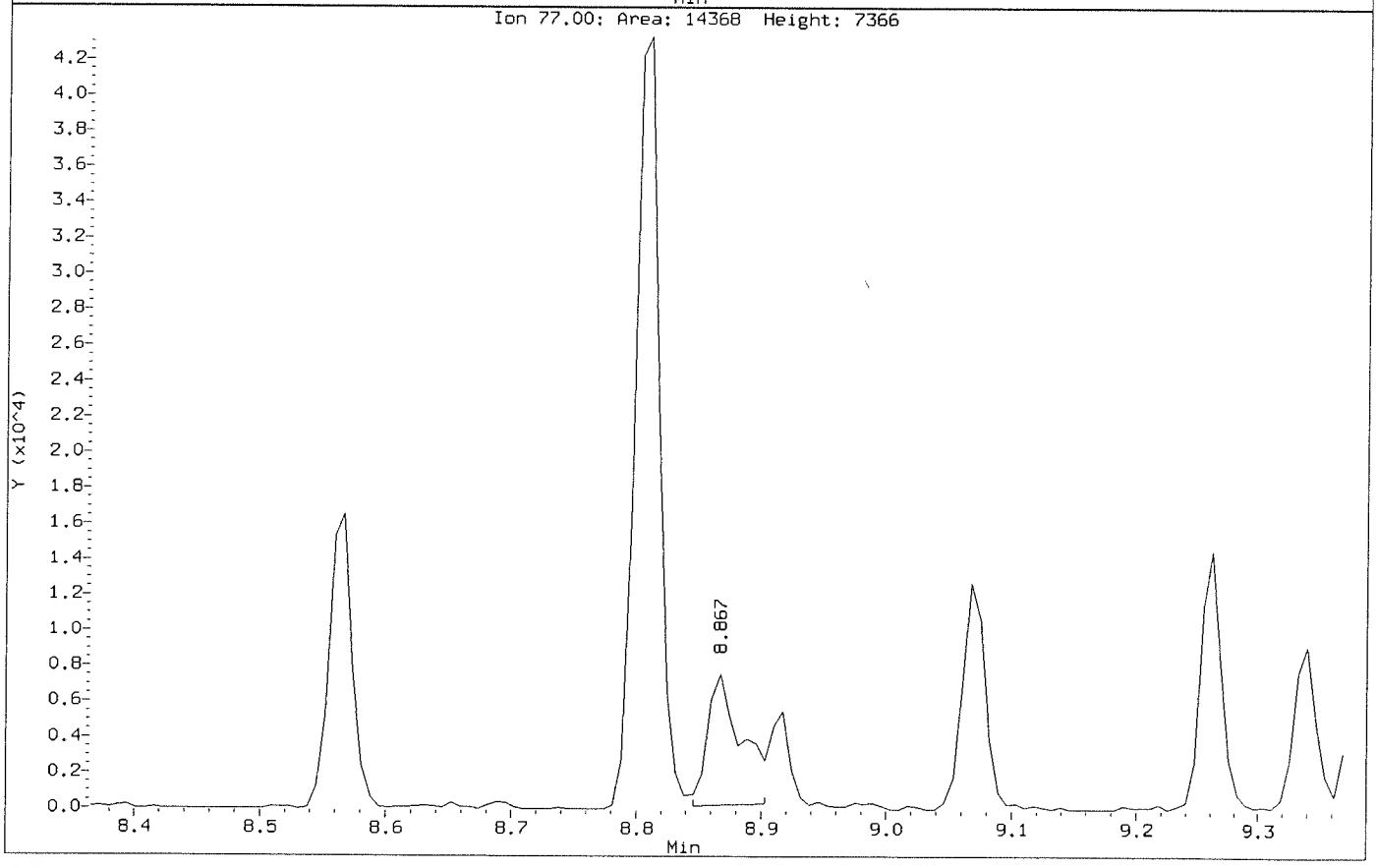


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110307.D
Injection Date: 03-NOV-2020 14:06
Instrument: voa6.i
Client Sample ID: VSTD020

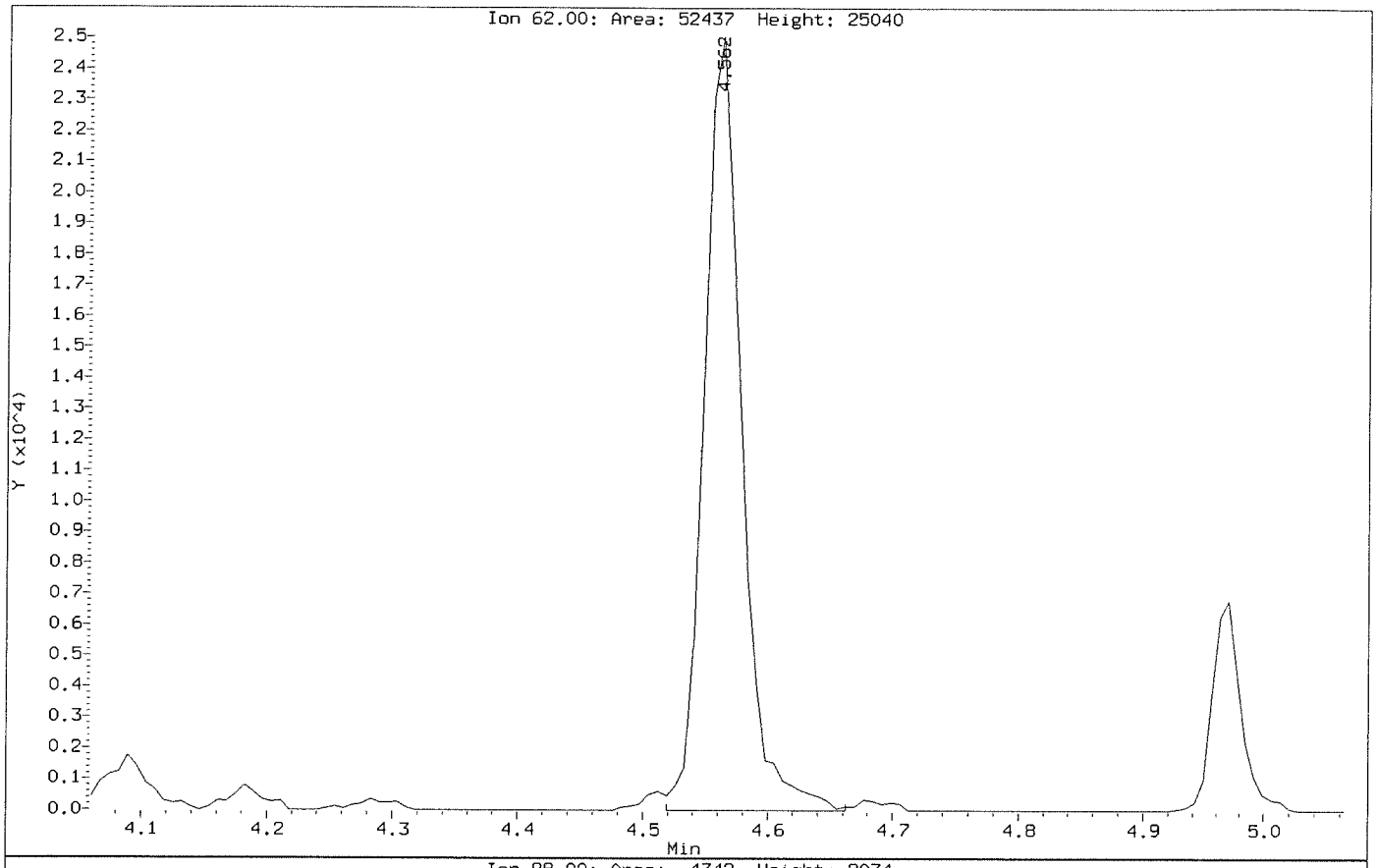
Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4

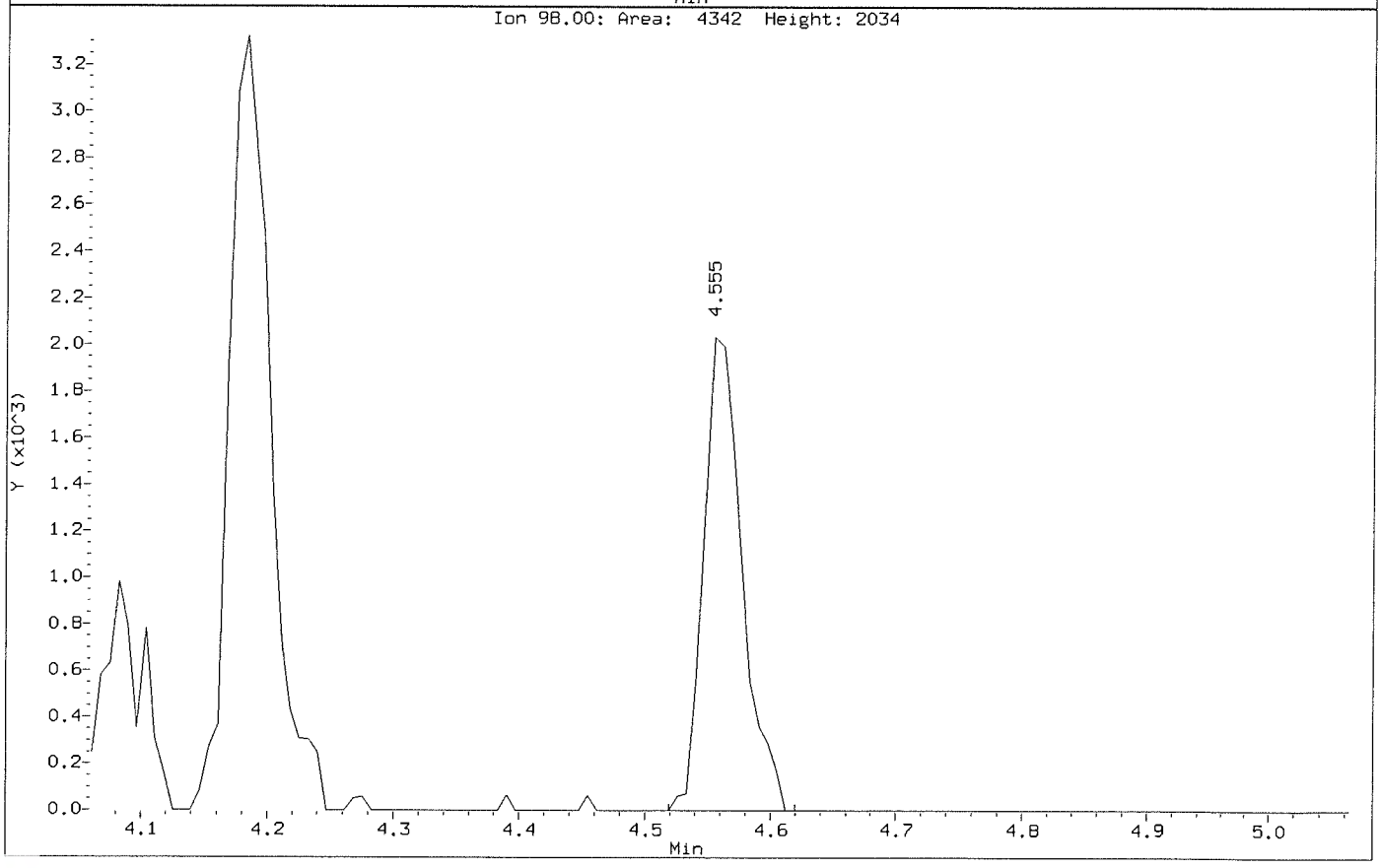


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110307.D
Injection Date: 03-NOV-2020 14:06
Instrument: voa6.i
Client Sample ID: VSTD020

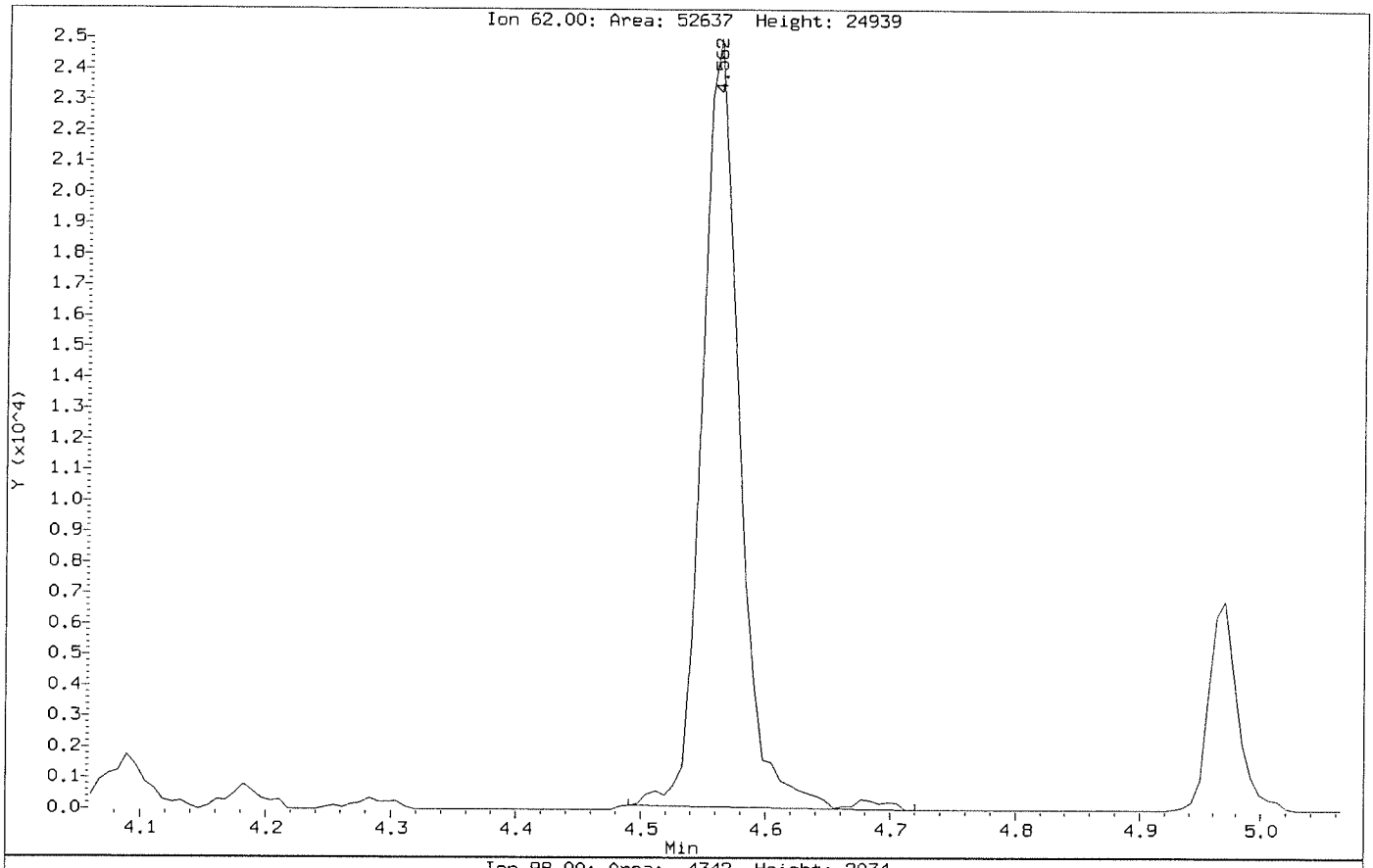
Compound: 1,2-Dichloroethane
CAS Number: 107-06-2

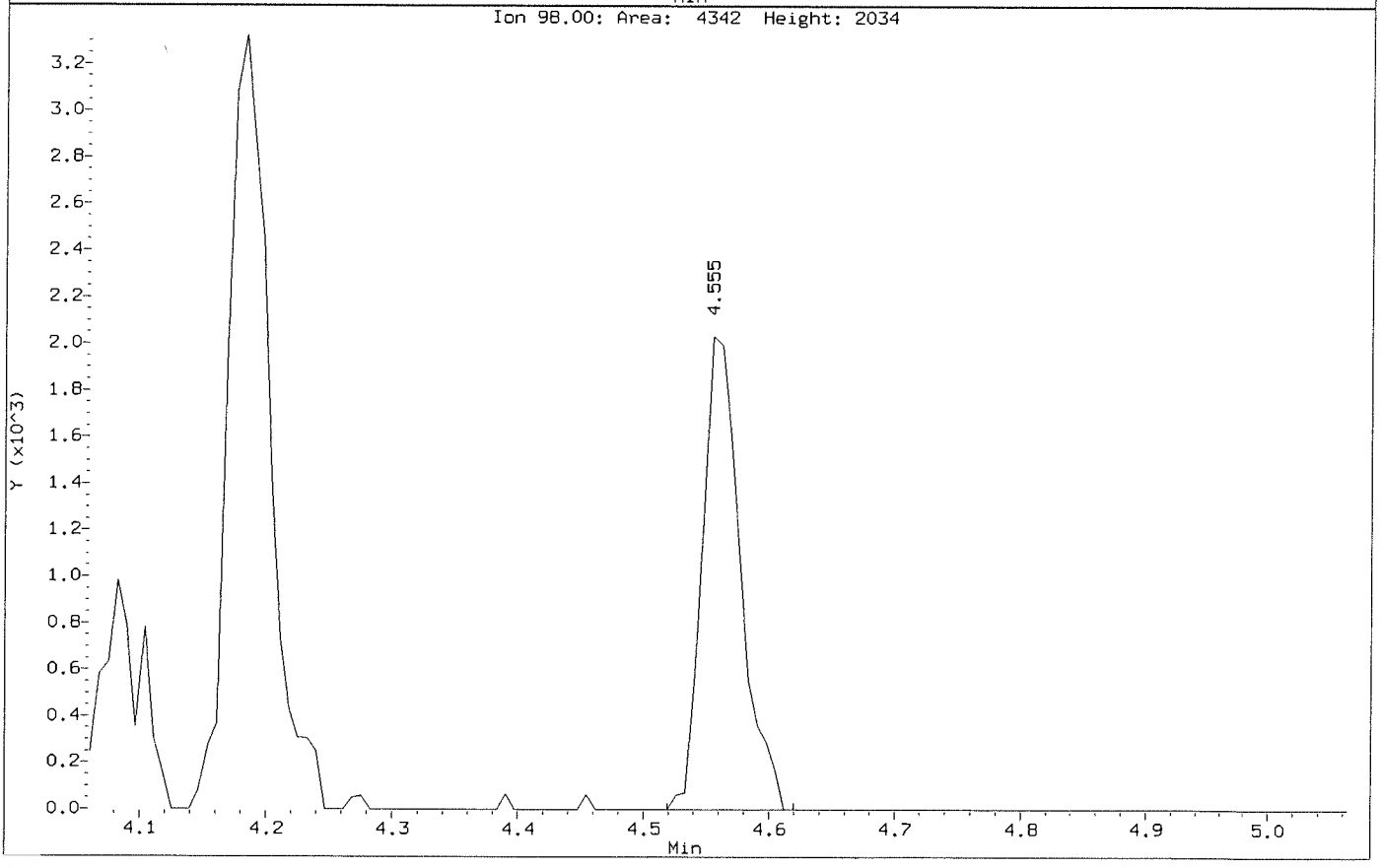


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110307.D
Injection Date: 03-NOV-2020 14:06
Instrument: voa6.i
Client Sample ID: VSTD020

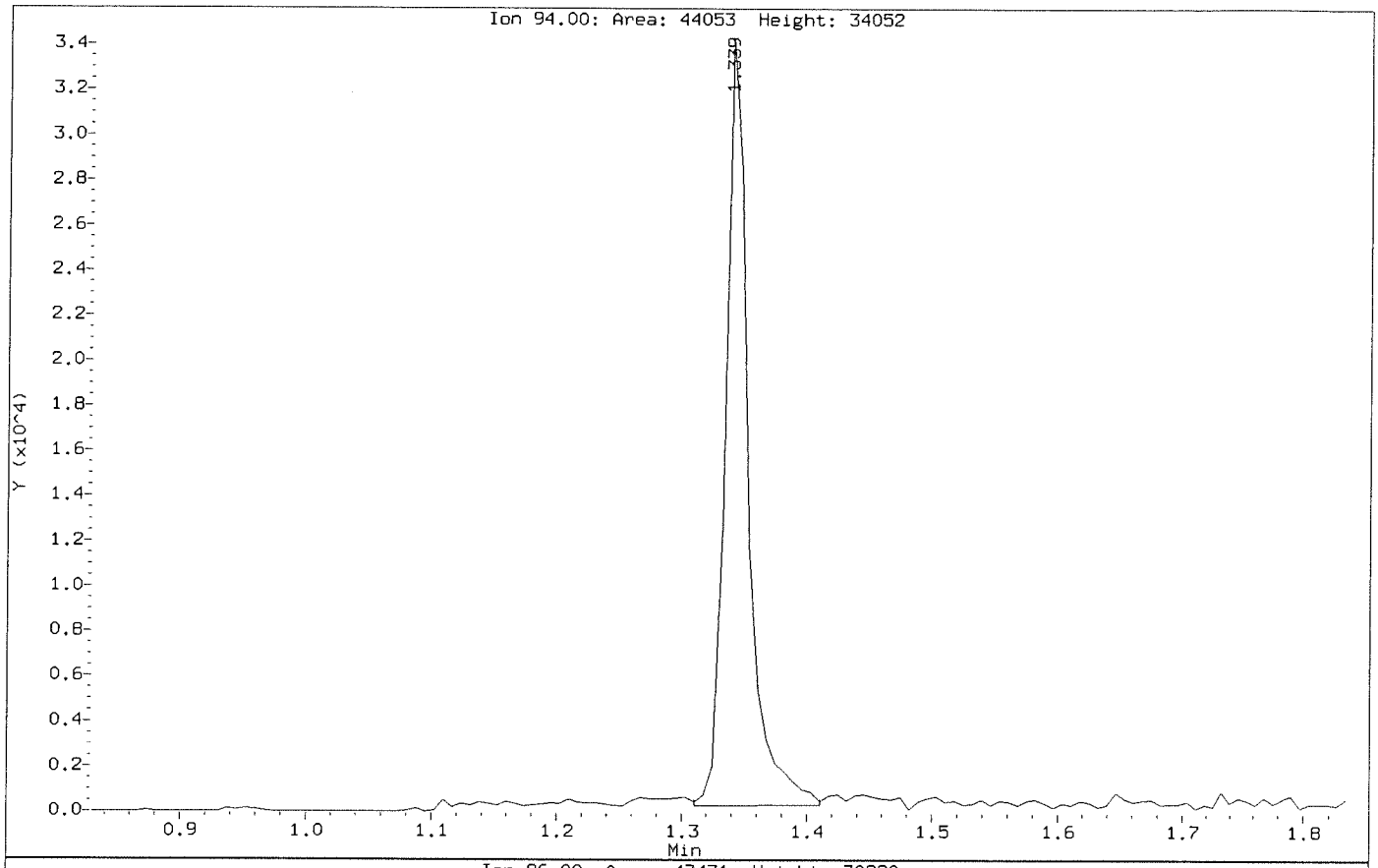
Compound: 1,2-Dichloroethane
CAS Number: 107-06-2

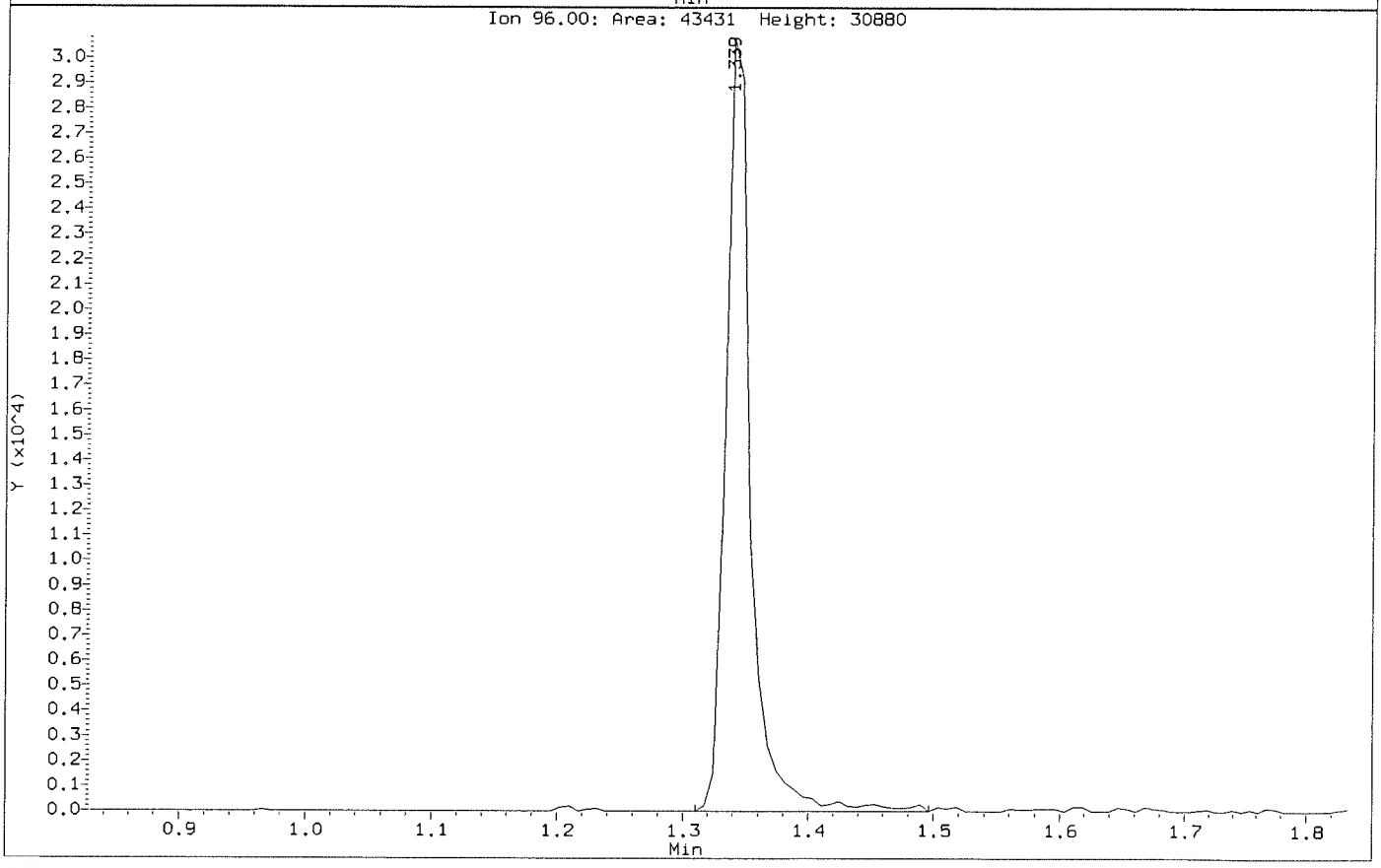


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110307.D
Injection Date: 03-NOV-2020 14:06
Instrument: voa6.i
Client Sample ID: VSTD020

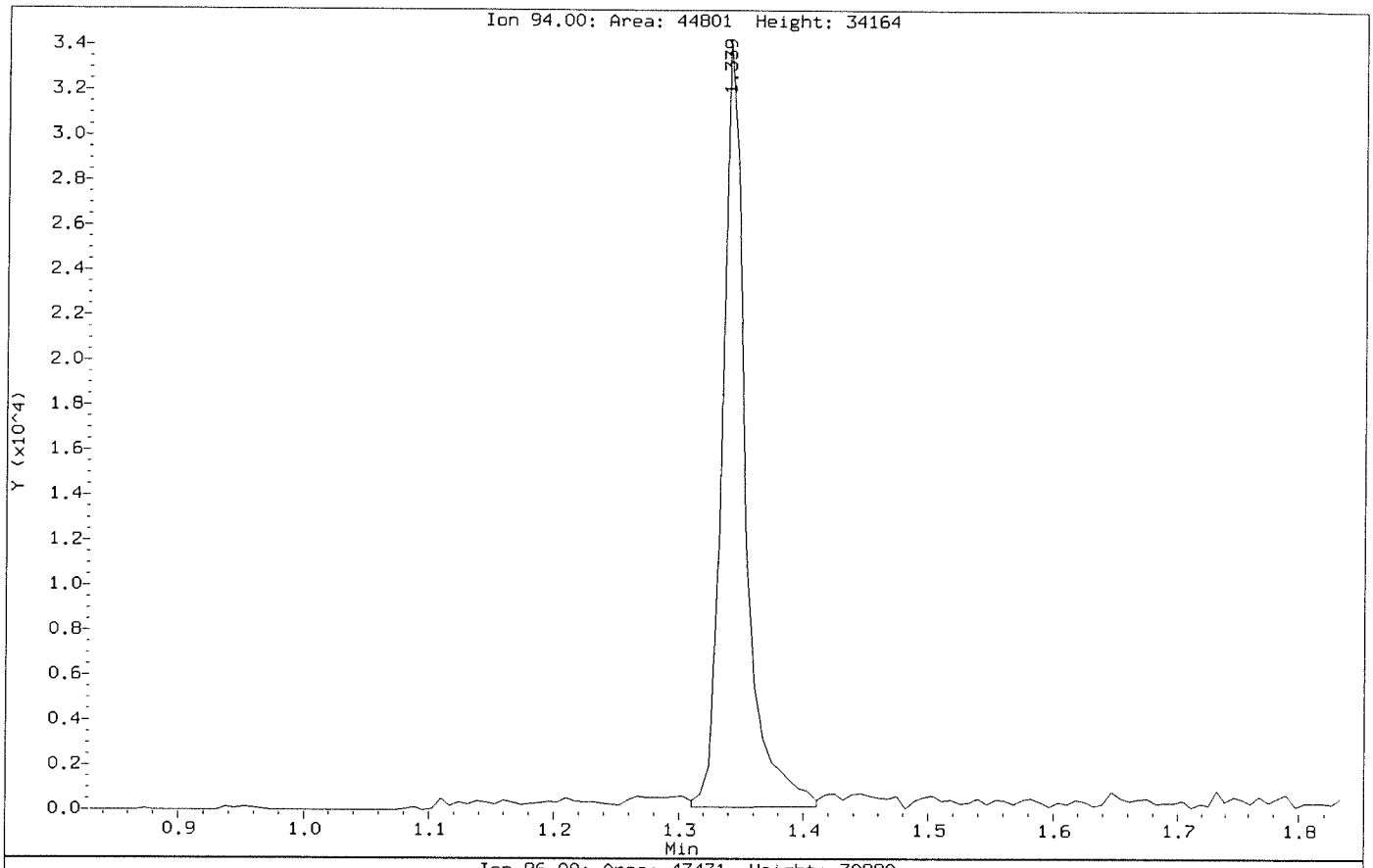
Compound: Bromomethane
CAS Number: 74-83-9

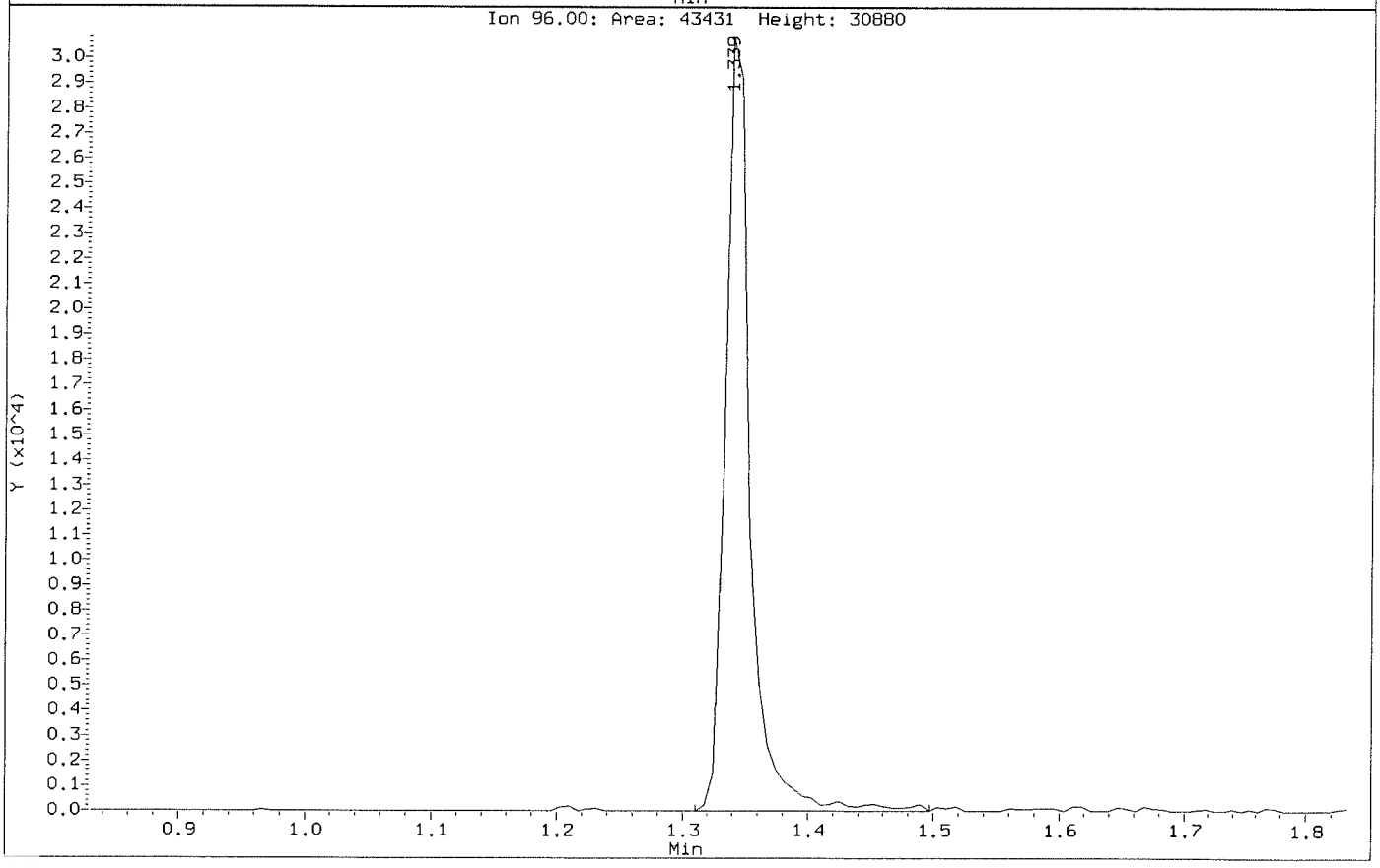


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110307.D
Injection Date: 03-NOV-2020 14:06
Instrument: voa6.i
Client Sample ID: VSTD020

Compound: Bromomethane
CAS Number: 74-83-9



Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110308.D Page 1
Report Date: 13-Jan-2021 15:45

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201103.b\X110308.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 03-NOV-2020 14:27
Operator : PC Inst ID: voa6.i
Smp Info : VSTD050;VSTD050;1;7;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201103.b\8260W.m
Meth Date : 13-Jan-2021 15:44 voa6.i Quant Type: ISTD
Cal Date : 03-NOV-2020 14:06 Cal File: X110307.D
Als bottle: 9 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

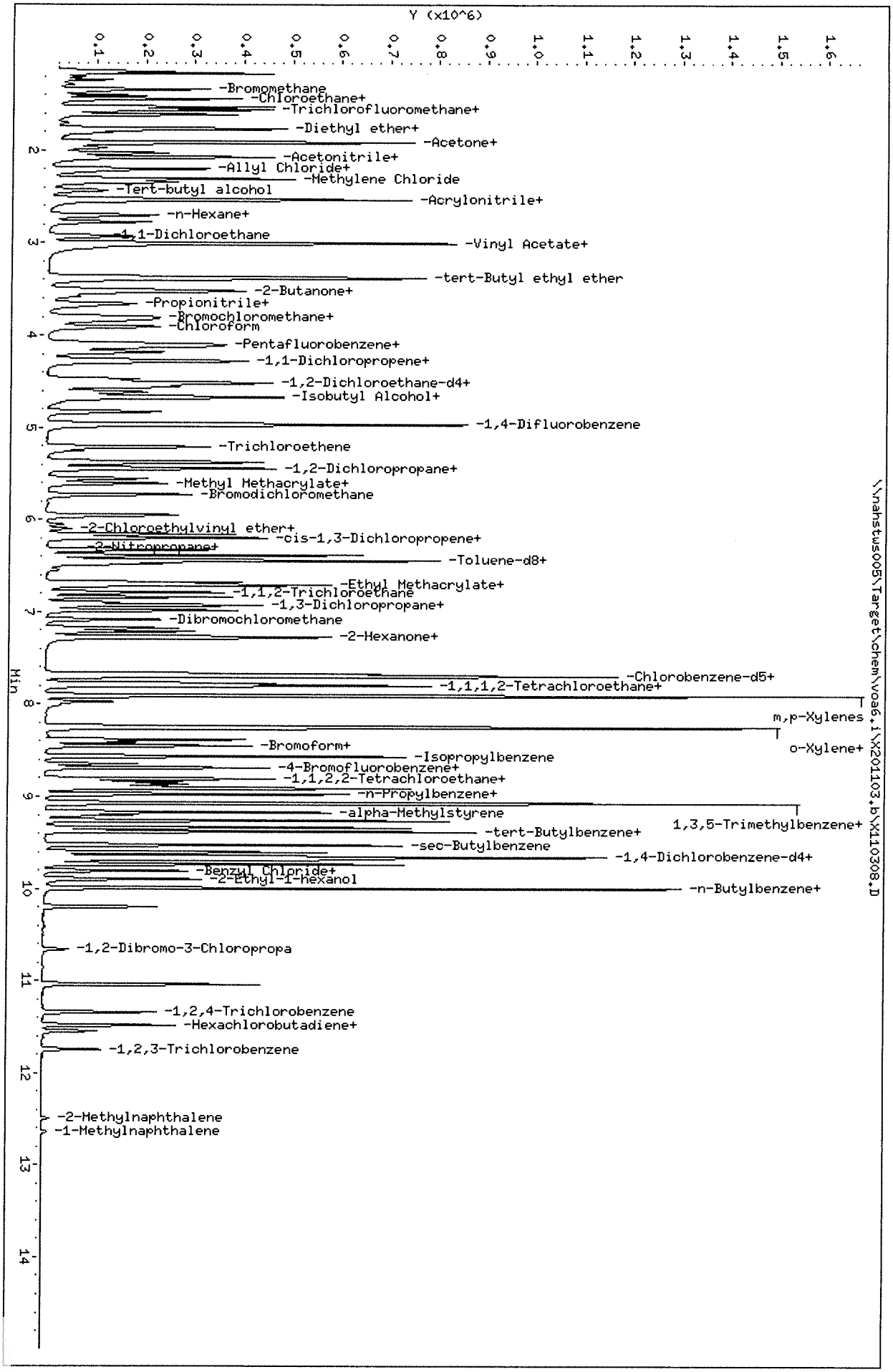
| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| * | 1 Pentafluorobenzene | 168 | 4.182 | 4.182 | (1.000) | 155760 | 50.0000 | |
| * | 36 1,4-Difluorobenzene | 114 | 4.970 | 4.970 | (1.000) | 292364 | 50.0000 | |
| * | 47 Chlorobenzene-d5 | 117 | 7.671 | 7.671 | (1.000) | 263420 | 50.0000 | |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 9.662 | 9.662 | (1.000) | 124995 | 50.0000 | |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 4.476 | 4.476 | (1.070) | 128500 | 50.0000 | 51.93 |
| $ | 69 4-Bromofluorobenzene | 95 | 8.688 | 8.688 | (1.133) | 114211 | 50.0000 | 48.87 |
| $ | 30 Dibromofluoromethane | 113 | 4.103 | 4.103 | (0.981) | 103962 | 50.0000 | 49.56 |
| $ | 48 Toluene-d8 | 98 | 6.388 | 6.388 | (0.833) | 337960 | 50.0000 | 48.03 |
| | 60 1,1,1,2-Tetrachloroethane | 131 | 7.778 | 7.778 | (1.014) | 90169 | 50.0000 | 47.98 |
| | 31 1,1,1-Trichloroethane | 97 | 4.089 | 4.089 | (0.978) | 153379 | 50.0000 | 47.16 |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 8.838 | 8.838 | (0.915) | 107818 | 50.0000 | 52.29 |
| | 138 Freon TF | 101 | 1.919 | 1.919 | (0.459) | 128015 | 50.0000 | 45.01 |
| | 53 1,1,2-Trichloroethane | 83 | 6.840 | 6.840 | (0.892) | 78832 | 50.0000 | 48.52 |
| | 22 1,1-Dichloroethane | 63 | 2.929 | 2.929 | (0.700) | 166486 | 50.0000 | 44.46 |
| | 11 1,1-Dichloroethene | 96 | 1.919 | 1.919 | (0.459) | 132708 | 50.0000 | 45.15 |
| | 32 1,1-Dichloropropene | 75 | 4.282 | 4.282 | (0.862) | 128883 | 50.0000 | 47.27 |
| | 93 1,2,3-Trichlorobenzene | 180 | 11.746 | 11.746 | (1.216) | 26867 | 50.0000 | 50.14 |
| | 71 1,2,3-Trichloropropane | 75 | 8.867 | 8.867 | (0.918) | 87173 | 50.0000 | 49.66 (MH) |
| | 90 1,2,4-Trichlorobenzene | 180 | 11.338 | 11.338 | (1.173) | 49484 | 50.0000 | 49.32 |
| | 79 1,2,4-Trimethylbenzene | 105 | 9.383 | 9.383 | (0.971) | 332854 | 50.0000 | 47.60 |
| | 89 1,2-Dibromo-3-Chloropropane | 155 | 10.658 | 10.658 | (1.103) | 7134 | 50.0000 | 51.41 |
| | 57 1,2-Dibromoethane | 107 | 7.262 | 7.262 | (0.947) | 94981 | 50.0000 | 48.08 |

Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110308.D Page 2
Report Date: 13-Jan-2021 15:45

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| 88 1,2-Dichlorobenzene | 146 | 9.999 | 9.999 | (1.035) | 162132 | 50.0000 | 46.99 |
| 33 1,2-Dichloroethane | 62 | 4.562 | 4.562 | (0.918) | 155709 | 50.0000 | 49.39(M) |
| 42 1,2-Dichloropropane | 63 | 5.443 | 5.443 | (1.095) | 100916 | 50.0000 | 46.64 |
| 75 1,3,5-Trimethylbenzene | 105 | 9.067 | 9.067 | (0.938) | 342306 | 50.0000 | 47.99 |
| 83 1,3-Dichlorobenzene | 146 | 9.605 | 9.605 | (0.994) | 166599 | 50.0000 | 45.47 |
| 54 1,3-Dichloropropane | 76 | 6.983 | 6.983 | (0.910) | 158290 | 50.0000 | 49.04 |
| 84 1,4-Dichlorobenzene | 146 | 9.683 | 9.683 | (1.002) | 177241 | 50.0000 | 46.46 |
| 26 2,2-Dichloropropane | 77 | 3.516 | 3.516 | (0.841) | 144565 | 50.0000 | 44.85 |
| 24 2-Butanone | 43 | 3.580 | 3.580 | (0.856) | 67284 | 100.000 | 92.92 |
| 76 2-Chlorotoluene | 91 | 8.974 | 8.974 | (0.929) | 258377 | 50.0000 | 44.01 |
| 52 2-Hexanone | 43 | 7.212 | 7.212 | (0.940) | 169392 | 100.000 | 95.32 |
| 77 4-Chlorotoluene | 91 | 9.075 | 9.075 | (0.939) | 343639 | 50.0000 | 46.34 |
| 82 p-Isopropyltoluene | 119 | 9.655 | 9.655 | (0.999) | 346256 | 50.0000 | 51.28 |
| 45 4-Methyl-2-Pentanone | 43 | 6.324 | 6.324 | (0.824) | 193651 | 100.000 | 96.76 |
| 10 Acetone | 43 | 1.976 | 1.976 | (0.473) | 87016 | 100.000 | 101.69 |
| 37 Benzene | 78 | 4.519 | 4.519 | (0.909) | 384910 | 50.0000 | 47.13 |
| 74 Bromobenzene | 156 | 8.809 | 8.809 | (0.912) | 100247 | 50.0000 | 45.57 |
| 29 Bromochloromethane | 128 | 3.803 | 3.803 | (0.909) | 51820 | 50.0000 | 48.30 |
| 39 Bromodichloromethane | 83 | 5.729 | 5.729 | (1.153) | 146060 | 50.0000 | 48.62 |
| 66 Bromoform | 173 | 8.416 | 8.416 | (1.097) | 56683 | 50.0000 | 43.81 |
| 6 Bromomethane | 94 | 1.338 | 1.338 | (0.320) | 121041 | 50.0000 | 41.75 |
| 19 Carbon Disulfide | 76 | 2.069 | 2.069 | (0.495) | 505351 | 100.000 | 92.54 |
| 34 Carbon Tetrachloride | 117 | 4.268 | 4.268 | (0.859) | 125296 | 50.0000 | 47.86 |
| 59 Chlorobenzene | 112 | 7.692 | 7.692 | (1.003) | 254157 | 50.0000 | 45.14 |
| 7 Chloroethane | 64 | 1.403 | 1.403 | (0.336) | 102312 | 50.0000 | 41.68 |
| 28 Chloroform | 83 | 3.910 | 3.910 | (0.935) | 187029 | 50.0000 | 46.92 |
| 3 Chloromethane | 50 | 1.081 | 1.081 | (0.258) | 97255 | 50.0000 | 44.19 |
| 27 cis-1,2-Dichloroethene | 96 | 3.530 | 3.530 | (0.844) | 107386 | 50.0000 | 47.01 |
| 46 cis-1,3-Dichloropropene | 75 | 6.159 | 6.159 | (1.239) | 163405 | 50.0000 | 50.09 |
| 55 Dibromochloromethane | 129 | 7.176 | 7.176 | (0.936) | 99611 | 50.0000 | 51.16 |
| 44 Dibromomethane | 93 | 5.557 | 5.557 | (1.118) | 73154 | 50.0000 | 49.49 |
| 2 Dichlorodifluoromethane | 85 | 0.973 | 0.973 | (0.233) | 88848 | 50.0000 | 44.04 |
| 61 Ethylbenzene | 106 | 7.800 | 7.800 | (1.017) | 132902 | 50.0000 | 46.53(H) |
| 91 Hexachlorobutadiene | 225 | 11.481 | 11.481 | (1.188) | 31815 | 50.0000 | 47.51 |
| 67 Isopropylbenzene | 105 | 8.566 | 8.566 | (1.117) | 378050 | 50.0000 | 43.67 |
| 62 m,p-Xylenes | 106 | 7.907 | 7.907 | (1.031) | 342459 | 100.000 | 100.11 |
| 17 Methylene Chloride | 84 | 2.305 | 2.305 | (0.551) | 95886 | 50.0000 | 44.83 |
| 87 n-Butylbenzene | 91 | 9.999 | 9.999 | (1.035) | 336254 | 50.0000 | 44.69 |
| 73 n-Propylbenzene | 91 | 8.917 | 8.917 | (0.923) | 463730 | 50.0000 | 46.60 |
| 92 Naphthalene | 128 | 11.546 | 11.546 | (1.195) | 71142 | 50.0000 | 49.48 |
| 63 o-Xylene | 106 | 8.244 | 8.244 | (1.075) | 164212 | 50.0000 | 48.17 |
| 81 sec-Butylbenzene | 105 | 9.526 | 9.526 | (0.986) | 381699 | 50.0000 | 44.83 |
| 64 Styrene | 104 | 8.258 | 8.258 | (1.077) | 285436 | 50.0000 | 49.93 |
| 78 tert-Butylbenzene | 119 | 9.340 | 9.340 | (0.967) | 255346 | 50.0000 | 45.11 |
| 56 Tetrachloroethene | 164 | 6.933 | 6.933 | (0.904) | 69360 | 50.0000 | 47.82 |
| 50 Toluene | 91 | 6.446 | 6.446 | (0.840) | 407320 | 50.0000 | 42.25 |
| 20 trans-1,2-Dichloroethene | 96 | 2.535 | 2.535 | (0.606) | 89593 | 50.0000 | 46.16 |
| 51 trans-1,3-Dichloropropene | 75 | 6.682 | 6.682 | (1.344) | 149269 | 50.0000 | 51.87 |
| 38 Trichloroethene | 130 | 5.214 | 5.214 | (1.049) | 94571 | 50.0000 | 48.53 |
| 8 Trichlorofluoromethane | 101 | 1.560 | 1.560 | (0.373) | 258435 | 50.0000 | 44.02 |
| 5 Vinyl Chloride | 62 | 1.145 | 1.145 | (0.274) | 157895 | 50.0000 | 45.87(H) |

QC Flag Legend

M - Compound response manually integrated.
H - Operator selected an alternate compound hit.

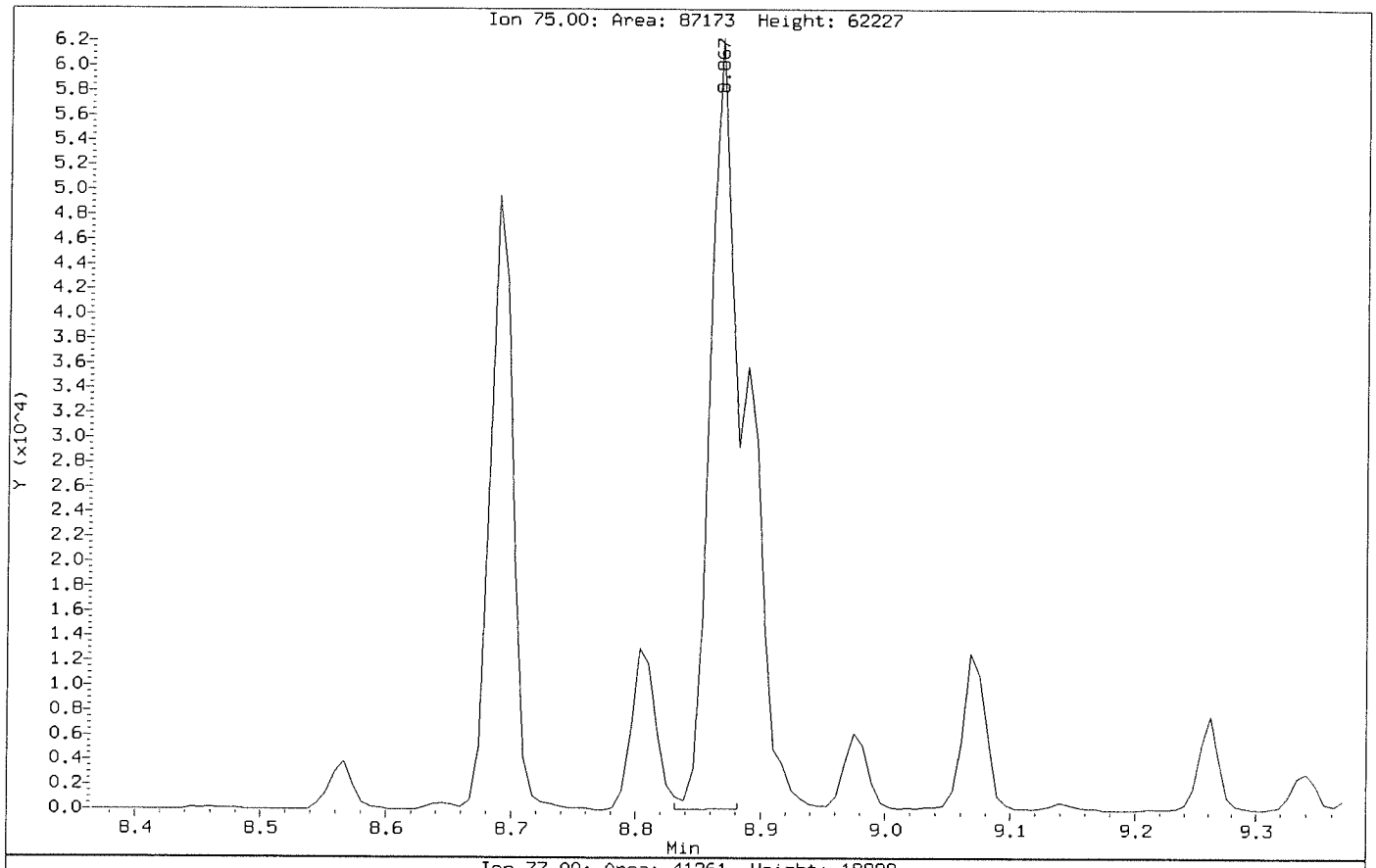


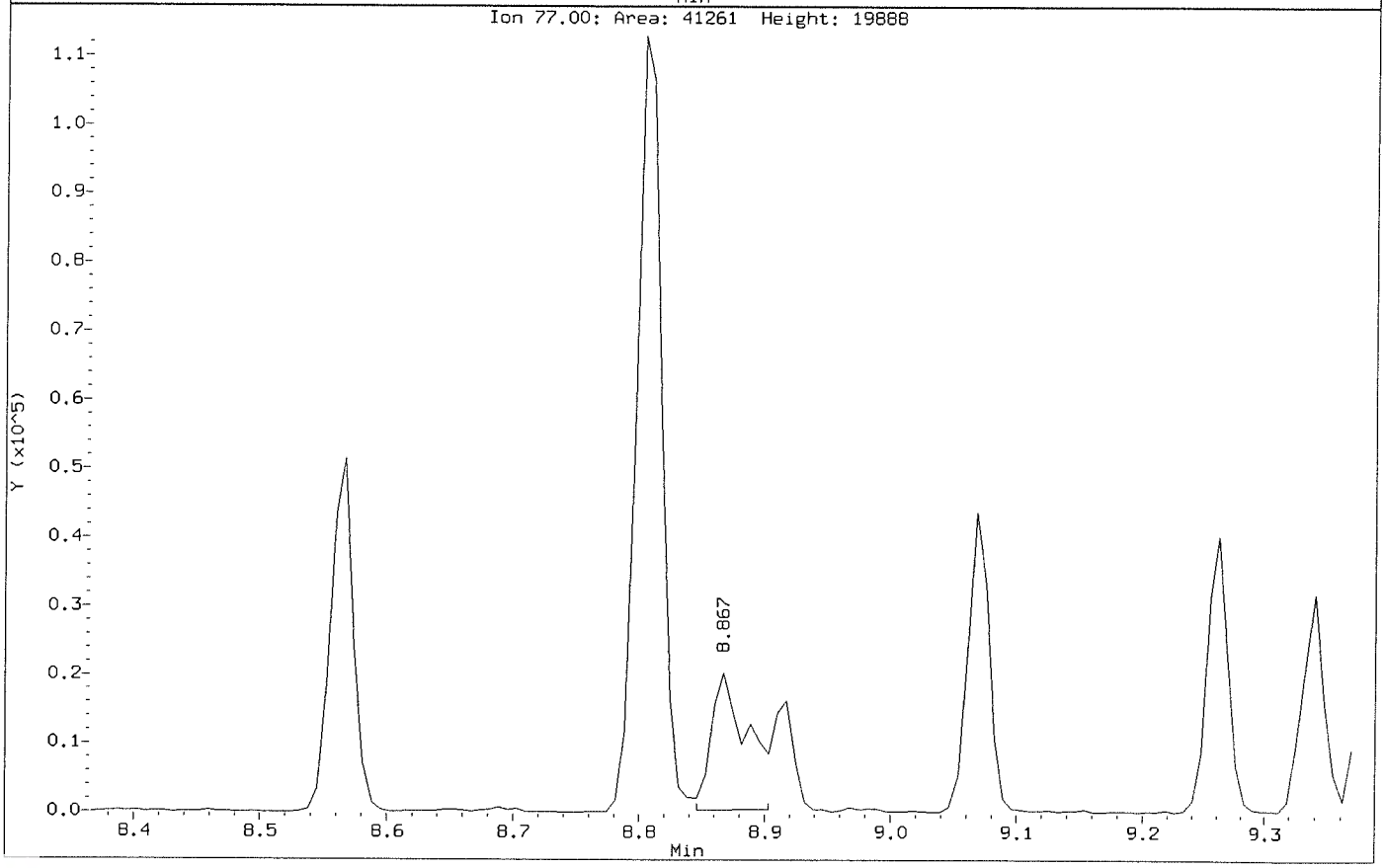

Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110308.D
Date : 03-NOV-2020 14:27
Client ID: VSTD050
Sample Info: VSTD050;VSTD050;1;7;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110308.D
Injection Date: 03-NOV-2020 14:27
Instrument: voa6.i
Client Sample ID: VSTD050

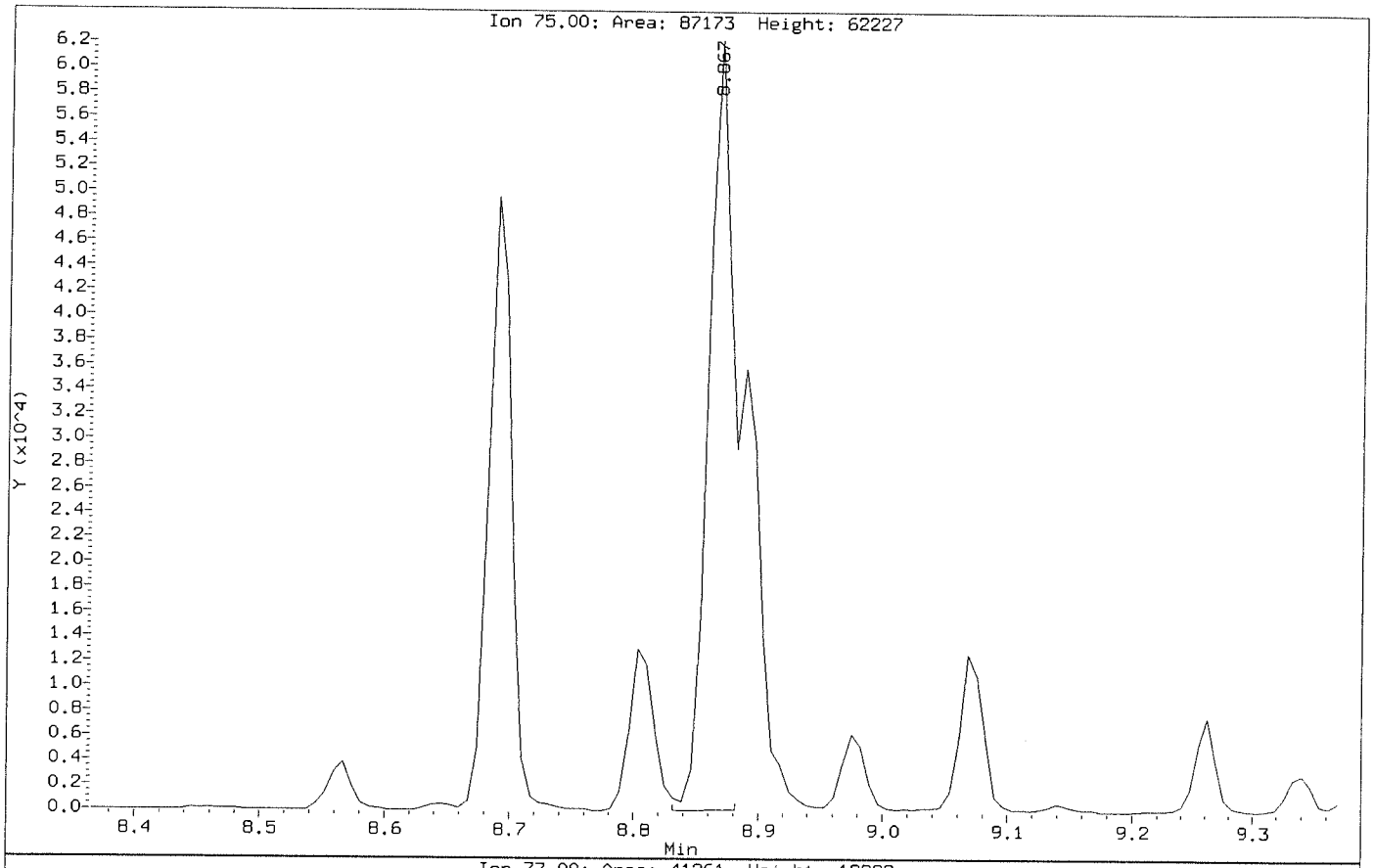
Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4

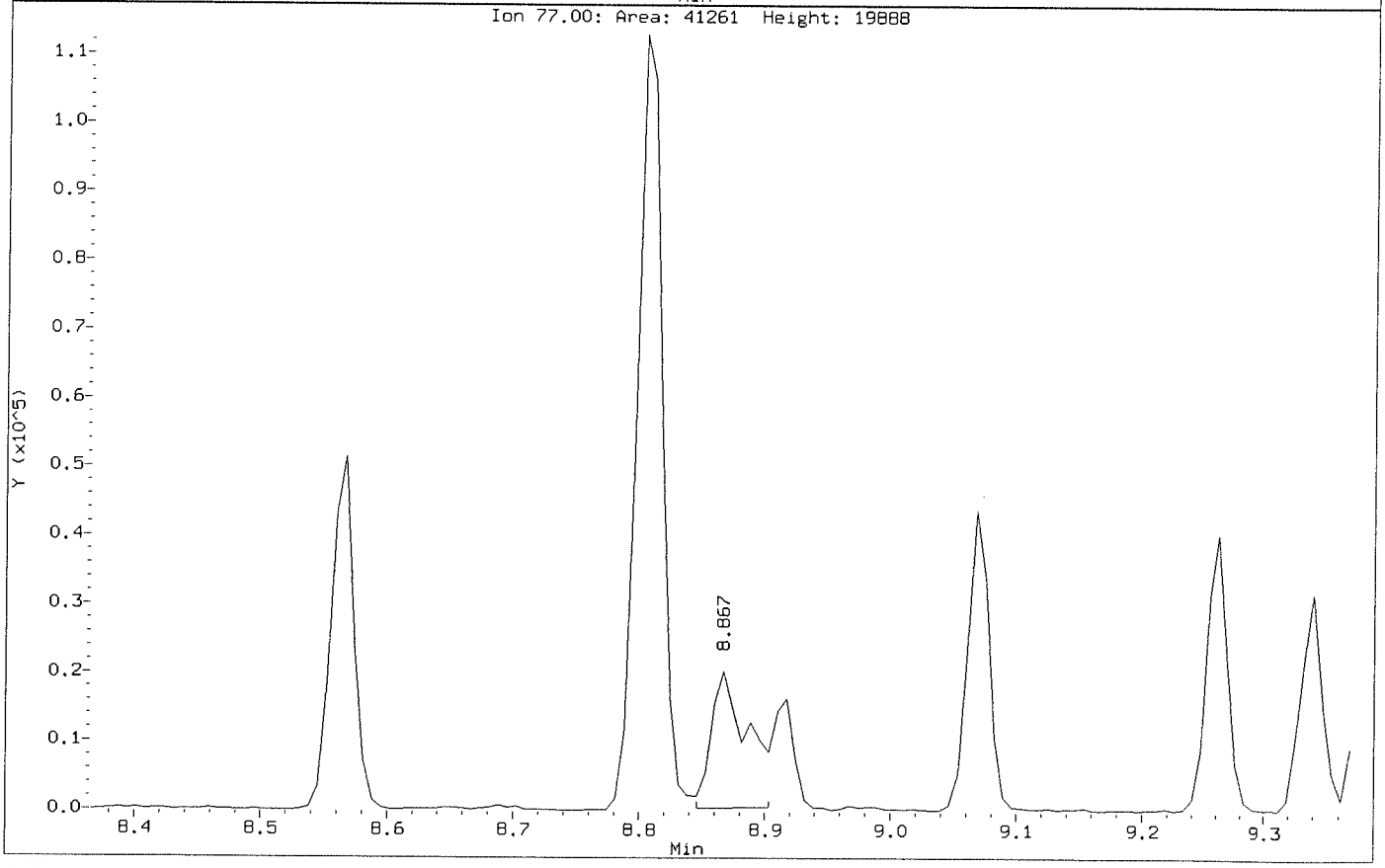


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110308.D
Injection Date: 03-NOV-2020 14:27
Instrument: voa6.i
Client Sample ID: VSTD050

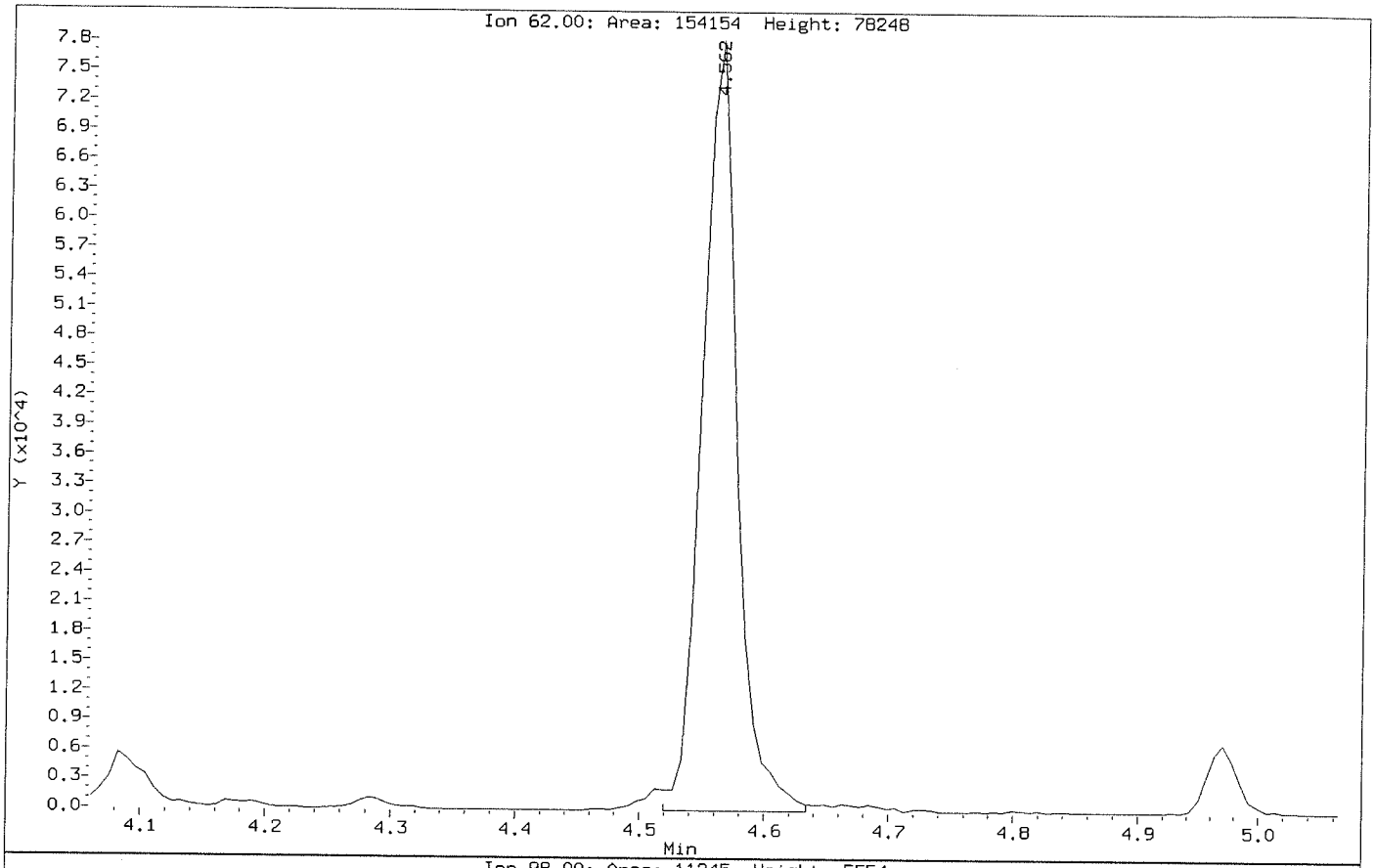
Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4

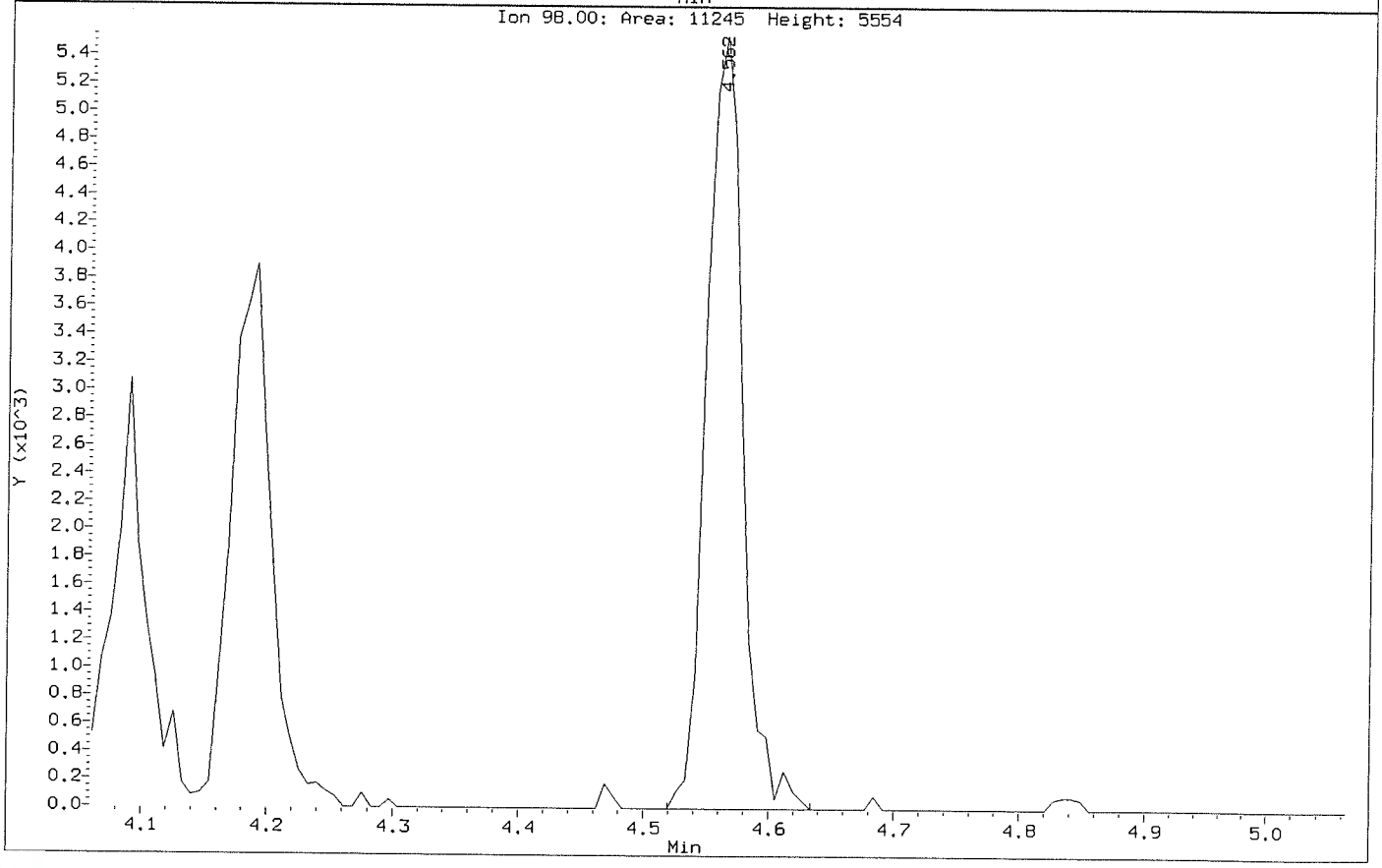


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110308.D
Injection Date: 03-NOV-2020 14:27
Instrument: voa6.i
Client Sample ID: VSTD050

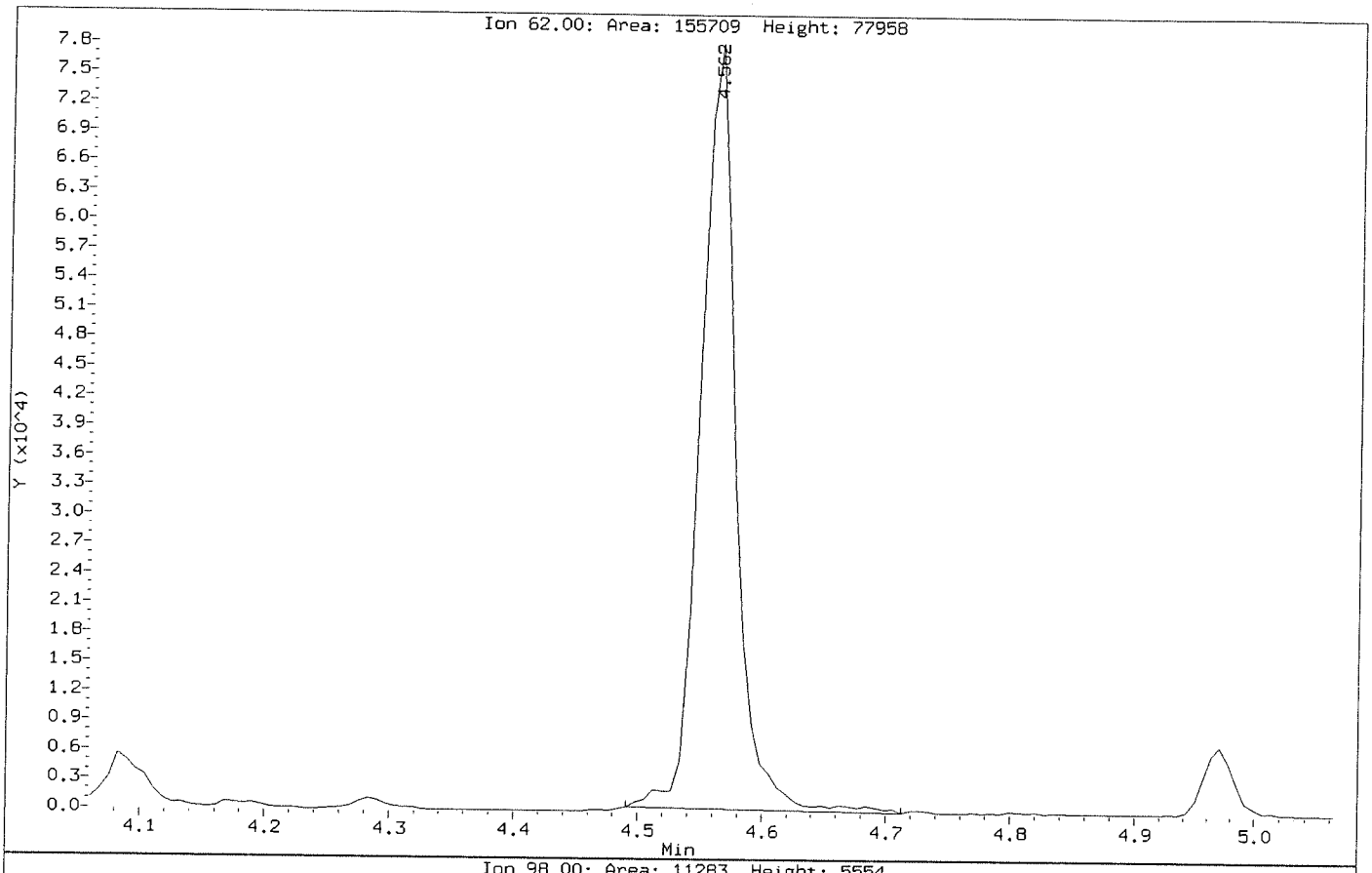
Compound: 1,2-Dichloroethane
CAS Number: 107-06-2

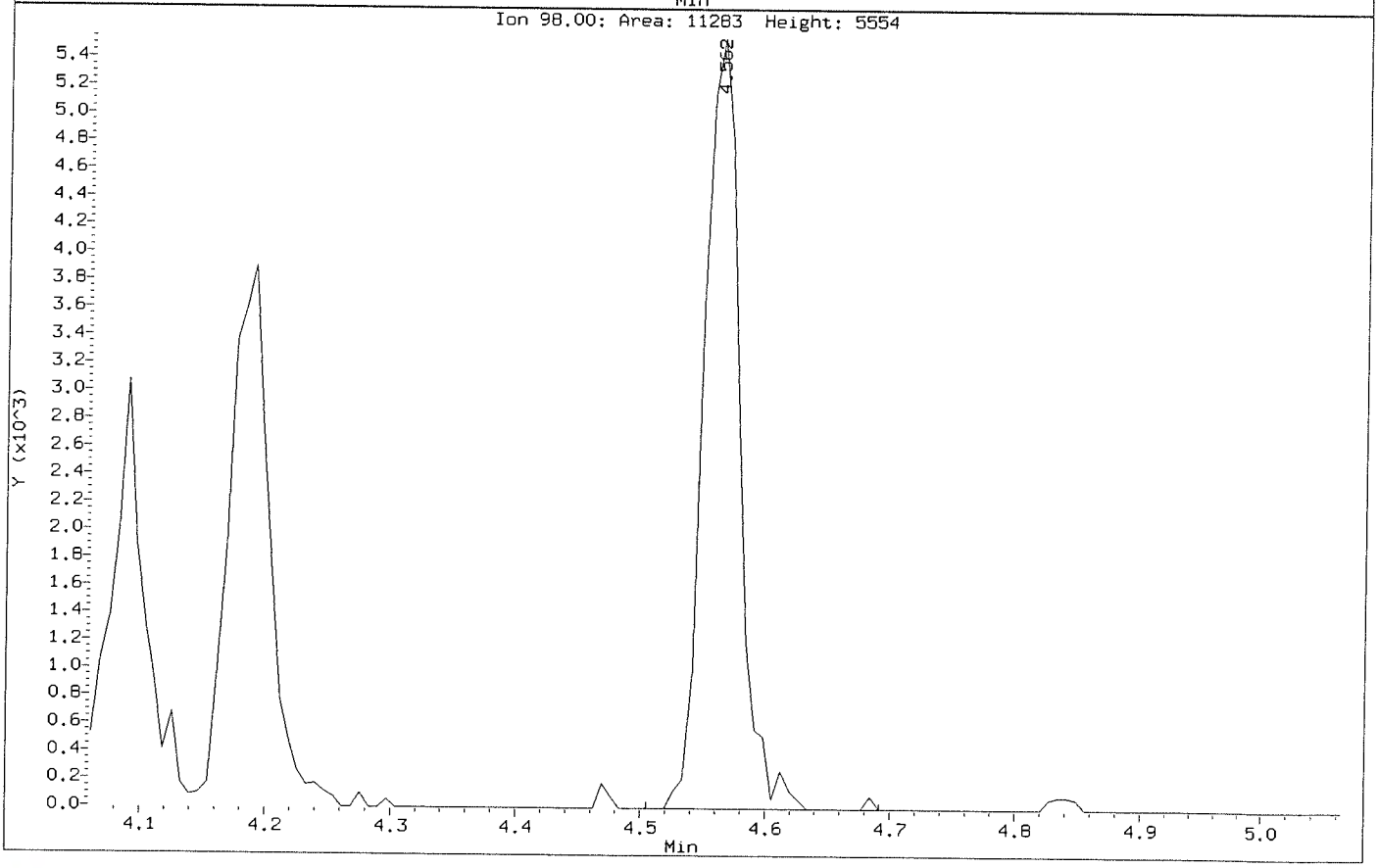


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110308.D
Injection Date: 03-NOV-2020 14:27
Instrument: voa6.i
Client Sample ID: VSTD050

Compound: 1,2-Dichloroethane
CAS Number: 107-06-2



Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110309.D Page 1
Report Date: 13-Jan-2021 15:45

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201103.b\X110309.D
Lab Smp Id: VSTD100 Client Smp ID: VSTD100
Inj Date : 03-NOV-2020 14:48
Operator : PC Inst ID: voa6.i
Smp Info : VSTD100;VSTD100;1;8;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201103.b\8260W.m
Meth Date : 13-Jan-2021 15:45 voa6.i Quant Type: ISTD
Cal Date : 03-NOV-2020 14:27 Cal File: X110308.D
Als bottle: 10 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

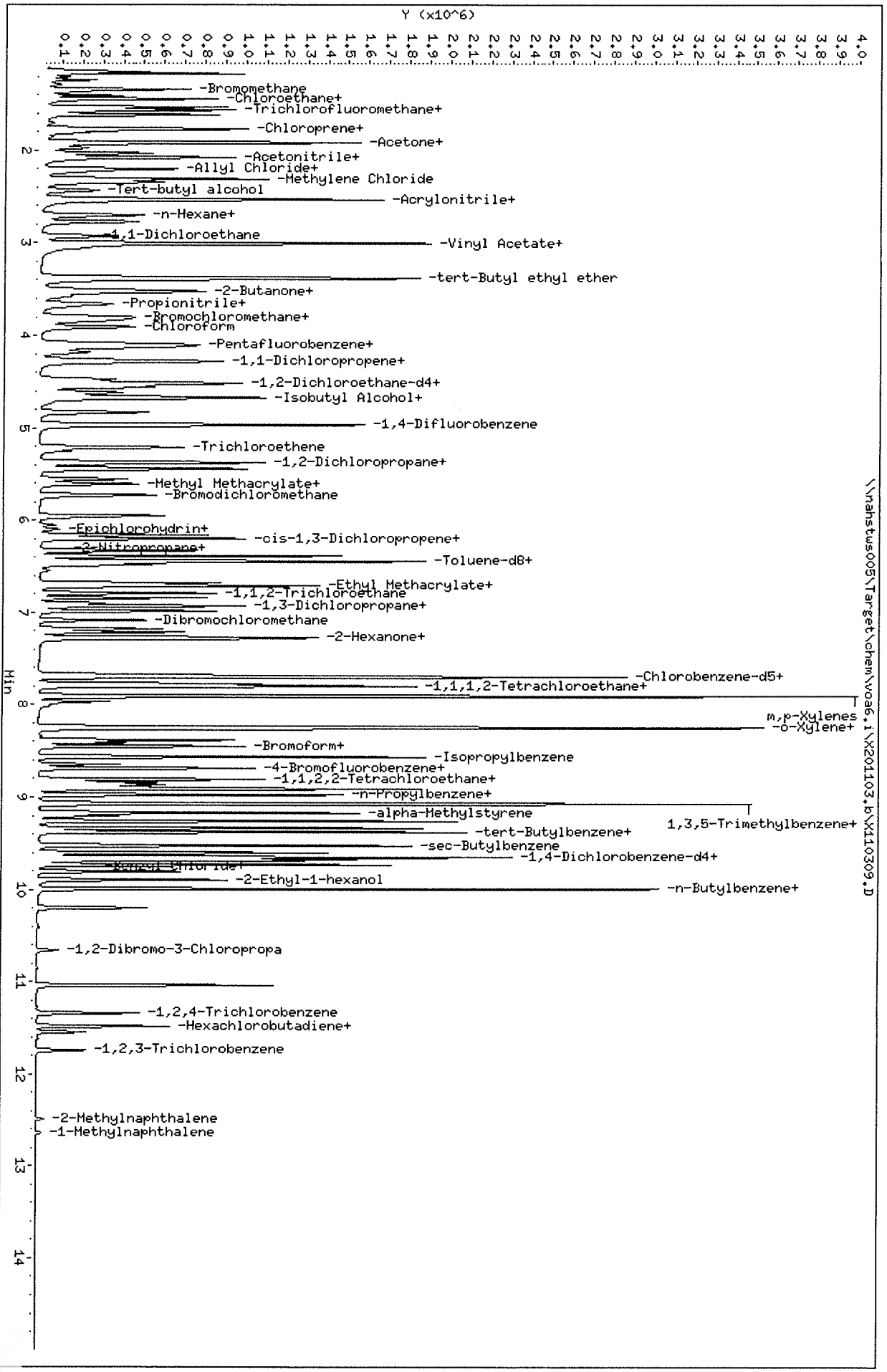
| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| * | 1 Pentafluorobenzene | 168 | 4.189 | 4.189 | (1.000) | 154236 | 50.0000 | |
| * | 36 1,4-Difluorobenzene | 114 | 4.970 | 4.970 | (1.000) | 303407 | 50.0000 | |
| * | 47 Chlorobenzene-d5 | 117 | 7.671 | 7.671 | (1.000) | 276014 | 50.0000 | |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 9.662 | 9.662 | (1.000) | 137781 | 50.0000 | |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 4.476 | 4.476 | (1.068) | 253050 | 100.000 | 98.38 |
| $ | 69 4-Bromofluorobenzene | 95 | 8.688 | 8.688 | (1.133) | 252308 | 100.000 | 99.11 |
| $ | 30 Dibromofluoromethane | 113 | 4.103 | 4.103 | (0.979) | 209542 | 100.000 | 100.88 |
| $ | 48 Toluene-d8 | 98 | 6.388 | 6.388 | (0.833) | 766192 | 100.000 | 103.92 |
| | 60 1,1,1,2-Tetrachloroethane | 131 | 7.778 | 7.778 | (1.014) | 207092 | 100.000 | 105.17 |
| | 31 1,1,1-Trichloroethane | 97 | 4.089 | 4.089 | (0.976) | 328674 | 100.000 | 102.05 |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 8.838 | 8.838 | (0.915) | 223385 | 100.000 | 98.80 |
| | 138 Freon TF | 101 | 1.919 | 1.919 | (0.458) | 271005 | 100.000 | 96.23 |
| | 53 1,1,2-Trichloroethane | 83 | 6.840 | 6.840 | (0.892) | 166608 | 100.000 | 97.86 |
| | 22 1,1-Dichloroethane | 63 | 2.921 | 2.921 | (0.697) | 364051 | 100.000 | 98.19 |
| | 11 1,1-Dichloroethene | 96 | 1.919 | 1.919 | (0.458) | 268838 | 100.000 | 92.38 |
| | 32 1,1-Dichloropropene | 75 | 4.282 | 4.282 | (0.862) | 272457 | 100.000 | 96.29 |
| | 93 1,2,3-Trichlorobenzene | 180 | 11.746 | 11.746 | (1.216) | 54420 | 100.000 | 90.65 |
| | 71 1,2,3-Trichloropropane | 75 | 8.867 | 8.867 | (0.918) | 190827 | 100.000 | 98.63(MH) |
| | 90 1,2,4-Trichlorobenzene | 180 | 11.338 | 11.338 | (1.173) | 104687 | 100.000 | 93.04 |
| | 79 1,2,4-Trimethylbenzene | 105 | 9.382 | 9.382 | (0.971) | 824431 | 100.000 | 106.96 |
| | 89 1,2-Dibromo-3-Chloropropane | 155 | 10.657 | 10.657 | (1.103) | 14813 | 100.000 | 97.15 |
| | 57 1,2-Dibromoethane | 107 | 7.262 | 7.262 | (0.947) | 208629 | 100.000 | 100.79 |

Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110309.D Page 2
Report Date: 13-Jan-2021 15:45

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| 88 1,2-Dichlorobenzene | 146 | 9.991 | 9.991 | (1.034) | 372696 | 100.000 | 98.00 |
| 33 1,2-Dichloroethane | 62 | 4.562 | 4.562 | (0.918) | 300213 | 100.000 | 91.76(M) |
| 42 1,2-Dichloropropane | 63 | 5.443 | 5.443 | (1.095) | 206622 | 100.000 | 92.02 |
| 75 1,3,5-Trimethylbenzene | 105 | 9.067 | 9.067 | (0.938) | 817818 | 100.000 | 104.03 |
| 83 1,3-Dichlorobenzene | 146 | 9.605 | 9.605 | (0.994) | 391011 | 100.000 | 96.83 |
| 54 1,3-Dichloropropane | 76 | 6.983 | 6.983 | (0.910) | 329308 | 100.000 | 97.37 |
| 84 1,4-Dichlorobenzene | 146 | 9.683 | 9.683 | (1.002) | 412100 | 100.000 | 98.00 |
| 26 2,2-Dichloropropane | 77 | 3.516 | 3.516 | (0.839) | 306687 | 100.000 | 96.09 |
| 24 2-Butanone | 43 | 3.580 | 3.580 | (0.855) | 151796 | 200.000 | 211.71(A) |
| 76 2-Chlorotoluene | 91 | 8.974 | 8.974 | (0.929) | 615192 | 100.000 | 95.06 |
| 52 2-Hexanone | 43 | 7.212 | 7.212 | (0.940) | 370165 | 200.000 | 194.78 |
| 77 4-Chlorotoluene | 91 | 9.074 | 9.074 | (0.939) | 821631 | 100.000 | 100.52 |
| 82 p-Isopropyltoluene | 119 | 9.655 | 9.655 | (0.999) | 816889 | 100.000 | 109.77 |
| 45 4-Methyl-2-Pentanone | 43 | 6.324 | 6.324 | (0.824) | 417836 | 200.000 | 199.26 |
| 10 Acetone | 43 | 1.976 | 1.976 | (0.472) | 169628 | 200.000 | 208.65(A) |
| 37 Benzene | 78 | 4.519 | 4.519 | (0.909) | 815390 | 100.000 | 96.21 |
| 74 Bromobenzene | 156 | 8.809 | 8.809 | (0.912) | 225264 | 100.000 | 92.91 |
| 29 Bromochloromethane | 128 | 3.802 | 3.802 | (0.908) | 107517 | 100.000 | 101.21 |
| 39 Bromodichloromethane | 83 | 5.729 | 5.729 | (1.153) | 287648 | 100.000 | 92.27 |
| 66 Bromoform | 173 | 8.415 | 8.415 | (1.097) | 133700 | 100.000 | 94.72 |
| 6 Bromomethane | 94 | 1.338 | 1.338 | (0.320) | 279247 | 100.000 | 97.28 |
| 19 Carbon Disulfide | 76 | 2.069 | 2.069 | (0.494) | 1041315 | 200.000 | 192.57 |
| 34 Carbon Tetrachloride | 117 | 4.268 | 4.268 | (0.859) | 269823 | 100.000 | 99.32 |
| 59 Chlorobenzene | 112 | 7.699 | 7.699 | (1.004) | 577522 | 100.000 | 97.90 |
| 7 Chloroethane | 64 | 1.403 | 1.403 | (0.335) | 211420 | 100.000 | 86.99 |
| 28 Chloroform | 83 | 3.910 | 3.910 | (0.933) | 384387 | 100.000 | 97.39 |
| 3 Chloromethane | 50 | 1.081 | 1.081 | (0.258) | 217141 | 100.000 | 98.54 |
| 27 cis-1,2-Dichloroethene | 96 | 3.530 | 3.530 | (0.843) | 216761 | 100.000 | 95.83 |
| 46 cis-1,3-Dichloropropene | 75 | 6.159 | 6.159 | (1.239) | 334095 | 100.000 | 98.70 |
| 55 Dibromochloromethane | 129 | 7.176 | 7.176 | (0.936) | 215942 | 100.000 | 105.86 |
| 44 Dibromomethane | 93 | 5.557 | 5.557 | (1.118) | 146776 | 100.000 | 95.69 |
| 2 Dichlorodifluoromethane | 85 | 0.973 | 0.973 | (0.232) | 213064 | 100.000 | 106.67 |
| 61 Ethylbenzene | 106 | 7.799 | 7.799 | (1.017) | 305086 | 100.000 | 101.95(H) |
| 91 Hexachlorobutadiene | 225 | 11.481 | 11.481 | (1.188) | 74152 | 100.000 | 97.87 |
| 67 Isopropylbenzene | 105 | 8.566 | 8.566 | (1.117) | 912871 | 100.000 | 97.24 |
| 62 m,p-Xylenes | 106 | 7.907 | 7.907 | (1.031) | 811392 | 200.000 | 226.37(A) |
| 17 Methylene Chloride | 84 | 2.305 | 2.305 | (0.550) | 202216 | 100.000 | 95.49 |
| 87 n-Butylbenzene | 91 | 9.998 | 9.998 | (1.035) | 808796 | 100.000 | 93.27 |
| 73 n-Propylbenzene | 91 | 8.917 | 8.917 | (0.923) | 1120519 | 100.000 | 102.15 |
| 92 Naphthalene | 128 | 11.546 | 11.546 | (1.195) | 144587 | 100.000 | 89.43 |
| 63 o-Xylene | 106 | 8.244 | 8.244 | (1.075) | 377365 | 100.000 | 105.64 |
| 81 sec-Butylbenzene | 105 | 9.526 | 9.526 | (0.986) | 940164 | 100.000 | 96.91 |
| 64 Styrene | 104 | 8.258 | 8.258 | (1.077) | 686197 | 100.000 | 114.56 |
| 78 tert-Butylbenzene | 119 | 9.339 | 9.339 | (0.967) | 626984 | 100.000 | 97.43 |
| 56 Tetrachloroethene | 164 | 6.933 | 6.933 | (0.904) | 157441 | 100.000 | 103.61 |
| 50 Toluene | 91 | 6.446 | 6.446 | (0.840) | 923135 | 100.000 | 91.39 |
| 20 trans-1,2-Dichloroethene | 96 | 2.535 | 2.535 | (0.605) | 197221 | 100.000 | 102.63 |
| 51 trans-1,3-Dichloropropene | 75 | 6.682 | 6.682 | (1.344) | 327079 | 100.000 | 109.52 |
| 38 Trichloroethene | 130 | 5.206 | 5.206 | (1.048) | 193089 | 100.000 | 95.49 |
| 8 Trichlorofluoromethane | 101 | 1.560 | 1.560 | (0.373) | 541989 | 100.000 | 93.23 |
| 5 Vinyl Chloride | 62 | 1.145 | 1.145 | (0.273) | 335336 | 100.000 | 98.39(H) |

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.

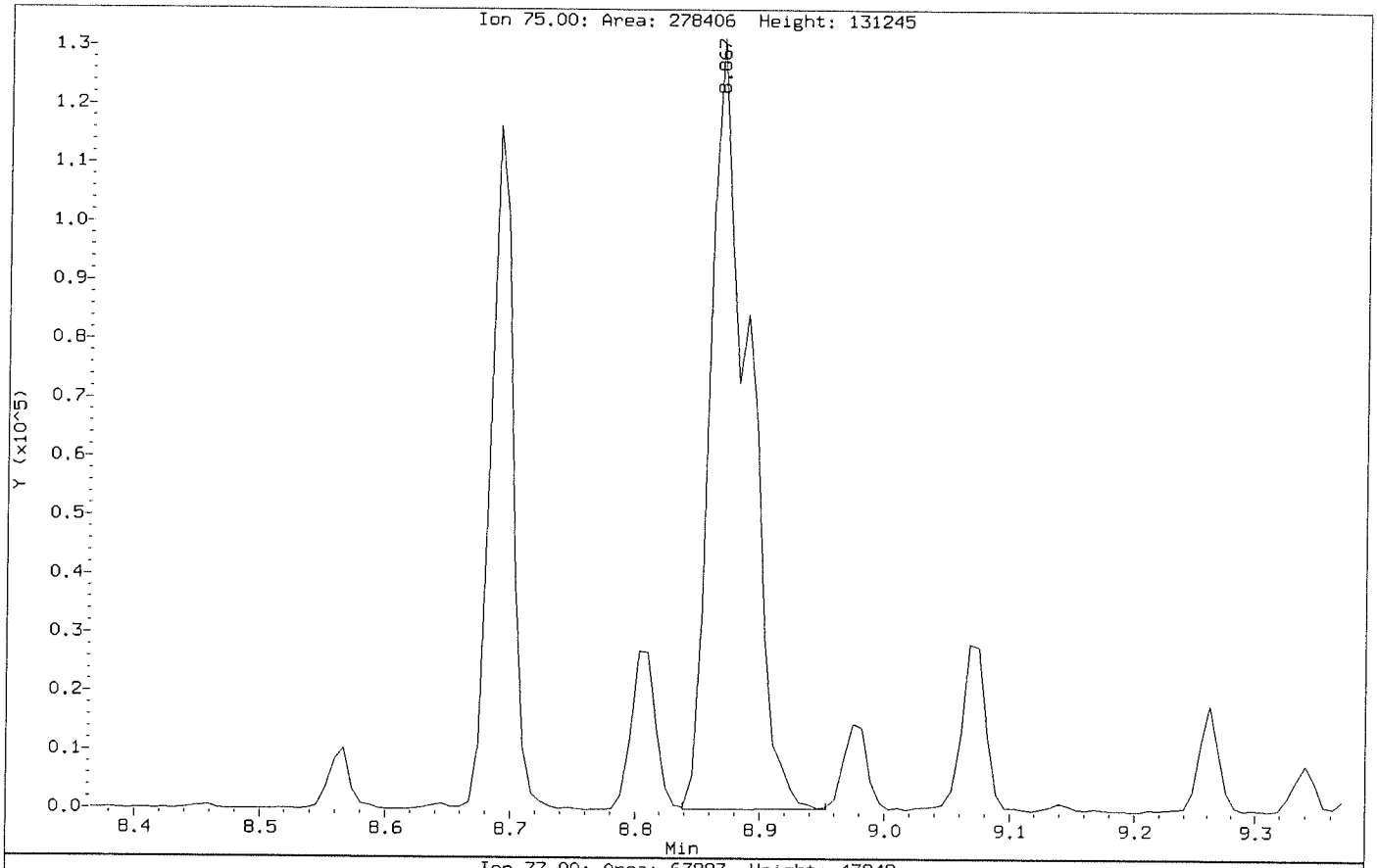


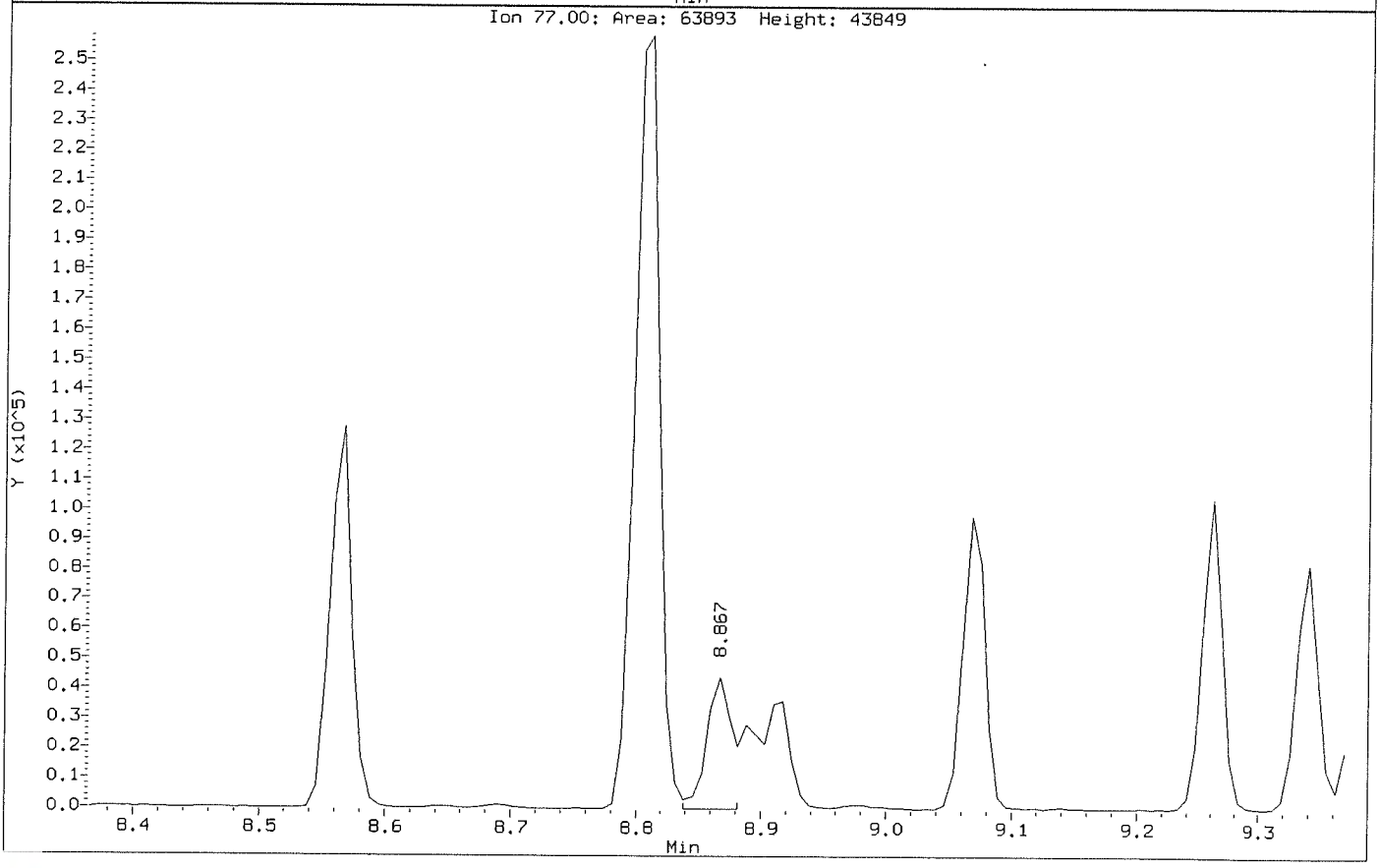

Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110309.D
Date : 03-NOV-2020 14:48
Client ID: VSTD100
Sample Info: VSTD100;VSTD100;1;8;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110309.D
Injection Date: 03-NOV-2020 14:48
Instrument: voa6.i
Client Sample ID: VSTD100

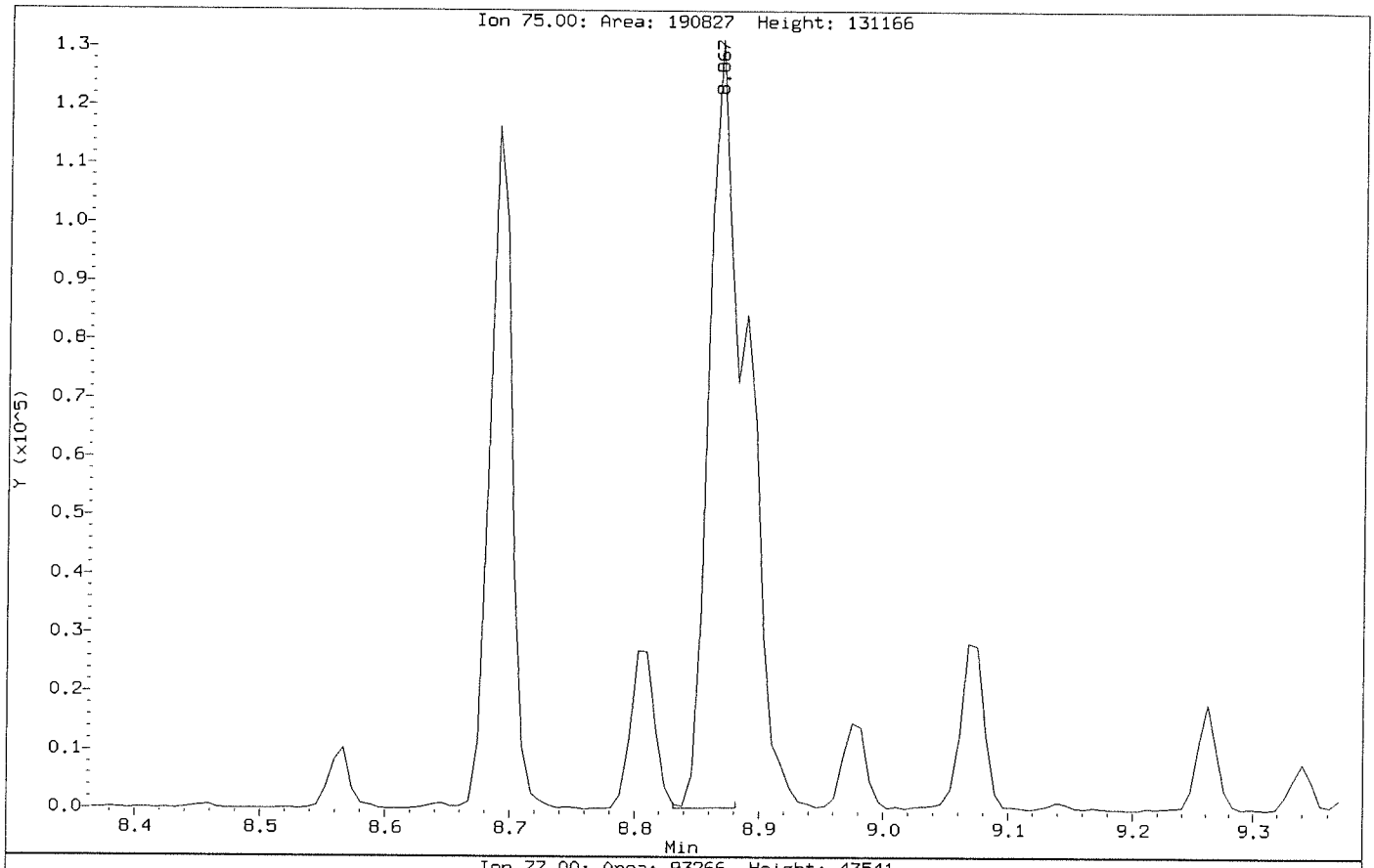
Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4

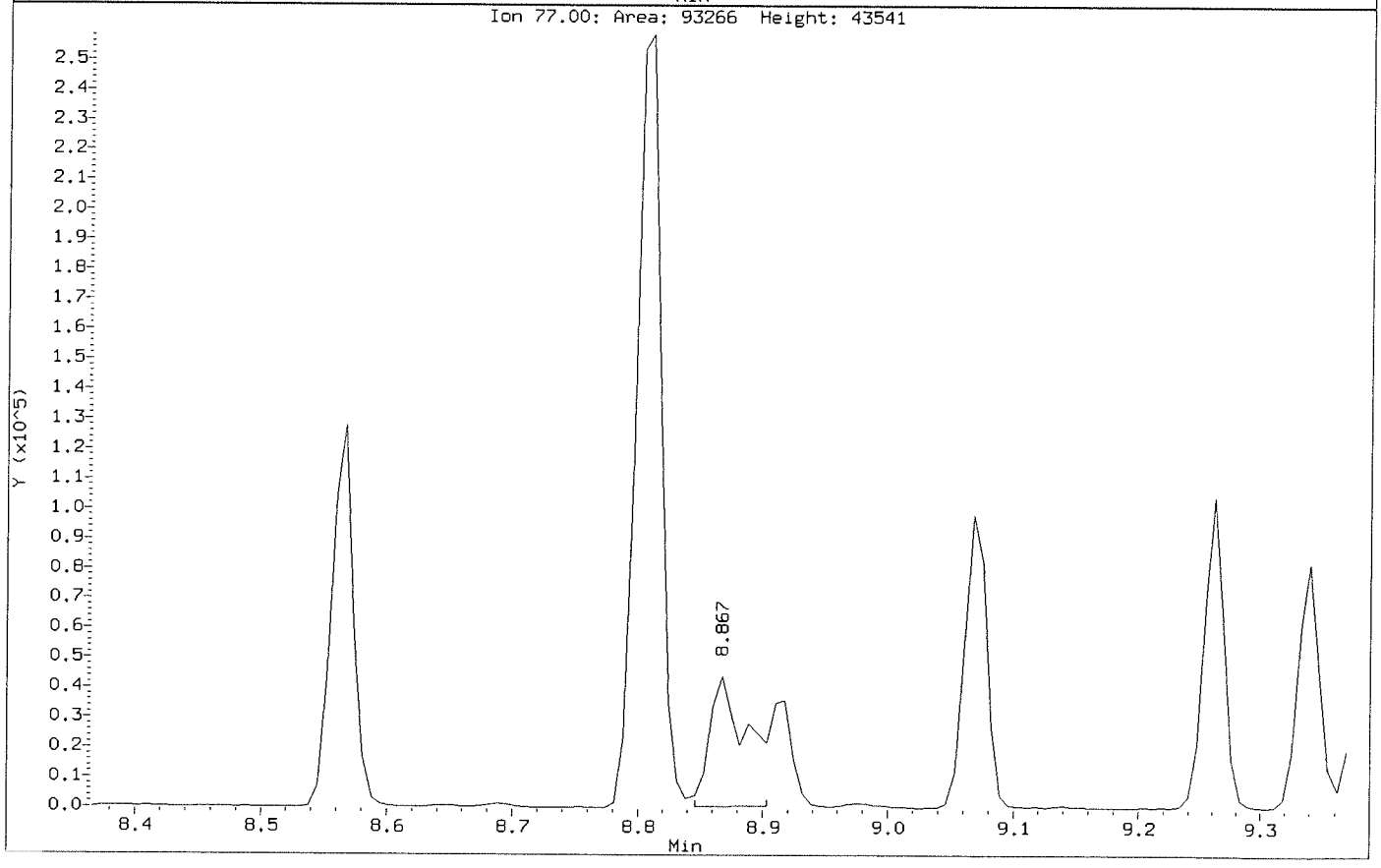


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110309.D
Injection Date: 03-NOV-2020 14:48
Instrument: voa6.i
Client Sample ID: VSTD100

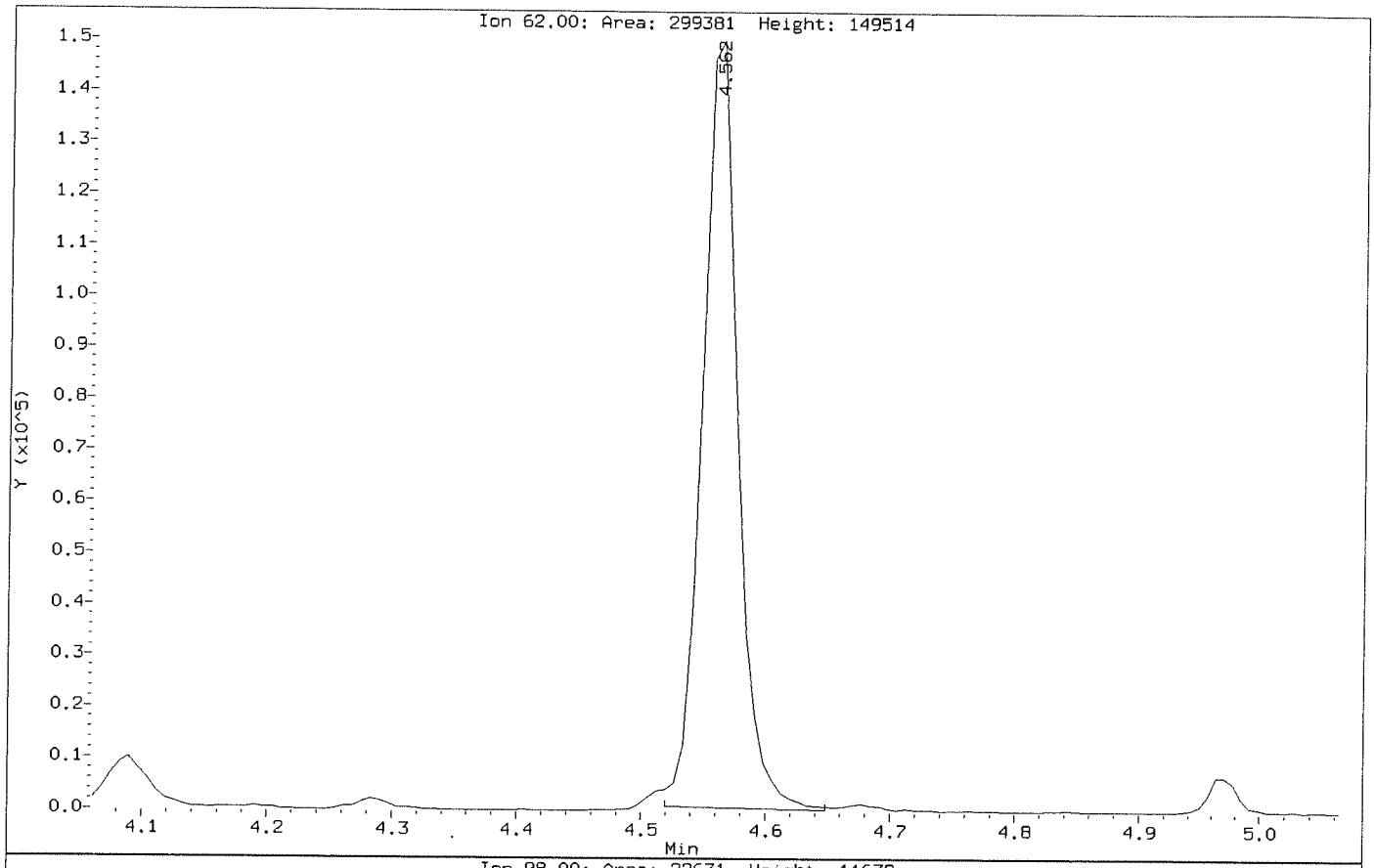
Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4

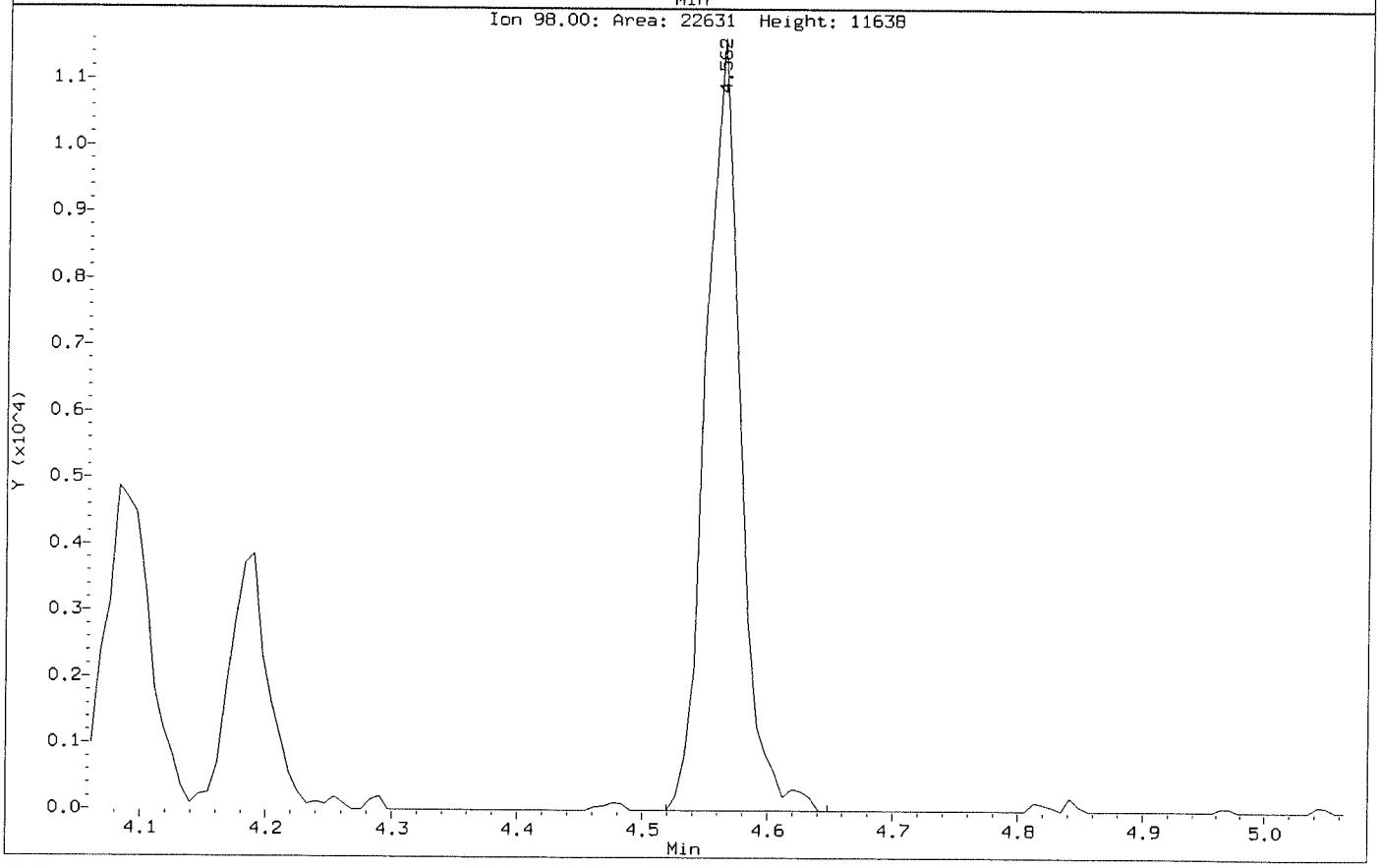


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110309.D
Injection Date: 03-NOV-2020 14:48
Instrument: voa6.i
Client Sample ID: VSTD100

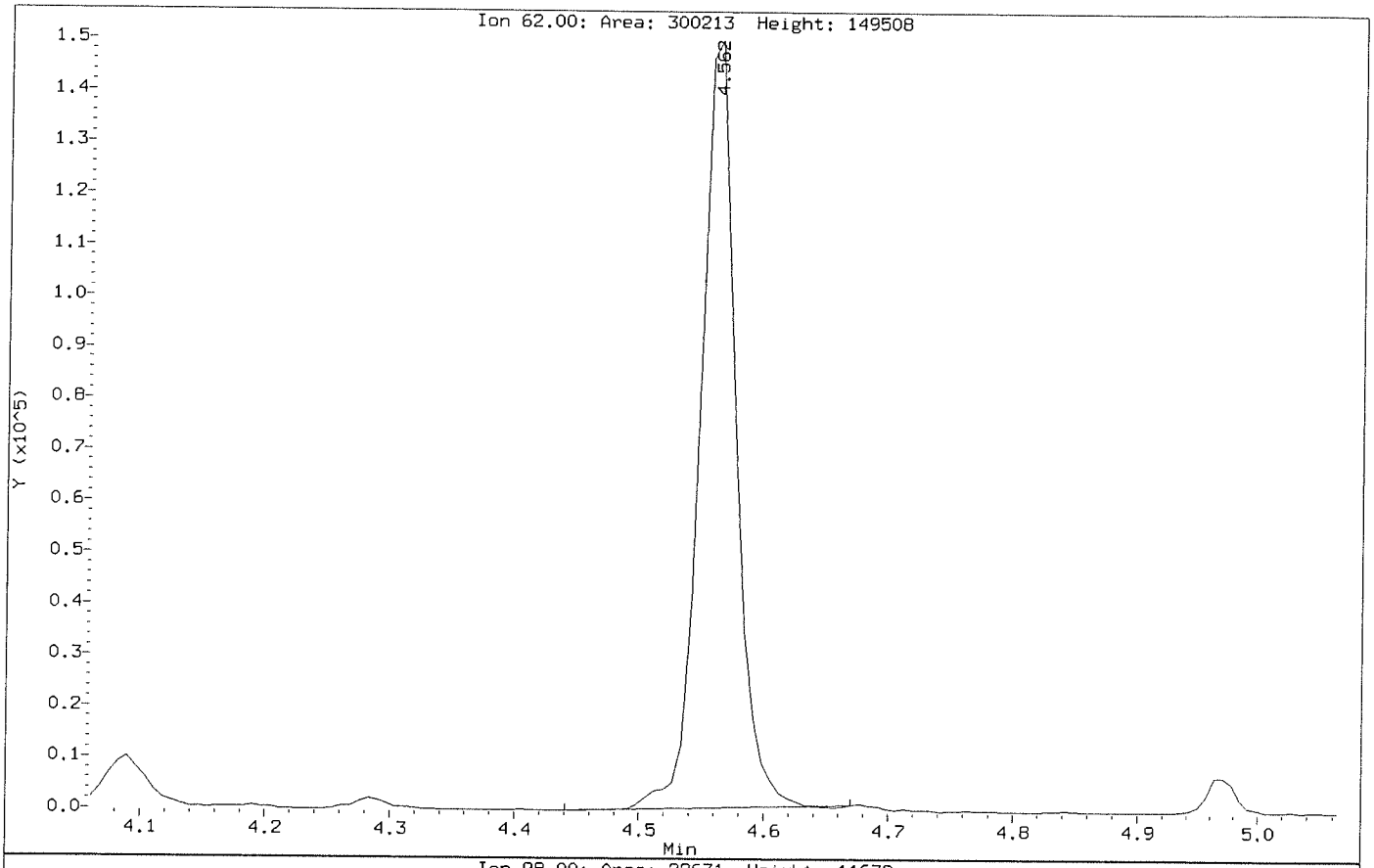
Compound: 1,2-Dichloroethane
CAS Number: 107-06-2

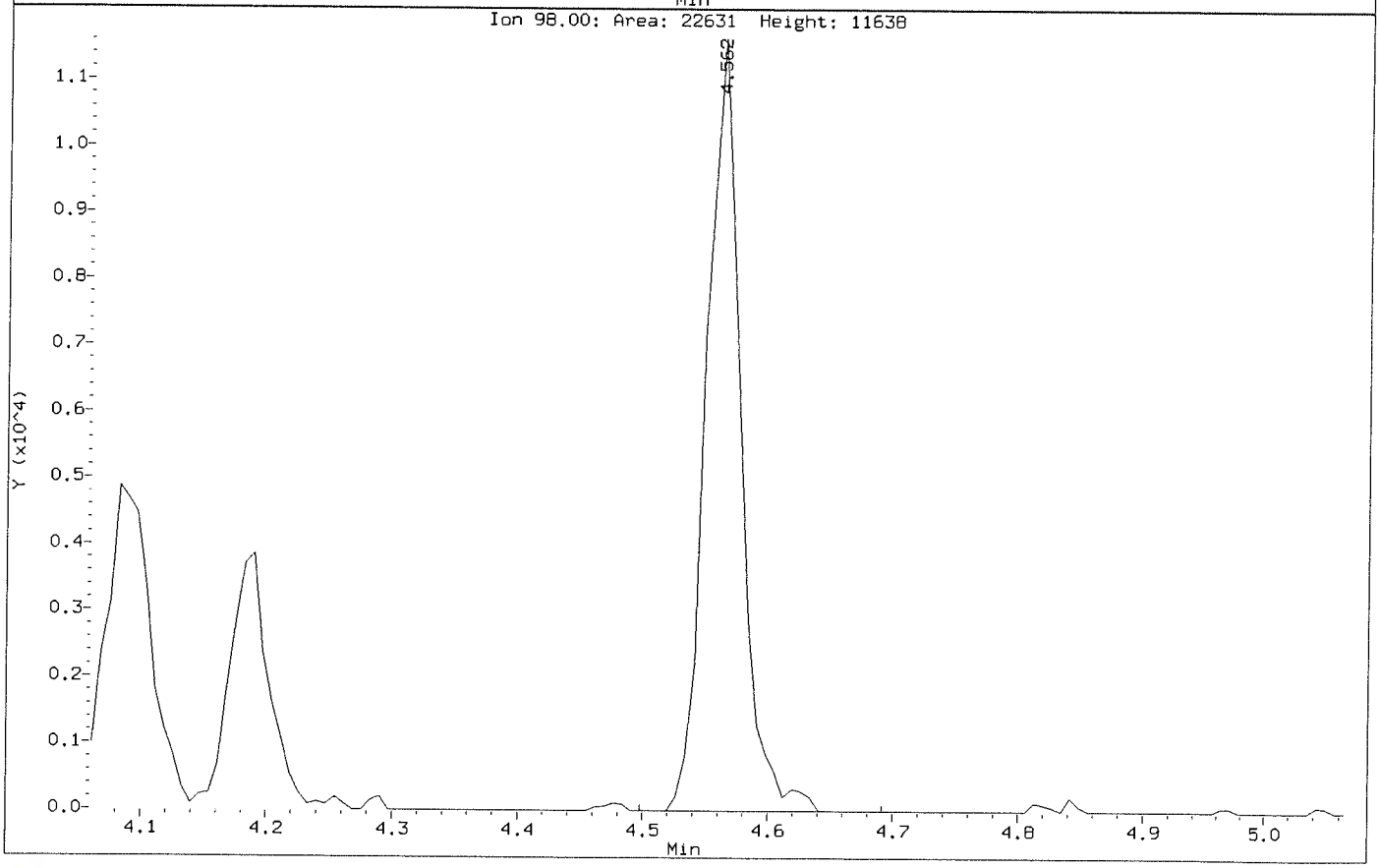


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110309.D
Injection Date: 03-NOV-2020 14:48
Instrument: voa6.i
Client Sample ID: VSTD100

Compound: 1,2-Dichloroethane
CAS Number: 107-06-2



Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110310.D Page 1
Report Date: 13-Jan-2021 15:45

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201103.b\X110310.D
Lab Smp Id: VSTD150 Client Smp ID: VSTD150
Inj Date : 03-NOV-2020 15:09
Operator : PC Inst ID: voa6.i
Smp Info : VSTD150;VSTD150;1;9;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201103.b\8260W.m
Meth Date : 13-Jan-2021 15:45 voa6.i Quant Type: ISTD
Cal Date : 03-NOV-2020 14:48 Cal File: X110309.D
Als bottle: 11 Calibration Sample, Level: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

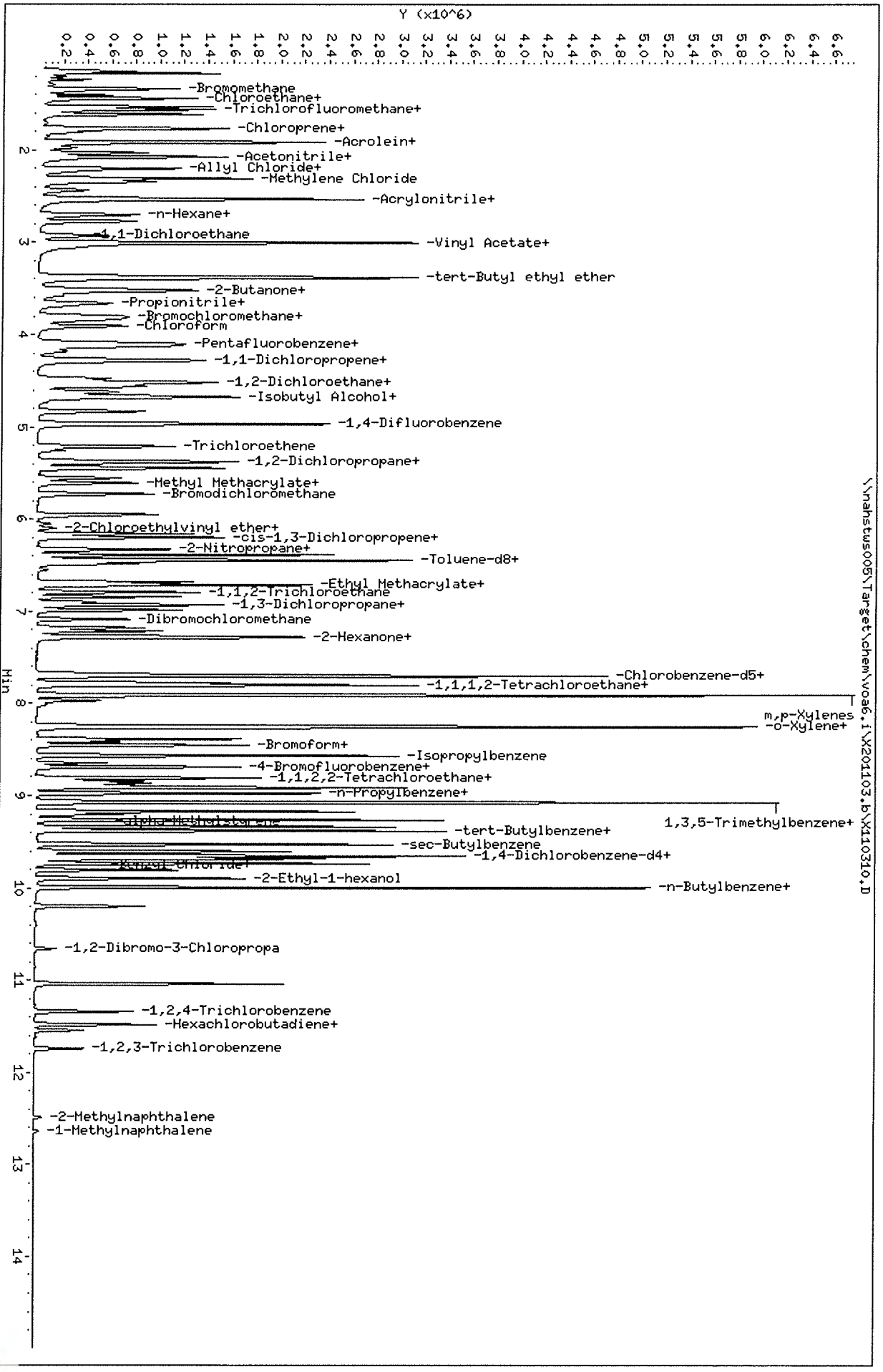
| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| * | 1 Pentafluorobenzene | 168 | 4.189 | 4.189 | (1.000) | 150132 | 50.0000 | |
| * | 36 1,4-Difluorobenzene | 114 | 4.970 | 4.970 | (1.000) | 319062 | 50.0000 | |
| * | 47 Chlorobenzene-d5 | 117 | 7.671 | 7.671 | (1.000) | 282514 | 50.0000 | |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 9.662 | 9.662 | (1.000) | 143769 | 50.0000 | |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 4.476 | 4.476 | (1.068) | 404360 | 150.000 | 150.41 |
| $ | 69 4-Bromofluorobenzene | 95 | 8.688 | 8.688 | (1.133) | 414999 | 150.000 | 152.40 |
| $ | 30 Dibromofluoromethane | 113 | 4.103 | 4.103 | (0.979) | 330895 | 150.000 | 163.65 |
| $ | 48 Toluene-d8 | 98 | 6.388 | 6.388 | (0.833) | 1195633 | 150.000 | 158.44 |
| | 60 1,1,1,2-Tetrachloroethane | 131 | 7.778 | 7.778 | (1.014) | 301933 | 150.000 | 149.80 |
| | 31 1,1,1-Trichloroethane | 97 | 4.089 | 4.089 | (0.976) | 518488 | 150.000 | 165.39 |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 8.838 | 8.838 | (0.915) | 340740 | 150.000 | 144.70 |
| | 138 Freon TF | 101 | 1.919 | 1.919 | (0.458) | 415420 | 150.000 | 151.55 |
| | 53 1,1,2-Trichloroethane | 83 | 6.840 | 6.840 | (0.892) | 249826 | 150.000 | 143.37 |
| | 22 1,1-Dichloroethane | 63 | 2.929 | 2.929 | (0.699) | 556629 | 150.000 | 154.24 |
| | 11 1,1-Dichloroethene | 96 | 1.919 | 1.919 | (0.458) | 416396 | 150.000 | 147.00 |
| | 32 1,1-Dichloropropene | 75 | 4.282 | 4.282 | (0.862) | 431507 | 150.000 | 145.02 |
| | 93 1,2,3-Trichlorobenzene | 180 | 11.746 | 11.746 | (1.216) | 92101 | 150.000 | 145.93 |
| | 71 1,2,3-Trichloropropane | 75 | 8.867 | 8.867 | (0.918) | 272838 | 150.000 | 135.15(MH) |
| | 90 1,2,4-Trichlorobenzene | 180 | 11.338 | 11.338 | (1.173) | 173285 | 150.000 | 146.56 |
| | 79 1,2,4-Trimethylbenzene | 105 | 9.382 | 9.382 | (0.971) | 1314841 | 150.000 | 163.48 |
| | 89 1,2-Dibromo-3-Chloropropane | 155 | 10.658 | 10.658 | (1.103) | 23770 | 150.000 | 149.59 |
| | 57 1,2-Dibromoethane | 107 | 7.262 | 7.262 | (0.947) | 322600 | 150.000 | 152.27 |

Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110310.D Page 2
Report Date: 13-Jan-2021 15:45

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 88 | 1,2-Dichlorobenzene | 146 | 9.999 | 9.999 | (1.035) | 619401 | 150.000 | 156.09 |
| 33 | 1,2-Dichloroethane | 62 | 4.562 | 4.562 | (0.918) | 479231 | 150.000 | 139.29 |
| 42 | 1,2-Dichloropropane | 63 | 5.443 | 5.443 | (1.095) | 320056 | 150.000 | 135.55 |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.067 | 9.067 | (0.938) | 1383111 | 150.000 | 168.61 |
| 83 | 1,3-Dichlorobenzene | 146 | 9.605 | 9.605 | (0.994) | 620803 | 150.000 | 147.33 |
| 54 | 1,3-Dichloropropane | 76 | 6.983 | 6.983 | (0.910) | 492173 | 150.000 | 142.19 |
| 84 | 1,4-Dichlorobenzene | 146 | 9.683 | 9.683 | (1.002) | 636039 | 150.000 | 144.96 |
| 26 | 2,2-Dichloropropane | 77 | 3.516 | 3.516 | (0.839) | 489417 | 150.000 | 157.54 |
| 24 | 2-Butanone | 43 | 3.580 | 3.580 | (0.855) | 204319 | 300.000 | 292.75(A) |
| 76 | 2-Chlorotoluene | 91 | 8.974 | 8.974 | (0.929) | 988749 | 150.000 | 146.42 |
| 52 | 2-Hexanone | 43 | 7.212 | 7.212 | (0.940) | 562101 | 300.000 | 287.18(A) |
| 77 | 4-Chlorotoluene | 91 | 9.074 | 9.074 | (0.939) | 1372134 | 150.000 | 160.88 |
| 82 | p-Isopropyltoluene | 119 | 9.655 | 9.655 | (0.999) | 1303709 | 150.000 | 167.89 |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.324 | 6.324 | (0.824) | 639972 | 300.000 | 298.18(A) |
| 10 | Acetone | 43 | 1.976 | 1.976 | (0.472) | 230937 | 300.000 | 295.31(A) |
| 37 | Benzene | 78 | 4.519 | 4.519 | (0.909) | 1252502 | 150.000 | 140.54 |
| 74 | Bromobenzene | 156 | 8.809 | 8.809 | (0.912) | 362503 | 150.000 | 143.29 |
| 29 | Bromochloromethane | 128 | 3.802 | 3.802 | (0.908) | 168011 | 150.000 | 162.48 |
| 39 | Bromodichloromethane | 83 | 5.729 | 5.729 | (1.153) | 475050 | 150.000 | 144.91 |
| 66 | Bromoform | 173 | 8.415 | 8.415 | (1.097) | 217258 | 150.000 | 148.55 |
| 6 | Bromomethane | 94 | 1.338 | 1.338 | (0.320) | 477085 | 150.000 | 170.75 |
| 19 | Carbon Disulfide | 76 | 2.069 | 2.069 | (0.494) | 1680223 | 300.000 | 319.22(A) |
| 34 | Carbon Tetrachloride | 117 | 4.268 | 4.268 | (0.859) | 427361 | 150.000 | 149.59 |
| 59 | Chlorobenzene | 112 | 7.699 | 7.699 | (1.004) | 924659 | 150.000 | 153.15 |
| 7 | Chloroethane | 64 | 1.403 | 1.403 | (0.335) | 335181 | 150.000 | 141.69 |
| 28 | Chloroform | 83 | 3.910 | 3.910 | (0.933) | 584502 | 150.000 | 152.15 |
| 3 | Chloromethane | 50 | 1.081 | 1.081 | (0.258) | 339041 | 150.000 | 157.54 |
| 27 | cis-1,2-Dichloroethene | 96 | 3.530 | 3.530 | (0.843) | 341602 | 150.000 | 155.15 |
| 46 | cis-1,3-Dichloropropene | 75 | 6.159 | 6.159 | (1.239) | 537727 | 150.000 | 151.06 |
| 55 | Dibromochloromethane | 129 | 7.176 | 7.176 | (0.936) | 338578 | 150.000 | 162.16 |
| 44 | Dibromomethane | 93 | 5.557 | 5.557 | (1.118) | 234844 | 150.000 | 145.60 |
| 2 | Dichlorodifluoromethane | 85 | 0.973 | 0.973 | (0.232) | 319814 | 150.000 | 164.50 |
| 61 | Ethylbenzene | 106 | 7.799 | 7.799 | (1.017) | 492161 | 150.000 | 160.68(H) |
| 91 | Hexachlorobutadiene | 225 | 11.481 | 11.481 | (1.188) | 115884 | 150.000 | 145.43 |
| 67 | Isopropylbenzene | 105 | 8.566 | 8.566 | (1.117) | 1491458 | 150.000 | 153.66 |
| 62 | m,p-Xylenes | 106 | 7.907 | 7.907 | (1.031) | 1345040 | 300.000 | 366.62(A) |
| 17 | Methylene Chloride | 84 | 2.305 | 2.305 | (0.550) | 313960 | 150.000 | 152.31 |
| 87 | n-Butylbenzene | 91 | 9.999 | 9.999 | (1.035) | 1360339 | 150.000 | 148.14 |
| 73 | n-Propylbenzene | 91 | 8.917 | 8.917 | (0.923) | 1822963 | 150.000 | 159.27 |
| 92 | Naphthalene | 128 | 11.546 | 11.546 | (1.195) | 248976 | 150.000 | 146.19 |
| 63 | o-Xylene | 106 | 8.244 | 8.244 | (1.075) | 631024 | 150.000 | 172.59 |
| 81 | sec-Butylbenzene | 105 | 9.526 | 9.526 | (0.986) | 1526507 | 150.000 | 149.33 |
| 64 | Styrene | 104 | 8.258 | 8.258 | (1.077) | 1142057 | 150.000 | 186.28 |
| 78 | tert-Butylbenzene | 119 | 9.340 | 9.340 | (0.967) | 1005736 | 150.000 | 148.44 |
| 56 | Tetrachloroethene | 164 | 6.933 | 6.933 | (0.904) | 242642 | 150.000 | 156.01 |
| 50 | Toluene | 91 | 6.453 | 6.453 | (0.841) | 1511616 | 150.000 | 146.20 |
| 20 | trans-1,2-Dichloroethene | 96 | 2.535 | 2.535 | (0.605) | 310203 | 150.000 | 165.84 |
| 51 | trans-1,3-Dichloropropene | 75 | 6.682 | 6.682 | (1.344) | 487450 | 150.000 | 155.22 |
| 38 | Trichloroethene | 130 | 5.206 | 5.206 | (1.048) | 305351 | 150.000 | 143.61 |
| 8 | Trichlorofluoromethane | 101 | 1.560 | 1.560 | (0.373) | 832871 | 150.000 | 147.19 |
| 5 | Vinyl Chloride | 62 | 1.145 | 1.145 | (0.273) | 494633 | 150.000 | 149.10 |

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.

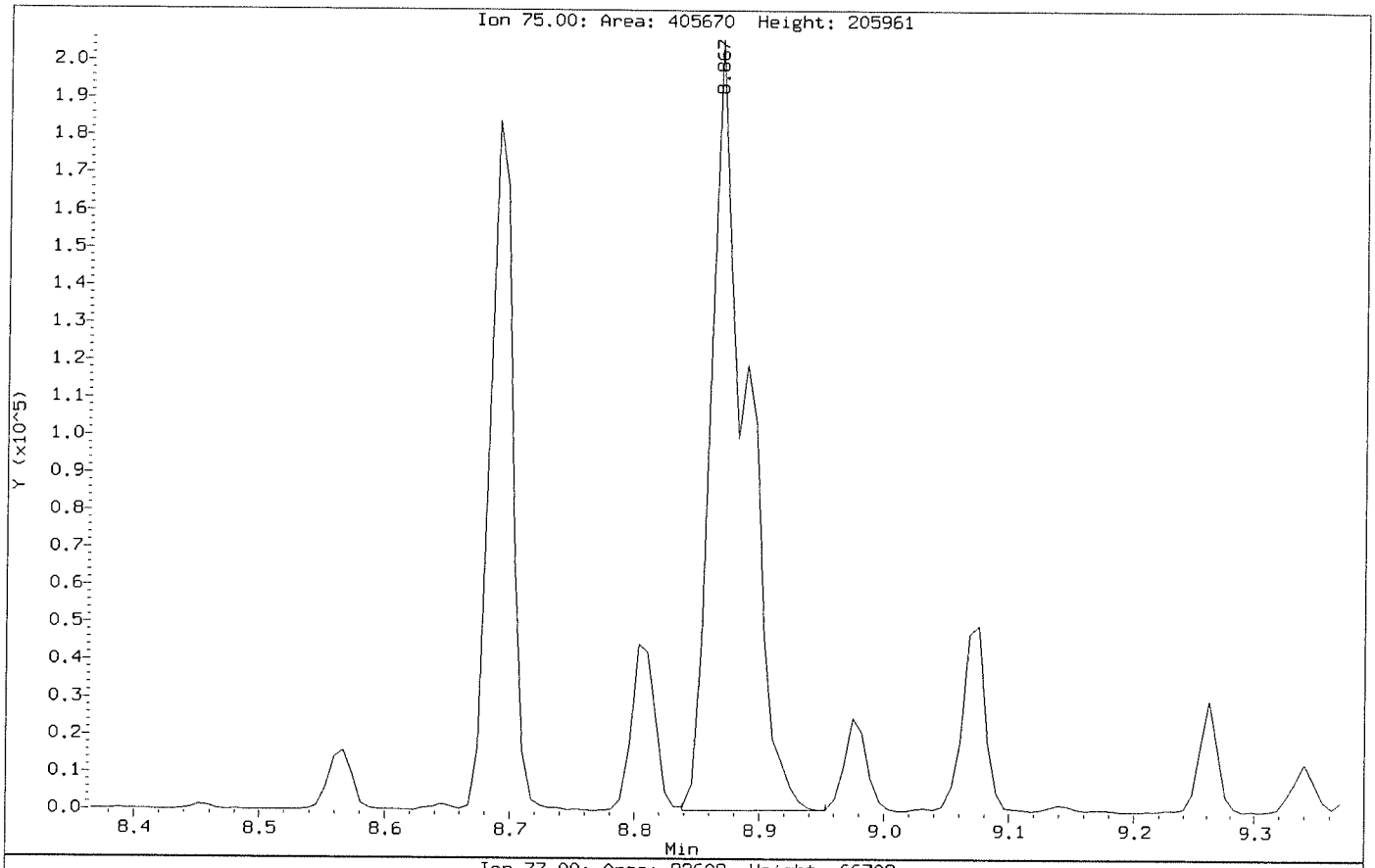


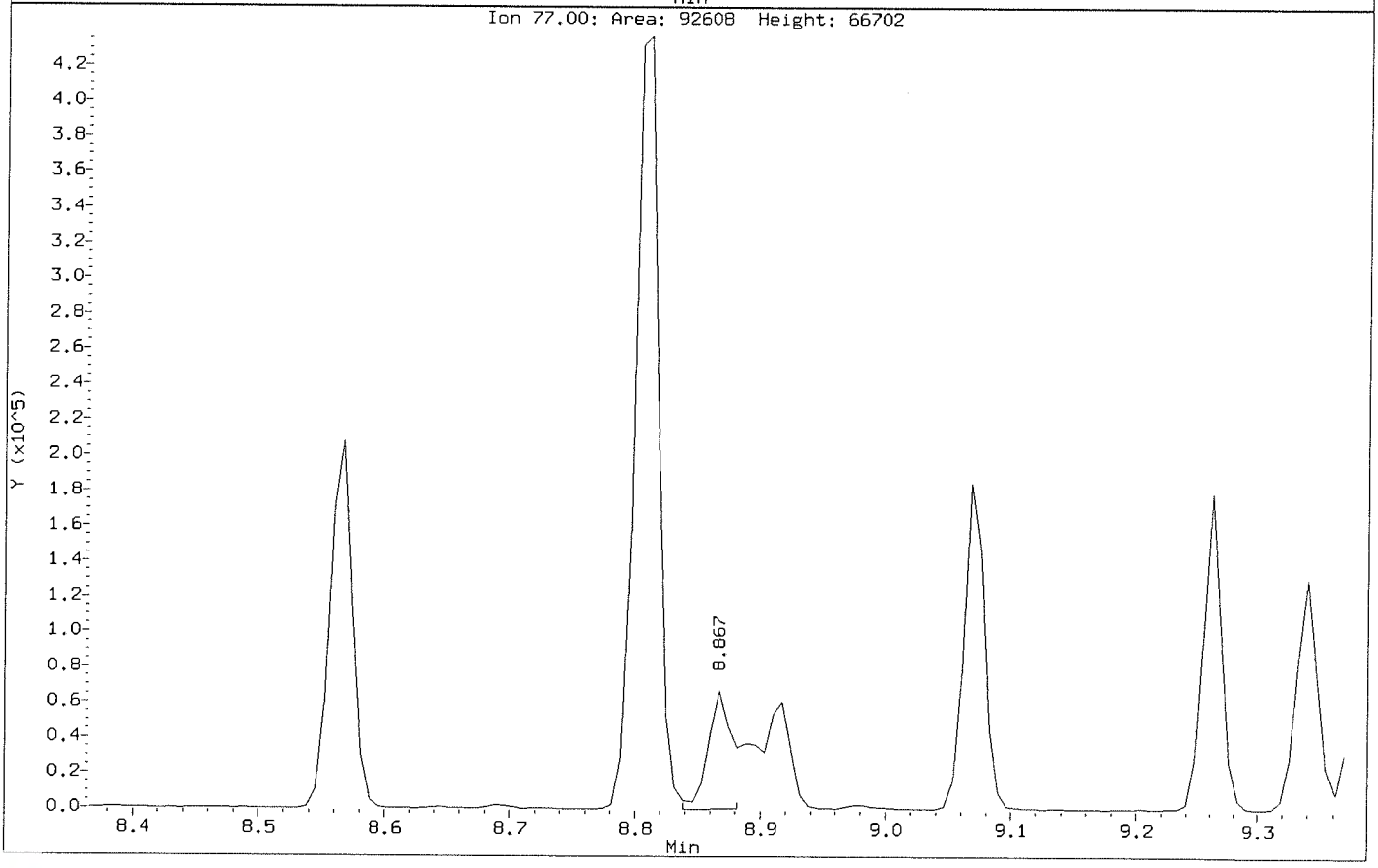

Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110310.D
Date : 03-NOV-2020 15:09
Client ID: VSTD150
Sample Info: VSTD150;VSTD150;1;9;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110310.D
Injection Date: 03-NOV-2020 15:09
Instrument: voa6.i
Client Sample ID: VSTD150

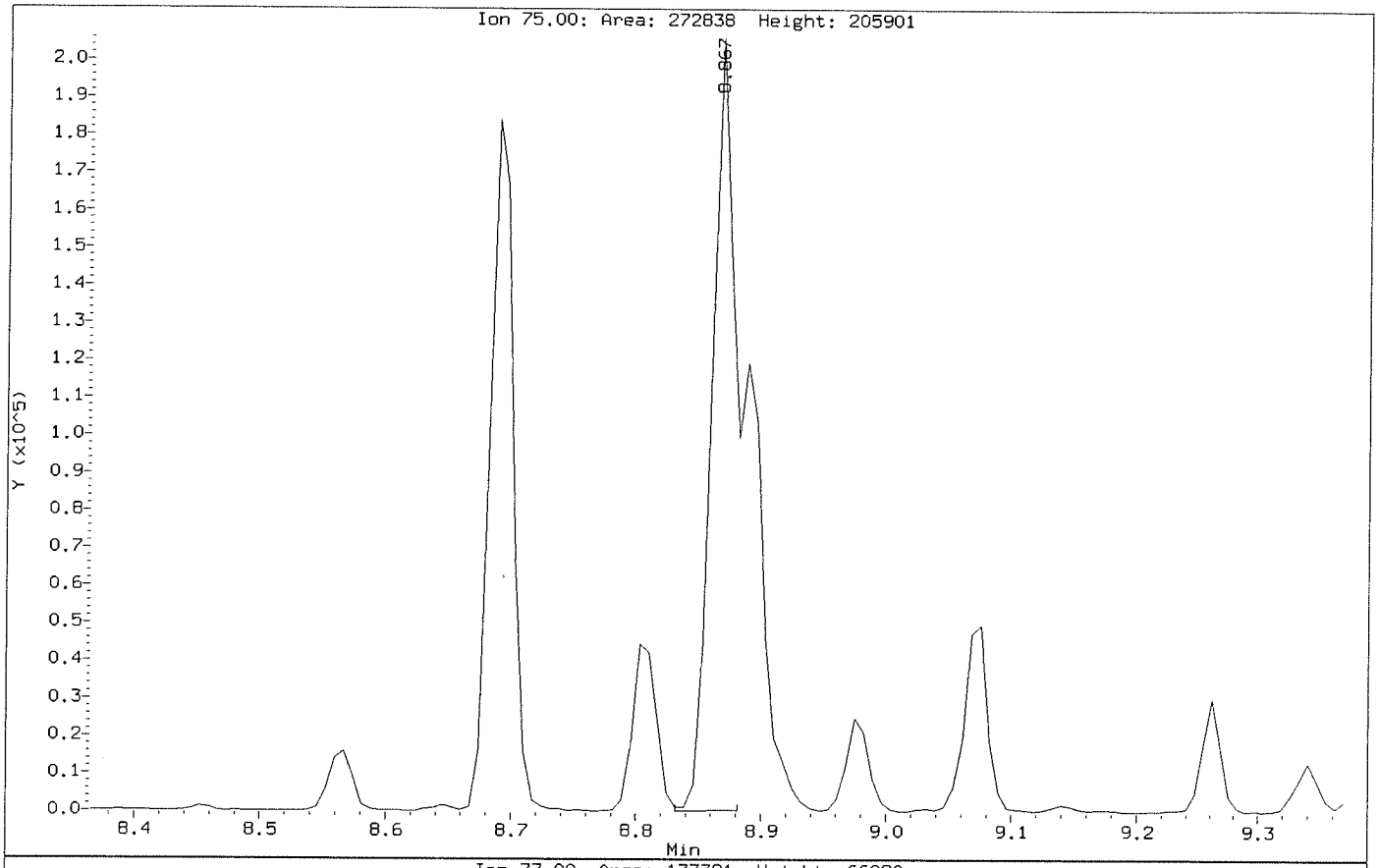
Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4

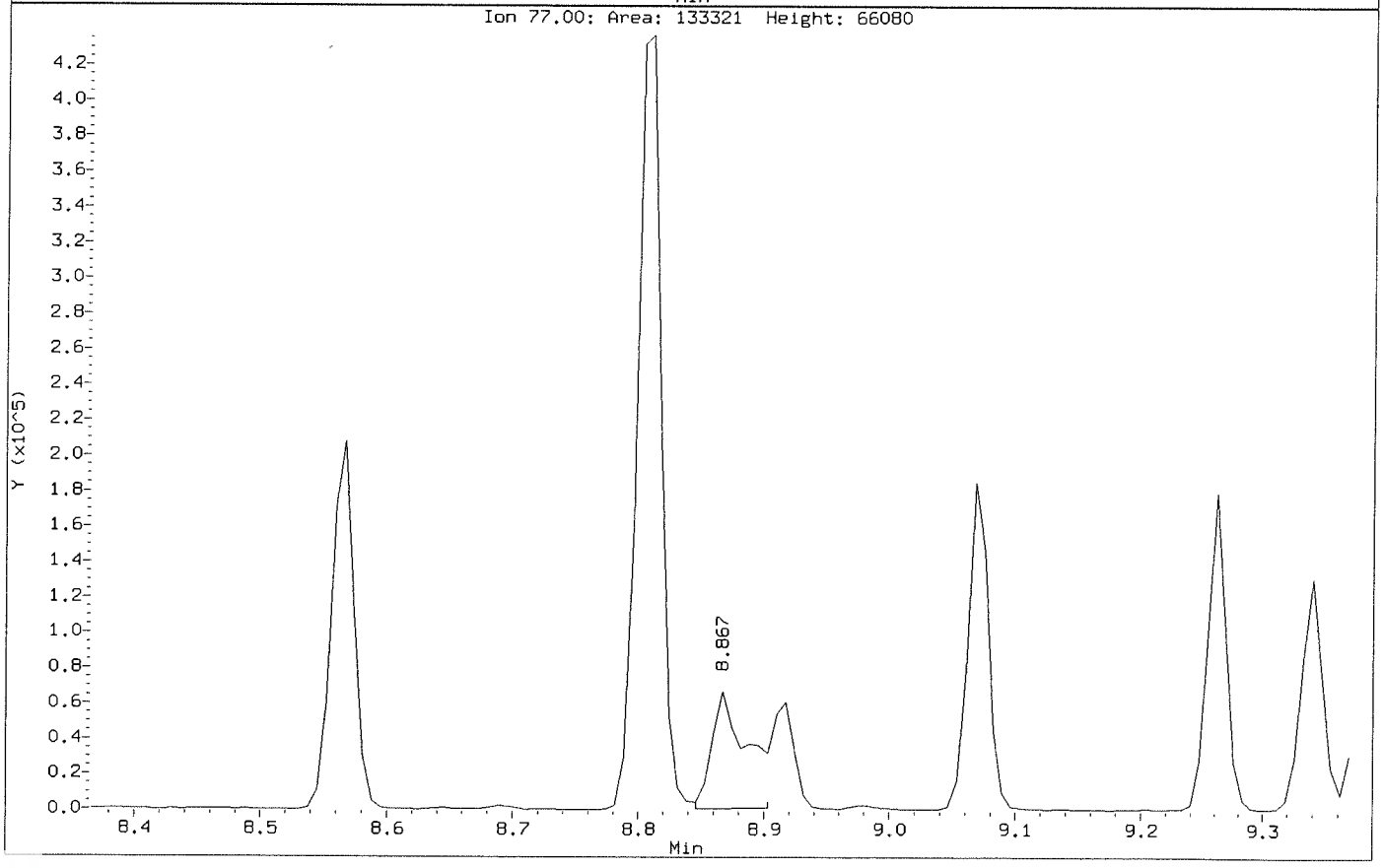


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110310.D
Injection Date: 03-NOV-2020 15:09
Instrument: voa6.i
Client Sample ID: VSTD150

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110311.D  Page 1
Report Date: 13-Jan-2021 15:45

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201103.b\X110311.D
Lab Smp Id: VSTD200  Client Smp ID: VSTD200
Inj Date : 03-NOV-2020 15:30
Operator : PC  Inst ID: voa6.i
Smp Info : VSTD200;VSTD200;1;10;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201103.b\8260W.m
Meth Date : 13-Jan-2021 15:45 voa6.i  Quant Type: ISTD
Cal Date : 03-NOV-2020 15:09  Cal File: X110310.D
Als bottle: 12  Calibration Sample, Level: 10
Dil Factor: 1.00000
Integrator: HP RTE  Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

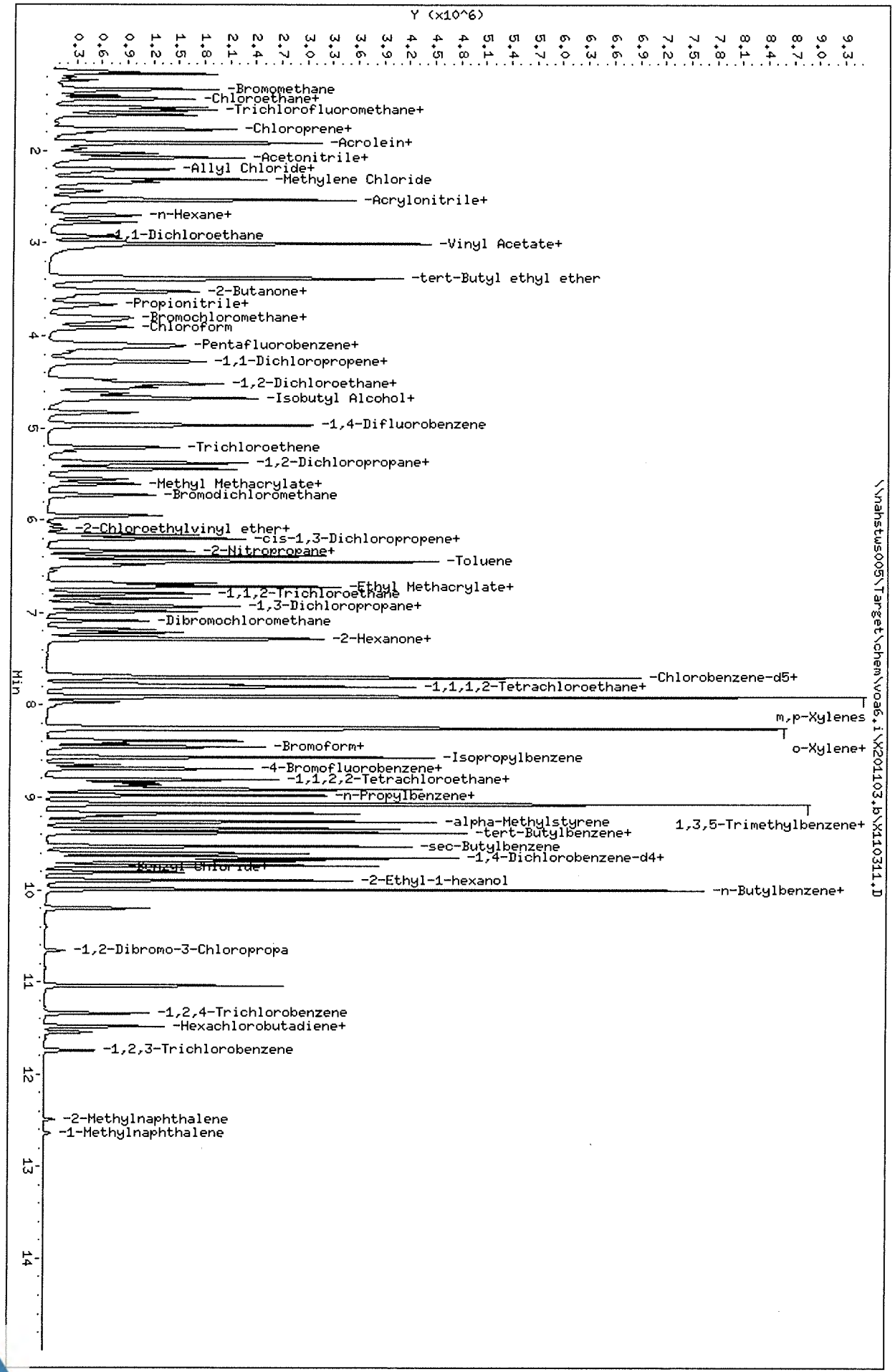
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.182 | 4.182 | (1.000) | 153801 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 4.970 | 4.970 | (1.000) | 324078 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 7.671 | 7.671 | (1.000) | 282227 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 9.669 | 9.669 | (1.000) | 147588 | 50.0000 | |
| $ 35 1,2-Dichloroethane-d4 | 65 | 4.476 | 4.476 | (1.070) | 536735 | 200.000 | 183.85 |
| $ 69 4-Bromofluorobenzene | 95 | 8.695 | 8.695 | (1.134) | 565367 | 200.000 | 198.95 |
| $ 30 Dibromofluoromethane | 113 | 4.103 | 4.103 | (0.981) | 430753 | 200.000 | 207.96(A) |
| $ 48 Toluene-d8 | 98 | 6.388 | 6.388 | (0.833) | 1620124 | 200.000 | 214.91(A) |
| 60 1,1,1,2-Tetrachloroethane | 131 | 7.778 | 7.778 | (1.014) | 435351 | 200.000 | 216.22(A) |
| 31 1,1,1-Trichloroethane | 97 | 4.089 | 4.089 | (0.978) | 698978 | 200.000 | 217.65(A) |
| 68 1,1,2,2-Tetrachloroethane | 83 | 8.845 | 8.845 | (0.915) | 491582 | 200.000 | 203.60(A) |
| 138 Freon TF | 101 | 1.919 | 1.919 | (0.459) | 562639 | 200.000 | 200.37(A) |
| 53 1,1,2-Trichloroethane | 83 | 6.840 | 6.840 | (0.892) | 354012 | 200.000 | 203.37(A) |
| 22 1,1-Dichloroethane | 63 | 2.929 | 2.929 | (0.700) | 791619 | 200.000 | 214.12(A) |
| 11 1,1-Dichloroethene | 96 | 1.911 | 1.911 | (0.457) | 570411 | 200.000 | 196.57 |
| 32 1,1-Dichloropropene | 75 | 4.282 | 4.282 | (0.862) | 562003 | 200.000 | 185.96 |
| 93 1,2,3-Trichlorobenzene | 180 | 11.746 | 11.746 | (1.215) | 134528 | 200.000 | 206.89(A) |
| 71 1,2,3-Trichloropropane | 75 | 8.867 | 8.867 | (0.917) | 393201 | 200.000 | 189.73(MH) |
| 90 1,2,4-Trichlorobenzene | 180 | 11.338 | 11.338 | (1.173) | 250652 | 200.000 | 205.79(A) |
| 79 1,2,4-Trimethylbenzene | 105 | 9.382 | 9.382 | (0.970) | 1854516 | 200.000 | 224.61(A) |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 10.658 | 10.658 | (1.102) | 32792 | 200.000 | 201.15(A) |
| 57 1,2-Dibromoethane | 107 | 7.262 | 7.262 | (0.947) | 452244 | 200.000 | 213.68(A) |

Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110311.D Page 2
Report Date: 13-Jan-2021 15:45

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 88 | 1,2-Dichlorobenzene | 146 | 9.999 | 9.999 | (1.034) | 897799 | 200.000 | 220.40(A) |
| 33 | 1,2-Dichloroethane | 62 | 4.562 | 4.562 | (0.918) | 635677 | 200.000 | 181.91 |
| 42 | 1,2-Dichloropropane | 63 | 5.443 | 5.443 | (1.095) | 440352 | 200.000 | 183.61 |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.067 | 9.067 | (0.938) | 1956104 | 200.000 | 232.29(A) |
| 83 | 1,3-Dichlorobenzene | 146 | 9.605 | 9.605 | (0.993) | 883985 | 200.000 | 204.36(A) |
| 54 | 1,3-Dichloropropane | 76 | 6.983 | 6.983 | (0.910) | 680537 | 200.000 | 196.80 |
| 84 | 1,4-Dichlorobenzene | 146 | 9.683 | 9.683 | (1.001) | 899010 | 200.000 | 199.60 |
| 26 | 2,2-Dichloropropane | 77 | 3.516 | 3.516 | (0.841) | 655554 | 200.000 | 205.99(A) |
| 24 | 2-Butanone | 43 | 3.580 | 3.580 | (0.856) | 306733 | 400.000 | 429.01(A) |
| 76 | 2-Chlorotoluene | 91 | 8.981 | 8.981 | (0.929) | 1395914 | 200.000 | 201.37(A) |
| 52 | 2-Hexanone | 43 | 7.212 | 7.212 | (0.940) | 809663 | 400.000 | 412.44(A) |
| 77 | 4-Chlorotoluene | 91 | 9.074 | 9.074 | (0.939) | 1953690 | 200.000 | 223.14(A) |
| 82 | p-Isopropyltoluene | 119 | 9.655 | 9.655 | (0.999) | 1839403 | 200.000 | 230.74(A) |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.331 | 6.331 | (0.825) | 903306 | 400.000 | 421.30(A) |
| 10 | Acetone | 43 | 1.976 | 1.976 | (0.473) | 315772 | 400.000 | 397.09(A) |
| 37 | Benzene | 78 | 4.519 | 4.519 | (0.909) | 1684144 | 200.000 | 186.04 |
| 74 | Bromobenzene | 156 | 8.809 | 8.809 | (0.911) | 501355 | 200.000 | 193.05 |
| 29 | Bromochloromethane | 128 | 3.795 | 3.795 | (0.908) | 231325 | 200.000 | 218.38(A) |
| 39 | Bromodichloromethane | 83 | 5.729 | 5.729 | (1.153) | 636151 | 200.000 | 191.05 |
| 66 | Bromoform | 173 | 8.415 | 8.415 | (1.097) | 300900 | 200.000 | 204.75(A) |
| 6 | Bromomethane | 94 | 1.331 | 1.331 | (0.318) | 753213 | 200.000 | 263.15(A) |
| 19 | Carbon Disulfide | 76 | 2.069 | 2.069 | (0.495) | 2350223 | 400.000 | 435.86(A) |
| 34 | Carbon Tetrachloride | 117 | 4.268 | 4.268 | (0.859) | 579212 | 200.000 | 199.61 |
| 59 | Chlorobenzene | 112 | 7.699 | 7.699 | (1.004) | 1336955 | 200.000 | 221.66(A) |
| 7 | Chloroethane | 64 | 1.403 | 1.403 | (0.336) | 478401 | 200.000 | 197.41 |
| 28 | Chloroform | 83 | 3.910 | 3.910 | (0.935) | 800151 | 200.000 | 203.31(A) |
| 3 | Chloromethane | 50 | 1.073 | 1.073 | (0.257) | 432608 | 200.000 | 196.00 |
| 27 | cis-1,2-Dichloroethene | 96 | 3.530 | 3.530 | (0.844) | 464614 | 200.000 | 205.99(A) |
| 46 | cis-1,3-Dichloropropene | 75 | 6.159 | 6.159 | (1.239) | 709251 | 200.000 | 196.17 |
| 55 | Dibromochloromethane | 129 | 7.176 | 7.176 | (0.936) | 460180 | 200.000 | 220.62(A) |
| 44 | Dibromomethane | 93 | 5.557 | 5.557 | (1.118) | 317833 | 200.000 | 194.00 |
| 2 | Dichlorodifluoromethane | 85 | 0.973 | 0.973 | (0.233) | 431478 | 200.000 | 216.64(A) |
| 61 | Ethylbenzene | 106 | 7.799 | 7.799 | (1.017) | 675926 | 200.000 | 220.90(AH) |
| 91 | Hexachlorobutadiene | 225 | 11.481 | 11.481 | (1.187) | 168470 | 200.000 | 204.98(A) |
| 67 | Isopropylbenzene | 105 | 8.566 | 8.566 | (1.117) | 2146900 | 200.000 | 220.27(A) |
| 62 | m,p-Xylenes | 106 | 7.907 | 7.907 | (1.031) | 1885210 | 400.000 | 514.38(A) |
| 17 | Methylene Chloride | 84 | 2.305 | 2.305 | (0.551) | 433637 | 200.000 | 205.35(A) |
| 87 | n-Butylbenzene | 91 | 9.999 | 9.999 | (1.034) | 1951034 | 200.000 | 205.54(A) |
| 73 | n-Propylbenzene | 91 | 8.917 | 8.917 | (0.922) | 2540670 | 200.000 | 216.23(A) |
| 92 | Naphthalene | 128 | 11.546 | 11.546 | (1.194) | 363990 | 200.000 | 207.28(A) |
| 63 | o-Xylene | 106 | 8.244 | 8.244 | (1.075) | 890342 | 200.000 | 243.77(A) |
| 81 | sec-Butylbenzene | 105 | 9.526 | 9.526 | (0.985) | 2142350 | 200.000 | 203.19(A) |
| 64 | Styrene | 104 | 8.258 | 8.258 | (1.077) | 1649175 | 200.000 | 269.28(A) |
| 78 | tert-Butylbenzene | 119 | 9.340 | 9.340 | (0.966) | 1422110 | 200.000 | 203.53(A) |
| 56 | Tetrachloroethene | 164 | 6.933 | 6.933 | (0.904) | 340454 | 200.000 | 219.12(A) |
| 50 | Toluene | 91 | 6.446 | 6.446 | (0.840) | 2127434 | 200.000 | 205.97(A) |
| 20 | trans-1,2-Dichloroethene | 96 | 2.527 | 2.527 | (0.604) | 437555 | 200.000 | 228.35(A) |
| 51 | trans-1,3-Dichloropropene | 75 | 6.682 | 6.682 | (1.344) | 688730 | 200.000 | 215.92(A) |
| 38 | Trichloroethene | 130 | 5.206 | 5.206 | (1.048) | 414564 | 200.000 | 191.95 |
| 8 | Trichlorofluoromethane | 101 | 1.560 | 1.560 | (0.373) | 1151502 | 200.000 | 198.65 |
| 5 | Vinyl Chloride | 62 | 1.145 | 1.145 | (0.274) | 681916 | 200.000 | 200.66(A) |

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.

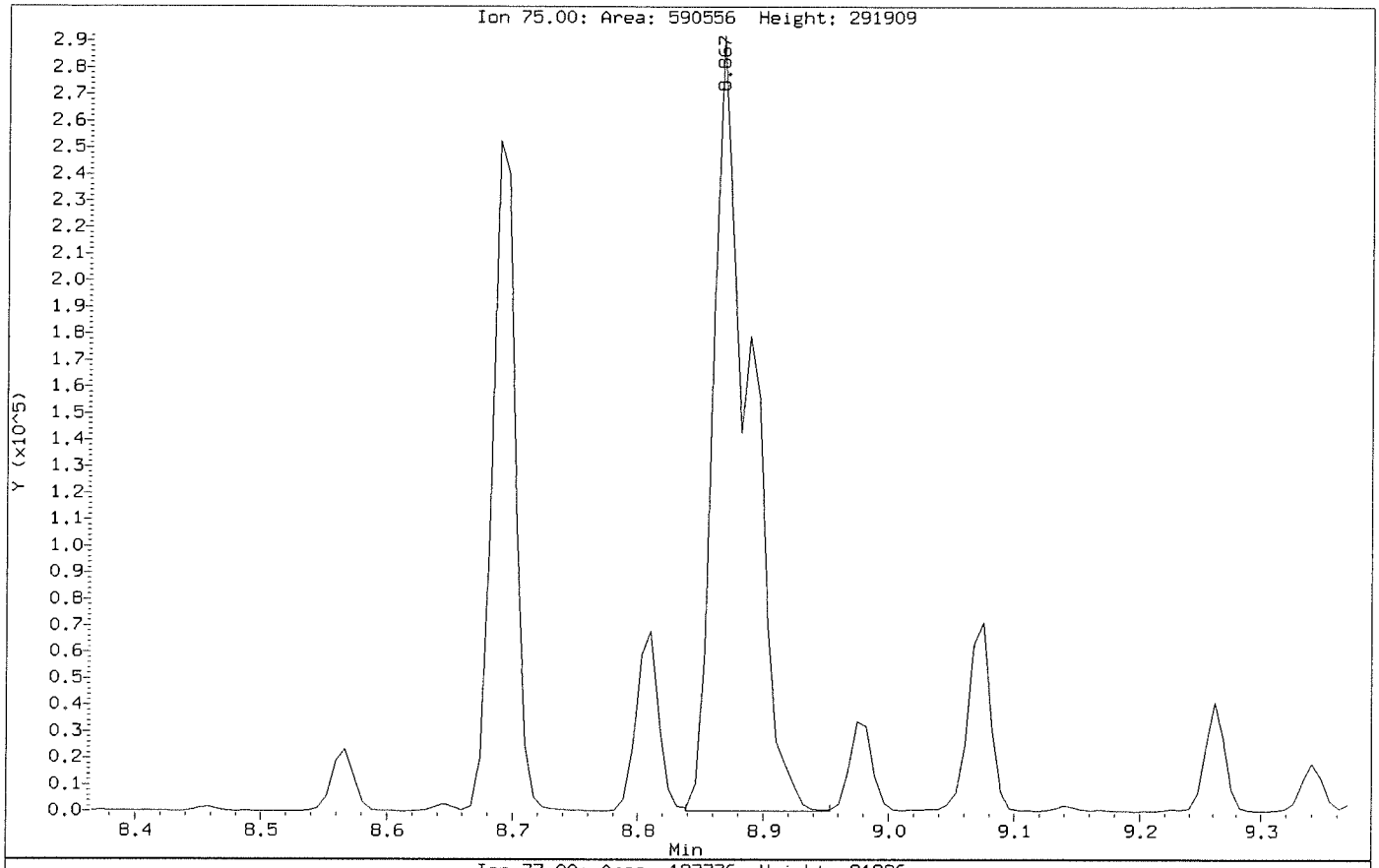


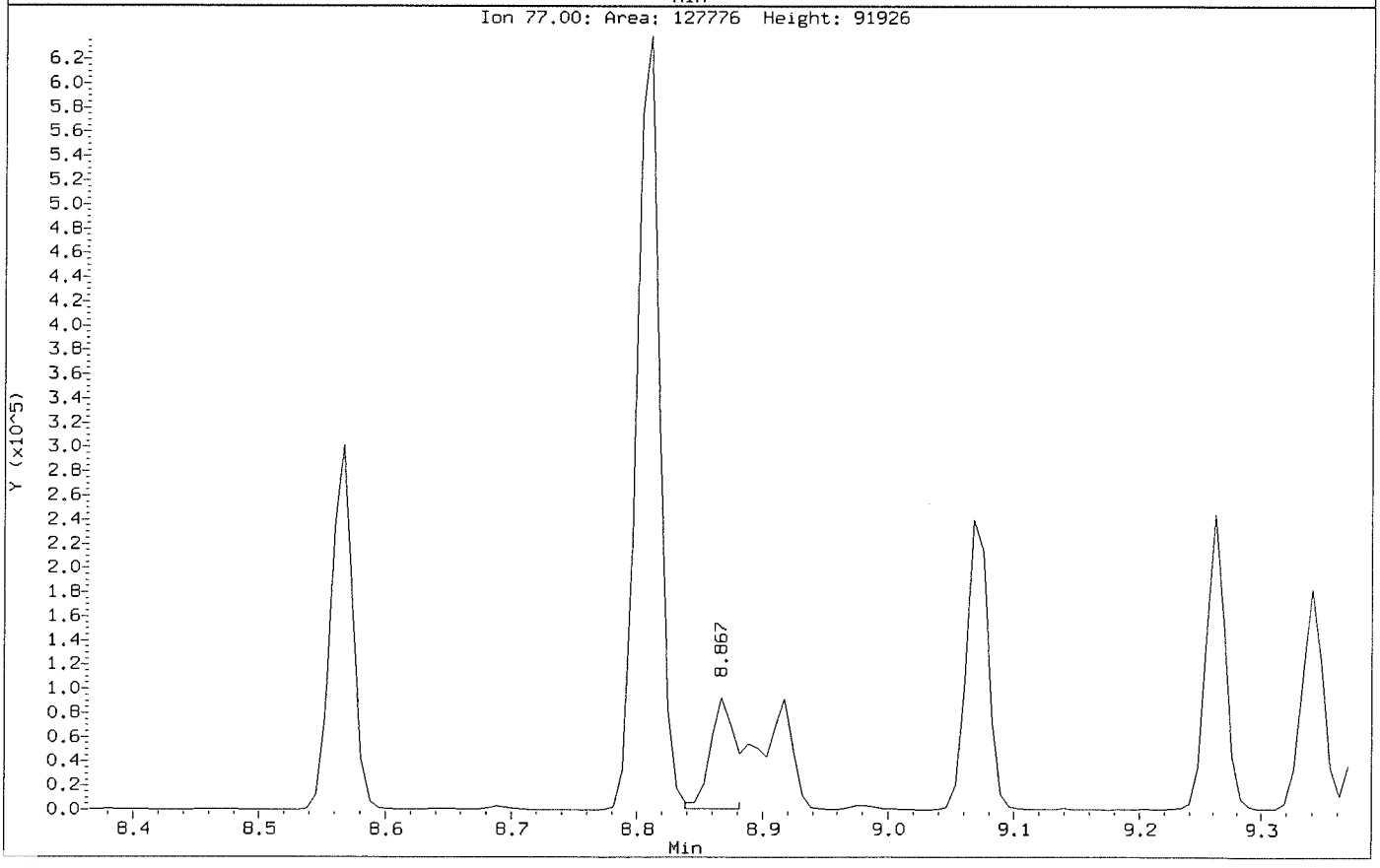

Data File: \\nahstws005\Target\chem\voa6,i\X201103,b\X110311,D
Date : 03-NOV-2020 15:30
Client ID: VSTD200
Sample Info: VSTD200;VSTD200;1;10;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6,i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110311.D
Injection Date: 03-NOV-2020 15:30
Instrument: voa6.i
Client Sample ID: VSTD200

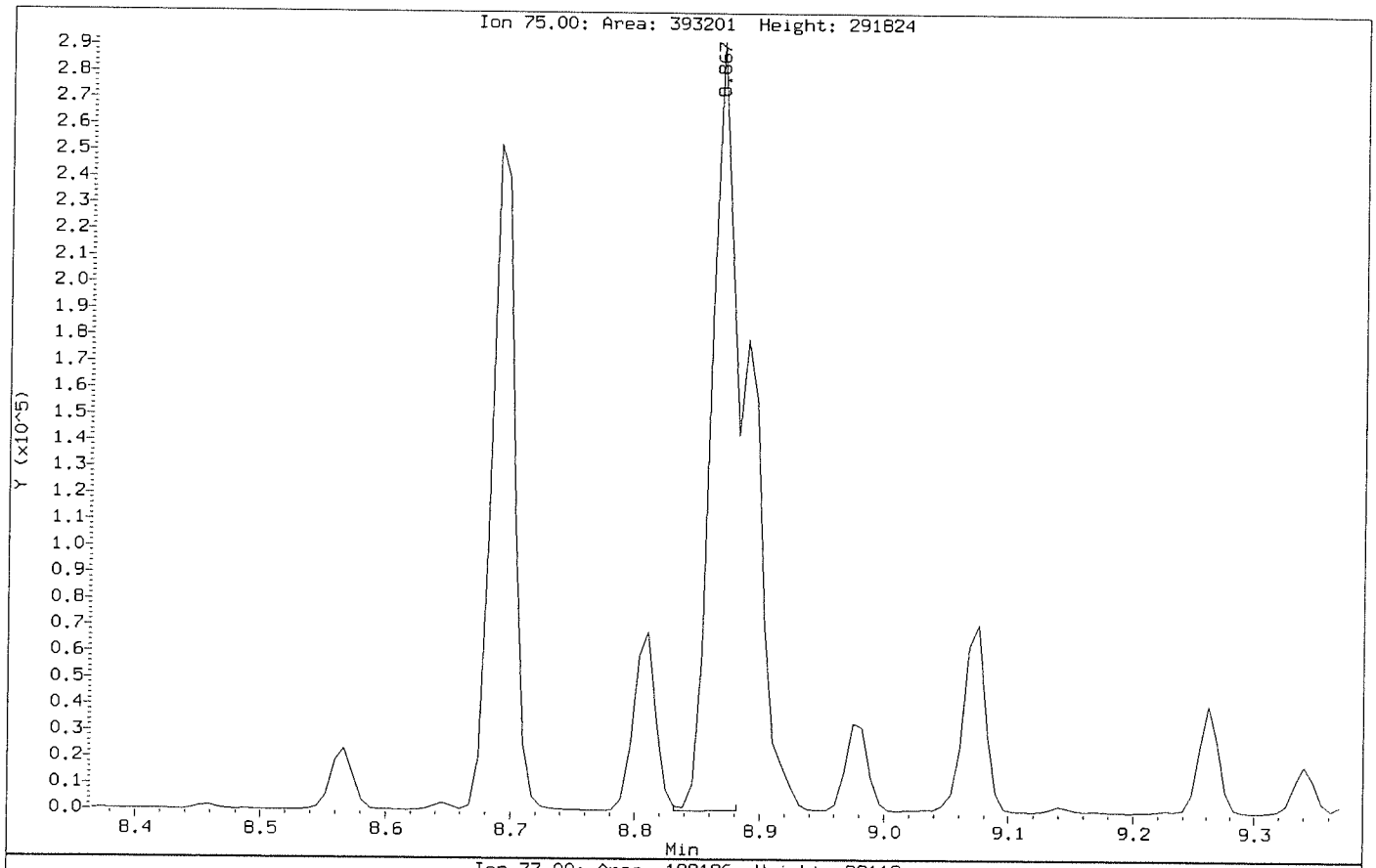
Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4

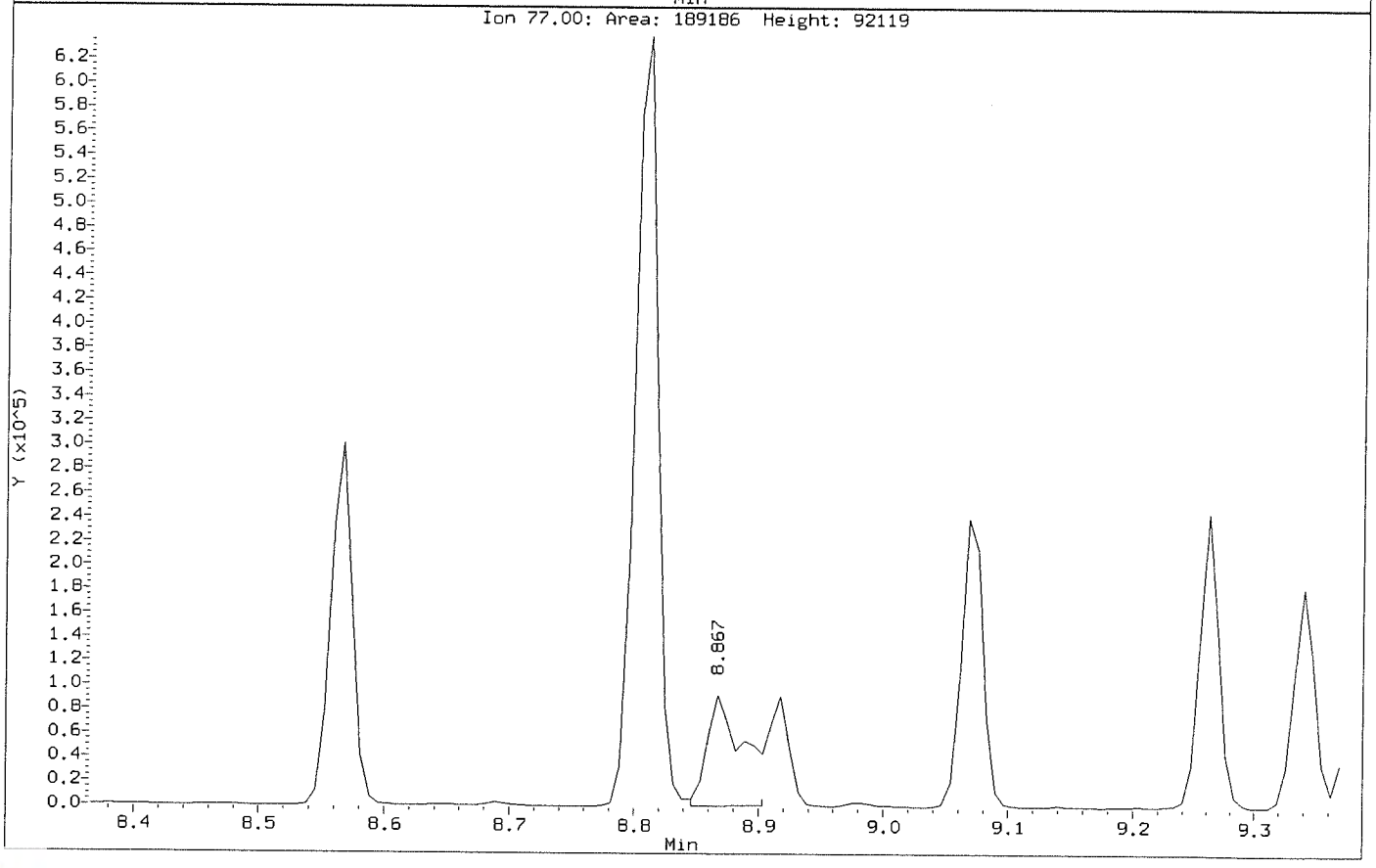


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110311.D
Injection Date: 03-NOV-2020 15:30
Instrument: voa6.i
Client Sample ID: VSTD200

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110314.D Page 1
Report Date: 13-Jan-2021 15:45

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201103.b\X110314.D
Lab Smp Id: ICV Client Smp ID: ICV
Inj Date : 03-NOV-2020 16:33
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;;ICV
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201103.b\8260W.m
Meth Date : 13-Jan-2021 15:45 voa6.i Quant Type: ISTD
Cal Date : 03-NOV-2020 15:30 Cal File: X110311.D
Als bottle: 15 QC Sample: METHSPIKE
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

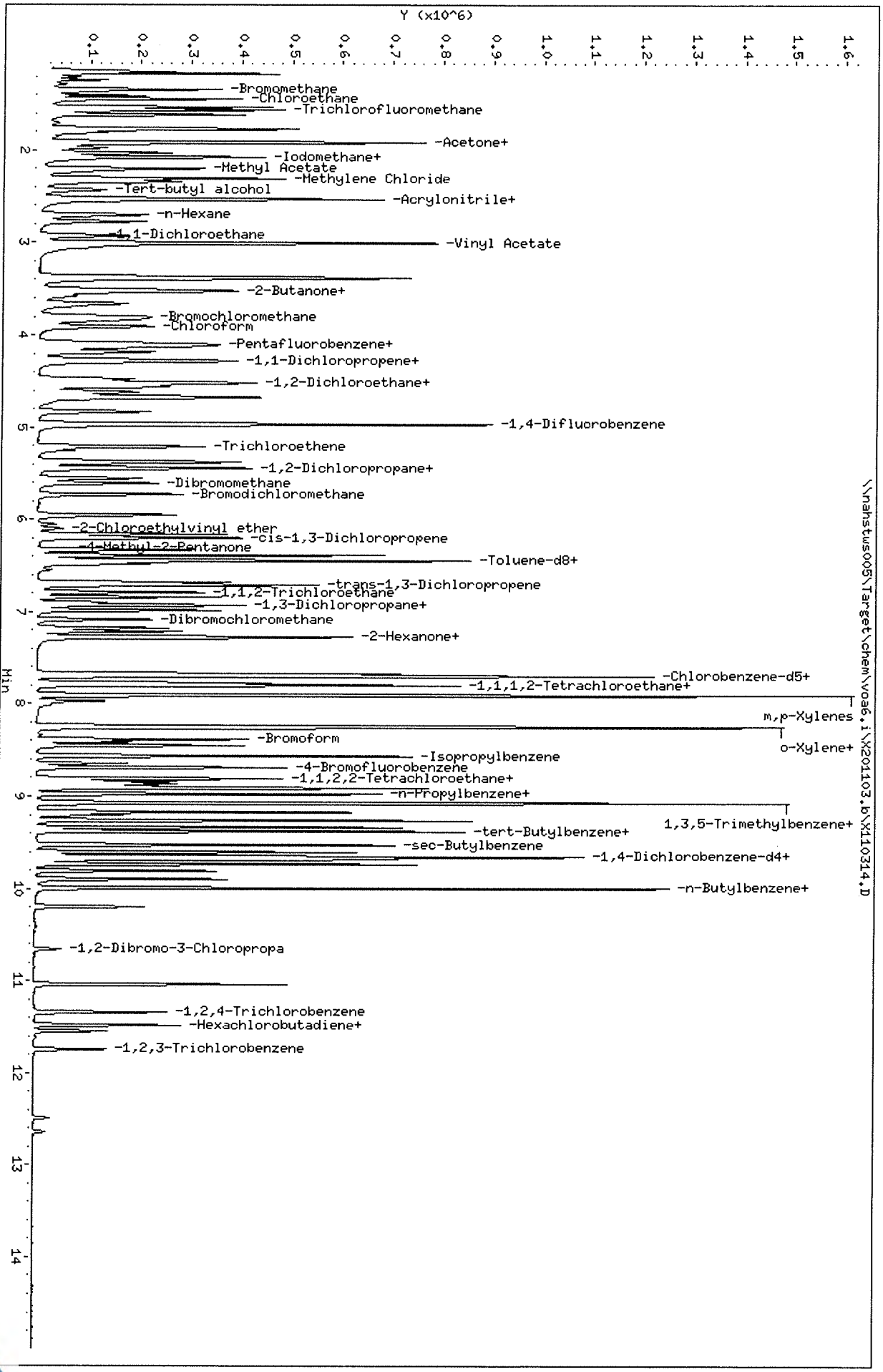
| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.182 | 4.182 | (1.000) | 154701 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 4.970 | 4.970 | (1.000) | 284123 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 7.671 | 7.671 | (1.000) | 261104 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 9.662 | 9.669 | (1.000) | 123192 | 50.0000 | |
| $ 35 1,2-Dichloroethane-d4 | 65 | 4.476 | 4.476 | (1.070) | 128673 | 52.3463 | 52.34 |
| $ 69 4-Bromofluorobenzene | 95 | 8.688 | 8.695 | (1.133) | 117116 | 50.4974 | 50.49 |
| $ 30 Dibromofluoromethane | 113 | 4.103 | 4.103 | (0.981) | 103020 | 49.4485 | 49.44 |
| $ 48 Toluene-d8 | 98 | 6.388 | 6.388 | (0.833) | 340698 | 48.8520 | 48.85 |
| 60 1,1,1,2-Tetrachloroethane | 131 | 7.778 | 7.778 | (1.014) | 87560 | 47.0058 | 47.00 |
| 31 1,1,1-Trichloroethane | 97 | 4.089 | 4.089 | (0.978) | 153859 | 47.6321 | 47.63 |
| 68 1,1,2,2-Tetrachloroethane | 83 | 8.838 | 8.845 | (0.915) | 99567 | 48.9587 | 48.95 |
| 138 Freon TF | 101 | 1.919 | 1.919 | (0.459) | 128213 | 45.3944 | 45.39 |
| 53 1,1,2-Trichloroethane | 83 | 6.840 | 6.840 | (0.892) | 76458 | 47.4763 | 47.47 |
| 22 1,1-Dichloroethane | 63 | 2.929 | 2.929 | (0.700) | 176813 | 47.5489 | 47.54 |
| 11 1,1-Dichloroethene | 96 | 1.919 | 1.911 | (0.459) | 137684 | 47.1720 | 47.17 |
| 32 1,1-Dichloropropene | 75 | 4.282 | 4.282 | (0.862) | 126039 | 47.5697 | 47.56 |
| 93 1,2,3-Trichlorobenzene | 180 | 11.746 | 11.746 | (1.216) | 31726 | 59.7255 | 59.72(M) |
| 71 1,2,3-Trichloropropane | 75 | 8.867 | 8.867 | (0.918) | 84889 | 49.0737 | 49.07(M) |
| 90 1,2,4-Trichlorobenzene | 180 | 11.338 | 11.338 | (1.173) | 55200 | 55.5932 | 55.59 |
| 79 1,2,4-Trimethylbenzene | 105 | 9.383 | 9.382 | (0.971) | 340152 | 49.3574 | 49.35 |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 10.658 | 10.658 | (1.103) | 7526 | 55.0628 | 55.06 |
| 57 1,2-Dibromoethane | 107 | 7.262 | 7.262 | (0.947) | 93628 | 47.8174 | 47.81 |

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 88 | 1,2-Dichlorobenzene | 146 | 9.991 | 9.999 | (1.034) | 163807 | 48.1775 | 48.17 |
| 33 | 1,2-Dichloroethane | 62 | 4.562 | 4.562 | (0.918) | 149514 | 48.8037 | 48.80 |
| 42 | 1,2-Dichloropropane | 63 | 5.436 | 5.443 | (1.094) | 96091 | 45.7013 | 45.70 |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.067 | 9.067 | (0.938) | 334521 | 47.5924 | 47.59 |
| 83 | 1,3-Dichlorobenzene | 146 | 9.605 | 9.605 | (0.994) | 171676 | 47.5497 | 47.54 |
| 54 | 1,3-Dichloropropane | 76 | 6.983 | 6.983 | (0.910) | 147318 | 46.0505 | 46.05 |
| 84 | 1,4-Dichlorobenzene | 146 | 9.683 | 9.683 | (1.002) | 181795 | 48.3556 | 48.35 |
| 26 | 2,2-Dichloropropane | 77 | 3.516 | 3.516 | (0.841) | 153887 | 48.0748 | 48.07 |
| 24 | 2-Butanone | 43 | 3.580 | 3.580 | (0.856) | 76275 | 106.062 | 106.06 |
| 76 | 2-Chlorotoluene | 91 | 8.974 | 8.981 | (0.929) | 268722 | 46.4427 | 46.44 |
| 52 | 2-Hexanone | 43 | 7.212 | 7.212 | (0.940) | 157553 | 89.6799 | 89.67 |
| 77 | 4-Chlorotoluene | 91 | 9.075 | 9.074 | (0.939) | 341491 | 46.7282 | 46.72 |
| 82 | p-Isopropyltoluene | 119 | 9.655 | 9.655 | (0.999) | 327925 | 49.2840 | 49.28 |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.324 | 6.331 | (0.824) | 186003 | 93.7710 | 93.77 |
| 10 | Acetone | 43 | 1.976 | 1.976 | (0.473) | 100468 | 119.637 | 119.63 |
| 37 | Benzene | 78 | 4.512 | 4.519 | (0.908) | 372971 | 46.9968 | 46.99 |
| 74 | Bromobenzene | 156 | 8.809 | 8.809 | (0.912) | 98013 | 45.2158 | 45.21 |
| 29 | Bromochloromethane | 128 | 3.803 | 3.795 | (0.909) | 51596 | 48.4265 | 48.42 |
| 39 | Bromodichloromethane | 83 | 5.729 | 5.729 | (1.153) | 145793 | 49.9434 | 49.94 |
| 66 | Bromoform | 173 | 8.416 | 8.415 | (1.097) | 55353 | 43.2082 | 43.20 |
| 6 | Bromomethane | 94 | 1.338 | 1.331 | (0.320) | 134679 | 46.7808 | 46.78 |
| 19 | Carbon Disulfide | 76 | 2.069 | 2.069 | (0.495) | 500084 | 92.2039 | 92.20 |
| 34 | Carbon Tetrachloride | 117 | 4.268 | 4.268 | (0.859) | 126484 | 49.7207 | 49.72 |
| 59 | Chlorobenzene | 112 | 7.699 | 7.699 | (1.004) | 258238 | 46.2801 | 46.28 |
| 7 | Chloroethane | 64 | 1.403 | 1.403 | (0.336) | 109585 | 44.9568 | 44.95 |
| 28 | Chloroform | 83 | 3.910 | 3.910 | (0.935) | 185902 | 46.9630 | 46.96 |
| 3 | Chloromethane | 50 | 1.081 | 1.073 | (0.258) | 109600 | 50.0268 | 50.02 |
| 27 | cis-1,2-Dichloroethene | 96 | 3.530 | 3.530 | (0.844) | 108603 | 47.8702 | 47.87 |
| 46 | cis-1,3-Dichloropropene | 75 | 6.159 | 6.159 | (1.239) | 159724 | 50.3904 | 50.39 |
| 55 | Dibromochloromethane | 129 | 7.176 | 7.176 | (0.936) | 96777 | 50.1517 | 50.15 |
| 44 | Dibromomethane | 93 | 5.557 | 5.557 | (1.118) | 71493 | 49.7769 | 49.77 |
| 2 | Dichlorodifluoromethane | 85 | 0.973 | 0.973 | (0.233) | 105646 | 52.7364 | 52.73 |
| 61 | Ethylbenzene | 106 | 7.799 | 7.799 | (1.017) | 135314 | 47.8010 | 47.80 |
| 91 | Hexachlorobutadiene | 225 | 11.481 | 11.481 | (1.188) | 34693 | 52.3265 | 52.32 |
| 67 | Isopropylbenzene | 105 | 8.566 | 8.566 | (1.117) | 380561 | 44.3181 | 44.31 |
| 62 | m,p-Xylenes | 106 | 7.907 | 7.907 | (1.031) | 347106 | 102.371 | 102.37 |
| 17 | Methylene Chloride | 84 | 2.305 | 2.305 | (0.551) | 96413 | 45.3917 | 45.39 |
| 87 | n-Butylbenzene | 91 | 9.999 | 9.999 | (1.035) | 332776 | 44.8692 | 44.86 |
| 73 | n-Propylbenzene | 91 | 8.917 | 8.917 | (0.923) | 471736 | 48.0993 | 48.09 |
| 92 | Naphthalene | 128 | 11.546 | 11.546 | (1.195) | 85615 | 59.9489 | 59.94(M) |
| 63 | o-Xylene | 106 | 8.244 | 8.244 | (1.075) | 166386 | 49.2422 | 49.24 |
| 81 | sec-Butylbenzene | 105 | 9.526 | 9.526 | (0.986) | 379112 | 45.1578 | 45.15 |
| 64 | Styrene | 104 | 8.258 | 8.258 | (1.077) | 291404 | 51.4307 | 51.43 |
| 78 | tert-Butylbenzene | 119 | 9.340 | 9.340 | (0.967) | 257934 | 46.1783 | 46.17 |
| 56 | Tetrachloroethene | 164 | 6.933 | 6.933 | (0.904) | 65585 | 45.6276 | 45.62 |
| 50 | Toluene | 91 | 6.446 | 6.446 | (0.840) | 410858 | 42.9975 | 42.99 |
| 20 | trans-1,2-Dichloroethene | 96 | 2.535 | 2.527 | (0.606) | 88244 | 45.7847 | 45.78 |
| 51 | trans-1,3-Dichloropropene | 75 | 6.682 | 6.682 | (1.344) | 144790 | 51.7768 | 51.77 |
| 38 | Trichloroethene | 130 | 5.206 | 5.206 | (1.048) | 94335 | 49.8231 | 49.82 |
| 8 | Trichlorofluoromethane | 101 | 1.560 | 1.560 | (0.373) | 272524 | 46.7420 | 46.74 |
| 5 | Vinyl Chloride | 62 | 1.145 | 1.145 | (0.274) | 169292 | 49.5266 | 49.52 |

QC Flag Legend

M - Compound response manually integrated.

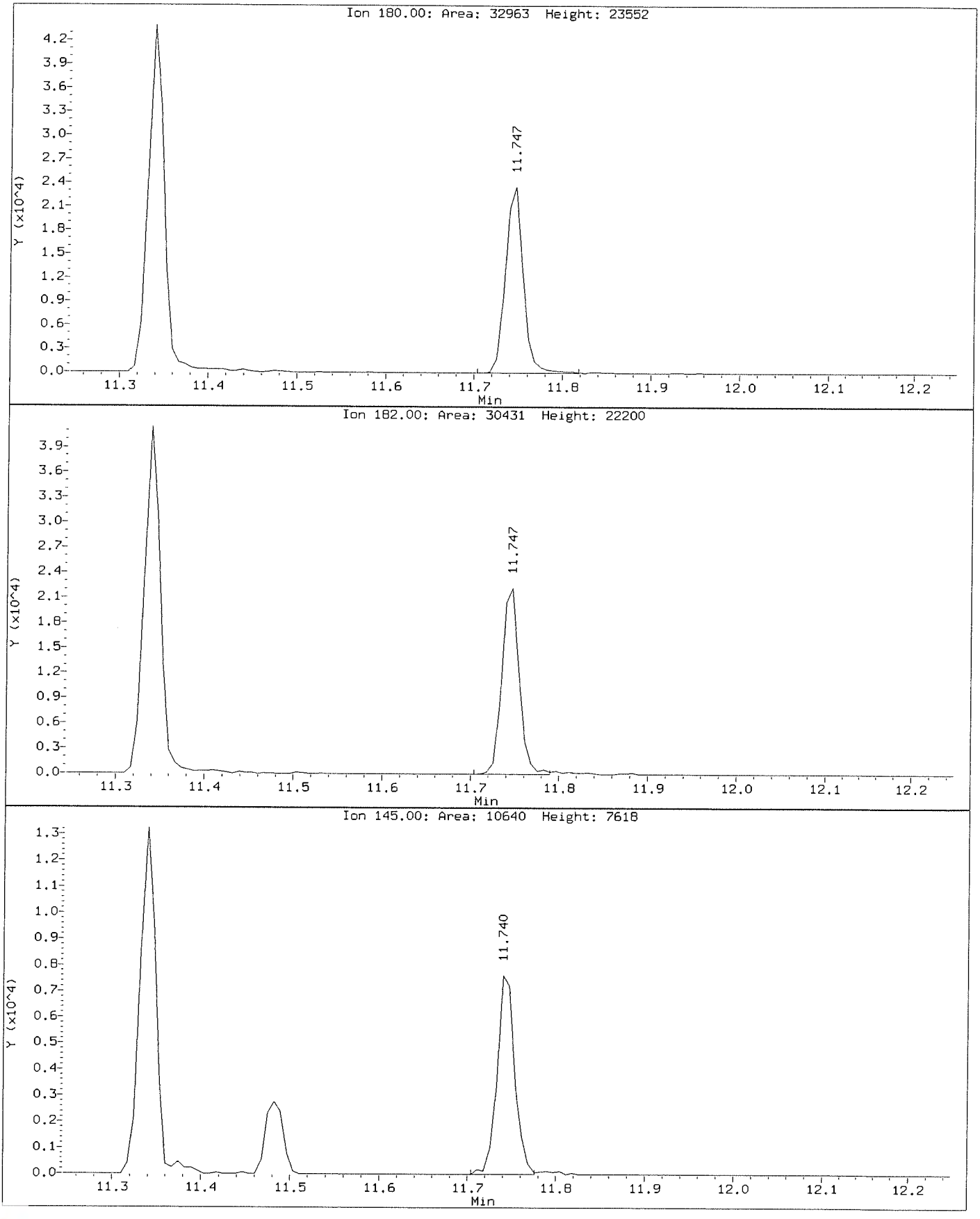



Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110314.D
Date : 03-NOV-2020 16:33
Client ID: ICV
Sample Info: CCV;CCV;2;;;ICV
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

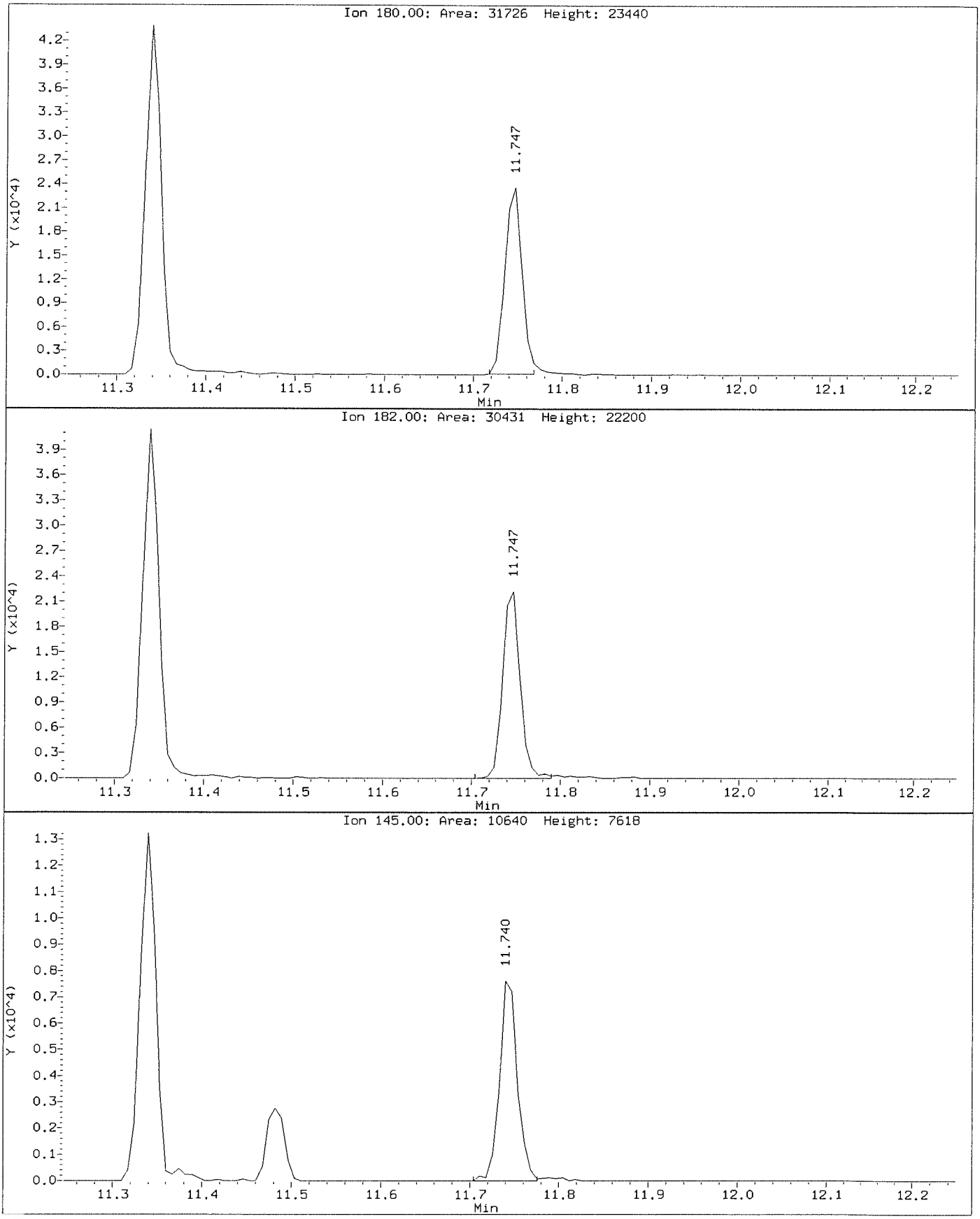
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110314.D
Injection Date: 03-NOV-2020 16:33
Instrument: voa6.i
Client Sample ID: ICV

Compound: 1,2,3-Trichlorobenzene
CAS Number: 87-61-6



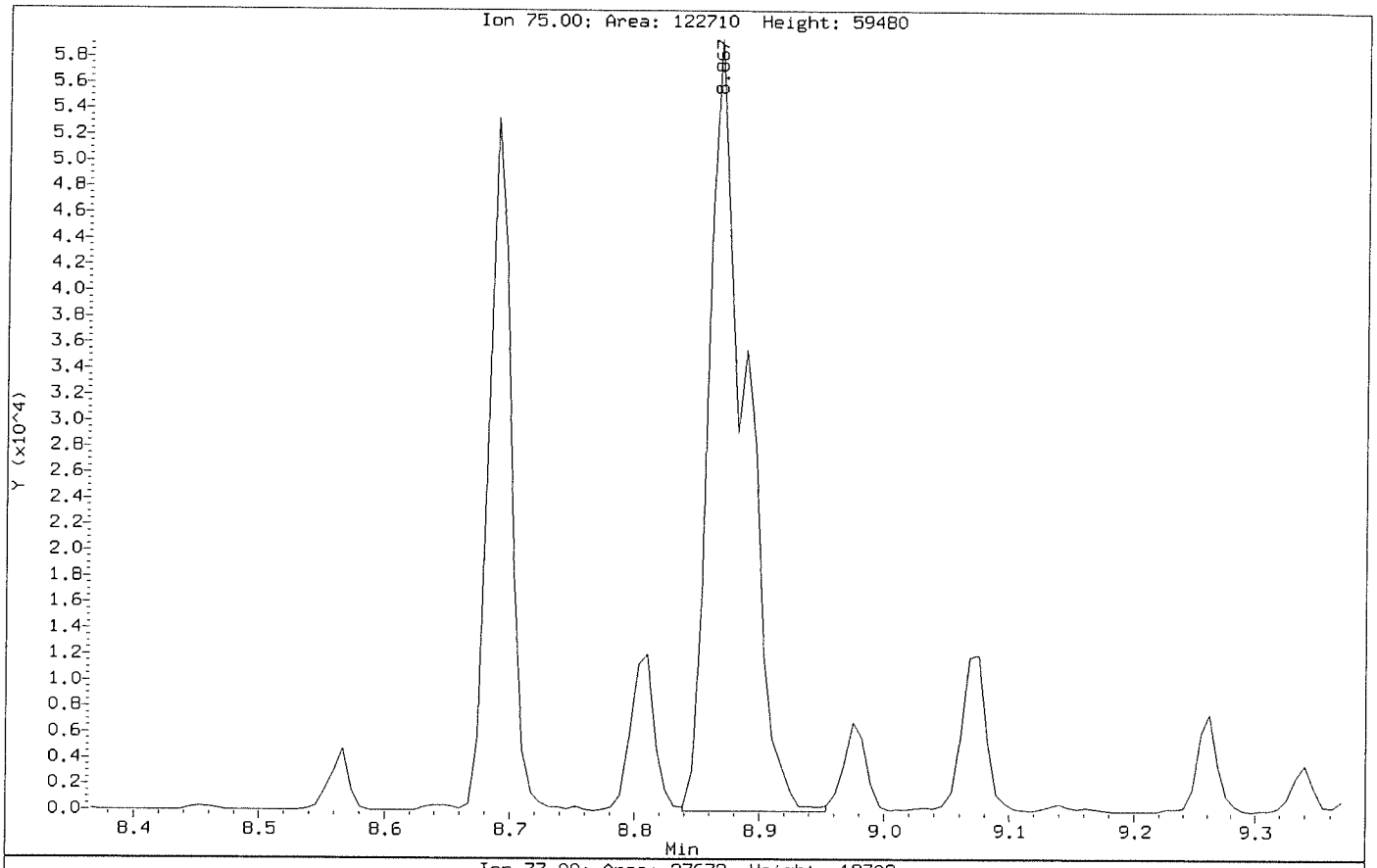
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110314.D
Injection Date: 03-NOV-2020 16:33
Instrument: voa6.i
Client Sample ID: ICV

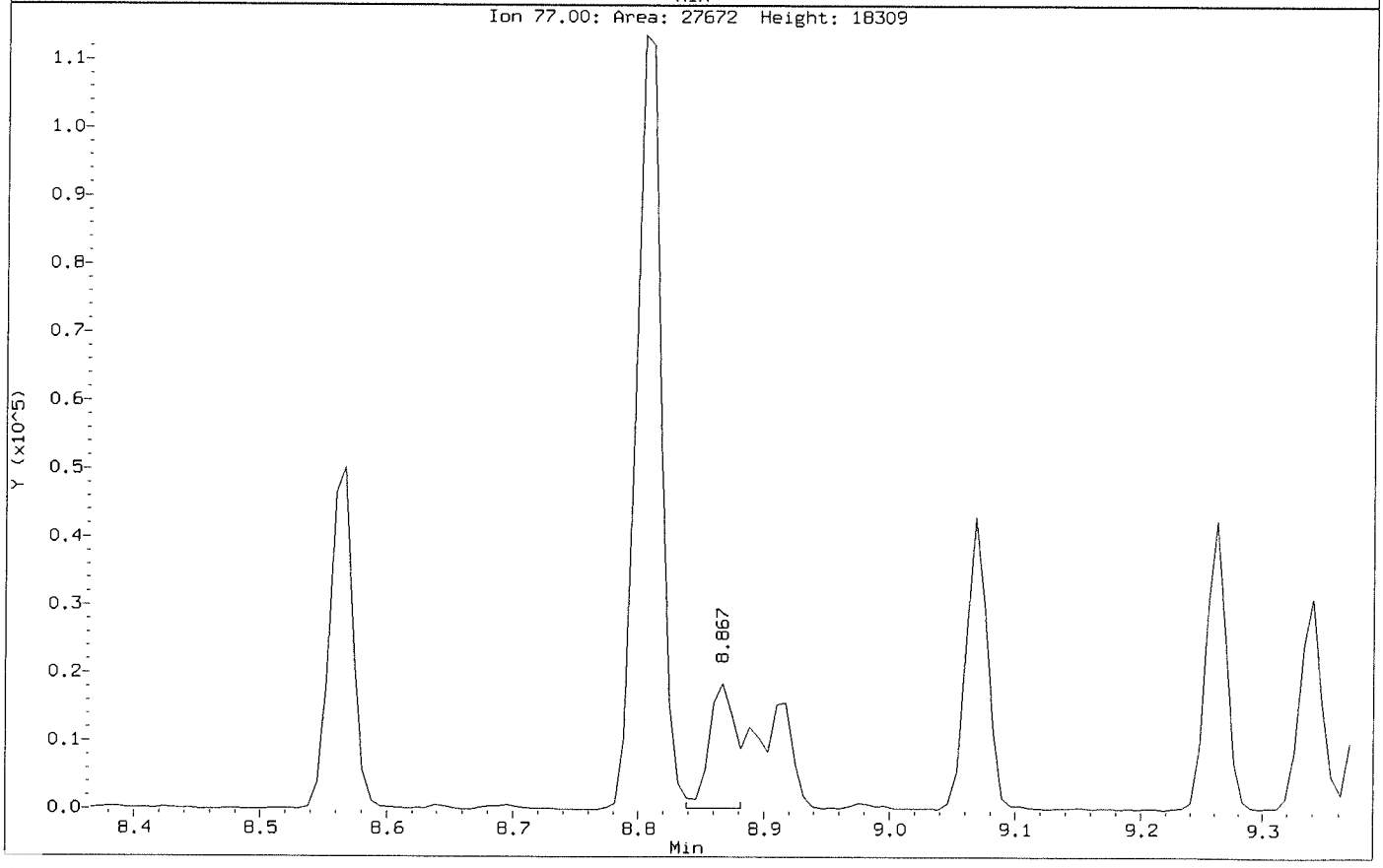
Compound: 1,2,3-Trichlorobenzene
CAS Number: 87-61-6



Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110314.D
Injection Date: 03-NOV-2020 16:33
Instrument: voa6.i
Client Sample ID: ICV

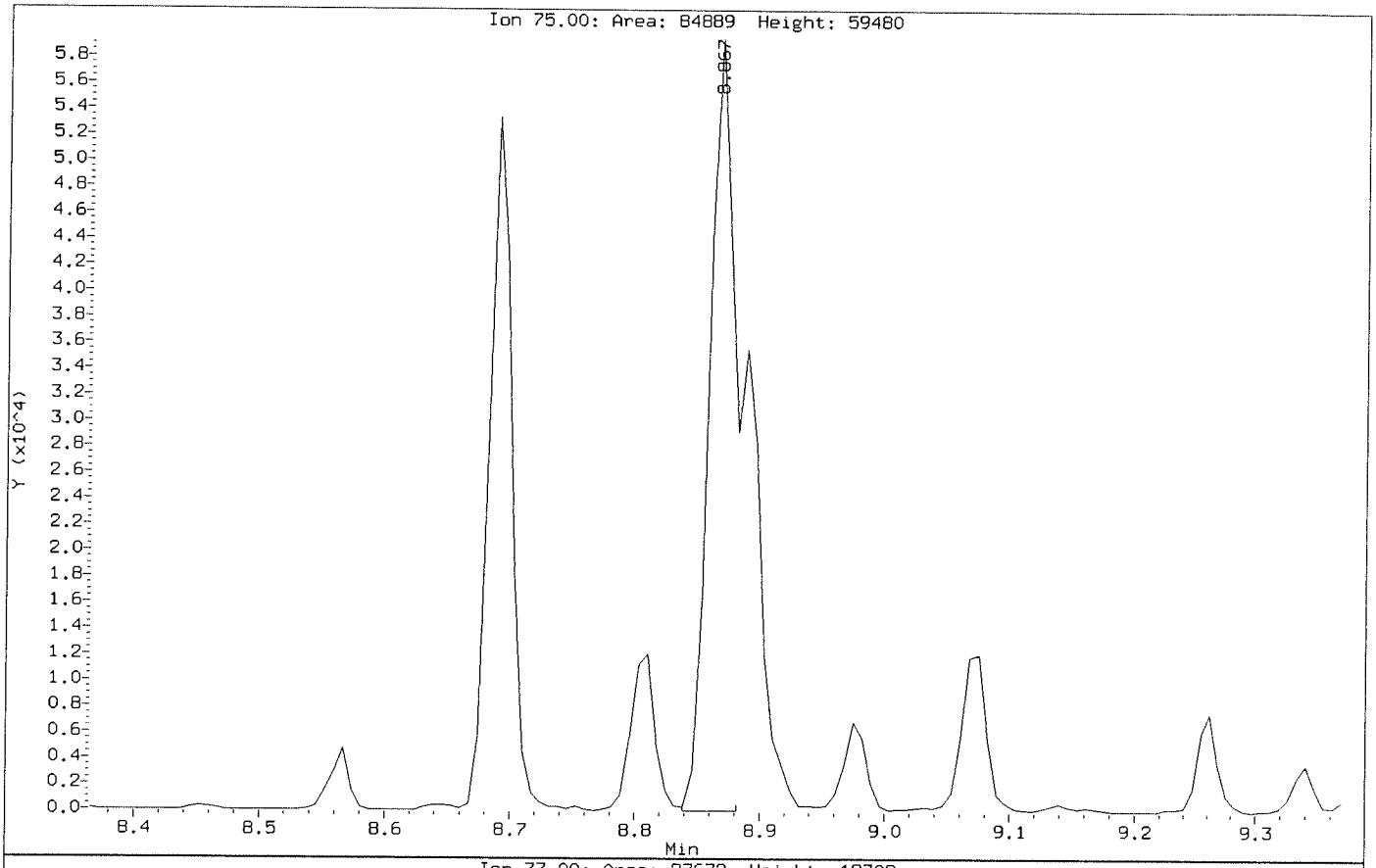
Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4

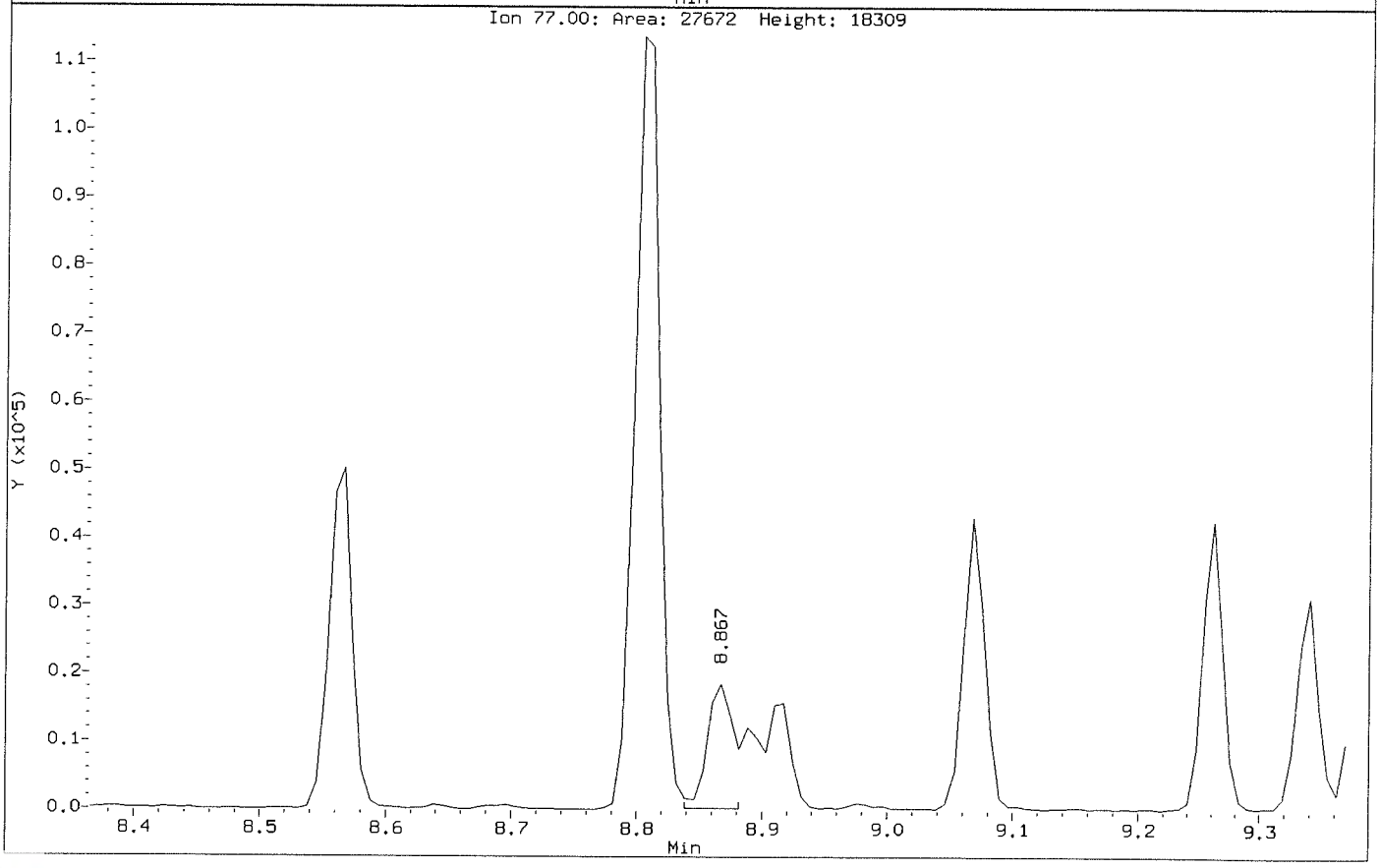


Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110314.D
Injection Date: 03-NOV-2020 16:33
Instrument: voa6.i
Client Sample ID: ICV

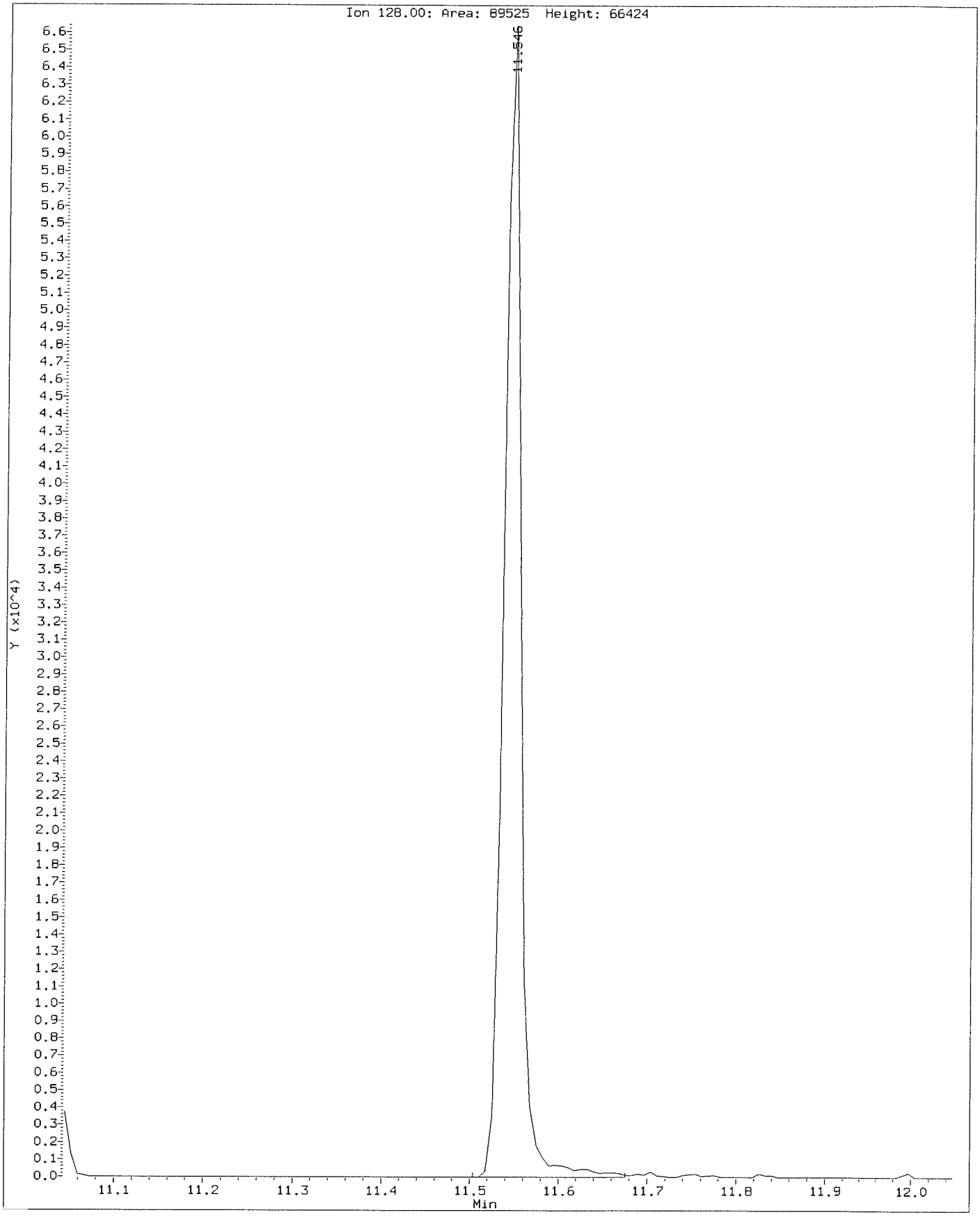
Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



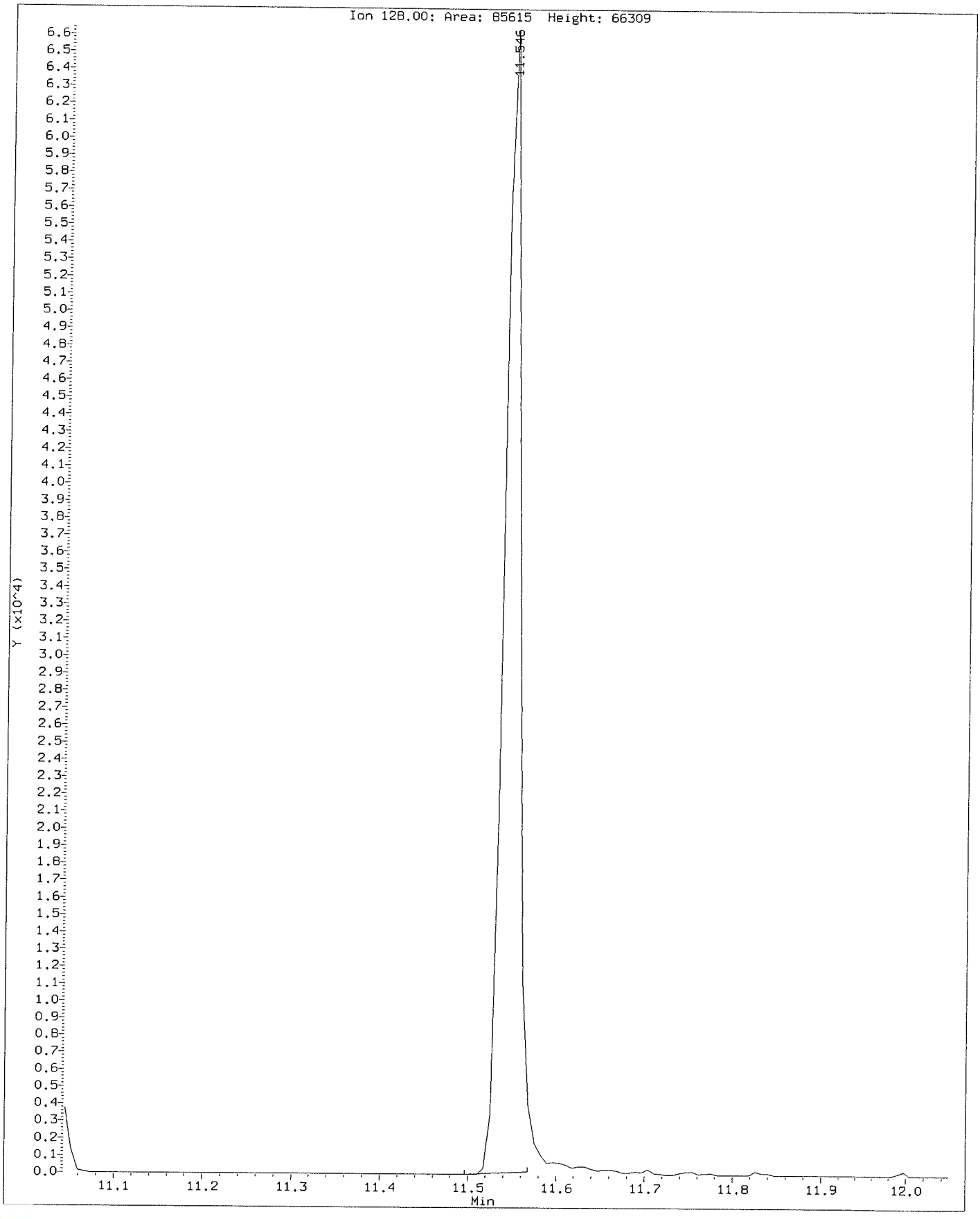
Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\Before\X110314.D
Injection Date: 03-NOV-2020 16:33
Instrument: voa6.i
Client Sample ID: ICV

Compound: Naphthalene
CAS Number: 91-20-3



Data File: \\nahstws005\Target\chem\voa6.i\X201103.b\X110314.D
Injection Date: 03-NOV-2020 16:33
Instrument: voa6.i
Client Sample ID: ICV

Compound: Naphthalene
CAS Number: 91-20-3



# MSVOA06 -Logbook

**Batch:** 42432 **Analyst:** Presenta Cabascango

**Date:** 11-06-2020 **Reviewer:**

**Method:** 8260 **Laboratory:** Houston

**Comments:**

| # | Samp ID | Type | Analyzed | DF | Init Wt/Vol | Final Vol | File ID | Matrix | Status | pH |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | BFB | TUNE | 11-06-2020 09:56 am | 1.00 | 50 mL | 50 mL | X110601.D | Liquid | Y | NA |
| | *Auto find/ purged* | | | | | | | | | |
| 2 | CCV | CCV | 11-06-2020 10:17 am | 1.00 | 50 mL | 50 mL | X110602a.D | Liquid | Y | NA |
| | *10 uL cal std/50 mL DI* | | | | | | | | | |
| 3 | CCV | CCV | 11-06-2020 10:38 am | 1.00 | 50 mL | 50 mL | X110603.D | Liquid | Y | NA |
| | *10 uL cal std/50 mL DI* | | | | | | | | | |
| 4 | CCB | SAMP | 11-06-2020 10:59 am | 1.00 | 50 mL | 50 mL | X110604.D | Liquid | Y | NA |
| 5 | VLCSW-201106 | LCS | 11-06-2020 11:29 am | 1.00 | 50 mL | 50 mL | X110605.D | Liquid | Y | NA |
| | *4.0 uL cal std/50 mL DI* | | | | | | | | | |
| 6 | BLK | SAMP | 11-06-2020 11:50 am | 1.00 | 50 mL | 50 mL | X110606.D | Liquid | Y | NA |
| 7 | VBLKW-201106 | MBLK | 11-06-2020 12:11 pm | 1.00 | 50 mL | 50 mL | X110607.D | Liquid | Y | NA |
| 8 | HS20101566-11 | SAMP | 11-06-2020 12:32 pm | 1.00 | 50 mL | 50 mL | X110608.D | Liquid | Y | NA |
| 9 | HS20101566-13 | SAMP | 11-06-2020 12:53 pm | 1.00 | 50 mL | 50 mL | X110609.D | Liquid | Y | NA |
| 10 | HS20101566-15 | SAMP | 11-06-2020 01:14 pm | 1.00 | 50 mL | 50 mL | X110610.D | Liquid | Y | NA |
| 11 | HS20101569-02n/r | SAMP | 11-06-2020 01:35 pm | 1000.0 | 50 µL | 50 mL | X110611.D | Liquid | Y | NA |
| 12 | HS20101569-02 | SAMP | 11-06-2020 01:56 pm | 100.0( | 500 µL | 50 mL | X110612.D | Liquid | Y | NA |
| 13 | HS20101552-01 | SAMP | 11-06-2020 02:17 pm | 5.00 | 10 mL | 50 mL | X110613.D | Liquid | Y | NA |
| 14 | HS20101569-02 | SAMP | 11-06-2020 02:38 pm | 5000.0 | 10 µL | 50 mL | X110614.D | Liquid | Y | NA |
| 15 | HS20101569-01 | SAMP | 11-06-2020 02:59 pm | 50.00 | 1 mL | 50 mL | X110615.D | Liquid | Y | NA |
| 16 | HS20101569-02MS | MS | 11-06-2020 03:20 pm | 5000.0 | 10 µL | 50 mL | X110616.D | Liquid | Y | NA |
| | *3.5 uL cal std/40 mL samp* | | | | | | | | | |
| 17 | HS20101569-02MSD | MSD | 11-06-2020 03:41 pm | 5000.0 | 10 µL | 50 mL | X110617.D | Liquid | Y | NA |
| | *3.5 uL cal std/40 mL samp* | | | | | | | | | |
| 18 | HS20101560-09 | SAMP | 11-06-2020 04:02 pm | 1.00 | 50 mL | 50 mL | X110618.D | Liquid | Y | NA |
| 19 | HS20101560-09 | SAMP | 11-06-2020 04:24 pm | 5.00 | 10 mL | 50 mL | X110619.D | Liquid | Y | NA |
| 20 | HS20101569-01 | SAMP | 11-06-2020 04:45 pm | 500.0( | 100 µL | 50 mL | X110620.D | Liquid | Y | NA |
| 21 | HS20101569-03 | SAMP | 11-06-2020 05:06 pm | 1.00 | 50 mL | 50 mL | X110621.D | Liquid | Y | NA |
| 22 | HS20101569-04 | SAMP | 11-06-2020 05:27 pm | 1.00 | 50 mL | 50 mL | X110622.D | Liquid | Y | NA |
| 23 | HS20101570-12 | SAMP | 11-06-2020 05:48 pm | 1.00 | 50 mL | 50 mL | X110623.D | Liquid | Y | NA |
| 24 | HS20110037-01 | SAMP | 11-06-2020 06:09 pm | 1.00 | 50 mL | 50 mL | X110624.D | Liquid | Y | NA |
| 25 | HS20110037-02 | SAMP | 11-06-2020 06:30 pm | 1.00 | 50 mL | 50 mL | X110625.D | Liquid | Y | NA |
| 26 | HS20110037-03 | SAMP | 11-06-2020 06:51 pm | 1.00 | 50 mL | 50 mL | X110626.D | Liquid | Y | NA |
| 27 | HS20110037-04 | SAMP | 11-06-2020 07:12 pm | 1.00 | 50 mL | 50 mL | X110627.D | Liquid | Y | NA |
| 28 | HS20110037-05 | SAMP | 11-06-2020 07:33 pm | 1.00 | 50 mL | 50 mL | X110628.D | Liquid | Y | NA |
| 29 | HS20110013-01 | SAMP | 11-06-2020 07:54 pm | 100.0( | 500 µL | 50 mL | X110629.D | Liquid | Y | NA |
| 30 | HS20110013-01 | SAMP | 11-06-2020 08:15 pm | 1000.0 | 50 µL | 50 mL | X110630.D | Liquid | Y | NA |
| 31 | BFB | TUNE | 11-06-2020 08:36 pm | 1.00 | 50 mL | 50 mL | Y110601.D | Liquid | Y | NA |
| | *Auto find/ purged* | | | | | | | | | |
| 32 | CCV | CCV | 11-06-2020 08:57 pm | 1.00 | 50 mL | 50 mL | Y110602a.D | Liquid | Y | NA |
| | *10 uL cal std/50 mL DI* | | | | | | | | | |
| 33 | CCV | CCV | 11-06-2020 09:18 pm | 1.00 | 50 mL | 50 mL | Y110603.D | Liquid | Y | NA |
| | *10 uL cal std/50 mL DI* | | | | | | | | | |
| 34 | CCB | SAMP | 11-06-2020 09:39 pm | 1.00 | 50 mL | 50 mL | Y110604.D | Liquid | Y | NA |
| 35 | VLCSW-201106 | LCS | 11-06-2020 10:00 pm | 1.00 | 50 mL | 50 mL | Y110605.D | Liquid | Y | NA |
| | *4.0 uL cal std/50 mL DI* | | | | | | | | | |
| 36 | BLK | SAMP | 11-06-2020 10:21 pm | 1.00 | 50 mL | 50 mL | Y110606.D | Liquid | Y | NA |

# MSVOA06 -Logbook

| # | Samp ID | Type | Analyzed | DF | Init Wt/Vol | Final Vol | File ID | Matrix | Status | pH |
|---|---|---|---|---|---|---|---|---|---|---|
| 37 | VBLKW-201106 | MBLK | 11-06-2020 10:42 pm | 1.00 | 50 mL | 50 mL | Y110607.D | Liquid | Y | NA |
| 38 | HS20110128-19 | SAMP | 11-06-2020 11:03 pm | 1.00 | 50 mL | 50 mL | Y110608.D | Liquid | Y | NA |
| 39 | HS20110128-11 | SAMP | 11-06-2020 11:24 pm | 1.00 | 50 mL | 50 mL | Y110609.D | Liquid | Y | NA |
| 40 | HS20110128-11MS | MS | 11-06-2020 11:45 pm | 1.00 | 50 mL | 50 mL | Y110610.D | Liquid | Y | NA |
| | *3.5 uL cal std/40 mL samp* | | | | | | | | | |
| 41 | HS20110128-11MSD | MSD | 11-07-2020 12:06 am | 1.00 | 50 mL | 50 mL | Y110611.D | Liquid | Y | NA |
| | *3.5 uL cal std/40 mL samp* | | | | | | | | | |
| 42 | HS20110282-01 | SAMP | 11-07-2020 12:28 am | 1.00 | 50 mL | 50 mL | Y110612.D | Liquid | Y | NA |
| 43 | HS20110128-01 | SAMP | 11-07-2020 12:49 am | 1.00 | 50 mL | 50 mL | Y110613.D | Liquid | Y | NA |
| 44 | HS20110128-02 | SAMP | 11-07-2020 01:10 am | 1.00 | 50 mL | 50 mL | Y110614.D | Liquid | Y | NA |
| 45 | HS20110128-03 | SAMP | 11-07-2020 01:31 am | 1.00 | 50 mL | 50 mL | Y110615.D | Liquid | Y | NA |
| 46 | HS20110128-04 | SAMP | 11-07-2020 01:52 am | 1.00 | 50 mL | 50 mL | Y110616.D | Liquid | Y | NA |
| 47 | HS20110128-05 | SAMP | 11-07-2020 02:13 am | 1.00 | 50 mL | 50 mL | Y110617.D | Liquid | Y | NA |
| 48 | HS20110128-06 | SAMP | 11-07-2020 02:34 am | 1.00 | 50 mL | 50 mL | Y110618.D | Liquid | Y | NA |
| 49 | HS20110128-07 | SAMP | 11-07-2020 02:55 am | 1.00 | 50 mL | 50 mL | Y110619.D | Liquid | Y | NA |
| 50 | HS20110128-08 | SAMP | 11-07-2020 03:16 am | 1.00 | 50 mL | 50 mL | Y110620.D | Liquid | Y | NA |
| 51 | HS20110128-09 | SAMP | 11-07-2020 03:37 am | 1.00 | 50 mL | 50 mL | Y110621.D | Liquid | Y | NA |
| 52 | HS20110128-10 | SAMP | 11-07-2020 03:58 am | 1.00 | 50 mL | 50 mL | Y110622.D | Liquid | Y | NA |
| 53 | HS20110128-12 | SAMP | 11-07-2020 04:19 am | 1.00 | 50 mL | 50 mL | Y110623.D | Liquid | Y | NA |
| 54 | HS20110128-13 | SAMP | 11-07-2020 04:40 am | 1.00 | 50 mL | 50 mL | Y110624.D | Liquid | Y | NA |
| 55 | HS20110128-14 | SAMP | 11-07-2020 05:01 am | 1.00 | 50 mL | 50 mL | Y110625.D | Liquid | Y | NA |
| 56 | HS20110128-15 | SAMP | 11-07-2020 05:23 am | 1.00 | 50 mL | 50 mL | Y110626.D | Liquid | Y | NA |
| 57 | HS20110128-16 | SAMP | 11-07-2020 05:44 am | 1.00 | 50 mL | 50 mL | Y110627.D | Liquid | Y | NA |
| 58 | HS20110128-17 | SAMP | 11-07-2020 06:05 am | 1.00 | 50 mL | 50 mL | Y110628.D | Liquid | Y | NA |
| 59 | HS20110128-18 | SAMP | 11-07-2020 06:26 am | 1.00 | 50 mL | 50 mL | Y110629.D | Liquid | Y | NA |
| 60 | CCV-END | CCV | 11-07-2020 06:47 am | 1.00 | 50 mL | 50 mL | Y110630.D | Liquid | Y | NA |
| 61 | BLANK | SAMP | 11-07-2020 07:08 am | 1.00 | 50 mL | 50 mL | Y110631.D | Liquid | Y | NA |

| Chemical | Value |
|---|---|
| SURR SPK ID | 31106-51-06 |
| IS ID | 31106-51-06 |
| CAL STD ID | 31106-54-01/02 |
| BFB ID | 31106-51-06 |
| pH Paper | 634-64-10 |

# FORM 2
## WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20110128

| | CLIENT SAMPLE NO. | SMC1 # | SMC2 # | SMC3 (TOL) # | OTHER (DCE) # | TOT OUT |
|---|---|---|---|---|---|---|
| 01 | VLCSW-201106 | 96 | 99 | 99 | 99 | 0 |
| 02 | VBLKW-201106 | 88 | 84 | 101 | 86 | 0 |
| 03 | HS20110128-19 | 90 | 84 | 100 | 86 | 0 |
| 04 | HS20110128-11 | 90 | 83 | 100 | 87 | 0 |
| 05 | HS20110128-11 | 97 | 86 | 96 | 84 | 0 |
| 06 | HS20110128-11 | 93 | 84 | 98 | 87 | 0 |
| 07 | HS20110128-01 | 88 | 85 | 101 | 86 | 0 |
| 08 | HS20110128-02 | 91 | 87 | 101 | 89 | 0 |
| 09 | HS20110128-03 | 88 | 88 | 102 | 88 | 0 |
| 10 | HS20110128-04 | 92 | 83 | 100 | 87 | 0 |
| 11 | HS20110128-05 | 87 | 86 | 101 | 86 | 0 |
| 12 | HS20110128-06 | 89 | 86 | 100 | 89 | 0 |
| 13 | HS20110128-07 | 89 | 85 | 100 | 86 | 0 |
| 14 | HS20110128-08 | 87 | 87 | 99 | 88 | 0 |
| 15 | HS20110128-09 | 89 | 87 | 100 | 89 | 0 |
| 16 | HS20110128-10 | 93 | 84 | 102 | 89 | 0 |
| 17 | HS20110128-12 | 88 | 82 | 104 | 83 | 0 |
| 18 | HS20110128-13 | 92 | 87 | 101 | 88 | 0 |
| 19 | HS20110128-14 | 90 | 83 | 103 | 88 | 0 |
| 20 | HS20110128-15 | 90 | 84 | 101 | 87 | 0 |
| 21 | HS20110128-16 | 91 | 89 | 101 | 88 | 0 |
| 22 | HS20110128-17 | 89 | 85 | 102 | 88 | 0 |
| 23 | HS20110128-18 | 93 | 85 | 102 | 87 | 0 |
| 24 | | | | | | |
| 25 | | | | | | |
| 26 | | | | | | |
| 27 | | | | | | |
| 28 | | | | | | |

| | | QC LIMITS |
|---|---|---|
| SMC1 | = 4-Bromofluorobenzene | (70-130) |
| SMC2 | = Dibromofluoromethane | (70-130) |
| SMC3 (TOL) | = Toluene-d8 | ( 0-130) |
| OTHER(DCE) | = 1,2-Dichloroethane-d4 | ( 0-130) |

# Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

VBLKW-201106

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20110128

Lab File ID: Y110607 Lab Sample ID: VBLKW-201106

Date Analyzed: 11/06/20 Time Analyzed: 2242

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: VOA6

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

| | SAMPLE NO. | LAB SAMPLE ID | LAB FILE ID | TIME ANALYZED |
|---|---|---|---|---|
| 01 | VLCSW-201106 | VLCSW-201106 | Y110605 | 2200 |
| 02 | HS20110128-1 | HS20110128-19 | Y110608 | 2303 |
| 03 | HS20110128-1 | HS20110128-11 | Y110609 | 2324 |
| 04 | HS20110128-1 | HS20110128-11M | Y110610 | 2345 |
| 05 | HS20110128-1 | HS20110128-11M | Y110611 | 0006 |
| 06 | HS20110128-0 | HS20110128-01 | Y110613 | 0049 |
| 07 | HS20110128-0 | HS20110128-02 | Y110614 | 0110 |
| 08 | HS20110128-0 | HS20110128-03 | Y110615 | 0131 |
| 09 | HS20110128-0 | HS20110128-04 | Y110616 | 0152 |
| 10 | HS20110128-0 | HS20110128-05 | Y110617 | 0213 |
| 11 | HS20110128-0 | HS20110128-06 | Y110618 | 0234 |
| 12 | HS20110128-0 | HS20110128-07 | Y110619 | 0255 |
| 13 | HS20110128-0 | HS20110128-08 | Y110620 | 0316 |
| 14 | HS20110128-0 | HS20110128-09 | Y110621 | 0337 |
| 15 | HS20110128-1 | HS20110128-10 | Y110622 | 0358 |
| 16 | HS20110128-1 | HS20110128-12 | Y110623 | 0419 |
| 17 | HS20110128-1 | HS20110128-13 | Y110624 | 0440 |
| 18 | HS20110128-1 | HS20110128-14 | Y110625 | 0501 |
| 19 | HS20110128-1 | HS20110128-15 | Y110626 | 0523 |
| 20 | HS20110128-1 | HS20110128-16 | Y110627 | 0544 |
| 21 | HS20110128-1 | HS20110128-17 | Y110628 | 0605 |
| 22 | HS20110128-1 | HS20110128-18 | Y110629 | 0626 |
| 23 | | | | |
| 24 | | | | |
| 25 | | | | |
| 26 | | | | |
| 27 | | | | |
| 28 | | | | |
| 29 | | | | |
| 30 | | | | |

COMMENTS:

# FORM 5
## VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
## BROMOFLUOROBENZENE (BFB)

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20110128

Lab File ID: Y110601 BFB Injection Date: 11/06/20

Instrument ID: VOA6 BFB Injection Time: 2036

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) N

| m/e | ION ABUNDANCE CRITERIA | % RELATIVE ABUNDANCE |
|---|---|---|
| 50 | 15.0 - 40.0% of mass 95 | 25.8 |
| 75 | 30.0 - 60.0% of mass 95 | 56.8 |
| 95 | Base Peak, 100% relative abundance | 100.0 |
| 96 | 5.0 - 9.0% of mass 95 | 8.6 |
| 173 | Less than 2.0% of mass 174 | 1.2 ( 1.3)1 |
| 174 | Greater than 50.0% of mass 95 | 87.8 |
| 175 | 5.0 - 9.0% of mass 174 | 5.9 ( 6.7)1 |
| 176 | 95.0 - 101.0% of mass 174 | 86.9 ( 99.0)1 |
| 177 | 5.0 - 9.0% of mass 176 | 5.8 ( 6.7)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 | CCV | CCV | Y110603 | 11/06/20 | 2118 |
| 02 | VLCSW-201106 | VLCSW-201106 | Y110605 | 11/06/20 | 2200 |
| 03 | VBLKW-201106 | VBLKW-201106 | Y110607 | 11/06/20 | 2242 |
| 04 | HS20110128-1 | HS20110128-19 | Y110608 | 11/06/20 | 2303 |
| 05 | HS20110128-1 | HS20110128-11 | Y110609 | 11/06/20 | 2324 |
| 06 | HS20110128-1 | HS20110128-11M | Y110610 | 11/06/20 | 2345 |
| 07 | HS20110128-1 | HS20110128-11M | Y110611 | 11/07/20 | 0006 |
| 08 | HS20110128-0 | HS20110128-01 | Y110613 | 11/07/20 | 0049 |
| 09 | HS20110128-0 | HS20110128-02 | Y110614 | 11/07/20 | 0110 |
| 10 | HS20110128-0 | HS20110128-03 | Y110615 | 11/07/20 | 0131 |
| 11 | HS20110128-0 | HS20110128-04 | Y110616 | 11/07/20 | 0152 |
| 12 | HS20110128-0 | HS20110128-05 | Y110617 | 11/07/20 | 0213 |
| 13 | HS20110128-0 | HS20110128-06 | Y110618 | 11/07/20 | 0234 |
| 14 | HS20110128-0 | HS20110128-07 | Y110619 | 11/07/20 | 0255 |
| 15 | HS20110128-0 | HS20110128-08 | Y110620 | 11/07/20 | 0316 |
| 16 | HS20110128-0 | HS20110128-09 | Y110621 | 11/07/20 | 0337 |
| 17 | HS20110128-1 | HS20110128-10 | Y110622 | 11/07/20 | 0358 |
| 18 | HS20110128-1 | HS20110128-12 | Y110623 | 11/07/20 | 0419 |
| 19 | HS20110128-1 | HS20110128-13 | Y110624 | 11/07/20 | 0440 |
| 20 | HS20110128-1 | HS20110128-14 | Y110625 | 11/07/20 | 0501 |
| 21 | HS20110128-1 | HS20110128-15 | Y110626 | 11/07/20 | 0523 |
| 22 | HS20110128-1 | HS20110128-16 | Y110627 | 11/07/20 | 0544 |

# FORM 5
## VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
## BROMOFLUOROBENZENE (BFB)

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20110128

Lab File ID: Y110601 BFB Injection Date: 11/06/20

Instrument ID: VOA6 BFB Injection Time: 2036

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) N

| m/e | ION ABUNDANCE CRITERIA | % RELATIVE ABUNDANCE |
|---|---|---|
| 50 | 15.0 - 40.0% of mass 95 | 25.8 |
| 75 | 30.0 - 60.0% of mass 95 | 56.8 |
| 95 | Base Peak, 100% relative abundance | 100.0 |
| 96 | 5.0 - 9.0% of mass 95 | 8.6 |
| 173 | Less than 2.0% of mass 174 | 1.2 ( 1.3)1 |
| 174 | Greater than 50.0% of mass 95 | 87.8 |
| 175 | 5.0 - 9.0% of mass 174 | 5.9 ( 6.7)1 |
| 176 | 95.0 - 101.0% of mass 174 | 86.9 ( 99.0)1 |
| 177 | 5.0 - 9.0% of mass 176 | 5.8 ( 6.7)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 | HS20110128-1 | HS20110128-17 | Y110628 | 11/07/20 | 0605 |
| 02 | HS20110128-1 | HS20110128-18 | Y110629 | 11/07/20 | 0626 |
| 03 | CCV-END | CCV-END | Y110630 | 11/07/20 | 0647 |
| 04 | | | | | |
| 05 | | | | | |
| 06 | | | | | |
| 07 | | | | | |
| 08 | | | | | |
| 09 | | | | | |
| 10 | | | | | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |
| 16 | | | | | |
| 17 | | | | | |
| 18 | | | | | |
| 19 | | | | | |
| 20 | | | | | |
| 21 | | | | | |
| 22 | | | | | |

# FORM 7B
## VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20110128

Instrument ID: VOA6 Calibration Date: 11/06/20 Time: 2118

Lab File ID: Y110603 Init. Calib. Date(s): 11/03/20 11/03/20

Init. Calib. Times: 1107 1530

GC Column: DB624 ID: 0.18 (mm)

| COMPOUND | RRF or AMOUNT | RRF50.000 or AMOUNT | CCAL RRF50.000 | MIN RRF | %D or %DRIFT | MAX %D or %DRIFT | CURV TYPE |
|---|---|---|---|---|---|---|---|
| cis-1,3-Dichloropropene | 0.5580000 | 0.5680933 | 0.5680933 | 0.2 | -1.81 | 20.00 | AVRG |
| trans-1,3-Dichloropropene | 0.4920000 | 0.5164548 | 0.5164548 | 0.1 | -4.97 | 20.00 | AVRG |
| 1,3-Dichlorobenzene | 1.4650000 | 1.4652553 | 1.4652553 | 0.6 | -0.02 | 20.00 | AVRG |
| 2,2-Dichloropropane | 1.0340000 | 0.9293832 | 0.9293832 | 0.1 | 10.12 | 20.00 | AVRG |
| 1,1-Dichloropropene | 0.4660000 | 0.4506973 | 0.4506973 | 0.1 | 3.28 | 20.00 | AVRG |
| Dibromomethane | 0.2530000 | 0.2654371 | 0.2654371 | 0.1 | -4.92 | 20.00 | AVRG |
| 1,2-Dibromoethane | 0.3750000 | 0.3908666 | 0.3908666 | 0.1 | -4.23 | 20.00 | AVRG |
| trans-1,2-Dichloroethene | 0.6230000 | 0.5850266 | 0.5850266 | 0.1 | 6.10 | 20.00 | AVRG |
| 1,1,1,2-Tetrachloroethane | 0.3560000 | 0.3601265 | 0.3601265 | 0.1 | -1.16 | 20.00 | AVRG |
| 1,1,1-Trichloroethane | 1.0440000 | 1.0343855 | 1.0343855 | 0.1 | 0.92 | 20.00 | AVRG |
| 1,1,2,2-Tetrachloroethane | 52.152814 | 50.000000 | 0.8603291 | 0.3 | -4.30 | 20.00 | LINR |
| Toluene | 1.8300000 | 1.6315338 | 1.6315338 | 0.4 | 10.84 | 20.00 | AVRG |
| 1,1,2-Trichloroethane | 0.3080000 | 0.3096342 | 0.3096342 | 0.1 | -0.53 | 20.00 | AVRG |
| 1,1-Dichloroethane | 1.2020000 | 1.1016995 | 1.1016995 | 0.2 | 8.34 | 20.00 | AVRG |
| 1,1-Dichloroethene | 0.9430000 | 0.8218703 | 0.8218703 | 0.1 | 12.84 | 20.00 | AVRG |
| Trichlorofluoromethane | 1.8840000 | 1.6199990 | 1.6199990 | 0.1 | 14.01 | 20.00 | AVRG |
| 1,2,3-Trichlorobenzene | 47.553381 | 50.000000 | 0.2034453 | 0.01 | 4.89 | 20.00 | LINR |
| Tetrachloroethene | 0.2750000 | 0.2909388 | 0.2909388 | 0.2 | -5.80 | 20.00 | AVRG |
| 1,2,4-Trichlorobenzene | 48.095882 | 50.000000 | 0.3856744 | 0.1 | 3.81 | 20.00 | LINR |
| 1,2,4-Trimethylbenzene | 2.7970000 | 2.9406288 | 2.9406288 | 0.1 | -5.14 | 20.00 | AVRG |
| tert-Butylbenzene | 49.329164 | 50.000000 | 2.2447723 | 0.1 | 1.34 | 20.00 | LINR |
| Trichloroethene | 0.3330000 | 0.3424866 | 0.3424866 | 0.2 | -2.85 | 20.00 | AVRG |
| 1,2-Dichlorobenzene | 1.3800000 | 1.4101884 | 1.4101884 | 0.4 | -2.19 | 20.00 | AVRG |
| 1,2-Dichloroethane | 0.5390000 | 0.5402560 | 0.5402560 | 0.1 | -0.23 | 20.00 | AVRG |
| 1,2-Dichloropropane | 0.3700000 | 0.3659181 | 0.3659181 | 0.1 | 1.10 | 20.00 | AVRG |
| 1,3,5-Trimethylbenzene | 2.8530000 | 2.9336107 | 2.9336107 | 0.1 | -2.82 | 20.00 | AVRG |
| 1,3-Dichloropropane | 0.6120000 | 0.6214286 | 0.6214286 | 0.1 | -1.54 | 20.00 | AVRG |
| 1,4-Dichlorobenzene | 1.5260000 | 1.4759217 | 1.4759217 | 0.4 | 3.28 | 20.00 | AVRG |
| 2-Butanone | 0.2320000 | 0.2210690 | 0.2210690 | 0.1 | 4.71 | 20.00 | AVRG |
| 2-Chlorotoluene | 2.3480000 | 2.3080794 | 2.3080794 | 0.1 | 1.70 | 20.00 | AVRG |
| 2-Hexanone | 97.697575 | 100.00000 | 0.3298425 | 0.1 | 2.30 | 20.00 | LINR |
| 4-Chlorotoluene | 2.9660000 | 2.9147489 | 2.9147489 | 0.1 | 1.73 | 20.00 | AVRG |
| Styrene | 1.0850000 | 1.1651642 | 1.1651642 | 0.3 | -7.39 | 20.00 | AVRG |
| 4-Methyl-2-Pentanone | 0.3800000 | 0.3804601 | 0.3804601 | 0.1 | -0.12 | 20.00 | AVRG |
| Acetone | 94.739616 | 100.00000 | 0.2617382 | 0.1 | 5.26 | 20.00 | LINR |
| Benzene | 1.3960000 | 1.3793053 | 1.3793053 | 0.5 | 1.20 | 20.00 | AVRG |
| Bromobenzene | 0.8800000 | 0.8870088 | 0.8870088 | 0.1 | -0.80 | 20.00 | AVRG |
| Bromochloromethane | 0.3440000 | 0.3446679 | 0.3446679 | 0.1 | -0.19 | 20.00 | AVRG |
| Bromodichloromethane | 0.5140000 | 0.5193856 | 0.5193856 | 0.2 | -1.05 | 20.00 | AVRG |
| Bromoform | 47.435542 | 50.000000 | 0.2343477 | 0.1 | 5.13 | 20.00 | LINR |
| Bromomethane | 0.9300000 | 0.8306824 | 0.8306824 | 0.1 | 10.68 | 20.00 | AVRG |
| Carbon Disulfide | 1.7530000 | 1.6050800 | 1.6050800 | 0.1 | 8.44 | 20.00 | AVRG |

# FORM 7B
## VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2011012

Instrument ID: VOA6 Calibration Date: 11/06/20 Time: 2118

Lab File ID: Y110603 Init. Calib. Date(s): 11/03/20 11/03/20

Init. Calib. Times: 1107 1530

GC Column: DB624 ID: 0.18 (mm)

| COMPOUND | RRF or AMOUNT | RRF50.000 or AMOUNT | CCAL RRF50.000 | MIN RRF | %D or %DRIFT | MAX %D or %DRIFT | CURV TYPE |
|---|---|---|---|---|---|---|---|
| Carbon Tetrachloride | 0.4480000 | 0.4423515 | 0.4423515 | 0.1 | 1.26 | 20.00 | AVRG |
| Chlorobenzene | 1.0680000 | 1.0130295 | 1.0130295 | 0.5 | 5.15 | 20.00 | AVRG |
| Chloroethane | 0.7880000 | 0.6423616 | 0.6423616 | 0.1 | 18.48 | 20.00 | AVRG |
| Chloroform | 1.2790000 | 1.2247643 | 1.2247643 | 0.2 | 4.24 | 20.00 | AVRG |
| Chloromethane | 47.877515 | 50.000000 | 0.6774825 | 0.1 | 4.24 | 20.00 | LINR |
| cis-1,2-Dichloroethene | 0.7330000 | 0.6867472 | 0.6867472 | 0.1 | 6.31 | 20.00 | AVRG |
| Dibromochloromethane | 0.3700000 | 0.3941940 | 0.3941940 | 0.1 | -6.54 | 20.00 | AVRG |
| Dichlorodifluoromethane | 0.6470000 | 0.5856631 | 0.5856631 | 0.1 | 9.48 | 20.00 | AVRG |
| Ethylbenzene | 0.5420000 | 0.5422460 | 0.5422460 | 0.1 | -0.04 | 20.00 | AVRG |
| Hexachlorobutadiene | 51.735811 | 50.000000 | 0.2782905 | 0.1 | -3.47 | 20.00 | LINR |
| Isopropylbenzene | 46.941598 | 50.000000 | 1.5491979 | 0.1 | 6.12 | 20.00 | LINR |
| m,p-Xylenes | 0.6490000 | 0.6881016 | 0.6881016 | 0.1 | -6.02 | 20.00 | AVRG |
| Methylene Chloride | 0.6860000 | 0.6126155 | 0.6126155 | 0.1 | 10.70 | 20.00 | AVRG |
| n-Butylbenzene | 46.584087 | 50.000000 | 2.8135385 | 0.5 | 6.83 | 20.00 | LINR |
| n-Propylbenzene | 3.9810000 | 4.0424234 | 4.0424234 | 0.1 | -1.54 | 20.00 | AVRG |
| Naphthalene | 50.333516 | 50.000000 | 0.5793787 | 0.2 | -0.67 | 20.00 | LINR |
| o-Xylene | 0.6470000 | 0.6552839 | 0.6552839 | 0.3 | -1.28 | 20.00 | AVRG |
| sec-Butylbenzene | 49.235982 | 50.000000 | 3.3725816 | 0.1 | 1.53 | 20.00 | LINR |
| Vinyl Chloride | 1.1050000 | 0.9523116 | 0.9523116 | 0.1 | 13.82 | 20.00 | AVRG |
| 1,2,3-Trichloropropane | 0.7020000 | 0.7121843 | 0.7121843 | 0.1 | -1.45 | 20.00 | AVRG |
| p-Isopropyltoluene | 2.7000000 | 2.8439384 | 2.8439384 | 0.1 | -5.33 | 20.00 | AVRG |
| 1,2-Dibromo-3-Chloropropane | 52.353484 | 50.000000 | 5.81e-002 | 0.05 | -4.71 | 20.00 | LINR |
| Freon TF | 0.9130000 | 0.7921031 | 0.7921031 | 0.1 | 13.24 | 20.00 | AVRG |
| 4-Bromofluorobenzene | 49.966510 | 50.000000 | 0.4436381 | 0.1 | 0.07 | 20.00 | 2RDR |
| Dibromofluoromethane | 0.6730000 | 0.6477860 | 0.6477860 | 0.1 | 3.75 | 20.00 | AVRG |
| Toluene-d8 | 1.3360000 | 1.3157287 | 1.3157287 | 0.1 | 1.52 | 20.00 | AVRG |
| 1,2-Dichloroethane-d4 | 50.563716 | 50.000000 | 0.8021882 | 0.1 | -1.13 | 20.00 | 2RDR |



FORM VII VOA

# FORM 7B
## VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20110128

Instrument ID: VOA6 Calibration Date: 11/07/20 Time: 0647

Lab File ID: Y110630 Init. Calib. Date(s): 11/03/20 11/03/20

Init. Calib. Times: 1107 1530

GC Column: DB624 ID: 0.18 (mm)

| COMPOUND | RRF or AMOUNT | RRF50.000 or AMOUNT | CCAL RRF50.000 | MIN RRF | %D or %DRIFT | MAX %D or %DRIFT | CURV TYPE |
|---|---|---|---|---|---|---|---|
| cis-1,3-Dichloropropene | 0.5580000 | 0.5135488 | 0.5135488 | 0.2 | 7.97 | 50.00 | AVRG |
| trans-1,3-Dichloropropene | 0.4920000 | 0.4667222 | 0.4667222 | 0.1 | 5.14 | 50.00 | AVRG |
| 1,3-Dichlorobenzene | 1.4650000 | 1.2607098 | 1.2607098 | 0.6 | 13.94 | 50.00 | AVRG |
| 2,2-Dichloropropane | 1.0340000 | 0.7856655 | 0.7856655 | 0.1 | 24.02 | 50.00 | AVRG |
| 1,1-Dichloropropene | 0.4660000 | 0.4157331 | 0.4157331 | 0.1 | 10.79 | 50.00 | AVRG |
| Dibromomethane | 0.2530000 | 0.2410961 | 0.2410961 | 0.1 | 4.70 | 50.00 | AVRG |
| 1,2-Dibromoethane | 0.3750000 | 0.3637673 | 0.3637673 | 0.1 | 3.00 | 50.00 | AVRG |
| trans-1,2-Dichloroethene | 0.6230000 | 0.5508446 | 0.5508446 | 0.1 | 11.58 | 50.00 | AVRG |
| 1,1,1,2-Tetrachloroethane | 0.3560000 | 0.3314199 | 0.3314199 | 0.1 | 6.90 | 50.00 | AVRG |
| 1,1,1-Trichloroethane | 1.0440000 | 0.9915992 | 0.9915992 | 0.1 | 5.02 | 50.00 | AVRG |
| 1,1,2,2-Tetrachloroethane | 49.871306 | 50.000000 | 0.8231128 | 0.3 | 0.26 | 50.00 | LINR |
| Toluene | 1.8300000 | 1.5254792 | 1.5254792 | 0.4 | 16.64 | 50.00 | AVRG |
| 1,1,2-Trichloroethane | 0.3080000 | 0.2978855 | 0.2978855 | 0.1 | 3.28 | 50.00 | AVRG |
| 1,1-Dichloroethane | 1.2020000 | 1.0989522 | 1.0989522 | 0.2 | 8.57 | 50.00 | AVRG |
| 1,1-Dichloroethene | 0.9430000 | 0.8805538 | 0.8805538 | 0.1 | 6.62 | 50.00 | AVRG |
| Trichlorofluoromethane | 1.8840000 | 1.6798744 | 1.6798744 | 0.1 | 10.83 | 50.00 | AVRG |
| 1,2,3-Trichlorobenzene | 38.297578 | 50.000000 | 0.1623166 | 0.01 | 23.40 | 50.00 | LINR |
| Tetrachloroethene | 0.2750000 | 0.2388381 | 0.2388381 | 0.2 | 13.15 | 50.00 | AVRG |
| 1,2,4-Trichlorobenzene | 40.020922 | 50.000000 | 0.3184595 | 0.1 | 19.96 | 50.00 | LINR |
| 1,2,4-Trimethylbenzene | 2.7970000 | 2.4687411 | 2.4687411 | 0.1 | 11.74 | 50.00 | AVRG |
| tert-Butylbenzene | 41.355079 | 50.000000 | 1.8625803 | 0.1 | 17.29 | 50.00 | LINR |
| Trichloroethene | 0.3330000 | 0.3129948 | 0.3129948 | 0.2 | 6.01 | 50.00 | AVRG |
| 1,2-Dichlorobenzene | 1.3800000 | 1.2141223 | 1.2141223 | 0.4 | 12.02 | 50.00 | AVRG |
| 1,2-Dichloroethane | 0.5390000 | 0.4953320 | 0.4953320 | 0.1 | 8.10 | 50.00 | AVRG |
| 1,2-Dichloropropane | 0.3700000 | 0.3291977 | 0.3291977 | 0.1 | 11.03 | 50.00 | AVRG |
| 1,3,5-Trimethylbenzene | 2.8530000 | 2.4395906 | 2.4395906 | 0.1 | 14.49 | 50.00 | AVRG |
| 1,3-Dichloropropane | 0.6120000 | 0.5946685 | 0.5946685 | 0.1 | 2.83 | 50.00 | AVRG |
| 1,4-Dichlorobenzene | 1.5260000 | 1.2896398 | 1.2896398 | 0.4 | 15.49 | 50.00 | AVRG |
| 2-Butanone | 0.2320000 | 0.2055394 | 0.2055394 | 0.1 | 11.40 | 50.00 | AVRG |
| 2-Chlorotoluene | 2.3480000 | 2.0709791 | 2.0709791 | 0.1 | 11.80 | 50.00 | AVRG |
| 2-Hexanone | 87.736754 | 100.00000 | 0.2948864 | 0.1 | 12.26 | 50.00 | LINR |
| 4-Chlorotoluene | 2.9660000 | 2.5154664 | 2.5154664 | 0.1 | 15.19 | 50.00 | AVRG |
| Styrene | 1.0850000 | 1.0519806 | 1.0519806 | 0.3 | 3.04 | 50.00 | AVRG |
| 4-Methyl-2-Pentanone | 0.3800000 | 0.3512706 | 0.3512706 | 0.1 | 7.56 | 50.00 | AVRG |
| Acetone | 99.235125 | 100.00000 | 0.2731098 | 0.1 | 0.76 | 50.00 | LINR |
| Benzene | 1.3960000 | 1.2614154 | 1.2614154 | 0.5 | 9.64 | 50.00 | AVRG |
| Bromobenzene | 0.8800000 | 0.8025338 | 0.8025338 | 0.1 | 8.80 | 50.00 | AVRG |
| Bromochloromethane | 0.3440000 | 0.3505368 | 0.3505368 | 0.1 | -1.90 | 50.00 | AVRG |
| Bromodichloromethane | 0.5140000 | 0.4789709 | 0.4789709 | 0.2 | 6.82 | 50.00 | AVRG |
| Bromoform | 40.970186 | 50.000000 | 0.2001630 | 0.1 | 18.06 | 50.00 | LINR |
| Bromomethane | 0.9300000 | 0.8654808 | 0.8654808 | 0.1 | 6.94 | 50.00 | AVRG |
| Carbon Disulfide | 1.7530000 | 1.5158766 | 1.5158766 | 0.1 | 13.53 | 50.00 | AVRG |



FORM VII VOA

# FORM 7B
## VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2011012

Instrument ID: VOA6 Calibration Date: 11/07/20 Time: 0647

Lab File ID: Y110630 Init. Calib. Date(s): 11/03/20 11/03/20

Init. Calib. Times: 1107 1530

GC Column: DB624 ID: 0.18 (mm)

| COMPOUND | RRF or AMOUNT | RRF50.000 or AMOUNT | CCAL RRF50.000 | MIN RRF | %D or %DRIFT | MAX %D or %DRIFT | CURV TYPE | |
|---|---|---|---|---|---|---|---|---|
| Carbon Tetrachloride | 0.4480000 | 0.3816143 | 0.3816143 | 0.1 | 14.82 | 50.00 | AVRG | |
| Chlorobenzene | 1.0680000 | 0.9340041 | 0.9340041 | 0.5 | 12.55 | 50.00 | AVRG | |
| Chloroethane | 0.7880000 | 0.6721257 | 0.6721257 | 0.1 | 14.70 | 50.00 | AVRG | |
| Chloroform | 1.2790000 | 1.1944318 | 1.1944318 | 0.2 | 6.61 | 50.00 | AVRG | |
| Chloromethane | 45.204183 | 50.000000 | 0.6389470 | 0.1 | 9.59 | 50.00 | LINR | |
| cis-1,2-Dichloroethene | 0.7330000 | 0.6697601 | 0.6697601 | 0.1 | 8.63 | 50.00 | AVRG | |
| Dibromochloromethane | 0.3700000 | 0.3624705 | 0.3624705 | 0.1 | 2.04 | 50.00 | AVRG | |
| Dichlorodifluoromethane | 0.6470000 | 0.5763428 | 0.5763428 | 0.1 | 10.92 | 50.00 | AVRG | |
| Ethylbenzene | 0.5420000 | 0.4713190 | 0.4713190 | 0.1 | 13.04 | 50.00 | AVRG | |
| Hexachlorobutadiene | 38.780839 | 50.000000 | 0.2053211 | 0.1 | 22.44 | 50.00 | LINR | |
| Isopropylbenzene | 40.122684 | 50.000000 | 1.3108785 | 0.1 | 19.75 | 50.00 | LINR | |
| m,p-Xylenes | 0.6490000 | 0.5931668 | 0.5931668 | 0.1 | 8.60 | 50.00 | AVRG | |
| Methylene Chloride | 0.6860000 | 0.6089755 | 0.6089755 | 0.1 | 11.23 | 50.00 | AVRG | |
| n-Butylbenzene | 36.751332 | 50.000000 | 2.1698683 | 0.5 | 26.50 | 50.00 | LINR | |
| n-Propylbenzene | 3.9810000 | 3.4165312 | 3.4165312 | 0.1 | 14.18 | 50.00 | AVRG | |
| Naphthalene | 40.133867 | 50.000000 | 0.4567612 | 0.2 | 19.73 | 50.00 | LINR | |
| o-Xylene | 0.6470000 | 0.5780343 | 0.5780343 | 0.3 | 10.66 | 50.00 | AVRG | |
| sec-Butylbenzene | 39.559774 | 50.000000 | 2.6722248 | 0.1 | 20.88 | 50.00 | LINR | |
| Vinyl Chloride | 1.1050000 | 1.0138598 | 1.0138598 | 0.1 | 8.25 | 50.00 | AVRG | |
| 1,2,3-Trichloropropane | 0.7020000 | 0.9522733 | 0.9522733 | 0.1 | -35.65 | 50.00 | AVRG | |
| p-Isopropyltoluene | 2.7000000 | 2.2640263 | 2.2640263 | 0.1 | 16.15 | 50.00 | AVRG | |
| 1,2-Dibromo-3-Chloropropane | 42.334295 | 50.000000 | 4.71e-002 | 0.05 | 15.33 | 50.00 | LINR | <- |
| Freon TF | 0.9130000 | 0.7411443 | 0.7411443 | 0.1 | 18.82 | 50.00 | AVRG | |
| 4-Bromofluorobenzene | 49.315747 | 50.000000 | 0.4376325 | 0.1 | 1.37 | 50.00 | 2RDR | |
| Dibromofluoromethane | 0.6730000 | 0.6806175 | 0.6806175 | 0.1 | -1.13 | 50.00 | AVRG | |
| Toluene-d8 | 1.3360000 | 1.3140127 | 1.3140127 | 0.1 | 1.64 | 50.00 | AVRG | |
| 1,2-Dichloroethane-d4 | 50.681327 | 50.000000 | 0.8041352 | 0.1 | -1.36 | 50.00 | 2RDR | |

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20110128

Lab File ID (Standard): Y110603 Date Analyzed: 11/06/20

Instrument ID: VOA6 Time Analyzed: 2118

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

| | | IS1(DCB) AREA # | IS1(DCB) RT # | IS2(CBZ) AREA # | IS2(CBZ) RT # | IS3(DFB) AREA # | IS3(DFB) RT # |
|---|---|---|---|---|---|---|---|
| | 12 HOUR STD | 111283 | 9.66 | 235620 | 7.67 | 259651 | 4.97 |
| | UPPER LIMIT | 222566 | 10.16 | 471240 | 8.17 | 519302 | 5.47 |
| | LOWER LIMIT | 55642 | 9.16 | 117810 | 7.17 | 129826 | 4.47 |
| | CLIENT SAMPLE NO. | | | | | | |
| 01 | VLCSW-201106 | 100136 | 9.66 | 221649 | 7.67 | 236537 | 4.97 |
| 02 | VBLKW-201106 | 76913 | 9.66 | 189899 | 7.67 | 216929 | 4.97 |
| 03 | HS20110128-19 | 74831 | 9.67 | 188335 | 7.67 | 218265 | 4.97 |
| 04 | HS20110128-11 | 77797 | 9.66 | 185211 | 7.67 | 212587 | 4.97 |
| 05 | HS20110128-11 | 89448 | 9.66 | 204011 | 7.67 | 215382 | 4.97 |
| 06 | HS20110128-11 | 85488 | 9.66 | 199526 | 7.67 | 215384 | 4.97 |
| 07 | HS20110128-01 | 81373 | 9.67 | 187762 | 7.67 | 212734 | 4.97 |
| 08 | HS20110128-02 | 75905 | 9.67 | 187066 | 7.67 | 220719 | 4.97 |
| 09 | HS20110128-03 | 73065 | 9.67 | 185872 | 7.67 | 219800 | 4.97 |
| 10 | HS20110128-04 | 76228 | 9.67 | 191376 | 7.67 | 219005 | 4.97 |
| 11 | HS20110128-05 | 78939 | 9.67 | 186693 | 7.67 | 214725 | 4.97 |
| 12 | HS20110128-06 | 74592 | 9.66 | 186792 | 7.67 | 216817 | 4.97 |
| 13 | HS20110128-07 | 73692 | 9.66 | 186776 | 7.67 | 216847 | 4.97 |
| 14 | HS20110128-08 | 76965 | 9.67 | 188813 | 7.67 | 216763 | 4.97 |
| 15 | HS20110128-09 | 73040 | 9.67 | 184183 | 7.67 | 214154 | 4.97 |
| 16 | HS20110128-10 | 75944 | 9.67 | 184700 | 7.67 | 210785 | 4.97 |
| 17 | HS20110128-12 | 69071 | 9.67 | 176100 | 7.67 | 207746 | 4.97 |
| 18 | HS20110128-13 | 76901 | 9.66 | 187082 | 7.67 | 215686 | 4.97 |
| 19 | HS20110128-14 | 75335 | 9.66 | 182716 | 7.67 | 212043 | 4.97 |
| 20 | HS20110128-15 | 71968 | 9.67 | 186517 | 7.67 | 214908 | 4.97 |

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (CBZ) = Chlorobenzene-d5
IS3 (DFB) = 1,4-Difluorobenzene

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

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



FORM VIII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20110128

Lab File ID (Standard): Y110603 Date Analyzed: 11/06/20

Instrument ID: VOA6 Time Analyzed: 2118

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

| | | IS1(DCB) AREA # | RT # | IS2(CBZ) AREA # | RT # | IS3(DFB) AREA # | RT # |
|---|---|---|---|---|---|---|---|
| | 12 HOUR STD | 111283 | 9.66 | 235620 | 7.67 | 259651 | 4.97 |
| | UPPER LIMIT | 222566 | 10.16 | 471240 | 8.17 | 519302 | 5.47 |
| | LOWER LIMIT | 55642 | 9.16 | 117810 | 7.17 | 129826 | 4.47 |
| | CLIENT SAMPLE NO. | | | | | | |
| 01 | HS20110128-16 | 74002 | 9.66 | 183158 | 7.67 | 209272 | 4.97 |
| 02 | HS20110128-17 | 70990 | 9.66 | 179252 | 7.67 | 213253 | 4.97 |
| 03 | HS20110128-18 | 72350 | 9.66 | 177769 | 7.67 | 210396 | 4.97 |
| 04 | | | | | | | |
| 05 | | | | | | | |
| 06 | | | | | | | |
| 07 | | | | | | | |
| 08 | | | | | | | |
| 09 | | | | | | | |
| 10 | | | | | | | |
| 11 | | | | | | | |
| 12 | | | | | | | |
| 13 | | | | | | | |
| 14 | | | | | | | |
| 15 | | | | | | | |
| 16 | | | | | | | |
| 17 | | | | | | | |
| 18 | | | | | | | |
| 19 | | | | | | | |
| 20 | | | | | | | |

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (CBZ) = Chlorobenzene-d5
IS3 (DFB) = 1,4-Difluorobenzene

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

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



FORM VIII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20110128

Lab File ID (Standard): Y110603 Date Analyzed: 11/06/20

Instrument ID: VOA6 Time Analyzed: 2118

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

| | | IS4 AREA # | RT # | AREA # | RT # | AREA # | RT # |
|---|---|---|---|---|---|---|---|
| | 12 HOUR STD | 141397 | 4.19 | | | | |
| | UPPER LIMIT | 282794 | 4.69 | | | | |
| | LOWER LIMIT | 70699 | 3.69 | | | | |
| | CLIENT SAMPLE NO. | | | | | | |
| 01 | VLCSW-201106 | 121566 | 4.19 | | | | |
| 02 | VBLKW-201106 | 130000 | 4.18 | | | | |
| 03 | HS20110128-19 | 130530 | 4.18 | | | | |
| 04 | HS20110128-11 | 125304 | 4.19 | | | | |
| 05 | HS20110128-11 | 127423 | 4.19 | | | | |
| 06 | HS20110128-11 | 123250 | 4.19 | | | | |
| 07 | HS20110128-01 | 129235 | 4.18 | | | | |
| 08 | HS20110128-02 | 127746 | 4.19 | | | | |
| 09 | HS20110128-03 | 127171 | 4.19 | | | | |
| 10 | HS20110128-04 | 132002 | 4.19 | | | | |
| 11 | HS20110128-05 | 126711 | 4.18 | | | | |
| 12 | HS20110128-06 | 128500 | 4.19 | | | | |
| 13 | HS20110128-07 | 128834 | 4.19 | | | | |
| 14 | HS20110128-08 | 126444 | 4.19 | | | | |
| 15 | HS20110128-09 | 125162 | 4.19 | | | | |
| 16 | HS20110128-10 | 125452 | 4.19 | | | | |
| 17 | HS20110128-12 | 124287 | 4.18 | | | | |
| 18 | HS20110128-13 | 127004 | 4.19 | | | | |
| 19 | HS20110128-14 | 128836 | 4.19 | | | | |
| 20 | HS20110128-15 | 127536 | 4.19 | | | | |

IS4 = Pentafluorobenzene

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

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

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20110128

Lab File ID (Standard): Y110603 Date Analyzed: 11/06/20

Instrument ID: VOA6 Time Analyzed: 2118

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

| | | IS4 AREA # | RT # | AREA # | RT # | AREA # | RT # |
|---|---|---|---|---|---|---|---|
| | 12 HOUR STD | 141397 | 4.19 | | | | |
| | UPPER LIMIT | 282794 | 4.69 | | | | |
| | LOWER LIMIT | 70699 | 3.69 | | | | |
| | CLIENT SAMPLE NO. | | | | | | |
| 01 | HS20110128-16 | 123698 | 4.19 | | | | |
| 02 | HS20110128-17 | 125744 | 4.18 | | | | |
| 03 | HS20110128-18 | 124906 | 4.19 | | | | |
| 04 | | | | | | | |
| 05 | | | | | | | |
| 06 | | | | | | | |
| 07 | | | | | | | |
| 08 | | | | | | | |
| 09 | | | | | | | |
| 10 | | | | | | | |
| 11 | | | | | | | |
| 12 | | | | | | | |
| 13 | | | | | | | |
| 14 | | | | | | | |
| 15 | | | | | | | |
| 16 | | | | | | | |
| 17 | | | | | | | |
| 18 | | | | | | | |
| 19 | | | | | | | |
| 20 | | | | | | | |

IS4 = Pentafluorobenzene

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

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



FORM VIII VOA

Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110601.D



Date : 06-NOV-2020 20:36

Client ID: BFB

Instrument: voa6.i

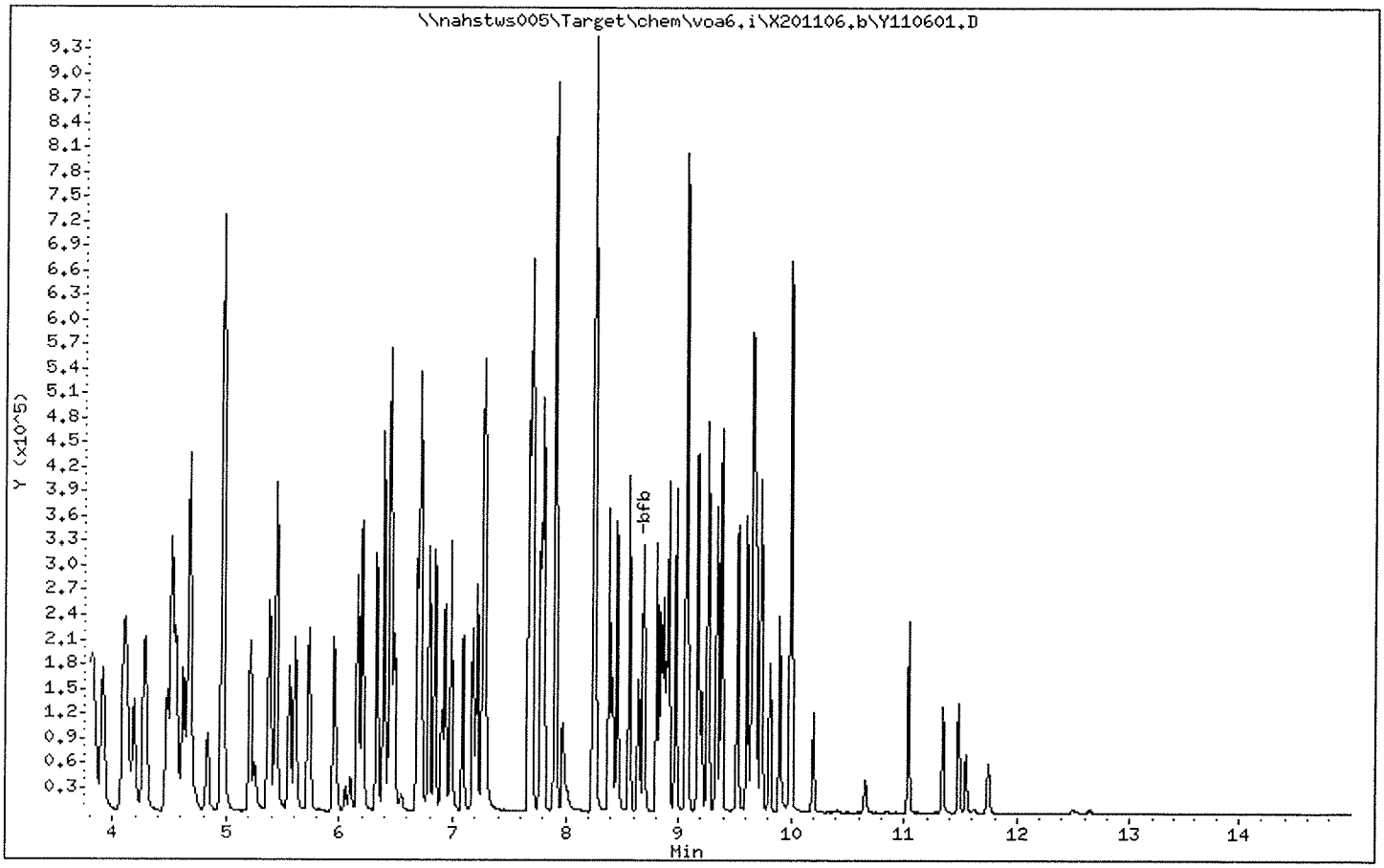
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110601.D



Date : 06-NOV-2020 20:36

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

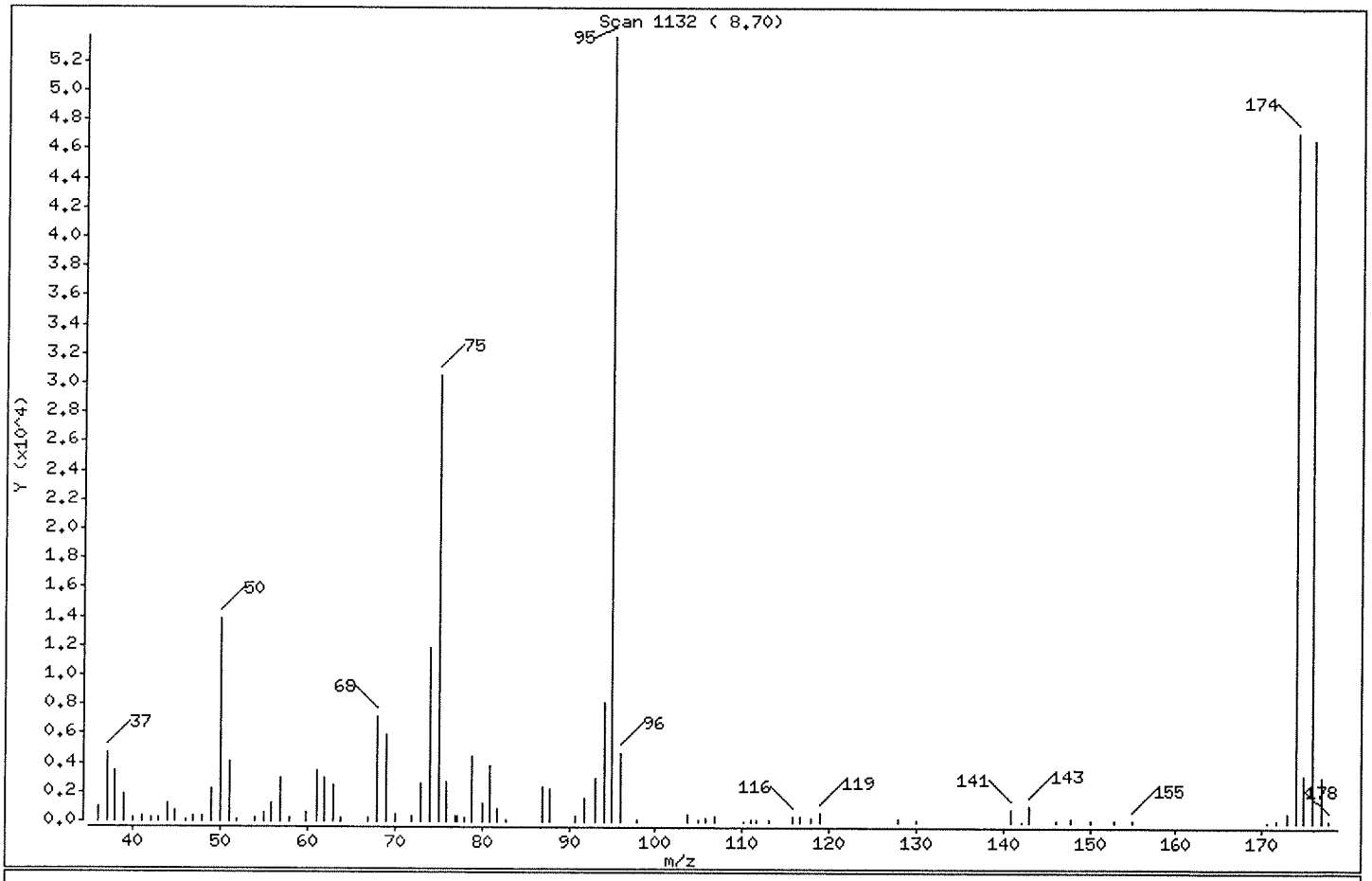
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb




| m/e | ION ABUNDANCE CRITERIA | % RELATIVE ABUNDANCE |
|---|---|---|
| 95 | Base Peak, 100% relative abundance | 100.00 |
| 50 | 15.00 - 40.00% of mass 95 | 25.82 |
| 75 | 30.00 - 60.00% of mass 95 | 56.77 |
| 96 | 5.00 - 9.00% of mass 95 | 8.63 |
| 173 | Less than 2.00% of mass 174 | 1.16 ( 1.32) |
| 174 | Greater than 50.00% of mass 95 | 87.83 |
| 175 | 5.00 - 9.00% of mass 174 | 5.86 ( 6.68) |
| 176 | 95.00 - 101.00% of mass 174 | 86.92 ( 98.97) |
| 177 | 5.00 - 9.00% of mass 176 | 5.80 ( 6.67) |

Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110601.D



Date : 06-NOV-2020 20:36

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

Data File: Y110601.D
Spectrum: Scan 1132 ( 8.70)
Location of Maximum: 95.00
Number of points: 83

| m/z | Y | m/z | Y | m/z | Y | m/z | Y |
|---|---|---|---|---|---|---|---|
| 36.00 | 1033 | 57.90 | 239 | 81.80 | 922 | 117.90 | 194 |
| 37.00 | 4633 | 59.90 | 588 | 82.80 | 138 | 118.80 | 610 |
| 38.00 | 3425 | 61.00 | 3428 | 87.00 | 2366 | 127.80 | 198 |
| 39.00 | 1895 | 62.00 | 3013 | 87.90 | 2247 | 130.00 | 162 |
| 40.00 | 214 | 63.00 | 2522 | 90.80 | 379 | 140.80 | 879 |
| 41.00 | 381 | 63.70 | 221 | 91.80 | 1658 | 142.00 | 57 |
| 42.20 | 252 | 67.00 | 205 | 93.00 | 2918 | 142.80 | 1079 |
| 43.00 | 268 | 68.00 | 7193 | 94.00 | 8175 | 146.00 | 87 |
| 43.90 | 1178 | 69.00 | 5947 | 95.00 | 53704 | 147.70 | 188 |
| 44.90 | 781 | 70.00 | 549 | 96.00 | 4633 | 149.90 | 100 |
| 46.00 | 155 | 72.00 | 363 | 97.80 | 87 | 152.70 | 100 |
| 46.90 | 326 | 73.00 | 2602 | 103.70 | 543 | 154.90 | 141 |
| 47.90 | 371 | 74.00 | 11873 | 104.90 | 110 | 170.70 | 58 |
| 49.00 | 2236 | 75.00 | 30488 | 105.80 | 297 | 171.80 | 88 |
| 50.00 | 13866 | 76.00 | 2681 | 106.80 | 336 | 173.00 | 623 |
| 51.00 | 4035 | 76.90 | 319 | 110.20 | 57 | 173.90 | 47168 |
| 52.00 | 164 | 77.20 | 322 | 110.90 | 115 | 174.80 | 3149 |
| 54.00 | 206 | 77.90 | 192 | 111.70 | 63 | 175.90 | 46680 |
| 55.00 | 589 | 78.90 | 4484 | 113.10 | 86 | 176.90 | 3114 |
| 55.90 | 1294 | 80.00 | 1196 | 115.70 | 390 | 177.80 | 154 |
| 57.00 | 2930 | 80.90 | 3810 | 116.70 | 389 | | |

Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110603.D Page 1
Report Date: 13-Jan-2021 18:58

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201106.b\Y110603.D
Lab Smp Id: CCV Client Smp ID: CCV
Inj Date : 06-NOV-2020 21:18
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201106.b\8260W.m
Meth Date : 13-Jan-2021 18:58 voa6.i Quant Type: ISTD
Cal Date : 03-NOV-2020 14:27 Cal File: X110308.D
Als bottle: 32 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

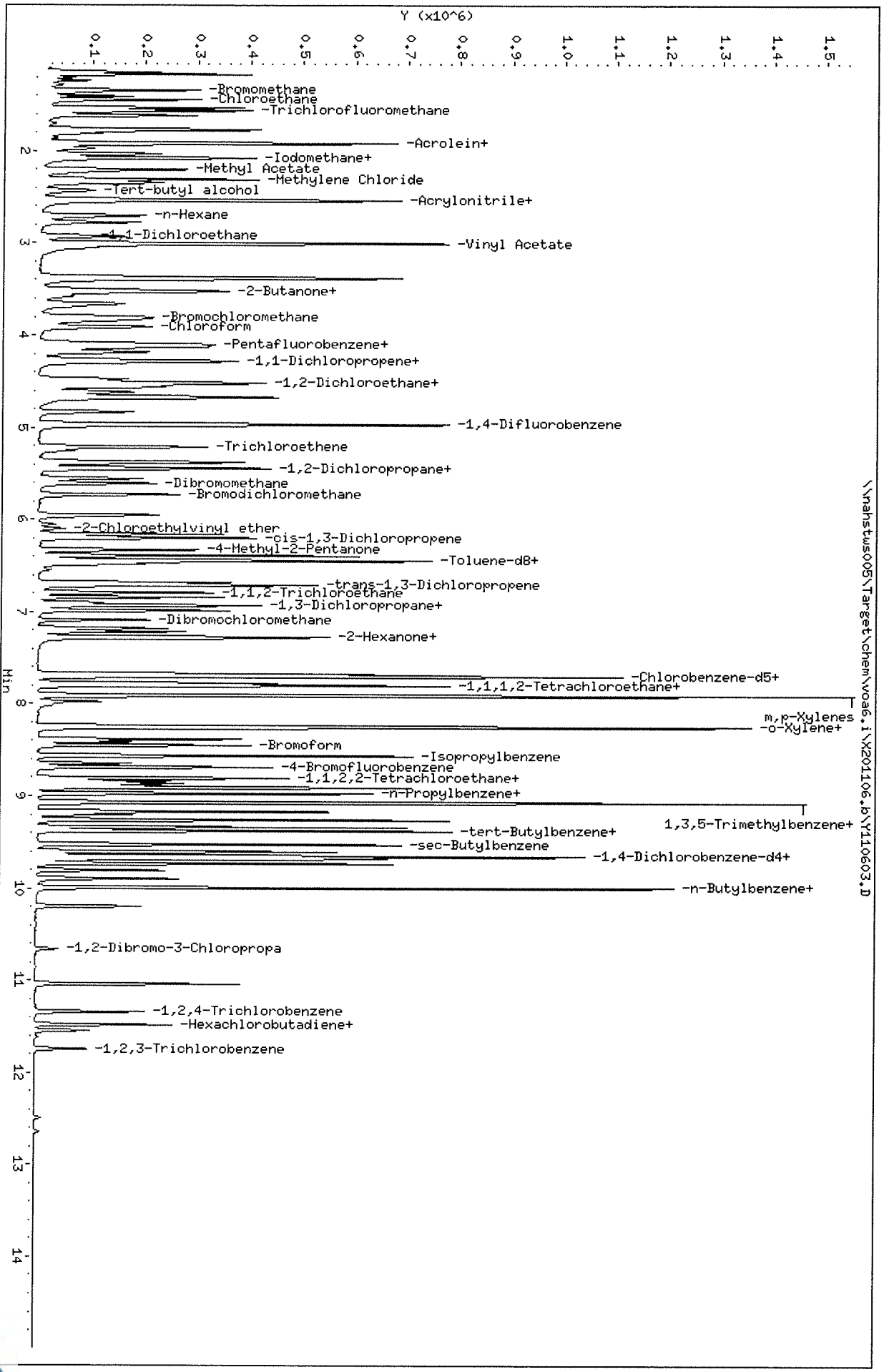
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.189 | 4.189 | (1.000) | 141397 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 4.970 | 4.970 | (1.000) | 259651 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 7.671 | 7.671 | (1.000) | 235620 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 9.662 | 9.662 | (1.000) | 111283 | 50.0000 | |
| $ 35 1,2-Dichloroethane-d4 | 65 | 4.476 | 4.476 | (1.068) | 113427 | 50.0000 | 50.56 |
| $ 69 4-Bromofluorobenzene | 95 | 8.688 | 8.688 | (1.133) | 104530 | 50.0000 | 49.96 |
| $ 30 Dibromofluoromethane | 113 | 4.104 | 4.104 | (0.979) | 91595 | 50.0000 | 48.10 |
| $ 48 Toluene-d8 | 98 | 6.389 | 6.389 | (0.833) | 310012 | 50.0000 | 49.25 |
| 60 1,1,1,2-Tetrachloroethane | 131 | 7.778 | 7.778 | (1.014) | 84853 | 50.0000 | 50.47 |
| 31 1,1,1-Trichloroethane | 97 | 4.089 | 4.089 | (0.976) | 146259 | 50.0000 | 49.53 |
| 68 1,1,2,2-Tetrachloroethane | 83 | 8.838 | 8.838 | (0.915) | 95740 | 50.0000 | 52.15 |
| 138 Freon TF | 101 | 1.919 | 1.919 | (0.458) | 112001 | 50.0000 | 43.38 |
| 53 1,1,2-Trichloroethane | 83 | 6.840 | 6.840 | (0.892) | 72956 | 50.0000 | 50.20 |
| 22 1,1-Dichloroethane | 63 | 2.929 | 2.929 | (0.699) | 155777 | 50.0000 | 45.83 |
| 11 1,1-Dichloroethene | 96 | 1.919 | 1.919 | (0.458) | 116210 | 50.0000 | 43.56 |
| 32 1,1-Dichloropropene | 75 | 4.283 | 4.283 | (0.862) | 117024 | 50.0000 | 48.33 |
| 93 1,2,3-Trichlorobenzene | 180 | 11.746 | 11.746 | (1.216) | 22640 | 50.0000 | 47.55 |
| 71 1,2,3-Trichloropropane | 75 | 8.867 | 8.867 | (0.918) | 79254 | 50.0000 | 50.71(M) |
| 90 1,2,4-Trichlorobenzene | 180 | 11.338 | 11.338 | (1.173) | 42919 | 50.0000 | 48.09 |
| 79 1,2,4-Trimethylbenzene | 105 | 9.383 | 9.383 | (0.971) | 327242 | 50.0000 | 52.56 |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 10.658 | 10.658 | (1.103) | 6466 | 50.0000 | 52.35 |
| 57 1,2-Dibromoethane | 107 | 7.262 | 7.262 | (0.947) | 92096 | 50.0000 | 52.12 |

Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110603.D Page 2
Report Date: 13-Jan-2021 18:58

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| 88 1,2-Dichlorobenzene | 146 | 9.992 | 9.992 | (1.034) | 156930 | 50.0000 | 51.09 |
| 33 1,2-Dichloroethane | 62 | 4.562 | 4.562 | (0.918) | 140278 | 50.0000 | 50.10 |
| 42 1,2-Dichloropropane | 63 | 5.436 | 5.436 | (1.094) | 95011 | 50.0000 | 49.44 |
| 75 1,3,5-Trimethylbenzene | 105 | 9.067 | 9.067 | (0.938) | 326461 | 50.0000 | 51.41 |
| 83 1,3-Dichlorobenzene | 146 | 9.605 | 9.605 | (0.994) | 163058 | 50.0000 | 49.99 |
| 54 1,3-Dichloropropane | 76 | 6.983 | 6.983 | (0.910) | 146421 | 50.0000 | 50.72 |
| 84 1,4-Dichlorobenzene | 146 | 9.684 | 9.684 | (1.002) | 164245 | 50.0000 | 48.36 |
| 26 2,2-Dichloropropane | 77 | 3.516 | 3.516 | (0.839) | 131412 | 50.0000 | 44.91 |
| 24 2-Butanone | 43 | 3.581 | 3.581 | (0.855) | 62517 | 100.000 | 95.11 |
| 76 2-Chlorotoluene | 91 | 8.974 | 8.974 | (0.929) | 256850 | 50.0000 | 49.14 |
| 52 2-Hexanone | 43 | 7.212 | 7.212 | (0.940) | 155435 | 100.000 | 97.69 |
| 77 4-Chlorotoluene | 91 | 9.075 | 9.075 | (0.939) | 324362 | 50.0000 | 49.13 |
| 82 p-Isopropyltoluene | 119 | 9.655 | 9.655 | (0.999) | 316482 | 50.0000 | 52.65 |
| 45 4-Methyl-2-Pentanone | 43 | 6.324 | 6.324 | (0.824) | 179288 | 100.000 | 100.16 |
| 10 Acetone | 43 | 1.976 | 1.976 | (0.472) | 74018 | 100.000 | 94.73 |
| 37 Benzene | 78 | 4.519 | 4.519 | (0.909) | 358138 | 50.0000 | 49.38 |
| 74 Bromobenzene | 156 | 8.810 | 8.810 | (0.912) | 98709 | 50.0000 | 50.40 |
| 29 Bromochloromethane | 128 | 3.803 | 3.803 | (0.908) | 48735 | 50.0000 | 50.04 |
| 39 Bromodichloromethane | 83 | 5.730 | 5.730 | (1.153) | 134859 | 50.0000 | 50.55 |
| 66 Bromoform | 173 | 8.416 | 8.416 | (1.097) | 55217 | 50.0000 | 47.43 |
| 6 Bromomethane | 94 | 1.339 | 1.339 | (0.320) | 117456 | 50.0000 | 44.63 |
| 19 Carbon Disulfide | 76 | 2.069 | 2.069 | (0.494) | 453907 | 100.000 | 91.56 |
| 34 Carbon Tetrachloride | 117 | 4.275 | 4.275 | (0.860) | 114857 | 50.0000 | 49.40 |
| 59 Chlorobenzene | 112 | 7.699 | 7.699 | (1.004) | 238690 | 50.0000 | 47.40 |
| 7 Chloroethane | 64 | 1.403 | 1.403 | (0.335) | 90828 | 50.0000 | 40.76(M) |
| 28 Chloroform | 83 | 3.910 | 3.910 | (0.933) | 173178 | 50.0000 | 47.86 |
| 3 Chloromethane | 50 | 1.081 | 1.081 | (0.258) | 95794 | 50.0000 | 47.87 |
| 27 cis-1,2-Dichloroethene | 96 | 3.530 | 3.530 | (0.843) | 97104 | 50.0000 | 46.82 |
| 46 cis-1,3-Dichloropropene | 75 | 6.159 | 6.159 | (1.239) | 147506 | 50.0000 | 50.92 |
| 55 Dibromochloromethane | 129 | 7.176 | 7.176 | (0.936) | 92880 | 50.0000 | 53.33 |
| 44 Dibromomethane | 93 | 5.558 | 5.558 | (1.118) | 68921 | 50.0000 | 52.50 |
| 2 Dichlorodifluoromethane | 85 | 0.973 | 0.973 | (0.232) | 82811 | 50.0000 | 45.22 |
| 61 Ethylbenzene | 106 | 7.800 | 7.800 | (1.017) | 127764 | 50.0000 | 50.01 |
| 91 Hexachlorobutadiene | 225 | 11.481 | 11.481 | (1.188) | 30969 | 50.0000 | 51.73 |
| 67 Isopropylbenzene | 105 | 8.566 | 8.566 | (1.117) | 365022 | 50.0000 | 46.94 |
| 62 m,p-Xylenes | 106 | 7.907 | 7.907 | (1.031) | 324261 | 100.000 | 105.97 |
| 17 Methylene Chloride | 84 | 2.306 | 2.306 | (0.550) | 86622 | 50.0000 | 44.61 |
| 87 n-Butylbenzene | 91 | 9.999 | 9.999 | (1.035) | 313099 | 50.0000 | 46.58 |
| 73 n-Propylbenzene | 91 | 8.917 | 8.917 | (0.923) | 449853 | 50.0000 | 50.77 |
| 92 Naphthalene | 128 | 11.546 | 11.546 | (1.195) | 64475 | 50.0000 | 50.33 |
| 63 o-Xylene | 106 | 8.244 | 8.244 | (1.075) | 154398 | 50.0000 | 50.63 |
| 81 sec-Butylbenzene | 105 | 9.526 | 9.526 | (0.986) | 375311 | 50.0000 | 49.23 |
| 64 Styrene | 104 | 8.258 | 8.258 | (1.077) | 274536 | 50.0000 | 53.69 |
| 78 tert-Butylbenzene | 119 | 9.340 | 9.340 | (0.967) | 249805 | 50.0000 | 49.32 |
| 56 Tetrachloroethene | 164 | 6.933 | 6.933 | (0.904) | 68551 | 50.0000 | 52.84 |
| 50 Toluene | 91 | 6.446 | 6.446 | (0.840) | 384422 | 50.0000 | 44.58 |
| 20 trans-1,2-Dichloroethene | 96 | 2.535 | 2.535 | (0.605) | 82721 | 50.0000 | 46.95 |
| 51 trans-1,3-Dichloropropene | 75 | 6.682 | 6.682 | (1.344) | 134098 | 50.0000 | 52.47 |
| 38 Trichloroethene | 130 | 5.207 | 5.207 | (1.048) | 88927 | 50.0000 | 51.39 |
| 8 Trichlorofluoromethane | 101 | 1.561 | 1.561 | (0.373) | 229063 | 50.0000 | 42.98 |
| 5 Vinyl Chloride | 62 | 1.145 | 1.145 | (0.273) | 134654 | 50.0000 | 43.09 |

QC Flag Legend

M - Compound response manually integrated.

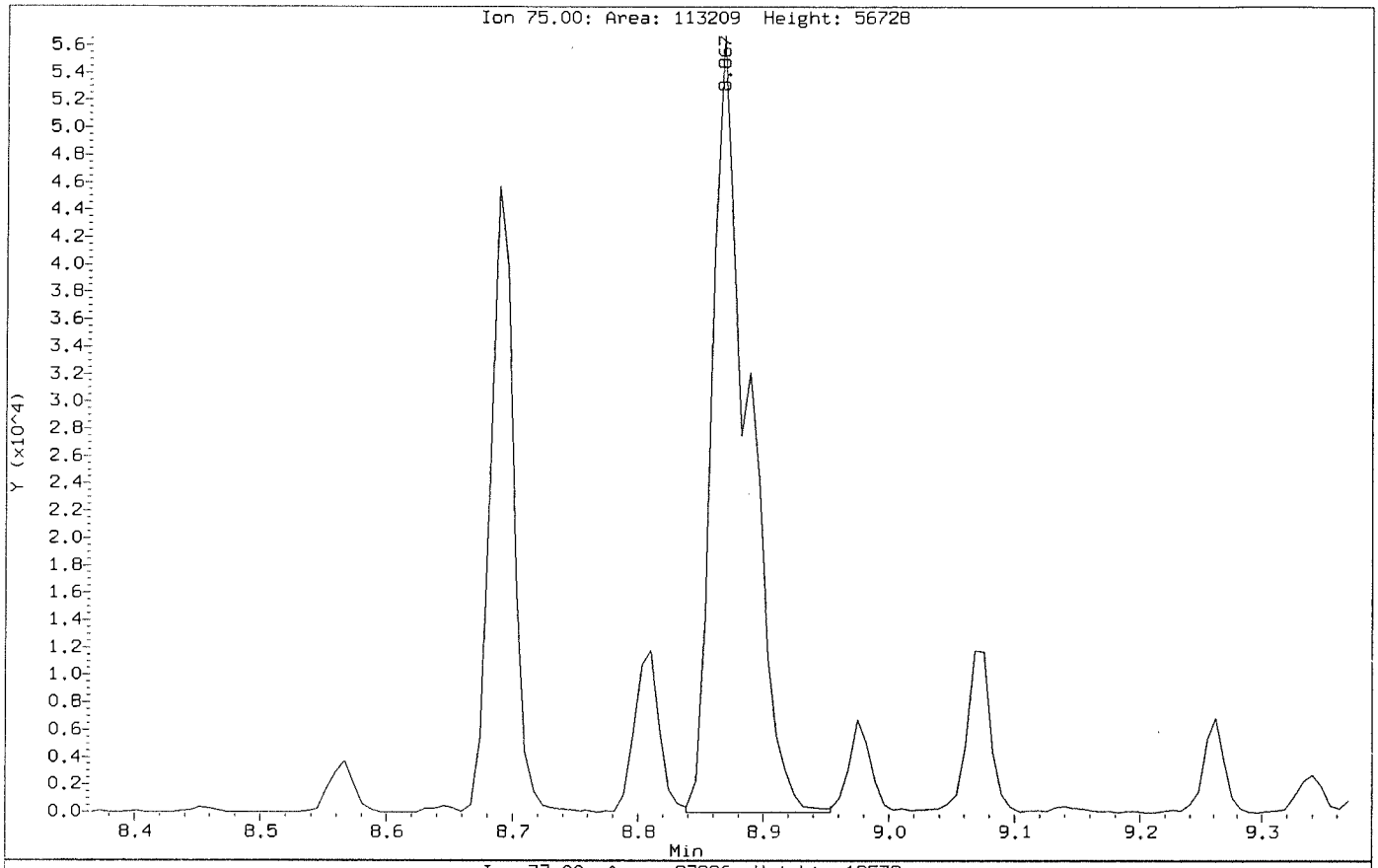


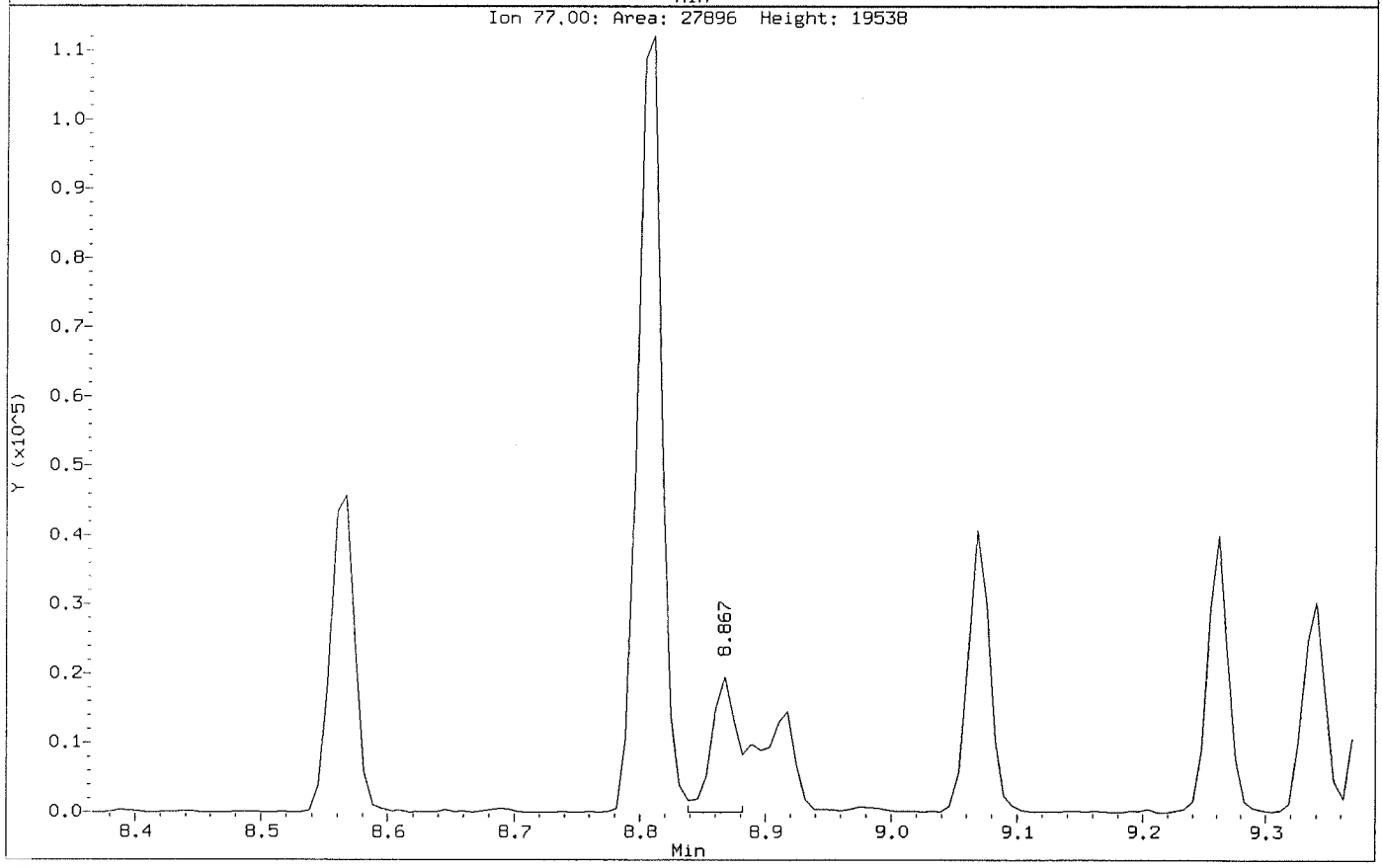

Data File: \\nahstus005\Target\chem\voa6.i\X201106.b\Y110603.D
Date : 06-NOV-2020 21:18
Client ID: CCV
Sample Info: CCV;CCV;2;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Before\Y110603.D
Injection Date: 06-NOV-2020 21:18
Instrument: voa6.i
Client Sample ID: CCV

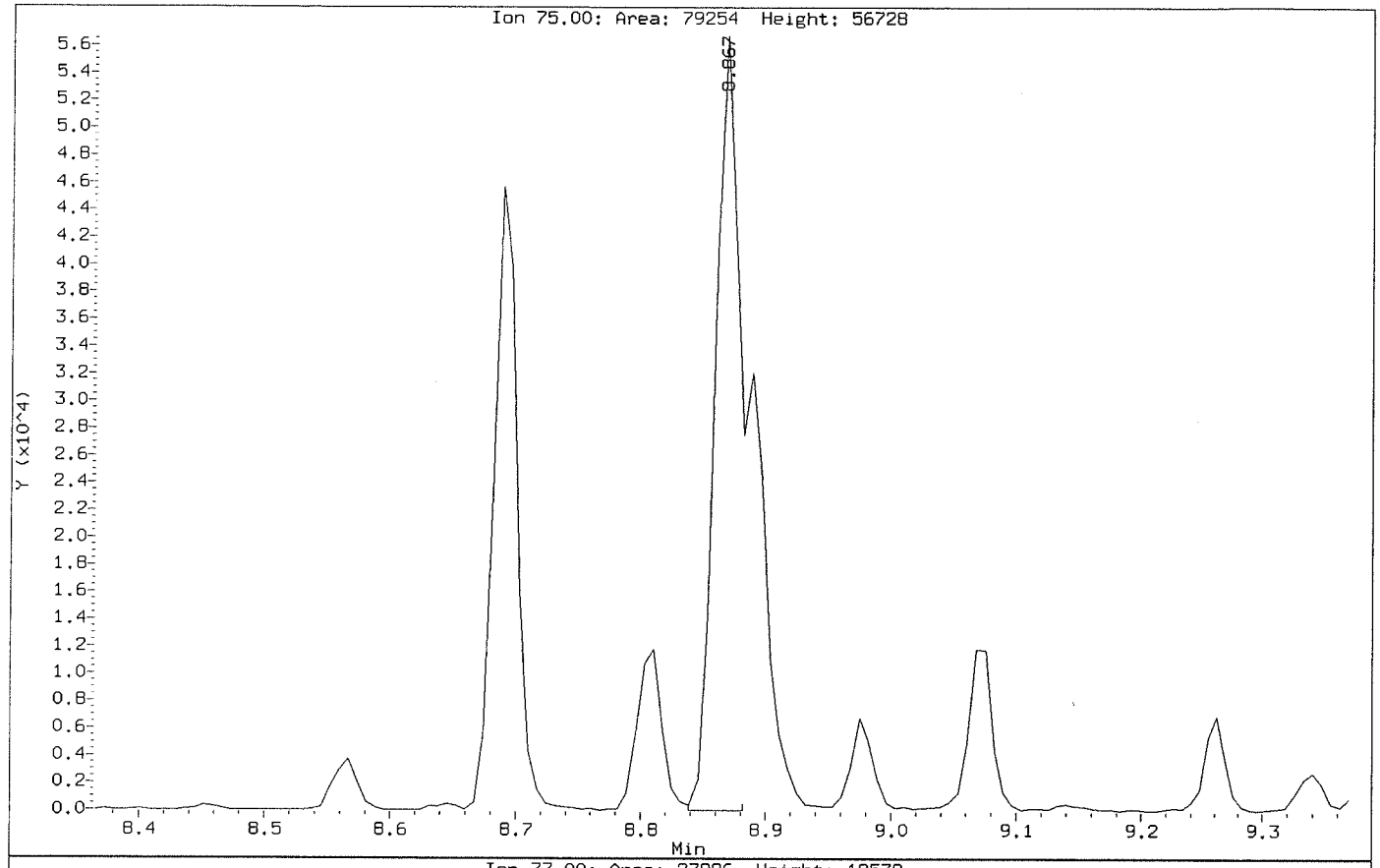
Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4

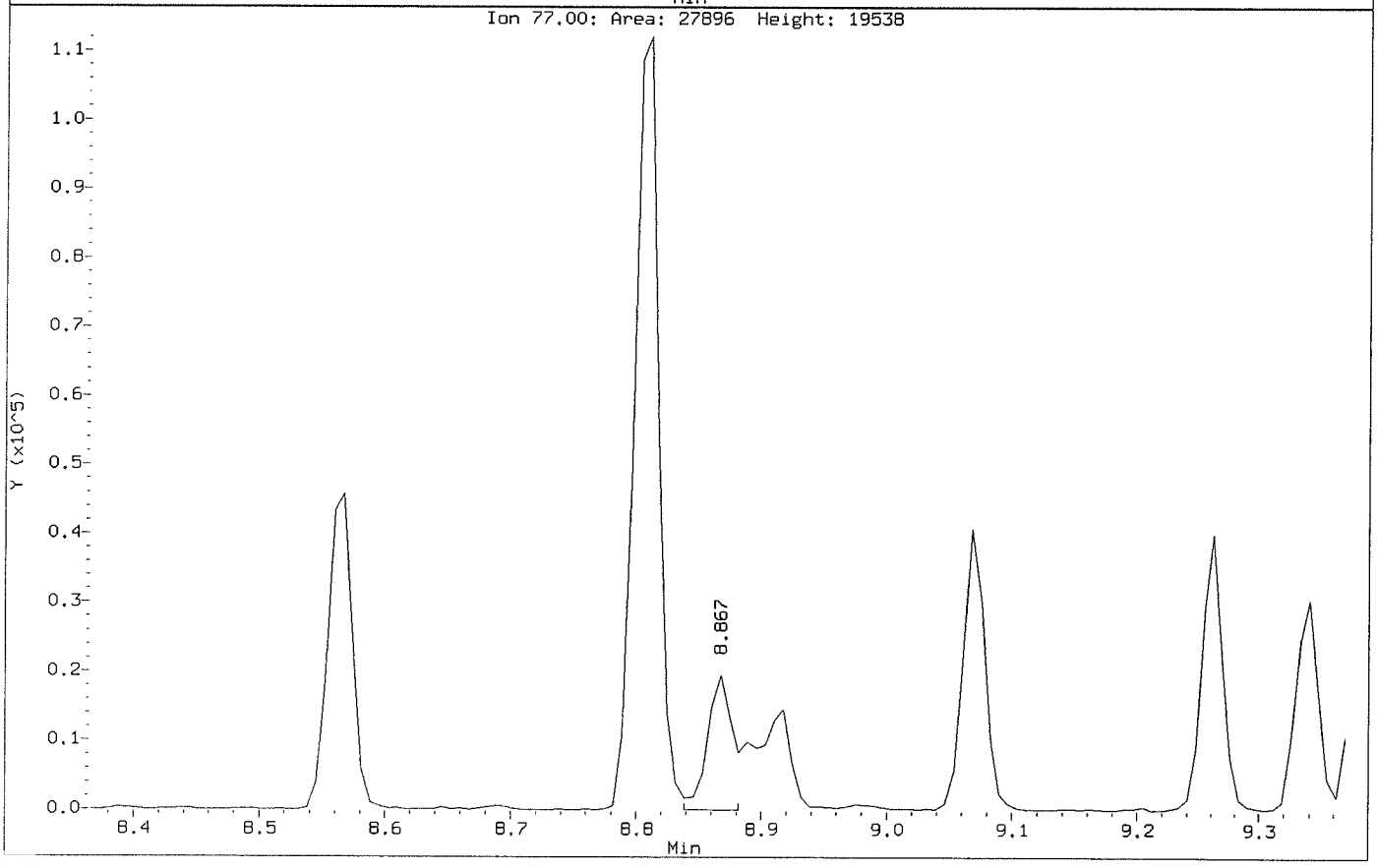


Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110603.D
Injection Date: 06-NOV-2020 21:18
Instrument: voa6.i
Client Sample ID: CCV

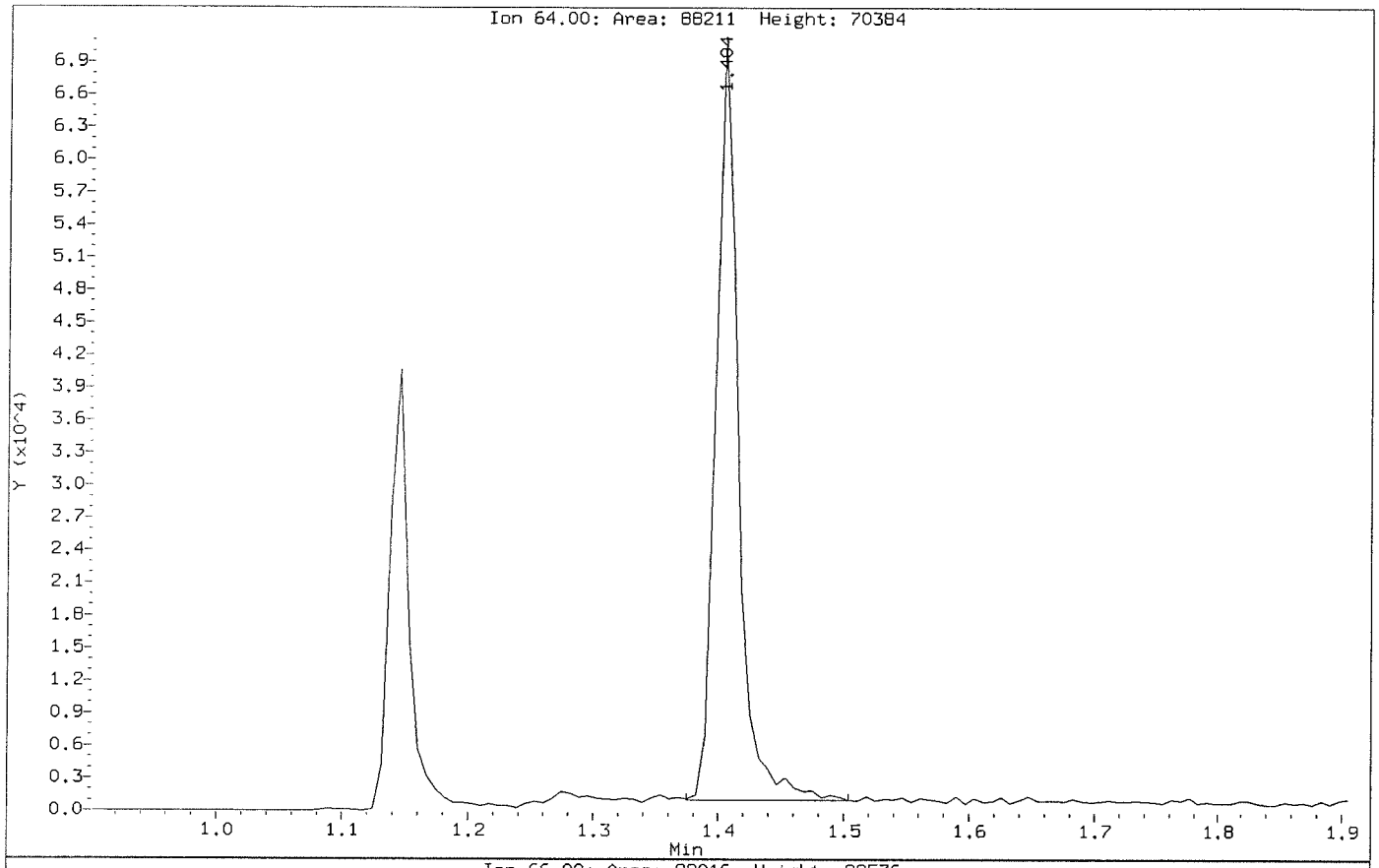
Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4

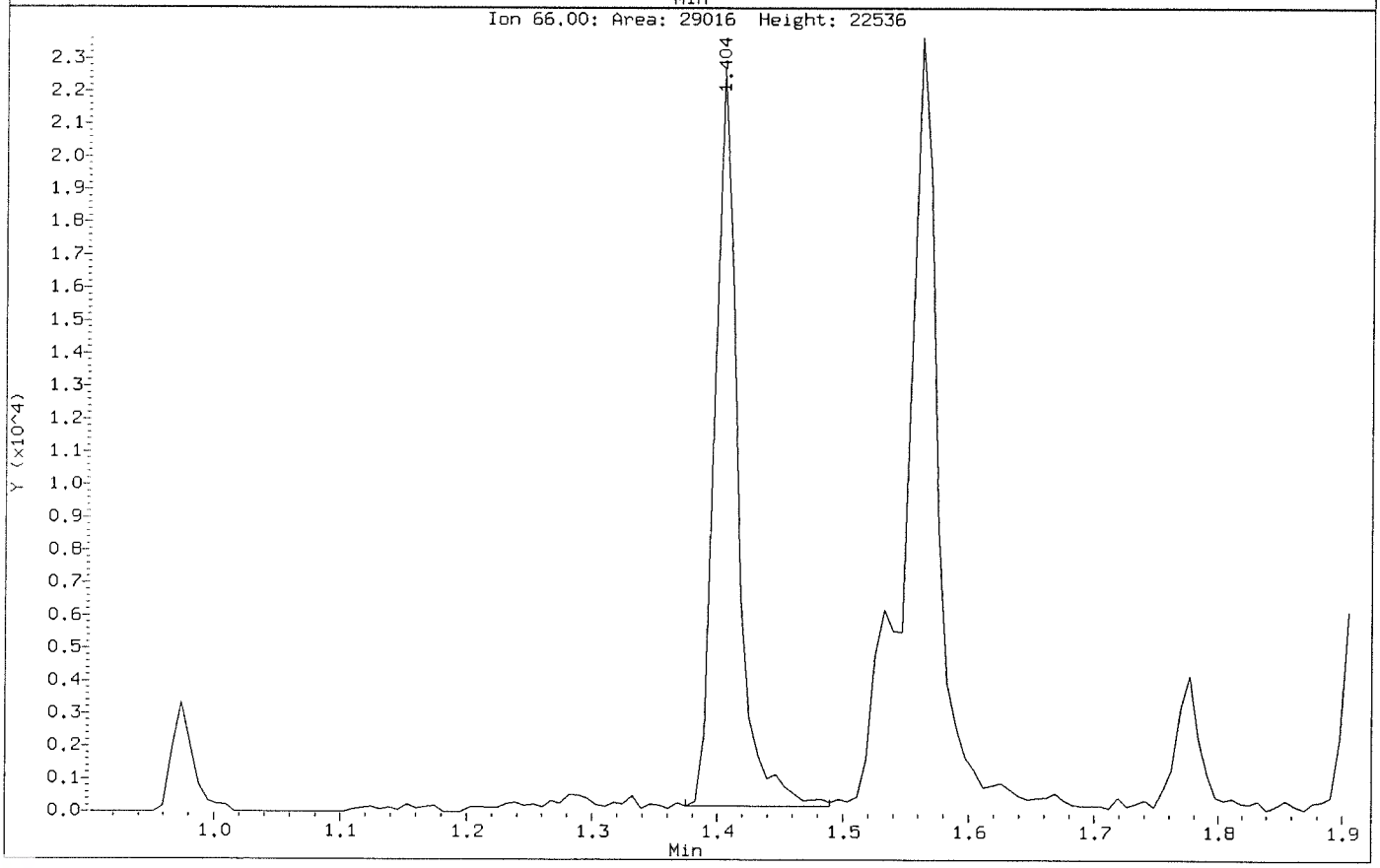


Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Before\Y110603.D
Injection Date: 06-NOV-2020 21:18
Instrument: voa6.i
Client Sample ID: CCV

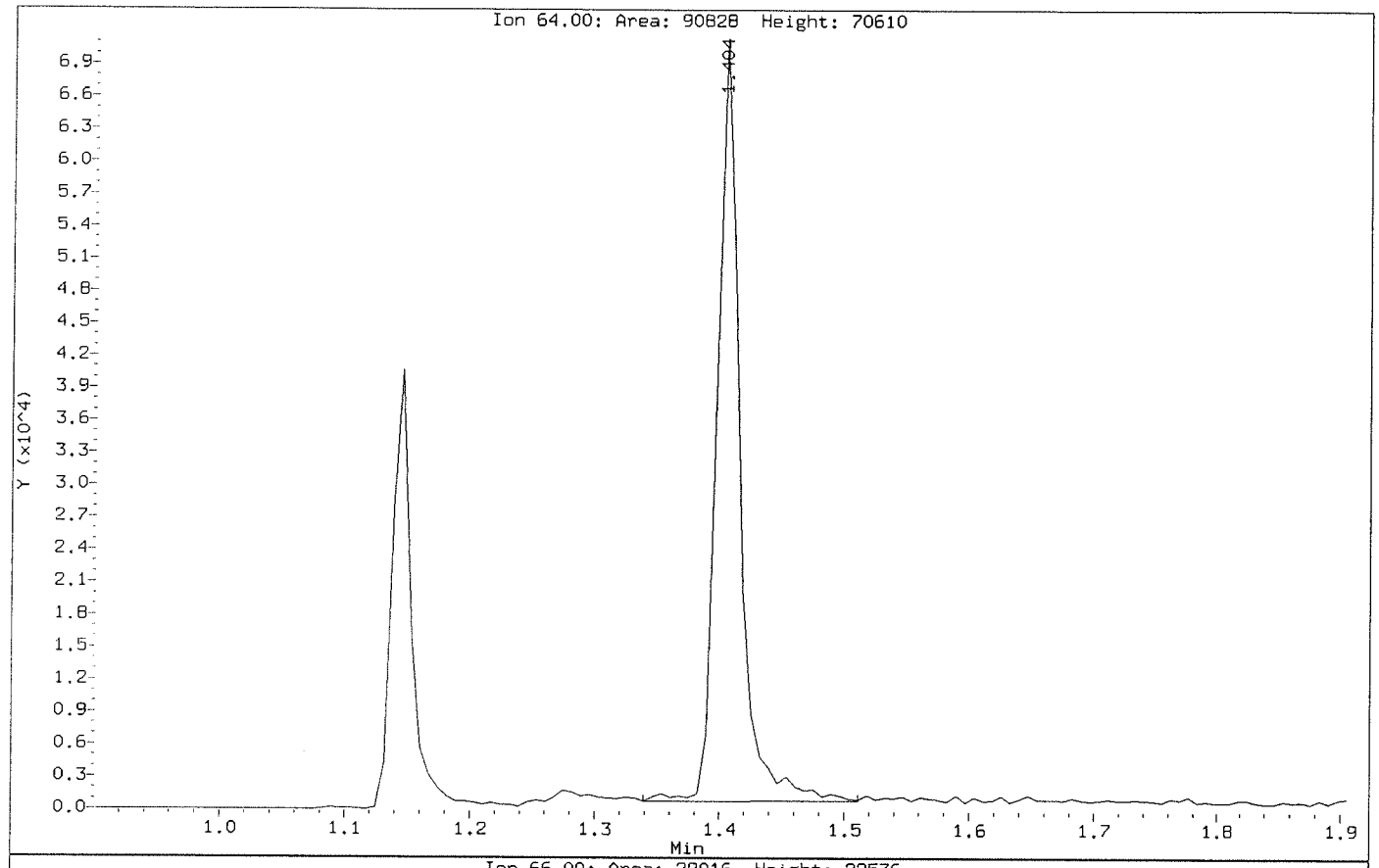
Compound: Chloroethane
CAS Number: 75-00-3

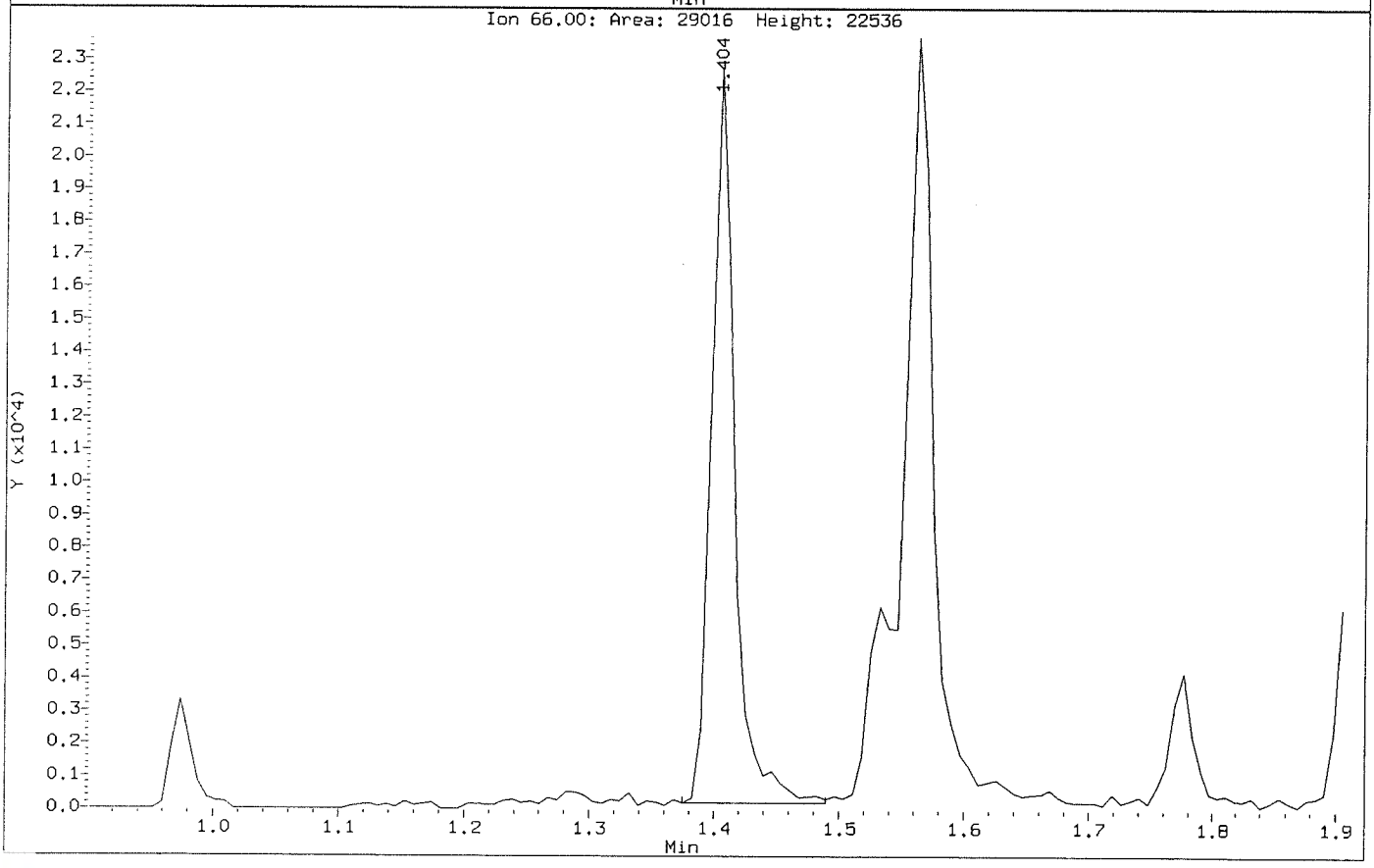


Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110603.D
Injection Date: 06-NOV-2020 21:18
Instrument: voa6.i
Client Sample ID: CCV

Compound: Chloroethane
CAS Number: 75-00-3



Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110605.D Page 1
Report Date: 13-Jan-2021 19:00

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201106.b\Y110605.D
Lab Smp Id: VLCSW-201106 Client Smp ID: VLCSW-201106
Inj Date : 06-NOV-2020 22:00
Operator : PC Inst ID: voa6.i
Smp Info : VLCSW-201106;VLCSW-201106;3;;LCS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201106.b\8260W.m
Meth Date : 13-Jan-2021 18:58 voa6.i Quant Type: ISTD
Cal Date : 03-NOV-2020 14:27 Cal File: X110308.D
Als bottle: 34 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

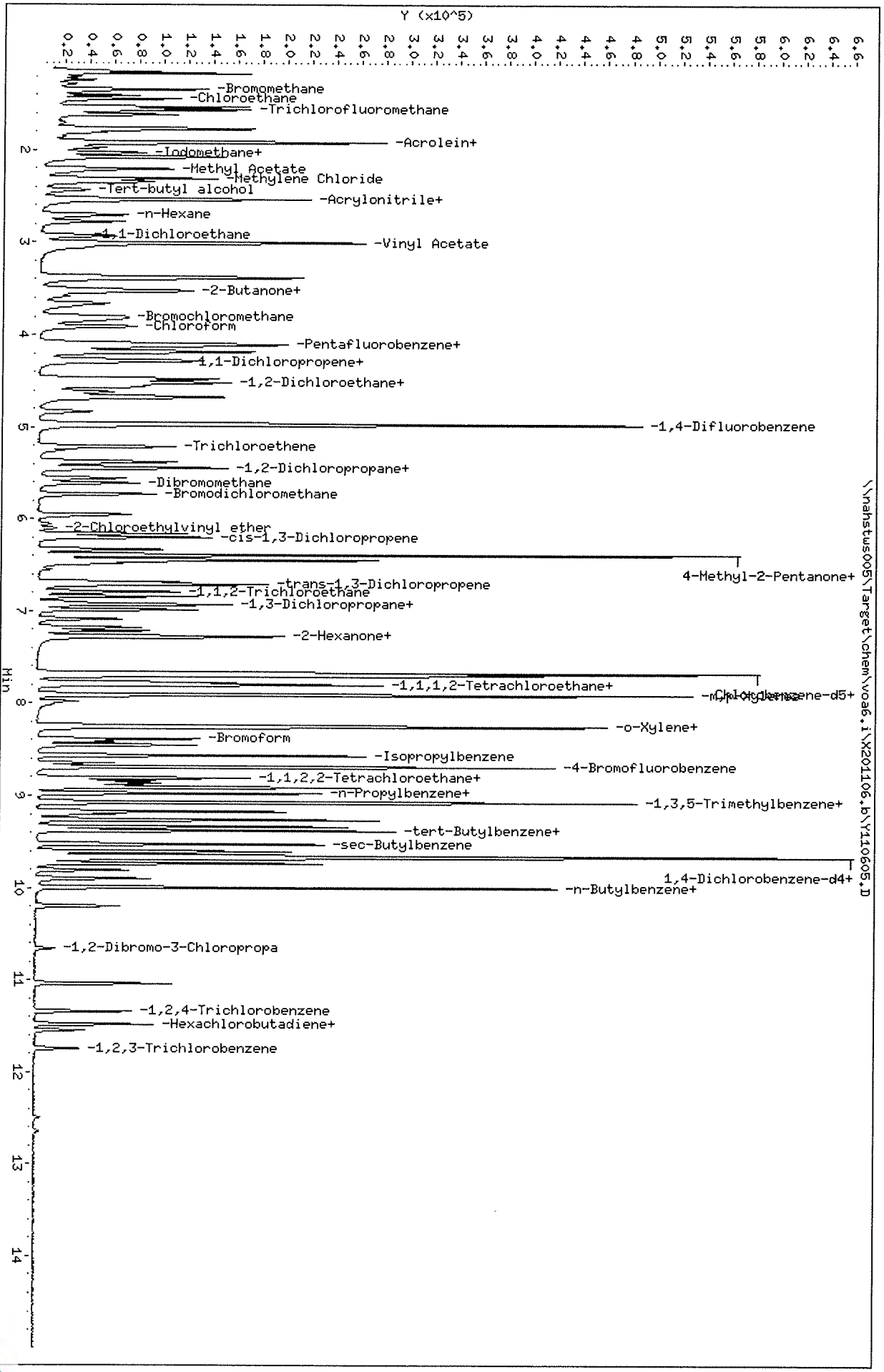
| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| * | 1 Pentafluorobenzene | 168 | 4.189 | 4.189 | (1.000) | 121566 | 50.0000 | |
| * | 36 1,4-Difluorobenzene | 114 | 4.970 | 4.970 | (1.000) | 236537 | 50.0000 | |
| * | 47 Chlorobenzene-d5 | 117 | 7.671 | 7.671 | (1.000) | 221649 | 50.0000 | |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 9.662 | 9.662 | (1.000) | 100136 | 50.0000 | |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 4.476 | 4.476 | (1.068) | 95053 | 49.3367 | 49.33 |
| $ | 69 4-Bromofluorobenzene | 95 | 8.688 | 8.688 | (1.133) | 94645 | 48.1626 | 48.16 |
| $ | 30 Dibromofluoromethane | 113 | 4.103 | 4.104 | (0.979) | 81145 | 49.5649 | 49.56 |
| $ | 48 Toluene-d8 | 98 | 6.388 | 6.389 | (0.833) | 291966 | 49.3166 | 49.31 |
| | 60 1,1,1,2-Tetrachloroethane | 131 | 7.778 | 7.778 | (1.014) | 29516 | 18.6660 | 18.66 |
| | 31 1,1,1-Trichloroethane | 97 | 4.089 | 4.089 | (0.976) | 49619 | 19.5482 | 19.54 |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 8.838 | 8.838 | (0.915) | 34740 | 20.6793 | 20.67 |
| | 138 Freon TF | 101 | 1.919 | 1.919 | (0.458) | 45800 | 20.6356 | 20.63 |
| | 53 1,1,2-Trichloroethane | 83 | 6.840 | 6.840 | (0.892) | 26941 | 19.7068 | 19.70 |
| | 22 1,1-Dichloroethane | 63 | 2.929 | 2.929 | (0.699) | 56971 | 19.4967 | 19.49 |
| | 11 1,1-Dichloroethene | 96 | 1.919 | 1.919 | (0.458) | 48706 | 21.2356 | 21.23 |
| | 32 1,1-Dichloropropene | 75 | 4.290 | 4.283 | (0.863) | 42950 | 19.4714 | 19.47 |
| | 93 1,2,3-Trichlorobenzene | 180 | 11.746 | 11.746 | (1.216) | 8457 | 20.7752 | 20.77 |
| | 71 1,2,3-Trichloropropane | 75 | 8.867 | 8.867 | (0.918) | 27448 | 19.5209 | 19.52(M) |
| | 90 1,2,4-Trichlorobenzene | 180 | 11.338 | 11.338 | (1.173) | 16789 | 21.9046 | 21.90 |
| | 79 1,2,4-Trimethylbenzene | 105 | 9.383 | 9.383 | (0.971) | 117736 | 21.0175 | 21.01 |
| | 89 1,2-Dibromo-3-Chloropropane | 155 | 10.665 | 10.658 | (1.104) | 2106 | 18.7334 | 18.73 |
| | 57 1,2-Dibromoethane | 107 | 7.262 | 7.262 | (0.947) | 31465 | 18.9302 | 18.93 |

Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110605.D Page 2
Report Date: 13-Jan-2021 19:00

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| 88 1,2-Dichlorobenzene | 146 | 9.999 | 9.992 | (1.035) | 53403 | 19.3228 | 19.32 |
| 33 1,2-Dichloroethane | 62 | 4.562 | 4.562 | (0.918) | 48324 | 18.9470 | 18.94 |
| 42 1,2-Dichloropropane | 63 | 5.443 | 5.436 | (1.095) | 34709 | 19.8287 | 19.82 |
| 75 1,3,5-Trimethylbenzene | 105 | 9.067 | 9.067 | (0.938) | 114300 | 20.0057 | 20.00 |
| 83 1,3-Dichlorobenzene | 146 | 9.605 | 9.605 | (0.994) | 60917 | 20.7572 | 20.75 |
| 54 1,3-Dichloropropane | 76 | 6.983 | 6.983 | (0.910) | 52289 | 19.2547 | 19.25 |
| 84 1,4-Dichlorobenzene | 146 | 9.683 | 9.684 | (1.002) | 62373 | 20.4105 | 20.41 |
| 26 2,2-Dichloropropane | 77 | 3.516 | 3.516 | (0.839) | 46098 | 18.3265 | 18.32 |
| 24 2-Butanone | 43 | 3.580 | 3.581 | (0.855) | 22939 | 40.5914 | 40.59 |
| 76 2-Chlorotoluene | 91 | 8.974 | 8.974 | (0.929) | 91457 | 19.4457 | 19.44 |
| 52 2-Hexanone | 43 | 7.212 | 7.212 | (0.940) | 51592 | 36.8716 | 36.87 |
| 77 4-Chlorotoluene | 91 | 9.075 | 9.075 | (0.939) | 113529 | 19.1117 | 19.11 |
| 82 p-Isopropyltoluene | 119 | 9.655 | 9.655 | (0.999) | 111139 | 20.5490 | 20.54 |
| 45 4-Methyl-2-Pentanone | 43 | 6.324 | 6.324 | (0.824) | 60687 | 36.0406 | 36.04 |
| 10 Acetone | 43 | 1.976 | 1.976 | (0.472) | 33484 | 45.7115 | 45.71 |
| 37 Benzene | 78 | 4.519 | 4.519 | (0.909) | 127779 | 19.3402 | 19.34 |
| 74 Bromobenzene | 156 | 8.809 | 8.810 | (0.912) | 35332 | 20.0524 | 20.05 |
| 29 Bromochloromethane | 128 | 3.803 | 3.803 | (0.908) | 17352 | 20.7251 | 20.72 |
| 39 Bromodichloromethane | 83 | 5.729 | 5.730 | (1.153) | 47298 | 19.4622 | 19.46 |
| 66 Bromoform | 173 | 8.416 | 8.416 | (1.097) | 17564 | 18.1004 | 18.10 |
| 6 Bromomethane | 94 | 1.338 | 1.339 | (0.320) | 48517 | 21.4458 | 21.44 |
| 19 Carbon Disulfide | 76 | 2.069 | 2.069 | (0.494) | 168086 | 39.4383 | 39.43 |
| 34 Carbon Tetrachloride | 117 | 4.275 | 4.275 | (0.860) | 38835 | 18.3372 | 18.33 |
| 59 Chlorobenzene | 112 | 7.699 | 7.699 | (1.004) | 89102 | 18.8109 | 18.81 |
| 7 Chloroethane | 64 | 1.403 | 1.403 | (0.335) | 42939 | 22.4170 | 22.41 |
| 28 Chloroform | 83 | 3.910 | 3.910 | (0.933) | 64127 | 20.6155 | 20.61 |
| 3 Chloromethane | 50 | 1.081 | 1.081 | (0.258) | 37576 | 22.3216 | 22.32 |
| 27 cis-1,2-Dichloroethene | 96 | 3.537 | 3.530 | (0.844) | 35604 | 19.9711 | 19.97 |
| 46 cis-1,3-Dichloropropene | 75 | 6.159 | 6.159 | (1.239) | 49261 | 18.6676 | 18.66 |
| 55 Dibromochloromethane | 129 | 7.176 | 7.176 | (0.936) | 31006 | 18.9281 | 18.92 |
| 44 Dibromomethane | 93 | 5.557 | 5.558 | (1.118) | 24133 | 20.1829 | 20.18 |
| 2 Dichlorodifluoromethane | 85 | 0.973 | 0.973 | (0.232) | 31138 | 19.7801 | 19.78 |
| 61 Ethylbenzene | 106 | 7.799 | 7.800 | (1.017) | 46622 | 19.4014 | 19.40 |
| 91 Hexachlorobutadiene | 225 | 11.481 | 11.481 | (1.188) | 11094 | 21.9977 | 21.99 |
| 67 Isopropylbenzene | 105 | 8.566 | 8.566 | (1.117) | 132565 | 19.7279 | 19.72 |
| 62 m,p-Xylenes | 106 | 7.907 | 7.907 | (1.031) | 112305 | 39.0175 | 39.01 |
| 17 Methylene Chloride | 84 | 2.305 | 2.306 | (0.550) | 34312 | 20.5574 | 20.55 |
| 87 n-Butylbenzene | 91 | 9.999 | 9.999 | (1.035) | 111087 | 20.5509 | 20.55 |
| 73 n-Propylbenzene | 91 | 8.917 | 8.917 | (0.923) | 165802 | 20.7980 | 20.79 |
| 92 Naphthalene | 128 | 11.546 | 11.546 | (1.195) | 25753 | 23.5322 | 23.53 |
| 63 o-Xylene | 106 | 8.244 | 8.244 | (1.075) | 55026 | 19.1839 | 19.18 |
| 81 sec-Butylbenzene | 105 | 9.526 | 9.526 | (0.986) | 134363 | 21.1785 | 21.17 |
| 64 Styrene | 104 | 8.258 | 8.258 | (1.077) | 99267 | 20.6386 | 20.63 |
| 78 tert-Butylbenzene | 119 | 9.340 | 9.340 | (0.967) | 90347 | 21.3185 | 21.31 |
| 56 Tetrachloroethene | 164 | 6.933 | 6.933 | (0.904) | 24341 | 19.9485 | 19.94 |
| 50 Toluene | 91 | 6.446 | 6.446 | (0.840) | 141457 | 17.4391 | 17.43 |
| 20 trans-1,2-Dichloroethene | 96 | 2.535 | 2.535 | (0.605) | 29752 | 19.6441 | 19.64 |
| 51 trans-1,3-Dichloropropene | 75 | 6.682 | 6.682 | (1.344) | 45497 | 19.5428 | 19.54 |
| 38 Trichloroethene | 130 | 5.214 | 5.207 | (1.049) | 32150 | 20.3960 | 20.39 |
| 8 Trichlorofluoromethane | 101 | 1.560 | 1.561 | (0.373) | 91603 | 19.9937 | 19.99 |
| 5 Vinyl Chloride | 62 | 1.145 | 1.145 | (0.273) | 55830 | 20.7850 | 20.78 |

QC Flag Legend

M - Compound response manually integrated.

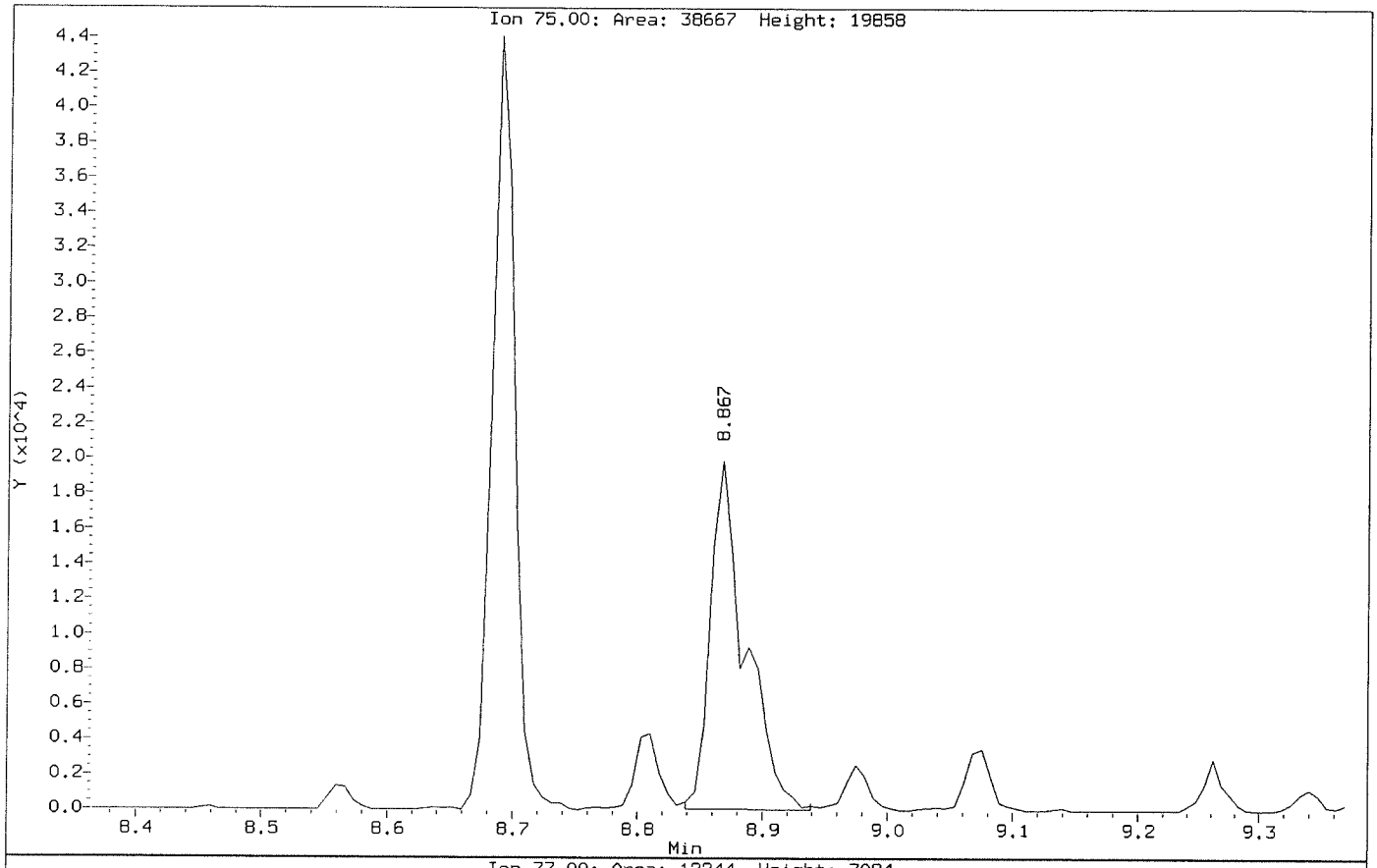


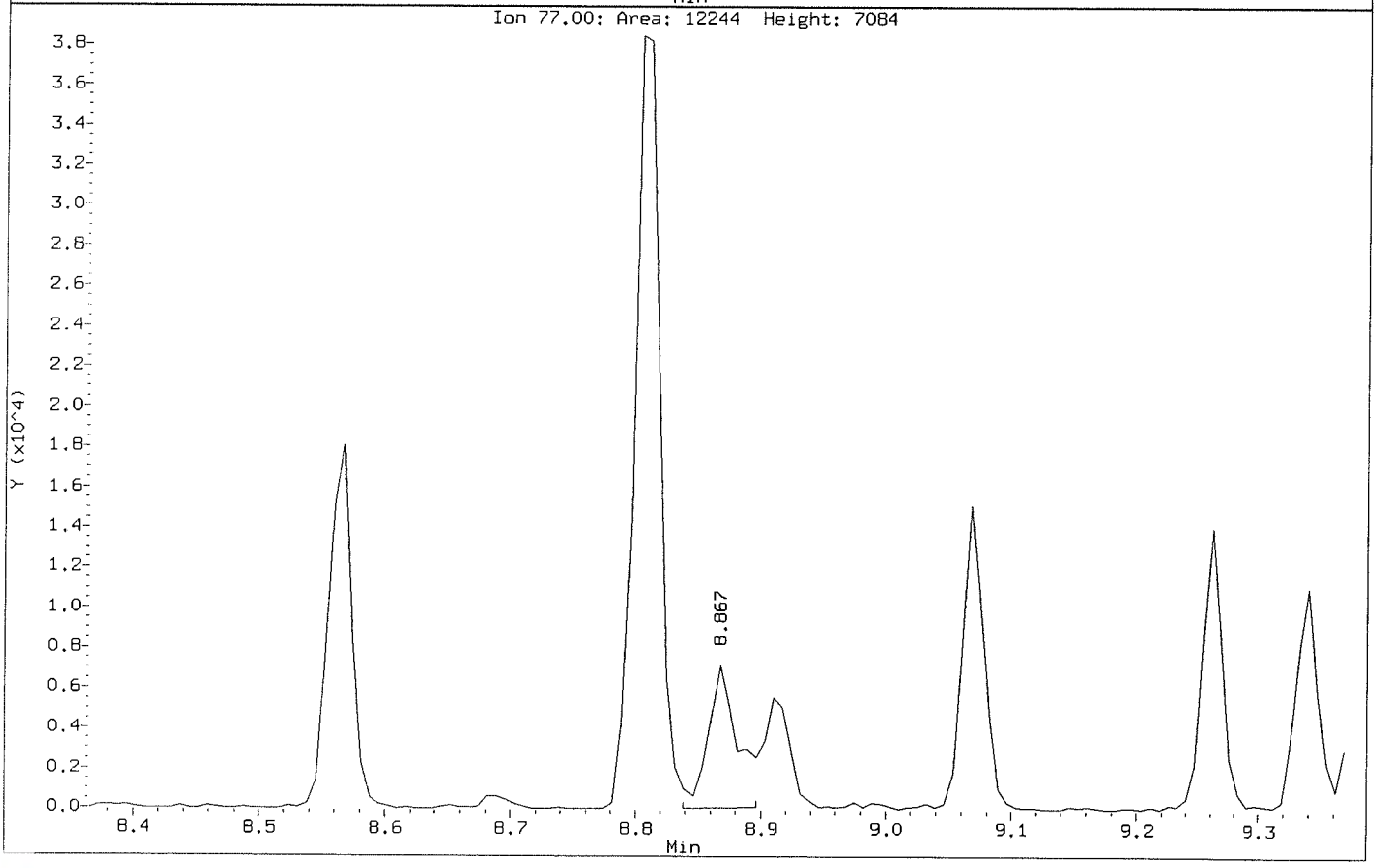

Data File: \\nahstus005\Target\chem\voa6.i\X201106.b\Y110605.D
Date : 06-NOV-2020 22:00
Client ID: VLCSW-201106
Sample Info: VLCSW-201106;VLCSW-201106;3;;LCS
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Before\Y110605.D
Injection Date: 06-NOV-2020 22:00
Instrument: voa6.i
Client Sample ID: VLCSW-201106

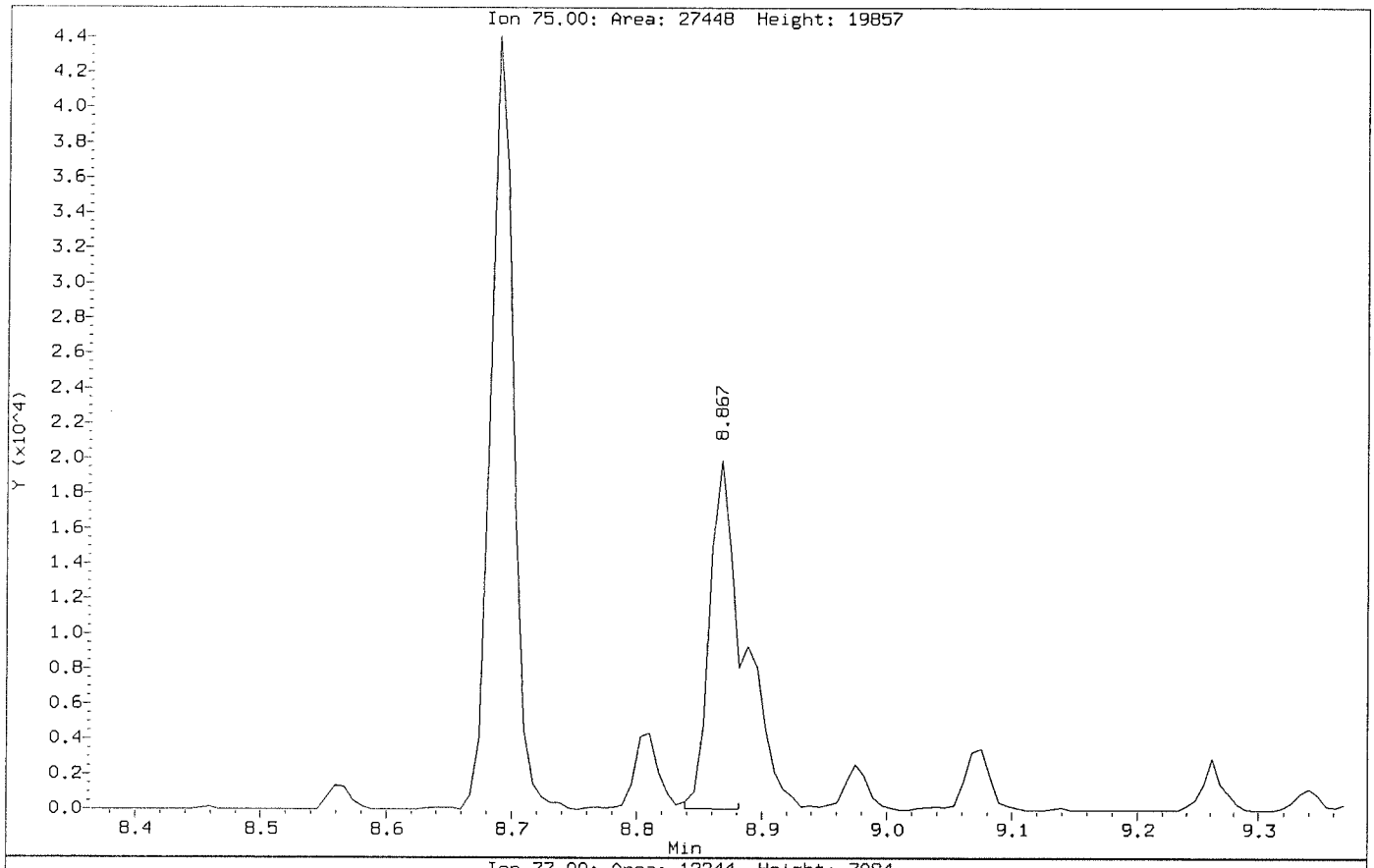
Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4

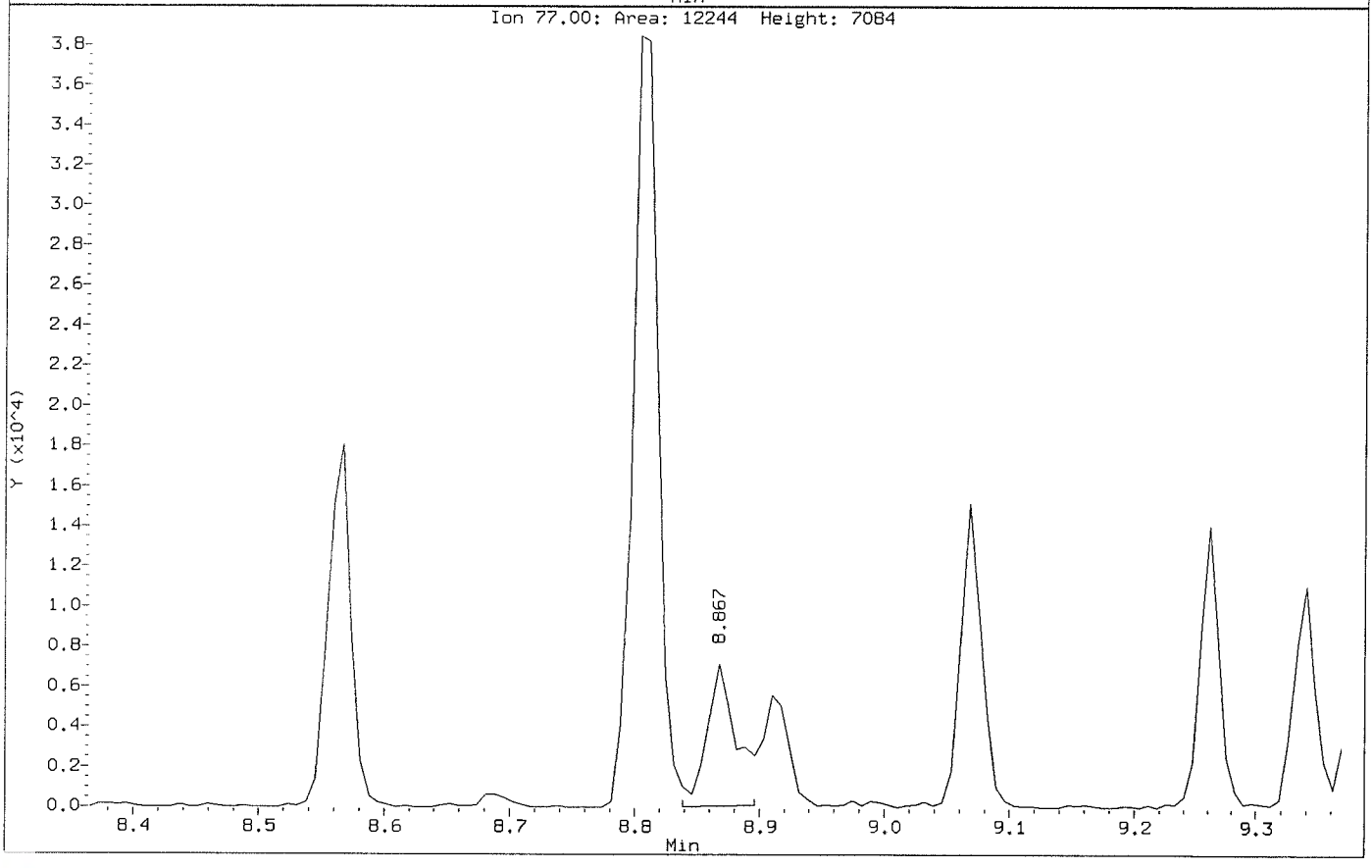


Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110605.D
Injection Date: 06-NOV-2020 22:00
Instrument: voa6.i
Client Sample ID: VLCSW-201106

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110607.D Page 1
Report Date: 13-Jan-2021 19:00

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201106.b\Y110607.D
Lab Smp Id: VBLKW-201106 Client Smp ID: VBLKW-201106
Inj Date : 06-NOV-2020 22:42
Operator : PC Inst ID: voa6.i
Smp Info : VBLKW-201106;VBLKW-201106;3;;BLANK
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201106.b\8260W.m
Meth Date : 13-Jan-2021 18:58 voa6.i Quant Type: ISTD
Cal Date : 03-NOV-2020 14:27 Cal File: X110308.D
Als bottle: 36 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

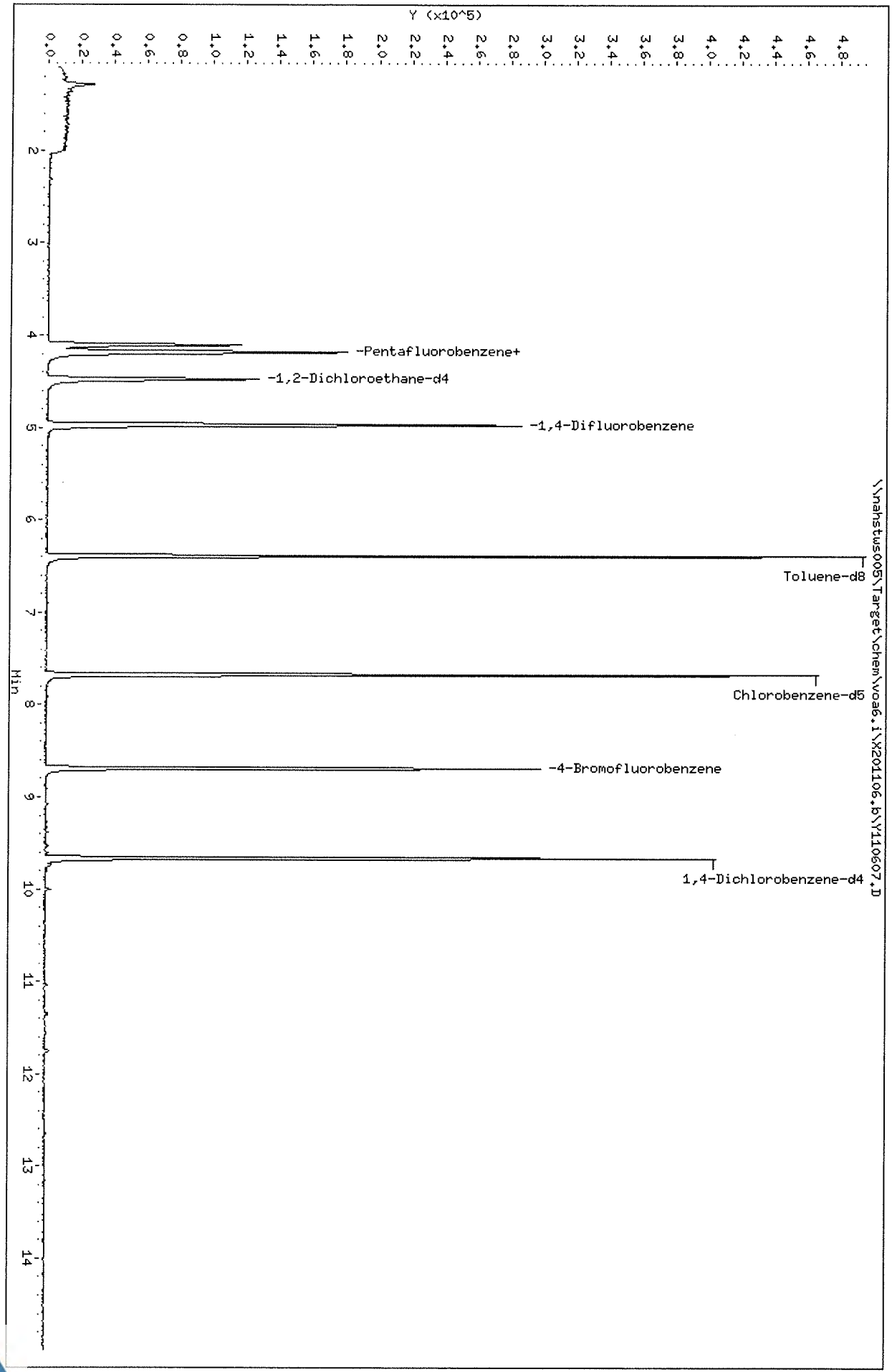
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.182 | 4.189 | (1.000) | 130000 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 4.970 | 4.970 | (1.000) | 216929 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 7.670 | 7.671 | (1.000) | 189899 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 9.662 | 9.662 | (1.000) | 76913 | 50.0000 | |
| $ 35 1,2-Dichloroethane-d4 | 65 | 4.476 | 4.476 | (1.070) | 88283 | 43.0666 | 43.06 |
| $ 69 4-Bromofluorobenzene | 95 | 8.688 | 8.688 | (1.133) | 74152 | 44.1859 | 44.18 |
| $ 30 Dibromofluoromethane | 113 | 4.103 | 4.104 | (0.981) | 73472 | 41.9666 | 41.96 |
| $ 48 Toluene-d8 | 98 | 6.388 | 6.389 | (0.833) | 256707 | 50.6106 | 50.61 |

Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110607.D
Date : 06-NOV-2020 22:42
Client ID: VBLKW-201106
Sample Info: VBLKW-201106;VBLKW-201106;3;;BLANK
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110608.D Page 1
Report Date: 13-Jan-2021 18:27

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201106.b\Y110608.D
Lab Smp Id: HS20110128-19 Client Smp ID: HS20110128-19
Inj Date : 06-NOV-2020 23:03
Operator : PC Inst ID: voa6.i
Smp Info : HS20110128-19;HS20110128-19;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201106.b\8260W.m
Meth Date : 13-Jan-2021 18:22 devak.giga Quant Type: ISTD
Cal Date : 03-NOV-2020 14:27 Cal File: X110308.D
Als bottle: 37
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

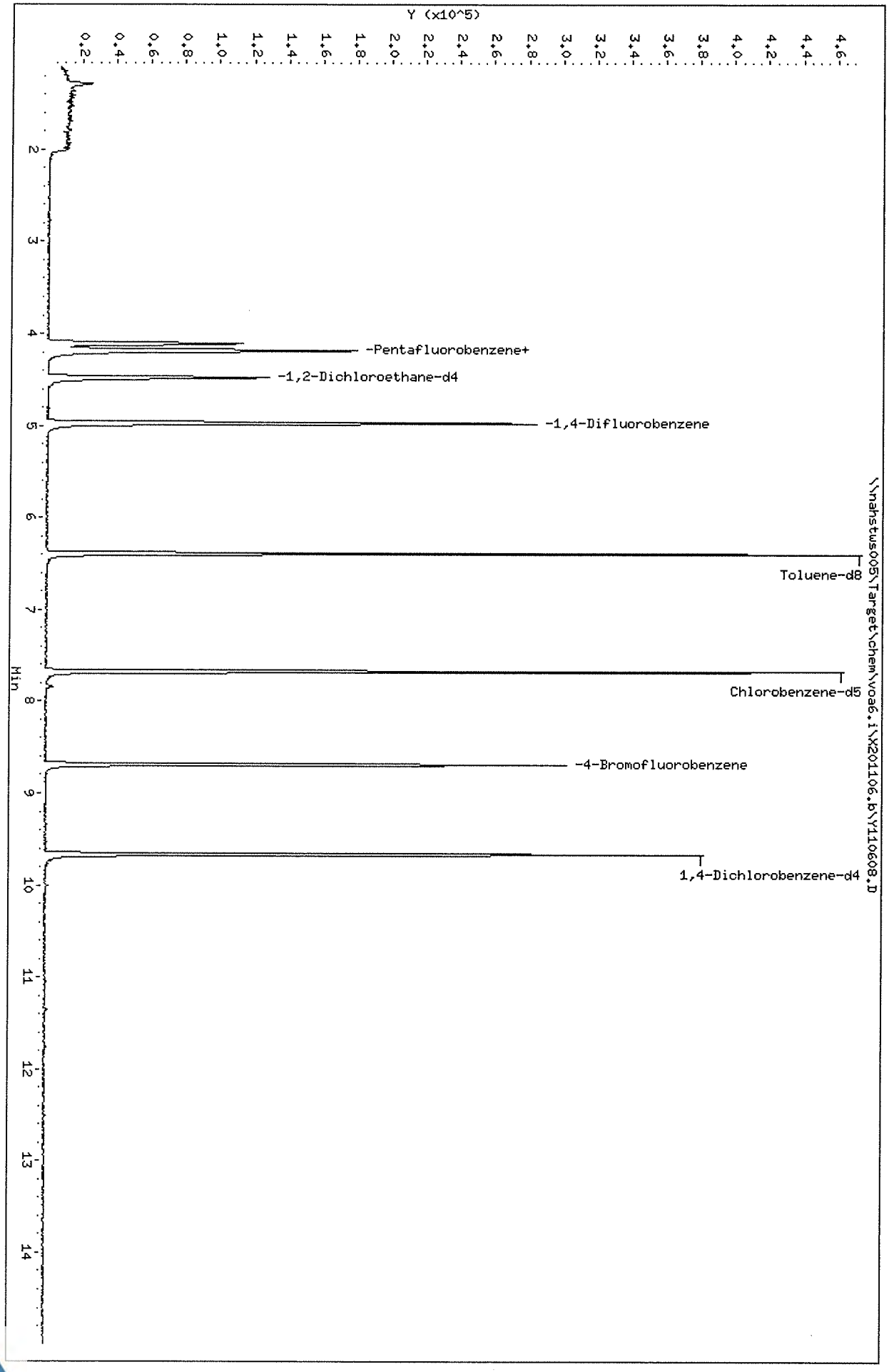
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.182 | 4.189 | (1.000) | 130530 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 4.970 | 4.970 | (1.000) | 218265 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 7.671 | 7.671 | (1.000) | 188335 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 9.669 | 9.662 | (1.000) | 74831 | 50.0000 | |
| $ 35 1,2-Dichloroethane-d4 | 65 | 4.476 | 4.476 | (1.070) | 88677 | 43.0826 | 43.08 |
| $ 69 4-Bromofluorobenzene | 95 | 8.695 | 8.688 | (1.134) | 74916 | 44.9824 | 44.98 |
| $ 30 Dibromofluoromethane | 113 | 4.103 | 4.104 | (0.981) | 73654 | 41.8997 | 41.89 |
| $ 48 Toluene-d8 | 98 | 6.388 | 6.389 | (0.833) | 251828 | 50.0610 | 50.06 |

Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110608.D
Date : 06-NOV-2020 23:03
Client ID: HS20110128-19
Sample Info: HS20110128-19;HS20110128-19;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110609.D Page 1
Report Date: 13-Jan-2021 18:27

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201106.b\Y110609.D
Lab Smp Id: HS20110128-11 Client Smp ID: HS20110128-11
Inj Date : 06-NOV-2020 23:24
Operator : PC Inst ID: voa6.i
Smp Info : HS20110128-11;HS20110128-11;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201106.b\8260W.m
Meth Date : 13-Jan-2021 18:22 devak.giga Quant Type: ISTD
Cal Date : 03-NOV-2020 14:27 Cal File: X110308.D
Als bottle: 38
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

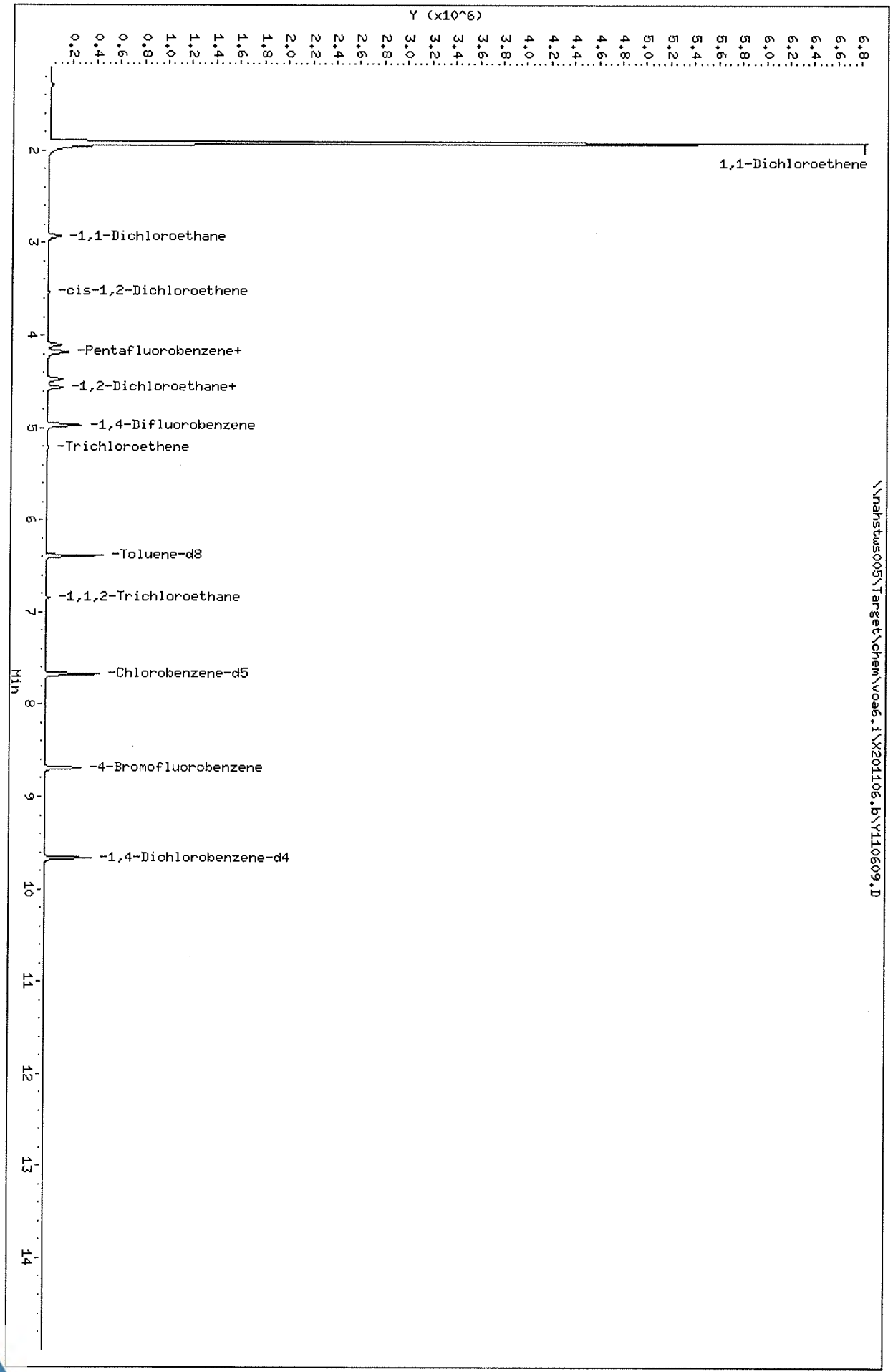
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.189 | 4.189 | (1.000) | 125304 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 4.970 | 4.970 | (1.000) | 212587 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 7.670 | 7.671 | (1.000) | 185211 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 9.662 | 9.662 | (1.000) | 77797 | 50.0000 | |
| $ 35 1,2-Dichloroethane-d4 | 65 | 4.476 | 4.476 | (1.068) | 85687 | 43.3571 | 43.35 |
| $ 69 4-Bromofluorobenzene | 95 | 8.688 | 8.688 | (1.133) | 73522 | 44.8933 | 44.89 |
| $ 30 Dibromofluoromethane | 113 | 4.103 | 4.104 | (0.979) | 70376 | 41.7047 | 41.70 |
| $ 48 Toluene-d8 | 98 | 6.388 | 6.389 | (0.833) | 248062 | 50.1441 | 50.14 |
| 53 1,1,2-Trichloroethane | 83 | 6.847 | 6.840 | (0.893) | 6535 | 5.72067 | 5.72 |
| 22 1,1-Dichloroethane | 63 | 2.929 | 2.929 | (0.699) | 99421 | 33.0090 | 33.00 |
| 11 1,1-Dichloroethene | 96 | 1.919 | 1.919 | (0.458) | 2088596 | 883.453 | 883.45(A) |
| 33 1,2-Dichloroethane | 62 | 4.562 | 4.562 | (0.918) | 100671 | 43.9183 | 43.91 |
| 27 cis-1,2-Dichloroethene | 96 | 3.537 | 3.530 | (0.844) | 2973 | 1.61788 | 1.61(a) |
| 38 Trichloroethene | 130 | 5.206 | 5.207 | (1.048) | 4425 | 3.12349 | 3.12(a) |

QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
A - Target compound detected but, quantitated amount exceeded maximum amount.

Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110609.D
Date : 06-NOV-2020 23:24
Client ID: HS20110128-11
Sample Info: HS20110128-11;HS20110128-11;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110609.D



Date : 06-NOV-2020 23:24

Client ID: HS20110128-11

Instrument: voa6.i

Sample Info: HS20110128-11;HS20110128-11;;;

Purge Volume: 5.0

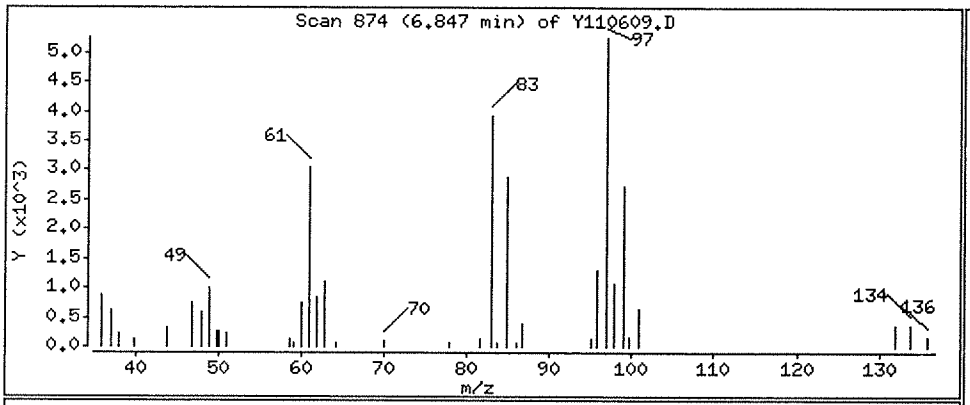
Operator: PC

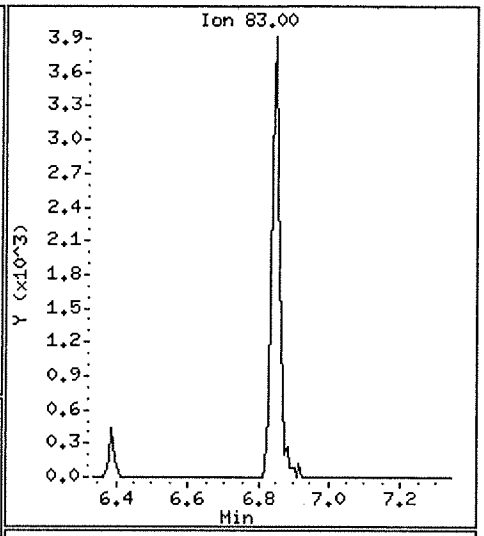
Column phase: DB624

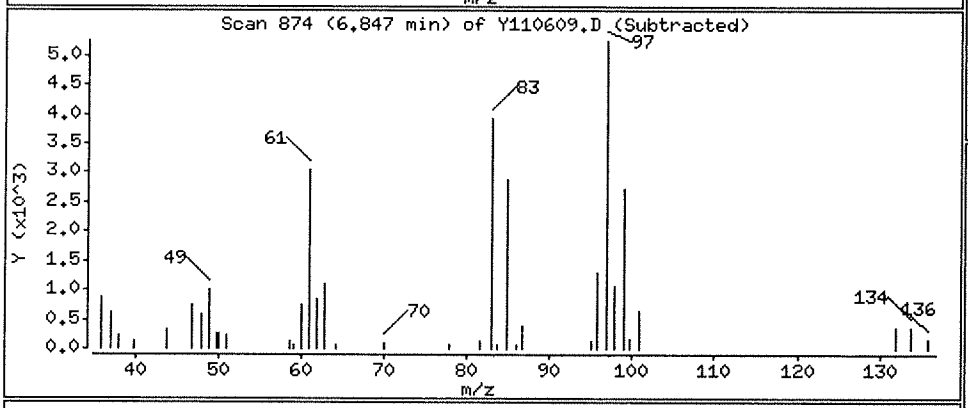
Column diameter: 0.18

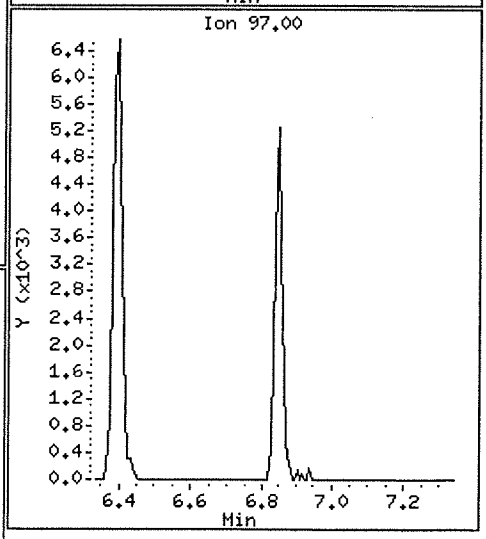
53 1,1,2-Trichloroethane

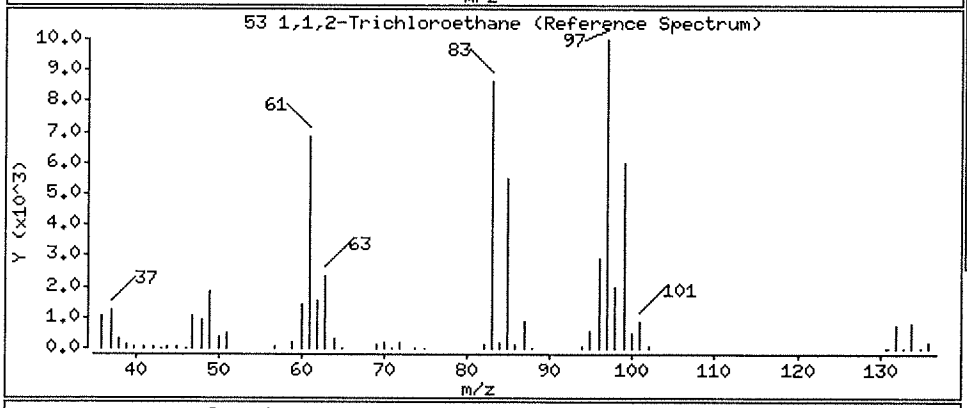
Concentration: 5.72 ug/l

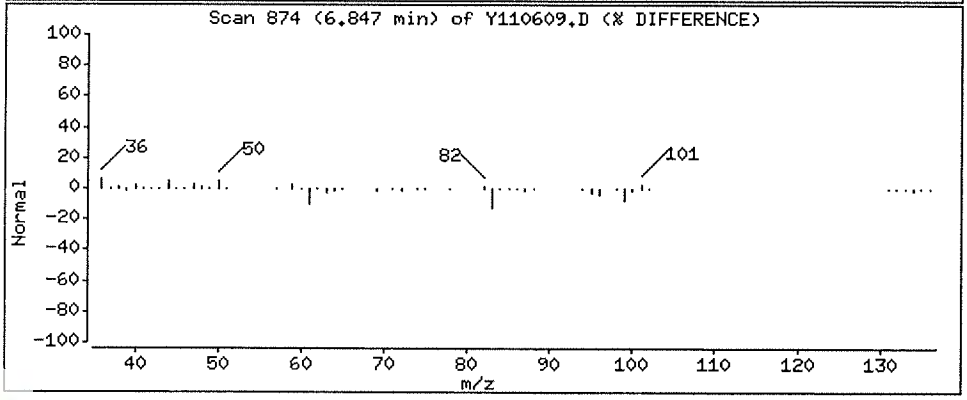


Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110609.D



Date : 06-NOV-2020 23:24

Client ID: HS20110128-11

Instrument: voa6.i

Sample Info: HS20110128-11;HS20110128-11;;;

Purge Volume: 5.0

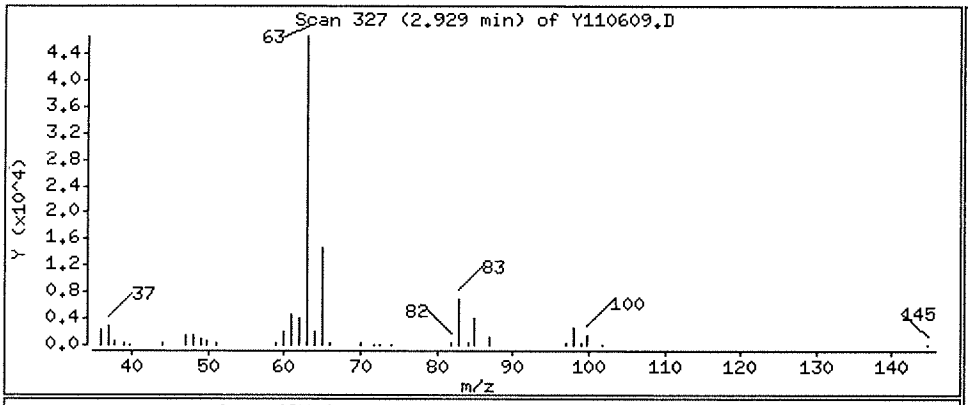
Operator: PC

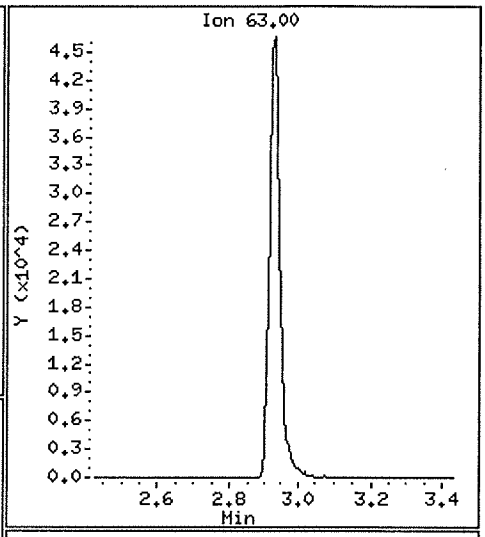
Column phase: DB624

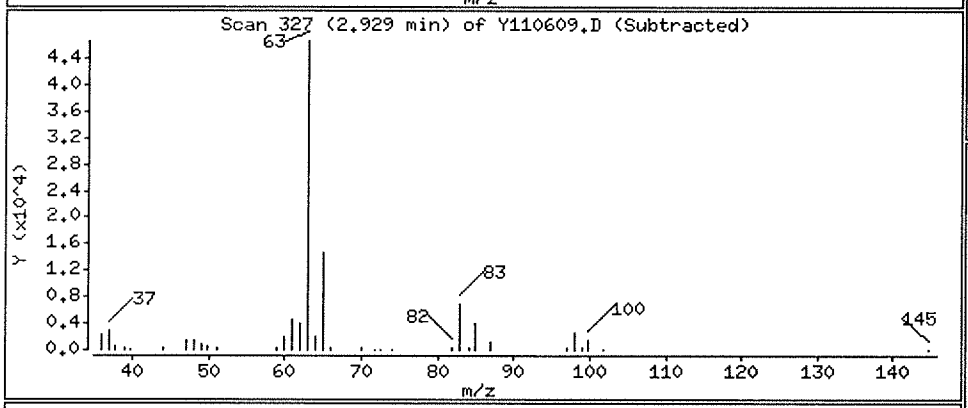
Column diameter: 0.18

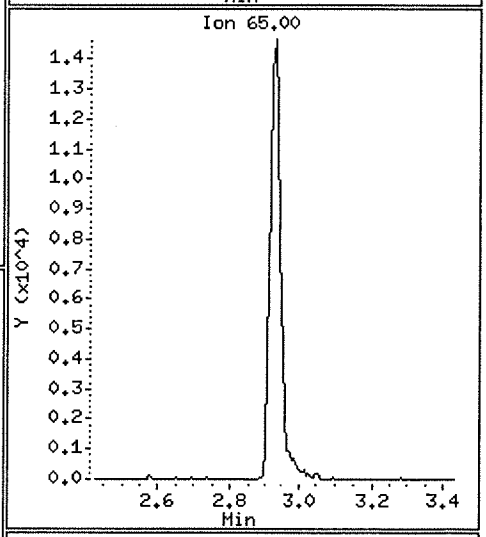
22 1,1-Dichloroethane

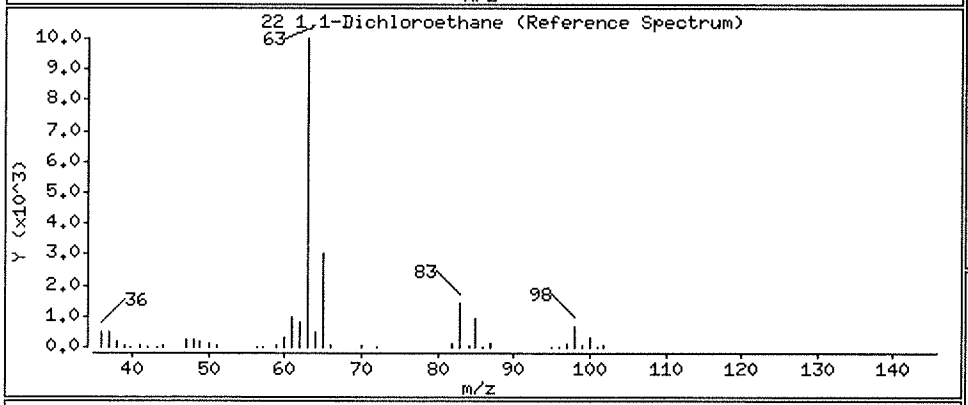
Concentration: 33.00 ug/l

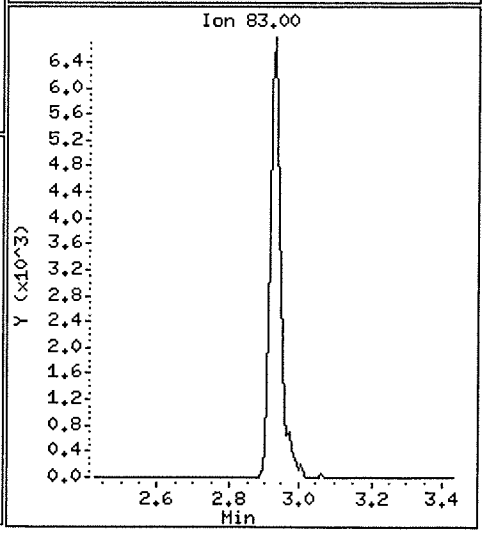


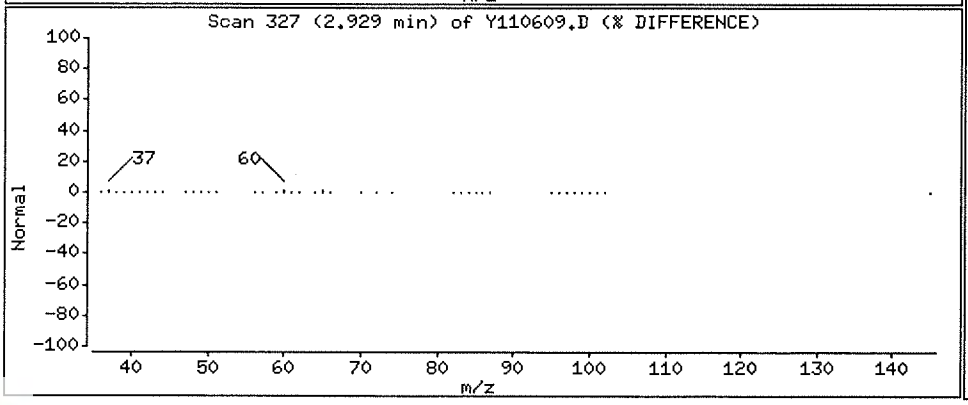



Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110609.D



Date : 06-NOV-2020 23:24

Client ID: HS20110128-11

Instrument: voa6.i

Sample Info: HS20110128-11;HS20110128-11;;;

Purge Volume: 5.0

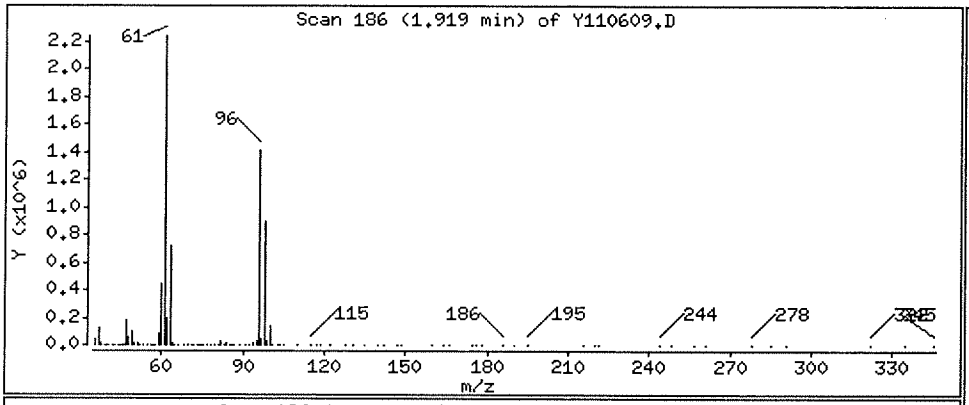
Operator: PC

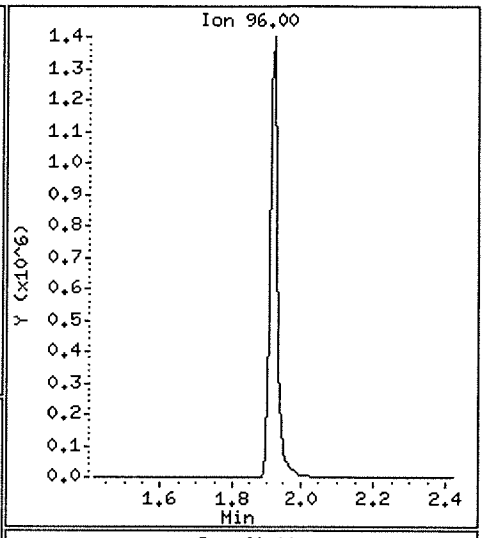
Column phase: DB624

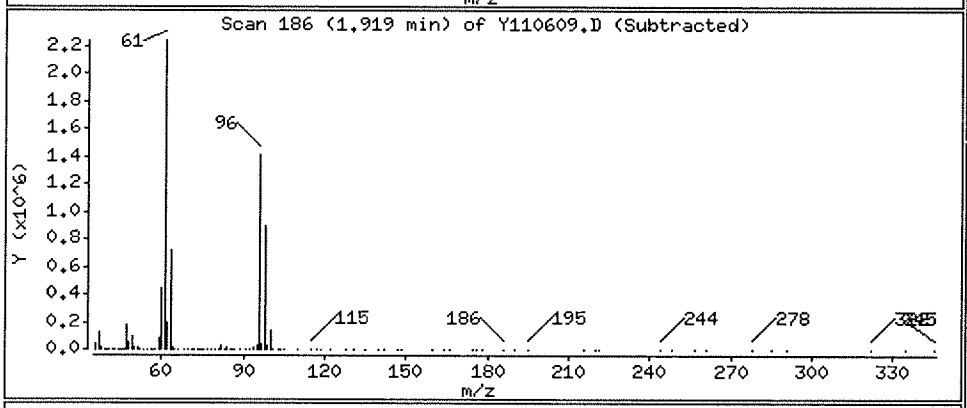
Column diameter: 0.18

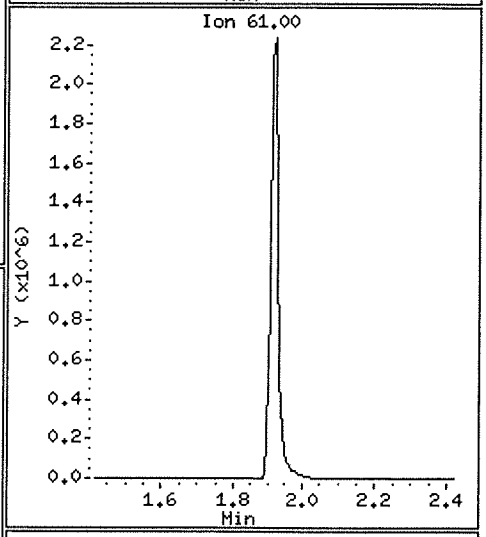
11 1,1-Dichloroethene

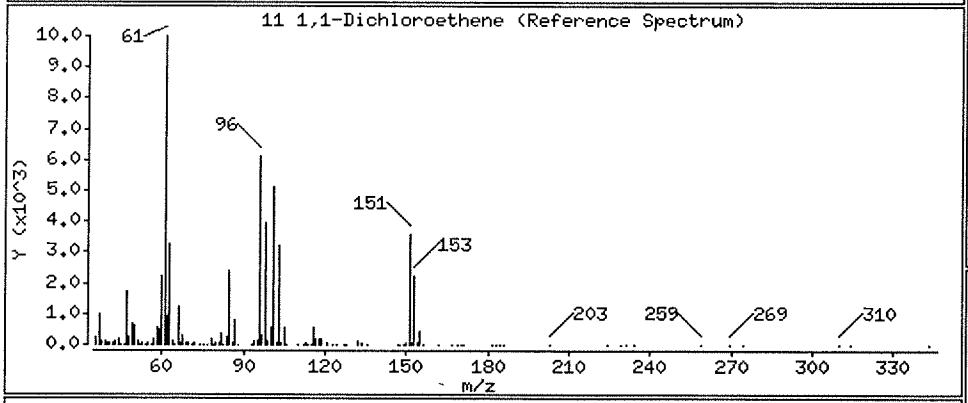
Concentration: 883.45 ug/l

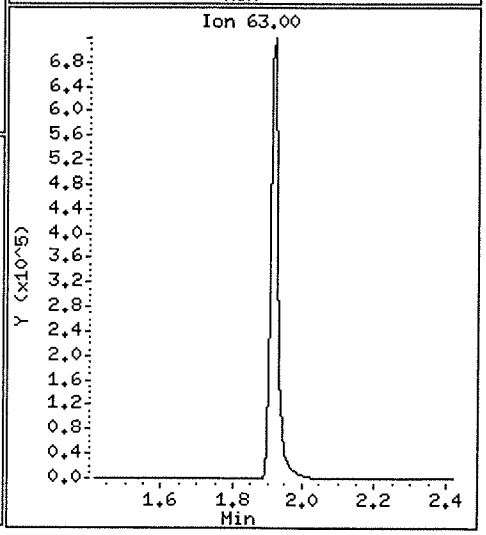


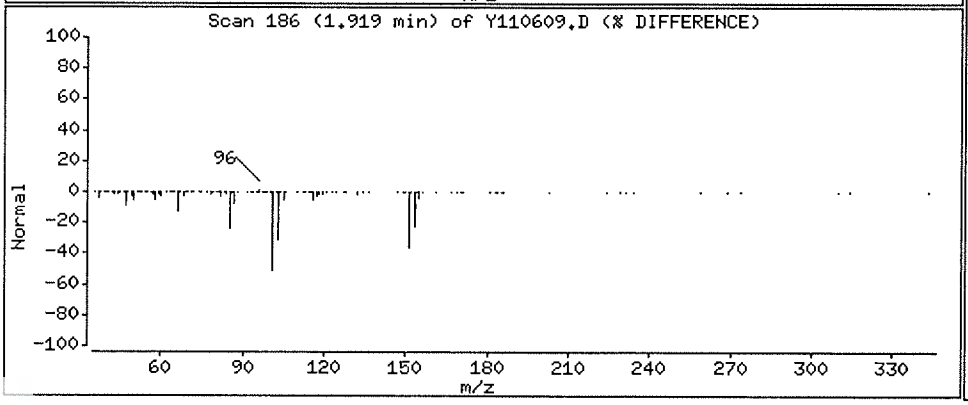



Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110609.D



Date : 06-NOV-2020 23:24

Client ID: HS20110128-11

Instrument: voa6.i

Sample Info: HS20110128-11;HS20110128-11;;;

Purge Volume: 5.0

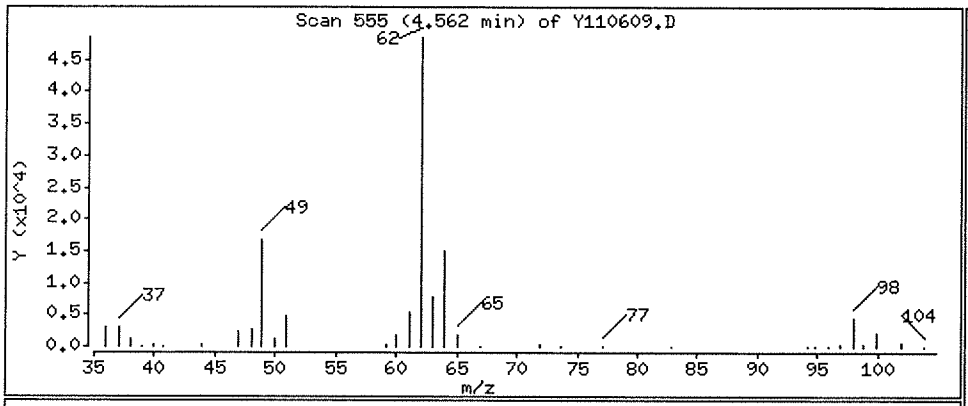
Operator: PC

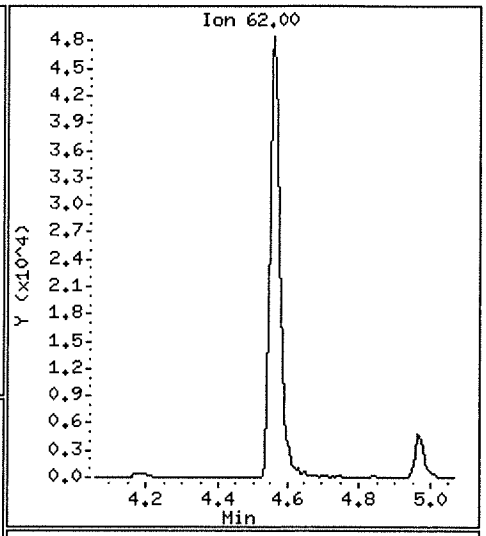
Column phase: DB624

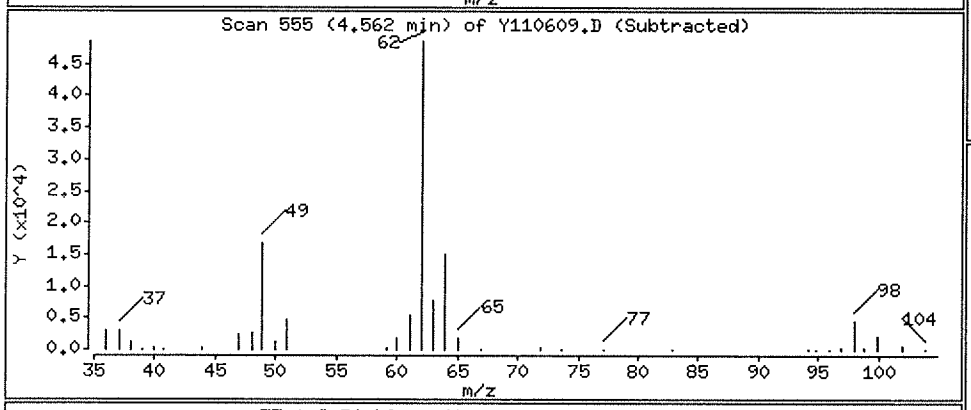
Column diameter: 0.18

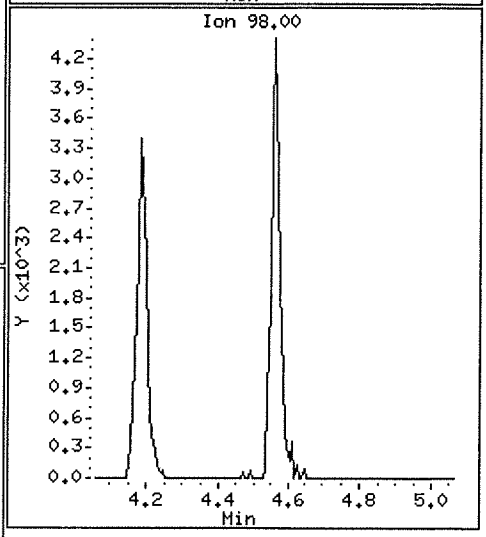
33 1,2-Dichloroethane

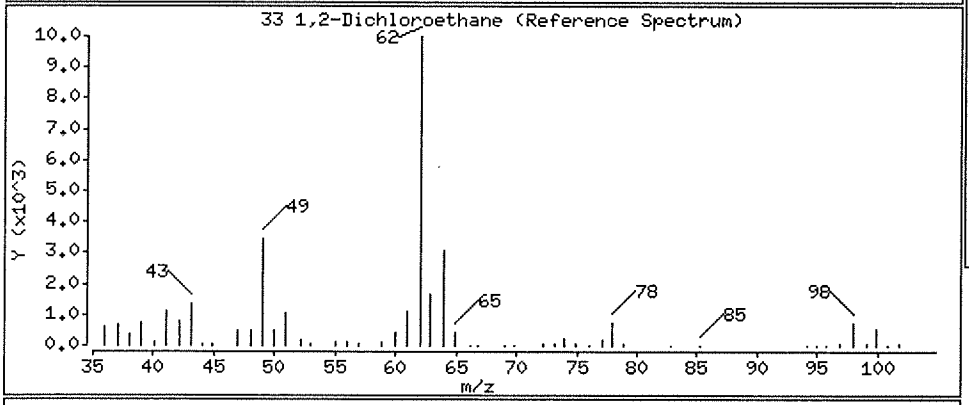
Concentration: 43.91 ug/l

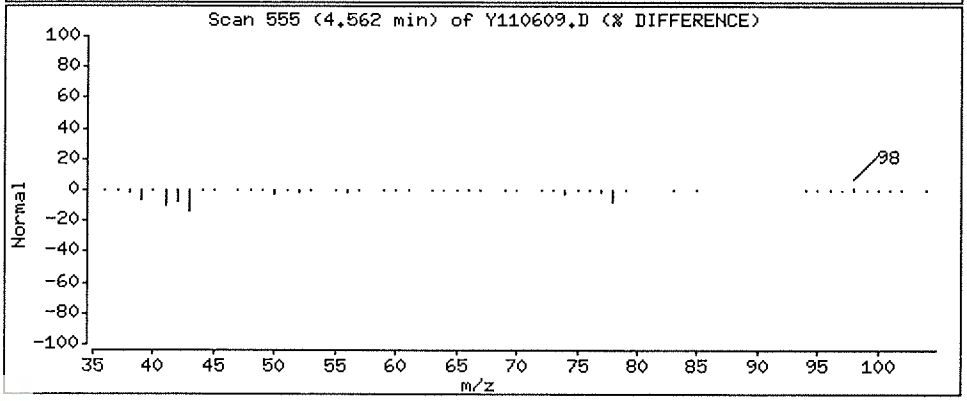


Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110609.D



Date : 06-NOV-2020 23:24

Client ID: HS20110128-11

Instrument: voa6.i

Sample Info: HS20110128-11;HS20110128-11;;;

Purge Volume: 5.0

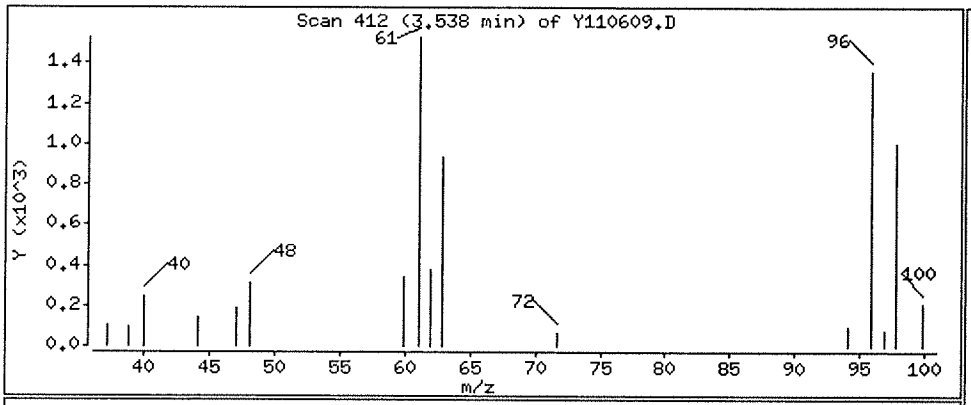
Operator: PC

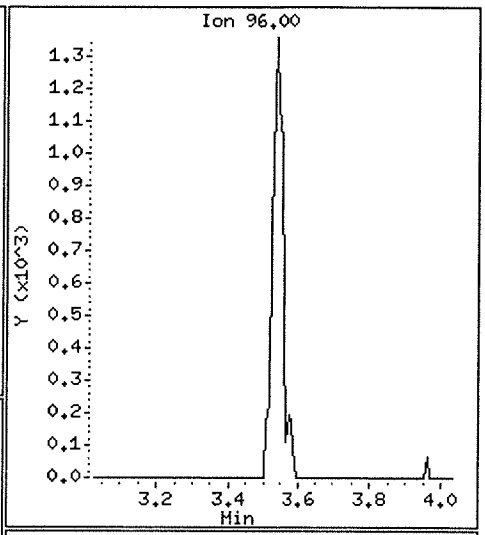
Column phase: DB624

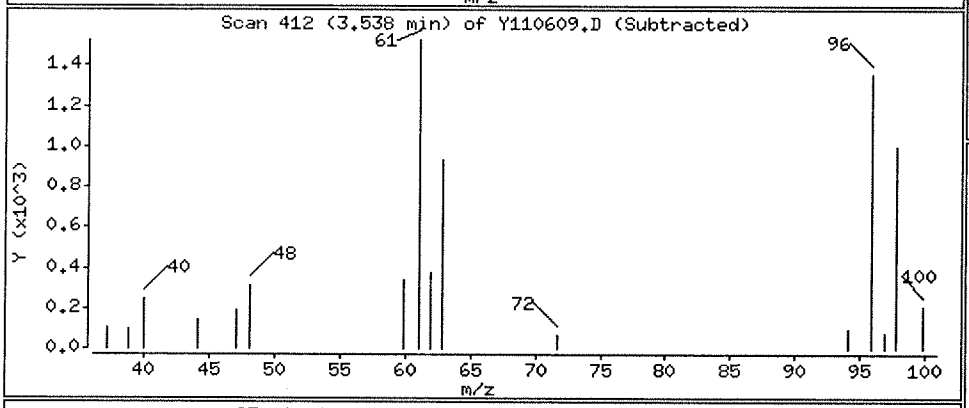
Column diameter: 0.18

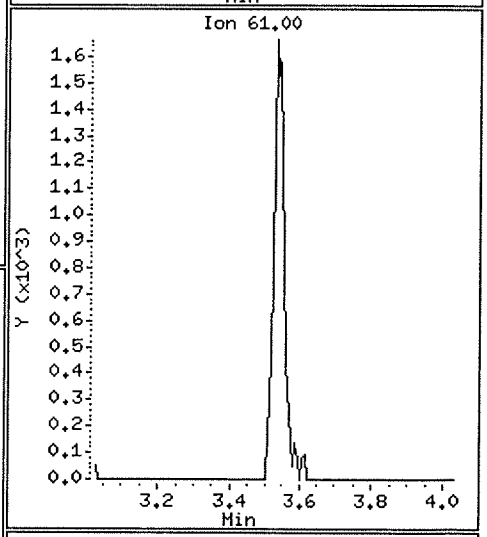
27 cis-1,2-Dichloroethene

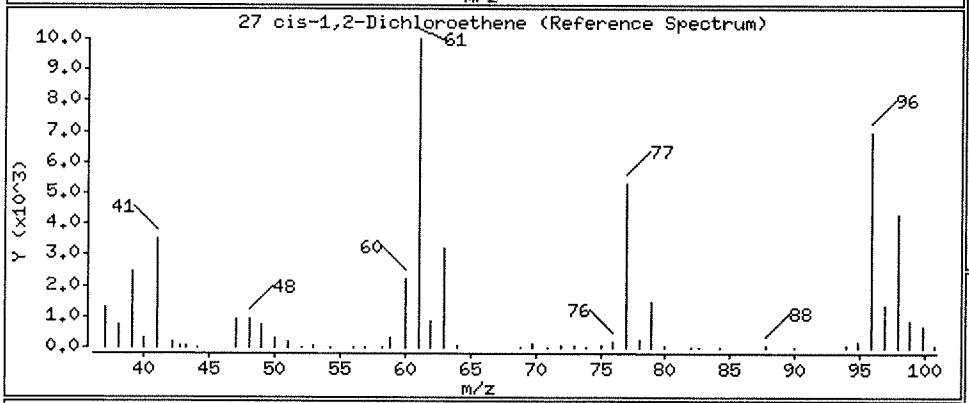
Concentration: 1.61 ug/l

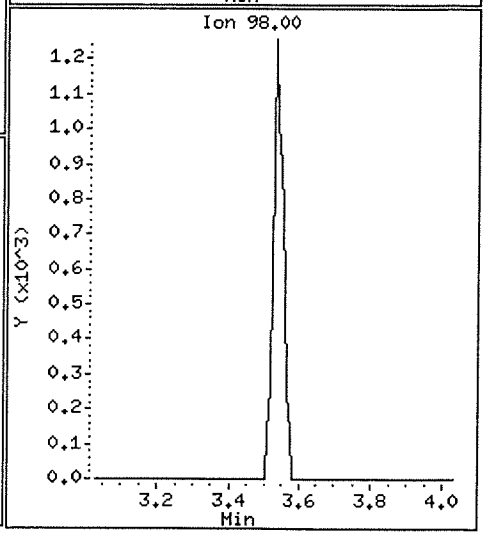


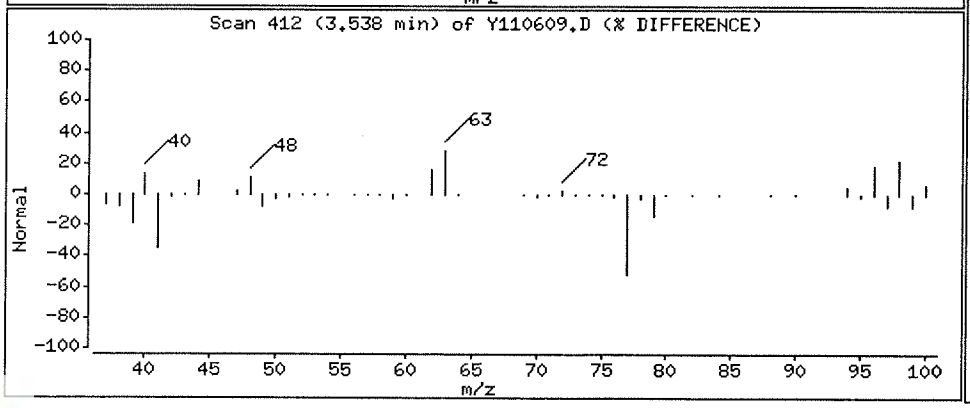



Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110609.D



Date : 06-NOV-2020 23:24

Client ID: HS20110128-11

Instrument: voa6.i

Sample Info: HS20110128-11;HS20110128-11;;;

Purge Volume: 5.0

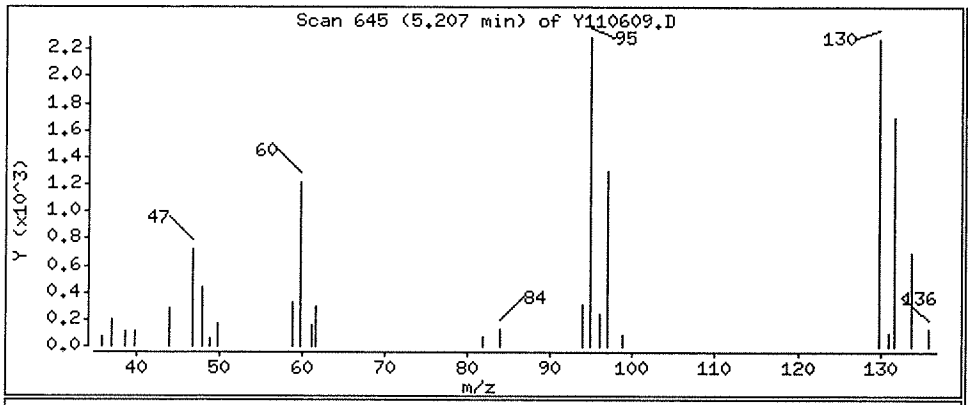
Operator: PC

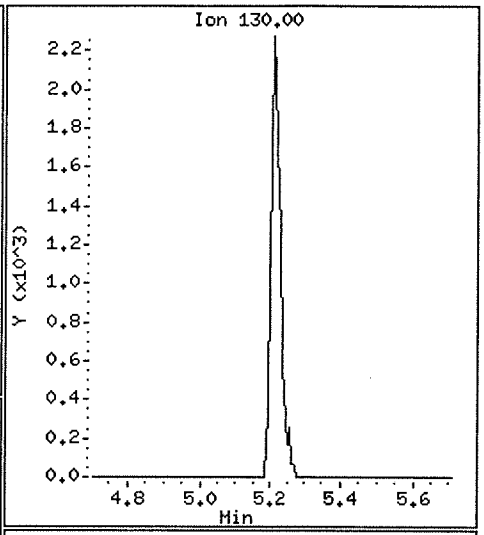
Column phase: DB624

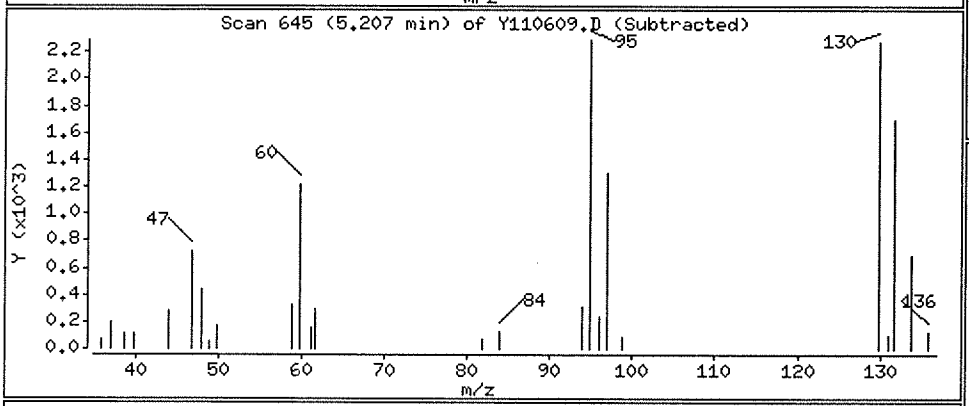
Column diameter: 0.18

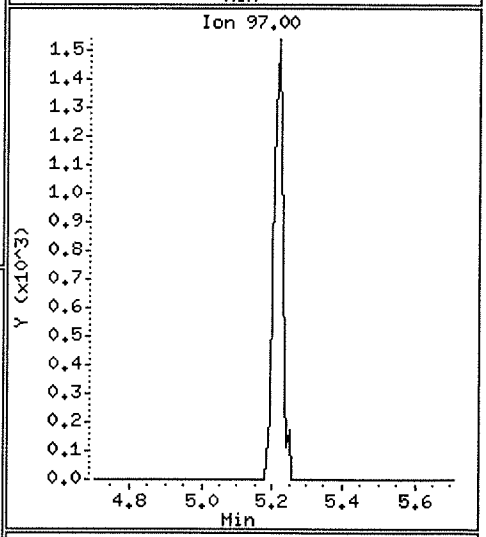
38 Trichloroethene

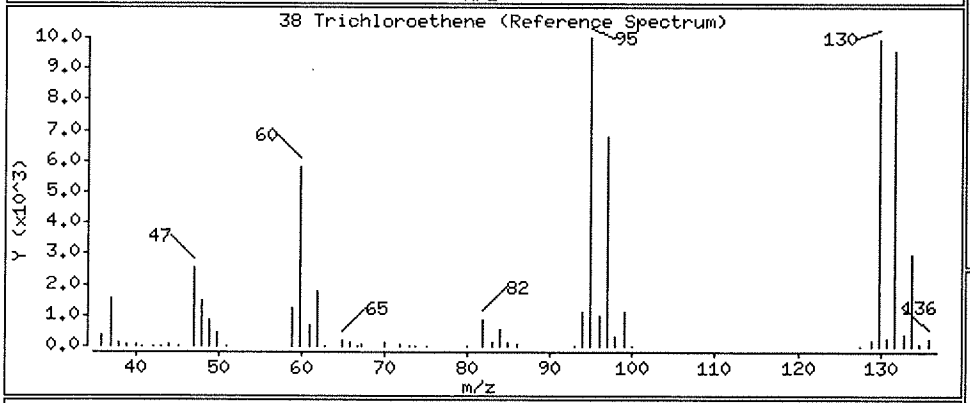
Concentration: 3.12 ug/l

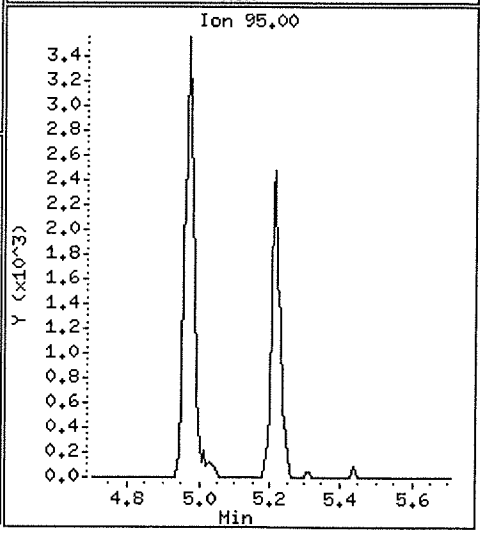


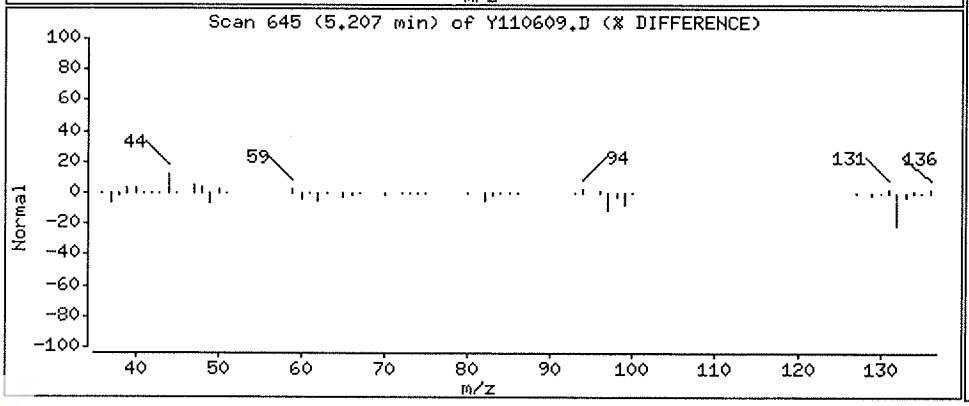



Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110610.D Page 1
Report Date: 13-Jan-2021 19:00

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201106.b\Y110610.D
Lab Smp Id: HS20110128-11MS Client Smp ID: HS20110128-11MS
Inj Date : 06-NOV-2020 23:45
Operator : PC Inst ID: voa6.i
Smp Info : HS20110128-11MS;HS20110128-11MS;3;;MS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201106.b\8260W.m
Meth Date : 13-Jan-2021 18:58 voa6.i Quant Type: ISTD
Cal Date : 03-NOV-2020 14:27 Cal File: X110308.D
Als bottle: 39 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

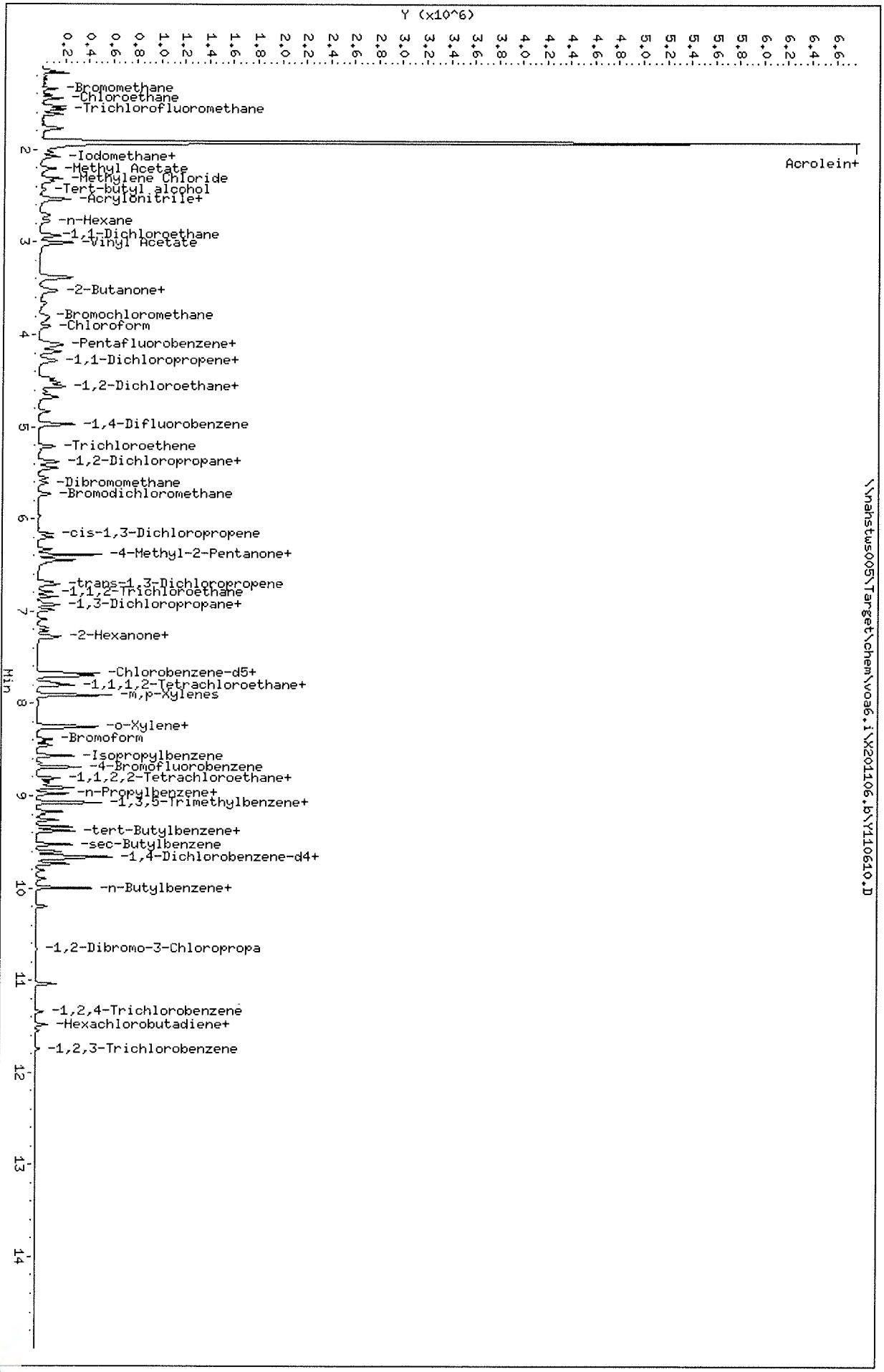
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.189 | 4.189 | (1.000) | 127423 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 4.970 | 4.970 | (1.000) | 215382 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 7.670 | 7.671 | (1.000) | 204011 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 9.662 | 9.662 | (1.000) | 89448 | 50.0000 | |
| $ 35 1,2-Dichloroethane-d4 | 65 | 4.476 | 4.476 | (1.068) | 84830 | 42.2453 | 42.24 |
| $ 69 4-Bromofluorobenzene | 95 | 8.688 | 8.688 | (1.133) | 87640 | 48.4427 | 48.44 |
| $ 30 Dibromofluoromethane | 113 | 4.103 | 4.104 | (0.979) | 73482 | 42.8211 | 42.82 |
| $ 48 Toluene-d8 | 98 | 6.388 | 6.389 | (0.833) | 261060 | 47.9086 | 47.90 |
| 60 1,1,1,2-Tetrachloroethane | 131 | 7.778 | 7.778 | (1.014) | 33070 | 22.7217 | 22.72 |
| 31 1,1,1-Trichloroethane | 97 | 4.089 | 4.089 | (0.976) | 60316 | 22.6702 | 22.67 |
| 68 1,1,2,2-Tetrachloroethane | 83 | 8.845 | 8.838 | (0.915) | 34854 | 23.2987 | 23.29 |
| 138 Freon TF | 101 | 1.919 | 1.919 | (0.458) | 69055 | 29.6832 | 29.68 |
| 53 1,1,2-Trichloroethane | 83 | 6.840 | 6.840 | (0.892) | 34106 | 27.1047 | 27.10 |
| 22 1,1-Dichloroethane | 63 | 2.929 | 2.929 | (0.699) | 166212 | 54.2668 | 54.26 |
| 11 1,1-Dichloroethene | 96 | 1.919 | 1.919 | (0.458) | 1988748 | 827.229 | 827.22(A) |
| 32 1,1-Dichloropropene | 75 | 4.282 | 4.283 | (0.862) | 50400 | 25.0930 | 25.09 |
| 93 1,2,3-Trichlorobenzene | 180 | 11.746 | 11.746 | (1.216) | 7205 | 19.8963 | 19.89 |
| 71 1,2,3-Trichloropropane | 75 | 8.867 | 8.867 | (0.918) | 29283 | 23.3144 | 23.31(M) |
| 90 1,2,4-Trichlorobenzene | 180 | 11.338 | 11.338 | (1.173) | 14843 | 21.6978 | 21.69 |
| 79 1,2,4-Trimethylbenzene | 105 | 9.382 | 9.383 | (0.971) | 132241 | 26.4276 | 26.42 |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 10.657 | 10.658 | (1.103) | 2145 | 21.4077 | 21.40 |
| 57 1,2-Dibromoethane | 107 | 7.262 | 7.262 | (0.947) | 34129 | 22.3082 | 22.30 |

Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110610.D Page 2
Report Date: 13-Jan-2021 19:00

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 88 | 1,2-Dichlorobenzene | 146 | 9.998 | 9.992 | (1.035) | 58893 | 23.8555 | 23.85 |
| 33 | 1,2-Dichloroethane | 62 | 4.562 | 4.562 | (0.918) | 150161 | 64.6585 | 64.65 |
| 42 | 1,2-Dichloropropane | 63 | 5.436 | 5.436 | (1.094) | 37825 | 23.7313 | 23.73 |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.067 | 9.067 | (0.938) | 127312 | 24.9457 | 24.94 |
| 83 | 1,3-Dichlorobenzene | 146 | 9.612 | 9.605 | (0.995) | 62642 | 23.8955 | 23.89 |
| 54 | 1,3-Dichloropropane | 76 | 6.983 | 6.983 | (0.910) | 55545 | 22.2220 | 22.22 |
| 84 | 1,4-Dichlorobenzene | 146 | 9.683 | 9.684 | (1.002) | 66180 | 24.2440 | 24.24 |
| 26 | 2,2-Dichloropropane | 77 | 3.516 | 3.516 | (0.839) | 56582 | 21.4605 | 21.46 |
| 24 | 2-Butanone | 43 | 3.588 | 3.581 | (0.856) | 21569 | 36.4128 | 36.41 |
| 76 | 2-Chlorotoluene | 91 | 8.974 | 8.974 | (0.929) | 105076 | 25.0109 | 25.01 |
| 52 | 2-Hexanone | 43 | 7.212 | 7.212 | (0.940) | 49921 | 38.5718 | 38.57 |
| 77 | 4-Chlorotoluene | 91 | 9.074 | 9.075 | (0.939) | 125583 | 23.6669 | 23.66 |
| 82 | p-Isopropyltoluene | 119 | 9.655 | 9.655 | (0.999) | 129321 | 26.7678 | 26.76 |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.324 | 6.324 | (0.824) | 61240 | 39.5133 | 39.51 |
| 10 | Acetone | 43 | 1.976 | 1.976 | (0.472) | 27544 | 33.9946 | 33.99 |
| 37 | Benzene | 78 | 4.519 | 4.519 | (0.909) | 141346 | 23.4949 | 23.49 |
| 74 | Bromobenzene | 156 | 8.809 | 8.810 | (0.912) | 38595 | 24.5216 | 24.52 |
| 29 | Bromochloromethane | 128 | 3.795 | 3.803 | (0.906) | 19864 | 22.6349 | 22.63 |
| 39 | Bromodichloromethane | 83 | 5.729 | 5.730 | (1.153) | 50658 | 22.8921 | 22.89 |
| 66 | Bromoform | 173 | 8.415 | 8.416 | (1.097) | 19565 | 21.2512 | 21.25 |
| 6 | Bromomethane | 94 | 1.338 | 1.339 | (0.320) | 54023 | 22.7820 | 22.78 |
| 19 | Carbon Disulfide | 76 | 2.069 | 2.069 | (0.494) | 183173 | 41.0027 | 41.00 |
| 34 | Carbon Tetrachloride | 117 | 4.275 | 4.275 | (0.860) | 45120 | 23.3974 | 23.39 |
| 59 | Chlorobenzene | 112 | 7.699 | 7.699 | (1.004) | 96399 | 22.1109 | 22.11 |
| 7 | Chloroethane | 64 | 1.403 | 1.403 | (0.335) | 46438 | 23.1293 | 23.12 |
| 28 | Chloroform | 83 | 3.910 | 3.910 | (0.933) | 72168 | 22.1341 | 22.13 |
| 3 | Chloromethane | 50 | 1.080 | 1.081 | (0.258) | 45215 | 25.4949 | 25.49 |
| 27 | cis-1,2-Dichloroethene | 96 | 3.530 | 3.530 | (0.843) | 43353 | 23.2000 | 23.19 |
| 46 | cis-1,3-Dichloropropene | 75 | 6.159 | 6.159 | (1.239) | 55818 | 23.2300 | 23.22 |
| 55 | Dibromochloromethane | 129 | 7.176 | 7.176 | (0.936) | 34420 | 22.8288 | 22.82 |
| 44 | Dibromomethane | 93 | 5.557 | 5.558 | (1.118) | 26227 | 24.0885 | 24.08 |
| 2 | Dichlorodifluoromethane | 85 | 0.973 | 0.973 | (0.232) | 40575 | 24.5902 | 24.59 |
| 61 | Ethylbenzene | 106 | 7.799 | 7.800 | (1.017) | 50681 | 22.9139 | 22.91 |
| 91 | Hexachlorobutadiene | 225 | 11.488 | 11.481 | (1.189) | 11293 | 24.7429 | 24.74 |
| 67 | Isopropylbenzene | 105 | 8.566 | 8.566 | (1.117) | 156733 | 24.5969 | 24.59 |
| 62 | m,p-Xylenes | 106 | 7.907 | 7.907 | (1.031) | 128204 | 48.3921 | 48.39 |
| 17 | Methylene Chloride | 84 | 2.313 | 2.306 | (0.552) | 36526 | 20.8780 | 20.87 |
| 87 | n-Butylbenzene | 91 | 9.998 | 9.999 | (1.035) | 124704 | 24.9014 | 24.90 |
| 73 | n-Propylbenzene | 91 | 8.917 | 8.917 | (0.923) | 190033 | 26.6858 | 26.68 |
| 92 | Naphthalene | 128 | 11.546 | 11.546 | (1.195) | 17377 | 18.2991 | 18.29 |
| 63 | o-Xylene | 106 | 8.244 | 8.244 | (1.075) | 62558 | 23.6953 | 23.69 |
| 81 | sec-Butylbenzene | 105 | 9.526 | 9.526 | (0.986) | 156682 | 26.8411 | 26.84 |
| 64 | Styrene | 104 | 8.265 | 8.258 | (1.078) | 105232 | 23.7703 | 23.77 |
| 78 | tert-Butylbenzene | 119 | 9.339 | 9.340 | (0.967) | 106425 | 27.3181 | 27.31 |
| 56 | Tetrachloroethene | 164 | 6.933 | 6.933 | (0.904) | 28455 | 25.3362 | 25.33 |
| 50 | Toluene | 91 | 6.453 | 6.446 | (0.841) | 159059 | 21.3044 | 21.30 |
| 20 | trans-1,2-Dichloroethene | 96 | 2.535 | 2.535 | (0.605) | 33855 | 21.3257 | 21.32 |
| 51 | trans-1,3-Dichloropropene | 75 | 6.682 | 6.682 | (1.344) | 47241 | 22.2850 | 22.28 |
| 38 | Trichloroethene | 130 | 5.206 | 5.207 | (1.048) | 40252 | 28.0441 | 28.04 |
| 8 | Trichlorofluoromethane | 101 | 1.560 | 1.561 | (0.373) | 113627 | 23.6608 | 23.66 |
| 5 | Vinyl Chloride | 62 | 1.145 | 1.145 | (0.273) | 65359 | 23.2142 | 23.21 |

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.

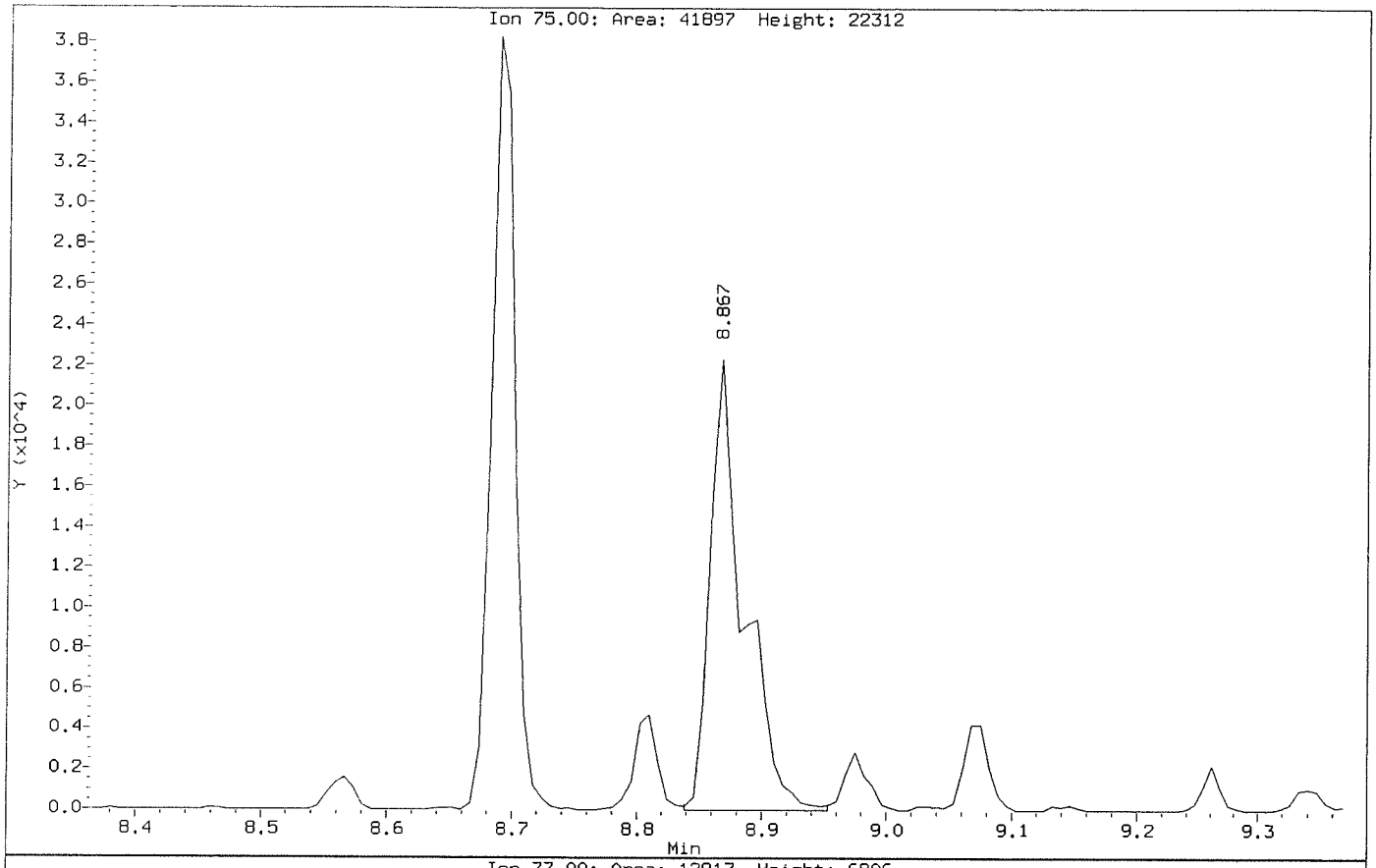


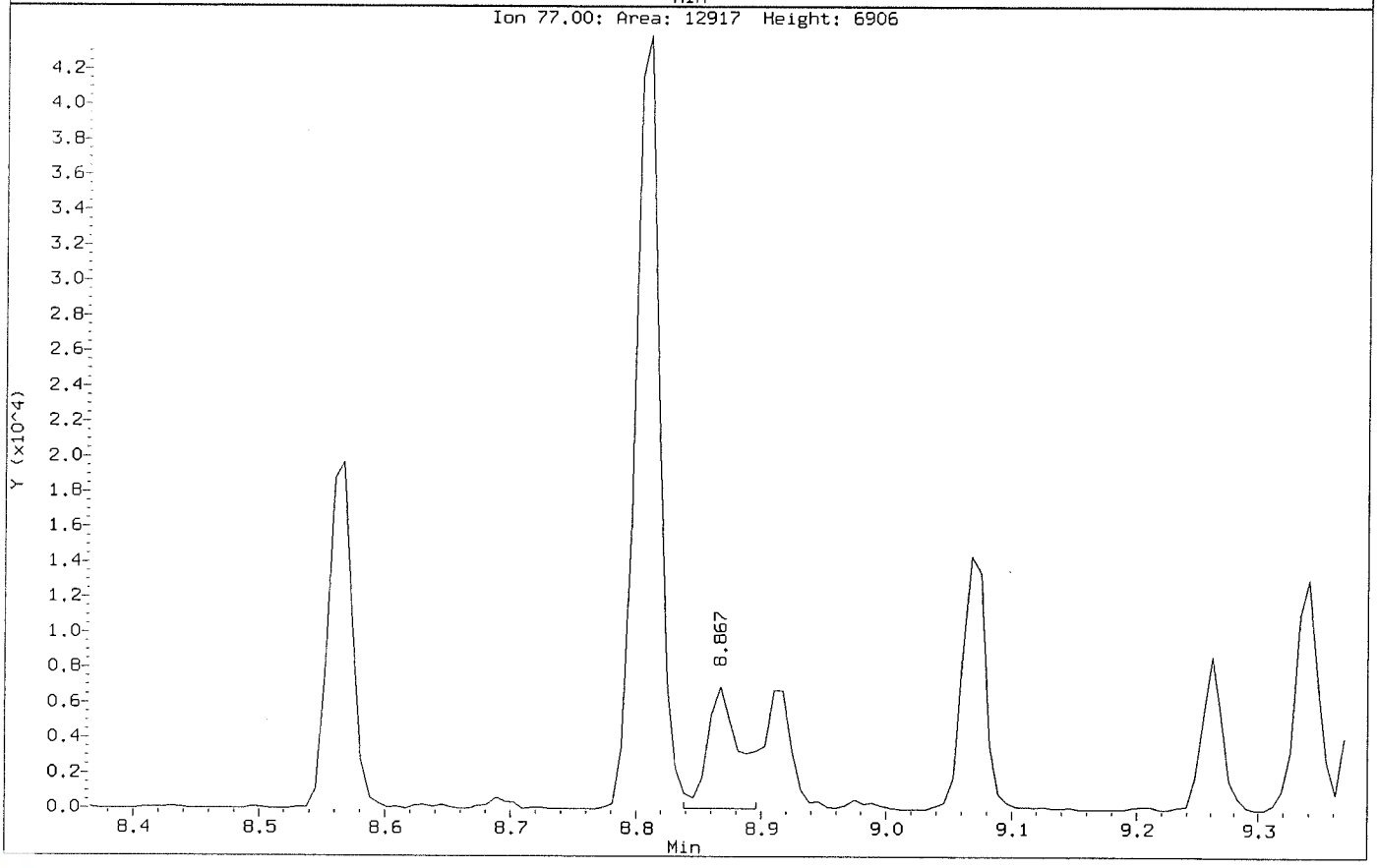

Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110610.D
Date : 06-NOV-2020 23:45
Client ID: HS20110128-11MS
Sample Info: HS20110128-11MS;HS20110128-11MS;3;;MS
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Before\Y110610.D
Injection Date: 06-NOV-2020 23:45
Instrument: voa6.i
Client Sample ID: HS20110128-11MS

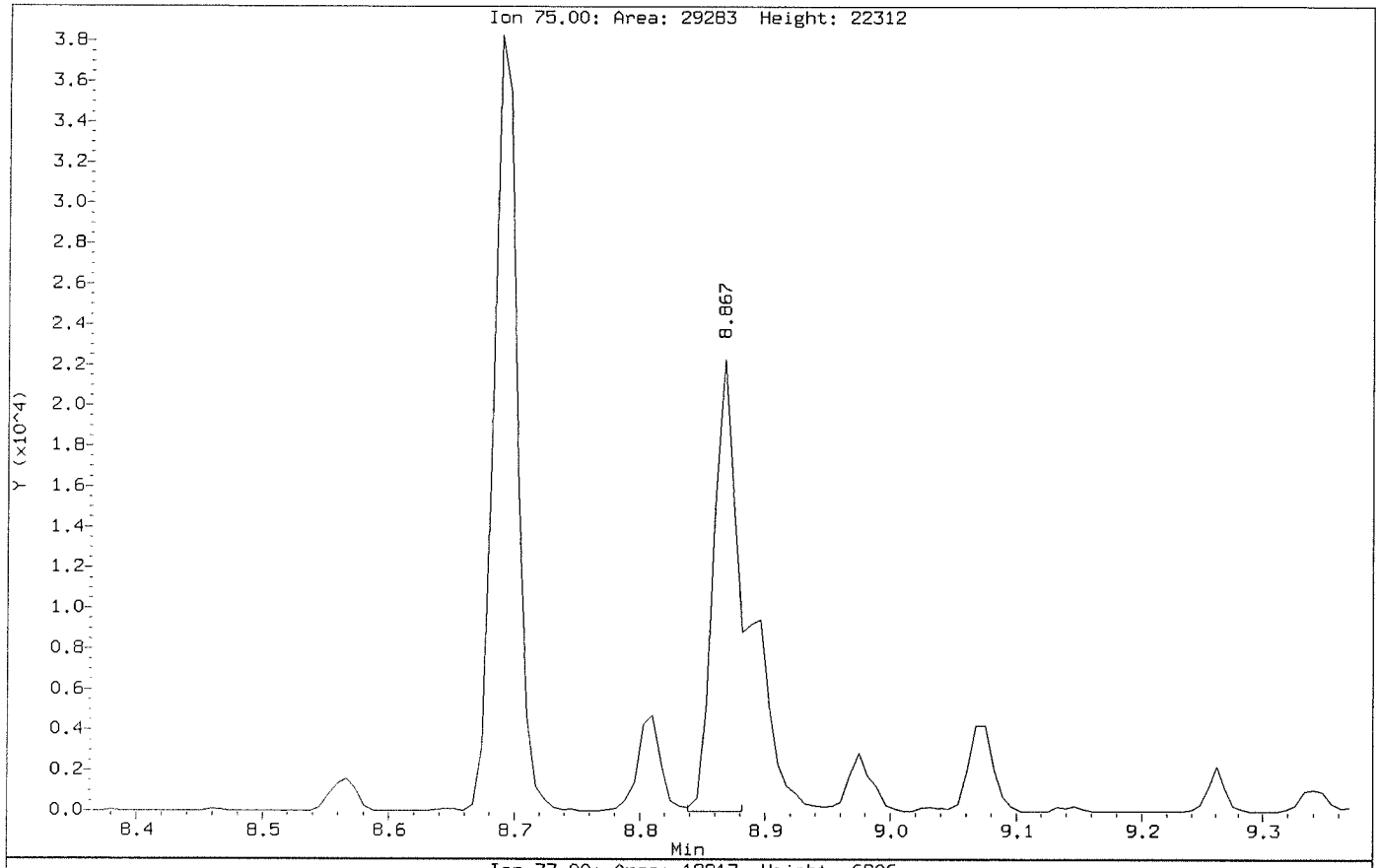
Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4

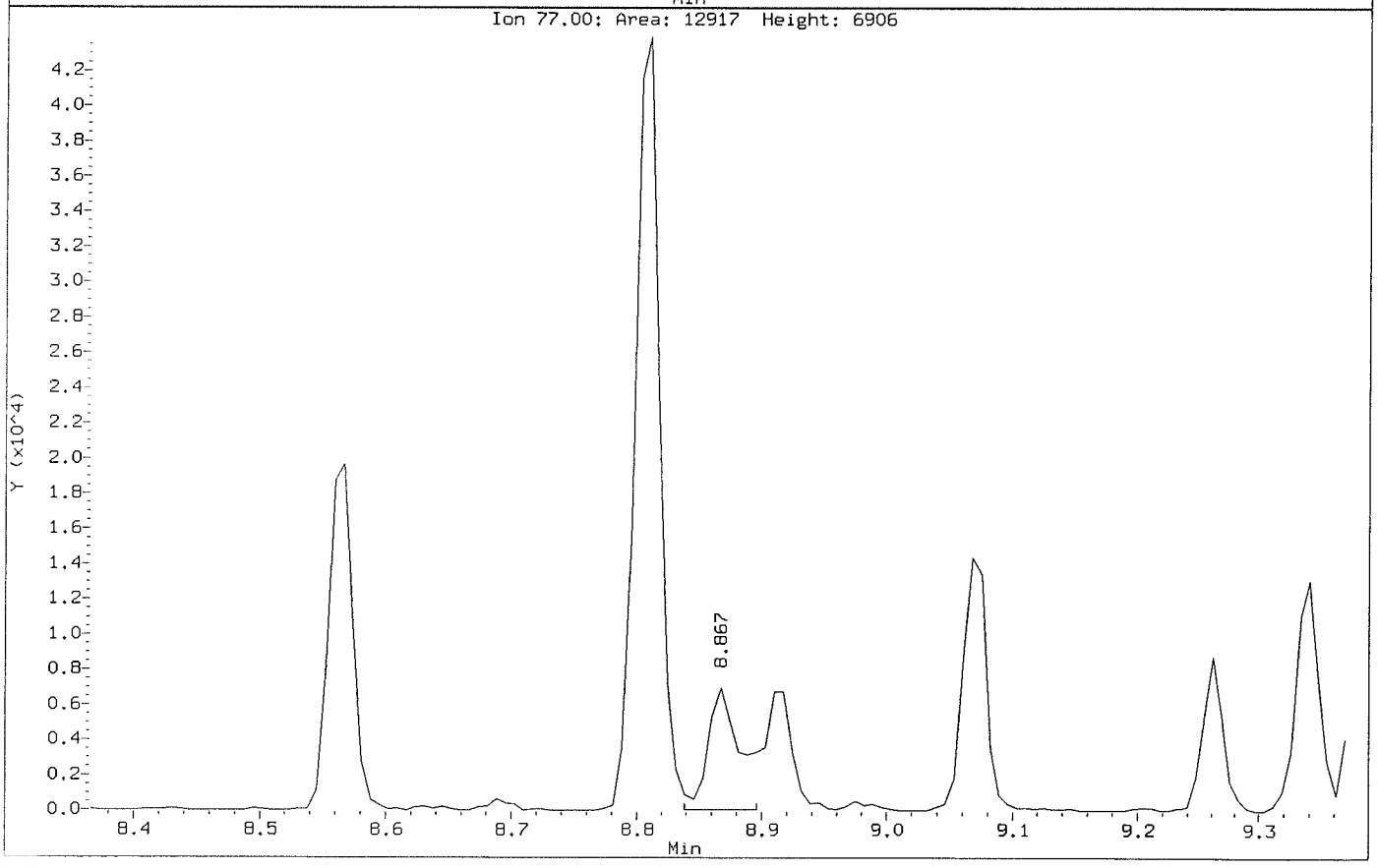


Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110610.D
Injection Date: 06-NOV-2020 23:45
Instrument: voa6.i
Client Sample ID: HS20110128-11MS

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110611.D Page 1
Report Date: 13-Jan-2021 19:00

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201106.b\Y110611.D
Lab Smp Id: HS20110128-11MSD Client Smp ID: HS20110128-11MSD
Inj Date : 07-NOV-2020 00:06
Operator : PC Inst ID: voa6.i
Smp Info : HS20110128-11MSD;HS20110128-11MSD;3;;MSD
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201106.b\8260W.m
Meth Date : 13-Jan-2021 18:58 voa6.i Quant Type: ISTD
Cal Date : 03-NOV-2020 14:27 Cal File: X110308.D
Als bottle: 39 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

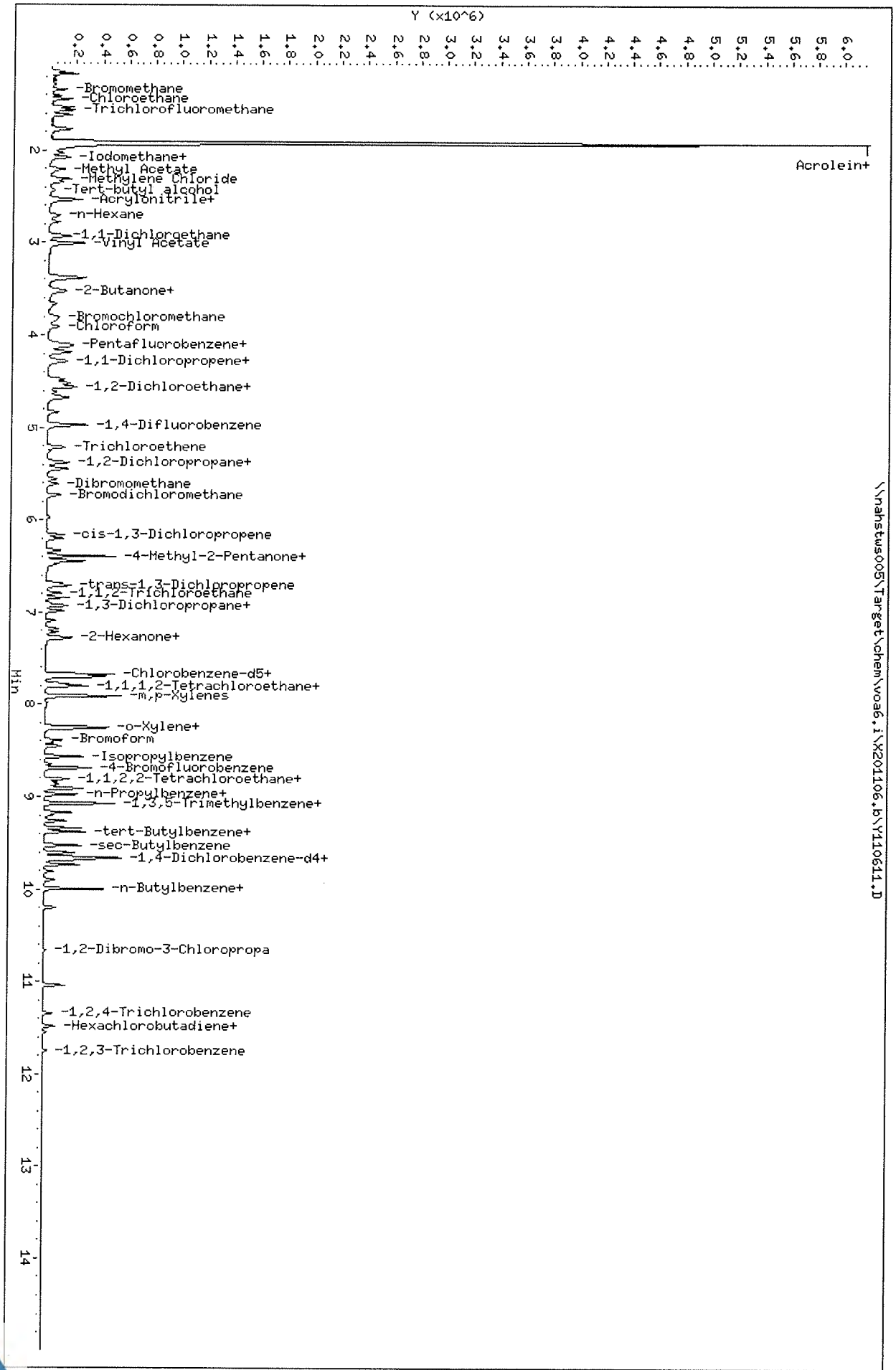
| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| * | 1 Pentafluorobenzene | 168 | 4.189 | 4.189 | (1.000) | 123250 | 50.0000 | |
| * | 36 1,4-Difluorobenzene | 114 | 4.970 | 4.970 | (1.000) | 215384 | 50.0000 | |
| * | 47 Chlorobenzene-d5 | 117 | 7.671 | 7.671 | (1.000) | 199526 | 50.0000 | |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 9.662 | 9.662 | (1.000) | 85488 | 50.0000 | |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 4.476 | 4.476 | (1.068) | 84276 | 43.3540 | 43.35 |
| $ | 69 4-Bromofluorobenzene | 95 | 8.688 | 8.688 | (1.133) | 82153 | 46.5033 | 46.50 |
| $ | 30 Dibromofluoromethane | 113 | 4.103 | 4.104 | (0.979) | 70153 | 42.2653 | 42.26 |
| $ | 48 Toluene-d8 | 98 | 6.388 | 6.389 | (0.833) | 259970 | 48.7809 | 48.78 |
| | 60 1,1,1,2-Tetrachloroethane | 131 | 7.778 | 7.778 | (1.014) | 32620 | 22.9163 | 22.91 |
| | 31 1,1,1-Trichloroethane | 97 | 4.089 | 4.089 | (0.976) | 54727 | 21.2659 | 21.26 |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 8.838 | 8.838 | (0.915) | 36642 | 25.6874 | 25.68 |
| | 138 Freon TF | 101 | 1.919 | 1.919 | (0.458) | 62087 | 27.5916 | 27.59 |
| | 53 1,1,2-Trichloroethane | 83 | 6.840 | 6.840 | (0.892) | 35689 | 29.0003 | 29.00 |
| | 22 1,1-Dichloroethane | 63 | 2.929 | 2.929 | (0.699) | 159329 | 53.7808 | 53.78 |
| | 11 1,1-Dichloroethene | 96 | 1.919 | 1.919 | (0.458) | 1821440 | 783.289 | 783.28(A) |
| | 32 1,1-Dichloropropene | 75 | 4.283 | 4.283 | (0.862) | 46222 | 23.0127 | 23.01 |
| | 93 1,2,3-Trichlorobenzene | 180 | 11.746 | 11.746 | (1.216) | 7838 | 22.4024 | 22.40 |
| | 71 1,2,3-Trichloropropane | 75 | 8.867 | 8.867 | (0.918) | 29043 | 24.1945 | 24.19(M) |
| | 90 1,2,4-Trichlorobenzene | 180 | 11.338 | 11.338 | (1.173) | 15162 | 23.0695 | 23.06 |
| | 79 1,2,4-Trimethylbenzene | 105 | 9.383 | 9.383 | (0.971) | 126170 | 26.3823 | 26.38 |
| | 89 1,2-Dibromo-3-Chloropropane | 155 | 10.658 | 10.658 | (1.103) | 2364 | 24.7383 | 24.73 |
| | 57 1,2-Dibromoethane | 107 | 7.262 | 7.262 | (0.947) | 33973 | 22.7053 | 22.70 |

Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110611.D Page 2
Report Date: 13-Jan-2021 19:00

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 88 | 1,2-Dichlorobenzene | 146 | 9.999 | 9.992 | (1.035) | 58137 | 24.6401 | 24.64 |
| 33 | 1,2-Dichloroethane | 62 | 4.562 | 4.562 | (0.918) | 153727 | 66.1933 | 66.19 |
| 42 | 1,2-Dichloropropane | 63 | 5.436 | 5.436 | (1.094) | 36425 | 22.8527 | 22.85 |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.067 | 9.067 | (0.938) | 125252 | 25.6789 | 25.67 |
| 83 | 1,3-Dichlorobenzene | 146 | 9.605 | 9.605 | (0.994) | 62786 | 25.0598 | 25.05 |
| 54 | 1,3-Dichloropropane | 76 | 6.983 | 6.983 | (0.910) | 55849 | 22.8459 | 22.84 |
| 84 | 1,4-Dichlorobenzene | 146 | 9.683 | 9.684 | (1.002) | 66177 | 25.3659 | 25.36 |
| 26 | 2,2-Dichloropropane | 77 | 3.516 | 3.516 | (0.839) | 51413 | 20.1602 | 20.16 |
| 24 | 2-Butanone | 43 | 3.581 | 3.581 | (0.855) | 21270 | 37.1238 | 37.12 |
| 76 | 2-Chlorotoluene | 91 | 8.974 | 8.974 | (0.929) | 101146 | 25.1907 | 25.19 |
| 52 | 2-Hexanone | 43 | 7.212 | 7.212 | (0.940) | 51211 | 40.2766 | 40.27 |
| 77 | 4-Chlorotoluene | 91 | 9.075 | 9.075 | (0.939) | 122893 | 24.2328 | 24.23 |
| 82 | p-Isopropyltoluene | 119 | 9.655 | 9.655 | (0.999) | 124718 | 27.0108 | 27.01 |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.324 | 6.324 | (0.824) | 62428 | 41.1853 | 41.18 |
| 10 | Acetone | 43 | 1.976 | 1.976 | (0.472) | 26684 | 34.0620 | 34.06 |
| 37 | Benzene | 78 | 4.519 | 4.519 | (0.909) | 136150 | 22.6310 | 22.63 |
| 74 | Bromobenzene | 156 | 8.810 | 8.810 | (0.912) | 36839 | 24.4901 | 24.49 |
| 29 | Bromochloromethane | 128 | 3.803 | 3.803 | (0.908) | 19818 | 23.3471 | 23.34 |
| 39 | Bromodichloromethane | 83 | 5.730 | 5.730 | (1.153) | 51424 | 23.2381 | 23.23 |
| 66 | Bromoform | 173 | 8.416 | 8.416 | (1.097) | 19382 | 21.4854 | 21.48 |
| 6 | Bromomethane | 94 | 1.339 | 1.339 | (0.320) | 49552 | 21.6040 | 21.60 |
| 19 | Carbon Disulfide | 76 | 2.069 | 2.069 | (0.494) | 174975 | 40.4938 | 40.49 |
| 34 | Carbon Tetrachloride | 117 | 4.268 | 4.275 | (0.859) | 44721 | 23.1903 | 23.19 |
| 59 | Chlorobenzene | 112 | 7.699 | 7.699 | (1.004) | 94841 | 22.2426 | 22.24 |
| 7 | Chloroethane | 64 | 1.403 | 1.403 | (0.335) | 47668 | 24.5458 | 24.54 |
| 28 | Chloroform | 83 | 3.910 | 3.910 | (0.933) | 68873 | 21.8387 | 21.83 |
| 3 | Chloromethane | 50 | 1.081 | 1.081 | (0.258) | 41313 | 24.1321 | 24.13 |
| 27 | cis-1,2-Dichloroethene | 96 | 3.530 | 3.530 | (0.843) | 41845 | 23.1512 | 23.15 |
| 46 | cis-1,3-Dichloropropene | 75 | 6.159 | 6.159 | (1.239) | 52952 | 22.0370 | 22.03 |
| 55 | Dibromochloromethane | 129 | 7.176 | 7.176 | (0.936) | 34688 | 23.5237 | 23.52 |
| 44 | Dibromomethane | 93 | 5.558 | 5.558 | (1.118) | 26139 | 24.0075 | 24.00 |
| 2 | Dichlorodifluoromethane | 85 | 0.973 | 0.973 | (0.232) | 38802 | 24.3118 | 24.31 |
| 61 | Ethylbenzene | 106 | 7.800 | 7.800 | (1.017) | 50075 | 23.1488 | 23.14 |
| 91 | Hexachlorobutadiene | 225 | 11.481 | 11.481 | (1.188) | 12322 | 27.9182 | 27.91 |
| 67 | Isopropylbenzene | 105 | 8.566 | 8.566 | (1.117) | 147819 | 23.8128 | 23.81 |
| 62 | m,p-Xylenes | 106 | 7.907 | 7.907 | (1.031) | 121425 | 46.8636 | 46.86 |
| 17 | Methylene Chloride | 84 | 2.306 | 2.306 | (0.550) | 34232 | 20.2292 | 20.22 |
| 87 | n-Butylbenzene | 91 | 9.999 | 9.999 | (1.035) | 121034 | 25.2321 | 25.23 |
| 73 | n-Propylbenzene | 91 | 8.917 | 8.917 | (0.923) | 184082 | 27.0476 | 27.04 |
| 92 | Naphthalene | 128 | 11.546 | 11.546 | (1.195) | 21819 | 23.3699 | 23.36 |
| 63 | o-Xylene | 106 | 8.244 | 8.244 | (1.075) | 58690 | 22.7299 | 22.72 |
| 81 | sec-Butylbenzene | 105 | 9.526 | 9.526 | (0.986) | 151400 | 27.1085 | 27.10 |
| 64 | Styrene | 104 | 8.258 | 8.258 | (1.077) | 97428 | 22.5022 | 22.50 |
| 78 | tert-Butylbenzene | 119 | 9.340 | 9.340 | (0.967) | 101527 | 27.2726 | 27.27 |
| 56 | Tetrachloroethene | 164 | 6.933 | 6.933 | (0.904) | 27814 | 25.3221 | 25.32 |
| 50 | Toluene | 91 | 6.446 | 6.446 | (0.840) | 151438 | 20.7396 | 20.73 |
| 20 | trans-1,2-Dichloroethene | 96 | 2.535 | 2.535 | (0.605) | 31875 | 20.7583 | 20.75 |
| 51 | trans-1,3-Dichloropropene | 75 | 6.689 | 6.682 | (1.346) | 50786 | 23.9571 | 23.95 |
| 38 | Trichloroethene | 130 | 5.207 | 5.207 | (1.048) | 38059 | 26.5160 | 26.51 |
| 8 | Trichlorofluoromethane | 101 | 1.561 | 1.561 | (0.373) | 104061 | 22.4025 | 22.40 |
| 5 | Vinyl Chloride | 62 | 1.145 | 1.145 | (0.273) | 58931 | 21.6398 | 21.63 |

QC Flag Legend

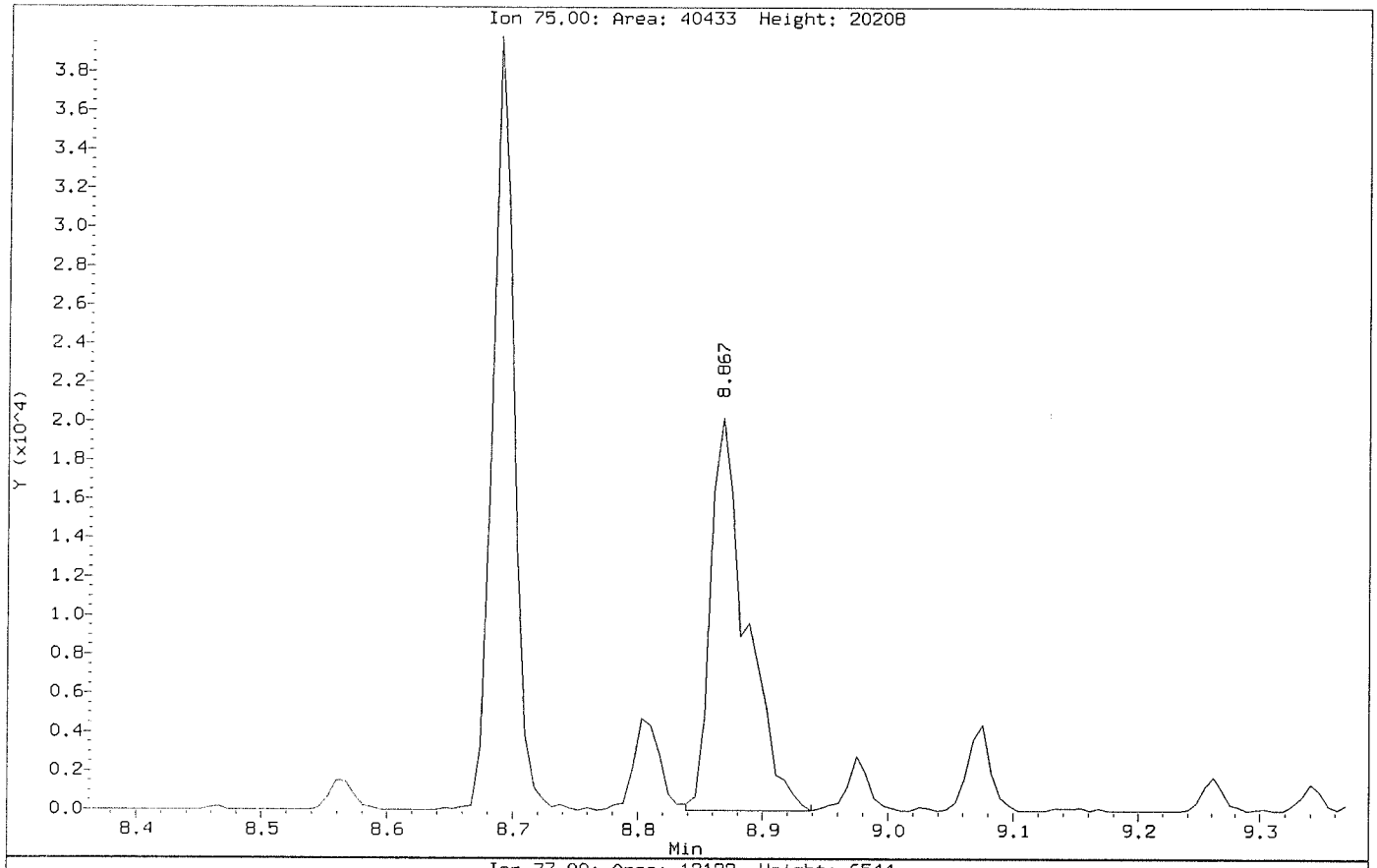
A - Target compound detected but, quantitated amount
exceeded maximum amount.
M - Compound response manually integrated.

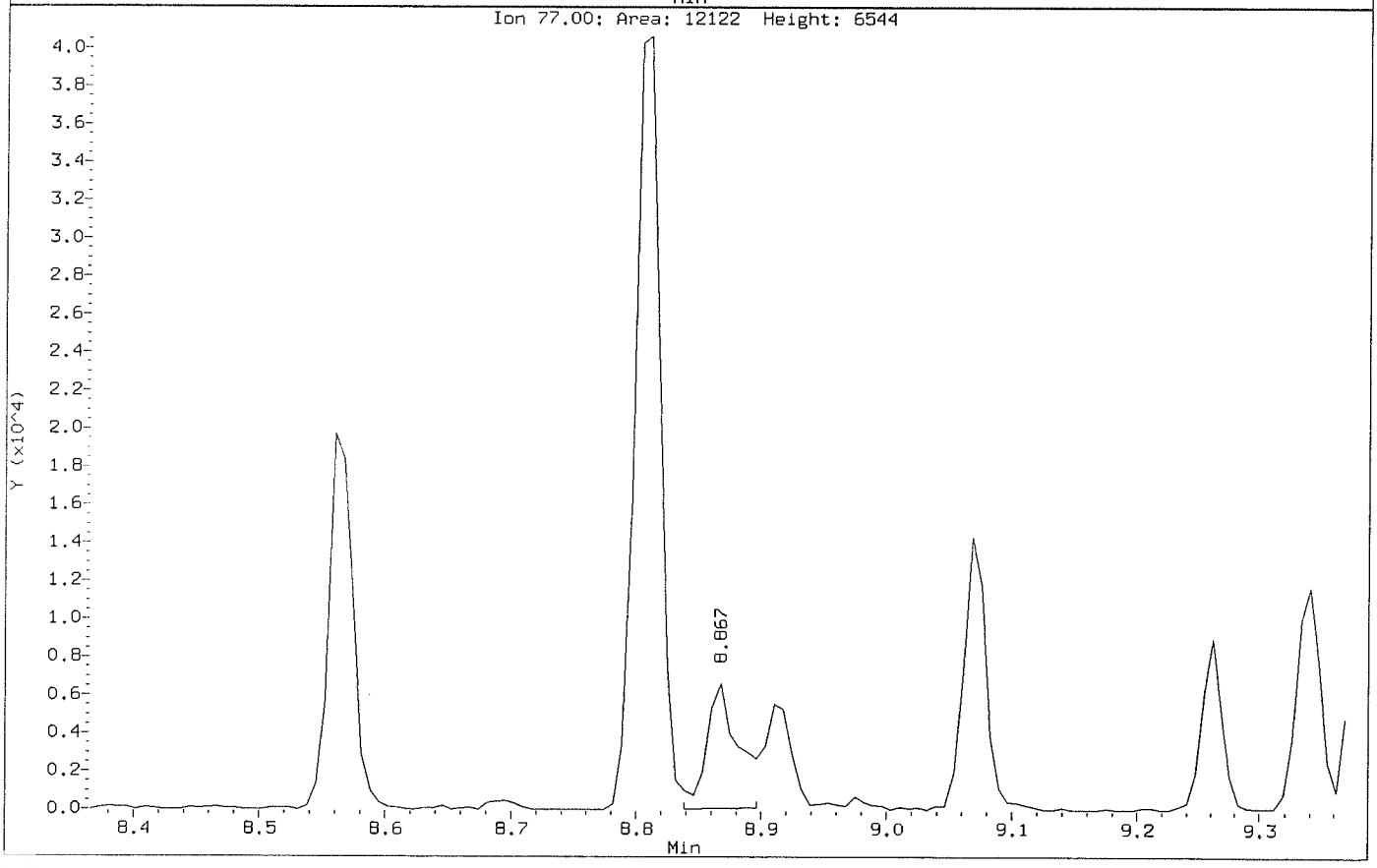



Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110611.D
Date : 07-NOV-2020 00:06
Client ID: HS20110128-11MSD
Instrument: voa6.i
Sample Info: HS20110128-11MSD;HS20110128-11MSD;3;;MSD
Purge Volume: 5.0
Operator: PC
Column phase: DB624
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Before\Y110611.D
Injection Date: 07-NOV-2020 00:06
Instrument: voa6.i
Client Sample ID: HS20110128-11MSD

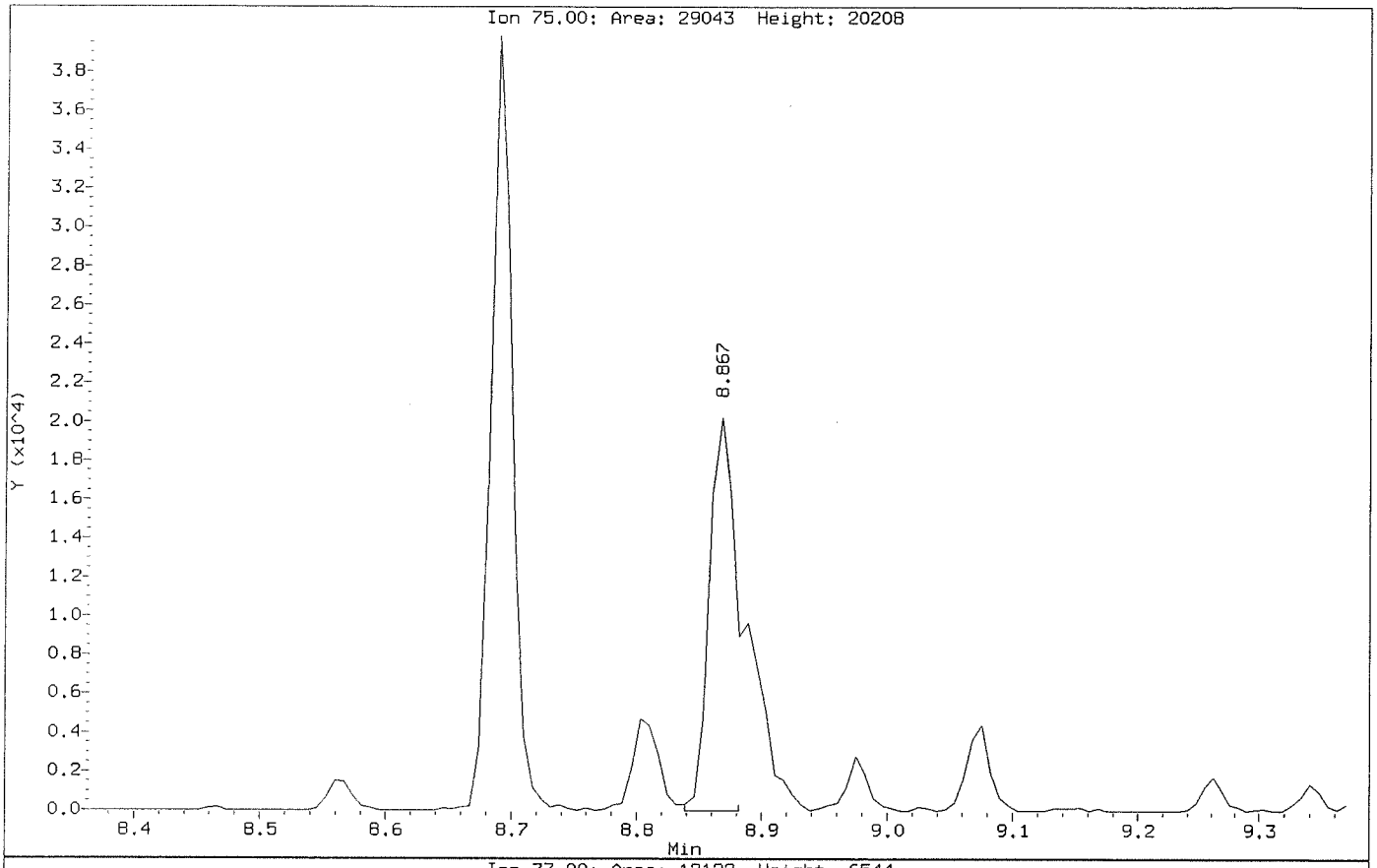
Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4

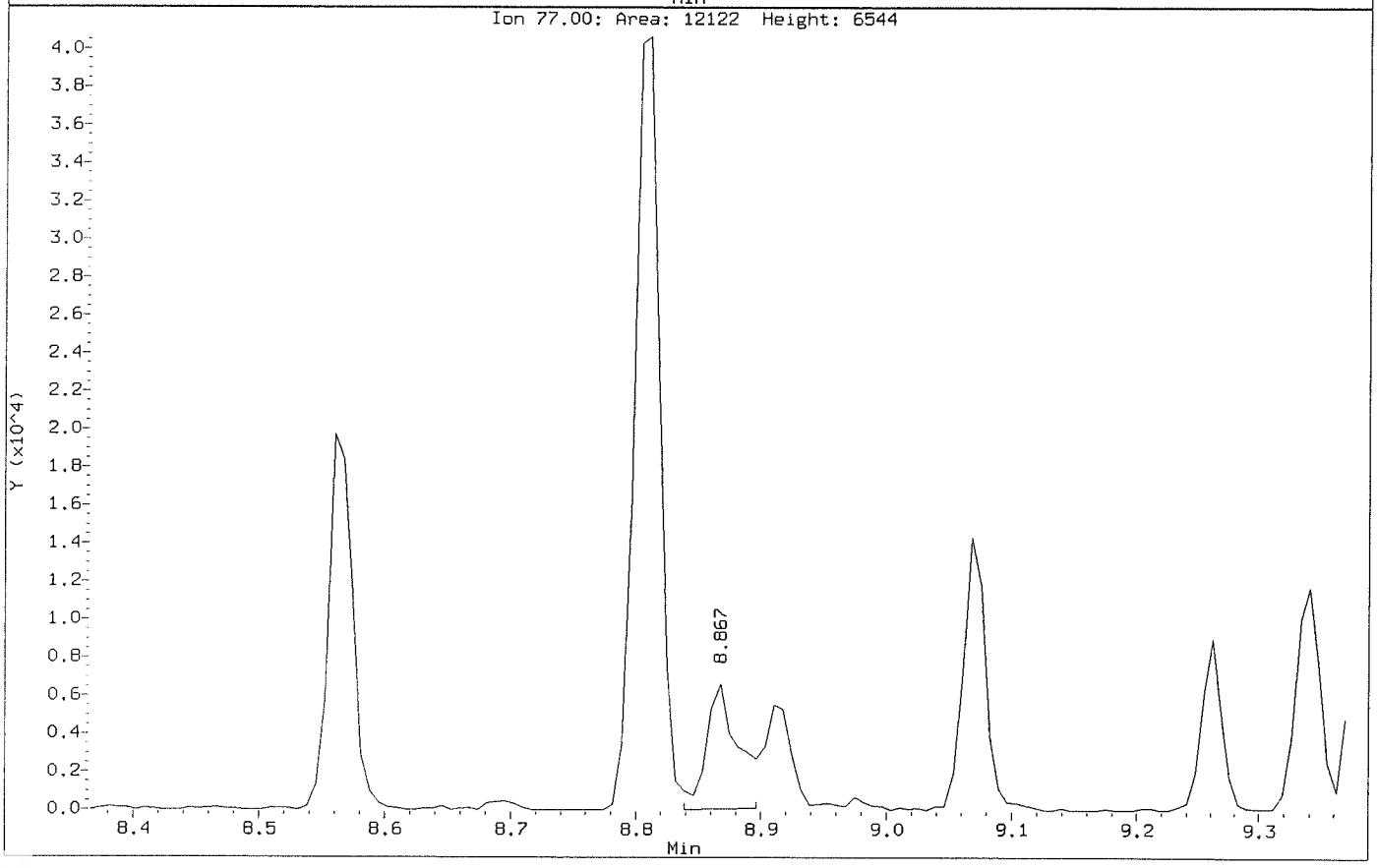


Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110611.D
Injection Date: 07-NOV-2020 00:06
Instrument: voa6.i
Client Sample ID: HS20110128-11MSD

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110613.D Page 1
Report Date: 13-Jan-2021 18:27

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201106.b\Y110613.D
Lab Smp Id: HS20110128-01 Client Smp ID: HS20110128-01
Inj Date : 07-NOV-2020 00:49
Operator : PC Inst ID: voa6.i
Smp Info : HS20110128-01;HS20110128-01;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201106.b\8260W.m
Meth Date : 13-Jan-2021 18:22 devak.giga Quant Type: ISTD
Cal Date : 03-NOV-2020 14:27 Cal File: X110308.D
Als bottle: 41
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

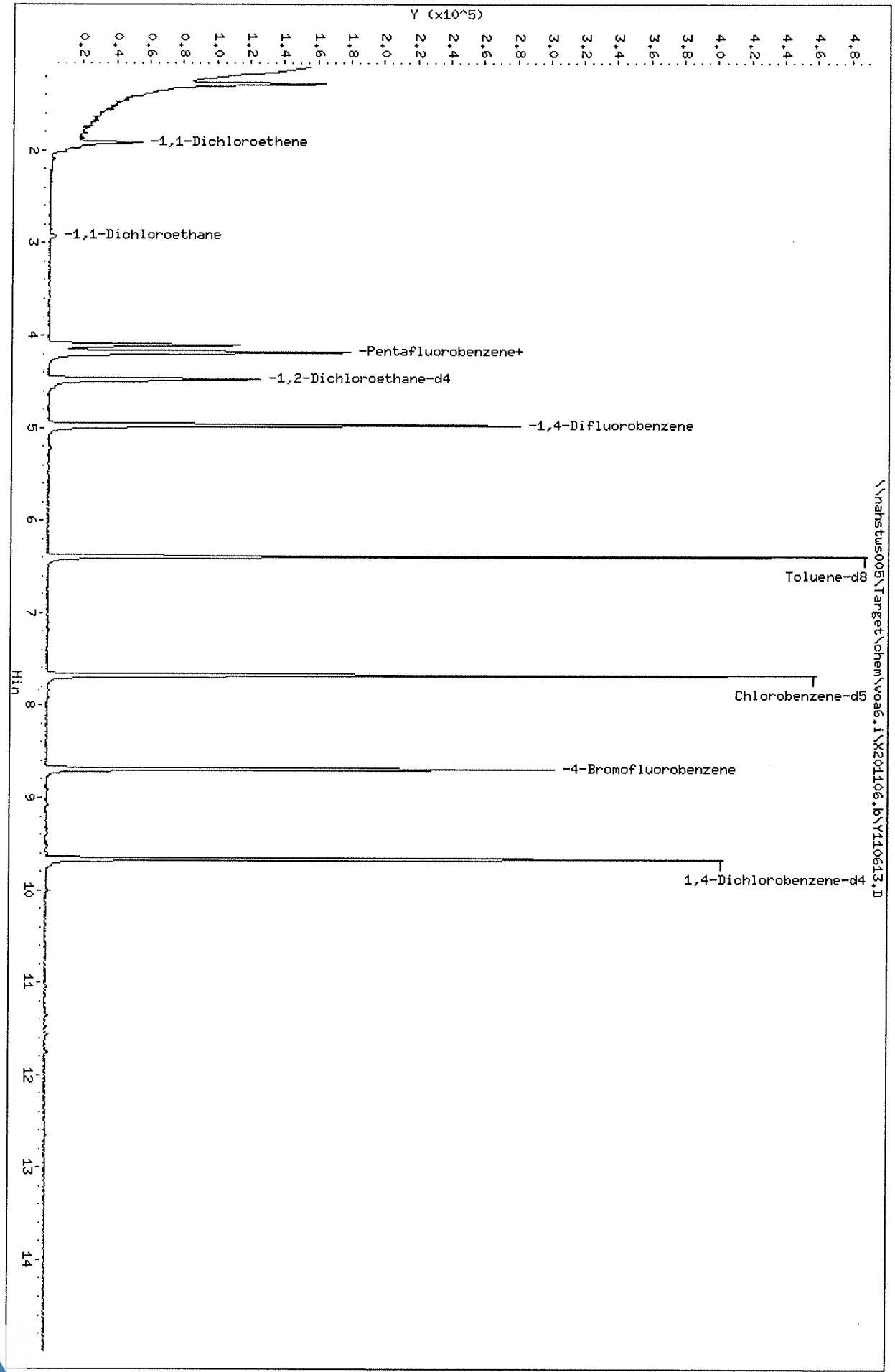
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.182 | 4.189 | (1.000) | 129235 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 4.970 | 4.970 | (1.000) | 212734 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 7.671 | 7.671 | (1.000) | 187762 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 9.669 | 9.662 | (1.000) | 81373 | 50.0000 | |
| $ 35 1,2-Dichloroethane-d4 | 65 | 4.476 | 4.476 | (1.070) | 87652 | 43.0136 | 43.01 |
| $ 69 4-Bromofluorobenzene | 95 | 8.695 | 8.688 | (1.134) | 72748 | 43.8546 | 43.85 |
| $ 30 Dibromofluoromethane | 113 | 4.103 | 4.104 | (0.981) | 73768 | 42.3851 | 42.38 |
| $ 48 Toluene-d8 | 98 | 6.388 | 6.389 | (0.833) | 253876 | 50.6221 | 50.62 |
| 22 1,1-Dichloroethane | 63 | 2.929 | 2.929 | (0.700) | 3605 | 1.16050 | 1.16(a) |
| 11 1,1-Dichloroethene | 96 | 1.919 | 1.919 | (0.459) | 11828 | 4.85093 | 4.85(a) |

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110613.D
Date : 07-NOV-2020 00:49
Client ID: HS20110128-01
Sample Info: HS20110128-01;HS20110128-01;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110613.D



Date : 07-NOV-2020 00:49

Client ID: HS20110128-01

Instrument: voa6.i

Sample Info: HS20110128-01;HS20110128-01;;;

Purge Volume: 5.0

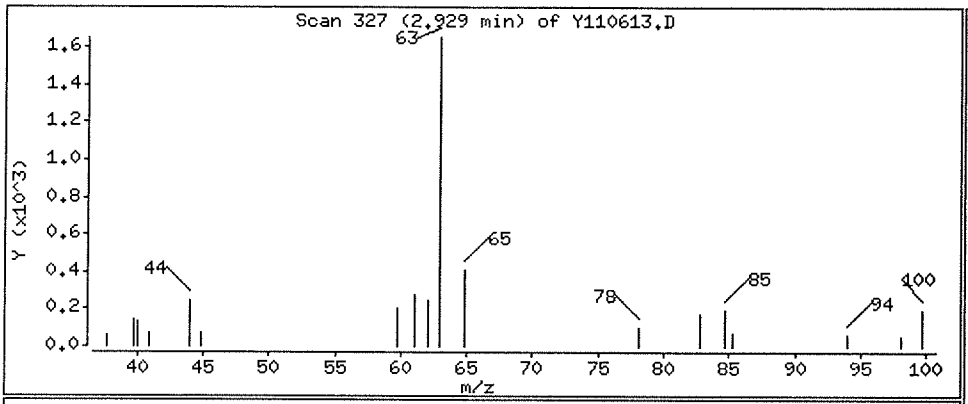
Operator: PC

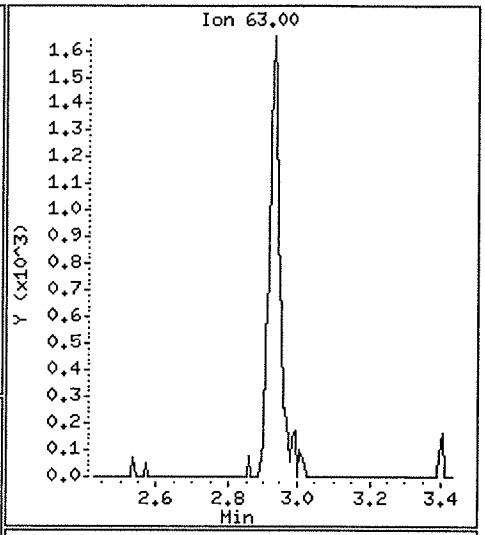
Column phase: DB624

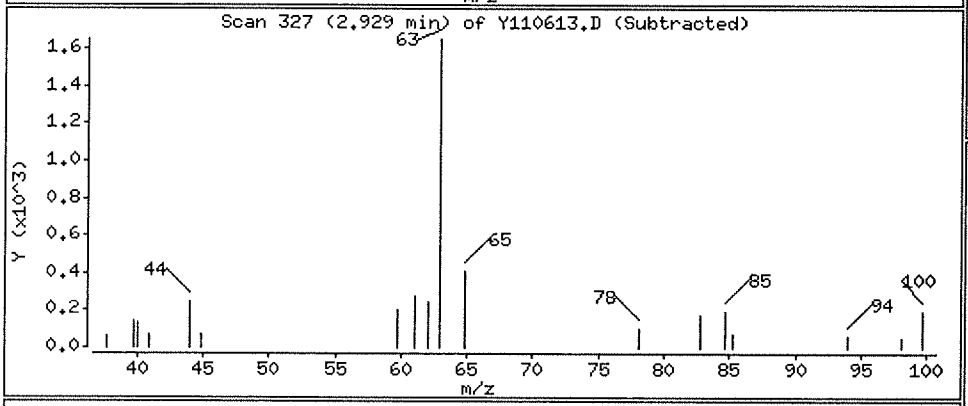
Column diameter: 0.18

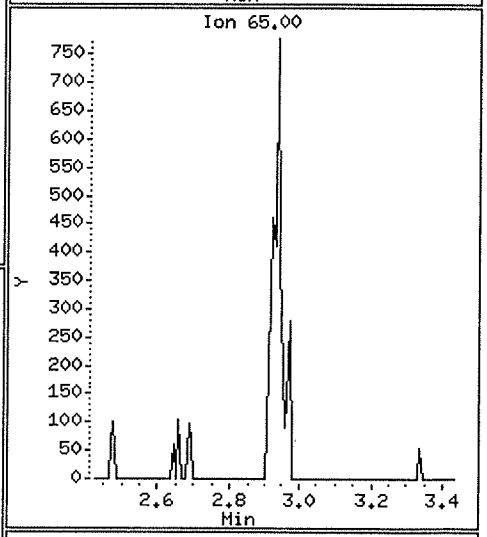
22 1,1-Dichloroethane

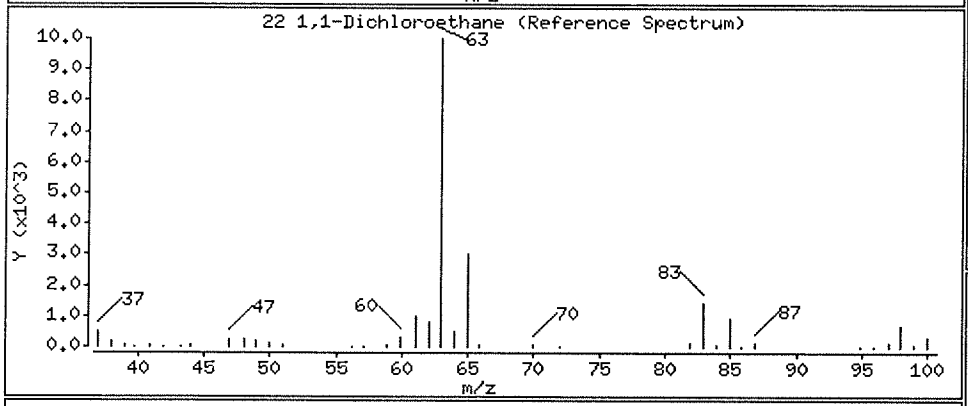
Concentration: 1.16 ug/l

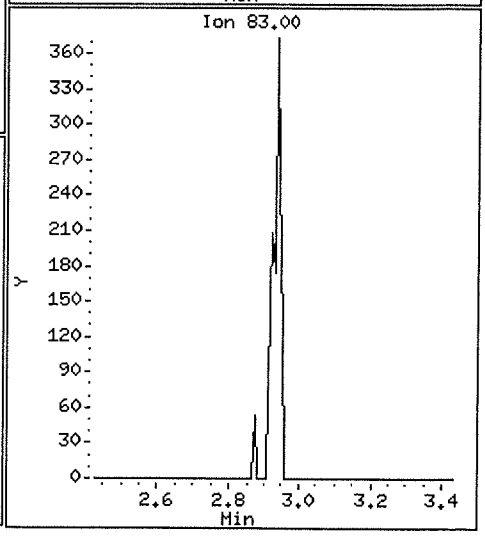


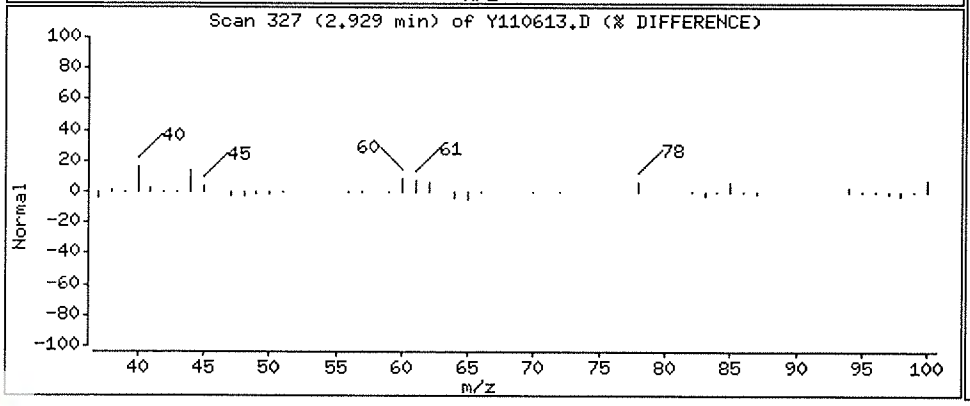



Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110613.D



Date : 07-NOV-2020 00:49

Client ID: HS20110128-01

Instrument: voa6.i

Sample Info: HS20110128-01;HS20110128-01;;;

Purge Volume: 5.0

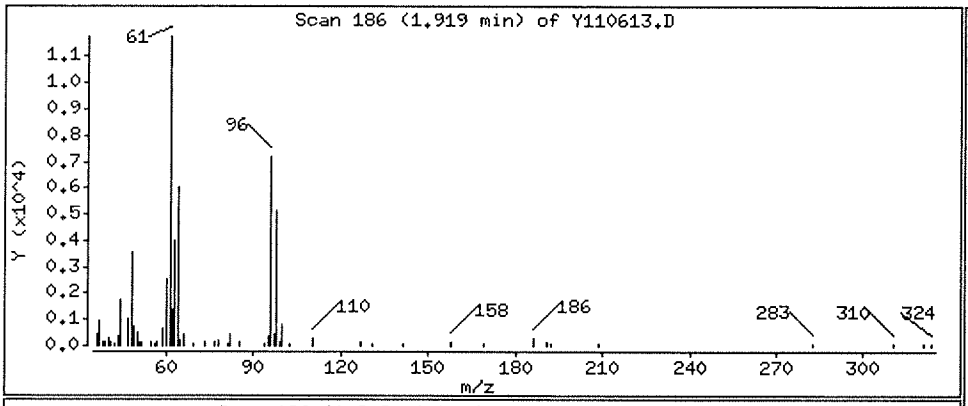
Operator: PC

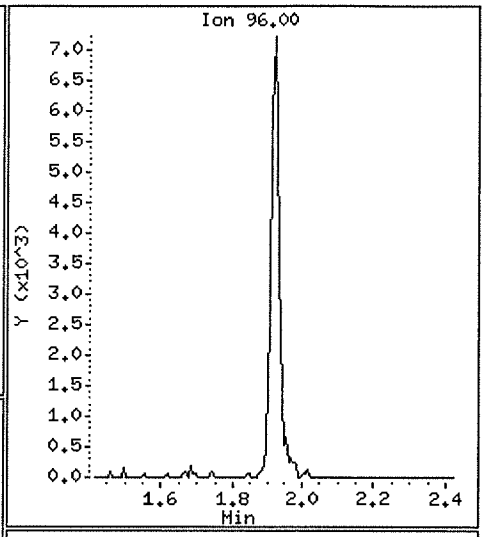
Column phase: DB624

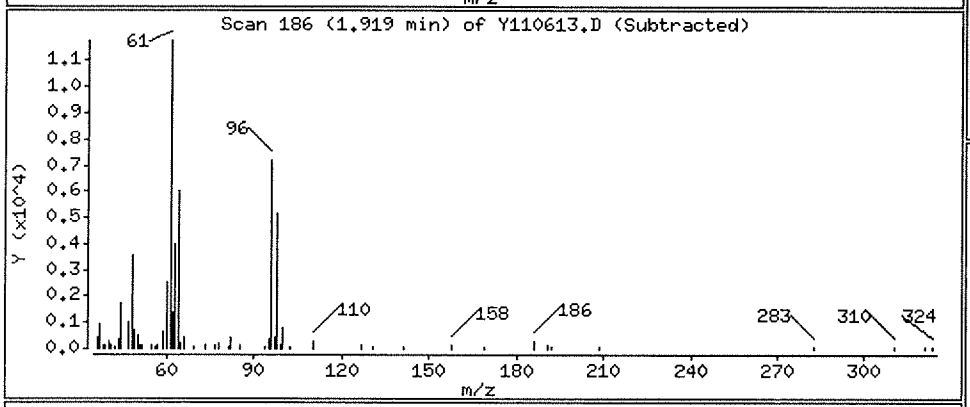
Column diameter: 0.18

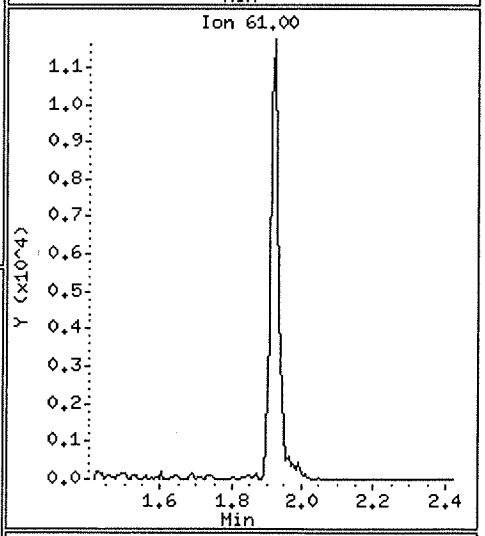
11 1,1-Dichloroethene

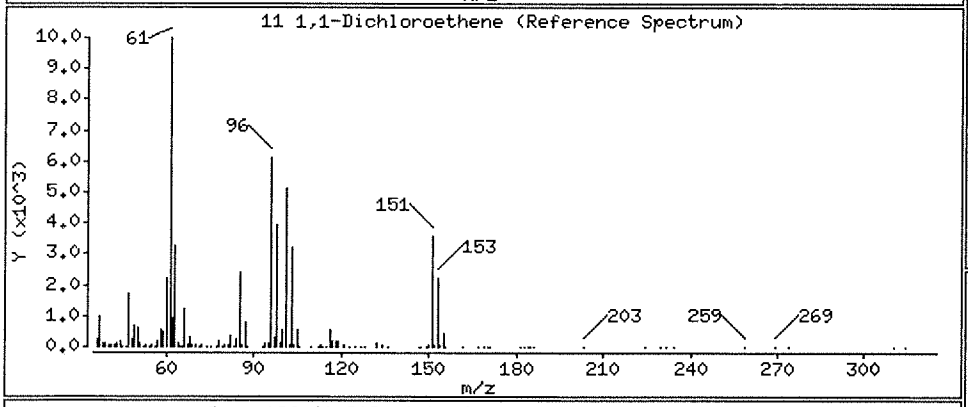
Concentration: 4.85 ug/l

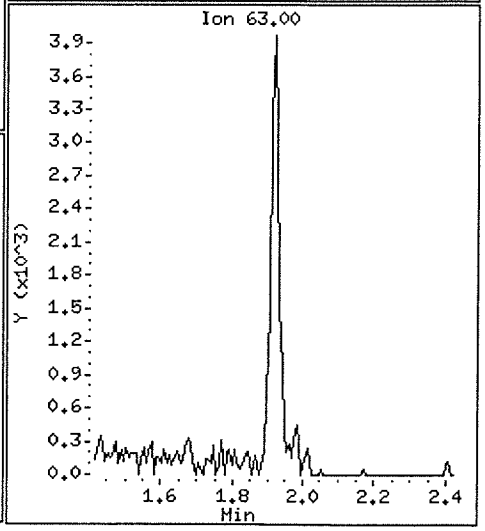


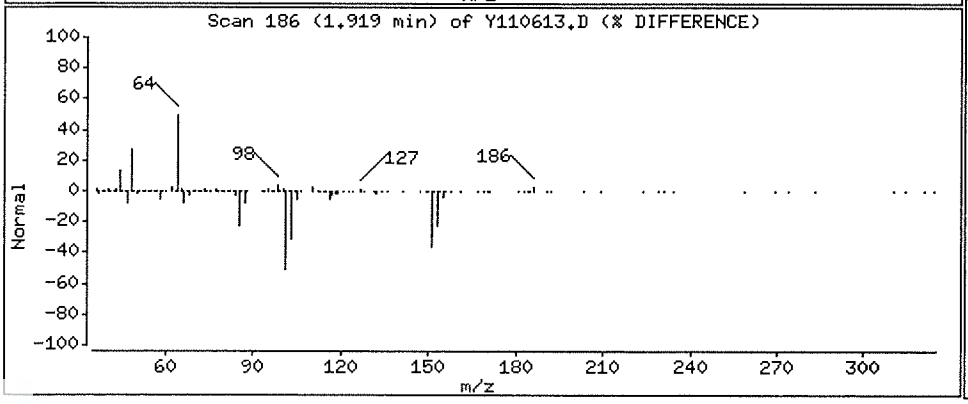



Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110614.D Page 1
Report Date: 13-Jan-2021 18:27

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201106.b\Y110614.D
Lab Smp Id: HS20110128-02 Client Smp ID: HS20110128-02
Inj Date : 07-NOV-2020 01:10
Operator : PC Inst ID: voa6.i
Smp Info : HS20110128-02;HS20110128-02;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201106.b\8260W.m
Meth Date : 13-Jan-2021 18:22 devak.giga Quant Type: ISTD
Cal Date : 03-NOV-2020 14:27 Cal File: X110308.D
Als bottle: 42
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

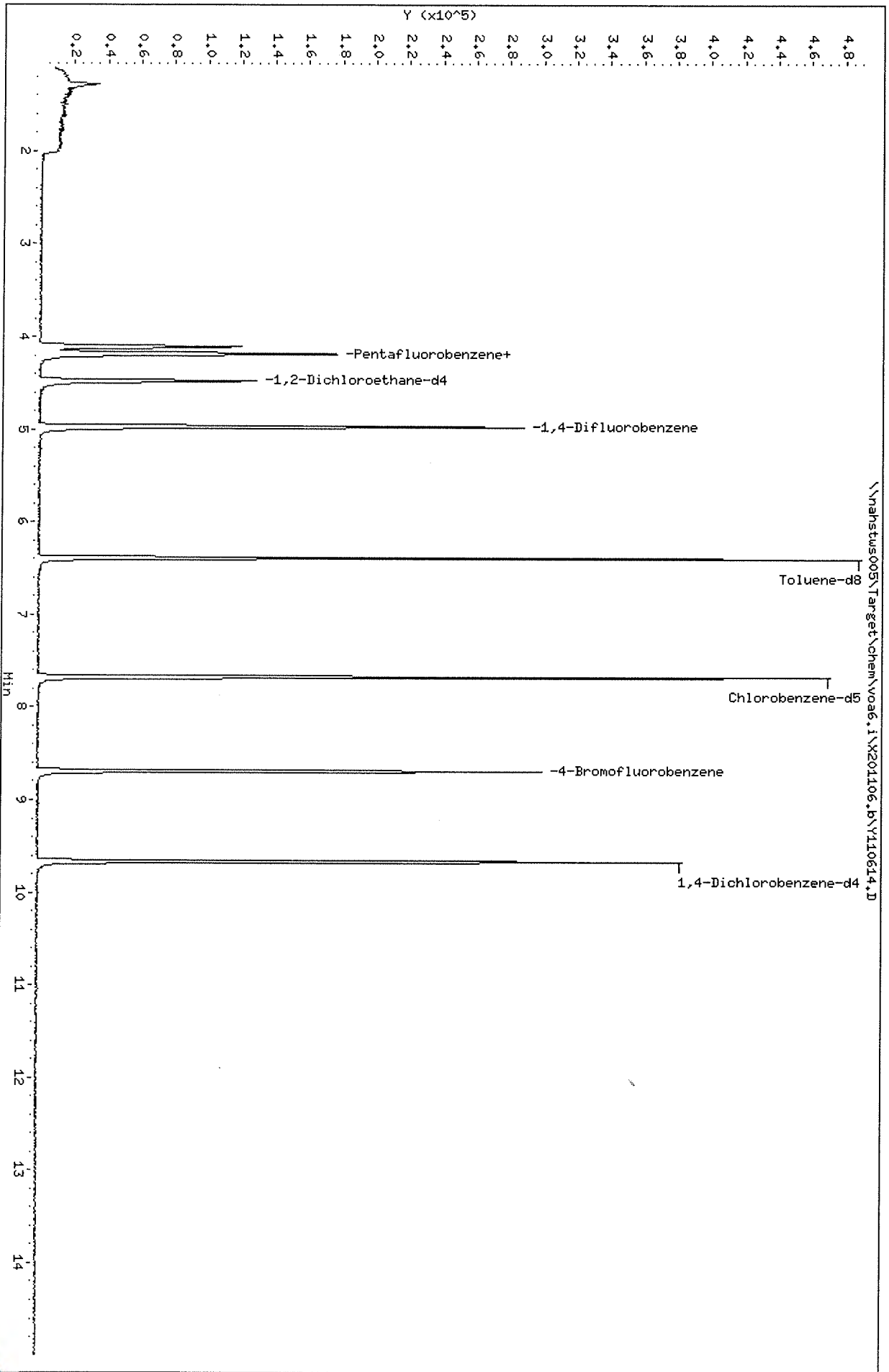
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.189 | 4.189 | (1.000) | 127746 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 4.970 | 4.970 | (1.000) | 220719 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 7.671 | 7.671 | (1.000) | 187066 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 9.669 | 9.662 | (1.000) | 75905 | 50.0000 | |
| $ 35 1,2-Dichloroethane-d4 | 65 | 4.476 | 4.476 | (1.068) | 89386 | 44.3308 | 44.33 |
| $ 69 4-Bromofluorobenzene | 95 | 8.688 | 8.688 | (1.133) | 75221 | 45.4543 | 45.45 |
| $ 30 Dibromofluoromethane | 113 | 4.103 | 4.104 | (0.979) | 75083 | 43.6435 | 43.64 |
| $ 48 Toluene-d8 | 98 | 6.388 | 6.389 | (0.833) | 253442 | 50.7236 | 50.72 |

Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110614.D
Date : 07-NOV-2020 01:10
Client ID: HS20110128-02
Sample Info: HS20110128-02;HS20110128-02;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201106.b\Y110615.D
Lab Smp Id: HS20110128-03 Client Smp ID: HS20110128-03
Inj Date : 07-NOV-2020 01:31
Operator : PC Inst ID: voa6.i
Smp Info : HS20110128-03;HS20110128-03;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201106.b\8260W.m
Meth Date : 13-Jan-2021 18:22 devak.giga Quant Type: ISTD
Cal Date : 03-NOV-2020 14:27 Cal File: X110308.D
Als bottle: 43
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

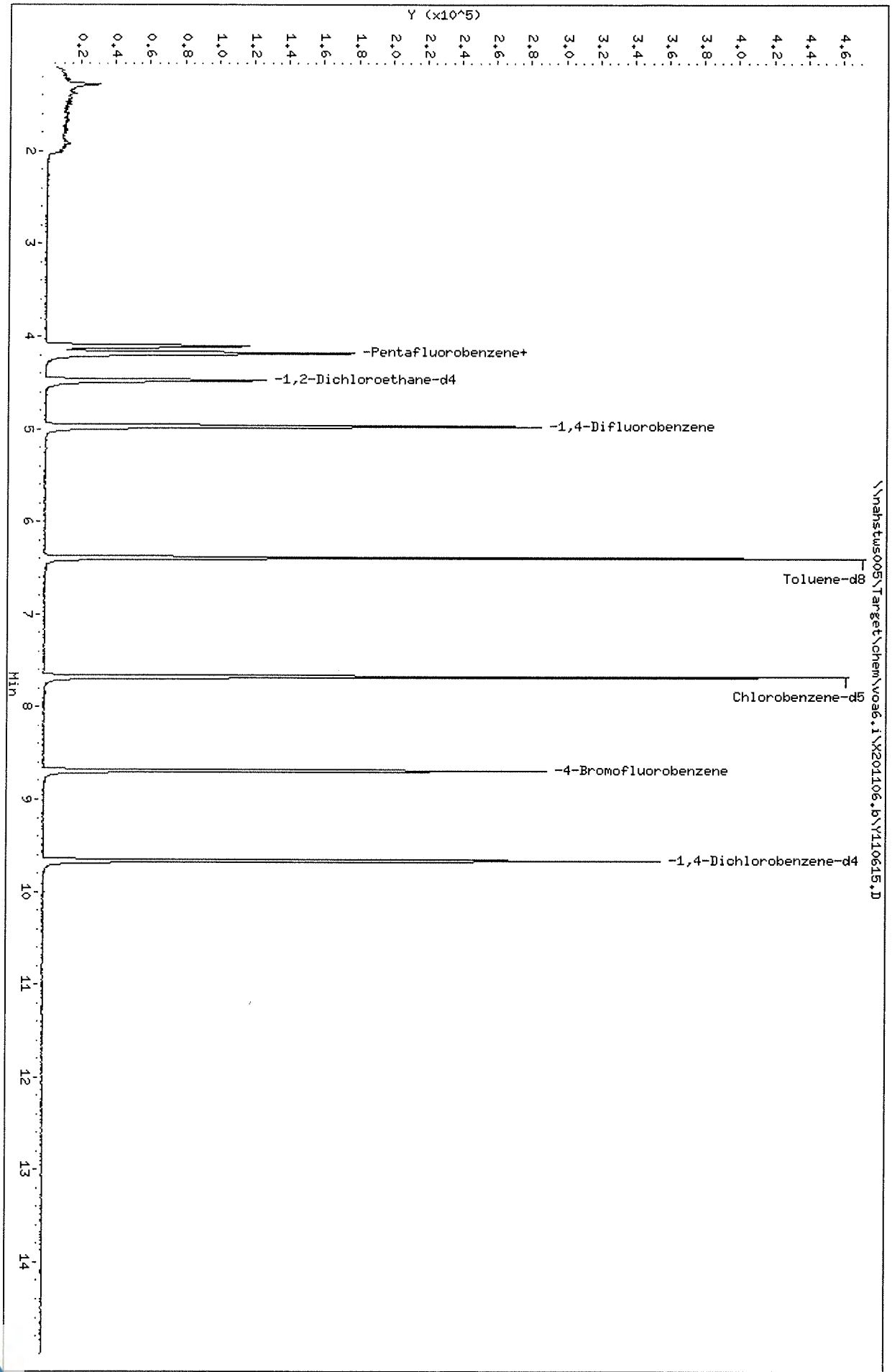
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.189 | 4.189 | (1.000) | 127171 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 4.970 | 4.970 | (1.000) | 219800 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 7.671 | 7.671 | (1.000) | 185872 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 9.669 | 9.662 | (1.000) | 73065 | 50.0000 | |
| $ 35 1,2-Dichloroethane-d4 | 65 | 4.476 | 4.476 | (1.068) | 87868 | 43.7933 | 43.79 |
| $ 69 4-Bromofluorobenzene | 95 | 8.688 | 8.688 | (1.133) | 71913 | 43.7942 | 43.79 |
| $ 30 Dibromofluoromethane | 113 | 4.103 | 4.104 | (0.979) | 75059 | 43.8268 | 43.82 |
| $ 48 Toluene-d8 | 98 | 6.388 | 6.389 | (0.833) | 252994 | 50.9592 | 50.95 |

Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110615.D
Date : 07-NOV-2020 01:31
Client ID: HS20110128-03
Sample Info: HS20110128-03;HS20110128-03;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110616.D Page 1
Report Date: 13-Jan-2021 18:27

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201106.b\Y110616.D
Lab Smp Id: HS20110128-04 Client Smp ID: HS20110128-04
Inj Date : 07-NOV-2020 01:52
Operator : PC Inst ID: voa6.i
Smp Info : HS20110128-04;HS20110128-04;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201106.b\8260W.m
Meth Date : 13-Jan-2021 18:22 devak.giga Quant Type: ISTD
Cal Date : 03-NOV-2020 14:27 Cal File: X110308.D
Als bottle: 44
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

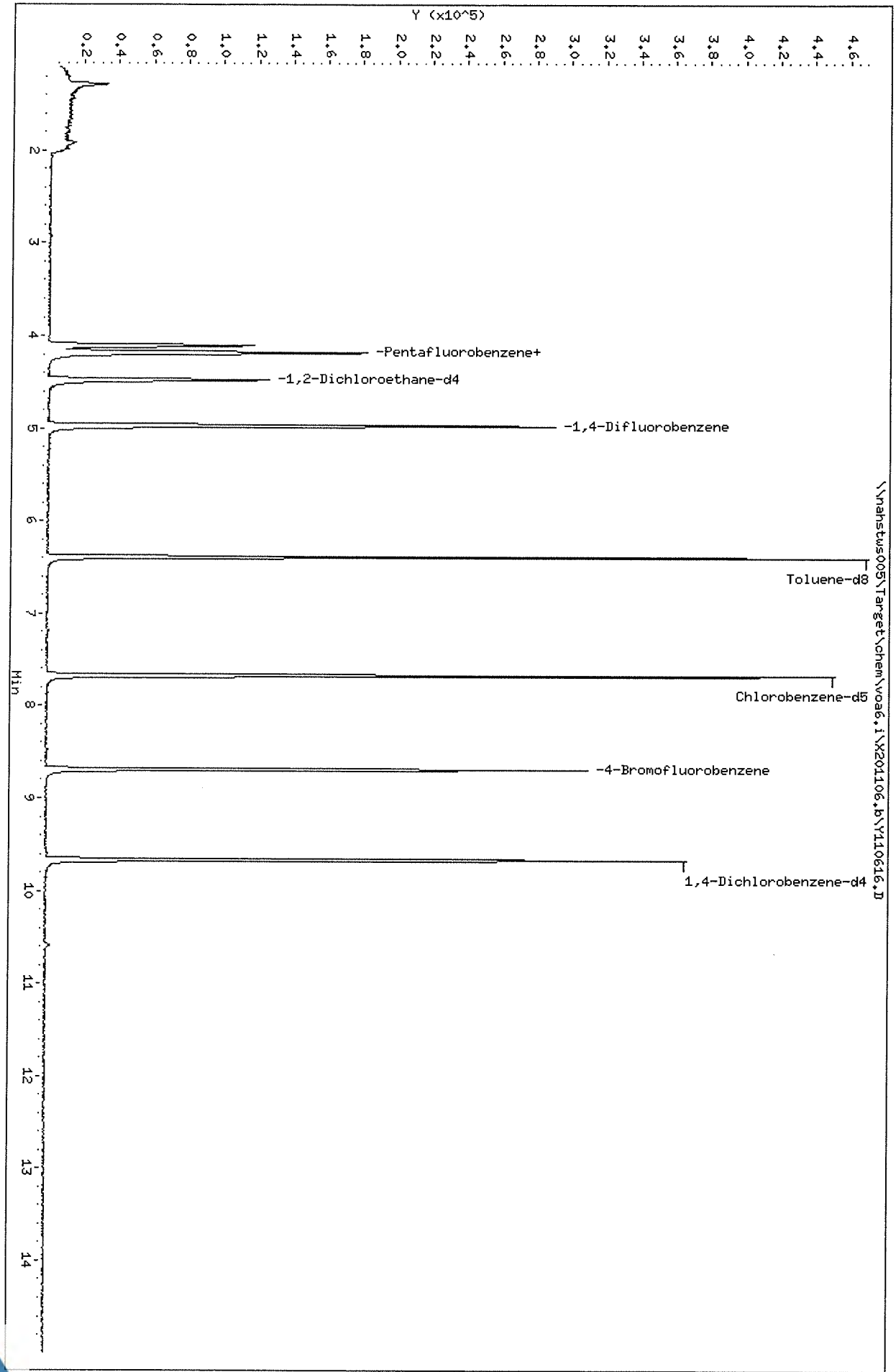
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.189 | 4.189 | (1.000) | 132002 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 4.970 | 4.970 | (1.000) | 219005 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 7.671 | 7.671 | (1.000) | 191376 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 9.669 | 9.662 | (1.000) | 76228 | 50.0000 | |
| $ 35 1,2-Dichloroethane-d4 | 65 | 4.476 | 4.476 | (1.068) | 90305 | 43.3747 | 43.37 |
| $ 69 4-Bromofluorobenzene | 95 | 8.695 | 8.688 | (1.134) | 77805 | 45.9388 | 45.93 |
| $ 30 Dibromofluoromethane | 113 | 4.104 | 4.104 | (0.979) | 73600 | 41.4021 | 41.40 |
| $ 48 Toluene-d8 | 98 | 6.389 | 6.389 | (0.833) | 254521 | 49.7923 | 49.79 |

Data File: \\nahstws005\Target\chem\voa6,i\X201106,b\Y110616.D
Date : 07-NOV-2020 01:52
Client ID: HS20110128-04
Sample Info: HS20110128-04;HS20110128-04;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6,i
Operator: PC
Column diameter: 0.18



ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201106.b\Y110617.D
Lab Smp Id: HS20110128-05 Client Smp ID: HS20110128-05
Inj Date : 07-NOV-2020 02:13
Operator : PC Inst ID: voa6.i
Smp Info : HS20110128-05;HS20110128-05;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201106.b\8260W.m
Meth Date : 13-Jan-2021 19:02 devak.giga Quant Type: ISTD
Cal Date : 03-NOV-2020 14:27 Cal File: X110308.D
Als bottle: 45
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

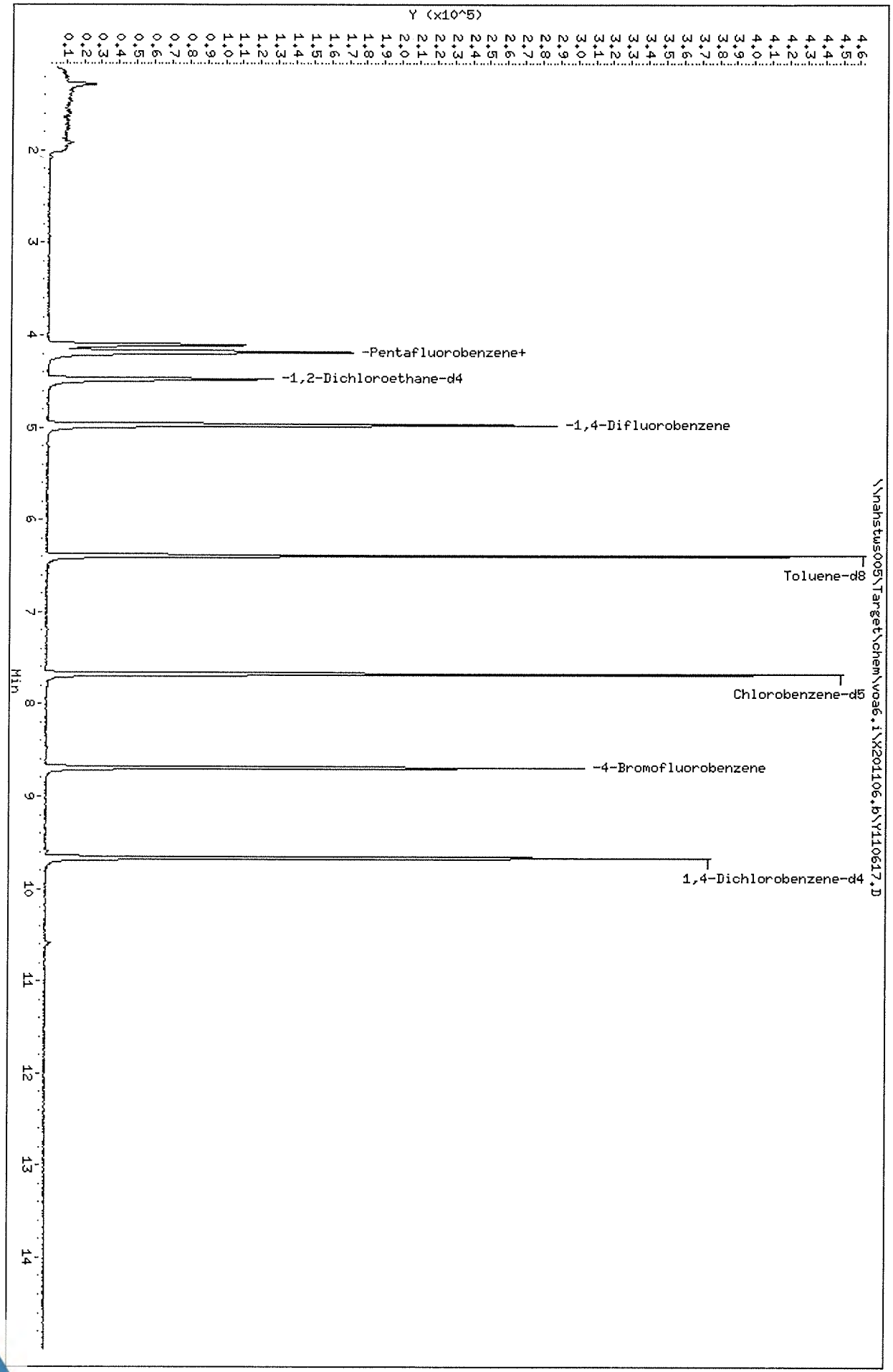
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.182 | 4.189 | (1.000) | 126711 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 4.970 | 4.970 | (1.000) | 214725 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 7.671 | 7.671 | (1.000) | 186693 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 9.669 | 9.662 | (1.000) | 78939 | 50.0000 | |
| $ 35 1,2-Dichloroethane-d4 | 65 | 4.476 | 4.476 | (1.070) | 86531 | 43.2999 | 43.29 |
| $ 69 4-Bromofluorobenzene | 95 | 8.688 | 8.688 | (1.133) | 71731 | 43.5018 | 43.50 |
| $ 30 Dibromofluoromethane | 113 | 4.103 | 4.104 | (0.981) | 73529 | 43.0893 | 43.08 |
| $ 48 Toluene-d8 | 98 | 6.388 | 6.389 | (0.833) | 251290 | 50.3934 | 50.39 |

Data File: \\nahstws005\Target\chem\voa6,i\X201106,b\Y110617.D
Date : 07-NOV-2020 02:13
Client ID: HS20110128-05
Sample Info: HS20110128-05;HS20110128-05;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6,i
Operator: PC
Column diameter: 0.18



ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201106.b\Y110618.D
Lab Smp Id: HS20110128-06 Client Smp ID: HS20110128-06
Inj Date : 07-NOV-2020 02:34
Operator : PC Inst ID: voa6.i
Smp Info : HS20110128-06;HS20110128-06;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201106.b\8260W.m
Meth Date : 13-Jan-2021 18:22 devak.giga Quant Type: ISTD
Cal Date : 03-NOV-2020 14:27 Cal File: X110308.D
Als bottle: 46
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

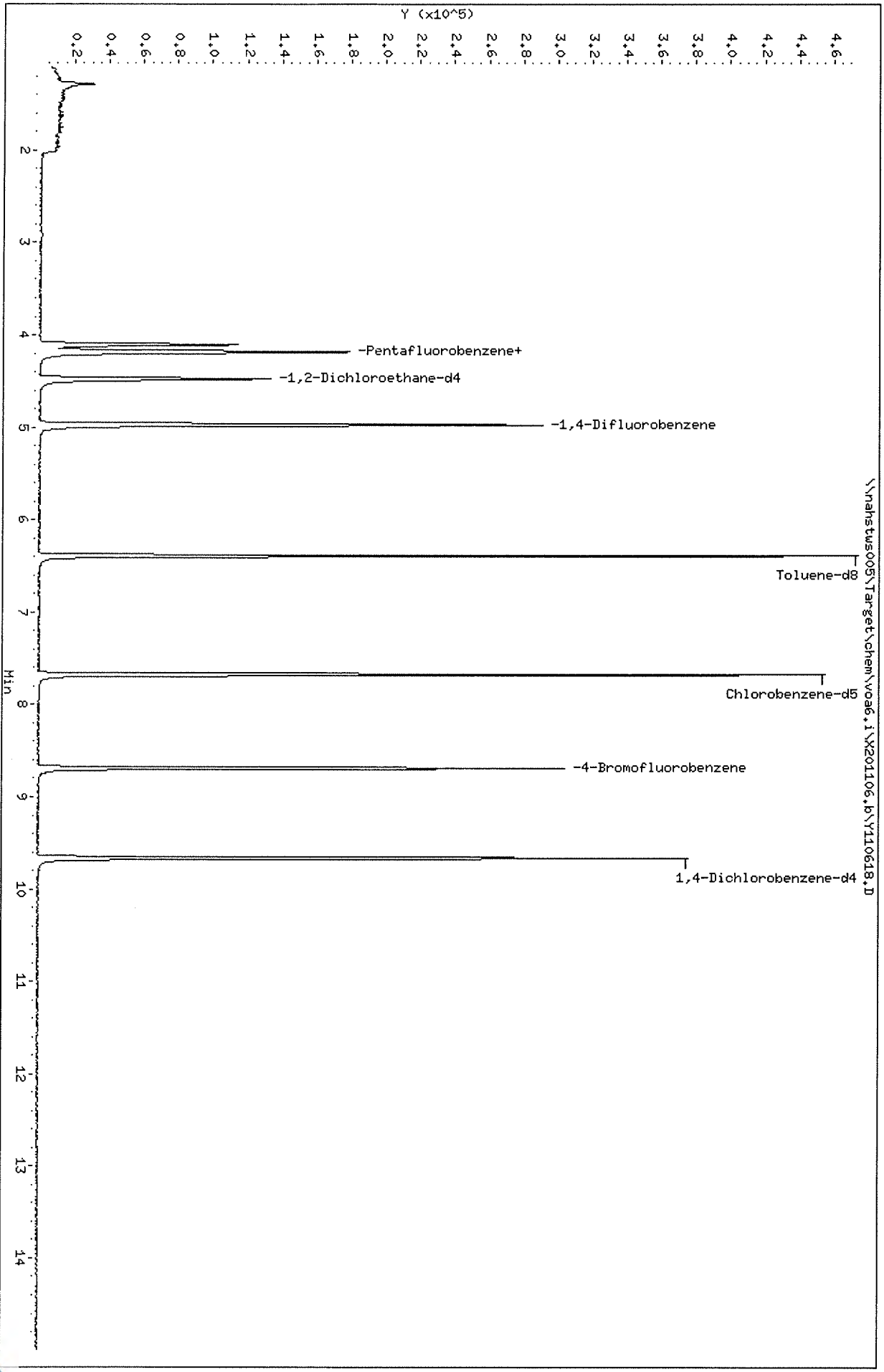
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.189 | 4.189 | (1.000) | 128500 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 4.970 | 4.970 | (1.000) | 216817 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 7.671 | 7.671 | (1.000) | 186792 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 9.662 | 9.662 | (1.000) | 74592 | 50.0000 | |
| $ 35 1,2-Dichloroethane-d4 | 65 | 4.476 | 4.476 | (1.068) | 90056 | 44.3987 | 44.39 |
| $ 69 4-Bromofluorobenzene | 95 | 8.695 | 8.688 | (1.134) | 73892 | 44.7428 | 44.74 |
| $ 30 Dibromofluoromethane | 113 | 4.103 | 4.104 | (0.979) | 74353 | 42.9655 | 42.96 |
| $ 48 Toluene-d8 | 98 | 6.388 | 6.389 | (0.833) | 250615 | 50.2314 | 50.23 |

Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110618.D
Date : 07-NOV-2020 02:34
Client ID: HS20110128-06
Sample Info: HS20110128-06;HS20110128-06;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110619.D Page 1
Report Date: 13-Jan-2021 18:27

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201106.b\Y110619.D
Lab Smp Id: HS20110128-07 Client Smp ID: HS20110128-07
Inj Date : 07-NOV-2020 02:55
Operator : PC Inst ID: voa6.i
Smp Info : HS20110128-07;HS20110128-07;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201106.b\8260W.m
Meth Date : 13-Jan-2021 18:22 devak.giga Quant Type: ISTD
Cal Date : 03-NOV-2020 14:27 Cal File: X110308.D
Als bottle: 47
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

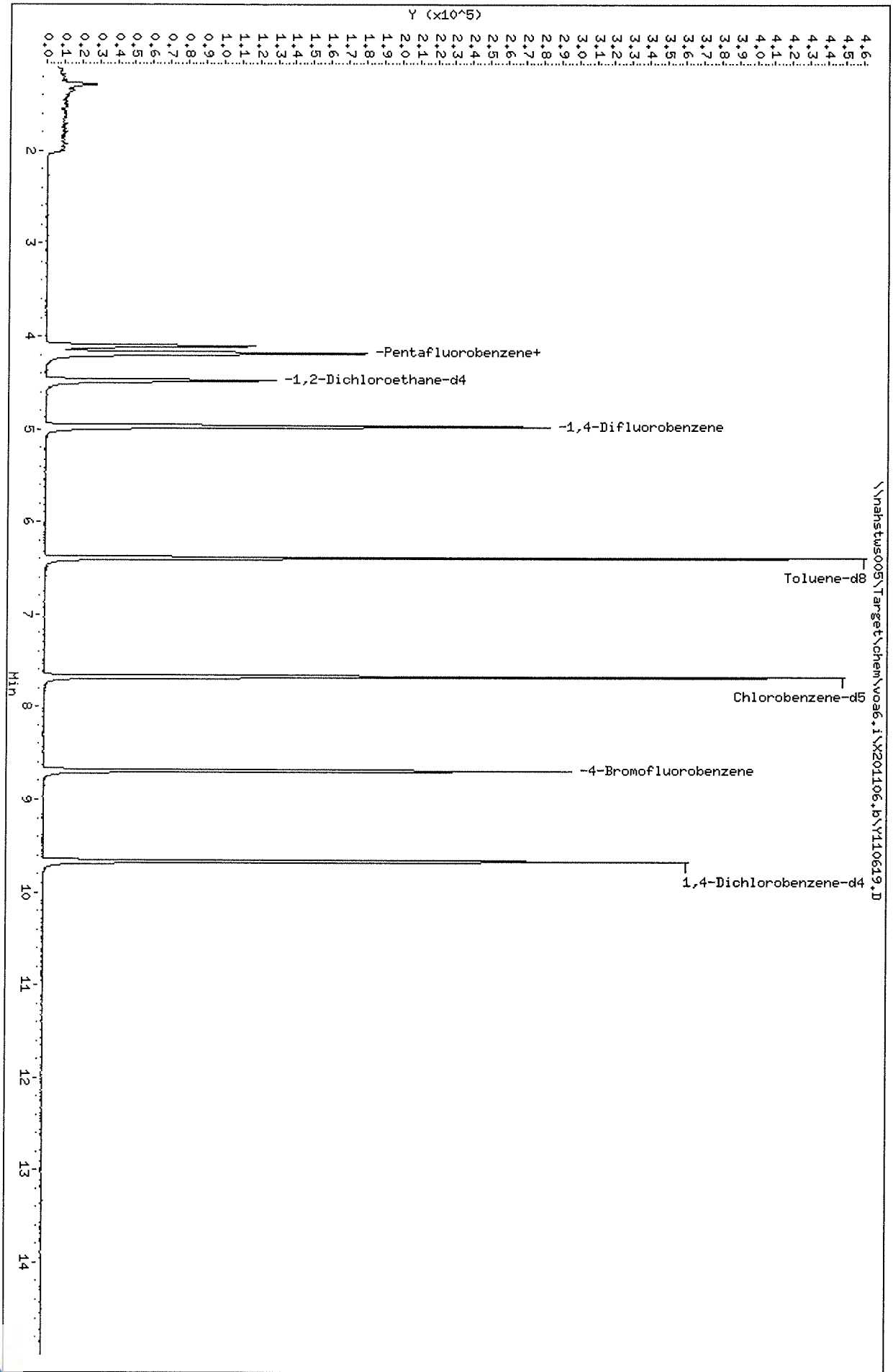
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.189 | 4.189 | (1.000) | 128834 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 4.970 | 4.970 | (1.000) | 216847 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 7.670 | 7.671 | (1.000) | 186776 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 9.662 | 9.662 | (1.000) | 73692 | 50.0000 | |
| $ 35 1,2-Dichloroethane-d4 | 65 | 4.476 | 4.476 | (1.068) | 86959 | 42.8129 | 42.81 |
| $ 69 4-Bromofluorobenzene | 95 | 8.688 | 8.688 | (1.133) | 73645 | 44.6022 | 44.60 |
| $ 30 Dibromofluoromethane | 113 | 4.103 | 4.104 | (0.979) | 74125 | 42.7227 | 42.72 |
| $ 48 Toluene-d8 | 98 | 6.388 | 6.389 | (0.833) | 249712 | 50.0547 | 50.05 |

Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110619.D
Date : 07-NOV-2020 02:55
Client ID: HS20110128-07
Sample Info: HS20110128-07;HS20110128-07;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110620.D  Page 1
Report Date: 13-Jan-2021 18:27

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201106.b\Y110620.D
Lab Smp Id: HS20110128-08  Client Smp ID: HS20110128-08
Inj Date  : 07-NOV-2020 03:16
Operator  : PC  Inst ID: voa6.i
Smp Info  : HS20110128-08;HS20110128-08;;;
Misc Info : HS18090001;WATER;0;1;
Comment   :
Method    : \\nahstws005\Target\chem\voa6.i\X201106.b\8260W.m
Meth Date : 13-Jan-2021 18:22 devak.giga  Quant Type: ISTD
Cal Date  : 03-NOV-2020 14:27  Cal File: X110308.D
Als bottle: 48
Dil Factor: 1.00000
Integrator: HP RTE  Compound Sublist: CBIHOUSTONDOD.sub
Target Version:  4.14
Processing Host: NAHSTW7056

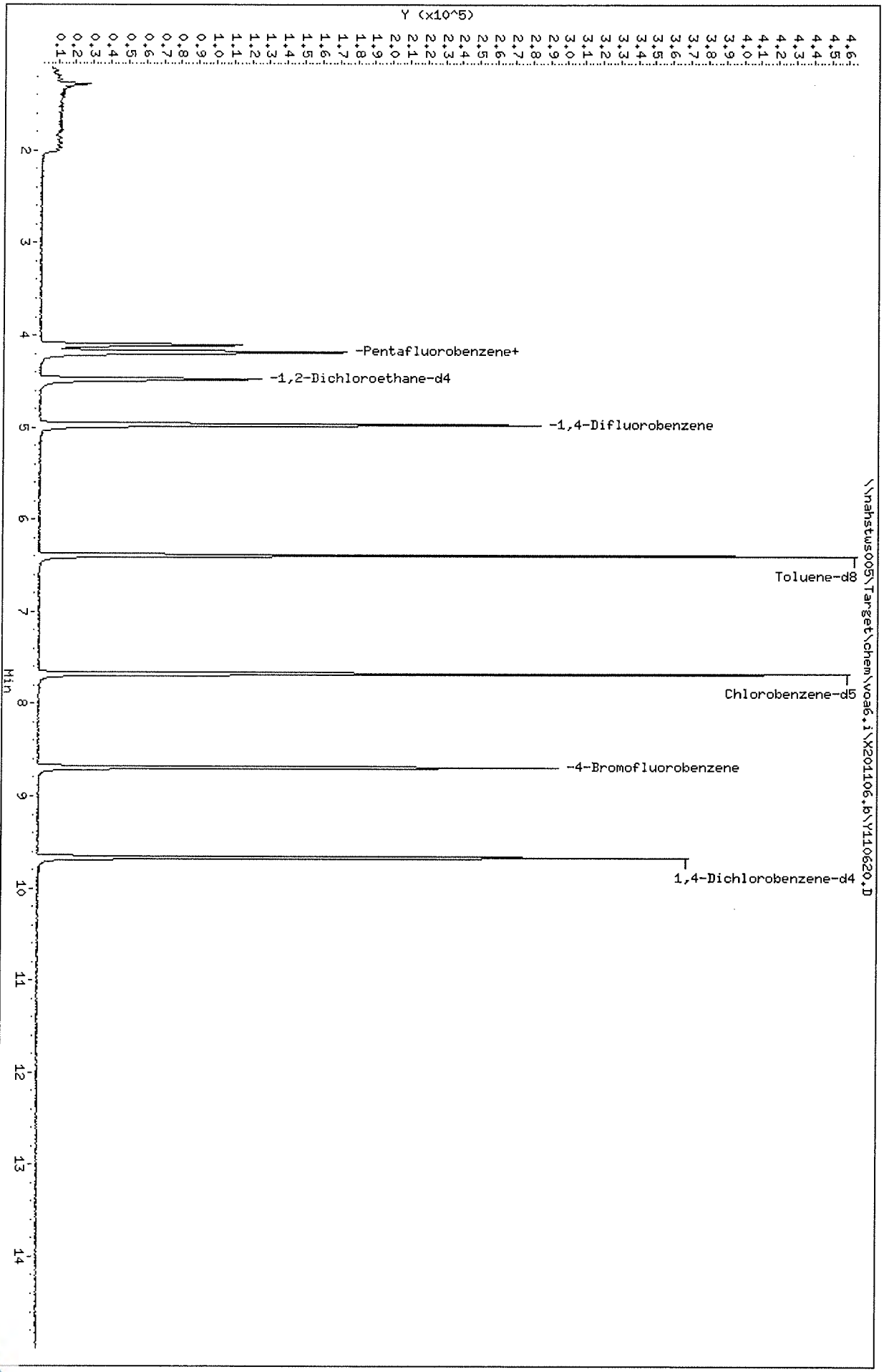
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.189 | 4.189 | (1.000) | 126444 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 4.970 | 4.970 | (1.000) | 216763 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 7.671 | 7.671 | (1.000) | 188813 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 9.669 | 9.662 | (1.000) | 76965 | 50.0000 | |
| $ 35 1,2-Dichloroethane-d4 | 65 | 4.476 | 4.476 | (1.068) | 87354 | 43.7876 | 43.78 |
| $ 69 4-Bromofluorobenzene | 95 | 8.688 | 8.688 | (1.133) | 72800 | 43.6491 | 43.64 |
| $ 30 Dibromofluoromethane | 113 | 4.103 | 4.104 | (0.979) | 73753 | 43.3118 | 43.31 |
| $ 48 Toluene-d8 | 98 | 6.388 | 6.389 | (0.833) | 249590 | 49.4905 | 49.49 |

Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110620.D
Date : 07-NOV-2020 03:16
Client ID: HS20110128-08
Sample Info: HS20110128-08;HS20110128-08;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110621.D Page 1
Report Date: 13-Jan-2021 18:27

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201106.b\Y110621.D
Lab Smp Id: HS20110128-09 Client Smp ID: HS20110128-09
Inj Date : 07-NOV-2020 03:37
Operator : PC Inst ID: voa6.i
Smp Info : HS20110128-09;HS20110128-09;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201106.b\8260W.m
Meth Date : 13-Jan-2021 18:22 devak.giga Quant Type: ISTD
Cal Date : 03-NOV-2020 14:27 Cal File: X110308.D
Als bottle: 49
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.189 | 4.189 | (1.000) | 125162 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 4.970 | 4.970 | (1.000) | 214154 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 7.671 | 7.671 | (1.000) | 184183 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 9.669 | 9.662 | (1.000) | 73040 | 50.0000 | |
| $ 35 1,2-Dichloroethane-d4 | 65 | 4.476 | 4.476 | (1.068) | 88399 | 44.7324 | 44.73 |
| $ 69 4-Bromofluorobenzene | 95 | 8.695 | 8.688 | (1.134) | 72571 | 44.5717 | 44.57 |
| $ 30 Dibromofluoromethane | 113 | 4.103 | 4.104 | (0.979) | 73403 | 43.5478 | 43.54 |
| $ 48 Toluene-d8 | 98 | 6.388 | 6.389 | (0.833) | 245720 | 49.9479 | 49.94 |
| 22 1,1-Dichloroethane | 63 | 2.921 | 2.929 | (0.697) | 3456 | 1.14874 | 1.14(a) |
| 11 1,1-Dichloroethene | 96 | 1.919 | 1.919 | (0.458) | 95067 | 40.2579 | 40.25 |

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110621.D

Date : 07-NOV-2020 03:37

Client ID: HS20110128-09

Instrument: voa6.i

Sample Info: HS20110128-09;HS20110128-09;;;

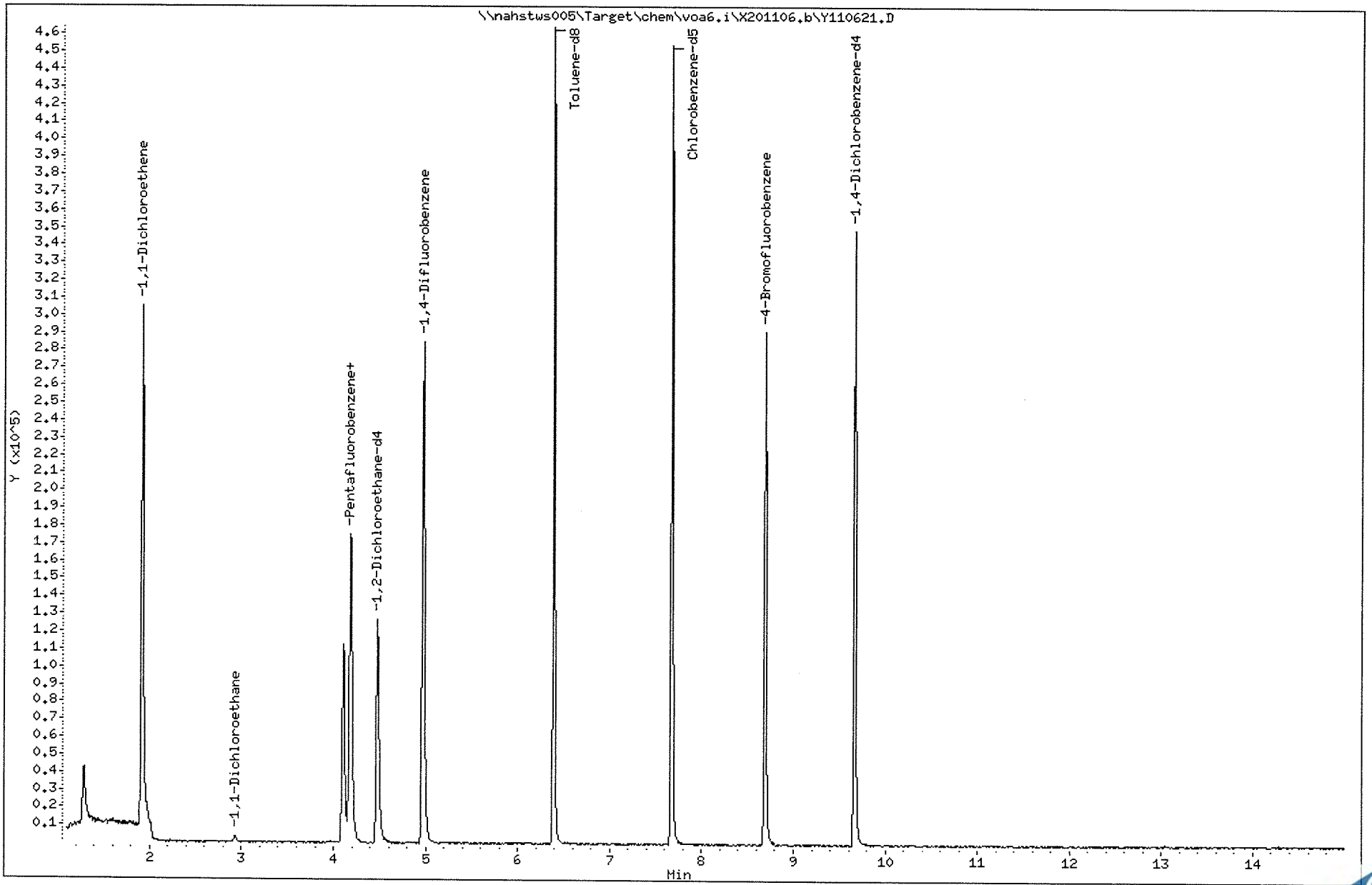
Purge Volume: 5.0

Operator: PC

Column phase: DB624

Column diameter: 0.18





Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110621.D



Date : 07-NOV-2020 03:37

Client ID: HS20110128-09

Instrument: voa6.i

Sample Info: HS20110128-09;HS20110128-09;;;

Purge Volume: 5.0

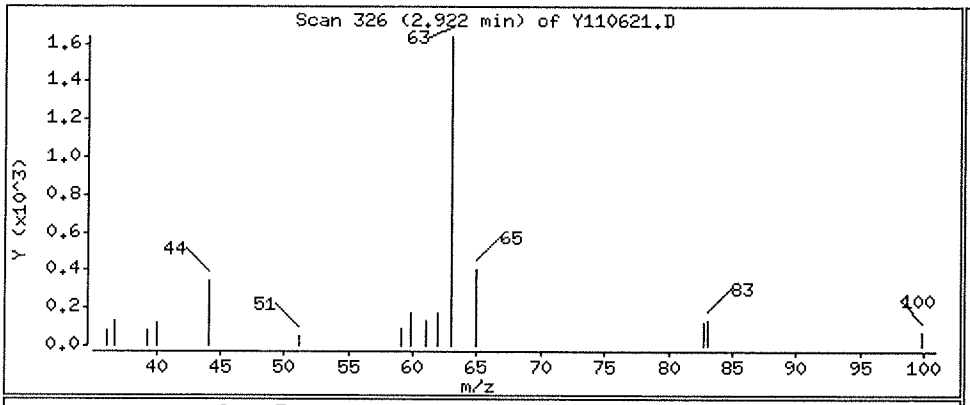
Operator: PC

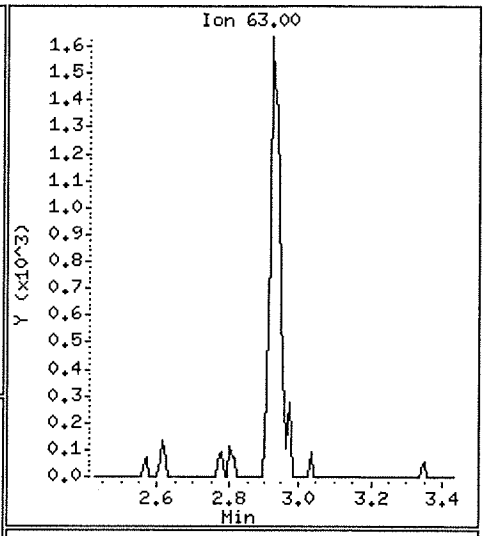
Column phase: DB624

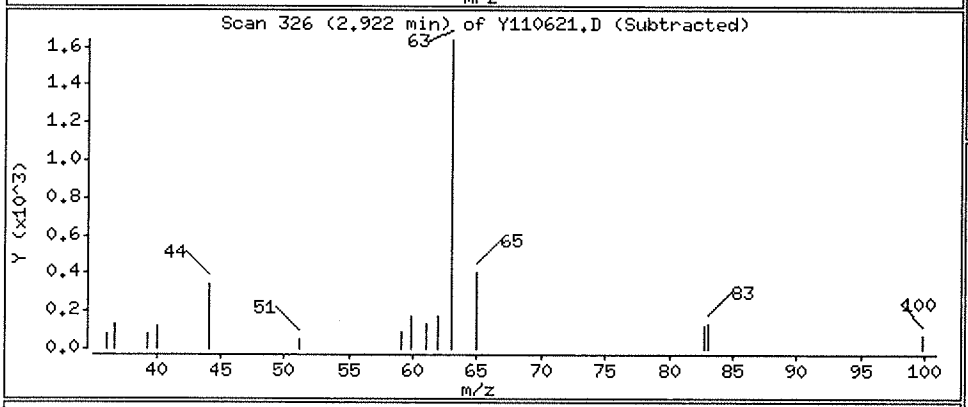
Column diameter: 0.18

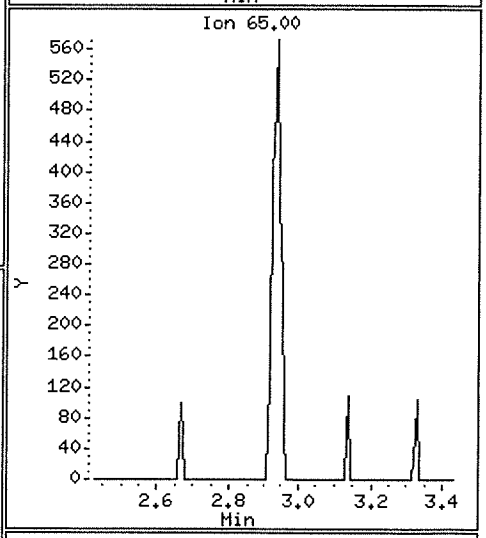
22 1,1-Dichloroethane

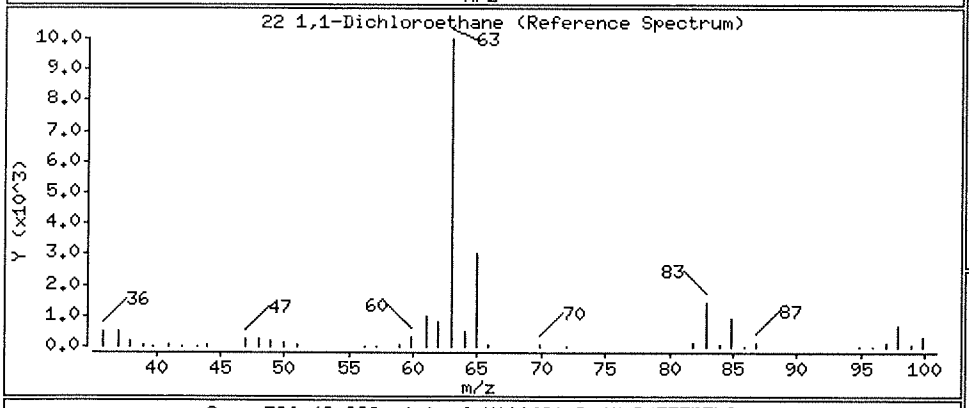
Concentration: 1.14 ug/l

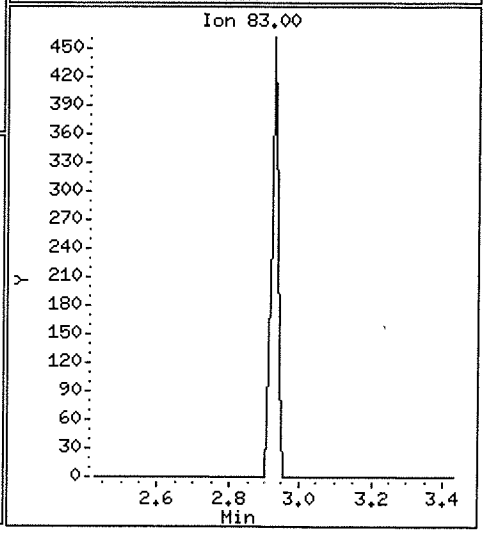


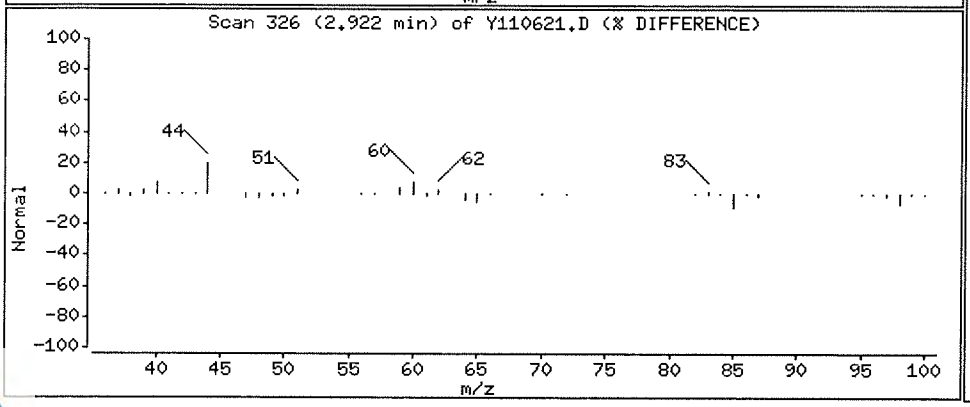



Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110621.D



Date : 07-NOV-2020 03:37

Client ID: HS20110128-09

Instrument: voa6.i

Sample Info: HS20110128-09;HS20110128-09;;;

Purge Volume: 5.0

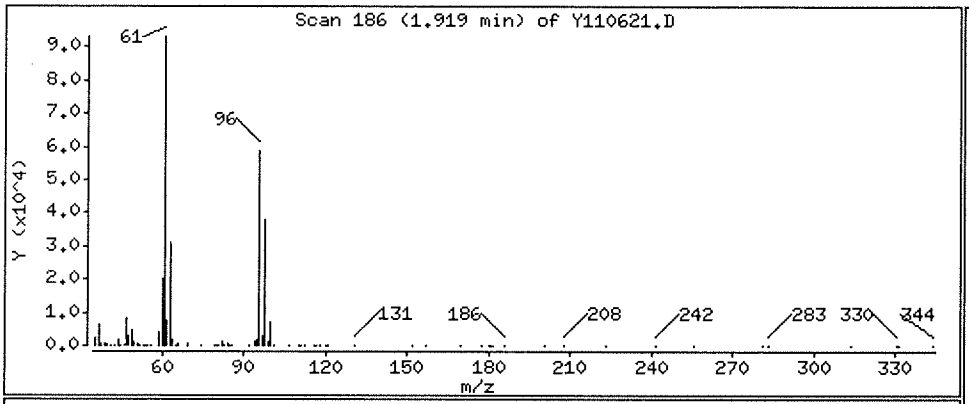
Operator: PC

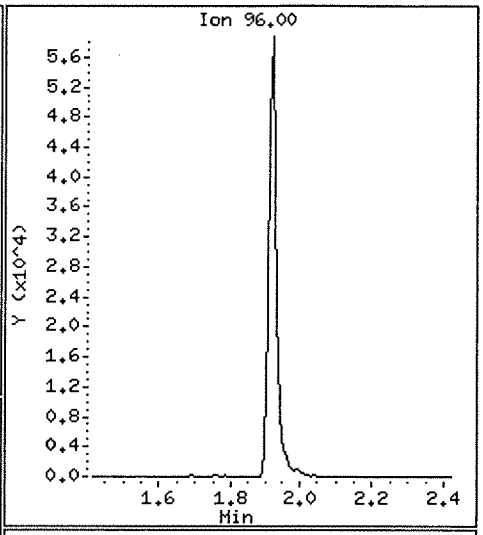
Column phase: DB624

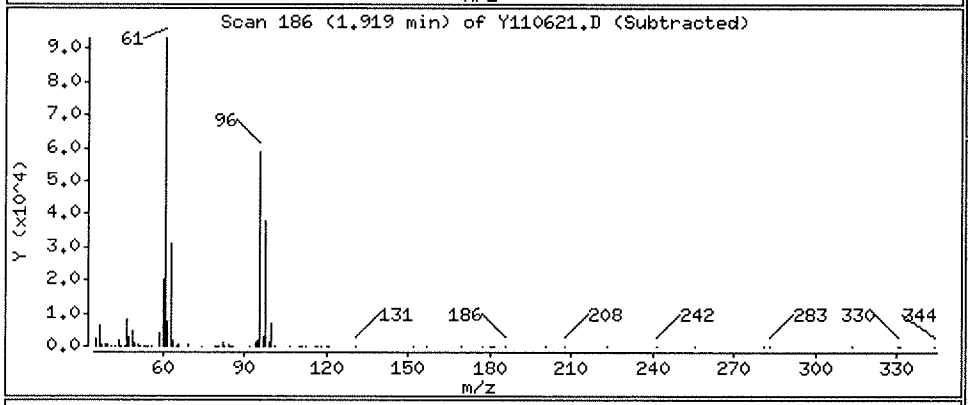
Column diameter: 0.18

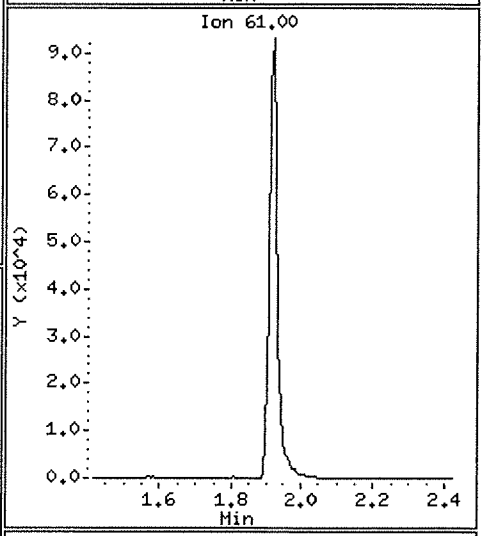
11 1,1-Dichloroethene

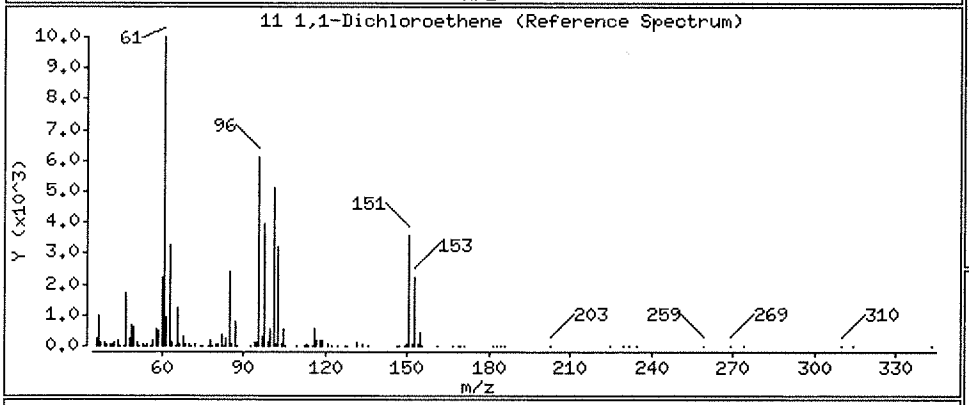
Concentration: 40.25 ug/l

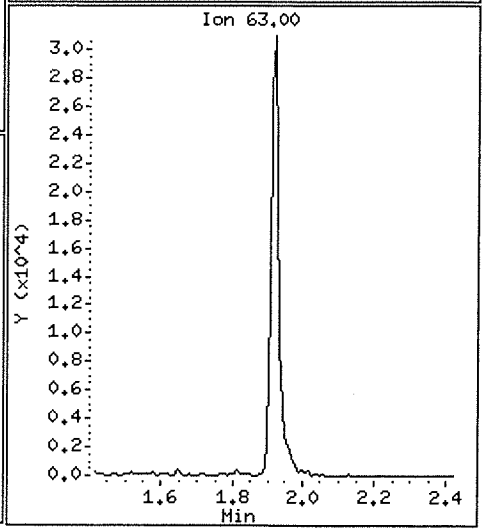


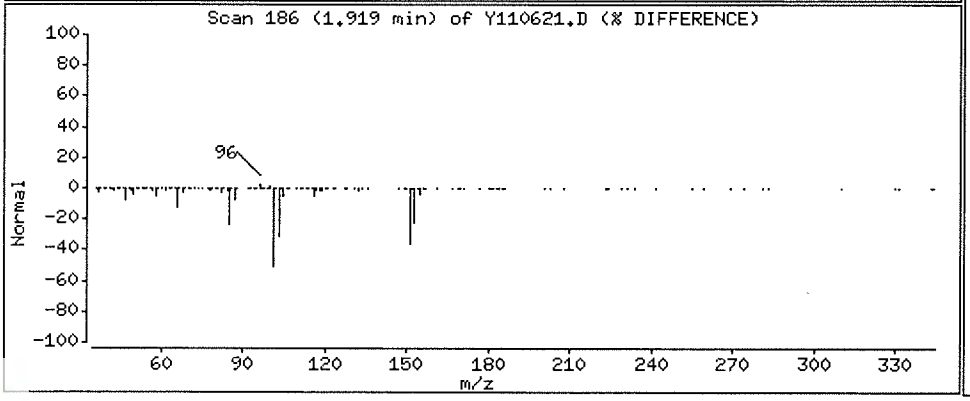



Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110622.D Page 1
Report Date: 13-Jan-2021 18:27

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201106.b\Y110622.D
Lab Smp Id: HS20110128-10 Client Smp ID: HS20110128-10
Inj Date : 07-NOV-2020 03:58
Operator : PC Inst ID: voa6.i
Smp Info : HS20110128-10;HS20110128-10;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201106.b\8260W.m
Meth Date : 13-Jan-2021 18:22 devak.giga Quant Type: ISTD
Cal Date : 03-NOV-2020 14:27 Cal File: X110308.D
Als bottle: 50
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.189 | 4.189 | (1.000) | 125452 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 4.970 | 4.970 | (1.000) | 210785 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 7.671 | 7.671 | (1.000) | 184700 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 9.669 | 9.662 | (1.000) | 75944 | 50.0000 | |
| $ 35 1,2-Dichloroethane-d4 | 65 | 4.476 | 4.476 | (1.068) | 87875 | 44.3768 | 44.37 |
| $ 69 4-Bromofluorobenzene | 95 | 8.688 | 8.688 | (1.133) | 76248 | 46.6209 | 46.62 |
| $ 30 Dibromofluoromethane | 113 | 4.103 | 4.104 | (0.979) | 71018 | 42.0355 | 42.03 |
| $ 48 Toluene-d8 | 98 | 6.388 | 6.389 | (0.833) | 252124 | 51.1062 | 51.10 |
| 53 1,1,2-Trichloroethane | 83 | 6.847 | 6.840 | (0.893) | 1160 | 1.01826 | 1.01(a) |
| 22 1,1-Dichloroethane | 63 | 2.921 | 2.929 | (0.697) | 23021 | 7.63425 | 7.63 |
| 11 1,1-Dichloroethene | 96 | 1.919 | 1.919 | (0.458) | 531954 | 224.745 | 224.74(A) |
| 33 1,2-Dichloroethane | 62 | 4.562 | 4.562 | (0.918) | 12604 | 5.54557 | 5.54 |
| 38 Trichloroethene | 130 | 5.228 | 5.207 | (1.052) | 1159 | 0.82510 | 0.82(a) |

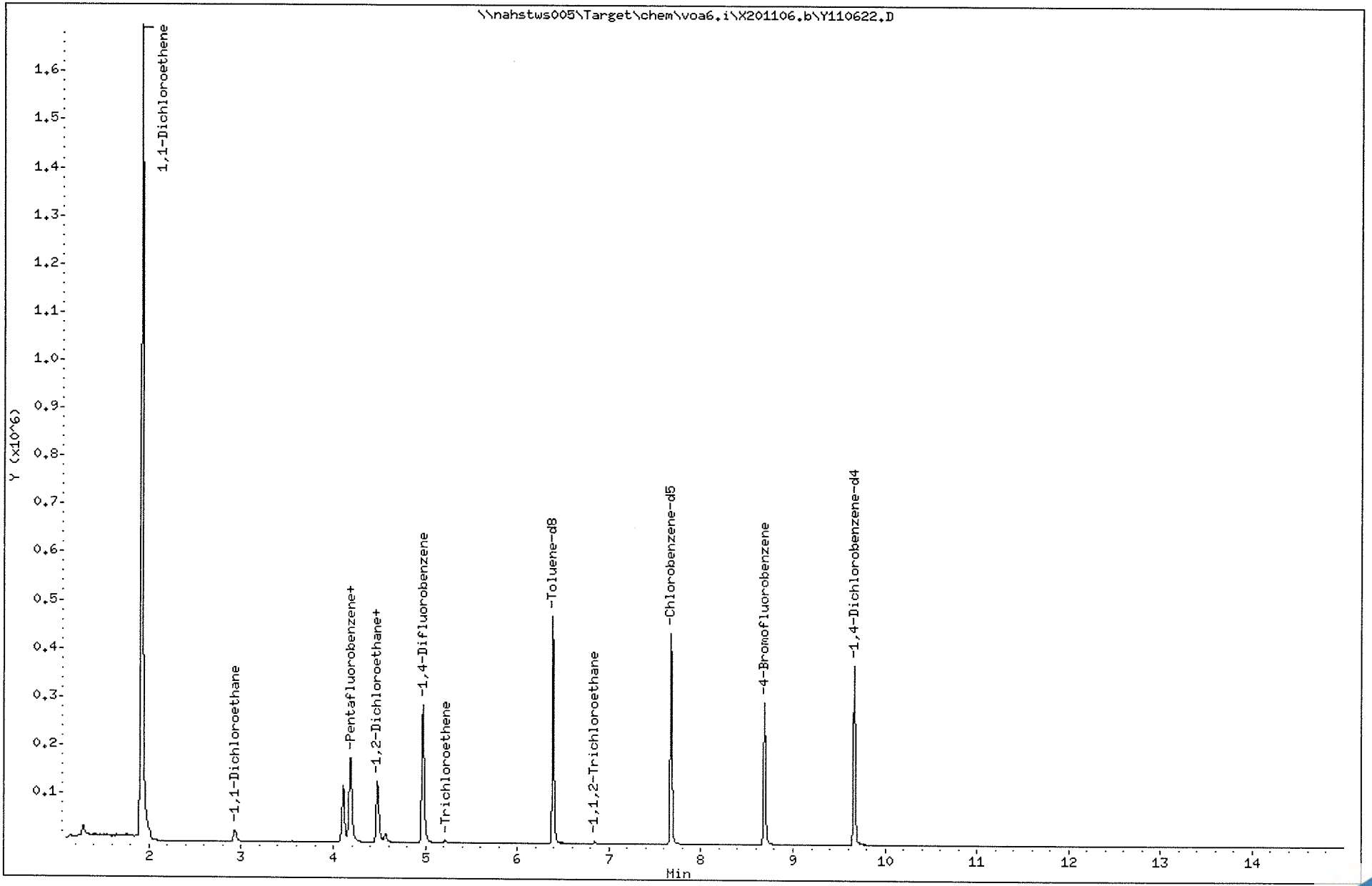
QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
A - Target compound detected but, quantitated amount exceeded maximum amount.

Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110622.D
Date : 07-NOV-2020 03:58
Client ID: HS20110128-10
Sample Info: HS20110128-10;HS20110128-10;;;
Purge Volume: 5.0
Column phase: DB624



Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110622.D



Date : 07-NOV-2020 03:58

Client ID: HS20110128-10

Instrument: voa6.i

Sample Info: HS20110128-10;HS20110128-10;;;

Purge Volume: 5.0

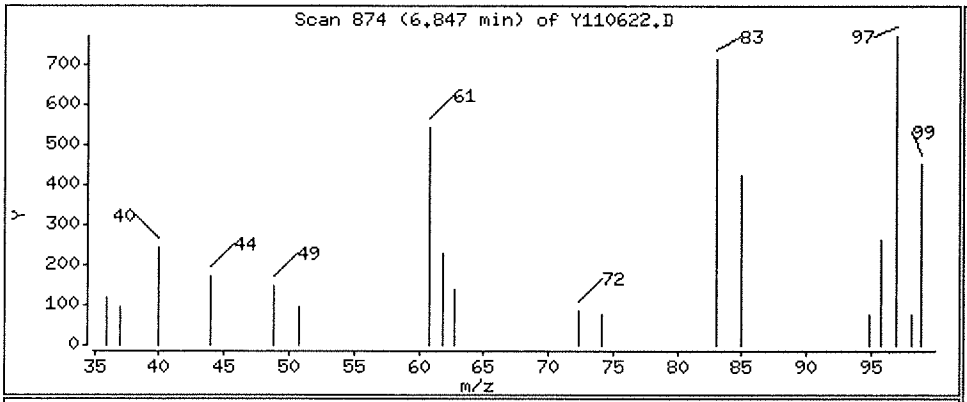
Operator: PC

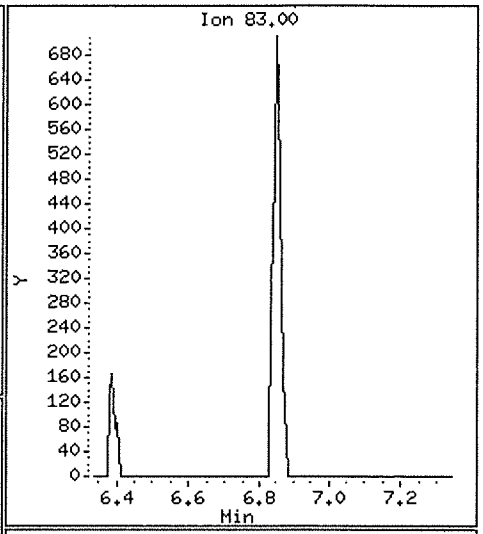
Column phase: DB624

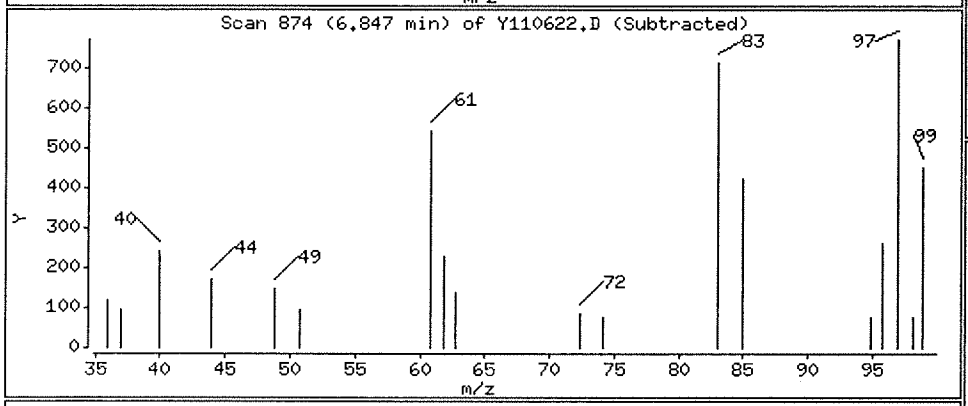
Column diameter: 0.18

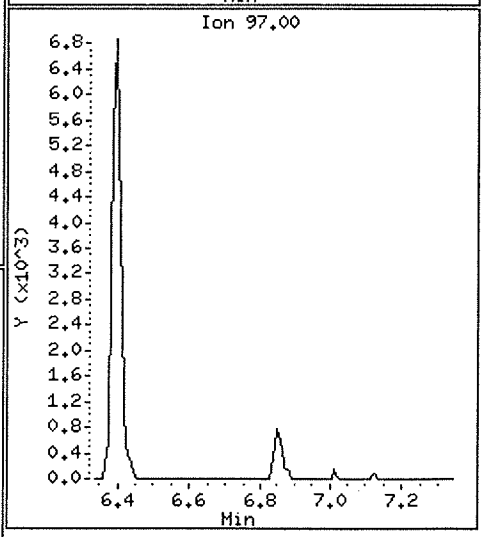
53 1,1,2-Trichloroethane

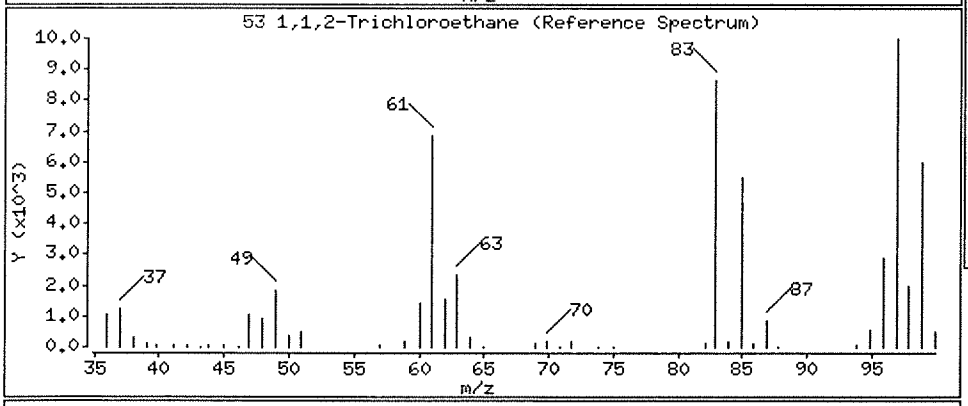
Concentration: 1.01 ug/l

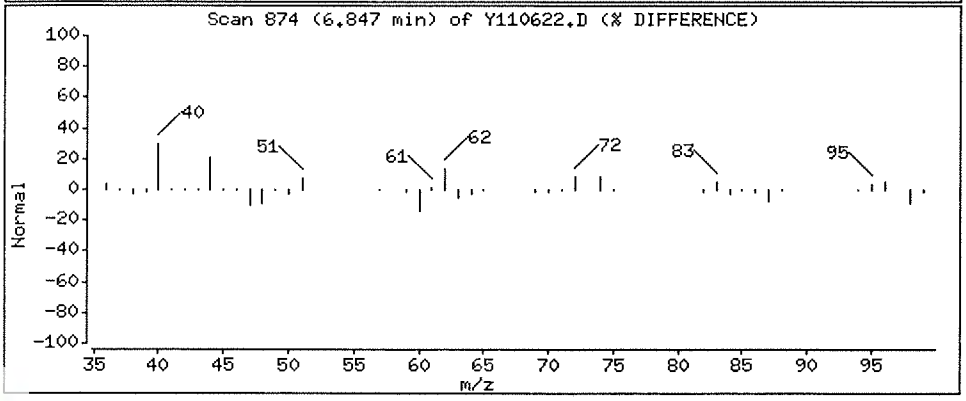


Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110622.D



Date : 07-NOV-2020 03:58

Client ID: HS20110128-10

Instrument: voa6.i

Sample Info: HS20110128-10;HS20110128-10;;;

Purge Volume: 5.0

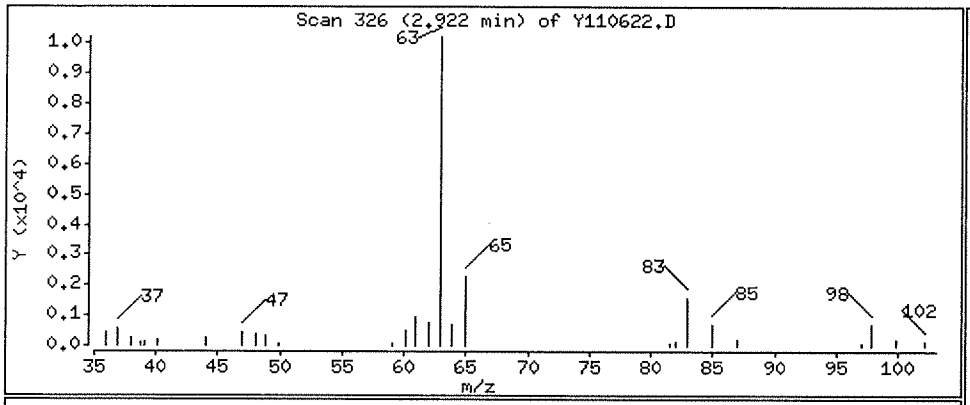
Operator: PC

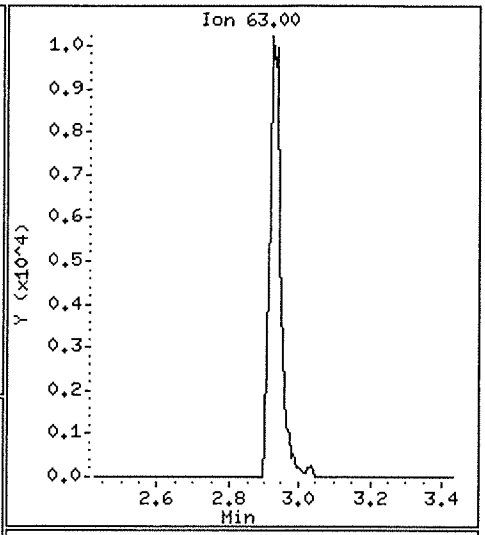
Column phase: DB624

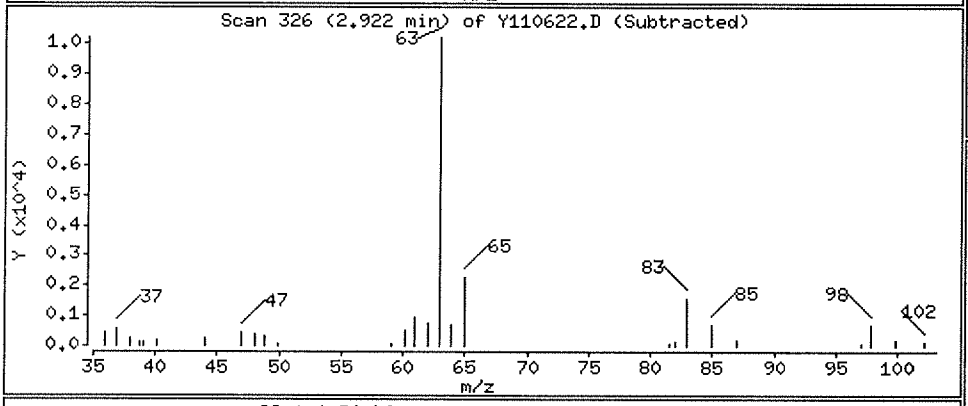
Column diameter: 0.18

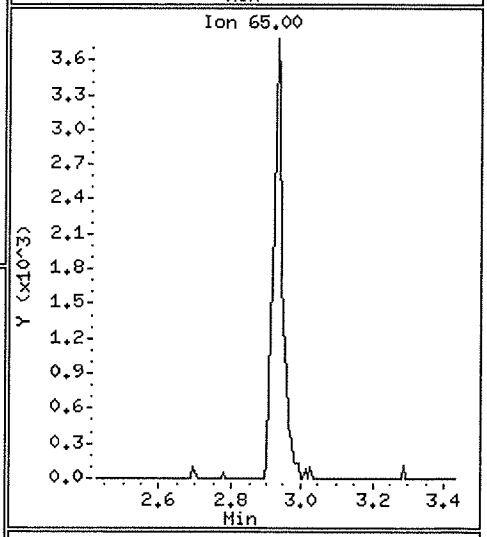
22 1,1-Dichloroethane

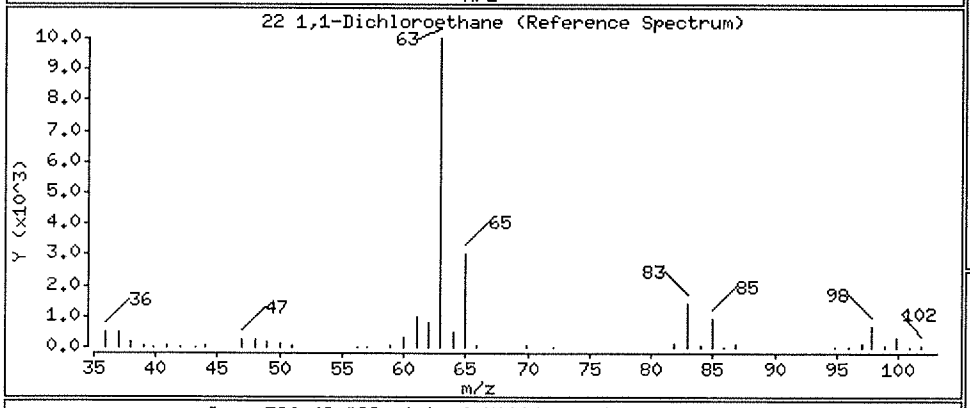
Concentration: 7.63 ug/l

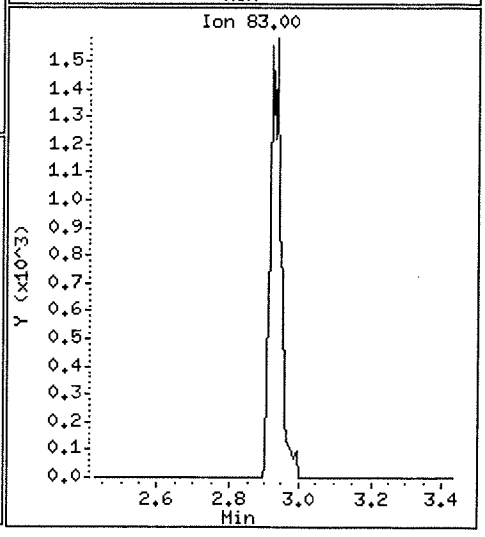


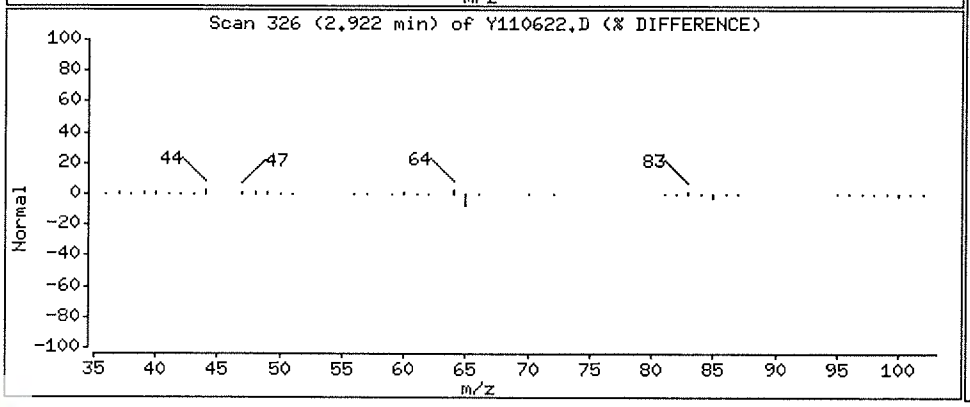



Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110622.D

Date : 07-NOV-2020 03:58

Client ID: HS20110128-10

Instrument: voa6.i

Sample Info: HS20110128-10;HS20110128-10;;;

Purge Volume: 5.0

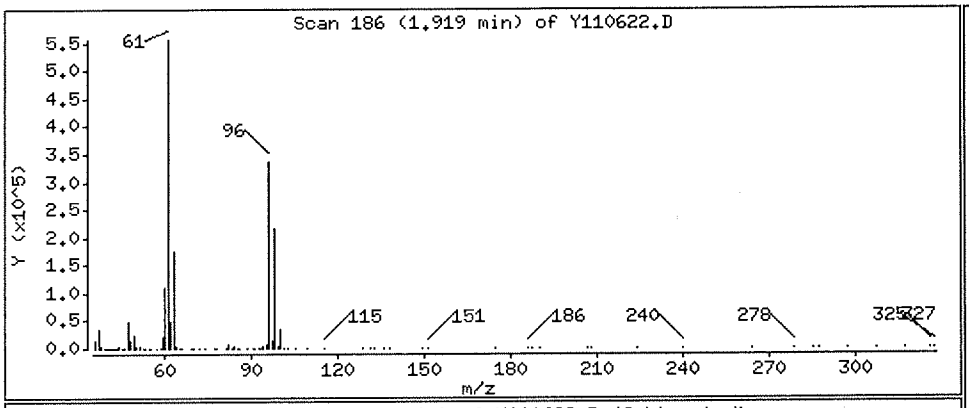
Operator: PC

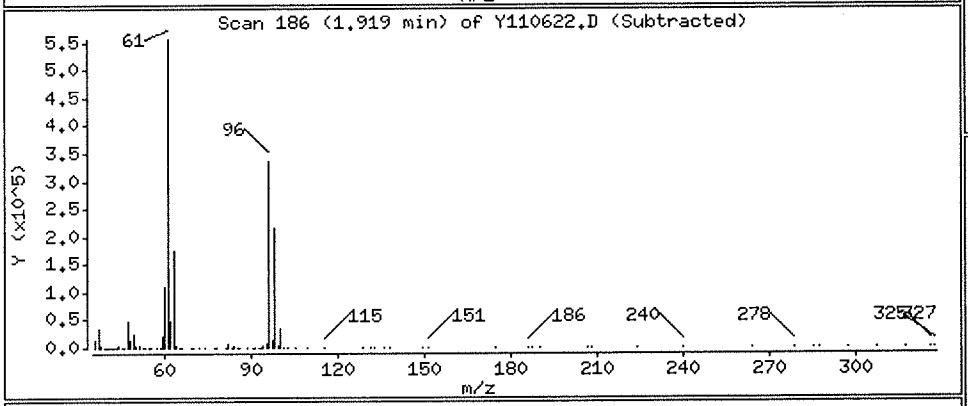
Column phase: DB624

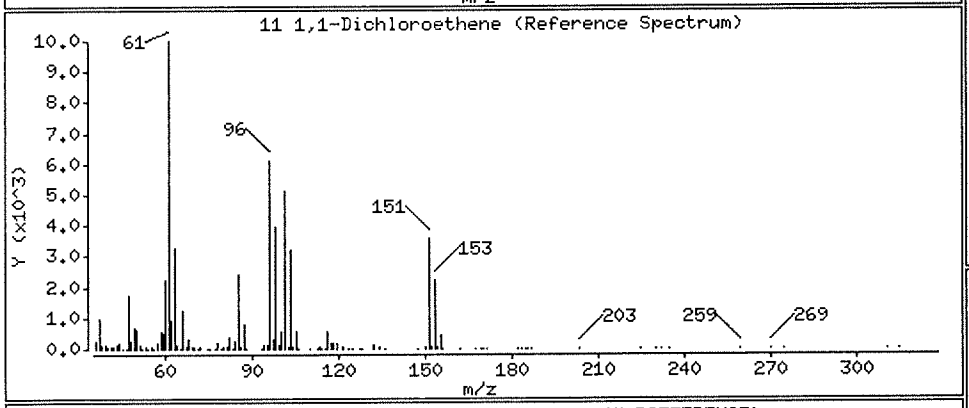
Column diameter: 0.18

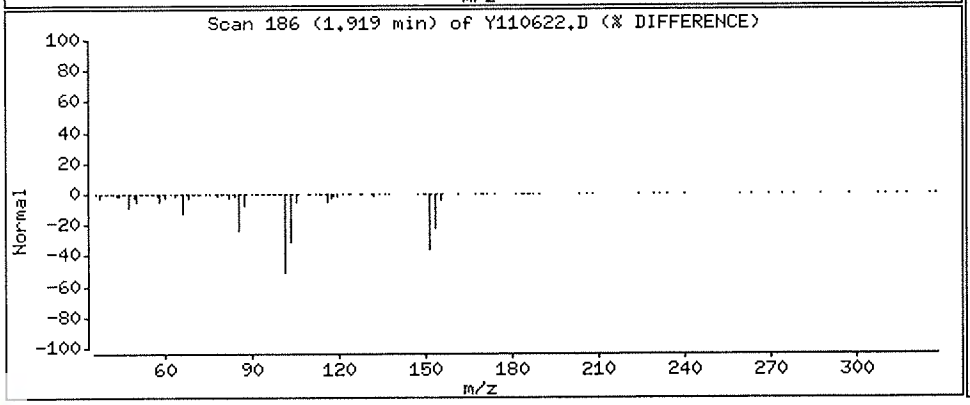
11 1,1-Dichloroethene

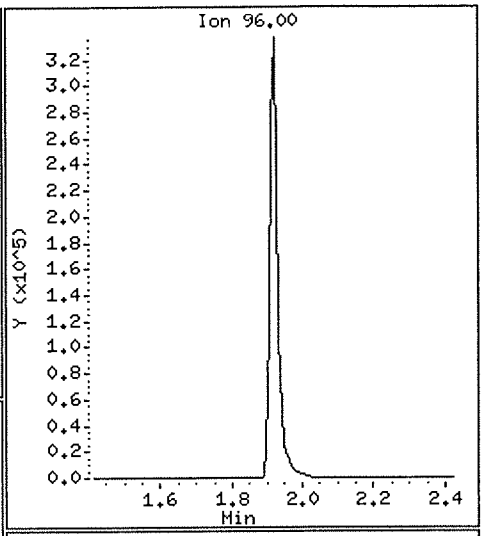
Concentration: 224.74 ug/l

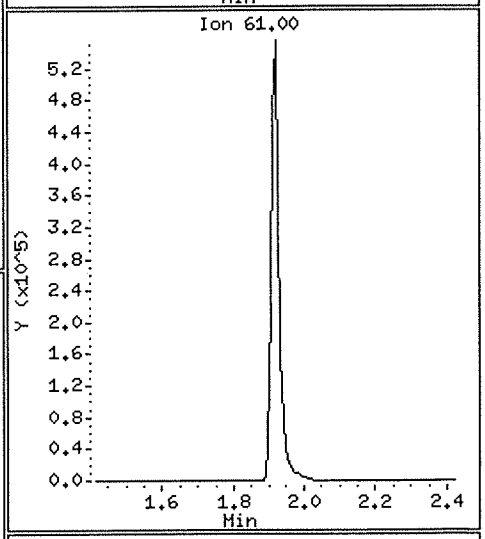


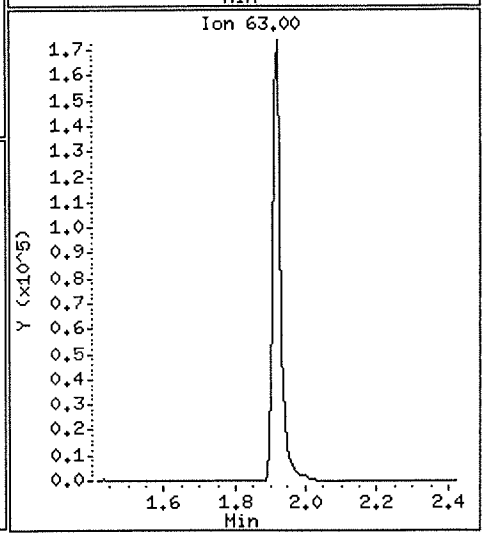



Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110622.D



Date : 07-NOV-2020 03:58

Client ID: HS20110128-10

Instrument: voa6.i

Sample Info: HS20110128-10;HS20110128-10;;;

Purge Volume: 5.0

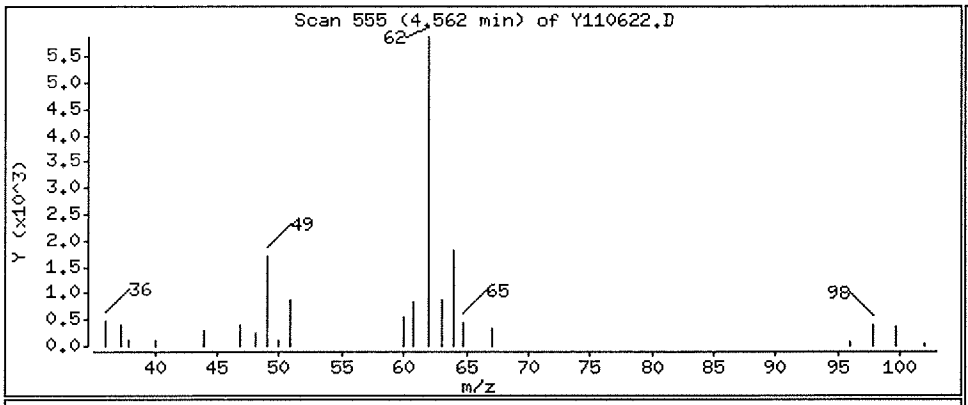
Operator: PC

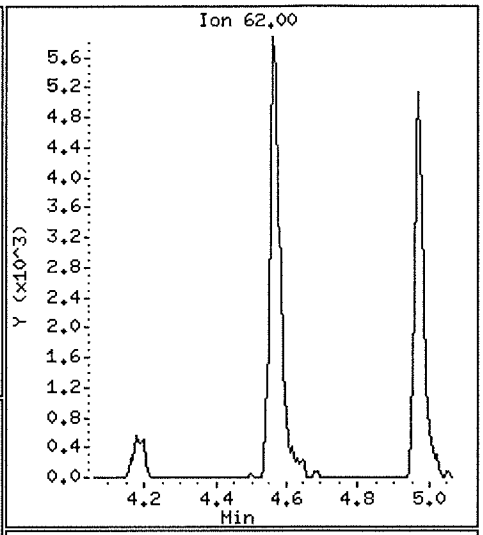
Column phase: DB624

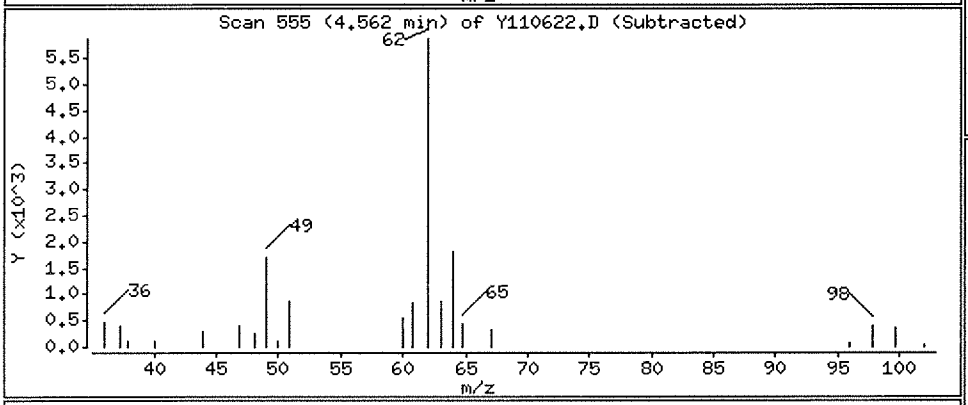
Column diameter: 0.18

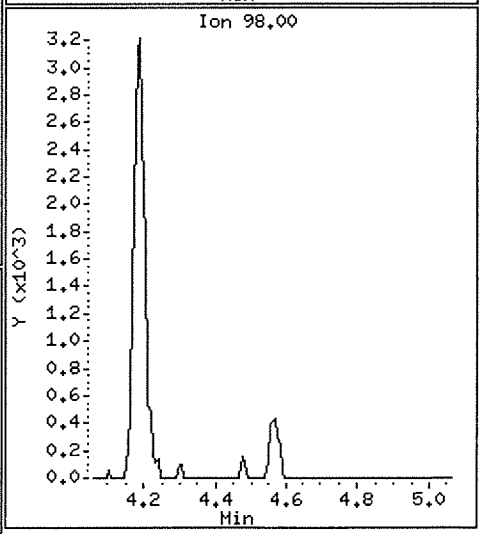
33 1,2-Dichloroethane

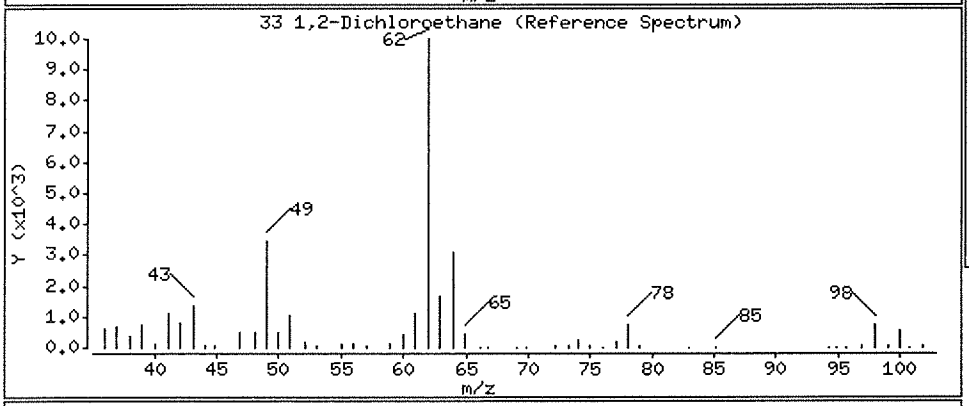
Concentration: 5.54 ug/l

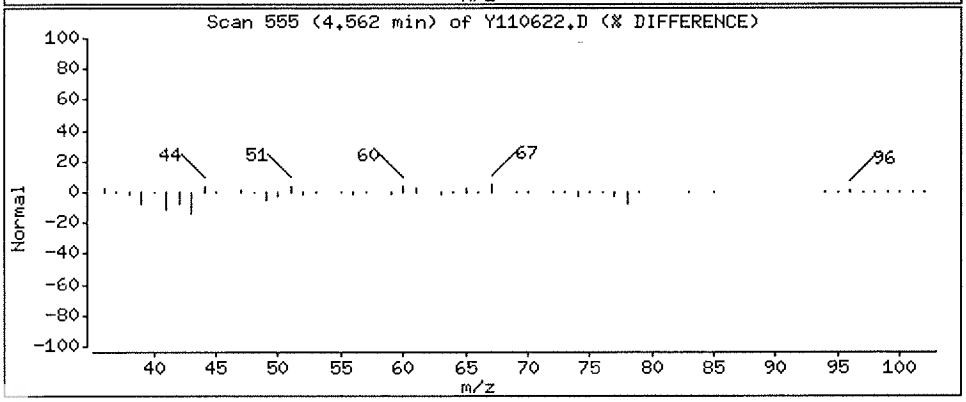


Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110622.D



Date : 07-NOV-2020 03:58

Client ID: HS20110128-10

Instrument: voa6.i

Sample Info: HS20110128-10;HS20110128-10;;;

Purge Volume: 5.0

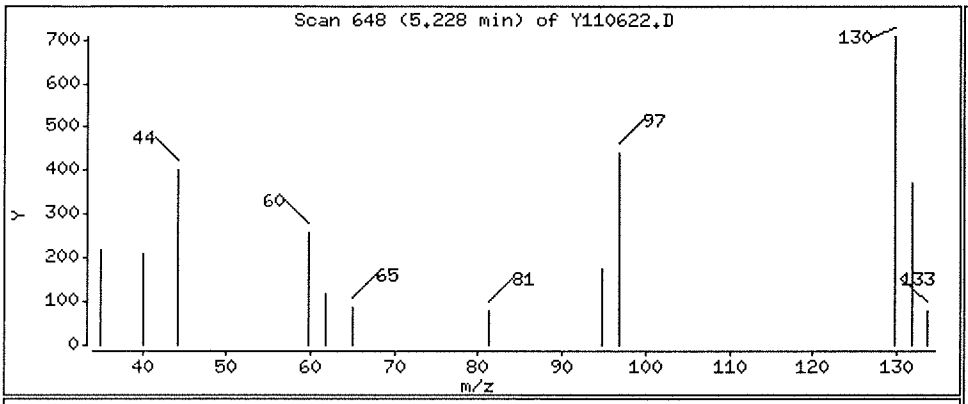
Operator: PC

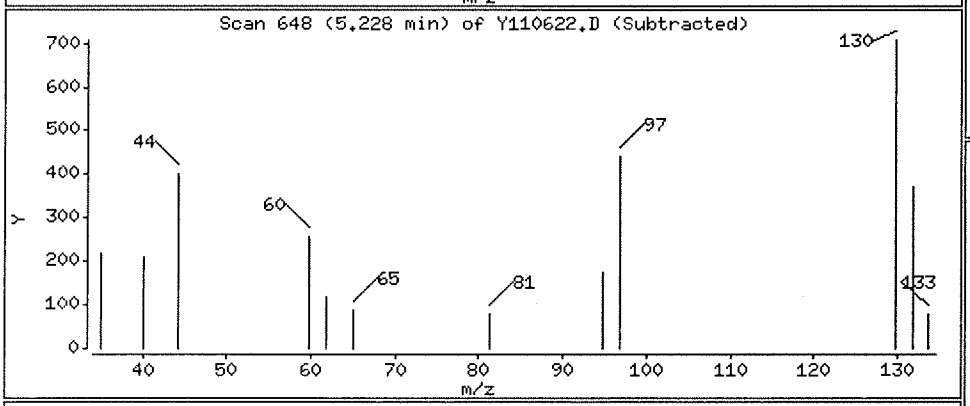
Column phase: DB624

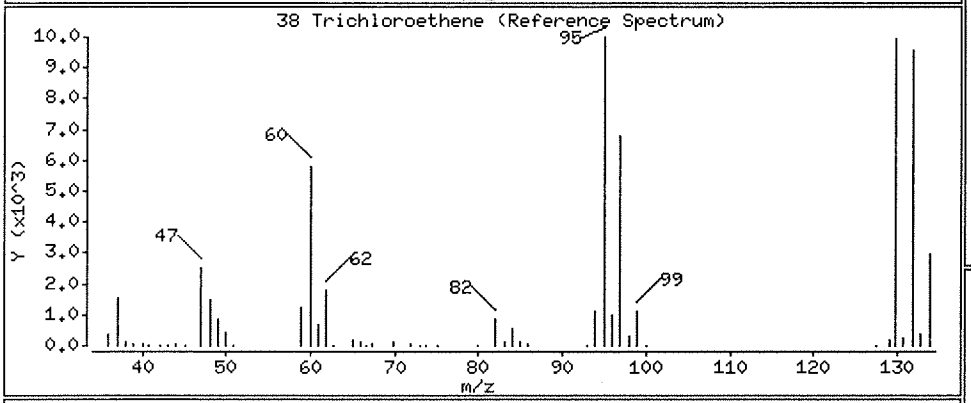
Column diameter: 0.18

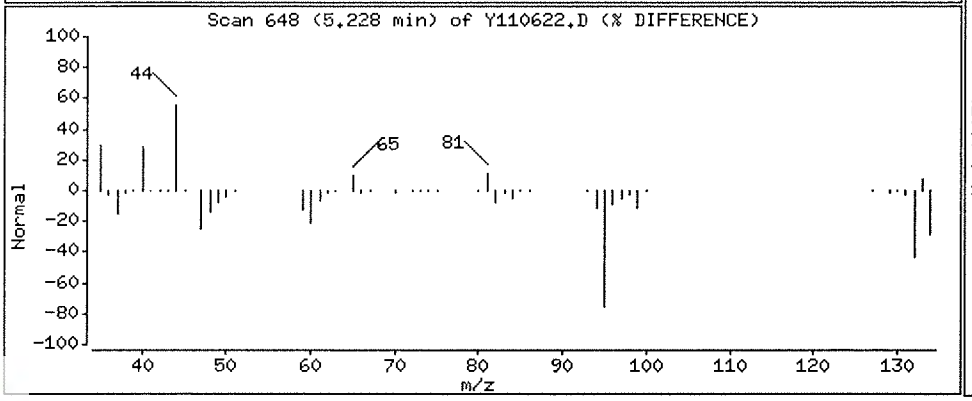
38 Trichloroethene

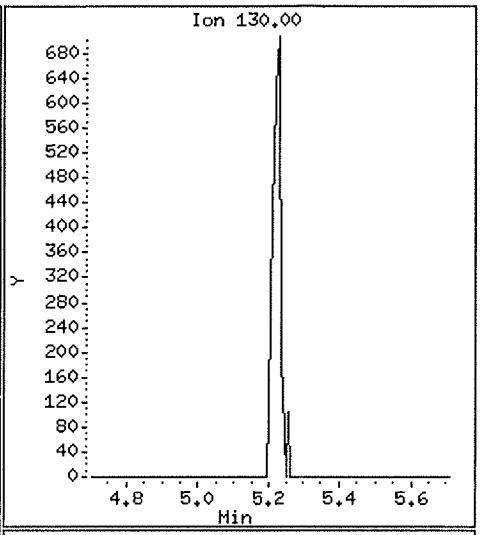
Concentration: 0.82 ug/l

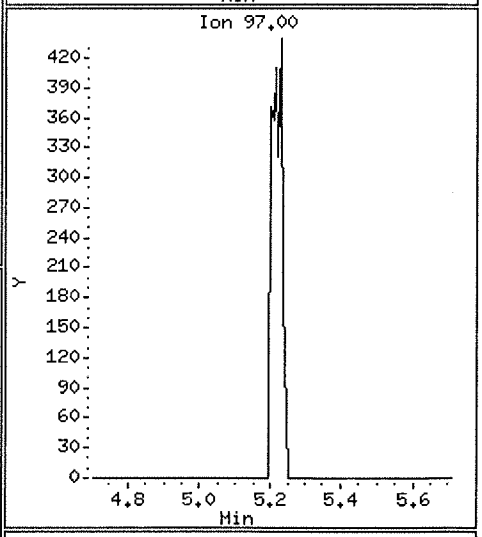


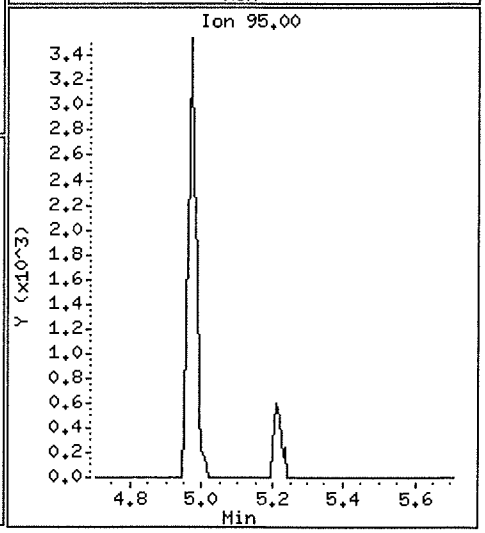



Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110623.D Page 1
Report Date: 13-Jan-2021 18:27

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201106.b\Y110623.D
Lab Smp Id: HS20110128-12 Client Smp ID: HS20110128-12
Inj Date : 07-NOV-2020 04:19
Operator : PC Inst ID: voa6.i
Smp Info : HS20110128-12;HS20110128-12;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201106.b\8260W.m
Meth Date : 13-Jan-2021 18:22 devak.giga Quant Type: ISTD
Cal Date : 03-NOV-2020 14:27 Cal File: X110308.D
Als bottle: 51
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

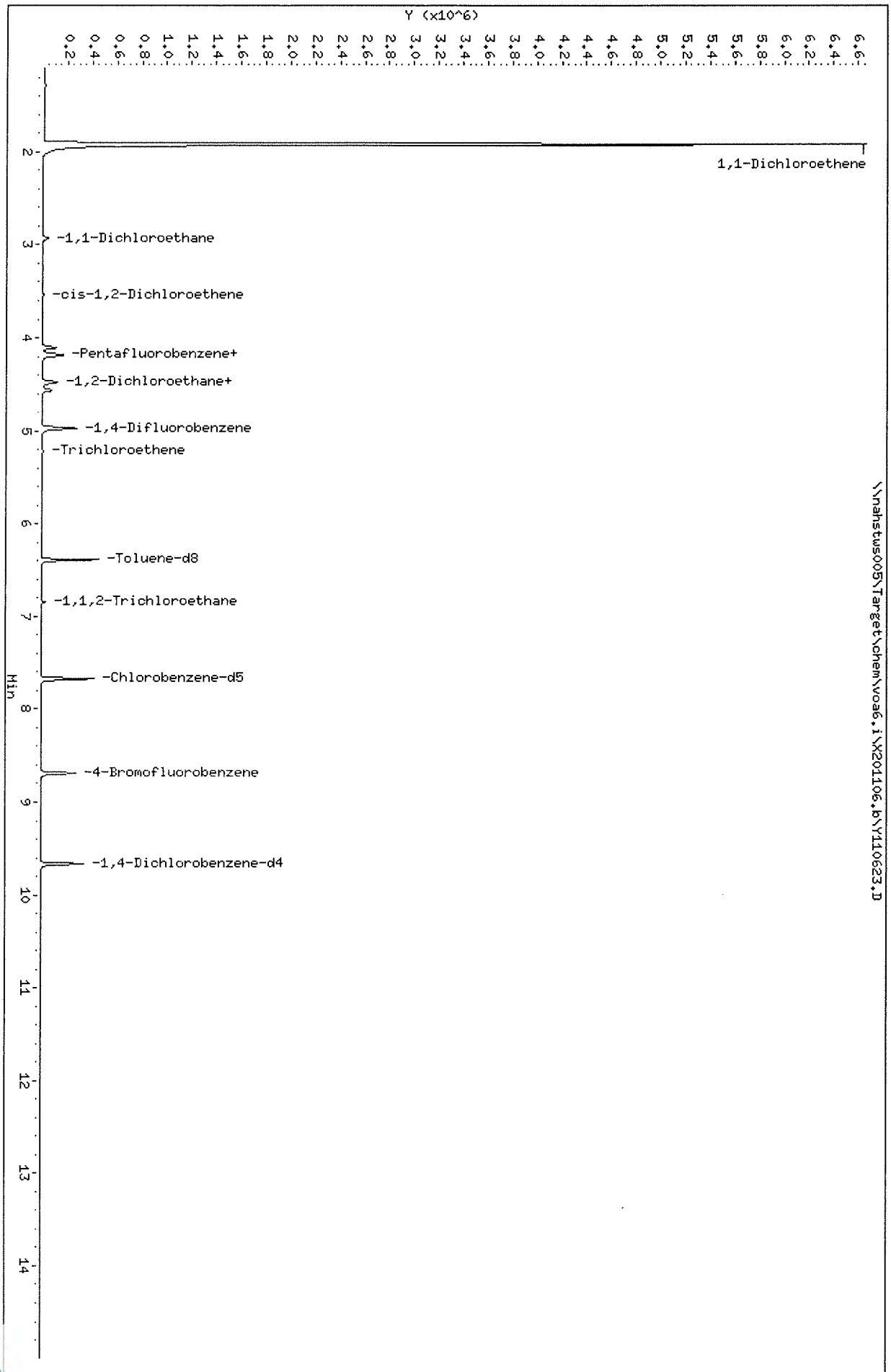
| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| * | 1 Pentafluorobenzene | 168 | 4.182 | 4.189 | (1.000) | 124287 | 50.0000 | |
| * | 36 1,4-Difluorobenzene | 114 | 4.970 | 4.970 | (1.000) | 207746 | 50.0000 | |
| * | 47 Chlorobenzene-d5 | 117 | 7.671 | 7.671 | (1.000) | 176100 | 50.0000 | |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 9.669 | 9.662 | (1.000) | 69071 | 50.0000 | |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 4.476 | 4.476 | (1.070) | 81453 | 41.6068 | 41.60 |
| $ | 69 4-Bromofluorobenzene | 95 | 8.688 | 8.688 | (1.133) | 68166 | 43.8152 | 43.81 |
| $ | 30 Dibromofluoromethane | 113 | 4.103 | 4.104 | (0.981) | 68899 | 41.1635 | 41.16 |
| $ | 48 Toluene-d8 | 98 | 6.388 | 6.389 | (0.833) | 244571 | 51.9963 | 51.99 |
| | 53 1,1,2-Trichloroethane | 83 | 6.847 | 6.840 | (0.893) | 7005 | 6.44936 | 6.44 |
| | 22 1,1-Dichloroethane | 63 | 2.929 | 2.929 | (0.700) | 40909 | 13.6934 | 13.69 |
| | 11 1,1-Dichloroethene | 96 | 1.919 | 1.919 | (0.459) | 1947690 | 830.593 | 830.59(A) |
| | 33 1,2-Dichloroethane | 62 | 4.562 | 4.562 | (0.918) | 64998 | 29.0165 | 29.01 |
| | 27 cis-1,2-Dichloroethene | 96 | 3.538 | 3.530 | (0.846) | 3105 | 1.70354 | 1.70(a) |
| | 38 Trichloroethene | 130 | 5.221 | 5.207 | (1.050) | 2761 | 1.99433 | 1.99(a) |

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
A - Target compound detected but, quantitated amount
exceeded maximum amount.

Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110623.D
Date : 07-NOV-2020 04:19
Client ID: HS20110128-12
Sample Info: HS20110128-12;HS20110128-12;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110623.D



Date : 07-NOV-2020 04:19

Client ID: HS20110128-12

Instrument: voa6.i

Sample Info: HS20110128-12;HS20110128-12;;;

Purge Volume: 5.0

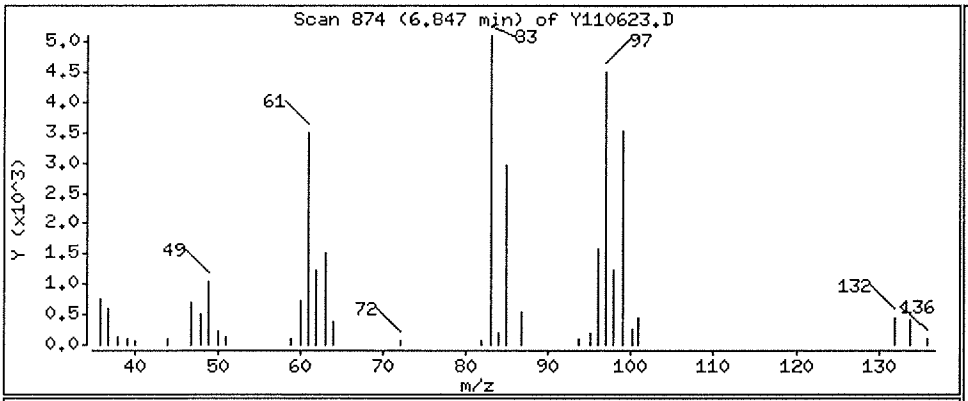
Operator: PC

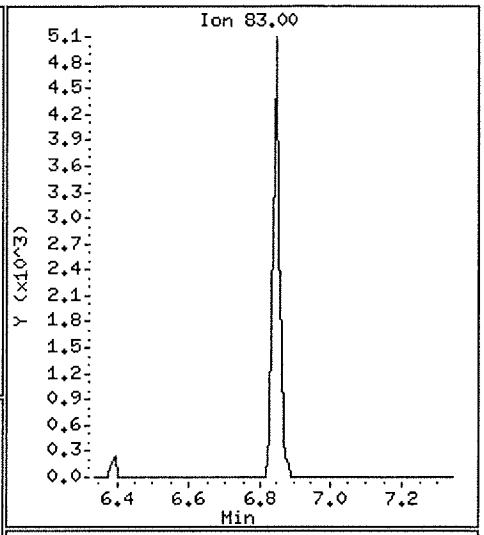
Column phase: DB624

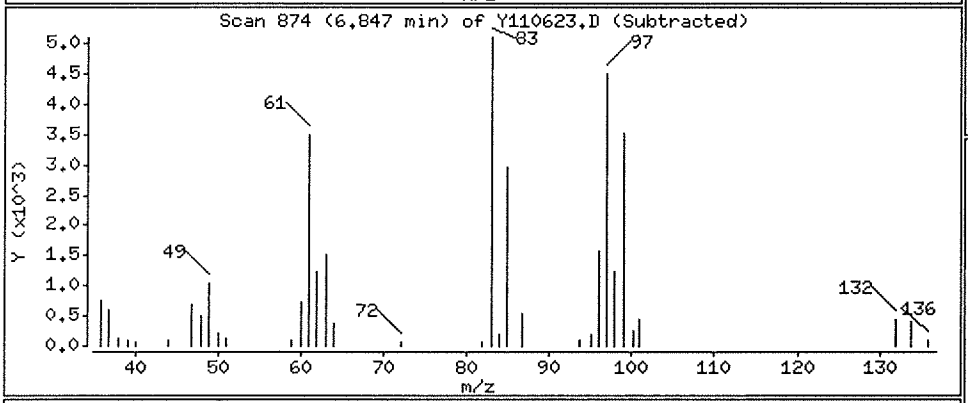
Column diameter: 0.18

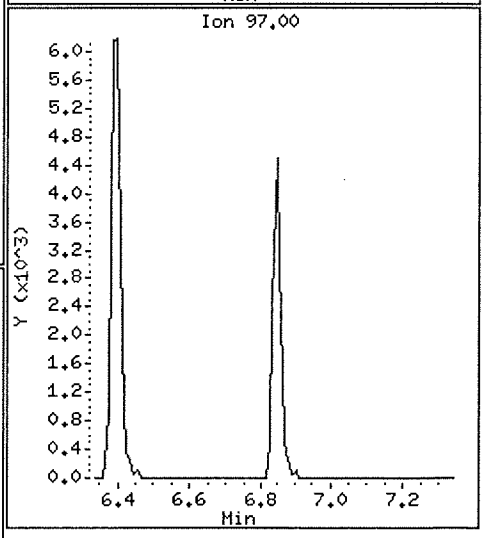
53 1,1,2-Trichloroethane

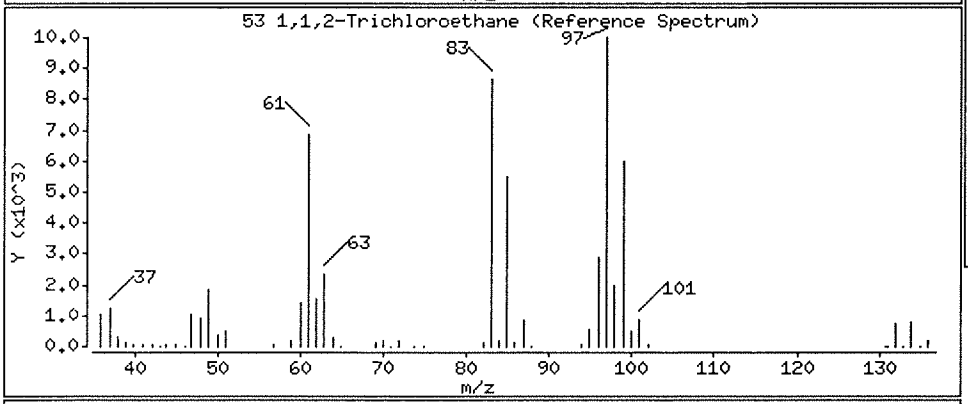
Concentration: 6.44 ug/l

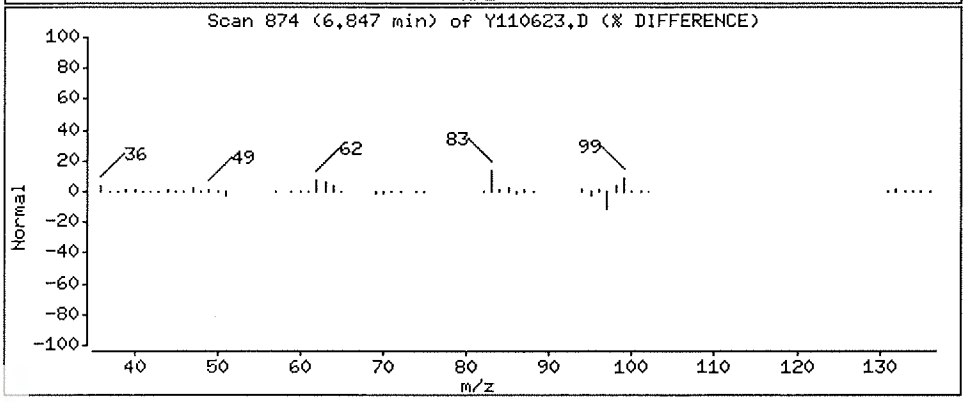


Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110623.D



Date : 07-NOV-2020 04:19

Client ID: HS20110128-12

Instrument: voa6.i

Sample Info: HS20110128-12;HS20110128-12;;;

Purge Volume: 5.0

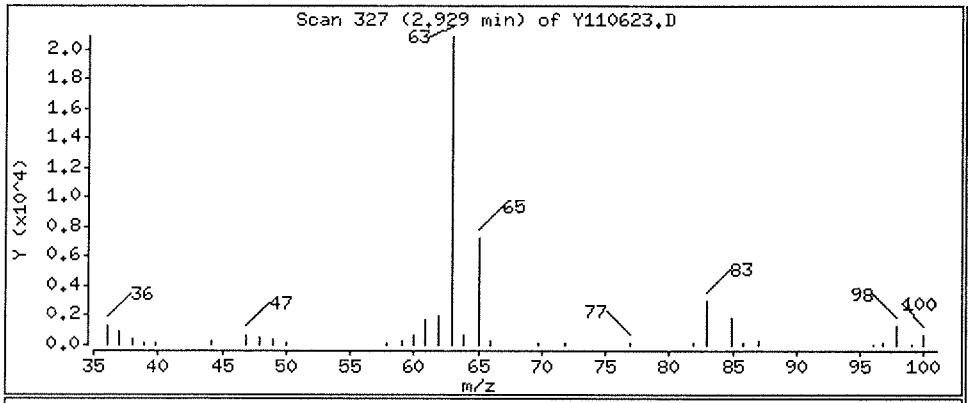
Operator: PC

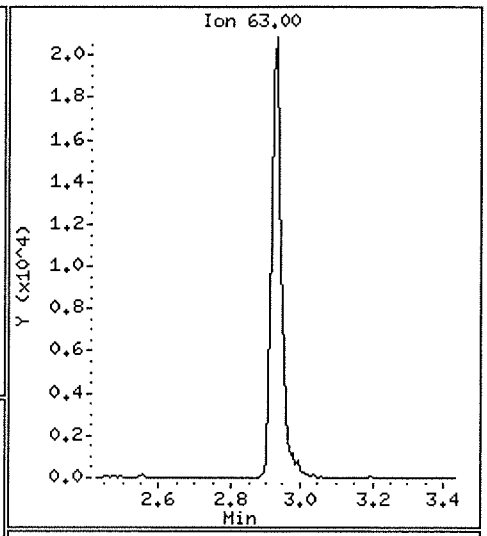
Column phase: DB624

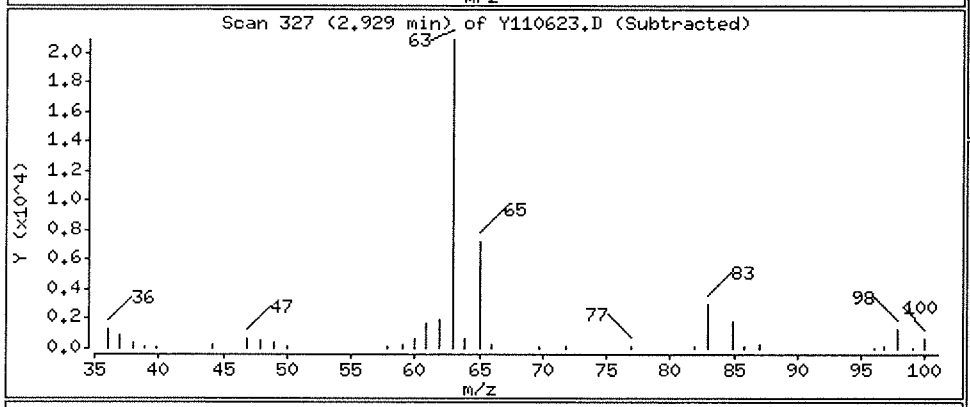
Column diameter: 0.18

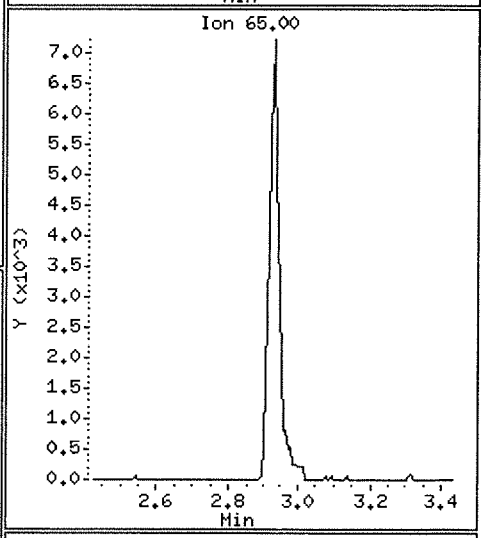
22 1,1-Dichloroethane

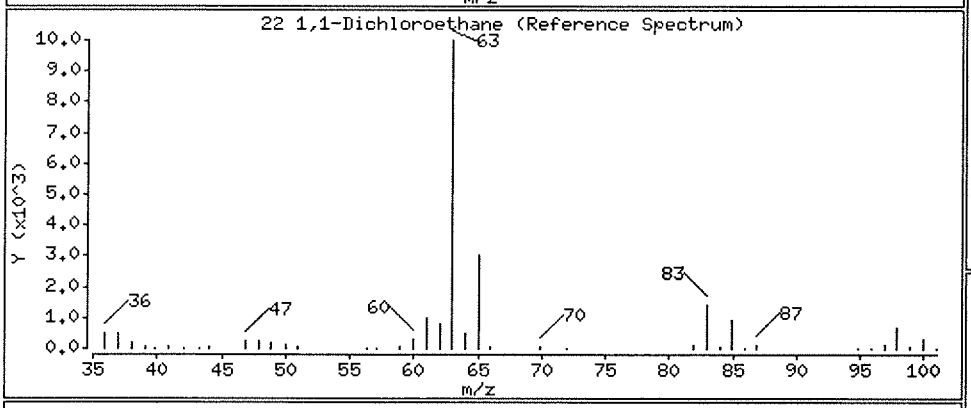
Concentration: 13.69 ug/l

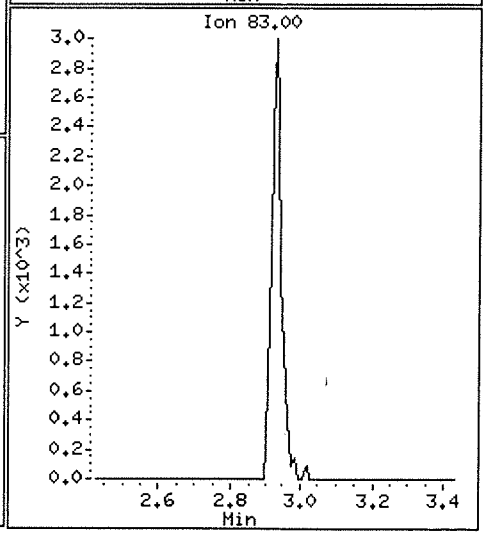


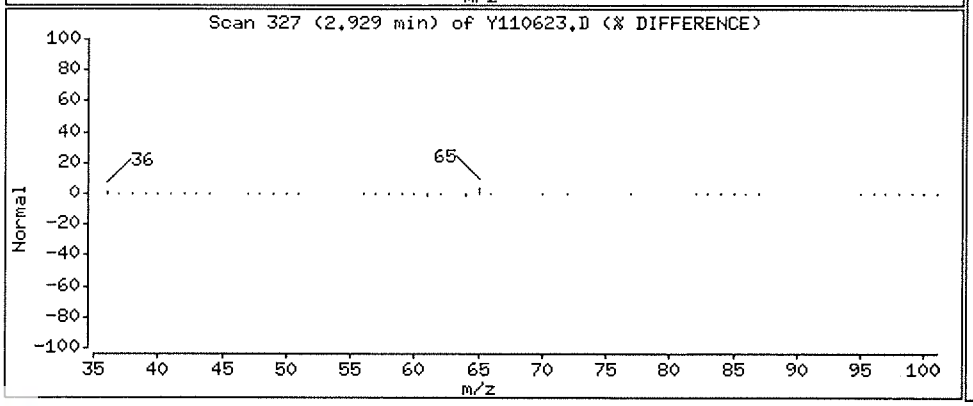



Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110623.D



Date : 07-NOV-2020 04:19

Client ID: HS20110128-12

Instrument: voa6.i

Sample Info: HS20110128-12;HS20110128-12;;;

Purge Volume: 5.0

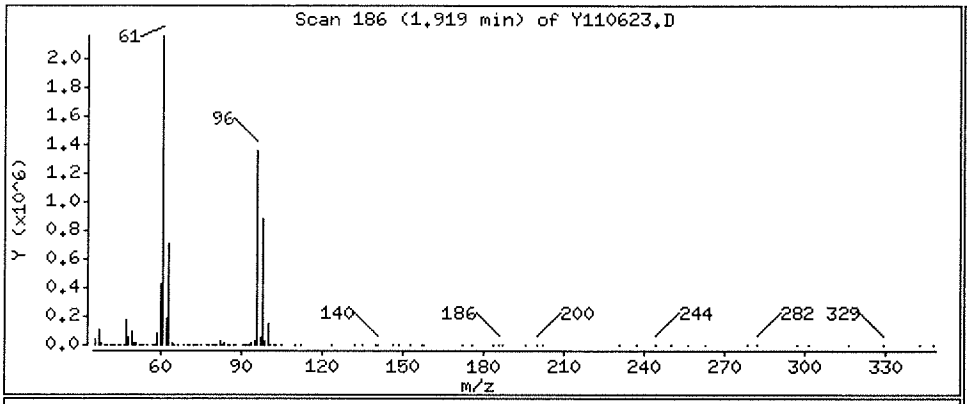
Operator: PC

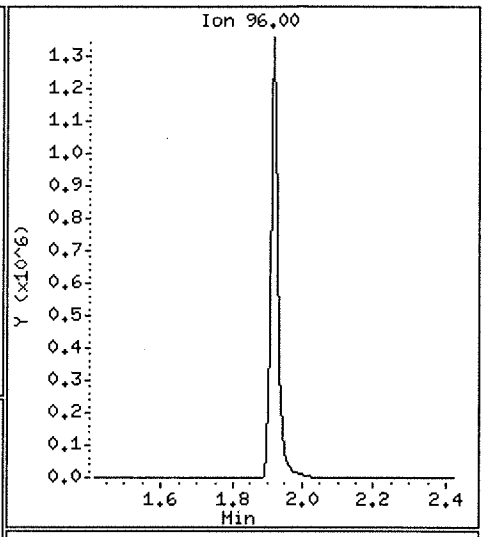
Column phase: DB624

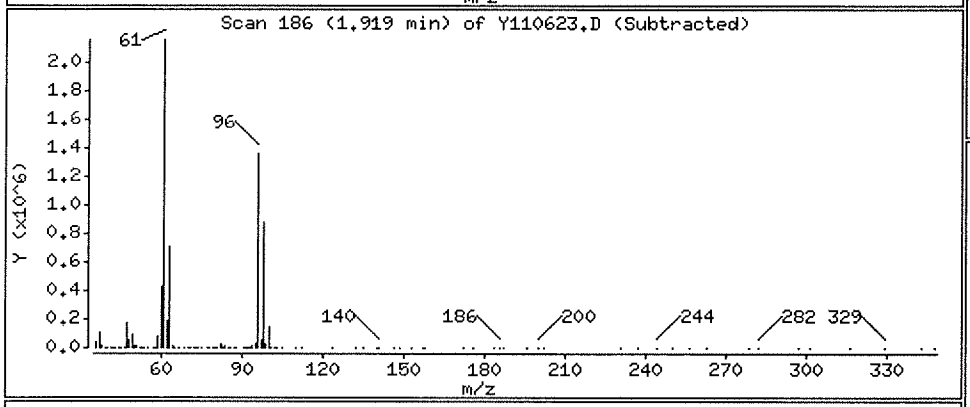
Column diameter: 0.18

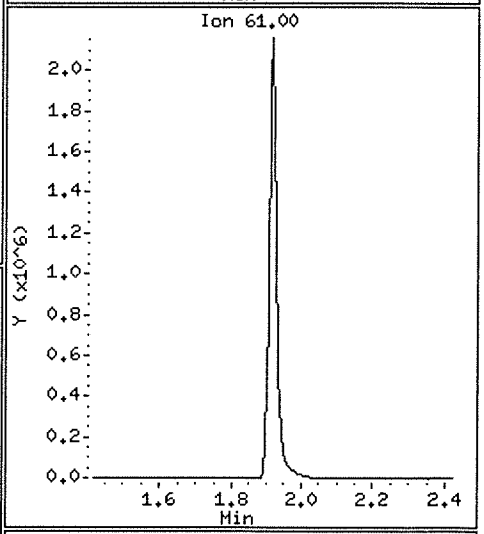
11 1,1-Dichloroethene

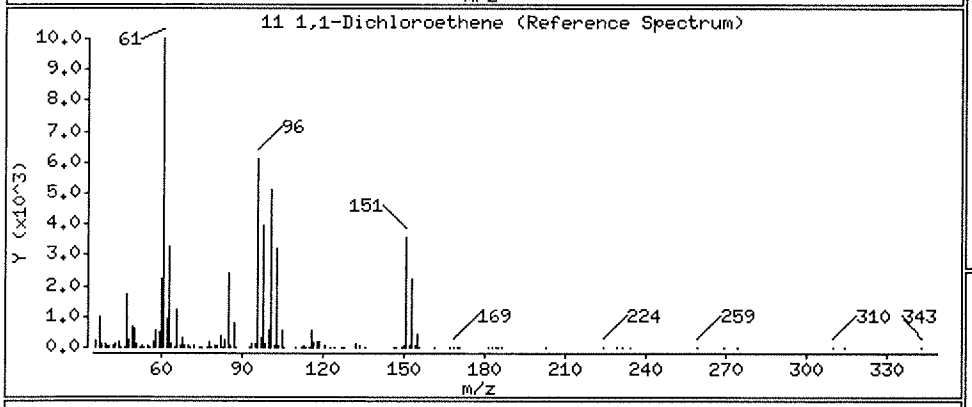
Concentration: 830.59 ug/l

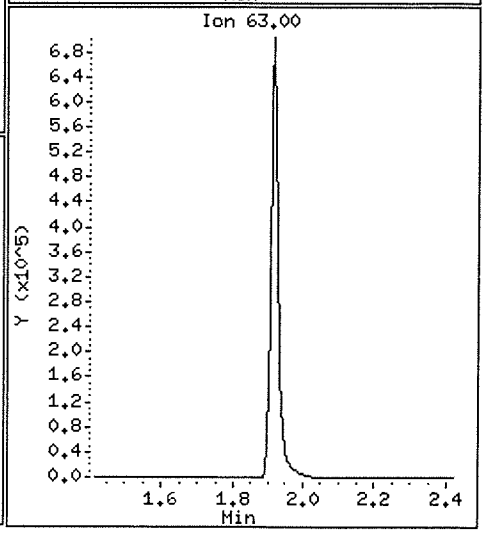


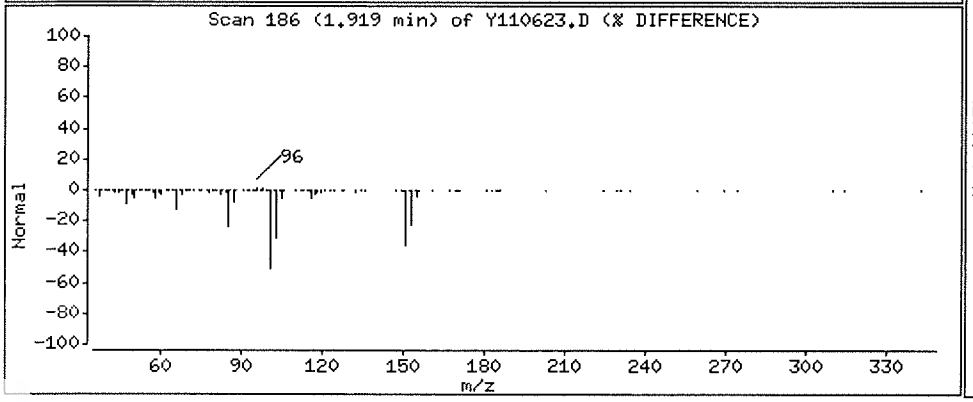



Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110623.D



Date : 07-NOV-2020 04:19

Client ID: HS20110128-12

Instrument: voa6.i

Sample Info: HS20110128-12;HS20110128-12;;;

Purge Volume: 5.0

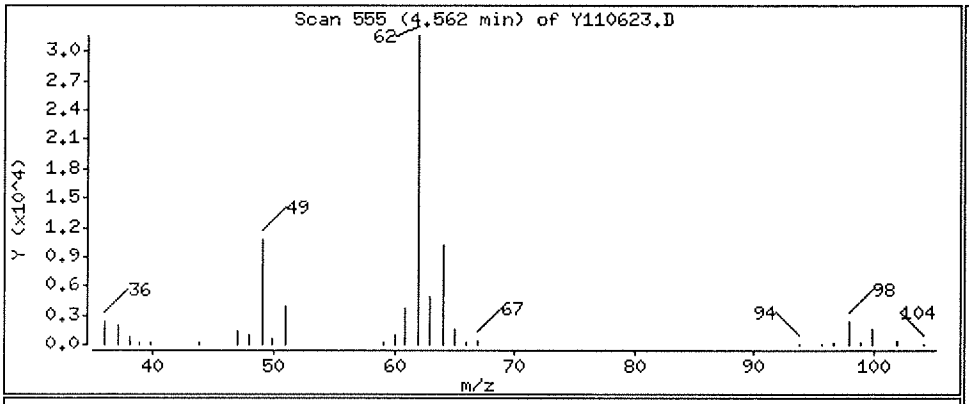
Operator: PC

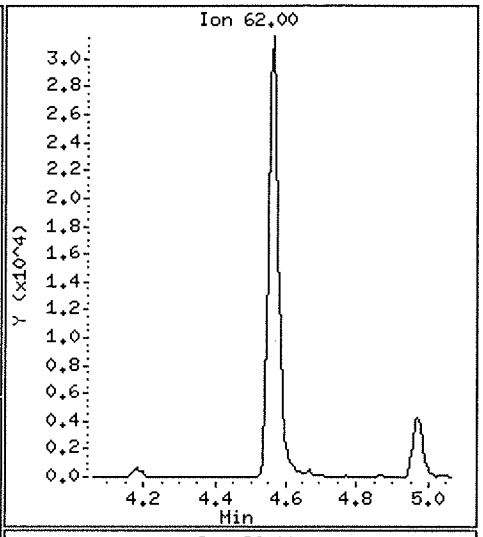
Column phase: DB624

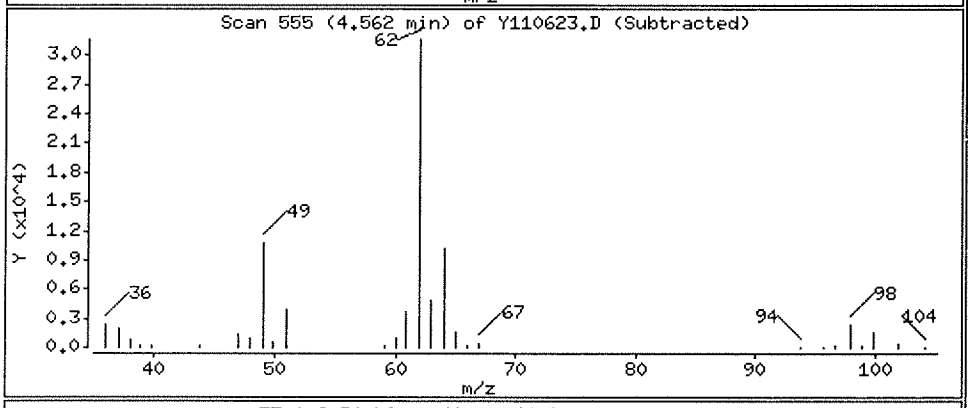
Column diameter: 0.18

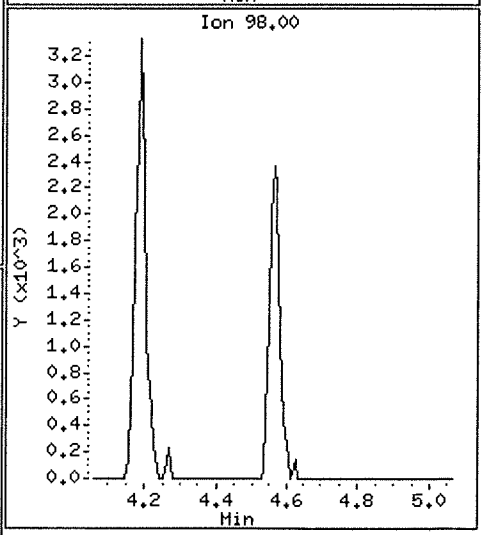
33 1,2-Dichloroethane

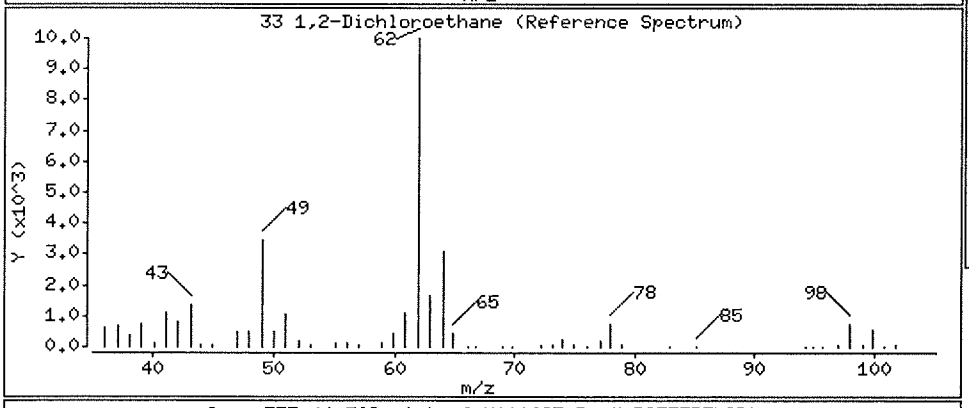
Concentration: 29.01 ug/l

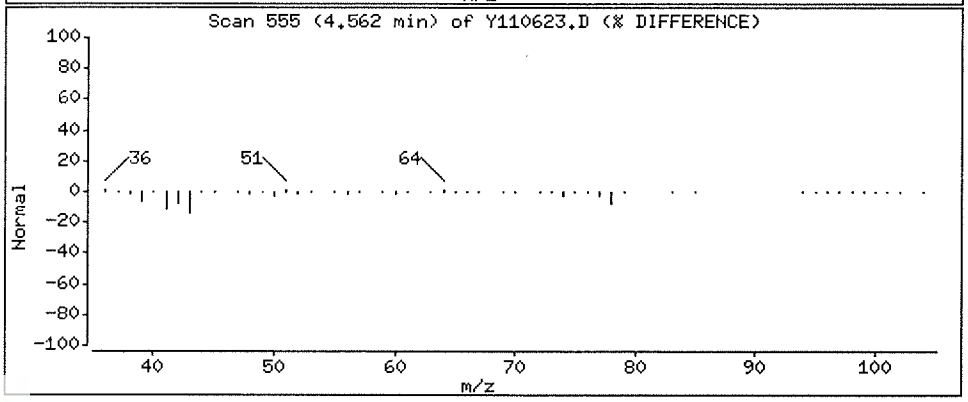


Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110623.D Page 7

Date : 07-NOV-2020 04:19

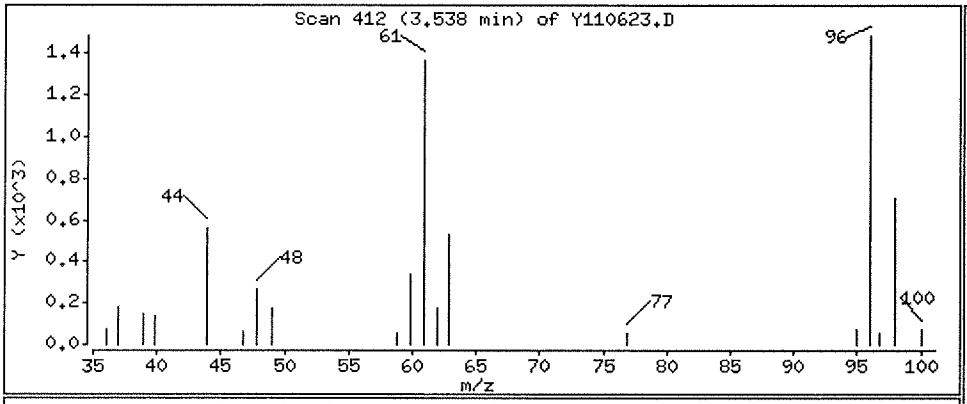
Client ID: HS20110128-12 Instrument: voa6.i

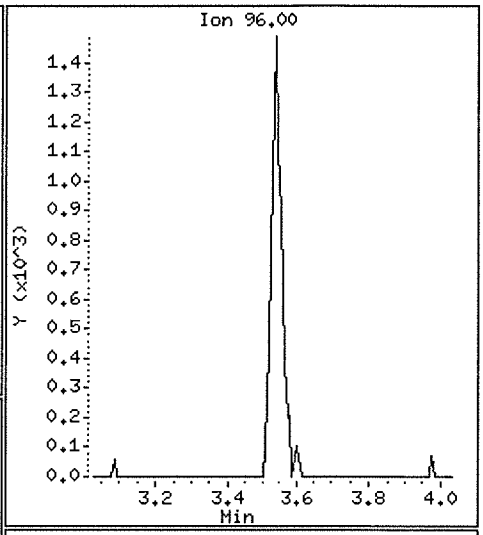
Sample Info: HS20110128-12;HS20110128-12;;;

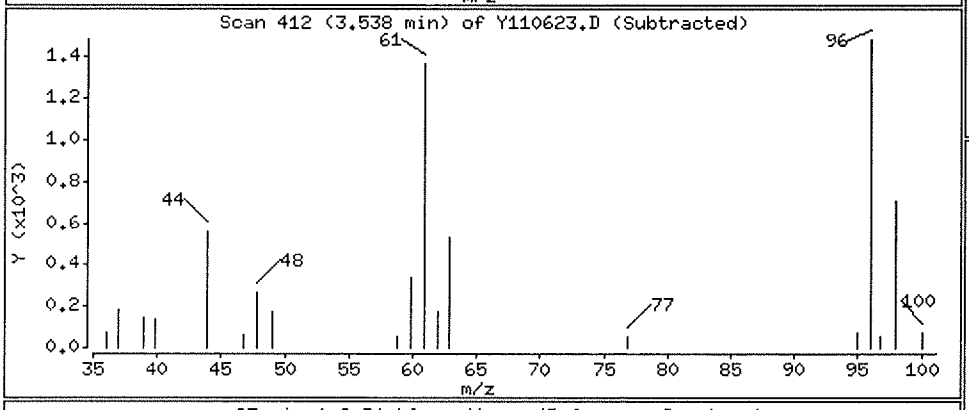
Purge Volume: 5.0 Operator: PC

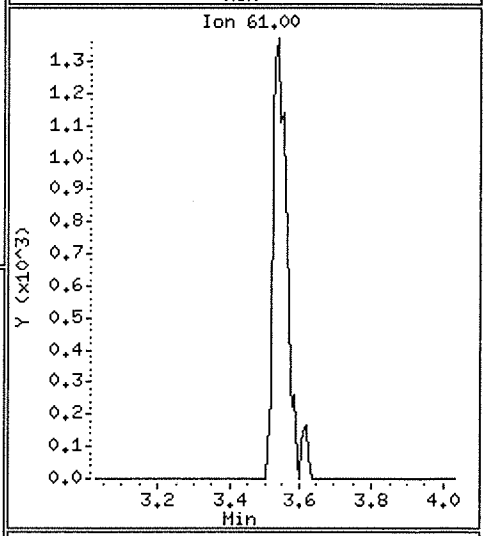
Column phase: DB624 Column diameter: 0.18

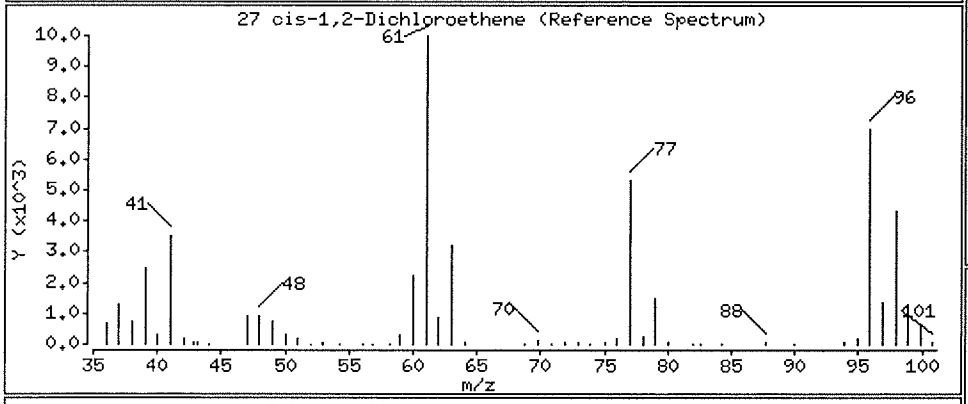
27 cis-1,2-Dichloroethene Concentration: 1.70 ug/l

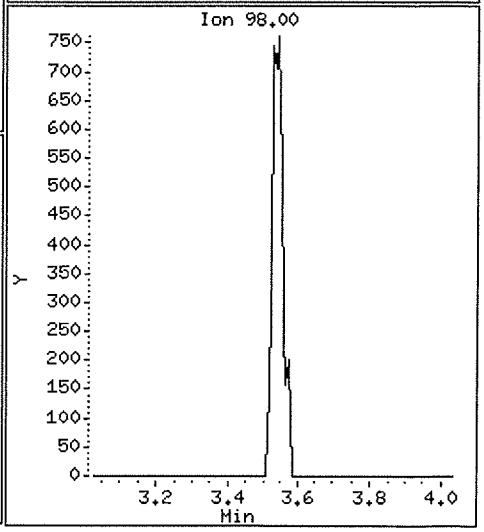


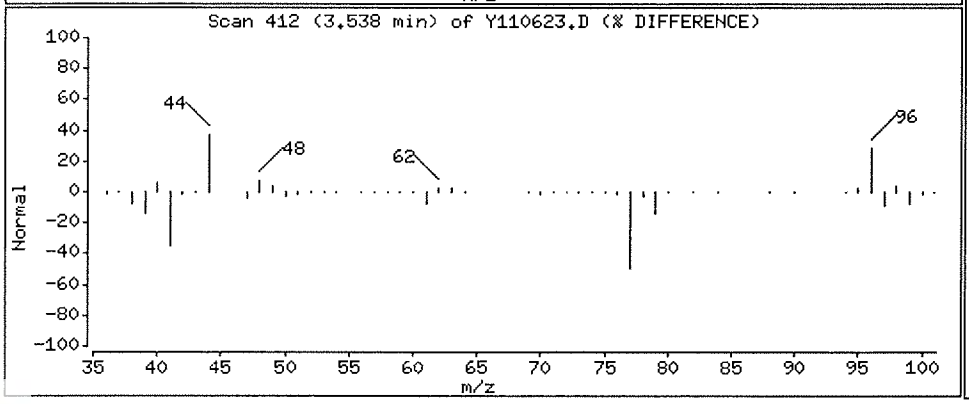



Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110623.D Page 8

Date : 07-NOV-2020 04:19

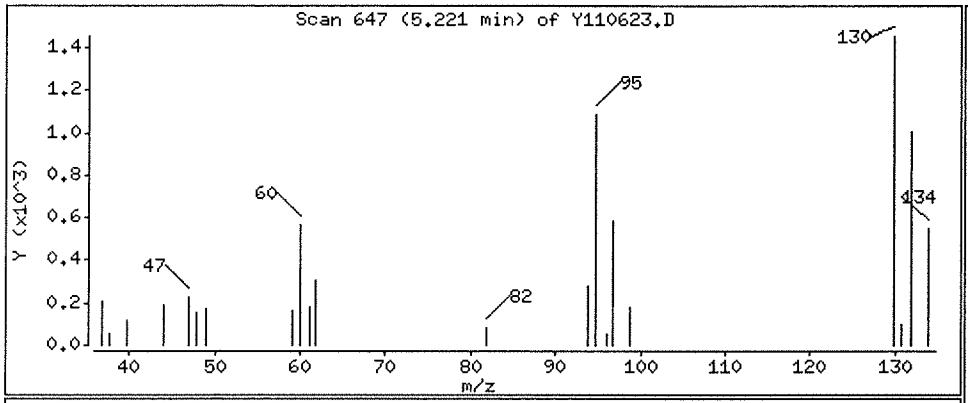
Client ID: HS20110128-12 Instrument: voa6.i

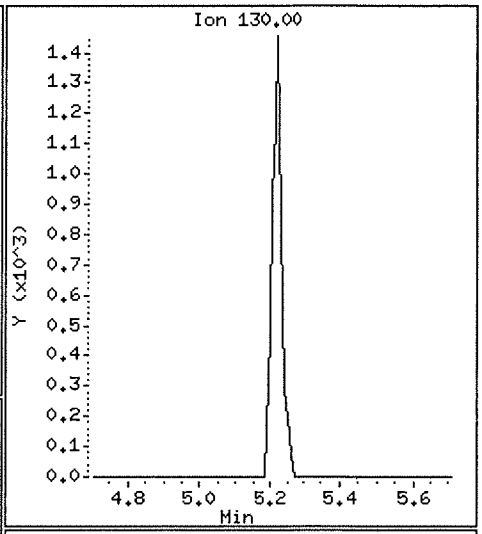
Sample Info: HS20110128-12;HS20110128-12;;;

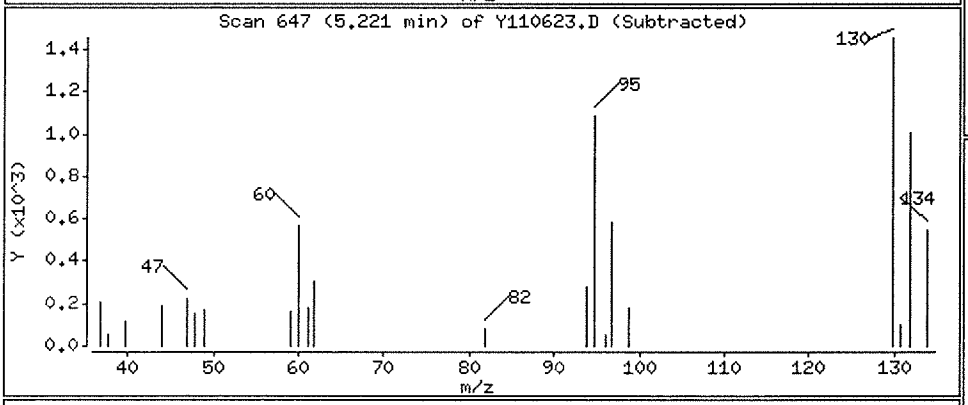
Purge Volume: 5.0 Operator: PC

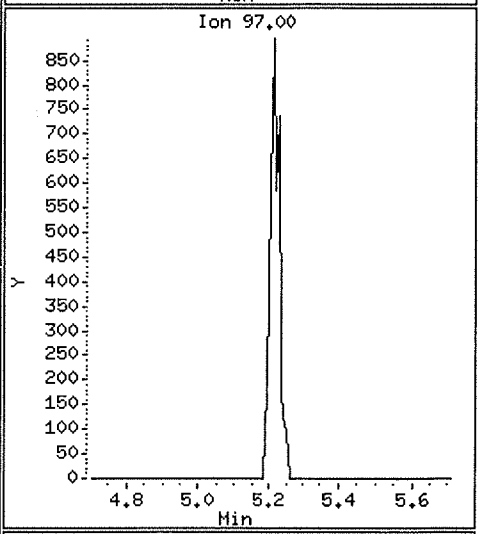
Column phase: DB624 Column diameter: 0.18

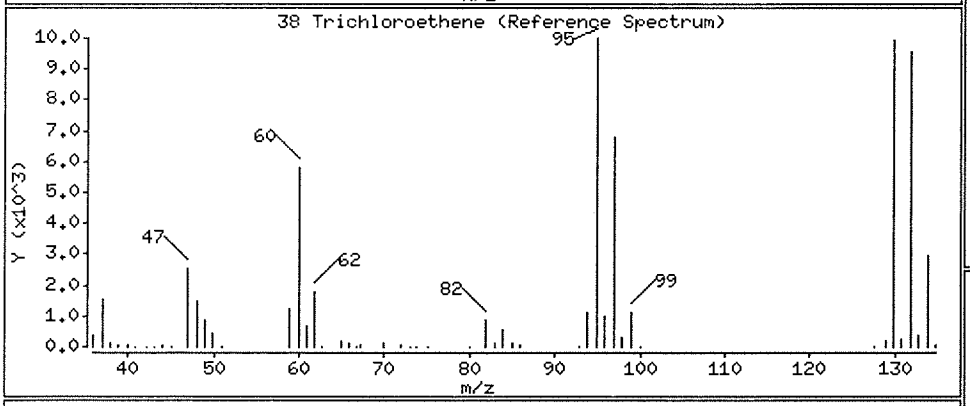
38 Trichloroethene Concentration: 1.99 ug/l

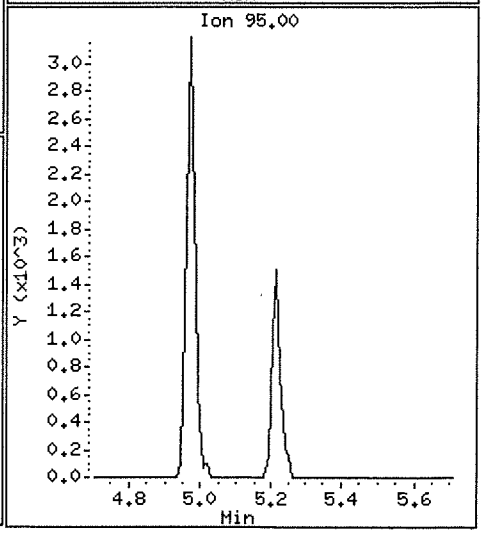


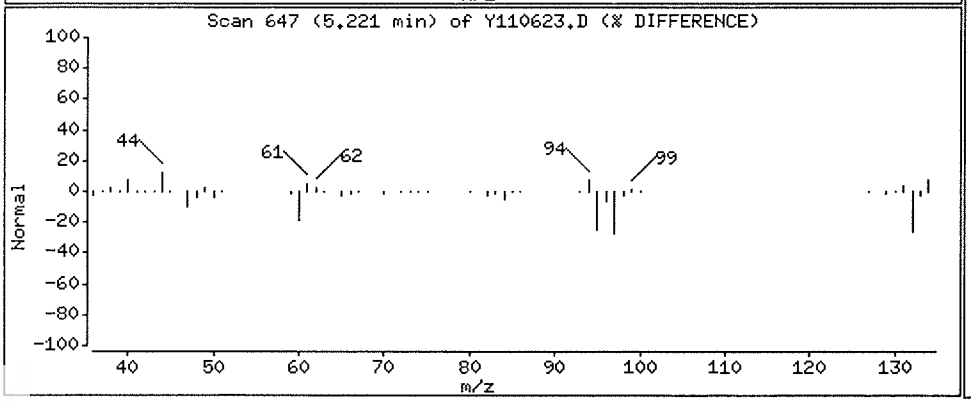



ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201106.b\Y110624.D
Lab Smp Id: HS20110128-13 Client Smp ID: HS20110128-13
Inj Date : 07-NOV-2020 04:40
Operator : PC Inst ID: voa6.i
Smp Info : HS20110128-13;HS20110128-13;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201106.b\8260W.m
Meth Date : 13-Jan-2021 18:22 devak.giga Quant Type: ISTD
Cal Date : 03-NOV-2020 14:27 Cal File: X110308.D
Als bottle: 52
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

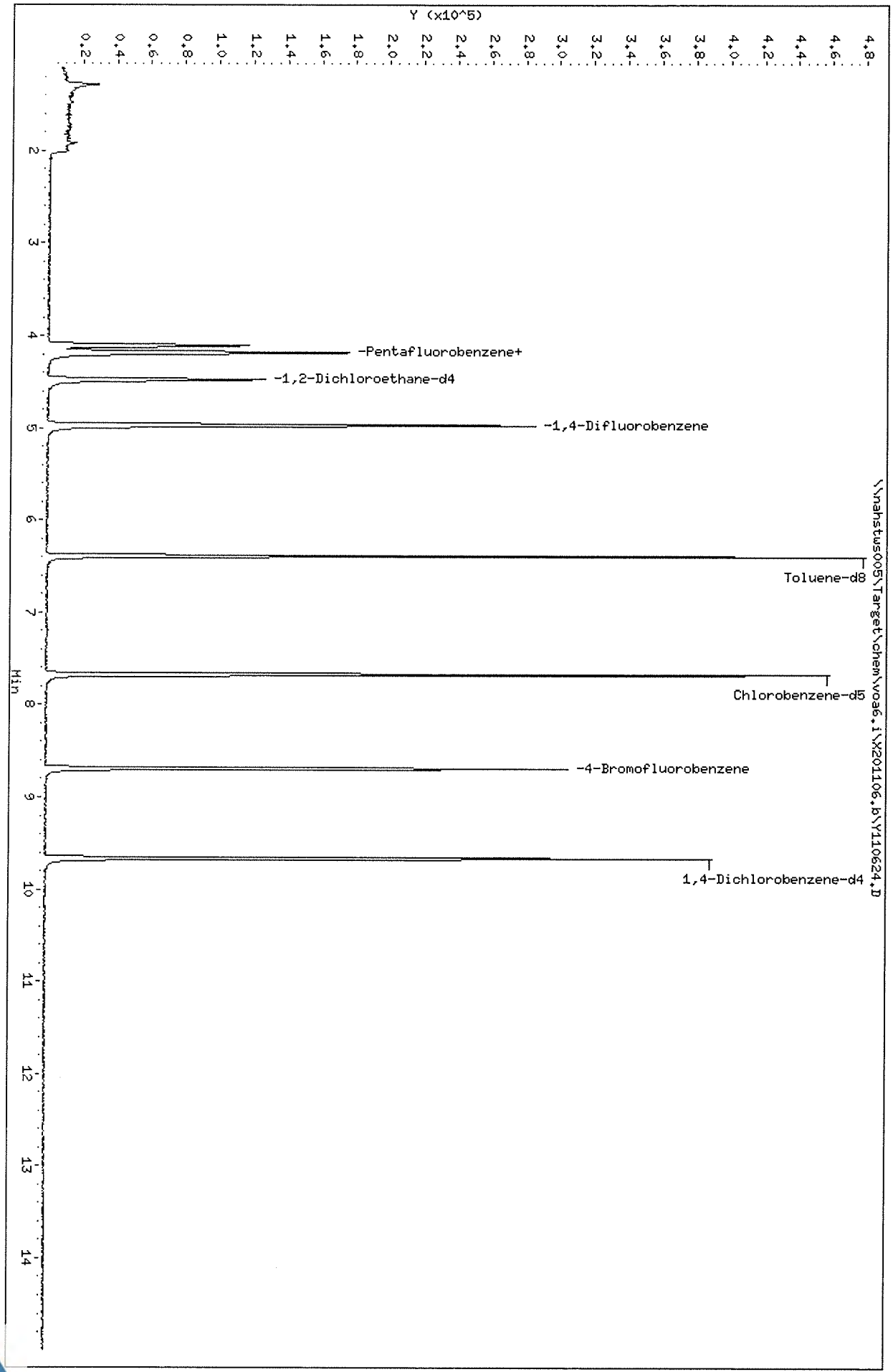
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.189 | 4.189 | (1.000) | 127004 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 4.970 | 4.970 | (1.000) | 215686 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 7.671 | 7.671 | (1.000) | 187082 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 9.662 | 9.662 | (1.000) | 76901 | 50.0000 | |
| $ 35 1,2-Dichloroethane-d4 | 65 | 4.476 | 4.476 | (1.068) | 88148 | 43.9841 | 43.98 |
| $ 69 4-Bromofluorobenzene | 95 | 8.695 | 8.688 | (1.134) | 76287 | 46.0714 | 46.07 |
| $ 30 Dibromofluoromethane | 113 | 4.103 | 4.104 | (0.979) | 74236 | 43.4032 | 43.40 |
| $ 48 Toluene-d8 | 98 | 6.389 | 6.389 | (0.833) | 251434 | 50.3174 | 50.31 |

Data File: \\nahstus005\Target\chem\voa6.i\X201106.b\Y110624.D
Date : 07-NOV-2020 04:40
Client ID: HS20110128-13
Sample Info: HS20110128-13;HS20110128-13;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110625.D Page 1
Report Date: 13-Jan-2021 18:27

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201106.b\Y110625.D
Lab Smp Id: HS20110128-14 Client Smp ID: HS20110128-14
Inj Date : 07-NOV-2020 05:01
Operator : PC Inst ID: voa6.i
Smp Info : HS20110128-14;HS20110128-14;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201106.b\8260W.m
Meth Date : 13-Jan-2021 18:22 devak.giga Quant Type: ISTD
Cal Date : 03-NOV-2020 14:27 Cal File: X110308.D
Als bottle: 53
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

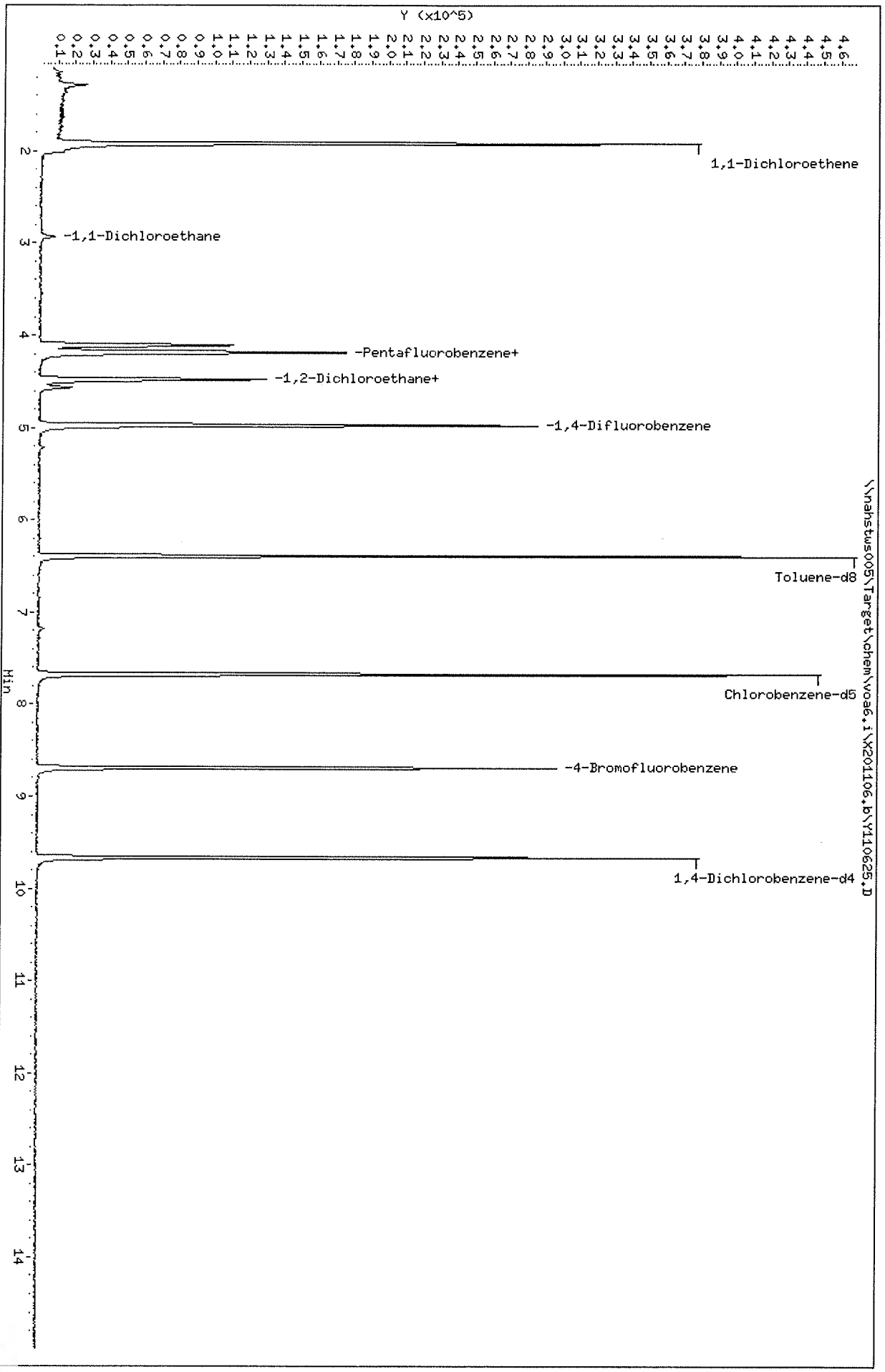
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.189 | 4.189 | (1.000) | 128836 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 4.970 | 4.970 | (1.000) | 212043 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 7.671 | 7.671 | (1.000) | 182716 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 9.662 | 9.662 | (1.000) | 75335 | 50.0000 | |
| $ 35 1,2-Dichloroethane-d4 | 65 | 4.476 | 4.476 | (1.068) | 88979 | 43.7745 | 43.77 |
| $ 69 4-Bromofluorobenzene | 95 | 8.688 | 8.688 | (1.133) | 72823 | 45.0672 | 45.06 |
| $ 30 Dibromofluoromethane | 113 | 4.104 | 4.104 | (0.979) | 72200 | 41.6126 | 41.61 |
| $ 48 Toluene-d8 | 98 | 6.389 | 6.389 | (0.833) | 250530 | 51.3345 | 51.33 |
| 22 1,1-Dichloroethane | 63 | 2.929 | 2.929 | (0.699) | 7904 | 2.55229 | 2.55(a) |
| 11 1,1-Dichloroethene | 96 | 1.919 | 1.919 | (0.458) | 118484 | 48.7435 | 48.74 |
| 33 1,2-Dichloroethane | 62 | 4.562 | 4.562 | (0.918) | 13959 | 6.10531 | 6.10 |

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).




Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110625.D
Date : 07-NOV-2020 05:01
Client ID: HS20110128-14
Sample Info: HS20110128-14;HS20110128-14;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110625.D



Date : 07-NOV-2020 05:01

Client ID: HS20110128-14

Instrument: voa6.i

Sample Info: HS20110128-14;HS20110128-14;;;

Purge Volume: 5.0

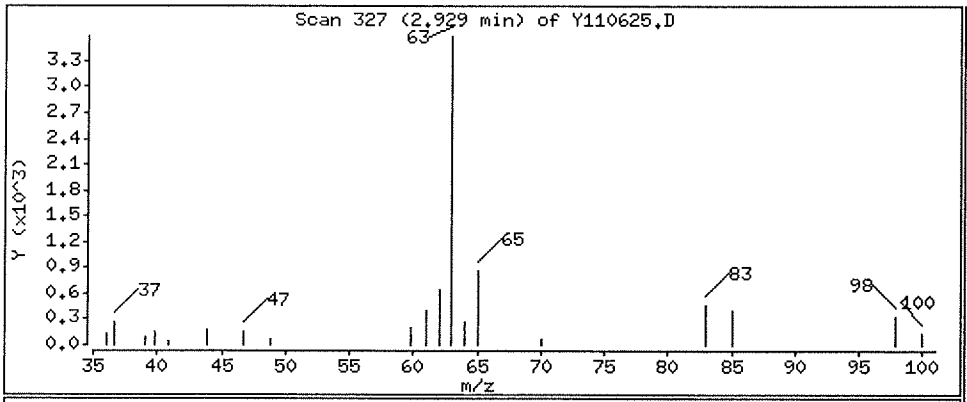
Operator: PC

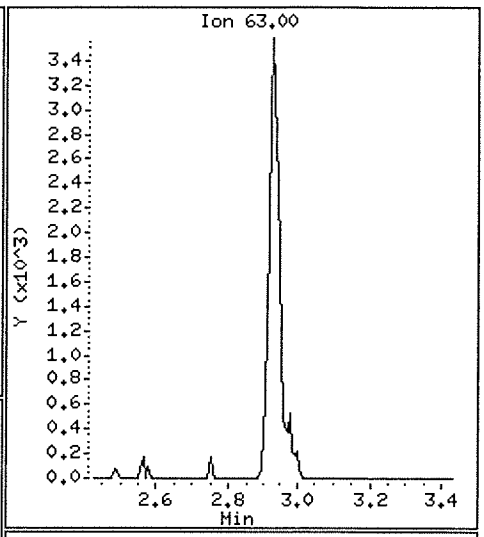
Column phase: DB624

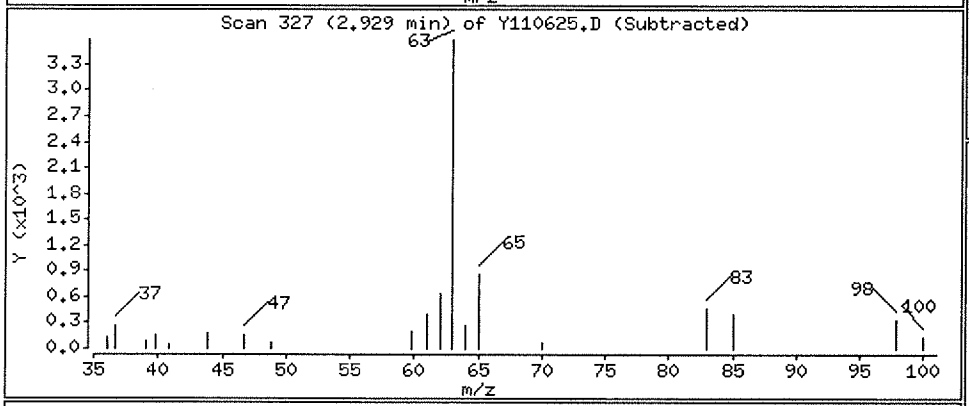
Column diameter: 0.18

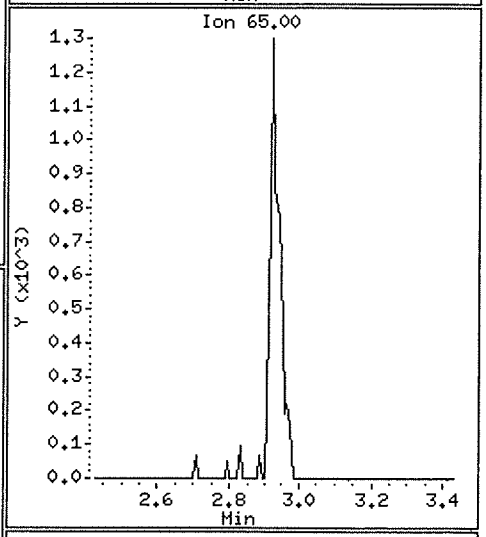
22 1,1-Dichloroethane

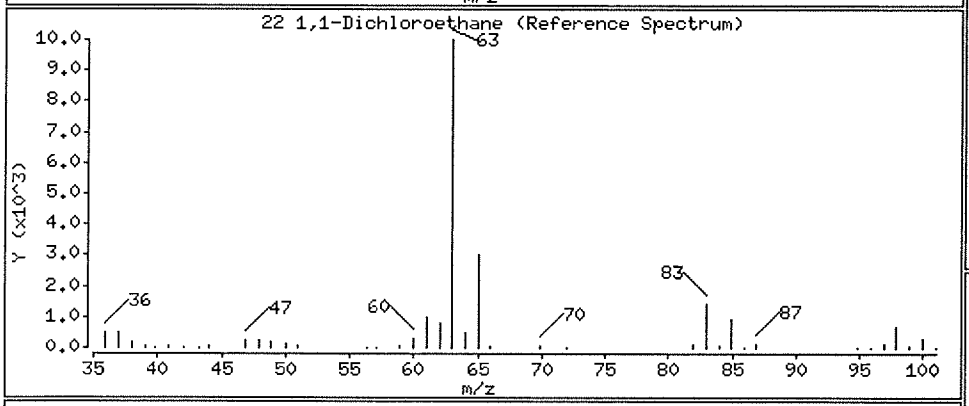
Concentration: 2.55 ug/l

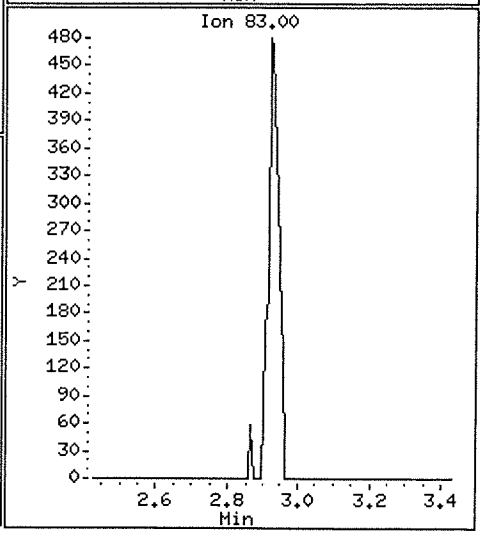


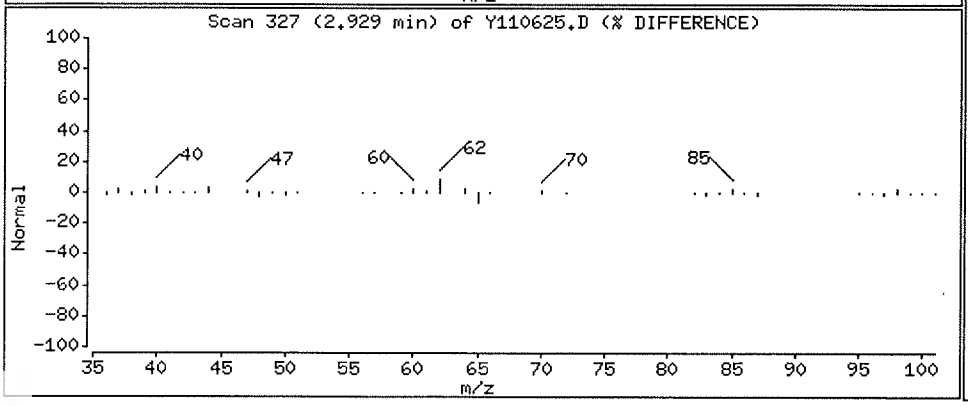



Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110625.D



Date : 07-NOV-2020 05:01

Client ID: HS20110128-14

Instrument: voa6.i

Sample Info: HS20110128-14;HS20110128-14;;;

Purge Volume: 5.0

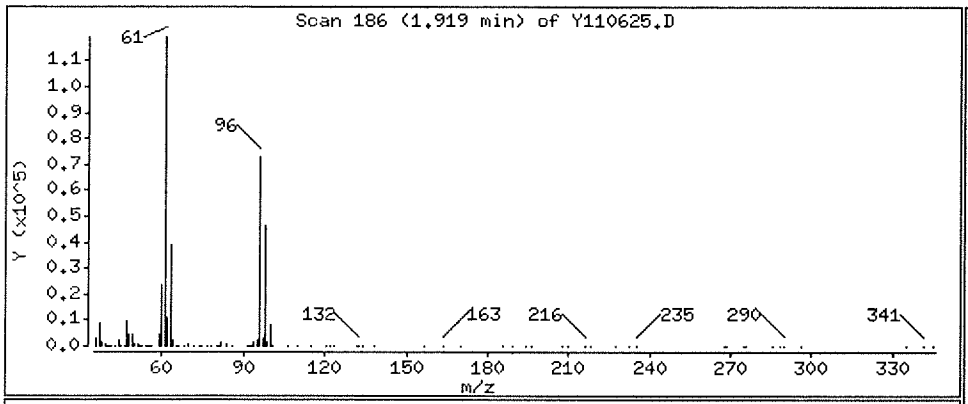
Operator: PC

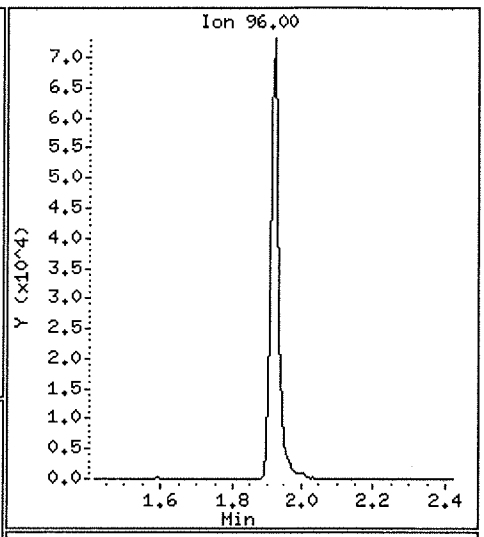
Column phase: DB624

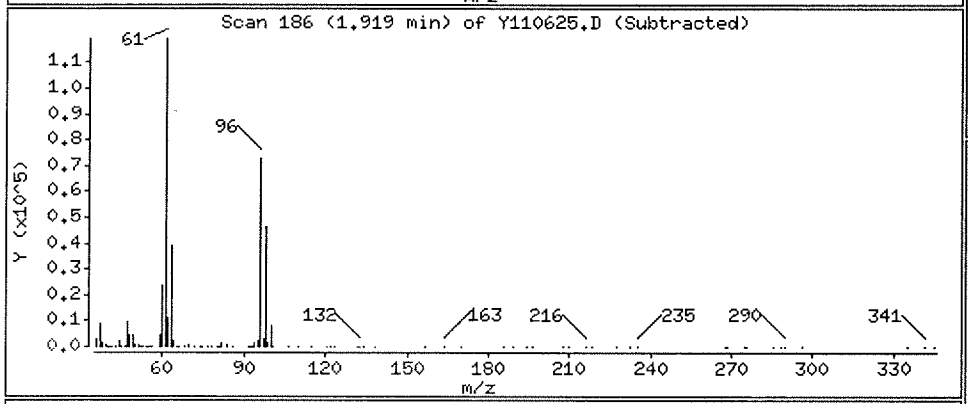
Column diameter: 0.18

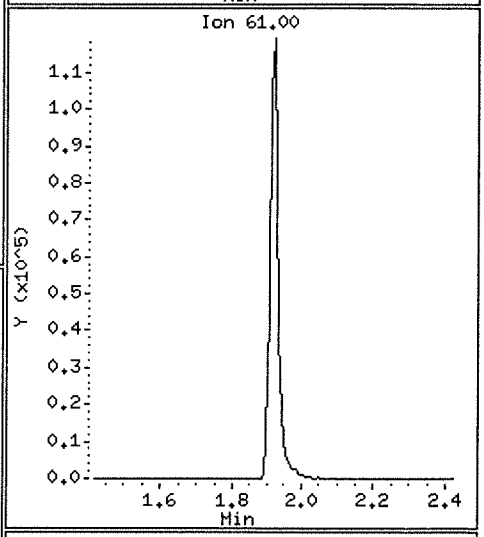
11 1,1-Dichloroethene

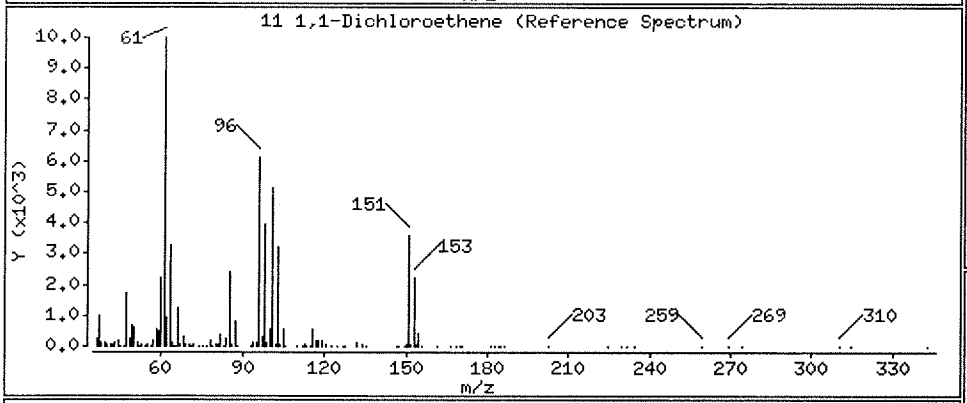
Concentration: 48.74 ug/l

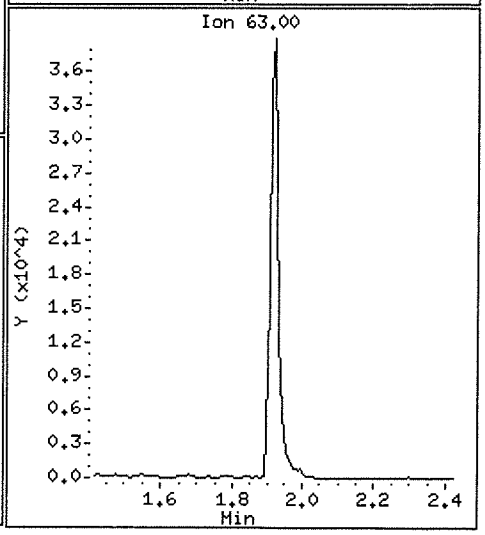


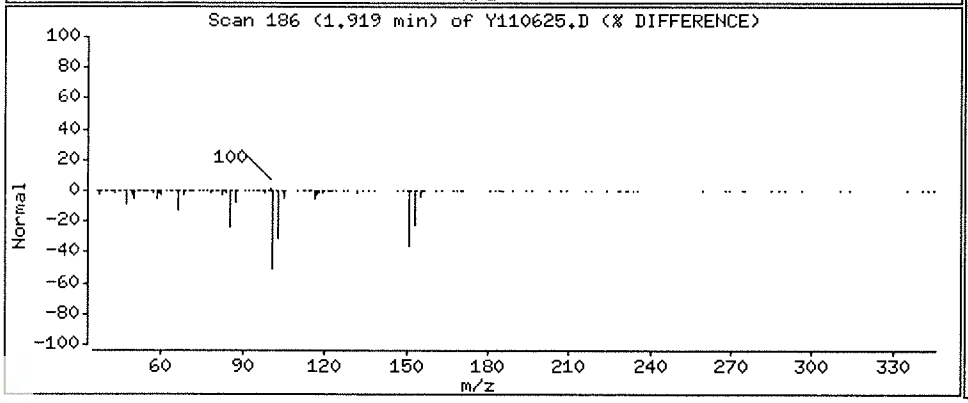



Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110625.D



Date : 07-NOV-2020 05:01

Client ID: HS20110128-14

Instrument: voa6.i

Sample Info: HS20110128-14;HS20110128-14;;;

Purge Volume: 5.0

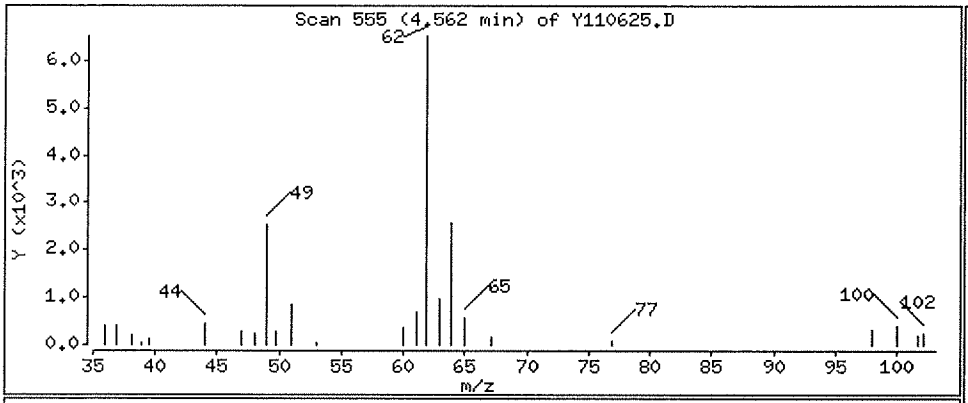
Operator: PC

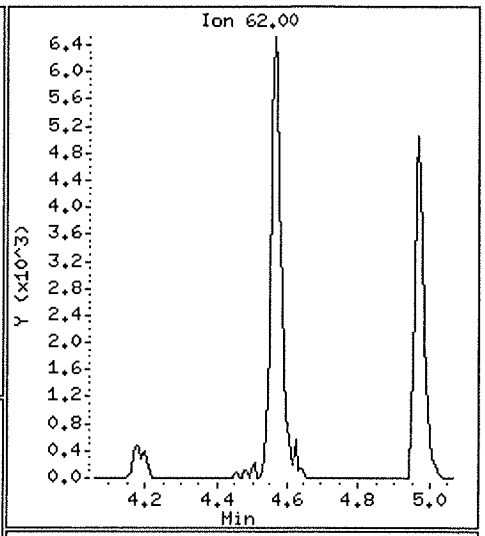
Column phase: DB624

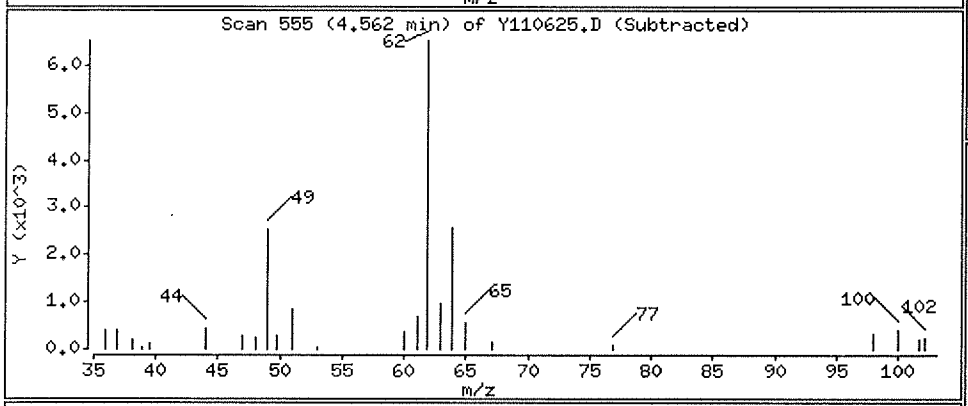
Column diameter: 0.18

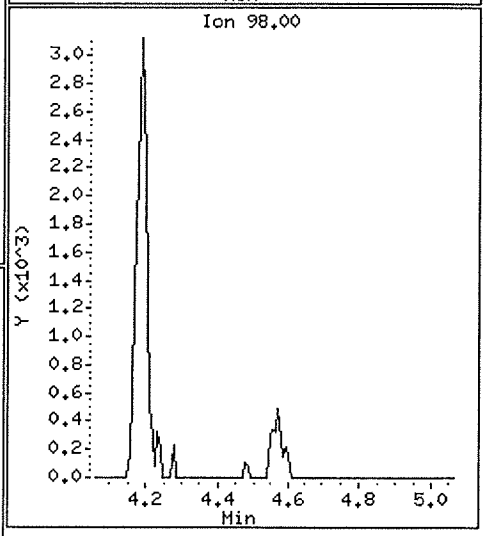
33 1,2-Dichloroethane

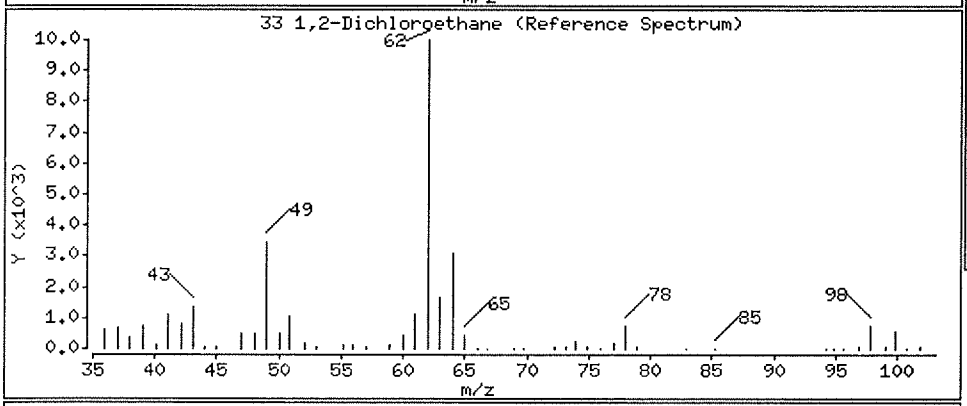
Concentration: 6.10 ug/l

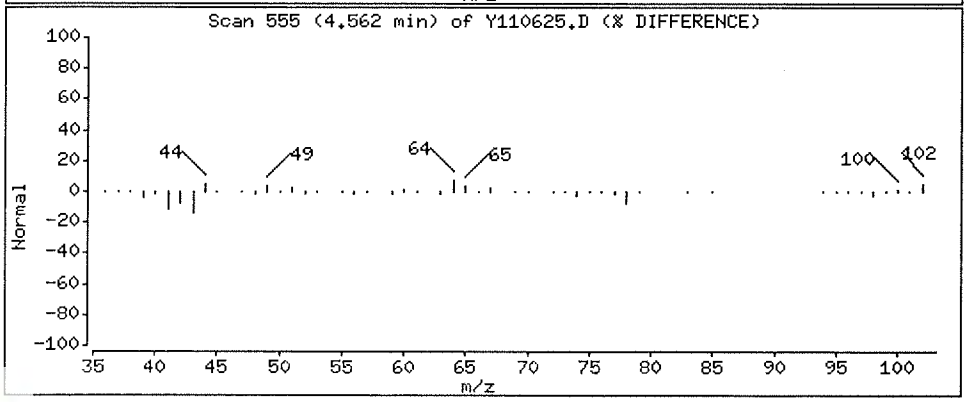


Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110626.D Page 1
Report Date: 13-Jan-2021 18:27

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201106.b\Y110626.D
Lab Smp Id: HS20110128-15 Client Smp ID: HS20110128-15
Inj Date : 07-NOV-2020 05:23
Operator : PC Inst ID: voa6.i
Smp Info : HS20110128-15;HS20110128-15;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201106.b\8260W.m
Meth Date : 13-Jan-2021 18:22 devak.giga Quant Type: ISTD
Cal Date : 03-NOV-2020 14:27 Cal File: X110308.D
Als bottle: 54
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

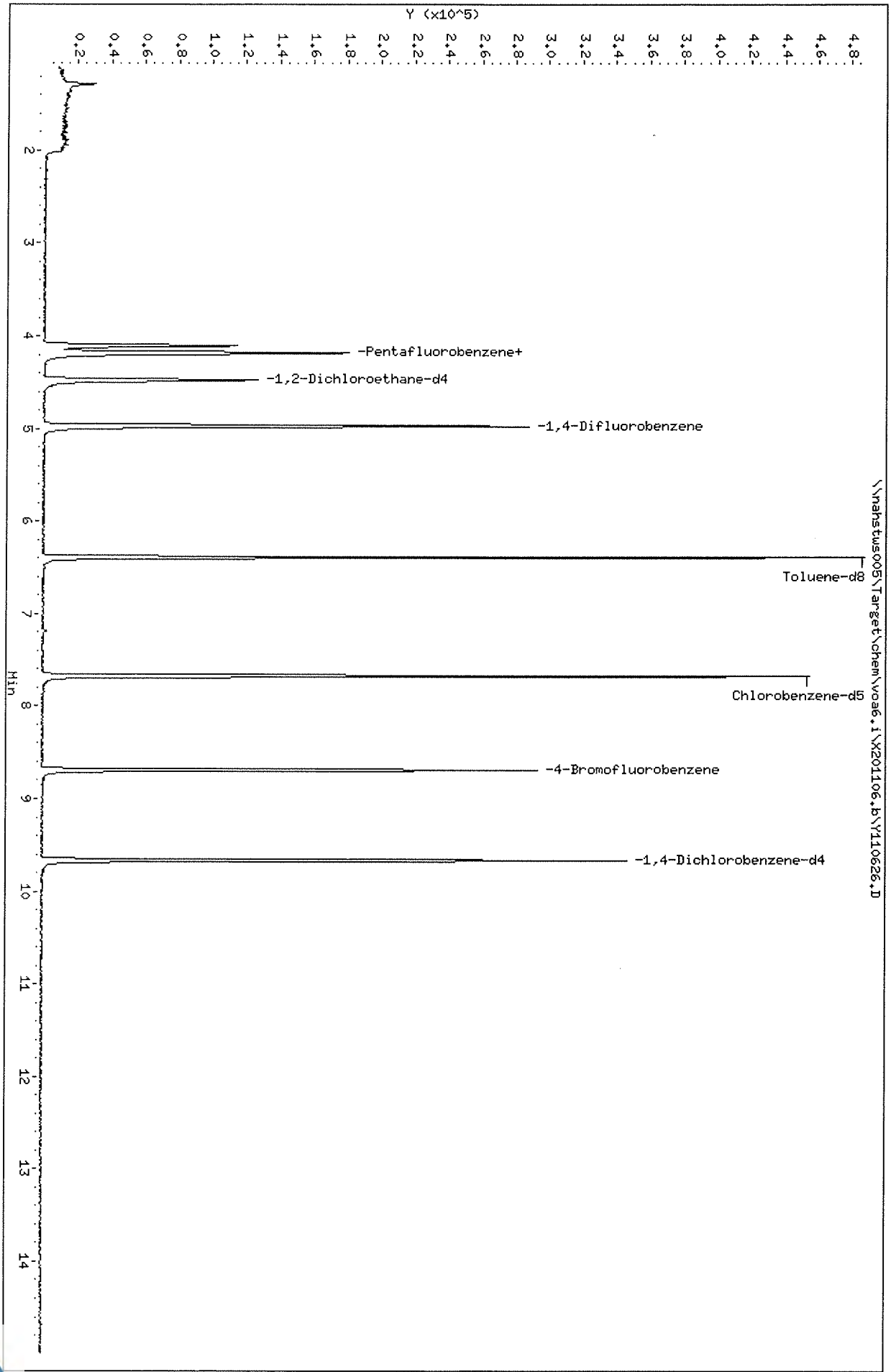
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.189 | 4.189 | (1.000) | 127536 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 4.970 | 4.970 | (1.000) | 214908 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 7.670 | 7.671 | (1.000) | 186517 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 9.669 | 9.662 | (1.000) | 71968 | 50.0000 | |
| $ 35 1,2-Dichloroethane-d4 | 65 | 4.476 | 4.476 | (1.068) | 87711 | 43.5966 | 43.59 |
| $ 69 4-Bromofluorobenzene | 95 | 8.688 | 8.688 | (1.133) | 74057 | 44.9030 | 44.90 |
| $ 30 Dibromofluoromethane | 113 | 4.103 | 4.104 | (0.979) | 72546 | 42.2382 | 42.23 |
| $ 48 Toluene-d8 | 98 | 6.388 | 6.389 | (0.833) | 250653 | 50.3131 | 50.31 |

Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110626.D
Date : 07-NOV-2020 05:23
Client ID: HS20110128-15
Sample Info: HS20110128-15;HS20110128-15;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110627.D Page 1
Report Date: 13-Jan-2021 18:27

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201106.b\Y110627.D
Lab Smp Id: HS20110128-16 Client Smp ID: HS20110128-16
Inj Date : 07-NOV-2020 05:44
Operator : PC Inst ID: voa6.i
Smp Info : HS20110128-16;HS20110128-16;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201106.b\8260W.m
Meth Date : 13-Jan-2021 18:22 devak.giga Quant Type: ISTD
Cal Date : 03-NOV-2020 14:27 Cal File: X110308.D
Als bottle: 55
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

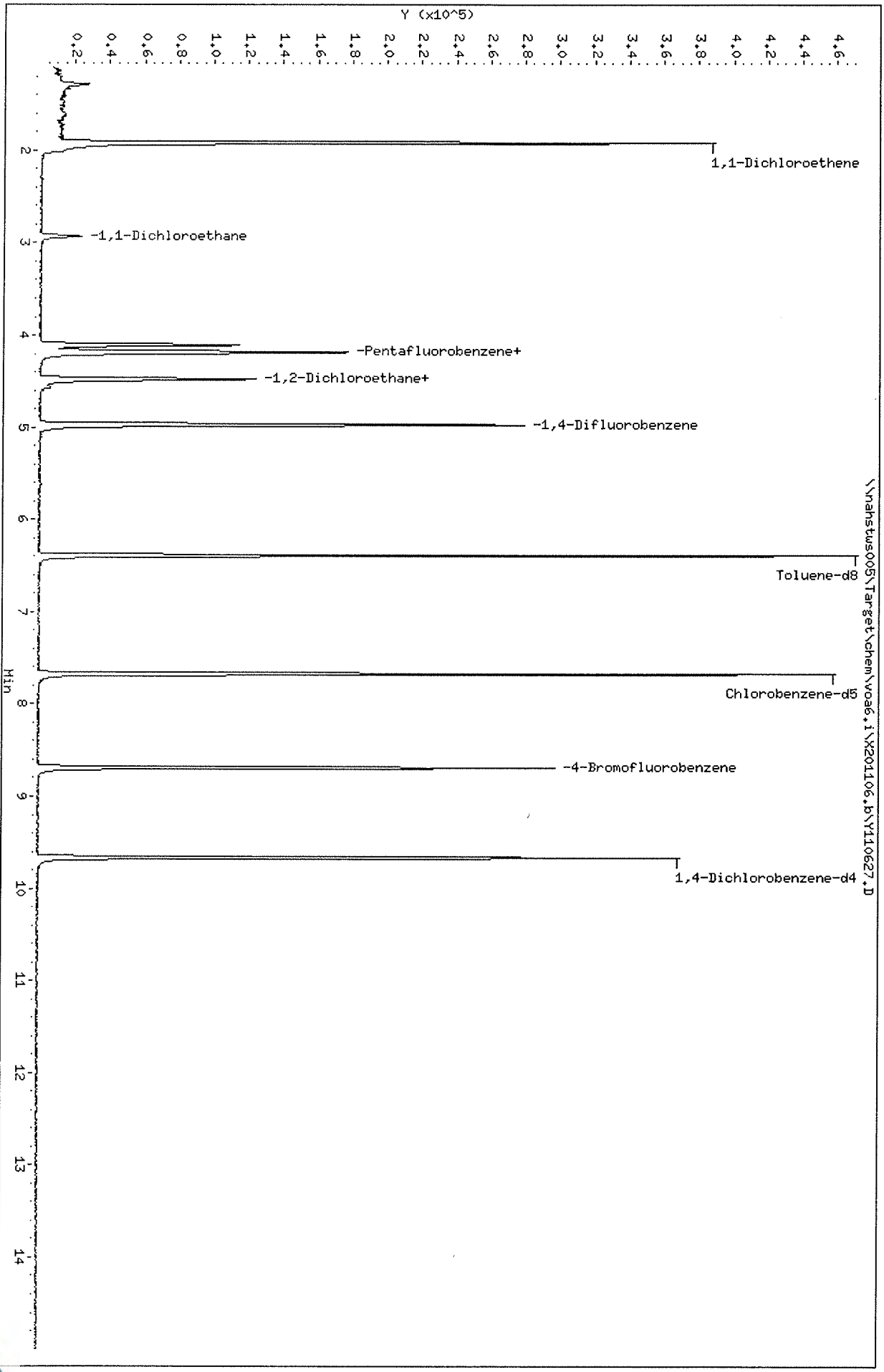
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.189 | 4.189 | (1.000) | 123698 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 4.970 | 4.970 | (1.000) | 209272 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 7.670 | 7.671 | (1.000) | 183158 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 9.662 | 9.662 | (1.000) | 74002 | 50.0000 | |
| $ 35 1,2-Dichloroethane-d4 | 65 | 4.476 | 4.476 | (1.068) | 85475 | 43.7966 | 43.79 |
| $ 69 4-Bromofluorobenzene | 95 | 8.688 | 8.688 | (1.133) | 73644 | 45.4510 | 45.45 |
| $ 30 Dibromofluoromethane | 113 | 4.103 | 4.104 | (0.979) | 74037 | 44.4438 | 44.44 |
| $ 48 Toluene-d8 | 98 | 6.388 | 6.389 | (0.833) | 248265 | 50.7477 | 50.74 |
| 22 1,1-Dichloroethane | 63 | 2.929 | 2.929 | (0.699) | 21784 | 7.32647 | 7.32 |
| 11 1,1-Dichloroethene | 96 | 1.919 | 1.919 | (0.458) | 117795 | 50.4729 | 50.47 |
| 33 1,2-Dichloroethane | 62 | 4.569 | 4.562 | (0.919) | 3978 | 1.76291 | 1.76(a) |

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).




Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110627.D
Date : 07-NOV-2020 05:44
Client ID: HS20110128-16
Sample Info: HS20110128-16;HS20110128-16;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110627.D



Date : 07-NOV-2020 05:44

Client ID: HS20110128-16

Instrument: voa6.i

Sample Info: HS20110128-16;HS20110128-16;;;

Purge Volume: 5.0

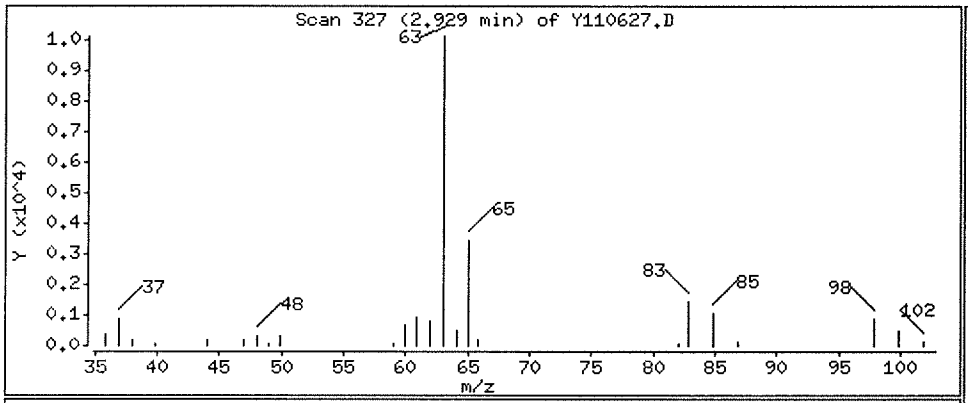
Operator: PC

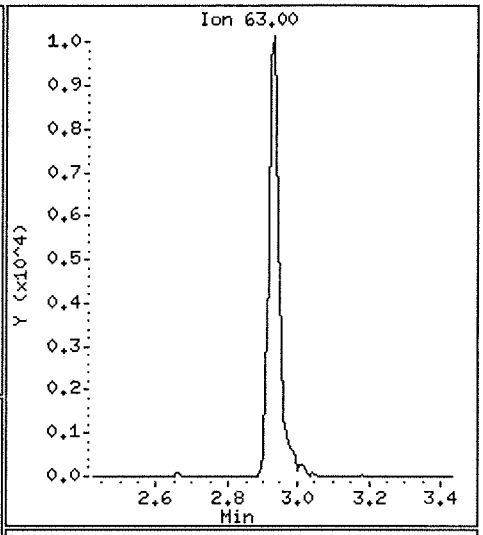
Column phase: DB624

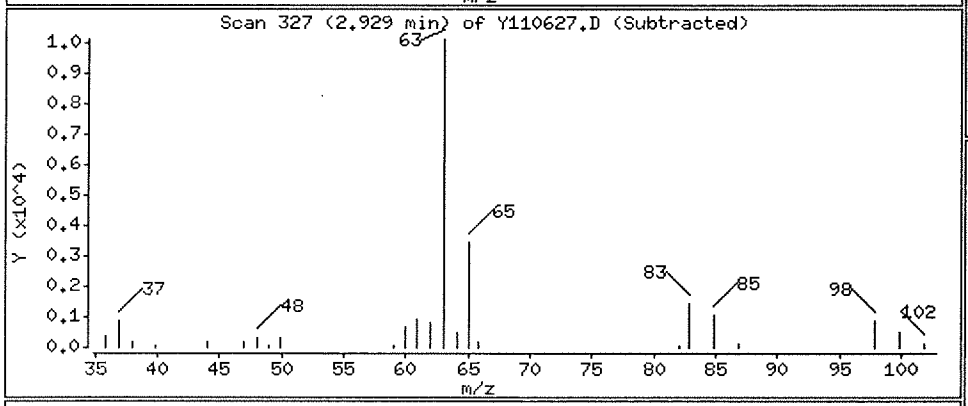
Column diameter: 0.18

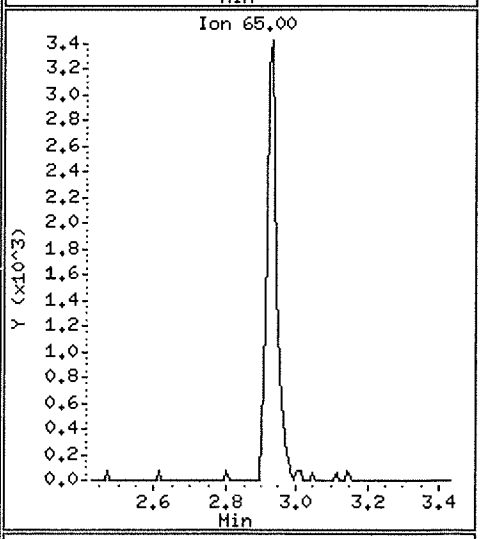
22 1,1-Dichloroethane

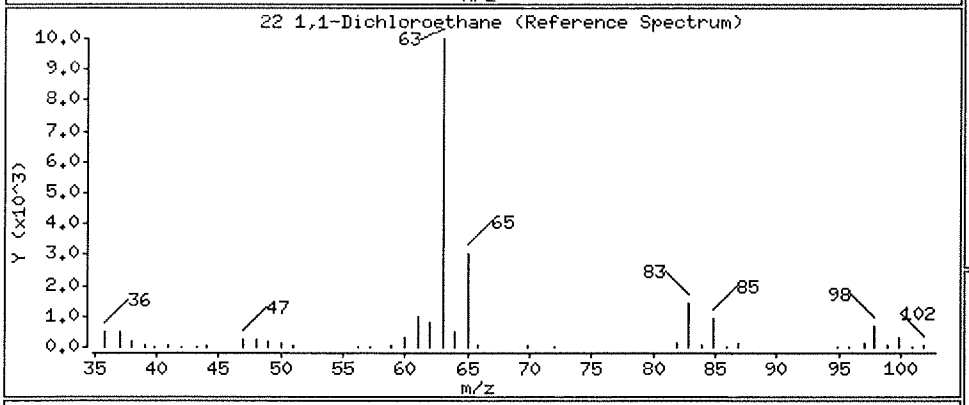
Concentration: 7.32 ug/l

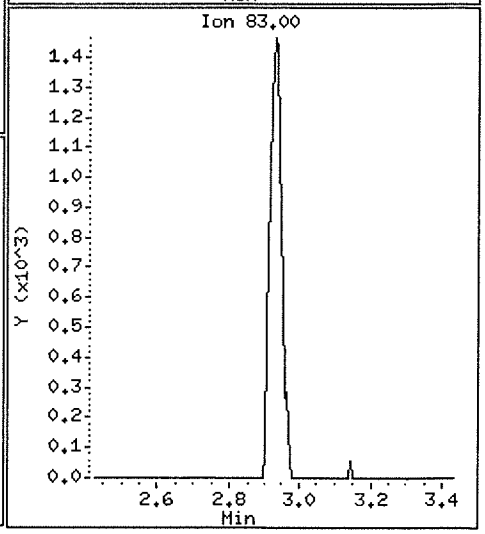


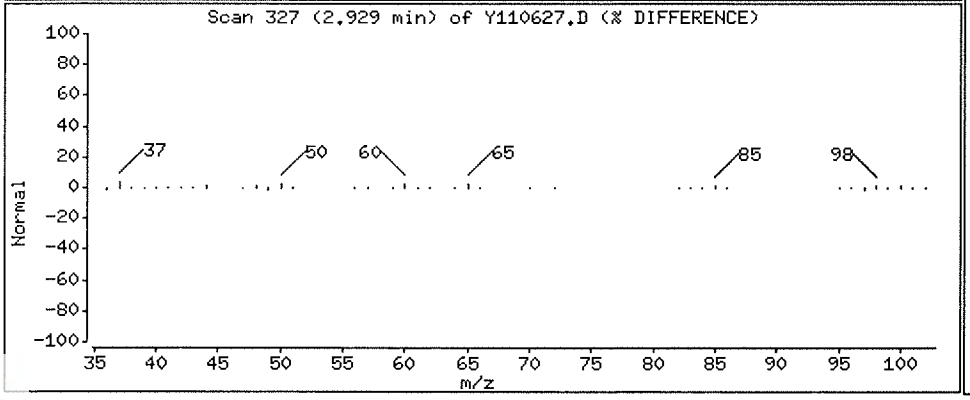



Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110627.D



Date : 07-NOV-2020 05:44

Client ID: HS20110128-16

Instrument: voa6.i

Sample Info: HS20110128-16;HS20110128-16;;;

Purge Volume: 5.0

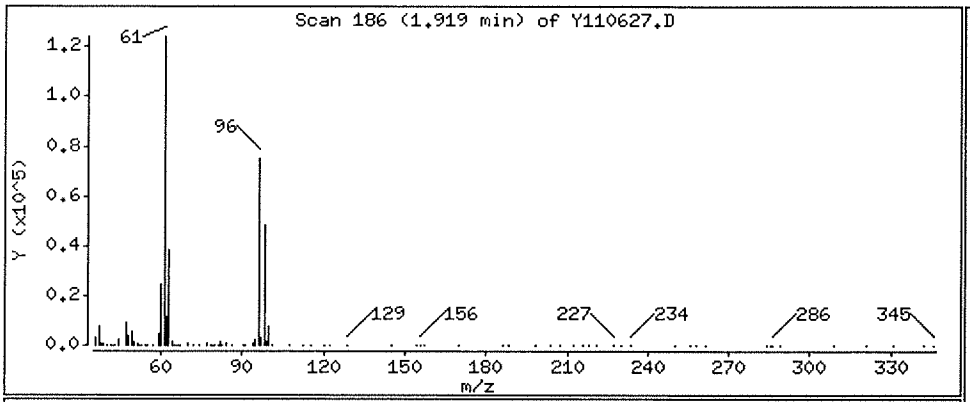
Operator: PC

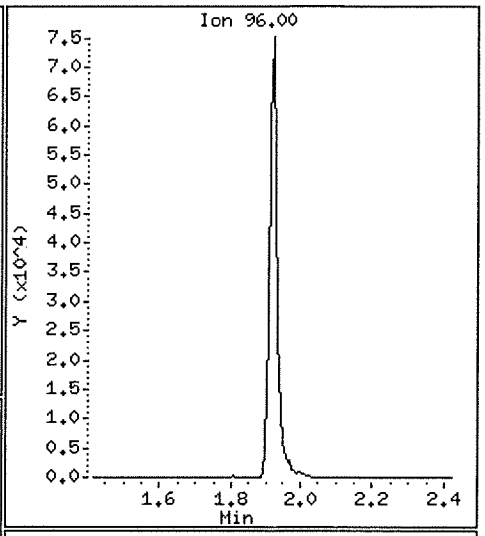
Column phase: DB624

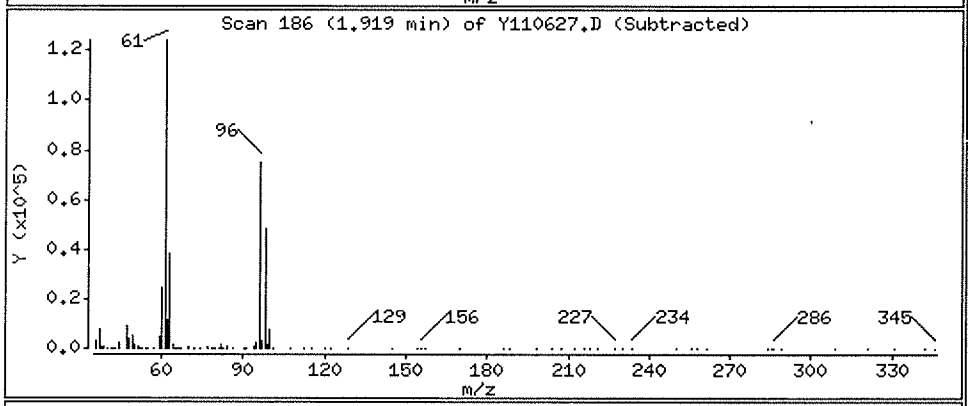
Column diameter: 0.18

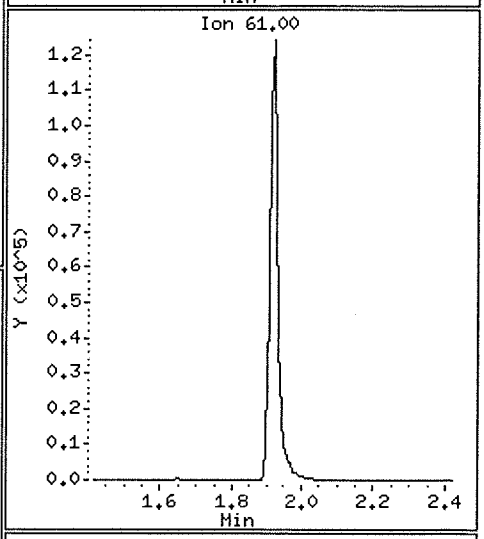
11 1,1-Dichloroethene

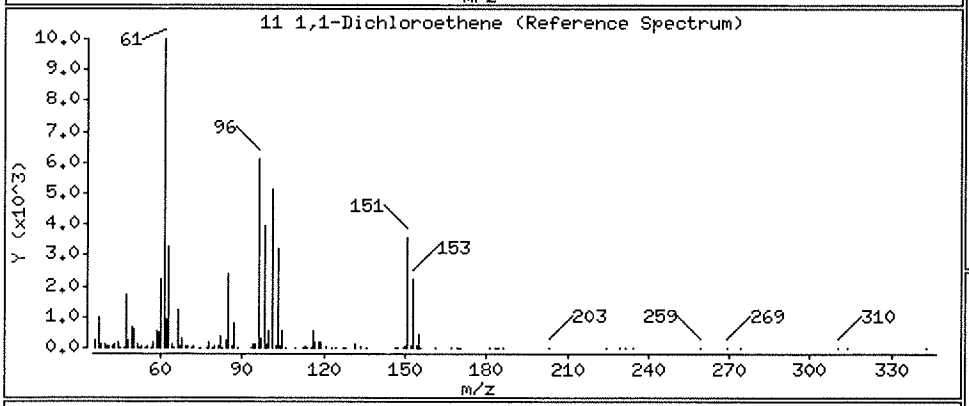
Concentration: 50.47 ug/l

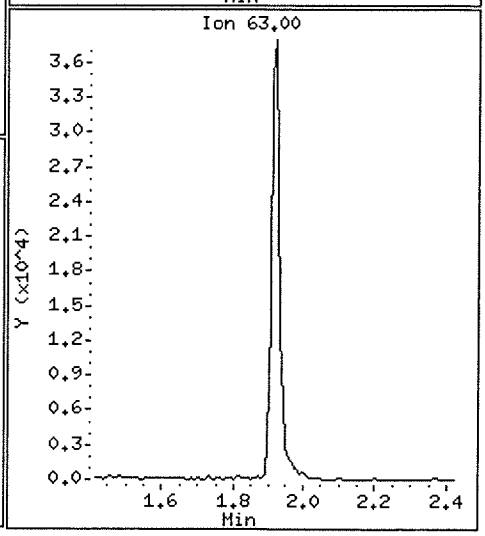


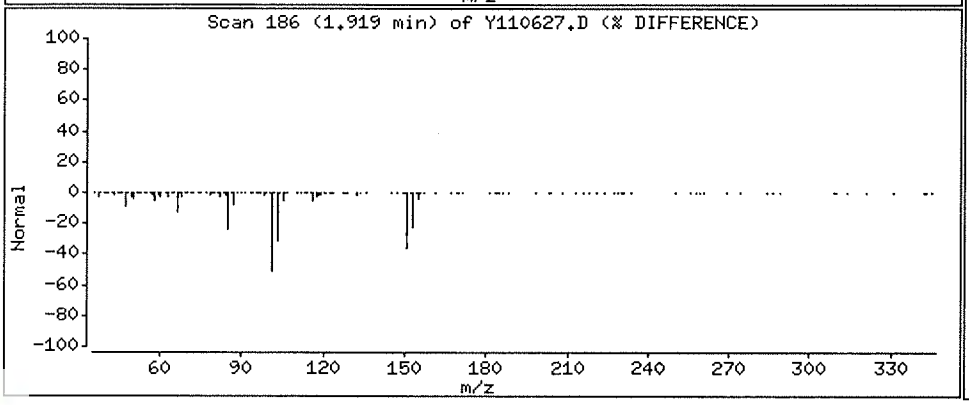



Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110627.D



Date : 07-NOV-2020 05:44

Client ID: HS20110128-16

Instrument: voa6.i

Sample Info: HS20110128-16;HS20110128-16;;;

Purge Volume: 5.0

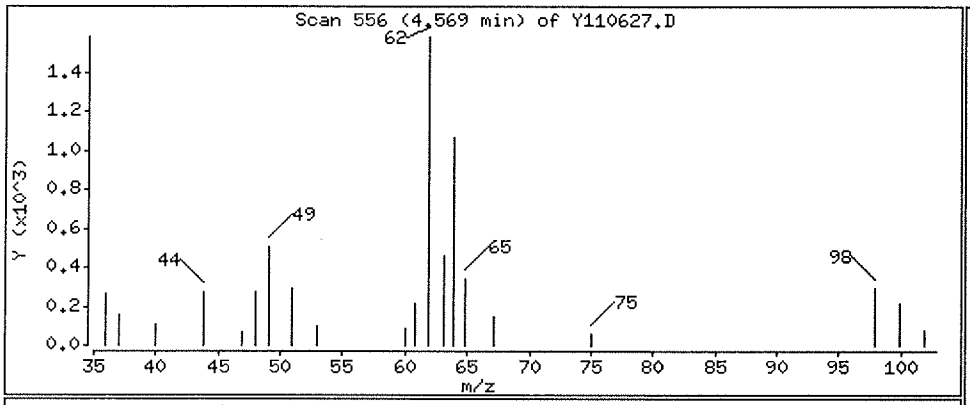
Operator: PC

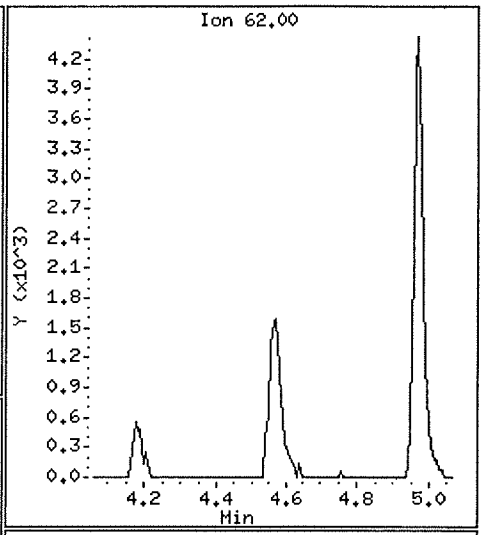
Column phase: DB624

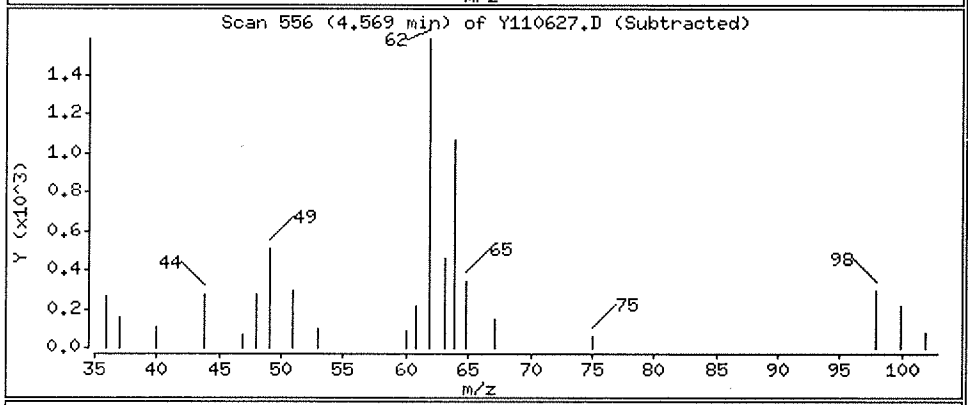
Column diameter: 0.18

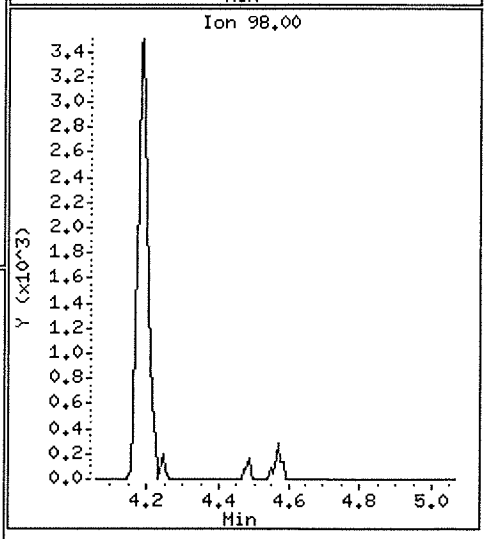
33 1,2-Dichloroethane

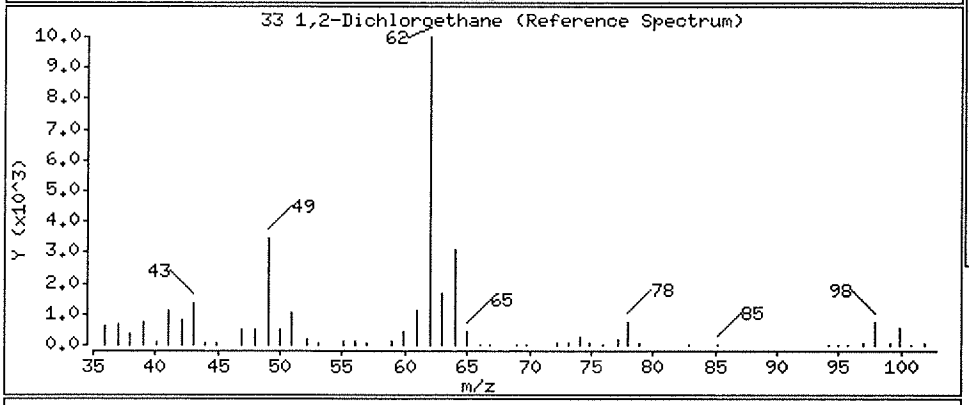
Concentration: 1.76 ug/l

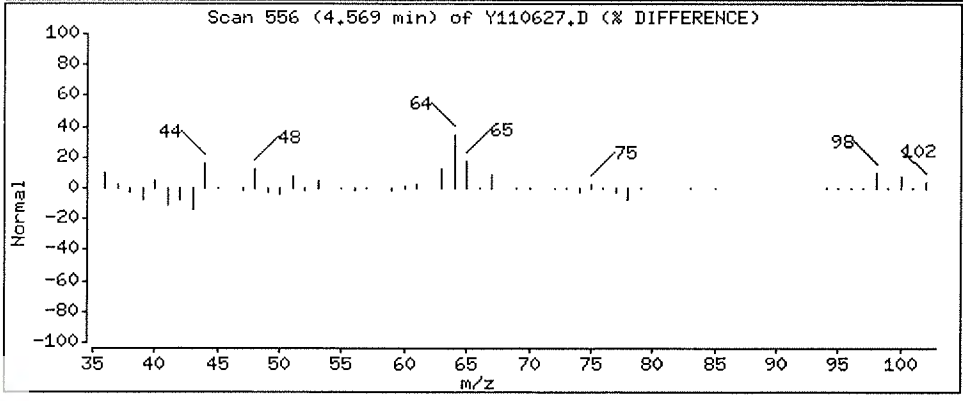


Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110628.D Page 1
Report Date: 13-Jan-2021 18:27

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201106.b\Y110628.D
Lab Smp Id: HS20110128-17 Client Smp ID: HS20110128-17
Inj Date : 07-NOV-2020 06:05
Operator : PC Inst ID: voa6.i
Smp Info : HS20110128-17;HS20110128-17;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201106.b\8260W.m
Meth Date : 13-Jan-2021 18:22 devak.giga Quant Type: ISTD
Cal Date : 03-NOV-2020 14:27 Cal File: X110308.D
Als bottle: 56
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

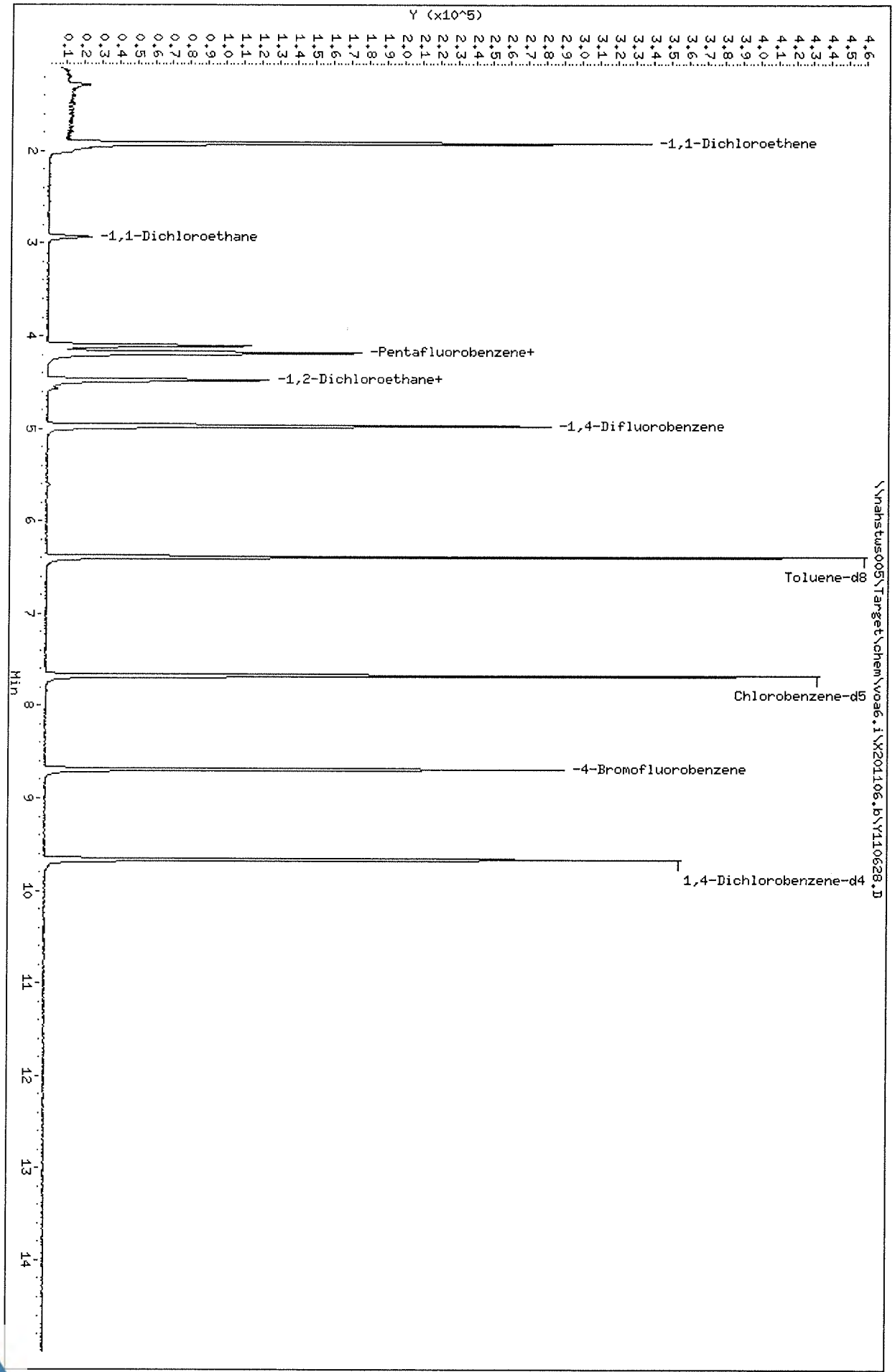
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.182 | 4.189 | (1.000) | 125744 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 4.970 | 4.970 | (1.000) | 213253 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 7.670 | 7.671 | (1.000) | 179252 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 9.662 | 9.662 | (1.000) | 70990 | 50.0000 | |
| $ 35 1,2-Dichloroethane-d4 | 65 | 4.476 | 4.476 | (1.070) | 87289 | 43.9917 | 43.99 |
| $ 69 4-Bromofluorobenzene | 95 | 8.688 | 8.688 | (1.133) | 70612 | 44.5619 | 44.56 |
| $ 30 Dibromofluoromethane | 113 | 4.103 | 4.104 | (0.981) | 72388 | 42.7469 | 42.74 |
| $ 48 Toluene-d8 | 98 | 6.388 | 6.389 | (0.833) | 243931 | 50.9483 | 50.94 |
| 22 1,1-Dichloroethane | 63 | 2.929 | 2.929 | (0.700) | 21520 | 7.11991 | 7.11 |
| 11 1,1-Dichloroethene | 96 | 1.919 | 1.919 | (0.459) | 104998 | 44.2576 | 44.25 |
| 33 1,2-Dichloroethane | 62 | 4.569 | 4.562 | (0.919) | 3657 | 1.59040 | 1.59(a) |

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110628.D
Date : 07-NOV-2020 06:05
Client ID: HS20110128-17
Sample Info: HS20110128-17;HS20110128-17;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110628.D Page 3

Date : 07-NOV-2020 06:05

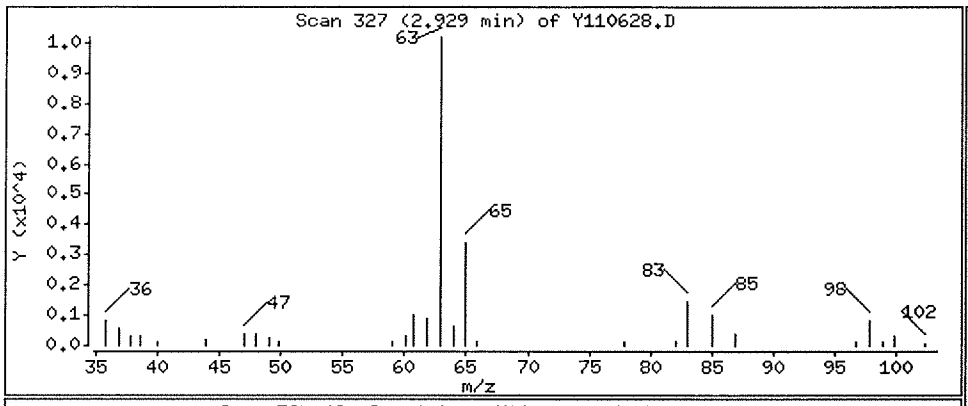
Client ID: HS20110128-17 Instrument: voa6.i

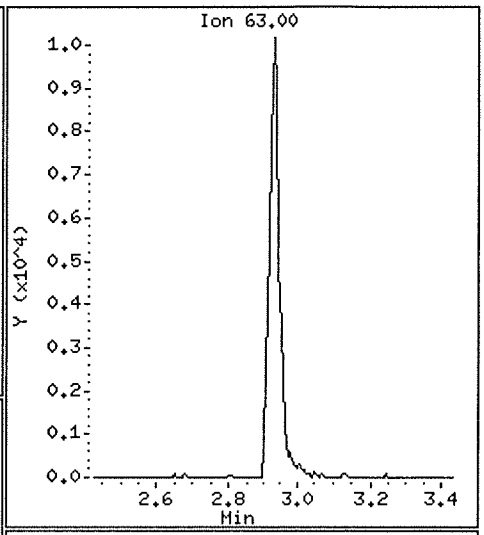
Sample Info: HS20110128-17;HS20110128-17;;;

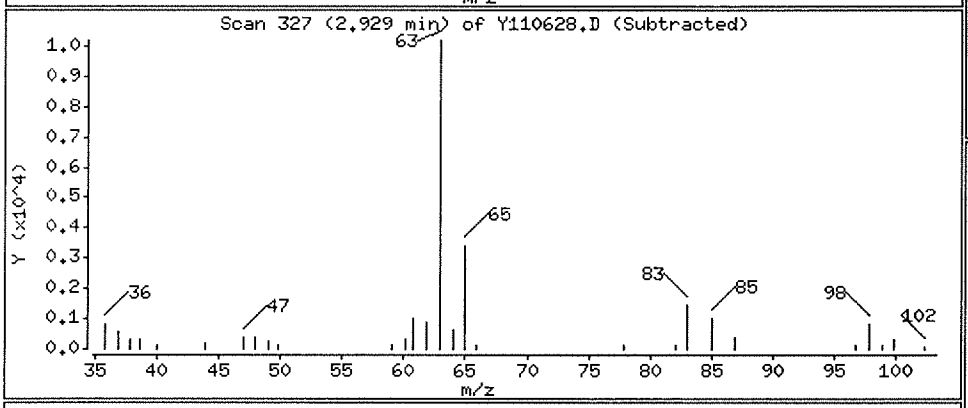
Purge Volume: 5.0 Operator: PC

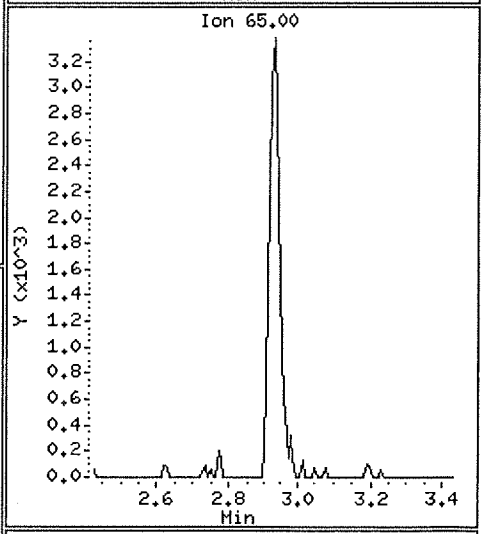
Column phase: DB624 Column diameter: 0.18

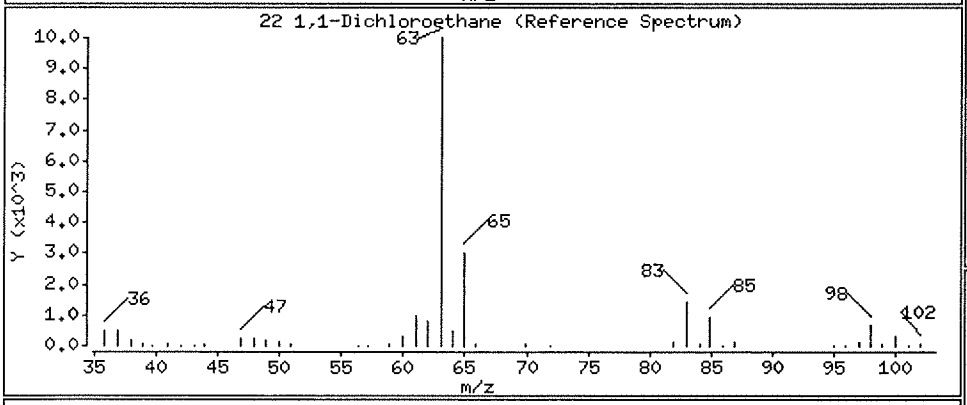
22 1,1-Dichloroethane Concentration: 7.11 ug/l

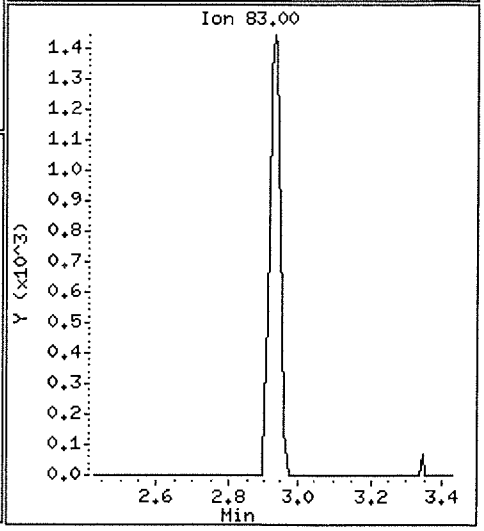


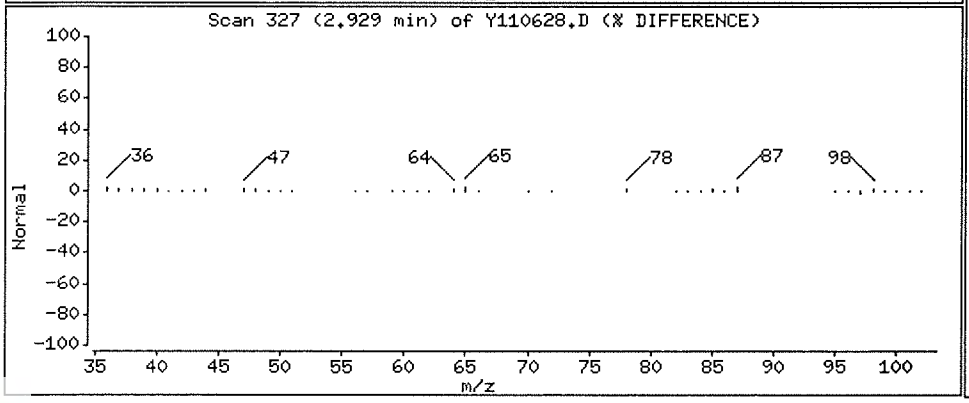



Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110628.D 

Date : 07-NOV-2020 06:05

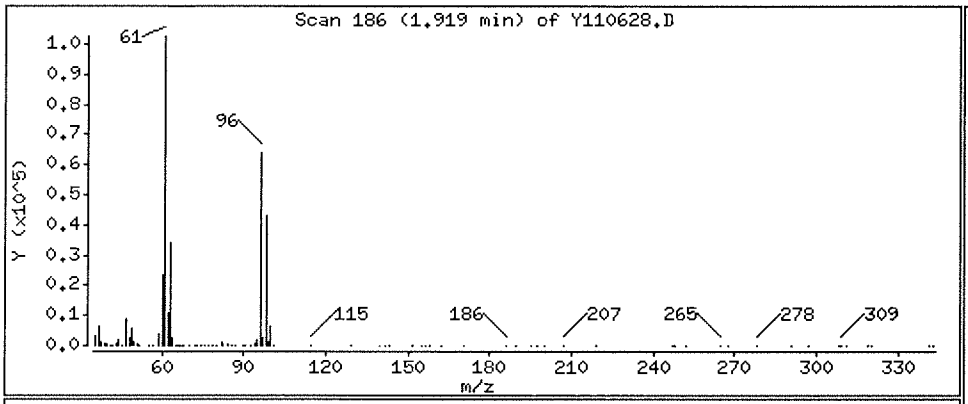
Client ID: HS20110128-17 Instrument: voa6.i

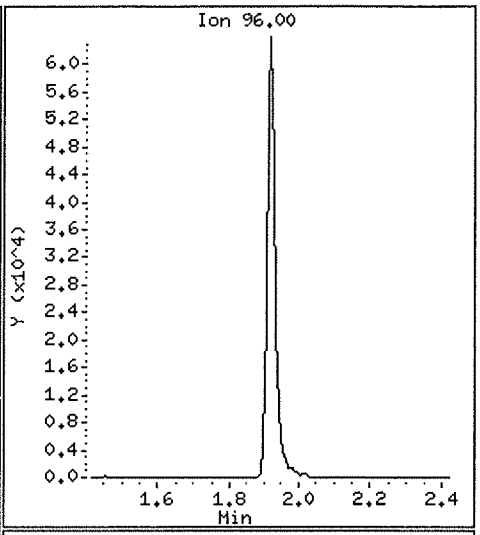
Sample Info: HS20110128-17;HS20110128-17;;;

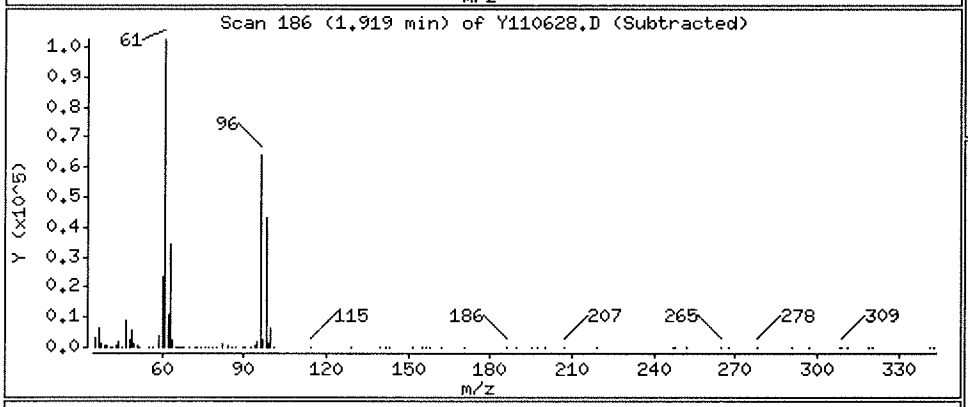
Purge Volume: 5.0 Operator: PC

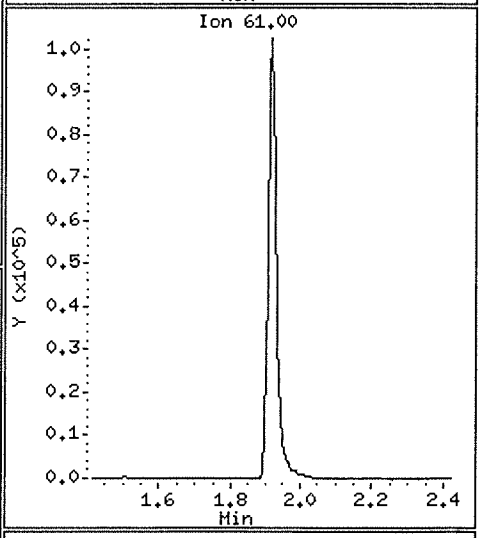
Column phase: DB624 Column diameter: 0.18

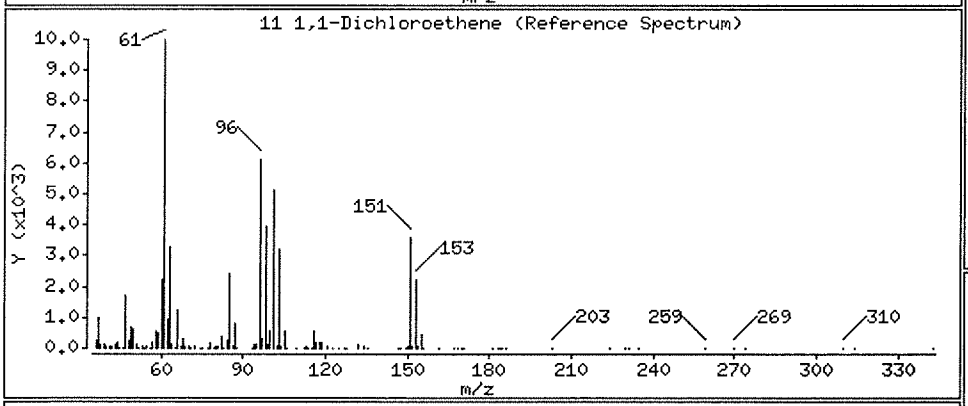
11 1,1-Dichloroethene Concentration: 44.25 ug/l

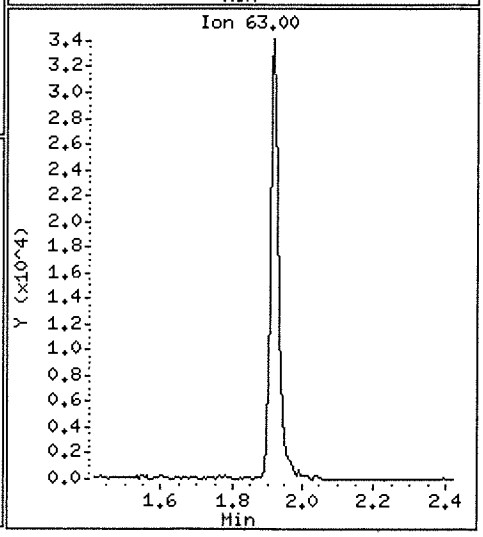


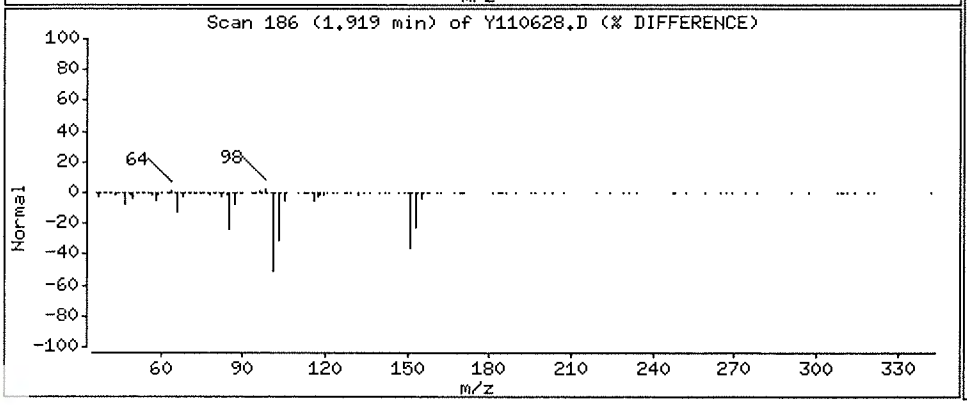



Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110628.D



Date : 07-NOV-2020 06:05

Client ID: HS20110128-17

Instrument: voa6.i

Sample Info: HS20110128-17;HS20110128-17;;;

Purge Volume: 5.0

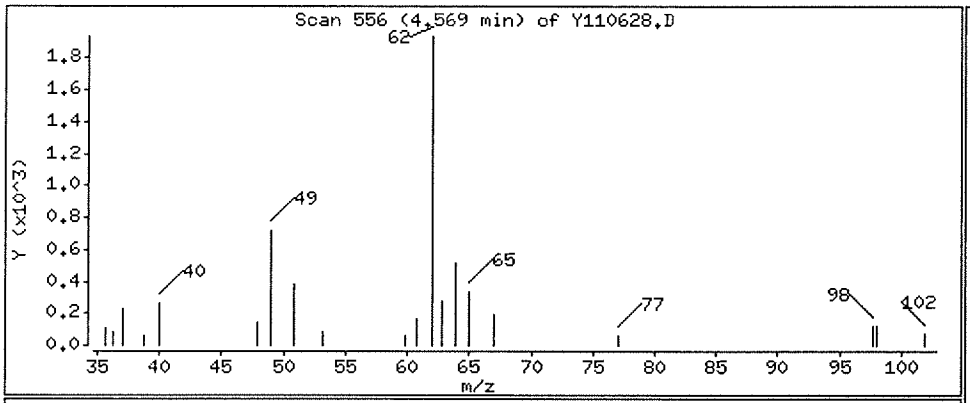
Operator: PC

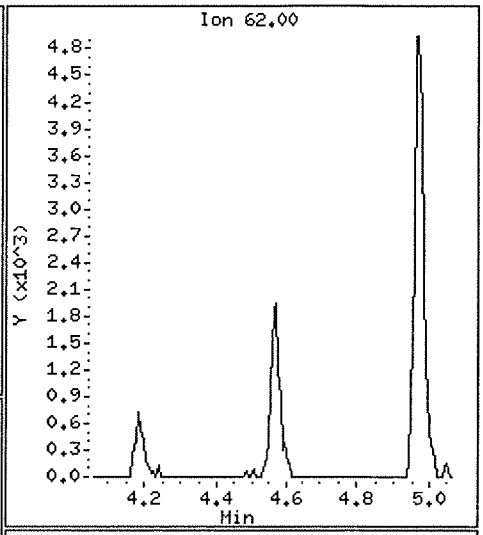
Column phase: DB624

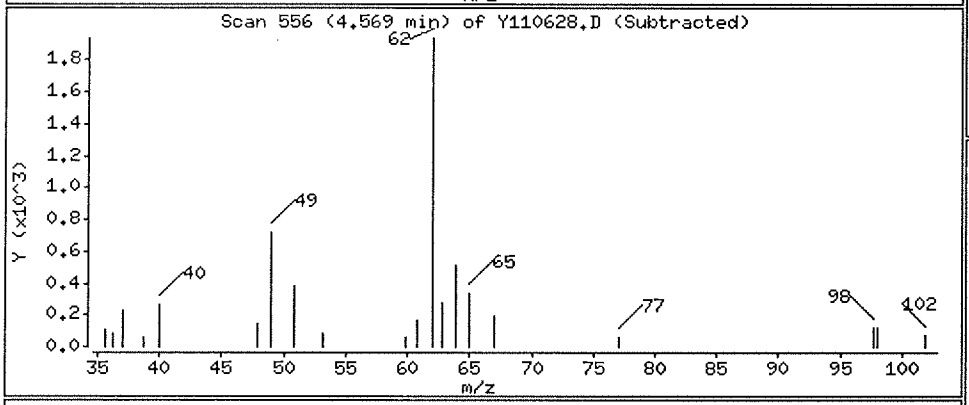
Column diameter: 0.18

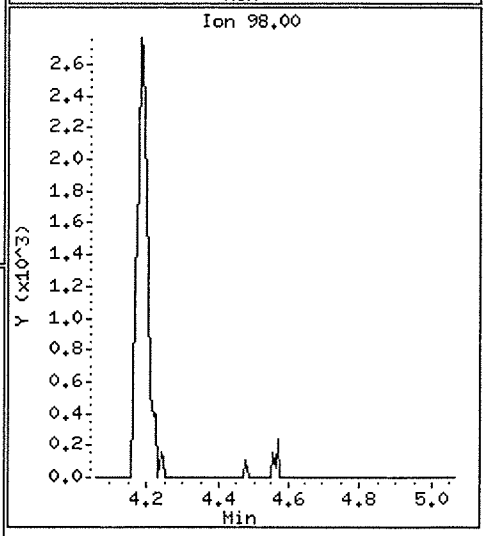
33 1,2-Dichloroethane

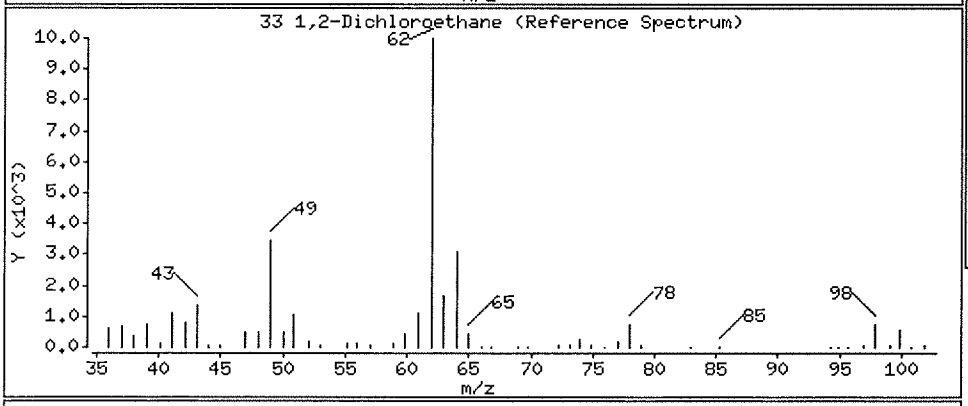
Concentration: 1.59 ug/l

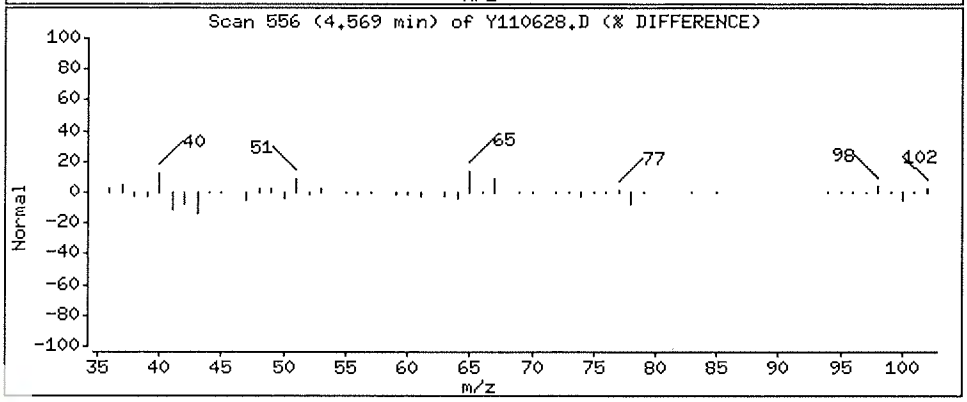


Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110629.D Page 1
Report Date: 13-Jan-2021 18:27

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201106.b\Y110629.D
Lab Smp Id: HS20110128-18 Client Smp ID: HS20110128-18
Inj Date : 07-NOV-2020 06:26
Operator : PC Inst ID: voa6.i
Smp Info : HS20110128-18;HS20110128-18;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201106.b\8260W.m
Meth Date : 13-Jan-2021 18:22 devak.giga Quant Type: ISTD
Cal Date : 03-NOV-2020 14:27 Cal File: X110308.D
Als bottle: 57
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

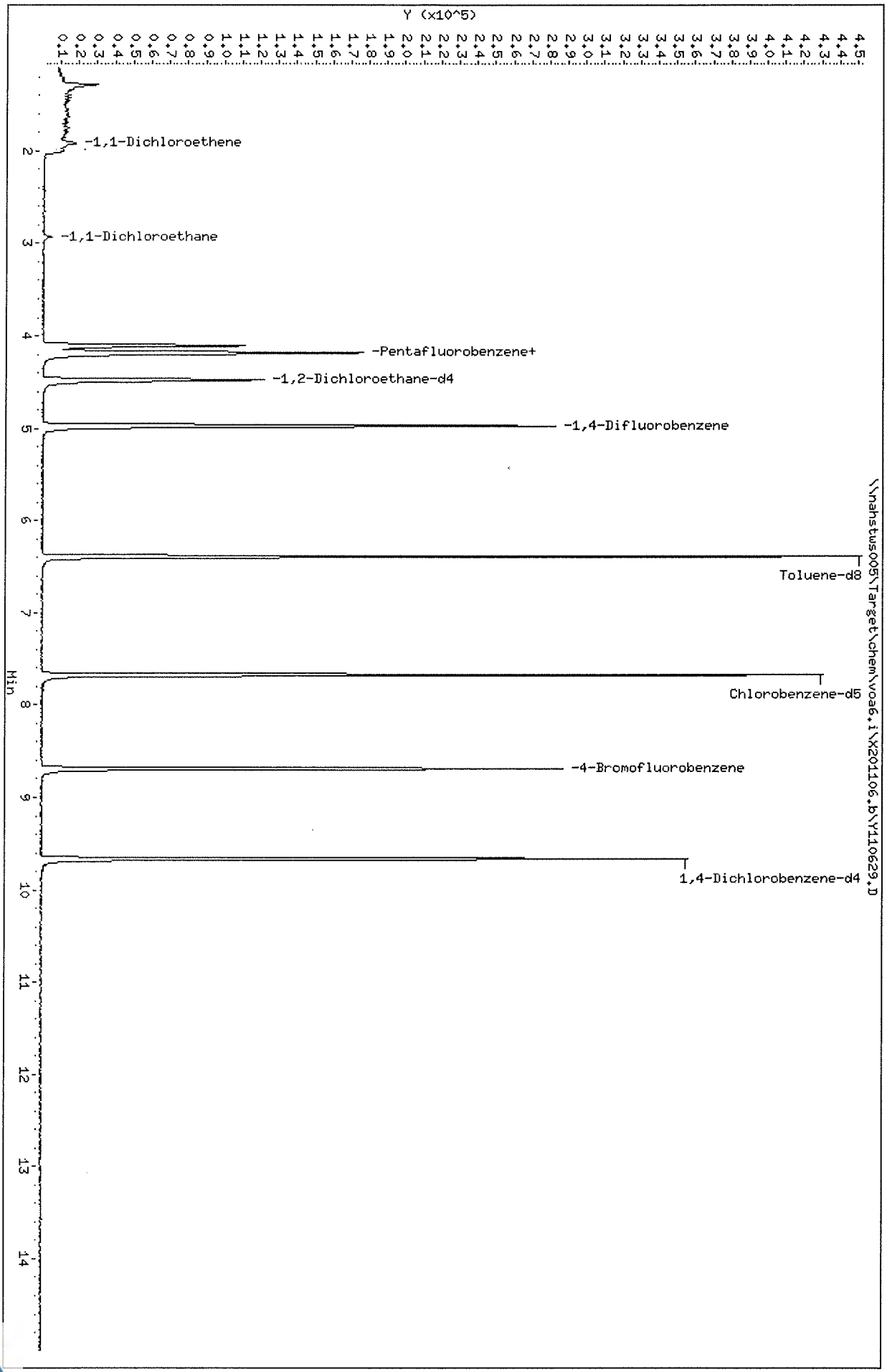
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| * | 1 Pentafluorobenzene | 168 | 4.189 | 4.189 | (1.000) | 124906 | 50.0000 | |
| * | 36 1,4-Difluorobenzene | 114 | 4.970 | 4.970 | (1.000) | 210396 | 50.0000 | |
| * | 47 Chlorobenzene-d5 | 117 | 7.670 | 7.671 | (1.000) | 177769 | 50.0000 | |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 9.662 | 9.662 | (1.000) | 72350 | 50.0000 | |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 4.476 | 4.476 | (1.068) | 85777 | 43.5350 | 43.53 |
| $ | 69 4-Bromofluorobenzene | 95 | 8.688 | 8.688 | (1.133) | 73349 | 46.5978 | 46.59 |
| $ | 30 Dibromofluoromethane | 113 | 4.103 | 4.104 | (0.979) | 71194 | 42.3238 | 42.32 |
| $ | 48 Toluene-d8 | 98 | 6.388 | 6.389 | (0.833) | 241003 | 50.7566 | 50.75 |
| | 22 1,1-Dichloroethane | 63 | 2.929 | 2.929 | (0.699) | 3959 | 1.31863 | 1.31(a) |
| | 11 1,1-Dichloroethene | 96 | 1.911 | 1.919 | (0.456) | 2882 | 1.22294 | 1.22(a) |

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).




Data File: \\nahstws005\Target\chem\voa6,i\X201106,b\Y110629.D
Date : 07-NOV-2020 06:26
Client ID: HS20110128-18
Sample Info: HS20110128-18;HS20110128-18;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6,i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110629.D



Date : 07-NOV-2020 06:26

Client ID: HS20110128-18

Instrument: voa6.i

Sample Info: HS20110128-18;HS20110128-18;;;

Purge Volume: 5.0

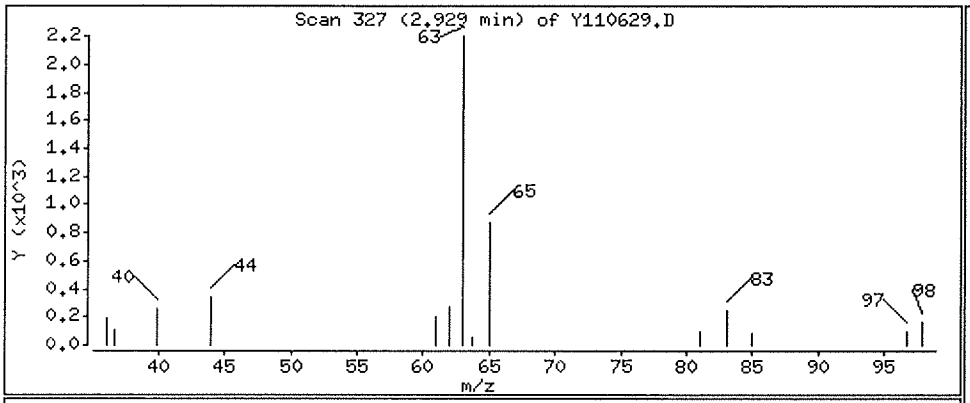
Operator: PC

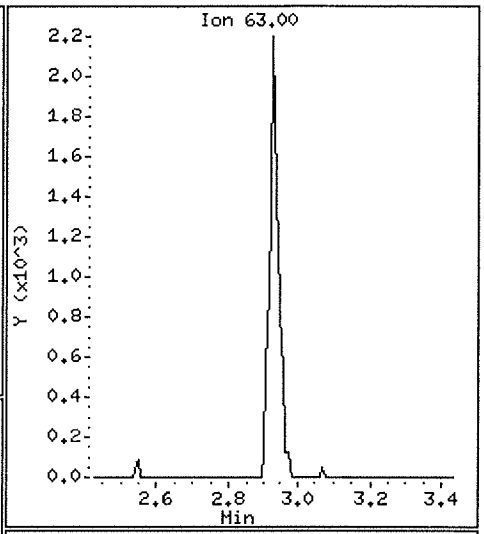
Column phase: DB624

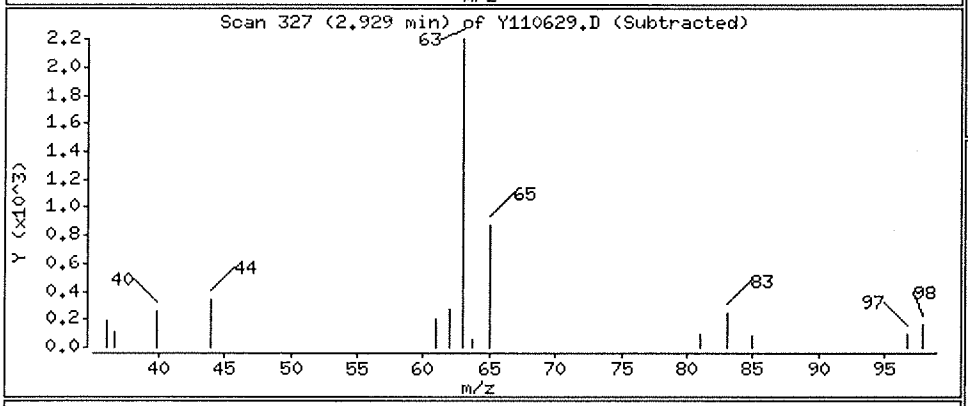
Column diameter: 0.18

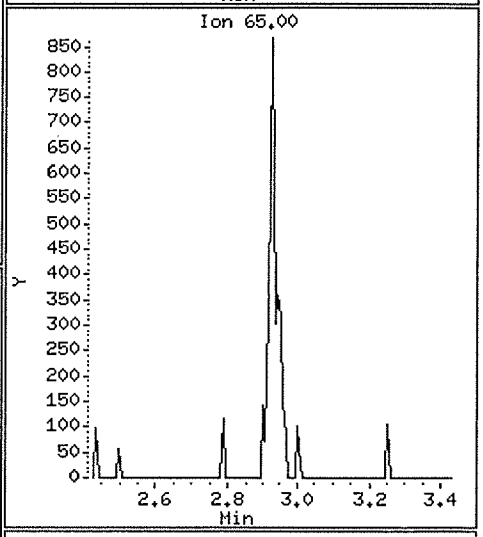
22 1,1-Dichloroethane

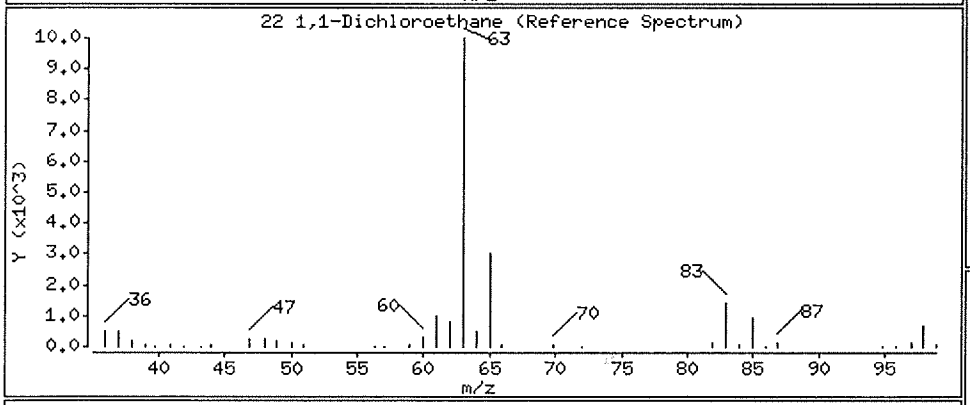
Concentration: 1.31 ug/l

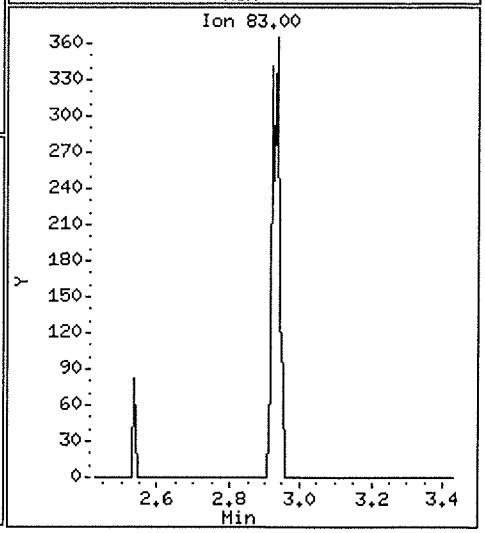


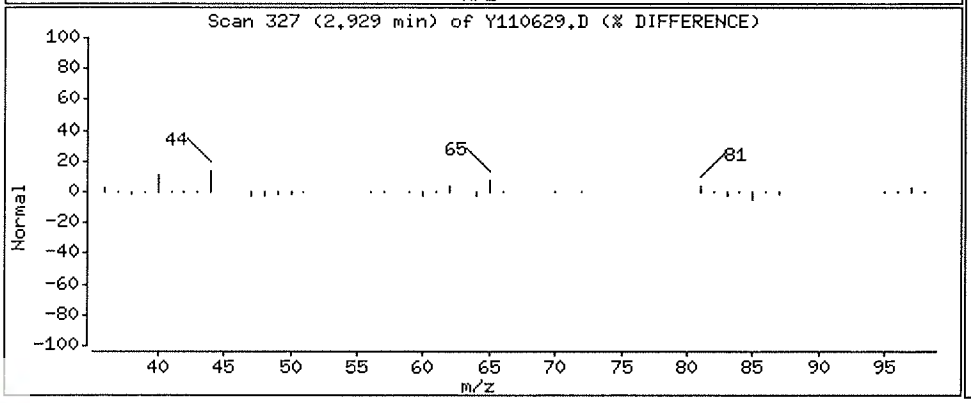



Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110629.D 

Date : 07-NOV-2020 06:26

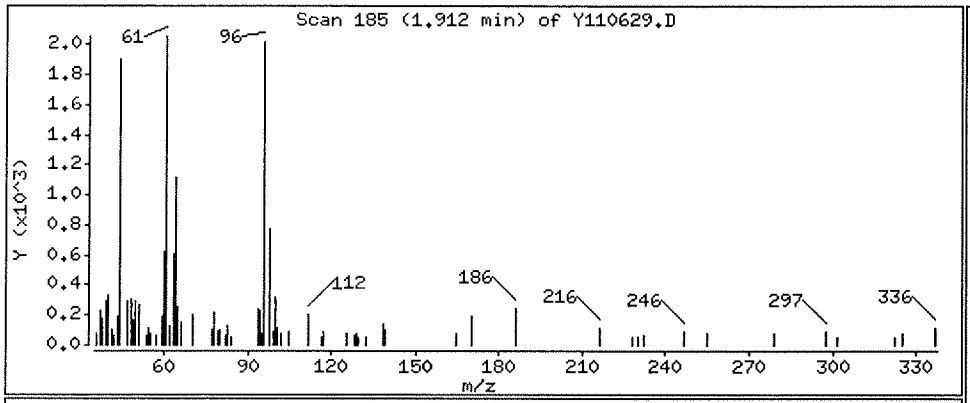
Client ID: HS20110128-18 Instrument: voa6.i

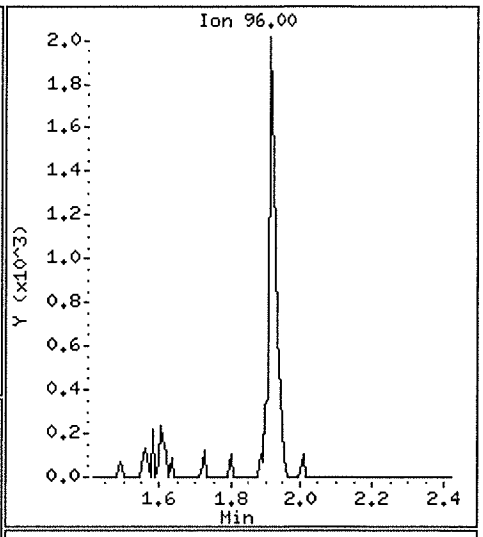
Sample Info: HS20110128-18;HS20110128-18;;;

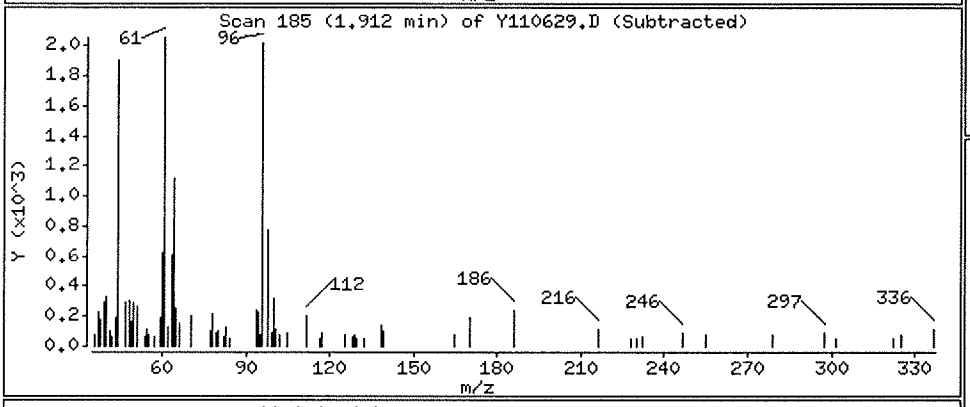
Purge Volume: 5.0 Operator: PC

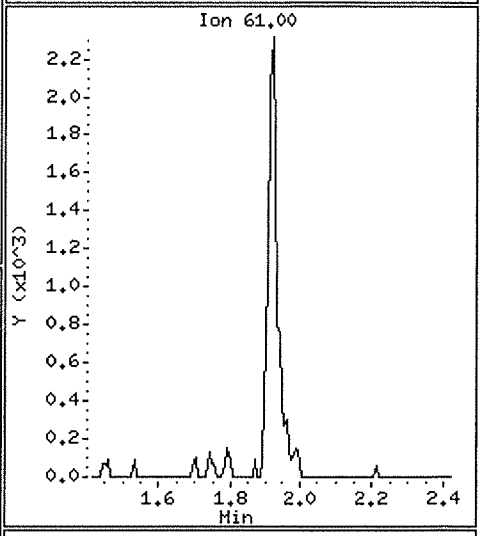
Column phase: DB624 Column diameter: 0.18

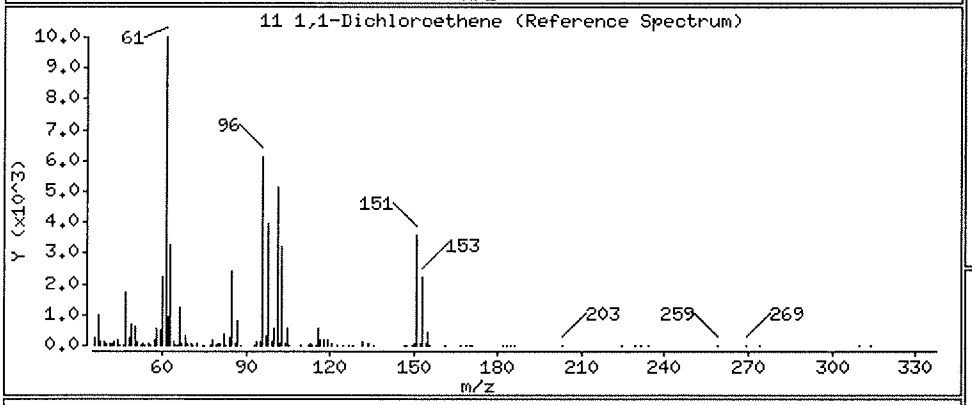
11 1,1-Dichloroethene Concentration: 1.22 ug/l

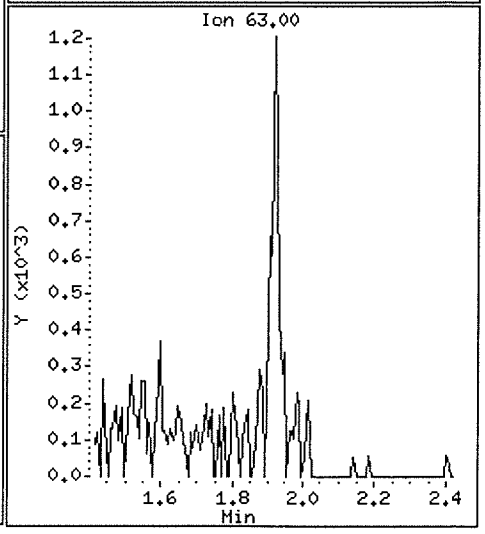


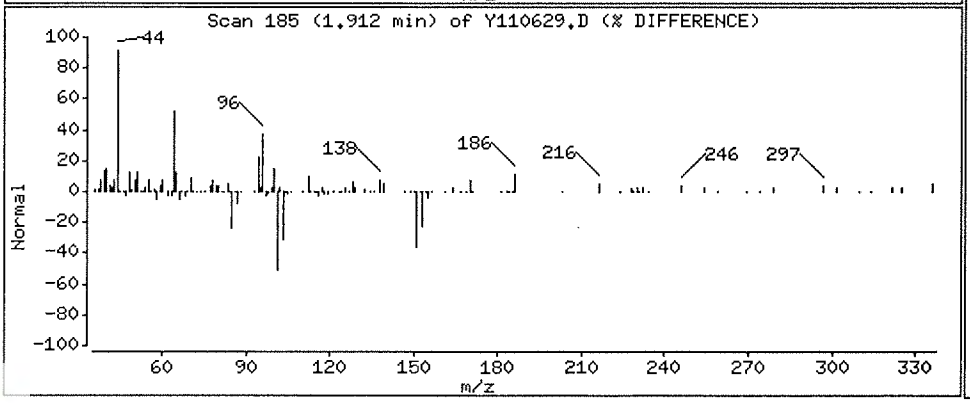



Data File: \\nahstws005\Target\chem\voa6.i\X201106.b\Y110630.D  Page 1
Report Date: 13-Jan-2021 18:50

ALS Laboratory Group

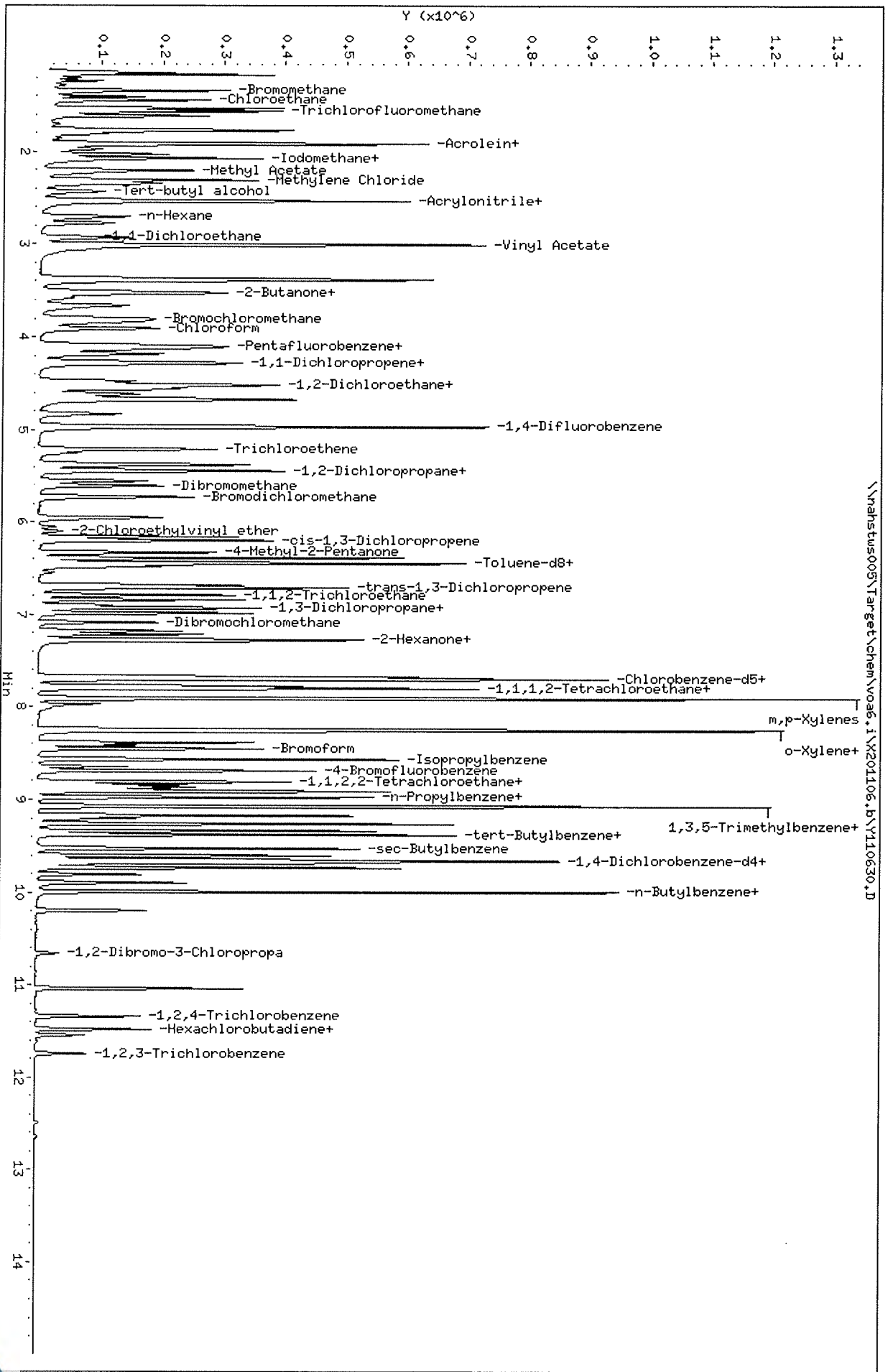
Data file : \\nahstws005\Target\chem\voa6.i\X201106.b\Y110630.D
Lab Smp Id: CCV-END  Client Smp ID: CCV-END
Inj Date : 07-NOV-2020 06:47
Operator : PC  Inst ID: voa6.i
Smp Info : CCV-END;CCV-END;2;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201106.b\8260W.m
Meth Date : 13-Jan-2021 18:50 voa6.i  Quant Type: ISTD
Cal Date : 03-NOV-2020 14:27  Cal File: X110308.D
Als bottle: 58  Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE  Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.182 | 4.182 | (1.000) | 131892 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 4.970 | 4.970 | (1.000) | 259212 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 7.670 | 7.670 | (1.000) | 236742 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 9.662 | 9.662 | (1.000) | 108849 | 50.0000 | |
| $ 35 1,2-Dichloroethane-d4 | 65 | 4.476 | 4.476 | (1.070) | 106059 | 50.0000 | 50.68 |
| $ 69 4-Bromofluorobenzene | 95 | 8.688 | 8.688 | (1.133) | 103606 | 50.0000 | 49.31 |
| $ 30 Dibromofluoromethane | 113 | 4.103 | 4.103 | (0.981) | 89768 | 50.0000 | 50.53 |
| $ 48 Toluene-d8 | 98 | 6.388 | 6.388 | (0.833) | 311082 | 50.0000 | 49.19 |
| 60 1,1,1,2-Tetrachloroethane | 131 | 7.778 | 7.778 | (1.014) | 78461 | 50.0000 | 46.45 |
| 31 1,1,1-Trichloroethane | 97 | 4.089 | 4.089 | (0.978) | 130784 | 50.0000 | 47.49 |
| 68 1,1,2,2-Tetrachloroethane | 83 | 8.838 | 8.838 | (0.915) | 89595 | 50.0000 | 49.87 |
| 138 Freon TF | 101 | 1.919 | 1.919 | (0.459) | 97751 | 50.0000 | 40.59 |
| 53 1,1,2-Trichloroethane | 83 | 6.840 | 6.840 | (0.892) | 70522 | 50.0000 | 48.29 |
| 22 1,1-Dichloroethane | 63 | 2.929 | 2.929 | (0.700) | 144943 | 50.0000 | 45.71 |
| 11 1,1-Dichloroethene | 96 | 1.919 | 1.919 | (0.459) | 116138 | 50.0000 | 46.67 |
| 32 1,1-Dichloropropene | 75 | 4.282 | 4.282 | (0.862) | 107763 | 50.0000 | 44.58 |
| 93 1,2,3-Trichlorobenzene | 180 | 11.746 | 11.746 | (1.216) | 17668 | 50.0000 | 38.29 |
| 71 1,2,3-Trichloropropane | 75 | 8.867 | 8.867 | (0.918) | 103654 | 50.0000 | 67.81 |
| 90 1,2,4-Trichlorobenzene | 180 | 11.338 | 11.338 | (1.173) | 34664 | 50.0000 | 40.02 |
| 79 1,2,4-Trimethylbenzene | 105 | 9.382 | 9.382 | (0.971) | 268720 | 50.0000 | 44.13 |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 10.657 | 10.657 | (1.103) | 5122 | 50.0000 | 42.33 |
| 57 1,2-Dibromoethane | 107 | 7.262 | 7.262 | (0.947) | 86119 | 50.0000 | 48.50 |

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 88 | 1,2-Dichlorobenzene | 146 | 9.991 | 9.991 | (1.034) | 132156 | 50.0000 | 43.99 |
| 33 | 1,2-Dichloroethane | 62 | 4.562 | 4.562 | (0.918) | 128396 | 50.0000 | 45.93 |
| 42 | 1,2-Dichloropropane | 63 | 5.443 | 5.443 | (1.095) | 85332 | 50.0000 | 44.48 |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.067 | 9.067 | (0.938) | 265547 | 50.0000 | 42.75 |
| 83 | 1,3-Dichlorobenzene | 146 | 9.604 | 9.604 | (0.994) | 137227 | 50.0000 | 43.01 |
| 54 | 1,3-Dichloropropane | 76 | 6.983 | 6.983 | (0.910) | 140783 | 50.0000 | 48.53 |
| 84 | 1,4-Dichlorobenzene | 146 | 9.683 | 9.683 | (1.002) | 140376 | 50.0000 | 42.25 |
| 26 | 2,2-Dichloropropane | 77 | 3.516 | 3.516 | (0.841) | 103623 | 50.0000 | 37.97 |
| 24 | 2-Butanone | 43 | 3.580 | 3.580 | (0.856) | 54218 | 100.000 | 88.42 |
| 76 | 2-Chlorotoluene | 91 | 8.974 | 8.974 | (0.929) | 225424 | 50.0000 | 44.09 |
| 52 | 2-Hexanone | 43 | 7.212 | 7.212 | (0.940) | 139624 | 100.000 | 87.73 |
| 77 | 4-Chlorotoluene | 91 | 9.074 | 9.074 | (0.939) | 273806 | 50.0000 | 42.40 |
| 82 | p-Isopropyltoluene | 119 | 9.655 | 9.655 | (0.999) | 246437 | 50.0000 | 41.91 |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.324 | 6.324 | (0.824) | 166321 | 100.000 | 92.47 |
| 10 | Acetone | 43 | 1.976 | 1.976 | (0.473) | 72042 | 100.000 | 99.23 |
| 37 | Benzene | 78 | 4.519 | 4.519 | (0.909) | 326974 | 50.0000 | 45.16 |
| 74 | Bromobenzene | 156 | 8.809 | 8.809 | (0.912) | 87355 | 50.0000 | 45.60 |
| 29 | Bromochloromethane | 128 | 3.802 | 3.802 | (0.909) | 46233 | 50.0000 | 50.89 |
| 39 | Bromodichloromethane | 83 | 5.729 | 5.729 | (1.153) | 124155 | 50.0000 | 46.61 |
| 66 | Bromoform | 173 | 8.415 | 8.415 | (1.097) | 47387 | 50.0000 | 40.97 |
| 6 | Bromomethane | 94 | 1.338 | 1.338 | (0.320) | 114150 | 50.0000 | 46.50 |
| 19 | Carbon Disulfide | 76 | 2.069 | 2.069 | (0.495) | 399864 | 100.000 | 86.47 |
| 34 | Carbon Tetrachloride | 117 | 4.268 | 4.268 | (0.859) | 98919 | 50.0000 | 42.62 |
| 59 | Chlorobenzene | 112 | 7.699 | 7.699 | (1.004) | 221118 | 50.0000 | 43.70 |
| 7 | Chloroethane | 64 | 1.403 | 1.403 | (0.336) | 88648 | 50.0000 | 42.65 |
| 28 | Chloroform | 83 | 3.917 | 3.917 | (0.937) | 157536 | 50.0000 | 46.67 |
| 3 | Chloromethane | 50 | 1.080 | 1.080 | (0.258) | 84272 | 50.0000 | 45.20 |
| 27 | cis-1,2-Dichloroethene | 96 | 3.530 | 3.530 | (0.844) | 88336 | 50.0000 | 45.67 |
| 46 | cis-1,3-Dichloropropene | 75 | 6.159 | 6.159 | (1.239) | 133118 | 50.0000 | 46.03 |
| 55 | Dibromochloromethane | 129 | 7.176 | 7.176 | (0.936) | 85812 | 50.0000 | 49.04 |
| 44 | Dibromomethane | 93 | 5.557 | 5.557 | (1.118) | 62495 | 50.0000 | 47.69 |
| 2 | Dichlorodifluoromethane | 85 | 0.973 | 0.973 | (0.233) | 76015 | 50.0000 | 44.50 |
| 61 | Ethylbenzene | 106 | 7.799 | 7.799 | (1.017) | 111581 | 50.0000 | 43.47 |
| 91 | Hexachlorobutadiene | 225 | 11.481 | 11.481 | (1.188) | 22349 | 50.0000 | 38.78 |
| 67 | Isopropylbenzene | 105 | 8.566 | 8.566 | (1.117) | 310340 | 50.0000 | 40.12 |
| 62 | m,p-Xylenes | 106 | 7.907 | 7.907 | (1.031) | 280855 | 100.000 | 91.35 |
| 17 | Methylene Chloride | 84 | 2.305 | 2.305 | (0.551) | 80319 | 50.0000 | 44.35 |
| 87 | n-Butylbenzene | 91 | 9.998 | 9.998 | (1.035) | 236188 | 50.0000 | 36.75 |
| 73 | n-Propylbenzene | 91 | 8.917 | 8.917 | (0.923) | 371886 | 50.0000 | 42.91 |
| 92 | Naphthalene | 128 | 11.546 | 11.546 | (1.195) | 49718 | 50.0000 | 40.13 |
| 63 | o-Xylene | 106 | 8.244 | 8.244 | (1.075) | 136845 | 50.0000 | 44.66 |
| 81 | sec-Butylbenzene | 105 | 9.526 | 9.526 | (0.986) | 290869 | 50.0000 | 39.55 |
| 64 | Styrene | 104 | 8.258 | 8.258 | (1.077) | 249048 | 50.0000 | 48.47 |
| 78 | tert-Butylbenzene | 119 | 9.339 | 9.339 | (0.967) | 202740 | 50.0000 | 41.35 |
| 56 | Tetrachloroethene | 164 | 6.933 | 6.933 | (0.904) | 56543 | 50.0000 | 43.38 |
| 50 | Toluene | 91 | 6.446 | 6.446 | (0.840) | 361145 | 50.0000 | 41.68 |
| 20 | trans-1,2-Dichloroethene | 96 | 2.535 | 2.535 | (0.606) | 72652 | 50.0000 | 44.21 |
| 51 | trans-1,3-Dichloropropene | 75 | 6.682 | 6.682 | (1.344) | 120980 | 50.0000 | 47.41 |
| 38 | Trichloroethene | 130 | 5.214 | 5.214 | (1.049) | 81132 | 50.0000 | 46.96 |
| 8 | Trichlorofluoromethane | 101 | 1.560 | 1.560 | (0.373) | 221562 | 50.0000 | 44.57 |
| 5 | Vinyl Chloride | 62 | 1.145 | 1.145 | (0.274) | 133720 | 50.0000 | 45.88 |




Data File: \\nahstus005\Target\chem\voa6.i\X201106.b\Y110630.D
Date : 07-NOV-2020 06:47
Client ID: CCV-END
Sample Info: CCV-END;CCV-END;2;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

# MSVOA06 -Logbook

**Batch:** 42433 **Analyst:** Presenta Cabascango

**Date:** 11-09-2020 **Reviewer:**

**Method:** 8260 **Laboratory:** Houston

**Comments:**

| # | Samp ID | Type | Analyzed | DF | Init Wt/Vol | Final Vol | File ID | Matrix | Status | pH |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | BFB | TUNE | 11-09-2020 01:32 pm | 1.00 | 50 mL | 50 mL | X110901.D | Liquid | Y | NA |
| | *Auto find/ purged* | | | | | | | | | |
| 2 | CCV | CCV | 11-09-2020 01:53 pm | 1.00 | 50 mL | 50 mL | X110902a.D | Liquid | Y | NA |
| | *10 uL cal std/50 mL DI* | | | | | | | | | |
| 3 | CCV | CCV | 11-09-2020 02:14 pm | 1.00 | 50 mL | 50 mL | X110903.D | Liquid | Y | NA |
| | *10 uL cal std/50 mL DI* | | | | | | | | | |
| 4 | CCB | SAMP | 11-09-2020 02:35 pm | 1.00 | 50 mL | 50 mL | X110904.D | Liquid | Y | NA |
| 5 | VLCSW-201109 | LCS | 11-09-2020 02:56 pm | 1.00 | 50 mL | 50 mL | X110905.D | Liquid | Y | NA |
| | *4.0 uL cal std/50 mL DI* | | | | | | | | | |
| 6 | BLK | SAMP | 11-09-2020 03:17 pm | 1.00 | 50 mL | 50 mL | X110906.D | Liquid | Y | NA |
| 7 | VBLKW-201109 | MBLK | 11-09-2020 03:38 pm | 1.00 | 50 mL | 50 mL | X110907.D | Liquid | Y | NA |
| 8 | HS20110264-07 | SAMP | 11-09-2020 03:59 pm | 1.00 | 50 mL | 50 mL | X110908.D | Liquid | Y | NA |
| 9 | HS20110264-01 | SAMP | 11-09-2020 04:20 pm | 1.00 | 50 mL | 50 mL | X110909.D | Liquid | Y | NA |
| 10 | HS20110128-10 | SAMP | 11-09-2020 04:41 pm | 5.00 | 10 mL | 50 mL | X110910.D | Liquid | Y | NA |
| 11 | HS20110128-11 | SAMP | 11-09-2020 05:02 pm | 10.00 | 5 mL | 50 mL | X110911.D | Liquid | Y | NA |
| 12 | HS20110128-12 | SAMP | 11-09-2020 05:23 pm | 10.00 | 5 mL | 50 mL | X110912.D | Liquid | Y | NA |
| 13 | HS20110264-01MS | MS | 11-09-2020 05:44 pm | 1.00 | 50 mL | 50 mL | X110913.D | Liquid | Y | NA |
| | *3.5 uL cal std/40 mL samp* | | | | | | | | | |
| 14 | HS20110264-01MSD | MSD | 11-09-2020 06:05 pm | 1.00 | 50 mL | 50 mL | X110914.D | Liquid | Y | NA |
| | *3.5 uL cal std/40 mL samp* | | | | | | | | | |
| 15 | CCV-END | CCV | 11-09-2020 06:26 pm | 1.00 | 50 mL | 50 mL | X110915.D | Liquid | Y | NA |
| | *10 uL cal std/50 mL DI* | | | | | | | | | |
| 16 | HS20110264-02 | SAMP | 11-09-2020 06:47 pm | 1.00 | 50 mL | 50 mL | X110916.D | Liquid | Y | NA |
| 17 | HS20110264-03 | SAMP | 11-09-2020 07:08 pm | 1.00 | 50 mL | 50 mL | X110917.D | Liquid | Y | NA |
| 18 | HS20110264-04 | SAMP | 11-09-2020 07:29 pm | 1.00 | 50 mL | 50 mL | X110918.D | Liquid | Y | NA |
| 19 | HS20110264-05 | SAMP | 11-09-2020 07:50 pm | 25.00 | 2 mL | 50 mL | X110919.D | Liquid | Y | NA |
| 20 | HS20110264-05 | SAMP | 11-09-2020 08:12 pm | 250.0( | 200 µL | 50 mL | X110920.D | Liquid | Y | NA |
| 21 | HS20110264-06 | SAMP | 11-09-2020 08:33 pm | 25.00 | 2 mL | 50 mL | X110921.D | Liquid | Y | NA |
| 22 | HS20110264-06 | SAMP | 11-09-2020 08:54 pm | 250.0( | 200 µL | 50 mL | X110922.D | Liquid | Y | NA |
| 23 | HS20110197-02 | SAMP | 11-09-2020 09:15 pm | 100.0( | 500 µL | 50 mL | X110923.D | Liquid | Y | NA |
| 24 | HS20110197-08 | SAMP | 11-09-2020 09:36 pm | 100.0( | 500 µL | 50 mL | X110924.D | Liquid | Y | NA |
| 25 | HS20110345-06 | SAMP | 11-09-2020 09:57 pm | 1.00 | 50 mL | 50 mL | X110925.D | Liquid | Y | NA |
| 26 | HS20110365-02 | SAMP | 11-09-2020 10:18 pm | 1.00 | 50 mL | 50 mL | X110926.D | Liquid | Y | NA |
| 27 | HS20110097-01 | SAMP | 11-09-2020 10:39 pm | 1.00 | 50 mL | 50 mL | X110927.D | Liquid | Y | NA |
| 28 | HS20110097-01 | SAMP | 11-09-2020 11:00 pm | 10.00 | 5 mL | 50 mL | X110928.D | Liquid | Y | NA |
| 29 | HS20110097-02 | SAMP | 11-09-2020 11:21 pm | 1.00 | 50 mL | 50 mL | X110929.D | Liquid | Y | NA |
| 30 | HS20110097-02 | SAMP | 11-09-2020 11:42 pm | 10.00 | 5 mL | 50 mL | X110930.D | Liquid | Y | NA |
| 31 | BFB | TUNE | 11-10-2020 12:03 am | 1.00 | 50 mL | 50 mL | Z110901.D | Liquid | Y | NA |
| | *Auto find/ purged* | | | | | | | | | |
| 32 | BFB | TUNE | 11-10-2020 12:24 am | 1.00 | 50 mL | 50 mL | Z110902.D | Liquid | Y | NA |
| | *Auto find /p urged* | | | | | | | | | |
| 33 | CCV | CCV | 11-10-2020 12:45 am | 1.00 | 50 mL | 50 mL | Z110903.D | Liquid | Y | NA |
| | *10 uL cal std/50 mL DI* | | | | | | | | | |
| 34 | CCB | SAMP | 11-10-2020 01:06 am | 1.00 | 50 mL | 50 mL | Z110904.D | Liquid | Y | NA |
| 35 | VLCSW-201109 | LCS | 11-10-2020 01:27 am | 1.00 | 50 mL | 50 mL | Z110905.D | Liquid | Y | NA |
| | *4.0 uL cal std/50 mL DI* | | | | | | | | | |

# MSVOA06 -Logbook

| # | Samp ID | Type | Analyzed | DF | Init Wt/Vol | Final Vol | File ID | Matrix | Status | pH |
|---|---|---|---|---|---|---|---|---|---|---|
| 36 | BLK | SAMP | 11-10-2020 01:48 am | 1.00 | 50 mL | 50 mL | Z110906.D | Liquid | Y | NA |
| 37 | VBLKW-201109 | MBLK | 11-10-2020 02:09 am | 1.00 | 50 mL | 50 mL | Z110907.D | Liquid | Y | NA |
| 38 | HS20110246-11 | SAMP | 11-10-2020 02:30 am | 1.00 | 50 mL | 50 mL | Z110908.D | Liquid | Y | NA |
| 39 | HS20110160-01 | SAMP | 11-10-2020 02:51 am | 20.00 | 2.5 mL | 50 mL | Z110909.D | Liquid | Y | NA |
| 40 | HS20110165-01 | SAMP | 11-10-2020 03:12 am | 100.0( | 500 µL | 50 mL | Z110910.D | Liquid | Y | NA |
| 41 | HS20110162-01 | SAMP | 11-10-2020 03:33 am | 500.0( | 100 µL | 50 mL | Z110911.D | Liquid | Y | NA |
| 42 | HS20110246-11MS | MS | 11-10-2020 03:54 am | 1.00 | 50 mL | 50 mL | Z110912.D | Liquid | Y | NA |
| | *3.5 uL cal std/40 mL samp* | | | | | | | | | |
| 43 | HS20110246-11MSD | MSD | 11-10-2020 04:15 am | 1.00 | 50 mL | 50 mL | Z110913.D | Liquid | Y | NA |
| | *3.5 uL cal std/40 mL samp* | | | | | | | | | |
| 44 | BLANK | SAMP | 11-10-2020 04:37 am | 1.00 | 50 mL | 50 mL | Z110914.D | Liquid | Y | NA |
| 45 | HS20110246-01 | SAMP | 11-10-2020 04:58 am | 1.00 | 50 mL | 50 mL | Z110915.D | Liquid | Y | NA |
| 46 | HS20110246-02 | SAMP | 11-10-2020 05:19 am | 1.00 | 50 mL | 50 mL | Z110916.D | Liquid | Y | NA |
| 47 | HS20110246-03 | SAMP | 11-10-2020 05:40 am | 1.00 | 50 mL | 50 mL | Z110917.D | Liquid | Y | NA |
| 48 | HS20110246-04 | SAMP | 11-10-2020 06:01 am | 1.00 | 50 mL | 50 mL | Z110918.D | Liquid | Y | NA |
| 49 | HS20110246-06 | SAMP | 11-10-2020 06:22 am | 1.00 | 50 mL | 50 mL | Z110919.D | Liquid | Y | NA |
| 50 | HS20110246-07 | SAMP | 11-10-2020 06:43 am | 1.00 | 50 mL | 50 mL | Z110920.D | Liquid | Y | NA |
| 51 | HS20110246-08 | SAMP | 11-10-2020 07:04 am | 1.00 | 50 mL | 50 mL | Z110921.D | Liquid | Y | NA |
| 52 | HS20110246-09 | SAMP | 11-10-2020 07:25 am | 1.00 | 50 mL | 50 mL | Z110922.D | Liquid | Y | NA |
| 53 | HS20110246-10 | SAMP | 11-10-2020 07:46 am | 1.00 | 50 mL | 50 mL | Z110923.D | Liquid | Y | NA |
| 54 | HS20110246-12 | SAMP | 11-10-2020 08:07 am | 1.00 | 50 mL | 50 mL | Z110924.D | Liquid | Y | NA |
| 55 | HS20110246-13 | SAMP | 11-10-2020 08:28 am | 1.00 | 50 mL | 50 mL | Z110925.D | Liquid | Y | NA |
| 56 | HS20110246-14 | SAMP | 11-10-2020 08:49 am | 1.00 | 50 mL | 50 mL | Z110926.D | Liquid | Y | NA |
| 57 | HS20110246-15 | SAMP | 11-10-2020 09:11 am | 1.00 | 50 mL | 50 mL | Z110927.D | Liquid | Y | NA |
| 58 | HS20110246-16 | SAMP | 11-10-2020 09:32 am | 1.00 | 50 mL | 50 mL | Z110928.D | Liquid | Y | NA |
| 59 | HS20110246-05 | SAMP | 11-10-2020 09:53 am | 1.00 | 50 mL | 50 mL | Z110929.D | Liquid | Y | NA |
| 60 | HS20110246-05 | SAMP | 11-10-2020 10:14 am | 1.00 | 50 mL | 50 mL | Z110930.D | Liquid | Y | NA |

| Chemical | Value |
|---|---|
| SURR SPK ID | 31106-55-06 |
| IS ID | 31106-55-06 |
| CAL STD ID | 31106-55-01/02 |
| BFB ID | 31106-*55-06 |
| pH Paper | 634-64-10 |

# FORM 2
## WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20110128

| | CLIENT SAMPLE NO. | SMC1 # | SMC2 # | SMC3 (TOL) # | OTHER (DCE) # | TOT OUT |
|---|---|---|---|---|---|---|
| 01 | VLCSW-201109 | 95 | 98 | 94 | 108 | 0 |
| 02 | VBLKW-201109 | 90 | 86 | 100 | 93 | 0 |
| 03 | HS20110128-10 | 98 | 88 | 103 | 94 | 0 |
| 04 | HS20110128-11 | 88 | 82 | 101 | 96 | 0 |
| 05 | HS20110128-12 | 95 | 89 | 99 | 96 | 0 |
| 06 | HS20110264-01 | 97 | 95 | 100 | 97 | 0 |
| 07 | HS20110264-01 | 97 | 91 | 99 | 93 | 0 |
| 08 | | | | | | |
| 09 | | | | | | |
| 10 | | | | | | |
| 11 | | | | | | |
| 12 | | | | | | |
| 13 | | | | | | |
| 14 | | | | | | |
| 15 | | | | | | |
| 16 | | | | | | |
| 17 | | | | | | |
| 18 | | | | | | |
| 19 | | | | | | |
| 20 | | | | | | |
| 21 | | | | | | |
| 22 | | | | | | |
| 23 | | | | | | |
| 24 | | | | | | |
| 25 | | | | | | |
| 26 | | | | | | |
| 27 | | | | | | |
| 28 | | | | | | |

| | | QC LIMITS |
|---|---|---|
| SMC1 | = 4-Bromofluorobenzene | (70-130) |
| SMC2 | = Dibromofluoromethane | (70-130) |
| SMC3 (TOL) | = Toluene-d8 | ( 0-130) |
| OTHER(DCE) | = 1,2-Dichloroethane-d4 | ( 0-130) |

# Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

VBLKW-201109

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20110128

Lab File ID: X110907 Lab Sample ID: VBLKW-201109

Date Analyzed: 11/09/20 Time Analyzed: 1538

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: VOA6

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

| | SAMPLE NO. | LAB SAMPLE ID | LAB FILE ID | TIME ANALYZED |
|---|---|---|---|---|
| 01 | VLCSW-201109 | VLCSW-201109 | X110905 | 1456 |
| 02 | HS20110128-1 | HS20110128-10 | X110910 | 1641 |
| 03 | HS20110128-1 | HS20110128-11 | X110911 | 1702 |
| 04 | HS20110128-1 | HS20110128-12 | X110912 | 1723 |
| 05 | HS20110264-0 | HS20110264-01M | X110913 | 1744 |
| 06 | HS20110264-0 | HS20110264-01M | X110914 | 1805 |
| 07 | | | | |
| 08 | | | | |
| 09 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |
| 15 | | | | |
| 16 | | | | |
| 17 | | | | |
| 18 | | | | |
| 19 | | | | |
| 20 | | | | |
| 21 | | | | |
| 22 | | | | |
| 23 | | | | |
| 24 | | | | |
| 25 | | | | |
| 26 | | | | |
| 27 | | | | |
| 28 | | | | |
| 29 | | | | |
| 30 | | | | |

COMMENTS:

# FORM 5
## VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
## BROMOFLUOROBENZENE (BFB)

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20110128

Lab File ID: X110901 BFB Injection Date: 11/09/20

Instrument ID: VOA6 BFB Injection Time: 1332

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) N

| m/e | ION ABUNDANCE CRITERIA | % RELATIVE ABUNDANCE |
|---|---|---|
| 50 | 15.0 - 40.0% of mass 95 | 30.0 |
| 75 | 30.0 - 60.0% of mass 95 | 59.6 |
| 95 | Base Peak, 100% relative abundance | 100.0 |
| 96 | 5.0 - 9.0% of mass 95 | 5.6 |
| 173 | Less than 2.0% of mass 174 | 1.3 ( 1.7)1 |
| 174 | Greater than 50.0% of mass 95 | 76.5 |
| 175 | 5.0 - 9.0% of mass 174 | 6.6 ( 8.6)1 |
| 176 | 95.0 - 101.0% of mass 174 | 73.8 ( 96.6)1 |
| 177 | 5.0 - 9.0% of mass 176 | 4.5 ( 6.1)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 | CCV | CCV | X110903 | 11/09/20 | 1414 |
| 02 | VLCSW-201109 | VLCSW-201109 | X110905 | 11/09/20 | 1456 |
| 03 | VBLKW-201109 | VBLKW-201109 | X110907 | 11/09/20 | 1538 |
| 04 | HS20110128-1 | HS20110128-10 | X110910 | 11/09/20 | 1641 |
| 05 | HS20110128-1 | HS20110128-11 | X110911 | 11/09/20 | 1702 |
| 06 | HS20110128-1 | HS20110128-12 | X110912 | 11/09/20 | 1723 |
| 07 | HS20110264-0 | HS20110264-01M | X110913 | 11/09/20 | 1744 |
| 08 | HS20110264-0 | HS20110264-01M | X110914 | 11/09/20 | 1805 |
| 09 | CCV-END | CCV-END | X110915 | 11/09/20 | 1826 |
| 10 | | | | | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |
| 16 | | | | | |
| 17 | | | | | |
| 18 | | | | | |
| 19 | | | | | |
| 20 | | | | | |
| 21 | | | | | |
| 22 | | | | | |

# FORM 7B
## VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20110128

Instrument ID: VOA6 Calibration Date: 11/09/20 Time: 1414

Lab File ID: X110903 Init. Calib. Date(s): 11/03/20 11/03/20

Init. Calib. Times: 1107 1530

GC Column: DB624 ID: 0.18 (mm)

| COMPOUND | RRF or AMOUNT | RRF50.000 or AMOUNT | CCAL RRF50.000 | MIN RRF | %D or %DRIFT | MAX %D or %DRIFT | CURV TYPE | |
|---|---|---|---|---|---|---|---|---|
| cis-1,3-Dichloropropene | 0.5580000 | 0.5824654 | 0.5824654 | 0.2 | -4.38 | 20.00 | AVRG | |
| trans-1,3-Dichloropropene | 0.4920000 | 0.5427893 | 0.5427893 | 0.1 | -10.32 | 20.00 | AVRG | |
| 1,3-Dichlorobenzene | 1.4650000 | 1.4735979 | 1.4735979 | 0.6 | -0.59 | 20.00 | AVRG | |
| 2,2-Dichloropropane | 1.0340000 | 1.0542329 | 1.0542329 | 0.1 | -1.96 | 20.00 | AVRG | |
| 1,1-Dichloropropene | 0.4660000 | 0.4537009 | 0.4537009 | 0.1 | 2.64 | 20.00 | AVRG | |
| Dibromomethane | 0.2530000 | 0.2736720 | 0.2736720 | 0.1 | -8.17 | 20.00 | AVRG | |
| 1,2-Dibromoethane | 0.3750000 | 0.4005451 | 0.4005451 | 0.1 | -6.81 | 20.00 | AVRG | |
| trans-1,2-Dichloroethene | 0.6230000 | 0.6850088 | 0.6850088 | 0.1 | -9.95 | 20.00 | AVRG | |
| 1,1,1,2-Tetrachloroethane | 0.3560000 | 0.3284114 | 0.3284114 | 0.1 | 7.75 | 20.00 | AVRG | |
| 1,1,1-Trichloroethane | 1.0440000 | 1.0993294 | 1.0993294 | 0.1 | -5.30 | 20.00 | AVRG | |
| 1,1,2,2-Tetrachloroethane | 61.724529 | 50.000000 | 1.0164644 | 0.3 | -23.45 | 20.00 | LINR | <- |
| Toluene | 1.8300000 | 1.6591642 | 1.6591642 | 0.4 | 9.34 | 20.00 | AVRG | |
| 1,1,2-Trichloroethane | 0.3080000 | 0.3316289 | 0.3316289 | 0.1 | -7.67 | 20.00 | AVRG | |
| 1,1-Dichloroethane | 1.2020000 | 1.2766998 | 1.2766998 | 0.2 | -6.21 | 20.00 | AVRG | |
| 1,1-Dichloroethene | 0.9430000 | 1.0830605 | 1.0830605 | 0.1 | -14.85 | 20.00 | AVRG | |
| Trichlorofluoromethane | 1.8840000 | 2.0312779 | 2.0312779 | 0.1 | -7.82 | 20.00 | AVRG | |
| 1,2,3-Trichlorobenzene | 62.541282 | 50.000000 | 0.2700448 | 0.01 | -25.08 | 20.00 | LINR | <- |
| Tetrachloroethene | 0.2750000 | 0.2535416 | 0.2535416 | 0.2 | 7.80 | 20.00 | AVRG | |
| 1,2,4-Trichlorobenzene | 58.628506 | 50.000000 | 0.4733465 | 0.1 | -17.26 | 20.00 | LINR | |
| 1,2,4-Trimethylbenzene | 2.7970000 | 2.8180934 | 2.8180934 | 0.1 | -0.75 | 20.00 | AVRG | |
| tert-Butylbenzene | 46.256844 | 50.000000 | 2.0975183 | 0.1 | 7.49 | 20.00 | LINR | |
| Trichloroethene | 0.3330000 | 0.3399539 | 0.3399539 | 0.2 | -2.09 | 20.00 | AVRG | |
| 1,2-Dichlorobenzene | 1.3800000 | 1.3981633 | 1.3981633 | 0.4 | -1.32 | 20.00 | AVRG | |
| 1,2-Dichloroethane | 0.5390000 | 0.5670395 | 0.5670395 | 0.1 | -5.20 | 20.00 | AVRG | |
| 1,2-Dichloropropane | 0.3700000 | 0.3976776 | 0.3976776 | 0.1 | -7.48 | 20.00 | AVRG | |
| 1,3,5-Trimethylbenzene | 2.8530000 | 2.7733246 | 2.7733246 | 0.1 | 2.79 | 20.00 | AVRG | |
| 1,3-Dichloropropane | 0.6120000 | 0.6421080 | 0.6421080 | 0.1 | -4.92 | 20.00 | AVRG | |
| 1,4-Dichlorobenzene | 1.5260000 | 1.5210889 | 1.5210889 | 0.4 | 0.32 | 20.00 | AVRG | |
| 2-Butanone | 0.2320000 | 0.3010634 | 0.3010634 | 0.1 | -29.77 | 20.00 | AVRG | <- |
| 2-Chlorotoluene | 2.3480000 | 2.2929376 | 2.2929376 | 0.1 | 2.34 | 20.00 | AVRG | |
| 2-Hexanone | 101.45427 | 100.00000 | 0.3430261 | 0.1 | -1.45 | 20.00 | LINR | |
| 4-Chlorotoluene | 2.9660000 | 2.9623264 | 2.9623264 | 0.1 | 0.12 | 20.00 | AVRG | |
| Styrene | 1.0850000 | 1.1435298 | 1.1435298 | 0.3 | -5.39 | 20.00 | AVRG | |
| 4-Methyl-2-Pentanone | 0.3800000 | 0.4453886 | 0.4453886 | 0.1 | -17.21 | 20.00 | AVRG | |
| Acetone | 170.31501 | 100.00000 | 0.4529095 | 0.1 | -70.32 | 20.00 | LINR | <- |
| Benzene | 1.3960000 | 1.4569352 | 1.4569352 | 0.5 | -4.36 | 20.00 | AVRG | |
| Bromobenzene | 0.8800000 | 0.9013119 | 0.9013119 | 0.1 | -2.42 | 20.00 | AVRG | |
| Bromochloromethane | 0.3440000 | 0.3712577 | 0.3712577 | 0.1 | -7.92 | 20.00 | AVRG | |
| Bromodichloromethane | 0.5140000 | 0.5242051 | 0.5242051 | 0.2 | -1.98 | 20.00 | AVRG | |
| Bromoform | 41.704092 | 50.000000 | 0.2040435 | 0.1 | 16.59 | 20.00 | LINR | |
| Bromomethane | 0.9300000 | 1.1235046 | 1.1235046 | 0.1 | -20.81 | 20.00 | AVRG | <- |
| Carbon Disulfide | 1.7530000 | 2.0076434 | 2.0076434 | 0.1 | -14.53 | 20.00 | AVRG | |



FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2011012

Instrument ID: VOA6 Calibration Date: 11/09/20 Time: 1414

Lab File ID: X110903 Init. Calib. Date(s): 11/03/20 11/03/20

Init. Calib. Times: 1107 1530

GC Column: DB624 ID: 0.18 (mm)

| COMPOUND | RRF or AMOUNT | RRF50.000 or AMOUNT | CCAL RRF50.000 | MIN RRF | %D or %DRIFT | MAX %D or %DRIFT | CURV TYPE | |
|---|---|---|---|---|---|---|---|---|
| Carbon Tetrachloride | 0.4480000 | 0.3668258 | 0.3668258 | 0.1 | 18.12 | 20.00 | AVRG | |
| Chlorobenzene | 1.0680000 | 1.0040527 | 1.0040527 | 0.5 | 5.99 | 20.00 | AVRG | |
| Chloroethane | 0.7880000 | 0.9441303 | 0.9441303 | 0.1 | -19.81 | 20.00 | AVRG | |
| Chloroform | 1.2790000 | 1.4163244 | 1.4163244 | 0.2 | -10.74 | 20.00 | AVRG | |
| Chloromethane | 60.878494 | 50.000000 | 0.8648890 | 0.1 | -21.76 | 20.00 | LINR | <- |
| cis-1,2-Dichloroethene | 0.7330000 | 0.7851914 | 0.7851914 | 0.1 | -7.12 | 20.00 | AVRG | |
| Dibromochloromethane | 0.3700000 | 0.3626927 | 0.3626927 | 0.1 | 1.97 | 20.00 | AVRG | |
| Dichlorodifluoromethane | 0.6470000 | 0.6676785 | 0.6676785 | 0.1 | -3.20 | 20.00 | AVRG | |
| Ethylbenzene | 0.5420000 | 0.5324241 | 0.5324241 | 0.1 | 1.77 | 20.00 | AVRG | |
| Hexachlorobutadiene | 50.898808 | 50.000000 | 0.2735760 | 0.1 | -1.80 | 20.00 | LINR | |
| Isopropylbenzene | 46.035503 | 50.000000 | 1.5175301 | 0.1 | 7.93 | 20.00 | LINR | |
| m,p-Xylenes | 0.6490000 | 0.6576322 | 0.6576322 | 0.1 | -1.33 | 20.00 | AVRG | |
| Methylene Chloride | 0.6860000 | 0.7307898 | 0.7307898 | 0.1 | -6.53 | 20.00 | AVRG | |
| n-Butylbenzene | 45.020512 | 50.000000 | 2.7111840 | 0.5 | 9.96 | 20.00 | LINR | |
| n-Propylbenzene | 3.9810000 | 4.1084727 | 4.1084727 | 0.1 | -3.20 | 20.00 | AVRG | |
| Naphthalene | 67.069381 | 50.000000 | 0.7805729 | 0.2 | -34.14 | 20.00 | LINR | <- |
| o-Xylene | 0.6470000 | 0.6143284 | 0.6143284 | 0.3 | 5.05 | 20.00 | AVRG | |
| sec-Butylbenzene | 46.411731 | 50.000000 | 3.1681644 | 0.1 | 7.18 | 20.00 | LINR | |
| Vinyl Chloride | 1.1050000 | 1.3364482 | 1.3364482 | 0.1 | -20.94 | 20.00 | AVRG | <- |
| 1,2,3-Trichloropropane | 0.7020000 | 1.0951569 | 1.0951569 | 0.1 | -56.00 | 20.00 | AVRG | <- |
| p-Isopropyltoluene | 2.7000000 | 2.6686017 | 2.6686017 | 0.1 | 1.16 | 20.00 | AVRG | |
| 1,2-Dibromo-3-Chloropropane | 58.889220 | 50.000000 | 6.53e-002 | 0.05 | -17.78 | 20.00 | LINR | |
| Freon TF | 0.9130000 | 0.9496359 | 0.9496359 | 0.1 | -4.01 | 20.00 | AVRG | |
| 4-Bromofluorobenzene | 49.924981 | 50.000000 | 0.4432547 | 0.1 | 0.15 | 20.00 | 2RDR | |
| Dibromofluoromethane | 0.6730000 | 0.7238061 | 0.7238061 | 0.1 | -7.55 | 20.00 | AVRG | |
| Toluene-d8 | 1.3360000 | 1.3176008 | 1.3176008 | 0.1 | 1.38 | 20.00 | AVRG | |
| 1,2-Dichloroethane-d4 | 56.936550 | 50.000000 | 0.9084281 | 0.1 | -13.87 | 20.00 | 2RDR | |



FORM VII VOA

# FORM 7B
## VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20110128

Instrument ID: VOA6 Calibration Date: 11/09/20 Time: 1826

Lab File ID: X110915 Init. Calib. Date(s): 11/03/20 11/03/20

Init. Calib. Times: 1107 1530

GC Column: DB624 ID: 0.18 (mm)

| COMPOUND | RRF or AMOUNT | RRF50.000 or AMOUNT | CCAL RRF50.000 | MIN RRF | %D or %DRIFT | MAX %D or %DRIFT | CURV TYPE |
|---|---|---|---|---|---|---|---|
| cis-1,3-Dichloropropene | 0.5580000 | 0.5505680 | 0.5505680 | 0.2 | 1.33 | 50.00 | AVRG |
| trans-1,3-Dichloropropene | 0.4920000 | 0.5121389 | 0.5121389 | 0.1 | -4.09 | 50.00 | AVRG |
| 1,3-Dichlorobenzene | 1.4650000 | 1.4338485 | 1.4338485 | 0.6 | 2.13 | 50.00 | AVRG |
| 2,2-Dichloropropane | 1.0340000 | 0.9417620 | 0.9417620 | 0.1 | 8.92 | 50.00 | AVRG |
| 1,1-Dichloropropene | 0.4660000 | 0.4431319 | 0.4431319 | 0.1 | 4.91 | 50.00 | AVRG |
| Dibromomethane | 0.2530000 | 0.2557981 | 0.2557981 | 0.1 | -1.10 | 50.00 | AVRG |
| 1,2-Dibromoethane | 0.3750000 | 0.3766176 | 0.3766176 | 0.1 | -0.43 | 50.00 | AVRG |
| trans-1,2-Dichloroethene | 0.6230000 | 0.6577106 | 0.6577106 | 0.1 | -5.57 | 50.00 | AVRG |
| 1,1,1,2-Tetrachloroethane | 0.3560000 | 0.3010332 | 0.3010332 | 0.1 | 15.44 | 50.00 | AVRG |
| 1,1,1-Trichloroethane | 1.0440000 | 1.0233083 | 1.0233083 | 0.1 | 1.98 | 50.00 | AVRG |
| 1,1,2,2-Tetrachloroethane | 57.482663 | 50.000000 | 0.9472704 | 0.3 | -14.96 | 50.00 | LINR |
| Toluene | 1.8300000 | 1.5882762 | 1.5882762 | 0.4 | 13.21 | 50.00 | AVRG |
| 1,1,2-Trichloroethane | 0.3080000 | 0.3098877 | 0.3098877 | 0.1 | -0.61 | 50.00 | AVRG |
| 1,1-Dichloroethane | 1.2020000 | 1.2363445 | 1.2363445 | 0.2 | -2.86 | 50.00 | AVRG |
| 1,1-Dichloroethene | 0.9430000 | 1.0285459 | 1.0285459 | 0.1 | -9.07 | 50.00 | AVRG |
| Trichlorofluoromethane | 1.8840000 | 1.9065806 | 1.9065806 | 0.1 | -1.20 | 50.00 | AVRG |
| 1,2,3-Trichlorobenzene | 60.304772 | 50.000000 | 0.2601068 | 0.01 | -20.61 | 50.00 | LINR |
| Tetrachloroethene | 0.2750000 | 0.2526837 | 0.2526837 | 0.2 | 8.12 | 50.00 | AVRG |
| 1,2,4-Trichlorobenzene | 56.238043 | 50.000000 | 0.4534486 | 0.1 | -12.48 | 50.00 | LINR |
| 1,2,4-Trimethylbenzene | 2.7970000 | 2.7555862 | 2.7555862 | 0.1 | 1.48 | 50.00 | AVRG |
| tert-Butylbenzene | 45.598137 | 50.000000 | 2.0659470 | 0.1 | 8.80 | 50.00 | LINR |
| Trichloroethene | 0.3330000 | 0.3267724 | 0.3267724 | 0.2 | 1.87 | 50.00 | AVRG |
| 1,2-Dichlorobenzene | 1.3800000 | 1.3516382 | 1.3516382 | 0.4 | 2.06 | 50.00 | AVRG |
| 1,2-Dichloroethane | 0.5390000 | 0.5354442 | 0.5354442 | 0.1 | 0.66 | 50.00 | AVRG |
| 1,2-Dichloropropane | 0.3700000 | 0.3703846 | 0.3703846 | 0.1 | -0.10 | 50.00 | AVRG |
| 1,3,5-Trimethylbenzene | 2.8530000 | 2.7281935 | 2.7281935 | 0.1 | 4.37 | 50.00 | AVRG |
| 1,3-Dichloropropane | 0.6120000 | 0.6289224 | 0.6289224 | 0.1 | -2.76 | 50.00 | AVRG |
| 1,4-Dichlorobenzene | 1.5260000 | 1.4864813 | 1.4864813 | 0.4 | 2.59 | 50.00 | AVRG |
| 2-Butanone | 0.2320000 | 0.2721689 | 0.2721689 | 0.1 | -17.31 | 50.00 | AVRG |
| 2-Chlorotoluene | 2.3480000 | 2.3283678 | 2.3283678 | 0.1 | 0.84 | 50.00 | AVRG |
| 2-Hexanone | 97.915943 | 100.00000 | 0.3306089 | 0.1 | 2.08 | 50.00 | LINR |
| 4-Chlorotoluene | 2.9660000 | 2.8492918 | 2.8492918 | 0.1 | 3.93 | 50.00 | AVRG |
| Styrene | 1.0850000 | 1.0785392 | 1.0785392 | 0.3 | 0.60 | 50.00 | AVRG |
| 4-Methyl-2-Pentanone | 0.3800000 | 0.4209644 | 0.4209644 | 0.1 | -10.78 | 50.00 | AVRG |
| Acetone | 147.20107 | 100.00000 | 0.3944418 | 0.1 | -47.20 | 50.00 | LINR |
| Benzene | 1.3960000 | 1.3692720 | 1.3692720 | 0.5 | 1.91 | 50.00 | AVRG |
| Bromobenzene | 0.8800000 | 0.8731541 | 0.8731541 | 0.1 | 0.78 | 50.00 | AVRG |
| Bromochloromethane | 0.3440000 | 0.3583005 | 0.3583005 | 0.1 | -4.16 | 50.00 | AVRG |
| Bromodichloromethane | 0.5140000 | 0.4692458 | 0.4692458 | 0.2 | 8.71 | 50.00 | AVRG |
| Bromoform | 34.593269 | 50.000000 | 0.1664460 | 0.1 | 30.81 | 50.00 | LINR |
| Bromomethane | 0.9300000 | 1.0911921 | 1.0911921 | 0.1 | -17.33 | 50.00 | AVRG |
| Carbon Disulfide | 1.7530000 | 1.8246615 | 1.8246615 | 0.1 | -4.09 | 50.00 | AVRG |



FORM VII VOA

# FORM 7B
## VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2011012

Instrument ID: VOA6 Calibration Date: 11/09/20 Time: 1826

Lab File ID: X110915 Init. Calib. Date(s): 11/03/20 11/03/20

Init. Calib. Times: 1107 1530

GC Column: DB624 ID: 0.18 (mm)

| COMPOUND | RRF or AMOUNT | RRF50.000 or AMOUNT | CCAL RRF50.000 | MIN RRF | %D or %DRIFT | MAX %D or %DRIFT | CURV TYPE |
|---|---|---|---|---|---|---|---|
| Carbon Tetrachloride | 0.4480000 | 0.3187130 | 0.3187130 | 0.1 | 28.86 | 50.00 | AVRG |
| Chlorobenzene | 1.0680000 | 0.9807561 | 0.9807561 | 0.5 | 8.17 | 50.00 | AVRG |
| Chloroethane | 0.7880000 | 0.8702342 | 0.8702342 | 0.1 | -10.44 | 50.00 | AVRG |
| Chloroform | 1.2790000 | 1.3015722 | 1.3015722 | 0.2 | -1.76 | 50.00 | AVRG |
| Chloromethane | 56.279442 | 50.000000 | 0.7985946 | 0.1 | -12.56 | 50.00 | LINR |
| cis-1,2-Dichloroethene | 0.7330000 | 0.7571598 | 0.7571598 | 0.1 | -3.30 | 50.00 | AVRG |
| Dibromochloromethane | 0.3700000 | 0.3306760 | 0.3306760 | 0.1 | 10.63 | 50.00 | AVRG |
| Dichlorodifluoromethane | 0.6470000 | 0.6308608 | 0.6308608 | 0.1 | 2.49 | 50.00 | AVRG |
| Ethylbenzene | 0.5420000 | 0.5033432 | 0.5033432 | 0.1 | 7.13 | 50.00 | AVRG |
| Hexachlorobutadiene | 45.606697 | 50.000000 | 0.2437680 | 0.1 | 8.79 | 50.00 | LINR |
| Isopropylbenzene | 42.898464 | 50.000000 | 1.4078913 | 0.1 | 14.20 | 50.00 | LINR |
| m,p-Xylenes | 0.6490000 | 0.6262891 | 0.6262891 | 0.1 | 3.50 | 50.00 | AVRG |
| Methylene Chloride | 0.6860000 | 0.6931809 | 0.6931809 | 0.1 | -1.05 | 50.00 | AVRG |
| n-Butylbenzene | 42.547335 | 50.000000 | 2.5492853 | 0.5 | 14.90 | 50.00 | LINR |
| n-Propylbenzene | 3.9810000 | 3.9261312 | 3.9261312 | 0.1 | 1.38 | 50.00 | AVRG |
| Naphthalene | 60.412240 | 50.000000 | 0.7005425 | 0.2 | -20.82 | 50.00 | LINR |
| o-Xylene | 0.6470000 | 0.5870243 | 0.5870243 | 0.3 | 9.27 | 50.00 | AVRG |
| sec-Butylbenzene | 44.719021 | 50.000000 | 3.0456473 | 0.1 | 10.56 | 50.00 | LINR |
| Vinyl Chloride | 1.1050000 | 1.2817588 | 1.2817588 | 0.1 | -16.00 | 50.00 | AVRG |
| 1,2,3-Trichloropropane | 0.7020000 | 0.7969066 | 0.7969066 | 0.1 | -13.52 | 50.00 | AVRG |
| p-Isopropyltoluene | 2.7000000 | 2.5573363 | 2.5573363 | 0.1 | 5.28 | 50.00 | AVRG |
| 1,2-Dibromo-3-Chloropropane | 53.443421 | 50.000000 | 5.93e-002 | 0.05 | -6.89 | 50.00 | LINR |
| Freon TF | 0.9130000 | 0.8735799 | 0.8735799 | 0.1 | 4.32 | 50.00 | AVRG |
| 4-Bromofluorobenzene | 48.454373 | 50.000000 | 0.4296918 | 0.1 | 3.09 | 50.00 | 2RDR |
| Dibromofluoromethane | 0.6730000 | 0.7017828 | 0.7017828 | 0.1 | -4.28 | 50.00 | AVRG |
| Toluene-d8 | 1.3360000 | 1.2476233 | 1.2476233 | 0.1 | 6.62 | 50.00 | AVRG |
| 1,2-Dichloroethane-d4 | 53.171643 | 50.000000 | 0.8454814 | 0.1 | -6.34 | 50.00 | 2RDR |

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20110128

Lab File ID (Standard): X110903 Date Analyzed: 11/09/20

Instrument ID: VOA6 Time Analyzed: 1414

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

| | | IS1(DCB) AREA # | RT # | IS2(CBZ) AREA # | RT # | IS3(DFB) AREA # | RT # |
|---|---|---|---|---|---|---|---|
| | 12 HOUR STD | 91470 | 9.66 | 195179 | 7.67 | 210555 | 4.97 |
| | UPPER LIMIT | 182940 | 10.16 | 390358 | 8.17 | 421110 | 5.47 |
| | LOWER LIMIT | 45735 | 9.16 | 97590 | 7.17 | 105278 | 4.47 |
| | CLIENT SAMPLE NO. | | | | | | |
| 01 | VLCSW-201109 | 87911 | 9.66 | 192791 | 7.67 | 203193 | 4.97 |
| 02 | VBLKW-201109 | 63512 | 9.67 | 161168 | 7.67 | 187118 | 4.97 |
| 03 | HS20110128-10 | 68274 | 9.66 | 159609 | 7.67 | 182037 | 4.97 |
| 04 | HS20110128-11 | 64403 | 9.66 | 161843 | 7.67 | 181966 | 4.97 |
| 05 | HS20110128-12 | 62094 | 9.66 | 158678 | 7.67 | 180453 | 4.97 |
| 06 | HS20110264-01 | 76583 | 9.66 | 163332 | 7.67 | 186164 | 4.97 |
| 07 | HS20110264-01 | 78355 | 9.66 | 163918 | 7.67 | 184225 | 4.97 |
| 08 | | | | | | | |
| 09 | | | | | | | |
| 10 | | | | | | | |
| 11 | | | | | | | |
| 12 | | | | | | | |
| 13 | | | | | | | |
| 14 | | | | | | | |
| 15 | | | | | | | |
| 16 | | | | | | | |
| 17 | | | | | | | |
| 18 | | | | | | | |
| 19 | | | | | | | |
| 20 | | | | | | | |

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (CBZ) = Chlorobenzene-d5
IS3 (DFB) = 1,4-Difluorobenzene

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

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



FORM VIII VOA

# FORM 8
## VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20110128

Lab File ID (Standard): X110903 Date Analyzed: 11/09/20

Instrument ID: VOA6 Time Analyzed: 1414

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

| | | IS4 AREA # | RT # | AREA # | RT # | AREA # | RT # |
|---|---|---|---|---|---|---|---|
| | 12 HOUR STD | 100806 | 4.19 | | | | |
| | UPPER LIMIT | 201612 | 4.69 | | | | |
| | LOWER LIMIT | 50403 | 3.69 | | | | |
| | CLIENT SAMPLE NO. | | | | | | |
| 01 | VLCSW-201109 | 107435 | 4.19 | | | | |
| 02 | VBLKW-201109 | 106188 | 4.18 | | | | |
| 03 | HS20110128-10 | 104208 | 4.18 | | | | |
| 04 | HS20110128-11 | 105485 | 4.19 | | | | |
| 05 | HS20110128-12 | 103545 | 4.19 | | | | |
| 06 | HS20110264-01 | 102869 | 4.18 | | | | |
| 07 | HS20110264-01 | 104320 | 4.18 | | | | |
| 08 | | | | | | | |
| 09 | | | | | | | |
| 10 | | | | | | | |
| 11 | | | | | | | |
| 12 | | | | | | | |
| 13 | | | | | | | |
| 14 | | | | | | | |
| 15 | | | | | | | |
| 16 | | | | | | | |
| 17 | | | | | | | |
| 18 | | | | | | | |
| 19 | | | | | | | |
| 20 | | | | | | | |

IS4 = Pentafluorobenzene

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

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

Data File: \\nahstws005\Target\chem\voa6.i\X201109.b\X110901.D



Date : 09-NOV-2020 13:32

Client ID: BFB

Instrument: voa6.i

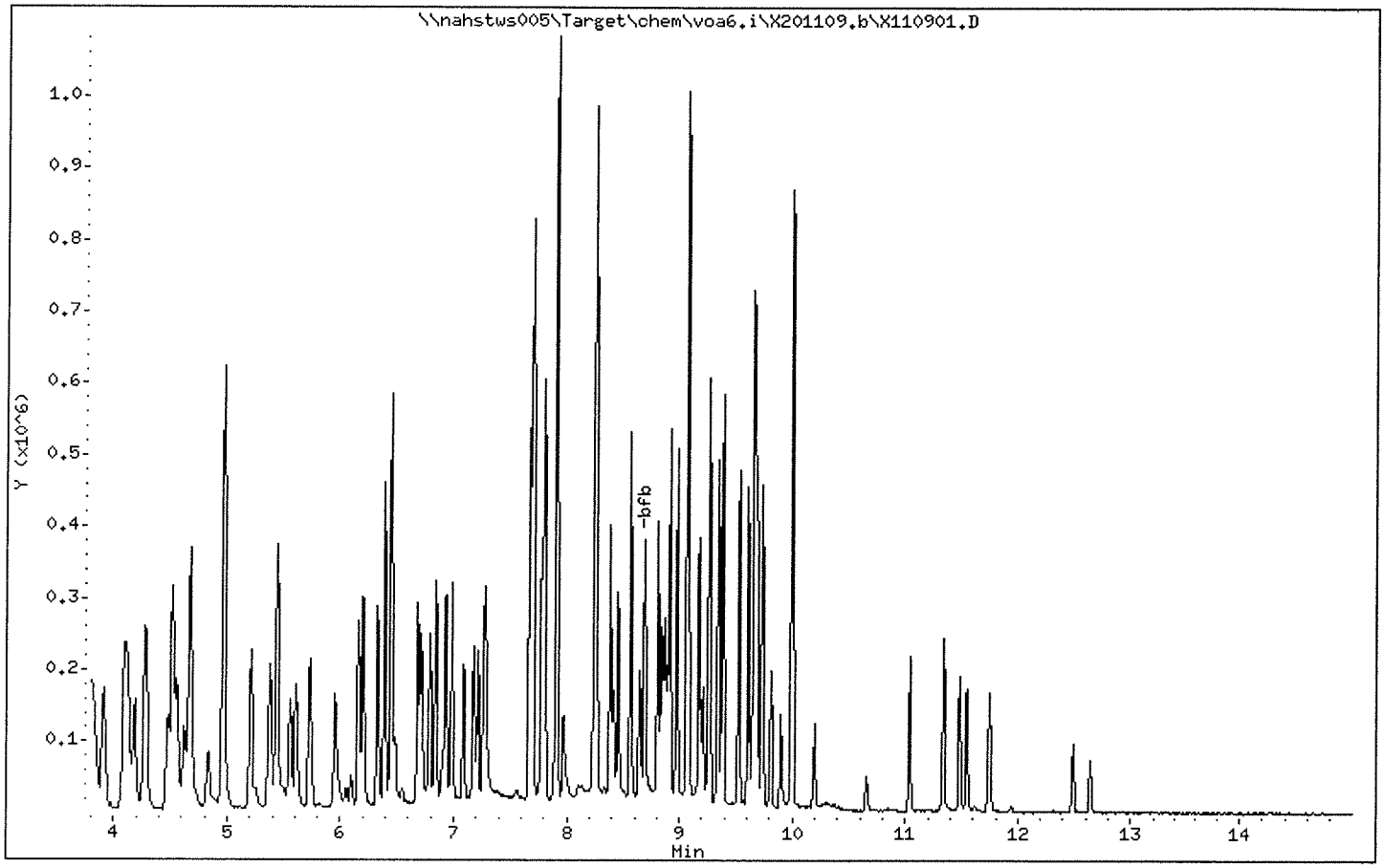
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\nahstws005\Target\chem\voa6.i\X201109.b\X110901.D



Date : 09-NOV-2020 13:32

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

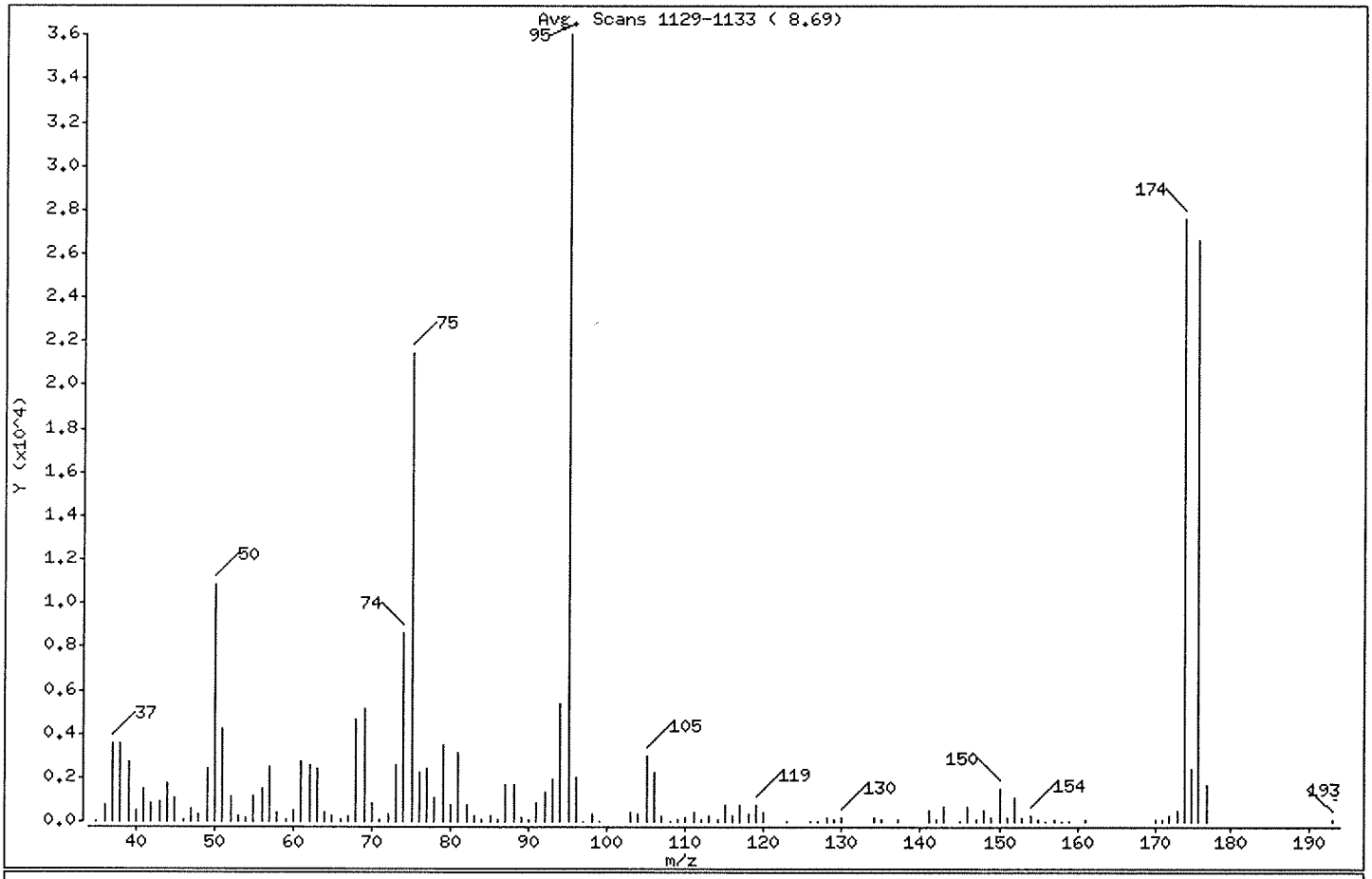
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb




| m/e | ION ABUNDANCE CRITERIA | % RELATIVE ABUNDANCE |
|---|---|---|
| 95 | Base Peak, 100% relative abundance | 100.00 |
| 50 | 15.00 - 40.00% of mass 95 | 30.02 |
| 75 | 30.00 - 60.00% of mass 95 | 59.63 |
| 96 | 5.00 - 9.00% of mass 95 | 5.61 |
| 173 | Less than 2.00% of mass 174 | 1.30 ( 1.71) |
| 174 | Greater than 50.00% of mass 95 | 76.46 |
| 175 | 5.00 - 9.00% of mass 174 | 6.61 ( 8.65) |
| 176 | 95.00 - 101.00% of mass 174 | 73.84 ( 96.57) |
| 177 | 5.00 - 9.00% of mass 176 | 4.51 ( 6.11) |

Data File: \\nahstws005\Target\chem\voa6.i\X201109.b\X110901.D



Date : 09-NOV-2020 13:32

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

Data File: X110901.D
Spectrum: Avg. Scans 1129-1133 ( 8.69)
Location of Maximum: 95.00
Number of points: 120

| m/z | Y | m/z | Y | m/z | Y | m/z | Y |
|---|---|---|---|---|---|---|---|
| 35.00 | 17 | 66.00 | 98 | 97.00 | 41 | 142.00 | 51 |
| 36.00 | 704 | 67.00 | 257 | 98.00 | 303 | 143.00 | 636 |
| 37.00 | 3579 | 68.00 | 4678 | 99.00 | 25 | 145.00 | 17 |
| 38.00 | 3574 | 69.00 | 5136 | 103.00 | 379 | 146.00 | 676 |
| 39.00 | 2760 | 70.00 | 788 | 104.00 | 353 | 147.00 | 62 |
| 40.00 | 504 | 71.00 | 101 | 105.00 | 2991 | 148.00 | 478 |
| 41.00 | 1474 | 72.00 | 333 | 106.00 | 2202 | 149.00 | 135 |
| 42.00 | 832 | 73.00 | 2551 | 107.00 | 235 | 150.00 | 1514 |
| 43.00 | 882 | 74.00 | 8625 | 108.00 | 41 | 151.00 | 155 |
| 44.00 | 1744 | 75.00 | 21480 | 109.00 | 120 | 152.00 | 1086 |
| 45.00 | 1093 | 76.00 | 2234 | 110.00 | 161 | 153.00 | 135 |
| 46.00 | 99 | 77.00 | 2374 | 111.00 | 386 | 154.00 | 251 |
| 47.00 | 558 | 78.00 | 1072 | 112.00 | 45 | 155.00 | 98 |
| 48.00 | 362 | 79.00 | 3488 | 113.00 | 226 | 156.00 | 24 |
| 49.00 | 2433 | 80.00 | 784 | 114.00 | 49 | 157.00 | 52 |
| 50.00 | 10815 | 81.00 | 3137 | 115.00 | 708 | 158.00 | 20 |
| 51.00 | 4219 | 82.00 | 709 | 116.00 | 287 | 159.00 | 27 |
| 52.00 | 1125 | 83.00 | 232 | 117.00 | 743 | 161.00 | 50 |
| 53.00 | 259 | 84.00 | 95 | 118.00 | 327 | 170.00 | 59 |
| 54.00 | 200 | 85.00 | 241 | 119.00 | 785 | 171.00 | 79 |
| 55.00 | 1126 | 86.00 | 106 | 120.00 | 385 | 172.00 | 229 |
| 56.00 | 1506 | 87.00 | 1628 | 123.00 | 19 | 173.00 | 470 |
| 57.00 | 2470 | 88.00 | 1681 | 126.00 | 31 | 174.00 | 27544 |
| 58.00 | 447 | 89.00 | 138 | 127.00 | 35 | 175.00 | 2382 |
| 59.00 | 111 | 90.00 | 78 | 128.00 | 143 | 176.00 | 26600 |
| 60.00 | 534 | 91.00 | 815 | 129.00 | 100 | 177.00 | 1625 |
| 61.00 | 2762 | 92.00 | 1325 | 130.00 | 177 | 193.00 | 60 |
| 62.00 | 2541 | 93.00 | 1934 | 134.00 | 131 | | |
| 63.00 | 2418 | 94.00 | 5420 | 135.00 | 76 | | |
| 64.00 | 392 | 95.00 | 36024 | 137.00 | 71 | | |
| 65.00 | 213 | 96.00 | 2022 | 141.00 | 500 | | |

Data File: \\nahstws005\Target\chem\voa6.i\X201109.b\X110903.D Page 1
Report Date: 14-Jan-2021 12:12

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201109.b\X110903.D
Lab Smp Id: CCV Client Smp ID: CCV
Inj Date : 09-NOV-2020 14:14
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201109.b\8260W.m
Meth Date : 14-Jan-2021 12:12 voa6.i Quant Type: ISTD
Cal Date : 03-NOV-2020 14:27 Cal File: X110308.D
Als bottle: 3 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

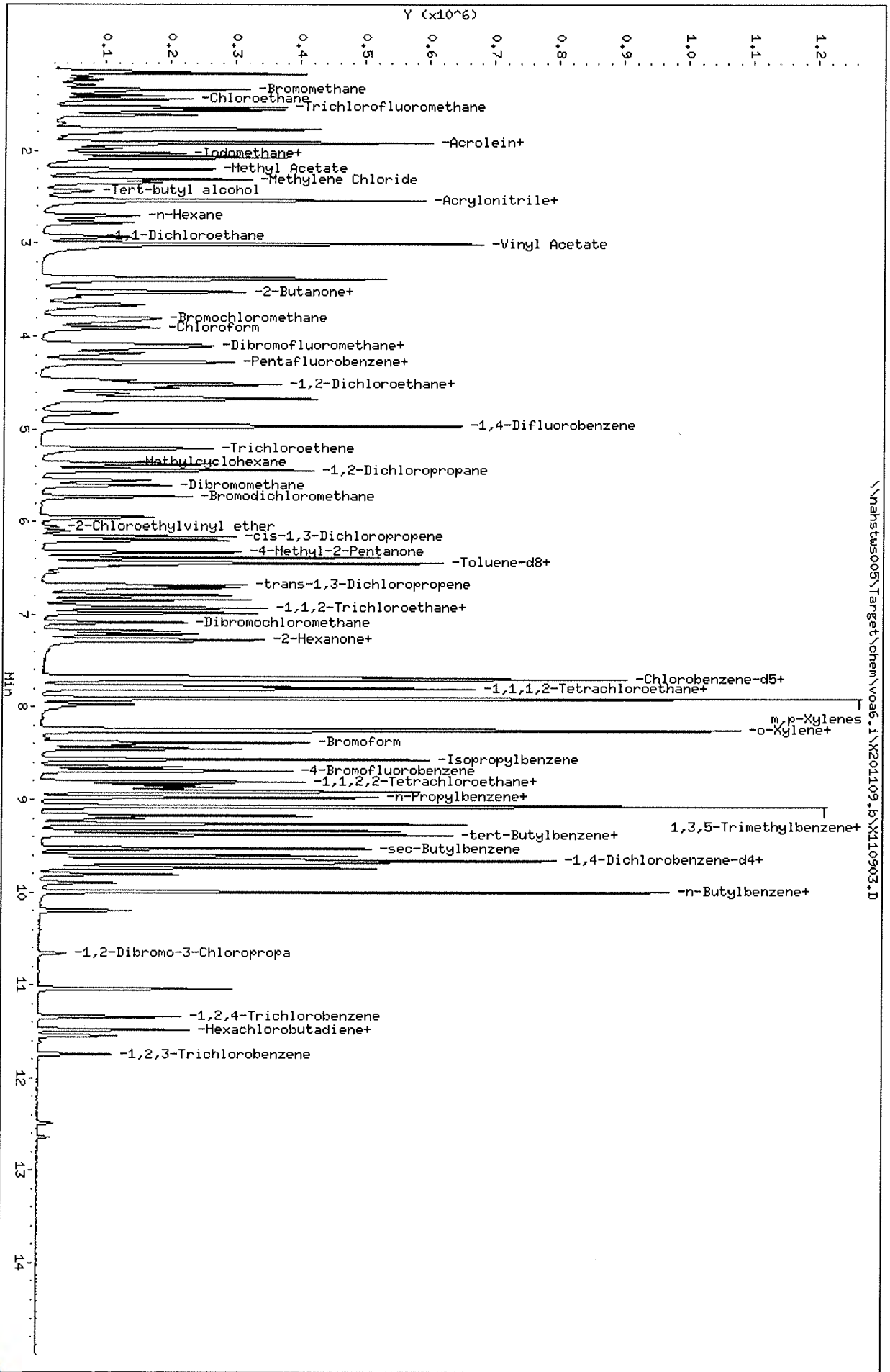
| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.189 | 4.189 | (1.000) | 100806 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 4.970 | 4.970 | (1.000) | 210555 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 7.671 | 7.671 | (1.000) | 195179 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 9.662 | 9.662 | (1.000) | 91470 | 50.0000 | |
| $ 35 1,2-Dichloroethane-d4 | 65 | 4.476 | 4.476 | (1.068) | 91575 | 50.0000 | 56.93 |
| $ 69 4-Bromofluorobenzene | 95 | 8.688 | 8.688 | (1.133) | 86514 | 50.0000 | 49.92 |
| $ 30 Dibromofluoromethane | 113 | 4.103 | 4.103 | (0.979) | 72964 | 50.0000 | 53.74 |
| $ 48 Toluene-d8 | 98 | 6.388 | 6.388 | (0.833) | 257168 | 50.0000 | 49.32 |
| 60 1,1,1,2-Tetrachloroethane | 131 | 7.778 | 7.778 | (1.014) | 64099 | 50.0000 | 46.03 |
| 31 1,1,1-Trichloroethane | 97 | 4.089 | 4.089 | (0.976) | 110819 | 50.0000 | 52.64 |
| 68 1,1,2,2-Tetrachloroethane | 83 | 8.838 | 8.838 | (0.915) | 92976 | 50.0000 | 61.72 |
| 138 Freon TF | 101 | 1.919 | 1.919 | (0.458) | 95729 | 50.0000 | 52.01 |
| 53 1,1,2-Trichloroethane | 83 | 6.840 | 6.840 | (0.892) | 64727 | 50.0000 | 53.76 |
| 22 1,1-Dichloroethane | 63 | 2.929 | 2.929 | (0.699) | 128699 | 50.0000 | 53.11 |
| 11 1,1-Dichloroethene | 96 | 1.919 | 1.919 | (0.458) | 109179 | 50.0000 | 57.40 |
| 32 1,1-Dichloropropene | 75 | 4.282 | 4.282 | (0.862) | 95529 | 50.0000 | 48.65 |
| 93 1,2,3-Trichlorobenzene | 180 | 11.746 | 11.746 | (1.216) | 24701 | 50.0000 | 62.54 |
| 71 1,2,3-Trichloropropane | 75 | 8.867 | 8.867 | (0.918) | 100174 | 50.0000 | 77.99 |
| 90 1,2,4-Trichlorobenzene | 180 | 11.338 | 11.338 | (1.173) | 43297 | 50.0000 | 58.62 |
| 79 1,2,4-Trimethylbenzene | 105 | 9.383 | 9.383 | (0.971) | 257771 | 50.0000 | 50.37 |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 10.658 | 10.658 | (1.103) | 5974 | 50.0000 | 58.88 |
| 57 1,2-Dibromoethane | 107 | 7.262 | 7.262 | (0.947) | 78178 | 50.0000 | 53.41 |

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 88 | 1,2-Dichlorobenzene | 146 | 9.991 | 9.991 | (1.034) | 127890 | 50.0000 | 50.65 |
| 33 | 1,2-Dichloroethane | 62 | 4.562 | 4.562 | (0.918) | 119393 | 50.0000 | 52.58 |
| 42 | 1,2-Dichloropropane | 63 | 5.443 | 5.443 | (1.095) | 83733 | 50.0000 | 53.73 |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.067 | 9.067 | (0.938) | 253676 | 50.0000 | 48.60 |
| 83 | 1,3-Dichlorobenzene | 146 | 9.605 | 9.605 | (0.994) | 134790 | 50.0000 | 50.28 |
| 54 | 1,3-Dichloropropane | 76 | 6.983 | 6.983 | (0.910) | 125326 | 50.0000 | 52.40 |
| 84 | 1,4-Dichlorobenzene | 146 | 9.683 | 9.683 | (1.002) | 139134 | 50.0000 | 49.84 |
| 26 | 2,2-Dichloropropane | 77 | 3.516 | 3.516 | (0.839) | 106273 | 50.0000 | 50.95 |
| 24 | 2-Butanone | 43 | 3.580 | 3.580 | (0.855) | 60698 | 100.000 | 129.52 |
| 76 | 2-Chlorotoluene | 91 | 8.974 | 8.974 | (0.929) | 209735 | 50.0000 | 48.81 |
| 52 | 2-Hexanone | 43 | 7.212 | 7.212 | (0.940) | 133903 | 100.000 | 101.45 |
| 77 | 4-Chlorotoluene | 91 | 9.067 | 9.067 | (0.938) | 270964 | 50.0000 | 49.93 |
| 82 | p-Isopropyltoluene | 119 | 9.655 | 9.655 | (0.999) | 244097 | 50.0000 | 49.40 |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.324 | 6.324 | (0.824) | 173861 | 100.000 | 117.25 |
| 10 | Acetone | 43 | 1.976 | 1.976 | (0.472) | 91312 | 100.000 | 170.31 |
| 37 | Benzene | 78 | 4.519 | 4.519 | (0.909) | 306765 | 50.0000 | 52.16 |
| 74 | Bromobenzene | 156 | 8.810 | 8.810 | (0.912) | 82443 | 50.0000 | 51.22 |
| 29 | Bromochloromethane | 128 | 3.803 | 3.803 | (0.908) | 37425 | 50.0000 | 53.90 |
| 39 | Bromodichloromethane | 83 | 5.729 | 5.729 | (1.153) | 110374 | 50.0000 | 51.02 |
| 66 | Bromoform | 173 | 8.416 | 8.416 | (1.097) | 39825 | 50.0000 | 41.70(T) |
| 6 | Bromomethane | 94 | 1.338 | 1.338 | (0.320) | 113256 | 50.0000 | 60.37 |
| 19 | Carbon Disulfide | 76 | 2.069 | 2.069 | (0.494) | 404765 | 100.000 | 114.52 |
| 34 | Carbon Tetrachloride | 117 | 4.275 | 4.275 | (0.860) | 77237 | 50.0000 | 40.97 |
| 59 | Chlorobenzene | 112 | 7.699 | 7.699 | (1.004) | 195970 | 50.0000 | 46.98 |
| 7 | Chloroethane | 64 | 1.403 | 1.403 | (0.335) | 95174 | 50.0000 | 59.91 |
| 28 | Chloroform | 83 | 3.910 | 3.910 | (0.933) | 142774 | 50.0000 | 55.35 |
| 3 | Chloromethane | 50 | 1.081 | 1.081 | (0.258) | 87186 | 50.0000 | 60.87 |
| 27 | cis-1,2-Dichloroethene | 96 | 3.530 | 3.530 | (0.843) | 79152 | 50.0000 | 53.54 |
| 46 | cis-1,3-Dichloropropene | 75 | 6.159 | 6.159 | (1.239) | 122641 | 50.0000 | 52.21 |
| 55 | Dibromochloromethane | 129 | 7.176 | 7.176 | (0.936) | 70790 | 50.0000 | 49.07 |
| 44 | Dibromomethane | 93 | 5.557 | 5.557 | (1.118) | 57623 | 50.0000 | 54.13 |
| 2 | Dichlorodifluoromethane | 85 | 0.973 | 0.973 | (0.232) | 67306 | 50.0000 | 51.56 |
| 61 | Ethylbenzene | 106 | 7.800 | 7.800 | (1.017) | 103918 | 50.0000 | 49.10 |
| 91 | Hexachlorobutadiene | 225 | 11.481 | 11.481 | (1.188) | 25024 | 50.0000 | 50.89 |
| 67 | Isopropylbenzene | 105 | 8.566 | 8.566 | (1.117) | 296190 | 50.0000 | 46.03 |
| 62 | m,p-Xylenes | 106 | 7.907 | 7.907 | (1.031) | 256712 | 100.000 | 101.28 |
| 17 | Methylene Chloride | 84 | 2.305 | 2.305 | (0.550) | 73668 | 50.0000 | 53.22 |
| 87 | n-Butylbenzene | 91 | 9.999 | 9.999 | (1.035) | 247992 | 50.0000 | 45.02 |
| 73 | n-Propylbenzene | 91 | 8.917 | 8.917 | (0.923) | 375802 | 50.0000 | 51.60 |
| 92 | Naphthalene | 128 | 11.546 | 11.546 | (1.195) | 71399 | 50.0000 | 67.06 |
| 63 | o-Xylene | 106 | 8.244 | 8.244 | (1.075) | 119904 | 50.0000 | 47.47 |
| 81 | sec-Butylbenzene | 105 | 9.526 | 9.526 | (0.986) | 289792 | 50.0000 | 46.41 |
| 64 | Styrene | 104 | 8.258 | 8.258 | (1.077) | 223193 | 50.0000 | 52.69 |
| 78 | tert-Butylbenzene | 119 | 9.340 | 9.340 | (0.967) | 191860 | 50.0000 | 46.25 |
| 56 | Tetrachloroethene | 164 | 6.933 | 6.933 | (0.904) | 49486 | 50.0000 | 46.05 |
| 50 | Toluene | 91 | 6.446 | 6.446 | (0.840) | 323834 | 50.0000 | 45.33 |
| 20 | trans-1,2-Dichloroethene | 96 | 2.535 | 2.535 | (0.605) | 69053 | 50.0000 | 54.98 |
| 51 | trans-1,3-Dichloropropene | 75 | 6.682 | 6.682 | (1.344) | 114287 | 50.0000 | 55.14 |
| 38 | Trichloroethene | 130 | 5.214 | 5.214 | (1.049) | 71579 | 50.0000 | 51.01 |
| 8 | Trichlorofluoromethane | 101 | 1.561 | 1.561 | (0.373) | 204765 | 50.0000 | 53.89 |
| 5 | Vinyl Chloride | 62 | 1.145 | 1.145 | (0.273) | 134722 | 50.0000 | 60.48 |

QC Flag Legend

T - Target compound detected outside RT window.




Data File: \\nahstws005\Target\chem\voa6.i\X201109.b\X110903.D
Date : 09-NOV-2020 14:14
Client ID: CCV
Sample Info: CCV;CCV;2;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X201109.b\X110905.D Page 1
Report Date: 14-Jan-2021 12:12

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201109.b\X110905.D
Lab Smp Id: VLCSW-201109 Client Smp ID: VLCSW-201109
Inj Date : 09-NOV-2020 14:56
Operator : PC Inst ID: voa6.i
Smp Info : VLCSW-201109;VLCSW-201109;3;;LCS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201109.b\8260W.m
Meth Date : 14-Jan-2021 12:12 voa6.i Quant Type: ISTD
Cal Date : 03-NOV-2020 14:27 Cal File: X110308.D
Als bottle: 5 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

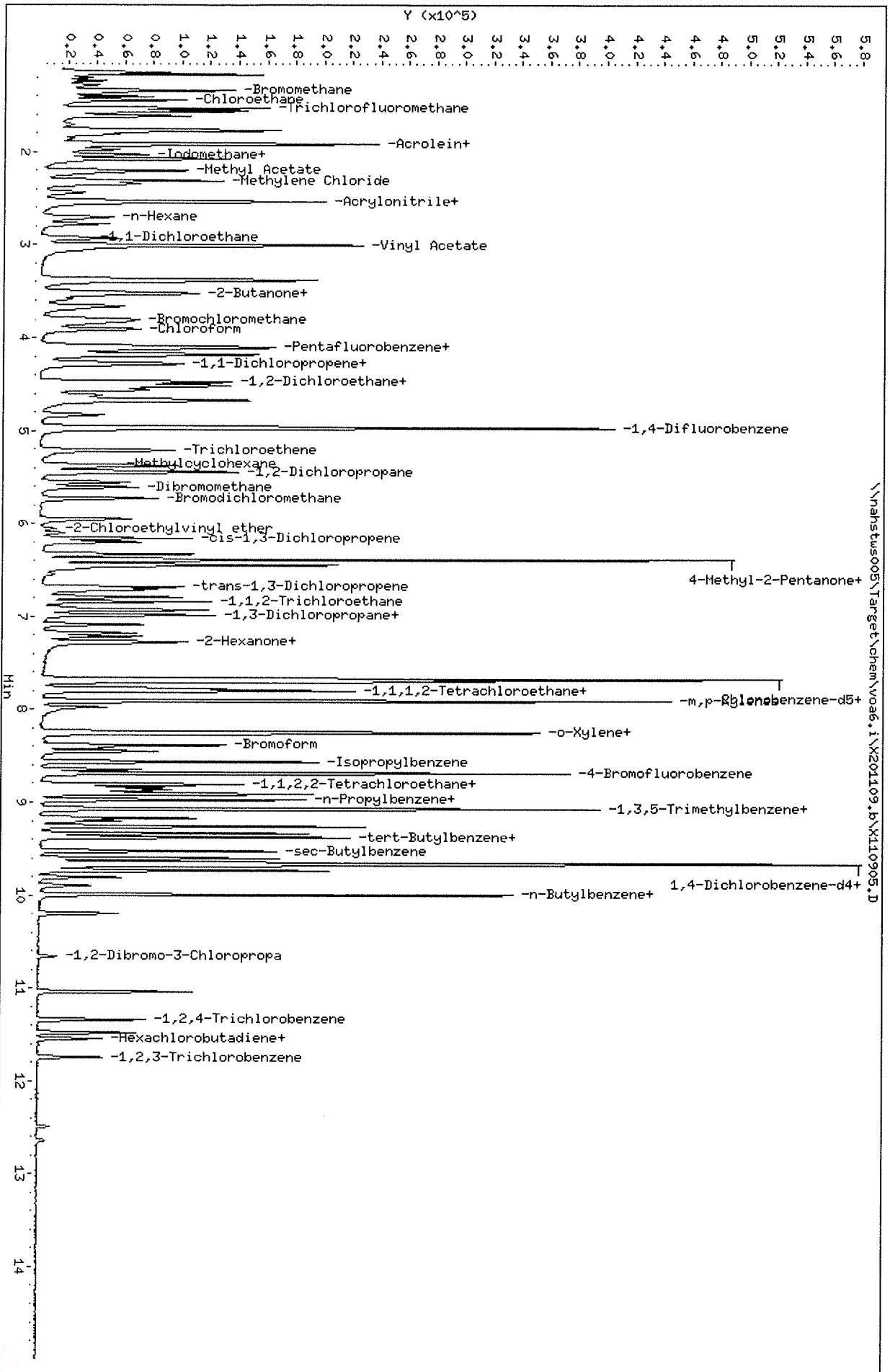
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| * | 1 Pentafluorobenzene | 168 | 4.189 | 4.189 | (1.000) | 107435 | 50.0000 | |
| * | 36 1,4-Difluorobenzene | 114 | 4.970 | 4.970 | (1.000) | 203193 | 50.0000 | |
| * | 47 Chlorobenzene-d5 | 117 | 7.671 | 7.671 | (1.000) | 192791 | 50.0000 | |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 9.662 | 9.662 | (1.000) | 87911 | 50.0000 | |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 4.476 | 4.476 | (1.068) | 92180 | 53.9234 | 53.92 |
| $ | 69 4-Bromofluorobenzene | 95 | 8.688 | 8.688 | (1.133) | 80847 | 47.3311 | 47.33 |
| $ | 30 Dibromofluoromethane | 113 | 4.103 | 4.103 | (0.979) | 70563 | 48.7704 | 48.77 |
| $ | 48 Toluene-d8 | 98 | 6.388 | 6.388 | (0.833) | 243562 | 47.2987 | 47.29 |
| | 60 1,1,1,2-Tetrachloroethane | 131 | 7.778 | 7.778 | (1.014) | 21055 | 15.3083 | 15.30 |
| | 31 1,1,1-Trichloroethane | 97 | 4.096 | 4.089 | (0.978) | 40879 | 18.2232 | 18.22 |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 8.838 | 8.838 | (0.915) | 31784 | 21.5755 | 21.57 |
| | 138 Freon TF | 101 | 1.919 | 1.919 | (0.458) | 34463 | 17.5700 | 17.56 |
| | 53 1,1,2-Trichloroethane | 83 | 6.840 | 6.840 | (0.892) | 24138 | 20.2994 | 20.29 |
| | 22 1,1-Dichloroethane | 63 | 2.929 | 2.929 | (0.699) | 54437 | 21.0799 | 21.07 |
| | 11 1,1-Dichloroethene | 96 | 1.919 | 1.919 | (0.458) | 41353 | 20.4012 | 20.40 |
| | 32 1,1-Dichloropropene | 75 | 4.282 | 4.282 | (0.862) | 35779 | 18.8822 | 18.88 |
| | 93 1,2,3-Trichlorobenzene | 180 | 11.746 | 11.746 | (1.216) | 10029 | 27.4425 | 27.44 |
| | 71 1,2,3-Trichloropropane | 75 | 8.867 | 8.867 | (0.918) | 34746 | 28.1476 | 28.14 |
| | 90 1,2,4-Trichlorobenzene | 180 | 11.338 | 11.338 | (1.173) | 17138 | 25.1826 | 25.18 |
| | 79 1,2,4-Trimethylbenzene | 105 | 9.383 | 9.383 | (0.971) | 88596 | 18.0150 | 18.01 |
| | 89 1,2-Dibromo-3-Chloropropane | 155 | 10.658 | 10.658 | (1.103) | 2009 | 20.3850 | 20.38 |
| | 57 1,2-Dibromoethane | 107 | 7.262 | 7.262 | (0.947) | 29020 | 20.0726 | 20.07 |

Data File: \\nahstws005\Target\chem\voa6.i\X201109.b\X110905.D Page 2
Report Date: 14-Jan-2021 12:12

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| 88 1,2-Dichlorobenzene | 146 | 9.991 | 9.991 | (1.034) | 46374 | 19.1129 | 19.11 |
| 33 1,2-Dichloroethane | 62 | 4.562 | 4.562 | (0.918) | 46085 | 21.0343 | 21.03 |
| 42 1,2-Dichloropropane | 63 | 5.436 | 5.443 | (1.094) | 30862 | 20.5242 | 20.52 |
| 75 1,3,5-Trimethylbenzene | 105 | 9.067 | 9.067 | (0.938) | 86467 | 17.2387 | 17.23 |
| 83 1,3-Dichlorobenzene | 146 | 9.605 | 9.605 | (0.994) | 46230 | 17.9433 | 17.94 |
| 54 1,3-Dichloropropane | 76 | 6.983 | 6.983 | (0.910) | 48710 | 20.6217 | 20.62 |
| 84 1,4-Dichlorobenzene | 146 | 9.683 | 9.683 | (1.002) | 48737 | 18.1662 | 18.16 |
| 26 2,2-Dichloropropane | 77 | 3.516 | 3.516 | (0.839) | 39248 | 17.6555 | 17.65 |
| 24 2-Butanone | 43 | 3.580 | 3.580 | (0.855) | 24181 | 48.4173 | 48.41 |
| 76 2-Chlorotoluene | 91 | 8.974 | 8.974 | (0.929) | 74089 | 17.9435 | 17.94 |
| 52 2-Hexanone | 43 | 7.212 | 7.212 | (0.940) | 40291 | 33.4840 | 33.48 |
| 77 4-Chlorotoluene | 91 | 9.075 | 9.067 | (0.939) | 90515 | 17.3564 | 17.35 |
| 82 p-Isopropyltoluene | 119 | 9.655 | 9.655 | (0.999) | 82995 | 17.4792 | 17.47 |
| 45 4-Methyl-2-Pentanone | 43 | 6.324 | 6.324 | (0.824) | 63190 | 43.1443 | 43.14 |
| 10 Acetone | 43 | 1.976 | 1.976 | (0.472) | 35728 | 57.0012 | 57.00 |
| 37 Benzene | 78 | 4.519 | 4.519 | (0.909) | 109723 | 19.3325 | 19.33 |
| 74 Bromobenzene | 156 | 8.810 | 8.810 | (0.912) | 29927 | 19.3468 | 19.34 |
| 29 Bromochloromethane | 128 | 3.803 | 3.803 | (0.908) | 14911 | 20.1521 | 20.15 |
| 39 Bromodichloromethane | 83 | 5.729 | 5.729 | (1.153) | 39044 | 18.7022 | 18.70 |
| 66 Bromoform | 173 | 8.416 | 8.416 | (1.097) | 12081 | 14.9649 | 14.96 |
| 6 Bromomethane | 94 | 1.338 | 1.338 | (0.320) | 47714 | 23.8649 | 23.86 |
| 19 Carbon Disulfide | 76 | 2.069 | 2.069 | (0.494) | 148144 | 39.3312 | 39.33 |
| 34 Carbon Tetrachloride | 117 | 4.275 | 4.275 | (0.860) | 26787 | 14.7239 | 14.72 |
| 59 Chlorobenzene | 112 | 7.692 | 7.699 | (1.003) | 72730 | 17.6528 | 17.65 |
| 7 Chloroethane | 64 | 1.403 | 1.403 | (0.335) | 44184 | 26.1010 | 26.10 |
| 28 Chloroform | 83 | 3.910 | 3.910 | (0.933) | 55081 | 20.0365 | 20.03 |
| 3 Chloromethane | 50 | 1.081 | 1.081 | (0.258) | 32858 | 22.0955 | 22.09 |
| 27 cis-1,2-Dichloroethene | 96 | 3.530 | 3.530 | (0.843) | 32010 | 20.3168 | 20.31 |
| 46 cis-1,3-Dichloropropene | 75 | 6.159 | 6.159 | (1.239) | 44552 | 19.6536 | 19.65 |
| 55 Dibromochloromethane | 129 | 7.176 | 7.176 | (0.936) | 23260 | 16.3249 | 16.32 |
| 44 Dibromomethane | 93 | 5.557 | 5.557 | (1.118) | 21681 | 21.1077 | 21.10 |
| 2 Dichlorodifluoromethane | 85 | 0.973 | 0.973 | (0.232) | 24789 | 17.8182 | 17.81 |
| 61 Ethylbenzene | 106 | 7.800 | 7.800 | (1.017) | 36511 | 17.4681 | 17.46 |
| 91 Hexachlorobutadiene | 225 | 11.481 | 11.481 | (1.188) | 7216 | 16.9012 | 16.90 |
| 67 Isopropylbenzene | 105 | 8.566 | 8.566 | (1.117) | 100515 | 17.5328 | 17.53 |
| 62 m,p-Xylenes | 106 | 7.907 | 7.907 | (1.031) | 89797 | 35.8676 | 35.86 |
| 17 Methylene Chloride | 84 | 2.305 | 2.305 | (0.550) | 29927 | 20.2886 | 20.28 |
| 87 n-Butylbenzene | 91 | 9.999 | 9.999 | (1.035) | 83017 | 18.0299 | 18.02 |
| 73 n-Propylbenzene | 91 | 8.917 | 8.917 | (0.923) | 123037 | 17.5798 | 17.57 |
| 92 Naphthalene | 128 | 11.546 | 11.546 | (1.195) | 25445 | 26.2157 | 26.21 |
| 63 o-Xylene | 106 | 8.244 | 8.244 | (1.075) | 44408 | 17.7995 | 17.79 |
| 81 sec-Butylbenzene | 105 | 9.526 | 9.526 | (0.986) | 92784 | 17.2220 | 17.22 |
| 64 Styrene | 104 | 8.258 | 8.258 | (1.077) | 77709 | 18.5748 | 18.57 |
| 78 tert-Butylbenzene | 119 | 9.340 | 9.340 | (0.967) | 64639 | 17.8350 | 17.83 |
| 56 Tetrachloroethene | 164 | 6.933 | 6.933 | (0.904) | 18921 | 17.8276 | 17.82 |
| 50 Toluene | 91 | 6.453 | 6.446 | (0.841) | 114752 | 16.2644 | 16.26 |
| 20 trans-1,2-Dichloroethene | 96 | 2.535 | 2.535 | (0.605) | 24984 | 18.6657 | 18.66 |
| 51 trans-1,3-Dichloropropene | 75 | 6.682 | 6.682 | (1.344) | 37991 | 18.9966 | 18.99 |
| 38 Trichloroethene | 130 | 5.207 | 5.214 | (1.048) | 25594 | 18.9014 | 18.90 |
| 8 Trichlorofluoromethane | 101 | 1.561 | 1.561 | (0.373) | 74814 | 18.4771 | 18.47 |
| 5 Vinyl Chloride | 62 | 1.145 | 1.145 | (0.273) | 52579 | 22.1494 | 22.14 |




Data File: \\nahstws005\Target\chem\voa6.i\X201109.b\X110905.D
Date : 09-NOV-2020 14:56
Client ID: VLCSW-201109
Sample Info: VLCSW-201109;VLCSW-201109;3;;LCS
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201109.b\X110907.D
Lab Smp Id: VBLKW-201109 Client Smp ID: VBLKW-201109
Inj Date : 09-NOV-2020 15:38
Operator : PC Inst ID: voa6.i
Smp Info : VBLKW-201109;VBLKW-201109;3;;BLANK
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201109.b\8260W.m
Meth Date : 14-Jan-2021 12:12 voa6.i Quant Type: ISTD
Cal Date : 03-NOV-2020 14:27 Cal File: X110308.D
Als bottle: 7 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

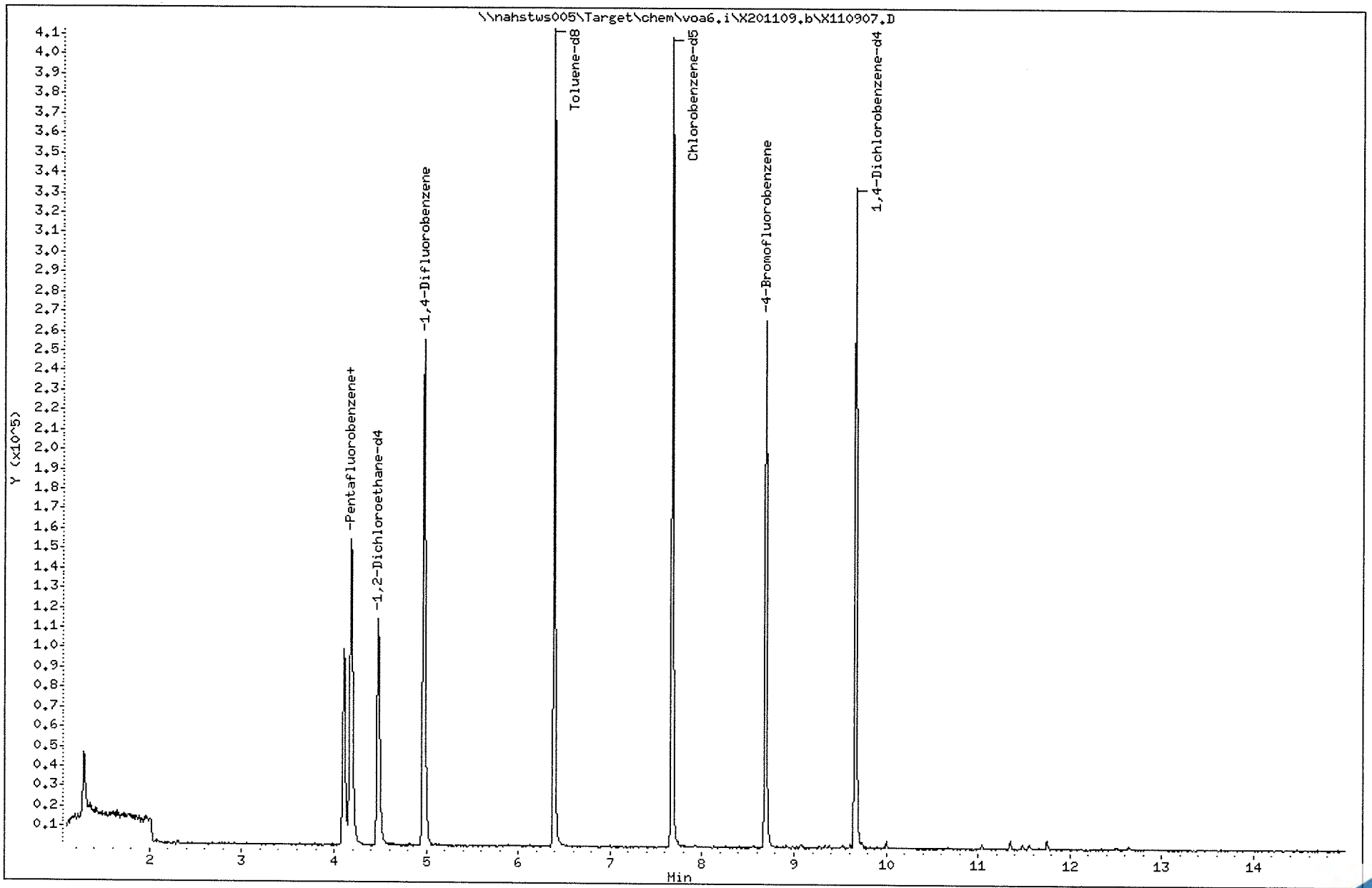
| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.182 | 4.189 | (1.000) | 106188 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 4.970 | 4.970 | (1.000) | 187118 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 7.670 | 7.671 | (1.000) | 161168 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 9.669 | 9.662 | (1.000) | 63512 | 50.0000 | |
| $ 35 1,2-Dichloroethane-d4 | 65 | 4.476 | 4.476 | (1.070) | 78048 | 46.4864 | 46.48 |
| $ 69 4-Bromofluorobenzene | 95 | 8.695 | 8.688 | (1.134) | 64575 | 45.2973 | 45.29 |
| $ 30 Dibromofluoromethane | 113 | 4.110 | 4.103 | (0.983) | 61248 | 42.8293 | 42.82 |
| $ 48 Toluene-d8 | 98 | 6.388 | 6.388 | (0.833) | 216479 | 50.2879 | 50.28 |

Data File: \\nahstws005\Target\chem\voa6.i\X201109.b\X110907.D
Date : 09-NOV-2020 15:38
Client ID: VBLKW-201109
Sample Info: VBLKW-201109;VBLKW-201109;3;;BLANK
Purge Volume: 5.0
Column phase: DB624



Instrument: voa6.i
Operator: PC
Column diameter: 0.18



ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201109.b\X110910.D
Lab Smp Id: HS20110128-10 Client Smp ID: HS20110128-10
Inj Date : 09-NOV-2020 16:41
Operator : PC Inst ID: voa6.i
Smp Info : HS20110128-10;HS20110128-10;;;
Misc Info : HS18090001;WATER;0;5;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201109.b\8260W.m
Meth Date : 13-Jan-2021 19:24 devak.giga Quant Type: ISTD
Cal Date : 03-NOV-2020 14:27 Cal File: X110308.D
Als bottle: 10
Dil Factor: 5.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

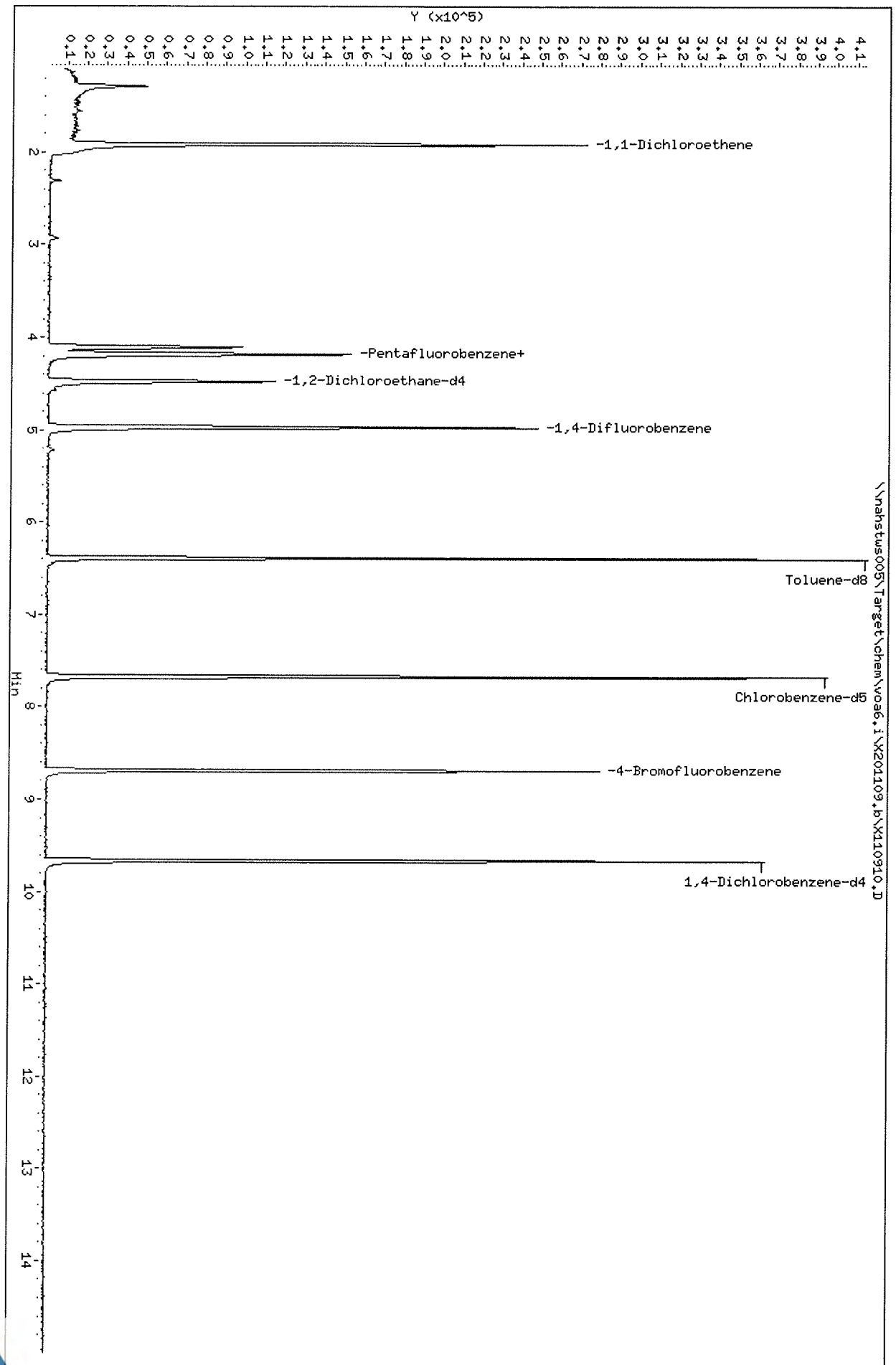
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 5.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.182 | 4.189 | (1.000) | 104208 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 4.970 | 4.970 | (1.000) | 182037 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 7.671 | 7.671 | (1.000) | 159609 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 9.662 | 9.662 | (1.000) | 68274 | 50.0000 | |
| $ 35 1,2-Dichloroethane-d4 | 65 | 4.476 | 4.476 | (1.070) | 77278 | 46.8871 | 46.88 |
| $ 69 4-Bromofluorobenzene | 95 | 8.688 | 8.688 | (1.133) | 69557 | 49.1166 | 49.11 |
| $ 30 Dibromofluoromethane | 113 | 4.103 | 4.103 | (0.981) | 62111 | 44.2581 | 44.25 |
| $ 48 Toluene-d8 | 98 | 6.388 | 6.388 | (0.833) | 219675 | 51.5288 | 51.52 |
| 11 1,1-Dichloroethene | 96 | 1.919 | 1.919 | (0.459) | 85568 | 43.5215 | 217.60 |

Data File: \\nahstws005\Target\chem\voa6.i\X201109.b\X110910.D
Date : 09-NOV-2020 16:41
Client ID: HS20110128-10
Sample Info: HS20110128-10;HS20110128-10;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X201109.b\X110910.D



Date : 09-NOV-2020 16:41

Client ID: HS20110128-10

Instrument: voa6.i

Sample Info: HS20110128-10;HS20110128-10;;;

Purge Volume: 5.0

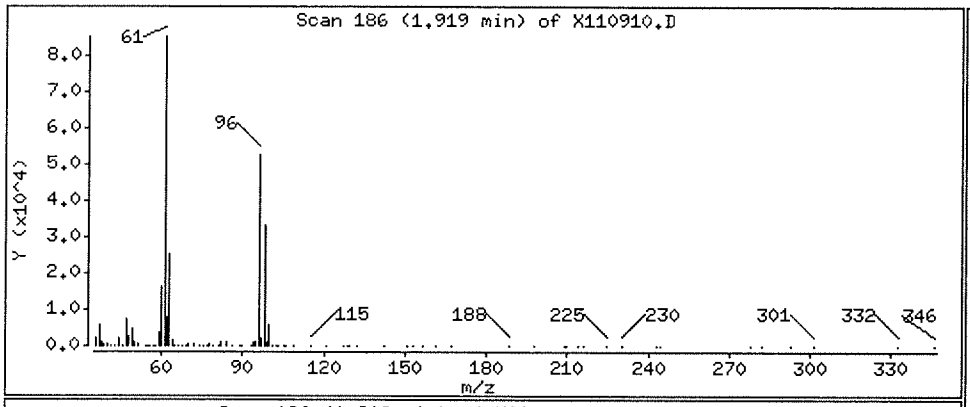
Operator: PC

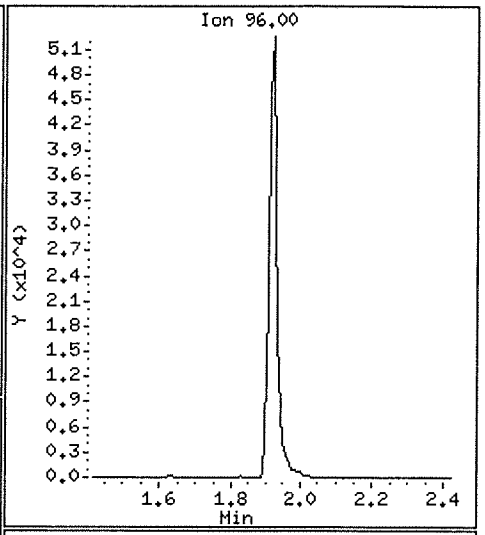
Column phase: DB624

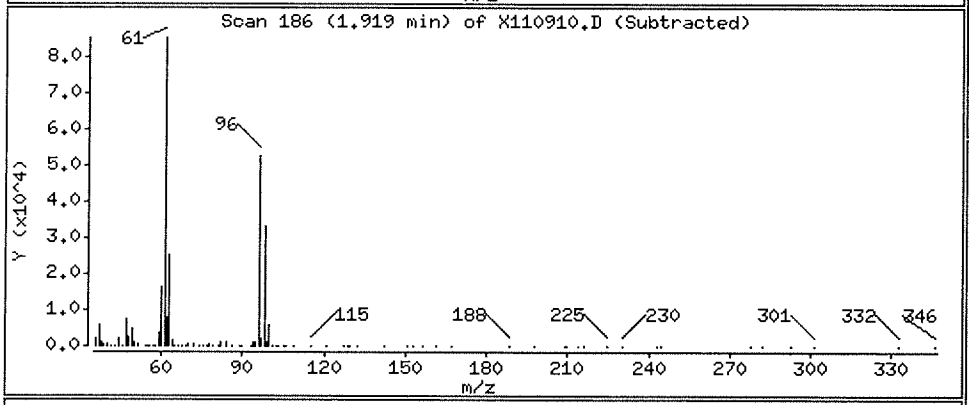
Column diameter: 0.18

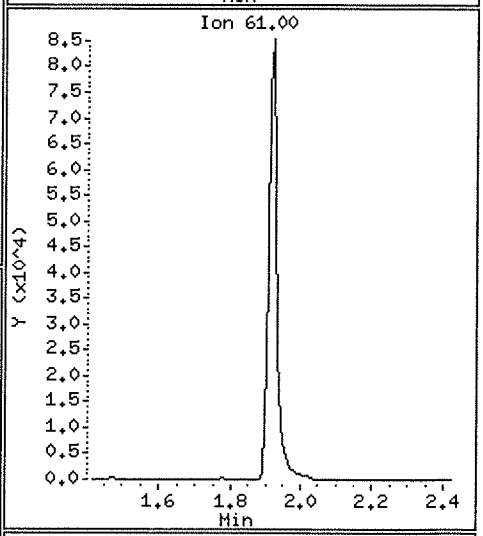
11 1,1-Dichloroethene

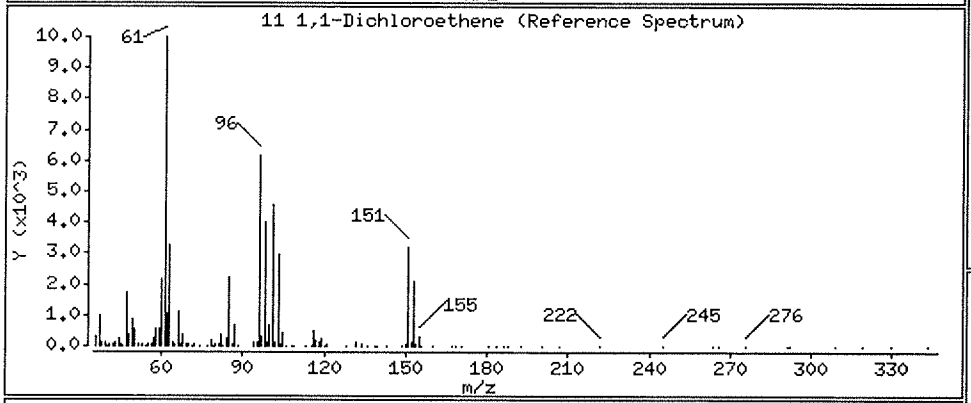
Concentration: 217.60 ug/l

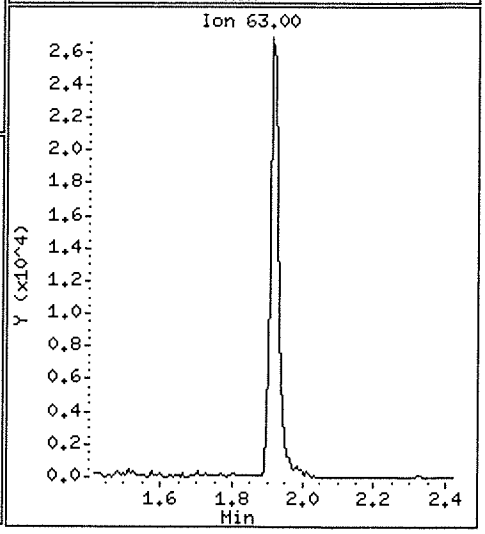


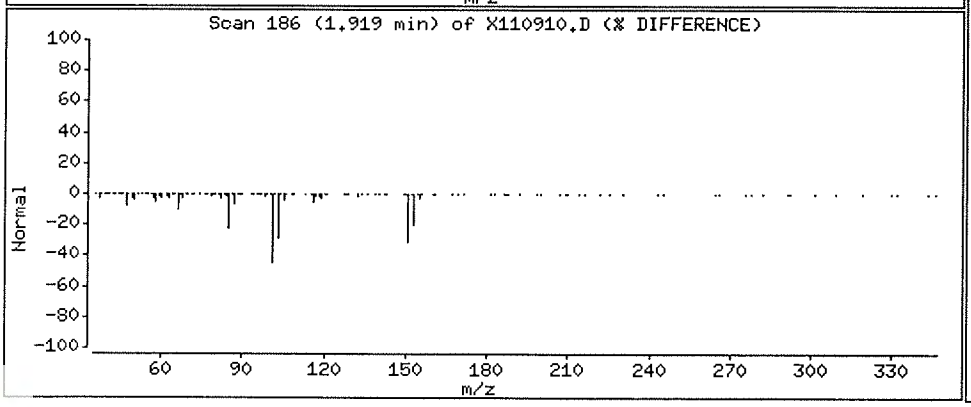



Data File: \\nahstws005\Target\chem\voa6.i\X201109.b\X110911.D Page 1
Report Date: 13-Jan-2021 19:24

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201109.b\X110911.D
Lab Smp Id: HS20110128-11 Client Smp ID: HS20110128-11
Inj Date : 09-NOV-2020 17:02
Operator : PC Inst ID: voa6.i
Smp Info : HS20110128-11;HS20110128-11;;;
Misc Info : HS18090001;WATER;0;10;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201109.b\8260W.m
Meth Date : 13-Jan-2021 19:24 devak.giga Quant Type: ISTD
Cal Date : 03-NOV-2020 14:27 Cal File: X110308.D
Als bottle: 11
Dil Factor: 10.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

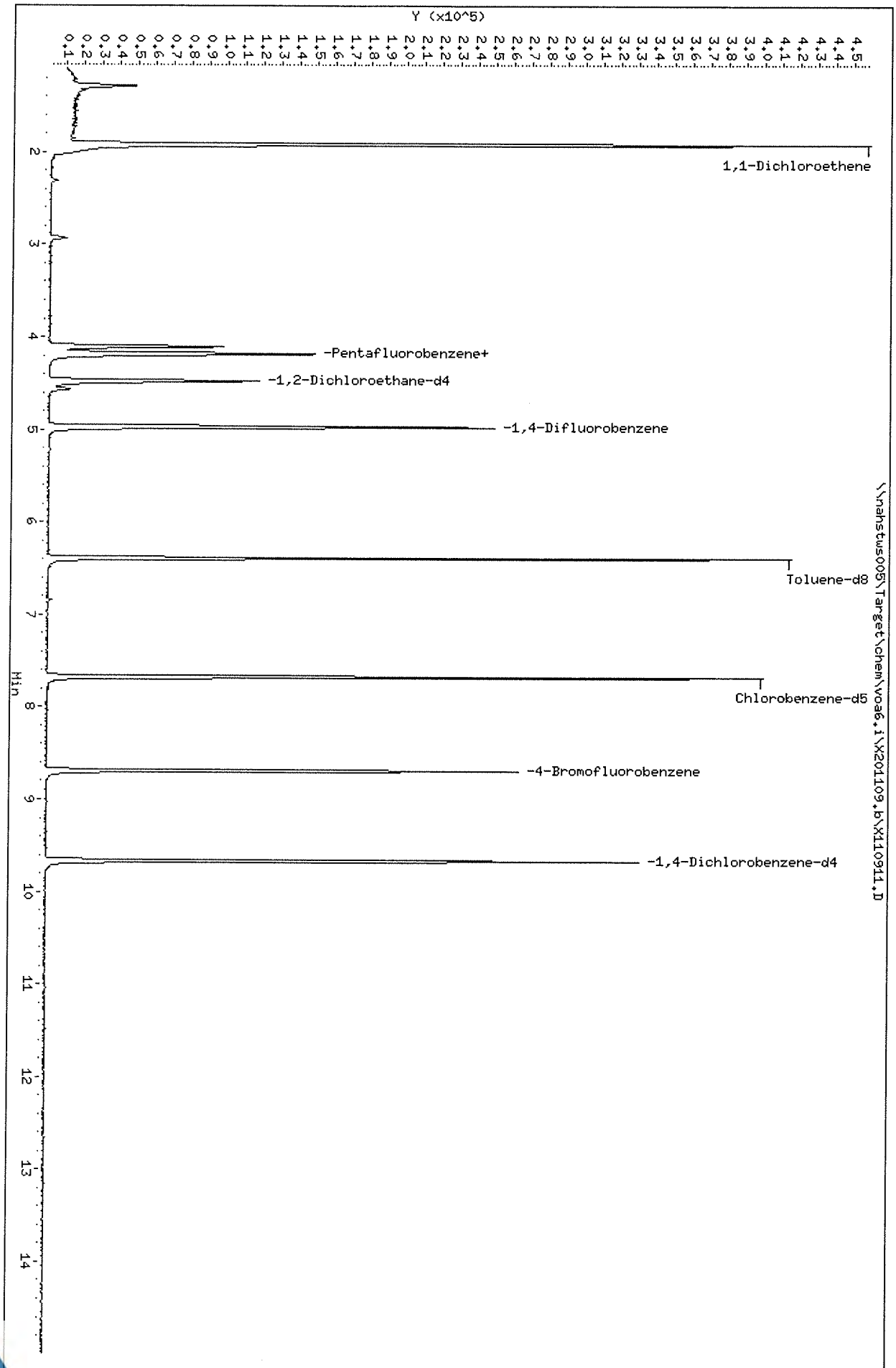
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 10.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.189 | 4.189 | (1.000) | 105485 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 4.970 | 4.970 | (1.000) | 181966 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 7.670 | 7.671 | (1.000) | 161843 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 9.662 | 9.662 | (1.000) | 64403 | 50.0000 | |
| $ 35 1,2-Dichloroethane-d4 | 65 | 4.476 | 4.476 | (1.068) | 80415 | 48.1497 | 48.14 |
| $ 69 4-Bromofluorobenzene | 95 | 8.695 | 8.688 | (1.134) | 63037 | 44.0781 | 44.07 |
| $ 30 Dibromofluoromethane | 113 | 4.103 | 4.103 | (0.979) | 58575 | 41.2331 | 41.23 |
| $ 48 Toluene-d8 | 98 | 6.388 | 6.388 | (0.833) | 218983 | 50.6574 | 50.65 |
| 11 1,1-Dichloroethene | 96 | 1.918 | 1.919 | (0.458) | 143092 | 71.8983 | 718.98 |

Data File: \\nahstws005\Target\chem\voa6.i\X201109.b\X110911.D
Date : 09-NOV-2020 17:02
Client ID: HS20110128-11
Sample Info: HS20110128-11;HS20110128-11;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X201109.b\X110911.D



Date : 09-NOV-2020 17:02

Client ID: HS20110128-11

Instrument: voa6.i

Sample Info: HS20110128-11;HS20110128-11;;;

Purge Volume: 5.0

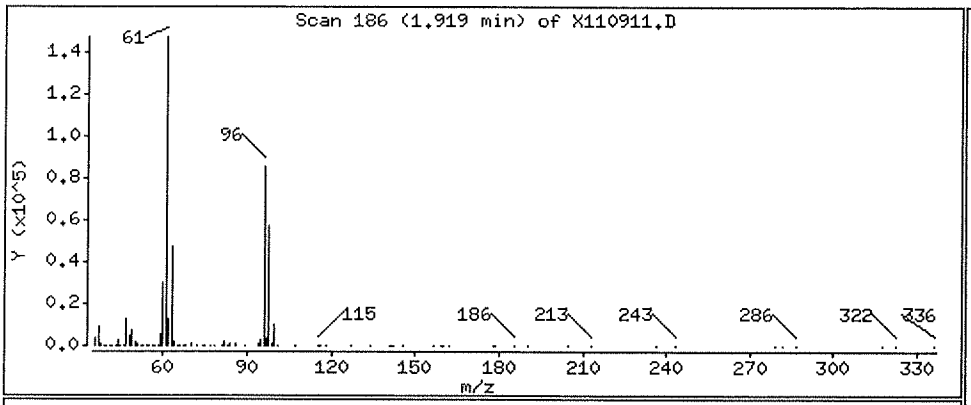
Operator: PC

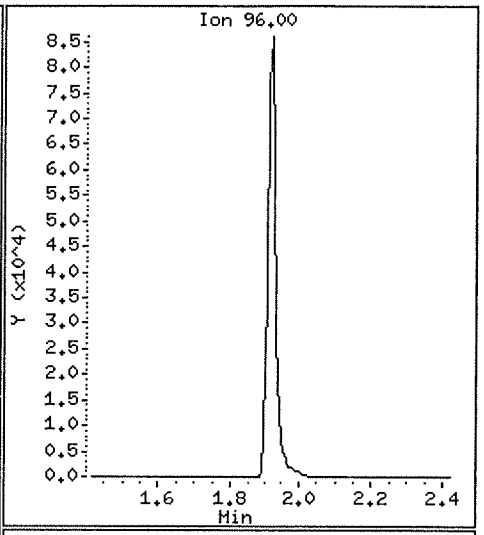
Column phase: DB624

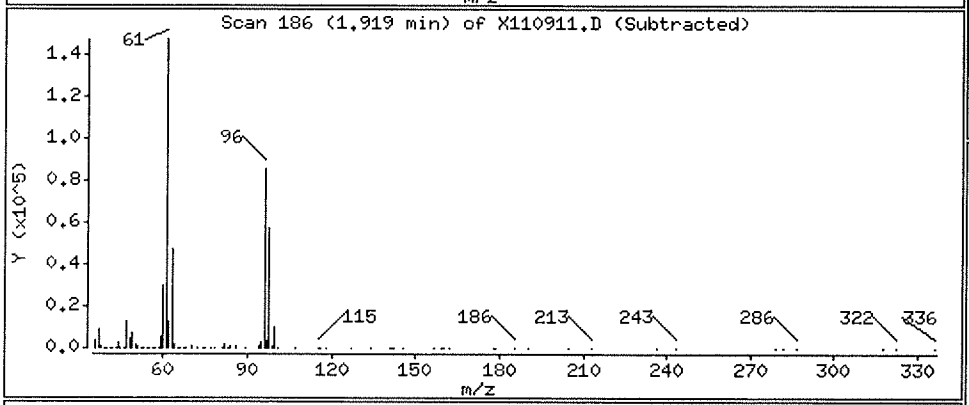
Column diameter: 0.18

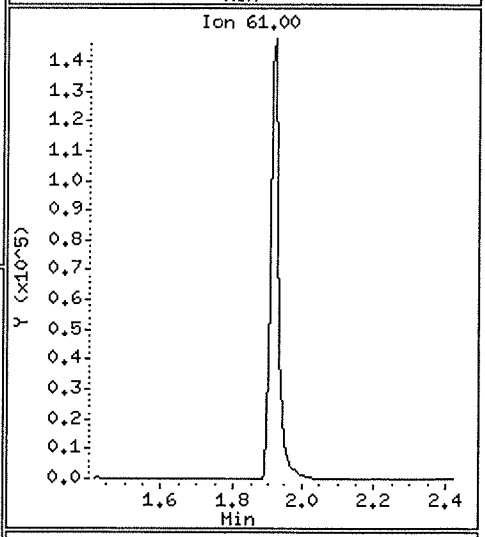
11 1,1-Dichloroethene

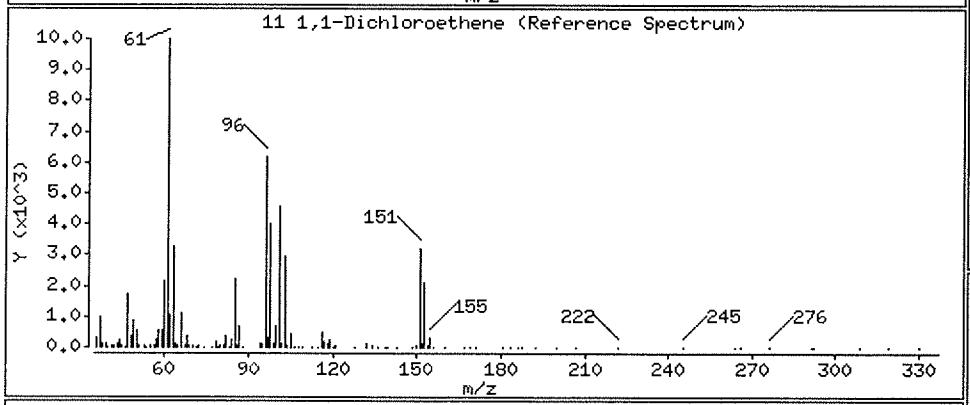
Concentration: 718.98 ug/l

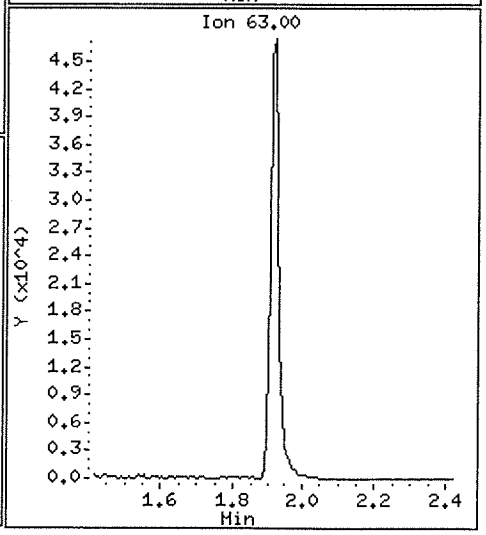


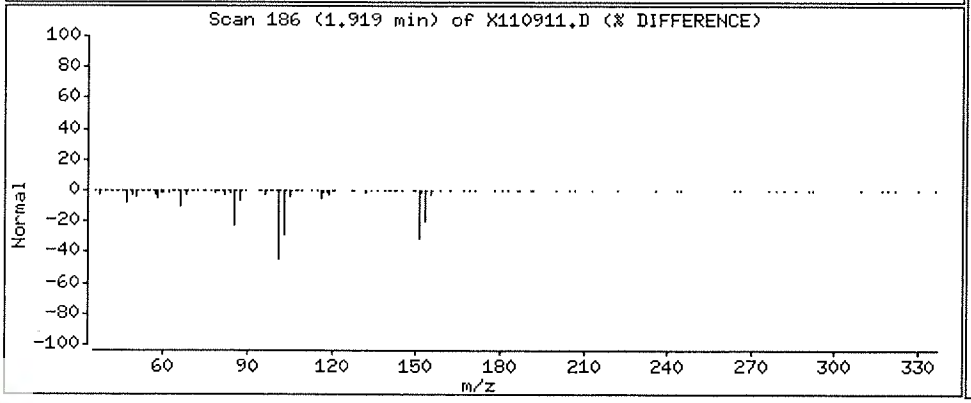



ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201109.b\X110912.D
Lab Smp Id: HS20110128-12 Client Smp ID: HS20110128-12
Inj Date : 09-NOV-2020 17:23
Operator : PC Inst ID: voa6.i
Smp Info : HS20110128-12;HS20110128-12;;;
Misc Info : HS18090001;WATER;0;10;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201109.b\8260W.m
Meth Date : 13-Jan-2021 19:24 devak.giga Quant Type: ISTD
Cal Date : 03-NOV-2020 14:27 Cal File: X110308.D
Als bottle: 12
Dil Factor: 10.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

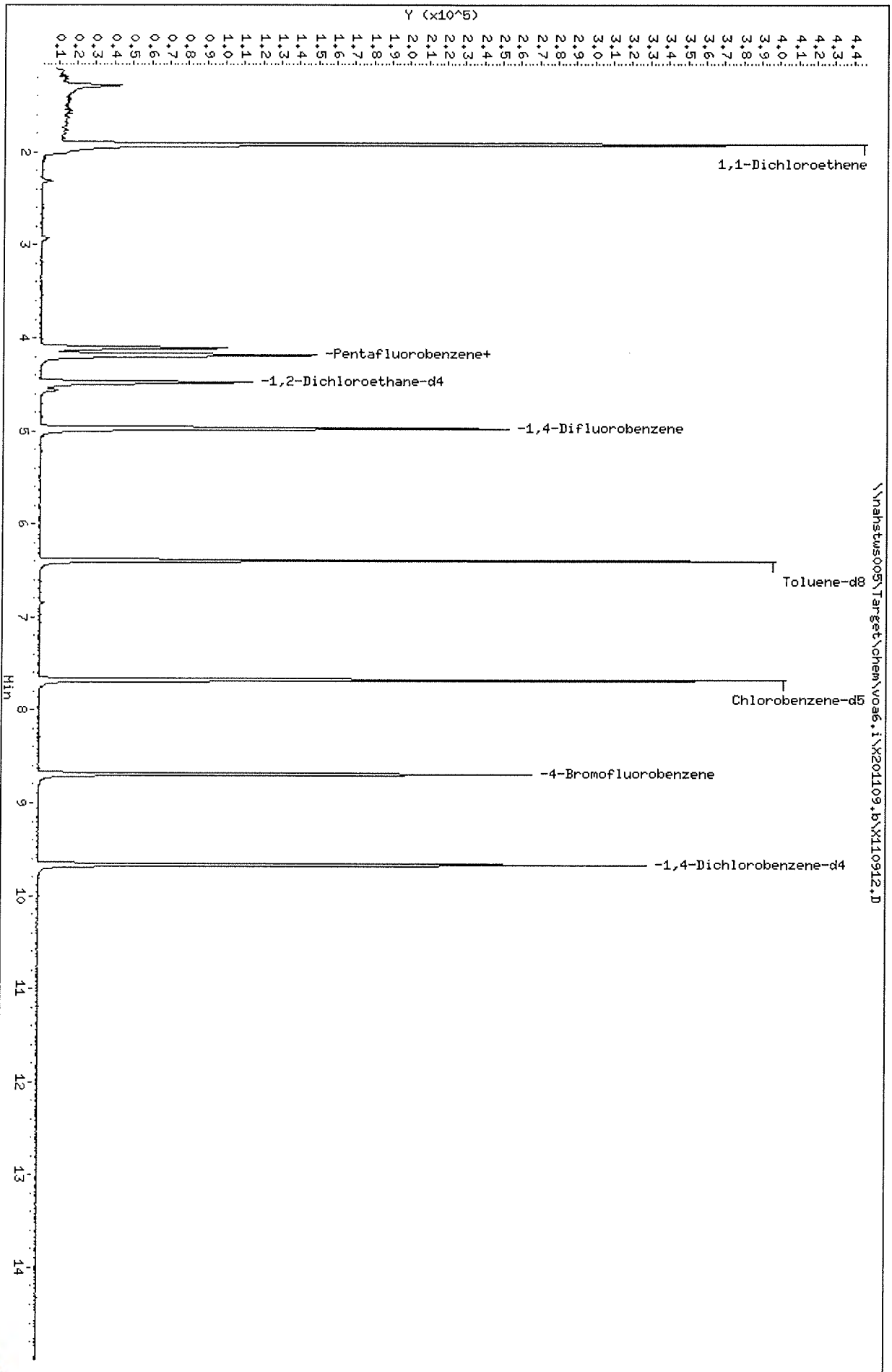
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 10.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| * | 1 Pentafluorobenzene | 168 | 4.189 | 4.189 | (1.000) | 103545 | 50.0000 | |
| * | 36 1,4-Difluorobenzene | 114 | 4.970 | 4.970 | (1.000) | 180453 | 50.0000 | |
| * | 47 Chlorobenzene-d5 | 117 | 7.671 | 7.671 | (1.000) | 158678 | 50.0000 | |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 9.662 | 9.662 | (1.000) | 62094 | 50.0000 | |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 4.476 | 4.476 | (1.068) | 78785 | 48.0611 | 48.06 |
| $ | 69 4-Bromofluorobenzene | 95 | 8.688 | 8.688 | (1.133) | 66748 | 47.4724 | 47.47 |
| $ | 30 Dibromofluoromethane | 113 | 4.103 | 4.103 | (0.979) | 61885 | 44.3794 | 44.37 |
| $ | 48 Toluene-d8 | 98 | 6.388 | 6.388 | (0.833) | 210021 | 49.5533 | 49.55 |
| | 11 1,1-Dichloroethene | 96 | 1.919 | 1.919 | (0.458) | 141820 | 72.5943 | 725.94 |

Data File: \\nahstws005\Target\chem\voa6.i\X201109.b\X110912.D
Date : 09-NOV-2020 17:23
Client ID: HS20110128-12
Sample Info: HS20110128-12;HS20110128-12;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X201109.b\X110912.D



Date : 09-NOV-2020 17:23

Client ID: HS20110128-12

Instrument: voa6.i

Sample Info: HS20110128-12;HS20110128-12;;;

Purge Volume: 5.0

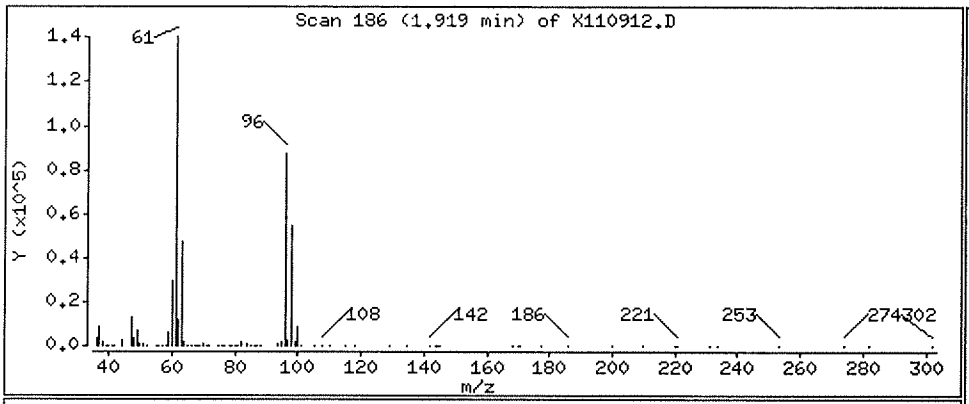
Operator: PC

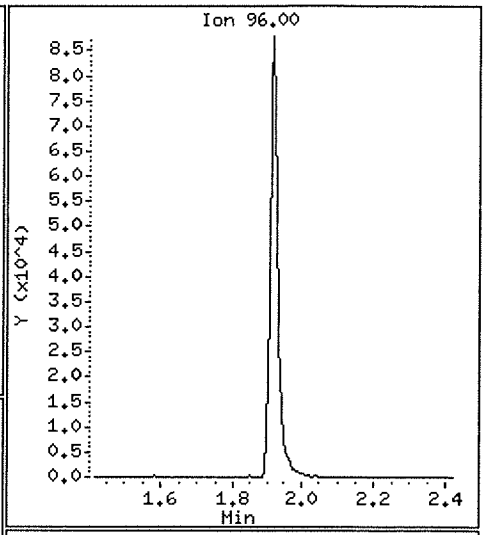
Column phase: DB624

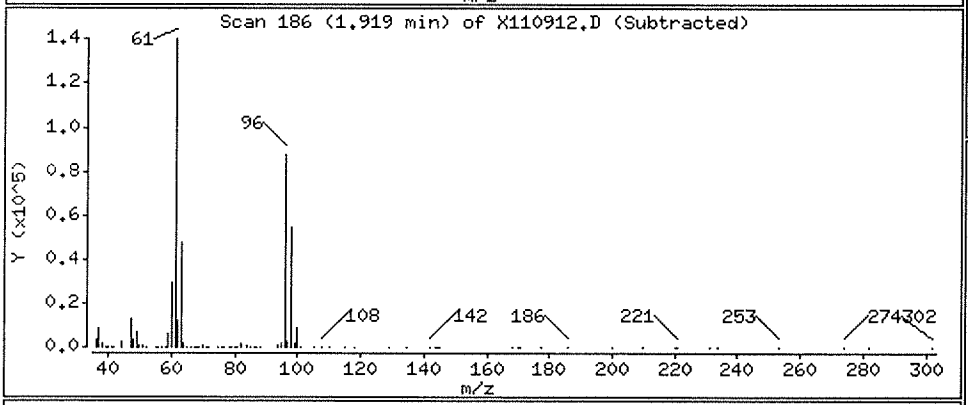
Column diameter: 0.18

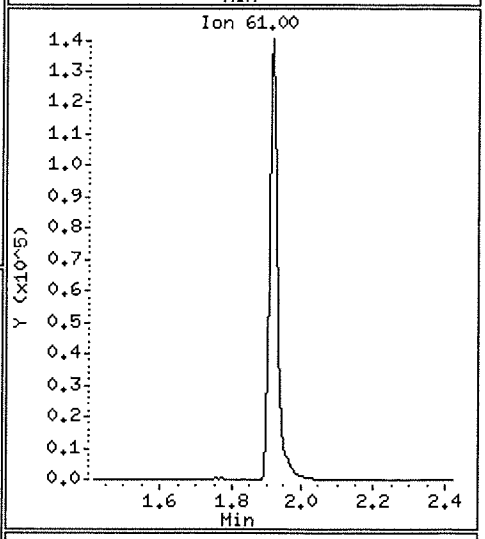
11 1,1-Dichloroethene

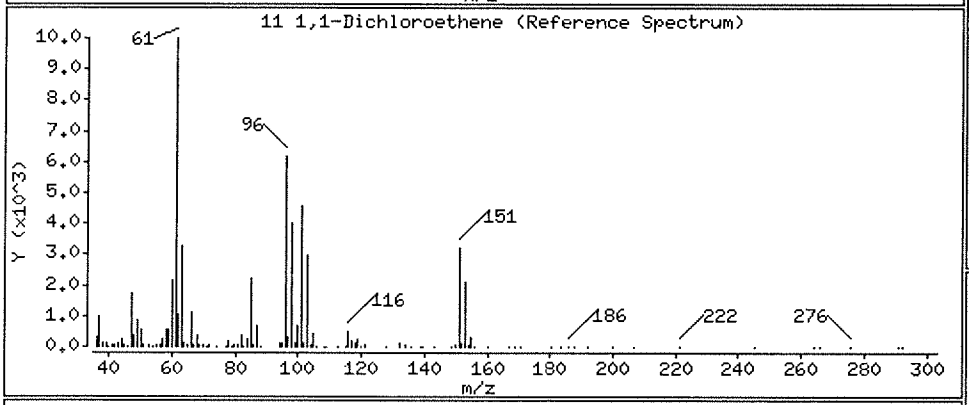
Concentration: 725.94 ug/l

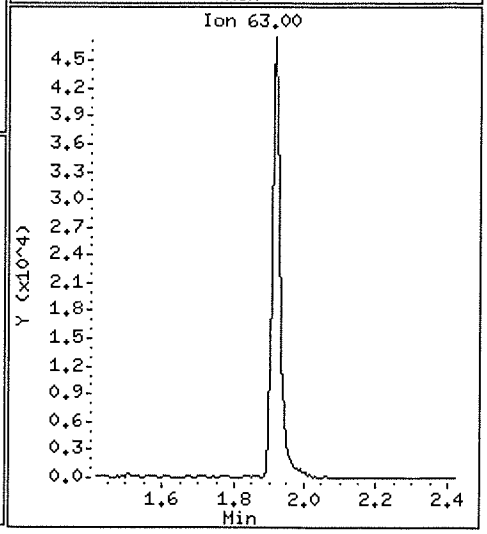


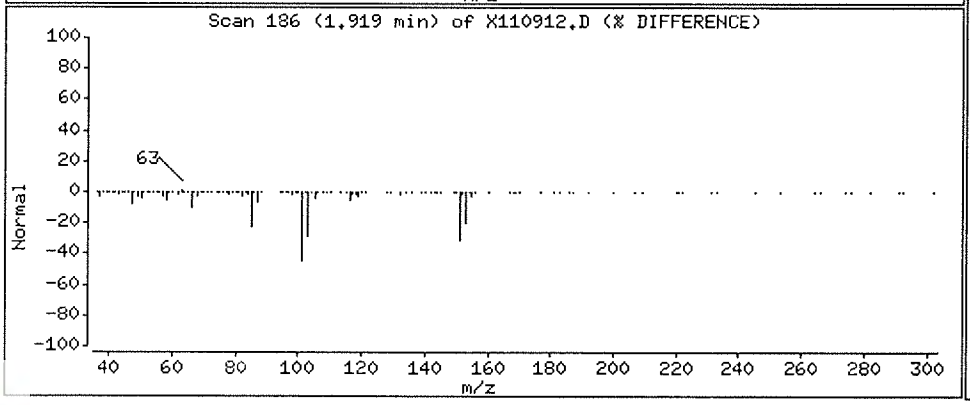



ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201109.b\X110913.D
Lab Smp Id: HS20110264-01MS Client Smp ID: HS20110264-01MS
Inj Date : 09-NOV-2020 17:44
Operator : PC Inst ID: voa6.i
Smp Info : HS20110264-01MS;HS20110264-01MS;3;;MS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201109.b\8260W.m
Meth Date : 14-Jan-2021 12:12 voa6.i Quant Type: ISTD
Cal Date : 03-NOV-2020 14:27 Cal File: X110308.D
Als bottle: 13 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

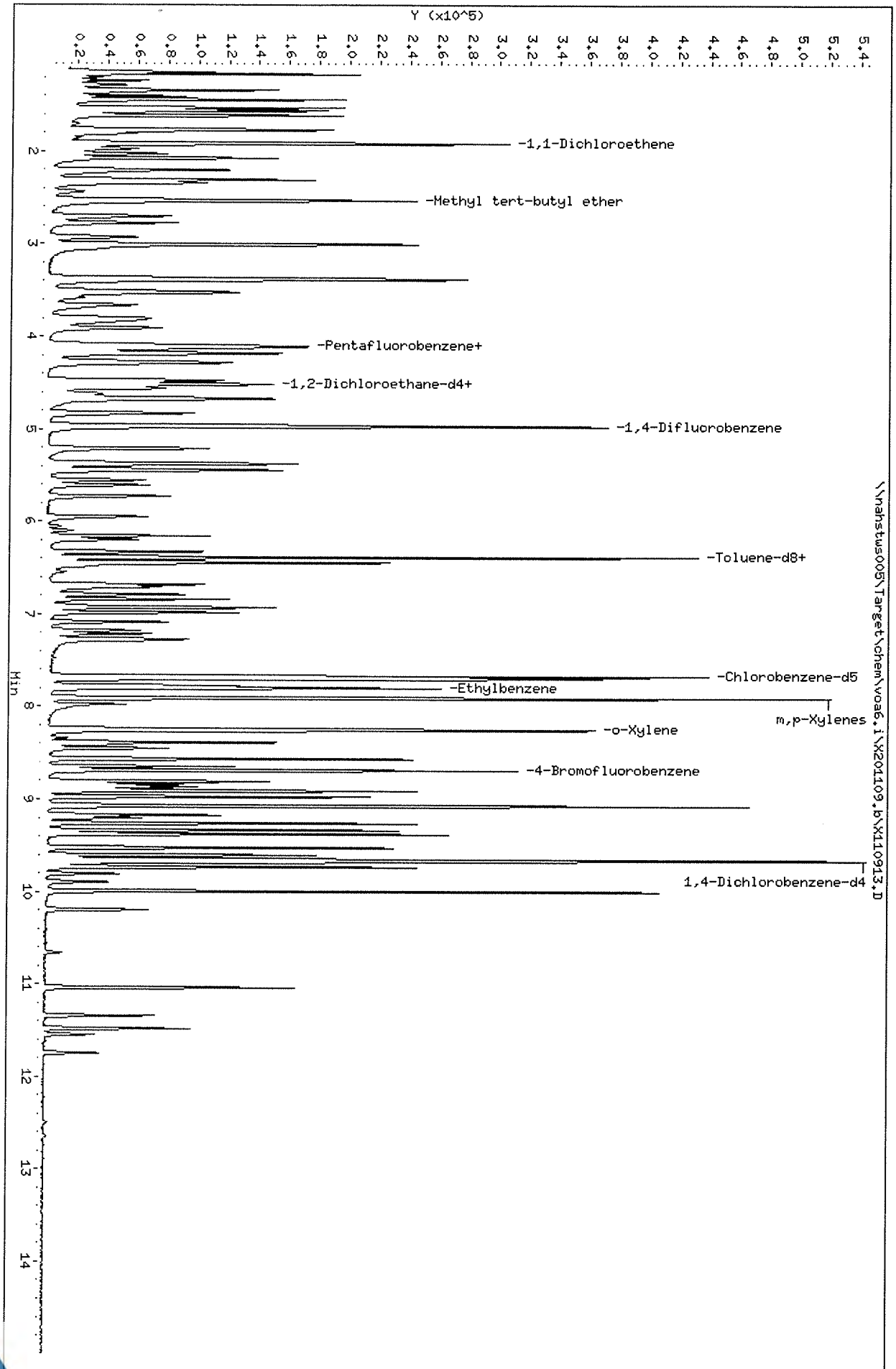
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.182 | 4.189 | (1.000) | 102869 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 4.970 | 4.970 | (1.000) | 186164 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 7.671 | 7.671 | (1.000) | 163332 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 9.662 | 9.662 | (1.000) | 76583 | 50.0000 | |
| $ 35 1,2-Dichloroethane-d4 | 65 | 4.476 | 4.476 | (1.070) | 79202 | 48.6108 | 48.61 |
| $ 69 4-Bromofluorobenzene | 95 | 8.688 | 8.688 | (1.133) | 70104 | 48.4023 | 48.40 |
| $ 30 Dibromofluoromethane | 113 | 4.103 | 4.103 | (0.981) | 65693 | 47.4198 | 47.41 |
| $ 48 Toluene-d8 | 98 | 6.388 | 6.388 | (0.833) | 217113 | 49.7669 | 49.76 |
| 11 1,1-Dichloroethene | 96 | 1.919 | 1.919 | (0.459) | 49640 | 25.5765 | 25.57 |
| 37 Benzene | 78 | 4.519 | 4.519 | (0.909) | 121213 | 23.3106 | 23.31 |
| 61 Ethylbenzene | 106 | 7.800 | 7.800 | (1.017) | 41179 | 23.2548 | 23.25 |
| 62 m,p-Xylenes | 106 | 7.907 | 7.907 | (1.031) | 102171 | 48.1707 | 48.17 |
| 63 o-Xylene | 106 | 8.244 | 8.244 | (1.075) | 48744 | 23.0613 | 23.06 |
| 50 Toluene | 91 | 6.446 | 6.446 | (0.840) | 130475 | 21.8284 | 21.82 |

Data File: \\nahstus005\Target\chem\voa6.i\X201109.b\X110913.D
Date : 09-NOV-2020 17:44
Client ID: HS20110264-01MS
Sample Info: HS20110264-01MS;HS20110264-01MS;3;;MS
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X201109.b\X110914.D Page 1
Report Date: 14-Jan-2021 12:12

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201109.b\X110914.D
Lab Smp Id: HS20110264-01MSD Client Smp ID: HS20110264-01MSD
Inj Date : 09-NOV-2020 18:05
Operator : PC Inst ID: voa6.i
Smp Info : HS20110264-01MSD;HS20110264-01MSD;3;;MSD
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201109.b\8260W.m
Meth Date : 14-Jan-2021 12:12 voa6.i Quant Type: ISTD
Cal Date : 03-NOV-2020 14:27 Cal File: X110308.D
Als bottle: 13 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

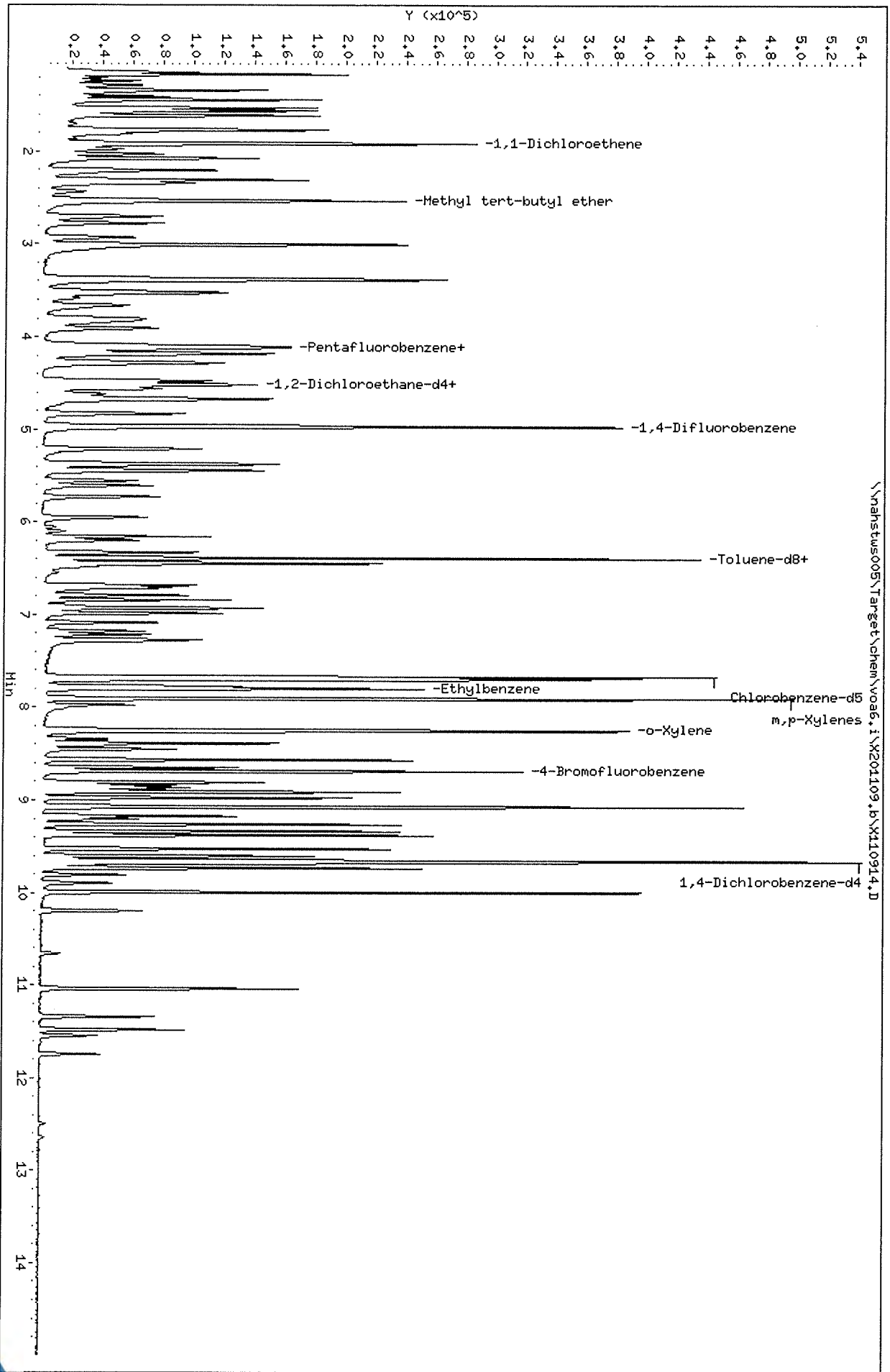
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.182 | 4.189 | (1.000) | 104320 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 4.970 | 4.970 | (1.000) | 184225 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 7.671 | 7.671 | (1.000) | 163918 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 9.662 | 9.662 | (1.000) | 78355 | 50.0000 | |
| $ 35 1,2-Dichloroethane-d4 | 65 | 4.476 | 4.476 | (1.070) | 76466 | 46.3643 | 46.36 |
| $ 69 4-Bromofluorobenzene | 95 | 8.688 | 8.688 | (1.133) | 70736 | 48.6542 | 48.65 |
| $ 30 Dibromofluoromethane | 113 | 4.103 | 4.103 | (0.981) | 63647 | 45.3039 | 45.30 |
| $ 48 Toluene-d8 | 98 | 6.388 | 6.388 | (0.833) | 216528 | 49.4554 | 49.45 |
| 11 1,1-Dichloroethene | 96 | 1.919 | 1.919 | (0.459) | 45585 | 23.1605 | 23.16 |
| 37 Benzene | 78 | 4.519 | 4.519 | (0.909) | 118113 | 22.9535 | 22.95 |
| 61 Ethylbenzene | 106 | 7.800 | 7.800 | (1.017) | 40028 | 22.5240 | 22.52 |
| 62 m,p-Xylenes | 106 | 7.907 | 7.907 | (1.031) | 101724 | 47.7885 | 47.78 |
| 63 o-Xylene | 106 | 8.244 | 8.244 | (1.075) | 48772 | 22.9921 | 22.99 |
| 50 Toluene | 91 | 6.446 | 6.446 | (0.840) | 121699 | 20.2874 | 20.28 |

Data File: \\nahstws005\Target\chem\voa6.i\X201109.b\X110914.D
Date : 09-NOV-2020 18:05
Client ID: HS20110264-01MSD
Sample Info: HS20110264-01MSD;HS20110264-01MSD;3;;MSD
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X201109.b\X110915.D Page 1
Report Date: 14-Jan-2021 12:13

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201109.b\X110915.D
Lab Smp Id: CCV-END Client Smp ID: CCV-END
Inj Date : 09-NOV-2020 18:26
Operator : PC Inst ID: voa6.i
Smp Info : CCV-END;CCV-END;2;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201109.b\8260W.m
Meth Date : 14-Jan-2021 12:13 voa6.i Quant Type: ISTD
Cal Date : 03-NOV-2020 14:27 Cal File: X110308.D
Als bottle: 14 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 5.000 | ng unit correction factor |
| Vo | 5.000 | sample purged |
| Cpnd Variable | | Local Compound Variable |

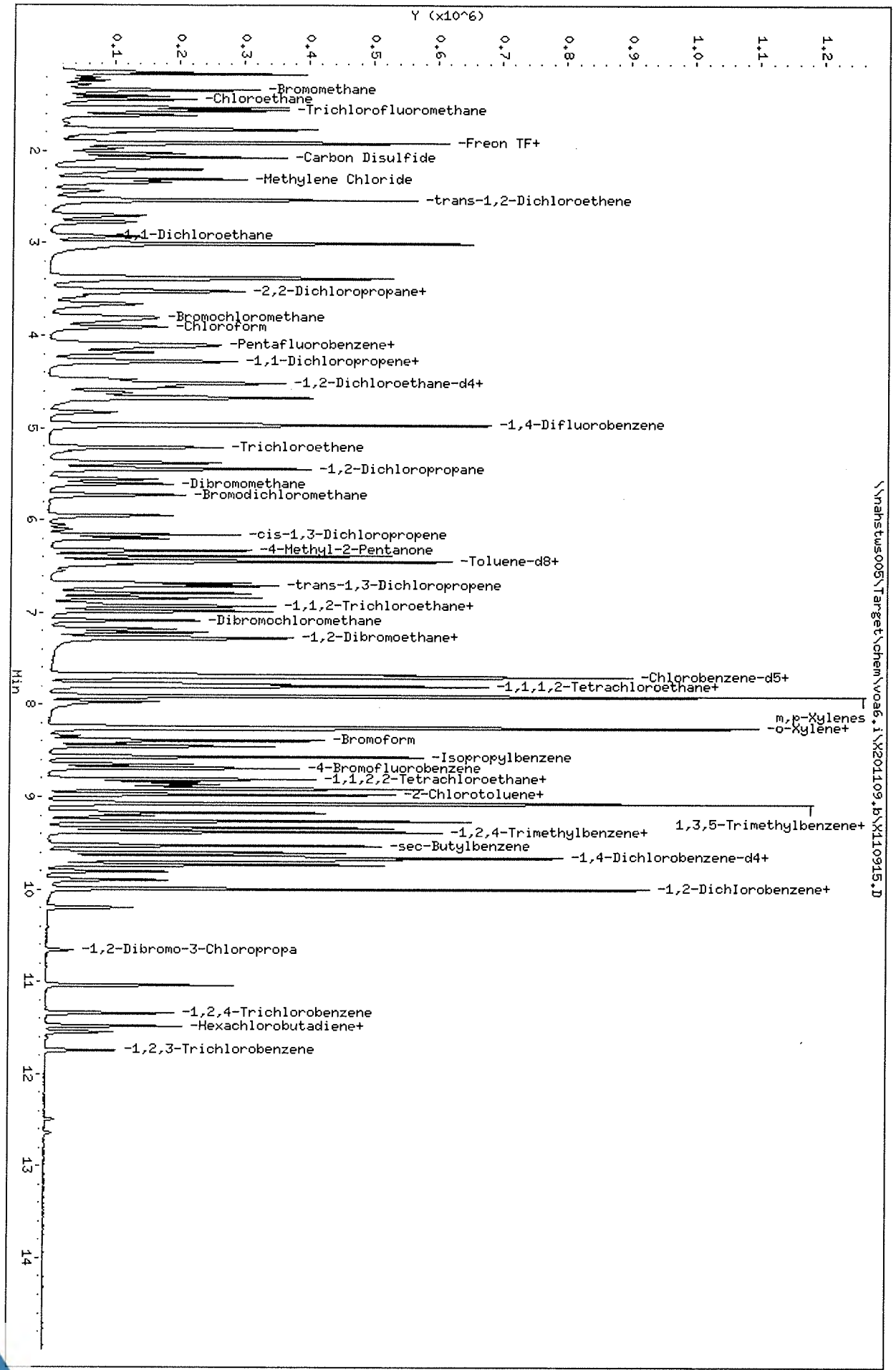
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.189 | 4.189 | (1.000) | 107301 | 50.0000 | |
| * 36 1,4-Difluorobenzene | 114 | 4.970 | 4.970 | (1.000) | 221108 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 7.670 | 7.670 | (1.000) | 208482 | 50.0000 | |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 9.662 | 9.662 | (1.000) | 92908 | 50.0000 | |
| $ 35 1,2-Dichloroethane-d4 | 65 | 4.476 | 4.476 | (1.068) | 90721 | 50.0000 | 53.17 |
| $ 69 4-Bromofluorobenzene | 95 | 8.688 | 8.688 | (1.133) | 89583 | 50.0000 | 48.45 |
| $ 30 Dibromofluoromethane | 113 | 4.103 | 4.103 | (0.979) | 75302 | 50.0000 | 52.11 |
| $ 48 Toluene-d8 | 98 | 6.388 | 6.388 | (0.833) | 260107 | 50.0000 | 46.71 |
| 60 1,1,1,2-Tetrachloroethane | 131 | 7.778 | 7.778 | (1.014) | 62760 | 50.0000 | 42.19 |
| 31 1,1,1-Trichloroethane | 97 | 4.089 | 4.089 | (0.976) | 109802 | 50.0000 | 49.00 |
| 68 1,1,2,2-Tetrachloroethane | 83 | 8.838 | 8.838 | (0.915) | 88009 | 50.0000 | 57.48 |
| 138 Freon TF | 101 | 1.919 | 1.919 | (0.458) | 93736 | 50.0000 | 47.84 |
| 53 1,1,2-Trichloroethane | 83 | 6.840 | 6.840 | (0.892) | 64606 | 50.0000 | 50.24 |
| 22 1,1-Dichloroethane | 63 | 2.929 | 2.929 | (0.699) | 132661 | 50.0000 | 51.43 |
| 11 1,1-Dichloroethene | 96 | 1.919 | 1.919 | (0.458) | 110364 | 50.0000 | 54.51 |
| 32 1,1-Dichloropropene | 75 | 4.282 | 4.282 | (0.862) | 97980 | 50.0000 | 47.51 |
| 93 1,2,3-Trichlorobenzene | 180 | 11.746 | 11.746 | (1.216) | 24166 | 50.0000 | 60.30 |
| 71 1,2,3-Trichloropropane | 75 | 8.867 | 8.867 | (0.918) | 74039 | 50.0000 | 56.75(M) |
| 90 1,2,4-Trichlorobenzene | 180 | 11.338 | 11.338 | (1.173) | 42129 | 50.0000 | 56.23 |
| 79 1,2,4-Trimethylbenzene | 105 | 9.382 | 9.382 | (0.971) | 256016 | 50.0000 | 49.25 |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 10.657 | 10.657 | (1.103) | 5510 | 50.0000 | 53.44 |
| 57 1,2-Dibromoethane | 107 | 7.262 | 7.262 | (0.947) | 78518 | 50.0000 | 50.22 |

Data File: \\nahstws005\Target\chem\voa6.i\X201109.b\X110915.D Page 2
Report Date: 14-Jan-2021 12:13

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| 88 1,2-Dichlorobenzene | 146 | 9.991 | 9.991 | (1.034) | 125578 | 50.0000 | 48.97 |
| 33 1,2-Dichloroethane | 62 | 4.562 | 4.562 | (0.918) | 118391 | 50.0000 | 49.65 |
| 42 1,2-Dichloropropane | 63 | 5.443 | 5.443 | (1.095) | 81895 | 50.0000 | 50.05 |
| 75 1,3,5-Trimethylbenzene | 105 | 9.067 | 9.067 | (0.938) | 253471 | 50.0000 | 47.81 |
| 83 1,3-Dichlorobenzene | 146 | 9.604 | 9.604 | (0.994) | 133216 | 50.0000 | 48.92 |
| 54 1,3-Dichloropropane | 76 | 6.983 | 6.983 | (0.910) | 131119 | 50.0000 | 51.33 |
| 84 1,4-Dichlorobenzene | 146 | 9.683 | 9.683 | (1.002) | 138106 | 50.0000 | 48.70 |
| 26 2,2-Dichloropropane | 77 | 3.516 | 3.516 | (0.839) | 101052 | 50.0000 | 45.51 |
| 24 2-Butanone | 43 | 3.580 | 3.580 | (0.855) | 58408 | 100.000 | 117.09 |
| 76 2-Chlorotoluene | 91 | 8.974 | 8.974 | (0.929) | 216324 | 50.0000 | 49.57 |
| 52 2-Hexanone | 43 | 7.212 | 7.212 | (0.940) | 137852 | 100.000 | 97.91 |
| 77 4-Chlorotoluene | 91 | 9.074 | 9.074 | (0.939) | 264722 | 50.0000 | 48.03 |
| 82 p-Isopropyltoluene | 119 | 9.655 | 9.655 | (0.999) | 237597 | 50.0000 | 47.34 |
| 45 4-Methyl-2-Pentanone | 43 | 6.324 | 6.324 | (0.824) | 175527 | 100.000 | 110.82 |
| 10 Acetone | 43 | 1.976 | 1.976 | (0.472) | 84648 | 100.000 | 147.20 |
| 37 Benzene | 78 | 4.519 | 4.519 | (0.909) | 302757 | 50.0000 | 49.02 |
| 74 Bromobenzene | 156 | 8.809 | 8.809 | (0.912) | 81123 | 50.0000 | 49.62 |
| 29 Bromochloromethane | 128 | 3.802 | 3.802 | (0.908) | 38446 | 50.0000 | 52.02 |
| 39 Bromodichloromethane | 83 | 5.729 | 5.729 | (1.153) | 103754 | 50.0000 | 45.67 |
| 66 Bromoform | 173 | 8.415 | 8.415 | (1.097) | 34701 | 50.0000 | 34.59 |
| 6 Bromomethane | 94 | 1.338 | 1.338 | (0.320) | 117086 | 50.0000 | 58.63 |
| 19 Carbon Disulfide | 76 | 2.069 | 2.069 | (0.494) | 391576 | 100.000 | 104.09 |
| 34 Carbon Tetrachloride | 117 | 4.275 | 4.275 | (0.860) | 70470 | 50.0000 | 35.59 |
| 59 Chlorobenzene | 112 | 7.699 | 7.699 | (1.004) | 204470 | 50.0000 | 45.89 |
| 7 Chloroethane | 64 | 1.403 | 1.403 | (0.335) | 93377 | 50.0000 | 55.22 |
| 28 Chloroform | 83 | 3.910 | 3.910 | (0.933) | 139660 | 50.0000 | 50.86 |
| 3 Chloromethane | 50 | 1.080 | 1.080 | (0.258) | 85690 | 50.0000 | 56.27 |
| 27 cis-1,2-Dichloroethene | 96 | 3.530 | 3.530 | (0.843) | 81244 | 50.0000 | 51.63 |
| 46 cis-1,3-Dichloropropene | 75 | 6.159 | 6.159 | (1.239) | 121735 | 50.0000 | 49.35 |
| 55 Dibromochloromethane | 129 | 7.176 | 7.176 | (0.936) | 68940 | 50.0000 | 44.74 |
| 44 Dibromomethane | 93 | 5.557 | 5.557 | (1.118) | 56559 | 50.0000 | 50.60 |
| 2 Dichlorodifluoromethane | 85 | 0.973 | 0.973 | (0.232) | 67692 | 50.0000 | 48.71 |
| 61 Ethylbenzene | 106 | 7.799 | 7.799 | (1.017) | 104938 | 50.0000 | 46.42 |
| 91 Hexachlorobutadiene | 225 | 11.481 | 11.481 | (1.188) | 22648 | 50.0000 | 45.60 |
| 67 Isopropylbenzene | 105 | 8.566 | 8.566 | (1.117) | 293520 | 50.0000 | 42.89 |
| 62 m,p-Xylenes | 106 | 7.907 | 7.907 | (1.031) | 261140 | 100.000 | 96.45 |
| 17 Methylene Chloride | 84 | 2.305 | 2.305 | (0.550) | 74379 | 50.0000 | 50.48 |
| 87 n-Butylbenzene | 91 | 9.998 | 9.998 | (1.035) | 236849 | 50.0000 | 42.54 |
| 73 n-Propylbenzene | 91 | 8.917 | 8.917 | (0.923) | 364769 | 50.0000 | 49.31 |
| 92 Naphthalene | 128 | 11.546 | 11.546 | (1.195) | 65086 | 50.0000 | 60.41 |
| 63 o-Xylene | 106 | 8.243 | 8.243 | (1.075) | 122384 | 50.0000 | 45.36 |
| 81 sec-Butylbenzene | 105 | 9.526 | 9.526 | (0.986) | 282965 | 50.0000 | 44.71 |
| 64 Styrene | 104 | 8.258 | 8.258 | (1.077) | 224856 | 50.0000 | 49.70 |
| 78 tert-Butylbenzene | 119 | 9.339 | 9.339 | (0.967) | 191943 | 50.0000 | 45.59 |
| 56 Tetrachloroethene | 164 | 6.933 | 6.933 | (0.904) | 52680 | 50.0000 | 45.90 |
| 50 Toluene | 91 | 6.446 | 6.446 | (0.840) | 331127 | 50.0000 | 43.40 |
| 20 trans-1,2-Dichloroethene | 96 | 2.535 | 2.535 | (0.605) | 70573 | 50.0000 | 52.79 |
| 51 trans-1,3-Dichloropropene | 75 | 6.682 | 6.682 | (1.344) | 113238 | 50.0000 | 52.03 |
| 38 Trichloroethene | 130 | 5.206 | 5.206 | (1.048) | 72252 | 50.0000 | 49.03 |
| 8 Trichlorofluoromethane | 101 | 1.560 | 1.560 | (0.373) | 204578 | 50.0000 | 50.58 |
| 5 Vinyl Chloride | 62 | 1.145 | 1.145 | (0.273) | 137534 | 50.0000 | 58.00 |

QC Flag Legend

M - Compound response manually integrated.

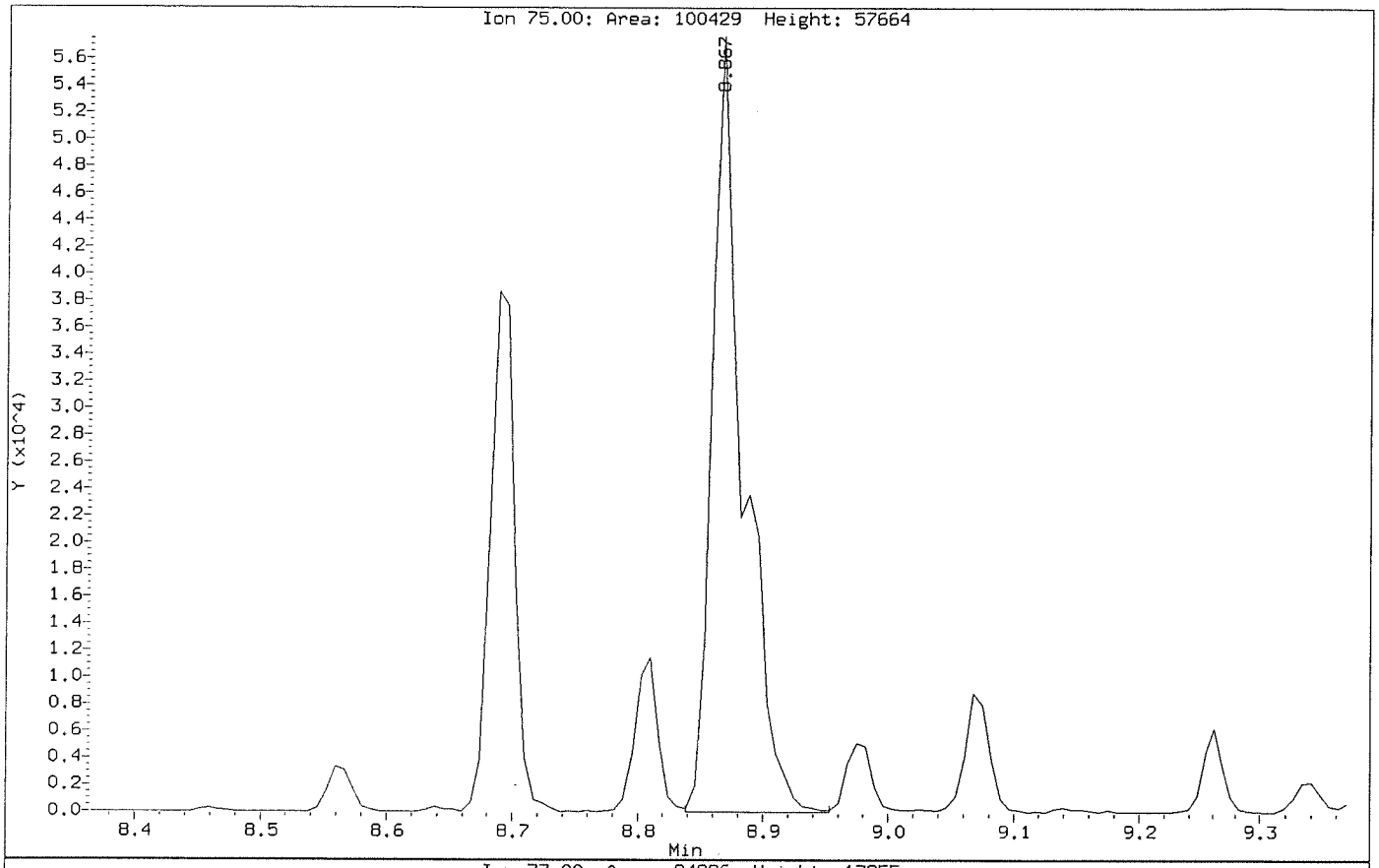


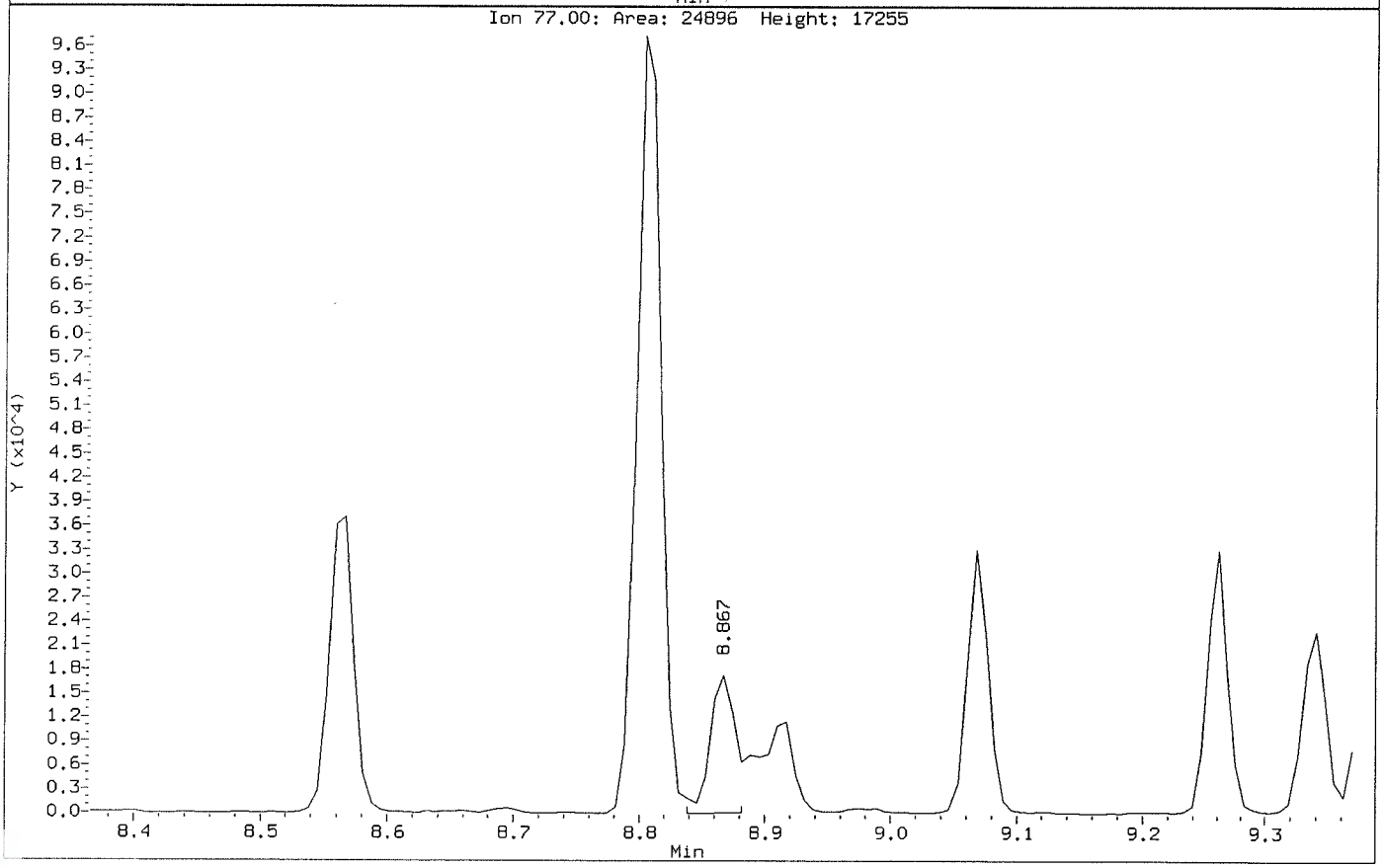

Data File: \\nahstws005\Target\chem\voa6.i\X201109.b\X110915.D
Date : 09-NOV-2020 18:26
Client ID: CCV-END
Sample Info: CCV-END;CCV-END;2;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X201109.b\Before\X110915.D
Injection Date: 09-NOV-2020 18:26
Instrument: voa6.i
Client Sample ID: CCV-END

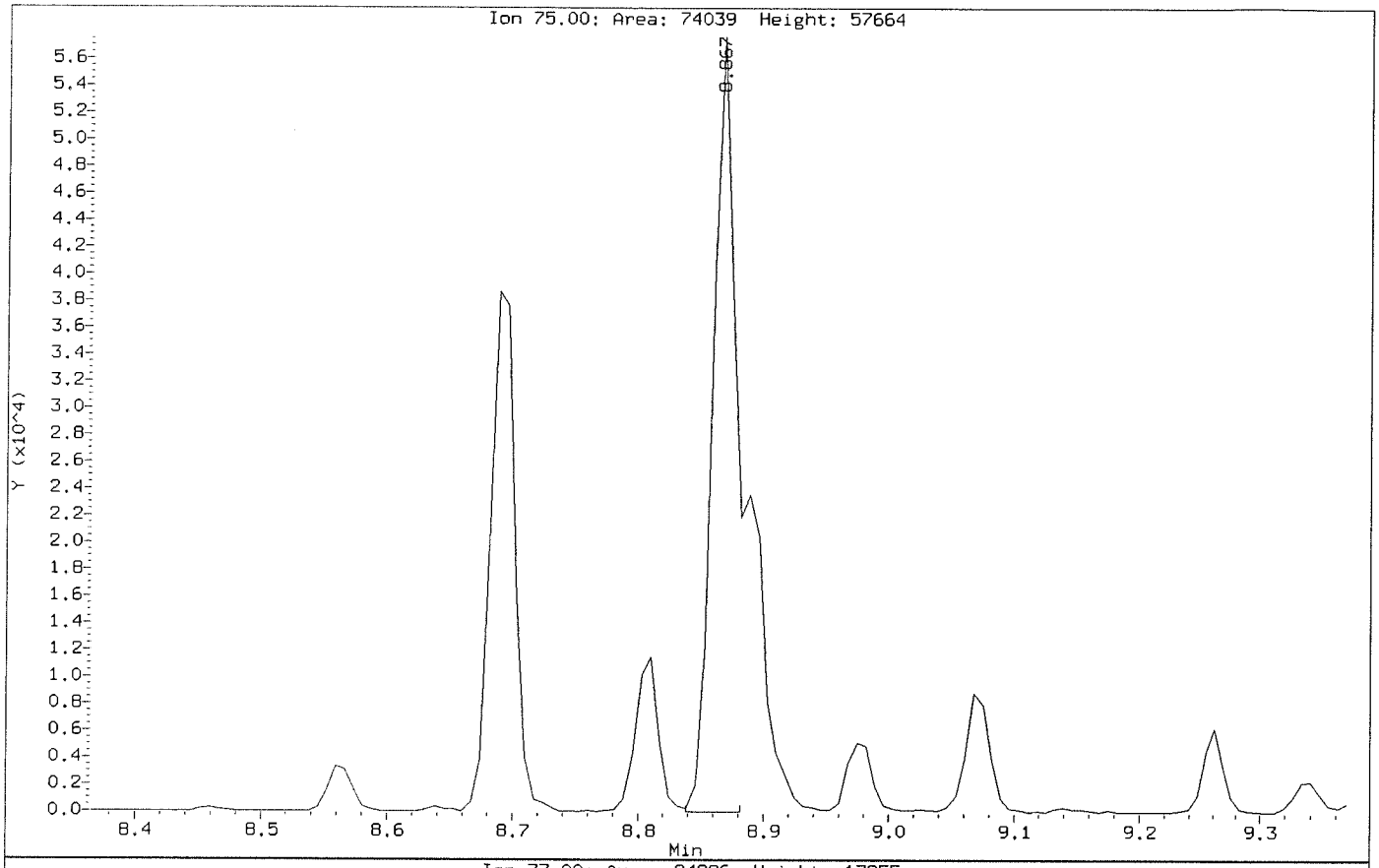
Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4

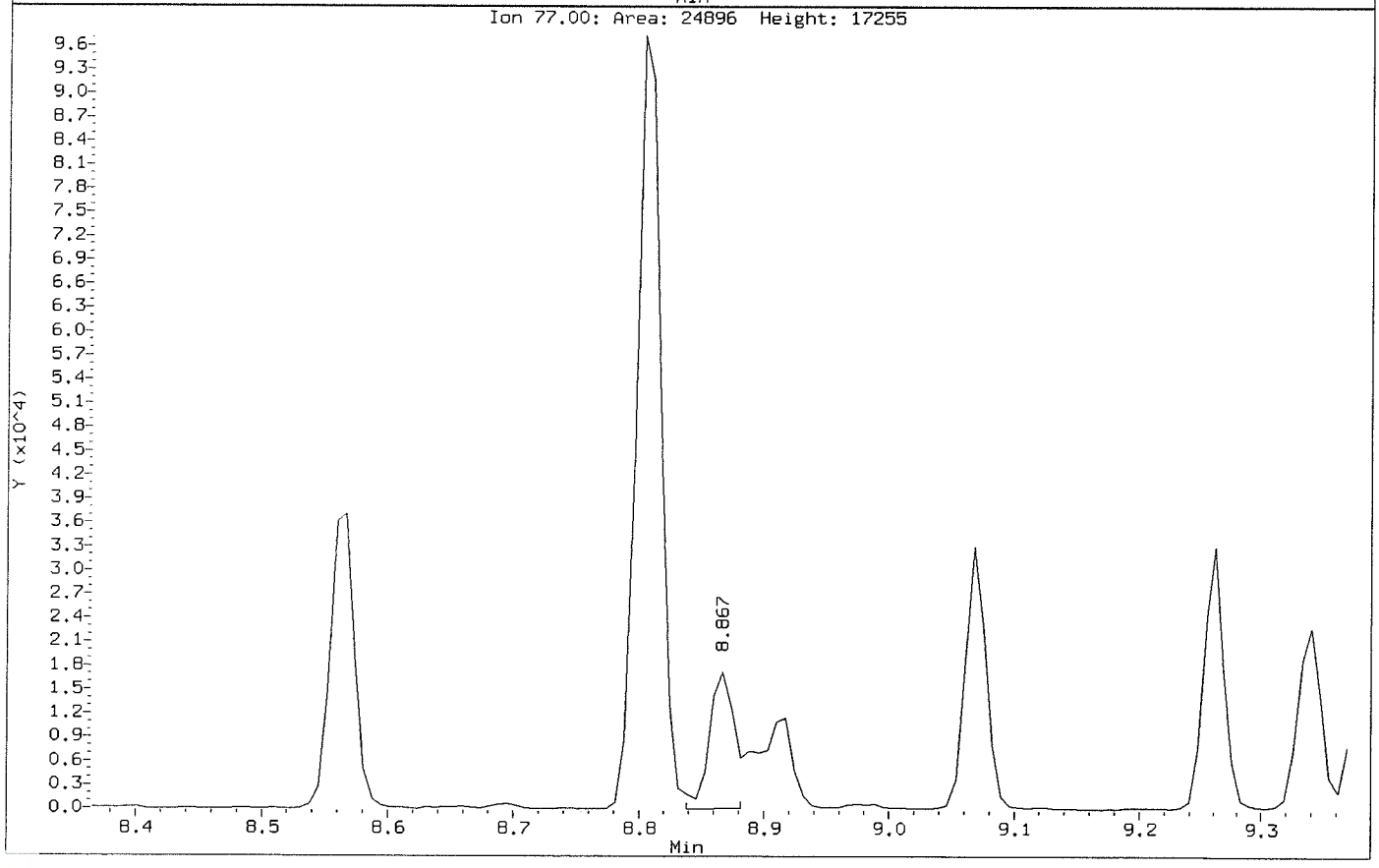


Data File: \\nahstws005\Target\chem\voa6.i\X201109.b\X110915.D
Injection Date: 09-NOV-2020 18:26
Instrument: voa6.i
Client Sample ID: CCV-END

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4

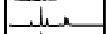
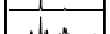


# HS20110128 Wet Chem Raw Data (9056_anions_W)

ALS WO# HS20110128

Sequence: 110320
Last Update Operator: alshs.nouser

| CD | Name | Comment | Type | Position | Dilution | Level | Instrument Method | Processing Method | me | Status |
|---|---|---|---|---|---|---|---|---|---|---|
|  | STD1 | | Calibration | BD1 | 1.00 | 1 | Anions Program 06022020.1 | Anions Processing Method | 5.0 | Finished |
|  | STD2 | | Calibration | BD2 | 1.00 | 2 | Anions Program 06022020.1 | Anions Processing Method | 5.0 | Finished |
|  | STD3 | | Calibration | BD3 | 1.00 | 3 | Anions Program 06022020.1 | Anions Processing Method | 5.0 | Finished |
|  | STD4 | | Calibration | BD4 | 1.00 | 4 | Anions Program 06022020.1 | Anions Processing Method | 5.0 | Finished |
|  | STD5 | | Calibration | BD5 | 1.00 | 5 | Anions Program 06022020.1 | Anions Processing Method | 5.0 | Finished |
|  | STD6 | | Calibration | BD6 | 1.00 | 6 | Anions Program 06022020.1 | Anions Processing Method | 5.0 | Finished |
|  | ICV | | Unknown | BD7 | 1.00 | | Anions Program 06022020.1 | Anions Processing Method | 5.0 | Finished |
|  | ICB | | Unknown | BD8 | 1.00 | | Anions Program 06022020.1 | Anions Processing Method | 5.0 | Finished |
|  | CCV | | Unknown | BA2 | 1.00 | | Anions Program 06022020.1 | Anions Processing Method | 5.0 | Finished |
|  | CCB | | Unknown | BA3 | 1.00 | | Anions Program 06022020.1 | Anions Processing Method | 5.0 | Finished |
|  | MBLK-110320 | | Unknown | BA7 | 1.00 | | Anions Program 06022020.1 | Anions Processing Method | 5.0 | Finished |
|  | LCS-110320 | | Unknown | BA8 | 1.00 | | Anions Program 06022020.1 | Anions Processing Method | 5.0 | Finished |
|  | CCV1 | | Unknown | BB8 | 1.00 | | Anions Program 06022020.1 | Anions Processing Method | 5.0 | Finished |
|  | CCB | | Unknown | BA5 | 1.00 | | Anions Program 06022020.1 | Anions Processing Method | 5.0 | Finished |
|  | CCV1 | | Unknown | BB8 | 1.00 | | Anions Program 06022020.1 | Anions Processing Method | 5.0 | Finished |
|  | CCB | | Unknown | BA5 | 1.00 | | Anions Program 06022020.1 | Anions Processing Method | 5.0 | Finished |
|  | HS20110128-11DF2 | | Unknown | GD8 | 2.00 | | Anions Program 06022020.1 | Anions Processing Method | 5.0 | Finished |
|  | HS20110128-16DF2 | | Unknown | GE3 | 2.00 | | Anions Program 06022020.1 | Anions Processing Method | 5.0 | Finished |
|  | HS20110128-17DF2 | | Unknown | GE4 | 2.00 | | Anions Program 06022020.1 | Anions Processing Method | 5.0 | Finished |
|  | CCV | | Unknown | BA2 | 1.00 | | Anions Program 06022020.1 | Anions Processing Method | 5.0 | Finished |
|  | CCB | | Unknown | BA3 | 1.00 | | Anions Program 06022020.1 | Anions Processing Method | 5.0 | Finished |
|  | HS20110128-11MSDF2 | | Unknown | GE1 | 2.00 | | Anions Program 06022020.1 | Anions Processing Method | 5.0 | Finished |
|  | HS20110128-11MSDDF2 | | Unknown | GE2 | 2.00 | | Anions Program 06022020.1 | Anions Processing Method | 5.0 | Finished |
|  | HS20110128-11DF100 | | Unknown | GE5 | 100.00 | | Anions Program 06022020.1 | Anions Processing Method | 5.0 | Finished |
|  | HS20110128-16DF100 | | Unknown | GE6 | 100.00 | | Anions Program 06022020.1 | Anions Processing Method | 5.0 | Finished |
|  | HS20110128-17DF100 | | Unknown | GE7 | 100.00 | | Anions Program 06022020.1 | Anions Processing Method | 5.0 | Finished |
|  | CCV1 | | Unknown | BA4 | 1.00 | | Anions Program 06022020.1 | Anions Processing Method | 5.0 | Finished |
|  | CCB | | Unknown | BA5 | 1.00 | | Anions Program 06022020.1 | Anions Processing Method | 5.0 | Finished |

Sequence: 110320
Last Update Operator: alshs.nouser

| Inject Time |
|---|
| 8/11/2020 10:46:45 AM -05:00 |
| 8/11/2020 11:04:45 AM -05:00 |
| 8/11/2020 11:22:45 AM -05:00 |
| 8/11/2020 11:40:48 AM -05:00 |
| 8/11/2020 11:58:48 AM -05:00 |
| 8/11/2020 12:16:48 PM -05:00 |
| 8/11/2020 12:34:48 PM -05:00 |
| 8/11/2020 12:52:50 PM -05:00 |
| 11/3/2020 12:34:13 PM -06:00 |
| 11/3/2020 12:52:14 PM -06:00 |
| 11/3/2020 1:46:18 PM -06:00 |
| 11/3/2020 2:04:19 PM -06:00 |
| 11/3/2020 4:10:43 PM -06:00 |
| 11/3/2020 4:28:49 PM -06:00 |
| 11/4/2020 2:07:18 PM -06:00 |
| 11/4/2020 2:43:19 PM -06:00 |
| 11/4/2020 3:19:26 PM -06:00 |
| 11/4/2020 3:37:26 PM -06:00 |
| 11/4/2020 3:55:25 PM -06:00 |
| 11/4/2020 6:01:43 PM -06:00 |
| 11/4/2020 6:19:48 PM -06:00 |
| 11/4/2020 7:14:00 PM -06:00 |
| 11/4/2020 7:32:00 PM -06:00 |
| 11/4/2020 7:50:02 PM -06:00 |
| 11/4/2020 8:08:02 PM -06:00 |
| 11/4/2020 8:26:01 PM -06:00 |
| 11/4/2020 9:56:17 PM -06:00 |
| 11/4/2020 10:32:20 PM -06:00 |

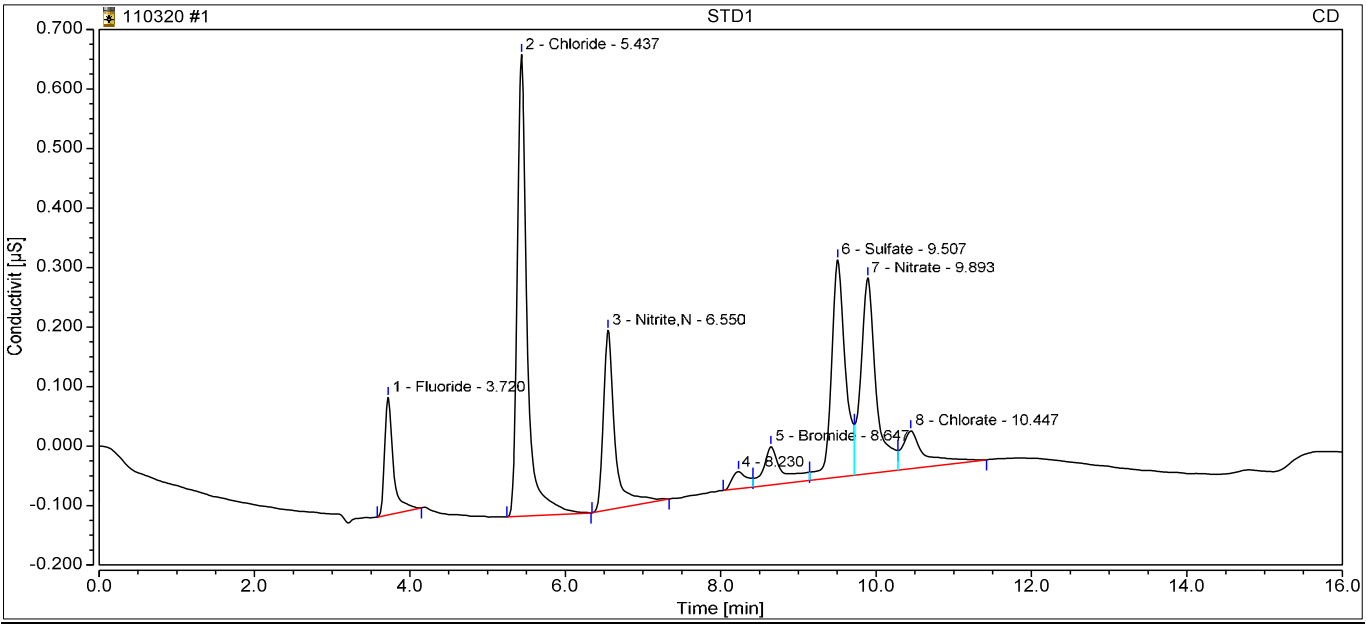
Sequence: 110320
Injection #6: STD6

Calibration

| Peak No. | Peak Name | Cal.Type | Eval.Type | Number of Points | Rel.Std.Dev. % | Coeff.of Determination | C0 (Offset) | C1 (Slope) | C2 (Curve) |
|---|---|---|---|---|---|---|---|---|---|
| *1* | *Fluoride* | *Lin, WithOffset, 1/* | *Area* | *6* | *17.3553* | *0.99849* | *-0.0040* | *0.3537* | *0.0000* |
| 2 | Chloride | Lin, WithOffset, 1/ | Area | 6 | 5.4804 | 0.99983 | 0.0129 | 0.2289 | 0.0000 |
| 3 | Nitrite,N | Lin, WithOffset, 1/ | Area | 6 | 26.1376 | 0.99573 | 0.0186 | 0.4711 | 0.0000 |
| 5 | Bromide | Lin, WithOffset, 1/ | Area | 6 | 0.9346 | 0.99999 | 0.0083 | 0.1008 | 0.0000 |
| 6 | Sulfate | Lin, WithOffset, 1/ | Area | 6 | 5.2843 | 0.99985 | -0.0019 | 0.1602 | 0.0000 |
| 7 | Nitrate | Lin, WithOffset, 1/ | Area | 6 | 4.5248 | 0.99988 | 0.0144 | 0.6154 | 0.0000 |
| 8 | Chlorate | Lin, WithOffset, 1/ | Area | 6 | 13.4374 | 0.99837 | 0.0139 | 0.1019 | 0.0000 |
| 10 | Phosphate | Lin, WithOffset, 1/ | Area | 5 | 18.5357 | 0.99714 | -0.0737 | 0.1942 | 0.0000 |
| **Maximum** | | | | | **26.1376** | 0.99999 | | | |
| **Minimum** | | | | | 0.9346 | **0.99573** | | | |

| | | | |
|---|---|---|---|
| *1 STD1* | | | |
| *Sample Name:* | **STD1** | *Injection Volume:* | **5.00** |
| *Vial Number:* | **BD1** | *Channel:* | **CD** |
| *Sample Type:* | **Calibration Standard** | *Wavelength:* | **210** |
| *Control Program:* | **Anions Program 06022020.1** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **Anions Processing Method** | *Dilution Factor:* | **1.0000** |
| *Recording Time:* | **08/11/2020 10:46** | *Sample Weight:* | **1.0000** |

Run Time:



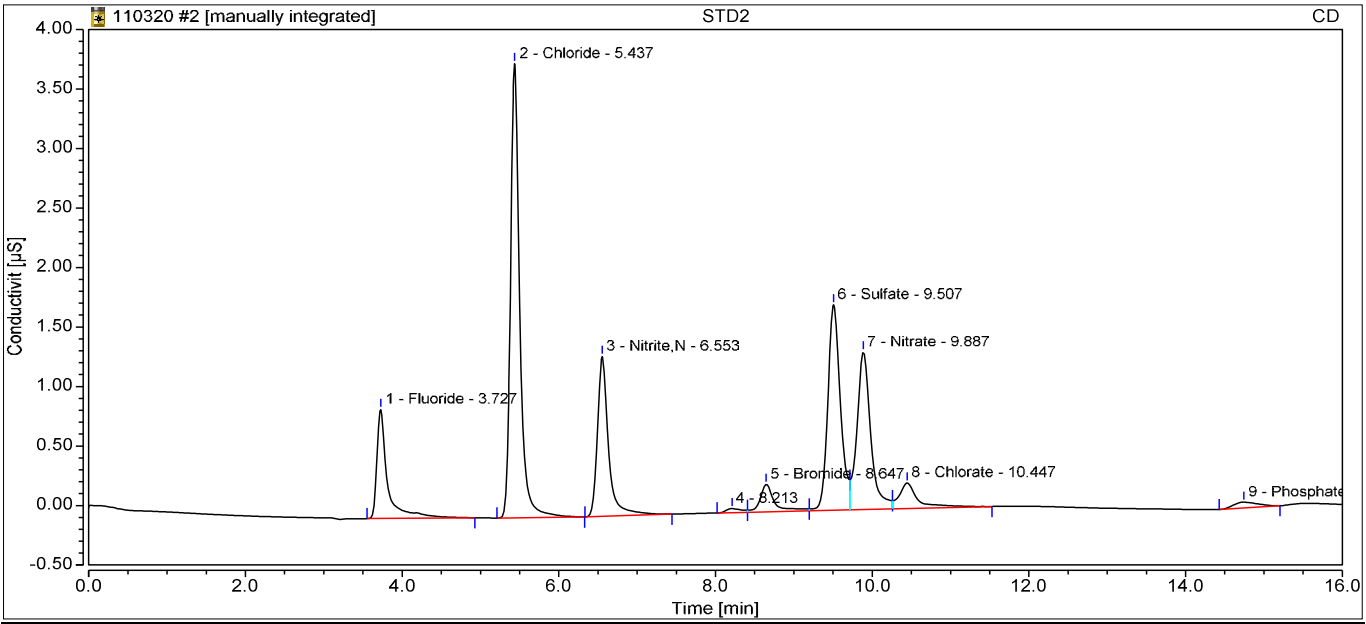

**Integration Results**

| No. | Retention min | Peak Name | Peak Type | Area µS*min | Amount ppm | Concentration ppm | Dilution |
|---|---|---|---|---|---|---|---|
| 1 | 3.72 | Fluoride | BMB | 0.025 | 0.0833 | 0.0833 | 1.0000 |
| 2 | 5.44 | Chloride | BMB | 0.116 | 0.4487 | 0.4487 | 1.0000 |
| 3 | 6.55 | Nitrite,N | BMB | 0.052 | 0.0715 | 0.0715 | 1.0000 |
| 5 | 8.65 | Bromide | M | 0.018 | 0.0997 | 0.0997 | 1.0000 |
| 6 | 9.51 | Sulfate | M | 0.076 | 0.4861 | 0.4861 | 1.0000 |
| 7 | 9.89 | Nitrate | M | 0.075 | 0.0985 | 0.0985 | 1.0000 |
| 8 | 10.45 | Chlorate | MB | 0.021 | 0.0734 | 0.0734 | 1.0000 |
| n.a. | n.a. | Phosphate | n.a. | n.a. | n.a. | n.a. | 1.0000 |
| **Total:** | | | **0.000** | **0.384** | | **1.36** | |

2 STD2

| | | | |
|---|---|---|---|
| *Sample Name:* | **STD2** | *Injection Volume:* | **5.00** |
| *Vial Number:* | **BD2** | *Channel:* | **CD** |
| *Sample Type:* | **Calibration Standard** | *Wavelength:* | **210** |
| *Control Program:* | **Anions Program 06022020.1** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **Anions Processing Method** | *Dilution Factor:* | **1.0000** |
| *Recording Time:* | **08/11/2020 11:04** | *Sample Weight:* | **1.0000** |

Run Time:

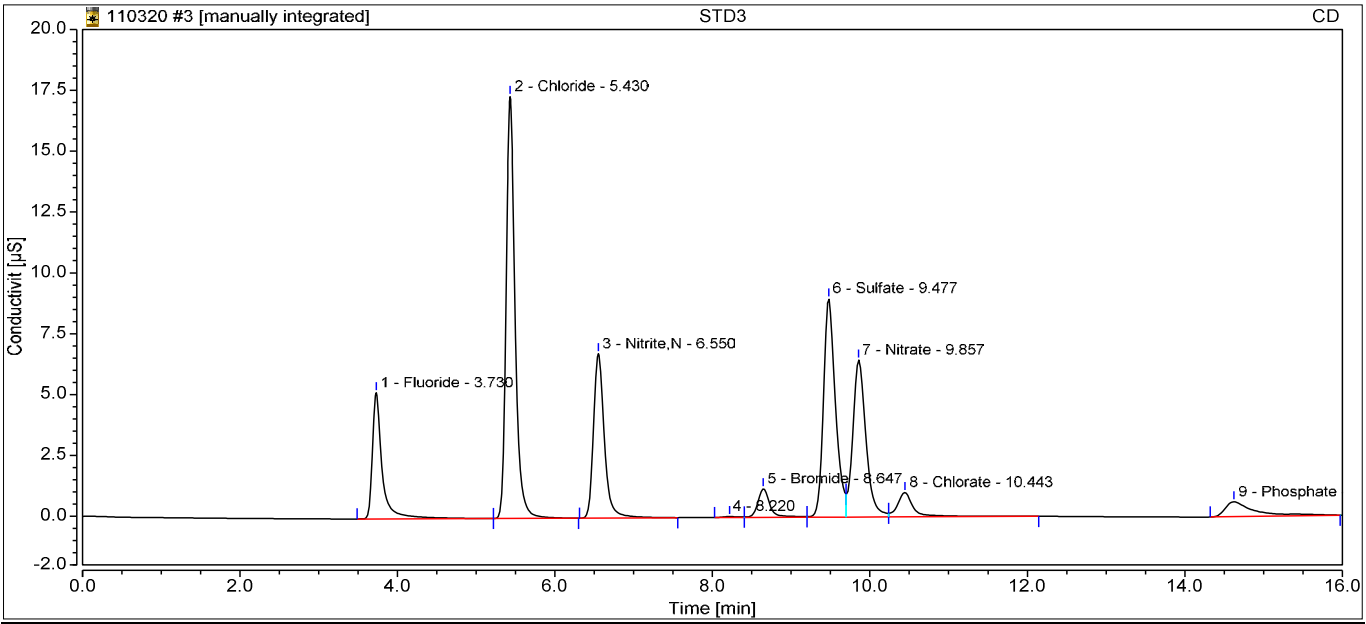



**Integration Results**

| No. | Retention min | Peak Name | Peak Type | Area µS*min | Amount ppm | Concentration ppm | Dilution |
|---|---|---|---|---|---|---|---|
| 1 | 3.73 | Fluoride | BMB | 0.145 | 0.4204 | 0.4204 | 1.0000 |
| 2 | 5.44 | Chloride | BMB | 0.518 | 2.2084 | 2.2084 | 1.0000 |
| 3 | 6.55 | Nitrite,N | BMB | 0.221 | 0.4294 | 0.4294 | 1.0000 |
| 5 | 8.65 | Bromide | M | 0.049 | 0.4041 | 0.4041 | 1.0000 |
| 6 | 9.51 | Sulfate | M | 0.321 | 2.0151 | 2.0151 | 1.0000 |
| 7 | 9.89 | Nitrate | M | 0.270 | 0.4147 | 0.4147 | 1.0000 |
| 8 | 10.45 | Chlorate | MB | 0.060 | 0.4536 | 0.4536 | 1.0000 |
| 9 | 14.74 | Phosphate | BMB | 0.018 | 0.4703 | 0.4703 | 1.0000 |
| **Total:** | | | **0.000** | **1.601** | | **6.82** | |

| | | | |
|---|---|---|---|
| *3 STD3* | | | |
| *Sample Name:* | **STD3** | *Injection Volume:* | **5.00** |
| *Vial Number:* | **BD3** | *Channel:* | **CD** |
| *Sample Type:* | **Calibration Standard** | *Wavelength:* | **210** |
| *Control Program:* | **Anions Program 06022020.1** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **Anions Processing Method** | *Dilution Factor:* | **1.0000** |
| *Recording Time:* | **08/11/2020 11:22** | *Sample Weight:* | **1.0000** |

Run Time:



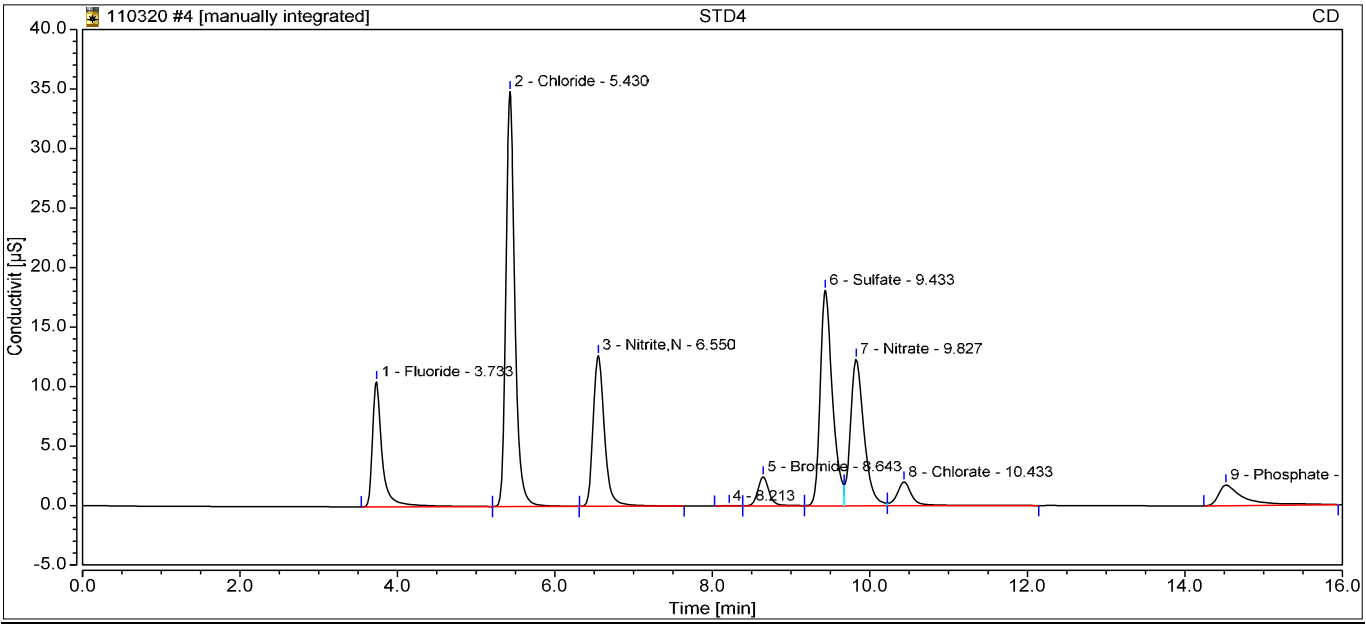

**Integration Results**

| No. | Retention min | Peak Name | Peak Type | Area µS*min | Amount ppm | Concentration ppm | Dilution |
|---|---|---|---|---|---|---|---|
| 1 | 3.73 | Fluoride | BMB | 0.745 | 2.1166 | 2.1166 | 1.0000 |
| 2 | 5.43 | Chloride | BMB | 2.291 | 9.9533 | 9.9533 | 1.0000 |
| 3 | 6.55 | Nitrite,N | BMB | 1.077 | 2.2460 | 2.2460 | 1.0000 |
| 5 | 8.65 | Bromide | M | 0.209 | 1.9882 | 1.9882 | 1.0000 |
| 6 | 9.48 | Sulfate | M | 1.595 | 9.9688 | 9.9688 | 1.0000 |
| 7 | 9.86 | Nitrate | M | 1.238 | 1.9883 | 1.9883 | 1.0000 |
| 8 | 10.44 | Chlorate | MB | 0.239 | 2.2038 | 2.2038 | 1.0000 |
| 9 | 14.62 | Phosphate | BM * | 0.269 | 1.7634 | 1.7634 | 1.0000 |
| **Total:** | | | **0.000** | **7.661** | | **32.23** | |

*4 STD4*

| | | | |
|---|---|---|---|
| *Sample Name:* | **STD4** | *Injection Volume:* | **5.00** |
| *Vial Number:* | **BD4** | *Channel:* | **CD** |
| *Sample Type:* | **Calibration Standard** | *Wavelength:* | **210** |
| *Control Program:* | **Anions Program 06022020.1** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **Anions Processing Method** | *Dilution Factor:* | **1.0000** |
| *Recording Time:* | **08/11/2020 11:40** | *Sample Weight:* | **1.0000** |

Run Time:



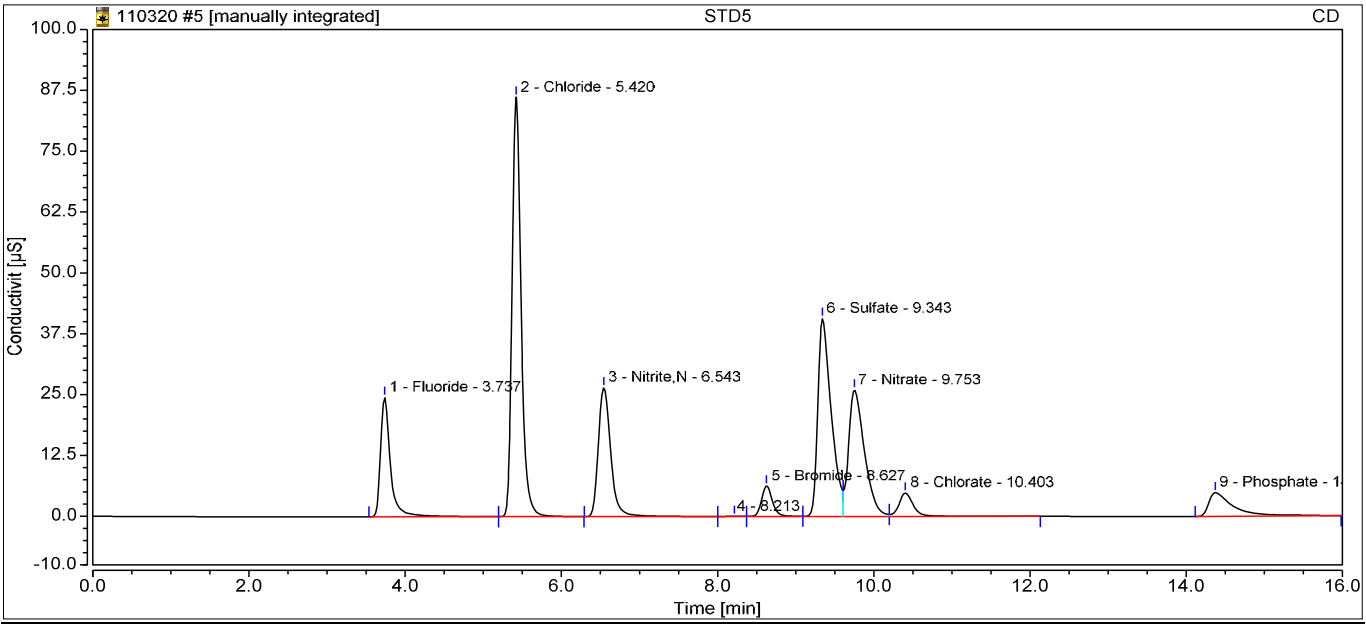

**Integration Results**

| No. | Retention min | Peak Name | Peak Type | Area µS*min | Amount ppm | Concentration ppm | Dilution |
|---|---|---|---|---|---|---|---|
| 1 | 3.73 | Fluoride | BMB | 1.504 | 4.2630 | 4.2630 | 1.0000 |
| 2 | 5.43 | Chloride | BMB | 4.613 | 20.0986 | 20.0986 | 1.0000 |
| 3 | 6.55 | Nitrite,N | BMB* | 2.104 | 4.4276 | 4.4276 | 1.0000 |
| 5 | 8.64 | Bromide | M | 0.411 | 3.9946 | 3.9946 | 1.0000 |
| 6 | 9.43 | Sulfate | M | 3.273 | 20.4465 | 20.4465 | 1.0000 |
| 7 | 9.83 | Nitrate | M | 2.444 | 3.9482 | 3.9482 | 1.0000 |
| 8 | 10.43 | Chlorate | MB | 0.443 | 4.2079 | 4.2079 | 1.0000 |
| 9 | 14.52 | Phosphate | BM * | 0.648 | 3.7157 | 3.7157 | 1.0000 |
| **Total:** | | | **0.000** | **15.439** | | **65.10** | |

*5 STD5*

| | | | |
|---|---|---|---|
| *Sample Name:* | **STD5** | *Injection Volume:* | **5.00** |
| *Vial Number:* | **BD5** | *Channel:* | **CD** |
| *Sample Type:* | **Calibration Standard** | *Wavelength:* | **210** |
| *Control Program:* | **Anions Program 06022020.1** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **Anions Processing Method** | *Dilution Factor:* | **1.0000** |
| *Recording Time:* | **08/11/2020 11:58** | *Sample Weight:* | **1.0000** |

Run Time:



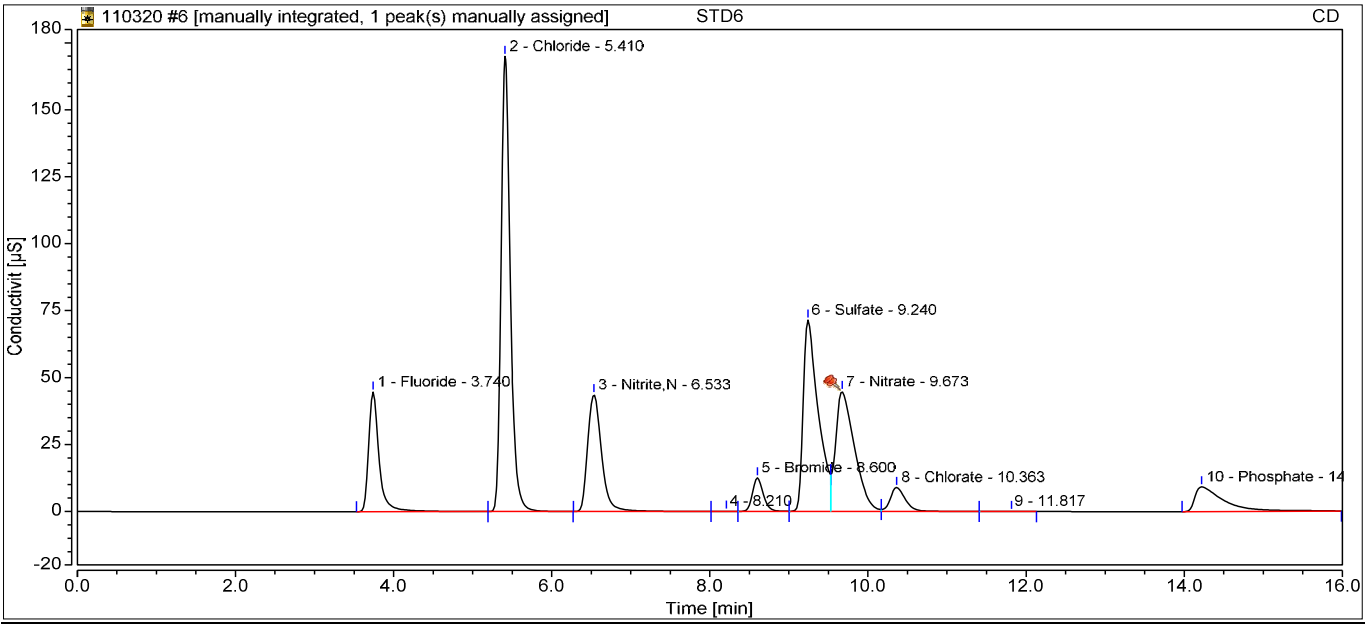

**Integration Results**

| No. | Retention min | Peak Name | Peak Type | Area µS*min | Amount ppm | Concentration ppm | Dilution |
|---|---|---|---|---|---|---|---|
| 1 | 3.74 | Fluoride | BMB | 3.611 | 10.2228 | 10.2228 | 1.0000 |
| 2 | 5.42 | Chloride | BMB | 11.462 | 50.0272 | 50.0272 | 1.0000 |
| 3 | 6.54 | Nitrite,N | BMB | 4.877 | 10.3135 | 10.3135 | 1.0000 |
| 5 | 8.63 | Bromide | M | 1.014 | 9.9796 | 9.9796 | 1.0000 |
| 6 | 9.34 | Sulfate | M | 8.089 | 50.5200 | 50.5200 | 1.0000 |
| 7 | 9.75 | Nitrate | M | 6.097 | 9.8832 | 9.8832 | 1.0000 |
| 8 | 10.40 | Chlorate | MB | 1.032 | 9.9918 | 9.9918 | 1.0000 |
| 9 | 14.37 | Phosphate | BM * | 1.834 | 9.8223 | 9.8223 | 1.0000 |
| **Total:** | | | **0.000** | **38.017** | | **160.76** | |

*6 STD6*

| | | | |
|---|---|---|---|
| *Sample Name:* | **STD6** | *Injection Volume:* | **5.00** |
| *Vial Number:* | **BD6** | *Channel:* | **CD** |
| *Sample Type:* | **Calibration Standard** | *Wavelength:* | **210** |
| *Control Program:* | **Anions Program 06022020.1** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **Anions Processing Method** | *Dilution Factor:* | **1.0000** |
| *Recording Time:* | **08/11/2020 12:16** | *Sample Weight:* | **1.0000** |

Run Time:



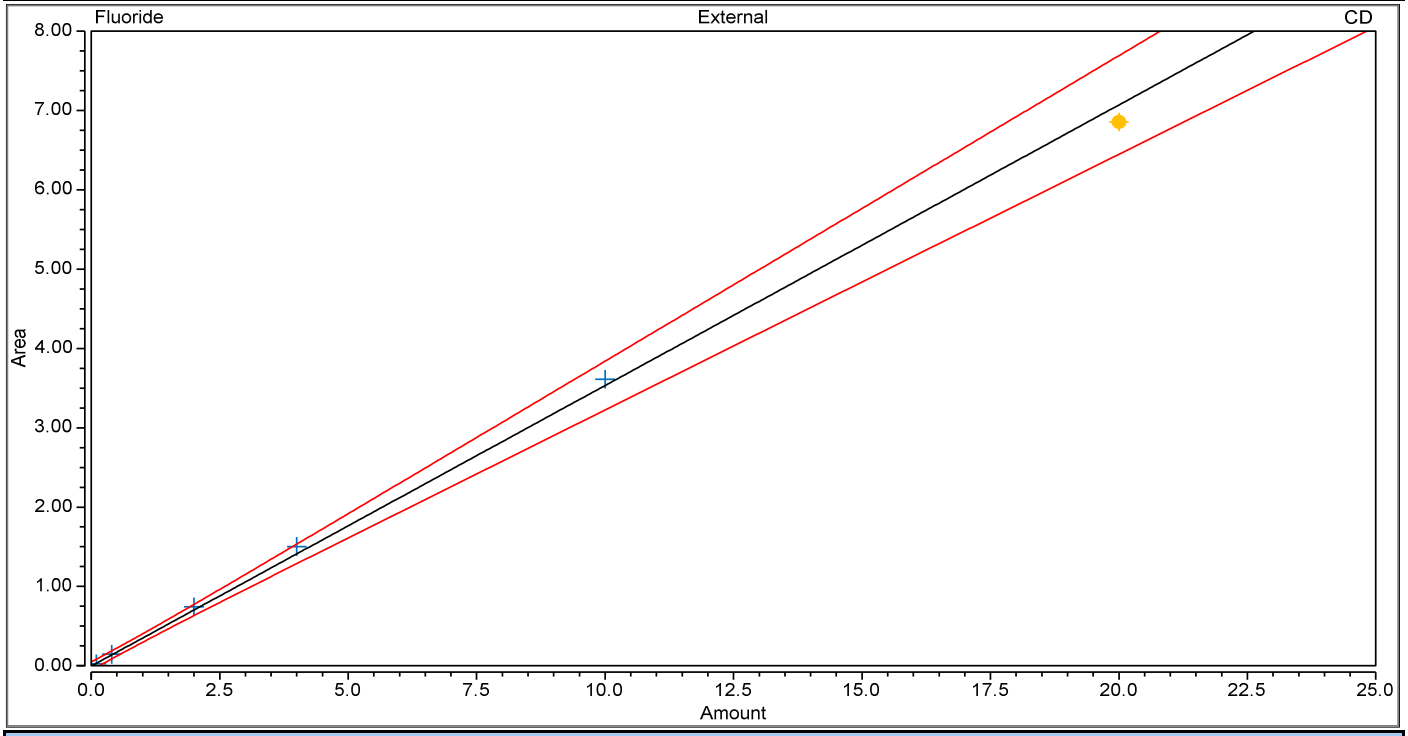

**Integration Results**

| No. | Retention min | Peak Name | Peak Type | Area µS*min | Amount ppm | Concentration ppm | Dilution |
|---|---|---|---|---|---|---|---|
| 1 | 3.74 | Fluoride | BMB | 6.855 | 19.3940 | 19.3940 | 1.0000 |
| 2 | 5.41 | Chloride | BMB | 22.844 | 99.7639 | 99.7639 | 1.0000 |
| 3 | 6.53 | Nitrite,N | BMB | 8.975 | 19.0121 | 19.0121 | 1.0000 |
| 5 | 8.60 | Bromide | M | 2.028 | 20.0338 | 20.0338 | 1.0000 |
| 6 | 9.24 | Sulfate | M | 15.864 | 99.0635 | 99.0635 | 1.0000 |
| 7 | 9.67 | Nitrate | M ^ | 12.426 | 20.1671 | 20.1671 | 1.0000 |
| 8 | 10.36 | Chlorate | M | 2.009 | 19.5694 | 19.5694 | 1.0000 |
| 10 | 14.22 | Phosphate | BM * | 3.933 | 20.6283 | 20.6283 | 1.0000 |
| **Total:** | | | **0.000** | **74.933** | | **317.63** | |

# Calibration

| Calibration Details | Fluoride | | |
|---|---|---|---|
| *Calibration Type* | Lin, WithOffset, 1/A | *Offset (C0)* | -0.0040 |
| *Evaluation Type* | Area | *Slope (C1)* | 0.3537 |
| *Number of Calibration Points* | 6 | *Curve (C2)* | 0.0000 |
| *Number of disabled Calibration Points* | 0 | *R-Square* | 0.9985 |

**Calibration Plot** **Fluoride**

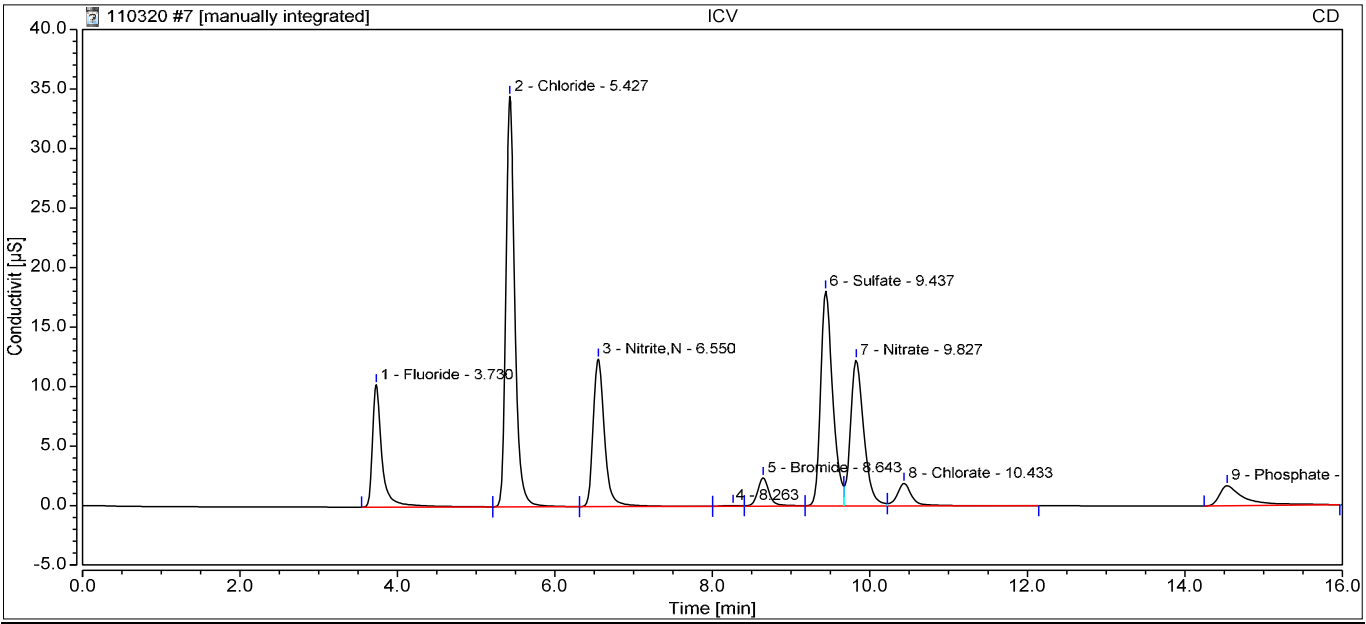



**Calibration Results** **Fluoride**

| No. | Injection Name | Calibration Level | X Value CD Fluoride | Y Value CD Fluoride | Y Value CD Fluoride | Area µS*min CD Fluoride | Height µS CD Fluoride |
|---|---|---|---|---|---|---|---|
| 1 | STD1 | 1 | 0.1000 | 0.0254 | 0.0254 | 0.025 | 0.197 |
| 2 | STD2 | 2 | 0.4000 | 0.1446 | 0.1446 | 0.145 | 0.916 |
| 3 | STD3 | 3 | 2.0000 | 0.7445 | 0.7445 | 0.745 | 5.182 |
| 4 | STD4 | 4 | 4.0000 | 1.5036 | 1.5036 | 1.504 | 10.507 |
| 5 | STD5 | 5 | 10.0000 | 3.6113 | 3.6113 | 3.611 | 24.538 |
| 6 | STD6 | 6 | 20.0000 | 6.8547 | 6.8547 | 6.855 | 44.677 |

| | | | |
|---|---|---|---|
| 7 ICV | | | |
| *Sample Name:* | **ICV** | *Injection Volume:* | **5.00** |
| *Vial Number:* | **BD7** | *Channel:* | **CD** |
| *Sample Type:* | **Unknown** | *Wavelength:* | **210** |
| *Control Program:* | **Anions Program 06022020.1** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **Anions Processing Method** | *Dilution Factor:* | **1.0000** |
| *Recording Time:* | **08/11/2020 12:34** | *Sample Weight:* | **1.0000** |

Run Time:



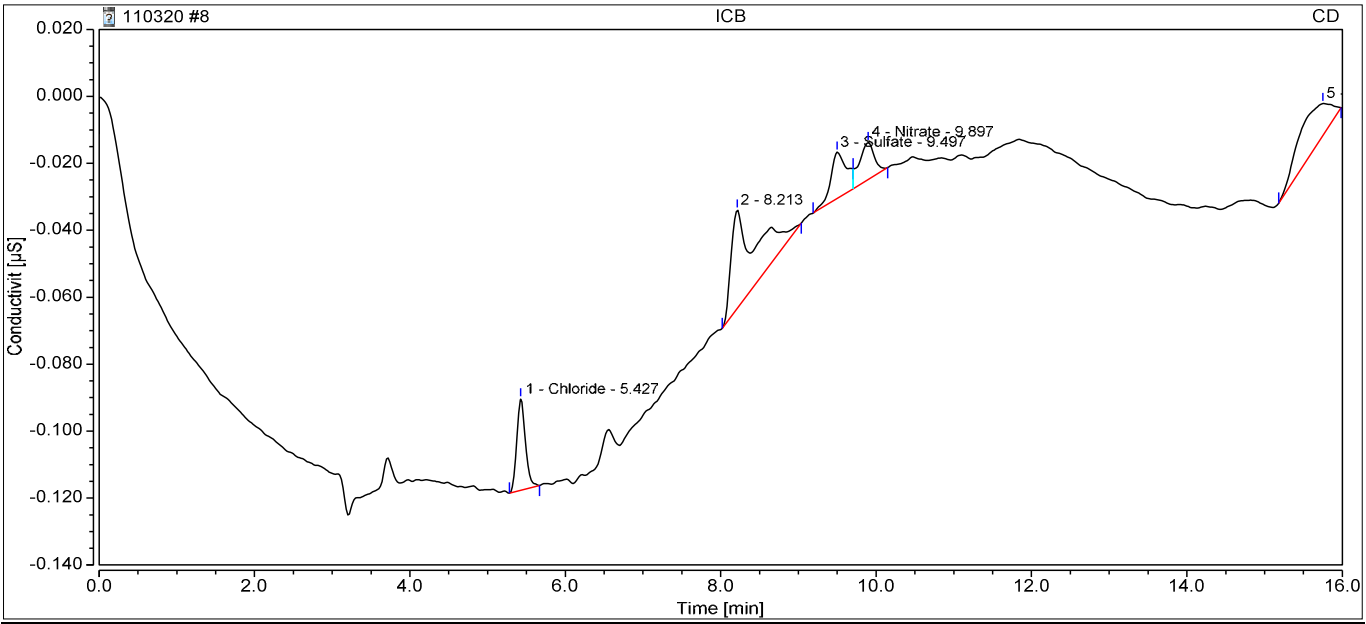

**Integration Results**

| No. | Retention min | Peak Name | Peak Type | Area µS*min | Amount ppm | Concentration ppm | Dilution |
|---|---|---|---|---|---|---|---|
| 1 | 3.73 | Fluoride | BMB | 1.447 | 4.1020 | 4.1020 | 1.0000 |
| 2 | 5.43 | Chloride | BMB | 4.553 | 19.8399 | 19.8399 | 1.0000 |
| 3 | 6.55 | Nitrite,N | BMB | 2.061 | 4.3359 | 4.3359 | 1.0000 |
| 5 | 8.64 | Bromide | M | 0.413 | 4.0106 | 4.0106 | 1.0000 |
| 6 | 9.44 | Sulfate | M | 3.227 | 20.1622 | 20.1622 | 1.0000 |
| 7 | 9.83 | Nitrate | M | 2.405 | 3.8850 | 3.8850 | 1.0000 |
| 8 | 10.43 | Chlorate | MB | 0.422 | 4.0019 | 4.0019 | 1.0000 |
| 9 | 14.54 | Phosphate | BM * | 0.631 | 3.6292 | 3.6292 | 1.0000 |
| **Total:** | | | **0.000** | **15.159** | | **63.97** | |

*8 ICB*

| | | | |
|---|---|---|---|
| *Sample Name:* | **ICB** | *Injection Volume:* | **5.00** |
| *Vial Number:* | **BD8** | *Channel:* | **CD** |
| *Sample Type:* | **Unknown** | *Wavelength:* | **210** |
| *Control Program:* | **Anions Program 06022020.1** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **Anions Processing Method** | *Dilution Factor:* | **1.0000** |
| *Recording Time:* | **08/11/2020 12:52** | *Sample Weight:* | **1.0000** |

Run Time:

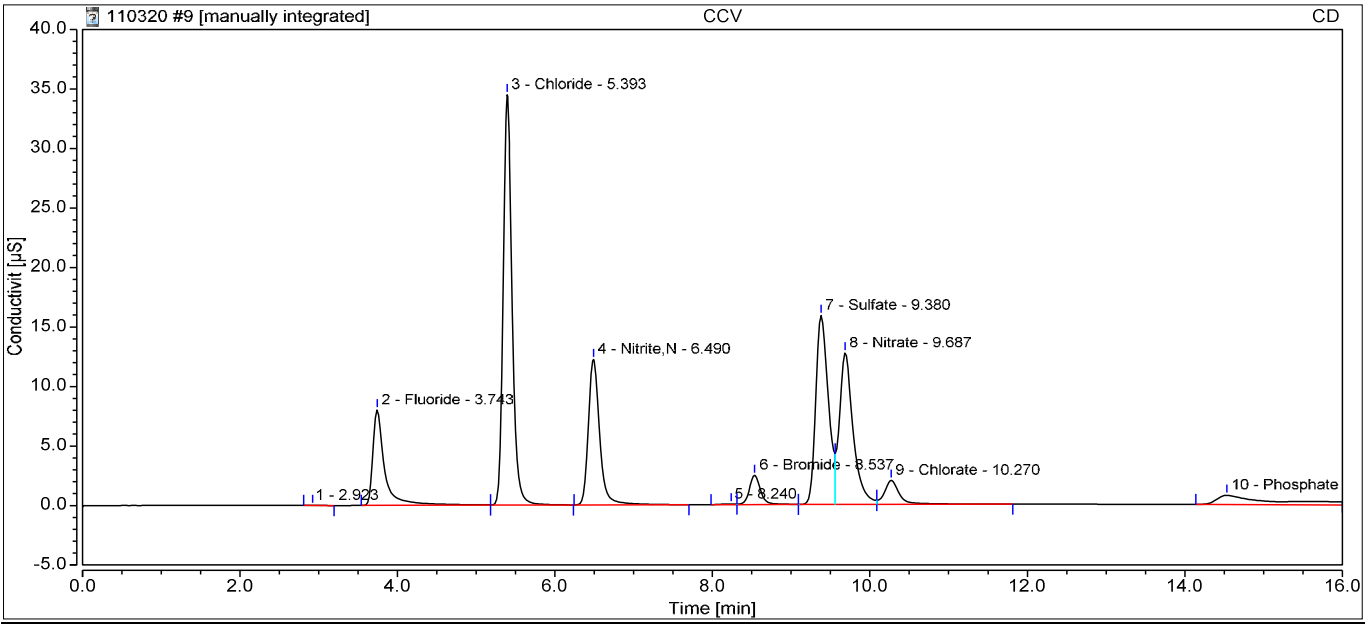



**Integration Results**

| No. | Retention min | Peak Name | Peak Type | Area µS*min | Amount ppm | Concentration ppm | Dilution |
|---|---|---|---|---|---|---|---|
| n.a. | n.a. | Fluoride | n.a. | n.a. | n.a. | n.a. | 1.0000 |
| 1 | 5.43 | Chloride | BMB | 0.004 | n.a. | n.a. | 1.0000 |
| n.a. | n.a. | Nitrite,N | n.a. | n.a. | n.a. | n.a. | 1.0000 |
| n.a. | n.a. | Bromide | n.a. | n.a. | n.a. | n.a. | 1.0000 |
| 3 | 9.50 | Sulfate | BM | 0.003 | 0.0318 | 0.0318 | 1.0000 |
| 4 | 9.90 | Nitrate | MB | 0.003 | n.a. | n.a. | 1.0000 |
| n.a. | n.a. | Chlorate | n.a. | n.a. | n.a. | n.a. | 1.0000 |
| n.a. | n.a. | Phosphate | n.a. | n.a. | n.a. | n.a. | 1.0000 |
| **Total:** | | | **0.000** | **0.009** | | **0.03** | |

| | | | |
|---|---|---|---|
| *9 CCV* | | | |
| *Sample Name:* | **CCV** | *Injection Volume:* | **5.00** |
| *Vial Number:* | **BA2** | *Channel:* | **CD** |
| *Sample Type:* | **Unknown** | *Wavelength:* | **210** |
| *Control Program:* | **Anions Program 06022020.1** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **Anions Processing Method** | *Dilution Factor:* | **1.0000** |
| *Recording Time:* | **11/03/2020 12:34** | *Sample Weight:* | **1.0000** |

Run Time:



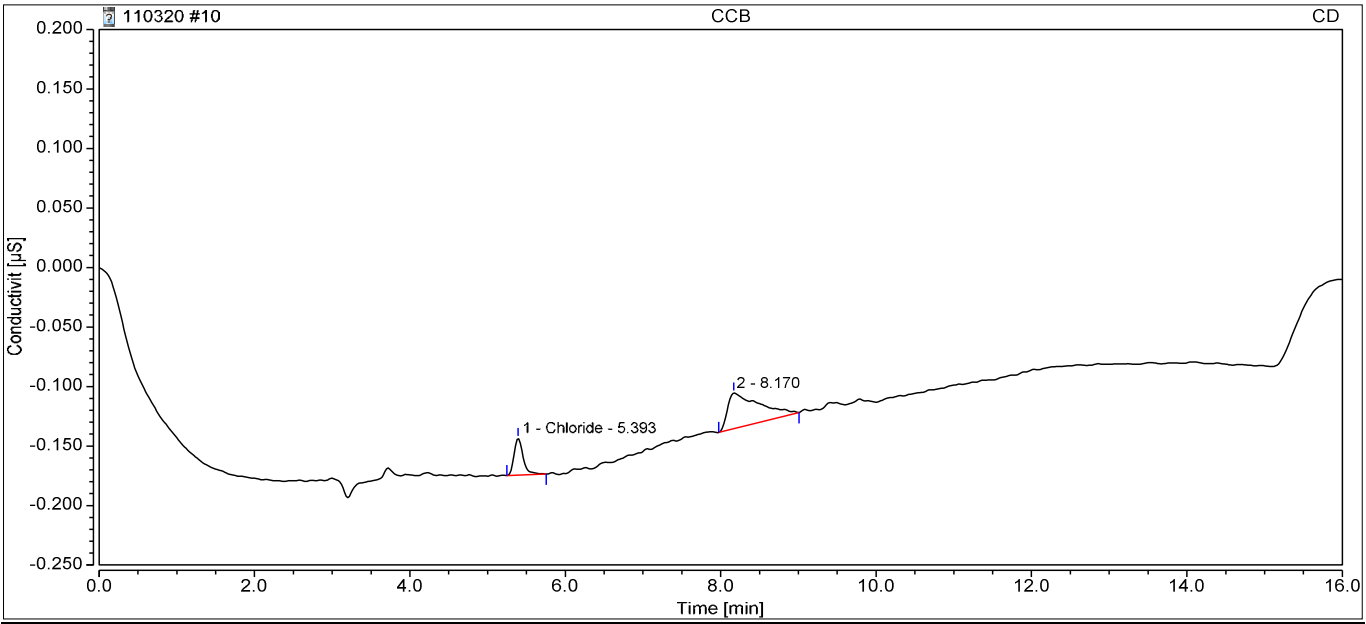

**Integration Results**

| No. | Retention min | Peak Name | Peak Type | Area µS*min | Amount ppm | Concentration ppm | Dilution |
|---|---|---|---|---|---|---|---|
| 2 | 3.74 | Fluoride | BMB | 1.388 | 3.9362 | 3.9362 | 1.0000 |
| 3 | 5.39 | Chloride | BMB | 4.518 | 19.6858 | 19.6858 | 1.0000 |
| 4 | 6.49 | Nitrite,N | BMB | 2.047 | 4.3060 | 4.3060 | 1.0000 |
| 6 | 8.54 | Bromide | M | 0.406 | 3.9459 | 3.9459 | 1.0000 |
| 7 | 9.38 | Sulfate | M | 2.932 | 18.3188 | 18.3188 | 1.0000 |
| 8 | 9.69 | Nitrate | M | 2.590 | 4.1846 | 4.1846 | 1.0000 |
| 9 | 10.27 | Chlorate | MB | 0.451 | 4.2859 | 4.2859 | 1.0000 |
| 10 | 14.53 | Phosphate | BM * | 0.628 | 3.6134 | 3.6134 | 1.0000 |
| **Total:** | | | **0.000** | **14.960** | | **62.28** | |

*10 CCB*

| | | | |
|---|---|---|---|
| *Sample Name:* | **CCB** | *Injection Volume:* | **5.00** |
| *Vial Number:* | **BA3** | *Channel:* | **CD** |
| *Sample Type:* | **Unknown** | *Wavelength:* | **210** |
| *Control Program:* | **Anions Program 06022020.1** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **Anions Processing Method** | *Dilution Factor:* | **1.0000** |
| *Recording Time:* | **11/03/2020 12:52** | *Sample Weight:* | **1.0000** |

Run Time:



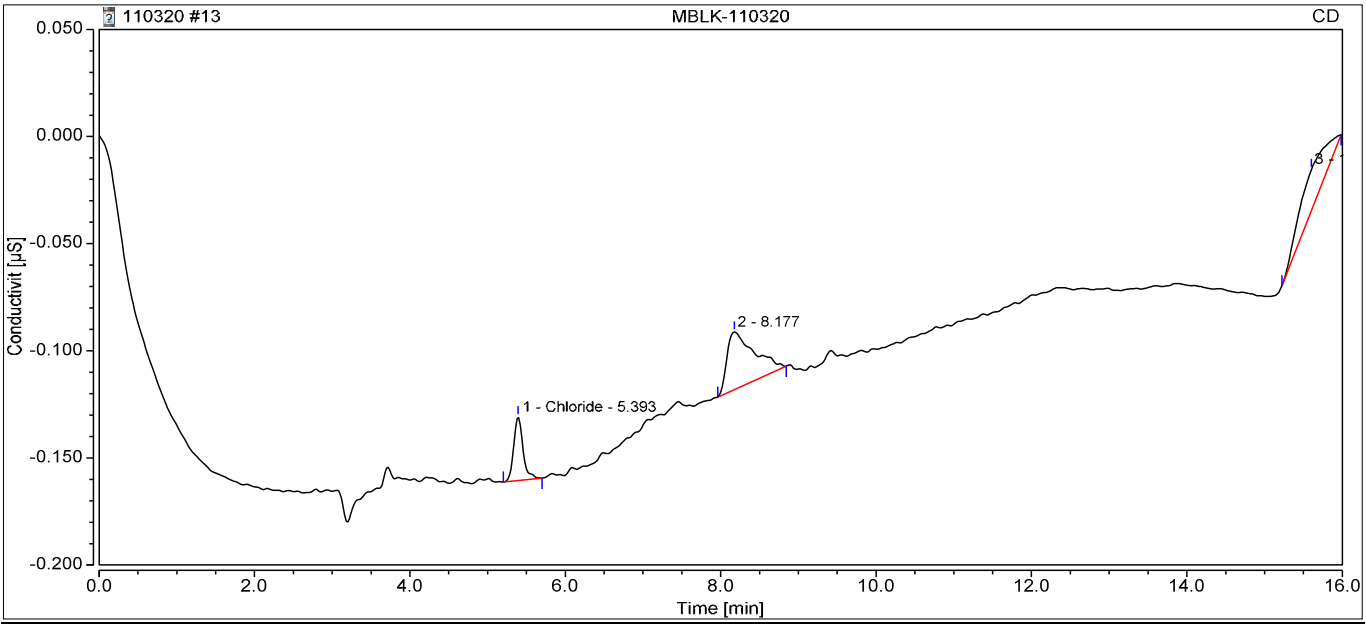

**Integration Results**

| No. | Retention min | Peak Name | Peak Type | Area µS*min | Amount ppm | Concentration ppm | Dilution |
|---|---|---|---|---|---|---|---|
| n.a. | n.a. | Fluoride | n.a. | n.a. | n.a. | n.a. | 1.0000 |
| 1 | 5.39 | Chloride | BMB | 0.004 | n.a. | n.a. | 1.0000 |
| n.a. | n.a. | Nitrite,N | n.a. | n.a. | n.a. | n.a. | 1.0000 |
| n.a. | n.a. | Bromide | n.a. | n.a. | n.a. | n.a. | 1.0000 |
| n.a. | n.a. | Sulfate | n.a. | n.a. | n.a. | n.a. | 1.0000 |
| n.a. | n.a. | Nitrate | n.a. | n.a. | n.a. | n.a. | 1.0000 |
| n.a. | n.a. | Chlorate | n.a. | n.a. | n.a. | n.a. | 1.0000 |
| n.a. | n.a. | Phosphate | n.a. | n.a. | n.a. | n.a. | 1.0000 |
| **Total:** | | | **0.000** | **0.004** | | **0.00** | |

*13 MBLK-110320*

| | | | |
|---|---|---|---|
| *Sample Name:* | **MBLK-110320** | *Injection Volume:* | **5.00** |
| *Vial Number:* | **BA7** | *Channel:* | **CD** |
| *Sample Type:* | **Unknown** | *Wavelength:* | **210** |
| *Control Program:* | **Anions Program 06022020.1** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **Anions Processing Method** | *Dilution Factor:* | **1.0000** |
| *Recording Time:* | **11/03/2020 13:46** | *Sample Weight:* | **1.0000** |

Run Time:



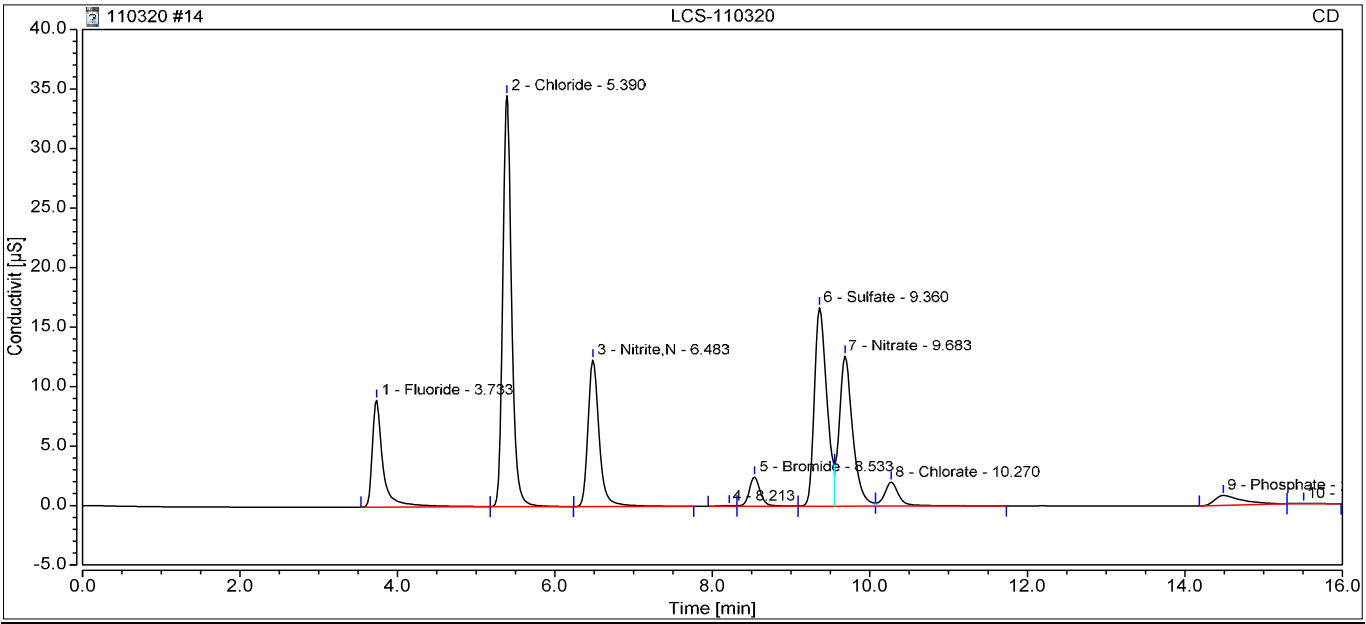

**Integration Results**

| No. | Retention min | Peak Name | Peak Type | Area µS*min | Amount ppm | Concentration ppm | Dilution |
|---|---|---|---|---|---|---|---|
| n.a. | n.a. | Fluoride | n.a. | n.a. | n.a. | n.a. | 1.0000 |
| 1 | 5.39 | Chloride | BMB | 0.004 | n.a. | n.a. | 1.0000 |
| n.a. | n.a. | Nitrite,N | n.a. | n.a. | n.a. | n.a. | 1.0000 |
| n.a. | n.a. | Bromide | n.a. | n.a. | n.a. | n.a. | 1.0000 |
| n.a. | n.a. | Sulfate | n.a. | n.a. | n.a. | n.a. | 1.0000 |
| n.a. | n.a. | Nitrate | n.a. | n.a. | n.a. | n.a. | 1.0000 |
| n.a. | n.a. | Chlorate | n.a. | n.a. | n.a. | n.a. | 1.0000 |
| n.a. | n.a. | Phosphate | n.a. | n.a. | n.a. | n.a. | 1.0000 |
| **Total:** | | | **0.000** | **0.004** | | **0.00** | |

*14 LCS-110320*

| | | | |
|---|---|---|---|
| *Sample Name:* | **LCS-110320** | *Injection Volume:* | **5.00** |
| *Vial Number:* | **BA8** | *Channel:* | **CD** |
| *Sample Type:* | **Unknown** | *Wavelength:* | **210** |
| *Control Program:* | **Anions Program 06022020.1** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **Anions Processing Method** | *Dilution Factor:* | **1.0000** |
| *Recording Time:* | **11/03/2020 14:04** | *Sample Weight:* | **1.0000** |

Run Time:



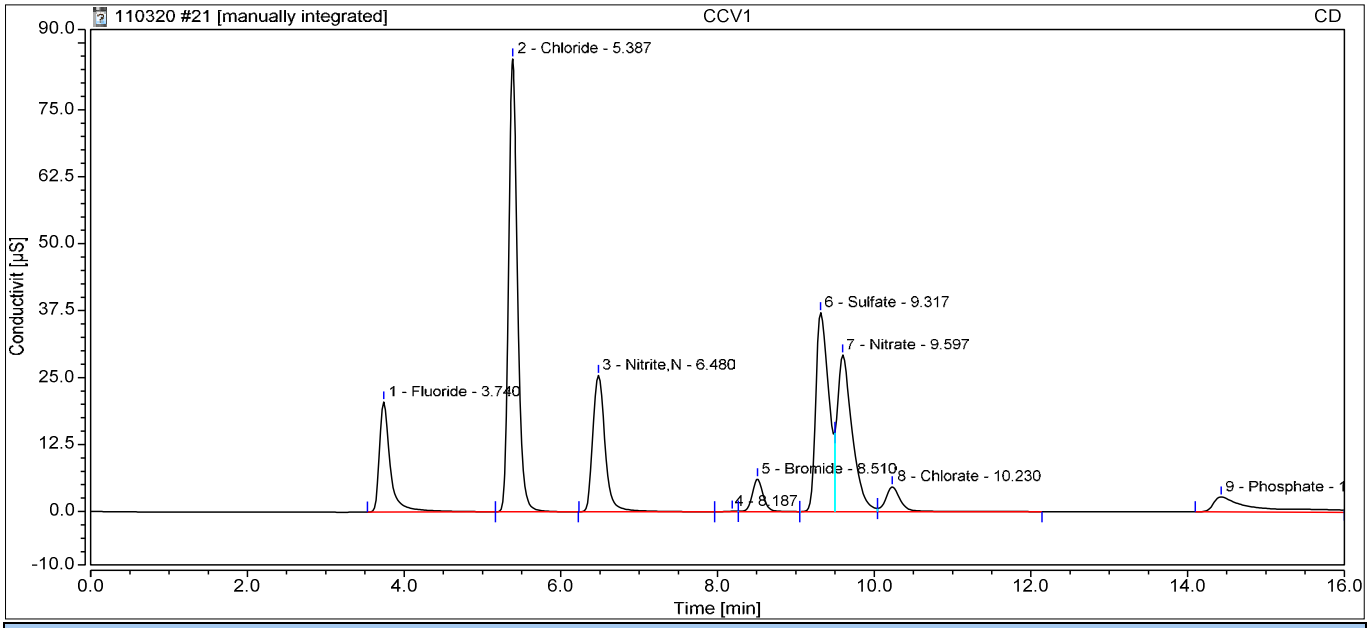

**Integration Results**

| No. | Retention min | Peak Name | Peak Type | Area µS*min | Amount ppm | Concentration ppm | Dilution |
|---|---|---|---|---|---|---|---|
| 1 | 3.73 | Fluoride | BMB | 1.413 | 4.0060 | 4.0060 | 1.0000 |
| 2 | 5.39 | Chloride | BMB | 4.526 | 19.7212 | 19.7212 | 1.0000 |
| 3 | 6.48 | Nitrite,N | BMB | 2.053 | 4.3184 | 4.3184 | 1.0000 |
| 5 | 8.53 | Bromide | M | 0.402 | 3.9047 | 3.9047 | 1.0000 |
| 6 | 9.36 | Sulfate | M | 3.038 | 18.9799 | 18.9799 | 1.0000 |
| 7 | 9.68 | Nitrate | M | 2.513 | 4.0600 | 4.0600 | 1.0000 |
| 8 | 10.27 | Chlorate | MB | 0.434 | 4.1248 | 4.1248 | 1.0000 |
| 9 | 14.49 | Phosphate | BMB | 0.331 | 2.0845 | 2.0845 | 1.0000 |
| **Total:** | | | **0.000** | **14.710** | | **61.20** | |

*21 CCV1*

| | | | |
|---|---|---|---|
| *Sample Name:* | **CCV1** | *Injection Volume:* | **5.00** |
| *Vial Number:* | **BB8** | *Channel:* | **CD** |
| *Sample Type:* | **Unknown** | *Wavelength:* | **210** |
| *Control Program:* | **Anions Program 06022020.1** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **Anions Processing Method** | *Dilution Factor:* | **1.0000** |
| *Recording Time:* | **11/03/2020 16:10** | *Sample Weight:* | **1.0000** |

Run Time:



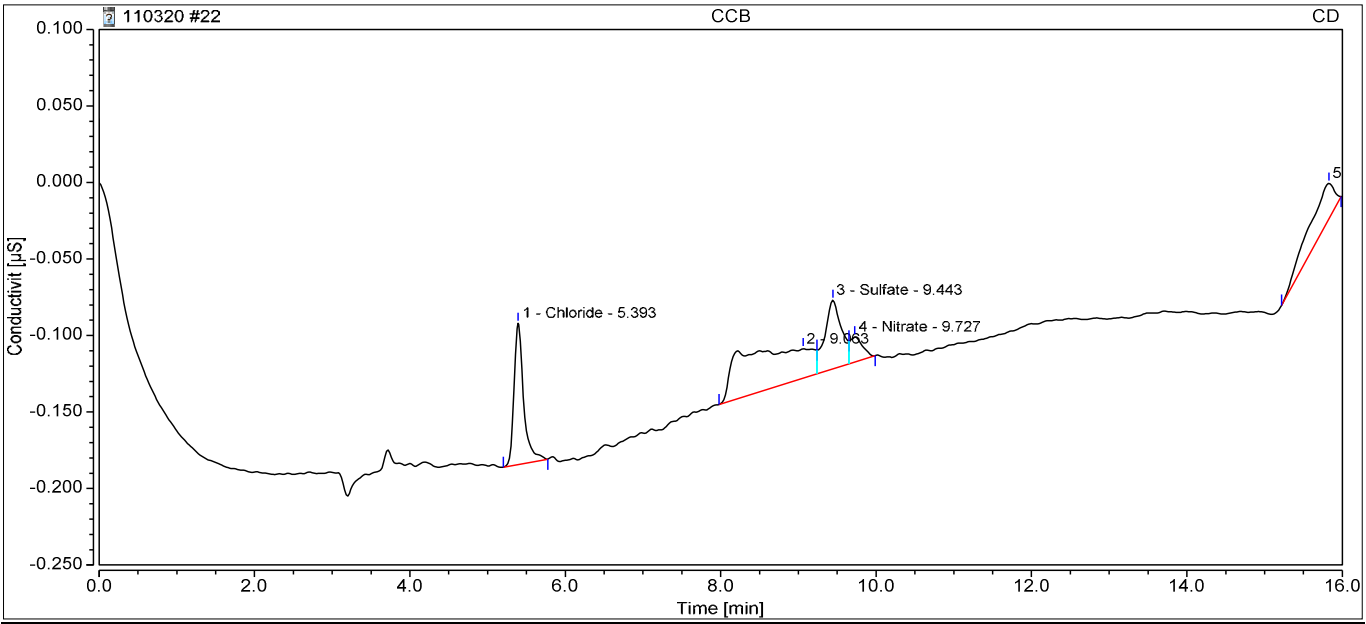

**Integration Results**

| No. | Retention min | Peak Name | Peak Type | Area µS*min | Amount ppm | Concentration ppm | Dilution |
|---|---|---|---|---|---|---|---|
| 1 | 3.74 | Fluoride | BMB | 3.348 | 9.4774 | 9.4774 | 1.0000 |
| 2 | 5.39 | Chloride | BMB | 11.119 | 48.5297 | 48.5297 | 1.0000 |
| 3 | 6.48 | Nitrite,N | BMB | 4.651 | 9.8334 | 9.8334 | 1.0000 |
| 5 | 8.51 | Bromide | M | 0.997 | 9.8039 | 9.8039 | 1.0000 |
| 6 | 9.32 | Sulfate | M * | 7.223 | 45.1101 | 45.1101 | 1.0000 |
| 7 | 9.60 | Nitrate | M * | 6.441 | 10.4429 | 10.4429 | 1.0000 |
| 8 | 10.23 | Chlorate | MB | 1.023 | 9.8963 | 9.8963 | 1.0000 |
| 9 | 14.43 | Phosphate | BM * | 1.689 | 9.0779 | 9.0779 | 1.0000 |
| **Total:** | | | **0.000** | **36.491** | | **152.17** | |

22 CCB

| | | | |
|---|---|---|---|
| *Sample Name:* | **CCB** | *Injection Volume:* | **5.00** |
| *Vial Number:* | **BA5** | *Channel:* | **CD** |
| *Sample Type:* | **Unknown** | *Wavelength:* | **210** |
| *Control Program:* | **Anions Program 06022020.1** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **Anions Processing Method** | *Dilution Factor:* | **1.0000** |
| *Recording Time:* | **11/03/2020 16:28** | *Sample Weight:* | **1.0000** |

Run Time:



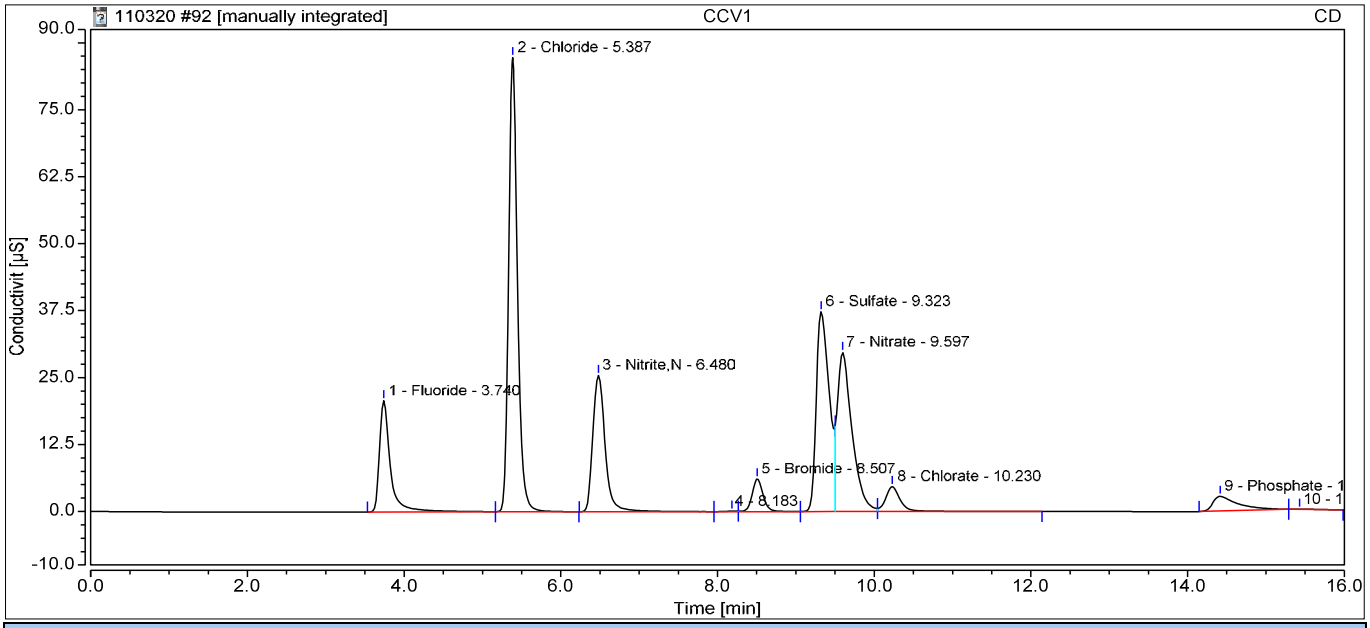

**Integration Results**

| No. | Retention min | Peak Name | Peak Type | Area µS*min | Amount ppm | Concentration ppm | Dilution |
|---|---|---|---|---|---|---|---|
| n.a. | n.a. | Fluoride | n.a. | n.a. | n.a. | n.a. | 1.0000 |
| 1 | 5.39 | Chloride | BMB | 0.013 | 0.0015 | 0.0015 | 1.0000 |
| n.a. | n.a. | Nitrite,N | n.a. | n.a. | n.a. | n.a. | 1.0000 |
| n.a. | n.a. | Bromide | n.a. | n.a. | n.a. | n.a. | 1.0000 |
| 3 | 9.44 | Sulfate | M | 0.011 | 0.0816 | 0.0816 | 1.0000 |
| 4 | 9.73 | Nitrate | MB | 0.003 | n.a. | n.a. | 1.0000 |
| n.a. | n.a. | Chlorate | n.a. | n.a. | n.a. | n.a. | 1.0000 |
| n.a. | n.a. | Phosphate | n.a. | n.a. | n.a. | n.a. | 1.0000 |
| **Total:** | | | **0.000** | **0.027** | | **0.08** | |

*92 CCV1*

| | | | |
|---|---|---|---|
| *Sample Name:* | **CCV1** | *Injection Volume:* | **5.00** |
| *Vial Number:* | **BB8** | *Channel:* | **CD** |
| *Sample Type:* | **Unknown** | *Wavelength:* | **210** |
| *Control Program:* | **Anions Program 06022020.1** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **Anions Processing Method** | *Dilution Factor:* | **1.0000** |
| *Recording Time:* | **11/04/2020 14:07** | *Sample Weight:* | **1.0000** |

Run Time:



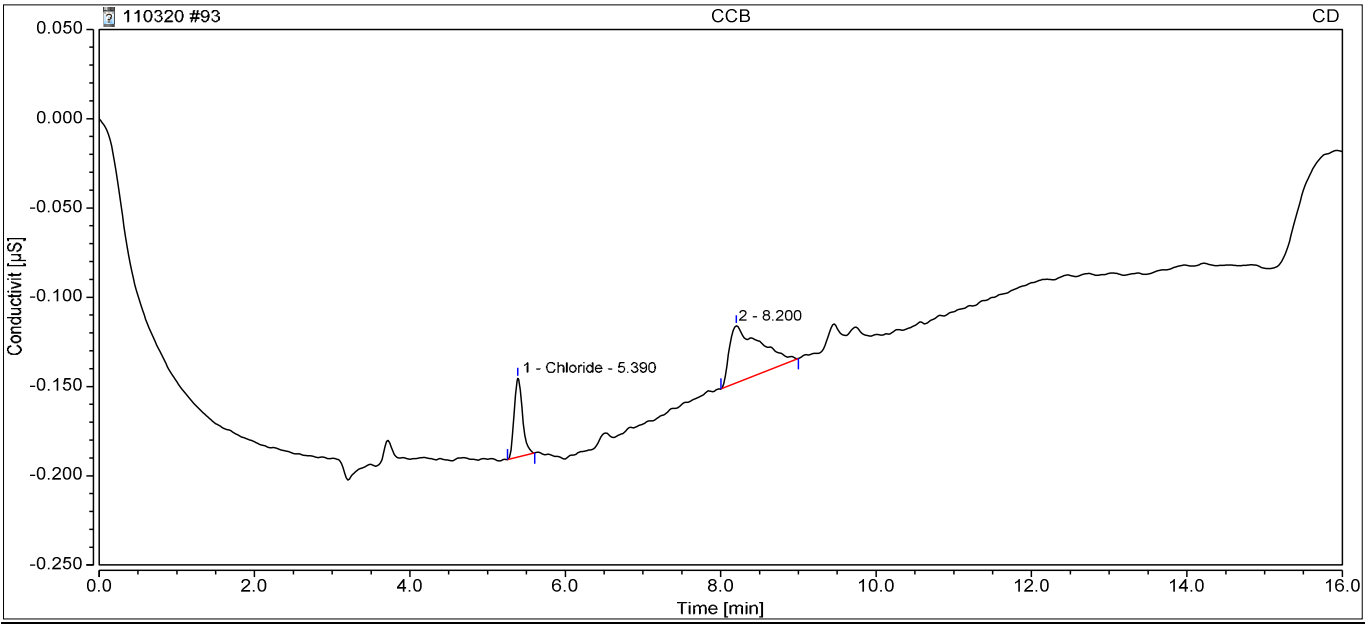

**Integration Results**

| No. | Retention min | Peak Name | Peak Type | Area µS*min | Amount ppm | Concentration ppm | Dilution |
|---|---|---|---|---|---|---|---|
| 1 | 3.74 | Fluoride | BMB | 3.351 | 9.4863 | 9.4863 | 1.0000 |
| 2 | 5.39 | Chloride | BMB | 11.124 | 48.5485 | 48.5485 | 1.0000 |
| 3 | 6.48 | Nitrite,N | BMB | 4.644 | 9.8182 | 9.8182 | 1.0000 |
| 5 | 8.51 | Bromide | M | 0.996 | 9.8018 | 9.8018 | 1.0000 |
| 6 | 9.32 | Sulfate | M * | 7.232 | 45.1644 | 45.1644 | 1.0000 |
| 7 | 9.60 | Nitrate | M * | 6.437 | 10.4365 | 10.4365 | 1.0000 |
| 8 | 10.23 | Chlorate | MB | 1.022 | 9.8902 | 9.8902 | 1.0000 |
| 9 | 14.42 | Phosphate | BMB | 1.024 | 5.6494 | 5.6494 | 1.0000 |
| **Total:** | | | **0.000** | **35.829** | | **148.80** | |

*93 CCB*

| | | | |
|---|---|---|---|
| *Sample Name:* | **CCB** | *Injection Volume:* | **5.00** |
| *Vial Number:* | **BA5** | *Channel:* | **CD** |
| *Sample Type:* | **Unknown** | *Wavelength:* | **210** |
| *Control Program:* | **Anions Program 06022020.1** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **Anions Processing Method** | *Dilution Factor:* | **1.0000** |
| *Recording Time:* | **11/04/2020 14:43** | *Sample Weight:* | **1.0000** |

Run Time:



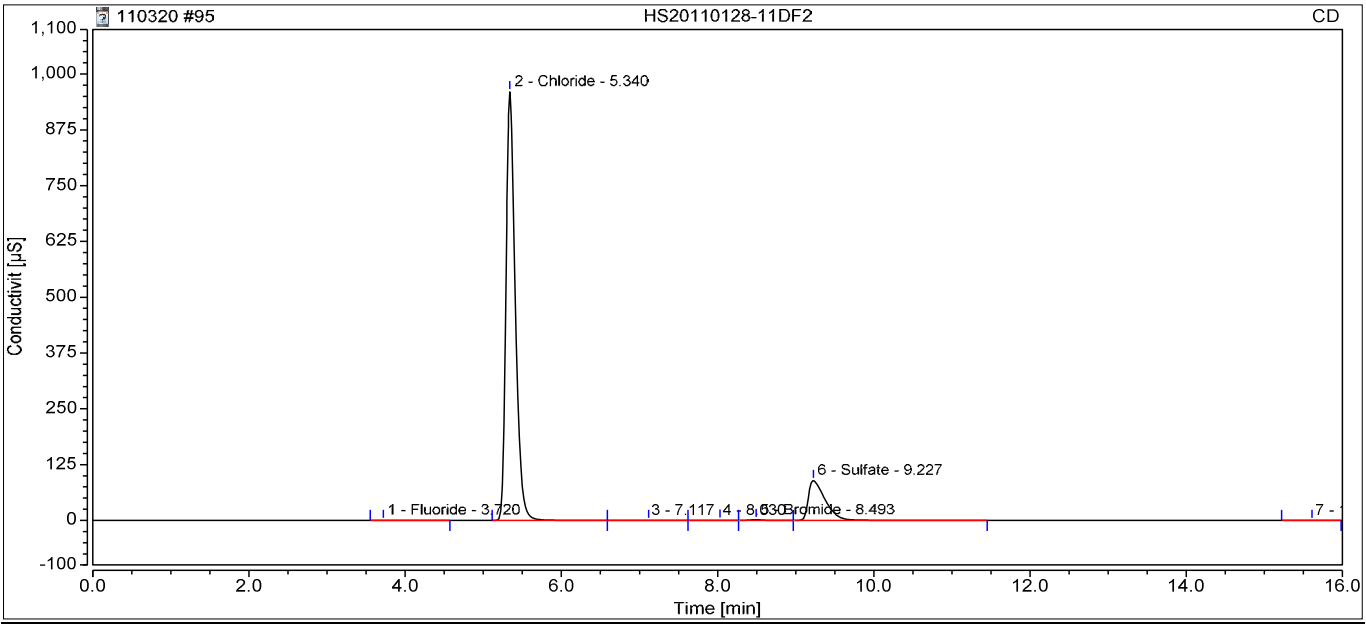

**Integration Results**

| No. | Retention min | Peak Name | Peak Type | Area µS*min | Amount ppm | Concentration ppm | Dilution |
|---|---|---|---|---|---|---|---|
| n.a. | n.a. | Fluoride | n.a. | n.a. | n.a. | n.a. | 1.0000 |
| 1 | 5.39 | Chloride | BMB | 0.005 | n.a. | n.a. | 1.0000 |
| n.a. | n.a. | Nitrite,N | n.a. | n.a. | n.a. | n.a. | 1.0000 |
| n.a. | n.a. | Bromide | n.a. | n.a. | n.a. | n.a. | 1.0000 |
| n.a. | n.a. | Sulfate | n.a. | n.a. | n.a. | n.a. | 1.0000 |
| n.a. | n.a. | Nitrate | n.a. | n.a. | n.a. | n.a. | 1.0000 |
| n.a. | n.a. | Chlorate | n.a. | n.a. | n.a. | n.a. | 1.0000 |
| n.a. | n.a. | Phosphate | n.a. | n.a. | n.a. | n.a. | 1.0000 |
| **Total:** | | | **0.000** | **0.005** | | **0.00** | |

*95 HS20110128-11DF2*

| | | | |
|---|---|---|---|
| *Sample Name:* | **HS20110128-11DF2** | *Injection Volume:* | **5.00** |
| *Vial Number:* | **GD8** | *Channel:* | **CD** |
| *Sample Type:* | **Unknown** | *Wavelength:* | **210** |
| *Control Program:* | **Anions Program 06022020.1** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **Anions Processing Method** | *Dilution Factor:* | **2.0000** |
| *Recording Time:* | **11/04/2020 15:19** | *Sample Weight:* | **1.0000** |

Run Time:



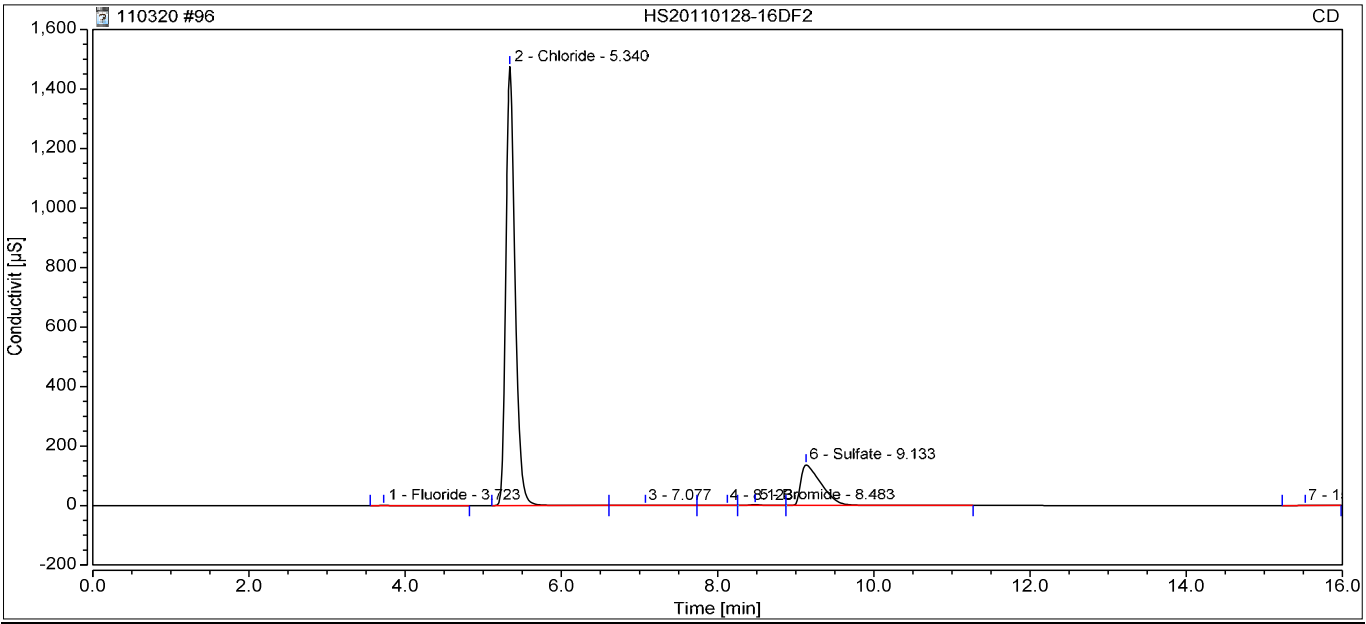

**Integration Results**

| No. | Retention min | Peak Name | Peak Type | Area µS*min | Amount ppm | Concentration ppm | Dilution |
|---|---|---|---|---|---|---|---|
| 1 | 3.72 | Fluoride | BMB | 0.045 | 0.1393 | 0.2785 | 2.0000 |
| 2 | 5.34 | Chloride | BMB | 132.502 | 578.9174 | 1157.8349 | 2.0000 |
| n.a. | n.a. | Nitrite,N | n.a. | n.a. | n.a. | n.a. | 2.0000 |
| 5 | 8.49 | Bromide | M | 0.317 | 3.0632 | 6.1264 | 2.0000 |
| 6 | 9.23 | Sulfate | MB | 22.285 | 139.1540 | 278.3081 | 2.0000 |
| n.a. | n.a. | Nitrate | n.a. | n.a. | n.a. | n.a. | 2.0000 |
| n.a. | n.a. | Chlorate | n.a. | n.a. | n.a. | n.a. | 2.0000 |
| n.a. | n.a. | Phosphate | n.a. | n.a. | n.a. | n.a. | 2.0000 |
| **Total:** | | | **0.000** | **155.149** | | **1442.55** | |

*96 HS20110128-16DF2*

| | | | |
|---|---|---|---|
| *Sample Name:* | **HS20110128-16DF2** | *Injection Volume:* | **5.00** |
| *Vial Number:* | **GE3** | *Channel:* | **CD** |
| *Sample Type:* | **Unknown** | *Wavelength:* | **210** |
| *Control Program:* | **Anions Program 06022020.1** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **Anions Processing Method** | *Dilution Factor:* | **2.0000** |
| *Recording Time:* | **11/04/2020 15:37** | *Sample Weight:* | **1.0000** |

Run Time:



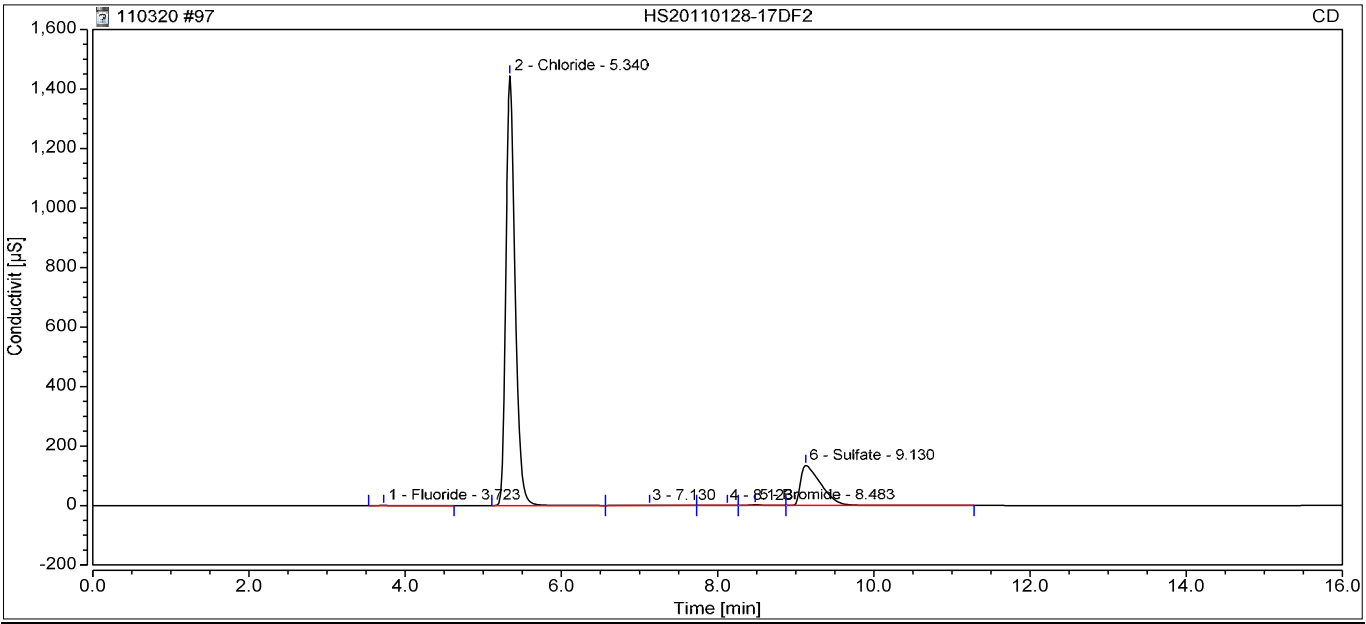

**Integration Results**

| No. | Retention min | Peak Name | Peak Type | Area µS*min | Amount ppm | Concentration ppm | Dilution |
|---|---|---|---|---|---|---|---|
| 1 | 3.72 | Fluoride | BMB | 0.051 | 0.1545 | 0.3090 | 2.0000 |
| 2 | 5.34 | Chloride | BMB | 202.362 | 884.1761 | 1768.3523 | 2.0000 |
| n.a. | n.a. | Nitrite,N | n.a. | n.a. | n.a. | n.a. | 2.0000 |
| 5 | 8.48 | Bromide | M | 0.473 | 4.6061 | 9.2122 | 2.0000 |
| 6 | 9.13 | Sulfate | MB | 41.183 | 257.1498 | 514.2996 | 2.0000 |
| n.a. | n.a. | Nitrate | n.a. | n.a. | n.a. | n.a. | 2.0000 |
| n.a. | n.a. | Chlorate | n.a. | n.a. | n.a. | n.a. | 2.0000 |
| n.a. | n.a. | Phosphate | n.a. | n.a. | n.a. | n.a. | 2.0000 |
| **Total:** | | | **0.000** | **244.068** | | **2292.17** | |

*97 HS20110128-17DF2*

| | | | |
|---|---|---|---|
| *Sample Name:* | **HS20110128-17DF2** | *Injection Volume:* | **5.00** |
| *Vial Number:* | **GE4** | *Channel:* | **CD** |
| *Sample Type:* | **Unknown** | *Wavelength:* | **210** |
| *Control Program:* | **Anions Program 06022020.1** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **Anions Processing Method** | *Dilution Factor:* | **2.0000** |
| *Recording Time:* | **11/04/2020 15:55** | *Sample Weight:* | **1.0000** |

Run Time:



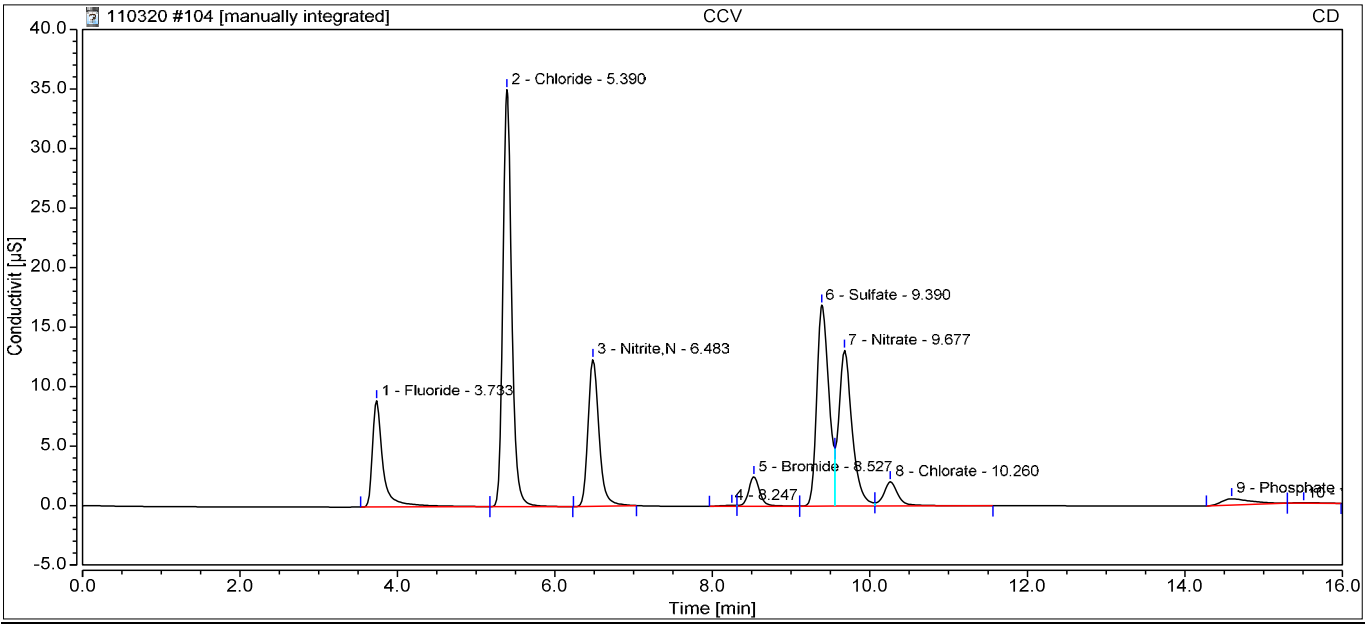

**Integration Results**

| No. | Retention min | Peak Name | Peak Type | Area µS*min | Amount ppm | Concentration ppm | Dilution |
|---|---|---|---|---|---|---|---|
| 1 | 3.72 | Fluoride | BMB | 0.046 | 0.1418 | 0.2836 | 2.0000 |
| 2 | 5.34 | Chloride | BMB | 197.647 | 863.5715 | 1727.1429 | 2.0000 |
| n.a. | n.a. | Nitrite,N | n.a. | n.a. | n.a. | n.a. | 2.0000 |
| 5 | 8.48 | Bromide | M | 0.457 | 4.4515 | 8.9030 | 2.0000 |
| 6 | 9.13 | Sulfate | MB | 40.486 | 252.7975 | 505.5951 | 2.0000 |
| n.a. | n.a. | Nitrate | n.a. | n.a. | n.a. | n.a. | 2.0000 |
| n.a. | n.a. | Chlorate | n.a. | n.a. | n.a. | n.a. | 2.0000 |
| n.a. | n.a. | Phosphate | n.a. | n.a. | n.a. | n.a. | 2.0000 |
| **Total:** | | | **0.000** | **238.636** | | **2241.92** | |

*104 CCV*

| | | | |
|---|---|---|---|
| *Sample Name:* | **CCV** | *Injection Volume:* | **5.00** |
| *Vial Number:* | **BA2** | *Channel:* | **CD** |
| *Sample Type:* | **Unknown** | *Wavelength:* | **210** |
| *Control Program:* | **Anions Program 06022020.1** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **Anions Processing Method** | *Dilution Factor:* | **1.0000** |
| *Recording Time:* | **11/04/2020 18:01** | *Sample Weight:* | **1.0000** |

Run Time:



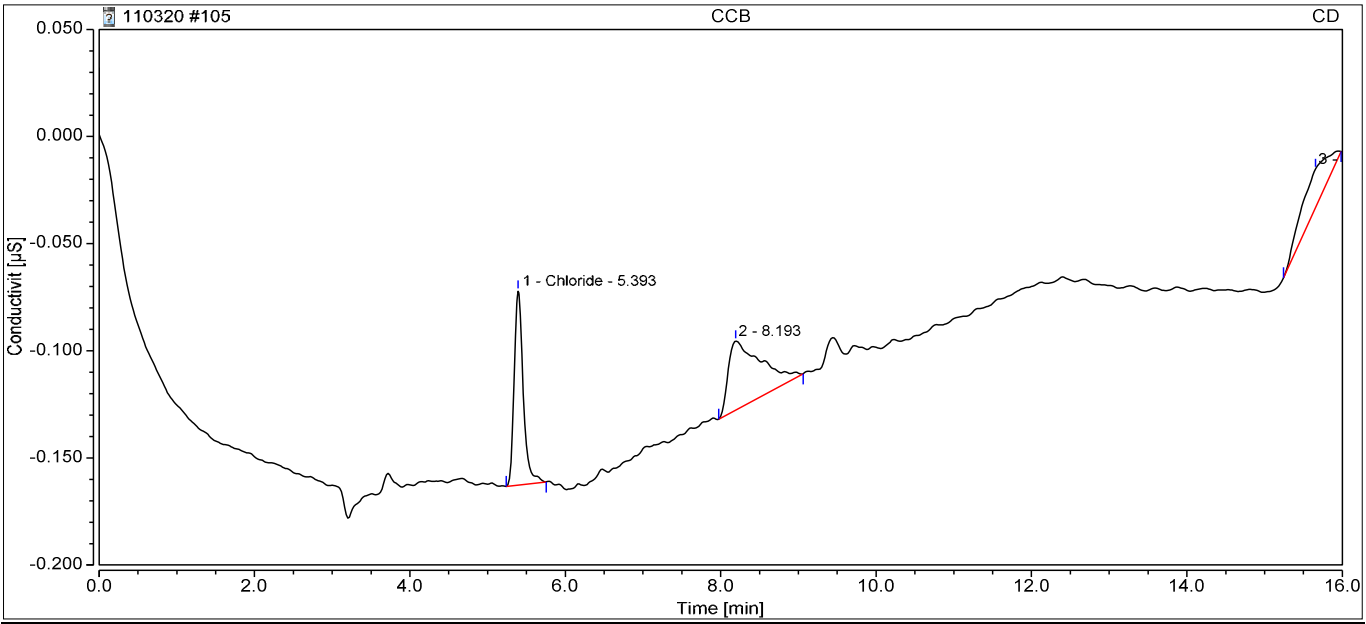

**Integration Results**

| No. | Retention min | Peak Name | Peak Type | Area µS*min | Amount ppm | Concentration ppm | Dilution |
|---|---|---|---|---|---|---|---|
| 1 | 3.73 | Fluoride | BMB | 1.404 | 3.9811 | 3.9811 | 1.0000 |
| 2 | 5.39 | Chloride | BMB | 4.563 | 19.8818 | 19.8818 | 1.0000 |
| 3 | 6.48 | Nitrite,N | BMB* | 2.008 | 4.2232 | 4.2232 | 1.0000 |
| 5 | 8.53 | Bromide | M | 0.411 | 3.9913 | 3.9913 | 1.0000 |
| 6 | 9.39 | Sulfate | M | 2.992 | 18.6905 | 18.6905 | 1.0000 |
| 7 | 9.68 | Nitrate | M | 2.585 | 4.1770 | 4.1770 | 1.0000 |
| 8 | 10.26 | Chlorate | MB | 0.442 | 4.1963 | 4.1963 | 1.0000 |
| 9 | 14.60 | Phosphate | BMB | 0.224 | 1.5347 | 1.5347 | 1.0000 |
| **Total:** | | | **0.000** | **14.628** | | **60.68** | |

*105 CCB*

| | | | |
|---|---|---|---|
| *Sample Name:* | **CCB** | *Injection Volume:* | **5.00** |
| *Vial Number:* | **BA3** | *Channel:* | **CD** |
| *Sample Type:* | **Unknown** | *Wavelength:* | **210** |
| *Control Program:* | **Anions Program 06022020.1** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **Anions Processing Method** | *Dilution Factor:* | **1.0000** |
| *Recording Time:* | **11/04/2020 18:19** | *Sample Weight:* | **1.0000** |

Run Time:



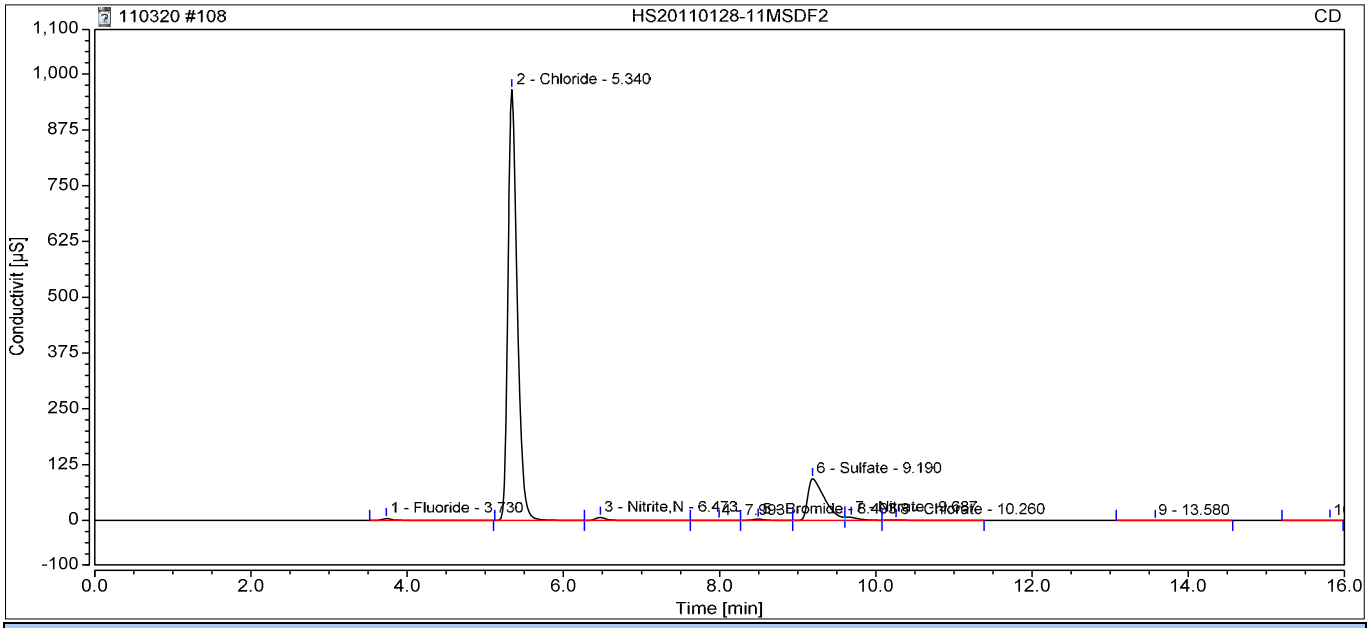

**Integration Results**

| No. | Retention min | Peak Name | Peak Type | Area µS*min | Amount ppm | Concentration ppm | Dilution |
|---|---|---|---|---|---|---|---|
| n.a. | n.a. | Fluoride | n.a. | n.a. | n.a. | n.a. | 1.0000 |
| 1 | 5.39 | Chloride | BMB | 0.012 | n.a. | n.a. | 1.0000 |
| n.a. | n.a. | Nitrite,N | n.a. | n.a. | n.a. | n.a. | 1.0000 |
| n.a. | n.a. | Bromide | n.a. | n.a. | n.a. | n.a. | 1.0000 |
| n.a. | n.a. | Sulfate | n.a. | n.a. | n.a. | n.a. | 1.0000 |
| n.a. | n.a. | Nitrate | n.a. | n.a. | n.a. | n.a. | 1.0000 |
| n.a. | n.a. | Chlorate | n.a. | n.a. | n.a. | n.a. | 1.0000 |
| n.a. | n.a. | Phosphate | n.a. | n.a. | n.a. | n.a. | 1.0000 |
| **Total:** | | | **0.000** | **0.012** | | **0.00** | |

*108 HS20110128-11MSDF2*

| | | | |
|---|---|---|---|
| *Sample Name:* | **HS20110128-11MSDF2** | *Injection Volume:* | **5.00** |
| *Vial Number:* | **GE1** | *Channel:* | **CD** |
| *Sample Type:* | **Unknown** | *Wavelength:* | **210** |
| *Control Program:* | **Anions Program 06022020.1** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **Anions Processing Method** | *Dilution Factor:* | **2.0000** |
| *Recording Time:* | **11/04/2020 19:14** | *Sample Weight:* | **1.0000** |

Run Time:



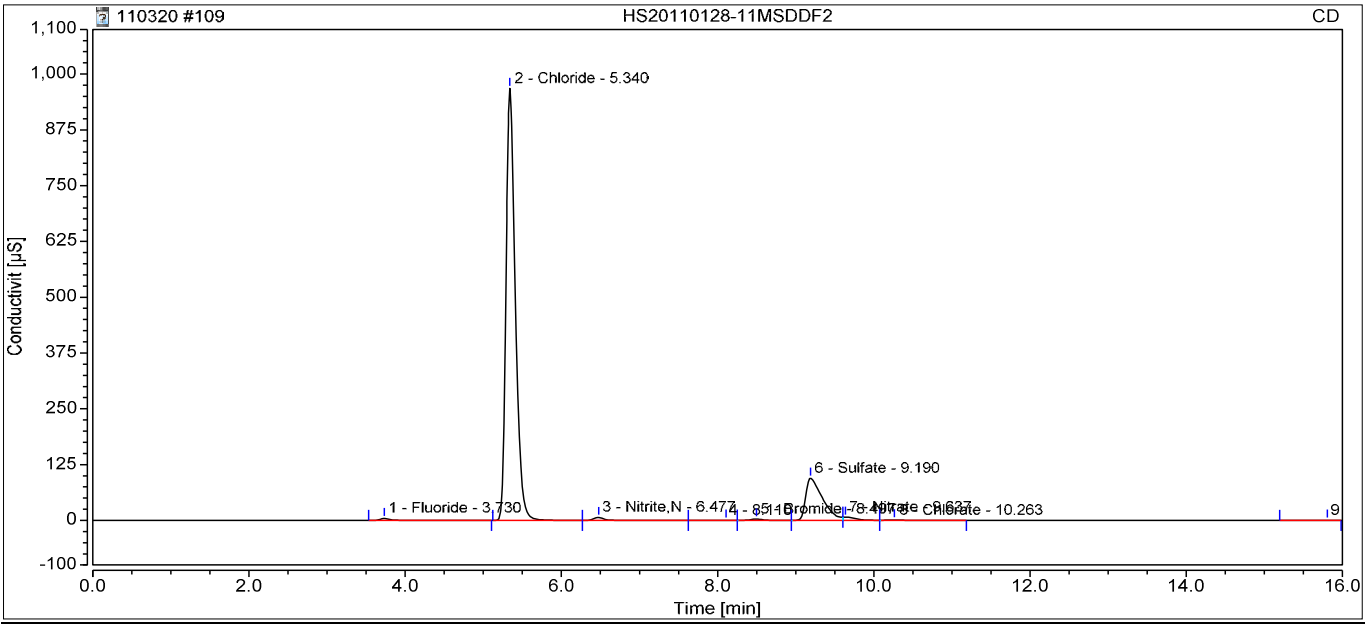

**Integration Results**

| No. | Retention min | Peak Name | Peak Type | Area µS*min | Amount ppm | Concentration ppm | Dilution |
|---|---|---|---|---|---|---|---|
| 1 | 3.73 | Fluoride | BMB | 0.707 | 2.0102 | 4.0204 | 2.0000 |
| 2 | 5.34 | Chloride | BMB | 133.070 | 581.3994 | 1162.7988 | 2.0000 |
| 3 | 6.47 | Nitrite,N | BMB | 1.062 | 2.2154 | 4.4308 | 2.0000 |
| 5 | 8.49 | Bromide | M | 0.505 | 4.9282 | 9.8563 | 2.0000 |
| 6 | 9.19 | Sulfate | M | 23.352 | 145.8193 | 291.6386 | 2.0000 |
| 7 | 9.69 | Nitrate | M | 1.415 | 2.2753 | 4.5507 | 2.0000 |
| 8 | 10.26 | Chlorate | MB | 0.258 | 2.3954 | 4.7908 | 2.0000 |
| n.a. | n.a. | Phosphate | n.a. | n.a. | n.a. | n.a. | 2.0000 |
| **Total:** | | | **0.000** | **160.369** | | **1482.09** | |

*109 HS20110128-11MSDDF2*

| | | | |
|---|---|---|---|
| *Sample Name:* | **HS20110128-11MSDDF2** | *Injection Volume:* | **5.00** |
| *Vial Number:* | **GE2** | *Channel:* | **CD** |
| *Sample Type:* | **Unknown** | *Wavelength:* | **210** |
| *Control Program:* | **Anions Program 06022020.1** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **Anions Processing Method** | *Dilution Factor:* | **2.0000** |
| *Recording Time:* | **11/04/2020 19:32** | *Sample Weight:* | **1.0000** |

Run Time:



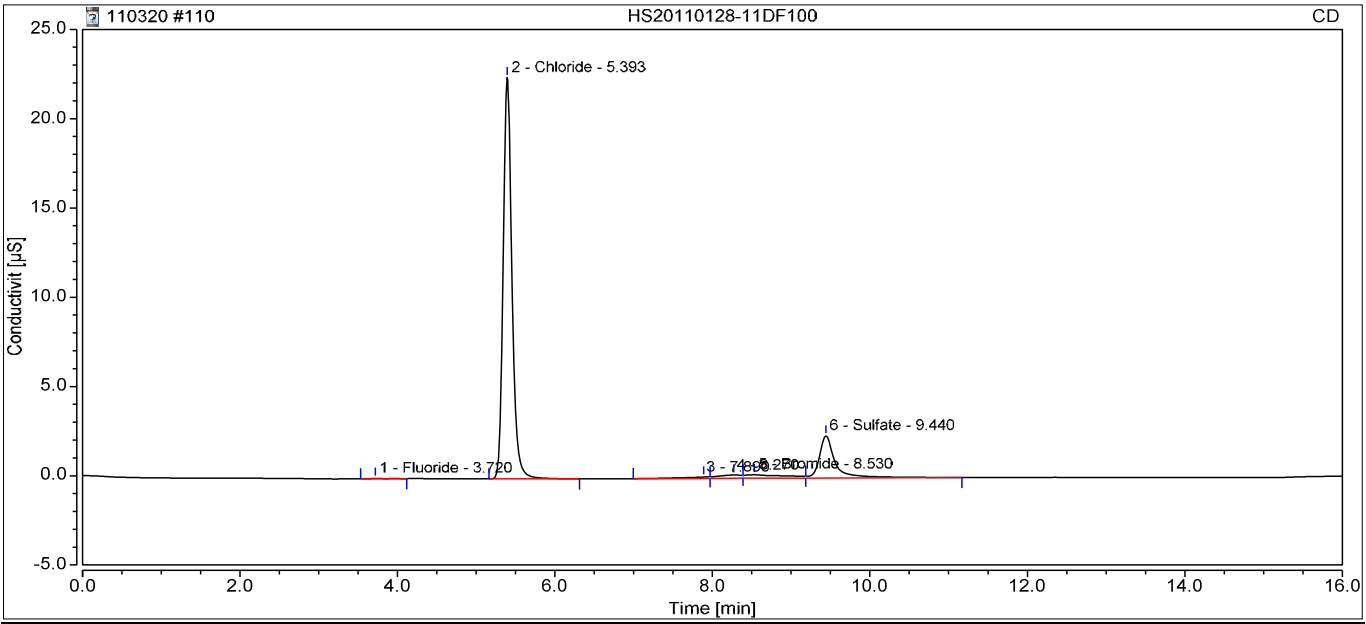

**Integration Results**

| No. | Retention min | Peak Name | Peak Type | Area µS*min | Amount ppm | Concentration ppm | Dilution |
|---|---|---|---|---|---|---|---|
| 1 | 3.73 | Fluoride | BMB | 0.725 | 2.0617 | 4.1234 | 2.0000 |
| 2 | 5.34 | Chloride | BMB | 133.475 | 583.1680 | 1166.3359 | 2.0000 |
| 3 | 6.48 | Nitrite,N | BMB | 1.042 | 2.1727 | 4.3453 | 2.0000 |
| 5 | 8.50 | Bromide | M | 0.574 | 5.6131 | 11.2262 | 2.0000 |
| 6 | 9.19 | Sulfate | M | 23.562 | 147.1279 | 294.2557 | 2.0000 |
| 7 | 9.64 | Nitrate | M | 1.385 | 2.2273 | 4.4547 | 2.0000 |
| 8 | 10.26 | Chlorate | MB | 0.245 | 2.2711 | 4.5423 | 2.0000 |
| n.a. | n.a. | Phosphate | n.a. | n.a. | n.a. | n.a. | 2.0000 |
| **Total:** | | | **0.000** | **161.008** | | **1489.28** | |

*110 HS20110128-11DF100*

| | | | |
|---|---|---|---|
| *Sample Name:* | **HS20110128-11DF100** | *Injection Volume:* | **5.00** |
| *Vial Number:* | **GE5** | *Channel:* | **CD** |
| *Sample Type:* | **Unknown** | *Wavelength:* | **210** |
| *Control Program:* | **Anions Program 06022020.1** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **Anions Processing Method** | *Dilution Factor:* | **100.0000** |
| *Recording Time:* | **11/04/2020 19:50** | *Sample Weight:* | **1.0000** |

Run Time:



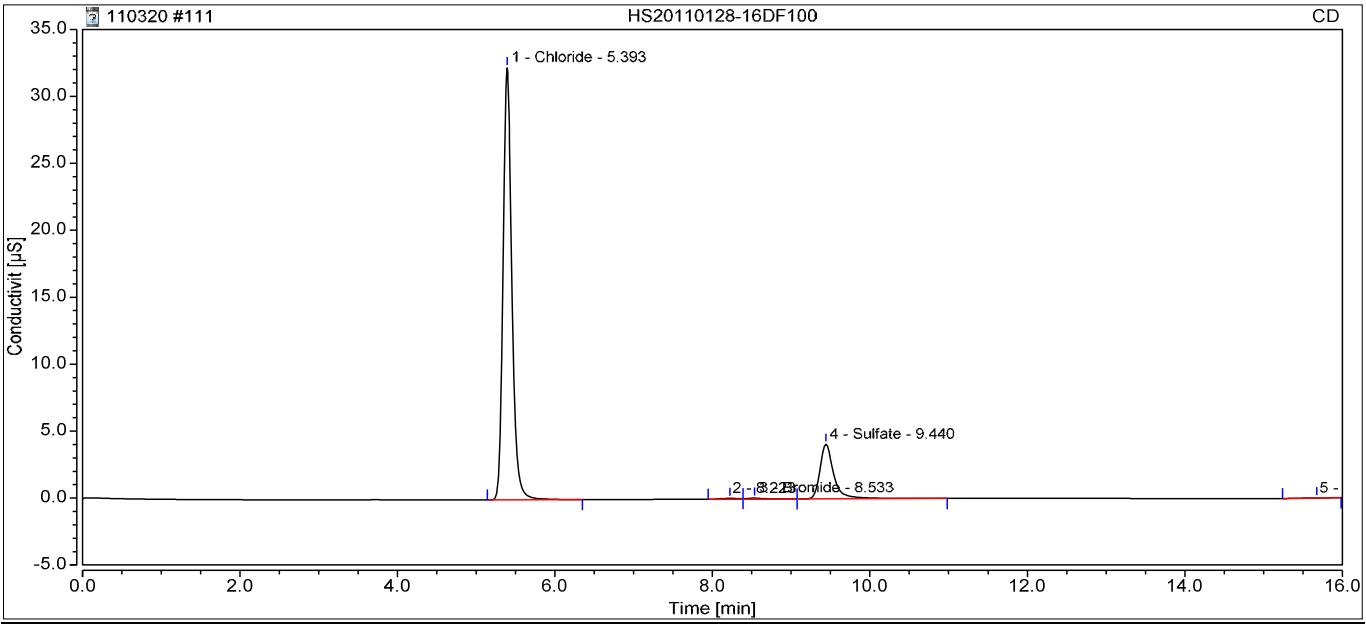

**Integration Results**

| No. | Retention min | Peak Name | Peak Type | Area µS*min | Amount ppm | Concentration ppm | Dilution |
|---|---|---|---|---|---|---|---|
| 1 | 3.72 | Fluoride | BMB | 0.004 | 0.0217 | 2.1695 | 100.0000 |
| 2 | 5.39 | Chloride | BMB | 2.930 | 12.7449 | 1274.4936 | 100.0000 |
| n.a. | n.a. | Nitrite,N | n.a. | n.a. | n.a. | n.a. | 100.0000 |
| 5 | 8.53 | Bromide | M | 0.115 | 1.0603 | 106.0339 | 100.0000 |
| 6 | 9.44 | Sulfate | MB | 0.552 | 3.4566 | 345.6631 | 100.0000 |
| n.a. | n.a. | Nitrate | n.a. | n.a. | n.a. | n.a. | 100.0000 |
| n.a. | n.a. | Chlorate | n.a. | n.a. | n.a. | n.a. | 100.0000 |
| n.a. | n.a. | Phosphate | n.a. | n.a. | n.a. | n.a. | 100.0000 |
| **Total:** | | | **0.000** | **3.600** | | **1728.36** | |

*111 HS20110128-16DF100*

| | | | |
|---|---|---|---|
| *Sample Name:* | **HS20110128-16DF100** | *Injection Volume:* | **5.00** |
| *Vial Number:* | **GE6** | *Channel:* | **CD** |
| *Sample Type:* | **Unknown** | *Wavelength:* | **210** |
| *Control Program:* | **Anions Program 06022020.1** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **Anions Processing Method** | *Dilution Factor:* | **100.0000** |
| *Recording Time:* | **11/04/2020 20:08** | *Sample Weight:* | **1.0000** |

Run Time:



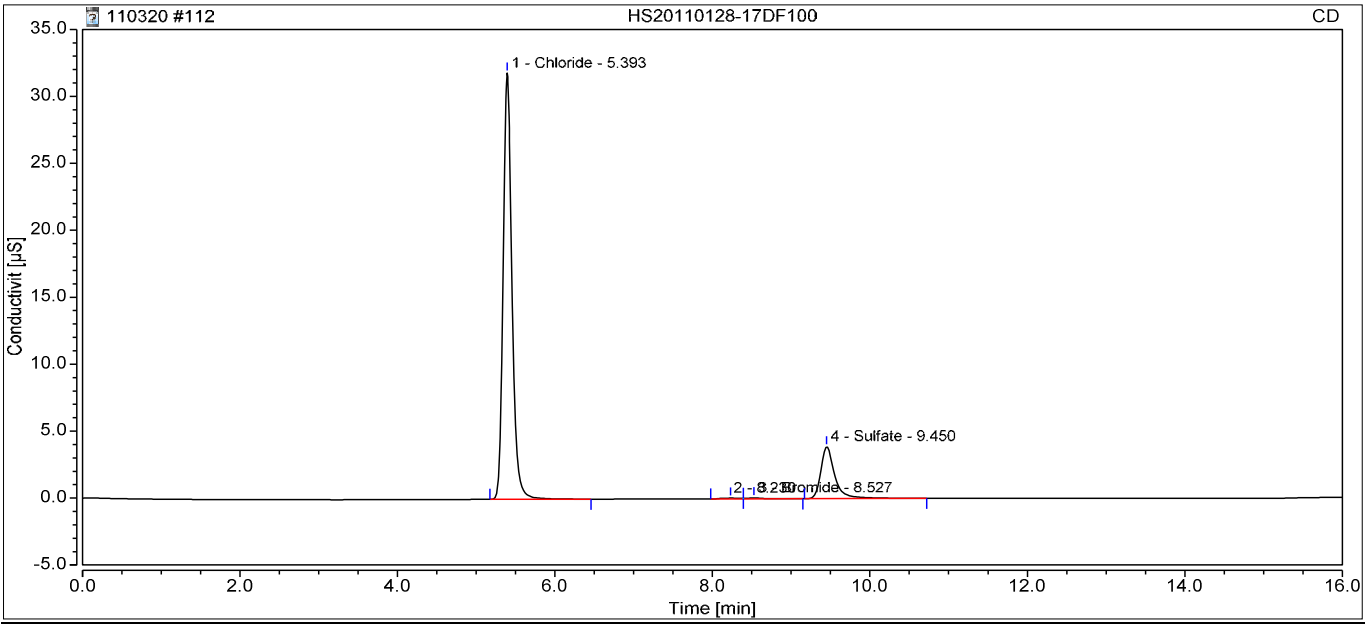

**Integration Results**

| No. | Retention min | Peak Name | Peak Type | Area µS*min | Amount ppm | Concentration ppm | Dilution |
|---|---|---|---|---|---|---|---|
| n.a. | n.a. | Fluoride | n.a. | n.a. | n.a. | n.a. | 100.0000 |
| 1 | 5.39 | Chloride | BMB | 4.208 | 18.3293 | 1832.9300 | 100.0000 |
| n.a. | n.a. | Nitrite,N | n.a. | n.a. | n.a. | n.a. | 100.0000 |
| 3 | 8.53 | Bromide | M | 0.019 | 0.1076 | 10.7562 | 100.0000 |
| 4 | 9.44 | Sulfate | MB | 0.832 | 5.2083 | 520.8252 | 100.0000 |
| n.a. | n.a. | Nitrate | n.a. | n.a. | n.a. | n.a. | 100.0000 |
| n.a. | n.a. | Chlorate | n.a. | n.a. | n.a. | n.a. | 100.0000 |
| n.a. | n.a. | Phosphate | n.a. | n.a. | n.a. | n.a. | 100.0000 |
| **Total:** | | | **0.000** | **5.059** | | **2364.51** | |

*112 HS20110128-17DF100*

| | | | |
|---|---|---|---|
| *Sample Name:* | **HS20110128-17DF100** | *Injection Volume:* | **5.00** |
| *Vial Number:* | **GE7** | *Channel:* | **CD** |
| *Sample Type:* | **Unknown** | *Wavelength:* | **210** |
| *Control Program:* | **Anions Program 06022020.1** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **Anions Processing Method** | *Dilution Factor:* | **100.0000** |
| *Recording Time:* | **11/04/2020 20:26** | *Sample Weight:* | **1.0000** |

Run Time:



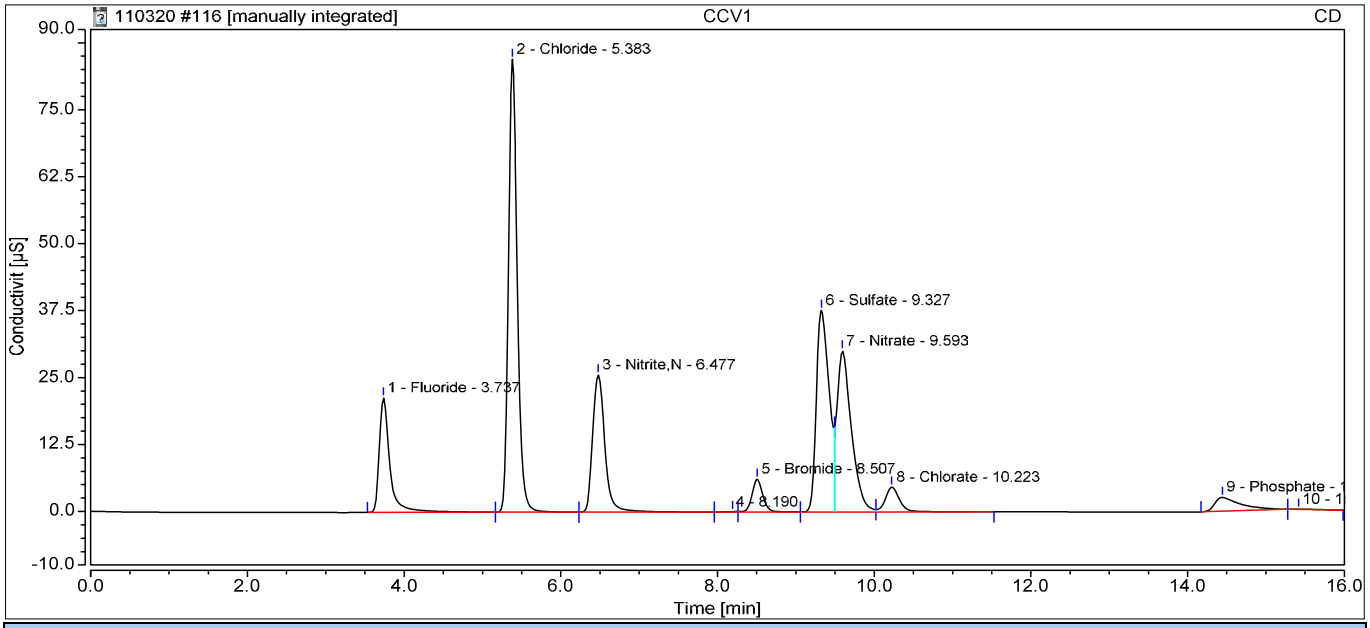

**Integration Results**

| No. | Retention min | Peak Name | Peak Type | Area µS*min | Amount ppm | Concentration ppm | Dilution |
|---|---|---|---|---|---|---|---|
| n.a. | n.a. | Fluoride | n.a. | n.a. | n.a. | n.a. | 100.0000 |
| 1 | 5.39 | Chloride | BMB | 4.160 | 18.1208 | 1812.0775 | 100.0000 |
| n.a. | n.a. | Nitrite,N | n.a. | n.a. | n.a. | n.a. | 100.0000 |
| 3 | 8.53 | Bromide | MB | 0.019 | 0.1045 | 10.4502 | 100.0000 |
| 4 | 9.45 | Sulfate | BMB | 0.799 | 5.0025 | 500.2454 | 100.0000 |
| n.a. | n.a. | Nitrate | n.a. | n.a. | n.a. | n.a. | 100.0000 |
| n.a. | n.a. | Chlorate | n.a. | n.a. | n.a. | n.a. | 100.0000 |
| n.a. | n.a. | Phosphate | n.a. | n.a. | n.a. | n.a. | 100.0000 |
| **Total:** | | | **0.000** | **4.978** | | **2322.77** | |

*116 CCV1*

| | | | |
|---|---|---|---|
| *Sample Name:* | **CCV1** | *Injection Volume:* | **5.00** |
| *Vial Number:* | **BA4** | *Channel:* | **CD** |
| *Sample Type:* | **Unknown** | *Wavelength:* | **210** |
| *Control Program:* | **Anions Program 06022020.1** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **Anions Processing Method** | *Dilution Factor:* | **1.0000** |
| *Recording Time:* | **11/04/2020 21:56** | *Sample Weight:* | **1.0000** |

Run Time:



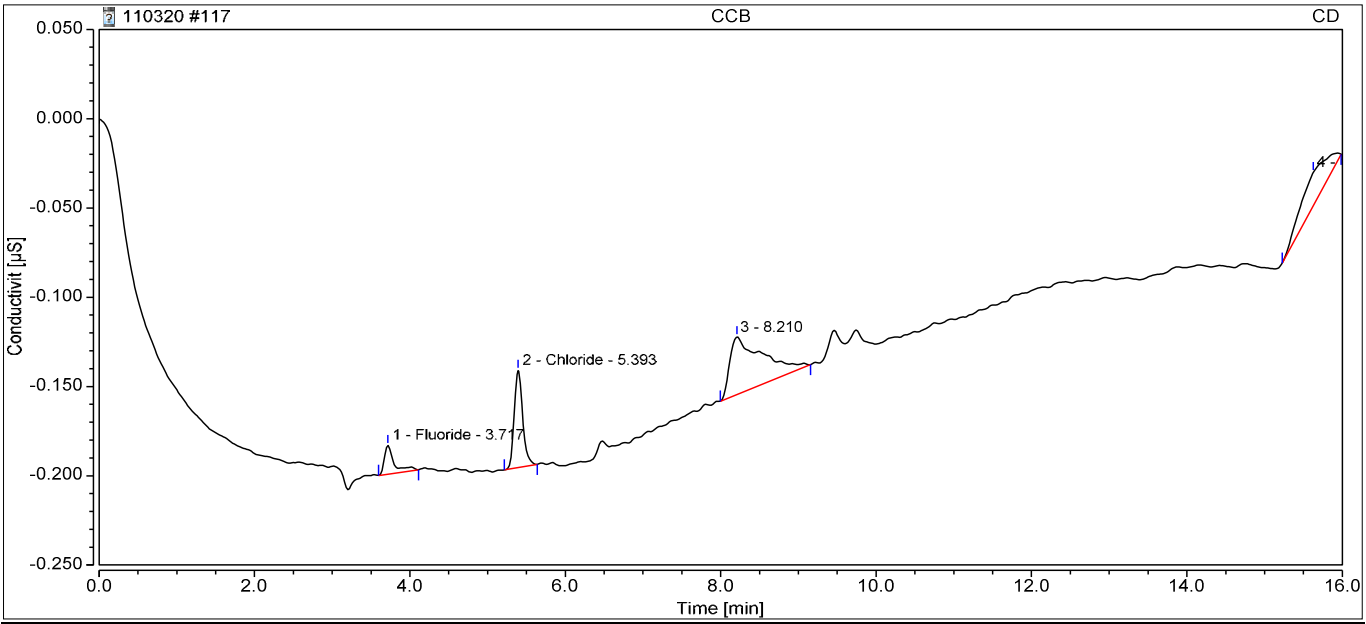

**Integration Results**

| No. | Retention min | Peak Name | Peak Type | Area µS*min | Amount ppm | Concentration ppm | Dilution |
|---|---|---|---|---|---|---|---|
| 1 | 3.74 | Fluoride | BMB | 3.353 | 9.4932 | 9.4932 | 1.0000 |
| 2 | 5.38 | Chloride | BMB | 11.039 | 48.1781 | 48.1781 | 1.0000 |
| 3 | 6.48 | Nitrite,N | BMB | 4.636 | 9.8015 | 9.8015 | 1.0000 |
| 5 | 8.51 | Bromide | M | 0.986 | 9.6995 | 9.6995 | 1.0000 |
| 6 | 9.33 | Sulfate | M * | 7.208 | 45.0176 | 45.0176 | 1.0000 |
| 7 | 9.59 | Nitrate | M * | 6.382 | 10.3458 | 10.3458 | 1.0000 |
| 8 | 10.22 | Chlorate | MB | 0.979 | 9.4632 | 9.4632 | 1.0000 |
| 9 | 14.44 | Phosphate | BMB | 0.991 | 5.4834 | 5.4834 | 1.0000 |
| **Total:** | | | **0.000** | **35.573** | | **147.48** | |

*117 CCB*

| | | | |
|---|---|---|---|
| *Sample Name:* | **CCB** | *Injection Volume:* | **5.00** |
| *Vial Number:* | **BA5** | *Channel:* | **CD** |
| *Sample Type:* | **Unknown** | *Wavelength:* | **210** |
| *Control Program:* | **Anions Program 06022020.1** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **Anions Processing Method** | *Dilution Factor:* | **1.0000** |
| *Recording Time:* | **11/04/2020 22:32** | *Sample Weight:* | **1.0000** |

Run Time:




**Integration Results**

| No. | Retention min | Peak Name | Peak Type | Area µS*min | Amount ppm | Concentration ppm | Dilution |
|---|---|---|---|---|---|---|---|
| 1 | 3.72 | Fluoride | BMB | 0.002 | 0.0180 | 0.0180 | 1.0000 |
| 2 | 5.39 | Chloride | BMB | 0.007 | n.a. | n.a. | 1.0000 |
| n.a. | n.a. | Nitrite,N | n.a. | n.a. | n.a. | n.a. | 1.0000 |
| n.a. | n.a. | Bromide | n.a. | n.a. | n.a. | n.a. | 1.0000 |
| n.a. | n.a. | Sulfate | n.a. | n.a. | n.a. | n.a. | 1.0000 |
| n.a. | n.a. | Nitrate | n.a. | n.a. | n.a. | n.a. | 1.0000 |
| n.a. | n.a. | Chlorate | n.a. | n.a. | n.a. | n.a. | 1.0000 |
| n.a. | n.a. | Phosphate | n.a. | n.a. | n.a. | n.a. | 1.0000 |
| **Total:** | | | **0.000** | **0.009** | | **0.02** | |

# HS20110128 1 ALS Kelso Tier IV Report K2010200

ALS WO# HS20110128

ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
**T :** +1 360 577 7222
**F :** +1 360 636 1068
**www.alsglobal.com**

November 18, 2020 **Analytical Report for Service Request No:** K2010200

RJ Modashia
ALS Laboratory Group
10450 Stancliff Road
Suite 210
Houston, TX 77099-4338

**RE: ALS Houston DOD TOC / HS20110128**

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory November 05, 2020
For your reference, these analyses have been assigned our service request number **K2010200.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3350. You may also contact me via email at Kelley.Lovejoy@alsglobal.com.

Respectfully submitted,

**ALS Group USA, Corp. dba ALS Environmental**

for Kelley Lovejoy
Project Manager


RIGHT SOLUTIONS | RIGHT PARTNER

ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
**T :** +1 360 577 7222
**F :** +1 360 636 1068
**www.alsglobal.com**

# Table of Contents

Acronyms
Qualifiers
State Certifications, Accreditations, And Licenses
Case Narrative
Chain of Custody
General Chemistry
Raw Data
    General Chemistry

## Acronyms

| | |
|---|---|
| ASTM | American Society for Testing and Materials |
| A2LA | American Association for Laboratory Accreditation |
| CARB | California Air Resources Board |
| CAS Number | Chemical Abstract Service registry Number |
| CFC | Chlorofluorocarbon |
| CFU | Colony-Forming Unit |
| DEC | Department of Environmental Conservation |
| DEQ | Department of Environmental Quality |
| DHS | Department of Health Services |
| DOE | Department of Ecology |
| DOH | Department of Health |
| EPA | U. S. Environmental Protection Agency |
| ELAP | Environmental Laboratory Accreditation Program |
| GC | Gas Chromatography |
| GC/MS | Gas Chromatography/Mass Spectrometry |
| LOD | Limit of Detection |
| LOQ | Limit of Quantitation |
| LUFT | Leaking Underground Fuel Tank |
| M | Modified |
| MCL | Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA. |
| MDL | Method Detection Limit |
| MPN | Most Probable Number |
| MRL | Method Reporting Limit |
| NA | Not Applicable |
| NC | Not Calculated |
| NCASI | National Council of the Paper Industry for Air and Stream Improvement |
| ND | Not Detected |
| NIOSH | National Institute for Occupational Safety and Health |
| PQL | Practical Quantitation Limit |
| RCRA | Resource Conservation and Recovery Act |
| SIM | Selected Ion Monitoring |
| TPH | Total Petroleum Hydrocarbons |
| tr | Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL. |

## Inorganic Data Qualifiers

| | |
|---|---|
| * | The result is an outlier. See case narrative. |
| # | The control limit criteria is not applicable. See case narrative. |
| B | The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards. |
| E | The result is an estimate amount because the value exceeded the instrument calibration range. |
| J | The result is an estimated value. |
| U | The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution. |
| i | The MRL/MDL or LOQ/LOD is elevated due to a matrix interference. |
| X | See case narrative. |
| Q | See case narrative. One or more quality control criteria was outside the limits. |
| H | The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory. |

## Metals Data Qualifiers

| | |
|---|---|
| # | The control limit criteria is not applicable. See case narrative. |
| J | The result is an estimated value. |
| E | The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample. |
| M | The duplicate injection precision was not met. |
| N | The Matrix Spike sample recovery is not within control limits. See case narrative. |
| S | The reported value was determined by the Method of Standard Additions (MSA). |
| U | The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution. |
| W | The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance. |
| i | The MRL/MDL or LOQ/LOD is elevated due to a matrix interference. |
| X | See case narrative. |
| + | The correlation coefficient for the MSA is less than 0.995. |
| Q | See case narrative. One or more quality control criteria was outside the limits. |

## Organic Data Qualifiers

| | |
|---|---|
| * | The result is an outlier. See case narrative. |
| # | The control limit criteria is not applicable. See case narrative. |
| A | A tentatively identified compound, a suspected aldol-condensation product. |
| B | The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards. |
| C | The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data. |
| D | The reported result is from a dilution. |
| E | The result is an estimated value. |
| J | The result is an estimated value. |
| N | The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed. |
| P | The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results. |
| U | The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution. |
| i | The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference. |
| X | See case narrative. |
| Q | See case narrative. One or more quality control criteria was outside the limits. |

## Additional Petroleum Hydrocarbon Specific Qualifiers

| | |
|---|---|
| F | The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard. |
| L | The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard. |
| H | The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard. |
| O | The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard. |
| Y | The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard. |
| Z | The chromatographic fingerprint does not resemble a petroleum product. |

**ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso**
**State Certifications, Accreditations, and Licenses**

| Agency | Web Site | Number |
|---|---|---|
| Alaska DEH | http://dec.alaska.gov/eh/lab/cs/csapproval.htm | UST-040 |
| Arizona DHS | http://www.azdhs.gov/lab/license/env.htm | AZ0339 |
| Arkansas - DEQ | http://www.adeq.state.ar.us/techsvs/labcert.htm | 88-0637 |
| California DHS (ELAP) | http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx | 2795 |
| DOD ELAP | http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm | L16-58-R4 |
| Florida DOH | http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm | E87412 |
| Hawaii DOH | http://health.hawaii.gov/ | - |
| ISO 17025 | http://www.pjlabs.com/ | L16-57 |
| Louisiana DEQ | http://www.deq.louisiana.gov/page/la-lab-accreditation | 03016 |
| Maine DHS | http://www.maine.gov/dhhs/ | WA01276 |
| Minnesota DOH | http://www.health.state.mn.us/accreditation | 053-999-457 |
| Nevada DEP | http://ndep.nv.gov/bsdw/labservice.htm | WA01276 |
| New Jersey DEP | http://www.nj.gov/dep/enforcement/oqa.html | WA005 |
| New York - DOH | https://www.wadsworth.org/regulatory/elap | 12060 |
| North Carolina DEQ | https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification | 605 |
| Oklahoma DEQ | http://www.deq.state.ok.us/CSDnew/labcert.htm | 9801 |
| Oregon – DEQ (NELAP) | http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx | WA100010 |
| South Carolina DHEC | http://www.scdhec.gov/environment/EnvironmentalLabCertification/ | 61002 |
| Texas CEQ | http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html | T104704427 |
| Washington DOE | http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html | C544 |
| Wyoming (EPA Region 8) | https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water- | - |
| Kelso Laboratory Website | www.alsglobal.com | NA |

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

# Case Narrative

**ALS Environmental—Kelso Laboratory**
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

1317 South 13th Ave, Kelso, WA 98626 | 1-360-577-7222 | www.alsglobal.com

**Client:** ALS Environmental - US
**Project:** ALS Houston DOD TOC
**Sample Matrix:** Ground Water

**Service Request:** K2010200
**Date Received:** 11/05/2020

## CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier level IV requested by the client.

**Sample Receipt:**

Three ground water samples were received for analysis at ALS Environmental on 11/05/2020. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

**General Chemistry:**

No significant anomalies were noted with this analysis.

Approved by Noe D. Davis Date 11/18/2020

# Chain of Custody

**ALS Environmental—Kelso Laboratory**
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

K20110200

10450 Stancliff Rd, Ste 210
Houston, TX 77099
**T:** +1 281 530 5656
**F:** +1 281 530 5887
**www.alsglobal.com**

# Subcontract Chain of Custody

**SAMPLING STATE:** **Dept of Defense** **COC ID:** **15101**

**SUBCONTRACT TO:**

ALS Environmental Kelso
1317 S. 13th Avenue
Kelso, WA 98626

**Phone:** +1 360 501 3312

**CUSTOMER INFORMATION:**

| | |
|---|---|
| **Company:** | ALS Houston |
| **Contact:** | RJ Modashia |
| **Address:** | 10450 Stancliff Rd, Ste 210 |
| **Phone:** | +1 281 530 5656 |
| **Email:** | RJ.Modashia@alsglobal.com |
| **Alternate Contact:** | |
| **Email:** | |

**INVOICE INFORMATION:**

| | |
|---|---|
| **Company:** | ALS Houston |
| **Contact:** | Accounts Payable |
| **Address:** | 10450 Stancliff Rd, Ste 210 |
| **Phone:** | +1 281 530 5656 |
| **Reference:** | HS20110128 |
| **TSR:** | Sonia West |

| | LAB SAMPLE ID | CLIENT SAMPLE ID | MATRIX | COLLECT DATE |
|---|---|---|---|---|
| | ANALYSIS REQUESTED | | | DUE DATE |
| 1. | **HS20110128-11** | **67WW13-201103** | **Groundwater** | **03 Nov 2020 07:10** |
| | TOC: Provide Level II & DOD Level IV/EQuIS APTIM EDD | | | 18 Nov 2020 |
| 2. | **HS20110128-16** | **67WW08-201103** | **Groundwater** | **03 Nov 2020 11:00** |
| | TOC: Provide Level II & DOD Level IV/EQuIS APTIM EDD | | | 18 Nov 2020 |
| 3. | **HS20110128-17** | **67WW08-201103-FD** | **Groundwater** | **03 Nov 2020 11:00** |
| | TOC: Provide Level II & DOD Level IV/EQuIS APTIM EDD | | | 18 Nov 2020 |

**Comments:** Please analyze for the analysis listed above.
Send report to the emails shown above.
HS20110128-11 = MS/MSD

**QC Level:** DOD IV (DoD Data Package)

Relinquished By: J. Mancuso Date/Time: 11/04/20 13:00

Received By: Date/Time: 11/5/20 1015

Cooler ID(s): Temperature(s):

PM KL

# Cooler Receipt and Preservation Form

Client AIP-Houston Service Request K20 10200

Received: 11/5/20 Opened: 11/5/20 By: BR Unloaded: 11/5/20 By: BR

1. Samples were received via? *USPS* *Fed Ex* *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA Y N If yes, how many and where? 2 front
   If present, were custody seals intact? Y N If present, were they signed and dated? Y N
4. Was a Temperature Blank present in cooler? NA Y N If yes, notate the temperature in the appropriate column below:
   If no, take the temperature of a representative sample bottle contained within the cooler; notate in the column "Sample Temp":
5. Were samples received within the method specified temperature ranges? NA Y N
   If no, were they received on ice and same day as collected? If not, notate the cooler # below and notify the PM. NA Y N

If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*

| Temp Blank | Sample Temp | IR Gun | Cooler #/COC ID/ NA | Out of temp indicate with "X" | PM Notified If out of temp | Tracking Number NA | Filed |
|---|---|---|---|---|---|---|---|
| 0.9 | — | 1801 | | — | — | 189188824946 | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

6. Packing material: *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Dry Ice* *Sleeves* _____
7. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
8. Were samples received in good condition (unbroken) NA Y N
9. Were all sample labels complete (ie, analysis, preservation, etc.)? NA Y N
10. Did all sample labels and tags agree with custody papers? NA Y N
11. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
12. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA Y N
13. Were VOA vials received without headspace? *Indicate in the table below.* NA Y N
14. Was C12/Res negative? NA Y N

| Sample ID on Bottle | Sample ID on COC | Identified by: |
|---|---|---|
| | | |
| | | |
| | | |

| Sample ID | Bottle Count Bottle Type | Head-space | Broke | pH | Reagent | Volume added | Reagent Lot Number | Initials | Time |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

Notes, Discrepancies, Resolutions: _____

# General Chemistry

**ALS Environmental—Kelso Laboratory**
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

**ALS Group USA, Corp.**
**dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | K2010200 |
| **Project:** | ALS Houston DOD TOC/HS20110128 | **Date Collected:** | 11/3/20 |
| **Sample Matrix:** | Ground Water | **Date Received:** | 11/5/20 |
| **Analysis Method:** | SM 5310 C | **Units:** | mg/L |
| **Prep Method:** | None | **Basis:** | NA |

## Carbon, Total Organic

| Sample Name | Lab Code | Result | LOQ | LOD | MDL | Dil. | Date Analyzed | Q |
|---|---|---|---|---|---|---|---|---|
| 67WW13-201103 | K2010200-001 | **1.45** | 0.50 | 0.20 | 0.07 | 1 | 11/11/20 17:58 | |
| 67WW08-201103 | K2010200-002 | **1.17** | 0.50 | 0.20 | 0.07 | 1 | 11/11/20 17:58 | |
| 67WW08-201103-FD | K2010200-003 | **1.21** | 0.50 | 0.20 | 0.07 | 1 | 11/11/20 17:58 | |
| Method Blank | K2010200-MB | ND U | 0.50 | 0.20 | 0.07 | 1 | 11/11/20 17:58 | |

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | K2010200 |
| **Project** | ALS Houston DOD TOC/HS20110128 | **Date Collected:** | 11/03/20 |
| **Sample Matrix:** | Ground Water | **Date Received:** | 11/05/20 |
| | | **Date Analyzed:** | 11/11/20 |

## Replicate Sample Summary
## General Chemistry Parameters

| | | | |
|---|---|---|---|
| **Sample Name:** | 67WW13-201103 | **Units:** | mg/L |
| **Lab Code:** | K2010200-001 | **Basis:** | NA |

| Analyte Name | Analysis Method | LOQ | LOD | MDL | Sample Result | Duplicate Sample K2010200-001DUP Result | Average | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, Total Organic | SM 5310 C | 0.50 | 0.20 | 0.07 | 1.45 | 1.28 | 1.36 | 12 # | 10 |

**Results flagged with an asterisk (*) indicate values outside control criteria.**

**Results flagged with a pound (#) indicate the control criteria is not applicable.**

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | K2010200 |
| **Project:** | ALS Houston DOD TOC/HS20110128 | **Date Collected:** | 11/03/20 |
| **Sample Matrix:** | Ground Water | **Date Received:** | 11/05/20 |
| | | **Date Analyzed:** | 11/11/20 |
| | | **Date Extracted:** | NA |

## Matrix Spike Summary
## Carbon, Total Organic

| | | | |
|---|---|---|---|
| **Sample Name:** | 67WW13-201103 | **Units:** | mg/L |
| **Lab Code:** | K2010200-001 | **Basis:** | NA |
| **Analysis Method:** | SM 5310 C | | |
| **Prep Method:** | None | | |

### Matrix Spike
K2010200-001MS

| Analyte Name | Sample Result | Result | Spike Amount | % Rec | % Rec Limits |
|---|---|---|---|---|---|
| Carbon, Total Organic | 1.45 | 23.4 | 25.0 | 88 | 83-117 |

**Results flagged with an asterisk (*) indicate values outside control criteria.**

**Results flagged with a pound (#) indicate the control criteria is not applicable.**

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

**Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.**

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | K2010200 |
| **Project:** | ALS Houston DOD TOC/HS20110128 | **Date Analyzed:** | 11/11/20 |
| **Sample Matrix:** | Ground Water | **Date Extracted:** | NA |

**Lab Control Sample Summary**
**Carbon, Total Organic**

| | | | |
|---|---|---|---|
| **Analysis Method:** | SM 5310 C | **Units:** | mg/L |
| **Prep Method:** | None | **Basis:** | NA |
| | | **Analysis Lot:** | 703161 |

| Sample Name | Lab Code | Result | Spike Amount | % Rec | % Rec Limits |
|---|---|---|---|---|---|
| Lab Control Sample | K2010200-LCS | 25.9 | 25.0 | 104 | 83-117 |

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

**Client:** ALS Environmental - US **Service Request:** K2010200
**Project:** ALS Houston DOD TOC/HS20110128

## Continuing Calibration Verification (CCV) Summary

### Carbon, Total Organic

**Analysis Method:** SM 5310 C **Units:** mg/L

| | Analysis Lot | Lab Code | Date Analyzed | True Value | Measured Value | Percent Recovery | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| CCV1 | 703161 | KQ2017857-05 | 11/11/20 17:58 | 25.0 | 25.6 | 103 | 90-110 |
| CCV2 | 703161 | KQ2017857-06 | 11/11/20 17:58 | 25.0 | 25.6 | 103 | 90-110 |
| CCV3 | 703161 | KQ2017857-07 | 11/11/20 17:58 | 25.0 | 25.1 | 101 | 90-110 |
| CCV4 | 703161 | KQ2017857-08 | 11/11/20 17:58 | 25.0 | 26.8 | 107 | 90-110 |

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

**Client:** ALS Environmental - US **Service Request:**K2010200
**Project:** ALS Houston DOD TOC/HS20110128

## Continuing Calibration Blank (CCB) Summary
### Carbon, Total Organic

**Analysis Method:** SM 5310 C **Units:**mg/L

| | Analysis Lot | Lab Code | Date Analyzed | LOQ | LOD | MDL | Result | Q |
|---|---|---|---|---|---|---|---|---|
| CCB1 | 703161 | KQ2017857-09 | 11/11/20 17:58 | 0.50 | 0.20 | 0.07 | ND | U |
| CCB2 | 703161 | KQ2017857-10 | 11/11/20 17:58 | 0.50 | 0.20 | 0.07 | ND | U |
| CCB3 | 703161 | KQ2017857-11 | 11/11/20 17:58 | 0.50 | 0.20 | 0.07 | ND | U |
| CCB4 | 703161 | KQ2017857-12 | 11/11/20 17:58 | 0.50 | 0.20 | 0.07 | 0.38 | J |

**ALS Group USA, Corp.**
**dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | K2010200 |
| **Project:** | ALS Houston DOD TOC/HS20110128 | **Date Collected:** | 11/3/20 |
| **Sample Matrix:** | Ground Water | **Date Received:** | 11/5/20 |
| **Analysis Method:** | SM 5310 C | **Units:** | mg/L |
| **Prep Method:** | None | **Basis:** | NA |

## Carbon, Total Organic

| Sample Name | Lab Code | Result | LOQ | LOD | MDL | Dil. | Date Analyzed | Q |
|---|---|---|---|---|---|---|---|---|
| 67WW13-201103 | K2010200-001 | **1.45** | 0.50 | 0.20 | 0.07 | 1 | 11/11/20 17:58 | |
| 67WW08-201103 | K2010200-002 | **1.17** | 0.50 | 0.20 | 0.07 | 1 | 11/11/20 17:58 | |
| 67WW08-201103-FD | K2010200-003 | **1.21** | 0.50 | 0.20 | 0.07 | 1 | 11/11/20 17:58 | |
| Method Blank | K2010200-MB | ND U | 0.50 | 0.20 | 0.07 | 1 | 11/11/20 17:58 | |

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | K2010200 |
| **Project** | ALS Houston DOD TOC/HS20110128 | **Date Collected:** | 11/03/20 |
| **Sample Matrix:** | Ground Water | **Date Received:** | 11/05/20 |
| | | **Date Analyzed:** | 11/11/20 |

## Replicate Sample Summary
## General Chemistry Parameters

| | | | |
|---|---|---|---|
| **Sample Name:** | 67WW13-201103 | **Units:** | mg/L |
| **Lab Code:** | K2010200-001 | **Basis:** | NA |

| Analyte Name | Analysis Method | LOQ | LOD | MDL | Sample Result | Duplicate Sample K2010200-001DUP Result | Average | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, Total Organic | SM 5310 C | 0.50 | 0.20 | 0.07 | 1.45 | 1.28 | 1.36 | 12 # | 10 |

**Results flagged with an asterisk (*) indicate values outside control criteria.**

**Results flagged with a pound (#) indicate the control criteria is not applicable.**

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | K2010200 |
| **Project:** | ALS Houston DOD TOC/HS20110128 | **Date Collected:** | 11/03/20 |
| **Sample Matrix:** | Ground Water | **Date Received:** | 11/05/20 |
| | | **Date Analyzed:** | 11/11/20 |
| | | **Date Extracted:** | NA |

## Matrix Spike Summary
## Carbon, Total Organic

| | | | |
|---|---|---|---|
| **Sample Name:** | 67WW13-201103 | **Units:** | mg/L |
| **Lab Code:** | K2010200-001 | **Basis:** | NA |
| **Analysis Method:** | SM 5310 C | | |
| **Prep Method:** | None | | |

### Matrix Spike
K2010200-001MS

| Analyte Name | Sample Result | Result | Spike Amount | % Rec | % Rec Limits |
|---|---|---|---|---|---|
| Carbon, Total Organic | 1.45 | 23.4 | 25.0 | 88 | 83-117 |

**Results flagged with an asterisk (*) indicate values outside control criteria.**

**Results flagged with a pound (#) indicate the control criteria is not applicable.**

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

**Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.**

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | K2010200 |
| **Project:** | ALS Houston DOD TOC/HS20110128 | **Date Analyzed:** | 11/11/20 |
| **Sample Matrix:** | Ground Water | **Date Extracted:** | NA |

**Lab Control Sample Summary**
**Carbon, Total Organic**

| | | | |
|---|---|---|---|
| **Analysis Method:** | SM 5310 C | **Units:** | mg/L |
| **Prep Method:** | None | **Basis:** | NA |
| | | **Analysis Lot:** | 703161 |

| Sample Name | Lab Code | Result | Spike Amount | % Rec | % Rec Limits |
|---|---|---|---|---|---|
| Lab Control Sample | K2010200-LCS | 25.9 | 25.0 | 104 | 83-117 |

# Raw Data

**ALS Environmental—Kelso Laboratory**
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

# General Chemistry

**ALS Environmental—Kelso Laboratory**
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Work Request # Original ( ) K2009246, 10044, 10124, 10127, 10199, 10200, 10258, 10363

Tier: I II II II IV IV II IV

Date Analyzed: 11/11/20

Analyst: MAS Run # 703161

Analysis: SM 5310 C/TOCT

**DATA QUALITY REPORT**
**INORGANICS**

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

| | | |
|---|---|---|
| 1. | Is the method name and number correct and appropriate? | yes/no/NA |
| 2. | Holding times met for all analyses and for all samples? | yes/no/NA |
| 3. | Are calculations correct? | yes/no/NA |
| 4. | Is the reporting basis correct? (Dry Weight) | yes/no/NA |
| 5. | All quality control criteria met? | yes/no |
| 6. | Is the calibration curve correlation coefficient ≥ 0.995? | yes/no/NA |
| 7. | MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency? | yes/no/NA |
| 8. | Are ICVs, CCVs, and CCBs all within acceptance limits? | yes/no/NA |
| 9. | Are results for methods blanks all ND? | yes/no/NA |
| 10. | Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.) | yes/no/NA |
| 11. | Are all exceptions explained? | yes/no/NA |
| 12. | Have all applicable service requests been reviewed? | yes/no/NA |
| 13. | Are all samples labeled correctly? | yes/no/NA |
| 14. | Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample, Form V) | yes/no/NA |
| 15. | Are detection limits and units reported correctly? | yes/no/NA |
| 16. | Is the unused space on the benchsheet crossed out? | yes/no/NA |
| 17. | Was analysis turned in by the due date? (n-2) (If not record SR#) | yes/no/NA |

**COMMENTS:**

- RPD between K2010200-001 Parent & Dup is high but results are less than 5x MRL

Final Approved by: QC Date: 11/14/20

DQREPORT

C:\Documents and Settings\adam.bradbury\My Documents\DATAQUAL.DOC

# Analytical Results Summary

**Instrument Name:** K-TOC-01 **Analyst:** MSPECHT **Analysis Lot:** 703161 **Method/Testcode:** SM 5310 C/TOC T

| Lab Code | Target Analytes | QC | Parent Sample | Matrix | Raw Result | Sample Amt. | Final Result | Dil | MDL | PQL | % Rec | % RSD | Date Analyzed | QC? | Tier |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| K2009246-001 | Carbon, Total Organic | N/A | | Reagent Water | 0.00 mg/L | 10 mL | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 11/11/20 17:58:00 | N | I |
| K2009246-002 | Carbon, Total Organic | N/A | | Reagent Water | 0.00 mg/L | 10 mL | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 11/11/20 17:58:00 | N | I |
| K2010044-001 | Carbon, Total Organic | N/A | | Ground Water | 1.63 mg/L | 10 mL | 1.63 mg/L | 1 | 0.07 | 0.50 | | | 11/11/20 17:58:00 | N | II |
| K2010044-002 | Carbon, Total Organic | N/A | | Ground Water | 8.33 mg/L | 10 mL | 8.33 mg/L | 1 | 0.07 | 0.50 | | | 11/11/20 17:58:00 | N | II |
| K2010124-001 | Carbon, Total Organic | N/A | | Water | 0.47 mg/L | 10 mL | 0.47 mg/L J | 1 | 0.07 | 0.50 | | | 11/11/20 17:58:00 | N | II |
| K2010124-002 | Carbon, Total Organic | N/A | | Water | 0.84 mg/L | 10 mL | 0.84 mg/L | 1 | 0.07 | 0.50 | | | 11/11/20 17:58:00 | N | II |
| K2010127-001 | Carbon, Total Organic | N/A | | Water | 1.97 mg/L | 10 mL | 1.97 mg/L | 1 | 0.07 | 0.50 | | | 11/11/20 17:58:00 | N | II |
| K2010127-002 | Carbon, Total Organic | N/A | | Water | 0.48 mg/L | 10 mL | 0.48 mg/L J | 1 | 0.07 | 0.50 | | | 11/11/20 17:58:00 | N | II |
| K2010127-003 | Carbon, Total Organic | N/A | | Water | 0.31 mg/L | 10 mL | 0.31 mg/L J | 1 | 0.07 | 0.50 | | | 11/11/20 17:58:00 | N | II |
| K2010127-004 | Carbon, Total Organic | N/A | | Water | 0.27 mg/L | 10 mL | 0.27 mg/L J | 1 | 0.07 | 0.50 | | | 11/11/20 17:58:00 | N | II |
| K2010199-001 | Carbon, Total Organic | N/A | | Water | 1.20 mg/L | 10 mL | 1.20 mg/L | 1 | 0.07 | 0.50 | | | 11/11/20 17:58:00 | N | IV |
| K2010200-001 | Carbon, Total Organic | N/A | | Ground Water | 1.45 mg/L | 10 mL | 1.45 mg/L | 1 | 0.07 | 0.50 | | | 11/11/20 17:58:00 | Y | IV |
| K2010200-002 | Carbon, Total Organic | N/A | | Ground Water | 1.17 mg/L | 10 mL | 1.17 mg/L | 1 | 0.07 | 0.50 | | | 11/11/20 17:58:00 | N | IV |
| K2010200-003 | Carbon, Total Organic | N/A | | Ground Water | 1.21 mg/L | 10 mL | 1.21 mg/L | 1 | 0.07 | 0.50 | | | 11/11/20 17:58:00 | N | IV |
| K2010258-001 | Carbon, Total Organic | N/A | | Water | 7.44 mg/L | 10 mL | 7.44 mg/L | 1 | 0.07 | 0.50 | | | 11/11/20 17:58:00 | N | II |
| K2010363-001 | Carbon, Total Organic | N/A | | Ground Water | 1.93 mg/L | 10 mL | 1.93 mg/L | 1 | 0.07 | 0.50 | | | 11/11/20 17:58:00 | N | IV |
| K2010363-002 | Carbon, Total Organic | N/A | | Ground Water | 35.32 mg/L | 10 mL | 177 mg/L | 5 | 0.4 | 2.5 | | | 11/11/20 17:58:00 | N | IV |
| K2010363-003 | Carbon, Total Organic | N/A | | Ground Water | 35.54 mg/L | 10 mL | 178 mg/L | 5 | 0.4 | 2.5 | | | 11/11/20 17:58:00 | N | IV |
| K2010363-004 | Carbon, Total Organic | N/A | | Ground Water | 3.32 mg/L | 10 mL | 3.32 mg/L | 1 | 0.07 | 0.50 | | | 11/11/20 17:58:00 | Y | IV |
| K2010363-005 | Carbon, Total Organic | N/A | | Ground Water | 3.96 mg/L | 10 mL | 19.8 mg/L | 5 | 0.4 | 2.5 | | | 11/11/20 17:58:00 | N | IV |
| KQ2017857-01 | Carbon, Total Organic | MS | K2010200-001 | Ground Water | 23.37 mg/L | 10 mL | 23.4 mg/L | 1 | 0.07 | 0.50 | 88 | | 11/11/20 17:58:00 | N | IV |
| KQ2017857-02 | Carbon, Total Organic | DUP | K2010200-001 | Ground Water | 1.28 mg/L | 10 mL | 1.28 mg/L | 1 | 0.07 | 0.50 | | 12* | 11/11/20 17:58:00 | N | IV |
| KQ2017857-03 | Carbon, Total Organic | MS | K2010363-004 | Ground Water | 28.00 mg/L | 10 mL | 28.0 mg/L | 1 | 0.07 | 0.50 | 99 | | 11/11/20 17:58:00 | N | IV |
| KQ2017857-04 | Carbon, Total Organic | DUP | K2010363-004 | Ground Water | 3.15 mg/L | 10 mL | 3.15 mg/L | 1 | 0.07 | 0.50 | | 5 | 11/11/20 17:58:00 | N | IV |
| KQ2017857-05 | Carbon, Total Organic | CCV | | Reagent Water | 25.63 mg/L | 10 mL | 25.6 mg/L | 1 | | | | | 11/11/20 17:58:00 | N | I |
| KQ2017857-06 | Carbon, Total Organic | CCV | | Reagent Water | 25.65 mg/L | 10 mL | 25.6 mg/L | 1 | | | | | 11/11/20 17:58:00 | N | I |

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

# Analytical Results Summary

**Instrument Name:** K-TOC-01 **Analyst:** MSPECHT **Analysis Lot:** 703161 **Method/Testcode:** SM 5310 C/TOC T

| Lab Code | Target Analytes | QC | Parent Sample | Matrix | Raw Result | Sample Amt. | Final Result | Dil | MDL | PQL | % Rec | % RSD | Date Analyzed | QC? | Tier |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| KQ2017857-07 | Carbon, Total Organic | CCV | | Reagent Water | 25.15 mg/L | 10 mL | 25.1 mg/L | 1 | | | | | 11/11/20 17:58:00 | N | I |
| KQ2017857-08 | Carbon, Total Organic | CCV | | Reagent Water | 26.79 mg/L | 10 mL | 26.8 mg/L | 1 | | | | | 11/11/20 17:58:00 | N | I |
| KQ2017857-09 | Carbon, Total Organic | CCB | | Reagent Water | 0.00 mg/L | 10 mL | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 11/11/20 17:58:00 | N | I |
| KQ2017857-10 | Carbon, Total Organic | CCB | | Reagent Water | 0.00 mg/L | 10 mL | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 11/11/20 17:58:00 | N | I |
| KQ2017857-11 | Carbon, Total Organic | CCB | | Reagent Water | 0.00 mg/L | 10 mL | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 11/11/20 17:58:00 | N | I |
| KQ2017857-12 | Carbon, Total Organic | CCB | | Reagent Water | 0.38 mg/L | 10 mL | 0.38 mg/L J | 1 | 0.07 | 0.50 | | | 11/11/20 17:58:00 | N | I |
| KQ2017857-13 | Carbon, Total Organic | MB | | Reagent Water | 0.00 mg/L | 10 mL | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 11/11/20 17:58:00 | N | I |
| KQ2017857-14 | Carbon, Total Organic | LCS | | Reagent Water | 25.94 mg/L | 10 mL | 25.9 mg/L | 1 | 0.07 | 0.50 | 104 | | 11/11/20 17:58:00 | N | I |

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

# Schedule: 11112020

**Version:** 3
**Instrument:** Fusion1
**Last Saved by:** Fusion1 (Fusion1)
**Last Saved on:** 2020/11/12 09:51 - Thursday

| Position | Sample Type | Sample ID | Method ID (Calibration ID) | Reps | Use | State |
|---|---|---|---|---|---|---|
| (Clean) | Clean | Clean | | 1 | True | Ready |
| (Clean) | Clean | Clean | | 1 | True | Ready |
| (Clean) | Clean | Clean | | 1 | True | Ready |
| (Blank) | Blank | Reagent/Acid Blank | | 1 | True | Ready |
| D | Sample | RB | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| B | Check Standard | [TOC] CCV 25 ppm [25 ppm] | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| D | Check Standard | [TOC] CCB [0 ppm] | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| 1 | Sample | MB1 | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| C | Check Standard | [TOC] LCS [25.0 ppm] | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| 2 | Sample | ICS | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| 3 | Sample | K2009246-001 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 4 | Sample | K2009246-002 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 5 | Sample | K2010199-001 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 6 | Sample | K2010200-001 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 7 | Sample | K2010200-001DUP | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 8 | Sample | K2010200-001MS | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 9 | Sample | K2010200-002 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| B | Check Standard | [TOC] CCV 25 ppm [25 ppm] | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| D | Check Standard | [TOC] CCB [0 ppm] | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| 10 | Sample | K2010200-003 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 11 | Sample | K2010363-001 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 12 | Sample | K2010363-002 -NH outside range | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 13 | Sample | K2010363-003 5X -NH | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 14 | Sample | K2010363-004 Possible carry over | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 15 | Sample | K2010363-004DUP | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 16 | Sample | K2010363-004MS | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 17 | Sample | K2010363-005 5X | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 18 | Sample | K2010258-001 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 19 | Sample | K2010044-001 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| B | Check Standard | [TOC] CCV 25 ppm [25 ppm] | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| D | Check Standard | [TOC] CCB [0 ppm] | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| 20 | Sample | MB2 -NH Extra | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| C | Check Standard | [TOC] LCS [25.0 ppm] -NH (extra) | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| 21 | Sample | K2010044-002 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 22 | Sample | K2010124-001 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 23 | Sample | K2010124-002 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 24 | Sample | K2010127-001 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 25 | Sample | K2010127-002 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 26 | Sample | K2010127-003 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 27 | Sample | K2010127-004 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 28 | Sample | K2010363-002 5X | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 13 | Sample | K2010363-003 5X | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 30 | Sample | | CAS_salt_010711 (CAS_salt_010711) | 2 | False | Ready |
| 31 | Sample | | CAS_salt_010711 (CAS_salt_010711) | 2 | False | Ready |
| 32 | Sample | | CAS_salt_010711 (CAS_salt_010711) | 2 | False | Ready |
| B | Check Standard | [TOC] CCV 25 ppm [25 ppm] | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| D | Check Standard | [TOC] CCB [0 ppm] | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| 33 | Sample | | CAS_salt_010711 (CAS_salt_010711) | 2 | False | Ready |
| 34 | Sample | | CAS_salt_010711 (CAS_salt_010711) | 2 | False | Ready |
| 35 | Sample | | CAS_salt_010711 (CAS_salt_010711) | 2 | False | Ready |
| 36 | Sample | | CAS_salt_010711 (CAS_salt_010711) | 2 | False | Ready |
| 37 | Sample | | CAS_salt_010711 (CAS_salt_010711) | 2 | False | Ready |
| 38 | Sample | | CAS_salt_010711 (CAS_salt_010711) | 2 | False | Ready |
| 39 | Sample | | CAS_salt_010711 (CAS_salt_010711) | 2 | False | Ready |

# Schedule: 11112020

| Position | Sample Type | Sample ID | Method ID (Calibration ID) | Reps | Use | State |
|---|---|---|---|---|---|---|
| 40 | Sample | | CAS_salt_010711 (CAS_salt_010711) | 1 | False | Ready |
| 41 | Sample | | CAS_salt_010711 (CAS_salt_010711) | 1 | False | Ready |
| B | Check Standard | [TOC] CCV 25 ppm [25 ppm] | CAS_salt_010711 (CAS_salt_010711) | 1 | False | Ready |
| D | Check Standard | [TOC] CCB [0 ppm] | CAS_salt_010711 (CAS_salt_010711) | 1 | False | Ready |
| | | | | | False | |

# Fusion Report - 11112020
# Wednesday, November 11, 2020 05:58 PM

(View - Reps, Unused Reps, Meta-Data, Signature, History)
Printed on 2020/11/12 12:00 - Thursday

## Report Summary Information

| | | | |
|---|---|---|---|
| Company Location: | Gen Chem Lab | | |
| Schedule Name: | 11112020 | Engine Version: | 1.1.5.1 |
| Instrument Name: | Fusion1 | Firmware Version: | 1.2.0696 |
| Report Version: | 1 of 1 | Connection: | RS232 COM1 |
| Report Creation by Operators (schedule version): | Fusion1 (Fusion1) (v2)<br>Fusion1 (Fusion1) (v3) | | |
| Comment: | | | |

## Report Results

**Sample Type**: Clean — From Schedule Version 2

| | Pos | Analysis Type | Sample ID | Start Time |
|---|---|---|---|---|
| ◆ | (clean) | | Clean | 2020/11/11 17:58 |

| Rep # | Base Analysis Type | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|
| 1 | IC Clean | 15.72 | 28.71 | 12.99 | 49.55 | 05:21 |
| | | | | | | |
| 2 | TC Clean | 7.69 | 20.42 | 12.73 | 50.19 | 04:06 |
| 3 | TC Clean | 1.17 | 14.12 | 12.94 | 50.15 | 03:48 |
| 4 | TC Clean | 1.33 | 14.08 | 12.76 | 50.26 | 03:48 |

**Sample Type**: Clean — From Schedule Version 2

| | Pos | Analysis Type | Sample ID | Start Time |
|---|---|---|---|---|
| ◆ | (clean) | | Clean | 2020/11/11 18:19 |

| Rep # | Base Analysis Type | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|
| 1 | IC Clean | -0.18 | 12.78 | 12.96 | 49.71 | 05:14 |
| | | | | | | |
| 2 | TC Clean | 3.97 | 16.78 | 12.82 | 50.03 | 04:04 |
| 3 | TC Clean | 0.90 | 13.66 | 12.77 | 50.03 | 03:56 |
| 4 | TC Clean | 0.45 | 13.47 | 13.02 | 50.04 | 03:54 |

**Sample Type**: Clean From Schedule Version 2

| | Pos | Analysis Type | Sample ID | Start Time |
|---|---|---|---|---|
| ◆ | (clean) | | Clean | 2020/11/11 18:41 |

| Rep # | Base Analysis Type | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|
| 1 | IC Clean | -0.77 | 12.15 | 12.92 | 49.58 | 05:22 |
| | | | | | | |
| 2 | TC Clean | 3.79 | 16.54 | 12.75 | 50.16 | 04:03 |
| 3 | TC Clean | 1.09 | 13.84 | 12.76 | 50.15 | 03:48 |
| 4 | TC Clean | 0.75 | 13.61 | 12.86 | 50.22 | 03:45 |

**Sample Type**: Blank (Creating v1477) From Schedule Version 2

| | Pos | Analysis Type | Sample ID | Start Time |
|---|---|---|---|---|
| ◆ | (blank) | | Reagent/Acid Blank | 2020/11/11 19:03 |

| Rep # | Base Analysis Type | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|
| 1 | IC Clean | -0.23 | 12.51 | 12.74 | 49.60 | 05:11 |
| | | | | | | |
| 2 | TC Clean | 3.86 | 16.63 | 12.77 | 50.10 | 04:03 |
| 3 | TC Clean | 1.03 | 13.80 | 12.77 | 50.09 | 03:46 |
| 4 | TC Clean | 0.86 | 13.61 | 12.76 | 50.13 | 03:57 |
| | | | | | | |
| 5 | Reagent Blank | 5.57 | 18.36 | 12.79 | 50.15 | 05:05 |
| | | | | | | |
| 6 | Acid Blank | 0.04 | 12.74 | 12.69 | 49.78 | 05:30 |

**Sample Type**: Sample From Schedule Version 2

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | D | TOC | RB | 0.0017 ppm | 0.0000 ppm | 0.0000% | 2020/11/11 19:37 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0017 | 0.0166 | 9.29 | 22.05 | 12.76 | 50.44 | 10:27 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 9.2744 (IC) (v1477) | CAS_salt_010711 (v4) | CAS_salt_010711 (v38) |

**Sample Type**: Check Standard --> CCV 25 ppm From Schedule Version 2

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◆ | B | TOC | 25.0000 | 1:2 | [TOC] CCV 25 ppm [25 ppm] | 0 / infinity ( NA / NA ) | 25.6303 ppm (PASS) | 0.0000 ppm | 0% | 2020/11/11 19:51 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| B | TOC | 25 ppm | 1 | 25.6303 | 256.3028 | 189.68 | 202.65 | 12.97 | 50.52 | 10:34 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos B |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | CAS_salt_010711 (v4) | CAS_salt_010711 (v38) | 50 ppmC |

**Sample Type**: Check Standard --> CCB From Schedule Version 2

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◆ | D | TOC | 0.0000 | 1:1 | [TOC] CCB [0 ppm] | 0 / infinity ( NA / NA ) | 0.0000 ppm (PASS) | 0.0000 ppm | 0% | 2020/11/11 20:06 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| D | TOC | 0 ppm | 1 | 0.0000 | 0.0000 | 7.16 | 20.00 | 12.84 | 50.52 | 10:29 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos D |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | CAS_salt_010711 (v4) | CAS_salt_010711 (v38) | 0 ppmC |

**Sample Type**: Sample From Schedule Version 2

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 1 | TOC | MB1 | 0.0000 ppm | 0.0000 ppm | 0.0000% | 2020/11/11 20:21 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0000 | 0.0000 | 6.96 | 19.74 | 12.78 | 50.51 | 10:36 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 9.2744 (IC) (v1477) | CAS_salt_010711 (v4) | CAS_salt_010711 (v38) |

**Sample Type**: Check Standard --> LCS From Schedule Version 2

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◆ | C | TOC | 25.0000 | 1:1 | [TOC] LCS [25.0 ppm] | 0 / infinity ( NA / NA ) | 25.9435 ppm (PASS) | 0.0000 ppm | 0% | 2020/11/11 20:36 |

| Pos | Base Analysis | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|

| | Type | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| C | TOC | 25.0 ppm | 1 | 25.9435 | 259.4347 | 191.88 | 204.83 | 12.95 | 50.60 | 10:30 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos C |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | CAS_salt_010711 (v4) | CAS_salt_010711 (v38) | 25 ppmC |

**Sample Type**: Sample From Schedule Version 2

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 2 | TOC | ICS | 0.0000 ppm | 0.0000 ppm | 0.0000% | 2020/11/11 20:50 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0000 | 0.0000 | 9.18 | 22.13 | 12.95 | 50.58 | 10:31 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 9.2744 (IC) (v1477) | CAS_salt_010711 (v4) | CAS_salt_010711 (v38) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 3 | TOC | K2009246-001 | 0.0000 ppm | 0.0000 ppm | 0.0000% | 2020/11/11 21:05 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0000 | 0.0000 | 6.35 | 19.29 | 12.94 | 50.63 | 10:27 |
| 2 | TOC | 0.0000 | 0.0000 | 6.55 | 19.23 | 12.68 | 50.66 | 10:25 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 9.2744 (IC) (v1477) | CAS_salt_010711 (v4) | CAS_salt_010711 (v38) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 4 | TOC | K2009246-002 | 0.0000 ppm | 0.0000 ppm | 0.0000% | 2020/11/11 21:33 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0000 | 0.0000 | 6.29 | 19.25 | 12.96 | 50.65 | 10:26 |
| 2 | TOC | 0.0000 | 0.0000 | 6.23 | 19.20 | 12.96 | 50.69 | 10:26 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 9.2744 (IC) (v1477) | CAS_salt_010711 (v4) | CAS_salt_010711 (v38) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 5 | TOC | K2010199-001 | 1.1984 ppm | 0.0109 ppm | 0.9100% | 2020/11/11 22:01 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 1.2061 | 12.0611 | 17.74 | 30.42 | 12.68 | 50.68 | 10:27 |
| 2 | TOC | 1.1907 | 11.9071 | 17.63 | 30.64 | 13.01 | 50.72 | 10:25 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 9.2744 (IC) | CAS_salt_010711 | CAS_salt_010711 |

(v1477) (v4) (v38)

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 6 | TOC | K2010200-001 | 1.4476 ppm | 0.1137 ppm | 7.8500% | 2020/11/11 22:29 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 1.5280 | 15.2799 | 19.99 | 32.87 | 12.87 | 50.70 | 10:26 |
| 2 | TOC | 1.3672 | 13.6719 | 18.87 | 31.99 | 13.13 | 50.70 | 10:27 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 9.2744 (IC) (v1477) | CAS_salt_010711 (v4) | CAS_salt_010711 (v38) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 7 | TOC | K2010200-001DUP | 1.2812 ppm | 0.0718 ppm | 5.6000% | 2020/11/11 22:57 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 1.3320 | 13.3198 | 18.62 | 31.64 | 13.02 | 50.74 | 10:29 |
| 2 | TOC | 1.2305 | 12.3048 | 17.91 | 31.28 | 13.38 | 50.72 | 10:25 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 9.2744 (IC) (v1477) | CAS_salt_010711 (v4) | CAS_salt_010711 (v38) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 8 | TOC | K2010200-001MS | 23.3658 ppm | 0.3688 ppm | 1.5800% | 2020/11/11 23:25 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 23.6266 | 236.2662 | 175.01 | 188.05 | 13.04 | 50.75 | 10:30 |
| 2 | TOC | 23.1050 | 231.0501 | 171.35 | 184.56 | 13.21 | 50.75 | 10:27 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 9.2744 (IC) (v1477) | CAS_salt_010711 (v4) | CAS_salt_010711 (v38) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 9 | TOC | K2010200-002 | 1.1668 ppm | 0.0999 ppm | 8.5600% | 2020/11/11 23:54 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 1.2375 | 12.3747 | 17.95 | 31.09 | 13.13 | 50.77 | 10:28 |
| 2 | TOC | 1.0962 | 10.9620 | 16.96 | 30.11 | 13.15 | 50.85 | 10:26 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 9.2744 (IC) (v1477) | CAS_salt_010711 (v4) | CAS_salt_010711 (v38) |

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 2

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| ◆ | B | TOC | 25.0000 | 1:2 | [TOC] CCV 25 ppm [25 ppm] | 0 / infinity ( NA / NA ) | 25.6480 ppm (PASS) | 0.0000 ppm | 0% | 2020/11/12 00:22 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| B | TOC | 25 ppm | 1 | 25.6480 | 256.4795 | 189.81 | 202.99 | 13.18 | 50.87 | 10:32 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos B |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | CAS_salt_010711 (v4) | CAS_salt_010711 (v38) | 50 ppmC |

**Sample Type**: Check Standard --> CCB From Schedule Version 2

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◆ | D | TOC | 0.0000 | 1:1 | [TOC] CCB [0 ppm] | 0 / infinity ( NA / NA ) | 0.0000 ppm (PASS) | 0.0000 ppm | 0% | 2020/11/12 00:37 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| D | TOC | 0 ppm | 1 | 0.0000 | 0.0000 | 6.99 | 20.14 | 13.14 | 50.88 | 10:31 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos D |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | CAS_salt_010711 (v4) | CAS_salt_010711 (v38) | 0 ppmC |

**Sample Type**: Sample From Schedule Version 2

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 10 | TOC | K2010200-003 | 1.2149 ppm | 0.1450 ppm | 11.9300% | 2020/11/12 00:51 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 1.3174 | 13.1744 | 18.52 | 31.77 | 13.26 | 50.93 | 10:30 |
| 2 | TOC | 1.1124 | 11.1245 | 17.08 | 30.27 | 13.19 | 50.94 | 10:27 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 9.2744 (IC) (v1477) | CAS_salt_010711 (v4) | CAS_salt_010711 (v38) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 11 | TOC | K2010363-001 | 1.9311 ppm | 0.0967 ppm | 5.0100% | 2020/11/12 01:20 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 1.9994 | 19.9942 | 23.30 | 36.45 | 13.15 | 50.97 | 10:28 |
| 2 | TOC | 1.8627 | 18.6271 | 22.34 | 35.68 | 13.34 | 50.99 | 10:25 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 9.2744 (IC) (v1477) | CAS_salt_010711 (v4) | CAS_salt_010711 (v38) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 12 | TOC | K2010363-002 | 116.6571 ppm | 2.7258 ppm | 2.3400% | 2020/11/12 01:48 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 118.5845 | 1185.8449 | 841.12 | 854.53 | 13.40 | 50.98 | 10:27 |
| 2 | TOC | 114.7297 | 1147.2965 | 814.08 | 827.82 | 13.74 | 51.00 | 10:27 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 9.2744 (IC) (v1477) | CAS_salt_010711 (v4) | CAS_salt_010711 (v38) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 13 | TOC | K2010363-003 5X | 37.6717 ppm | 1.2955 ppm | 3.4400% | 2020/11/12 02:16 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 38.5878 | 385.8779 | 279.96 | 293.66 | 13.70 | 51.01 | 10:31 |
| 2 | TOC | 36.7557 | 367.5567 | 267.11 | 280.85 | 13.74 | 51.04 | 10:28 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 9.2744 (IC) (v1477) | CAS_salt_010711 (v4) | CAS_salt_010711 (v38) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 14 | TOC | K2010363-004 | 4.7879 ppm | 0.8417 ppm | 17.5800% | 2020/11/12 02:44 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 5.3831 | 53.8312 | 47.04 | 60.50 | 13.47 | 51.04 | 10:27 |
| 2 | TOC | 4.1928 | 41.9278 | 38.69 | 52.37 | 13.69 | 51.03 | 10:29 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 9.2744 (IC) (v1477) | CAS_salt_010711 (v4) | CAS_salt_010711 (v38) |

-Nh Possibl carry over

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 15 | TOC | K2010363-004DUP | 3.6486 ppm | 0.1721 ppm | 4.7200% | 2020/11/12 03:12 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 3.7702 | 37.7025 | 35.72 | 49.25 | 13.53 | 51.03 | 10:24 |
| 2 | TOC | 3.5269 | 35.2690 | 34.02 | 47.44 | 13.42 | 51.03 | 10:27 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 9.2744 (IC) (v1477) | CAS_salt_010711 (v4) | CAS_salt_010711 (v38) |

-Nh Possib carry over

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 16 | TOC | K2010363-004MS | 28.0016 ppm | 0.3127 ppm | 1.1200% | 2020/11/12 03:40 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 28.2227 | 282.2274 | 207.25 | 220.78 | 13.53 | 51.04 | 10:28 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2 | TOC | 27.7805 | 277.8053 | 204.15 | 217.66 | 13.51 | 51.03 | 10:27 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 9.2744 (IC) (v1477) | CAS_salt_010711 (v4) | CAS_salt_010711 (v38) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 17 | TOC | K2010363-005 5X | 3.9648 ppm | 0.0387 ppm | 0.9800% | 2020/11/12 04:08 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 3.9375 | 39.3746 | 36.89 | 50.33 | 13.43 | 51.03 | 10:27 |
| 2 | TOC | 3.9922 | 39.9220 | 37.28 | 50.85 | 13.57 | 51.03 | 10:26 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 9.2744 (IC) (v1477) | CAS_salt_010711 (v4) | CAS_salt_010711 (v38) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 18 | TOC | K2010258-001 | 7.4371 ppm | 0.1160 ppm | 1.5600% | 2020/11/12 04:36 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 7.5192 | 75.1916 | 62.02 | 75.48 | 13.46 | 51.02 | 10:26 |
| 2 | TOC | 7.3551 | 73.5508 | 60.87 | 74.35 | 13.48 | 51.02 | 10:27 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 9.2744 (IC) (v1477) | CAS_salt_010711 (v4) | CAS_salt_010711 (v38) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 19 | TOC | K2010044-001 | 1.6322 ppm | 0.0310 ppm | 1.9000% | 2020/11/12 05:04 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 1.6542 | 16.5416 | 20.88 | 34.14 | 13.27 | 51.03 | 10:29 |
| 2 | TOC | 1.6102 | 16.1025 | 20.57 | 34.01 | 13.44 | 51.04 | 10:24 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 9.2744 (IC) (v1477) | CAS_salt_010711 (v4) | CAS_salt_010711 (v38) |

**Sample Type**: Check Standard --> CCV 25 ppm From Schedule Version 2

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◆ | B | TOC | 25.0000 | 1:2 | [TOC] CCV 25 ppm [25 ppm] | 0 / infinity ( NA / NA ) | 25.1456 ppm (PASS) | 0.0000 ppm | 0% | 2020/11/12 05:32 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| B | TOC | 25 ppm | 1 | 25.1456 | 251.4559 | 186.28 | 199.80 | 13.51 | 51.00 | 10:30 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos B |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | CAS_salt_010711 (v4) | CAS_salt_010711 (v38) | 50 ppmC |

**Sample Type**: Check Standard --> CCB From Schedule Version 2

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◆ | D | TOC | 0.0000 | 1:1 | [TOC] CCB [0 ppm] | 0 / infinity ( NA / NA ) | 0.0000 ppm (PASS) | 0.0000 ppm | 0% | 2020/11/12 05:47 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| D | TOC | 0 ppm | 1 | 0.0000 | 0.0000 | 9.41 | 22.79 | 13.38 | 50.99 | 10:29 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos D |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | CAS_salt_010711 (v4) | CAS_salt_010711 (v38) | 0 ppmC |

**Sample Type**: Sample From Schedule Version 2

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 20 | TOC | MB2 | 0.0000 ppm | 0.0000 ppm | 0.0000% | 2020/11/12 06:02 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0000 | 0.0000 | 8.47 | 21.90 | 13.43 | 50.97 | 10:32 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 9.2744 (IC) (v1477) | CAS_salt_010711 (v4) | CAS_salt_010711 (v38) |

**Sample Type**: Check Standard --> LCS From Schedule Version 2

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◆ | C | TOC | 25.0000 | 1:1 | [TOC] LCS [25.0 ppm] | 0 / infinity ( NA / NA ) | 25.7897 ppm (PASS) | 0.0000 ppm | 0% | 2020/11/12 06:16 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| C | TOC | 25.0 ppm | 1 | 25.7897 | 257.8965 | 190.80 | 204.27 | 13.47 | 50.98 | 10:28 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos C |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | CAS_salt_010711 (v4) | CAS_salt_010711 (v38) | 25 ppmC |

**Sample Type**: Sample From Schedule Version 2

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 21 | TOC | K2010044-002 | 8.3282 ppm | 0.1719 ppm | 2.0600% | 2020/11/12 06:31 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 8.4498 | 84.4976 | 68.55 | 82.07 | 13.52 | 50.97 | 10:26 |
| 2 | TOC | 8.2067 | 82.0671 | 66.84 | 80.30 | 13.45 | 50.95 | 10:25 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 9.2744 (IC) (v1477) | CAS_salt_010711 (v4) | CAS_salt_010711 (v38) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 22 | TOC | K2010124-001 | 0.4655 ppm | 0.0013 ppm | 0.2800% | 2020/11/12 06:59 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.4645 | 4.6453 | 12.53 | 26.04 | 13.50 | 50.97 | 10:28 |
| 2 | TOC | 0.4664 | 4.6639 | 12.55 | 25.86 | 13.31 | 50.94 | 10:31 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 9.2744 (IC) (v1477) | CAS_salt_010711 (v4) | CAS_salt_010711 (v38) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 23 | TOC | K2010124-002 | 0.8355 ppm | 0.0289 ppm | 3.4600% | 2020/11/12 07:27 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.8151 | 8.1508 | 14.99 | 28.47 | 13.48 | 50.93 | 10:28 |
| 2 | TOC | 0.8560 | 8.5599 | 15.28 | 28.84 | 13.56 | 50.93 | 10:30 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 9.2744 (IC) (v1477) | CAS_salt_010711 (v4) | CAS_salt_010711 (v38) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 24 | TOC | K2010127-001 | 1.9736 ppm | 0.0433 ppm | 2.2000% | 2020/11/12 07:55 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 2.0043 | 20.0427 | 23.33 | 36.76 | 13.43 | 50.90 | 10:29 |
| 2 | TOC | 1.9430 | 19.4297 | 22.90 | 36.47 | 13.57 | 50.93 | 10:28 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 9.2744 (IC) (v1477) | CAS_salt_010711 (v4) | CAS_salt_010711 (v38) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 25 | TOC | K2010127-002 | 0.4811 ppm | 0.0159 ppm | 3.3100% | 2020/11/12 08:23 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.4923 | 4.9233 | 12.73 | 25.93 | 13.20 | 50.90 | 10:26 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2 | TOC | 0.4698 | 4.6981 | 12.57 | 25.88 | 13.31 | 50.89 | 10:27 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 9.2744 (IC) (v1477) | CAS_salt_010711 (v4) | CAS_salt_010711 (v38) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 26 | TOC | K2010127-003 | 0.3081 ppm | 0.0357 ppm | 11.5800% | 2020/11/12 08:51 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.2829 | 2.8292 | 11.26 | 24.52 | 13.26 | 50.88 | 10:27 |
| 2 | TOC | 0.3334 | 3.3338 | 11.61 | 24.45 | 12.84 | 50.85 | 10:23 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 9.2744 (IC) (v1477) | CAS_salt_010711 (v4) | CAS_salt_010711 (v38) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 27 | TOC | K2010127-004 | 0.2731 ppm | 0.0000 ppm | 0.0000% | 2020/11/12 09:19 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.2731 | 2.7308 | 11.19 | 24.28 | 13.09 | 50.87 | 10:27 |
| 2 | TOC | 0.2731 | 2.7308 | 11.19 | 24.23 | 13.04 | 50.85 | 10:26 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 9.2744 (IC) (v1477) | CAS_salt_010711 (v4) | CAS_salt_010711 (v38) |

**Sample Type**: Sample From Schedule Version 3

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 28 | TOC | K2010363-002 5X | 35.3245 ppm | 0.4896 ppm | 1.3900% | 2020/11/12 09:51 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 34.9783 | 349.7829 | 254.64 | 267.76 | 13.12 | 50.78 | 10:30 |
| 2 | TOC | 35.6707 | 356.7068 | 259.50 | 272.68 | 13.18 | 50.80 | 10:29 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 9.2744 (IC) (v1477) | CAS_salt_010711 (v4) | CAS_salt_010711 (v38) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 13 | TOC | K2010363-003 5X | 35.5433 ppm | 0.0424 ppm | 0.1200% | 2020/11/12 10:19 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 35.5133 | 355.1330 | 258.39 | 271.52 | 13.12 | 50.81 | 10:28 |
| 2 | TOC | 35.5733 | 355.7331 | 258.82 | 271.77 | 12.96 | 50.80 | 10:26 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 9.2744 (IC) | CAS_salt_010711 | CAS_salt_010711 |

(v1477) (v4) (v38)

**Sample Type**: Check Standard --> CCV 25 ppm From Schedule Version 3

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◆ | B | TOC | 25.0000 | 1:2 | [TOC] CCV 25 ppm [25 ppm] | 0 / infinity ( NA / NA ) | 26.7854 ppm (PASS) | 0.0000 ppm | 0% | 2020/11/12 10:47 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| B | TOC | 25 ppm | 1 | 26.7854 | 267.8540 | 197.79 | 210.92 | 13.13 | 50.80 | 10:29 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos B |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | CAS_salt_010711 (v4) | CAS_salt_010711 (v38) | 50 ppmC |

**Sample Type**: Check Standard --> CCB From Schedule Version 3

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◆ | D | TOC | 0.0000 | 1:1 | [TOC] CCB [0 ppm] | 0 / infinity ( NA / NA ) | 0.3809 ppm (PASS) | 0.0000 ppm | 0% | 2020/11/12 11:02 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| D | TOC | 0 ppm | 1 | 0.3809 | 3.8090 | 12.56 | 25.57 | 13.01 | 50.78 | 10:31 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos D |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | CAS_salt_010711 (v4) | CAS_salt_010711 (v38) | 0 ppmC |

## Meta Data Used in this Report

**Blanks**

| Version | Reagent (Abs) | Acid (Abs) | DI IC (Abs) | DI TC (Abs) | DI TOC (Abs) | Save Time | Operator |
|---|---|---|---|---|---|---|---|
| v1476 | 1.8310 | 0.0180 | 0.0000 | 0.0000 | 0.0000 | 2020/11/10 20:24 | Fusion1 (Fusion1) |
| v1477 | 1.8577 | 0.0430 | 0.0000 | 0.0000 | 0.0000 | 2020/11/11 19:37 | Fusion1 (Fusion1) |

**Calibrations**

**Name: CAS_salt_010711 (TOC)**

| | | | |
|---|---|---|---|
| Version: | v38 | Calibration curve formula: | TOC: y = 7.015x + 9.892 |
| Ver Creation: | 2020/06/13 16:40 | $r^2$ value: | TOC: $r^2$ = 0.99974 |
| Comment: | | | |
| Operator: | Fusion1 (Fusion1) | | |
| Basic Analysis Type | TOC | | |

**Basic Analysis Type**: TOC

| Sample ID | Y Raw Value | X Expected | Message | End Time |
|---|---|---|---|---|
| DI Water | 9.5750 | 0.0000 | | 2020/06/13 15:13 |
| 0.500 ppm | 12.9010 | 0.5000 | | 2020/06/13 15:28 |
| 1.0 ppm | 15.6320 | 1.0000 | | 2020/06/13 15:42 |
| 5.0 ppm | 43.2510 | 5.0000 | | 2020/06/13 15:56 |
| 10 ppm | 82.4040 | 10.0000 | | 2020/06/13 16:11 |
| 25 ppm | 188.6880 | 25.0000 | | 2020/06/13 16:25 |
| 50 ppm | 358.6500 | 50.0000 | | 2020/06/13 16:39 |

**Methods**

**Name: CAS_salt_010711 (TOC)**

| | | | |
|---|---|---|---|
| Version: | v4 | Operator: | Fusion1 (Fusion1) |
| Ver Creation: | 2019/02/21 17:57 | | |
| Comment: | | | |

| Parameter | Value |
|---|---|
| SampleVolume | 10.0 mL |
| Dilution | 1:10 |
| AcidVolume | 0.5 ml |
| ReagentVolume | 2.0 ml |
| UVReactorPrerinse | Off |
| UVReactorPrerinseVolume | 5.0 |
| NumberOfUVReactorPrerinses | 1 |
| ICSpargeTime | 1.00 mins |
| DetectorSweepFlow | 500 ml/min |
| PreSpargeTime | 2.00 mins |
| SystemFlow | 500 ml/min |

| Advanced Parameter | Value |
|---|---|
| NeedleRinseVolume | 5.0 ml |
| VialPrimeVolume | 2.0 ml |
| ICSamplePrimeVolume | 2.0 ml |
| ICSpargeRinseVolume | 12.0 ml |
| BaselineStabilizeTime | 0.70 min |
| DetectorPressureFlow | 150 ml/min |
| SyringeSpeedWaste | 10 |
| SyringeSpeedAcid | 7 |
| SyringeSpeedReagent | 7 |
| SyringeSpeedDIWater | 7 |
| NDIRPressurization | 60 psig |
| SyringeSpeedSampleDispense | 5 |
| SyringeSpeedSampleAspirate | 4 |
| SyringeSpeedUVDispense | 5 |
| SyringeSpeedUVAspirate | 5 |
| SyringeSpeedICDispense | 5 |
| SyringeSpeedICAspirate | 5 |
| NDIRPressureStabilize | 1.75 min |
| SampleMixing | Off |
| SampleMixingCycles | 1 |
| SampleMixingVolume | 10.0 |

| | |
|---|---|
| LowLevelFilterNDIR | Off |

## Acceptance / Approval

**Electronic Signatures**

| Report Version | User Name | Acceptance | Reason | Date |
|---|---|---|---|---|

## Report History

**Report History**

| Report Version | User Name | System Reason | User Reason | Date |
|---|---|---|---|---|
| 1 | Fusion1 (Fusion1) | Schedule completed | Schedule completed | 2020/11/12 11:17 |

# Fusion Report - 11122020B
# Thursday, November 12, 2020 02:14 PM

(View - Reps, Unused Reps, Meta-Data, Signature, History)
Printed on 2020/11/12 16:18 - Thursday

## Report Summary Information

| | | | |
|---|---|---|---|
| Company Location: | Gen Chem Lab | | |
| Schedule Name: | 11122020B | Engine Version: | 1.1.5.1 |
| Instrument Name: | Fusion1 | Firmware Version: | 1.2.0696 |
| Report Version: | 1 of 1 | Connection: | RS232 COM1 |
| Report Creation by Operators (schedule version): | Fusion1 (Fusion1) (v1) | | |
| Comment: | | | |

## Report Results

**Sample Type**: Check Standard --> CCV 25 ppm — From Schedule Version 1

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◆ | B | TOC | 25.0000 | 1:2 | [TOC] CCV 25 ppm [25 ppm] | 0 / infinity ( NA / NA ) | 26.2324 ppm (PASS) | 0.0000 ppm | 0% | 2020/11/12 14:14 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| B | TOC | 25 ppm | 1 | 26.2324 | 262.3243 | 193.91 | 206.77 | 12.86 | 50.58 | 10:29 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos B |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | CAS_salt_010711 (v4) | CAS_salt_010711 (v38) | 50 ppmC |

**Sample Type**: Check Standard --> CCB — From Schedule Version 1

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◆ | D | TOC | 0.0000 | 1:1 | [TOC] CCB [0 ppm] | 0 / infinity ( NA / NA ) | 0.0000 ppm (PASS) | 0.0000 ppm | 0% | 2020/11/12 14:29 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| D | TOC | 0 ppm | 1 | 0.0000 | 0.0000 | 8.72 | 21.54 | 12.83 | 50.58 | 10:30 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos D |
|---|---|---|---|---|
| Success - Criteria | Do Nothing | CAS_salt_010711 | CAS_salt_010711 | 0 ppmC |

| | | |
|---|---|---|
| met. | (v4) | (v38) |

**Sample Type**: Sample — From Schedule Version 1

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 30 | TOC | K2010363-004 | 3.3211 ppm | 0.0212 ppm | 0.6400% | 2020/11/12 14:44 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 3.3061 | 33.0609 | 32.47 | 45.39 | 12.92 | 50.58 | 10:28 |
| 2 | TOC | 3.3360 | 33.3602 | 32.68 | 45.65 | 12.97 | 50.58 | 10:26 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 9.2744 (IC) (v1477) | CAS_salt_010711 (v4) | CAS_salt_010711 (v38) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 31 | TOC | K2010363-004DUP | 3.1459 ppm | 0.0893 ppm | 2.8400% | 2020/11/12 15:12 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 3.0827 | 30.8270 | 30.90 | 43.94 | 13.04 | 50.60 | 10:29 |
| 2 | TOC | 3.2090 | 32.0901 | 31.78 | 44.69 | 12.90 | 50.57 | 10:29 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 9.2744 (IC) (v1477) | CAS_salt_010711 (v4) | CAS_salt_010711 (v38) |

**Sample Type**: Check Standard --> CCV 25 ppm — From Schedule Version 1

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◈ | B | TOC | 25.0000 | 1:2 | [TOC] CCV 25 ppm [25 ppm] | 0 / infinity ( NA / NA ) | 25.9784 ppm (PASS) | 0.0000 ppm | 0% | 2020/11/12 15:40 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| B | TOC | 25 ppm | 1 | 25.9784 | 259.7840 | 192.13 | 204.80 | 12.67 | 50.55 | 10:34 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos B |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | CAS_salt_010711 (v4) | CAS_salt_010711 (v38) | 50 ppmC |

**Sample Type**: Check Standard --> CCB — From Schedule Version 1

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◈ | D | TOC | 0.0000 | 1:1 | [TOC] CCB [0 ppm] | 0 / infinity ( NA / NA ) | 0.0000 ppm (PASS) | 0.0000 ppm | 0% | 2020/11/12 15:55 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| D | TOC | 0 ppm | 1 | 0.0000 | 0.0000 | 8.65 | 21.43 | 12.78 | 50.56 | 10:32 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos D |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | CAS_salt_010711 (v4) | CAS_salt_010711 (v38) | 0 ppmC |

## Meta Data Used in this Report

**Blanks**

| Version | Reagent (Abs) | Acid (Abs) | DI IC (Abs) | DI TC (Abs) | DI TOC (Abs) | Save Time | Operator |
|---|---|---|---|---|---|---|---|
| v1477 | 1.8577 | 0.0430 | 0.0000 | 0.0000 | 0.0000 | 2020/11/11 19:37 | Fusion1 (Fusion1) |

**Calibrations**

**Name: CAS_salt_010711 (TOC)**

Version: v38
Ver Creation: 2020/06/13 16:40
Comment:
Operator: Fusion1 (Fusion1)
Basic Analysis Type: TOC
Calibration curve formula: TOC: y = 7.015x + 9.892
$r^2$ value: TOC: $r^2$ = 0.99974

**Basic Analysis Type**: TOC

| Sample ID | Y Raw Value | X Expected | Message | End Time |
|---|---|---|---|---|
| DI Water | 9.5750 | 0.0000 | | 2020/06/13 15:13 |
| 0.500 ppm | 12.9010 | 0.5000 | | 2020/06/13 15:28 |
| 1.0 ppm | 15.6320 | 1.0000 | | 2020/06/13 15:42 |
| 5.0 ppm | 43.2510 | 5.0000 | | 2020/06/13 15:56 |
| 10 ppm | 82.4040 | 10.0000 | | 2020/06/13 16:11 |
| 25 ppm | 188.6880 | 25.0000 | | 2020/06/13 16:25 |
| 50 ppm | 358.6500 | 50.0000 | | 2020/06/13 16:39 |

**Methods**

**Name: CAS_salt_010711 (TOC)**

Version: v4
Ver Creation: 2019/02/21 17:57
Comment:
Operator: Fusion1 (Fusion1)

| Parameter | Value |
|---|---|
| SampleVolume | 10.0 mL |
| Dilution | 1:10 |
| AcidVolume | 0.5 ml |
| ReagentVolume | 2.0 ml |
| UVReactorPrerinse | Off |
| UVReactorPrerinseVolume | 5.0 |
| NumberOfUVReactorPrerinses | 1 |
| ICSpargeTime | 1.00 mins |
| DetectorSweepFlow | 500 ml/min |
| PreSpargeTime | 2.00 mins |
| SystemFlow | 500 ml/min |

| Advanced Parameter | Value |
|---|---|
| NeedleRinseVolume | 5.0 ml |
| VialPrimeVolume | 2.0 ml |
| ICSamplePrimeVolume | 2.0 ml |
| ICSpargeRinseVolume | 12.0 ml |
| BaselineStabilizeTime | 0.70 min |
| DetectorPressureFlow | 150 ml/min |
| SyringeSpeedWaste | 10 |
| SyringeSpeedAcid | 7 |
| SyringeSpeedReagent | 7 |
| SyringeSpeedDIWater | 7 |
| NDIRPressurization | 60 psig |
| SyringeSpeedSampleDispense | 5 |
| SyringeSpeedSampleAspirate | 4 |
| SyringeSpeedUVDispense | 5 |
| SyringeSpeedUVAspirate | 5 |
| SyringeSpeedICDispense | 5 |
| SyringeSpeedICAspirate | 5 |
| NDIRPressureStabilize | 1.75 min |
| SampleMixing | Off |
| SampleMixingCycles | 1 |
| SampleMixingVolume | 10.0 |
| LowLevelFilterNDIR | Off |

## Acceptance / Approval

**Electronic Signatures**

| Report Version | User Name | Acceptance | Reason | Date |
|---|---|---|---|---|

## Report History

**Report History**

| Report Version | User Name | System Reason | User Reason | Date |
|---|---|---|---|---|
| 1 | Fusion1 (Fusion1) | Schedule completed | Schedule completed | 2020/11/12 16:10 |

ALS Environmental

StarLIMS Run: 703161

Analysis: DOC/TOC

Method: SM 5310 C, 9060A, 415.1, 9060

CCV: 19-GEN-8-55J 50 ppm LCS: 19-GEN-8-57K 25.0 ppm

ICAL Date: 6/16/2020

ICAL ID: 19-GEN-8-22-G

ICS ID: 19-GEN-8-35-K

ICS TV: 25.0 ppm ICS % R < 1

Spike ID: 19-GEN-8-55I 0.05 ml of 5000 ppm stock ---> 10.0 ml = 25.0 ppm x dilution factor

Sodium Persulfate: 19-GEN-08-57D

21 % H3PO4: 19-GEN-08-55L

Equipment ID: K-TOC-03

PIPETTE ID: 124276B, 129001F, N11314F, Marge

FILTER ID: 16967789

| | |
|---|---|
| Analyzed By: MAS | Date Analyzed: 11/11/2020 |
| Reviewed By: qc | Date Reviewed: 11/14/20 |

# HS20110128 ALS Simi Valley Report
# P2006296 Tier IV

ALS WO# HS20110128

# LABORATORY REPORT

November 19, 2020

RJ Modashia
ALS Laboratory Group
10450 Stancliff Road Suite 210
Houston, TX 77099-4338

**RE: HS20110128**

Dear RJ:

Enclosed are the results of the samples submitted to our laboratory on November 5, 2020. For your reference, these analyses have been assigned our service request number P2006296.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

**ALS | Environmental**

*By Hayden Akers at 12:32 pm, Nov 19, 2020*

Hayden Akers
Project Manager

Client: ALS Laboratory Group Service Request No: P2006296
Project: HS20110128

## CASE NARRATIVE

The samples were received intact under chain of custody on November 5, 2020 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Carbon Dioxide Analysis

The samples were analyzed for carbon dioxide using a gas chromatograph equipped with a thermal conductivity detector (TCD). A known amount of liquid was displaced by injecting 8.0 milliliters of helium creating a headspace in the sample vial. Each sample vial was agitated using a sonic disrupter for fifteen minutes and then allowed to equilibrate for at least four hours. A volume of the headspace was withdrawn using a gas-tight syringe and analyzed using a manual injection technique. The amount of dissolved gases (carbon dioxide) in the original sample was calculated using Henry's Law. This method was performed with guidance from RSK 175 as described in laboratory SOP VOA-DISGAS. This analyte is included on the laboratory's NELAP and DoD-ELAP scope of accreditation.

The recovery and relative percent difference for the matrix spike and its duplicate were outside of the DoD control criteria due to matrix interference. However all quality control criteria were within laboratory limits of the laboratory control sample and its duplicate.

Manual integrations were performed on the following sample(s) and analyte(s). Refer to the raw data for additional information.

| Sample Identification(s) | Analyte(s) |
|---|---|
| P2006296-LCS | Carbon dioxide |
| P2006296-LCSD | Carbon dioxide |
| P2006296-002 | Carbon dioxide |

Methane, Ethene and Ethane Analysis

The samples were also analyzed for methane, ethene, and ethane using a gas chromatograph equipped with a flame ionization detector (FID). A known amount of liquid was displaced by injecting 8.0 milliliters of helium creating a headspace in the sample vial. Each sample vial was agitated using a sonic disrupter for fifteen minutes and then allowed to equilibrate for at least two hours. A volume of the headspace was withdrawn using a gas-tight syringe and analyzed using a manual injection technique. The amount of dissolved gases (methane, ethene and ethane) in the original sample was calculated using Henry's Law. This method was performed with guidance from RSK 175. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the laboratory's NELAP or DoD-ELAP accreditation.

The recovery for methane for the matrix spike duplicate was below DoD criteria. However the recovery was within laboratory limits and also all quality control parameters were within limits of the laboratory control sample and its duplicate.

No manual integrations were performed. Refer to the raw data for additional information.

---

*The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.*

*Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.*

ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

| Agency | Web Site | Number |
|---|---|---|
| Alaska DEC | http://dec.alaska.gov/eh/lab.aspx | 17-019 |
| Arizona DHS | http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home | AZ0694 |
| Florida DOH (NELAP) | http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html | E871020 |
| Louisiana DEQ (NELAP) | http://www.deq.louisiana.gov/page/la-lab-accreditation | 05071 |
| Maine DHHS | http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml | 2018027 |
| Minnesota DOH (NELAP) | http://www.health.state.mn.us/accreditation | 1776326 |
| New Jersey DEP (NELAP) | http://www.nj.gov/dep/enforcement/oqa.html | CA009 |
| New York DOH (NELAP) | http://www.wadsworth.org/labcert/elap/elap.html | 11221 |
| Oregon PHD (NELAP) | http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx | 4068-007 |
| Pennsylvania DEP | http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx | 68-03307 (Registration) |
| PJLA (DoD ELAP) | http://www.pjlabs.com/search-accredited-labs | 65818 (Testing) |
| Texas CEQ (NELAP) | http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html | T104704413-19-10 |
| Utah DOH (NELAP) | http://health.utah.gov/lab/lab_cert_env | CA016272019-10 |
| Washington DOE | http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html | C946 |

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

**ALS ENVIRONMENTAL**

DETAIL SUMMARY REPORT

Client: ALS Laboratory Group
Service Request: P2006296
Project ID: HS20110128

Date Received: 11/5/2020
Time Received: 09:20

| Client Sample ID | Lab Code | Matrix | Date Collected | Time Collected | RSK 175 - CO2 | RSK 175 - Gases |
|---|---|---|---|---|---|---|
| 67WW13-201103 | P2006296-001 | Water | 11/3/2020 | 07:10 | X | X |
| 67WW08-201103 | P2006296-002 | Water | 11/3/2020 | 11:00 | X | X |
| 67WW08-201103-FD | P2006296-003 | Water | 11/3/2020 | 11:00 | X | X |

PJ00 6296

10450 Stancliff Rd, Ste 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887
www.alsglobal.com

# Subcontract Chain of Custody

**SAMPLING STATE:** **Dept of Defense** **COC ID: 15100**

**SUBCONTRACT TO:**

ALS Environmental
2655 Park Center Drive, Suite A
Simi Valley, CA 93065

**Phone:** +1 805 526 7161

**CUSTOMER INFORMATION:**

| | |
|---|---|
| **Company:** | ALS Houston |
| **Contact:** | RJ Modashia |
| **Address:** | 10450 Stancliff Rd, Ste 210 |
| **Phone:** | +1 281 530 5656 |
| **Email:** | RJ.Modashia@alsglobal.com |
| **Alternate Contact:** | |
| **Email:** | |

**INVOICE INFORMATION:**

| | |
|---|---|
| **Company:** | ALS Houston |
| **Contact:** | Accounts Payable |
| **Address:** | 10450 Stancliff Rd, Ste 210 |
| **Phone:** | +1 281 530 5656 |
| **Reference:** | HS20110128 |
| **TSR:** | Sonia West |

| | LAB SAMPLE ID | CLIENT SAMPLE ID | MATRIX | COLLECT DATE |
|---|---|---|---|---|
| | ANALYSIS REQUESTED | | | DUE DATE |
| 1. | **HS20110128-11** | **67WW13-201103** | **Groundwater** | **03 Nov 2020 07:10** |
| | MEE + CO2. Provide DOD LV II & IV pdf separate. EDD. EQuIS 5.0 - Longhorn | | Equis | 18 Nov 2020 |
| 2. | **HS20110128-16** | **67WW08-201103** | **Groundwater** | **03 Nov 2020 11:00** |
| | MEE + CO2. Provide DOD LV II & IV pdf separate. EDD. EQuIS 5.0 - Longhorn | | Equis | 18 Nov 2020 |
| 3. | **HS20110128-17** | **67WW08-201103-FD** | **Groundwater** | **03 Nov 2020 11:00** |
| | MEE + CO2. Provide DOD LV II & IV pdf separate. EDD. EQuIS 5.0 - Longhorn | | Equis | 18 Nov 2020 |

**Comments:** Please analyze for the analysis listed above.
Send report to the emails shown above.
3 x Neat Vials & 3 x HCL Vials
HS20110128-11 = MS/MSD

**QC Level:** DOD IV (DoD Data Package)

Relinquished By: J. Modashia Date/Time: 11/04/20 18:00

Received By: Date/Time: 11-5-20 0820

Cooler ID(s): Temperature(s): 2° wet

# ALS Environmental
## Sample Acceptance Check Form

Client: ALS Laboratory Group  Work order: P2006296

Project: HS20110128

Sample(s) received on: 11/05/20  Date opened: 11/05/20  by: ADAVID

***Note:*** This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

| | | Yes | No | N/A |
|---|---|---|---|---|
| 1 | Were **sample containers** properly marked with client sample ID? | ☒ | ☐ | ☐ |
| 2 | Did **sample containers** arrive in good condition? | ☒ | ☐ | ☐ |
| 3 | Were **chain-of-custody** papers used and filled out? | ☒ | ☐ | ☐ |
| 4 | Did **sample container labels** and/or tags agree with custody papers? | ☒ | ☐ | ☐ |
| 5 | Was **sample volume** received adequate for analysis? | ☒ | ☐ | ☐ |
| 6 | Are samples within specified holding times? | ☒ | ☐ | ☐ |
| 7 | Was proper **temperature** (thermal preservation) of cooler at receipt adhered to? | ☒ | ☐ | ☐ |
| | Cooler Temperature: ° C  Blank Temperature: 2° C | Wet Ic | | |
| 8 | Were **custody seals** on outside of cooler/Box/Container? | ☒ | ☐ | ☐ |
| | Location of seal(s)? Cooler lid. Sealing Lid? | ☒ | ☐ | ☐ |
| | Were signature and date included? | ☒ | ☐ | ☐ |
| | Were seals intact? | ☒ | ☐ | ☐ |
| 9 | Do containers have appropriate **preservation**, according to method/SOP or Client specified information? | ☒ | ☐ | ☐ |
| | Is there a client indication that the submitted samples are **pH** preserved? | ☒ | ☐ | ☐ |
| | Were **VOA vials** checked for presence/absence of air bubbles? | ☒ | ☐ | ☐ |
| | Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it? | ☐ | ☒ | ☐ |
| 10 | **Tubes:** Are the tubes capped and intact? | ☐ | ☐ | ☒ |
| 11 | **Badges:** Are the badges properly capped and intact? | ☐ | ☐ | ☒ |
| | Are dual bed badges separated and individually capped and intact? | ☐ | ☐ | ☒ |

| Lab Sample ID | Container Description | Required pH * | Received pH | Adjusted pH | VOA Headspace (Presence/Absence) | Receipt / Preservation Comments |
|---|---|---|---|---|---|---|
| P2006296-001.01 | 40mL VOA NP | | 7 | | A | wh 11/17/20 |
| P2006296-001.02 | 40mL VOA NP | | 7 | | A | wh 11/17/20 |
| P2006296-001.03 | 40mL VOA NP | | 7 | | A | wh 11/17/20 |
| P2006296-001.04 | 40ml VOA HCL | | 1 | | A | wh 11/17/20 |
| P2006296-001.05 | 40ml VOA HCL | | 1 | | A | wh 11/17/20 |
| P2006296-001.06 | 40ml VOA HCL | | 1 | | A | wh 11/17/20 |
| P2006296-002.01 | 40mL VOA NP | | 7 | | A | wh 11/17/20 |
| P2006296-002.02 | 40mL VOA NP | | | | A | |
| P2006296-002.03 | 40mL VOA NP | | | | A | |
| P2006296-002.04 | 40ml VOA HCL | | 1 | | A | wh 11/17/20 |
| P2006296-002.05 | 40ml VOA HCL | | | | A | |
| P2006296-002.06 | 40ml VOA HCL | | | | A | |
| P2006296-003.01 | 40mL VOA NP | | 7 | | A | wh 11/17/20 |
| P2006296-003.02 | 40mL VOA NP | | | | A | |
| P2006296-003.03 | 40mL VOA NP | | | | A | |

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

# ALS Environmental
## Sample Acceptance Check Form

Client: ALS Laboratory Group  Work order: P2006296

Project: HS20110128

Sample(s) received on: 11/05/20  Date opened: 11/05/20  by: ADAVID

| Lab Sample ID | Container Description | Required pH * | Received pH | Adjusted pH | VOA Headspace (Presence/Absence) | Receipt / Preservation Comments |
|---|---|---|---|---|---|---|
| P2006296-003.04 | 40ml VOA HCL | | 1 | | A | wh 11/17/20 |
| P2006296-003.05 | 40ml VOA HCL | | | | A | |
| P2006296-003.06 | 40ml VOA HCL | | | | A | |

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS



**Client:** **ALS Laboratory Group**
**Client Project ID:** **HS20110128** ALS Project ID: P2006296

## Carbon Dioxide

Test Code: RSK 175
Instrument ID: HP5890A/GC10/TCD
Analyst: Wade Henton
Matrix: Liquid
Test Notes:

Date(s) Collected: 11/3/20
Date Received: 11/5/20
Date Analyzed: 11/17/20

| Client Sample ID | ALS Sample ID | Injection Volume ml(s) | Result µg/L | LOQ µg/L | LOD µg/L | MDL µg/L | Data Qualifier |
|---|---|---|---|---|---|---|---|
| 67WW13-201103 | P2006296-001 | 0.10 | **350,000** | 1,000 | 860 | 370 | |
| 67WW08-201103 | P2006296-002 | 0.10 | **270,000** | 1,000 | 860 | 370 | |
| 67WW08-201103-FD | P2006296-003 | 0.10 | **270,000** | 1,000 | 860 | 370 | |
| Method Control Sample | P201117-MB | 0.10 | 860 | 1,000 | 860 | 370 | **U** |

The Method Control Sample is laboratory water carried through the entire analytical process.
U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

MATRIX SPIKE / DUPLICATE MATRIX SPIKE SUMMARY



**Client:** **ALS Laboratory Group**
**Client Sample ID:** **67WW13-201103**
**Client Project ID:** **HS20110128**

ALS Project ID: P2006296
ALS Sample ID: P2006296-001MS
P2006296-001DMS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/TCD
Analyst: Wade Henton
Matrix: Liquid
Test Notes:

Date Collected: 11/03/20
Date Received: 11/05/20
Date Analyzed: 11/17/20
Volume(s) Analyzed: 0.10 ml(s)

| CAS # | Compound | Spike Amount MS / DMS ug/L | Sample Amount ug/L | Result MS ug/L | Result DMS ug/L | % Recovery MS | % Recovery DMS | DOD Acceptance Limits | RPD | RPD Limit | Data Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 124-38-9 | Carbon Dioxide | 22,900 | 346,000 | 380,000 | 405,000 | **148** | **258** | 80-122 | 54 | 30 | **N, R** |

R = Duplicate precision not met.
N = The matrix spike sample recovery is not within control limits. See case narrative.

# ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY



**Client:** **ALS Laboratory Group**
**Client Sample ID:** **Duplicate Lab Control Sample**
**Client Project ID:** **HS20110128**

ALS Project ID: P2006296
ALS Sample ID: P201117-DLCS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/TCD
Analyst: Wade Henton
Matrix: Liquid
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 11/17/20
Volume(s) Analyzed: NA ml(s)

| CAS # | Compound | Spike Amount LCS / DLCS ug/L | Result[1] LCS ug/L | Result[1] DLCS ug/L | % Recovery LCS | % Recovery DLCS | DOD Acceptance Limits | RPD | RPD Limit | Data Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 124-38-9 | Carbon Dioxide | 22,900 | 19,400 | 18,700 | **85** | **82** | 80-122 | 4 | 12 | |

[1] = The concentration shown includes a subtraction of the Method Control Sample value, even if the result is less than the MRL.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS



**Client:** **ALS Laboratory Group**
**Client Sample ID:** **67WW13-201103**
**Client Project ID:** **HS20110128**

ALS Project ID: P2006296
ALS Sample ID: P2006296-001

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 11/03/20
Date Received: 11/05/20
Date Analyzed: 11/17/20
Volume(s) Analyzed: 0.10 ml(s)

| CAS # | Compound | Result µg/L | LOQ µg/L | LOD µg/L | MDL µg/L | Data Qualifier |
|---|---|---|---|---|---|---|
| 74-82-8 | Methane | 1.0 | 1.3 | 1.0 | 0.51 | **U** |
| 74-85-1 | Ethene | 0.55 | 1.0 | 0.55 | 0.24 | **U** |
| 74-84-0 | Ethane | 0.47 | 0.60 | 0.47 | 0.16 | **U** |

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS



**Client:** **ALS Laboratory Group**
**Client Sample ID:** **67WW08-201103**
**Client Project ID:** **HS20110128**

ALS Project ID: P2006296
ALS Sample ID: P2006296-002

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 11/03/20
Date Received: 11/05/20
Date Analyzed: 11/17/20
Volume(s) Analyzed: 0.10 ml(s)

| CAS # | Compound | Result µg/L | LOQ µg/L | LOD µg/L | MDL µg/L | Data Qualifier |
|---|---|---|---|---|---|---|
| 74-82-8 | Methane | **1.2** | 1.3 | 1.0 | 0.51 | **J** |
| 74-85-1 | Ethene | 0.55 | 1.0 | 0.55 | 0.24 | **U** |
| 74-84-0 | Ethane | 0.47 | 0.60 | 0.47 | 0.16 | **U** |

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS



**Client:** **ALS Laboratory Group**
**Client Sample ID:** **67WW08-201103-FD**
**Client Project ID:** **HS20110128**

ALS Project ID: P2006296
ALS Sample ID: P2006296-003

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 11/03/20
Date Received: 11/05/20
Date Analyzed: 11/17/20
Volume(s) Analyzed: 0.10 ml(s)

| CAS # | Compound | Result µg/L | LOQ µg/L | LOD µg/L | MDL µg/L | Data Qualifier |
|---|---|---|---|---|---|---|
| 74-82-8 | Methane | **1.0** | 1.3 | 1.0 | 0.51 | **J** |
| 74-85-1 | Ethene | 0.55 | 1.0 | 0.55 | 0.24 | **U** |
| 74-84-0 | Ethane | 0.47 | 0.60 | 0.47 | 0.16 | **U** |

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

# ALS ENVIRONMENTAL

RESULTS OF ANALYSIS



**Client:** **ALS Laboratory Group**
**Client Sample ID:** **Method Control Sample**
**Client Project ID:** **HS20110128**

ALS Project ID: P2006296
ALS Sample ID: P201117-MB

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 11/17/20
Volume(s) Analyzed: 0.10 ml(s)

| CAS # | Compound | Result µg/L | LOQ µg/L | LOD µg/L | MDL µg/L | Data Qualifier |
|---|---|---|---|---|---|---|
| 74-82-8 | Methane | 1.0 | 1.3 | 1.0 | 0.51 | **U** |
| 74-85-1 | Ethene | 0.55 | 1.0 | 0.55 | 0.24 | **U** |
| 74-84-0 | Ethane | 0.47 | 0.60 | 0.47 | 0.16 | **U** |

The Method Control Sample is laboratory water carried through the entire analytical process.
U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

MATRIX SPIKE / DUPLICATE MATRIX SPIKE SUMMARY



**Client:** **ALS Laboratory Group**
**Client Sample ID:** **67WW13-201103**
**Client Project ID:** **HS20110128**

ALS Project ID: P2006296
ALS Sample ID: P2006296-001MS
P2006296-001DMS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 11/3/20
Date Received: 11/5/20
Date Analyzed: 11/17/20
Volume(s) Analyzed: 0.10 ml(s)

| CAS # | Compound | Spike Amount MS / DMS µg/L | Sample Amount µg/L | Result MS µg/L | Result DMS µg/L | % Recovery MS | % Recovery DMS | DOD Acceptance Limits | RPD | RPD Limit | Data Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 74-82-8 | Methane | 169 | ND | 128 | 122 | **76** | **72** | 73-125 | 5 | 30 | **N** |
| 74-85-1 | Ethene | 294 | ND | 275 | 260 | **94** | **88** | 72-133 | 7 | 30 | |
| 74-84-0 | Ethane | 317 | ND | 262 | 248 | **83** | **78** | 74-131 | 6 | 30 | |

N = The matrix spike recovery is not within control limits. See case narrative.

# ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY



**Client:** **ALS Laboratory Group**
**Client Sample ID:** **Duplicate Lab Control Sample**
**Client Project ID:** **HS20110128**

ALS Project ID: P2006296
ALS Sample ID: P201117-LCS
P201117-DLCS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 11/17/20
Volume(s) Analyzed: 0.10 ml(s)

| CAS # | Compound | Spike Amount LCS / DLCS µg/L | Result$_1$ LCS µg/L | Result$_1$ DLCS µg/L | % Recovery LCS | % Recovery DLCS | DOD Acceptance Limits | RPD | RPD Limit | Data Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 74-82-8 | Methane | 2.52 | 2.60 | 2.70 | **103** | **107** | 73-125 | 4 | 26 | |
| 74-85-1 | Ethene | 4.40 | 5.19 | 5.13 | **118** | **117** | 72-133 | 0.9 | 11 | |
| 74-84-0 | Ethane | 4.72 | 5.08 | 5.03 | **108** | **107** | 74-131 | 0.9 | 10 | |

$_1$ = The concentration shown includes a subtraction of the Method Control Sample value, even if the result is less than the MRL.

Data Path : J:\GC10\DATA\RSK_TCD\2020_11\17\
Data File : 11172008.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 17-Nov-2020, 15:35:22
Operator : WH
Sample : P2006296-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 17 16:33:51 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

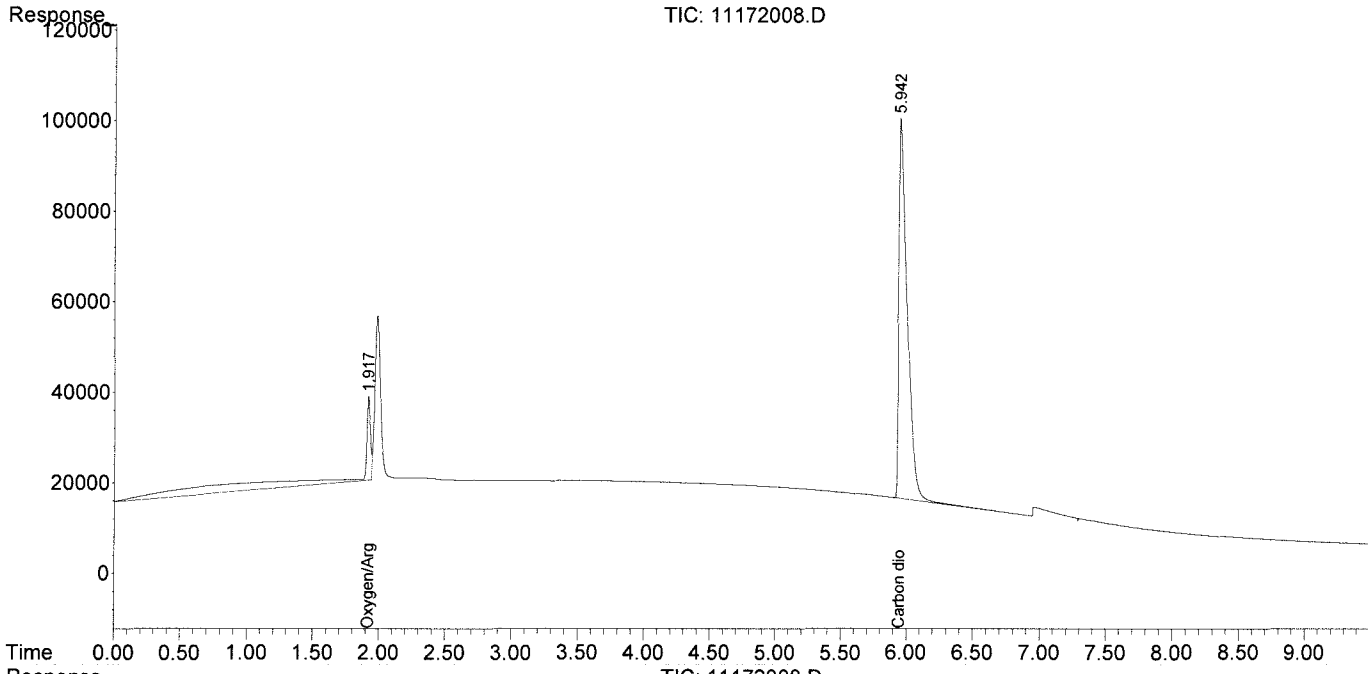
| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) | Oxygen/Argon | 1.918f | 1641597 | 0.345 | ppm |
| 2) | Carbon monoxide | 1.918f | 1641597 | N.D. | ppm |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm |
| 4) | Carbon dioxide | 5.943 | 3724650 | 15867.860 | ppm |
| 6) | Methane (FID) | 0.000 | 0 | N.D. | ppm |
| 7) | Ethylene | 0.000 | 0 | N.D. | ppm |
| 8) | Ethane | 0.000 | 0 | N.D. | ppm |
| 9) | Propylene | 0.000 | 0 | N.D. | ppm |
| 10) | Propane | 0.000 | 0 | N.D. | ppm |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm |

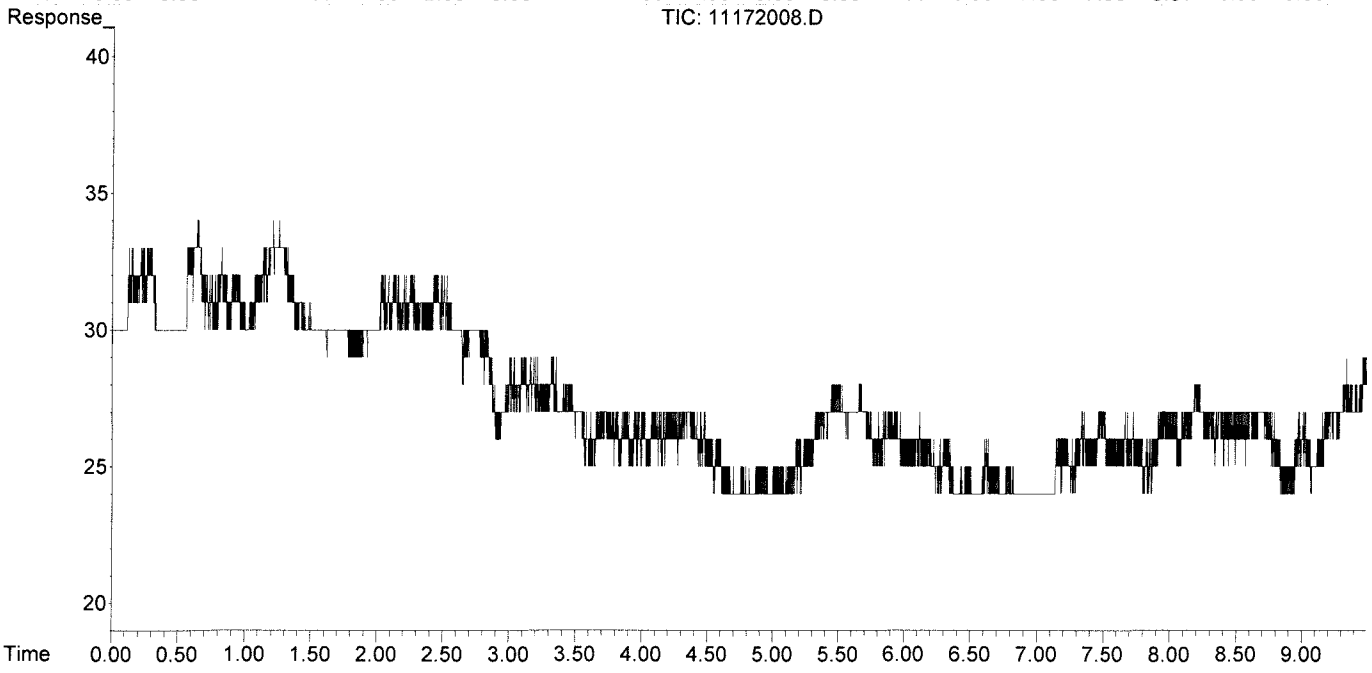
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2020_11\17\
Data File : 11172008.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 17-Nov-2020, 15:35:22
Operator : WH
Sample : P2006296-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 17 16:33:51 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_TCD\2020_11\17\
Data File : 11172009.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 17-Nov-2020, 15:50:07
Operator : WH
Sample : P2006296-001ms 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 17 16:34:09 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

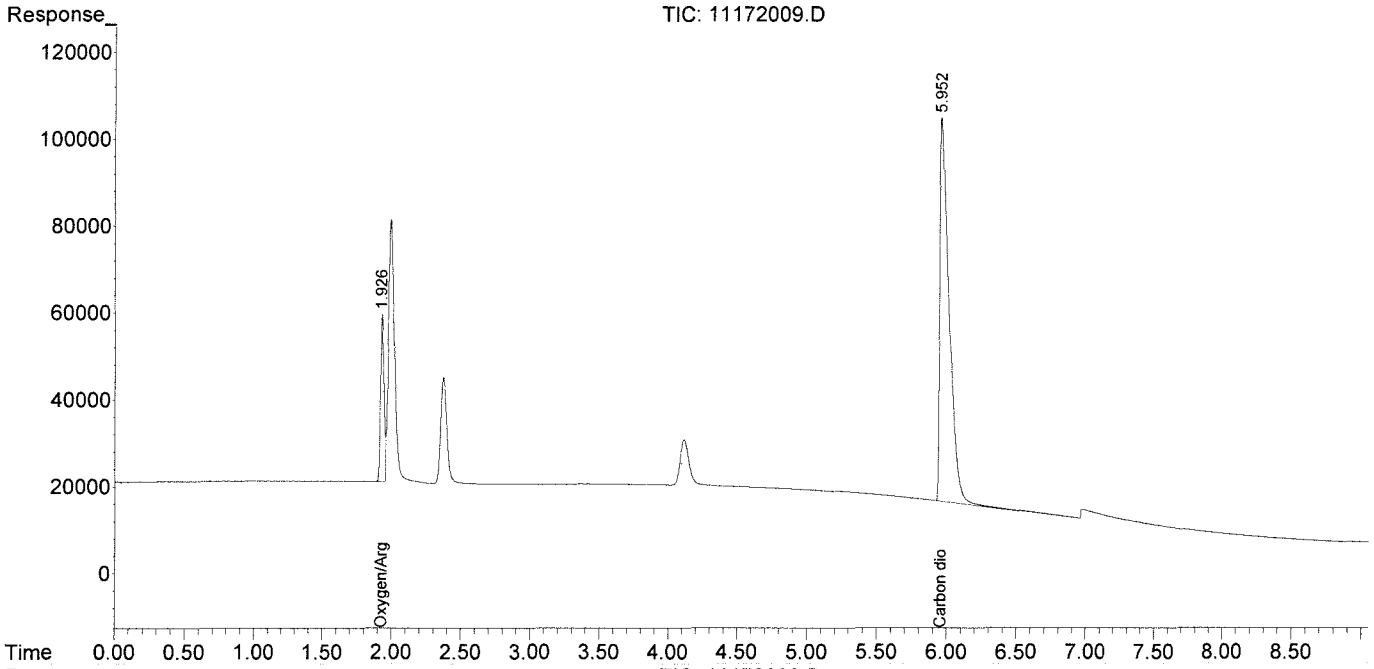
| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) | Oxygen/Argon | 1.927f | 670507 | 0.141 | ppm |
| 2) | Carbon monoxide | 1.927f | 670507 | N.D. | ppm |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm |
| 4) | Carbon dioxide | 5.954 | 4082829 | 17393.785 | ppm |
| 6) | Methane (FID) | 0.000 | 0 | N.D. | ppm |
| 7) | Ethylene | 0.000 | 0 | N.D. | ppm |
| 8) | Ethane | 0.000 | 0 | N.D. | ppm |
| 9) | Propylene | 0.000 | 0 | N.D. | ppm |
| 10) | Propane | 0.000 | 0 | N.D. | ppm |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm |

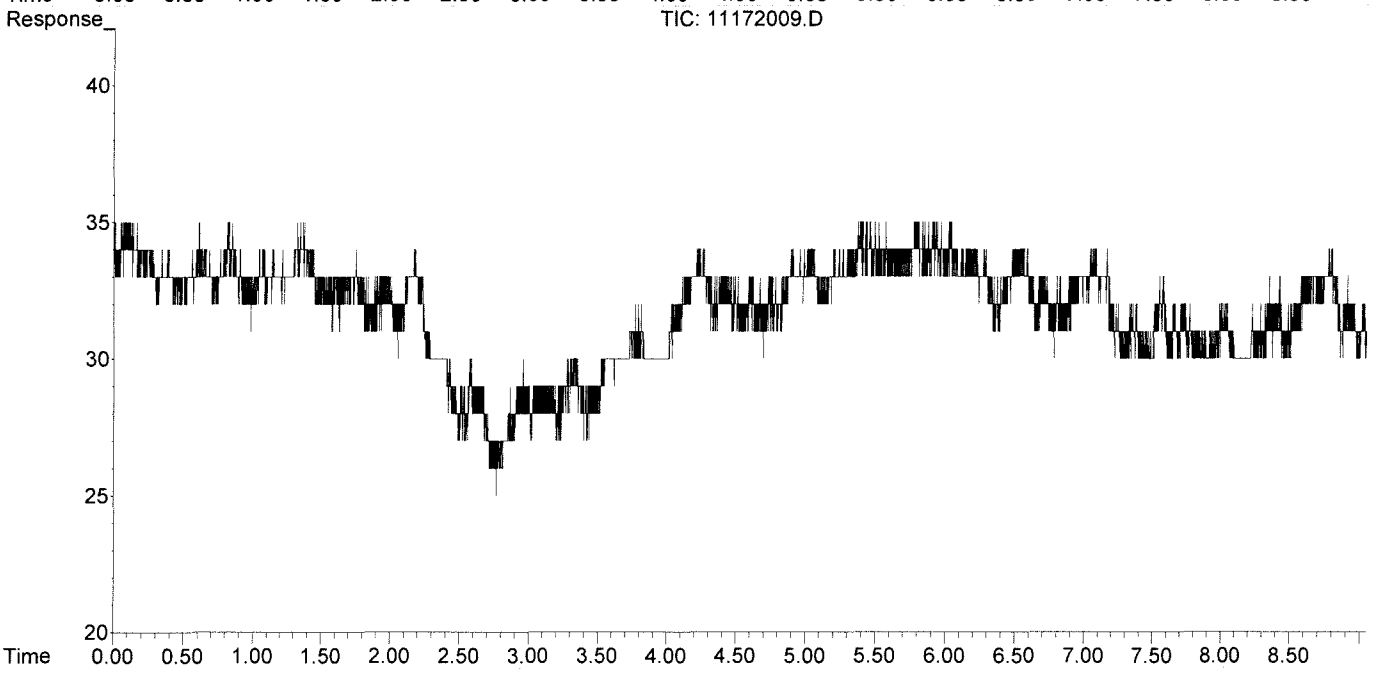
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2020_11\17\
Data File : 11172009.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 17-Nov-2020, 15:50:07
Operator : WH
Sample : P2006296-001ms 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 17 16:34:09 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_TCD\2020_11\17\
Data File : 11172010.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 17-Nov-2020, 16:01:53
Operator : WH
Sample : P2006296-001msd 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 17 16:34:28 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

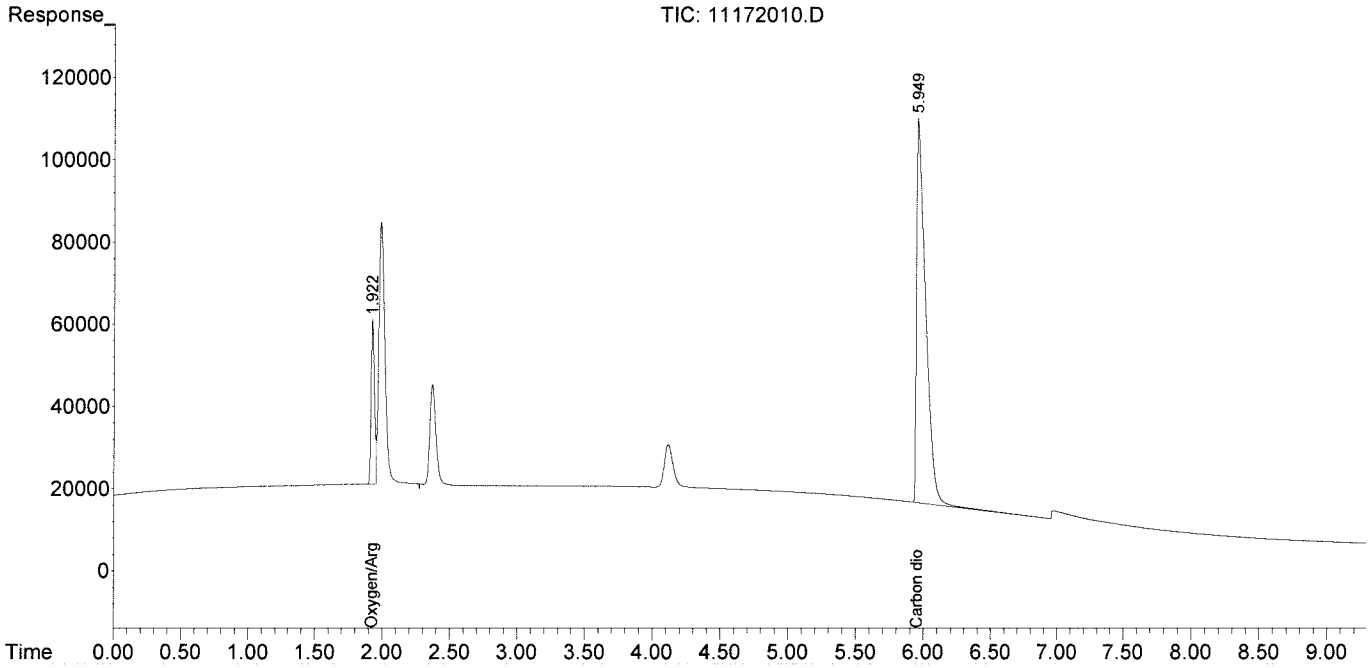
| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) | Oxygen/Argon | 1.923f | 691221 | 0.145 | ppm |
| 2) | Carbon monoxide | 1.923f | 691221 | N.D. | ppm |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm |
| 4) | Carbon dioxide | 5.951 | 4354877 | 18552.771 | ppm |
| 6) | Methane (FID) | 0.000 | 0 | N.D. | ppm |
| 7) | Ethylene | 0.000 | 0 | N.D. | ppm |
| 8) | Ethane | 0.000 | 0 | N.D. | ppm |
| 9) | Propylene | 0.000 | 0 | N.D. | ppm |
| 10) | Propane | 0.000 | 0 | N.D. | ppm |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm |

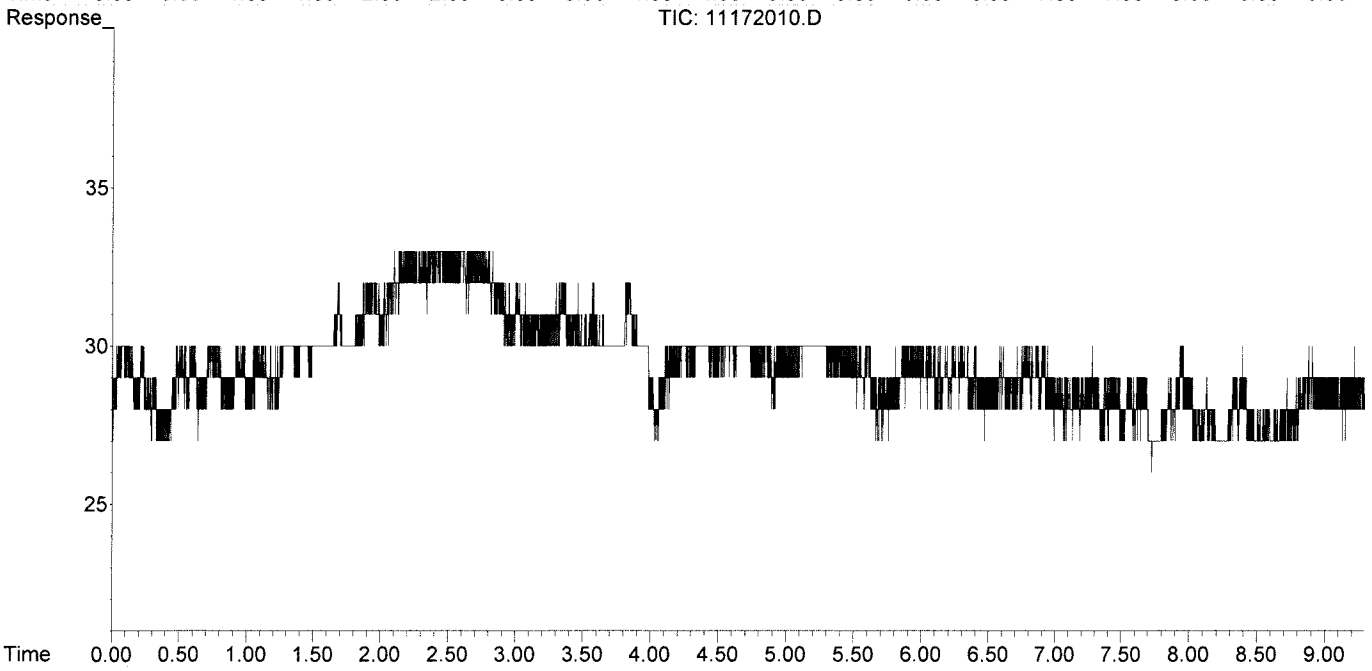
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2020_11\17\
Data File : 11172010.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 17-Nov-2020, 16:01:53
Operator : WH
Sample : P2006296-001msd 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 17 16:34:28 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_TCD\2020_11\17\
Data File : 11172006.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 17-Nov-2020, 14:59:24
Operator : WH
Sample : P2006296-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 17 16:33:24 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

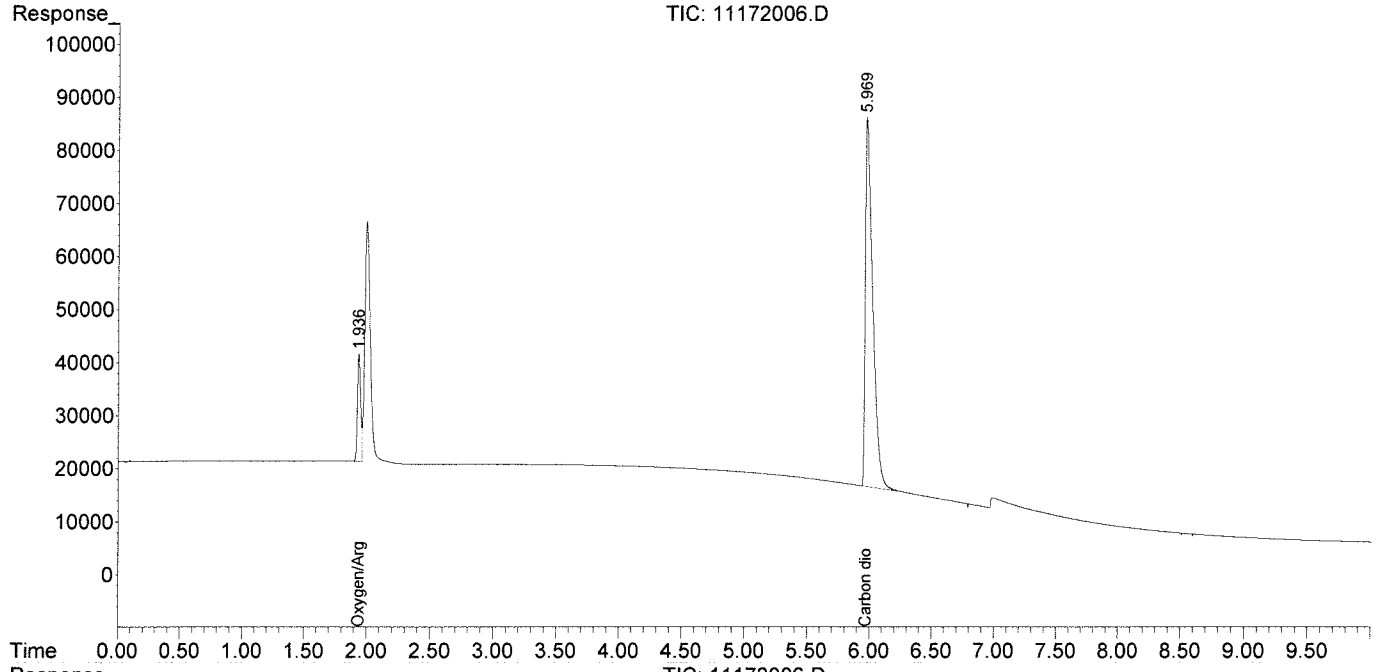
| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Oxygen/Argon | 1.937f | 360300 | 0.076 | ppm | |
| 2) | Carbon monoxide | 1.937f | 360300 | N.D. | ppm | |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm | |
| 4) | Carbon dioxide | 5.969 | 2879789 | 12268.561 | ppm | m |
| 6) | Methane (FID) | 0.000 | 0 | N.D. | ppm | |
| 7) | Ethylene | 0.000 | 0 | N.D. | ppm | |
| 8) | Ethane | 0.000 | 0 | N.D. | ppm | |
| 9) | Propylene | 0.000 | 0 | N.D. | ppm | |
| 10) | Propane | 0.000 | 0 | N.D. | ppm | |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm | |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm | |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm | |

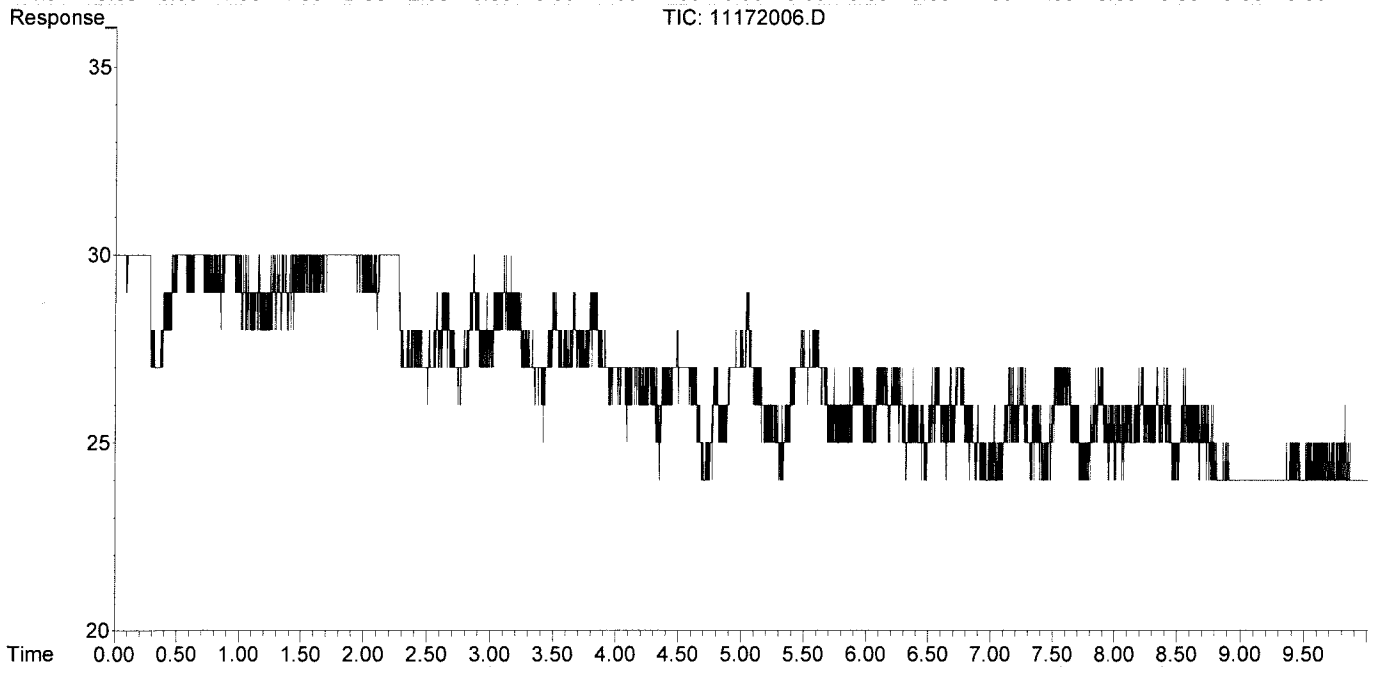
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2020_11\17\
Data File : 11172006.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 17-Nov-2020, 14:59:24
Operator : WH
Sample : P2006296-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 17 16:33:24 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

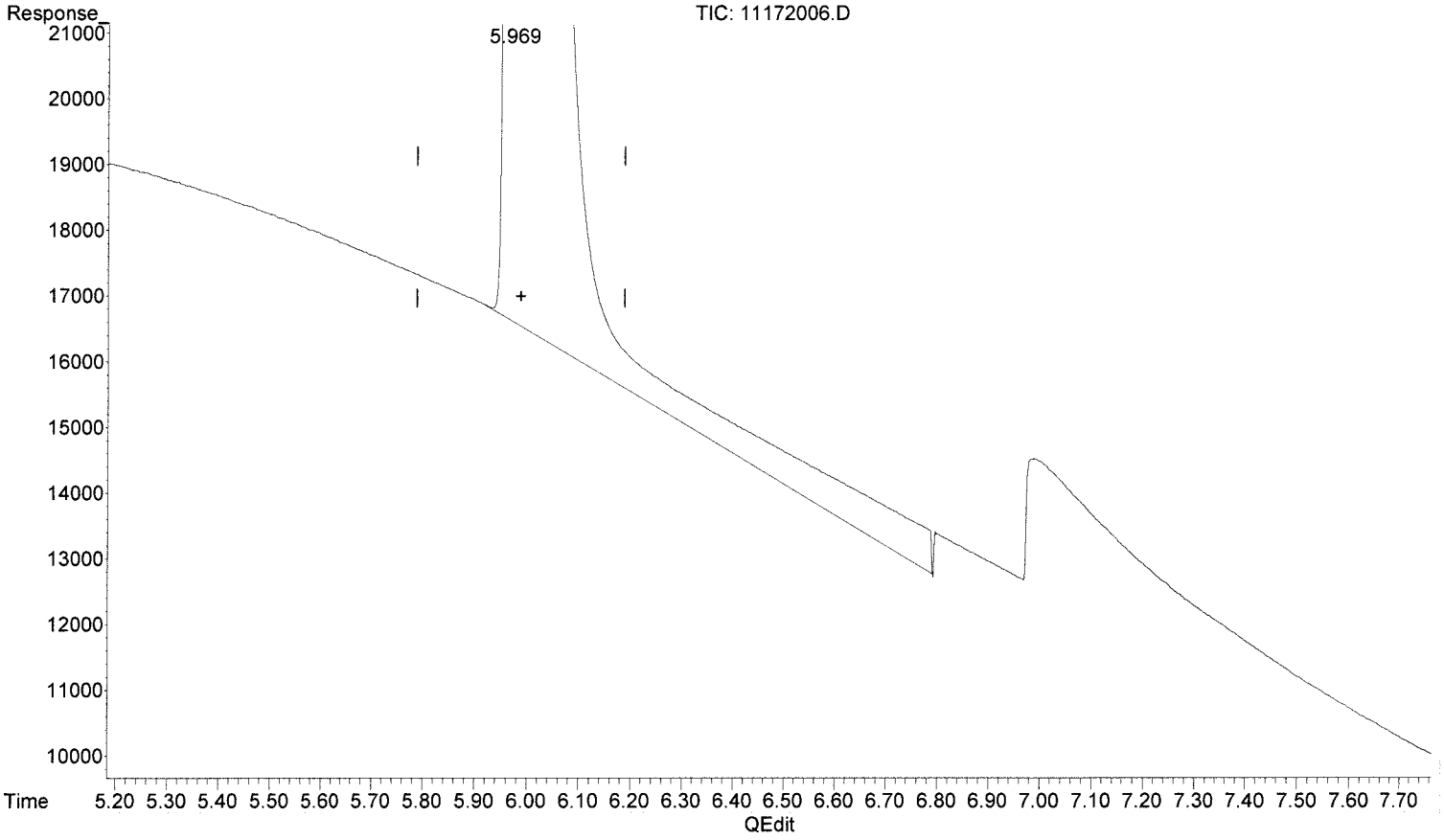


Data Path : J:\GC10\DATA\RSK_TCD\2020_11\17\
Data File : 11172006.D
Signal(s) : Signal #1: TCD1A.CH  Signal #2: FID2B.CH
Acq On : 17-Nov-2020, 14:59:24
Operator : WH
Sample : P2006296-002 0.1ml
Misc :
ALS Vial : 1  Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 17 16:33:24 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase :  Signal #2 Phase:
Signal #1 Info :  Signal #2 Info :




(4) Carbon dioxide

5.971min 13166.733 ppm

response 3090617

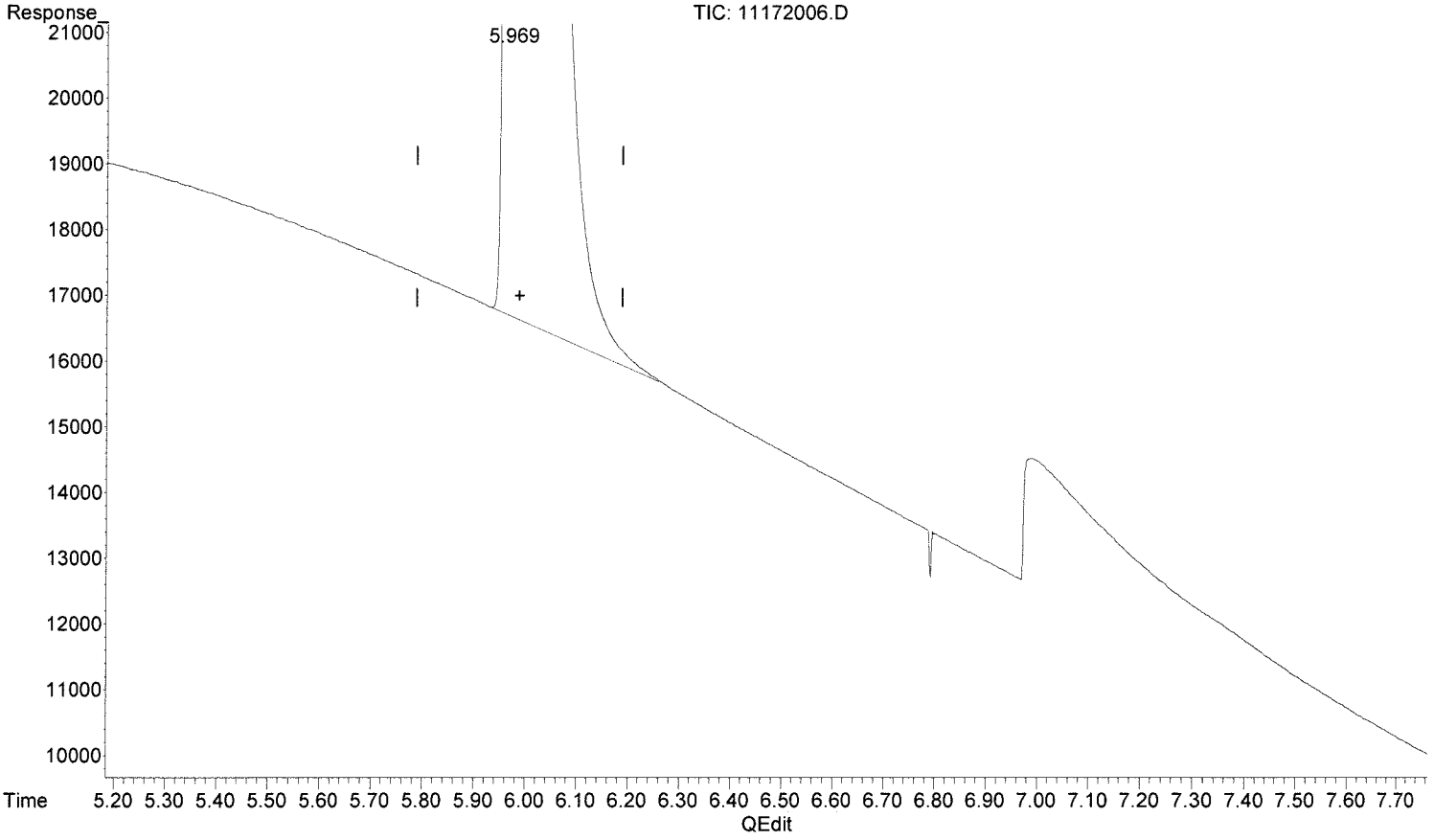
(+) = Expected Retention Time

01043329

Data Path : J:\GC10\DATA\RSK_TCD\2020_11\17\
Data File : 11172006.D
Signal(s) : Signal #1: TCD1A.CH  Signal #2: FID2B.CH
Acq On : 17-Nov-2020, 14:59:24
Operator : WH
Sample : P2006296-002 0.1ml
Misc :
ALS Vial : 1  Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 17 16:33:24 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase :  Signal #2 Phase:
Signal #1 Info :  Signal #2 Info :




(4) Carbon dioxide

5.969min 12268.561 ppm m

response 2879789

11/17/20 BL

CT 11/18/20

(+) = Expected Retention Time

RS082817_CO2.M Tue Nov 17 17:00:33 2020

Data Path : J:\GC10\DATA\RSK_TCD\2020_11\17\
Data File : 11172007.D
Signal(s) : Signal #1: TCD1A.CH  Signal #2: FID2B.CH
Acq On : 17-Nov-2020, 15:22:43
Operator : WH
Sample : P2006296-003 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 17 17:00:44 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

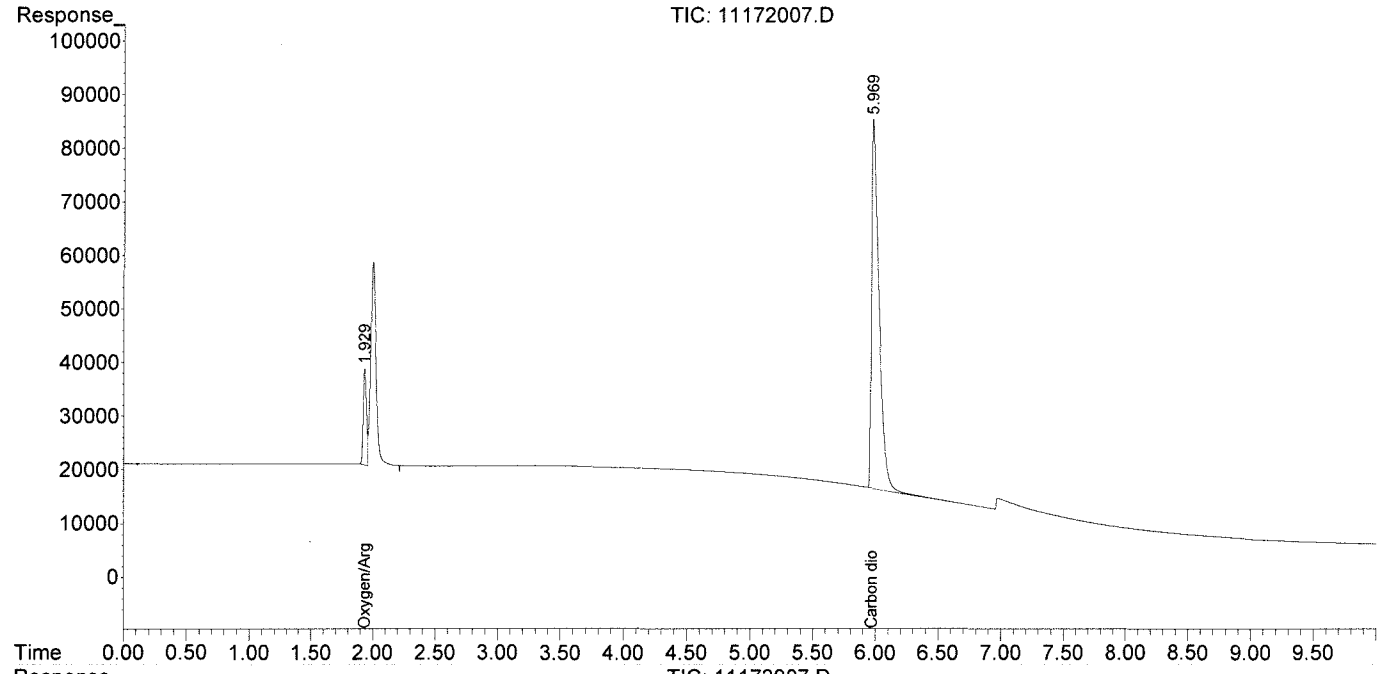
| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) | Oxygen/Argon | 1.930f | 326591 | 0.069 | ppm |
| 2) | Carbon monoxide | 1.930f | 326591 | N.D. | ppm |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm |
| 4) | Carbon dioxide | 5.971 | 2907112 | 12384.959 | ppm |
| 6) | Methane (FID) | 0.000 | 0 | N.D. | ppm |
| 7) | Ethylene | 0.000 | 0 | N.D. | ppm |
| 8) | Ethane | 0.000 | 0 | N.D. | ppm |
| 9) | Propylene | 0.000 | 0 | N.D. | ppm |
| 10) | Propane | 0.000 | 0 | N.D. | ppm |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm |

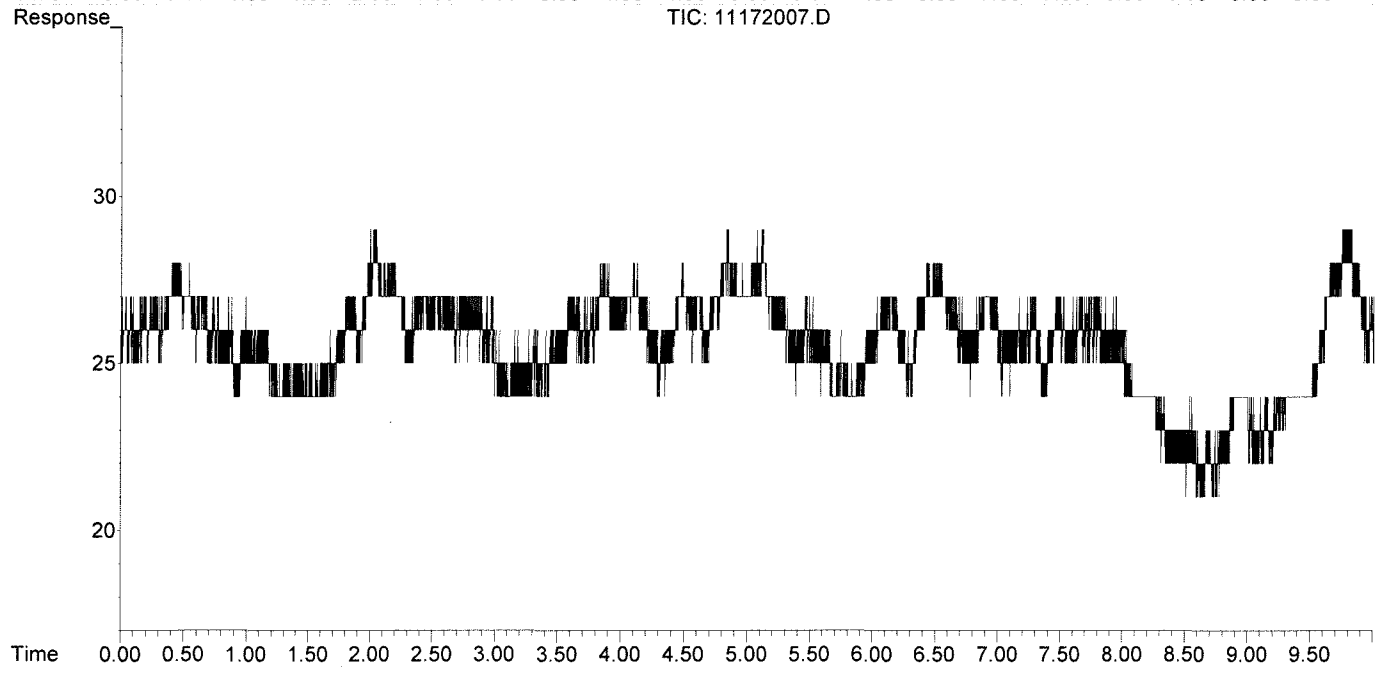
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2020_11\17\
Data File : 11172007.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 17-Nov-2020, 15:22:43
Operator : WH
Sample : P2006296-003 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 17 17:00:44 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_TCD\2020_11\17\
Data File : 11172003.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 17-Nov-2020, 14:11:18
Operator : WH
Sample : mcs 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 17 16:57:02 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

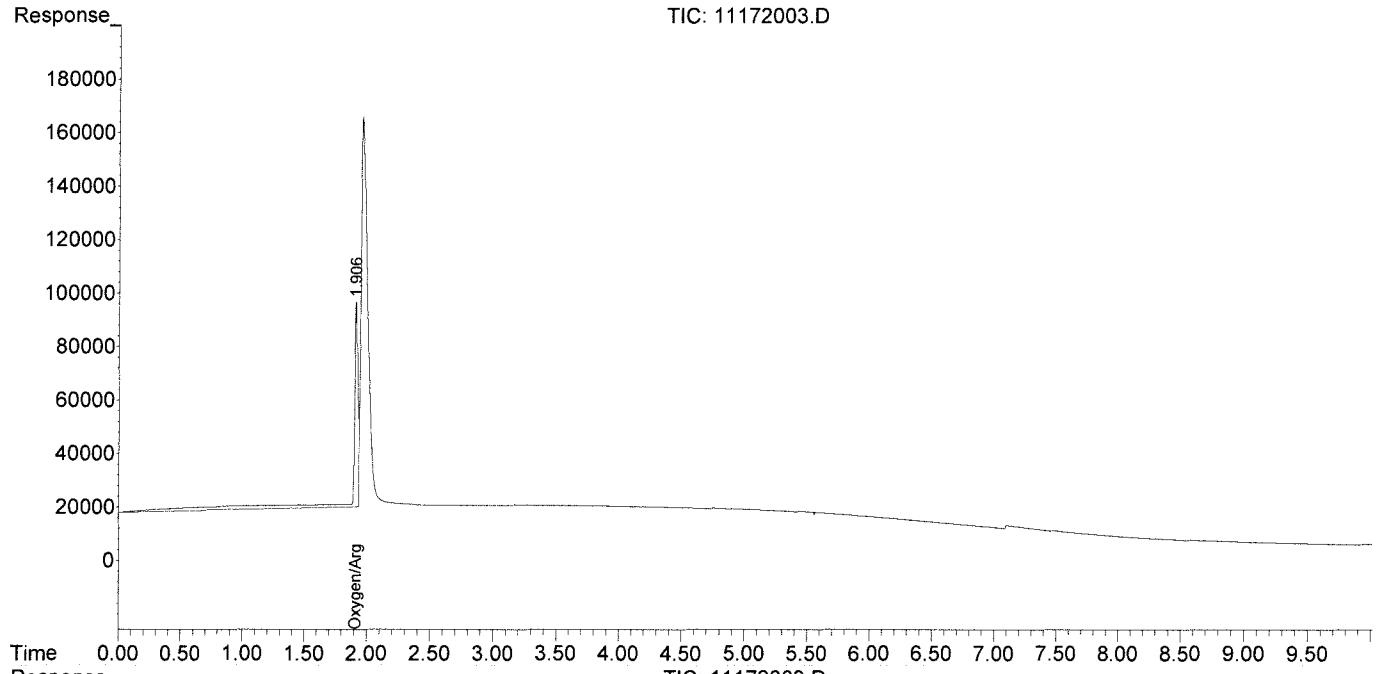
| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) | Oxygen/Argon | 1.907f | 2416573 | 0.508 | ppm |
| 2) | Carbon monoxide | 1.907f | 2416573 | N.D. | ppm |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm |
| 4) | Carbon dioxide | 0.000 | 0 | N.D. | ppm |
| 6) | Methane (FID) | 0.000 | 0 | N.D. | ppm |
| 7) | Ethylene | 0.000 | 0 | N.D. | ppm |
| 8) | Ethane | 0.000 | 0 | N.D. | ppm |
| 9) | Propylene | 0.000 | 0 | N.D. | ppm |
| 10) | Propane | 0.000 | 0 | N.D. | ppm |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm |

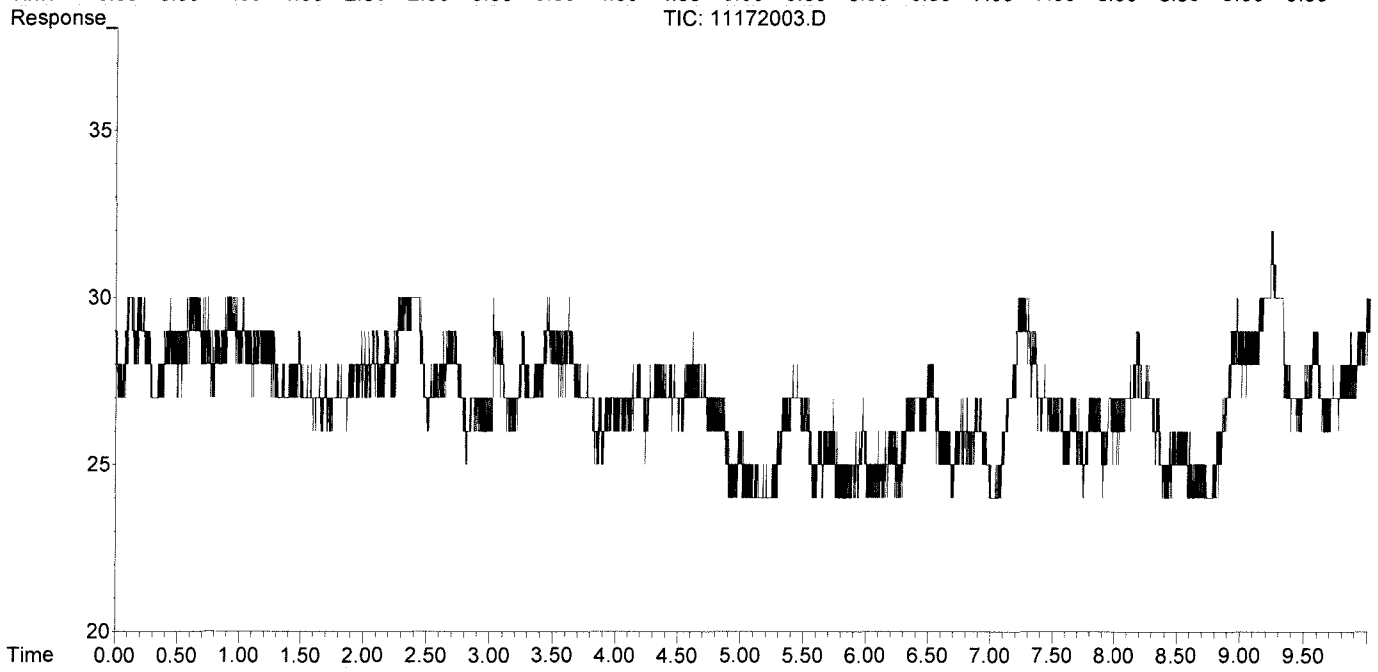
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2020_11\17\
Data File : 11172003.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 17-Nov-2020, 14:11:18
Operator : WH
Sample : mcs 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 17 16:57:02 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_TCD\2020_11\17\
Data File : 11172004.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 17-Nov-2020, 14:29:05
Operator : WH
Sample : lcs tcd 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 17 14:40:05 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

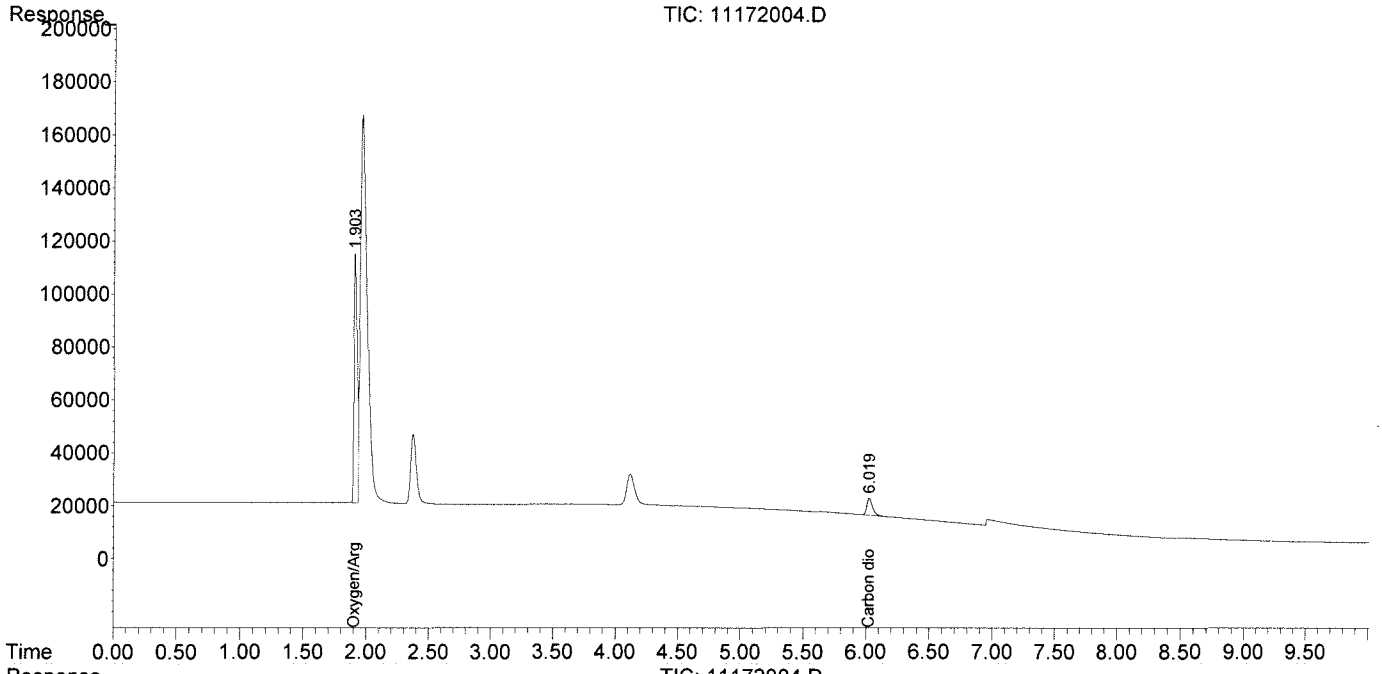
| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Oxygen/Argon | 1.904f | 1617297 | 0.340 | ppm | |
| 2) | Carbon monoxide | 1.904 | 1617297 | N.D. | ppm | |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm | |
| 4) | Carbon dioxide | 6.019 | 208528 | 888.377 | ppm | m |
| 6) | Methane (FID) | 0.000 | 0 | N.D. | ppm | |
| 7) | Ethylene | 0.000 | 0 | N.D. | ppm | |
| 8) | Ethane | 0.000 | 0 | N.D. | ppm | |
| 9) | Propylene | 0.000 | 0 | N.D. | ppm | |
| 10) | Propane | 0.000 | 0 | N.D. | ppm | |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm | |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm | |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm | |

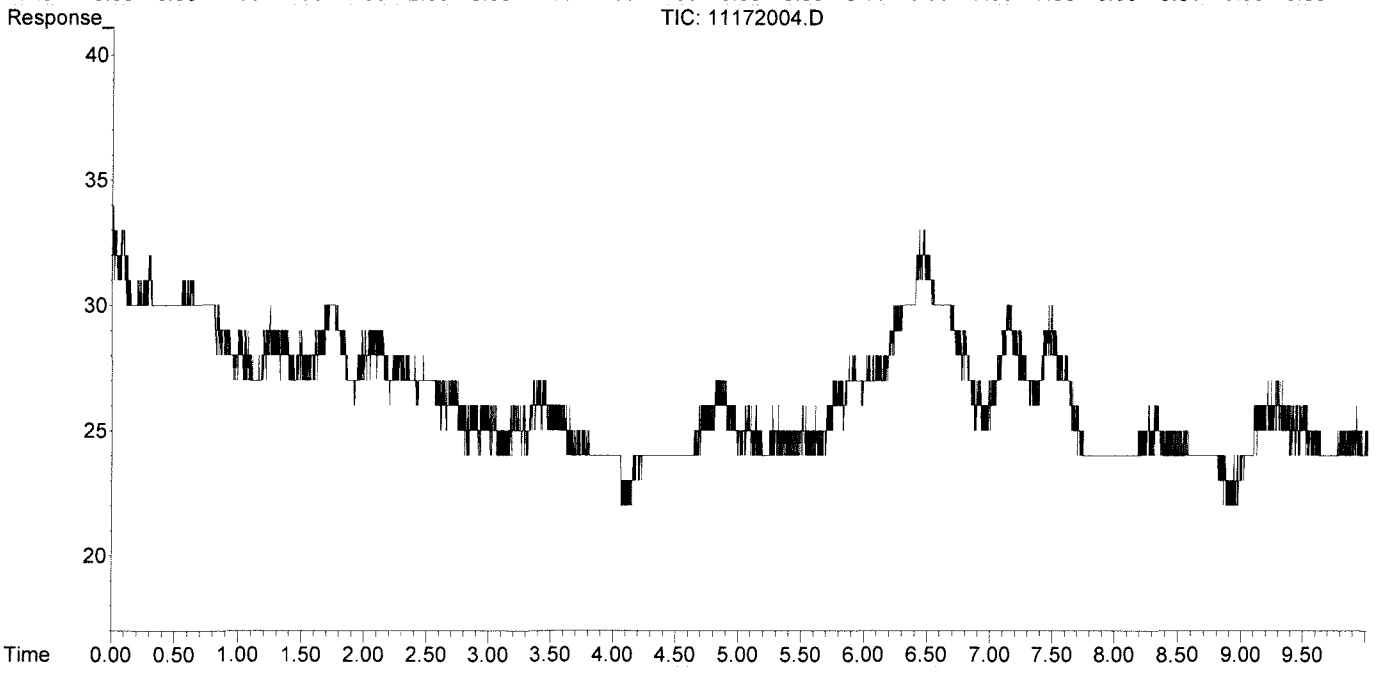
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2020_11\17\
Data File : 11172004.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 17-Nov-2020, 14:29:05
Operator : WH
Sample : lcs tcd 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 17 14:40:05 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

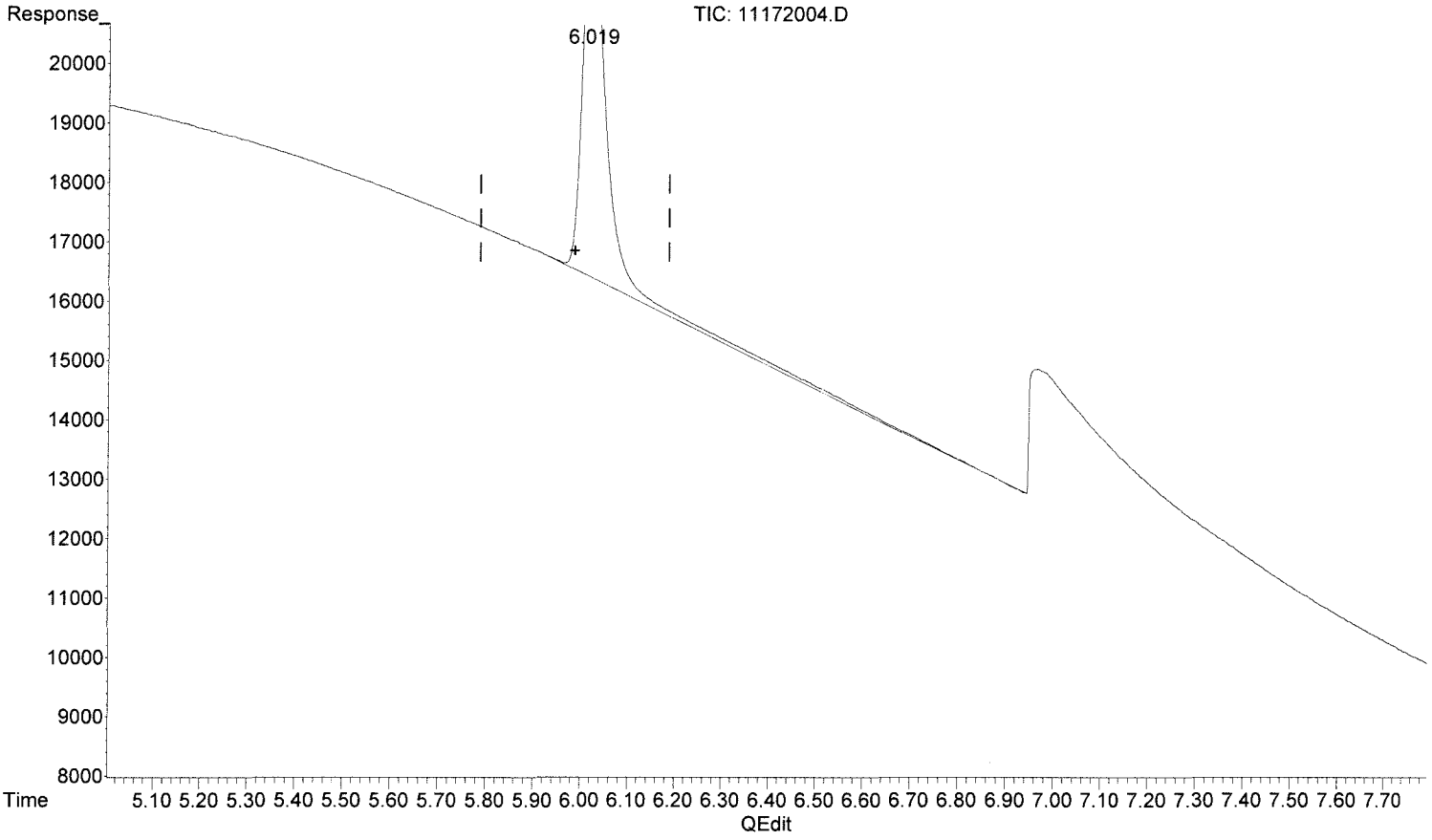


Data Path : J:\GC10\DATA\RSK_TCD\2020_11\17\
Data File : 11172004.D
Signal(s) : Signal #1: TCD1A.CH  Signal #2: FID2B.CH
Acq On : 17-Nov-2020, 14:29:05
Operator : WH
Sample : lcs tcd 0.1ml
Misc :
ALS Vial : 1  Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 17 14:40:05 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase :  Signal #2 Phase:
Signal #1 Info :  Signal #2 Info :




(4) Carbon dioxide

6.020min 989.589 ppm

response 232285

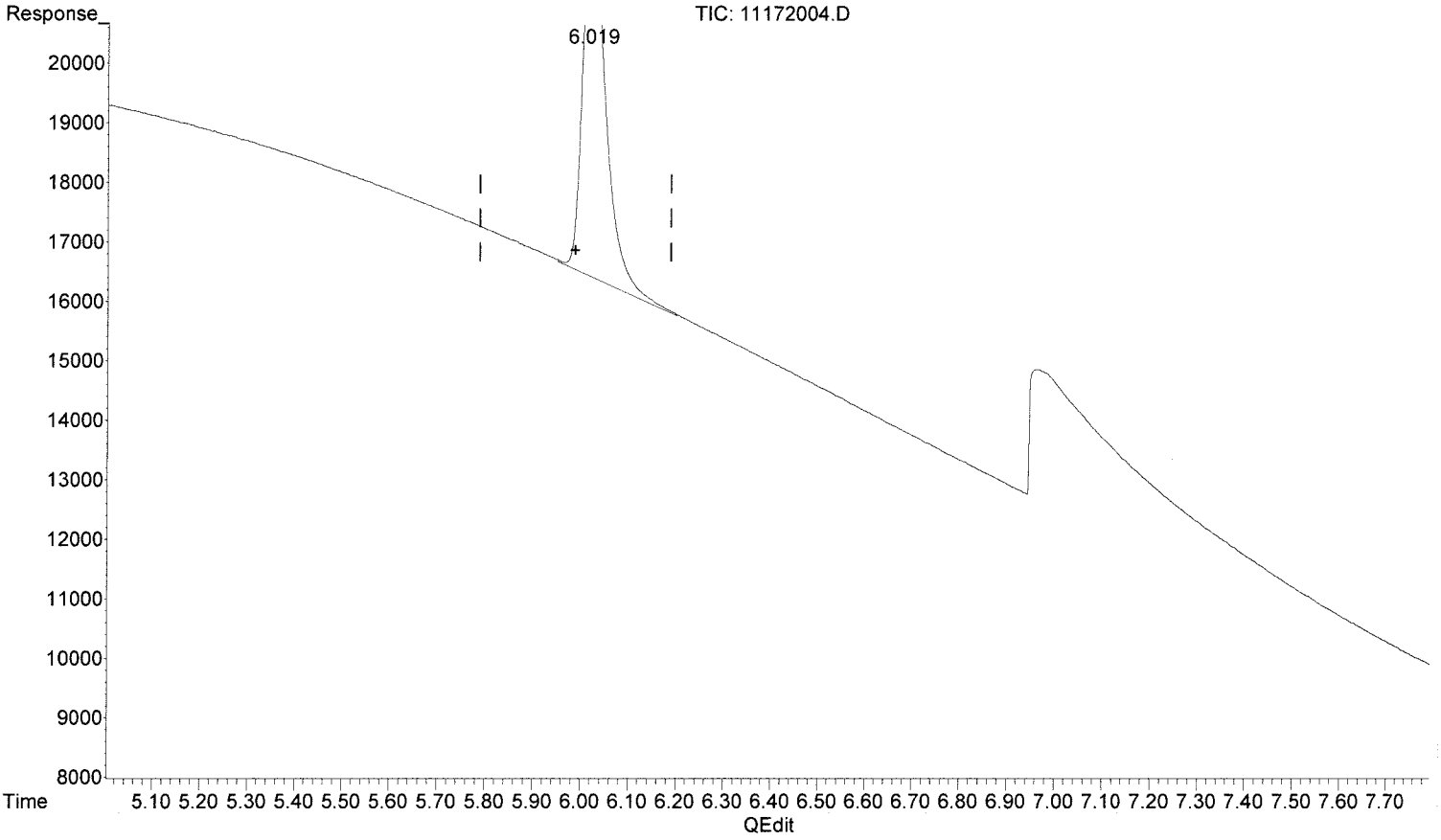
(+) = Expected Retention Time

01043337

Data Path : J:\GC10\DATA\RSK_TCD\2020_11\17\
Data File : 11172004.D
Signal(s) : Signal #1: TCD1A.CH  Signal #2: FID2B.CH
Acq On : 17-Nov-2020, 14:29:05
Operator : WH
Sample : lcs tcd 0.1ml
Misc :
ALS Vial : 1  Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 17 14:40:05 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase :  Signal #2 Phase:
Signal #1 Info :  Signal #2 Info :




(4) Carbon dioxide

6.019min 888.377 ppm m

response 208528

11/17

11/18/20

(+) = Expected Retention Time

RS082817_CO2.M Tue Nov 17 16:57:31 2020

Data Path : J:\GC10\DATA\RSK_TCD\2020_11\17\
Data File : 11172005.D
Signal(s) : Signal #1: TCD1A.CH  Signal #2: FID2B.CH
Acq On : 17-Nov-2020, 14:43:43
Operator : WH
Sample : lcsd tcd 0.1ml
Misc :
ALS Vial : 1  Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 17 14:56:09 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase :  Signal #2 Phase:
Signal #1 Info :  Signal #2 Info :

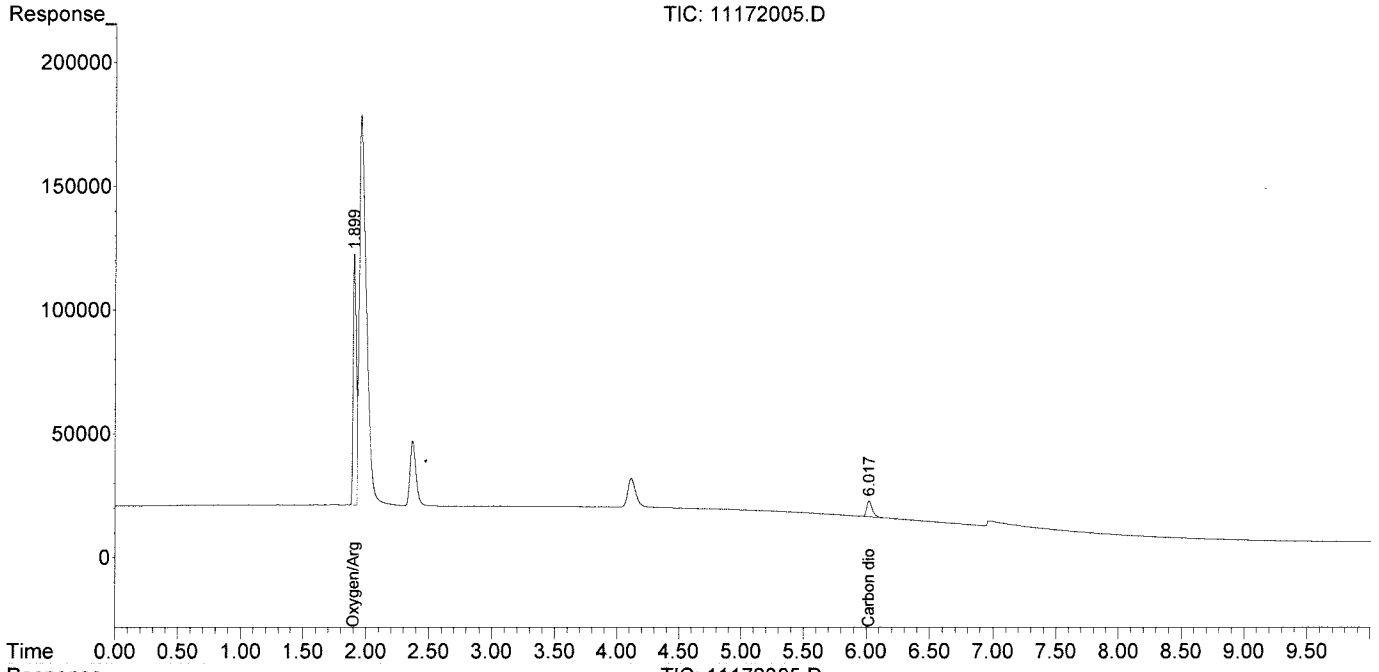
| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Oxygen/Argon | 1.900 | 1733236 | 0.364 | ppm | |
| 2) | Carbon monoxide | 1.900 | 1733236 | N.D. | ppm | |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm | |
| 4) | Carbon dioxide | 6.017 | 201664 | 859.133 | ppm | m |
| 6) | Methane (FID) | 0.000 | 0 | N.D. | ppm | |
| 7) | Ethylene | 0.000 | 0 | N.D. | ppm | |
| 8) | Ethane | 0.000 | 0 | N.D. | ppm | |
| 9) | Propylene | 0.000 | 0 | N.D. | ppm | |
| 10) | Propane | 0.000 | 0 | N.D. | ppm | |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm | |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm | |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm | |

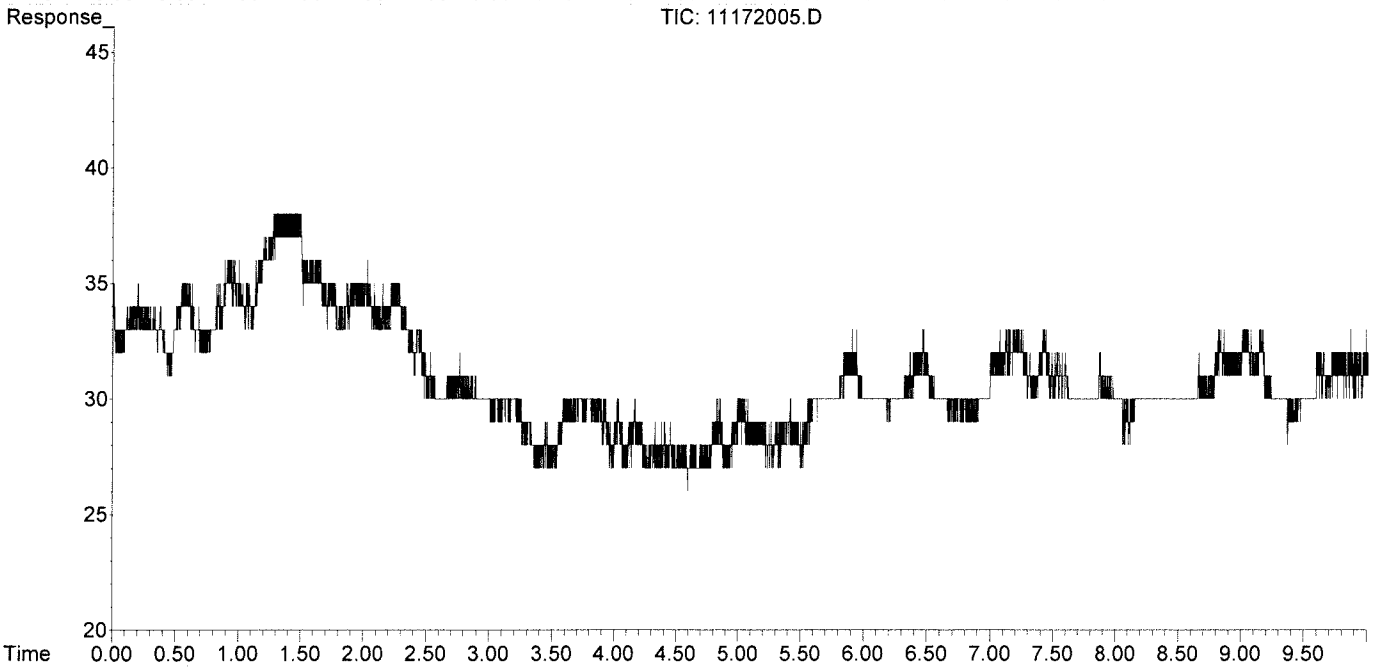
(f)=RT Delta > 1/2 Window  (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2020_11\17\
Data File : 11172005.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 17-Nov-2020, 14:43:43
Operator : WH
Sample : lcsd tcd 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 17 14:56:09 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

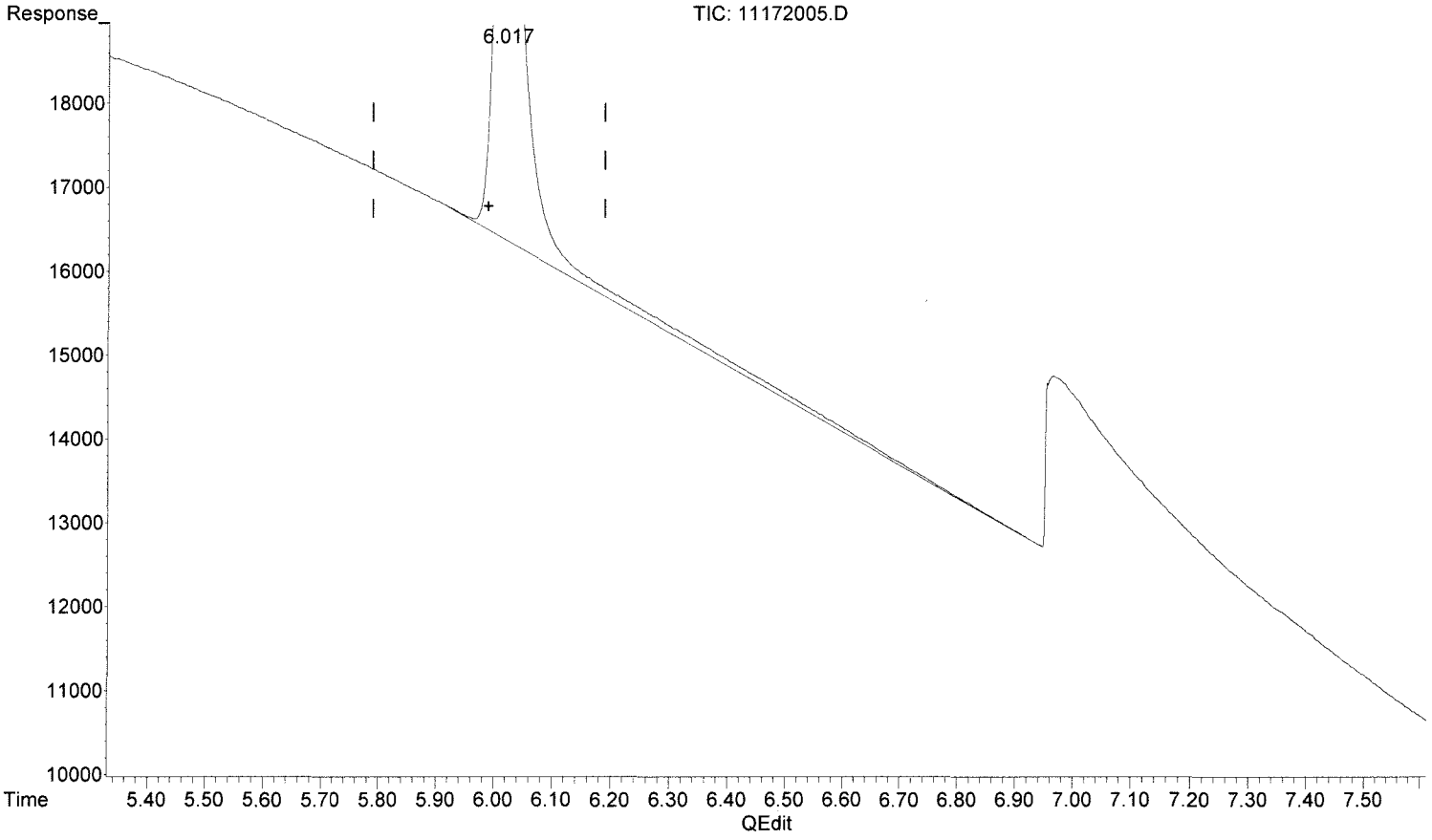


Data Path : J:\GC10\DATA\RSK_TCD\2020_11\17\
Data File : 11172005.D
Signal(s) : Signal #1: TCD1A.CH  Signal #2: FID2B.CH
Acq On : 17-Nov-2020, 14:43:43
Operator : WH
Sample : lcsd tcd 0.1ml
Misc :
ALS Vial : 1  Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 17 14:56:09 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase :  Signal #2 Phase:
Signal #1 Info :  Signal #2 Info :




(4) Carbon dioxide

6.018min 1000.261 ppm

response 234790

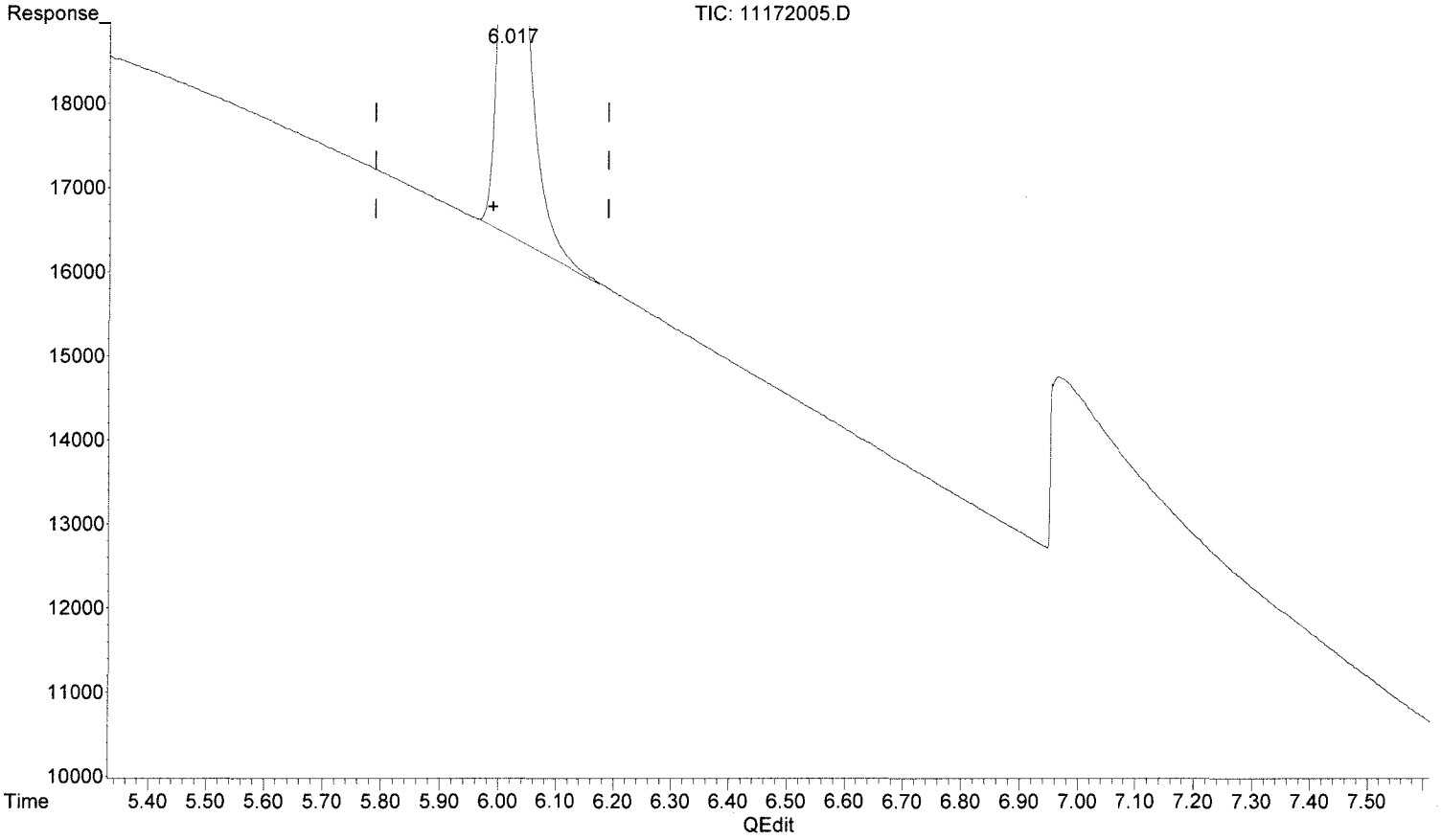
(+) = Expected Retention Time

01043341

Data Path : J:\GC10\DATA\RSK_TCD\2020_11\17\
Data File : 11172005.D
Signal(s) : Signal #1: TCD1A.CH  Signal #2: FID2B.CH
Acq On : 17-Nov-2020, 14:43:43
Operator : WH
Sample : lcsd tcd 0.1ml
Misc :
ALS Vial : 1  Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 17 14:56:09 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase :  Signal #2 Phase:
Signal #1 Info :  Signal #2 Info :




(4) Carbon dioxide

6.017min 859.133 ppm m

response 201664

LW 11/18/20

BLL

11/18/20

(+) = Expected Retention Time

RS082817_CO2.M Tue Nov 17 16:57:56 2020

Method Path : I:\GC10\METHODS\
Method File : RS082817_CO2.M
Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
Last Update : Tue Aug 29 16:13:13 2017
Response Via : Initial Calibration

Calibration Files
1 =08291715.D 2 =08291716.D 3 =08291717.D
4 =08291719.D 5 =08291720.D 6 =08291721.D

| | Compound | 1 | 2 | 3 | 4 | 5 | 6 | Avg | %RSD |
|---|---|---|---|---|---|---|---|---|---|
| 1) | Oxygen/Argon | 4.760 | | | | | | 4.760 E6 | 0.00 |
| 2) | Carbon monoxide | 2.775 | | 1.066 | 0.043 | 0.033 | 0.027 | 0.657 E6 | 170.12 |
| 3) | Methane (TCD) | | | | | | | 9.457 | 0.00 |
| 4) | Carbon dioxide | 2.717 | 2.193 | 2.338 | 2.272 | 2.265 | 2.298 | 2.347 E2 | 7.99 |

Signal #2 Calibration Files
1 =08291715.D 2 =08291716.D 3 =08291717.D
4 =08291719.D 5 =08291720.D 6 =08291721.D

| | Compound | 1 | 2 | 3 | 4 | 5 | 6 | Avg | %RSD |
|---|---|---|---|---|---|---|---|---|---|
| 6) | Methane (FID) | 1.253 | 1.160 | 1.005 | 0.927 | 0.848 | 0.848 | 0.945 E4 | 15.85 |
| 7) | Ethylene | 1.677 | 1.605 | 1.900 | 1.749 | 1.597 | 1.579 | 1.684 E4 | 7.30 |
| 8) | Ethane | 1.769 | 1.631 | 1.866 | 1.767 | 1.639 | 1.667 | 1.723 E4 | 5.40 |
| 9) | Propylene | 2.402 | 2.309 | 2.767 | 2.551 | 2.331 | 2.333 | 2.449 E4 | 7.32 |
| 10) | Propane | 2.906 | 2.737 | 2.817 | 2.639 | 2.410 | 2.420 | 2.655 E4 | 7.75 |
| 11) | Isobutylene | | | | | | | 0.000 | -1.00 |
| 12) | Isobutane | | | | | | | 0.000 | -1.00 |
| 13) | n-Butane | | | | | | | 0.000 | -1.00 |

(#) = Out of Range ### Number of calibration levels exceeded format ###

RS082817_CO2.M Wed Aug 30 13:24:19 2017

Method Path : I:\GC10\METHODS\
Method File : RS082817_CO2.M
Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
Last Update : Tue Aug 29 16:13:13 2017
Response Via : Initial Calibration

| # | ID | Conc | ISTD Conc | Path\File |
|---|---|---|---|---|
| 1 | 1 | 0 | 0 | J:\GC10\DATA\RSK_FID\2017_08\29\08291715.D |
| 2 | 2 | 0 | 0 | J:\GC10\DATA\RSK_FID\2017_08\29\08291716.D |
| 3 | 3 | 3 | 0 | J:\GC10\DATA\RSK_FID\2017_08\29\08291717.D |
| 4 | 4 | 10 | 0 | J:\GC10\DATA\RSK_FID\2017_08\29\08291719.D |
| 5 | 5 | 25 | 0 | J:\GC10\DATA\RSK_FID\2017_08\29\08291720.D |
| 6 | 6 | 125 | 0 | J:\GC10\DATA\RSK_FID\2017_08\29\08291721.D |
| 7 | 7 | 5000 | 0 | J:\GC10\DATA\RSK_FID\2017_08\24\08241708.D |
| 8 | 8 | 25000 | 0 | J:\GC10\DATA\RSK_FID\2017_08\24\08241709.D |
| 9 | 9 | 2000 | 0 | J:\GC10\DATA\RSK_FID\2017_08\24\08241710.D |
| 10 | 10 | 30000 | 0 | J:\GC10\DATA\RSK_FID\2017_08\24\08241711.D |

| # | ID | Update Time | Quant Time | Acquisition Time |
|---|---|---|---|---|
| 1 | 1 | Aug 29 14:21 2017 | Aug 29 14:20 2017 | 29-Aug-2017, 14:07 |
| 2 | 2 | Aug 29 14:52 2017 | Aug 29 14:51 2017 | 29-Aug-2017, 14:22 |
| 3 | 3 | Aug 29 15:04 2017 | Aug 29 15:04 2017 | 29-Aug-2017, 14:53 |
| 4 | 4 | Aug 29 15:36 2017 | Aug 29 15:36 2017 | 29-Aug-2017, 15:23 |
| 5 | 5 | Aug 29 15:57 2017 | Aug 29 15:57 2017 | 29-Aug-2017, 15:44 |
| 6 | 6 | Aug 29 16:13 2017 | Aug 29 16:13 2017 | 29-Aug-2017, 16:00 |
| 7 | 7 | Aug 25 09:05 2017 | Aug 24 16:00 2017 | 24-Aug-2017, 15:44 |
| 8 | 8 | Aug 25 09:06 2017 | Aug 24 16:13 2017 | 24-Aug-2017, 16:02 |
| 9 | 9 | Aug 25 09:06 2017 | Aug 24 16:31 2017 | 24-Aug-2017, 16:16 |
| 10 | 10 | Aug 25 09:07 2017 | Aug 24 16:42 2017 | 24-Aug-2017, 16:33 |

RS082817_CO2.M Wed Aug 30 13:24:30 2017

dit Compounds -- Compound #4 -- Carbon dioxide

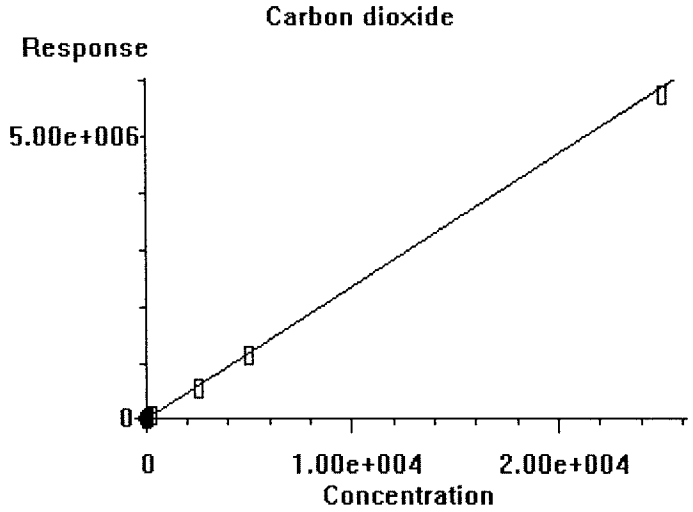
Search by: Ret Time | Name | Index | Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

| Lvl ID | Concentration | Response |
|---|---|---|
| 1 | 25.000000 | 6793.665186 |
| 2 | 100.000000 | 21932.418000 |
| 3 | 250.000000 | 58460.642510 |
| 4 | 2500.000000 | 568043.388750 |
| 5 | 5000.000000 | 1132363.215937 |
| 6 | 25000.000000 | 5744294.891563 |
| 7 | 25000.000000 | |
| 8 | 25000.000000 | |
| 9 | 2000.000000 | |
| 10 | 30000.000000 | |

| Lvl ID | Concentration | Response |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |




| | |
|---|---|
| 0.000e+000 | Quadratic term |
| 2.347e+002 | Linear term |
| 0.000e+000 | Constant term |
| 7.987% | RF Rel Std Dev |

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:07
Operator : MC
Sample : 25ppm s32-08291701 0.25ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:20:06 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

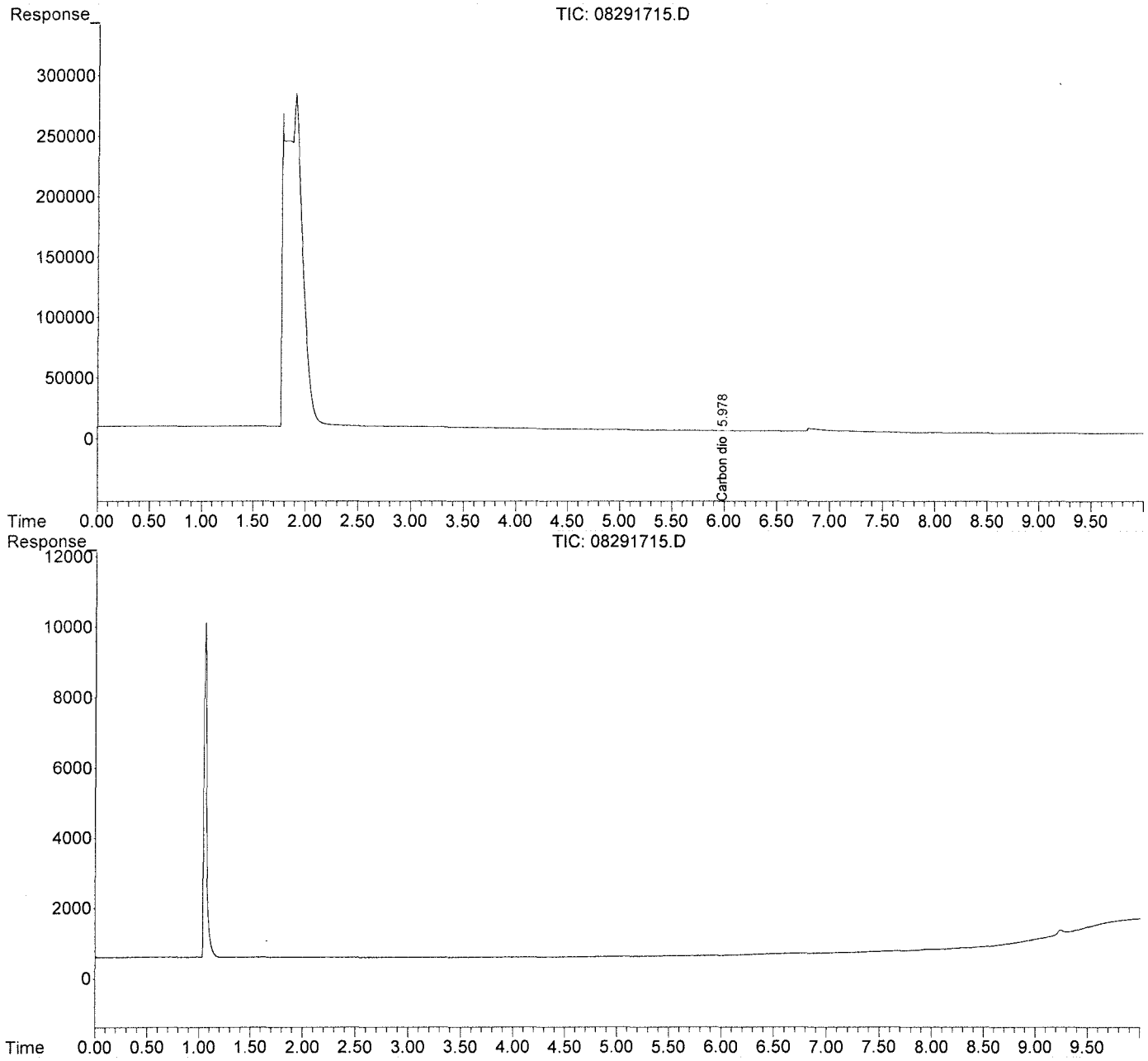
| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Oxygen/Argon | 0.000 | 0 | N.D. | ppm | d |
| 2) | Carbon monoxide | 1.776 | 277465 | N.D. | ppm | |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm | |
| 4) | Carbon dioxide | 5.978 | 6794 | 27.870 | ppm | m |
| 6) | Methane (FID) | 0.000 | 0 | N.D. | ppm | d |
| 7) | Ethylene | 0.000 | 0 | N.D. | ppm | |
| 8) | Ethane | 0.000 | 0 | N.D. | ppm | |
| 9) | Propylene | 0.000 | 0 | N.D. | ppm | |
| 10) | Propane | 0.000 | 0 | N.D. | ppm | |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm | |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm | |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm | |

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:07
Operator : MC
Sample : 25ppm s32-08291701 0.25ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:20:06 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

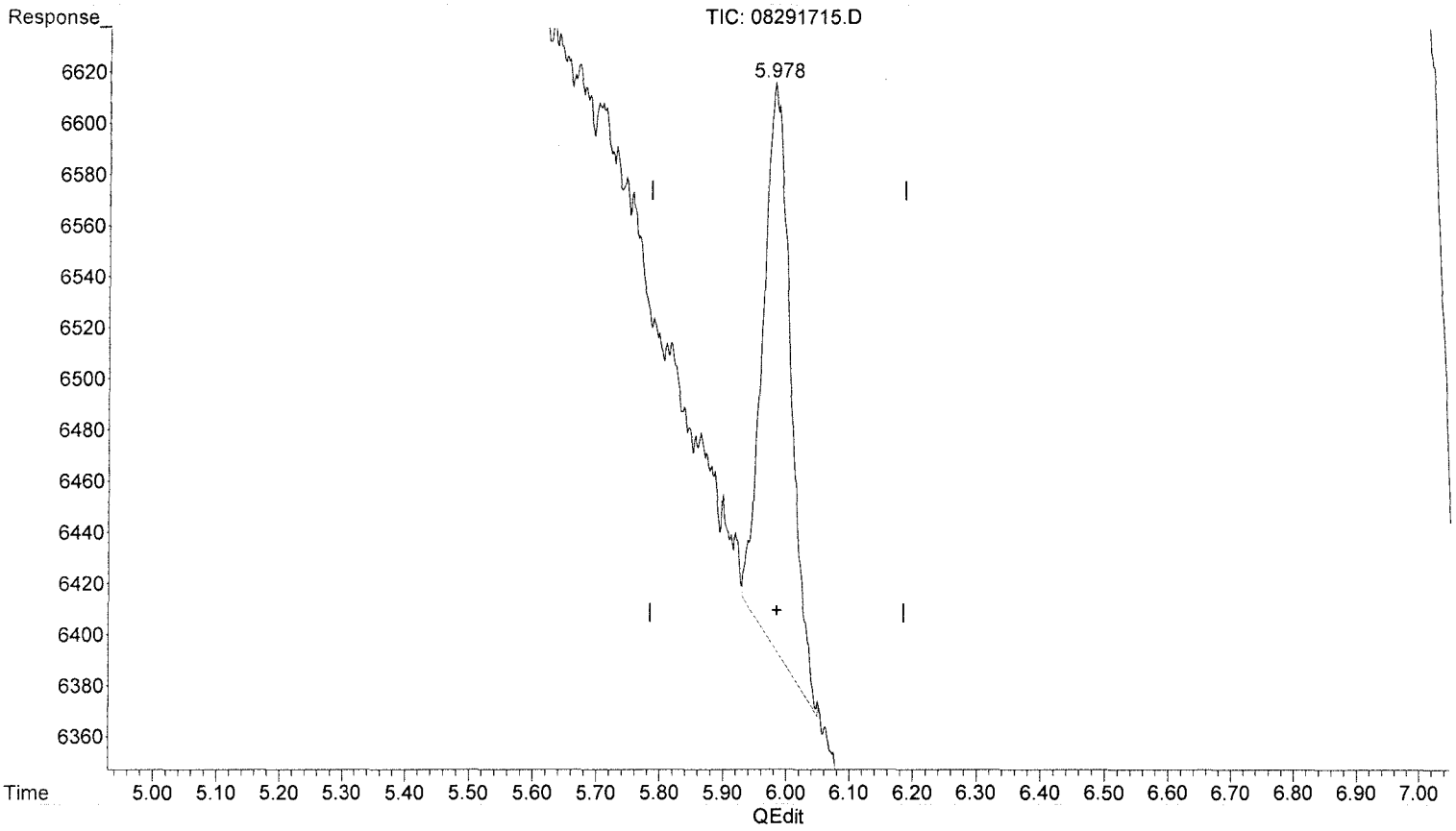
Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291715.D
Signal(s) : Signal #1: TCD1A.CH  Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:07
Operator : MC
Sample : 25ppm s32-08291701 0.25ml
Misc :
ALS Vial : 1  Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:20:06 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase :  Signal #2 Phase:
Signal #1 Info :  Signal #2 Info :




(4) Carbon dioxide

5.978min 27.870 ppm m

response 6794

M 9/30/17
BLW
M.
pr/w

9/4/17

(+) = Expected Retention Time

RS082817_CO2.M Wed Aug 30 13:17:47 2017

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291716.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:22
Operator : MC
Sample : 100ppm s32-08291702 0.2ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:51:38 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:21:08 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

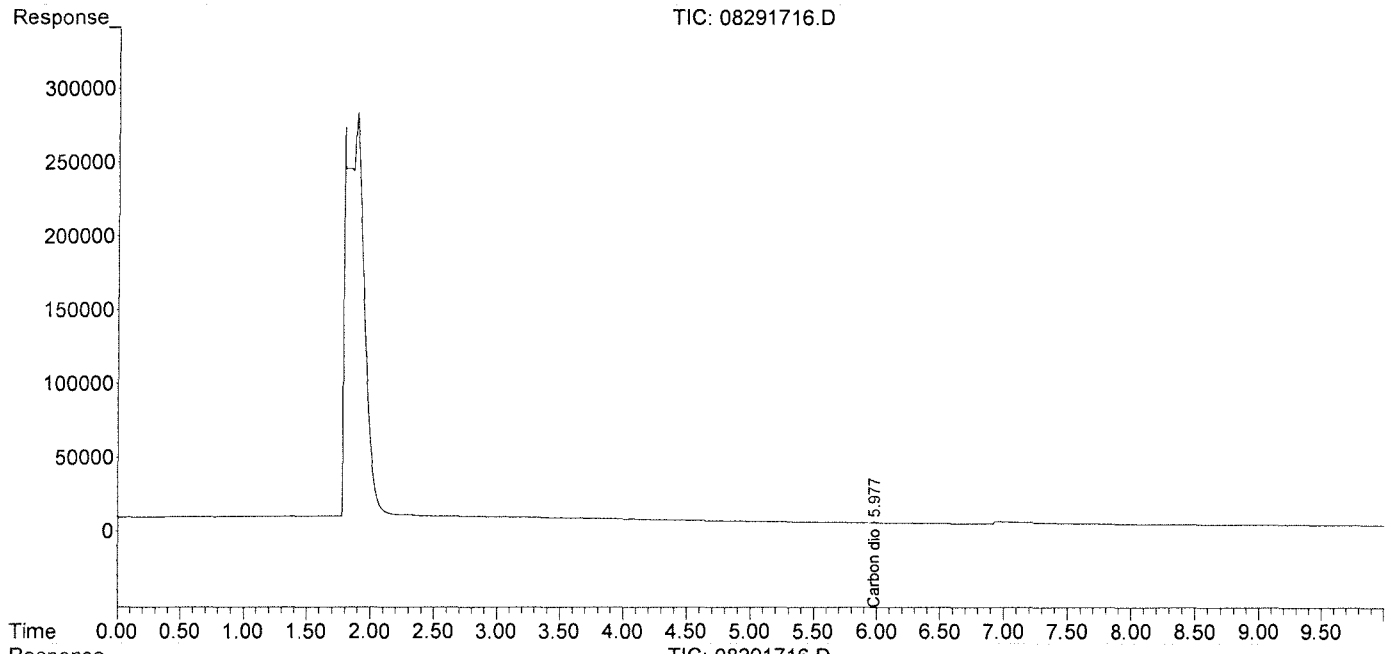
| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Oxygen/Argon | 1.790 | -598962 | N.D. | ppm | |
| 2) | Carbon monoxide | 0.000 | 0 | N.D. | ppm | d |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm | |
| 4) | Carbon dioxide | 5.978 | 21932 | 87.858 | ppm | |
| 6) | Methane (FID) | 0.000 | 0 | N.D. | ppm | d |
| 7) | Ethylene | 0.000 | 0 | N.D. | ppm | |
| 8) | Ethane | 0.000 | 0 | N.D. | ppm | |
| 9) | Propylene | 0.000 | 0 | N.D. | ppm | |
| 10) | Propane | 0.000 | 0 | N.D. | ppm | |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm | |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm | |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm | |

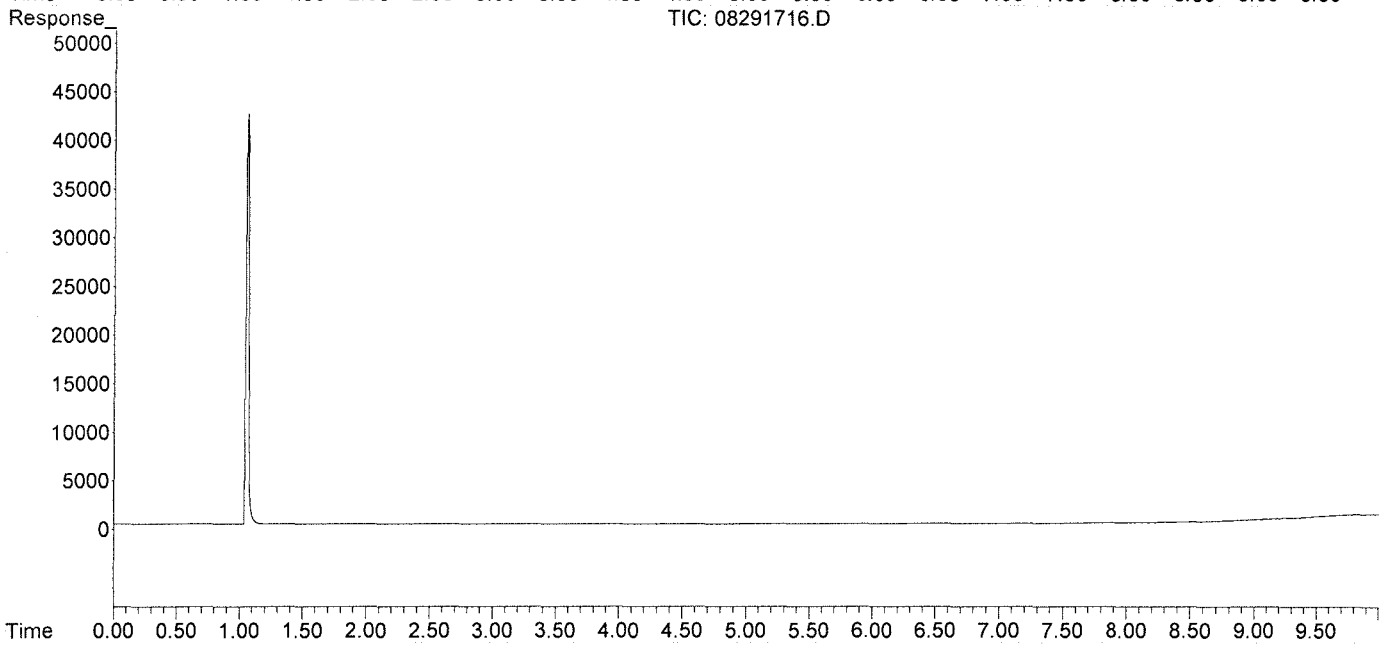
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291716.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:22
Operator : MC
Sample : 100ppm s32-08291702 0.2ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:51:38 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:21:08 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291717.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:53
Operator : MC
Sample : 250ppm s32-08291702 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:03:42 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:52:06 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

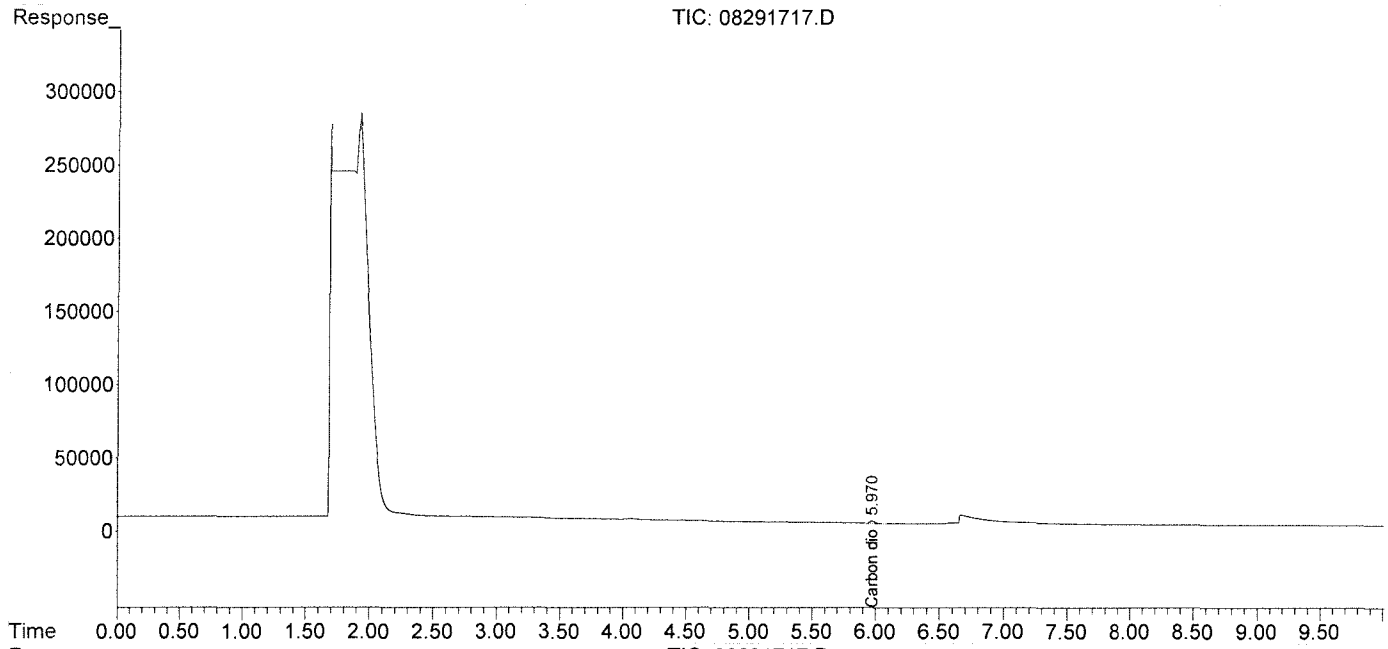
| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Oxygen/Argon | 1.920f | -30716454 | N.D. | ppm | |
| 2) | Carbon monoxide | 0.000 | 0 | N.D. | ppm | d |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm | d |
| 4) | Carbon dioxide | 5.970 | 58461 | 240.204 | ppm | m |
| 6) | Methane (FID) | 0.000 | 0 | N.D. | ppm | d |
| 7) | Ethylene | 0.000 | 0 | N.D. | ppm | |
| 8) | Ethane | 0.000 | 0 | N.D. | ppm | |
| 9) | Propylene | 0.000 | 0 | N.D. | ppm | |
| 10) | Propane | 0.000 | 0 | N.D. | ppm | |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm | |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm | |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm | |

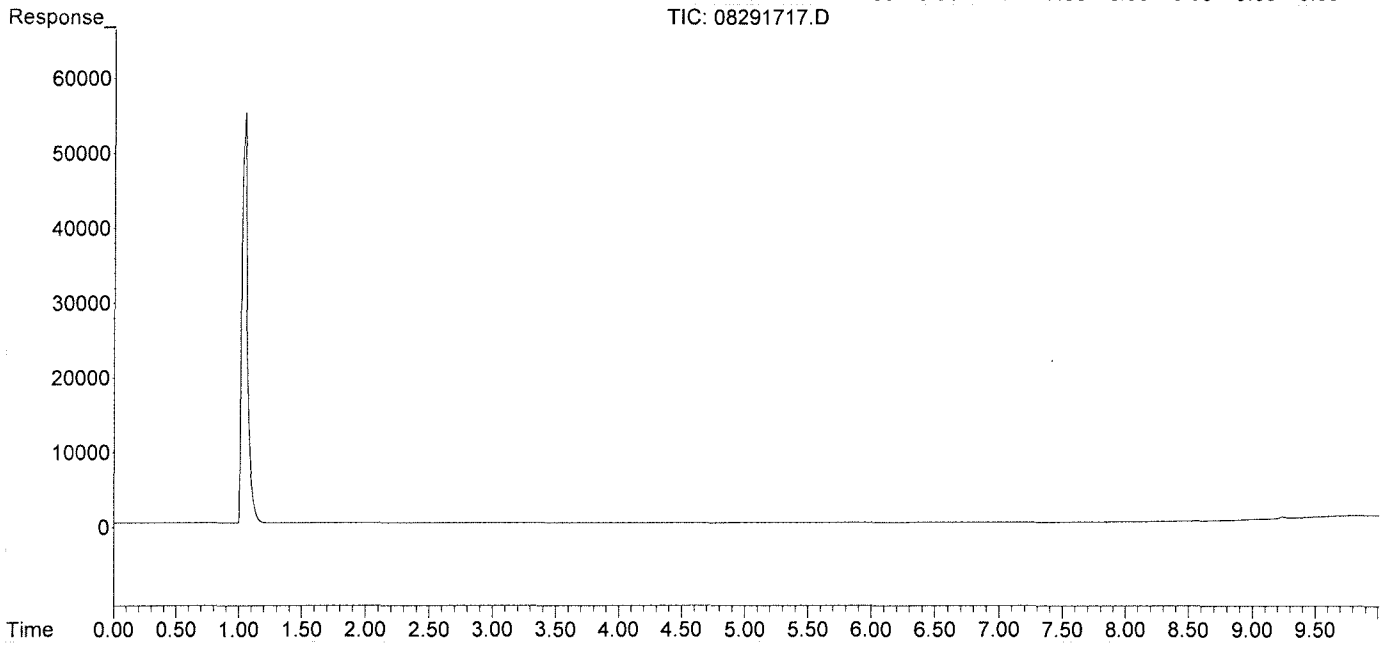
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291717.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:53
Operator : MC
Sample : 250ppm s32-08291702 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:03:42 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:52:06 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

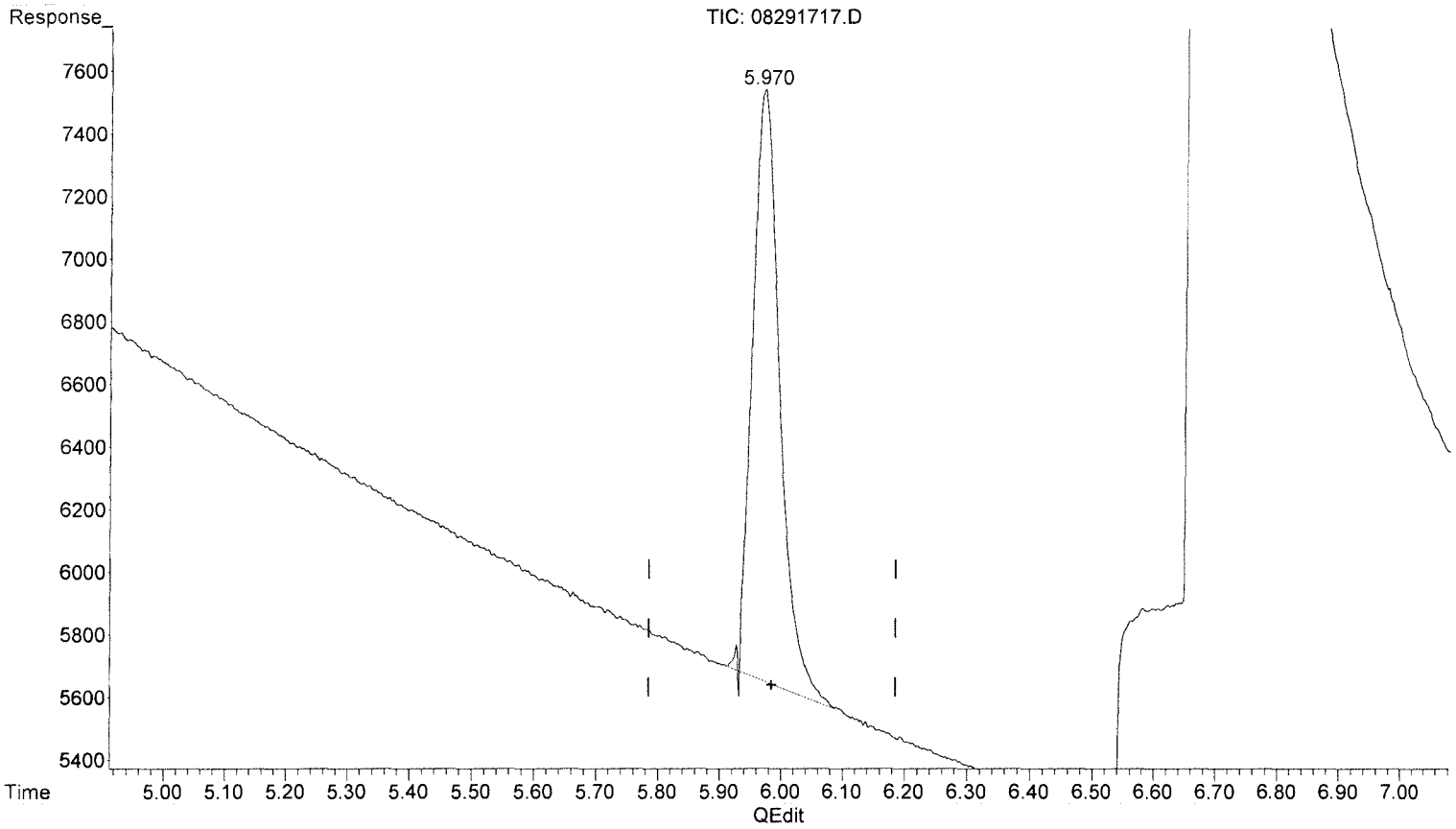


Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291717.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:53
Operator : MC
Sample : 250ppm s32-08291702 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:03:42 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:52:06 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :




(4) Carbon dioxide

5.970min 240.204 ppm m

response 58461

(+) = Expected Retention Time

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291719.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 15:23
Operator : MC
Sample : 2500ppm s32-08231701 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:35:50 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:04:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

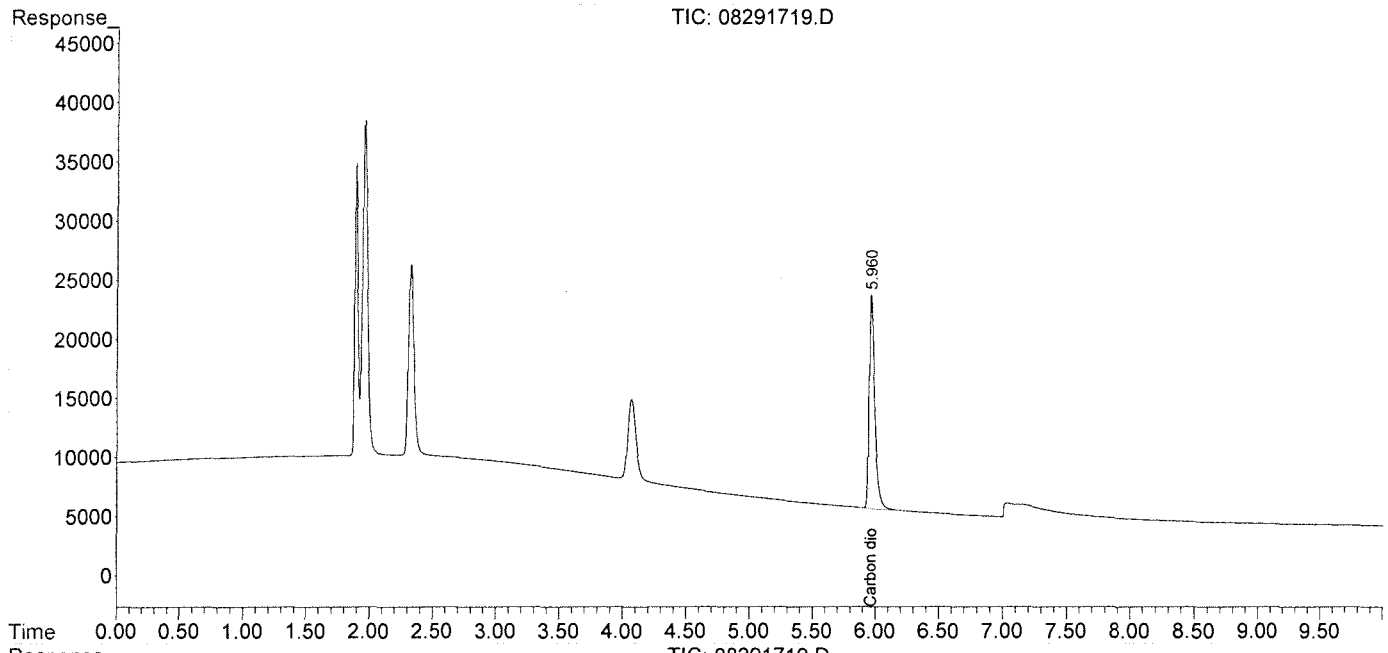
| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Oxygen/Argon | 0.000 | 0 | N.D. | ppm | d |
| 2) | Carbon monoxide | 1.891 | 425113 | N.D. | ppm | |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm | d |
| 4) | Carbon dioxide | 5.962 | 568043 | 2369.673 | ppm | |
| 6) | Methane (FID) | 0.000 | 0 | N.D. | ppm | d |
| 7) | Ethylene | 0.000 | 0 | N.D. | ppm | |
| 8) | Ethane | 0.000 | 0 | N.D. | ppm | |
| 9) | Propylene | 0.000 | 0 | N.D. | ppm | |
| 10) | Propane | 0.000 | 0 | N.D. | ppm | |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm | |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm | |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm | |

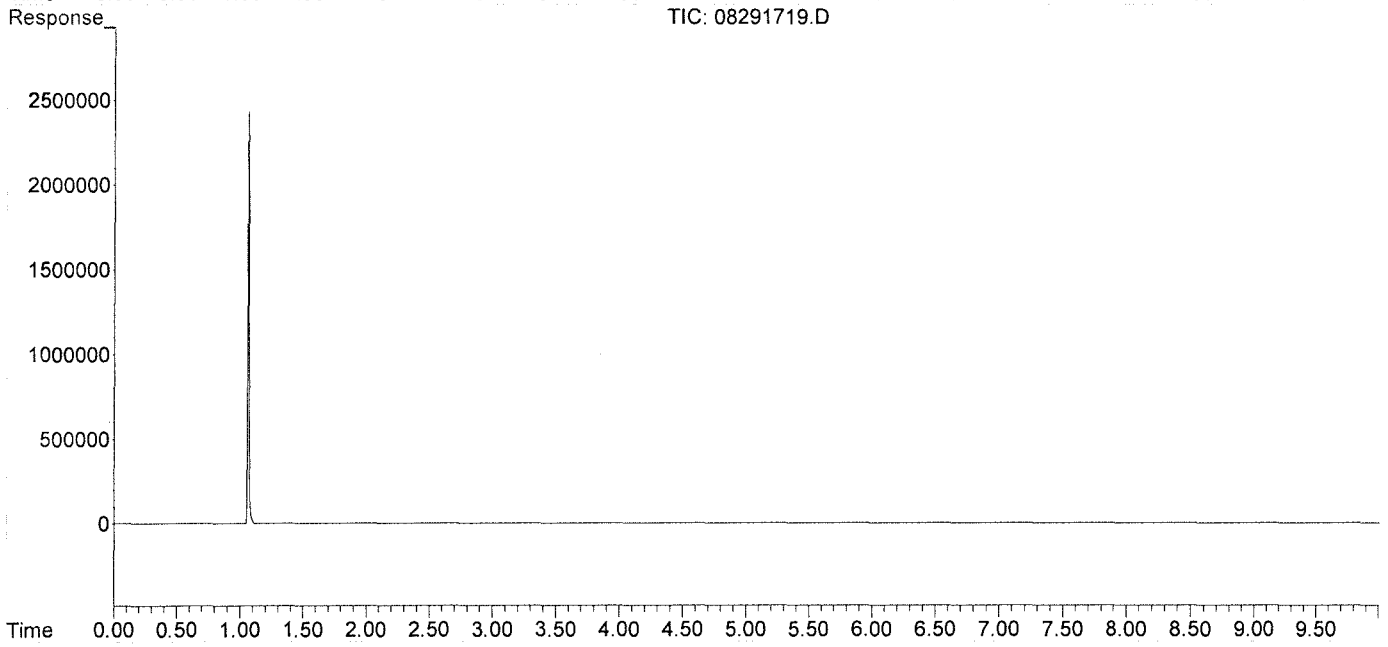
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291719.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 15:23
Operator : MC
Sample : 2500ppm s32-08231701 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:35:50 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:04:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291720.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 15:44
Operator : MC
Sample : 5000ppm s32-08231701 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:57:17 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:36:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

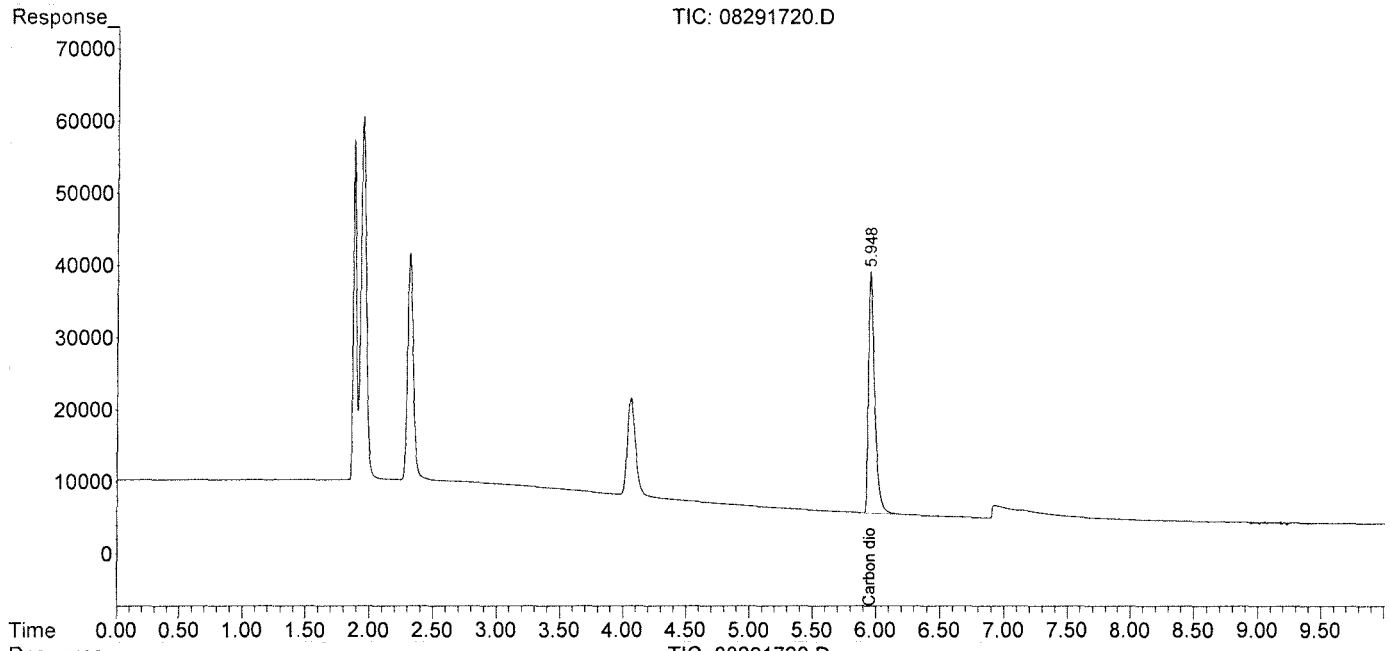
| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Oxygen/Argon | 0.000 | 0 | N.D. | ppm | d |
| 2) | Carbon monoxide | 1.880 | 819221 | N.D. | ppm | |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm | d |
| 4) | Carbon dioxide | 5.948 | 1132363 | 4753.126 | ppm | |
| 6) | Methane (FID) | 0.000 | 0 | N.D. | ppm | d |
| 7) | Ethylene | 0.000 | 0 | N.D. | ppm | |
| 8) | Ethane | 0.000 | 0 | N.D. | ppm | |
| 9) | Propylene | 0.000 | 0 | N.D. | ppm | |
| 10) | Propane | 0.000 | 0 | N.D. | ppm | |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm | |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm | |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm | |

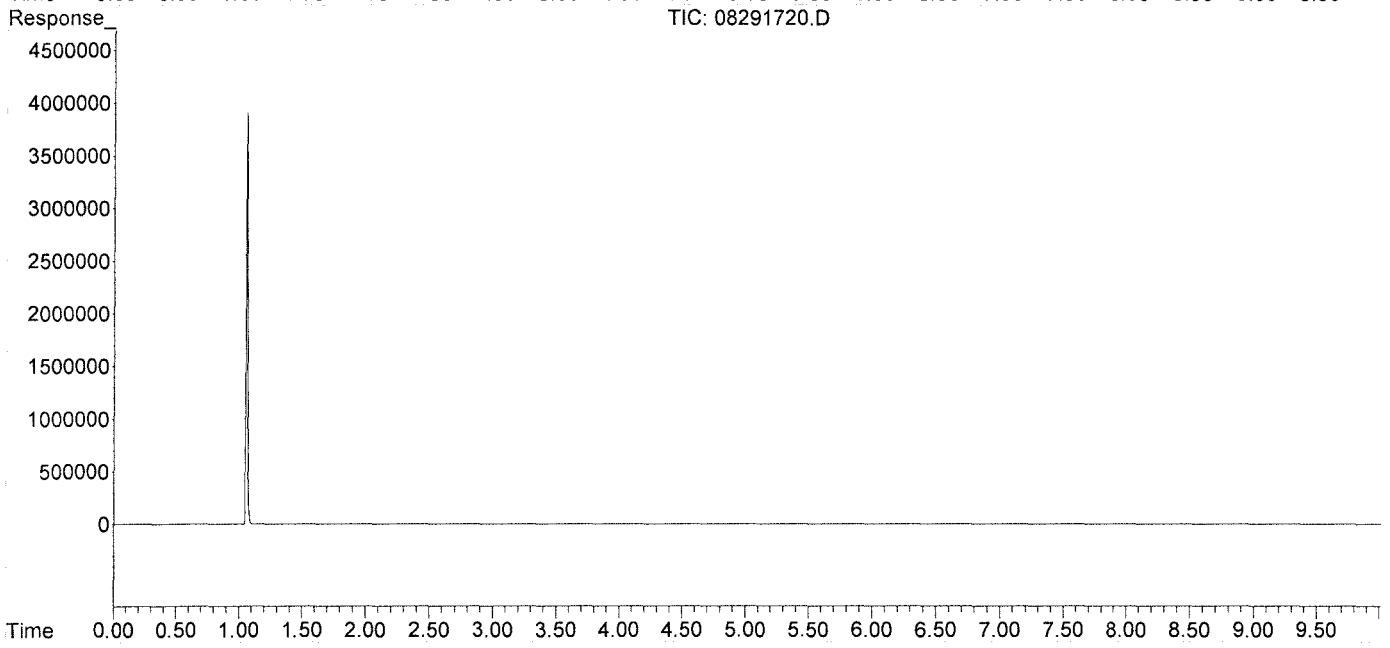
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291720.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 15:44
Operator : MC
Sample : 5000ppm s32-08231701 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:57:17 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:36:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291721.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 16:00
Operator : MC
Sample : 25000ppm s32-08231701 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 16:12:53 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:57:37 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

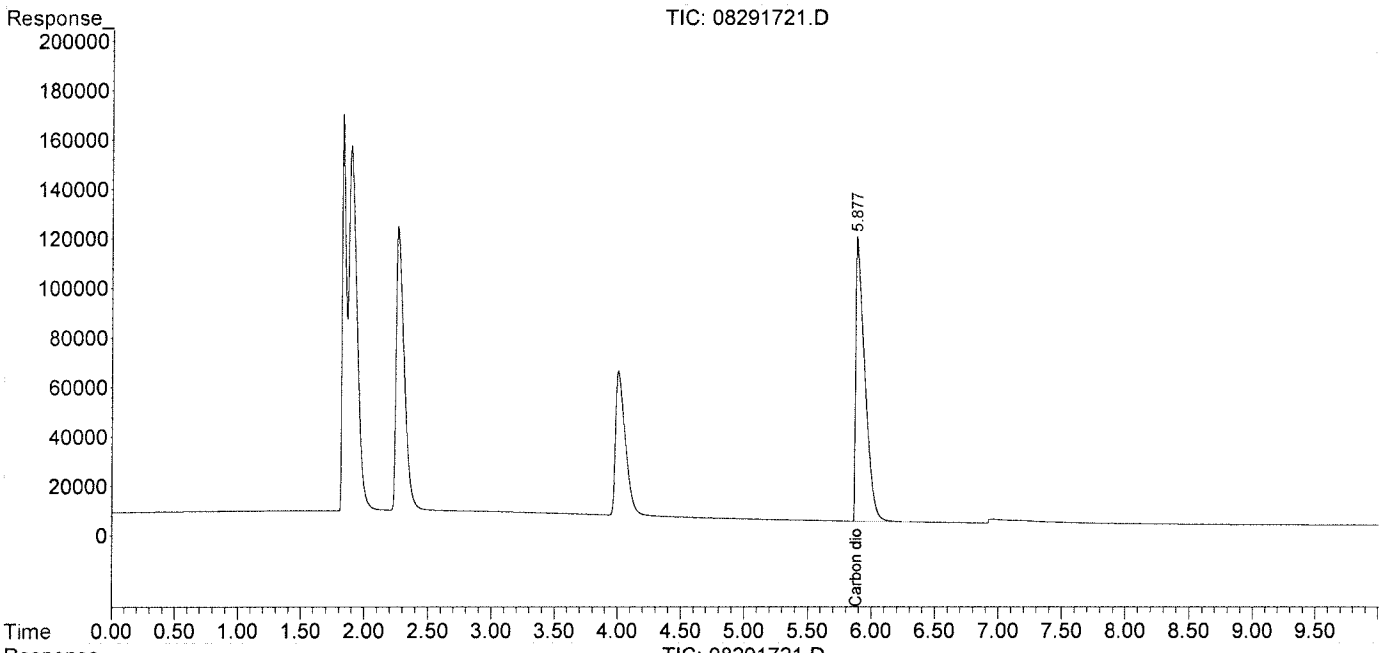
| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target | Compounds | | | | | |
| 1) | Oxygen/Argon | 0.000 | 0 | N.D. | ppm | d |
| 2) | Carbon monoxide | 1.827 | 3325463 | N.D. | ppm | |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm | d |
| 4) | Carbon dioxide | 5.879f | 5744295 | 24443.288 | ppm | |
| 6) | Methane (FID) | 0.000 | 0 | N.D. | ppm | d |
| 7) | Ethylene | 0.000 | 0 | N.D. | ppm | |
| 8) | Ethane | 0.000 | 0 | N.D. | ppm | |
| 9) | Propylene | 0.000 | 0 | N.D. | ppm | |
| 10) | Propane | 0.000 | 0 | N.D. | ppm | |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm | |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm | |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm | |

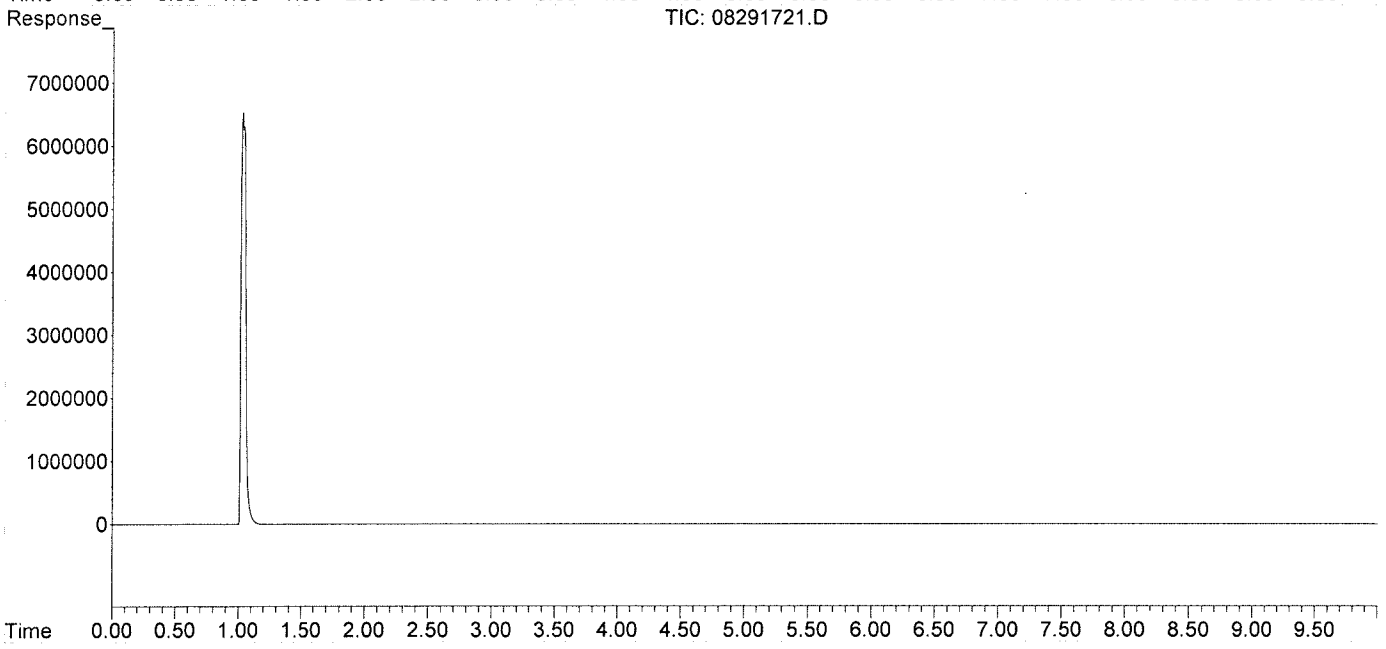
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291721.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 16:00
Operator : MC
Sample : 25000ppm s32-08231701 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 16:12:53 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:57:37 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291723.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 16:35
Operator : MC
Sample : icv s30-07071701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 16:54:07 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Oxygen/Argon | 1.886 | 536422 | 0.113 | ppm | actual %D |
| 2) | Carbon monoxide | 1.886 | 536422 | N.D. | ppm | |
| 3) | Methane (TCD) | 4.059f | 626500 | 66244.710 | ppm | |
| 4) | Carbon dioxide | 5.947 | 1163775 | 4957.948 | ppm | 5000 99.16 |
| 6) | Methane (FID) | 1.062 | 37290742 | 3947.023 | ppm | |
| 7) | Ethylene | 0.000 | 0 | N.D. | ppm | |
| 8) | Ethane | 0.000 | 0 | N.D. | ppm | |
| 9) | Propylene | 0.000 | 0 | N.D. | ppm | |
| 10) | Propane | 0.000 | 0 | N.D. | ppm | |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm | |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm | |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm | |

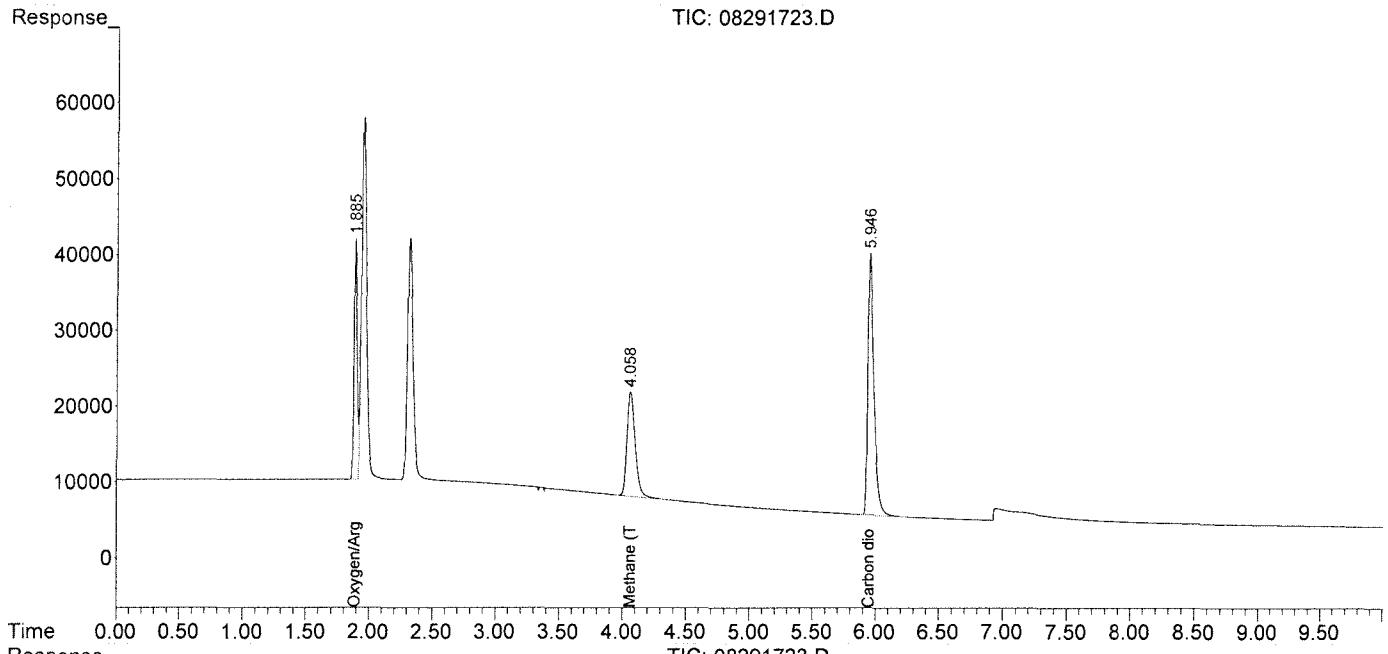
(f)=RT Delta > 1/2 Window (m)=manual int.

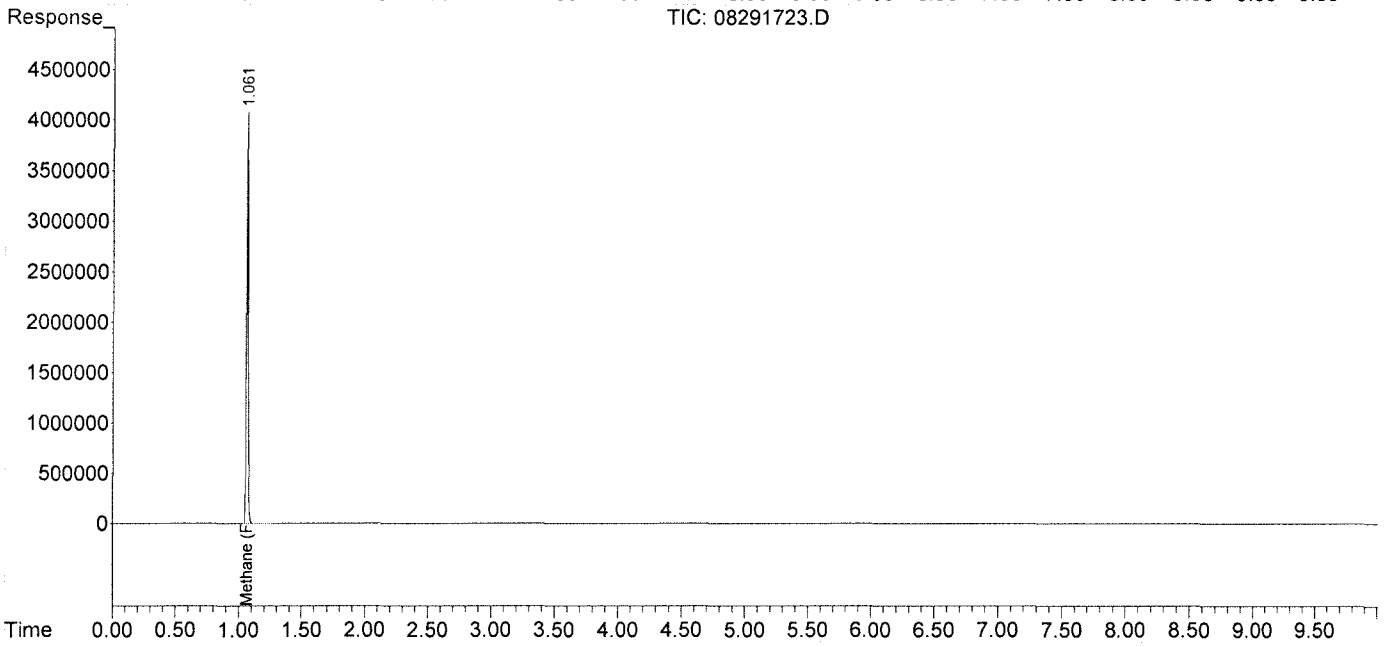
W 9/4/17

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291723.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 16:35
Operator : MC
Sample : icv s30-07071701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 16:54:07 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Dissolved Gases by RSK175

## *ALS Environmental*

Method : RSK175 Headspace Method for Dissolved Hydrocarbon in Water by FID/TCD
Client : ALS Laboratory Group | Analyst : WH | Instrument : GC#10
Service Request: P2006296 | Date Analysis : 11/17/20 | Detector : FID#10, TCD#10
Sample Vol. (ml) : 32.00 ml | Head Space Vol.(ml) : 8.00 ml | Gas Constant : 24.05684 (20°C)

### HEAD SPACE RESULT (ppm)

| Sample ID | Inj. Vol. | Carbon Dioxide |
|---|---|---|
| std s32-11102001 | 0.100 | 4889.029 |
| ACTUAL | | 5000.00 |
| %Difference | | 2.2% |
| mcs 0.1ml | 0.100 | 0.000 |
| rb 0.1ml | 0.100 | 0.000 |
| lcs tcd 0.1ml | 0.100 | 888.377 |
| lcsd tcd 0.1ml | 0.100 | 859.133 |
| P2006296-001 0.1ml | 0.100 | 15867.86 |
| P2006296-002 0.1ml | 0.100 | 12268.56 |
| P2006296-003 0.1ml | 0.100 | 12384.96 |
| P2006296-001ms 0.1ml | 0.100 | 17393.79 |
| P2006296-001msd 0.1ml | 0.100 | 18552.77 |
| std s32-11102001 | | 5280.908 |
| ACTUAL | | 5000.00 |
| %Difference | | 5.6% |

### FINAL HEAD SPACE RESULT (ppm)

| | Carbon Dioxide |
|---|---|
| **WWt.** | 44.10 |
| **HENRY'S CONSTANT** | 1.42E+03 |
| **RL** | 100.00 |
| mcs 0.1ml | 0.000 |
| lcs tcd 0.1ml | 8883.770 |
| lcsd tcd 0.1ml | 8591.330 |
| P2006296-001 0.1ml | 158678.60 |
| P2006296-002 0.1ml | 122685.61 |
| P2006296-003 0.1ml | 123849.59 |
| P2006296-001ms 0.1ml | 173937.85 |
| P2006296-001msd 0.1ml | 185527.71 |

01043362

Data Path : J:\GC10\DATA\RSK_TCD\2020_11\17\
Data File : 11172001.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 17-Nov-2020, 13:37:26
Operator : WH
Sample : std s32-11102001
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 17 13:57:01 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

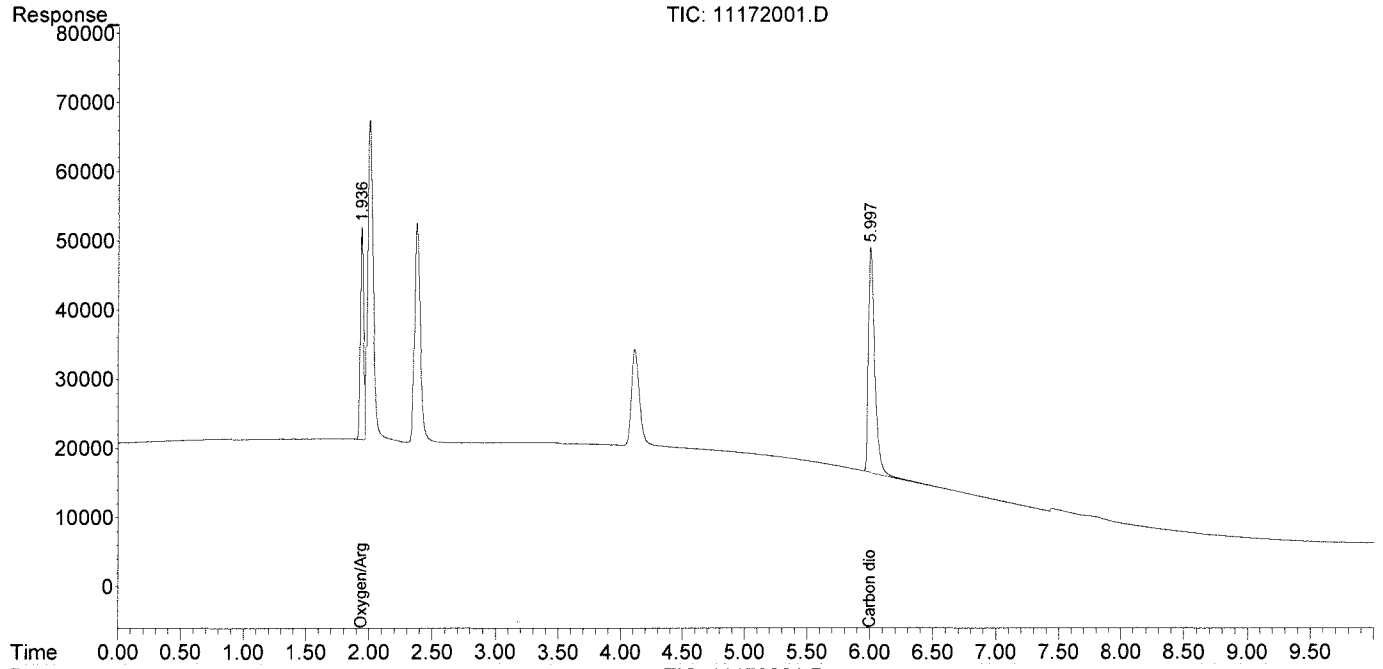
| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) | Oxygen/Argon | 1.937f | 552372 | 0.116 | ppm |
| 2) | Carbon monoxide | 1.937f | 552372 | N.D. | ppm |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm |
| 4) | Carbon dioxide | 5.998 | 1147598 | 4889.029 | ppm |
| 6) | Methane (FID) | 0.000 | 0 | N.D. | ppm |
| 7) | Ethylene | 0.000 | 0 | N.D. | ppm |
| 8) | Ethane | 0.000 | 0 | N.D. | ppm |
| 9) | Propylene | 0.000 | 0 | N.D. | ppm |
| 10) | Propane | 0.000 | 0 | N.D. | ppm |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm |

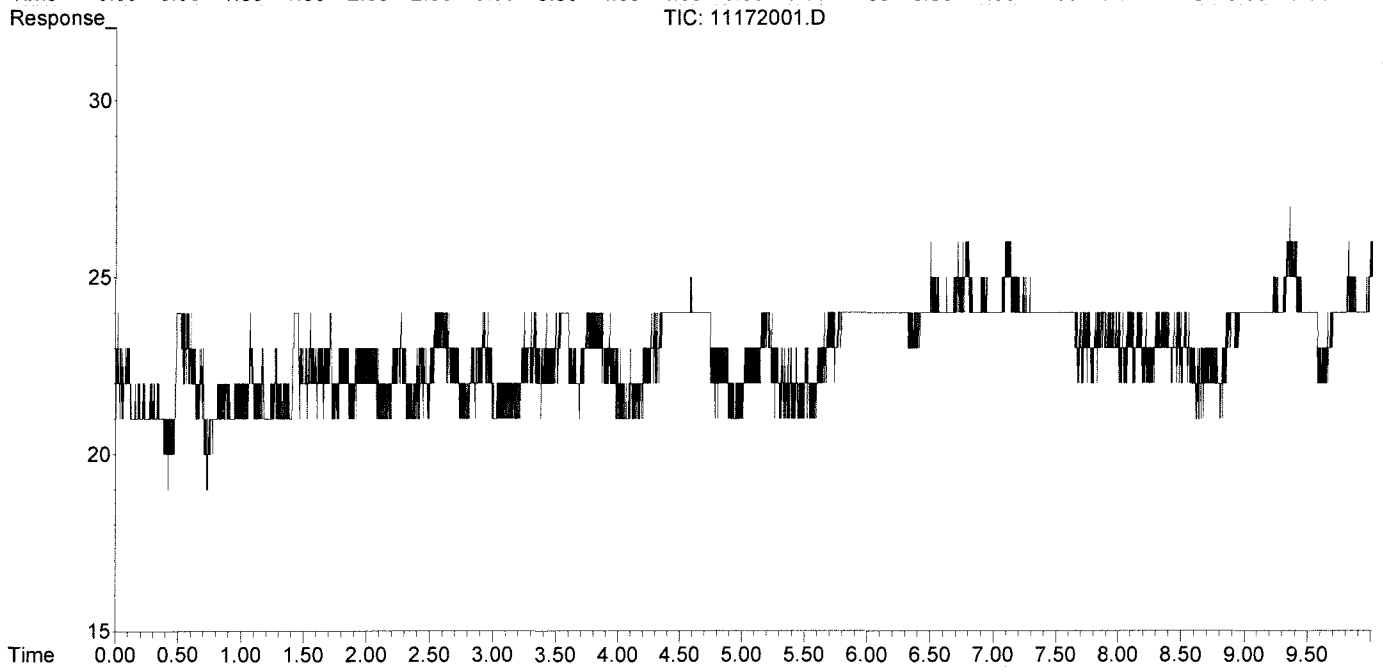
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2020_11\17\
Data File : 11172001.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 17-Nov-2020, 13:37:26
Operator : WH
Sample : std s32-11102001
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 17 13:57:01 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_TCD\2020_11\17\
Data File : 11172016.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 17-Nov-2020, 17:39:25
Operator : WH
Sample : std s32-11102001
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 17 17:54:10 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

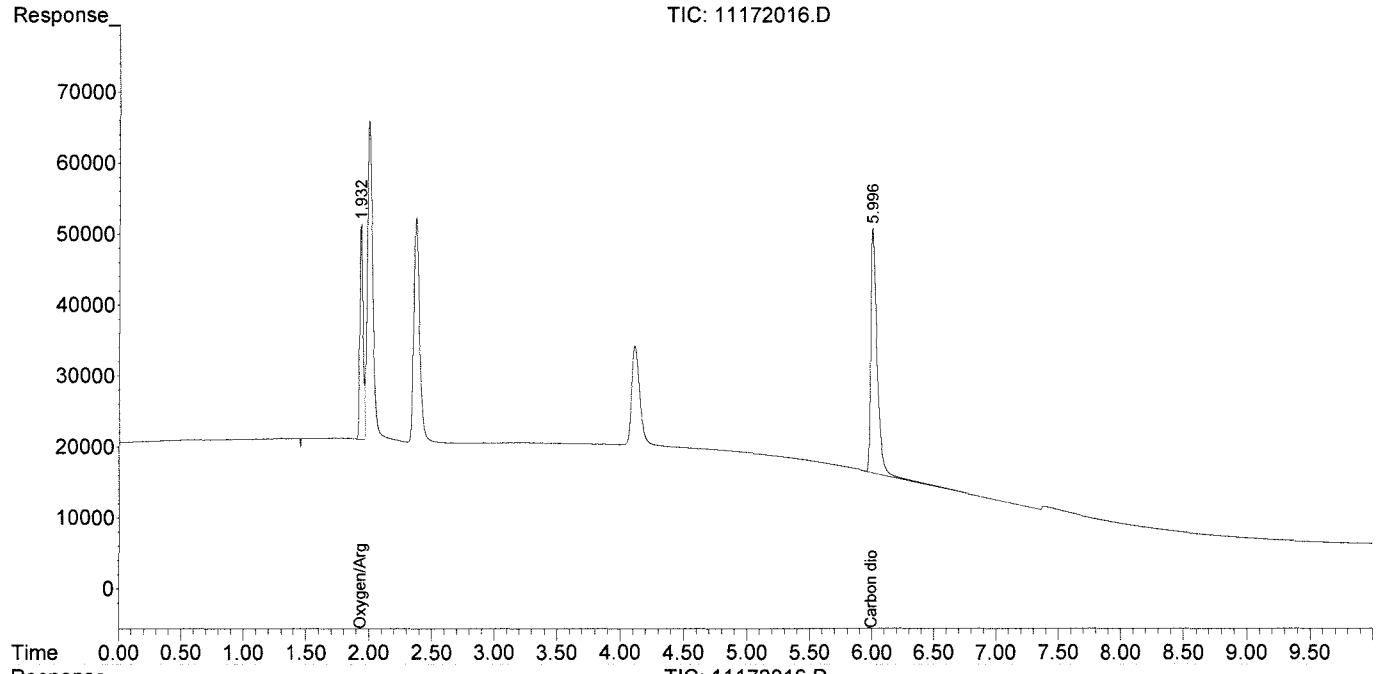
| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) | Oxygen/Argon | 1.932f | 536299 | 0.113 | ppm |
| 2) | Carbon monoxide | 1.932f | 536299 | N.D. | ppm |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm |
| 4) | Carbon dioxide | 5.998 | 1239583 | 5280.908 | ppm |
| 6) | Methane (FID) | 0.000 | 0 | N.D. | ppm |
| 7) | Ethylene | 0.000 | 0 | N.D. | ppm |
| 8) | Ethane | 0.000 | 0 | N.D. | ppm |
| 9) | Propylene | 0.000 | 0 | N.D. | ppm |
| 10) | Propane | 0.000 | 0 | N.D. | ppm |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm |

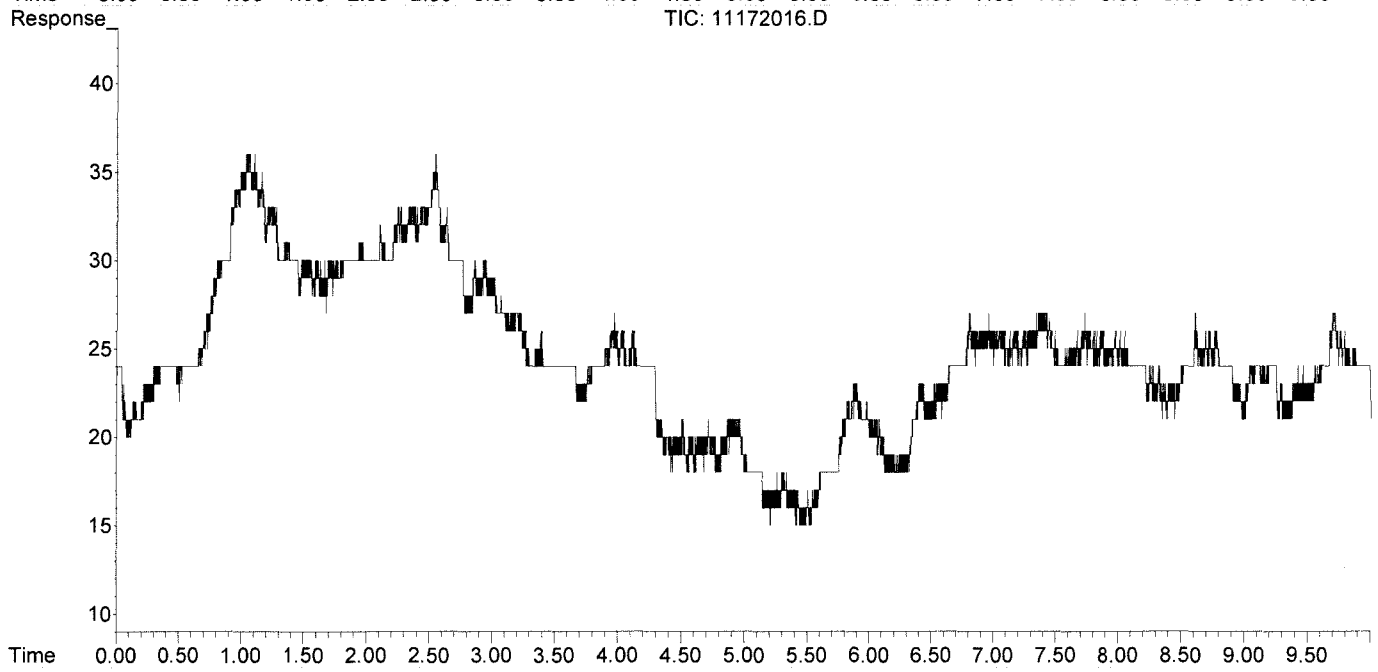
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2020_11\17\
Data File : 11172016.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 17-Nov-2020, 17:39:25
Operator : WH
Sample : std s32-11102001
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 17 17:54:10 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



# Injection Log

Directory: I:\GC10\DATA\RSK_FID\2017_08\29\

| | Date/Time | File Name | Sample ID | Misc Info | Operator | Acquisition Method | Comments |
|---|---|---|---|---|---|---|---|
| 1 | 29-Aug-17, 07:58:00 | 08291701.D | std s30-06161601 | | MC | RSKBOTH.M | Pass |
| 2 | 29-Aug-17, 08:11:02 | 08291702.D | mb 0.5ml | | MC | RSKBOTH.M | Pass |
| 3 | 29-Aug-17, 08:24:13 | 08291703.D | 4089-001 0.5ml | | MC | RSKBOTH.M | |
| 4 | 29-Aug-17, 08:39:29 | 08291704.D | 4089-002 0.5ml | | MC | RSKBOTH.M | |
| 5 | 29-Aug-17, 08:53:38 | 08291705.D | 4089-003 0.5ml | | MC | RSKBOTH.M | |
| 6 | 29-Aug-17, 09:33:52 | 08291706.D | 4089-004 0.5ml | | MC | RSKBOTH.M | |
| 7 | 29-Aug-17, 09:50:51 | 08291707.D | 4089-005 0.5ml | | MC | RSKBOTH.M | |
| 8 | 29-Aug-17, 10:07:54 | 08291708.D | 4089-006 0.5ml | | MC | RSKBOTH.M | |
| 9 | 29-Aug-17, 10:42:34 | 08291709.D | 4089-007 0.5ml | | MC | RSKBOTH.M | |
| 10 | 29-Aug-17, 11:06:01 | 08291710.D | 4089-008 0.5ml | | MC | RSKBOTH.M | |
| 11 | 29-Aug-17, 11:23:53 | 08291711.D | 4089-009 0.5ml | | MC | RSKBOTH.M | |
| 12 | 29-Aug-17, 11:37:17 | 08291712.D | lcs s30-05241604 | | MC | RSKBOTH.M | Pass |
| 13 | 29-Aug-17, 11:50:31 | 08291713.D | lcs s30-05241604 | | MC | RSKBOTH.M | Pass |
| 14 | 29-Aug-17, 12:29:45 | 08291714.D | std s30-06161601 | | MC | RSKBOTH.M | Pass |
| 15 | 29-Aug-17, 14:07:01 | 08291715.D | 25ppm s32-08291701 0.25ml | | MC | RSKBOTH.M | Curve |
| 16 | 29-Aug-17, 14:22:12 | 08291716.D | 100ppm s32-08291702 0.2ml | | MC | RSKBOTH.M | Curve |
| 17 | 29-Aug-17, 14:53:00 | 08291717.D | 250ppm s32-08291702 0.5ml | | MC | RSKBOTH.M | Curve |
| 18 | 29-Aug-17, 15:07:43 | 08291718.D | mis inject | | MC | RSKBOTH.M | |
| 19 | 29-Aug-17, 15:23:21 | 08291719.D | 2500ppm s32-08231701 50ul | | MC | RSKBOTH.M | Curve |
| 20 | 29-Aug-17, 15:44:54 | 08291720.D | 5000ppm s32-08231701 0.1ml | | MC | RSKBOTH.M | Curve |
| 21 | 29-Aug-17, 16:00:09 | 08291721.D | 25000ppm s32-08231701 0.5ml | | MC | RSKBOTH.M | Curve |
| 22 | 29-Aug-17, 16:15:43 | 08291722.D | mb 0.1ml | | MC | RSKBOTH.M | Pass |
| 23 | 29-Aug-17, 16:35:37 | 08291723.D | icv s30-07071701 | | MC | RSKBOTH.M | Pass |

# Injection Log

Directory: I:\GC10\DATA\RSK_TCD\2020_11\17\

| | Date/Time | File Name | Sample ID | Misc Info | Operator | Acquisition Method | Comments |
|---|---|---|---|---|---|---|---|
| 1 | 17-Nov-20, 13:37:26 | 11172001.D | std s32-11102001 | | WH | RSKBOTH.M | pass |
| 2 | 17-Nov-20, 13:58:25 | 11172002.D | rb 0.1ml | | WH | RSKBOTH.M | pass |
| 3 | 17-Nov-20, 14:11:18 | 11172003.D | mcs 0.1ml | | WH | RSKBOTH.M | pass |
| 4 | 17-Nov-20, 14:29:05 | 11172004.D | lcs tcd 0.1ml | | WH | RSKBOTH.M | pass |
| 5 | 17-Nov-20, 14:43:43 | 11172005.D | lcsd tcd 0.1ml | | WH | RSKBOTH.M | pass |
| 6 | 17-Nov-20, 14:59:24 | 11172006.D | P2006296-002 0.1ml | | WH | RSKBOTH.M | |
| 7 | 17-Nov-20, 15:22:43 | 11172007.D | P2006296-003 0.1ml | | WH | RSKBOTH.M | |
| 8 | 17-Nov-20, 15:35:22 | 11172008.D | P2006296-001 0.1ml | | WH | RSKBOTH.M | |
| 9 | 17-Nov-20, 15:50:07 | 11172009.D | P2006296-001ms 0.1ml | | WH | RSKBOTH.M | |
| 10 | 17-Nov-20, 16:01:53 | 11172010.D | P2006296-001msd 0.1ml | | WH | RSKBOTH.M | |
| 11 | 17-Nov-20, 16:14:21 | 11172011.D | P2006253-001 0.1ml | | WH | RSKBOTH.M | |
| 12 | 17-Nov-20, 16:28:18 | 11172012.D | P2006253-002 0.1ml | | WH | RSKBOTH.M | |
| 13 | 17-Nov-20, 16:46:52 | 11172013.D | P2006253-003 0.1ml | | WH | RSKBOTH.M | |
| 14 | 17-Nov-20, 17:02:41 | 11172014.D | P2006253-004 0.1ml | | WH | RSKBOTH.M | |
| 15 | 17-Nov-20, 17:24:53 | 11172015.D | P2006253-005 0.1ml | | WH | RSKBOTH.M | |
| 16 | 17-Nov-20, 17:39:25 | 11172016.D | std s32-11102001 | | WH | RSKBOTH.M | pass |

Data Path : J:\GC10\DATA\RSK_FID\2020_11\17\
Data File : 11172006.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 17-Nov-2020, 12:12:06
Operator : WH
Sample : P2006296-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 17 14:47:27 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

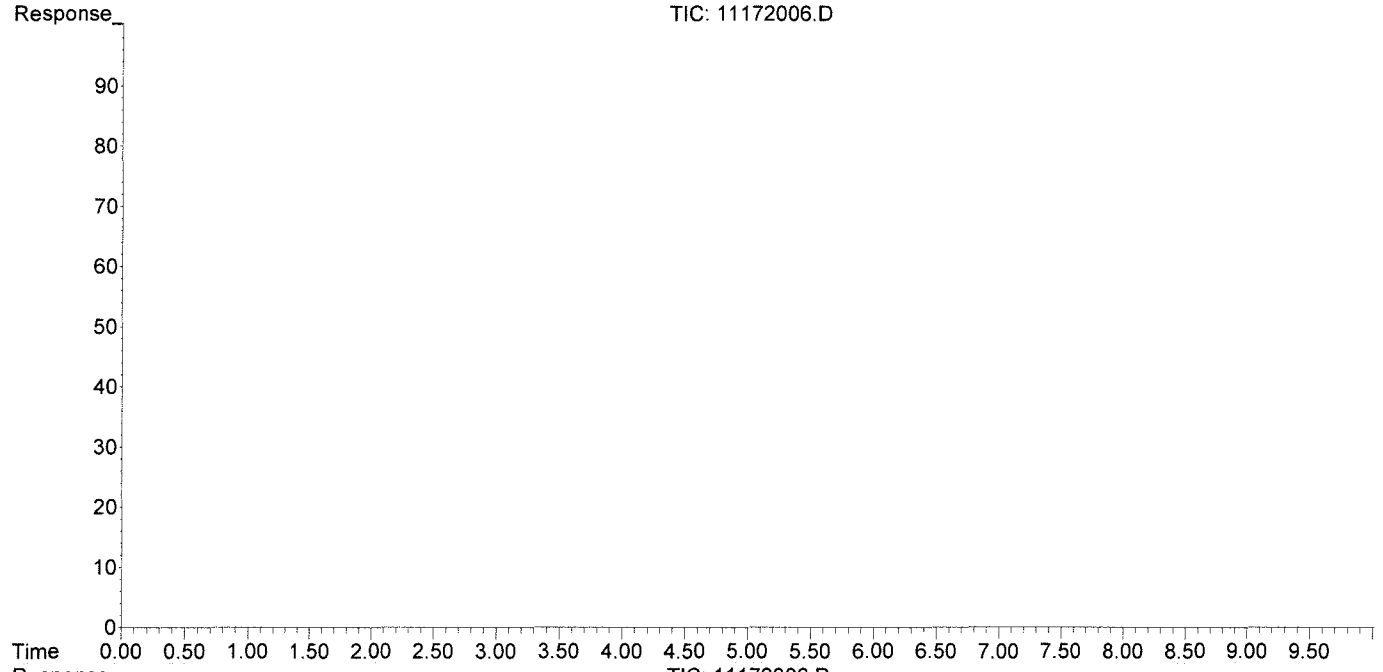
| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) | Oxygen/Argon | 0.000 | 0 | N.D. | ppm |
| 2) | Carbon monoxide | 0.000 | 0 | N.D. | ppm |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm |
| 4) | Carbon dioxide | 0.000 | 0 | N.D. | ppm |
| 6) | Methane (FID) | 1.136 | 909 | 0.100 | ppm |
| 7) | Ethylene | 0.000 | 0 | N.D. | ppm |
| 8) | Ethane | 0.000 | 0 | N.D. | ppm |
| 9) | Propylene | 0.000 | 0 | N.D. | ppm |
| 10) | Propane | 0.000 | 0 | N.D. | ppm |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm |

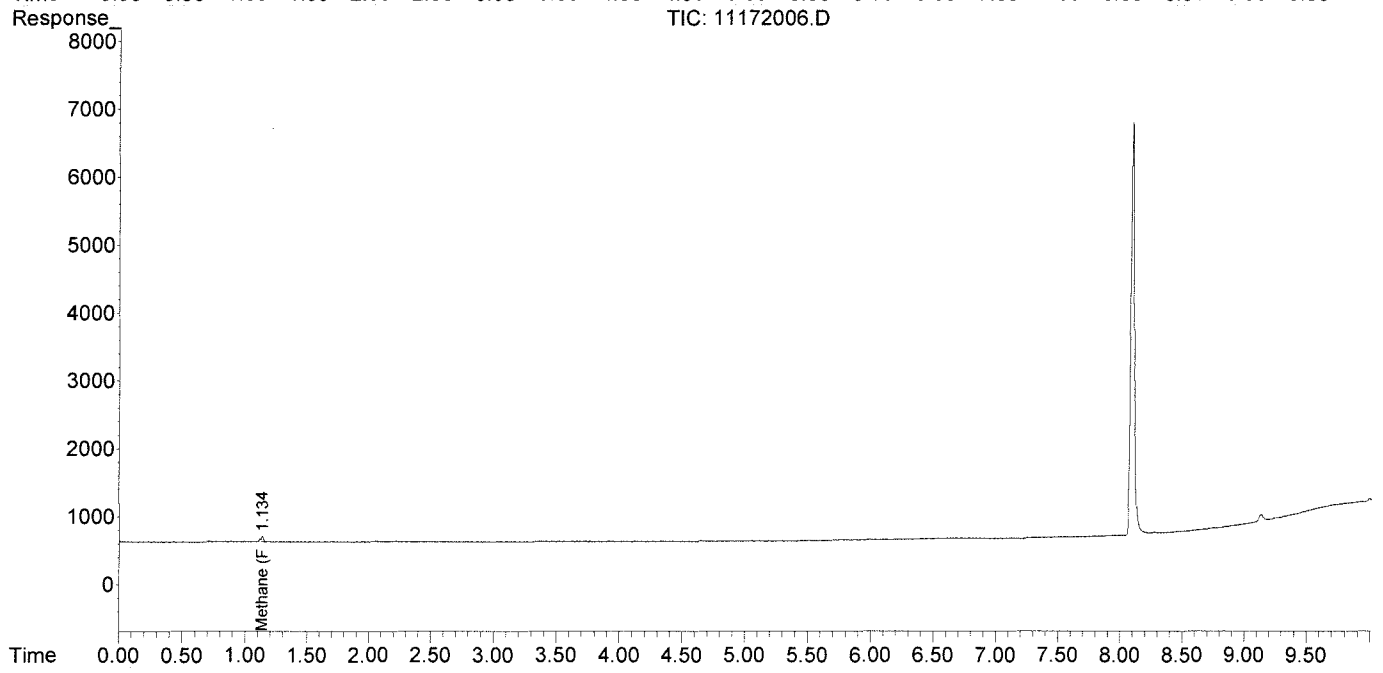
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2020_11\17\
Data File : 11172006.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 17-Nov-2020, 12:12:06
Operator : WH
Sample : P2006296-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 17 14:47:27 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2020_11\17\
Data File : 11172007.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 17-Nov-2020, 12:25:03
Operator : WH
Sample : P2006296-001ms 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 17 13:06:28 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

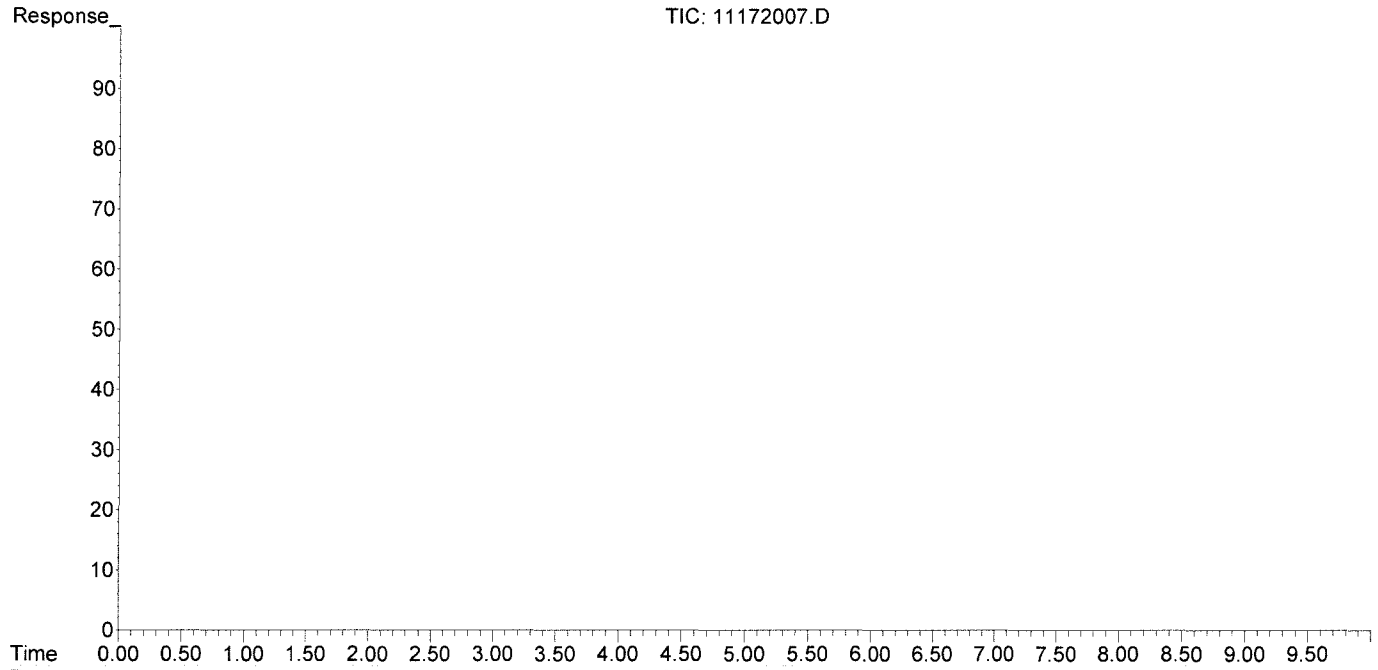
| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) | Oxygen/Argon | 0.000 | 0 | N.D. | ppm |
| 2) | Carbon monoxide | 0.000 | 0 | N.D. | ppm |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm |
| 4) | Carbon dioxide | 0.000 | 0 | N.D. | ppm |
| 6) | Methane (FID) | 1.129 | 610501 | 67.305 | ppm |
| 7) | Ethylene | 1.690 | 1034360 | 61.811 | ppm |
| 8) | Ethane | 1.953 | 1181706 | 69.716 | ppm |
| 9) | Propylene | 4.338 | 1474467 | 62.927 | ppm |
| 10) | Propane | 4.458 | 1811196 | 72.797 | ppm |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm |

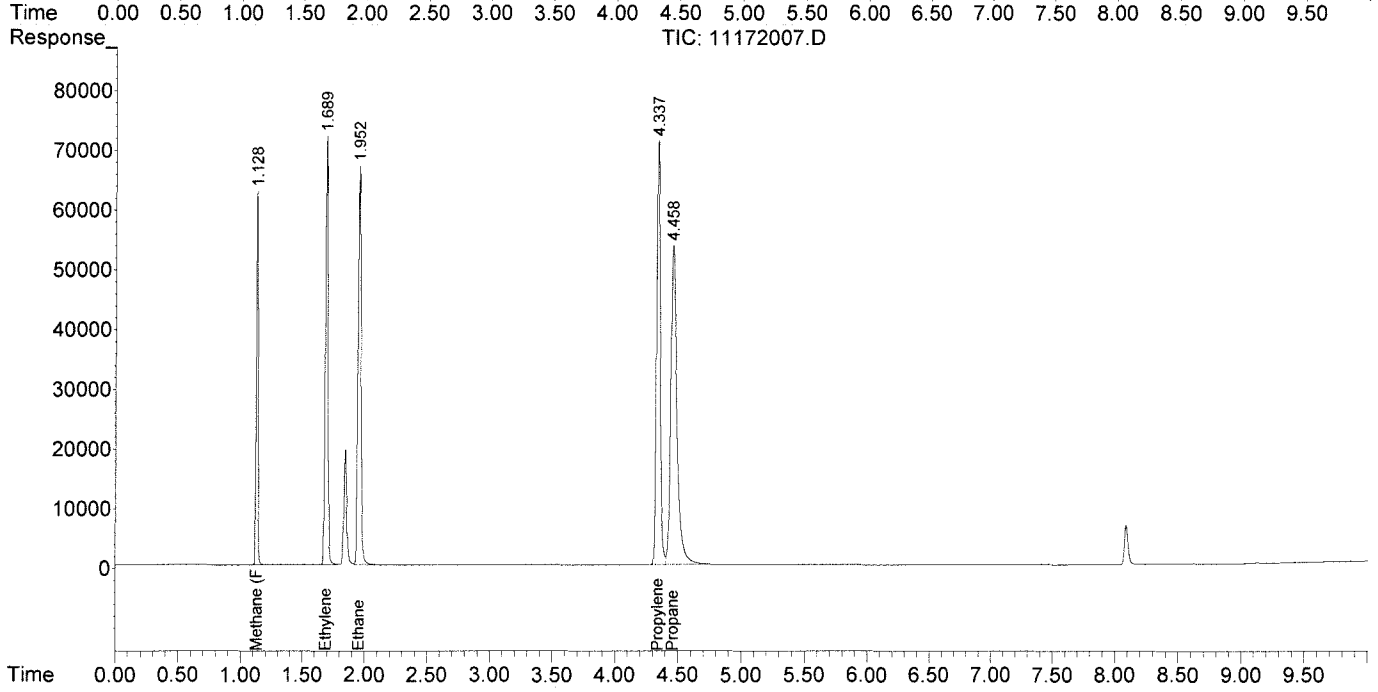
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2020_11\17\
Data File : 11172007.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 17-Nov-2020, 12:25:03
Operator : WH
Sample : P2006296-001ms 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 17 13:06:28 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2020_11\17\
Data File : 11172008.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 17-Nov-2020, 12:37:58
Operator : WH
Sample : P2006296-001msd 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 17 13:06:39 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

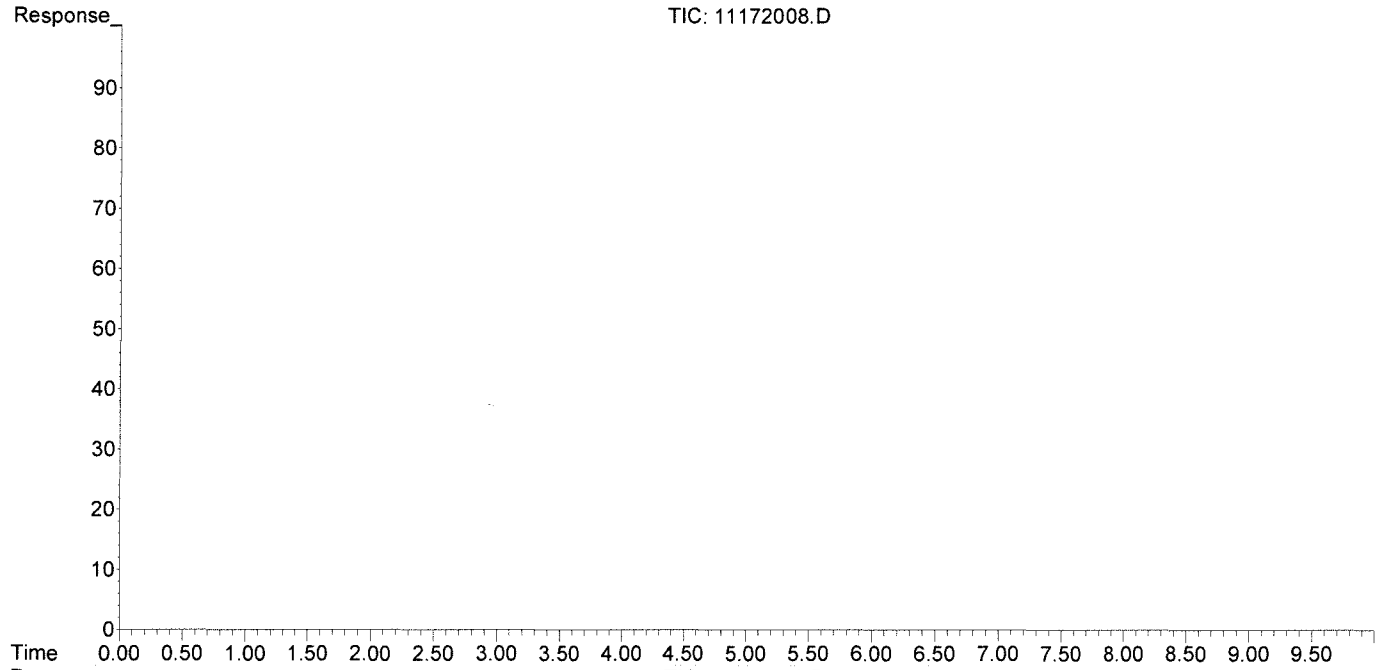
| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) | Oxygen/Argon | 0.000 | 0 | N.D. | ppm |
| 2) | Carbon monoxide | 0.000 | 0 | N.D. | ppm |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm |
| 4) | Carbon dioxide | 0.000 | 0 | N.D. | ppm |
| 6) | Methane (FID) | 1.131 | 579144 | 63.848 | ppm |
| 7) | Ethylene | 1.687 | 978863 | 58.494 | ppm |
| 8) | Ethane | 1.948 | 1119313 | 66.035 | ppm |
| 9) | Propylene | 4.332 | 1394641 | 59.520 | ppm |
| 10) | Propane | 4.453 | 1715338 | 68.944 | ppm |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm |

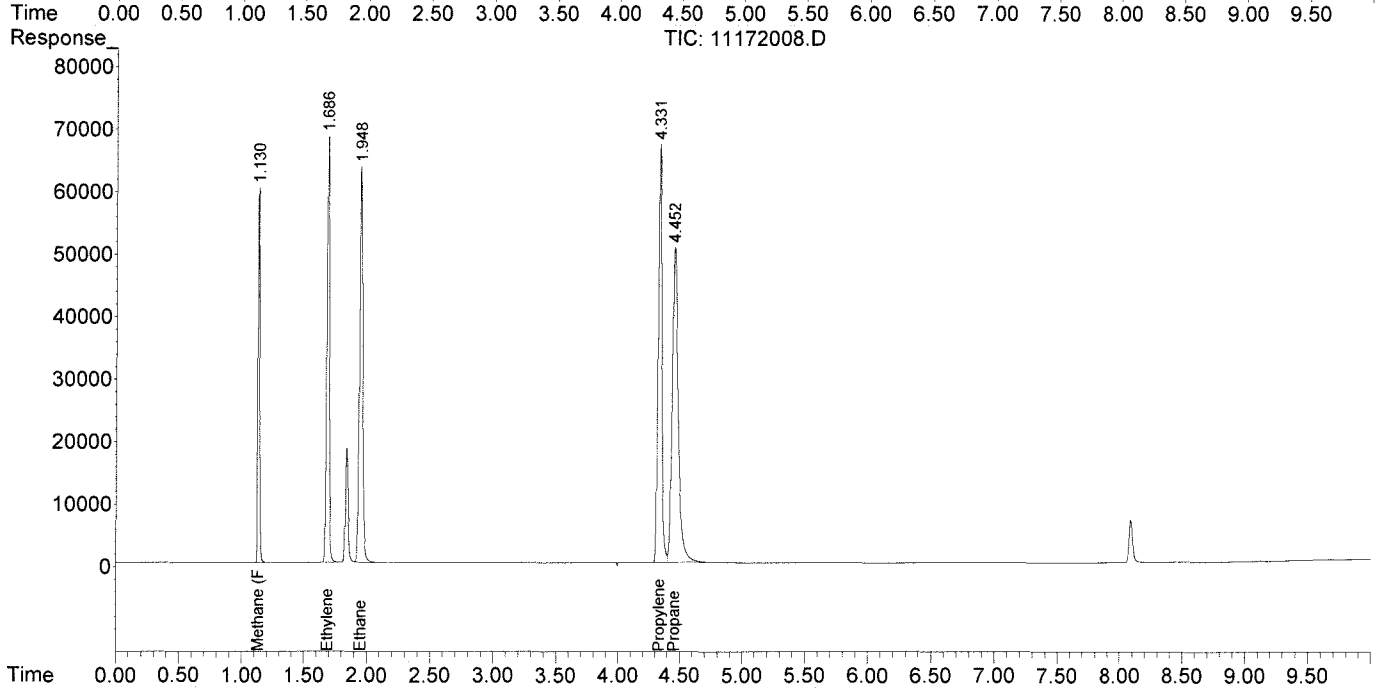
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2020_11\17\
Data File : 11172008.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 17-Nov-2020, 12:37:58
Operator : WH
Sample : P2006296-001msd 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 17 13:06:39 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2020_11\17\
Data File : 11172004.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 17-Nov-2020, 11:43:18
Operator : WH
Sample : P2006296-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 17 14:46:46 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

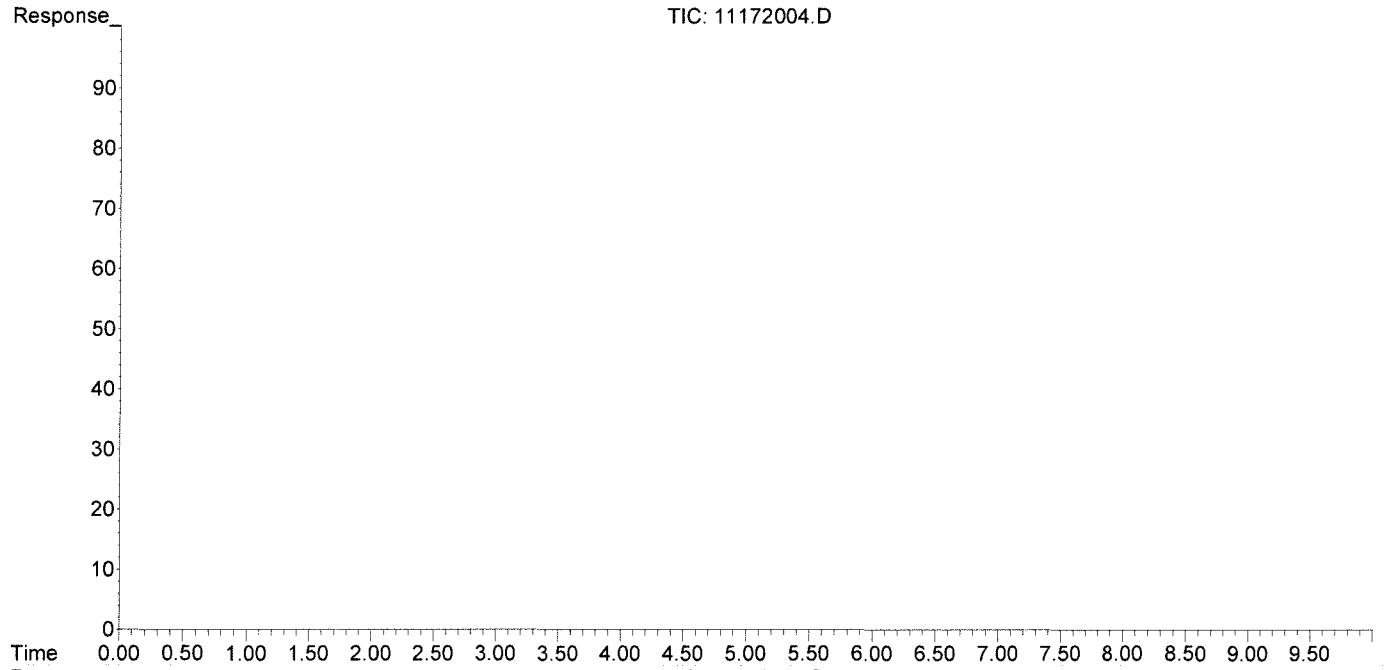
| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) | Oxygen/Argon | 0.000 | 0 | N.D. | ppm |
| 2) | Carbon monoxide | 0.000 | 0 | N.D. | ppm |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm |
| 4) | Carbon dioxide | 0.000 | 0 | N.D. | ppm |
| 6) | Methane (FID) | 1.137 | 5619 | 0.619 | ppm |
| 7) | Ethylene | 0.000 | 0 | N.D. | ppm |
| 8) | Ethane | 0.000 | 0 | N.D. | ppm |
| 9) | Propylene | 0.000 | 0 | N.D. | ppm |
| 10) | Propane | 0.000 | 0 | N.D. | ppm |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm |

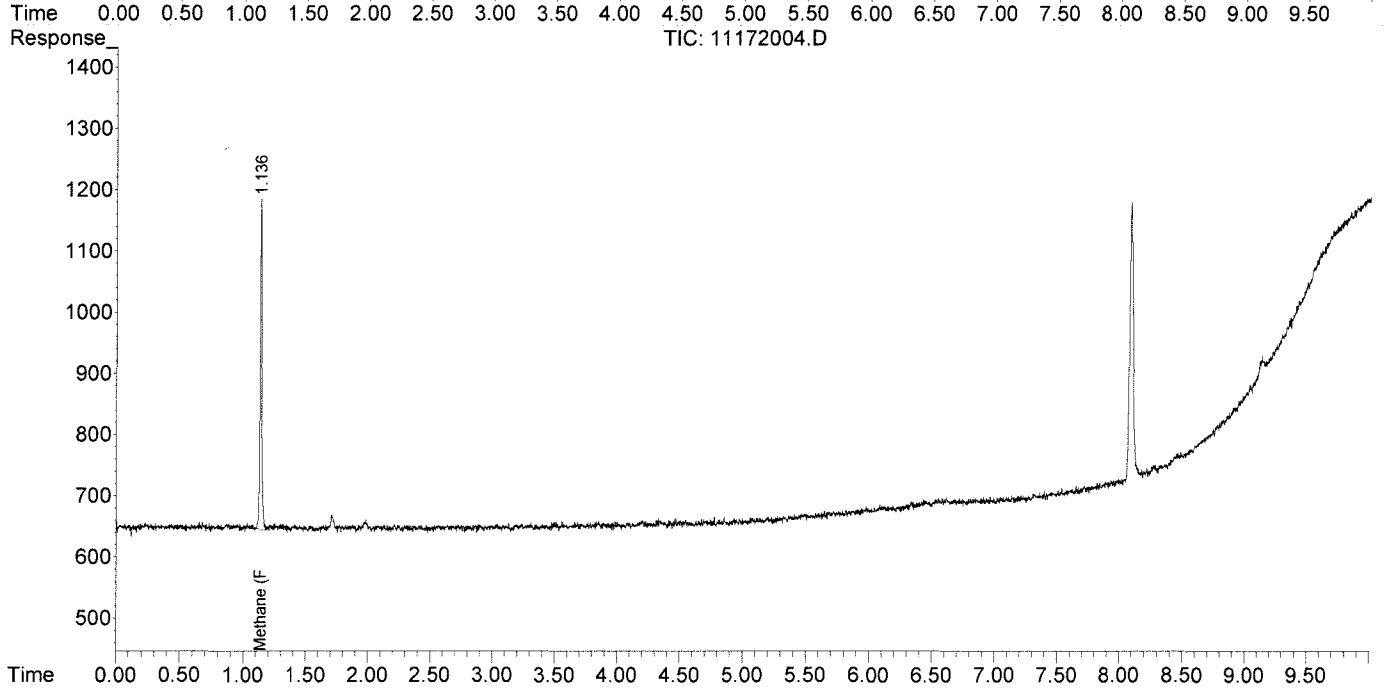
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2020_11\17\
Data File : 11172004.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 17-Nov-2020, 11:43:18
Operator : WH
Sample : P2006296-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 17 14:46:46 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2020_11\17\
Data File : 11172005.D
Signal(s) : Signal #1: TCD1A.CH  Signal #2: FID2B.CH
Acq On : 17-Nov-2020, 11:59:00
Operator : WH
Sample : P2006296-003 0.1ml
Misc :
ALS Vial : 1  Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 17 14:47:02 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) | Oxygen/Argon | 0.000 | 0 | N.D. | ppm |
| 2) | Carbon monoxide | 0.000 | 0 | N.D. | ppm |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm |
| 4) | Carbon dioxide | 0.000 | 0 | N.D. | ppm |
| 6) | Methane (FID) | 1.138 | 4941 | 0.545 | ppm |
| 7) | Ethylene | 0.000 | 0 | N.D. | ppm |
| 8) | Ethane | 0.000 | 0 | N.D. | ppm |
| 9) | Propylene | 0.000 | 0 | N.D. | ppm |
| 10) | Propane | 0.000 | 0 | N.D. | ppm |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm |

(f)=RT Delta > 1/2 Window (m)=manual int.

01043377

Data Path : J:\GC10\DATA\RSK_FID\2020_11\17\
Data File : 11172003.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 17-Nov-2020, 11:15:41
Operator : WH
Sample : mcs 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 17 14:46:04 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

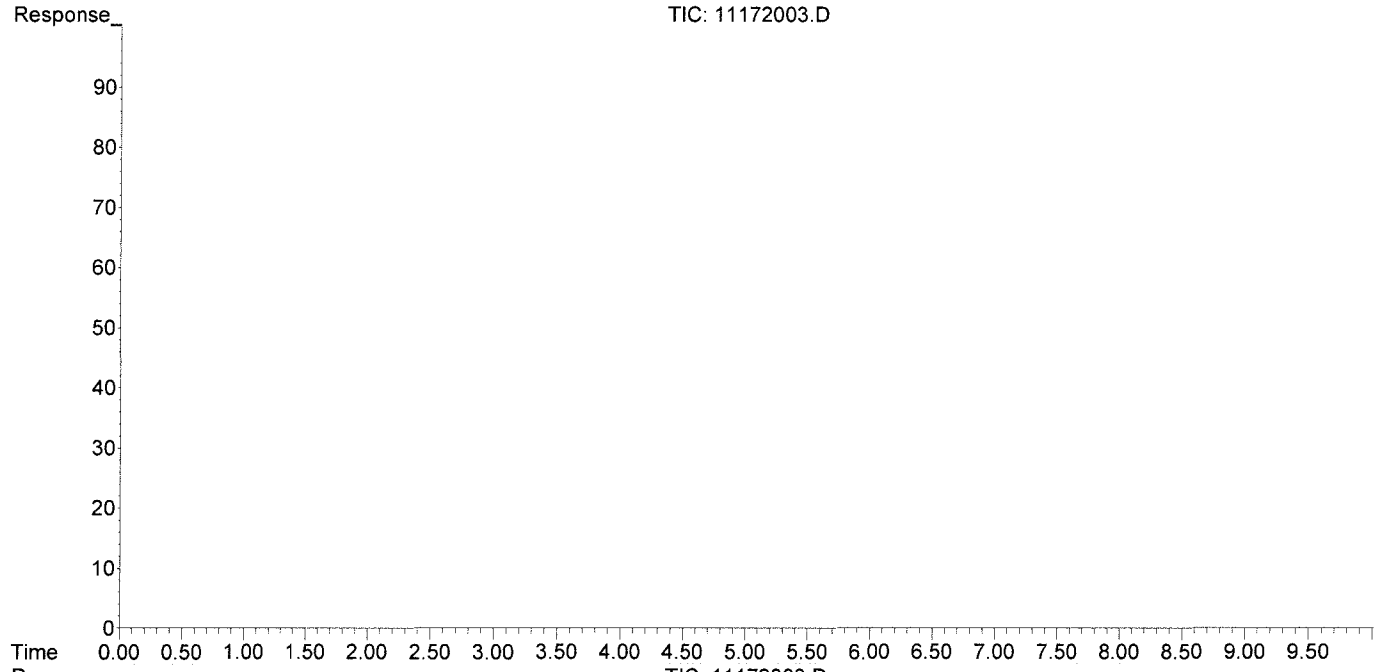
| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Oxygen/Argon | 0.000 | 0 | N.D. | ppm | |
| 2) | Carbon monoxide | 0.000 | 0 | N.D. | ppm | |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm | |
| 4) | Carbon dioxide | 0.000 | 0 | N.D. | ppm | |
| 6) | Methane (FID) | 1.117 | 682 | 0.075 | ppm | m |
| 7) | Ethylene | 0.000 | 0 | N.D. | ppm | |
| 8) | Ethane | 0.000 | 0 | N.D. | ppm | |
| 9) | Propylene | 0.000 | 0 | N.D. | ppm | |
| 10) | Propane | 0.000 | 0 | N.D. | ppm | |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm | |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm | |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm | |

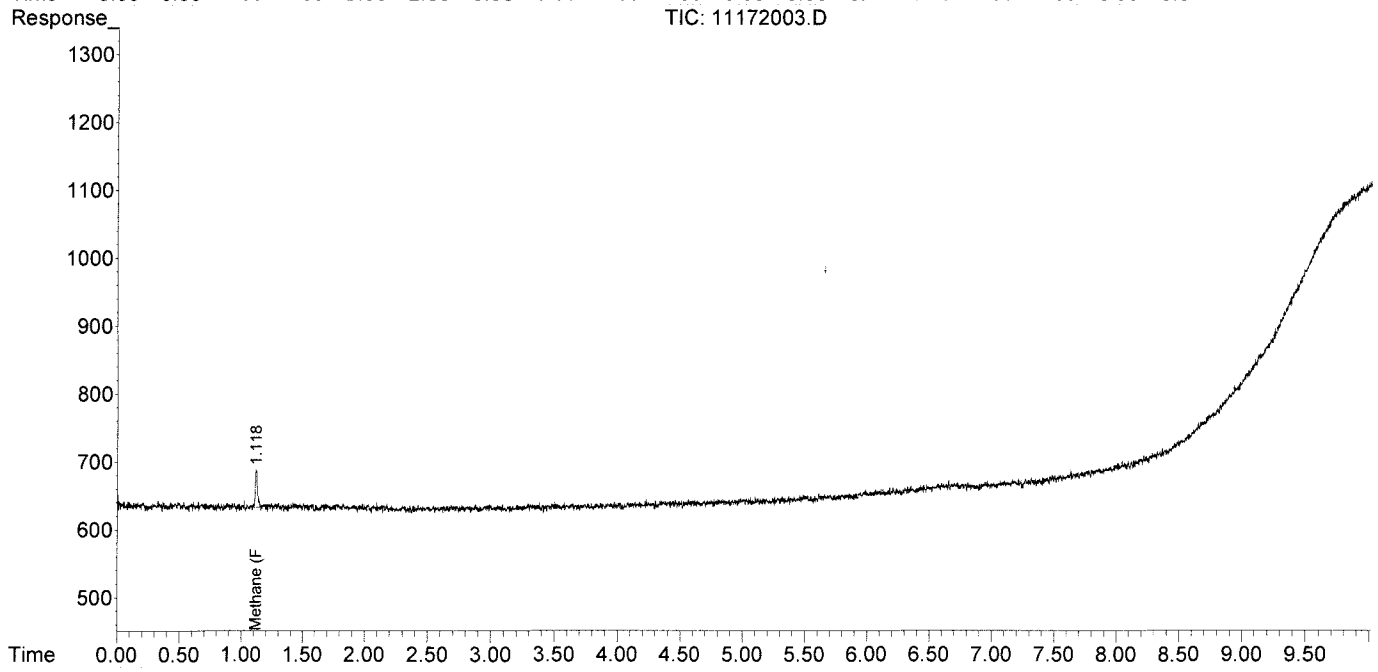
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2020_11\17\
Data File : 11172003.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 17-Nov-2020, 11:15:41
Operator : WH
Sample : mcs 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 17 14:46:04 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

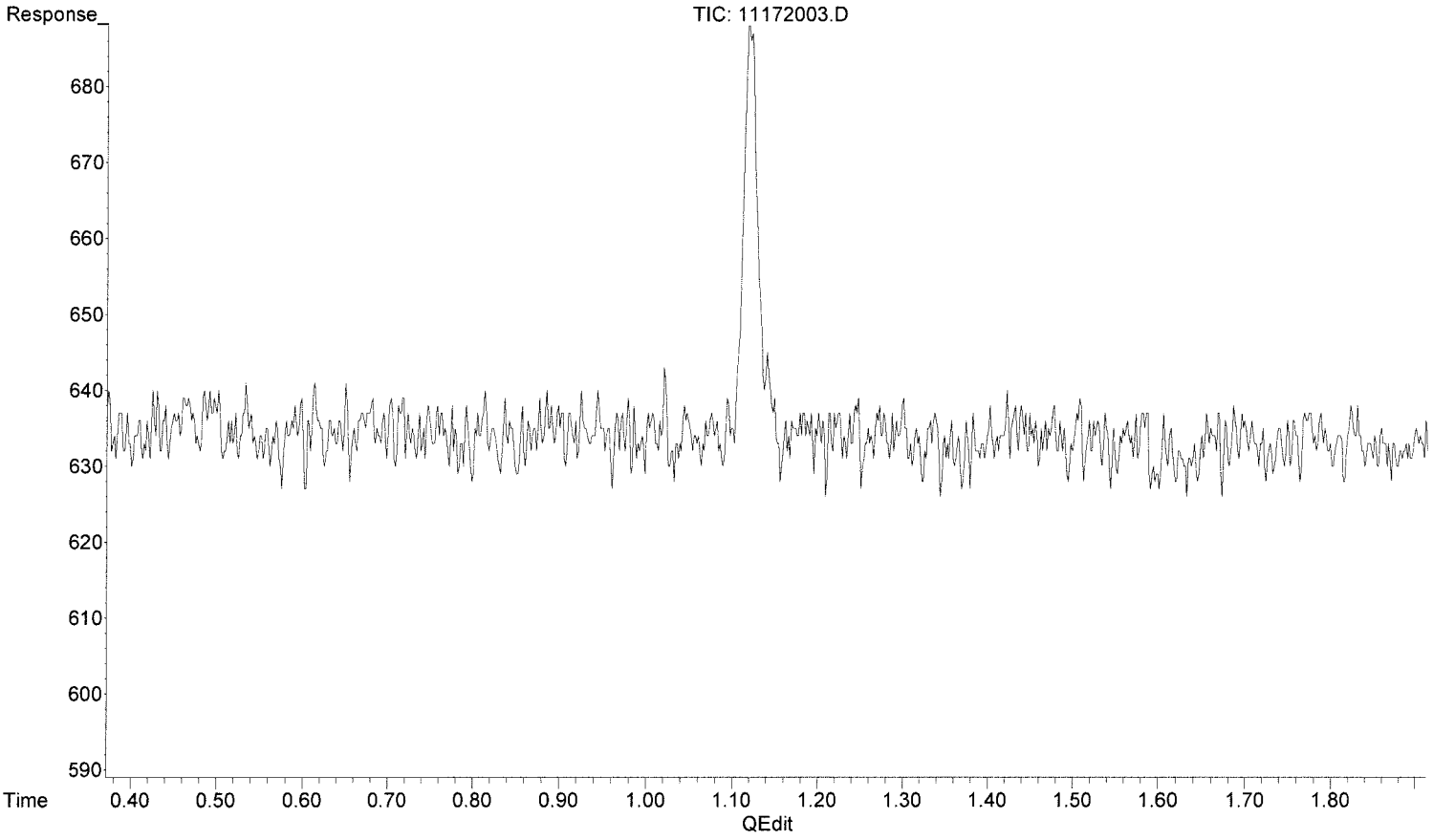


Data Path : J:\GC10\DATA\RSK_FID\2020_11\17\
Data File : 11172003.D
Signal(s) : Signal #1: TCD1A.CH  Signal #2: FID2B.CH
Acq On : 17-Nov-2020, 11:15:41
Operator : WH
Sample : mcs 0.1ml
Misc :
ALS Vial : 1  Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 17 14:46:04 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase :  Signal #2 Phase:
Signal #1 Info :  Signal #2 Info :




(6) Methane (FID)

1.128min 0.000 ppm

response 0

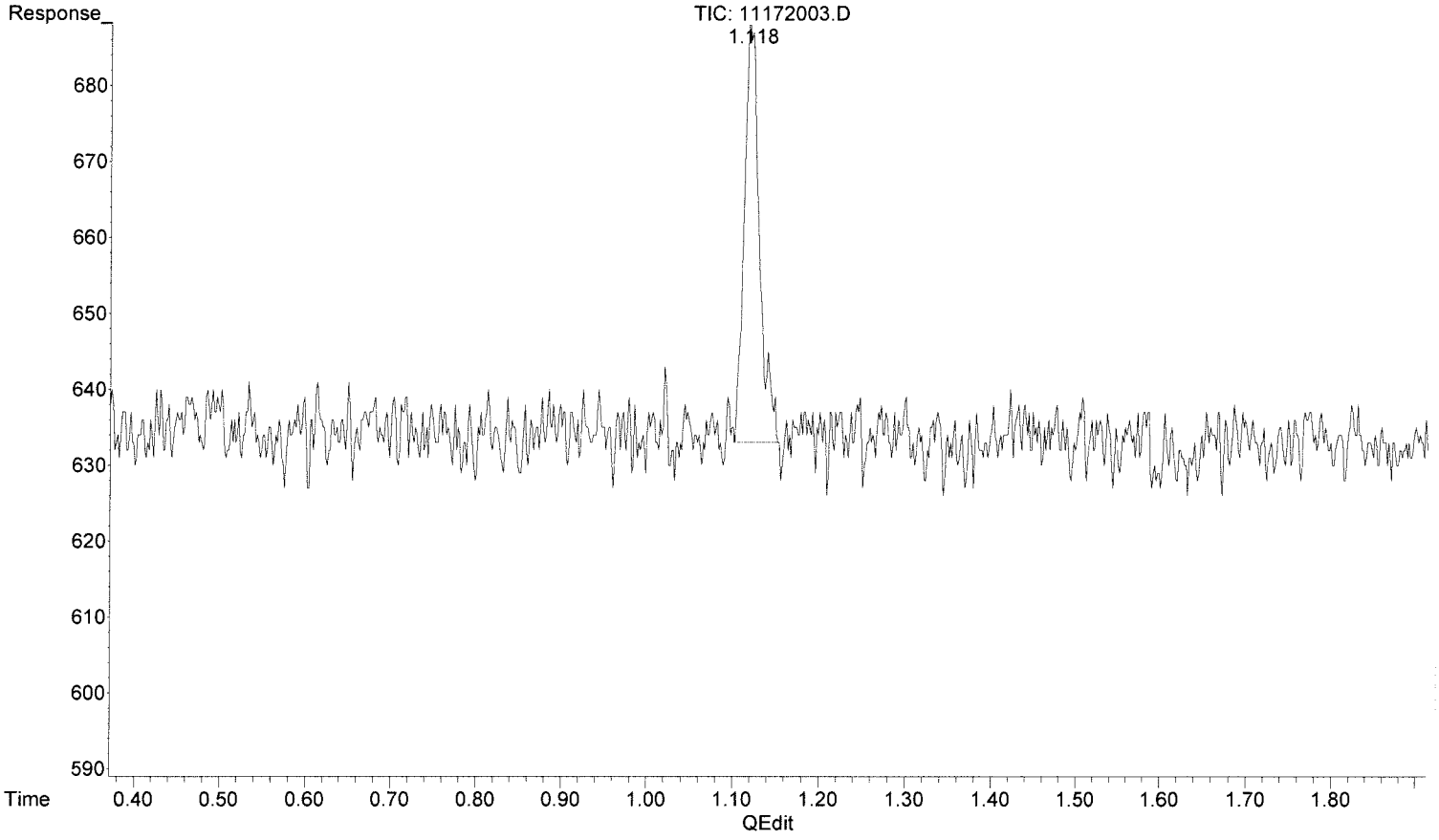
(+) = Expected Retention Time

01043380

Data Path : J:\GC10\DATA\RSK_FID\2020_11\17\
Data File : 11172003.D
Signal(s) : Signal #1: TCD1A.CH  Signal #2: FID2B.CH
Acq On : 17-Nov-2020, 11:15:41
Operator : WH
Sample : mcs 0.1ml
Misc :
ALS Vial : 1  Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 17 14:46:04 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase :  Signal #2 Phase:
Signal #1 Info :  Signal #2 Info :




(6) Methane (FID)

1.117min 0.075 ppm m

response 682

Methane

@ 11/18/20

(+) = Expected Retention Time

RS091217_R.M Tue Nov 17 14:46:21 2020

Data Path : J:\GC10\DATA\RSK_FID\2020_11\17\
Data File : 11172009.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 17-Nov-2020, 12:51:25
Operator : WH
Sample : lcs fid 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 17 13:06:50 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

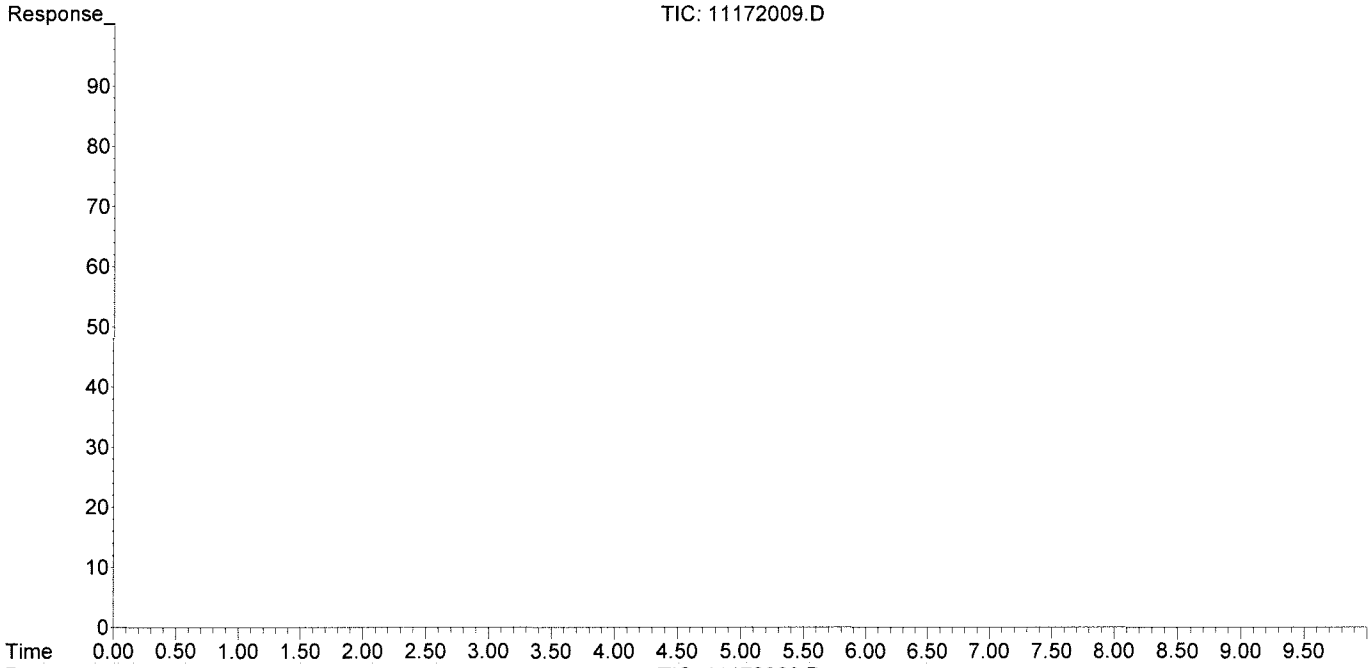
| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) | Oxygen/Argon | 0.000 | 0 | N.D. | ppm |
| 2) | Carbon monoxide | 0.000 | 0 | N.D. | ppm |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm |
| 4) | Carbon dioxide | 0.000 | 0 | N.D. | ppm |
| 6) | Methane (FID) | 1.131 | 13089 | 1.443 | ppm |
| 7) | Ethylene | 1.705 | 19563 | 1.169 | ppm |
| 8) | Ethane | 1.972 | 22890 | 1.350 | ppm |
| 9) | Propylene | 4.350 | 27436 | 1.171 | ppm |
| 10) | Propane | 4.470 | 34821 | 1.400 | ppm |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm |
| 12) | Isobutane | 6.676 | 45096 | 1.694 | ppm |
| 13) | n-Butane | 6.676 | 45096 | 1.694 | ppm |

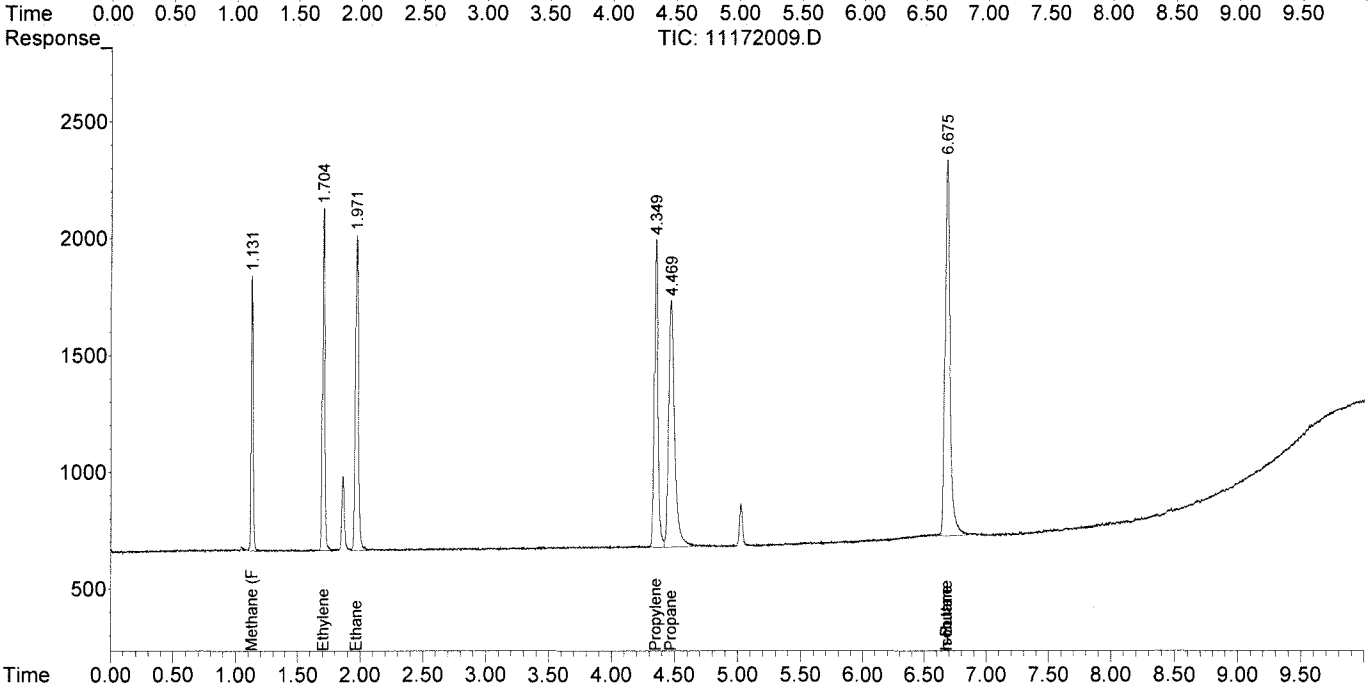
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2020_11\17\
Data File : 11172009.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 17-Nov-2020, 12:51:25
Operator : WH
Sample : lcs fid 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 17 13:06:50 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2020_11\17\
Data File : 11172010.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 17-Nov-2020, 13:07:48
Operator : WH
Sample : lcsd fid 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 17 13:23:44 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

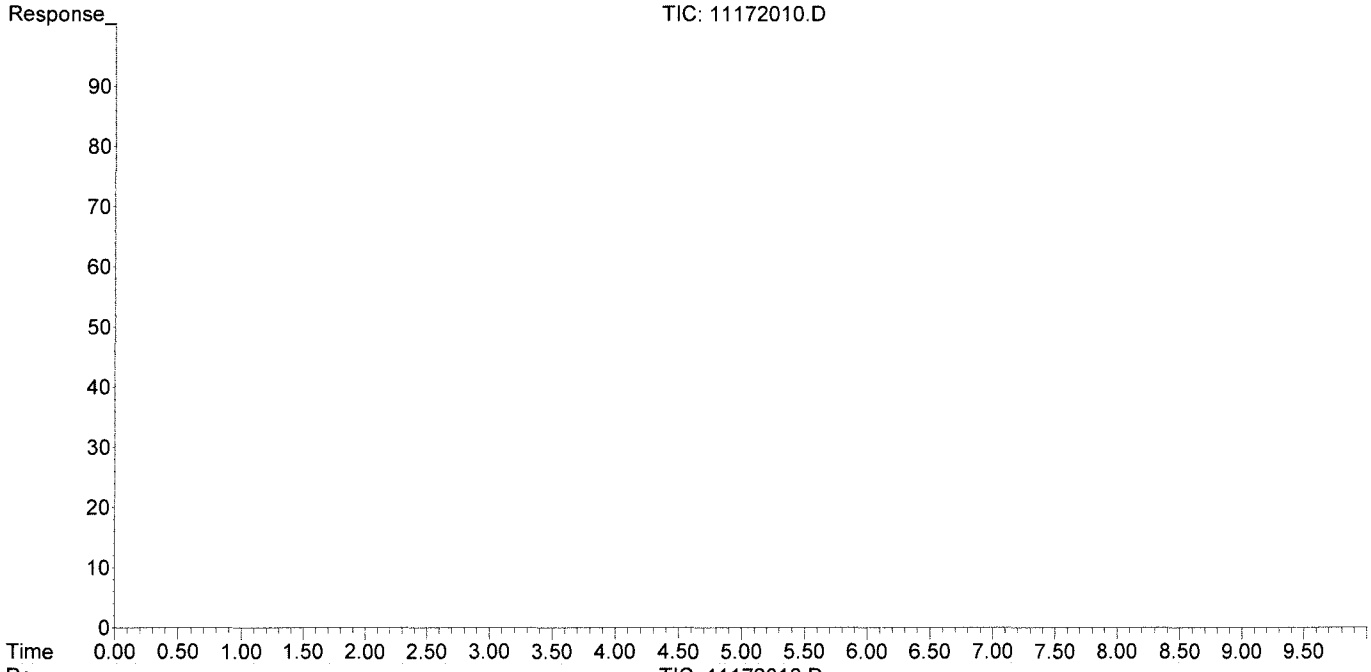
| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) | Oxygen/Argon | 0.000 | 0 | N.D. | ppm |
| 2) | Carbon monoxide | 0.000 | 0 | N.D. | ppm |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm |
| 4) | Carbon dioxide | 0.000 | 0 | N.D. | ppm |
| 6) | Methane (FID) | 1.128 | 13523 | 1.491 | ppm |
| 7) | Ethylene | 1.705 | 19349 | 1.156 | ppm |
| 8) | Ethane | 1.973 | 22685 | 1.338 | ppm |
| 9) | Propylene | 4.353 | 26381 | 1.126 | ppm |
| 10) | Propane | 4.473 | 33982 | 1.366 | ppm |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm |
| 12) | Isobutane | 6.676 | 44224 | 1.661 | ppm |
| 13) | n-Butane | 6.676 | 44224 | 1.661 | ppm |

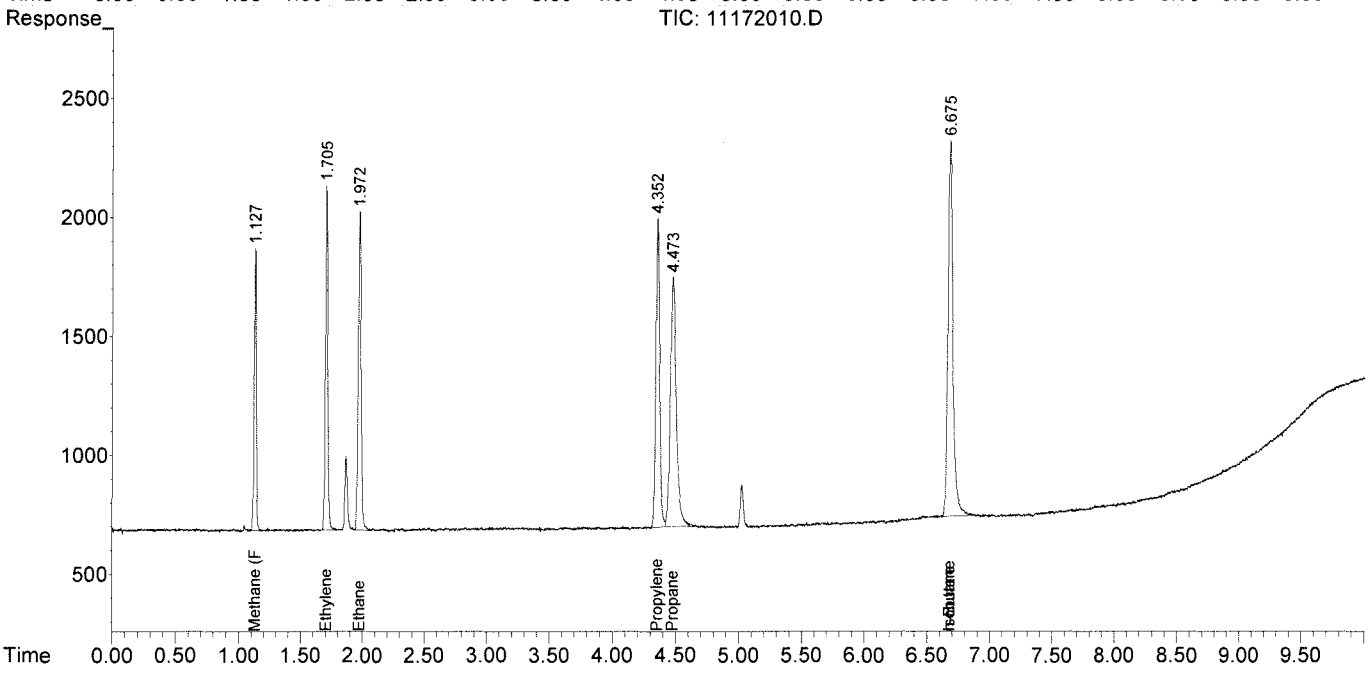
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2020_11\17\
Data File : 11172010.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 17-Nov-2020, 13:07:48
Operator : WH
Sample : lcsd fid 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 17 13:23:44 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Method Path : J:\GC10\METHODS\
Method File : RS091217_R.M
Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
Last Update : Wed Sep 13 11:14:47 2017
Response Via : Initial Calibration

Calibration Files
1 =09121702.D 2 =09121703.D 3 =09121704.D
4 =09121705.D 5 =09121706.D 6 =09121707.D

| | Compound | 1 | 2 | 3 | 4 | 5 | 6 | Avg | %RSD |
|---|---|---|---|---|---|---|---|---|---|
| 1) | Oxygen/Argon | 3.739 | | 1.014 | | | 0.001 | 0.793 E6 | 189.17 |
| 2) | Carbon monoxide | 3.739 | | 1.014 | | | 0.001 | 0.594 E6 | 221.92 |
| 3) | Methane (TCD) | | | | | | 2.161 | 0.951 E2 | 106.37 |
| 4) | Carbon dioxide | 2.365 | 2.569 | 2.558 | 2.361 | 2.459 | 2.314 | 2.438 E2 | 4.44 |

Signal #2 Calibration Files
1 =09121702.D 2 =09121703.D 3 =09121704.D
4 =09121705.D 5 =09121706.D 6 =09121707.D

| | Compound | 1 | 2 | 3 | 4 | 5 | 6 | Avg | %RSD |
|---|---|---|---|---|---|---|---|---|---|
| 6) | Methane (FID) | | 1.180 | 0.975 | 0.908 | 0.870 | 0.868 | 0.907 E4 | 11.66 |
| 7) | Ethylene | 1.736 | 1.638 | 1.780 | 1.720 | 1.628 | 1.670 | 1.673 E4 | 3.90 |
| 8) | Ethane | 1.781 | 1.676 | 1.784 | 1.730 | 1.692 | 1.675 | 1.695 E4 | 3.83 |
| 9) | Propylene | 2.505 | 2.296 | 2.592 | 2.480 | 2.346 | 2.252 | 2.343 E4 | 6.56 |
| 10) | Propane | 2.439 | 2.283 | 2.645 | 2.555 | 2.433 | 2.522 | 2.488 E4 | 4.20 |
| 11) | Isobutylene | | | | | | | 0.652 E1 | 138.46 |
| 12) | Isobutane | 6.058 | 4.793 | 2.214 | 1.553 | 1.353 | | 2.662 E4 | 86.17 |
| 13) | n-Butane | 6.058 | 4.793 | 2.214 | 1.553 | 1.353 | | 2.662 E4 | 86.17 |

(#) = Out of Range ### Number of calibration levels exceeded format ###

RS091217_R.M Wed Sep 13 15:11:48 2017

Edit Compounds -- Compound #6 -- Methane (FID)

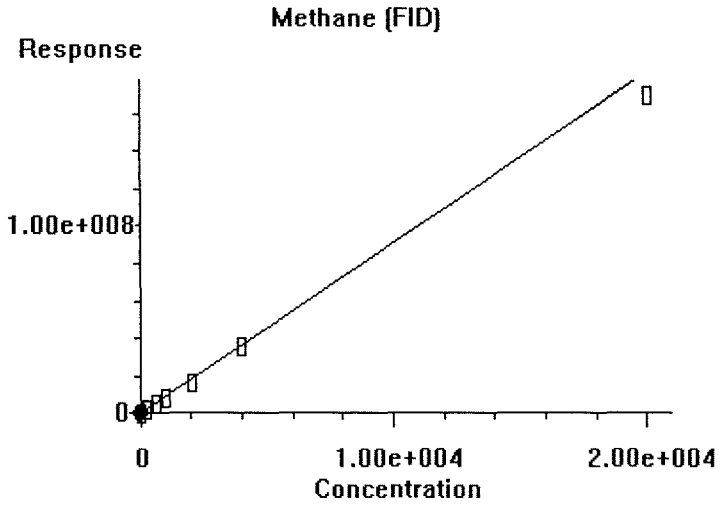
Search by: Ret Time Name Index Find Compound

Compound Database
External Standard Compoun
- Oxygen/Argon
- Carbon monoxide
- Methane (TCD)
- Carbon dioxide
- Signal #2
- Methane (FID)
- Ethylene
- Ethane
- Propylene
- Propane
- Isobutylene
- Isobutane
- n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

| Lvl ID | Concentration | Response |
|---|---|---|
| 1 | 0.151000 | |
| 2 | 0.302000 | 3564.400000 |
| 3 | 1.510000 | 14725.268625 |
| 4 | 4.530000 | 41128.575000 |
| 5 | 10.570000 | 91966.784531 |
| 6 | 200.000000 | 1735997.497500 |
| 7 | 600.000000 | 5189848.900000 |
| 8 | 1000.000000 | 8598533.570000 |
| 9 | 2000.000000 | 16098209.390000 |
| 10 | 4000.000000 | 35776839.311362 |

| Lvl ID | Concentration | Response |
|---|---|---|
| 11 | 20000.000000 | 169009160.49199 |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |




| | |
|---|---|
| 0.000e+000 | Quadratic term |
| 9.071e+003 | Linear term |
| 0.000e+000 | Constant term |
| 11.657% | RF Rel Std Dev |

OK Cancel Help Print Calibration Curve Copy Calibration Curve

Edit Compounds -- Compound #7 -- Ethylene

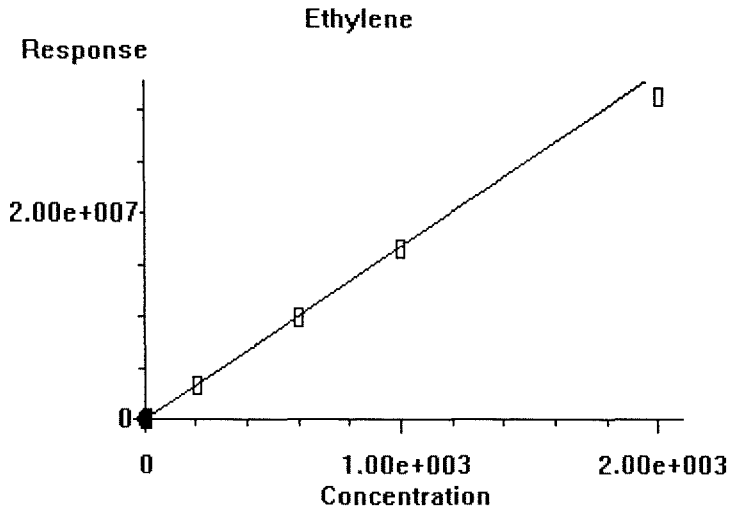
Search by: Ret Time | Name | Index | Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

| Lvl ID | Concentration | Response |
|---|---|---|
| 1 | 0.151000 | 2621.970000 |
| 2 | 0.302000 | 4946.731301 |
| 3 | 1.510000 | 26884.746847 |
| 4 | 4.530000 | 77902.721497 |
| 5 | 10.570000 | 172085.529560 |
| 6 | 200.000000 | 3339702.313219 |
| 7 | 600.000000 | 10007758.776971 |
| 8 | 1000.000000 | 16608503.805988 |
| 9 | 2000.000000 | 31192443.898600 |
| 10 | 4000.000000 | |

| Lvl ID | Concentration | Response |
|---|---|---|
| 11 | 20000.000000 | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |




| | |
|---|---|
| 0.000e+000 | Quadratic term |
| 1.673e+004 | Linear term |
| 0.000e+000 | Constant term |
| 3.897% | RF Rel Std Dev |

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Edit Compounds -- Compound #8 -- Ethane

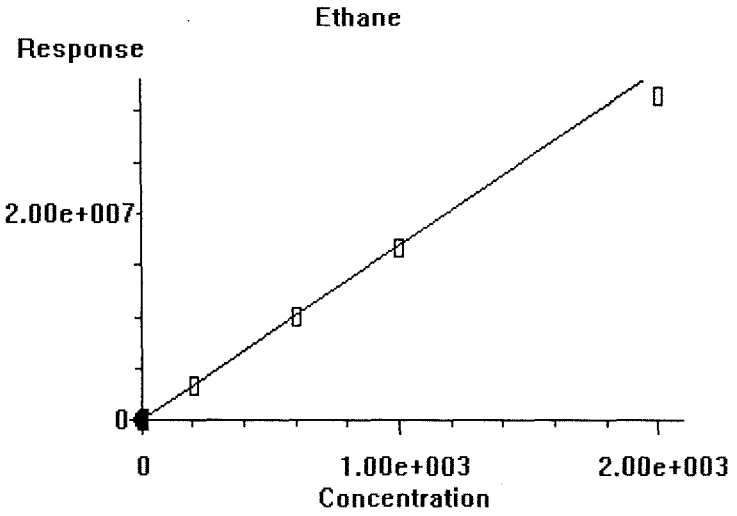
Search by: Ret Time | Name | Index | Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

| Lvl ID | Concentration | Response |
|---|---|---|
| 1 | 0.151000 | 2689.928008 |
| 2 | 0.302000 | 5060.331943 |
| 3 | 1.510000 | 26943.667500 |
| 4 | 4.530000 | 78353.525045 |
| 5 | 10.570000 | 178840.731148 |
| 6 | 200.000000 | 3350442.319129 |
| 7 | 600.000000 | 10048964.218029 |
| 8 | 1000.000000 | 16709164.879012 |
| 9 | 2000.000000 | 31424217.938900 |
| 10 | 4000.000000 | |

| Lvl ID | Concentration | Response |
|---|---|---|
| 11 | 20000.000000 | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |




| | |
|---|---|
| 0.000e+000 | Quadratic term |
| 1.695e+004 | Linear term |
| 0.000e+000 | Constant term |
| 3.831% | RF Rel Std Dev |

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

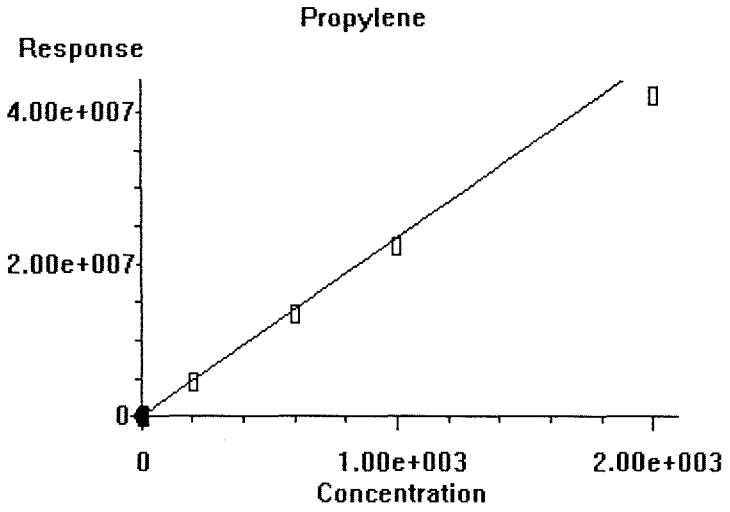
Edit Compounds -- Compound #9 -- Propylene

Search by: Ret Time | Name | Index — Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

| Lvl ID | Concentration | Response |
|---|---|---|
| 1 | 0.151000 | 3782.537646 |
| 2 | 0.302000 | 6933.285530 |
| 3 | 1.510000 | 39139.518208 |
| 4 | 4.530000 | 112341.896872 |
| 5 | 10.570000 | 248003.903623 |
| 6 | 200.000000 | 4504060.086084 |
| 7 | 600.000000 | 13569342.761419 |
| 8 | 1000.000000 | 22494887.720990 |
| 9 | 2000.000000 | 42124689.656800 |
| 10 | 4000.000000 | |
| 11 | 20000.000000 | |




| | |
|---|---|
| 0.000e+000 | Quadratic term |
| 2.343e+004 | Linear term |
| 0.000e+000 | Constant term |
| 6.559% | RF Rel Std Dev |

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Edit Compounds -- Compound #10 -- Propane

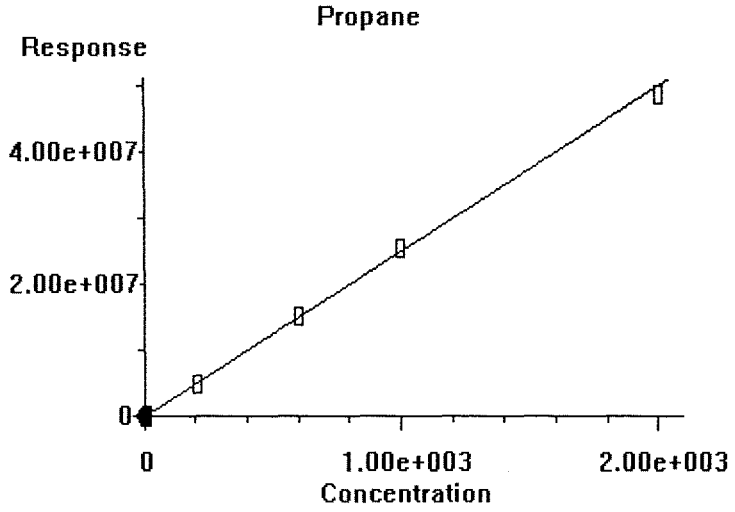
Search by: Ret Time | Name | Index | Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

| Lvl ID | Concentration | Response |
|---|---|---|
| 1 | 0.151000 | 3682.897354 |
| 2 | 0.302000 | 6894.237803 |
| 3 | 1.510000 | 39934.166792 |
| 4 | 4.530000 | 115723.428128 |
| 5 | 10.570000 | 257124.432806 |
| 6 | 200.000000 | 5043035.663916 |
| 7 | 600.000000 | 15251325.797404 |
| 8 | 1000.000000 | 25459410.657938 |
| 9 | 2000.000000 | 48583085.287451 |
| 10 | 4000.000000 | |

| Lvl ID | Concentration | Response |
|---|---|---|
| 11 | 20000.000000 | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |




| | |
|---|---|
| 0.000e+000 | Quadratic term |
| 2.488e+004 | Linear term |
| 0.000e+000 | Constant term |
| 4.200% | RF Rel Std Dev |

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Method Path : J:\GC10\METHODS\
Method File : RS091217_R.M
Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
Last Update : Wed Sep 13 11:14:47 2017
Response Via : Initial Calibration

| # | ID | Conc | ISTD Conc | Path\File |
|---|---|---|---|---|
| 1 | 1 | 0 | 0 | J:\GC10\DATA\RSK_FID\2017_09\12\09121702.D |
| 2 | 2 | 0 | 0 | J:\GC10\DATA\RSK_FID\2017_09\12\09121703.D |
| 3 | 3 | 3 | 0 | J:\GC10\DATA\RSK_FID\2017_09\12\09121704.D |
| 4 | 4 | 10 | 0 | J:\GC10\DATA\RSK_FID\2017_09\12\09121705.D |
| 5 | 5 | 25 | 0 | J:\GC10\DATA\RSK_FID\2017_09\12\09121706.D |
| 6 | 6 | 125 | 0 | J:\GC10\DATA\RSK_FID\2017_09\12\09121707.D |
| 7 | 7 | 5000 | 0 | J:\GC10\DATA\RSK_FID\2017_09\12\09121708.D |
| 8 | 8 | 25000 | 0 | J:\GC10\DATA\RSK_FID\2017_09\12\09121709.D |
| 9 | 9 | 2000 | 0 | J:\GC10\DATA\RSK_FID\2017_09\12\09121710.D |
| 10 | 10 | 30000 | 0 | J:\GC10\DATA\RSK_FID\2017_09\12\09121711.D |
| 11 | 11 | 20000 | 0 | J:\GC10\DATA\RSK_FID\2017_09\12\09121712.D |

| # | ID | Update Time | Quant Time | Acquisition Time |
|---|---|---|---|---|
| 1 | 1 | Sep 13 11:04 2017 | Sep 12 15:03 2017 | 12-Sep-2017, 10:52 |
| 2 | 2 | Sep 13 11:05 2017 | Sep 13 11:05 2017 | 12-Sep-2017, 11:05 |
| 3 | 3 | Sep 13 11:06 2017 | Sep 13 11:05 2017 | 12-Sep-2017, 11:45 |
| 4 | 4 | Sep 13 11:09 2017 | Sep 13 11:06 2017 | 12-Sep-2017, 12:09 |
| 5 | 5 | Sep 13 11:09 2017 | Sep 13 11:09 2017 | 12-Sep-2017, 12:30 |
| 6 | 6 | Sep 13 11:10 2017 | Sep 13 11:10 2017 | 12-Sep-2017, 12:47 |
| 7 | 7 | Sep 13 11:11 2017 | Sep 13 11:10 2017 | 12-Sep-2017, 13:00 |
| 8 | 8 | Sep 13 11:12 2017 | Sep 13 11:11 2017 | 12-Sep-2017, 13:47 |
| 9 | 9 | Sep 13 11:12 2017 | Sep 13 11:12 2017 | 12-Sep-2017, 14:07 |
| 10 | 10 | Sep 13 11:14 2017 | Sep 13 11:13 2017 | 12-Sep-2017, 14:48 |
| 11 | 11 | Sep 13 11:14 2017 | Sep 13 11:14 2017 | 12-Sep-2017, 15:21 |

RS091217_R.M Wed Sep 13 15:11:22 2017

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121702.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 10:52
Operator : MC
Sample : 0.151ppm 0.250ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 12 11:03:15 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Oxygen/Argon | 1.767 | 373920 | 0.128 | ppm | |
| 2) | Carbon monoxide | 1.767 | 373920 | N.D. | ppm | |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm | |
| 4) | Carbon dioxide | 0.000 | 0 | N.D. | ppm | |
| 6) | Methane (FID) | 0.000 | 0 | N.D. | ppm | d |
| 7) | Ethylene | 1.595 | 2622 | 0.156 | ppm | |
| 8) | Ethane | 1.848 | 2690 | 0.156 | ppm | |
| 9) | Propylene | 4.222 | 3783 | 0.154 | ppm | |
| 10) | Propane | 4.348 | 3683 | 0.139 | ppm | |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm | |
| 12) | Isobutane | 6.582f | 6058 | NoCal | ppm | |
| 13) | n-Butane | 6.582f | 6058 | NoCal | ppm | |

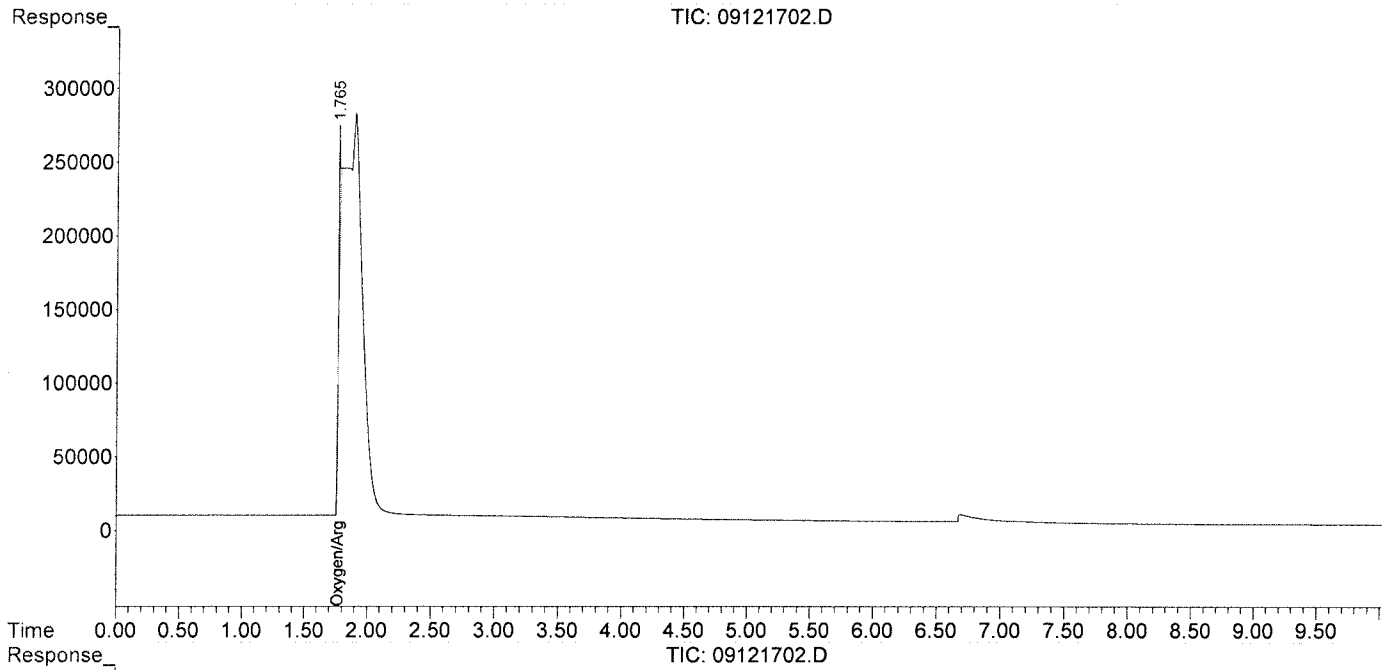
(f)=RT Delta > 1/2 Window (m)=manual int.

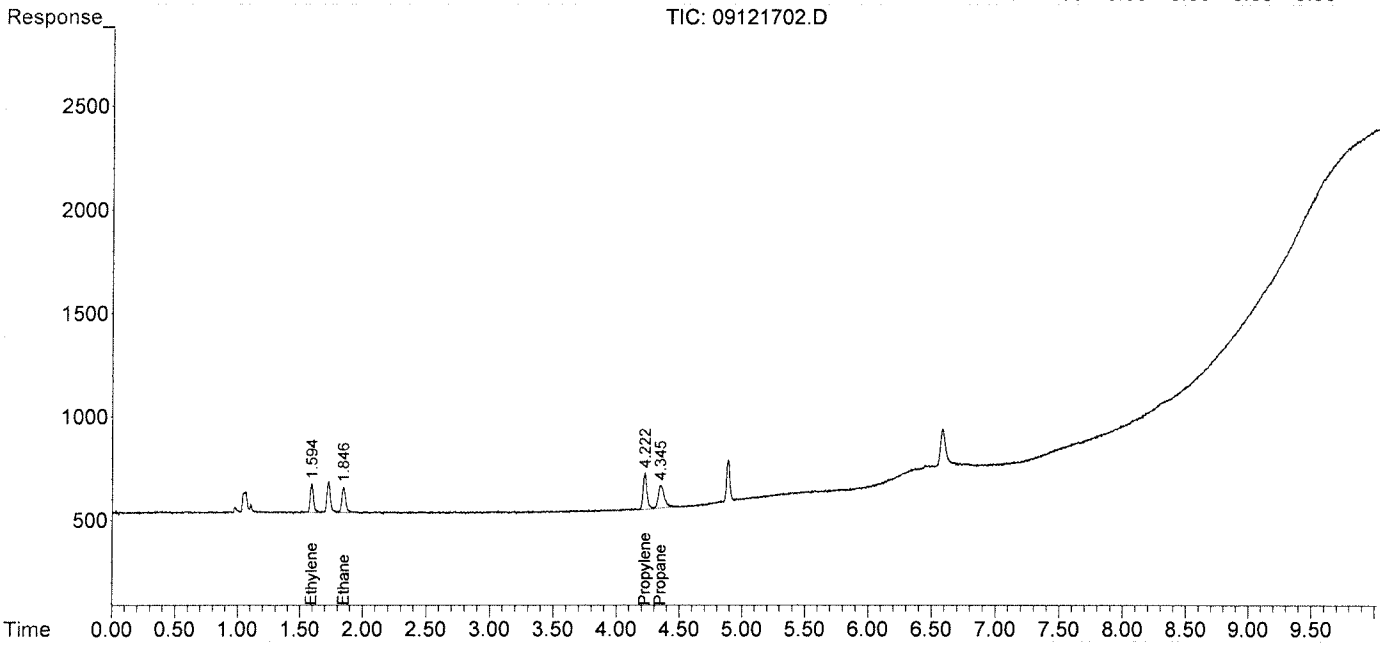
9/13/17

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121702.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 10:52
Operator : MC
Sample : 0.151ppm 0.250ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 12 11:03:15 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121703.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:05
Operator : MC
Sample : 0.302ppm 0.5ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:03 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

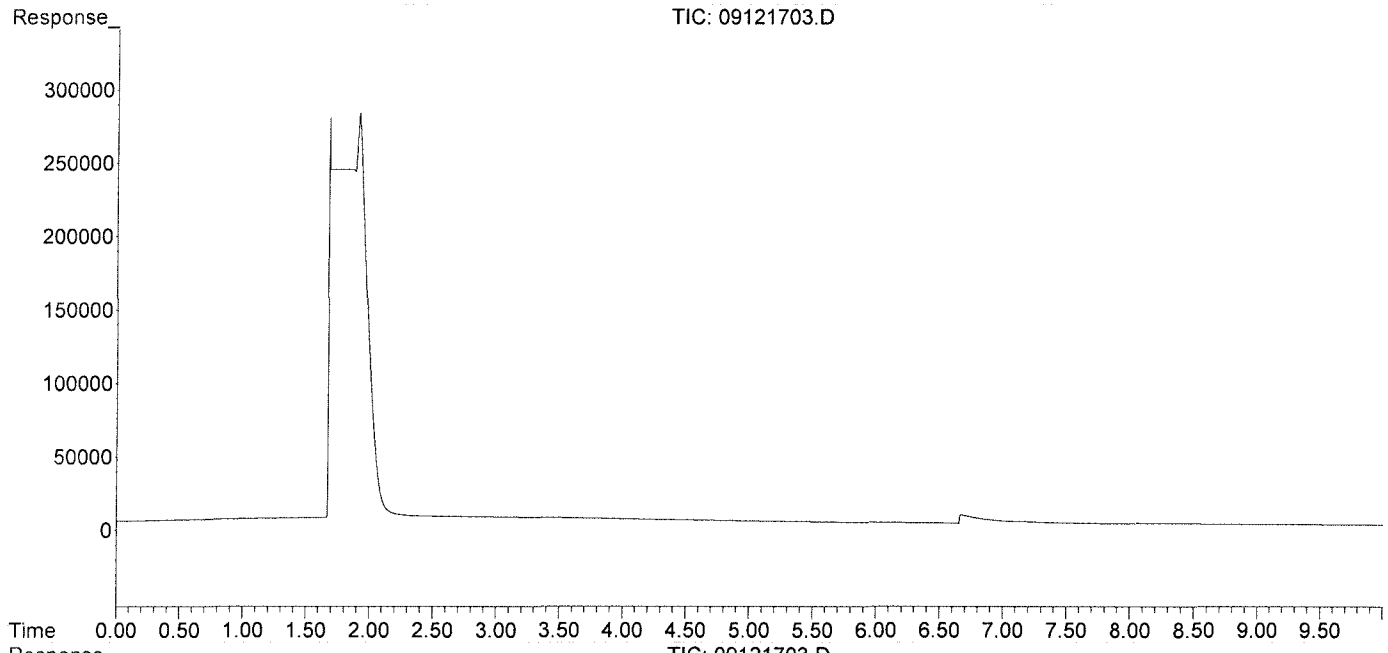
| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Oxygen/Argon | 1.913f | -25181981 | N.D. | ppm | |
| 2) | Carbon monoxide | 1.913f | -25181981 | 1.089 | ppm | |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm | |
| 4) | Carbon dioxide | 0.000 | 0 | N.D. | ppm | |
| 6) | Methane (FID) | 1.049 | 3564 | 0.391 | ppm | m |
| 7) | Ethylene | 1.577 | 4947 | 0.292 | ppm | |
| 8) | Ethane | 1.828 | 5060 | 0.293 | ppm | |
| 9) | Propylene | 4.207 | 6933 | 0.281 | ppm | |
| 10) | Propane | 4.337 | 6894 | 0.268 | ppm | |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm | |
| 12) | Isobutane | 6.579f | 9587 | 0.158 | ppm | |
| 13) | n-Butane | 6.579f | 9587 | 0.158 | ppm | |

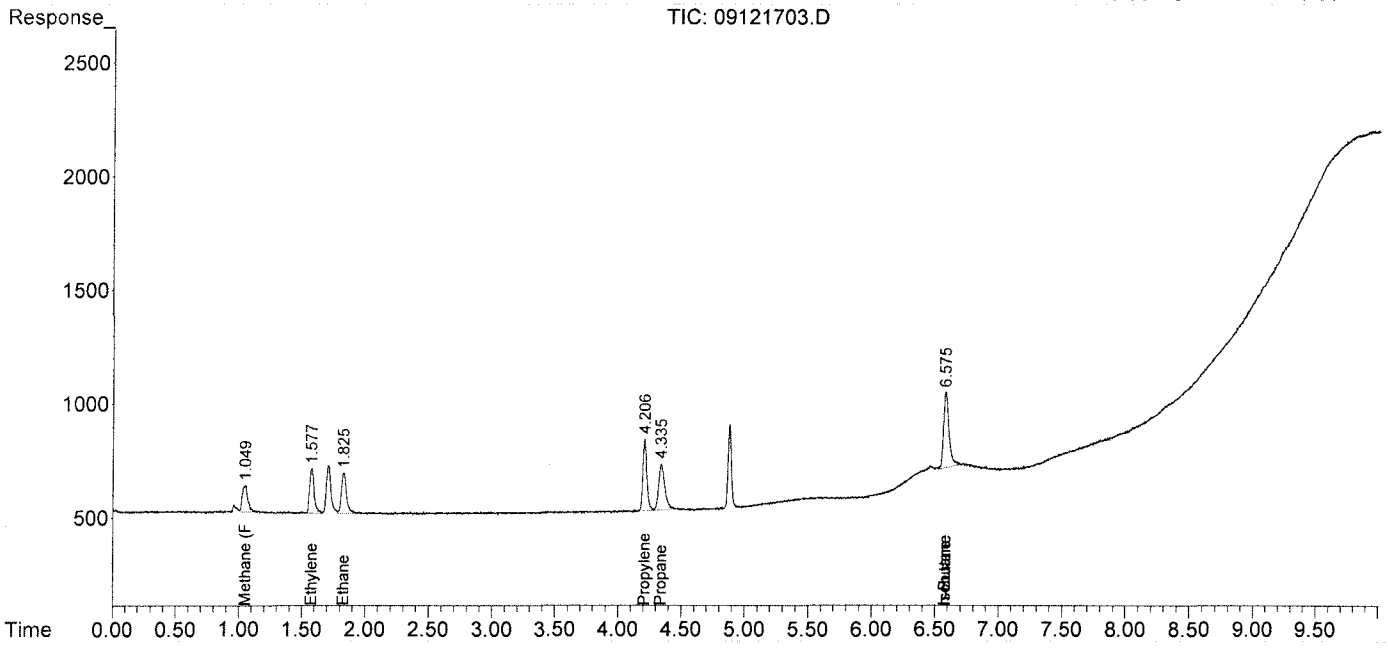
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121703.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:05
Operator : MC
Sample : 0.302ppm 0.5ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:03 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

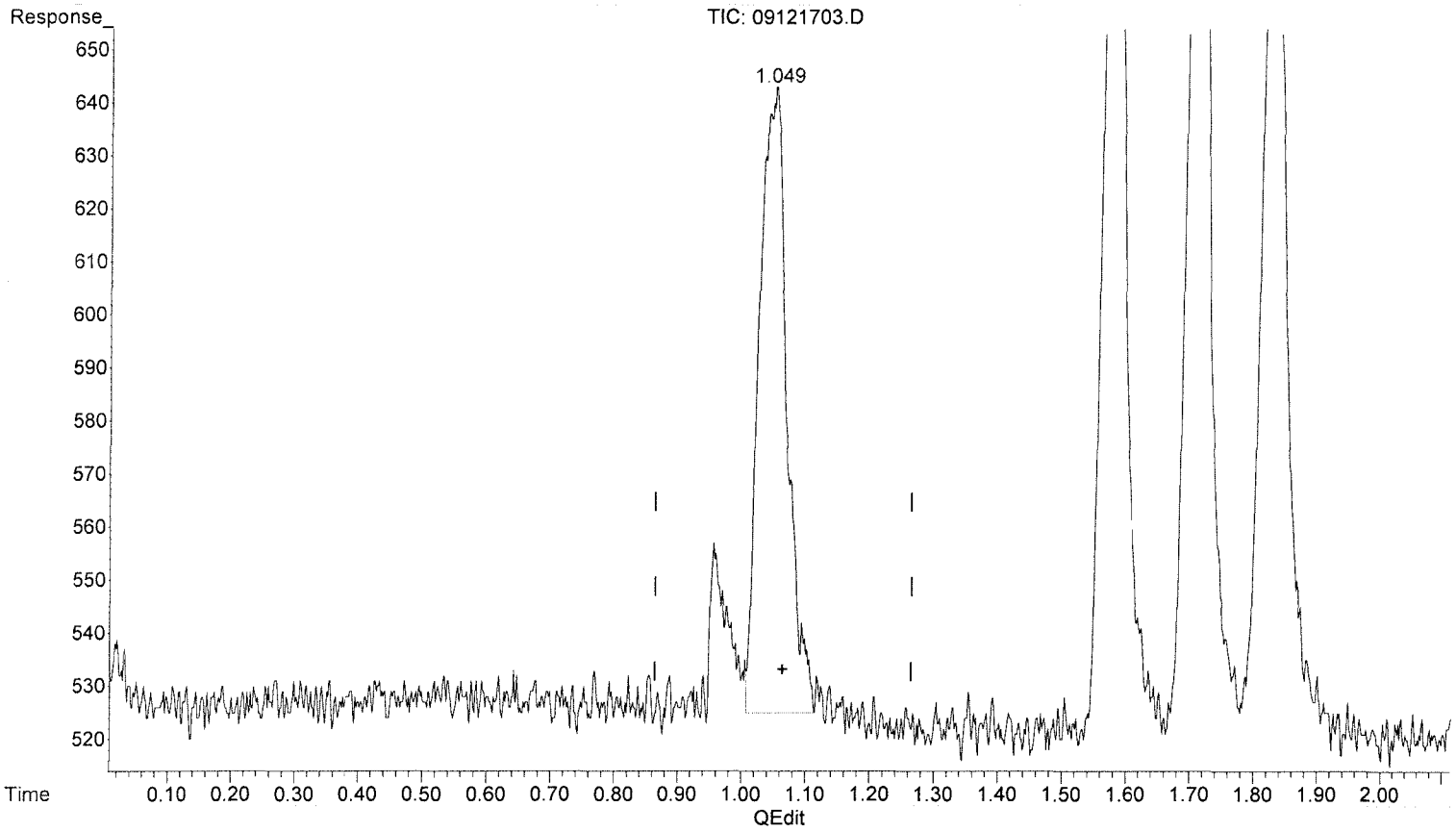


Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121703.D
Signal(s) : Signal #1: TCD1A.CH  Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:05
Operator : MC
Sample : 0.302ppm 0.5ml s32-09121702
Misc :
ALS Vial : 1  Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:03 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase :
Signal #1 Info :
Signal #2 Phase:
Signal #2 Info :




(6) Methane (FID)

1.049min 0.391 ppm m

response 3564

(+) = Expected Retention Time

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121704.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:45
Operator : MC
Sample : 1.51ppm 0.1ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:55 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

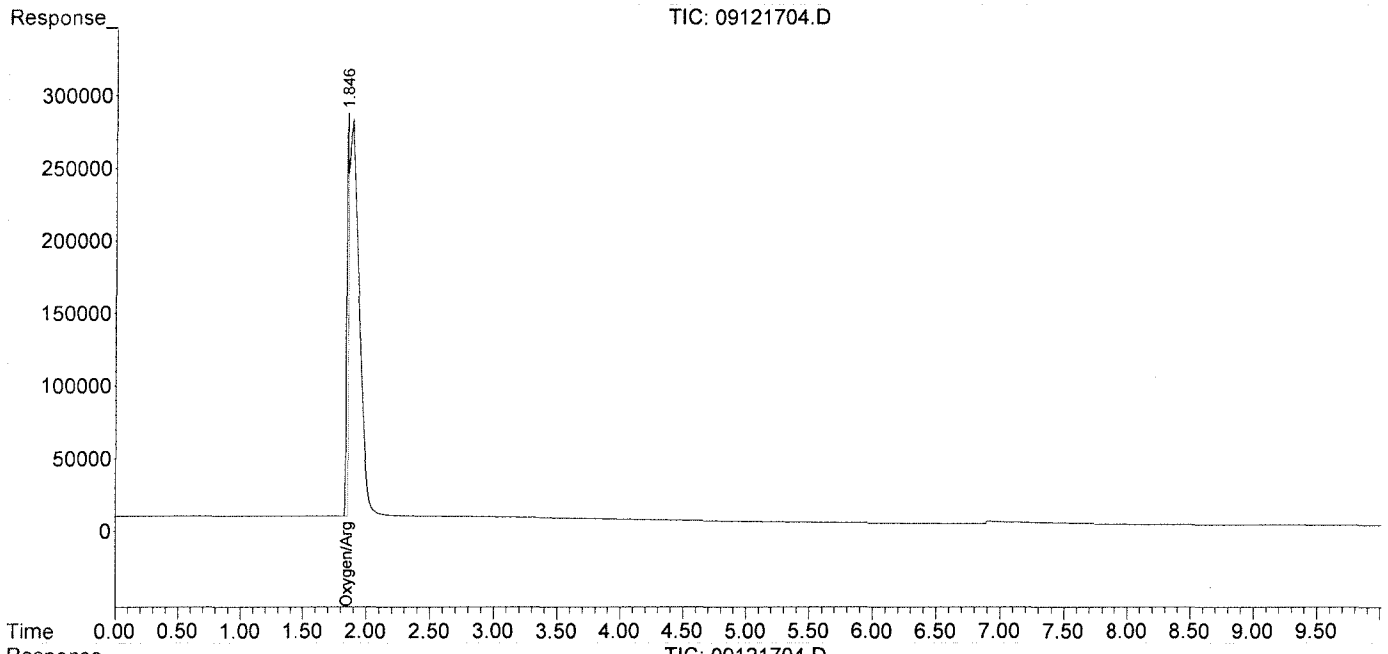
| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) | Oxygen/Argon | 1.847 | 2536230 | 1.056 | ppm |
| 2) | Carbon monoxide | 1.847 | 2536230 | N.D. | ppm |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm |
| 4) | Carbon dioxide | 0.000 | 0 | N.D. | ppm |
| 6) | Methane (FID) | 1.064 | 14725 | 1.613 | ppm |
| 7) | Ethylene | 1.598 | 26885 | 1.582 | ppm |
| 8) | Ethane | 1.851 | 26944 | 1.555 | ppm |
| 9) | Propylene | 4.220 | 39140 | 1.589 | ppm |
| 10) | Propane | 4.349 | 39934 | 1.596 | ppm |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm |
| 12) | Isobutane | 6.578f | 55348 | 1.020 | ppm |
| 13) | n-Butane | 6.578f | 55348 | 1.020 | ppm |

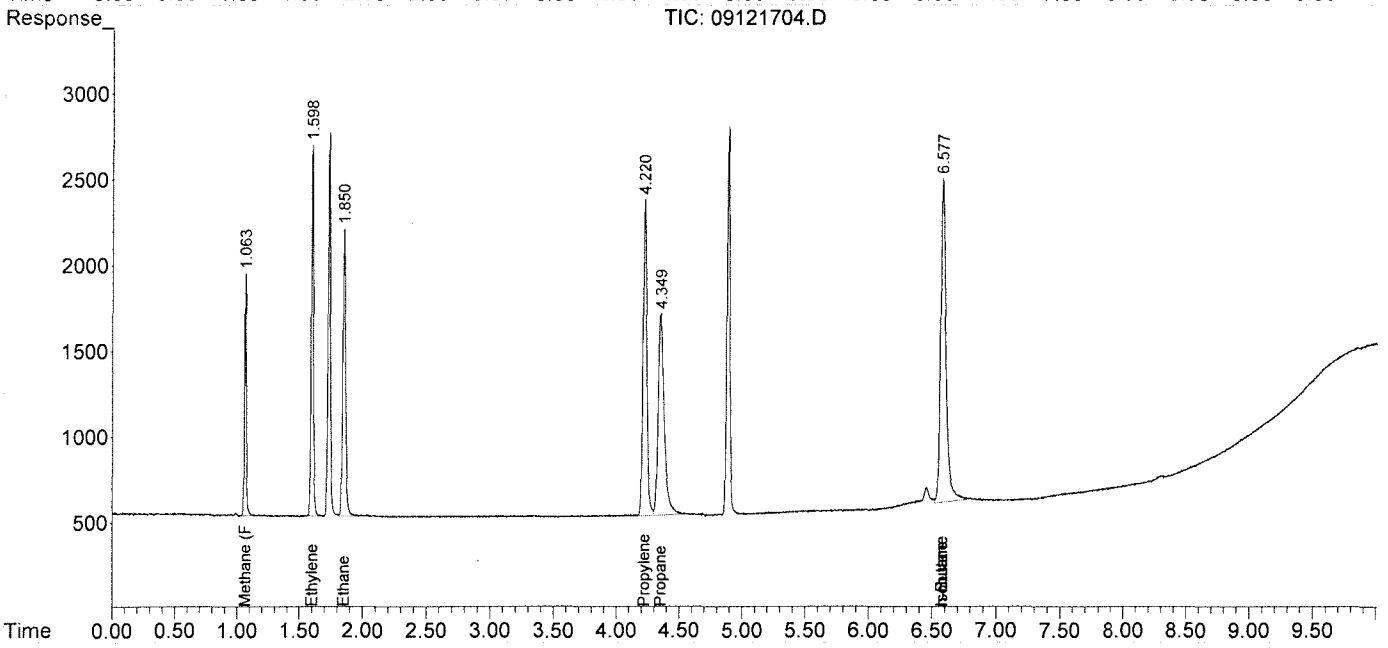
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121704.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:45
Operator : MC
Sample : 1.51ppm 0.1ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:55 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121705.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:09
Operator : MC
Sample : 4.53ppm 0.3ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:06:32 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

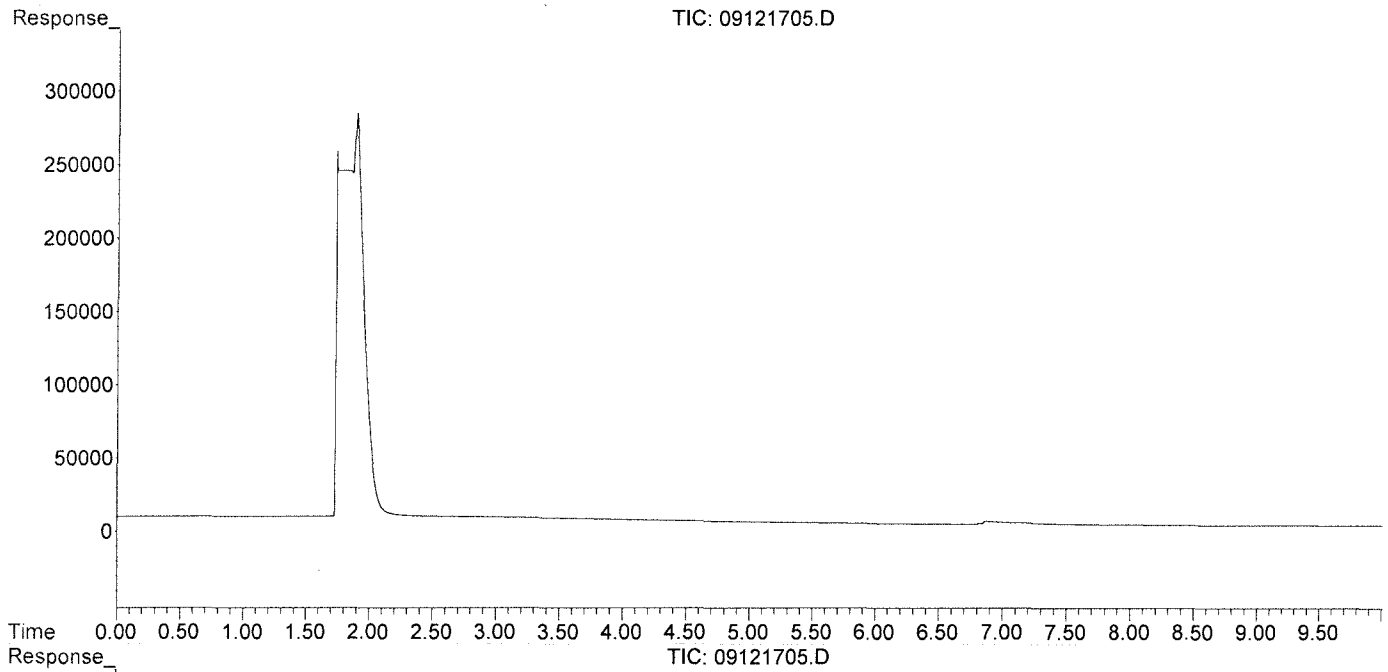
| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) | Oxygen/Argon | 1.738 | -331216 | N.D. | ppm |
| 2) | Carbon monoxide | 1.738 | -331216 | 0.019 | ppm |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm |
| 4) | Carbon dioxide | 0.000 | 0 | N.D. | ppm |
| 6) | Methane (FID) | 1.052 | 41129 | 4.522 | ppm |
| 7) | Ethylene | 1.586 | 77903 | 4.637 | ppm |
| 8) | Ethane | 1.838 | 78354 | 4.558 | ppm |
| 9) | Propylene | 4.218 | 112342 | 4.614 | ppm |
| 10) | Propane | 4.347 | 115723 | 4.680 | ppm |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm |
| 12) | Isobutane | 6.580f | 155256 | 3.565 | ppm |
| 13) | n-Butane | 6.580f | 155256 | 3.565 | ppm |

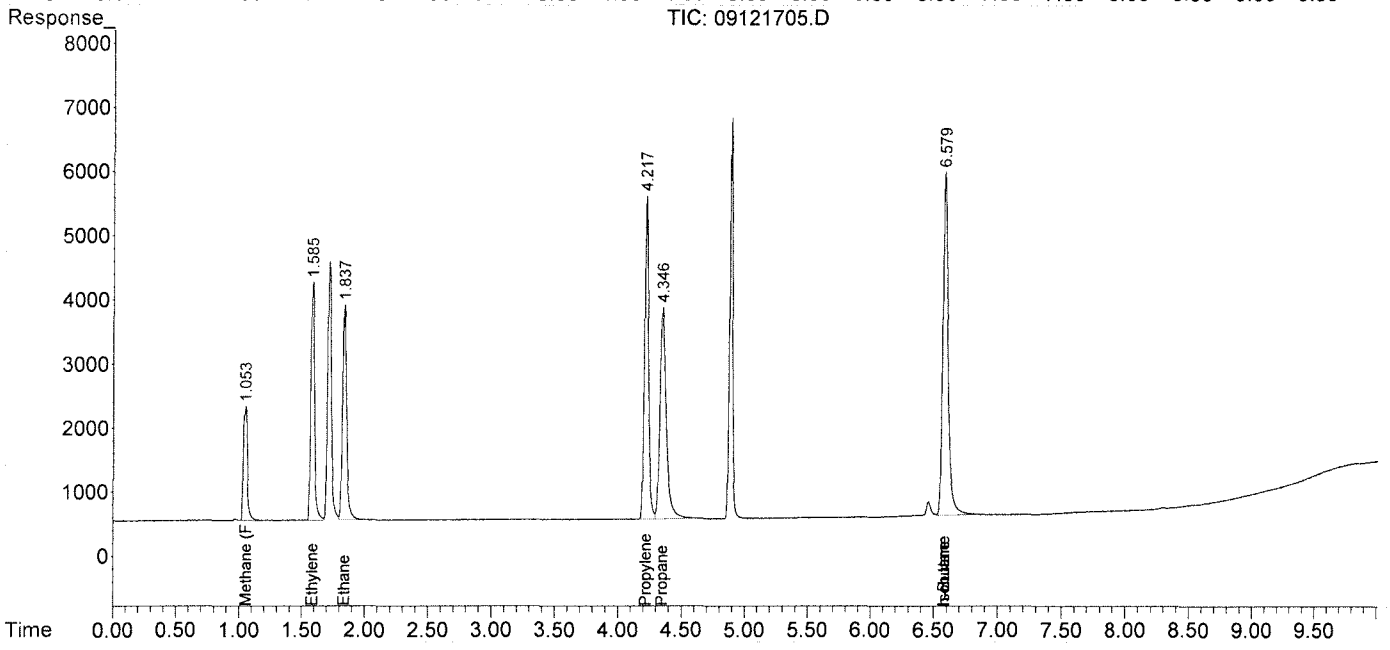
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121705.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:09
Operator : MC
Sample : 4.53ppm 0.3ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:06:32 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121706.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:30
Operator : MC
Sample : 10.57ppm 0.7ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:24 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

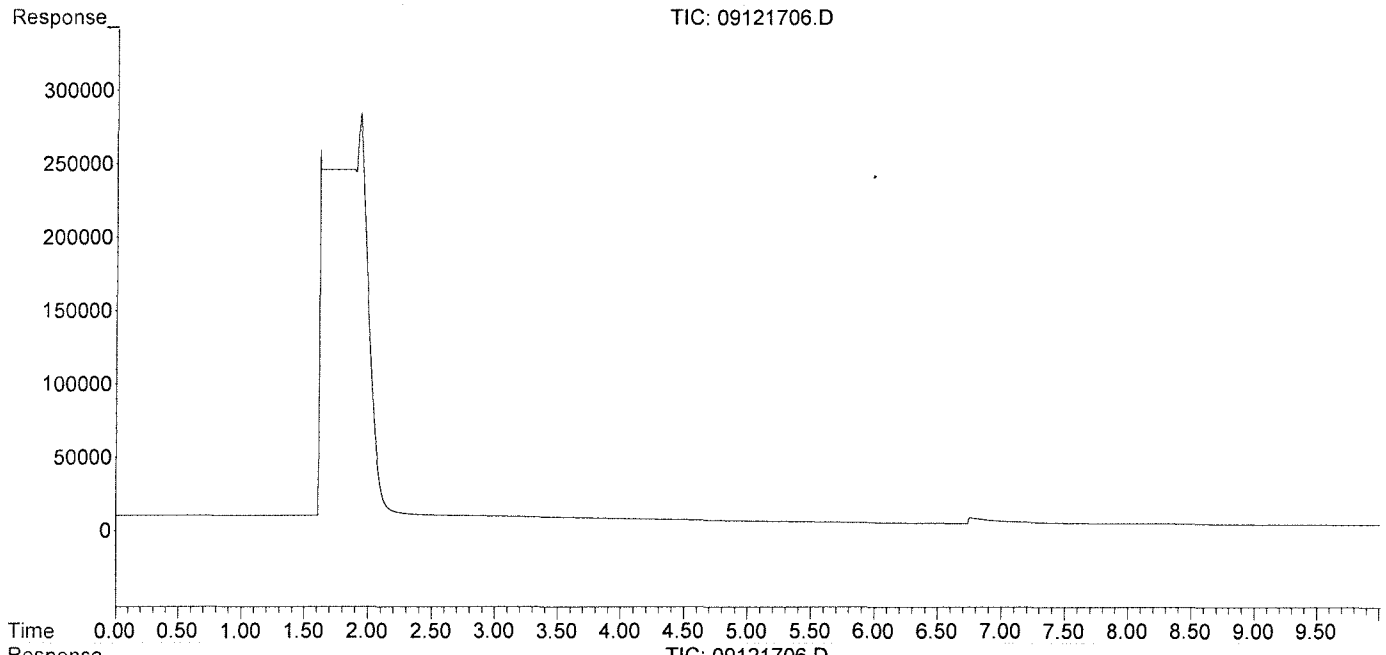
| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) | Oxygen/Argon | 1.929f | -31871242 | N.D. | ppm |
| 2) | Carbon monoxide | 1.929f | -31871242 | 1.818 | ppm |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm |
| 4) | Carbon dioxide | 0.000 | 0 | N.D. | ppm |
| 6) | Methane (FID) | 1.025 | 91967 | 10.135 | ppm |
| 7) | Ethylene | 1.568 | 172086 | 10.273 | ppm |
| 8) | Ethane | 1.822 | 178841 | 10.441 | ppm |
| 9) | Propylene | 4.214 | 248004 | 10.236 | ppm |
| 10) | Propane | 4.344 | 257124 | 10.458 | ppm |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm |
| 12) | Isobutane | 6.578f | 338181 | 9.254 | ppm |
| 13) | n-Butane | 6.578f | 338181 | 9.254 | ppm |

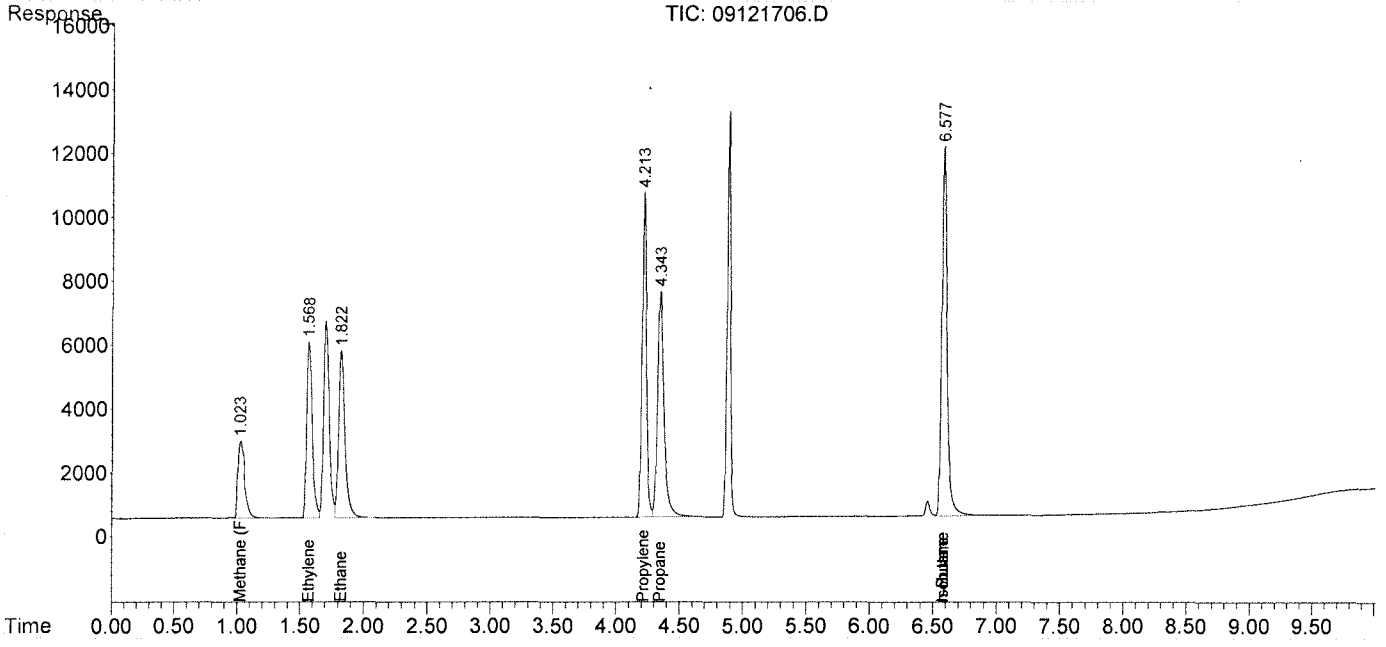
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121706.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:30
Operator : MC
Sample : 10.57ppm 0.7ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:24 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121707.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:47
Operator : MC
Sample : 200ppm 0.1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:59 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

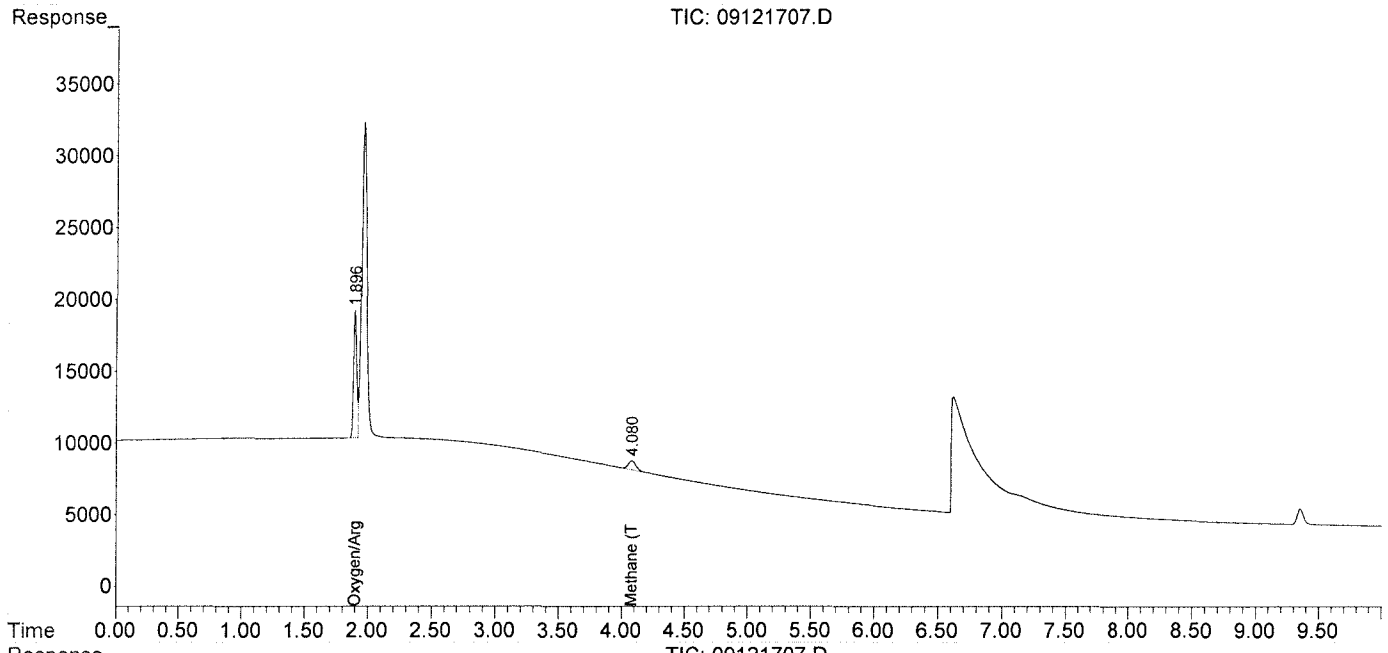
| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) | Oxygen/Argon | 1.897 | 155286 | 0.065 | ppm |
| 2) | Carbon monoxide | 1.897 | 155286 | N.D. | ppm |
| 3) | Methane (TCD) | 4.079f | 27015 | 2856.472 | ppm |
| 4) | Carbon dioxide | 0.000 | 0 | N.D. | ppm |
| 6) | Methane (FID) | 1.063 | 1735997 | 190.792 | ppm |
| 7) | Ethylene | 1.597 | 3339702 | 198.758 | ppm |
| 8) | Ethane | 1.849 | 3350442 | 194.597 | ppm |
| 9) | Propylene | 4.201 | 4504060 | 185.706 | ppm |
| 10) | Propane | 4.333 | 5043036 | 204.809 | ppm |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm |

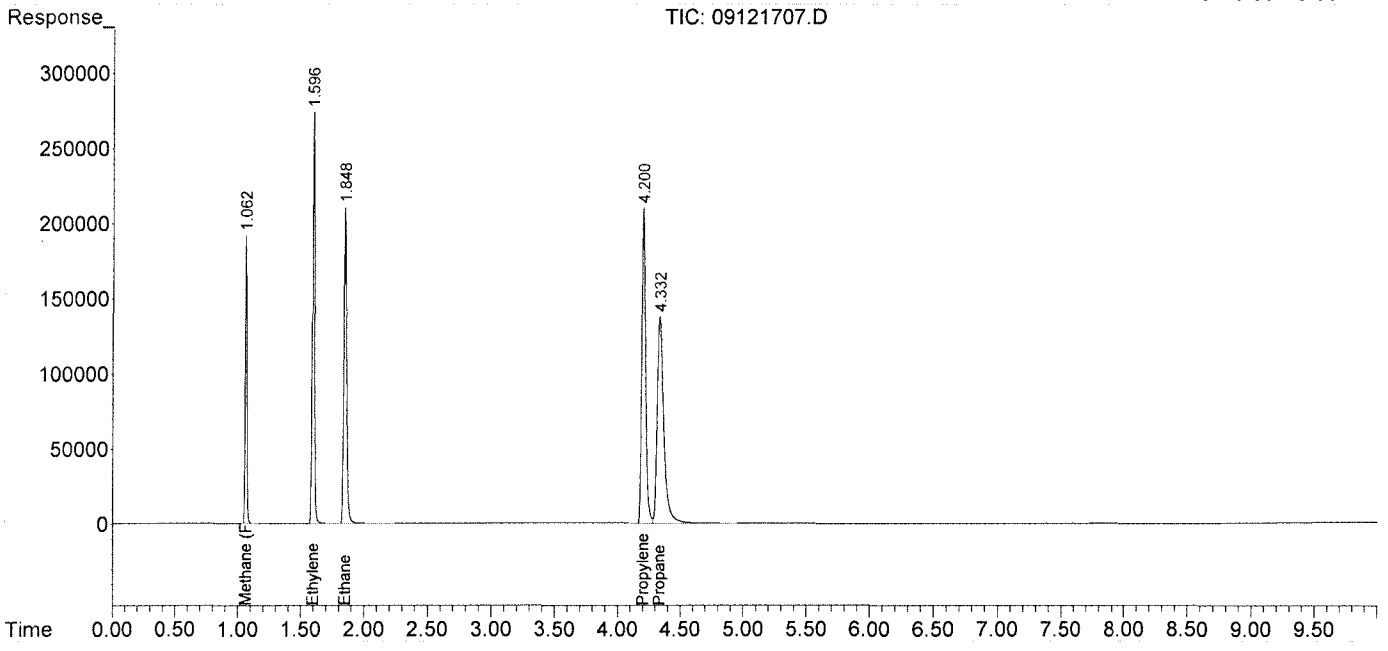
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121707.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:47
Operator : MC
Sample : 200ppm 0.1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:59 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121708.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:00
Operator : MC
Sample : 600ppm 0.3ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:10:57 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:10:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

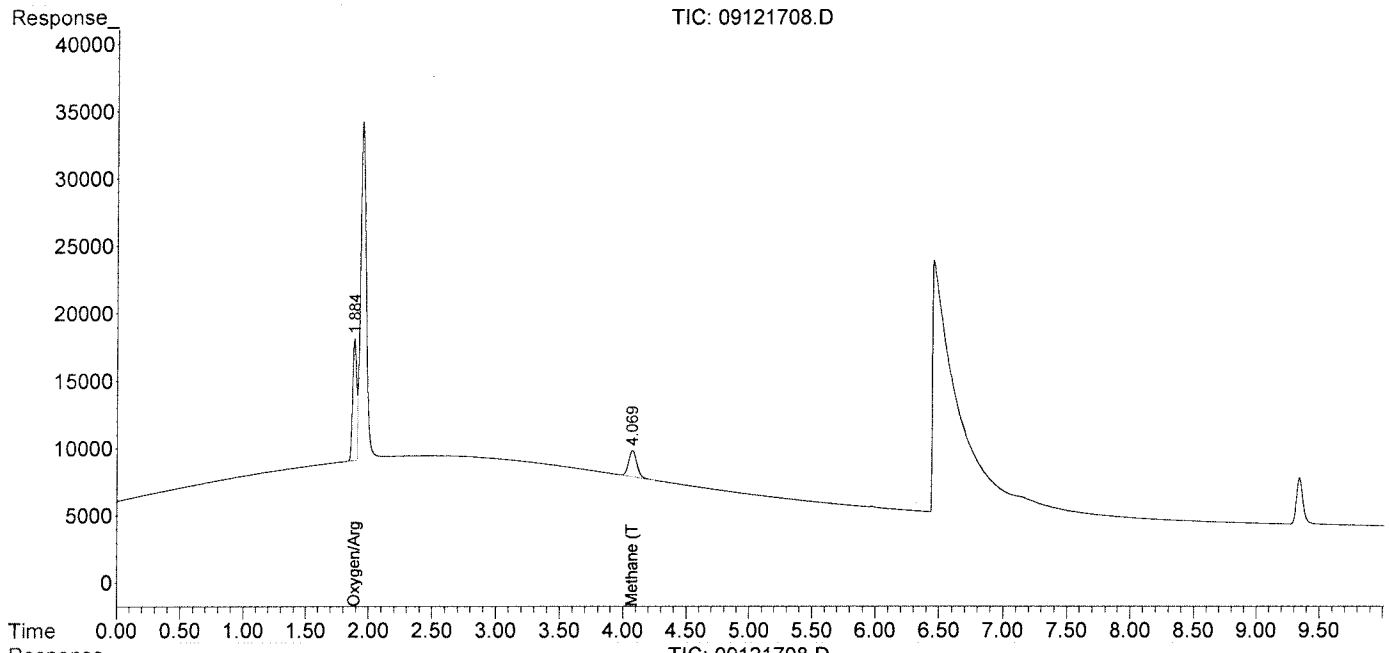
| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) | Oxygen/Argon | 1.884 | 196022 | 0.124 | ppm |
| 2) | Carbon monoxide | 1.884 | 196022 | N.D. | ppm |
| 3) | Methane (TCD) | 4.070f | 88282 | 782.730 | ppm |
| 4) | Carbon dioxide | 0.000 | 0 | N.D. | ppm |
| 6) | Methane (FID) | 1.044 | 5189849 | 539.759 | ppm |
| 7) | Ethylene | 1.573 | 10007759 | 590.286 | ppm |
| 8) | Ethane | 1.822 | 10048964 | 583.213 | ppm |
| 9) | Propylene | 4.160 | 13569343 | 562.612 | ppm |
| 10) | Propane | 4.300 | 15251326 | 615.171 | ppm |
| 11) | Isobutylene | 6.143 | 9815 | NoCal | ppm |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm |

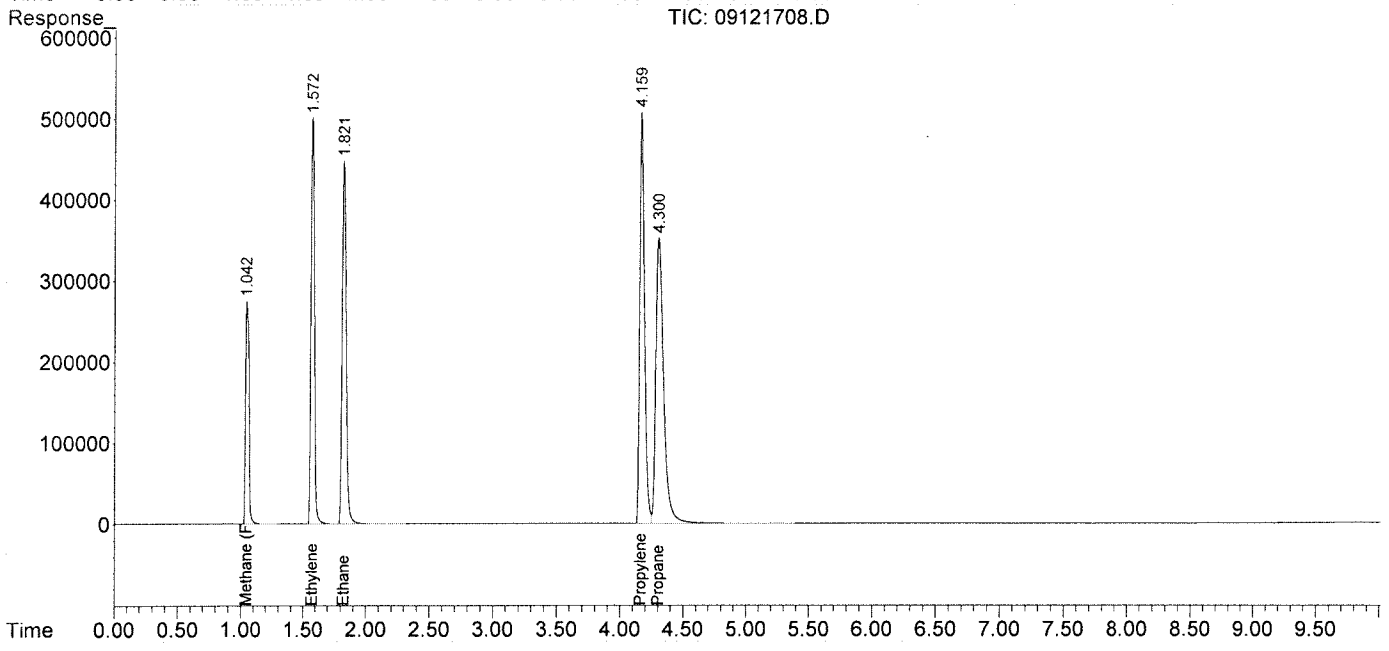
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121708.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:00
Operator : MC
Sample : 600ppm 0.3ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:10:57 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:10:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121709.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:47
Operator : MC
Sample : 1000ppm 0.5ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:11:46 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:11:38 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

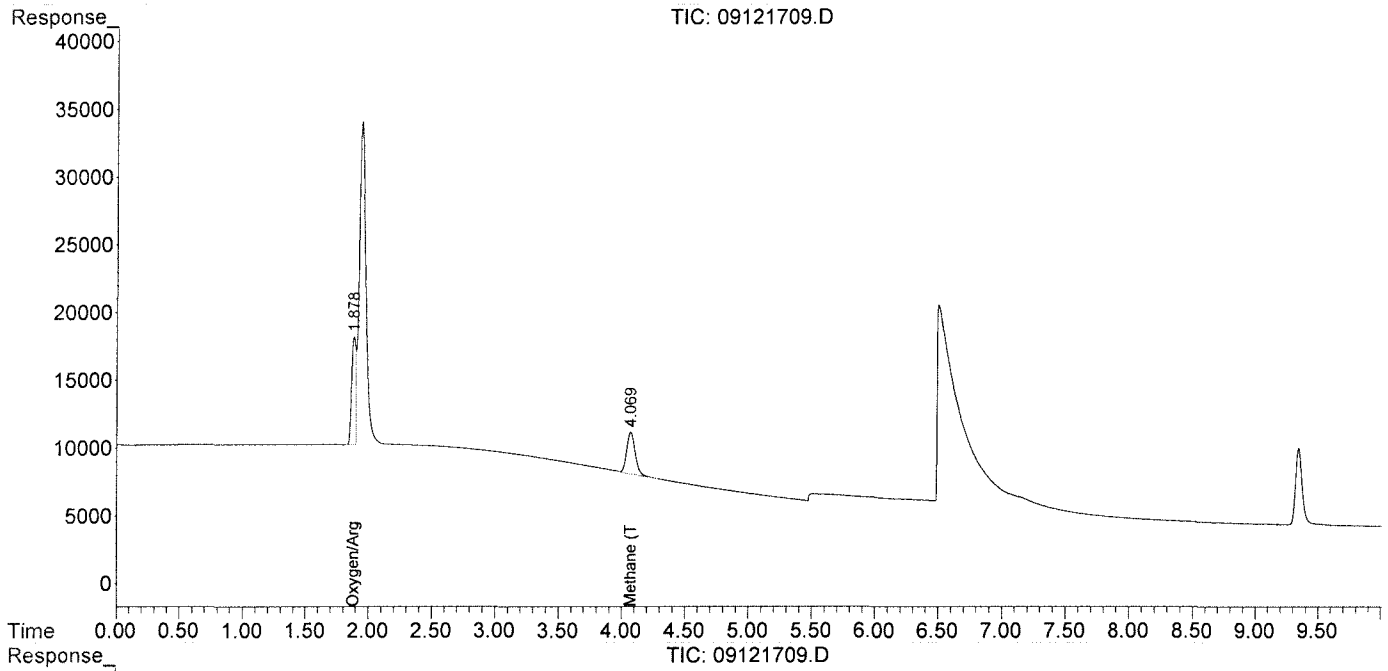
| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) | Oxygen/Argon | 1.879 | 192611 | 0.162 | ppm |
| 2) | Carbon monoxide | 1.879 | 192611 | N.D. | ppm |
| 3) | Methane (TCD) | 4.070f | 145492 | 1244.729 | ppm |
| 4) | Carbon dioxide | 0.000 | 0 | N.D. | ppm |
| 6) | Methane (FID) | 1.039 | 8598534 | 945.644 | ppm |
| 7) | Ethylene | 1.576 | 16608504 | 981.887 | ppm |
| 8) | Ethane | 1.827 | 16709165 | 973.644 | ppm |
| 9) | Propylene | 4.161 | 22494888 | 941.060 | ppm |
| 10) | Propane | 4.298 | 25459411 | 1023.223 | ppm |
| 11) | Isobutylene | 6.138 | 16970 | 8645.243 | ppm |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm |

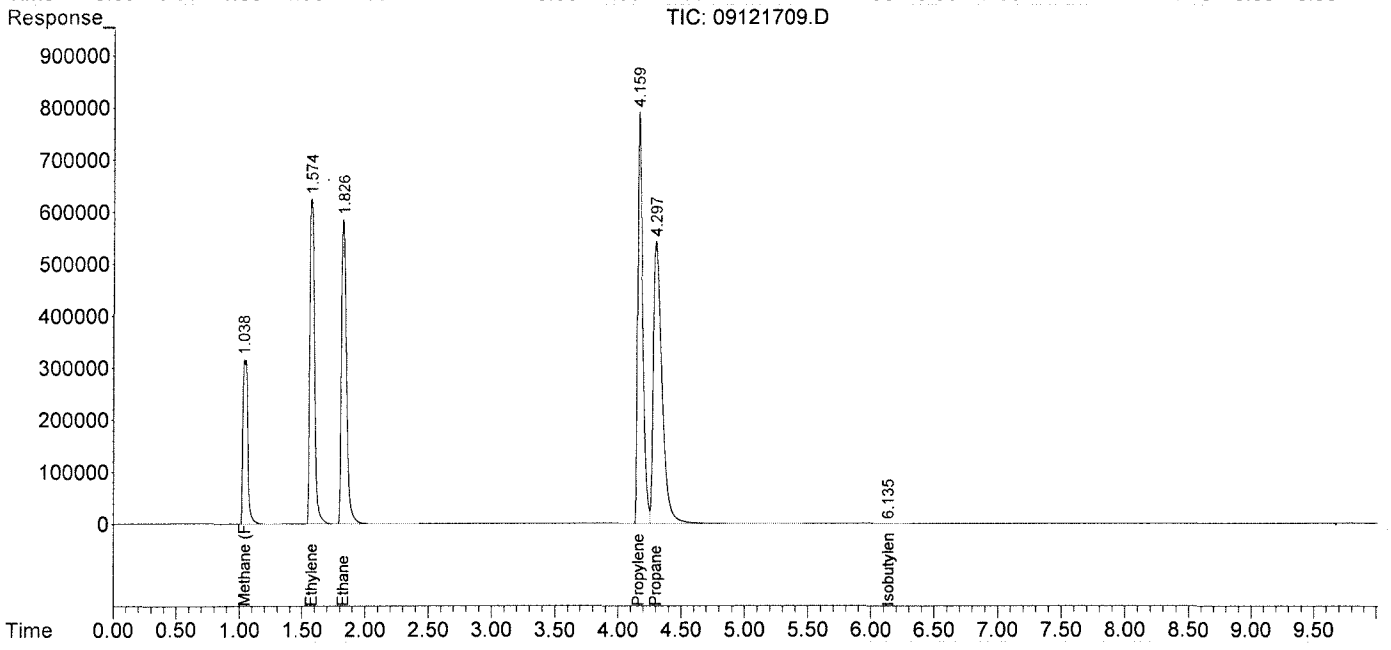
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121709.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:47
Operator : MC
Sample : 1000ppm 0.5ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:11:46 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:11:38 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

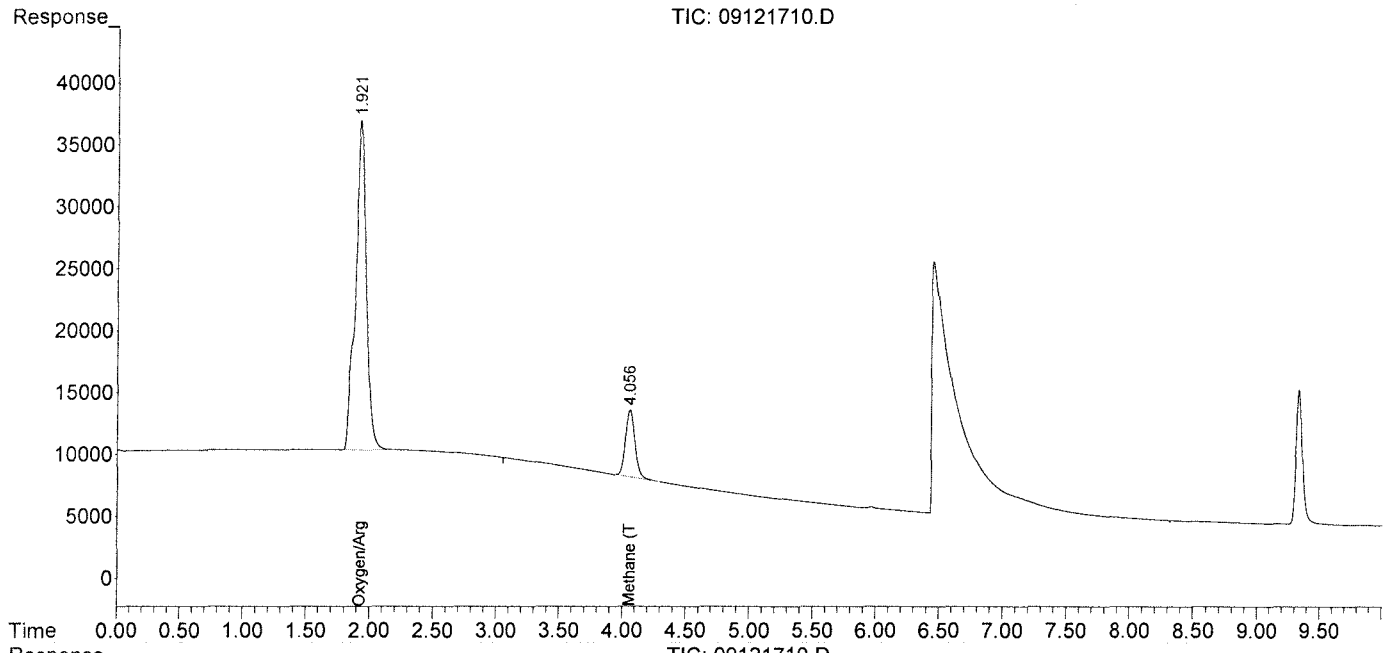
| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Oxygen/Argon | 1.922f | 1578147 | 1.659 | ppm | |
| 2) | Carbon monoxide | 1.922f | 1578147 | N.D. | ppm | |
| 3) | Methane (TCD) | 4.057f | 281651 | 3526.607 | ppm | |
| 4) | Carbon dioxide | 0.000 | 0 | N.D. | ppm | |
| 6) | Methane (FID) | 1.016 | 16098209 | 1763.622 | ppm | |
| 7) | Ethylene | 1.552 | 31192444 | 1848.268 | ppm | |
| 8) | Ethane | 1.801 | 31424218 | 1837.143 | ppm | |
| 9) | Propylene | 4.129 | 42124690 | 1775.341 | ppm | m |
| 10) | Propane | 4.269 | 48583085 | 1946.921 | ppm | |
| 11) | Isobutylene | 6.136 | 33832 | 25613.603 | ppm | |
| 12) | Isobutane | 6.576f | 3845 | 0.120 | ppm | |
| 13) | n-Butane | 6.576f | 3845 | 0.120 | ppm | |

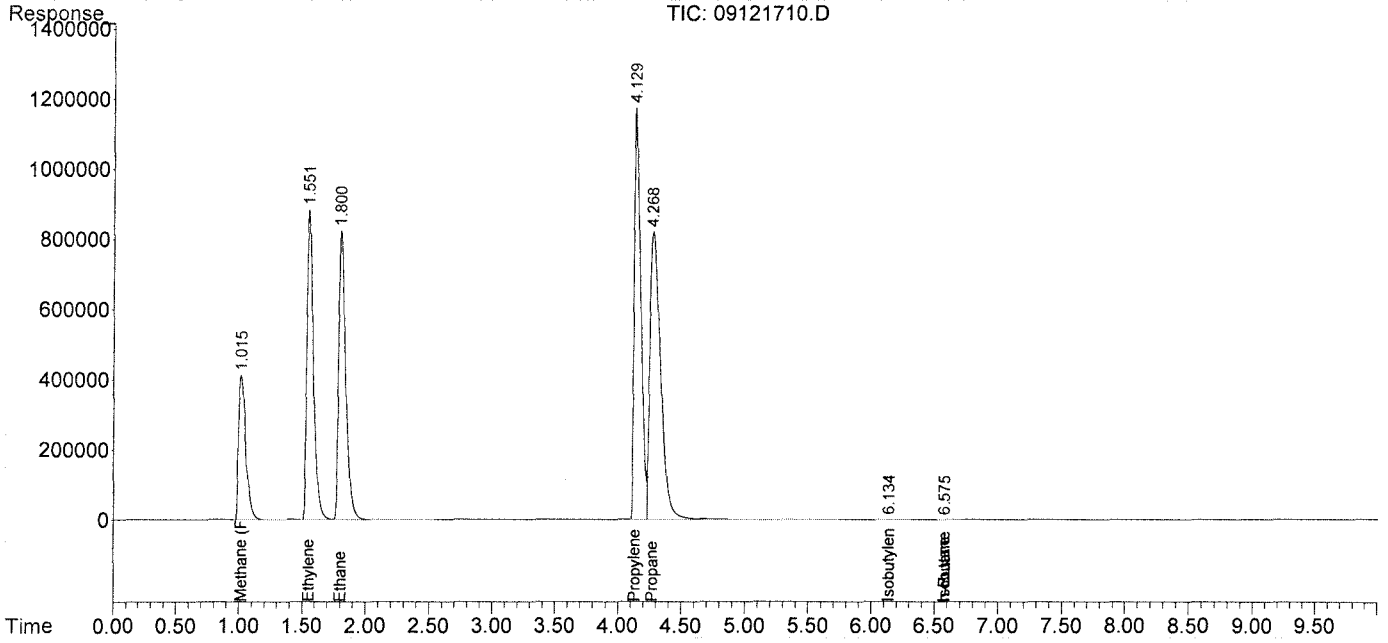
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



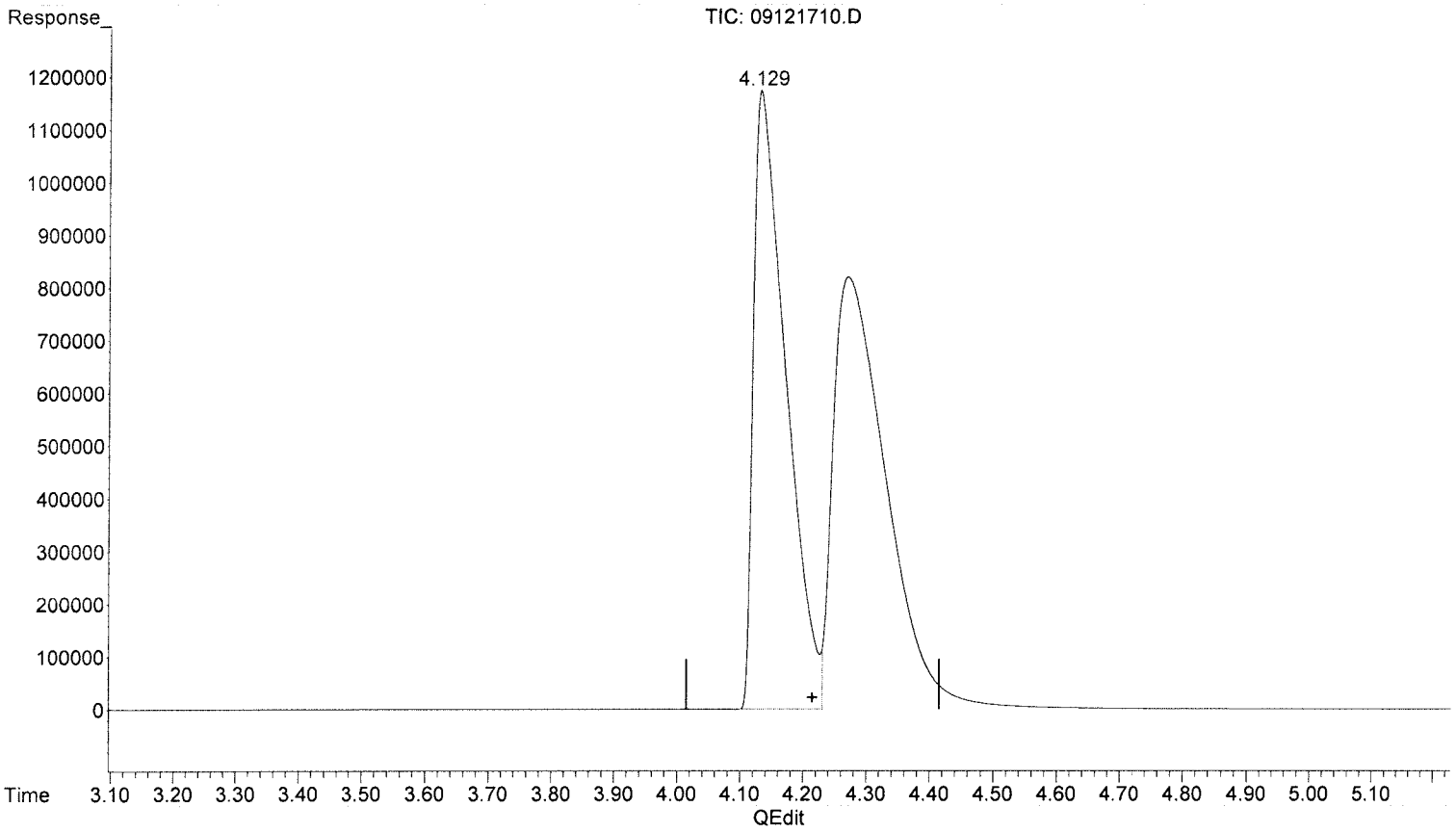



01043411

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH  Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1  Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase :  Signal #2 Phase:
Signal #1 Info :  Signal #2 Info :




(9) Propylene

4.129min 1775.341 ppm m

response 42124690

(+) = Expected Retention Time

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121711.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:48
Operator : MC
Sample : 4000ppm 0.1ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:13:37 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

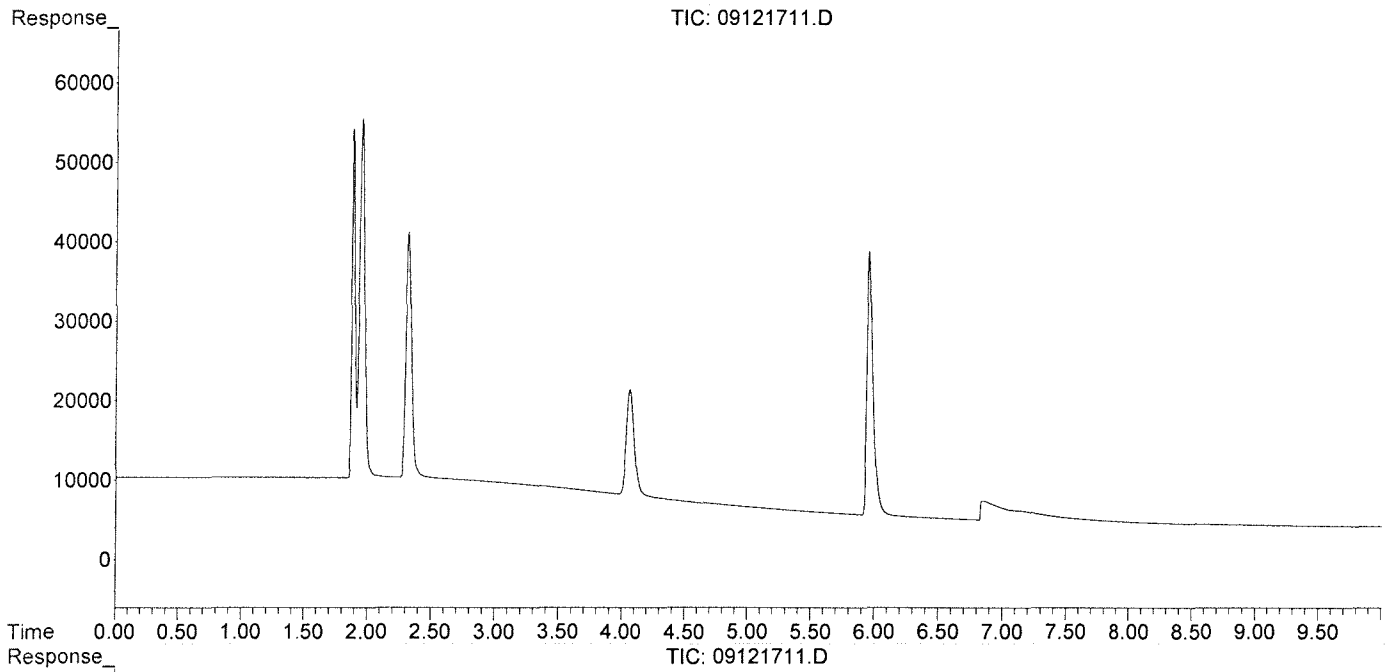
| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Oxygen/Argon | 0.000 | 0 | N.D. | ppm | d |
| 2) | Carbon monoxide | 0.000 | 0 | N.D. | ppm | d |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm | d |
| 4) | Carbon dioxide | 0.000 | 0 | N.D. | ppm | d |
| 6) | Methane (FID) | 1.059 | 35776839 | 3925.122 | ppm | |
| 7) | Ethylene | 0.000 | 0 | N.D. | ppm | |
| 8) | Ethane | 0.000 | 0 | N.D. | ppm | |
| 9) | Propylene | 0.000 | 0 | N.D. | ppm | |
| 10) | Propane | 0.000 | 0 | N.D. | ppm | |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm | |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm | |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm | |

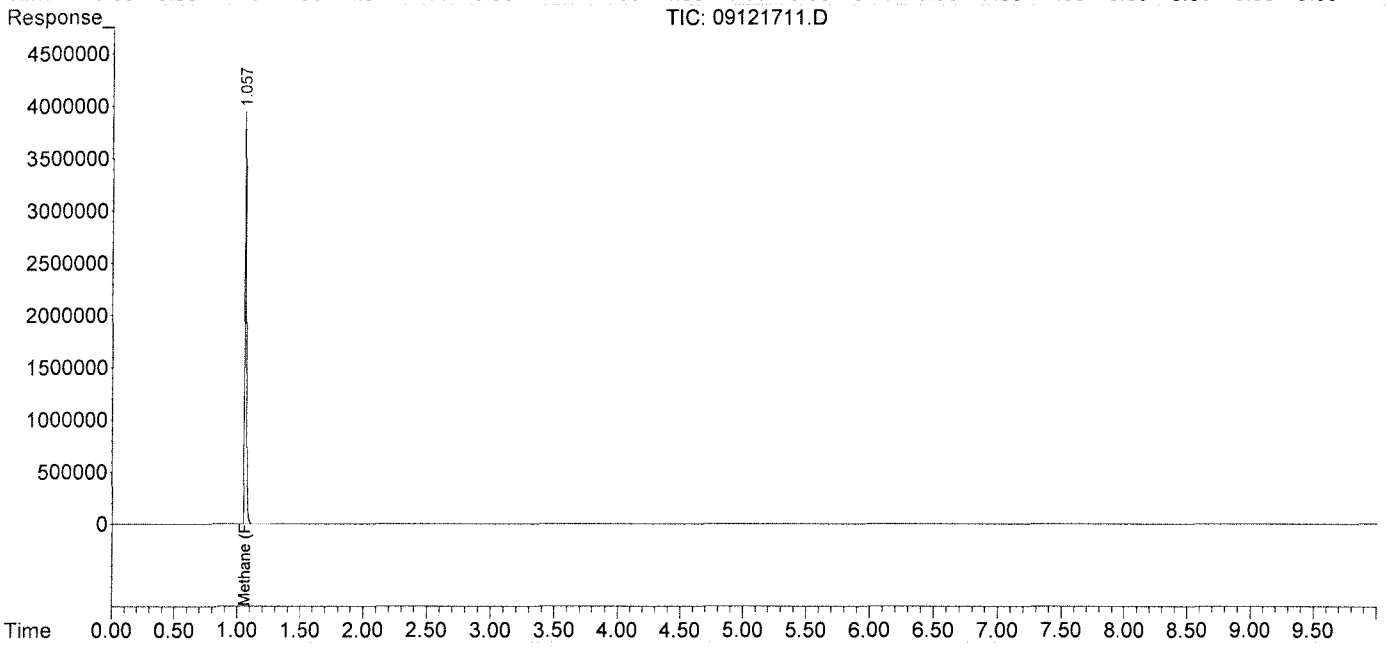
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121711.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:48
Operator : MC
Sample : 4000ppm 0.1ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:13:37 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121712.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 15:21
Operator : MC
Sample : 20000ppm 0.5ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:14:17 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

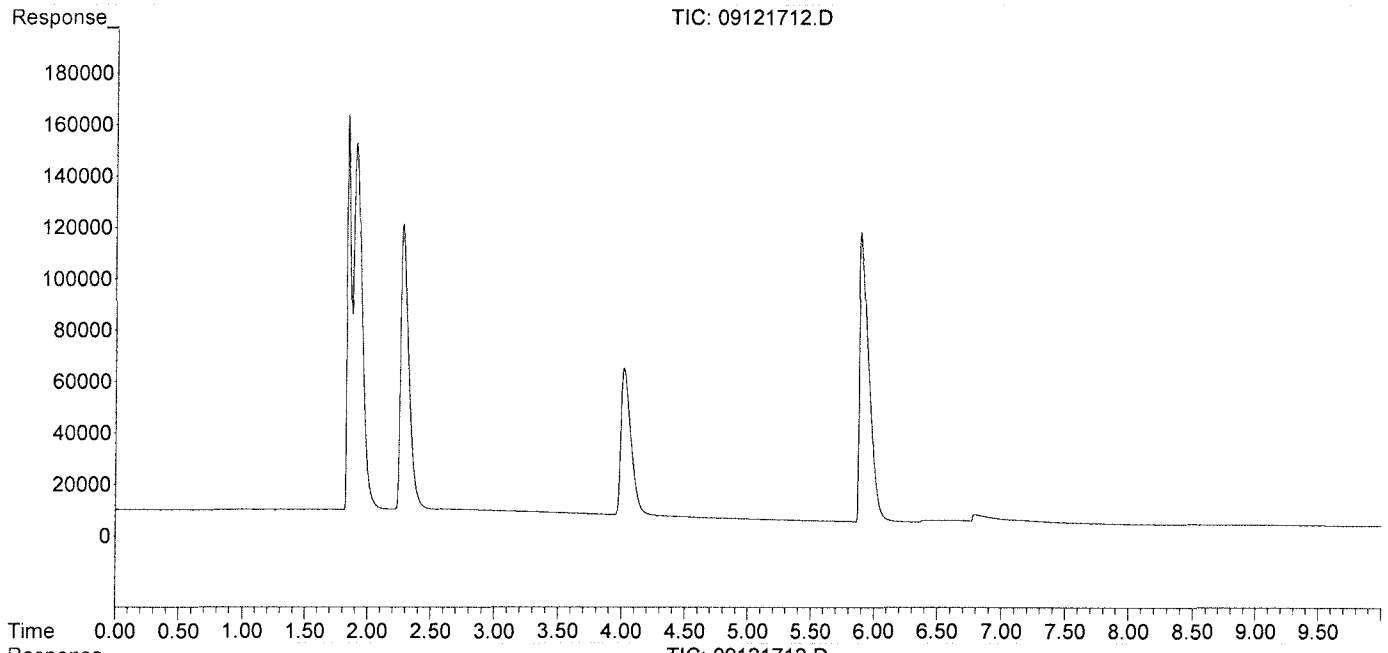
| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Oxygen/Argon | 0.000 | 0 | N.D. | ppm | d |
| 2) | Carbon monoxide | 1.836 | 3190788 | N.D. | ppm | |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm | d |
| 4) | Carbon dioxide | 0.000 | 0 | N.D. | ppm | d |
| 6) | Methane (FID) | 1.034 | 169009160 | 18492.064 | ppm | |
| 7) | Ethylene | 0.000 | 0 | N.D. | ppm | |
| 8) | Ethane | 0.000 | 0 | N.D. | ppm | |
| 9) | Propylene | 0.000 | 0 | N.D. | ppm | |
| 10) | Propane | 0.000 | 0 | N.D. | ppm | |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm | |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm | |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm | |

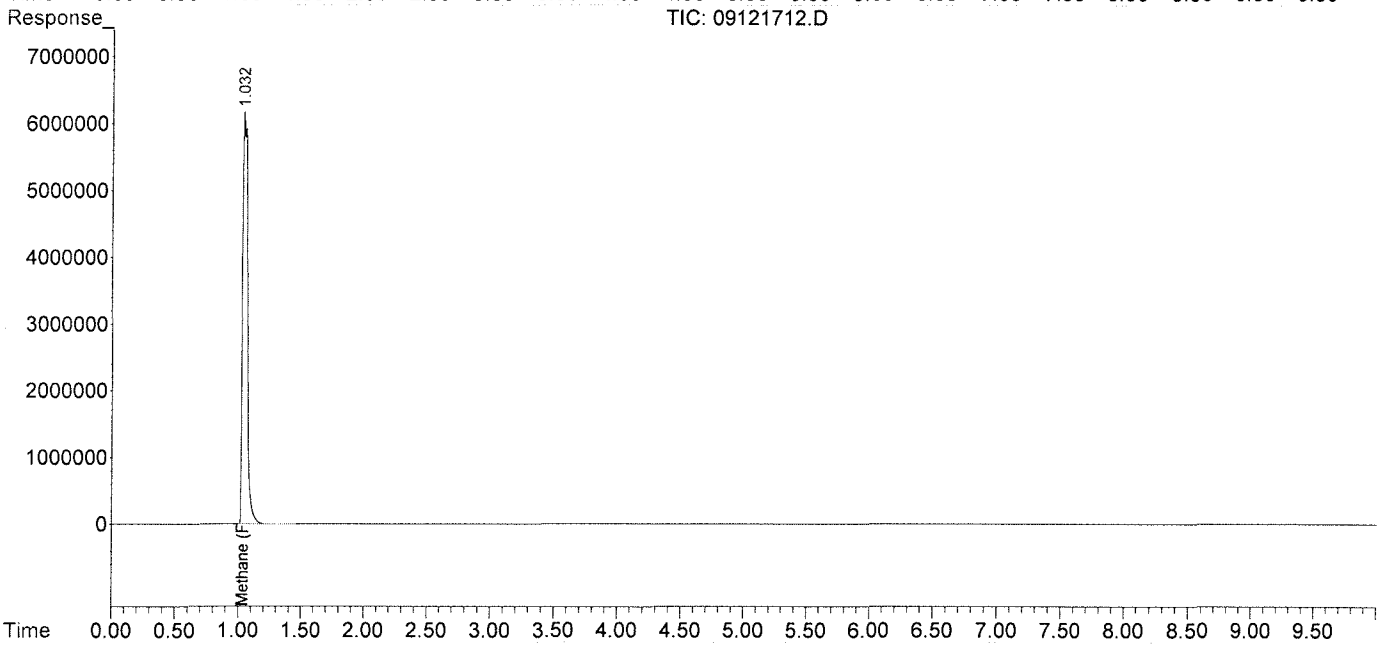
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121712.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 15:21
Operator : MC
Sample : 20000ppm 0.5ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:14:17 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 16:15
Operator : MC
Sample : icv s30-05241604
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:15:11 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Oxygen/Argon | 1.843 | 2922459 | 3.687 | ppm | |
| 2) | Carbon monoxide | 1.843 | 2922459 | N.D. | ppm | |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm | actual %D |
| 4) | Carbon dioxide | 0.000 | 0 | N.D. | ppm | |
| 6) | Methane (FID) | 1.063 | 13748 | 1.516 | ppm | ~~1500~~ 1.50 101.1 |
| 7) | Ethylene | 1.598 | 24153 | 1.443 | ppm | ~~1500~~ 1.50 96.2 |
| 8) | Ethane | 1.850 | 24488 | 1.445 | ppm | ~~1500~~ 1.50 96.3 |
| 9) | Propylene | 4.221 | 36004 | 1.537 | ppm | ~~1500~~ 1.50 102.5 |
| 10) | Propane | 4.350 | 37738 | 1.517 | ppm | ~~1511~~ 1.51 100.5 |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm | |
| 12) | Isobutane | 6.579f | 48019 | 1.804 | ppm | 9/14/17 |
| 13) | n-Butane | 6.579f | 48019 | 1.804 | ppm | |

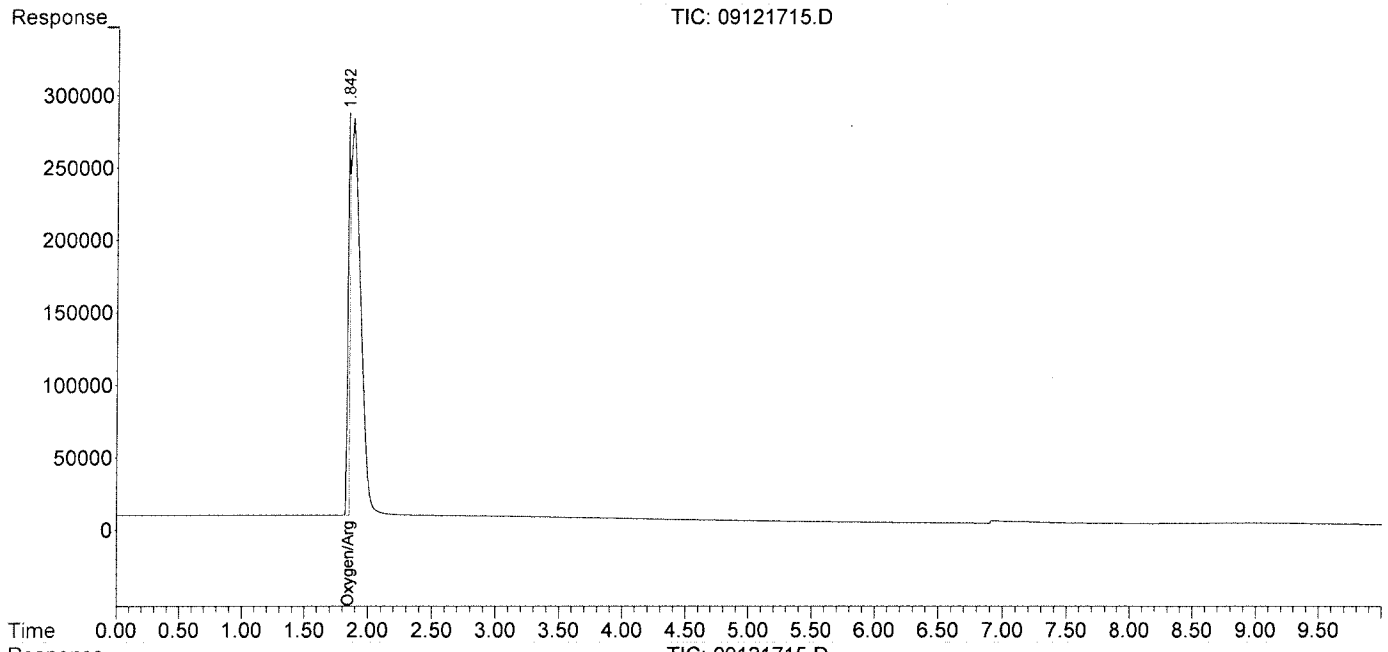
(f)=RT Delta > 1/2 Window (m)=manual int.

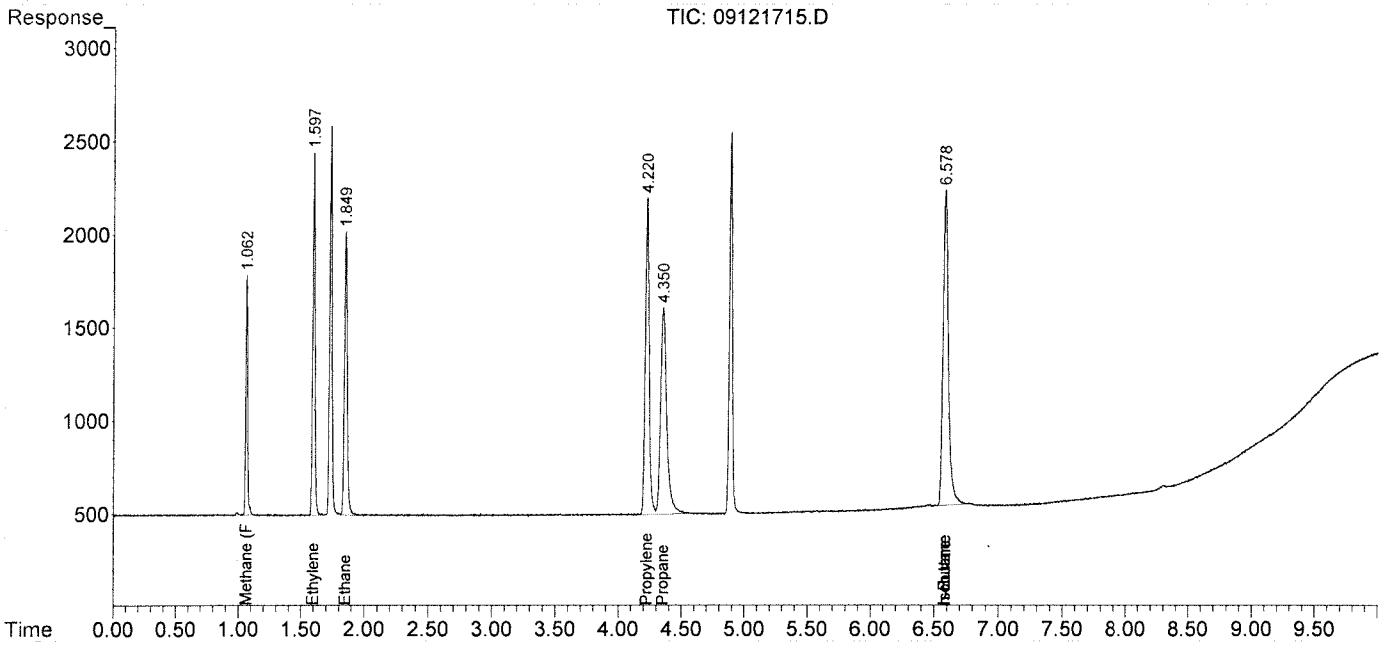
9/14/17

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 16:15
Operator : MC
Sample : icv s30-05241604
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:15:11 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Dissolved Gases by RSK175

11/17/20

## *ALS Environmental*

Method : RSK175 Headspace Method for Dissolved Hydrocarbon in Water by FID/TCD

Client : ALS Laboratory Group | Analyst : WH | Instrument : GC#10

Service Request: P2006296 | Date Analysis : 11/17/20 | Detector : FID#10, TCD#10

Sample Vol. (ml) : 32.00 ml | Head Space Vol.(ml) : 8.00 ml | Gas Constant : 24.05684 (20°C)

### HEAD SPACE RESULT (ppm)

| Sample ID | Inj. Vol. | Methane | Ethylene | Ethane |
|---|---|---|---|---|
| STD S32-05221901 | 0.100 | 97.964 | 104.084 | 103.502 |
| ACTUAL | | 101.50 | 100.90 | 101.40 |
| %Difference | | 3.5% | 3.2% | 2.1% |
| mcs 0.1ml | 0.100 | 0.075 | 0.000 | 0.000 |
| rb 0.1ml | 0.100 | 0.061 | 0.000 | 0.000 |
| lcs fid 0.1ml | 0.100 | 1.443 | 1.169 | 1.350 |
| lcsd fid 0.1ml | 0.100 | 1.491 | 1.156 | 1.338 |
| P2006296-001 0.1ml | 0.100 | 0.100 | 0.000 | 0.000 |
| P2006296-002 0.1ml | 0.100 | 0.619 | 0.000 | 0.000 |
| P2006296-003 0.1ml | 0.100 | 0.545 | 0.000 | 0.000 |
| P2006296-001ms 0.1ml | 0.100 | 67.305 | 61.811 | 69.716 |
| P2006296-001msd 0.1ml | 0.100 | 63.848 | 58.494 | 66.035 |
| STD S32-05221901 | | 93.622 | 99.638 | 99.233 |
| ACTUAL | | 101.50 | 100.90 | 101.40 |
| %Difference | | 7.8% | 1.3% | 2.1% |

### FINAL HEAD SPACE RESULT (ppm)

| | Methane | Ethylene | Ethane |
|---|---|---|---|
| **WWt.** | 16.04 | 28.05 | 30.07 |
| **HENRY'S CONSTANT** | 3.76E+04 | 1.02E+04 | 2.63E+04 |
| **RL** | 1.30 | 1.00 | 0.60 |
| mcs 0.1ml | 0.750 | 0.000 | 0.000 |
| lcs fid 0.1ml | 14.430 | 11.690 | 13.500 |
| lcsd fid 0.1ml | 14.910 | 11.560 | 13.380 |
| P2006296-001 0.1ml | 1.000 | 0.000 | 0.000 |
| P2006296-002 0.1ml | 6.190 | 0.000 | 0.000 |
| P2006296-003 0.1ml | 5.450 | 0.000 | 0.000 |
| P2006296-001ms 0.1ml | 673.050 | 618.110 | 697.160 |
| P2006296-001msd 0.1ml | 638.480 | 584.940 | 660.350 |

Data Path : J:\GC10\DATA\RSK_FID\2020_11\17\
Data File : 11172001.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 17-Nov-2020, 10:45:42
Operator : WH
Sample : STD S32-05221901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 17 11:01:23 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

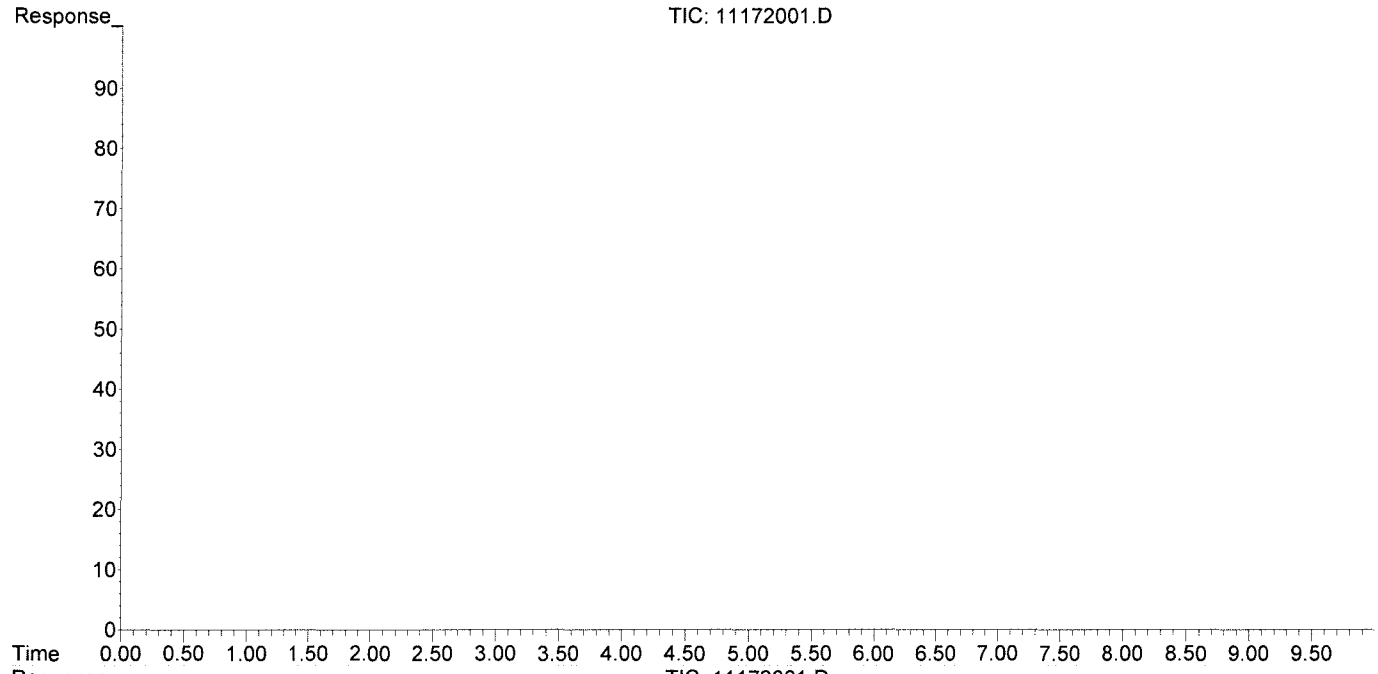
| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) | Oxygen/Argon | 0.000 | 0 | N.D. | ppm |
| 2) | Carbon monoxide | 0.000 | 0 | N.D. | ppm |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm |
| 4) | Carbon dioxide | 0.000 | 0 | N.D. | ppm |
| 6) | Methane (FID) | 1.130 | 888595 | 97.964 | ppm |
| 7) | Ethylene | 1.705 | 1741768 | 104.084 | ppm |
| 8) | Ethane | 1.972 | 1754376 | 103.502 | ppm |
| 9) | Propylene | 4.345 | 2563098 | 109.387 | ppm |
| 10) | Propane | 4.466 | 2641195 | 106.156 | ppm |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm |

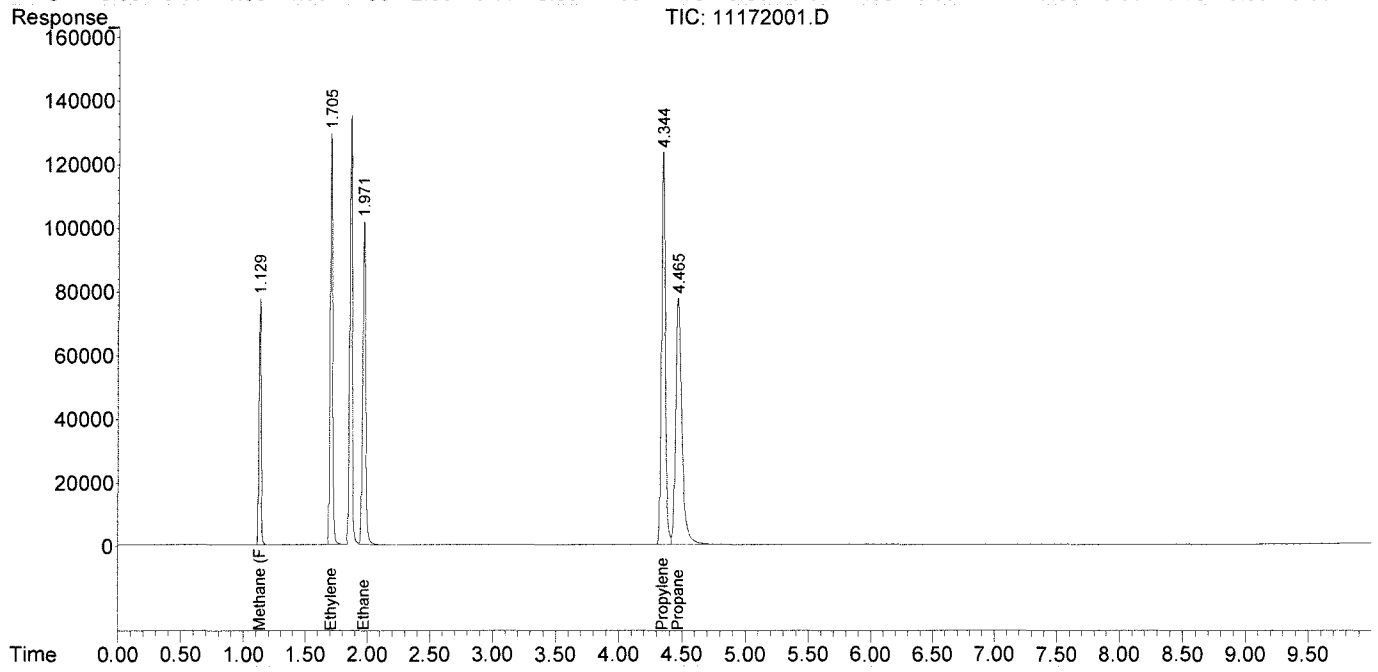
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2020_11\17\
Data File : 11172001.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 17-Nov-2020, 10:45:42
Operator : WH
Sample : STD S32-05221901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 17 11:01:23 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2020_11\17\
Data File : 11172011.D
Signal(s) : Signal #1: TCD1A.CH  Signal #2: FID2B.CH
Acq On : 17-Nov-2020, 13:24:59
Operator : WH
Sample : STD S32-05221901
Misc :
ALS Vial : 1  Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 17 13:40:15 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

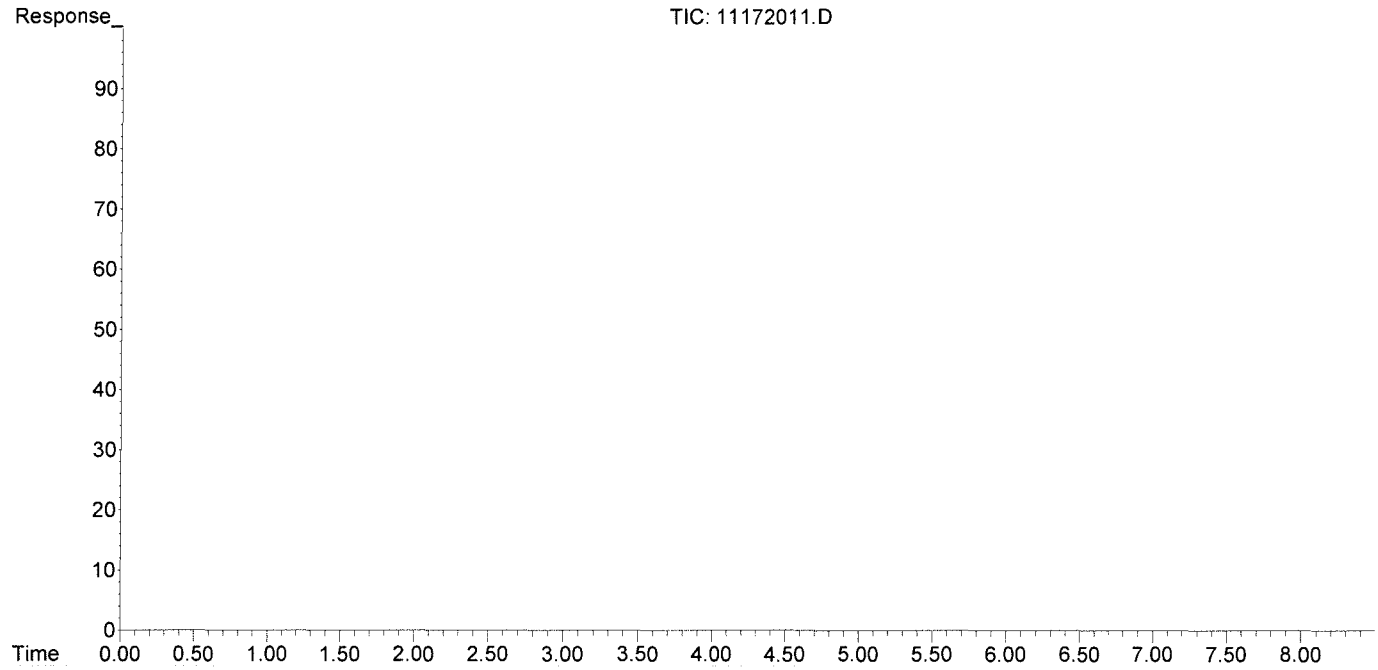
| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) | Oxygen/Argon | 0.000 | 0 | N.D. | ppm |
| 2) | Carbon monoxide | 0.000 | 0 | N.D. | ppm |
| 3) | Methane (TCD) | 0.000 | 0 | N.D. | ppm |
| 4) | Carbon dioxide | 0.000 | 0 | N.D. | ppm |
| 6) | Methane (FID) | 1.133 | 849209 | 93.622 | ppm |
| 7) | Ethylene | 1.709 | 1667379 | 99.638 | ppm |
| 8) | Ethane | 1.976 | 1682024 | 99.233 | ppm |
| 9) | Propylene | 4.347 | 2448506 | 104.496 | ppm |
| 10) | Propane | 4.467 | 2526056 | 101.529 | ppm |
| 11) | Isobutylene | 0.000 | 0 | N.D. | ppm |
| 12) | Isobutane | 0.000 | 0 | N.D. | ppm |
| 13) | n-Butane | 0.000 | 0 | N.D. | ppm |

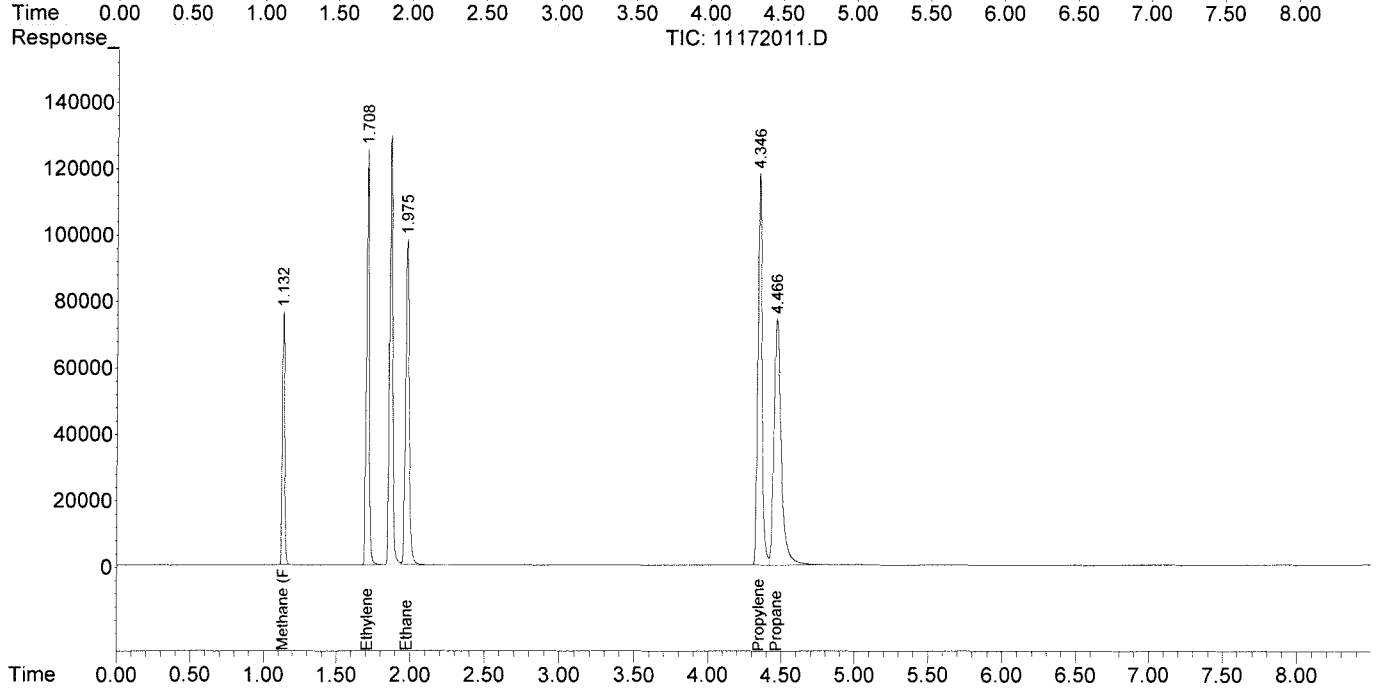
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2020_11\17\
Data File : 11172011.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 17-Nov-2020, 13:24:59
Operator : WH
Sample : STD S32-05221901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 17 13:40:15 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



# Injection Log

Directory: I:\GC10\DATA\RSK_FID\2017_09\12\

| | Date/Time | File Name | Sample ID | Misc Info | Operator | Acquisition Method | Comments |
|---|---|---|---|---|---|---|---|
| 1 | 12-Sep-17, 08:38:08 | 09121701.D | test | | MC | RSKBOTH.M | |
| 2 | 12-Sep-17, 10:52:40 | 09121702.D | 0.151ppm 0.250ml s32-09121702 | | MC | RSKBOTH.M | Curve |
| 3 | 12-Sep-17, 11:05:49 | 09121703.D | 0.302ppm 0.5ml s32-09121702 | | MC | RSKBOTH.M | Curve |
| 4 | 12-Sep-17, 11:45:34 | 09121704.D | 1.51ppm 0.1ml s32-09051701 | | MC | RSKBOTH.M | Curve |
| 5 | 12-Sep-17, 12:09:33 | 09121705.D | 4.53ppm 0.3ml s32-09051701 | | MC | RSKBOTH.M | Curve |
| 6 | 12-Sep-17, 12:30:23 | 09121706.D | 10.57ppm 0.7ml s32-09051701 | | MC | RSKBOTH.M | Curve |
| 7 | 12-Sep-17, 12:47:18 | 09121707.D | 200ppm 0.1ml s32-09121701 | | MC | RSKBOTH.M | Curve |
| 8 | 12-Sep-17, 13:00:22 | 09121708.D | 600ppm 0.3ml s32-09121701 | | MC | RSKBOTH.M | Curve |
| 9 | 12-Sep-17, 13:47:48 | 09121709.D | 1000ppm 0.5ml s32-09121701 | | MC | RSKBOTH.M | Curve |
| 10 | 12-Sep-17, 14:07:58 | 09121710.D | 2000ppm 1ml s32-09121701 | | MC | RSKBOTH.M | Curve |
| 11 | 12-Sep-17, 14:48:48 | 09121711.D | 4000ppm 0.1ml s32-08231701 | | MC | RSKBOTH.M | Curve |
| 12 | 12-Sep-17, 15:21:51 | 09121712.D | 20000ppm 0.5ml s32-08231701 | | MC | RSKBOTH.M | Curve |
| 13 | 12-Sep-17, 15:38:59 | 09121713.D | mb 0.5ml | | MC | RSKBOTH.M | Pass |
| 14 | 12-Sep-17, 15:55:35 | 09121714.D | mb 0.1ml | | MC | RSKBOTH.M | Pass |
| 15 | 12-Sep-17, 16:15:26 | 09121715.D | icv s30-05241604 | | MC | RSKBOTH.M | Pass |

# Injection Log

Directory: I:\GC10\DATA\RSK_FID\2020_11\17\

| | Date/Time | File Name | Sample ID | Misc Info | Operator | Acquisition Method | Comments |
|---|---|---|---|---|---|---|---|
| 1 | 17-Nov-20, 10:45:42 | 11172001.D | STD S32-05221901 | | WH | RSKBOTH.M | pass |
| 2 | 17-Nov-20, 11:02:20 | 11172002.D | rb 0.1ml | | WH | RSKBOTH.M | pass |
| 3 | 17-Nov-20, 11:15:41 | 11172003.D | mcs 0.1ml | | WH | RSKBOTH.M | pass |
| 4 | 17-Nov-20, 11:43:18 | 11172004.D | P2006296-002 0.1ml | | WH | RSKBOTH.M | |
| 5 | 17-Nov-20, 11:59:00 | 11172005.D | P2006296-003 0.1ml | | WH | RSKBOTH.M | |
| 6 | 17-Nov-20, 12:12:06 | 11172006.D | P2006296-001 0.1ml | | WH | RSKBOTH.M | |
| 7 | 17-Nov-20, 12:25:03 | 11172007.D | P2006296-001ms 0.1ml | | WH | RSKBOTH.M | |
| 8 | 17-Nov-20, 12:37:58 | 11172008.D | P2006296-001msd 0.1ml | | WH | RSKBOTH.M | |
| 9 | 17-Nov-20, 12:51:25 | 11172009.D | lcs fid 0.1ml | | WH | RSKBOTH.M | pass |
| 10 | 17-Nov-20, 13:07:48 | 11172010.D | lcsd fid 0.1ml | | WH | RSKBOTH.M | pass |
| 11 | 17-Nov-20, 13:24:59 | 11172011.D | STD S32-05221901 | | WH | RSKBOTH.M | pass |

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

January 06, 2021

Susan Huang
Aptim Environmental & Infrastucture, Inc.
2500 City West Blvd., Suite 1700
Houston, TX 77042

Work Order: **HS20110128**

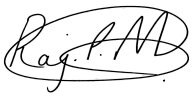
Laboratory Results for: **LHAAP 67 November 2020**

Dear Susan Huang,

ALS Environmental received 19 sample(s) on Nov 04, 2020 for the analysis presented in the following report.

This is a REVISED REPORT. Please see the Case Narrative for discussion concerning this revision.

Regards,



**Generated By: RJ.MODASHIA**
RJ Modashia
Project Manager

**ALS Houston, US** Date: 06-Jan-21

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** LHAAP 67 November 2020
**Work Order:** HS20110128

**SAMPLE SUMMARY**

| Lab Samp ID | Client Sample ID | Matrix | TagNo | Collection Date | Date Received | Hold |
|---|---|---|---|---|---|---|
| HS20110128-01 | 67WW14-201102 | Groundwater | | 02-Nov-2020 07:20 | 04-Nov-2020 09:30 | ☐ |
| HS20110128-02 | 67WW05-201102 | Groundwater | | 02-Nov-2020 08:05 | 04-Nov-2020 09:30 | ☐ |
| HS20110128-03 | 67WW18-201102 | Groundwater | | 02-Nov-2020 08:45 | 04-Nov-2020 09:30 | ☐ |
| HS20110128-04 | 67WW17-201102 | Groundwater | | 02-Nov-2020 09:30 | 04-Nov-2020 09:30 | ☐ |
| HS20110128-05 | 67WW17-201102-FD | Groundwater | | 02-Nov-2020 09:30 | 04-Nov-2020 09:30 | ☐ |
| HS20110128-06 | 67WW09A-201102 | Groundwater | | 02-Nov-2020 10:15 | 04-Nov-2020 09:30 | ☐ |
| HS20110128-07 | 67WW10-201102 | Groundwater | | 02-Nov-2020 10:55 | 04-Nov-2020 09:30 | ☐ |
| HS20110128-08 | 67WW07-201102 | Groundwater | | 02-Nov-2020 11:40 | 04-Nov-2020 09:30 | ☐ |
| HS20110128-09 | 67WW12-201102 | Groundwater | | 02-Nov-2020 12:20 | 04-Nov-2020 09:30 | ☐ |
| HS20110128-10 | 67WW02-201102 | Groundwater | | 02-Nov-2020 13:05 | 04-Nov-2020 09:30 | ☐ |
| HS20110128-11 | 67WW13-201103 | Groundwater | | 03-Nov-2020 07:10 | 04-Nov-2020 09:30 | ☐ |
| HS20110128-12 | 67WW15-201103 | Groundwater | | 03-Nov-2020 08:10 | 04-Nov-2020 09:30 | ☐ |
| HS20110128-13 | 67WW09-201103 | Groundwater | | 03-Nov-2020 08:50 | 04-Nov-2020 09:30 | ☐ |
| HS20110128-14 | 67WW01-201103 | Groundwater | | 03-Nov-2020 09:30 | 04-Nov-2020 09:30 | ☐ |
| HS20110128-15 | 67WW16I-201103 | Groundwater | | 03-Nov-2020 10:15 | 04-Nov-2020 09:30 | ☐ |
| HS20110128-16 | 67WW08-201103 | Groundwater | | 03-Nov-2020 11:00 | 04-Nov-2020 09:30 | ☐ |
| HS20110128-17 | 67WW08-201103-FD | Groundwater | | 03-Nov-2020 11:00 | 04-Nov-2020 09:30 | ☐ |
| HS20110128-18 | 67WW11-201103 | Groundwater | | 03-Nov-2020 11:55 | 04-Nov-2020 09:30 | ☐ |
| HS20110128-19 | Trip Blank-201103 | Water | CG-100620-221 | 03-Nov-2020 00:00 | 04-Nov-2020 09:30 | ☐ |

**Revision:**1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

**Client:** Aptim Environmental & Infrastucture, Inc. **CASE NARRATIVE**
**Project:** LHAAP 67 November 2020
**Work Order:** HS20110128

## Work Order Comments

- REV01: Revised to update the compound list for 8260 VOC
- The analysis for Methane, Methene, Ethane and CO2 by RSK175 was subcontracted to ALS Simi Valley, CA. Final report attached.
- The analysis for Perchlorate was subcontracted to ALS Salt Lake City, UT. Final report attached.

## Work Order Comments

- The analysis for Methane, Methene, Ethane and CO2 by RSK175 was subcontracted to ALS Simi Valley, CA. Final report attached.
- The analysis for TOC was subcontracted to ALS Kelso, WA. Final report attached.

## GCMS Volatiles by Method SW8260

### Batch ID: R372190

**Sample ID: 67WW13-201103 (HS20110128-11MS)**

- MS/MSD failed QC limits for some compounds due to background sample.

### Batch ID: R372274

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

## WetChemistry by Method SW9056

### Batch ID: R372041

**Sample ID: 67WW08-201103 (HS20110128-16)**

- Sample ran at 2X due to high concentration of Chloride

**Sample ID: 67WW08-201103-FD (HS20110128-17)**

- Sample ran at 2X due to high concentration of Chloride

**Sample ID: 67WW13-201103 (HS20110128-11)**

- Sample ran at 2X due to high concentration of Chloride

**Sample ID: 67WW13-201103 (HS20110128-11MS)**

- The MS and/or MSD recovery was outside of the control limits; however, the result in the parent sample is greater than 4x the spike amount. (Chloride,Sulfate)



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW14-201102 Lab ID:HS20110128-01
Collection Date: 02-Nov-2020 07:20 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 1,1,2-Trichlor-1,2,2-trifluoroethane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| **1,1-Dichloroethane** | **1.2** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 00:49 |
| **1,1-Dichloroethene** | **4.9** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 00:49 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 1,2,3-Trichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 1,2,3-Trichloropropane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 1,2,4-Trichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 1,2-Dichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 1,3-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 1,4-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 2-Hexanone | 2.0 | U | 1.0 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 4-Chlorotoluene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| 4-Methyl-2-pentanone | 2.0 | U | 0.70 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Acetone | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Bromobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW14-201102 Lab ID:HS20110128-01
Collection Date: 02-Nov-2020 07:20 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Methylene chloride | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| n-Butylbenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 00:49 |
| *Surr: 1,2-Dichloroethane-d4* | *86.0* | | | **0** | *81-118* | *%REC* | *1* | *07-Nov-2020 00:49* |
| *Surr: 4-Bromofluorobenzene* | *87.7* | | | **0** | *85-114* | *%REC* | *1* | *07-Nov-2020 00:49* |
| *Surr: Dibromofluoromethane* | *84.8* | | | **0** | *80-119* | *%REC* | *1* | *07-Nov-2020 00:49* |
| *Surr: Toluene-d8* | *101* | | | **0** | *89-112* | *%REC* | *1* | *07-Nov-2020 00:49* |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW05-201102 Lab ID:HS20110128-02
Collection Date: 02-Nov-2020 08:05 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 1,1,2-Trichlor-1,2,2-trifluoroethane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 1,1-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 1,1-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 1,2,3-Trichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 1,2,3-Trichloropropane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 1,2,4-Trichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 1,2-Dichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 1,3-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 1,4-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 2-Hexanone | 2.0 | U | 1.0 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 4-Chlorotoluene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| 4-Methyl-2-pentanone | 2.0 | U | 0.70 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Acetone | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Bromobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW05-201102 Lab ID:HS20110128-02
Collection Date: 02-Nov-2020 08:05 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Methylene chloride | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| n-Butylbenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:10 |
| *Surr: 1,2-Dichloroethane-d4* | *88.7* | | | **0** | *81-118* | *%REC* | *1* | *07-Nov-2020 01:10* |
| *Surr: 4-Bromofluorobenzene* | *90.9* | | | **0** | *85-114* | *%REC* | *1* | *07-Nov-2020 01:10* |
| *Surr: Dibromofluoromethane* | *87.3* | | | **0** | *80-119* | *%REC* | *1* | *07-Nov-2020 01:10* |
| *Surr: Toluene-d8* | *101* | | | **0** | *89-112* | *%REC* | *1* | *07-Nov-2020 01:10* |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW18-201102 Lab ID:HS20110128-03
Collection Date: 02-Nov-2020 08:45 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 1,1,2-Trichlor-1,2,2-trifluoroethane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 1,1-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 1,1-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 1,2,3-Trichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 1,2,3-Trichloropropane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 1,2,4-Trichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 1,2-Dichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 1,3-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 1,4-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 2-Hexanone | 2.0 | U | 1.0 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 4-Chlorotoluene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| 4-Methyl-2-pentanone | 2.0 | U | 0.70 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Acetone | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Bromobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW18-201102 Lab ID:HS20110128-03
Collection Date: 02-Nov-2020 08:45 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Methylene chloride | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| n-Butylbenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:31 |
| *Surr: 1,2-Dichloroethane-d4* | *87.6* | | | **0** | *81-118* | *%REC* | *1* | *07-Nov-2020 01:31* |
| *Surr: 4-Bromofluorobenzene* | *87.6* | | | **0** | *85-114* | *%REC* | *1* | *07-Nov-2020 01:31* |
| *Surr: Dibromofluoromethane* | *87.7* | | | **0** | *80-119* | *%REC* | *1* | *07-Nov-2020 01:31* |
| *Surr: Toluene-d8* | *102* | | | **0** | *89-112* | *%REC* | *1* | *07-Nov-2020 01:31* |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW17-201102 Lab ID:HS20110128-04
Collection Date: 02-Nov-2020 09:30 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 1,1,2-Trichlor-1,2,2-trifluoroethane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 1,1-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 1,1-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 1,2,3-Trichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 1,2,3-Trichloropropane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 1,2,4-Trichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 1,2-Dichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 1,3-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 1,4-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 2-Hexanone | 2.0 | U | 1.0 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 4-Chlorotoluene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| 4-Methyl-2-pentanone | 2.0 | U | 0.70 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Acetone | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Bromobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW17-201102 Lab ID:HS20110128-04
Collection Date: 02-Nov-2020 09:30 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Methylene chloride | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| n-Butylbenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 01:52 |
| *Surr: 1,2-Dichloroethane-d4* | *86.7* | | | **0** | *81-118* | *%REC* | *1* | *07-Nov-2020 01:52* |
| *Surr: 4-Bromofluorobenzene* | *91.9* | | | **0** | *85-114* | *%REC* | *1* | *07-Nov-2020 01:52* |
| *Surr: Dibromofluoromethane* | *82.8* | | | **0** | *80-119* | *%REC* | *1* | *07-Nov-2020 01:52* |
| *Surr: Toluene-d8* | *99.6* | | | **0** | *89-112* | *%REC* | *1* | *07-Nov-2020 01:52* |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastructure, Inc.
Project: LHAAP 67 November 2020
Sample ID: 67WW17-201102-FD
Collection Date: 02-Nov-2020 09:30

**ANALYTICAL REPORT**
WorkOrder:HS20110128
Lab ID:HS20110128-05
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 1,1,2-Trichlor-1,2,2-trifluoroethane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 1,1-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 1,1-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 1,2,3-Trichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 1,2,3-Trichloropropane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 1,2,4-Trichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 1,2-Dichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 1,3-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 1,4-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 2-Hexanone | 2.0 | U | 1.0 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 4-Chlorotoluene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| 4-Methyl-2-pentanone | 2.0 | U | 0.70 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Acetone | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Bromobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW17-201102-FD Lab ID:HS20110128-05
Collection Date: 02-Nov-2020 09:30 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Methylene chloride | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| n-Butylbenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:13 |
| *Surr: 1,2-Dichloroethane-d4* | *86.6* | | | **0** | *81-118* | *%REC* | *1* | *07-Nov-2020 02:13* |
| *Surr: 4-Bromofluorobenzene* | *87.0* | | | **0** | *85-114* | *%REC* | *1* | *07-Nov-2020 02:13* |
| *Surr: Dibromofluoromethane* | *86.2* | | | **0** | *80-119* | *%REC* | *1* | *07-Nov-2020 02:13* |
| *Surr: Toluene-d8* | *101* | | | **0** | *89-112* | *%REC* | *1* | *07-Nov-2020 02:13* |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW09A-201102 Lab ID:HS20110128-06
Collection Date: 02-Nov-2020 10:15 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 1,1,2-Trichlor-1,2,2-trifluoroethane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 1,1-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 1,1-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 1,2,3-Trichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 1,2,3-Trichloropropane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 1,2,4-Trichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 1,2-Dichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 1,3-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 1,4-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 2-Hexanone | 2.0 | U | 1.0 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 4-Chlorotoluene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| 4-Methyl-2-pentanone | 2.0 | U | 0.70 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Acetone | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Bromobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW09A-201102 Lab ID:HS20110128-06
Collection Date: 02-Nov-2020 10:15 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Methylene chloride | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| n-Butylbenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:34 |
| *Surr: 1,2-Dichloroethane-d4* | *88.8* | | | **0** | *81-118* | *%REC* | *1* | *07-Nov-2020 02:34* |
| *Surr: 4-Bromofluorobenzene* | *89.5* | | | **0** | *85-114* | *%REC* | *1* | *07-Nov-2020 02:34* |
| *Surr: Dibromofluoromethane* | *85.9* | | | **0** | *80-119* | *%REC* | *1* | *07-Nov-2020 02:34* |
| *Surr: Toluene-d8* | *100* | | | **0** | *89-112* | *%REC* | *1* | *07-Nov-2020 02:34* |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastructure, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW10-201102 Lab ID:HS20110128-07
Collection Date: 02-Nov-2020 10:55 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 1,1,2-Trichlor-1,2,2-trifluoroethane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 1,1-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 1,1-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 1,2,3-Trichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 1,2,3-Trichloropropane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 1,2,4-Trichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 1,2-Dichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 1,3-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 1,4-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 2-Hexanone | 2.0 | U | 1.0 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 4-Chlorotoluene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| 4-Methyl-2-pentanone | 2.0 | U | 0.70 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Acetone | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Bromobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW10-201102 Lab ID:HS20110128-07
Collection Date: 02-Nov-2020 10:55 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Methylene chloride | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| n-Butylbenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 02:55 |
| *Surr: 1,2-Dichloroethane-d4* | *85.6* | | | **0** | *81-118* | *%REC* | *1* | *07-Nov-2020 02:55* |
| *Surr: 4-Bromofluorobenzene* | *89.2* | | | **0** | *85-114* | *%REC* | *1* | *07-Nov-2020 02:55* |
| *Surr: Dibromofluoromethane* | *85.4* | | | **0** | *80-119* | *%REC* | *1* | *07-Nov-2020 02:55* |
| *Surr: Toluene-d8* | *100* | | | **0** | *89-112* | *%REC* | *1* | *07-Nov-2020 02:55* |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW07-201102 Lab ID:HS20110128-08
Collection Date: 02-Nov-2020 11:40 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 1,1,2-Trichlor-1,2,2-trifluoroethane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 1,1-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 1,1-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 1,2,3-Trichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 1,2,3-Trichloropropane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 1,2,4-Trichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 1,2-Dichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 1,3-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 1,4-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 2-Hexanone | 2.0 | U | 1.0 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 4-Chlorotoluene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| 4-Methyl-2-pentanone | 2.0 | U | 0.70 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Acetone | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Bromobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW07-201102 Lab ID:HS20110128-08
Collection Date: 02-Nov-2020 11:40 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Methylene chloride | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| n-Butylbenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:16 |
| *Surr: 1,2-Dichloroethane-d4* | *87.6* | | | **0** | *81-118* | *%REC* | *1* | *07-Nov-2020 03:16* |
| *Surr: 4-Bromofluorobenzene* | *87.3* | | | **0** | *85-114* | *%REC* | *1* | *07-Nov-2020 03:16* |
| *Surr: Dibromofluoromethane* | *86.6* | | | **0** | *80-119* | *%REC* | *1* | *07-Nov-2020 03:16* |
| *Surr: Toluene-d8* | *99.0* | | | **0** | *89-112* | *%REC* | *1* | *07-Nov-2020 03:16* |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW12-201102 Lab ID:HS20110128-09
Collection Date: 02-Nov-2020 12:20 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 1,1,2-Trichlor-1,2,2-trifluoroethane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| **1,1-Dichloroethane** | **1.1** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 03:37 |
| **1,1-Dichloroethene** | **40** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 03:37 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 1,2,3-Trichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 1,2,3-Trichloropropane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 1,2,4-Trichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 1,2-Dichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 1,3-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 1,4-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 2-Hexanone | 2.0 | U | 1.0 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 4-Chlorotoluene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| 4-Methyl-2-pentanone | 2.0 | U | 0.70 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Acetone | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Bromobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW12-201102 Lab ID:HS20110128-09
Collection Date: 02-Nov-2020 12:20 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Methylene chloride | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| n-Butylbenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:37 |
| *Surr: 1,2-Dichloroethane-d4* | *89.5* | | | **0** | *81-118* | *%REC* | *1* | *07-Nov-2020 03:37* |
| *Surr: 4-Bromofluorobenzene* | *89.1* | | | **0** | *85-114* | *%REC* | *1* | *07-Nov-2020 03:37* |
| *Surr: Dibromofluoromethane* | *87.1* | | | **0** | *80-119* | *%REC* | *1* | *07-Nov-2020 03:37* |
| *Surr: Toluene-d8* | *99.9* | | | **0** | *89-112* | *%REC* | *1* | *07-Nov-2020 03:37* |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW02-201102 Lab ID:HS20110128-10
Collection Date: 02-Nov-2020 13:05 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| 1,1,2-Trichlor-1,2,2-trifluoroethane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| **1,1,2-Trichloroethane** | **1.0** | | **0.30** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 03:58 |
| **1,1-Dichloroethane** | **7.6** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 03:58 |
| **1,1-Dichloroethene** | **220** | | **1.0** | **2.5** | **5.0** | **UG/L** | 5 | 09-Nov-2020 16:41 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| 1,2,3-Trichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| 1,2,3-Trichloropropane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| 1,2,4-Trichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| 1,2-Dichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| **1,2-Dichloroethane** | **5.5** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 03:58 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| 1,3-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| 1,4-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| 2-Hexanone | 2.0 | U | 1.0 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| 4-Chlorotoluene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| 4-Methyl-2-pentanone | 2.0 | U | 0.70 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Acetone | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Bromobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW02-201102 Lab ID:HS20110128-10
Collection Date: 02-Nov-2020 13:05 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: PC |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Methylene chloride | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| n-Butylbenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| **Trichloroethene** | **0.83** | J | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 03:58 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 03:58 |
| *Surr: 1,2-Dichloroethane-d4* | *88.8* | | | **0** | *81-118* | *%REC* | *1* | *07-Nov-2020 03:58* |
| *Surr: 1,2-Dichloroethane-d4* | *93.8* | | | **0** | *81-118* | *%REC* | *5* | *09-Nov-2020 16:41* |
| *Surr: 4-Bromofluorobenzene* | *93.2* | | | **0** | *85-114* | *%REC* | *1* | *07-Nov-2020 03:58* |
| *Surr: 4-Bromofluorobenzene* | *98.2* | | | **0** | *85-114* | *%REC* | *5* | *09-Nov-2020 16:41* |
| *Surr: Dibromofluoromethane* | *84.1* | | | **0** | *80-119* | *%REC* | *1* | *07-Nov-2020 03:58* |
| *Surr: Dibromofluoromethane* | *88.5* | | | **0** | *80-119* | *%REC* | *5* | *09-Nov-2020 16:41* |
| *Surr: Toluene-d8* | *102* | | | **0** | *89-112* | *%REC* | *1* | *07-Nov-2020 03:58* |
| *Surr: Toluene-d8* | *103* | | | **0** | *89-112* | *%REC* | *5* | *09-Nov-2020 16:41* |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW13-201103 Lab ID:HS20110128-11
Collection Date: 03-Nov-2020 07:10 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| 1,1,2-Trichlor-1,2,2-trifluoroethane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| **1,1,2-Trichloroethane** | **5.7** | | **0.30** | **0.50** | **1.0** | **ug/L** | 1 | 06-Nov-2020 23:24 |
| **1,1-Dichloroethane** | **33** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 06-Nov-2020 23:24 |
| **1,1-Dichloroethene** | **720** | | **2.0** | **5.0** | **10** | **UG/L** | 10 | 09-Nov-2020 17:02 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| 1,2,3-Trichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| 1,2,3-Trichloropropane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| 1,2,4-Trichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| 1,2-Dichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| **1,2-Dichloroethane** | **44** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 06-Nov-2020 23:24 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| 1,3-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| 1,4-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| 2-Hexanone | 2.0 | U | 1.0 | 2.0 | 2.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| 4-Chlorotoluene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| 4-Methyl-2-pentanone | 2.0 | U | 0.70 | 2.0 | 2.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Acetone | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Bromobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW13-201103 Lab ID:HS20110128-11
Collection Date: 03-Nov-2020 07:10 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: PC |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| **cis-1,2-Dichloroethene** | **1.6** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 06-Nov-2020 23:24 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Methylene chloride | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| n-Butylbenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| **Trichloroethene** | **3.1** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 06-Nov-2020 23:24 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:24 |
| *Surr: 1,2-Dichloroethane-d4* | *86.7* | | | **0** | *81-118* | *%REC* | *1* | *06-Nov-2020 23:24* |
| *Surr: 1,2-Dichloroethane-d4* | *96.3* | | | **0** | *81-118* | *%REC* | *10* | *09-Nov-2020 17:02* |
| *Surr: 4-Bromofluorobenzene* | *89.8* | | | **0** | *85-114* | *%REC* | *1* | *06-Nov-2020 23:24* |
| *Surr: 4-Bromofluorobenzene* | *88.2* | | | **0** | *85-114* | *%REC* | *10* | *09-Nov-2020 17:02* |
| *Surr: Dibromofluoromethane* | *83.4* | | | **0** | *80-119* | *%REC* | *1* | *06-Nov-2020 23:24* |
| *Surr: Dibromofluoromethane* | *82.5* | | | **0** | *80-119* | *%REC* | *10* | *09-Nov-2020 17:02* |
| *Surr: Toluene-d8* | *100* | | | **0** | *89-112* | *%REC* | *1* | *06-Nov-2020 23:24* |
| *Surr: Toluene-d8* | *101* | | | **0** | *89-112* | *%REC* | *10* | *09-Nov-2020 17:02* |
| **ANIONS BY SW9056A** | | **Method:SW9056** | | | | | | Analyst: YP |
| **Chloride** | **1,270** | | **20.0** | **50.0** | **50.0** | **mg/L** | 100 | 04-Nov-2020 19:50 |
| Nitrogen, Nitrate (As N) | 0.200 | U | 0.0600 | 0.200 | 0.200 | mg/L | 2 | 04-Nov-2020 15:19 |
| **Sulfate** | **346** | | **20.0** | **50.0** | **50.0** | **mg/L** | 100 | 04-Nov-2020 19:50 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2020
Sample ID: 67WW13-201103
Collection Date: 03-Nov-2020 07:10

**ANALYTICAL REPORT**
WorkOrder:HS20110128
Lab ID:HS20110128-11
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **SUBCONTRACT ANALYSIS - RSK** | | **Method:NA** | | | | | | Analyst: SUBCA |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 19-Nov-2020 15:53 |
| **SUBCONTRACT ANALYSIS - TOC ANALYSIS** | | **Method:NA** | | | | | | Analyst: SUBK |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 18-Nov-2020 17:20 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW15-201103 Lab ID:HS20110128-12
Collection Date: 03-Nov-2020 08:10 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| 1,1,2-Trichlor-1,2,2-trifluoroethane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| **1,1,2-Trichloroethane** | **6.4** | | **0.30** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 04:19 |
| **1,1-Dichloroethane** | **14** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 04:19 |
| **1,1-Dichloroethene** | **730** | | **2.0** | **5.0** | **10** | **UG/L** | 10 | 09-Nov-2020 17:23 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| 1,2,3-Trichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| 1,2,3-Trichloropropane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| 1,2,4-Trichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| 1,2-Dichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| **1,2-Dichloroethane** | **29** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 04:19 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| 1,3-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| 1,4-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| 2-Hexanone | 2.0 | U | 1.0 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| 4-Chlorotoluene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| 4-Methyl-2-pentanone | 2.0 | U | 0.70 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Acetone | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Bromobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW15-201103 Lab ID:HS20110128-12
Collection Date: 03-Nov-2020 08:10 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: PC |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| **cis-1,2-Dichloroethene** | **1.7** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 04:19 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Methylene chloride | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| n-Butylbenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| **Trichloroethene** | **2.0** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 04:19 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:19 |
| *Surr: 1,2-Dichloroethane-d4* | *83.2* | | | **0** | *81-118* | *%REC* | *1* | *07-Nov-2020 04:19* |
| *Surr: 1,2-Dichloroethane-d4* | *96.1* | | | **0** | *81-118* | *%REC* | *10* | *09-Nov-2020 17:23* |
| *Surr: 4-Bromofluorobenzene* | *87.6* | | | **0** | *85-114* | *%REC* | *1* | *07-Nov-2020 04:19* |
| *Surr: 4-Bromofluorobenzene* | *94.9* | | | **0** | *85-114* | *%REC* | *10* | *09-Nov-2020 17:23* |
| *Surr: Dibromofluoromethane* | *82.3* | | | **0** | *80-119* | *%REC* | *1* | *07-Nov-2020 04:19* |
| *Surr: Dibromofluoromethane* | *88.8* | | | **0** | *80-119* | *%REC* | *10* | *09-Nov-2020 17:23* |
| *Surr: Toluene-d8* | *104* | | | **0** | *89-112* | *%REC* | *1* | *07-Nov-2020 04:19* |
| *Surr: Toluene-d8* | *99.1* | | | **0** | *89-112* | *%REC* | *10* | *09-Nov-2020 17:23* |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW09-201103 Lab ID:HS20110128-13
Collection Date: 03-Nov-2020 08:50 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 1,1,2-Trichlor-1,2,2-trifluoroethane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 1,1-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 1,1-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 1,2,3-Trichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 1,2,3-Trichloropropane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 1,2,4-Trichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 1,2-Dichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 1,3-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 1,4-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 2-Hexanone | 2.0 | U | 1.0 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 4-Chlorotoluene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| 4-Methyl-2-pentanone | 2.0 | U | 0.70 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Acetone | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Bromobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW09-201103 Lab ID:HS20110128-13
Collection Date: 03-Nov-2020 08:50 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Methylene chloride | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| n-Butylbenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 04:40 |
| *Surr: 1,2-Dichloroethane-d4* | *88.0* | | | **0** | *81-118* | *%REC* | *1* | *07-Nov-2020 04:40* |
| *Surr: 4-Bromofluorobenzene* | *92.1* | | | **0** | *85-114* | *%REC* | *1* | *07-Nov-2020 04:40* |
| *Surr: Dibromofluoromethane* | *86.8* | | | **0** | *80-119* | *%REC* | *1* | *07-Nov-2020 04:40* |
| *Surr: Toluene-d8* | *101* | | | **0** | *89-112* | *%REC* | *1* | *07-Nov-2020 04:40* |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW01-201103 Lab ID:HS20110128-14
Collection Date: 03-Nov-2020 09:30 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| 1,1,2-Trichlor-1,2,2-trifluoroethane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| **1,1-Dichloroethane** | **2.6** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 05:01 |
| **1,1-Dichloroethene** | **49** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 05:01 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| 1,2,3-Trichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| 1,2,3-Trichloropropane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| 1,2,4-Trichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| 1,2-Dichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| **1,2-Dichloroethane** | **6.1** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 05:01 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| 1,3-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| 1,4-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| 2-Hexanone | 2.0 | U | 1.0 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| 4-Chlorotoluene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| 4-Methyl-2-pentanone | 2.0 | U | 0.70 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Acetone | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Bromobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW01-201103 Lab ID:HS20110128-14
Collection Date: 03-Nov-2020 09:30 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Methylene chloride | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| n-Butylbenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:01 |
| *Surr: 1,2-Dichloroethane-d4* | *87.5* | | | **0** | *81-118* | *%REC* | *1* | *07-Nov-2020 05:01* |
| *Surr: 4-Bromofluorobenzene* | *90.1* | | | **0** | *85-114* | *%REC* | *1* | *07-Nov-2020 05:01* |
| *Surr: Dibromofluoromethane* | *83.2* | | | **0** | *80-119* | *%REC* | *1* | *07-Nov-2020 05:01* |
| *Surr: Toluene-d8* | *103* | | | **0** | *89-112* | *%REC* | *1* | *07-Nov-2020 05:01* |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW16I-201103 Lab ID:HS20110128-15
Collection Date: 03-Nov-2020 10:15 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 1,1,2-Trichlor-1,2,2-trifluoroethane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 1,1-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 1,1-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 1,2,3-Trichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 1,2,3-Trichloropropane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 1,2,4-Trichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 1,2-Dichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 1,3-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 1,4-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 2-Hexanone | 2.0 | U | 1.0 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 4-Chlorotoluene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| 4-Methyl-2-pentanone | 2.0 | U | 0.70 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Acetone | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Bromobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW16I-201103 Lab ID:HS20110128-15
Collection Date: 03-Nov-2020 10:15 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: PC |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Methylene chloride | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| n-Butylbenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:23 |
| *Surr: 1,2-Dichloroethane-d4* | *87.2* | | | **0** | *81-118* | *%REC* | *1* | *07-Nov-2020 05:23* |
| *Surr: 4-Bromofluorobenzene* | *89.8* | | | **0** | *85-114* | *%REC* | *1* | *07-Nov-2020 05:23* |
| *Surr: Dibromofluoromethane* | *84.5* | | | **0** | *80-119* | *%REC* | *1* | *07-Nov-2020 05:23* |
| *Surr: Toluene-d8* | *101* | | | **0** | *89-112* | *%REC* | *1* | *07-Nov-2020 05:23* |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW08-201103 Lab ID:HS20110128-16
Collection Date: 03-Nov-2020 11:00 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| 1,1,2-Trichlor-1,2,2-trifluoroethane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| **1,1-Dichloroethane** | **7.3** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 05:44 |
| **1,1-Dichloroethene** | **50** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 05:44 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| 1,2,3-Trichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| 1,2,3-Trichloropropane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| 1,2,4-Trichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| 1,2-Dichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| **1,2-Dichloroethane** | **1.8** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 05:44 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| 1,3-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| 1,4-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| 2-Hexanone | 2.0 | U | 1.0 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| 4-Chlorotoluene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| 4-Methyl-2-pentanone | 2.0 | U | 0.70 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Acetone | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Bromobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW08-201103 Lab ID:HS20110128-16
Collection Date: 03-Nov-2020 11:00 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: PC |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Methylene chloride | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| n-Butylbenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 05:44 |
| *Surr: 1,2-Dichloroethane-d4* | *87.6* | | | **0** | *81-118* | *%REC* | *1* | *07-Nov-2020 05:44* |
| *Surr: 4-Bromofluorobenzene* | *90.9* | | | **0** | *85-114* | *%REC* | *1* | *07-Nov-2020 05:44* |
| *Surr: Dibromofluoromethane* | *88.9* | | | **0** | *80-119* | *%REC* | *1* | *07-Nov-2020 05:44* |
| *Surr: Toluene-d8* | *101* | | | **0** | *89-112* | *%REC* | *1* | *07-Nov-2020 05:44* |
| **ANIONS BY SW9056A** | | **Method:SW9056** | | | | | | Analyst: YP |
| **Chloride** | **1,830** | | **20.0** | **50.0** | **50.0** | **mg/L** | 100 | 04-Nov-2020 20:08 |
| Nitrogen, Nitrate (As N) | 0.200 | U | 0.0600 | 0.200 | 0.200 | mg/L | 2 | 04-Nov-2020 15:37 |
| **Sulfate** | **521** | | **20.0** | **50.0** | **50.0** | **mg/L** | 100 | 04-Nov-2020 20:08 |
| **SUBCONTRACT ANALYSIS - RSK** | | **Method:NA** | | | | | | Analyst: SUBCA |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 19-Nov-2020 15:53 |
| **SUBCONTRACT ANALYSIS - TOC ANALYSIS** | | **Method:NA** | | | | | | Analyst: SUBK |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 18-Nov-2020 17:20 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW08-201103-FD Lab ID:HS20110128-17
Collection Date: 03-Nov-2020 11:00 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| 1,1,2-Trichlor-1,2,2-trifluoroethane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| **1,1-Dichloroethane** | **7.1** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 06:05 |
| **1,1-Dichloroethene** | **44** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 06:05 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| 1,2,3-Trichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| 1,2,3-Trichloropropane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| 1,2,4-Trichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| 1,2-Dichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| **1,2-Dichloroethane** | **1.6** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 06:05 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| 1,3-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| 1,4-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| 2-Hexanone | 2.0 | U | 1.0 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| 4-Chlorotoluene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| 4-Methyl-2-pentanone | 2.0 | U | 0.70 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Acetone | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Bromobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW08-201103-FD Lab ID:HS20110128-17
Collection Date: 03-Nov-2020 11:00 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: PC |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Methylene chloride | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| n-Butylbenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:05 |
| *Surr: 1,2-Dichloroethane-d4* | *88.0* | | | **0** | *81-118* | *%REC* | *1* | *07-Nov-2020 06:05* |
| *Surr: 4-Bromofluorobenzene* | *89.1* | | | **0** | *85-114* | *%REC* | *1* | *07-Nov-2020 06:05* |
| *Surr: Dibromofluoromethane* | *85.5* | | | **0** | *80-119* | *%REC* | *1* | *07-Nov-2020 06:05* |
| *Surr: Toluene-d8* | *102* | | | **0** | *89-112* | *%REC* | *1* | *07-Nov-2020 06:05* |
| **ANIONS BY SW9056A** | | **Method:SW9056** | | | | | | Analyst: YP |
| **Chloride** | **1,810** | | **20.0** | **50.0** | **50.0** | **mg/L** | 100 | 04-Nov-2020 20:26 |
| Nitrogen, Nitrate (As N) | 0.200 | U | 0.0600 | 0.200 | 0.200 | mg/L | 2 | 04-Nov-2020 15:55 |
| **Sulfate** | **500** | | **20.0** | **50.0** | **50.0** | **mg/L** | 100 | 04-Nov-2020 20:26 |
| **SUBCONTRACT ANALYSIS - RSK** | | **Method:NA** | | | | | | Analyst: SUBCA |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 19-Nov-2020 15:53 |
| **SUBCONTRACT ANALYSIS - TOC ANALYSIS** | | **Method:NA** | | | | | | Analyst: SUBK |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 18-Nov-2020 17:20 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW11-201103 Lab ID:HS20110128-18
Collection Date: 03-Nov-2020 11:55 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 1,1,2-Trichlor-1,2,2-trifluoroethane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| **1,1-Dichloroethane** | **1.3** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 06:26 |
| **1,1-Dichloroethene** | **1.2** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 07-Nov-2020 06:26 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 1,2,3-Trichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 1,2,3-Trichloropropane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 1,2,4-Trichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 1,2-Dichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 1,3-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 1,4-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 2-Hexanone | 2.0 | U | 1.0 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 4-Chlorotoluene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| 4-Methyl-2-pentanone | 2.0 | U | 0.70 | 2.0 | 2.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Acetone | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Bromobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: 67WW11-201103 Lab ID:HS20110128-18
Collection Date: 03-Nov-2020 11:55 Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Methylene chloride | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| n-Butylbenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 07-Nov-2020 06:26 |
| *Surr: 1,2-Dichloroethane-d4* | *87.1* | | | **0** | *81-118* | *%REC* | *1* | *07-Nov-2020 06:26* |
| *Surr: 4-Bromofluorobenzene* | *93.2* | | | **0** | *85-114* | *%REC* | *1* | *07-Nov-2020 06:26* |
| *Surr: Dibromofluoromethane* | *84.6* | | | **0** | *80-119* | *%REC* | *1* | *07-Nov-2020 06:26* |
| *Surr: Toluene-d8* | *102* | | | **0** | *89-112* | *%REC* | *1* | *07-Nov-2020 06:26* |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: Trip Blank-201103 Lab ID:HS20110128-19
Collection Date: 03-Nov-2020 00:00 Matrix:Water

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 1,1,2-Trichlor-1,2,2-trifluoroethane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 1,1-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 1,1-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 1,2,3-Trichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 1,2,3-Trichloropropane | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 1,2,4-Trichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 1,2-Dichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 1,3-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 1,4-Dichlorobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 2-Hexanone | 2.0 | U | 1.0 | 2.0 | 2.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 4-Chlorotoluene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| 4-Methyl-2-pentanone | 2.0 | U | 0.70 | 2.0 | 2.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Acetone | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Bromobenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 67 November 2020 WorkOrder:HS20110128
Sample ID: Trip Blank-201103 Lab ID:HS20110128-19
Collection Date: 03-Nov-2020 00:00 Matrix:Water

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: PC |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Methylene chloride | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| n-Butylbenzene | 1.0 | U | 0.40 | 1.0 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 06-Nov-2020 23:03 |
| *Surr: 1,2-Dichloroethane-d4* | *86.2* | | | **0** | *81-118* | *%REC* | *1* | *06-Nov-2020 23:03* |
| *Surr: 4-Bromofluorobenzene* | *90.0* | | | **0** | *85-114* | *%REC* | *1* | *06-Nov-2020 23:03* |
| *Surr: Dibromofluoromethane* | *83.8* | | | **0** | *80-119* | *%REC* | *1* | *06-Nov-2020 23:03* |
| *Surr: Toluene-d8* | *100* | | | **0** | *89-112* | *%REC* | *1* | *06-Nov-2020 23:03* |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** LHAAP 67 November 2020
**WorkOrder:** HS20110128

**DATES REPORT**

| Sample ID | Client Samp ID | Collection Date | Leachate Date | Prep Date | Analysis Date | DF |
|---|---|---|---|---|---|---|
| **Batch ID:** R372041 ( 0 ) | **Test Name :** ANIONS BY SW9056A | | | | **Matrix:** Groundwater | |
| HS20110128-11 | 67WW13-201103 | 03 Nov 2020 07:10 | | | 04 Nov 2020 19:50 | 100 |
| HS20110128-11 | 67WW13-201103 | 03 Nov 2020 07:10 | | | 04 Nov 2020 15:19 | 2 |
| HS20110128-16 | 67WW08-201103 | 03 Nov 2020 11:00 | | | 04 Nov 2020 20:08 | 100 |
| HS20110128-16 | 67WW08-201103 | 03 Nov 2020 11:00 | | | 04 Nov 2020 15:37 | 2 |
| HS20110128-17 | 67WW08-201103-FD | 03 Nov 2020 11:00 | | | 04 Nov 2020 20:26 | 100 |
| HS20110128-17 | 67WW08-201103-FD | 03 Nov 2020 11:00 | | | 04 Nov 2020 15:55 | 2 |
| **Batch ID:** R372190 ( 0 ) | **Test Name :** VOLATILES ORGANICS BY METHOD 8260C | | | | **Matrix:** Water | |
| HS20110128-19 | Trip Blank-201103 | 03 Nov 2020 00:00 | | | 06 Nov 2020 23:03 | 1 |
| **Batch ID:** R372190 ( 0 ) | **Test Name :** VOLATILES ORGANICS BY METHOD 8260C | | | | **Matrix:** Groundwater | |
| HS20110128-01 | 67WW14-201102 | 02 Nov 2020 07:20 | | | 07 Nov 2020 00:49 | 1 |
| HS20110128-02 | 67WW05-201102 | 02 Nov 2020 08:05 | | | 07 Nov 2020 01:10 | 1 |
| HS20110128-03 | 67WW18-201102 | 02 Nov 2020 08:45 | | | 07 Nov 2020 01:31 | 1 |
| HS20110128-04 | 67WW17-201102 | 02 Nov 2020 09:30 | | | 07 Nov 2020 01:52 | 1 |
| HS20110128-05 | 67WW17-201102-FD | 02 Nov 2020 09:30 | | | 07 Nov 2020 02:13 | 1 |
| HS20110128-06 | 67WW09A-201102 | 02 Nov 2020 10:15 | | | 07 Nov 2020 02:34 | 1 |
| HS20110128-07 | 67WW10-201102 | 02 Nov 2020 10:55 | | | 07 Nov 2020 02:55 | 1 |
| HS20110128-08 | 67WW07-201102 | 02 Nov 2020 11:40 | | | 07 Nov 2020 03:16 | 1 |
| HS20110128-09 | 67WW12-201102 | 02 Nov 2020 12:20 | | | 07 Nov 2020 03:37 | 1 |
| HS20110128-10 | 67WW02-201102 | 02 Nov 2020 13:05 | | | 07 Nov 2020 03:58 | 1 |
| HS20110128-11 | 67WW13-201103 | 03 Nov 2020 07:10 | | | 06 Nov 2020 23:24 | 1 |
| HS20110128-12 | 67WW15-201103 | 03 Nov 2020 08:10 | | | 07 Nov 2020 04:19 | 1 |
| HS20110128-13 | 67WW09-201103 | 03 Nov 2020 08:50 | | | 07 Nov 2020 04:40 | 1 |
| HS20110128-14 | 67WW01-201103 | 03 Nov 2020 09:30 | | | 07 Nov 2020 05:01 | 1 |
| HS20110128-15 | 67WW16I-201103 | 03 Nov 2020 10:15 | | | 07 Nov 2020 05:23 | 1 |
| HS20110128-16 | 67WW08-201103 | 03 Nov 2020 11:00 | | | 07 Nov 2020 05:44 | 1 |
| HS20110128-17 | 67WW08-201103-FD | 03 Nov 2020 11:00 | | | 07 Nov 2020 06:05 | 1 |
| HS20110128-18 | 67WW11-201103 | 03 Nov 2020 11:55 | | | 07 Nov 2020 06:26 | 1 |
| **Batch ID:** R372274 ( 0 ) | **Test Name :** VOLATILES ORGANICS BY METHOD 8260C | | | | **Matrix:** Groundwater | |
| HS20110128-10 | 67WW02-201102 | 02 Nov 2020 13:05 | | | 09 Nov 2020 16:41 | 5 |
| HS20110128-11 | 67WW13-201103 | 03 Nov 2020 07:10 | | | 09 Nov 2020 17:02 | 10 |
| HS20110128-12 | 67WW15-201103 | 03 Nov 2020 08:10 | | | 09 Nov 2020 17:23 | 10 |
| **Batch ID:** R372897 ( 0 ) | **Test Name :** SUBCONTRACT ANALYSIS - TOC ANALYSIS | | | | **Matrix:** Groundwater | |
| HS20110128-11 | 67WW13-201103 | 03 Nov 2020 07:10 | | | 18 Nov 2020 17:20 | 1 |
| HS20110128-16 | 67WW08-201103 | 03 Nov 2020 11:00 | | | 18 Nov 2020 17:20 | 1 |
| HS20110128-17 | 67WW08-201103-FD | 03 Nov 2020 11:00 | | | 18 Nov 2020 17:20 | 1 |

**Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** LHAAP 67 November 2020
**WorkOrder:** HS20110128

**DATES REPORT**

| Sample ID | Client Samp ID | Collection Date | Leachate Date | Prep Date | Analysis Date | DF |
|---|---|---|---|---|---|---|
| **Batch ID:** R372994 ( 0 ) | **Test Name :** SUBCONTRACT ANALYSIS - RSK | | | | **Matrix:** Groundwater | |
| HS20110128-11 | 67WW13-201103 | 03 Nov 2020 07:10 | | | 19 Nov 2020 15:53 | 1 |
| HS20110128-16 | 67WW08-201103 | 03 Nov 2020 11:00 | | | 19 Nov 2020 15:53 | 1 |
| HS20110128-17 | 67WW08-201103-FD | 03 Nov 2020 11:00 | | | 19 Nov 2020 15:53 | 1 |

**Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** LHAAP 67 November 2020
**WorkOrder:** HS20110128

**QC BATCH REPORT**

**Batch ID:** R372190 ( 0 ) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

**MBLK** Sample ID: **VBLKW-201106** Units: **ug/L** Analysis Date: **06-Nov-2020 22:42**
Client ID: Run ID: **VOA6_372190** SeqNo: **5911331** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 0.50 | 1.0 | | | | | | | | U |
| 1,1,1-Trichloroethane | 0.50 | 1.0 | | | | | | | | U |
| 1,1,2,2-Tetrachloroethane | 0.50 | 1.0 | | | | | | | | U |
| 1,1,2-Trichlor-1,2,2-trifluoroethane | 1.0 | 1.0 | | | | | | | | U |
| 1,1,2-Trichloroethane | 0.50 | 1.0 | | | | | | | | U |
| 1,1-Dichloroethane | 0.50 | 1.0 | | | | | | | | U |
| 1,1-Dichloroethene | 0.50 | 1.0 | | | | | | | | U |
| 1,1-Dichloropropene | 0.50 | 1.0 | | | | | | | | U |
| 1,2,3-Trichlorobenzene | 1.0 | 1.0 | | | | | | | | U |
| 1,2,3-Trichloropropane | 1.0 | 1.0 | | | | | | | | U |
| 1,2,4-Trichlorobenzene | 1.0 | 1.0 | | | | | | | | U |
| 1,2,4-Trimethylbenzene | 0.50 | 1.0 | | | | | | | | U |
| 1,2-Dibromo-3-chloropropane | 0.50 | 1.0 | | | | | | | | U |
| 1,2-Dibromoethane | 0.50 | 1.0 | | | | | | | | U |
| 1,2-Dichlorobenzene | 1.0 | 1.0 | | | | | | | | U |
| 1,2-Dichloroethane | 0.50 | 1.0 | | | | | | | | U |
| 1,2-Dichloropropane | 0.50 | 1.0 | | | | | | | | U |
| 1,3,5-Trimethylbenzene | 0.50 | 1.0 | | | | | | | | U |
| 1,3-Dichlorobenzene | 1.0 | 1.0 | | | | | | | | U |
| 1,3-Dichloropropane | 0.50 | 1.0 | | | | | | | | U |
| 1,4-Dichlorobenzene | 1.0 | 1.0 | | | | | | | | U |
| 2,2-Dichloropropane | 0.50 | 1.0 | | | | | | | | U |
| 2-Butanone | 1.0 | 2.0 | | | | | | | | U |
| 2-Chlorotoluene | 0.50 | 1.0 | | | | | | | | U |
| 2-Hexanone | 2.0 | 2.0 | | | | | | | | U |
| 4-Chlorotoluene | 1.0 | 1.0 | | | | | | | | U |
| 4-Isopropyltoluene | 0.50 | 1.0 | | | | | | | | U |
| 4-Methyl-2-pentanone | 2.0 | 2.0 | | | | | | | | U |
| Acetone | 1.0 | 2.0 | | | | | | | | U |
| Benzene | 0.50 | 1.0 | | | | | | | | U |
| Bromobenzene | 1.0 | 1.0 | | | | | | | | U |
| Bromochloromethane | 0.50 | 1.0 | | | | | | | | U |
| Bromodichloromethane | 0.50 | 1.0 | | | | | | | | U |
| Bromoform | 0.50 | 1.0 | | | | | | | | U |

**Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** LHAAP 67 November 2020
**WorkOrder:** HS20110128

**QC BATCH REPORT**

**Batch ID: R372190 ( 0 )** **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

**MBLK** Sample ID: **VBLKW-201106** Units: **ug/L** Analysis Date: **06-Nov-2020 22:42**
Client ID: Run ID: **VOA6_372190** SeqNo: **5911331** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Bromomethane | 0.50 | 1.0 | | | | | | | | U |
| Carbon disulfide | 1.0 | 2.0 | | | | | | | | U |
| Carbon tetrachloride | 0.50 | 1.0 | | | | | | | | U |
| Chlorobenzene | 0.50 | 1.0 | | | | | | | | U |
| Chloroethane | 0.50 | 1.0 | | | | | | | | U |
| Chloroform | 0.50 | 1.0 | | | | | | | | U |
| Chloromethane | 0.50 | 1.0 | | | | | | | | U |
| cis-1,2-Dichloroethene | 0.50 | 1.0 | | | | | | | | U |
| cis-1,3-Dichloropropene | 0.50 | 1.0 | | | | | | | | U |
| Dibromochloromethane | 0.50 | 1.0 | | | | | | | | U |
| Dibromomethane | 0.50 | 1.0 | | | | | | | | U |
| Dichlorodifluoromethane | 0.50 | 1.0 | | | | | | | | U |
| Ethylbenzene | 0.50 | 1.0 | | | | | | | | U |
| Hexachlorobutadiene | 1.0 | 1.0 | | | | | | | | U |
| Isopropylbenzene | 0.50 | 1.0 | | | | | | | | U |
| m,p-Xylene | 1.0 | 2.0 | | | | | | | | U |
| Methylene chloride | 1.0 | 2.0 | | | | | | | | U |
| Naphthalene | 0.50 | 1.0 | | | | | | | | U |
| n-Butylbenzene | 1.0 | 1.0 | | | | | | | | U |
| n-Propylbenzene | 0.50 | 1.0 | | | | | | | | U |
| o-Xylene | 0.50 | 1.0 | | | | | | | | U |
| sec-Butylbenzene | 0.50 | 1.0 | | | | | | | | U |
| Styrene | 0.50 | 1.0 | | | | | | | | U |
| tert-Butylbenzene | 0.50 | 1.0 | | | | | | | | U |
| Tetrachloroethene | 0.50 | 1.0 | | | | | | | | U |
| Toluene | 0.50 | 1.0 | | | | | | | | U |
| trans-1,2-Dichloroethene | 0.50 | 1.0 | | | | | | | | U |
| trans-1,3-Dichloropropene | 0.50 | 1.0 | | | | | | | | U |
| Trichloroethene | 0.50 | 1.0 | | | | | | | | U |
| Trichlorofluoromethane | 0.50 | 1.0 | | | | | | | | U |
| Vinyl chloride | 0.50 | 1.0 | | | | | | | | U |
| *Surr: 1,2-Dichloroethane-d4* | *43.07* | *1.0* | *50* | *0* | *86.1* | *81 - 118* | | | | |
| *Surr: 4-Bromofluorobenzene* | *44.19* | *1.0* | *50* | *0* | *88.4* | *85 - 114* | | | | |
| *Surr: Dibromofluoromethane* | *41.97* | *1.0* | *50* | *0* | *83.9* | *80 - 119* | | | | |

**Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** LHAAP 67 November 2020
**WorkOrder:** HS20110128

**QC BATCH REPORT**

**Batch ID:** R372190 ( 0 ) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

**MBLK** Sample ID: **VBLKW-201106** Units: **ug/L** Analysis Date: **06-Nov-2020 22:42**
Client ID: Run ID: **VOA6_372190** SeqNo: **5911331** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| *Surr: Toluene-d8* | *50.61* | *1.0* | *50* | *0* | *101* | *89 - 112* | | | | |

**Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** LHAAP 67 November 2020
**WorkOrder:** HS20110128

**QC BATCH REPORT**

**Batch ID:** R372190 ( 0 ) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

**LCS** Sample ID: **VLCSW-201106** Units: **ug/L** Analysis Date: **06-Nov-2020 22:00**
Client ID: Run ID: **VOA6_372190** SeqNo: **5911330** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 18.67 | 1.0 | 20 | 0 | 93.3 | 78 - 124 | | | | |
| 1,1,1-Trichloroethane | 19.55 | 1.0 | 20 | 0 | 97.7 | 74 - 131 | | | | |
| 1,1,2,2-Tetrachloroethane | 20.68 | 1.0 | 20 | 0 | 103 | 71 - 121 | | | | |
| 1,1,2-Trichlor-1,2,2-trifluoroethane | 20.64 | 1.0 | 20 | 0 | 103 | 70 - 136 | | | | |
| 1,1,2-Trichloroethane | 19.71 | 1.0 | 20 | 0 | 98.5 | 80 - 119 | | | | |
| 1,1-Dichloroethane | 19.5 | 1.0 | 20 | 0 | 97.5 | 77 - 125 | | | | |
| 1,1-Dichloroethene | 21.24 | 1.0 | 20 | 0 | 106 | 71 - 131 | | | | |
| 1,1-Dichloropropene | 19.47 | 1.0 | 20 | 0 | 97.4 | 78 - 125 | | | | |
| 1,2,3-Trichlorobenzene | 20.78 | 1.0 | 20 | 0 | 104 | 69 - 129 | | | | |
| 1,2,3-Trichloropropane | 19.52 | 1.0 | 20 | 0 | 97.6 | 73 - 122 | | | | |
| 1,2,4-Trichlorobenzene | 21.9 | 1.0 | 20 | 0 | 110 | 69 - 130 | | | | |
| 1,2,4-Trimethylbenzene | 21.02 | 1.0 | 20 | 0 | 105 | 76 - 124 | | | | |
| 1,2-Dibromo-3-chloropropane | 18.73 | 1.0 | 20 | 0 | 93.7 | 62 - 128 | | | | |
| 1,2-Dibromoethane | 18.93 | 1.0 | 20 | 0 | 94.7 | 77 - 121 | | | | |
| 1,2-Dichlorobenzene | 19.32 | 1.0 | 20 | 0 | 96.6 | 80 - 119 | | | | |
| 1,2-Dichloroethane | 18.95 | 1.0 | 20 | 0 | 94.7 | 73 - 128 | | | | |
| 1,2-Dichloropropane | 19.83 | 1.0 | 20 | 0 | 99.1 | 78 - 122 | | | | |
| 1,3,5-Trimethylbenzene | 20.01 | 1.0 | 20 | 0 | 100 | 75 - 124 | | | | |
| 1,3-Dichlorobenzene | 20.76 | 1.0 | 20 | 0 | 104 | 80 - 119 | | | | |
| 1,3-Dichloropropane | 19.25 | 1.0 | 20 | 0 | 96.3 | 80 - 119 | | | | |
| 1,4-Dichlorobenzene | 20.41 | 1.0 | 20 | 0 | 102 | 79 - 118 | | | | |
| 2,2-Dichloropropane | 18.33 | 1.0 | 20 | 0 | 91.6 | 60 - 139 | | | | |
| 2-Butanone | 40.59 | 2.0 | 40 | 0 | 101 | 56 - 143 | | | | |
| 2-Chlorotoluene | 19.45 | 1.0 | 20 | 0 | 97.2 | 79 - 122 | | | | |
| 2-Hexanone | 36.87 | 2.0 | 40 | 0 | 92.2 | 57 - 139 | | | | |
| 4-Chlorotoluene | 19.11 | 1.0 | 20 | 0 | 95.6 | 78 - 122 | | | | |
| 4-Isopropyltoluene | 20.55 | 1.0 | 20 | 0 | 103 | 77 - 127 | | | | |
| 4-Methyl-2-pentanone | 36.04 | 2.0 | 40 | 0 | 90.1 | 67 - 130 | | | | |
| Acetone | 45.71 | 2.0 | 40 | 0 | 114 | 39 - 160 | | | | |
| Benzene | 19.34 | 1.0 | 20 | 0 | 96.7 | 79 - 120 | | | | |
| Bromobenzene | 20.05 | 1.0 | 20 | 0 | 100 | 80 - 120 | | | | |
| Bromochloromethane | 20.73 | 1.0 | 20 | 0 | 104 | 78 - 123 | | | | |
| Bromodichloromethane | 19.46 | 1.0 | 20 | 0 | 97.3 | 79 - 125 | | | | |
| Bromoform | 18.1 | 1.0 | 20 | 0 | 90.5 | 66 - 130 | | | | |

**Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** LHAAP 67 November 2020
**WorkOrder:** HS20110128

**QC BATCH REPORT**

**Batch ID:** R372190 ( 0 ) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

**LCS** Sample ID: **VLCSW-201106** Units: **ug/L** Analysis Date: **06-Nov-2020 22:00**
Client ID: Run ID: **VOA6_372190** SeqNo: **5911330** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Bromomethane | 21.45 | 1.0 | 20 | 0 | 107 | 53 - 141 | | | | |
| Carbon disulfide | 39.44 | 2.0 | 40 | 0 | 98.6 | 64 - 133 | | | | |
| Carbon tetrachloride | 18.34 | 1.0 | 20 | 0 | 91.7 | 72 - 136 | | | | |
| Chlorobenzene | 18.81 | 1.0 | 20 | 0 | 94.1 | 82 - 118 | | | | |
| Chloroethane | 22.42 | 1.0 | 20 | 0 | 112 | 60 - 138 | | | | |
| Chloroform | 20.62 | 1.0 | 20 | 0 | 103 | 79 - 124 | | | | |
| Chloromethane | 22.32 | 1.0 | 20 | 0 | 112 | 50 - 139 | | | | |
| cis-1,2-Dichloroethene | 19.97 | 1.0 | 20 | 0 | 99.9 | 78 - 123 | | | | |
| cis-1,3-Dichloropropene | 18.67 | 1.0 | 20 | 0 | 93.3 | 75 - 124 | | | | |
| Dibromochloromethane | 18.93 | 1.0 | 20 | 0 | 94.6 | 74 - 126 | | | | |
| Dibromomethane | 20.18 | 1.0 | 20 | 0 | 101 | 79 - 123 | | | | |
| Dichlorodifluoromethane | 19.78 | 1.0 | 20 | 0 | 98.9 | 32 - 152 | | | | |
| Ethylbenzene | 19.4 | 1.0 | 20 | 0 | 97.0 | 79 - 121 | | | | |
| Hexachlorobutadiene | 22 | 1.0 | 20 | 0 | 110 | 66 - 134 | | | | |
| Isopropylbenzene | 19.73 | 1.0 | 20 | 0 | 98.6 | 72 - 131 | | | | |
| m,p-Xylene | 39.02 | 2.0 | 40 | 0 | 97.5 | 80 - 121 | | | | |
| Methylene chloride | 20.56 | 2.0 | 20 | 0 | 103 | 74 - 124 | | | | |
| Naphthalene | 23.53 | 1.0 | 20 | 0 | 118 | 61 - 128 | | | | |
| n-Butylbenzene | 20.55 | 1.0 | 20 | 0 | 103 | 75 - 128 | | | | |
| n-Propylbenzene | 20.8 | 1.0 | 20 | 0 | 104 | 76 - 126 | | | | |
| o-Xylene | 19.18 | 1.0 | 20 | 0 | 95.9 | 78 - 122 | | | | |
| sec-Butylbenzene | 21.18 | 1.0 | 20 | 0 | 106 | 77 - 126 | | | | |
| Styrene | 20.64 | 1.0 | 20 | 0 | 103 | 78 - 123 | | | | |
| tert-Butylbenzene | 21.32 | 1.0 | 20 | 0 | 107 | 78 - 124 | | | | |
| Tetrachloroethene | 19.95 | 1.0 | 20 | 0 | 99.7 | 74 - 129 | | | | |
| Toluene | 17.44 | 1.0 | 20 | 0 | 87.2 | 80 - 121 | | | | |
| trans-1,2-Dichloroethene | 19.64 | 1.0 | 20 | 0 | 98.2 | 75 - 124 | | | | |
| trans-1,3-Dichloropropene | 19.54 | 1.0 | 20 | 0 | 97.7 | 73 - 127 | | | | |
| Trichloroethene | 20.4 | 1.0 | 20 | 0 | 102 | 79 - 123 | | | | |
| Trichlorofluoromethane | 19.99 | 1.0 | 20 | 0 | 100.0 | 65 - 141 | | | | |
| Vinyl chloride | 20.79 | 1.0 | 20 | 0 | 104 | 58 - 137 | | | | |
| *Surr: 1,2-Dichloroethane-d4* | *49.34* | *1.0* | *50* | *0* | *98.7* | *81 - 118* | | | | |
| *Surr: 4-Bromofluorobenzene* | *48.16* | *1.0* | *50* | *0* | *96.3* | *85 - 114* | | | | |
| *Surr: Dibromofluoromethane* | *49.56* | *1.0* | *50* | *0* | *99.1* | *80 - 119* | | | | |

**Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** LHAAP 67 November 2020
**WorkOrder:** HS20110128

**QC BATCH REPORT**

**Batch ID:** R372190 ( 0 ) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

**LCS** Sample ID: **VLCSW-201106** Units: **ug/L** Analysis Date: **06-Nov-2020 22:00**
Client ID: Run ID: **VOA6_372190** SeqNo: **5911330** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| *Surr: Toluene-d8* | *49.32* | *1.0* | *50* | *0* | *98.6* | *89 - 112* | | | | |

**Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** LHAAP 67 November 2020
**WorkOrder:** HS20110128

**QC BATCH REPORT**

**Batch ID:** R372190 ( 0 ) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

**MS** Sample ID: **HS20110128-11MS** Units: **ug/L** Analysis Date: **06-Nov-2020 23:45**
Client ID: **67WW13-201103** Run ID: **VOA6_372190** SeqNo: **5911334** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 22.72 | 1.0 | 20 | 0 | 114 | 78 - 124 | | | | |
| 1,1,1-Trichloroethane | 22.67 | 1.0 | 20 | 0 | 113 | 74 - 131 | | | | |
| 1,1,2,2-Tetrachloroethane | 23.3 | 1.0 | 20 | 0 | 116 | 71 - 121 | | | | |
| 1,1,2-Trichlor-1,2,2-trifluoroethane | 29.68 | 1.0 | 20 | 0 | 148 | 70 - 136 | | | | S |
| 1,1,2-Trichloroethane | 27.1 | 1.0 | 20 | 5.721 | 107 | 80 - 119 | | | | |
| 1,1-Dichloroethane | 54.27 | 1.0 | 20 | 33.01 | 106 | 77 - 125 | | | | |
| 1,1-Dichloroethene | 827.2 | 1.0 | 20 | 883.5 | -281 | 71 - 131 | | | | SEO |
| 1,1-Dichloropropene | 25.09 | 1.0 | 20 | 0 | 125 | 78 - 125 | | | | S |
| 1,2,3-Trichlorobenzene | 19.9 | 1.0 | 20 | 0 | 99.5 | 69 - 129 | | | | |
| 1,2,3-Trichloropropane | 23.31 | 1.0 | 20 | 0 | 117 | 73 - 122 | | | | |
| 1,2,4-Trichlorobenzene | 21.7 | 1.0 | 20 | 0 | 108 | 69 - 130 | | | | |
| 1,2,4-Trimethylbenzene | 26.43 | 1.0 | 20 | 0 | 132 | 76 - 124 | | | | S |
| 1,2-Dibromo-3-chloropropane | 21.41 | 1.0 | 20 | 0 | 107 | 62 - 128 | | | | |
| 1,2-Dibromoethane | 22.31 | 1.0 | 20 | 0 | 112 | 77 - 121 | | | | |
| 1,2-Dichlorobenzene | 23.86 | 1.0 | 20 | 0 | 119 | 80 - 119 | | | | S |
| 1,2-Dichloroethane | 64.66 | 1.0 | 20 | 43.92 | 104 | 73 - 128 | | | | |
| 1,2-Dichloropropane | 23.73 | 1.0 | 20 | 0 | 119 | 78 - 122 | | | | |
| 1,3,5-Trimethylbenzene | 24.95 | 1.0 | 20 | 0 | 125 | 75 - 124 | | | | S |
| 1,3-Dichlorobenzene | 23.9 | 1.0 | 20 | 0 | 119 | 80 - 119 | | | | S |
| 1,3-Dichloropropane | 22.22 | 1.0 | 20 | 0 | 111 | 80 - 119 | | | | |
| 1,4-Dichlorobenzene | 24.24 | 1.0 | 20 | 0 | 121 | 79 - 118 | | | | S |
| 2,2-Dichloropropane | 21.46 | 1.0 | 20 | 0 | 107 | 60 - 139 | | | | |
| 2-Butanone | 36.41 | 2.0 | 40 | 0 | 91.0 | 56 - 143 | | | | |
| 2-Chlorotoluene | 25.01 | 1.0 | 20 | 0 | 125 | 79 - 122 | | | | S |
| 2-Hexanone | 38.57 | 2.0 | 40 | 0 | 96.4 | 57 - 139 | | | | |
| 4-Chlorotoluene | 23.67 | 1.0 | 20 | 0 | 118 | 78 - 122 | | | | |
| 4-Isopropyltoluene | 26.77 | 1.0 | 20 | 0 | 134 | 77 - 127 | | | | S |
| 4-Methyl-2-pentanone | 39.51 | 2.0 | 40 | 0 | 98.8 | 67 - 130 | | | | |
| Acetone | 33.99 | 2.0 | 40 | 0 | 85.0 | 39 - 160 | | | | |
| Benzene | 23.49 | 1.0 | 20 | 0 | 117 | 79 - 120 | | | | |
| Bromobenzene | 24.52 | 1.0 | 20 | 0 | 123 | 80 - 120 | | | | S |
| Bromochloromethane | 22.63 | 1.0 | 20 | 0 | 113 | 78 - 123 | | | | |
| Bromodichloromethane | 22.89 | 1.0 | 20 | 0 | 114 | 79 - 125 | | | | |
| Bromoform | 21.25 | 1.0 | 20 | 0 | 106 | 66 - 130 | | | | |

**Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** LHAAP 67 November 2020
**WorkOrder:** HS20110128

**QC BATCH REPORT**

**Batch ID:** R372190 ( 0 ) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

**MS** Sample ID: **HS20110128-11MS** Units: **ug/L** Analysis Date: **06-Nov-2020 23:45**
Client ID: **67WW13-201103** Run ID: **VOA6_372190** SeqNo: **5911334** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Bromomethane | 22.78 | 1.0 | 20 | 0 | 114 | 53 - 141 | | | | |
| Carbon disulfide | 41 | 2.0 | 40 | 0 | 103 | 64 - 133 | | | | |
| Carbon tetrachloride | 23.4 | 1.0 | 20 | 0 | 117 | 72 - 136 | | | | |
| Chlorobenzene | 22.11 | 1.0 | 20 | 0 | 111 | 82 - 118 | | | | |
| Chloroethane | 23.13 | 1.0 | 20 | 0 | 116 | 60 - 138 | | | | |
| Chloroform | 22.13 | 1.0 | 20 | 0 | 111 | 79 - 124 | | | | |
| Chloromethane | 25.49 | 1.0 | 20 | 0 | 127 | 50 - 139 | | | | |
| cis-1,2-Dichloroethene | 23.2 | 1.0 | 20 | 1.618 | 108 | 78 - 123 | | | | |
| cis-1,3-Dichloropropene | 23.23 | 1.0 | 20 | 0 | 116 | 75 - 124 | | | | |
| Dibromochloromethane | 22.83 | 1.0 | 20 | 0 | 114 | 74 - 126 | | | | |
| Dibromomethane | 24.09 | 1.0 | 20 | 0 | 120 | 79 - 123 | | | | |
| Dichlorodifluoromethane | 24.59 | 1.0 | 20 | 0 | 123 | 32 - 152 | | | | |
| Ethylbenzene | 22.91 | 1.0 | 20 | 0 | 115 | 79 - 121 | | | | |
| Hexachlorobutadiene | 24.74 | 1.0 | 20 | 0 | 124 | 66 - 134 | | | | |
| Isopropylbenzene | 24.6 | 1.0 | 20 | 0 | 123 | 72 - 131 | | | | |
| m,p-Xylene | 48.39 | 2.0 | 40 | 0 | 121 | 80 - 121 | | | | |
| Methylene chloride | 20.88 | 2.0 | 20 | 0 | 104 | 74 - 124 | | | | |
| Naphthalene | 18.3 | 1.0 | 20 | 0 | 91.5 | 61 - 128 | | | | |
| n-Butylbenzene | 24.9 | 1.0 | 20 | 0 | 125 | 75 - 128 | | | | |
| n-Propylbenzene | 26.69 | 1.0 | 20 | 0 | 133 | 76 - 126 | | | | S |
| o-Xylene | 23.7 | 1.0 | 20 | 0 | 118 | 78 - 122 | | | | |
| sec-Butylbenzene | 26.84 | 1.0 | 20 | 0 | 134 | 77 - 126 | | | | S |
| Styrene | 23.77 | 1.0 | 20 | 0 | 119 | 78 - 123 | | | | |
| tert-Butylbenzene | 27.32 | 1.0 | 20 | 0 | 137 | 78 - 124 | | | | S |
| Tetrachloroethene | 25.34 | 1.0 | 20 | 0 | 127 | 74 - 129 | | | | |
| Toluene | 21.3 | 1.0 | 20 | 0 | 107 | 80 - 121 | | | | |
| trans-1,2-Dichloroethene | 21.33 | 1.0 | 20 | 0 | 107 | 75 - 124 | | | | |
| trans-1,3-Dichloropropene | 22.29 | 1.0 | 20 | 0 | 111 | 73 - 127 | | | | |
| Trichloroethene | 28.04 | 1.0 | 20 | 3.123 | 125 | 79 - 123 | | | | S |
| Trichlorofluoromethane | 23.66 | 1.0 | 20 | 0 | 118 | 65 - 141 | | | | |
| Vinyl chloride | 23.21 | 1.0 | 20 | 0 | 116 | 58 - 137 | | | | |
| *Surr: 1,2-Dichloroethane-d4* | *42.25* | *1.0* | *50* | *0* | *84.5* | *81 - 118* | | | | |
| *Surr: 4-Bromofluorobenzene* | *48.44* | *1.0* | *50* | *0* | *96.9* | *85 - 114* | | | | |
| *Surr: Dibromofluoromethane* | *42.82* | *1.0* | *50* | *0* | *85.6* | *80 - 119* | | | | |

**Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** LHAAP 67 November 2020
**WorkOrder:** HS20110128

**QC BATCH REPORT**

**Batch ID:** R372190 ( 0 ) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

**MS** Sample ID: **HS20110128-11MS** Units: **ug/L** Analysis Date: **06-Nov-2020 23:45**
Client ID: **67WW13-201103** Run ID: **VOA6_372190** SeqNo: **5911334** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| *Surr: Toluene-d8* | *47.91* | *1.0* | *50* | *0* | *95.8* | *89 - 112* | | | | |

**Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** LHAAP 67 November 2020
**WorkOrder:** HS20110128

**QC BATCH REPORT**

**Batch ID:** R372190 ( 0 ) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

**MSD** Sample ID: **HS20110128-11MSD** Units: **ug/L** Analysis Date: **07-Nov-2020 00:06**
Client ID: **67WW13-201103** Run ID: **VOA6_372190** SeqNo: **5911335** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | RPD %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 22.92 | 1.0 | 20 | 0 | 115 | 78 - 124 | 22.72 | 0.853 | 20 | |
| 1,1,1-Trichloroethane | 21.27 | 1.0 | 20 | 0 | 106 | 74 - 131 | 22.67 | 6.39 | 20 | |
| 1,1,2,2-Tetrachloroethane | 25.69 | 1.0 | 20 | 0 | 128 | 71 - 121 | 23.3 | 9.75 | 20 | S |
| 1,1,2-Trichlor-1,2,2-trifluoroethane | 27.59 | 1.0 | 20 | 0 | 138 | 70 - 136 | 29.68 | 7.3 | 20 | S |
| 1,1,2-Trichloroethane | 29 | 1.0 | 20 | 5.721 | 116 | 80 - 119 | 27.1 | 6.76 | 20 | |
| 1,1-Dichloroethane | 53.78 | 1.0 | 20 | 33.01 | 104 | 77 - 125 | 54.27 | 0.9 | 20 | |
| 1,1-Dichloroethene | 783.3 | 1.0 | 20 | 883.5 | -501 | 71 - 131 | 827.2 | 5.46 | 20 | SEO |
| 1,1-Dichloropropene | 23.01 | 1.0 | 20 | 0 | 115 | 78 - 125 | 25.09 | 8.65 | 20 | |
| 1,2,3-Trichlorobenzene | 22.4 | 1.0 | 20 | 0 | 112 | 69 - 129 | 19.9 | 11.8 | 20 | |
| 1,2,3-Trichloropropane | 24.19 | 1.0 | 20 | 0 | 121 | 73 - 122 | 23.31 | 3.7 | 20 | |
| 1,2,4-Trichlorobenzene | 23.07 | 1.0 | 20 | 0 | 115 | 69 - 130 | 21.7 | 6.13 | 20 | |
| 1,2,4-Trimethylbenzene | 26.38 | 1.0 | 20 | 0 | 132 | 76 - 124 | 26.43 | 0.171 | 20 | S |
| 1,2-Dibromo-3-chloropropane | 24.74 | 1.0 | 20 | 0 | 124 | 62 - 128 | 21.41 | 14.4 | 20 | |
| 1,2-Dibromoethane | 22.71 | 1.0 | 20 | 0 | 114 | 77 - 121 | 22.31 | 1.76 | 20 | |
| 1,2-Dichlorobenzene | 24.64 | 1.0 | 20 | 0 | 123 | 80 - 119 | 23.86 | 3.24 | 20 | S |
| 1,2-Dichloroethane | 66.19 | 1.0 | 20 | 43.92 | 111 | 73 - 128 | 64.66 | 2.35 | 20 | |
| 1,2-Dichloropropane | 22.85 | 1.0 | 20 | 0 | 114 | 78 - 122 | 23.73 | 3.77 | 20 | |
| 1,3,5-Trimethylbenzene | 25.68 | 1.0 | 20 | 0 | 128 | 75 - 124 | 24.95 | 2.9 | 20 | S |
| 1,3-Dichlorobenzene | 25.06 | 1.0 | 20 | 0 | 125 | 80 - 119 | 23.9 | 4.76 | 20 | S |
| 1,3-Dichloropropane | 22.85 | 1.0 | 20 | 0 | 114 | 80 - 119 | 22.22 | 2.77 | 20 | |
| 1,4-Dichlorobenzene | 25.37 | 1.0 | 20 | 0 | 127 | 79 - 118 | 24.24 | 4.52 | 20 | S |
| 2,2-Dichloropropane | 20.16 | 1.0 | 20 | 0 | 101 | 60 - 139 | 21.46 | 6.25 | 20 | |
| 2-Butanone | 37.12 | 2.0 | 40 | 0 | 92.8 | 56 - 143 | 36.41 | 1.93 | 20 | |
| 2-Chlorotoluene | 25.19 | 1.0 | 20 | 0 | 126 | 79 - 122 | 25.01 | 0.716 | 20 | S |
| 2-Hexanone | 40.28 | 2.0 | 40 | 0 | 101 | 57 - 139 | 38.57 | 4.32 | 20 | |
| 4-Chlorotoluene | 24.23 | 1.0 | 20 | 0 | 121 | 78 - 122 | 23.67 | 2.36 | 20 | |
| 4-Isopropyltoluene | 27.01 | 1.0 | 20 | 0 | 135 | 77 - 127 | 26.77 | 0.904 | 20 | S |
| 4-Methyl-2-pentanone | 41.19 | 2.0 | 40 | 0 | 103 | 67 - 130 | 39.51 | 4.14 | 20 | |
| Acetone | 34.06 | 2.0 | 40 | 0 | 85.2 | 39 - 160 | 33.99 | 0.198 | 20 | |
| Benzene | 22.63 | 1.0 | 20 | 0 | 113 | 79 - 120 | 23.49 | 3.75 | 20 | |
| Bromobenzene | 24.49 | 1.0 | 20 | 0 | 122 | 80 - 120 | 24.52 | 0.128 | 20 | S |
| Bromochloromethane | 23.35 | 1.0 | 20 | 0 | 117 | 78 - 123 | 22.63 | 3.1 | 20 | |
| Bromodichloromethane | 23.24 | 1.0 | 20 | 0 | 116 | 79 - 125 | 22.89 | 1.5 | 20 | |
| Bromoform | 21.49 | 1.0 | 20 | 0 | 107 | 66 - 130 | 21.25 | 1.1 | 20 | |

**Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** LHAAP 67 November 2020
**WorkOrder:** HS20110128

**QC BATCH REPORT**

**Batch ID:** R372190 ( 0 ) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

**MSD** Sample ID: **HS20110128-11MSD** Units: **ug/L** Analysis Date: **07-Nov-2020 00:06**
Client ID: **67WW13-201103** Run ID: **VOA6_372190** SeqNo: **5911335** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | RPD %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Bromomethane | 21.6 | 1.0 | 20 | 0 | 108 | 53 - 141 | 22.78 | 5.31 | 20 | |
| Carbon disulfide | 40.49 | 2.0 | 40 | 0 | 101 | 64 - 133 | 41 | 1.25 | 20 | |
| Carbon tetrachloride | 23.19 | 1.0 | 20 | 0 | 116 | 72 - 136 | 23.4 | 0.889 | 20 | |
| Chlorobenzene | 22.24 | 1.0 | 20 | 0 | 111 | 82 - 118 | 22.11 | 0.594 | 20 | |
| Chloroethane | 24.55 | 1.0 | 20 | 0 | 123 | 60 - 138 | 23.13 | 5.94 | 20 | |
| Chloroform | 21.84 | 1.0 | 20 | 0 | 109 | 79 - 124 | 22.13 | 1.34 | 20 | |
| Chloromethane | 24.13 | 1.0 | 20 | 0 | 121 | 50 - 139 | 25.49 | 5.49 | 20 | |
| cis-1,2-Dichloroethene | 23.15 | 1.0 | 20 | 1.618 | 108 | 78 - 123 | 23.2 | 0.211 | 20 | |
| cis-1,3-Dichloropropene | 22.04 | 1.0 | 20 | 0 | 110 | 75 - 124 | 23.23 | 5.27 | 20 | |
| Dibromochloromethane | 23.52 | 1.0 | 20 | 0 | 118 | 74 - 126 | 22.83 | 3 | 20 | |
| Dibromomethane | 24.01 | 1.0 | 20 | 0 | 120 | 79 - 123 | 24.09 | 0.337 | 20 | |
| Dichlorodifluoromethane | 24.31 | 1.0 | 20 | 0 | 122 | 32 - 152 | 24.59 | 1.14 | 20 | |
| Ethylbenzene | 23.15 | 1.0 | 20 | 0 | 116 | 79 - 121 | 22.91 | 1.02 | 20 | |
| Hexachlorobutadiene | 27.92 | 1.0 | 20 | 0 | 140 | 66 - 134 | 24.74 | 12.1 | 20 | S |
| Isopropylbenzene | 23.81 | 1.0 | 20 | 0 | 119 | 72 - 131 | 24.6 | 3.24 | 20 | |
| m,p-Xylene | 46.86 | 2.0 | 40 | 0 | 117 | 80 - 121 | 48.39 | 3.21 | 20 | |
| Methylene chloride | 20.23 | 2.0 | 20 | 0 | 101 | 74 - 124 | 20.88 | 3.16 | 20 | |
| Naphthalene | 23.37 | 1.0 | 20 | 0 | 117 | 61 - 128 | 18.3 | 24.3 | 20 | R |
| n-Butylbenzene | 25.23 | 1.0 | 20 | 0 | 126 | 75 - 128 | 24.9 | 1.32 | 20 | |
| n-Propylbenzene | 27.05 | 1.0 | 20 | 0 | 135 | 76 - 126 | 26.69 | 1.35 | 20 | S |
| o-Xylene | 22.73 | 1.0 | 20 | 0 | 114 | 78 - 122 | 23.7 | 4.16 | 20 | |
| sec-Butylbenzene | 27.11 | 1.0 | 20 | 0 | 136 | 77 - 126 | 26.84 | 0.991 | 20 | S |
| Styrene | 22.5 | 1.0 | 20 | 0 | 113 | 78 - 123 | 23.77 | 5.48 | 20 | |
| tert-Butylbenzene | 27.27 | 1.0 | 20 | 0 | 136 | 78 - 124 | 27.32 | 0.167 | 20 | S |
| Tetrachloroethene | 25.32 | 1.0 | 20 | 0 | 127 | 74 - 129 | 25.34 | 0.0555 | 20 | |
| Toluene | 20.74 | 1.0 | 20 | 0 | 104 | 80 - 121 | 21.3 | 2.69 | 20 | |
| trans-1,2-Dichloroethene | 20.76 | 1.0 | 20 | 0 | 104 | 75 - 124 | 21.33 | 2.7 | 20 | |
| trans-1,3-Dichloropropene | 23.96 | 1.0 | 20 | 0 | 120 | 73 - 127 | 22.29 | 7.23 | 20 | |
| Trichloroethene | 26.52 | 1.0 | 20 | 3.123 | 117 | 79 - 123 | 28.04 | 5.6 | 20 | |
| Trichlorofluoromethane | 22.4 | 1.0 | 20 | 0 | 112 | 65 - 141 | 23.66 | 5.46 | 20 | |
| Vinyl chloride | 21.64 | 1.0 | 20 | 0 | 108 | 58 - 137 | 23.21 | 7.02 | 20 | |
| *Surr: 1,2-Dichloroethane-d4* | *43.35* | *1.0* | *50* | *0* | *86.7* | *81 - 118* | *42.25* | *2.59* | *20* | |
| *Surr: 4-Bromofluorobenzene* | *46.5* | *1.0* | *50* | *0* | *93.0* | *85 - 114* | *48.44* | *4.09* | *20* | |
| *Surr: Dibromofluoromethane* | *42.27* | *1.0* | *50* | *0* | *84.5* | *80 - 119* | *42.82* | *1.31* | *20* | |

**Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** LHAAP 67 November 2020
**WorkOrder:** HS20110128

**QC BATCH REPORT**

**Batch ID:** R372190 ( 0 ) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

**MSD** Sample ID: **HS20110128-11MSD** Units: **ug/L** Analysis Date: **07-Nov-2020 00:06**
Client ID: **67WW13-201103** Run ID: **VOA6_372190** SeqNo: **5911335** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| *Surr: Toluene-d8* | *48.78* | *1.0* | *50* | *0* | *97.6* | *89 - 112* | *47.91* | *1.8* | *20* | |

**The following samples were analyzed in this batch:**

| | | | |
|---|---|---|---|
| HS20110128-01 | HS20110128-02 | HS20110128-03 | HS20110128-04 |
| HS20110128-05 | HS20110128-06 | HS20110128-07 | HS20110128-08 |
| HS20110128-09 | HS20110128-10 | HS20110128-11 | HS20110128-12 |
| HS20110128-13 | HS20110128-14 | HS20110128-15 | HS20110128-16 |
| HS20110128-17 | HS20110128-18 | HS20110128-19 | |

**Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** LHAAP 67 November 2020
**WorkOrder:** HS20110128

**QC BATCH REPORT**

**Batch ID: R372274 ( 0 )** **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

**MBLK** Sample ID: **VBLKW-201109** Units: **UG/L** Analysis Date: **09-Nov-2020 15:38**
Client ID: Run ID: **VOA6_372274** SeqNo: **5824039** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethene | 0.50 | 1.0 | | | | | | | | U |
| *Surr: 1,2-Dichloroethane-d4* | *46.49* | *1.0* | *50* | *0* | *93.0* | *81 - 118* | | | | |
| *Surr: 4-Bromofluorobenzene* | *45.3* | *1.0* | *50* | *0* | *90.6* | *85 - 114* | | | | |
| *Surr: Dibromofluoromethane* | *42.83* | *1.0* | *50* | *0* | *85.7* | *80 - 119* | | | | |
| *Surr: Toluene-d8* | *50.29* | *1.0* | *50* | *0* | *101* | *89 - 112* | | | | |

**LCS** Sample ID: **VLCSW-201109** Units: **UG/L** Analysis Date: **09-Nov-2020 14:56**
Client ID: Run ID: **VOA6_372274** SeqNo: **5824038** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethene | 20.4 | 1.0 | 20 | 0 | 102 | 71 - 131 | | | | |
| *Surr: 1,2-Dichloroethane-d4* | *53.92* | *1.0* | *50* | *0* | *108* | *81 - 118* | | | | |
| *Surr: 4-Bromofluorobenzene* | *47.33* | *1.0* | *50* | *0* | *94.7* | *85 - 114* | | | | |
| *Surr: Dibromofluoromethane* | *48.77* | *1.0* | *50* | *0* | *97.5* | *80 - 119* | | | | |
| *Surr: Toluene-d8* | *47.3* | *1.0* | *50* | *0* | *94.6* | *89 - 112* | | | | |

**MS** Sample ID: **HS20110264-01MS** Units: **UG/L** Analysis Date: **09-Nov-2020 17:44**
Client ID: Run ID: **VOA6_372274** SeqNo: **5824044** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethene | 25.58 | 1.0 | 20 | 0 | 128 | 71 - 131 | | | | |
| *Surr: 1,2-Dichloroethane-d4* | *48.61* | *1.0* | *50* | *0* | *97.2* | *81 - 118* | | | | |
| *Surr: 4-Bromofluorobenzene* | *48.4* | *1.0* | *50* | *0* | *96.8* | *85 - 114* | | | | |
| *Surr: Dibromofluoromethane* | *47.42* | *1.0* | *50* | *0* | *94.8* | *80 - 119* | | | | |
| *Surr: Toluene-d8* | *49.77* | *1.0* | *50* | *0* | *99.5* | *89 - 112* | | | | |

**Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** LHAAP 67 November 2020
**WorkOrder:** HS20110128

**QC BATCH REPORT**

**Batch ID:** R372274 ( 0 ) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

**MSD** Sample ID: **HS20110264-01MSD** Units: **UG/L** Analysis Date: **09-Nov-2020 18:05**
Client ID: Run ID: **VOA6_372274** SeqNo: **5824045** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethene | 23.16 | 1.0 | 20 | 0 | 116 | 71 - 131 | 25.58 | 9.91 | 20 | |
| *Surr: 1,2-Dichloroethane-d4* | *46.36* | *1.0* | *50* | *0* | *92.7* | *81 - 118* | *48.61* | *4.73* | *20* | |
| *Surr: 4-Bromofluorobenzene* | *48.65* | *1.0* | *50* | *0* | *97.3* | *85 - 114* | *48.4* | *0.519* | *20* | |
| *Surr: Dibromofluoromethane* | *45.3* | *1.0* | *50* | *0* | *90.6* | *80 - 119* | *47.42* | *4.56* | *20* | |
| *Surr: Toluene-d8* | *49.46* | *1.0* | *50* | *0* | *98.9* | *89 - 112* | *49.77* | *0.628* | *20* | |

**The following samples were analyzed in this batch:** HS20110128-10 HS20110128-11 HS20110128-12

**Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** LHAAP 67 November 2020
**WorkOrder:** HS20110128

**QC BATCH REPORT**

**Batch ID: R372041 ( 0 )** **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

**MBLK** Sample ID: **MBLK-110320** Units: **mg/L** Analysis Date: **03-Nov-2020 13:46**
Client ID: Run ID: **ICS-Integrion_372041** SeqNo: **5817805** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 0.500 | 0.500 | | | | | | | | U |
| Nitrogen, Nitrate (As N) | 0.100 | 0.100 | | | | | | | | U |
| Sulfate | 0.500 | 0.500 | | | | | | | | U |

**LCS** Sample ID: **LCS-110320** Units: **mg/L** Analysis Date: **03-Nov-2020 14:04**
Client ID: Run ID: **ICS-Integrion_372041** SeqNo: **5817806** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 19.72 | 0.500 | 20 | 0 | 98.6 | 80 - 120 | | | | |
| Nitrogen, Nitrate (As N) | 4.06 | 0.100 | 4 | 0 | 102 | 80 - 120 | | | | |
| Sulfate | 18.98 | 0.500 | 20 | 0 | 94.9 | 80 - 120 | | | | |

**MS** Sample ID: **HS20110128-11MS** Units: **mg/L** Analysis Date: **04-Nov-2020 19:14**
Client ID: **67WW13-201103** Run ID: **ICS-Integrion_372041** SeqNo: **5817837** PrepDate: DF: **2**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 1163 | 1.00 | 20 | 1158 | 24.8 | 80 - 120 | | | | SEO |
| Nitrogen, Nitrate (As N) | 4.551 | 0.200 | 4 | 0 | 114 | 80 - 120 | | | | |
| Sulfate | 291.6 | 1.00 | 20 | 278.3 | 66.7 | 80 - 120 | | | | SEO |

**MSD** Sample ID: **HS20110128-11MSD** Units: **mg/L** Analysis Date: **04-Nov-2020 19:32**
Client ID: **67WW13-201103** Run ID: **ICS-Integrion_372041** SeqNo: **5817838** PrepDate: DF: **2**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 1166 | 1.00 | 20 | 1158 | 42.5 | 80 - 120 | 1163 | 0.304 | 20 | SEO |
| Nitrogen, Nitrate (As N) | 4.455 | 0.200 | 4 | 0 | 111 | 80 - 120 | 4.551 | 2.13 | 20 | |
| Sulfate | 294.3 | 1.00 | 20 | 278.3 | 79.7 | 80 - 120 | 291.6 | 0.893 | 20 | SEO |

**The following samples were analyzed in this batch:** HS20110128-11 HS20110128-16 HS20110128-17

**Revision:** 1



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** LHAAP 67 November 2020
**WorkOrder:** **HS20110128**

**QUALIFIERS, ACRONYMS, UNITS**

| Qualifier | Description |
|---|---|
| * | Value exceeds Regulatory Limit |
| a | Not accredited |
| B | Analyte detected in the associated Method Blank above the Reporting Limit |
| E | Value above quantitation range |
| H | Analyzed outside of Holding Time |
| J | Analyte detected below quantitation limit |
| M | Manually integrated, see raw data for justification |
| n | Not offered for accreditation |
| ND | Not Detected at the Reporting Limit |
| O | Sample amount is > 4 times amount spiked |
| P | Dual Column results percent difference > 40% |
| R | RPD above laboratory control limit |
| S | Spike Recovery outside laboratory control limits |
| U | Analyzed but not detected above the MDL/SDL |

| Acronym | Description |
|---|---|
| DCS | Detectability Check Study |
| DUP | Method Duplicate |
| LCS | Laboratory Control Sample |
| LCSD | Laboratory Control Sample Duplicate |
| MBLK | Method Blank |
| MDL | Method Detection Limit |
| MQL | Method Quantitation Limit |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| PDS | Post Digestion Spike |
| PQL | Practical Quantitaion Limit |
| SD | Serial Dilution |
| SDL | Sample Detection Limit |
| TRRP | Texas Risk Reduction Program |



RIGHT SOLUTIONS | RIGHT PARTNER

## CERTIFICATIONS,ACCREDITATIONS & LICENSES

| Agency | Number | Expire Date |
|---|---|---|
| Arkansas | 20-030-0 | 26-Mar-2021 |
| California | 2919, 2020-2021 | 30-Apr-2021 |
| Dept of Defense | PJLA L20-507 | 22-Dec-2021 |
| Florida | E87611-30-07/01/2020 | 30-Jun-2021 |
| Illinois | 2000322020-4 | 09-May-2021 |
| Kansas | E-10352 2020-2021 | 31-Jul-2021 |
| Kentucky | 123043, 2020-2021 | 30-Apr-2021 |
| Louisiana | 03087, 2020-2021 | 30-Jun-2021 |
| North Carolina | 624-2021 | 31-Dec-2021 |
| North Dakota | R-193 2020-2021 | 30-Apr-2021 |
| Oklahoma | 2020-165 | 31-Aug-2021 |
| Texas | T104704231-20-26 | 30-Apr-2021 |



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 06-Jan-21

## Sample Receipt Checklist

**Work Order ID:** HS20110128 **Date/Time Received:** **04-Nov-2020 09:30**

**Client Name:** CBI-Houston **Received by:** **Jared R. Makan**

| **Completed By:** | /S/ Paresh M. Giga | 04-Nov-2020 13:24 | **Reviewed by:** | /S/ RJ Modashia | 04-Nov-2020 16:07 |
|---|---|---|---|---|---|
| | eSignature | Date/Time | | eSignature | Date/Time |

Matrices: **GW/Water** Carrier name: **FedEx**

| | | | | |
|---|---|---|---|---|
| Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ | |
| Custody seals intact on shipping container/cooler? | Yes ☑ | No ☐ | Not Present ☐ | |
| Custody seals intact on sample bottles? | Yes ☐ | No ☐ | Not Present ☑ | |
| VOA/TX1005/TX1006 Solids in hermetically sealed vials? | Yes ☐ | No ☐ | Not Present ☑ | |
| Chain of custody present? | Yes ☑ | No ☐ | 3 Page(s) | |
| Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | COC IDs:none | |
| Samplers name present on COC? | Yes ☐ | No ☑ | | |
| Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | | |
| Samples in proper container/bottle? | Yes ☑ | No ☐ | | |
| Sample containers intact? | Yes ☑ | No ☐ | | |
| Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | | |
| All samples received within holding time? | Yes ☑ | No ☐ | | |
| Container/Temp Blank temperature in compliance? | Yes ☑ | No ☐ | | |

| | | |
|---|---|---|
| Temperature(s)/Thermometer(s): | 1.3C U/C | IR31 |
| Cooler(s)/Kit(s): | 46501 | |
| Date/Time sample(s) sent to storage: | 11/4/2020 14:00 | |

| | | | |
|---|---|---|---|
| Water - VOA vials have zero headspace? | Yes ☑ | No ☐ | No VOA vials submitted ☐ |
| Water - pH acceptable upon receipt? | Yes ☐ | No ☐ | N/A ☑ |
| pH adjusted? | Yes ☐ | No ☐ | N/A ☑ |
| pH adjusted by: | | | |

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:



RIGHT SOLUTIONS | RIGHT PARTNER

# CHAIN OF CUSTODY

Name Of Lab Shipping To: ALS 10450 Stancliff Rd. Suite 210 Houston, TX. 77099 (281) 530-5656 ATTN: R.J Modashia

Page 1 of 1

**Project:** APTIM
LONGHORN ARMY AMMN. PLANT (LHAAP)
GROUNDWATER TREATMENT PLANT (GWTP)
KARNACK, TEXAS

**Project No.** 501032

**Job:** LHAAP 67 November 2020

**Prepared By:** Scott Beesinger

**P.O. Number**

HS20110128

Aptim Environmental & Infrastucture, Inc.
Longhorn Army Ammunition Plant 67 November 2020

| Field Sample I.D. | Sample Matrix | Date / Time | MS / MSD | No. OF CONTAINERS | Analyses: VOC by SW 8260B | TOC by SM5310C | MEE by RSK 175 | Carbon Dioxide by RSK 175 | Anions (Chloride, Sulfate, and Nitrate) by SW9056 | | | | | Remarks (Preservatives, etc.) | Lab I.D.# |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 67WW14-201102 | WG | 11/2/20/0720 | | 3 | X | | | | | | | | | | |
| 67WW05-201102 | WG | 11/2/20/0805 | | 3 | X | | | | | | | | | | |
| 67WW18-201102 | WG | 11/2/20/0845 | | 3 | X | | | | | | | | | | |
| 67WW17-201102 | WG | 11/2/20/0930 | | 3 | X | | | | | | | | | | |
| 67WW17-201102-FD | WG | 11/2/20/0930 | | 3 | X | | | | | | | | | | |
| 67WW09A-201102 | WG | 11/2/20/1015 | | 3 | X | | | | | | | | | | |
| 67WW10-201102 | WG | 11/2/20/1055 | | 3 | X | | | | | | | | | | |
| 67WW07-201102 | WG | 11/2/20/1140 | | 3 | X | | | | | | | | | | |

**Additional Remarks:** Standard TAT on all parameters. Please email results to Susan.Huang@aptim.com and invoices to fedinvoices@aptim.com

| Relinquished By: | Date | Time | Received By: | Date | Time | Relinquished By: | Date | Time | Received By: | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Scott Beesinger | 11/3/20 | 1430 | | | | | | | | | |

**For Lab Use Only**

| Received At Lab By: | Date | Time | Airbill No. | Opened By: | Date | Time | Temp of Container | Seal No. | Condition |
|---|---|---|---|---|---|---|---|---|---|
| J. Nunemaker | 11/4/20 | 09:30 | | | | | | | |

**Remarks:**
Cooler 46501 M31
Temp 1.3°C CF0

(Word) S:\1-ces\Forms\Chain of Custody - BiWeekly



RIGHT SOLUTIONS | RIGHT PARTNER

# CHAIN OF CUSTODY

Name Of Lab Shipping To: ALS 10450 Stancliff Rd. Suite 210 Houston, TX. 77099 (281) 530-5656 ATTN: R.J Modashia



**Project:** APTIM
LONGHORN ARMY AMMN. PLANT (LHAAP)
GROUNDWATER TREATMENT PLANT (GWTP)
KARNACK, TEXAS

**Project No.** 501032

**Job:** LHAAP 67 November 2020

**Prepared By:** Scott Beesinger

**P.O. Number**

HS20110128
Aptim Environmental & Infrastucture, Inc.
Longhorn Army Ammunition Plant 67 November 2020

| Field Sample I.D. | Sample Matrix | Date / Time | MS / MSD | No. OF CONTAINERS | Analyses: VOC by SW 8260B | TOC by SM5310C | MEE by RSK 175 | Carbon Dioxide by RSK 175 | Anions (Chloride, Sulfate, and Nitrate) by SW9056 | Remarks (Preservatives, etc.) | Lab I.D.# |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 67WW12-201102 | WG | 11/2/20/1220 | | 3 | X | | | | | | |
| 67WW02-201102 | WG | 11/2/20/1305 | | 3 | X | | | | | | |
| 67WW13-201103 | WG | 11/3/20/0710 | | 12 | X | X | X | X | X | | |
| 67WW13-201103-MS | WG | 11/3/20/0710 | | 12 | X | X | X | X | X | | |
| 67WW13-201103-MSD | WG | 11/3/20/0710 | | 12 | X | X | X | X | X | | |
| 67WW15-201103 | WG | 11/3/20/0810 | | 3 | X | | | | | | |
| 67WW09-201103 | WG | 11/3/20/0850 | | 3 | X | | | | | | |
| 67WW01-201103 | WG | 11/3/20/0930 | | 3 | X | | | | | | |

**Additional Remarks:** Standard TAT on all parameters. Please email results to Susan.Huang@aptim.com and invoices to fedinvoices@aptim.com

| Relinquished By: | Date | Time | Received By: | Date | Time | Relinquished By: | Date | Time | Received By: | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Scott Beesinger | 11/3/20 | 1430 | | | | | | | | | |

**For Lab Use Only**

| Received At Lab By: | Date | Time | Airbill No. | Opened By: | Date | Time | Temp of Container | Seal No. | Condition |
|---|---|---|---|---|---|---|---|---|---|
| J. Mastrovi | 11/4/20 | 09:30 | | | | | | | |

Remarks:
Cooler 46501 IR31
Temp 1.3°C CF0

(Word) S:\1-ces\Forms\Chain of Custody - BiWeekly



RIGHT SOLUTIONS | RIGHT PARTNER

# CHAIN OF CUSTODY

Name Of Lab Shipping To: ALS 10450 Stancliff Rd. Suite 210 Houston, TX. 77099 (281) 530-5656 ATTN: R.J Modashia

Page 1 of 1

**Project:** APTIM
LONGHORN ARMY AMMN. PLANT (LHAAP)
GROUNDWATER TREATMENT PLANT (GWTP)
KARNACK, TEXAS

**Project No.** 501032

**Job:** LHAAP 67 November 2020

**Prepared By:** Scott Beesinger

**P.O. Number**

HS20110128
Aptim Environmental & Infrastucture, Inc.
Longhorn Army Ammunition Plant 67 November 2020

| Field Sample I.D. | Sample Matrix | Date / Time | MS / MSD | No. OF CONTAINERS | VOC by SW 8260B | TOC by SM5310C | MEE by RSK 175 | Carbon Dioxide by RSK 175 | Anions (Chloride, Sulfate, and Nitrate) by SW9056 | Remarks (Preservatives, etc.) | Lab I.D.# |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 67WW16I-201103 | WG | 11/3/20/1015 | | 3 | X | | | | | | |
| 67WW08-201103 | WG | 11/3/20/1100 | | 12 | X | X | X | X | X | | |
| 67WW08-201103-FD | WG | 11/3/20/1100 | | 12 | X | X | X | X | X | | |
| 67WW11-201103 | WG | 11/3/20/1155 | | 3 | X | | | | | | |
| TRIP BLANK-201103 | W | 11/3/20 | | 2 | X | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

**Additional Remarks:** Standard TAT on all parameters. Please email results to Susan.Huang@aptim.com and invoices to fedinvoices@aptim.com

| Relinquished By: | Date | Time | Received By: | Date | Time | Relinquished By: | Date | Time | Received By: | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Scott Beesinger | 11/3/20 | 1430 | | | | | | | | | |

**For Lab Use Only**

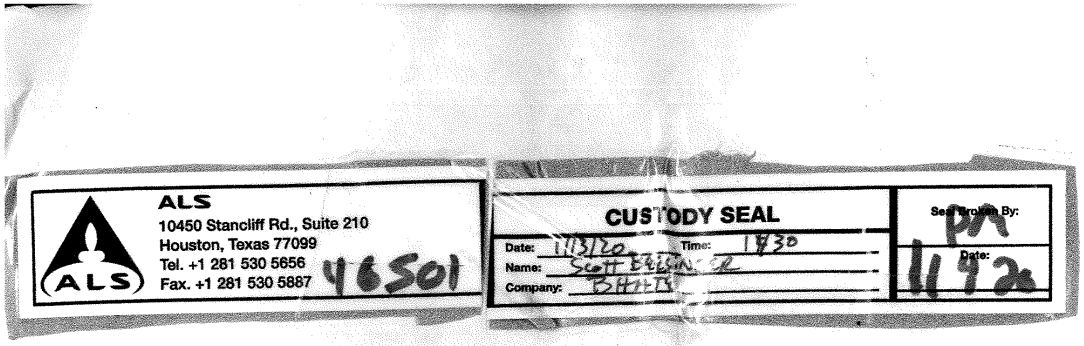
| Received At Lab By: | Date | Time | Airbill No. | Opened By: | Date | Time | Temp of Container | Seal No. | Condition |
|---|---|---|---|---|---|---|---|---|---|
| J. Mitchell | 11/4/20 | 09:30 | | | | | | | |

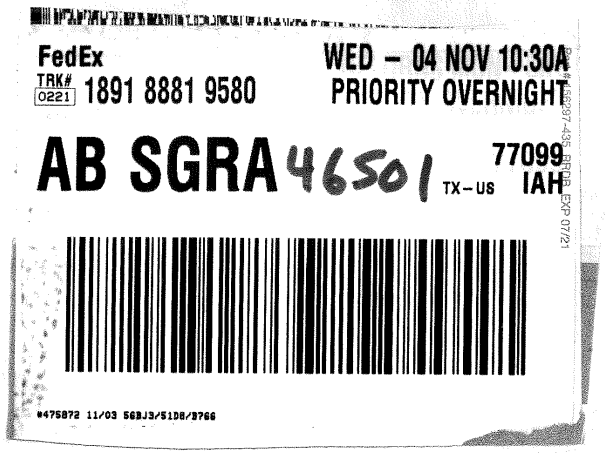
Remarks:
Cooler 4650 IR31
Temp 1.3°C CFO

(Word) S:\1-ces\Forms\Chain of Custody - BiWeekly



RIGHT SOLUTIONS | RIGHT PARTNER






RIGHT SOLUTIONS | RIGHT PARTNER

ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
**T :** +1 360 577 7222
**F :** +1 360 636 1068
**www.alsglobal.com**

November 18, 2020 **Analytical Report for Service Request No:** K2010200

RJ Modashia
ALS Laboratory Group
10450 Stancliff Road
Suite 210
Houston, TX 77099-4338

**RE: ALS Houston DOD TOC / HS20110128**

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory November 05, 2020
For your reference, these analyses have been assigned our service request number **K2010200.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3350. You may also contact me via email at Kelley.Lovejoy@alsglobal.com.

Respectfully submitted,

**ALS Group USA, Corp. dba ALS Environmental**

for Kelley Lovejoy
Project Manager


RIGHT SOLUTIONS | RIGHT PARTNER

ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
**T :** +1 360 577 7222
**F :** +1 360 636 1068
**www.alsglobal.com**

# Table of Contents

Acronyms
Qualifiers
State Certifications, Accreditations, And Licenses
Case Narrative
Chain of Custody
General Chemistry


RIGHT SOLUTIONS | RIGHT PARTNER

**Acronyms**

| | |
|---|---|
| ASTM | American Society for Testing and Materials |
| A2LA | American Association for Laboratory Accreditation |
| CARB | California Air Resources Board |
| CAS Number | Chemical Abstract Service registry Number |
| CFC | Chlorofluorocarbon |
| CFU | Colony-Forming Unit |
| DEC | Department of Environmental Conservation |
| DEQ | Department of Environmental Quality |
| DHS | Department of Health Services |
| DOE | Department of Ecology |
| DOH | Department of Health |
| EPA | U. S. Environmental Protection Agency |
| ELAP | Environmental Laboratory Accreditation Program |
| GC | Gas Chromatography |
| GC/MS | Gas Chromatography/Mass Spectrometry |
| LOD | Limit of Detection |
| LOQ | Limit of Quantitation |
| LUFT | Leaking Underground Fuel Tank |
| M | Modified |
| MCL | Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA. |
| MDL | Method Detection Limit |
| MPN | Most Probable Number |
| MRL | Method Reporting Limit |
| NA | Not Applicable |
| NC | Not Calculated |
| NCASI | National Council of the Paper Industry for Air and Stream Improvement |
| ND | Not Detected |
| NIOSH | National Institute for Occupational Safety and Health |
| PQL | Practical Quantitation Limit |
| RCRA | Resource Conservation and Recovery Act |
| SIM | Selected Ion Monitoring |
| TPH | Total Petroleum Hydrocarbons |
| tr | Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL. |



RIGHT SOLUTIONS | RIGHT PARTNER

### Inorganic Data Qualifiers

| | |
|---|---|
| * | The result is an outlier. See case narrative. |
| # | The control limit criteria is not applicable. See case narrative. |
| B | The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards. |
| E | The result is an estimate amount because the value exceeded the instrument calibration range. |
| J | The result is an estimated value. |
| U | The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution. |
| i | The MRL/MDL or LOQ/LOD is elevated due to a matrix interference. |
| X | See case narrative. |
| Q | See case narrative. One or more quality control criteria was outside the limits. |
| H | The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory. |

### Metals Data Qualifiers

| | |
|---|---|
| # | The control limit criteria is not applicable. See case narrative. |
| J | The result is an estimated value. |
| E | The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample. |
| M | The duplicate injection precision was not met. |
| N | The Matrix Spike sample recovery is not within control limits. See case narrative. |
| S | The reported value was determined by the Method of Standard Additions (MSA). |
| U | The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution. |
| W | The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance. |
| i | The MRL/MDL or LOQ/LOD is elevated due to a matrix interference. |
| X | See case narrative. |
| + | The correlation coefficient for the MSA is less than 0.995. |
| Q | See case narrative. One or more quality control criteria was outside the limits. |

### Organic Data Qualifiers

| | |
|---|---|
| * | The result is an outlier. See case narrative. |
| # | The control limit criteria is not applicable. See case narrative. |
| A | A tentatively identified compound, a suspected aldol-condensation product. |
| B | The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards. |
| C | The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data. |
| D | The reported result is from a dilution. |
| E | The result is an estimated value. |
| J | The result is an estimated value. |
| N | The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed. |
| P | The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results. |
| U | The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution. |
| i | The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference. |
| X | See case narrative. |
| Q | See case narrative. One or more quality control criteria was outside the limits. |

### Additional Petroleum Hydrocarbon Specific Qualifiers

| | |
|---|---|
| F | The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard. |
| L | The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard. |
| H | The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard. |
| O | The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard. |
| Y | The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard. |
| Z | The chromatographic fingerprint does not resemble a petroleum product. |



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso**
**State Certifications, Accreditations, and Licenses**

| Agency | Web Site | Number |
|---|---|---|
| Alaska DEH | http://dec.alaska.gov/eh/lab/cs/csapproval.htm | UST-040 |
| Arizona DHS | http://www.azdhs.gov/lab/license/env.htm | AZ0339 |
| Arkansas - DEQ | http://www.adeq.state.ar.us/techsvs/labcert.htm | 88-0637 |
| California DHS (ELAP) | http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx | 2795 |
| DOD ELAP | http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm | L16-58-R4 |
| Florida DOH | http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm | E87412 |
| Hawaii DOH | http://health.hawaii.gov/ | - |
| ISO 17025 | http://www.pjlabs.com/ | L16-57 |
| Louisiana DEQ | http://www.deq.louisiana.gov/page/la-lab-accreditation | 03016 |
| Maine DHS | http://www.maine.gov/dhhs/ | WA01276 |
| Minnesota DOH | http://www.health.state.mn.us/accreditation | 053-999-457 |
| Nevada DEP | http://ndep.nv.gov/bsdw/labservice.htm | WA01276 |
| New Jersey DEP | http://www.nj.gov/dep/enforcement/oqa.html | WA005 |
| New York - DOH | https://www.wadsworth.org/regulatory/elap | 12060 |
| North Carolina DEQ | https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification | 605 |
| Oklahoma DEQ | http://www.deq.state.ok.us/CSDnew/labcert.htm | 9801 |
| Oregon – DEQ (NELAP) | http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx | WA100010 |
| South Carolina DHEC | http://www.scdhec.gov/environment/EnvironmentalLabCertification/ | 61002 |
| Texas CEQ | http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html | T104704427 |
| Washington DOE | http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html | C544 |
| Wyoming (EPA Region 8) | https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water- | - |
| Kelso Laboratory Website | www.alsglobal.com | NA |

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.



RIGHT SOLUTIONS | RIGHT PARTNER

# Case Narrative

**ALS Environmental—Kelso Laboratory**
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com


RIGHT SOLUTIONS | RIGHT PARTNER

1317 South 13th Ave, Kelso, WA 98626 | 1-360-577-7222 | www.alsglobal.com

**Client:** ALS Environmental - US
**Project:** ALS Houston DOD TOC
**Sample Matrix:** Ground Water

**Service Request:** K2010200
**Date Received:** 11/05/2020

## CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier level II requested by the client.

**Sample Receipt:**

Three ground water samples were received for analysis at ALS Environmental on 11/05/2020. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

**General Chemistry:**

No significant anomalies were noted with this analysis.

Approved by Noe D. Diaz Date 11/18/2020



RIGHT SOLUTIONS | RIGHT PARTNER

# Chain of Custody

**ALS Environmental—Kelso Laboratory**
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER



RIGHT SOLUTIONS | RIGHT PARTNER

K20110200

10450 Stancliff Rd, Ste 210
Houston, TX 77099
**T:** +1 281 530 5656
**F:** +1 281 530 5887
**www.alsglobal.com**

# Subcontract Chain of Custody

**SAMPLING STATE:** **Dept of Defense** **COC ID:** **15101**

**SUBCONTRACT TO:**

ALS Environmental Kelso
1317 S. 13th Avenue
Kelso, WA 98626 **Phone:** +1 360 501 3312

**CUSTOMER INFORMATION:**

| | |
|---|---|
| **Company:** | ALS Houston |
| **Contact:** | RJ Modashia |
| **Address:** | 10450 Stancliff Rd, Ste 210 |
| **Phone:** | +1 281 530 5656 |
| **Email:** | RJ.Modashia@alsglobal.com |
| **Alternate Contact:** | |
| **Email:** | |

**INVOICE INFORMATION:**

| | |
|---|---|
| **Company:** | ALS Houston |
| **Contact:** | Accounts Payable |
| **Address:** | 10450 Stancliff Rd, Ste 210 |
| **Phone:** | +1 281 530 5656 |
| **Reference:** | HS20110128 |
| **TSR:** | Sonia West |

| | LAB SAMPLE ID | CLIENT SAMPLE ID | MATRIX | COLLECT DATE |
|---|---|---|---|---|
| | ANALYSIS REQUESTED | | | DUE DATE |
| 1. | **HS20110128-11** | **67WW13-201103** | **Groundwater** | **03 Nov 2020 07:10** |
| | TOC: Provide Level II & DOD Level IV/EQuIS APTIM EDD | | | 18 Nov 2020 |
| 2. | **HS20110128-16** | **67WW08-201103** | **Groundwater** | **03 Nov 2020 11:00** |
| | TOC: Provide Level II & DOD Level IV/EQuIS APTIM EDD | | | 18 Nov 2020 |
| 3. | **HS20110128-17** | **67WW08-201103-FD** | **Groundwater** | **03 Nov 2020 11:00** |
| | TOC: Provide Level II & DOD Level IV/EQuIS APTIM EDD | | | 18 Nov 2020 |

**Comments:** Please analyze for the analysis listed above.
Send report to the emails shown above.
HS20110128-11 = MS/MSD

**QC Level:** DOD IV (DoD Data Package)

Relinquished By: _____ Date/Time: 11/04/20 13:00

Received By: _____ Date/Time: 11/5/20 1015

Cooler ID(s): _____ Temperature(s): _____

PM KL

# Cooler Receipt and Preservation Form

Client ARD-Houston Service Request K20 10200

Received: 11/5/20 Opened: 11/5/20 By: BR Unloaded: 11/5/20 By: BR

1. Samples were received via? *USPS* (*Fed Ex*) *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) (*Cooler*) *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? 2 front
   If present, were custody seals intact? (Y) N If present, were they signed and dated? (Y) N
4. Was a Temperature Blank present in cooler? NA (Y) N If yes, notate the temperature in the appropriate column below:
   If no, take the temperature of a representative sample bottle contained within the cooler; notate in the column "Sample Temp":
5. Were samples received within the method specified temperature ranges? NA (Y) N
   If no, were they received on ice and same day as collected? If not, notate the cooler # below and notify the PM. (NA) Y N

If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*

| Temp Blank | Sample Temp | IR Gun | Cooler #/COC ID/ (NA) | Out of temp indicate with "X" | PM Notified If out of temp | Tracking Number NA | Filed |
|---|---|---|---|---|---|---|---|
| 0.9 | — | 1801 | | — | | 191888249460 | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

6. Packing material: *Inserts* (*Baggies*) (*Bubble Wrap*) *Gel Packs* (*Wet Ice*) *Dry Ice* *Sleeves* _____
7. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
8. Were samples received in good condition (unbroken) NA (Y) N
9. Were all sample labels complete (ie, analysis, preservation, etc.)? NA (Y) N
10. Did all sample labels and tags agree with custody papers? NA (Y) N
11. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
12. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA (Y) N
13. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
14. Was C12/Res negative? (NA) Y N

| Sample ID on Bottle | Sample ID on COC | Identified by: |
|---|---|---|
| | | |
| | | |
| | | |

| Sample ID | Bottle Count Bottle Type | Head-space | Broke | pH | Reagent | Volume added | Reagent Lot Number | Initials | Time |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

Notes, Discrepancies, Resolutions: _____



RIGHT SOLUTIONS | RIGHT PARTNER

# General Chemistry

**ALS Environmental—Kelso Laboratory**
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

**ALS Group USA, Corp.**
**dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | K2010200 |
| **Project:** | ALS Houston DOD TOC/HS20110128 | **Date Collected:** | 11/3/20 |
| **Sample Matrix:** | Ground Water | **Date Received:** | 11/5/20 |
| **Analysis Method:** | SM 5310 C | **Units:** | mg/L |
| **Prep Method:** | None | **Basis:** | NA |

**Carbon, Total Organic**

| Sample Name | Lab Code | Result | LOQ | LOD | MDL | Dil. | Date Analyzed | Q |
|---|---|---|---|---|---|---|---|---|
| 67WW13-201103 | K2010200-001 | **1.45** | 0.50 | 0.20 | 0.07 | 1 | 11/11/20 17:58 | |
| 67WW08-201103 | K2010200-002 | **1.17** | 0.50 | 0.20 | 0.07 | 1 | 11/11/20 17:58 | |
| 67WW08-201103-FD | K2010200-003 | **1.21** | 0.50 | 0.20 | 0.07 | 1 | 11/11/20 17:58 | |
| Method Blank | K2010200-MB | ND U | 0.50 | 0.20 | 0.07 | 1 | 11/11/20 17:58 | |



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | K2010200 |
| **Project** | ALS Houston DOD TOC/HS20110128 | **Date Collected:** | 11/03/20 |
| **Sample Matrix:** | Ground Water | **Date Received:** | 11/05/20 |
| | | **Date Analyzed:** | 11/11/20 |

## Replicate Sample Summary
## General Chemistry Parameters

| | | | |
|---|---|---|---|
| **Sample Name:** | 67WW13-201103 | **Units:** | mg/L |
| **Lab Code:** | K2010200-001 | **Basis:** | NA |

| Analyte Name | Analysis Method | LOQ | LOD | MDL | Sample Result | Duplicate Sample K2010200-001DUP Result | Average | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, Total Organic | SM 5310 C | 0.50 | 0.20 | 0.07 | 1.45 | 1.28 | 1.36 | 12 # | 10 |

**Results flagged with an asterisk (*) indicate values outside control criteria.**

**Results flagged with a pound (#) indicate the control criteria is not applicable.**

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | K2010200 |
| **Project:** | ALS Houston DOD TOC/HS20110128 | **Date Collected:** | 11/03/20 |
| **Sample Matrix:** | Ground Water | **Date Received:** | 11/05/20 |
| | | **Date Analyzed:** | 11/11/20 |
| | | **Date Extracted:** | NA |

## Matrix Spike Summary
## Carbon, Total Organic

| | | | |
|---|---|---|---|
| **Sample Name:** | 67WW13-201103 | **Units:** | mg/L |
| **Lab Code:** | K2010200-001 | **Basis:** | NA |
| **Analysis Method:** | SM 5310 C | | |
| **Prep Method:** | None | | |

### Matrix Spike
K2010200-001MS

| Analyte Name | Sample Result | Result | Spike Amount | % Rec | % Rec Limits |
|---|---|---|---|---|---|
| Carbon, Total Organic | 1.45 | 23.4 | 25.0 | 88 | 83-117 |

**Results flagged with an asterisk (*) indicate values outside control criteria.**

**Results flagged with a pound (#) indicate the control criteria is not applicable.**

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

**Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.**



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | K2010200 |
| **Project:** | ALS Houston DOD TOC/HS20110128 | **Date Analyzed:** | 11/11/20 |
| **Sample Matrix:** | Ground Water | **Date Extracted:** | NA |

**Lab Control Sample Summary**
**Carbon, Total Organic**

| | | | |
|---|---|---|---|
| **Analysis Method:** | SM 5310 C | **Units:** | mg/L |
| **Prep Method:** | None | **Basis:** | NA |
| | | **Analysis Lot:** | 703161 |

| Sample Name | Lab Code | Result | Spike Amount | % Rec | % Rec Limits |
|---|---|---|---|---|---|
| Lab Control Sample | K2010200-LCS | 25.9 | 25.0 | 104 | 83-117 |



RIGHT SOLUTIONS | RIGHT PARTNER

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
**T:** +1 805 526 7161
www.alsglobal.com

# LABORATORY REPORT

November 19, 2020

RJ Modashia
ALS Laboratory Group
10450 Stancliff Road Suite 210
Houston, TX 77099-4338

**RE: HS20110128**

Dear RJ:

Enclosed are the results of the samples submitted to our laboratory on November 5, 2020. For your reference, these analyses have been assigned our service request number P2006296.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

**ALS | Environmental**

*By Hayden Akers at 1:15 pm, Nov 19, 2020*

Hayden Akers
Project Manager

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
**T:** +1 805 526 7161
www.alsglobal.com

Client: ALS Laboratory Group
Project: HS20110128

Service Request No: P2006296

## CASE NARRATIVE

The samples were received intact under chain of custody on November 5, 2020 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Carbon Dioxide Analysis

The samples were analyzed for carbon dioxide using a gas chromatograph equipped with a thermal conductivity detector (TCD). A known amount of liquid was displaced by injecting 8.0 milliliters of helium creating a headspace in the sample vial. Each sample vial was agitated using a sonic disrupter for fifteen minutes and then allowed to equilibrate for at least four hours. A volume of the headspace was withdrawn using a gas-tight syringe and analyzed using a manual injection technique. The amount of dissolved gases (carbon dioxide) in the original sample was calculated using Henry's Law. This method was performed with guidance from RSK 175 as described in laboratory SOP VOA-DISGAS. This analyte is included on the laboratory's NELAP and DoD-ELAP scope of accreditation.

The recovery and relative percent difference for the matrix spike and its duplicate were outside of the DoD control criteria due to matrix interference. However all quality control criteria were within laboratory limits of the laboratory control sample and its duplicate.

Manual integrations were performed on the following sample(s) and analyte(s). Refer to the raw data for additional information.

| Sample Identification(s) | Analyte(s) |
|---|---|
| P2006296-LCS | Carbon dioxide |
| P2006296-LCSD | Carbon dioxide |
| P2006296-002 | Carbon dioxide |

Methane, Ethene and Ethane Analysis

The samples were also analyzed for methane, ethene, and ethane using a gas chromatograph equipped with a flame ionization detector (FID). A known amount of liquid was displaced by injecting 8.0 milliliters of helium creating a headspace in the sample vial. Each sample vial was agitated using a sonic disrupter for fifteen minutes and then allowed to equilibrate for at least two hours. A volume of the headspace was withdrawn using a gas-tight syringe and analyzed using a manual injection technique. The amount of dissolved gases (methane, ethene and ethane) in the original sample was calculated using Henry's Law. This method was performed with guidance from RSK 175. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the laboratory's NELAP or DoD-ELAP accreditation.



RIGHT SOLUTIONS | RIGHT PARTNER

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
**T:** +1 805 526 7161
www.alsglobal.com

The recovery for methane for the matrix spike duplicate was below DoD criteria. However the recovery was within laboratory limits and also all quality control parameters were within limits of the laboratory control sample and its duplicate.

No manual integrations were performed. Refer to the raw data for additional information.

---

*The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.*

*Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.*



RIGHT SOLUTIONS | RIGHT PARTNER

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
**T:** +1 805 526 7161
www.alsglobal.com

ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

| Agency | Web Site | Number |
|---|---|---|
| Alaska DEC | http://dec.alaska.gov/eh/lab.aspx | 17-019 |
| Arizona DHS | http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home | AZ0694 |
| Florida DOH (NELAP) | http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html | E871020 |
| Louisiana DEQ (NELAP) | http://www.deq.louisiana.gov/page/la-lab-accreditation | 05071 |
| Maine DHHS | http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml | 2018027 |
| Minnesota DOH (NELAP) | http://www.health.state.mn.us/accreditation | 1776326 |
| New Jersey DEP (NELAP) | http://www.nj.gov/dep/enforcement/oqa.html | CA009 |
| New York DOH (NELAP) | http://www.wadsworth.org/labcert/elap/elap.html | 11221 |
| Oregon PHD (NELAP) | http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx | 4068-007 |
| Pennsylvania DEP | http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx | 68-03307 (Registration) |
| PJLA (DoD ELAP) | http://www.pjlabs.com/search-accredited-labs | 65818 (Testing) |
| Texas CEQ (NELAP) | http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html | T104704413-19-10 |
| Utah DOH (NELAP) | http://health.utah.gov/lab/lab_cert_env | CA016272019-10 |
| Washington DOE | http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html | C946 |

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS ENVIRONMENTAL**

DETAIL SUMMARY REPORT

Client: ALS Laboratory Group
Service Request: P2006296
Project ID: HS20110128

Date Received: 11/5/2020
Time Received: 09:20

| Client Sample ID | Lab Code | Matrix | Date Collected | Time Collected | RSK 175 - CO2 | RSK 175 - Gases |
|---|---|---|---|---|---|---|
| 67WW13-201103 | P2006296-001 | Water | 11/3/2020 | 07:10 | X | X |
| 67WW08-201103 | P2006296-002 | Water | 11/3/2020 | 11:00 | X | X |
| 67WW08-201103-FD | P2006296-003 | Water | 11/3/2020 | 11:00 | X | X |



RIGHT SOLUTIONS | RIGHT PARTNER

PJ05 6296

10450 Stancliff Rd, Ste 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887
www.alsglobal.com

# Subcontract Chain of Custody

**SAMPLING STATE:** **Dept of Defense** **COC ID: 15100**

**SUBCONTRACT TO:**

ALS Environmental
2655 Park Center Drive, Suite A
Simi Valley, CA 93065

**Phone:** +1 805 526 7161

**CUSTOMER INFORMATION:**

| | |
|---|---|
| **Company:** | ALS Houston |
| **Contact:** | RJ Modashia |
| **Address:** | 10450 Stancliff Rd, Ste 210 |
| **Phone:** | +1 281 530 5656 |
| **Email:** | RJ.Modashia@alsglobal.com |
| **Alternate Contact:** | |
| **Email:** | |

**INVOICE INFORMATION:**

| | |
|---|---|
| **Company:** | ALS Houston |
| **Contact:** | Accounts Payable |
| **Address:** | 10450 Stancliff Rd, Ste 210 |
| **Phone:** | +1 281 530 5656 |
| **Reference:** | HS20110128 |
| **TSR:** | Sonia West |

| | LAB SAMPLE ID | CLIENT SAMPLE ID | MATRIX | COLLECT DATE |
|---|---|---|---|---|
| | ANALYSIS REQUESTED | | | DUE DATE |
| 1. | **HS20110128-11** | **67WW13-201103** | **Groundwater** | **03 Nov 2020 07:10** |
| | MEE + CO2. Provide DOD LV II & IV pdf separate. EDD. EQuIS 5.0 - Longhorn | | Equis | 18 Nov 2020 |
| 2. | **HS20110128-16** | **67WW08-201103** | **Groundwater** | **03 Nov 2020 11:00** |
| | MEE + CO2. Provide DOD LV II & IV pdf separate. EDD. EQuIS 5.0 - Longhorn | | Equis | 18 Nov 2020 |
| 3. | **HS20110128-17** | **67WW08-201103-FD** | **Groundwater** | **03 Nov 2020 11:00** |
| | MEE + CO2. Provide DOD LV II & IV pdf separate. EDD. EQuIS 5.0 - Longhorn | | Equis | 18 Nov 2020 |

**Comments:** Please analyze for the analysis listed above.
Send report to the emails shown above.
3 x Neat Vials & 3 x HCL Vials
HS20110128-11 = MS/MSD

**QC Level:** DOD IV (DoD Data Package)

Relinquished By: J. Modashia Date/Time: 11/04/20 18:00

Received By: Date/Time: 11-5-20 0820

Cooler ID(s): Temperature(s): 2° wet

# ALS Environmental
## Sample Acceptance Check Form

Client: ALS Laboratory Group  Work order: P2006296

Project: HS20110128

Sample(s) received on: 11/5/2020  Date opened: 11/5/2020  by: ADAVID

***Note:*** This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

| | | Yes | No | N/A |
|---|---|---|---|---|
| 1 | Were **sample containers** properly marked with client sample ID? | ☒ | ☐ | ☐ |
| 2 | Did **sample containers** arrive in good condition? | ☒ | ☐ | ☐ |
| 3 | Were **chain-of-custody** papers used and filled out? | ☒ | ☐ | ☐ |
| 4 | Did **sample container labels** and/or tags agree with custody papers? | ☒ | ☐ | ☐ |
| 5 | Was **sample volume** received adequate for analysis? | ☒ | ☐ | ☐ |
| 6 | Are samples within specified holding times? | ☒ | ☐ | ☐ |
| 7 | Was proper **temperature** (thermal preservation) of cooler at receipt adhered to? | ☒ | ☐ | ☐ |
| | Cooler Temperature: ° C  Blank Temperature: 2° C | Wet Ic | | |
| 8 | Were **custody seals** on outside of cooler/Box/Container? | ☒ | ☐ | ☐ |
| | Location of seal(s)? Cooler lid. Sealing Lid? | ☒ | ☐ | ☐ |
| | Were signature and date included? | ☒ | ☐ | ☐ |
| | Were seals intact? | ☒ | ☐ | ☐ |
| 9 | Do containers have appropriate **preservation**, according to method/SOP or Client specified information? | ☒ | ☐ | ☐ |
| | Is there a client indication that the submitted samples are **pH** preserved? | ☒ | ☐ | ☐ |
| | Were **VOA vials** checked for presence/absence of air bubbles? | ☒ | ☐ | ☐ |
| | Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it? | ☐ | ☒ | ☐ |
| 10 | **Tubes:** Are the tubes capped and intact? | ☐ | ☐ | ☒ |
| 11 | **Badges:** Are the badges properly capped and intact? | ☐ | ☐ | ☒ |
| | Are dual bed badges separated and individually capped and intact? | ☐ | ☐ | ☒ |

| Lab Sample ID | Container Description | Required pH * | Received pH | Adjusted pH | VOA Headspace (Presence/Absence) | Receipt / Preservation Comments |
|---|---|---|---|---|---|---|
| P2006296-001.01 | 40mL VOA NP | | 7 | | A | wh 11/17/20 |
| P2006296-001.02 | 40mL VOA NP | | 7 | | A | wh 11/17/20 |
| P2006296-001.03 | 40mL VOA NP | | 7 | | A | wh 11/17/20 |
| P2006296-001.04 | 40ml VOA HCL | | 1 | | A | wh 11/17/20 |
| P2006296-001.05 | 40ml VOA HCL | | 1 | | A | wh 11/17/20 |
| P2006296-001.06 | 40ml VOA HCL | | 1 | | A | wh 11/17/20 |
| P2006296-002.01 | 40mL VOA NP | | 7 | | A | wh 11/17/20 |
| P2006296-002.02 | 40mL VOA NP | | | | A | |
| P2006296-002.03 | 40mL VOA NP | | | | A | |
| P2006296-002.04 | 40ml VOA HCL | | 1 | | A | wh 11/17/20 |
| P2006296-002.05 | 40ml VOA HCL | | | | A | |
| P2006296-002.06 | 40ml VOA HCL | | | | A | |
| P2006296-003.01 | 40mL VOA NP | | 7 | | A | wh 11/17/20 |
| P2006296-003.02 | 40mL VOA NP | | | | A | |
| P2006296-003.03 | 40mL VOA NP | | | | A | |

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)



RIGHT SOLUTIONS | RIGHT PARTNER

# ALS Environmental
## Sample Acceptance Check Form

Client: ALS Laboratory Group  Work order: P2006296

Project: HS20110128

Sample(s) received on: 11/5/2020  Date opened: 11/5/2020  by: ADAVID

| Lab Sample ID | Container Description | Required pH * | Received pH | Adjusted pH | VOA Headspace (Presence/Absence) | Receipt / Preservation Comments |
|---|---|---|---|---|---|---|
| P2006296-003.04 | 40ml VOA HCL | | 1 | | A | wh 11/17/20 |
| P2006296-003.05 | 40ml VOA HCL | | | | A | |
| P2006296-003.06 | 40ml VOA HCL | | | | A | |

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS ENVIRONMENTAL**

RESULTS OF ANALYSIS



**Client:** **ALS Laboratory Group**
**Client Sample ID:** **67WW13-201103**
**Client Project ID:** **HS20110128**

ALS Project ID: P2006296
ALS Sample ID: P2006296-001

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 11/03/20
Date Received: 11/05/20
Date Analyzed: 11/17/20
Volume(s) Analyzed: 0.10 ml(s)

| CAS # | Compound | Result µg/L | LOQ µg/L | LOD µg/L | MDL µg/L | Data Qualifier |
|---|---|---|---|---|---|---|
| 74-82-8 | Methane | 1.0 | 1.3 | 1.0 | 0.51 | **U** |
| 74-85-1 | Ethene | 0.55 | 1.0 | 0.55 | 0.24 | **U** |
| 74-84-0 | Ethane | 0.47 | 0.60 | 0.47 | 0.16 | **U** |

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS ENVIRONMENTAL**

RESULTS OF ANALYSIS



**Client:** **ALS Laboratory Group**
**Client Sample ID:** **67WW08-201103**
**Client Project ID:** **HS20110128**

ALS Project ID: P2006296
ALS Sample ID: P2006296-002

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 11/03/20
Date Received: 11/05/20
Date Analyzed: 11/17/20
Volume(s) Analyzed: 0.10 ml(s)

| CAS # | Compound | Result µg/L | LOQ µg/L | LOD µg/L | MDL µg/L | Data Qualifier |
|---|---|---|---|---|---|---|
| 74-82-8 | Methane | **1.2** | 1.3 | 1.0 | 0.51 | **J** |
| 74-85-1 | Ethene | 0.55 | 1.0 | 0.55 | 0.24 | **U** |
| 74-84-0 | Ethane | 0.47 | 0.60 | 0.47 | 0.16 | **U** |

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS ENVIRONMENTAL**

RESULTS OF ANALYSIS



**Client:** **ALS Laboratory Group**
**Client Sample ID:** **67WW08-201103-FD**
**Client Project ID:** **HS20110128**

ALS Project ID: P2006296
ALS Sample ID: P2006296-003

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 11/03/20
Date Received: 11/05/20
Date Analyzed: 11/17/20
Volume(s) Analyzed: 0.10 ml(s)

| CAS # | Compound | Result µg/L | LOQ µg/L | LOD µg/L | MDL µg/L | Data Qualifier |
|---|---|---|---|---|---|---|
| 74-82-8 | Methane | **1.0** | 1.3 | 1.0 | 0.51 | **J** |
| 74-85-1 | Ethene | 0.55 | 1.0 | 0.55 | 0.24 | **U** |
| 74-84-0 | Ethane | 0.47 | 0.60 | 0.47 | 0.16 | **U** |

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS ENVIRONMENTAL**

RESULTS OF ANALYSIS



**Client:** **ALS Laboratory Group**
**Client Sample ID:** **Method Control Sample** ALS Project ID: P2006296
**Client Project ID:** **HS20110128** ALS Sample ID: P201117-MB

Test Code: RSK 175 Date Collected: NA
Instrument ID: HP5890A/GC10/FID Date Received: NA
Analyst: Wade Henton Date Analyzed: 11/17/20
Matrix: Water Volume(s) Analyzed: 0.10 ml(s)
Test Notes:

| CAS # | Compound | Result µg/L | LOQ µg/L | LOD µg/L | MDL µg/L | Data Qualifier |
|---|---|---|---|---|---|---|
| 74-82-8 | Methane | 1.0 | 1.3 | 1.0 | 0.51 | **U** |
| 74-85-1 | Ethene | 0.55 | 1.0 | 0.55 | 0.24 | **U** |
| 74-84-0 | Ethane | 0.47 | 0.60 | 0.47 | 0.16 | **U** |

The Method Control Sample is laboratory water carried through the entire analytical process.
U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS ENVIRONMENTAL**

MATRIX SPIKE / DUPLICATE MATRIX SPIKE SUMMARY



**Client:** **ALS Laboratory Group**
**Client Sample ID:** **67WW13-201103**
**Client Project ID:** **HS20110128**

ALS Project ID: P2006296
ALS Sample ID: P2006296-001MS
P2006296-001DMS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 11/3/20
Date Received: 11/5/20
Date Analyzed: 11/17/20
Volume(s) Analyzed: 0.10 ml(s)

| CAS # | Compound | Spike Amount MS / DMS µg/L | Sample Amount µg/L | Result MS µg/L | Result DMS µg/L | % Recovery MS | % Recovery DMS | DOD Acceptance Limits | RPD | RPD Limit | Data Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 74-82-8 | Methane | 169 | ND | 128 | 122 | **76** | **72** | 73-125 | 5 | 30 | **N** |
| 74-85-1 | Ethene | 294 | ND | 275 | 260 | **94** | **88** | 72-133 | 7 | 30 | |
| 74-84-0 | Ethane | 317 | ND | 262 | 248 | **83** | **78** | 74-131 | 6 | 30 | |

N = The matrix spike recovery is not within control limits. See case narrative.



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS ENVIRONMENTAL**

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY



**Client:** **ALS Laboratory Group**
**Client Sample ID:** **Duplicate Lab Control Sample**
**Client Project ID:** **HS20110128**

ALS Project ID: P2006296
ALS Sample ID: P201117-LCS
P201117-DLCS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 11/17/20
Volume(s) Analyzed: 0.10 ml(s)

| CAS # | Compound | Spike Amount LCS / DLCS µg/L | Result$_1$ LCS µg/L | Result$_1$ DLCS µg/L | % Recovery LCS | % Recovery DLCS | DOD Acceptance Limits | RPD | RPD Limit | Data Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 74-82-8 | Methane | 2.52 | 2.60 | 2.70 | **103** | **107** | 73-125 | 4 | 26 | |
| 74-85-1 | Ethene | 4.40 | 5.19 | 5.13 | **118** | **117** | 72-133 | 0.9 | 11 | |
| 74-84-0 | Ethane | 4.72 | 5.08 | 5.03 | **108** | **107** | 74-131 | 0.9 | 10 | |

$_1$ = The concentration shown includes a subtraction of the Method Control Sample value, even if the result is less than the MRL.



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS ENVIRONMENTAL**

RESULTS OF ANALYSIS



**Client:** **ALS Laboratory Group**
**Client Project ID:** **HS20110128** ALS Project ID: P2006296

## Carbon Dioxide

Test Code: RSK 175
Instrument ID: HP5890A/GC10/TCD
Analyst: Wade Henton
Matrix: Liquid
Test Notes:

Date(s) Collected: 11/3/20
Date Received: 11/5/20
Date Analyzed: 11/17/20

| Client Sample ID | ALS Sample ID | Injection Volume ml(s) | Result µg/L | LOQ µg/L | LOD µg/L | MDL µg/L | Data Qualifier |
|---|---|---|---|---|---|---|---|
| 67WW13-201103 | P2006296-001 | 0.10 | **350,000** | 1,000 | 860 | 370 | |
| 67WW08-201103 | P2006296-002 | 0.10 | **270,000** | 1,000 | 860 | 370 | |
| 67WW08-201103-FD | P2006296-003 | 0.10 | **270,000** | 1,000 | 860 | 370 | |
| Method Control Sample | P201117-MB | 0.10 | 860 | 1,000 | 860 | 370 | **U** |

The Method Control Sample is laboratory water carried through the entire analytical process.
U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS ENVIRONMENTAL**

MATRIX SPIKE / DUPLICATE MATRIX SPIKE SUMMARY



**Client:** **ALS Laboratory Group**
**Client Sample ID:** **67WW13-201103**
**Client Project ID:** **HS20110128**

ALS Project ID: P2006296
ALS Sample ID: P2006296-001MS
P2006296-001DMS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/TCD
Analyst: Wade Henton
Matrix: Liquid
Test Notes:

Date Collected: 11/3/2020
Date Received: 11/5/2020
Date Analyzed: 11/17/2020
Volume(s) Analyzed: 0.10 ml(s)

| CAS # | Compound | Spike Amount MS / DMS ug/L | Sample Amount ug/L | Result MS ug/L | Result DMS ug/L | % Recovery MS | % Recovery DMS | DOD Acceptance Limits | RPD | RPD Limit | Data Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 124-38-9 | Carbon Dioxide | 22,900 | 346,000 | 380,000 | 405,000 | **148** | **258** | 80-122 | 54 | 30 | **N, R** |

R = Duplicate precision not met.
N = The matrix spike sample recovery is not within control limits. See case narrative.



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS ENVIRONMENTAL**

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY



**Client:** **ALS Laboratory Group**
**Client Sample ID:** **Duplicate Lab Control Sample** ALS Project ID: P2006296
**Client Project ID:** **HS20110128** ALS Sample ID: P201117-DLCS

Test Code: RSK 175 Date Collected: NA
Instrument ID: HP5890A/GC10/TCD Date Received: NA
Analyst: Wade Henton Date Analyzed: 11/17/20
Matrix: Liquid Volume(s) Analyzed: NA ml(s)
Test Notes:

| CAS # | Compound | Spike Amount LCS / DLCS ug/L | Result$_1$ LCS ug/L | Result$_1$ DLCS ug/L | % Recovery LCS | % Recovery DLCS | DOD Acceptance Limits | RPD | RPD Limit | Data Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| 124-38-9 | Carbon Dioxide | 22,900 | 19,400 | 18,700 | **85** | **82** | 80-122 | 4 | 12 | |

$_1$ = The concentration shown includes a subtraction of the Method Control Sample value, even if the result is less than the MRL.



RIGHT SOLUTIONS | RIGHT PARTNER

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Draft Final • Rev 0 • July 2021

# Appendix D

# Photographic Log

# PHOTO LOG

| Photo No. | Date | Task and Description |
|---|---|---|
| 1 | 11-3-2020 | Well Inspection, 67WW01 |
| 2 | 11-2-2020 | Well Inspection, 67WW02 |
| 3 | 11-2-2020 | Well Inspection, 67WW03 |
| 4 | 11-3-2020 | Well Inspection, 67WW04 |
| 5 | 11-2-2020 | Well Inspection, 67WW05 |
| 6 | 11-2-2020 | Well Inspection, 67WW06 |
| 7 | 11-2-2020 | Well Inspection, 67WW07 |
| 8 | 11-3-2020 | Well Inspection, 67WW08 |
| 9 | 11-3-2020 | Well Inspection, 67WW09 |
| 10 | 11-2-2020 | Well Inspection, 67WW09A |
| 11 | 11-2-2020 | Well Inspection, 67WW10 |
| 12 | 11-3-2020 | Well Inspection, 67WW11 |
| 13 | 11-2-2020 | Well Inspection, 67WW12 |
| 14 | 11-3-2020 | Well Inspection, 67WW13 |
| 15 | 11-2-2020 | Well Inspection, 67WW14 |
| 16 | 11-3-2020 | Well Inspection, 67WW15 |
| 17 | 11-3-2020 | Well Inspection, 67WW16I |
| 18 | 11-2-2020 | Well Inspection, 67WW17 |
| 19 | 11-2-2020 | Well Inspection, 67WW18 |




**PHOTO 1: Well Inspection, 67WW01**
**DATE: November 3, 2020**




**PHOTO 2: Well Inspection, 67WW02**
**DATE: November 2, 2020**




**PHOTO 3: Well Inspection, 67WW03**
**DATE: November 2, 2020**




**PHOTO 4: Well Inspection, 67WW04**
**DATE: November 3, 2020**




**PHOTO 5: Well Inspection, 67WW05**
**DATE: November 2, 2020**




**PHOTO 6: Well Inspection, 67WW06**
**DATE: November 2, 2020**




**PHOTO 7: Well Inspection, 67WW07**
**DATE: November 2, 2020**




**PHOTO 8: Well Inspection, 67WW08**
**DATE: November 3, 2020**




**PHOTO 9: Well Inspection, 67WW09**
**DATE: November 3, 2020**




**PHOTO 10: Well Inspection, 67WW09A**
**DATE: November 2, 2020**




**PHOTO 11: Well Inspection, 67WW10**
**DATE: November 2, 2020**




**PHOTO 12: Well Inspection, 67WW11**
**DATE: November 3, 2020**




**PHOTO 13: Well Inspection, 67WW12**
**DATE: November 2, 2020**




**PHOTO 14: Well Inspection, 67WW13**
**DATE: November 3, 2020**




**PHOTO 15: Well Inspection, 67WW14**
**DATE: November 2, 2020**




**PHOTO 16: Well Inspection, 67WW15**
**DATE: November 3, 2020**




**PHOTO 17: Well Inspection, 67WW16I**
**DATE: November 3, 2020**




**PHOTO 18: Well Inspection, 67WW17**
**DATE: November 2, 2020**




**PHOTO 19: Well Inspection, 67WW18**
**DATE: November 2, 2020**

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Draft Final • Rev 0 • July 2021

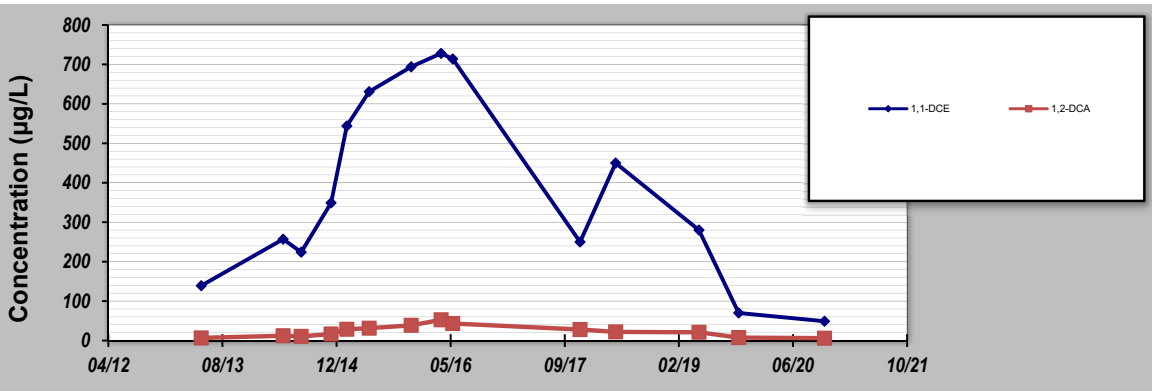
# Appendix E

# Mann-Kendall Trend Test Results

# GSI MANN-KENDALL TOOLKIT
## for Constituent Trend Analysis

| | | | |
|---|---|---|---|
| Evaluation Date: | 22-Apr-20 | Job ID: | 501032 |
| Facility Name: | LHAAP-67 | Constituent: | 67WW01 |
| Conducted By: | Robert Mayer | Concentration Units: | µg/L |

| Sampling Point ID: | 1,1-DCE | 1,2-DCA | | | | | |
|---|---|---|---|---|---|---|---|
| Sampling Event | Sampling Date | 67WW01 CONCENTRATION (µg/L) | | | | | | |
| 1 | 13-May-13 | 139 | 6.7 | | | | | |
| 2 | 7-May-14 | 257 | 12 | | | | | |
| 3 | 25-Jul-14 | 224 | 11 | | | | | |
| 4 | 3-Dec-14 | 349 | 17 | | | | | |
| 5 | 10-Feb-15 | 544 | 29 | | | | | |
| 6 | 19-May-15 | 631 | 31 | | | | | |
| 7 | 19-Nov-15 | 694 | 39 | | | | | |
| 8 | 29-Mar-16 | 728 | 53 | | | | | |
| 9 | 19-May-16 | 714 | 43 | | | | | |
| 10 | 28-Nov-17 | 250 | 28 | | | | | |
| 11 | 3-May-18 | 450 | 22 | | | | | |
| 12 | 3-May-19 | 280 | 21 | | | | | |
| 13 | 24-Oct-19 | 70 | 7.6 | | | | | |
| 14 | 3-Nov-20 | 49 | 6.1 | | | | | |
| 15 | | | | | | | | |
| 16 | | | | | | | | |
| 17 | | | | | | | | |
| 18 | | | | | | | | |
| 19 | | | | | | | | |
| 20 | | | | | | | | |
| Coefficient of Variation: | | 0.63 | 0.63 | | | | | |
| Mann-Kendall Statistic (S): | | -1 | 3 | | | | | |
| Confidence Factor: | | 50.0% | 54.3% | | | | | |
| Concentration Trend: | | Stable | No Trend | | | | | |




**Notes:**

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

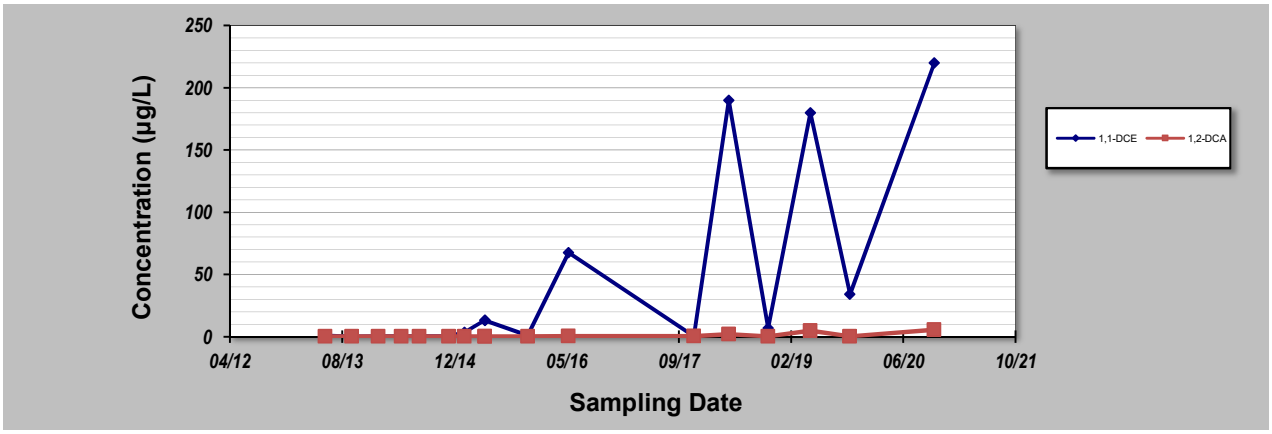
***DISCLAIMER:*** *The GSI Mann-Kendall Toolkit is available "as is". Considerable care has been exercised in preparing this software product; however, no party, including without limitation GSI Environmental Inc., makes any representation or warranty regarding the accuracy, correctness, or completeness of the information contained herein, and no such party shall be liable for any direct, indirect, consequential, incidental or other damages resulting from the use of this product or the information contained herein. Information in this publication is subject to change without notice. GSI Environmental Inc., disclaims any responsibility or obligation to update the information contained herein.*

*GSI Environmental Inc., www.gsi-net.com*

# GSI MANN-KENDALL TOOLKIT
## for Constituent Trend Analysis

| | | | |
|---|---|---|---|
| Evaluation Date: | 22-Jan-21 | Job ID: | 501032 |
| Facility Name: | LHAAP-67 | Constituent: | 67WW02 |
| Conducted By: | Robert Mayer | Concentration Units: | µg/L |

| Sampling Point ID: | 1,1-DCE | 1,2-DCA | | | | | |
|---|---|---|---|---|---|---|---|
| Sampling Event | Sampling Date | 67WW02 CONCENTRATION (µg/L) | | | | | | |
| 1 | 31-May-13 | 1.0 | 0.25 | | | | | |
| 2 | 27-Sep-13 | 0.25 | 0.25 | | | | | |
| 3 | 23-Jan-14 | 0.5 | 0.25 | | | | | |
| 4 | 6-May-14 | 0.5 | 0.25 | | | | | |
| 5 | 24-Jul-14 | 0.5 | 0.25 | | | | | |
| 6 | 3-Dec-14 | 0.5 | 0.25 | | | | | |
| 7 | 10-Feb-15 | 3.59 | 0.25 | | | | | |
| 8 | 12-May-15 | 13.2 | 0.25 | | | | | |
| 9 | 12-May-15 | 13 | 0.25 | | | | | |
| 10 | 19-Nov-15 | 0.86 | 0.25 | | | | | |
| 11 | 19-May-16 | 68 | 0.377 | | | | | |
| 12 | 28-Nov-17 | 0.5 | 0.5 | | | | | |
| 13 | 3-May-18 | 190 | 2 | | | | | |
| 14 | 25-Oct-18 | 6.9 | 0.25 | | | | | |
| 15 | 1-May-19 | 180 | 4.7 | | | | | |
| 16 | 24-Oct-19 | 34 | 0.25 | | | | | |
| 17 | 3-Nov-20 | 220 | 5.5 | | | | | |
| 18 | | | | | | | | |
| 19 | | | | | | | | |
| 20 | | | | | | | | |
| Coefficient of Variation: | | 1.75 | 1.72 | | | | | |
| Mann-Kendall Statistic (S): | | 78 | 56 | | | | | |
| Confidence Factor: | | 100.0% | 98.9% | | | | | |
| Concentration Trend: | | Increasing | Increasing | | | | | |




**Notes:**

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

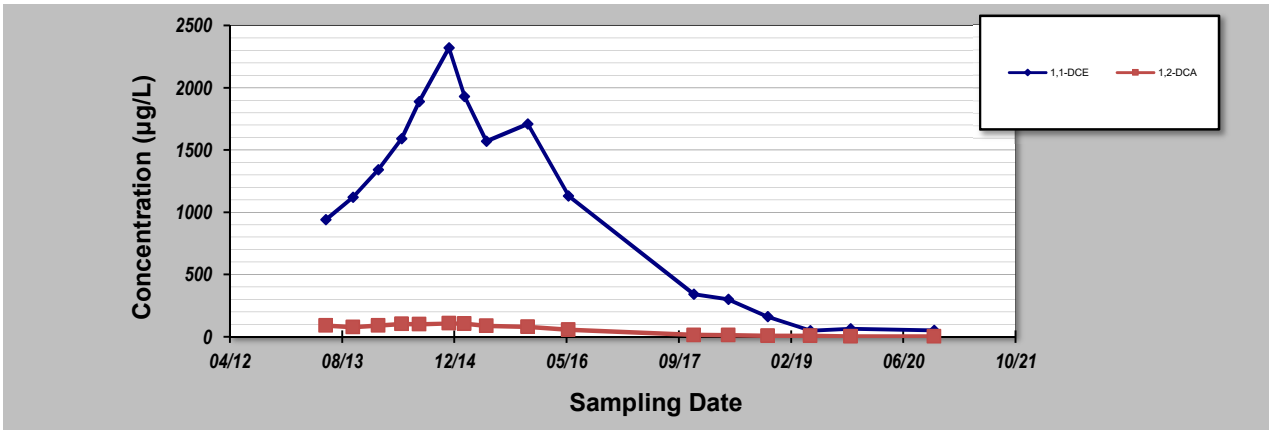
***DISCLAIMER:*** *The GSI Mann-Kendall Toolkit is available "as is". Considerable care has been exercised in preparing this software product; however, no party, including without limitation GSI Environmental Inc., makes any representation or warranty regarding the accuracy, correctness, or completeness of the information contained herein, and no such party shall be liable for any direct, indirect, consequential, incidental or other damages resulting from the use of this product or the information contained herein. Information in this publication is subject to change without notice. GSI Environmental Inc., disclaims any responsibility or obligation to update the information contained herein.*

*GSI Environmental Inc., www.gsi-net.com*

# GSI MANN-KENDALL TOOLKIT
## for Constituent Trend Analysis

| | | | |
|---|---|---|---|
| Evaluation Date: | 2/9/201 | Job ID: | 501032 |
| Facility Name: | LHAAP-67 | Constituent: | 67WW08 |
| Conducted By: | Robert Mayer | Concentration Units: | µg/L |

| Sampling Point ID: | 1,1-DCE | 1,2-DCA | | | | | |
|---|---|---|---|---|---|---|---|
| Sampling Event | Sampling Date | 67WW08 CONCENTRATION (µg/L) | | | | | | |
| 1 | 3-Jun-13 | 940 | 89.2 | | | | | |
| 2 | 2-Oct-13 | 1,120 | 76.5 | | | | | |
| 3 | 23-Jan-14 | 1,340 | 89.9 | | | | | |
| 4 | 7-May-14 | 1,590 | 101 | | | | | |
| 5 | 24-Jul-14 | 1,890 | 98.9 | | | | | |
| 6 | 4-Dec-14 | 2,320 | 106 | | | | | |
| 7 | 11-Feb-15 | 1,930 | 104 | | | | | |
| 8 | 19-May-15 | 1,570 | 85.6 | | | | | |
| 9 | 19-Nov-15 | 1,710 | 77.6 | | | | | |
| 10 | 19-May-16 | 1,130 | 56.1 | | | | | |
| 11 | 28-Nov-17 | 340 | 13 | | | | | |
| 12 | 1-May-18 | 300 | 11 | | | | | |
| 13 | 23-Oct-18 | 160 | 6.5 | | | | | |
| 14 | 1-May-19 | 49 | 6.1 | | | | | |
| 15 | 27-Oct-19 | 63 | 2.3 | | | | | |
| 16 | 3-Nov-20 | 50 | 1.6 | | | | | |
| 17 | | | | | | | | |
| 18 | | | | | | | | |
| 19 | | | | | | | | |
| 20 | | | | | | | | |
| Coefficient of Variation: | | 0.75 | 0.74 | | | | | |
| Mann-Kendall Statistic (S): | | -56 | -80 | | | | | |
| Confidence Factor: | | 99.4% | >99.9% | | | | | |
| Concentration Trend: | | Decreasing | Decreasing | | | | | |




**Notes:**

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

***DISCLAIMER:*** *The GSI Mann-Kendall Toolkit is available "as is". Considerable care has been exercised in preparing this software product; however, no party, including without limitation GSI Environmental Inc., makes any representation or warranty regarding the accuracy, correctness, or completeness of the information contained herein, and no such party shall be liable for any direct, indirect, consequential, incidental or other damages resulting from the use of this product or the information contained herein. Information in this publication is subject to change without notice. GSI Environmental Inc., disclaims any responsibility or obligation to update the information contained herein.*

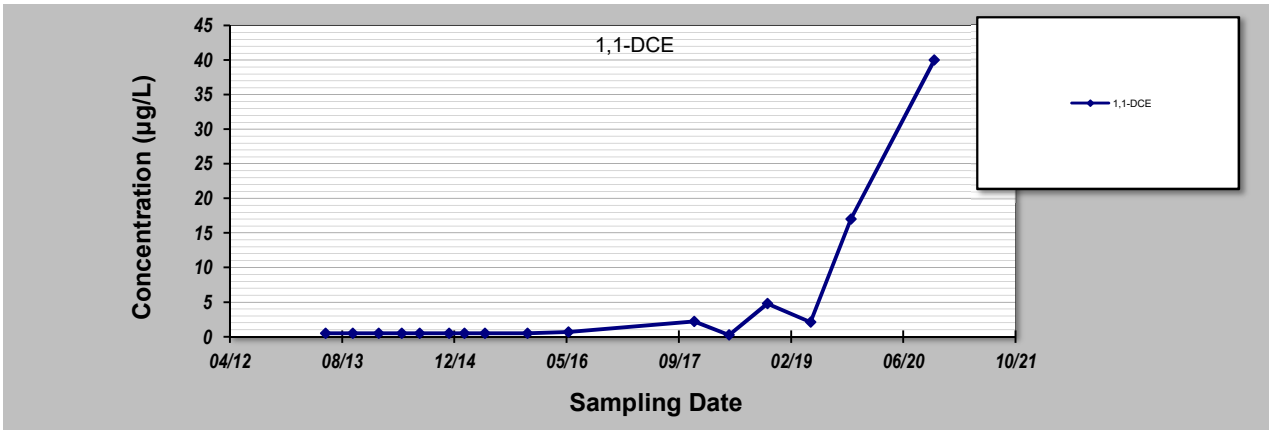
*GSI Environmental Inc., www.gsi-net.com*

# GSI MANN-KENDALL TOOLKIT
## for Constituent Trend Analysis

| | | | |
|---|---|---|---|
| Evaluation Date: | 22-Apr-20 | Job ID: | 501032 |
| Facility Name: | LHAAP-67 | Constituent: | 67WW12 |
| Conducted By: | Robert Mayer | Concentration Units: | µg/L |

Sampling Point ID: 1,1-DCE

| Sampling Event | Sampling Date | 67WW12 CONCENTRATION (µg/L) |
|---|---|---|
| 1 | 1-Jun-13 | 0.5 |
| 2 | 1-Oct-13 | 0.5 |
| 3 | 24-Jan-14 | 0.5 |
| 4 | 6-May-14 | 0.5 |
| 5 | 25-Jul-14 | 0.5 |
| 6 | 3-Dec-14 | 0.5 |
| 7 | 10-Feb-15 | 0.5 |
| 8 | 12-May-15 | 0.5 |
| 9 | 18-Nov-15 | 0.5 |
| 10 | 18-May-16 | 0.681 |
| 11 | 29-Nov-17 | 2.2 |
| 12 | 3-May-18 | 0.25 |
| 13 | 22-Oct-18 | 4.8 |
| 14 | 2-May-19 | 2.1 |
| 15 | 28-Oct-19 | 17 |
| 16 | 3-Nov-20 | 40 |
| 17 | | |
| 18 | | |
| 19 | | |
| 20 | | |
| Coefficient of Variation: | | 2.31 |
| Mann-Kendall Statistic (S): | | 58 |
| Confidence Factor: | | 99.6% |
| Concentration Trend: | | Increasing |




**Notes:**

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

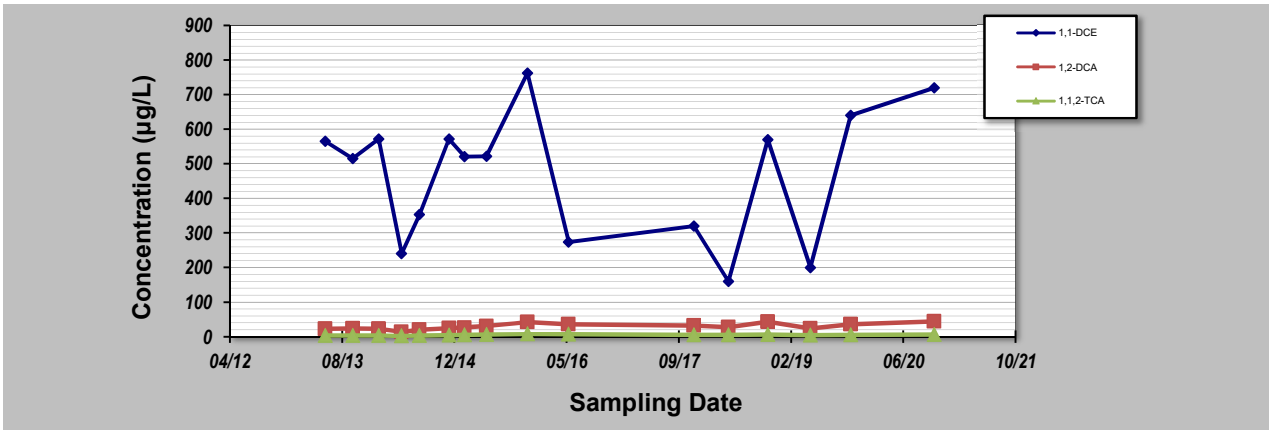
***DISCLAIMER:*** *The GSI Mann-Kendall Toolkit is available "as is". Considerable care has been exercised in preparing this software product; however, no party, including without limitation GSI Environmental Inc., makes any representation or warranty regarding the accuracy, correctness, or completeness of the information contained herein, and no such party shall be liable for any direct, indirect, consequential, incidental or other damages resulting from the use of this product or the information contained herein. Information in this publication is subject to change without notice. GSI Environmental Inc., disclaims any responsibility or obligation to update the information contained herein.*

*GSI Environmental Inc., www.gsi-net.com*

# GSI MANN-KENDALL TOOLKIT
## for Constituent Trend Analysis

| | | | |
|---|---|---|---|
| Evaluation Date: | 22-Apr-20 | Job ID: | 501032 |
| Facility Name: | LHAAP-67 | Constituent: | 67WW13 |
| Conducted By: | Robert Mayer | Concentration Units: | µg/L |

| Sampling Point ID: | 1,1-DCE | 1,2-DCA | 1,1,2-TCA | | | | |
|---|---|---|---|---|---|---|---|
| Sampling Event | Sampling Date | 67WW13 CONCENTRATION (µg/L) | | | | | | |
| 1 | 31-May-13 | 565 | 23.1 | 2.91 | | | | |
| 2 | 1-Oct-13 | 515 | 23.8 | 3.37 | | | | |
| 3 | 24-Jan-14 | 572 | 22.9 | 2.99 | | | | |
| 4 | 6-May-14 | 240 | 13.7 | 1.99 | | | | |
| 5 | 25-Jul-14 | 353 | 19.8 | 3.48 | | | | |
| 6 | 4-Dec-14 | 572 | 24.9 | 4.4 | | | | |
| 7 | 11-Feb-15 | 521 | 26 | 4.87 | | | | |
| 8 | 19-May-15 | 522 | 30.6 | 5.96 | | | | |
| 9 | 18-Nov-15 | 762 | 42.6 | 7.66 | | | | |
| 10 | 19-May-16 | 274 | 35.7 | 7 | | | | |
| 11 | 28-Nov-17 | 320 | 32 | 5.1 | | | | |
| 12 | 1-May-18 | 160 | 27 | 4.8 | | | | |
| 13 | 23-Oct-18 | 570 | 43 | 6.1 | | | | |
| 14 | 1-May-19 | 200 | 24 | 3.9 | | | | |
| 15 | 28-Oct-19 | 640 | 36 | 5 | | | | |
| 16 | 3-Nov-20 | 720 | 44 | 5.7 | | | | |
| 17 | | | | | | | | |
| 18 | | | | | | | | |
| 19 | | | | | | | | |
| 20 | | | | | | | | |
| Coefficient of Variation: | | 0.40 | 0.30 | 0.33 | | | | |
| Mann-Kendall Statistic (S): | | 5 | 70 | 56 | | | | |
| Confidence Factor: | | 57.1% | 99.9% | 99.4% | | | | |
| Concentration Trend: | | No Trend | Increasing | Increasing | | | | |




**Notes:**

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

***DISCLAIMER:*** *The GSI Mann-Kendall Toolkit is available "as is". Considerable care has been exercised in preparing this software product; however, no party, including without limitation GSI Environmental Inc., makes any representation or warranty regarding the accuracy, correctness, or completeness of the information contained herein, and no such party shall be liable for any direct, indirect, consequential, incidental or other damages resulting from the use of this product or the information contained herein. Information in this publication is subject to change without notice. GSI Environmental Inc., disclaims any responsibility or obligation to update the information contained herein.*

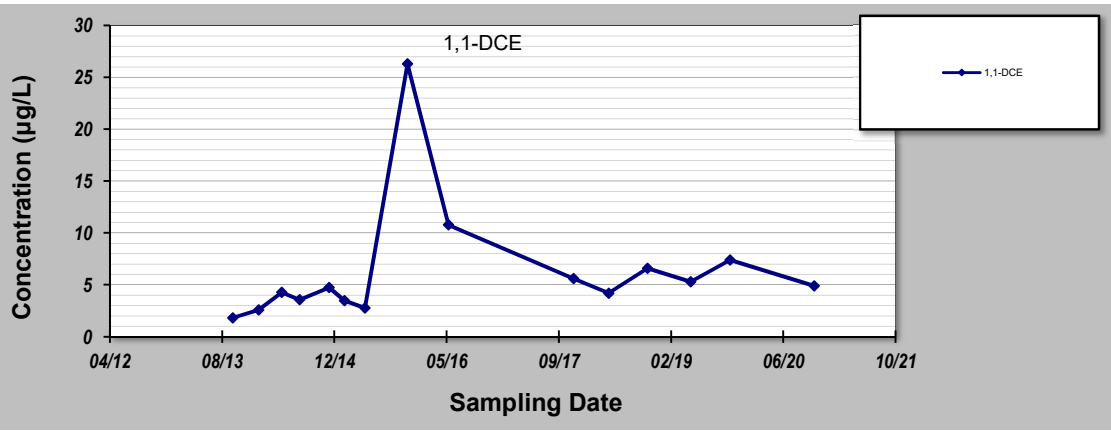
*GSI Environmental Inc., www.gsi-net.com*

# GSI MANN-KENDALL TOOLKIT
## for Constituent Trend Analysis

| | | | |
|---|---|---|---|
| Evaluation Date: | 22-Apr-20 | Job ID: | 501032 |
| Facility Name: | LHAAP-67 | Constituent: | 67WW14 |
| Conducted By: | Robert Mayer | Concentration Units: | µg/L |

Sampling Point ID: 1,1-DCE

| Sampling Event | Sampling Date | 67WW14 CONCENTRATION (µg/L) |
|---|---|---|
| 1 | 1-Oct-13 | 1.8 |
| 2 | 24-Jan-14 | 2.6 |
| 3 | 7-May-14 | 4.3 |
| 4 | 25-Jul-14 | 3.6 |
| 5 | 3-Dec-14 | 4.7 |
| 6 | 10-Feb-15 | 3.5 |
| 7 | 12-May-15 | 2.8 |
| 8 | 18-Nov-15 | 26 |
| 9 | 18-May-16 | 11 |
| 10 | 27-Nov-17 | 5.6 |
| 11 | 2-May-18 | 4.2 |
| 12 | 22-Oct-18 | 6.6 |
| 13 | 2-May-19 | 5.3 |
| 14 | 24-Oct-19 | 7.4 |
| 15 | 3-Nov-20 | 4.9 |
| 16 | | |
| 17 | | |
| 18 | | |
| 19 | | |
| 20 | | |
| Coefficient of Variation: | | 0.95 |
| Mann-Kendall Statistic (S): | | 45 |
| Confidence Factor: | | 98.6% |
| Concentration Trend: | | Increasing |




**Notes:**

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

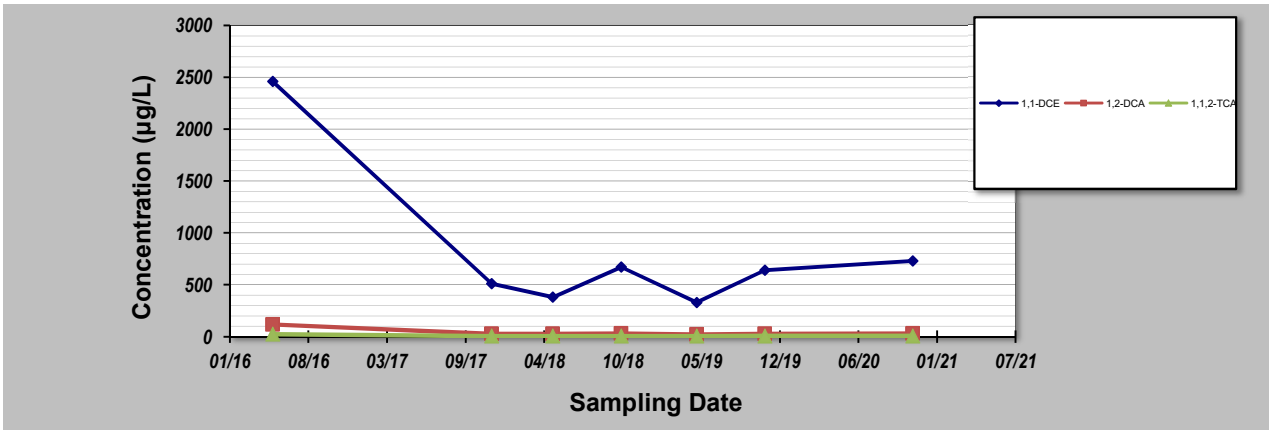
***DISCLAIMER:*** *The GSI Mann-Kendall Toolkit is available "as is". Considerable care has been exercised in preparing this software product; however, no party, including without limitation GSI Environmental Inc., makes any representation or warranty regarding the accuracy, correctness, or completeness of the information contained herein, and no such party shall be liable for any direct, indirect, consequential, incidental or other damages resulting from the use of this product or the information contained herein. Information in this publication is subject to change without notice. GSI Environmental Inc., disclaims any responsibility or obligation to update the information contained herein.*

*GSI Environmental Inc., www.gsi-net.com*

# GSI MANN-KENDALL TOOLKIT
## for Constituent Trend Analysis

| | | | |
|---|---|---|---|
| Evaluation Date: | 22-Apr-20 | Job ID: | 501032 |
| Facility Name: | LHAAP-67 | Constituent: | 67WW15 |
| Conducted By: | Robert Mayer | Concentration Units: | µg/L |

| Sampling Point ID: | 1,1-DCE | 1,2-DCA | 1,1,2-TCA | | | | |
|---|---|---|---|---|---|---|---|
| Sampling Event | Sampling Date | 67WW15 CONCENTRATION (µg/L) | | | | | | |
| 1 | 19-May-16 | 2,460 | 117 | 22.7 | | | | |
| 2 | 27-Nov-17 | 510 | 27 | 5.6 | | | | |
| 3 | 2-May-18 | 380 | 26 | 5.6 | | | | |
| 4 | 23-Oct-18 | 670 | 30 | 6.0 | | | | |
| 5 | 3-May-19 | 330 | 22 | 5.4 | | | | |
| 6 | 24-Oct-19 | 640 | 27 | 6.4 | | | | |
| 7 | 3-Nov-20 | 730 | 29 | 6.4 | | | | |
| 8 | | | | | | | | |
| 9 | | | | | | | | |
| 10 | | | | | | | | |
| 11 | | | | | | | | |
| 12 | | | | | | | | |
| 13 | | | | | | | | |
| 14 | | | | | | | | |
| 15 | | | | | | | | |
| 16 | | | | | | | | |
| 17 | | | | | | | | |
| 18 | | | | | | | | |
| 19 | | | | | | | | |
| 20 | | | | | | | | |
| Coefficient of Variation: | | 0.91 | 0.86 | 0.77 | | | | |
| Mann-Kendall Statistic (S): | | -1 | -4 | 1 | | | | |
| Confidence Factor: | | 50.0% | 66.7% | 50.0% | | | | |
| Concentration Trend: | | Stable | Stable | No Trend | | | | |




**Notes:**

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

***DISCLAIMER:*** *The GSI Mann-Kendall Toolkit is available "as is". Considerable care has been exercised in preparing this software product; however, no party, including without limitation GSI Environmental Inc., makes any representation or warranty regarding the accuracy, correctness, or completeness of the information contained herein, and no such party shall be liable for any direct, indirect, consequential, incidental or other damages resulting from the use of this product or the information contained herein. Information in this publication is subject to change without notice. GSI Environmental Inc., disclaims any responsibility or obligation to update the information contained herein.*

*GSI Environmental Inc., www.gsi-net.com*

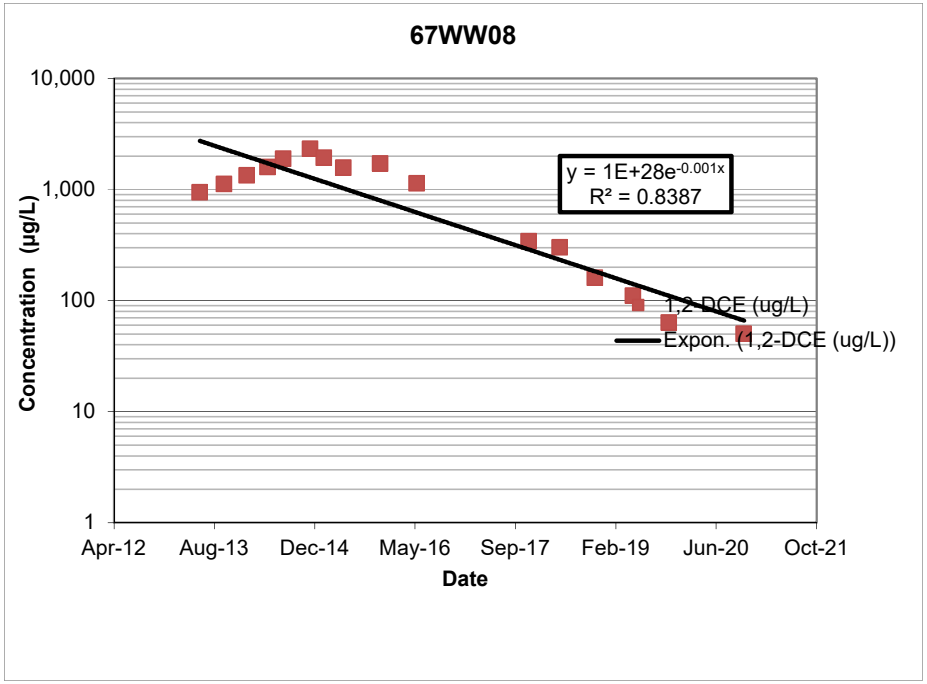
Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Draft Final • Rev 0 • July 2021

# Appendix F

# Regression Analysis

## Time-Dependent Attenuation Rate Constant and Estimated Cleanup Time
## 67WW08

| Date | 1,1-DCE (µg/L) |
|---|---|
| 3-Jun-13 | 940 |
| 2-Oct-13 | 1,120 |
| 23-Jan-14 | 1,340 |
| 7-May-14 | 1,590 |
| 24-Jul-14 | 1,890 |
| 4-Dec-14 | 2,320 |
| 11-Feb-15 | 1,930 |
| 19-May-15 | 1,570 |
| 19-Nov-15 | 1,710 |
| 19-May-16 | 1,130 |
| 28-Nov-17 | 340 |
| 1-May-18 | 300 |
| 23-Oct-18 | 160 |
| 1-May-19 | 110 |
| 27-Oct-19 | 63 |
| 3-Nov-20 | 50 |




| Chemical | Attenuation Rate Constant ($day^{-1}$) | Attenuation Half-life (days) | Attenuation Half-life (years) | Current Conc. (µg/L) | Target Concentration (µg/L) | Estimated Cleanup Time (years) |
|---|---|---|---|---|---|---|
| 1,1-DCE | 0.0010 | 693.1 | 1.9 | 50 | 5 | 6.3 |

Notes:

The estimated cleanup time was calculated as the time it would take the most recent detected COC concentration to reach the MCL using the site-specific attenuation rate, and assuming first order degradation kinetics.

µg/L - micrograms per liter

DCA - dichloroethane

DCE - dichloroethene

MCL - maximum contaminant level

NA - not applicable because the concentration is below the Target Concentration

**DEPARTMENT OF THE ARMY**
**LONGHORN ARMY AMMUNITION PLANT**
**POST OFFICE BOX 220**
**RATCLIFF, AR 72951**

April 15, 2021

DAIN-ODB-LO

Ms. Lauren Poulos
U.S. Environmental Protection Agency
1201 Elm Street, Suite 500
Dallas, TX 75270-2002

**Re: Final Remedial Action Completion Report, LHAAP-04 Former Pilot Wastewater Treatment Plant, Longhorn Army Ammunition Plant, Karnack, Texas, April 2021**

Dear Ms. Poulos,

An electronic copy of the above referenced document has been added to the project portal's "Documents" folder at the following address for your records: (https://docs.cbifederalservices.com/sites/501032/regulators/Shared%20Documents/Forms/AllItems.aspx). An electronic copy of this letter and download instructions for the electronic file have been sent via email. The TCEQ comments dated August 18, 2020 were resolved via email on September 1, 2020.

The document was prepared by Bhate Environmental Associates, Inc., (Bhate) team, on behalf of the Army as part of Bhate's Performance Based Remediation contract for the facility. I ask that Kim Nemmers, Bhate's Project Manager, be copied on any communications related to the project.

The point of contact for this action is the undersigned. I may be contacted at 479-635-0110, or by email at rose.m.zeiler.civ@mail.mil.

Sincerely,

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager

Copies furnished:
A. Palmie, TCEQ, Austin, TX (electronic/online)
P. Bruckwicki, Caddo Lake NWR, TX (1 hard copy/1 CD)
R. Smith USACE, Tulsa District, OK (electronic/online)
A. Williams, USACE, Tulsa District, OK (electronic/online)
A. Maly USAEC, San Antonio, TX (1 CD)
K. Nemmers, Bhate, Lakewood, CO (electronic/online)
P. Srivastav, APTIM, Houston, TX (electronic/online)

**DEPARTMENT OF THE ARMY**
**LONGHORN ARMY AMMUNITION PLANT**
**POST OFFICE BOX 220**
**RATCLIFF, AR 72951**

April 15, 2021

DAIN-ODB-LO

Ms. April Palmie
Texas Commission on Environmental Quality
Superfund Section, MC-136
12100 Park 35 Circle, Bldg D
Austin, TX 78753

**Re: Final Remedial Action Completion Report, LHAAP-04 Former Pilot Wastewater Treatment Plant, Longhorn Army Ammunition Plant, Karnack, Texas, April 2021**

Dear Ms. Palmie,

An electronic copy of the above referenced document has been added to the project portal's "Documents" folder at the following address for your records: (https://docs.cbifederalservices.com/sites/501032/regulators/Shared%20Documents/Forms/AllItems.aspx). An electronic copy of this letter and download instructions for the electronic file have been sent via email. The TCEQ comments dated August 18, 2020 were resolved via email on September 1, 2020.

The document was prepared by Bhate Environmental Associates, Inc., (Bhate) team, on behalf of the Army as part of Bhate's Performance Based Remediation contract for the facility. I ask that Kim Nemmers, Bhate's Project Manager, be copied on any communications related to the project.

The point of contact for this action is the undersigned. I may be contacted at 479-635-0110, or by email at rose.m.zeiler.civ@mail.mil.

Sincerely,

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager

Copies furnished (letter only):
L. Poulos, USEPA Region 6, Dallas, TX
P. Bruckwicki, Caddo Lake NWR, TX
R. Smith, USACE, Tulsa District, OK
A. Williams, USACE, Tulsa District, OK
A. Maly, USAEC, San Antonio, TX
K. Nemmers, Bhate, Lakewood, CO
P. Srivastav, APTIM, Houston, TX

# *Final*
# Remedial Action Completion Report, LHAAP-04 Former Pilot Wastewater Treatment Plant
## Longhorn Army Ammunition Plant
## Karnack, Texas

Prepared for U.S. Army Corps of Engineers, Tulsa District
Contracting Division
2488 East 81st Street
Tulsa, Oklahoma 74137-4290

Prepared by

bhate

1608 13th Avenue South, Suite 300
Birmingham, Alabama 35205
1-800-806-4001 • www.bhate.com

Prepared by

APTIM

Aptim Federal Services, LLC
2500 CityWest, Suite 1700
Houston, Texas 77042

**Contract No. W9128F-13-D-0012**
**Task Order No. W9128BV17F0150**
**Project No. 501032**
**Rev 0**
**April 2021**

# Table of Contents

**List of Tables** ..... **ii**
**List of Figures** ..... **ii**
**List of Appendices** ..... **ii**
**Acronyms and Abbreviations** ..... **iii**

**1.0 Introduction** ..... **1-1**
1.1 Organization of Response Action Completion Report ..... 1-1
1.2 Site Description ..... 1-2
1.3 Remedial Action Objectives ..... 1-3
1.4 Selected Remedy ..... 1-3
1.5 Land Use Control Plan ..... 1-5
1.6 Performance Monitoring and Follow-up Activities ..... 1-6
**2.0 Baseline Sampling** ..... **2-1**
**3.0 In Situ Bioremediation** ..... **3-1**
3.1 Notification ..... 3-1
3.2 Utility Clearance ..... 3-1
3.3 Site Clearance and Staking Locations ..... 3-1
3.4 Mobilization ..... 3-2
3.5 Injections ..... 3-2
3.5.1 Overall Sequence of Injections ..... 3-2
3.5.2 Amendment Preparation ..... 3-2
3.5.3 Injection Process ..... 3-3
3.6 Management of Remediation Derived Waste ..... 3-4
3.7 Demobilization ..... 3-4
**4.0 Design Effectiveness Monitoring** ..... **4-1**
4.1 Future Performance Monitoring ..... 4-1
**5.0 LUC Implementation** ..... **5-1**
**6.0 References** ..... **6-1**

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Final • Rev 0 • April 2021

# List of Tables

Table 2-1 Baseline and Design Effectiveness Monitoring Network Locations and Analyses
Table 2-2 Baseline Sampling Results
Table 3-1 Injection Locations and Amendment Volumes
Table 4-1 Design Effectiveness Sampling Results
Table 4-2 LHAAP-04 Performance Monitoring Plan

# List of Figures

Figure 1-1 LHAAP Location Map
Figure 1-2 Site Location Map
Figure 1-3 LHAAP-04 Final LUC Boundary Map
Figure 2-1 Monitoring Well Location and January 2019 Plume Map
Figure 3-1 In Situ Bioremediation Injection Map
Figure 3-2 ISB DPT Injection System

# List of Appendices

Appendix A Notice of LUCs and Final LUC Boundary
Appendix B Field Injection and Sample Collection Logs
Appendix C Site Photographs
Appendix D Laboratory Analytical Reports
Appendix E Quality Control Summary Report

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Final • Rev 0 • April 2021

# Acronyms and Abbreviations

| | |
|---|---|
| µg/L | micrograms per liter |
| § | section |
| AECOM | AECOM Technical Services |
| APTIM | Aptim Federal Services, LLC |
| Bhate | Bhate Environmental, Inc. |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act of 1980 |
| COC | contaminant of concern |
| DPT | direct-push technology |
| EPA | see USEPA |
| EVO | emulsified vegetable oil |
| GWTP | groundwater treatment plant |
| ISB | in situ bioremediation |
| LHAAP | Longhorn Army Ammunition Plant |
| LTM | long-term monitoring |
| LUC | land use control |
| mg/L | milligrams per liter |
| MSCs | medium-specific concentrations |
| NCP | National Contingency Plan |
| PCL | Protective Concentration Level |
| psi | pounds per square inch |
| RACR | Response Action Completion Report |
| RA-O | Remedial Action Operation |
| RAOs | remedial action objectives |
| RAWP | Remedial Action Work Plan |
| RD | Remedial Design |
| ROD | Record of Decision |
| Shaw | Shaw Environmental & Infrastructure, Inc. |
| TAC | Texas Administrative Code |
| TCEQ | Texas Commission on Environmental Quality |
| TOC | total organic carbon |
| TRRP | Texas Risk Reduction Program |
| U.S. | United States |
| U.S. Army | U.S. Department of the Army |
| USACE | U.S. Army Corps of Engineers |
| USEPA | U.S. Environmental Protection Agency |

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Final • Rev 0 • April 2021

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Final • Rev 0 • April 2021

**This page intentionally left blank.**

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Final • Rev 0 • April 2021

# 1.0 INTRODUCTION

The U.S. Army Corps of Engineers (USACE), Tulsa District, contracted Bhate Environmental, Inc. (Bhate), under the Omaha Multiple Environmental Government Acquisition National Small Business Multiple Award Task Order Contract Environmental Remediation Services with Military Munitions Response Program, Task Order No. W9128BV17F0150 to conduct environmental restoration of site LHAAP-04 at Longhorn Army Ammunition Plant (LHAAP). The Bhate Team is comprised of Bhate and Aptim Federal Services, LLC (APTIM). LHAAP is an inactive, government owned formerly contractor operated and maintained Department of Defense facility located in central east Texas (**Figure 1-1**). This Remedial Action Completion Report (RACR) describes remedial actions taken to address risks associated with contaminated groundwater at LHAAP-04 (Former Pilot Wastewater Treatment Plant). Specifically, this RACR describes activities associated with field implementation of an in situ bioremediation (ISB) remedy in accordance with the Final Remedial Design (RD) and Remedial Action Work Plan (RAWP) for LHAAP-04 (Bhate 2019a).

## 1.1 Organization of Response Action Completion Report

This RACR is composed of the following sections:

- **Section 1.0:** "Introduction" summarizes the site description, remedial action objectives (RAOs), the contaminants of concern (COCs) and their respective cleanup levels, the selected remedy, and the associated land use control (LUC) plan.
- **Section 2.0:** "Baseline Sampling" describes the sampling activities that were conducted during or before the beginning of the ISB injections and presents the associated results.
- **Section 3.0:** "In Situ Bioremediation" describes the injection of amendments to enhance microbial degradation of contaminants.
- **Section 4.0:** "Design Effectiveness Sampling" presents analytical results for samples collected to monitor the local distribution of amendments and changes in geochemical parameters during the first few weeks after the injections.
- **Section 5.0:** "LUC Implementation" identifies activities that were performed to implement the LUCs in accordance with the LUC Plan in the RD/RAWP.
- **Section 6.0:** "References" provides a list of references cited in the document.

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Final • Rev 0 • April 2021

This work plan also includes the following appendices to support the text:

- **Appendix A** provides:
  - The Notice of LUCs recorded at the Harrison County Courthouse and the Survey Plat and Legal Description of the parcel subject to the LUCs.
  - The notice of LUCs for Soil and Groundwater Contamination letter provided to the landowners and occupants, federal, state, and local officials, and the Texas Department of Licensing and Registration for notification to water well drillers, as required by the LUC Plan.
  - Example LUC Inspection Checklist and Certification Forms.
- **Appendix B** contains sample collection logs associated with the Pre-Remedy and Design Effectiveness samples.
- **Appendix C** consists of photographs of the field work.
- **Appendix D** includes the laboratory analytical reports for those samples that were collected during and after implementation of the ISB.
- **Appendix E** is the Data Quality Summary Report for the laboratory analyses.

## 1.2 Site Description

LHAAP is approximately 14 miles northeast of Marshall, Texas, and approximately 40 miles west of Shreveport, Louisiana. The installation occupies approximately 1,400 of its former 8,416 acres between State Highway 43 at Karnack, Texas, and the western shore of Caddo Lake. The facility can be accessed via State Highways 43 and 134.

LHAAP-04, known as Site 04 or the former pilot wastewater treatment plant, is approximately 0.5 acres and is located in the central portion of LHAAP at the northwest corner of 6th and 60th Streets near the former fire station (**Figure 1-2**). LHAAP-04 is surrounded by light duty roads. Wastewater treatment operations began at LHAAP-04 in 1984. The demolition of the former pilot wastewater treatment facility structures, tanks, and piping, and the disposal of the associated wastes were completed in the summer of 1997 as part of the Resource Conservation and Recovery Act closure of the plant. The final remedy for soil was conducted in 2009 as a Non-Time-Critical Removal Action under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) program. Soil along the southern edge of the slab that formerly housed storage tanks for the former pilot wastewater treatment facility that was impacted with mercury and perchlorate at the LHAAP-04 site, was removed to meet the soil medium-specific concentrations (MSCs). The soil was removed to the soil/air and

ingestion MSC for industrial use for mercury, and the groundwater protective MSC for industrial use for perchlorate.

The U.S. Department of the Army (U.S. Army) issued the Final Record of Decision (ROD) for LHAAP-04 (AECOM 2016) in October 2016, and was signed by the Army on December 15, 2016, and the U.S. Environmental Protection Agency (USEPA) on March 30, 2017. The Texas Commission on Environmental Quality (TCEQ) issued a letter concurring with the ROD on February 7, 2017. The ROD identified perchlorate as the only COC in groundwater for LHAAP-04. The remedy selected in the ROD included ISB for perchlorate concentrations in groundwater, long-term monitoring (LTM) of groundwater, and LUCs to maintain the remedy and prohibit groundwater use until COC concentrations are reduced to levels supportive of unlimited use and unrestricted exposure.

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Final • Rev 0 • April 2021

## 1.3 Remedial Action Objectives

The RAOs developed for LHAAP-04 and outlined in the Final ROD (AECOM 2016) are:

- Protect human health by preventing ingestion of groundwater contaminated with perchlorate.
- Return groundwater to its potential beneficial use, wherever practicable, within a reasonable time period given the particular site circumstances.
- Prevent groundwater contaminated with perchlorate from migrating into nearby surface water.

The above RAOs recognize the USEPA's policy to return all groundwater to beneficial uses, based on the non-binding programmatic expectation in the National Contingency Plan (NCP), and is consistent with the NCP regulations requiring the lead agency, the U.S. Army in this case, to establish RAOs specifying contaminants and media of concern, potential exposure pathways, and remediation goals.

Per the ROD's RAOs, and consistent with the NCP, groundwater will be returned to its beneficial uses as drinking water. The groundwater cleanup level for perchlorate at the Site is the Texas Risk Reduction Program (TRRP) Tier 1 Residential Groundwater Protective Concentration Level (PCL), 17 micrograms per liter (µg/L), and is protective of human health and the environment.

## 1.4 Selected Remedy

The selected remedy was summarized in Section 1.4 of the Final ROD (AECOM 2016) as follows (some of the text has been revised slightly from the text in the ROD to reflect that the tasks have already been completed):

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Final • Rev 0 • April 2021

- ISB of perchlorate contaminated groundwater in an area in the vicinity of monitoring well 04WW04. Multiple injections of substrate may be needed based on effectiveness of the ISB. Bioaugmentation using appropriate microbial culture to facilitate ISB may be performed, if necessary. Prior to ISB, two shallow zone monitoring wells and one intermediate zone monitoring well were installed to refine the perchlorate plume configuration and address the plume migration detected by the wells described in the ROD.
- LTM to confirm the protection of human health and the environment by documenting the return of groundwater to the cleanup level (maximum contaminant level or TRRP Tier 1 Residential Groundwater PCL) through reduction of the contaminant mass, and by preventing the perchlorate-contaminated groundwater plume from migrating into surface water.
- The LUC objectives include maintaining the integrity of any current or future remedial or monitoring systems and preventing the use of groundwater contaminated above cleanup levels as a potable water source. The groundwater treatment and LTM remedial components include a groundwater monitoring system that will be used to characterize the condition of the groundwater during the period the groundwater remedy is in place until the groundwater remediation goals are achieved, and to demonstrate achievement of the groundwater remediation goals when the groundwater remedy is complete. As a part of this groundwater remedy, the Army will maintain the remedial and monitoring systems associated with the groundwater remedies until these components of the remedy are no longer needed to achieve cleanup levels, and cleanup levels have been achieved. During the period of operation of the groundwater remedy, if any of the elements of the remedial and groundwater monitoring systems are damaged, destroyed, or become ineffective, they will be repaired or replaced with suitable components to assure that the remedial and groundwater monitoring systems are able to provide data of the quality necessary to determine the progress of and eventual completion of this component of the remedy. The actions to be taken to implement these LUC objectives and requirements will be provided through modifying the "Comprehensive Land Use Control Management Plan, Former Longhorn Army Ammunition Plant, Karnack, Texas" and detailed in the LUC RD.
- The LUC for prohibition of groundwater use (except for monitoring and testing) shall be implemented and shall remain in place at the Site until the levels of COCs in surface and subsurface soil and groundwater are reduced below levels that would support unlimited use and unrestricted exposure. A LUC RD was finalized as the land use component of the RD. Within 21 days of the issuance of the ROD, the Army proposed deadlines for completion of the RD Work Plan, RD, and RAWP. The

documents were prepared and submitted to the EPA and the TCEQ pursuant to the Federal Facility Agreement. The LUC RD contained implementation and maintenance actions, including periodic inspections. The LTM groundwater plan was also presented in the RD. The recordation notification for the Site, which was filed with Harrison County, included a description of the LUCs.

The groundwater monitoring network and LUC Plan development included in the ROD were detailed in the RD/RAWP (Bhate 2019a). The LUC Plan was incorporated into the Comprehensive LUC Management Plan (U.S. Army 2019) in the October 2019 revision. The Notice of LUCs and the Survey Plat and Legal Description for the parcel subject to the LUCs are included in **Appendix A**. Letters providing initial notice of LUCs for Soil and Groundwater Contamination were sent to landowners and occupants, federal, state, and local officials and the Texas Department of Licensing and Registration on June 26, 2017 (U.S. Army 2017), within 90 days of signature of the ROD, as required. The notice of LUCs and the Final LUC Boundary Survey Plat and Legal Description were filed with Harrison County on March 22, 2021 (**Appendix A**). A notification letter was also sent to federal, state, and local officials and to the Texas Department of Licensing and Regulation (Water Well Drillers and Pump Installers Section) on February 23, 2021 showing the area covered by the final groundwater use restriction LUC (**Appendix A**). Annual inspections of the LUCs and CERCLA five year reviews of the remedy will continue until levels of COCs in groundwater allow for unlimited use and unrestricted exposure.

## 1.5 Land Use Control Plan

The Final ROD (AECOM 2016) indicated that the U.S. Army or its representative will be responsible for LUC implementation, certification, reporting, and enforcement. The U.S. Army will address any LUC problems within its control that are likely to impact remedy integrity as soon as practicable. The details of LUC components are provided in the RD/RAWP (Bhate 2019a). The continued successful implementation of LUCs will be documented in annual remedial action operation (RA-O) reports.

The Comprehensive LUC Management Plan (U.S. Army 2019) provides a repository for LUC plans for sites throughout the former LHAAP. The LUC Plan for LHAAP-04 can be found within the Comprehensive LUC Management Plan. That document includes blank copies of the Inspection and Maintenance Checklist and the Land Use Control Compliance Inspection Form.

The LUC Plan includes restrictions on both land and groundwater use. **Appendix A** presents the Notice of LUCs and the Survey Plat and Legal Description that were filed with Harrison County. The final LUC boundary is shown on **Figure 1-3**. Implementation of the LUC Plan will include annual inspections which are recorded on the Inspection and Maintenance

Checklist and the Land Use Control Compliance Certification Form. The Checklist and the Certification Form are provided within **Appendix A**.

## 1.6 Performance Monitoring and Follow-up Activities

While this RACR documents the implementation of ISB, the RD/RAWP (Bhate 2019a) describes several activities that are to be conducted following ISB. Those activities are briefly described below. The RD/RAWP should be referenced for detailed information (including reporting requirements) regarding all these activities.

- **Performance Monitoring Year 1 and Year 2.** Quarterly sampling will be conducted to determine geochemical conditions and perchlorate concentrations. Any recommendations to modify the sampling frequency, analytical parameters, or wells will be made in the Annual RA-O Report. Additionally, results will be used to evaluate the impacts of biodegradation reactions and to determine if reinjections are needed.
- **LTM Year 3 through Year 5.** Semiannual monitoring will continue following the first two years of performance monitoring.
- **LTM Beyond Year 5.** LTM will be implemented at an annual frequency from Year 6 until the next Five Year Review. The need for ongoing monitoring and the appropriate frequency will be evaluated in the Five Year Review.

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Final • Rev 0 • April 2021

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Final • Rev 0 • April 2021

# 2.0 BASELINE SAMPLING

The RD/RAWP (Bhate 2019a) presented a baseline sampling plan for the shallow and intermediate groundwater zones at LHAAP-04 (**Table 2-1**). The pre-remedy sampling of the groundwater was to be conducted prior to injections to characterize the perchlorate concentrations and geochemical conditions. However, the injections were completed on November 6, 2019, and the baseline samples were collected on November 5–6, 2019 upon identification of the non-compliance with the RD/RAWP. At monitoring wells 04WW01, 04WW07, 04WW09, and 04WW10 within the treatment area (**Figure 2-1**), the groundwater was a milky white color due to the emulsified vegetable oil (EVO) that had already been injected near the wells. Samples from those four wells were not sent for analysis to avoid laboratory instrument disruption that may have resulted from running samples containing high concentrations of EVO. The primary purpose of the pre-injection sampling was to provide baseline results for comparison against future performance monitoring results. Therefore, for the four wells that were not analyzed in early November 2019 (04WW01, 04WW07, 04WW09, and 04WW10), the samples collected in January 2019 will serve as the baseline for comparison of perchlorate concentrations to subsequent sampling results. The January 2019 samples were not analyzed for anions, alkalinity, or total organic carbon (TOC).

The baseline sampling locations (**Table 2-1**) included 12 shallow zone wells inside and outside of the plume area, one intermediate zone well (04WW08), and the Fire Station Well completed in the deep zone. The baseline samples were collected on November 5–6, 2019 for all the locations on **Table 2-1** except the four wells previously discussed and the results are shown on **Table 2-2**. The baseline samples shown on **Table 2-2** for the four wells that were not sampled due to the presence of EVO were collected on January 22, 2019. Perchlorate was detected above the TCEQ PCL of 17 µg/L at three shallow wells (04WW07, 04WW09, and 04WW10), which are all within the treatment zone. The highest concentration detected was 10,000 µg/L at 04WW10, located near the center of the treatment zone. Perchlorate was detected below the PCL at a concentration of 13 µg/L in 04WW08 in the intermediate zone. Perchlorate was not detected in the sample collected from the Fire Station Well.

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Final • Rev 0 • April 2021

**This page intentionally left blank.**

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Final • Rev 0 • April 2021

# 3.0 IN SITU BIOREMEDIATION

ISB was conducted at LHAAP-04 in accordance with the RD/RAWP (Bhate 2019a) to treat the area of perchlorate impacted groundwater exceeding five times the 17 µg/L PCL. Injections were performed at 25 direct-push technology (DPT) locations as shown on **Figure 3-1**. The implementation of ISB involved steps prior to and following the injections. The sections below describe the major steps, from notifications through demobilization, in approximate chronological order.

## 3.1 Notification

On August 1, 2019, a Memorandum for Record was provided to TCEQ (Bhate 2019b) to provide information regarding planned injections to comply with the substantive requirements of 30 Texas Administrative Code (TAC) Section (§) 331, Subchapters A, C, and H for Class V Injections Wells. The memorandum described the planned injection of EVO and microbial nutrients at 25 DPT injection locations.

TCEQ and USEPA were notified two weeks in advance of commencement of fieldwork activities.

## 3.2 Utility Clearance

Utility location and clearance for intrusive activities were conducted prior to drilling and in accordance with Section 3.1 of the Installation-Wide Work Plan (Bhate 2018). Utility clearance tasks included the following:

- Contacting the Texas Excavation Safety System, Inc. utility notification service.
- Manually probe all boreholes to at least 5 feet prior to driving the injection rods.
- Holding safety meetings and completing job safety analyses with all personnel who were involved in intrusive activities.

## 3.3 Site Clearance and Staking Locations

Prior to the ISB injection, the site was cleared of tall vegetation. The DPT injection point locations were staked out using global positioning system or relative to existing wells. Due to field obstructions associated with a wooded ditch and a culvert within the treatment area, DPT locations 17 and 18 were adjusted approximately 5 to 10 feet from the locations proposed in the RD/RAWP to allow access for the DPT rig.

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Final • Rev 0 • April 2021

## 3.4 Mobilization

Personnel were mobilized to LHAAP-04 on October 21, 2019, and injections began on October 22, 2019.

The following major pieces of equipment were mobilized over the course of the injections:

- DPT drill rig
- Injection system trailer
- One mobile 4000-gallon tank

The EVO and nutrients to be injected were delivered directly to site LHAAP-16, instead of LHAAP-04, where two 20,000-gallon tanks were already in place from injections being performed at LHAAP-16. The two tanks were used to mix and store the amendment solution for LHAAP-04. The EVO and nutrient solution were brought to LHAAP-04 using a 2,000-gallon water truck and stored in the mobile 4,000-gallon tank prior to injection. Water for mixing the EVO solution was obtained from the Leigh Water Company from one of their wells located in Karnack, Texas and trucked to the 20,000-gallon tanks using the 2,000-gallon water truck.

## 3.5 Injections

The injection amendments were mixed as shown on **Table 3-1** and injected at the 25 DPT locations in accordance with the RD/RAWP (Bhate 2019a). Details of the injections are described in the following sections.

### 3.5.1 Overall Sequence of Injections

Section 5.1 of the RD/RAWP (Bhate 2019a) called for the ISB injections to begin in the outermost locations of the injection grid and then to proceed inward to minimize dispersion of the perchlorate plume. The locations at the downgradient edge of the grid (04DPT19, 04DPT20, 04DPT24, and 04DPT25) were initially injected beginning on October 22, 2019. As discussed further in **Section 3.5.3**, daylighting became a significant issue due to the shallow depth of injection, the location of several injection locations within a former excavation area where the native soils had been removed and replaced, and the presence of a ditch and culvert within the treatment area. The injection pattern was adjusted to minimize the use of adjacent locations simultaneously, while maintaining the general pattern of injecting from the outer edge and moving inward. The injections were completed on November 6, 2019.

### 3.5.2 Amendment Preparation

The amendment solution was prepared in accordance with the RD/RAWP (Bhate 2019a) as shown on **Table 3-1**. The primary injection components were the EVO carbon source (Electron

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Final • Rev 0 • April 2021

Donor Solution – Extended Release™ from Tersus Environmental, LLC) and diammonium phosphate. Approximately 24 hours prior to the start of each injection cycle, the solution of ISB amendments was prepared in a 20,000-gallon mixing tank located at site LHAAP-16. The solution was prepared by adding the required volume of EVO, dilution water, and nutrients into the mixing tank.

### 3.5.3 Injection Process

The amendments were injected into the subsurface at the depths ranges shown on **Table 3-1**, using the system shown schematically in **Figure 3-2**. Four locations were connected to the injection manifold at a time and flow rates and injection pressures were controlled by individual control valves for each injection line. Initial injection pressures were at or below 40 pounds per square inch (psi), and flow rates ranged from 2 to 6 gallons per minute. As injections progressed, it became apparent that injection pressures and flow rates needed to be reduced in most locations to limit daylighting and that multiple adjacent locations could not be injected simultaneously without inducing daylighting around the injection point or through adjacent monitoring wells. The subsequent injection pattern was altered slightly to allow for alternating injection locations to spread out the effect of the simultaneous injections, while generally following the intent of the original injection pattern.

The daylighting was most frequently observed in the former excavation area near 04DPT05 and 04DPT09, and along the edge of the ditch and culvert near 04DPT18, 04DPT13, and 04DPT20. When necessary, injections were shut down and locations were allowed to "rest" before proceeding with the injections to minimize daylighting. Injection pressures were lowered to as low as 5 psi when necessary to limit daylighting. After each injection location was completed, the probe was withdrawn and the DPT point was abandoned by filling with grout. No soil cuttings were generated using DPT.

During the injection activities, Bhate/APTIM personnel performed the following:

- Checking the injection system gauges to monitor pressure, volume, and flow into each injection point.
- Recording injection interval, volume, and time (**Appendix B**).
- Monitoring injection pressures for sudden decreases that might indicate the loss of amendment in the subsurface (possibly due to fracturing induced by the injection or encountering a high-permeability zone).
- Visually monitoring the injection locations for surfacing of injected material.
- TOC monitoring in the performance wells to assess EVO distribution, as indicated in the RAWP, was not performed because white discoloration of the water from EVO

was visible in three of the four performance monitoring wells during the injections. The fourth well was not opened for sampling during injections to avoid creating a potential route for daylighting via the well.

## 3.6 Management of Remediation Derived Waste

During the activities described above, various types of waste were generated. Those wastes are identified in the table provided below. The table also summarizes the storage and disposal for each waste type.

| Waste Type | Storage and Disposal [a] |
|---|---|
| Groundwater from purging of wells prior to sampling | Collected in 5-gallon containers or drums and transported to the GWTP for disposal |
| Disposable personal protective equipment and disposable supplies | Disposed as municipal solid waste |

Notes:

[a] GWTP refers to the Groundwater Treatment Plant at Site LHAAP-18/24.

## 3.7 Demobilization

After completion of the final injections on November 6, 2019, the injection rig and amendment tanks were demobilized from LHAAP-04. Repairs were made, where possible, to smooth out divots or ruts in the grass caused by the drilling rig in the saturated soil conditions.

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Final • Rev 0 • April 2021

# 4.0 DESIGN EFFECTIVENESS MONITORING

In accordance with the RD/RAWP (Bhate 2019a), design effectiveness samples were collected seven days after the ISB injections from four wells within the treatment area (04WW05, 04WW07, 04WW09, and 04WW10) and analyzed for TOC to evaluate the distribution of carbon source. The purpose the design effectiveness sampling was to evaluate whether the injections successfully distributed amendments. The determination of successful distribution of amendments was based on increased TOC concentrations relative to baseline or concentrations greater than 20 milligrams per liter (mg/L), which is the concentration considered to be supportive of biological degradation. For 04WW07, 04WW09, and 04WW10, a TOC sample was not collected during the November 5–6, 2019 sampling due to the visible presence of EVO and the January 2019 samples were not analyzed for TOC; therefore, no comparison to baseline TOC values was performed. The EVO observed in the wells during the injections confirmed successful distribution of the carbon source to those wells.

**Table 4-1** shows the results from the post-injection design effectiveness sampling. All four of the wells contained post-injection concentrations of TOC exceeding 20 mg/L. The concentrations ranged from 32.8 mg/L (04WW05) to 680 mg/L (04WW09). At 04WW05, the baseline concentration of 20 mg/L increased to 32.8 mg/L, representing a 64% increase over the baseline concentration. Based on these results, the injections achieved the desired distribution of TOC into the shallow groundwater zone at LHAAP-04.

## 4.1 Future Performance Monitoring

As noted in **Section 1.6**, this RACR documents the implementation of ISB, but activities that follow the ISB are described in the RD/RAWP (Bhate 2019a). **Section 1.6** provides a brief description of those activities, but the RD/RAWP should be referenced for detailed information.

In accordance with Table 6-1 of the RD/RAWP, the need for inclusion of LHSMW02, 04WW02, 04WW03, 04WW08, and the Fire Station Well in the monitoring network was to be evaluated following collection of the baseline samples. In an email exchange between the U.S. Army, TCEQ, and USEPA on January 23–27, 2020, it was decided to drop 04WW03 and the Fire Station well from the performance monitoring network based on the lack of perchlorate detections and their distance from the plume. Monitoring wells 04WW08 and LHSMW02 will be retained in the performance monitoring network due to their value as sentry wells, to monitor the vertical and horizontal extent of the remaining plume. At the request of TCEQ, 04WW02 will be sampled quarterly for the first two rounds of performance sampling, and a decision on whether to retain it in the network will be made once the data has been validated and provided to the regulators. **Table 4-2** and **Figure 2-1** show the Performance

Monitoring Plan for LHAAP-04 based on the changes agreed upon by TCEQ and USEPA. Performance monitoring will be conducted quarterly for Years 1 and 2 at the wells shown on **Table 4-2** and **Figure 2-1**. LTM will be conducted semiannually in Year 3 through Year 5. The monitoring wells shown in blue on **Figure 2-1** will be analyzed for perchlorate and monitored natural attenuation parameters, as shown on **Table 4-2**. The monitoring wells shown in green will only be analyzed for perchlorate. The first quarterly sampling event (Year 1, Quarter 1) was performed in late January 2020, and the validated data was provided to the regulators at the March 2020 monthly managers' meeting call. That data will be included in the Year 1 RA-O Report and evaluated with the other three quarters of data from Year 1.

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Final • Rev 0 • April 2021

# 5.0 LUC IMPLEMENTATION

The actions required to implement the LUCs for LHAAP-04 are described below. An initial notice of LUCs for Soil and Groundwater Contamination was completed on June 26, 2017, within 90 days of ROD signature as required (U.S. Army 2017). The Notice of LUCs including the final LUC boundary survey plat and legal description of the LUC boundary, filed with Harrison County on March 22, 2021, is included in **Appendix A**. A second Notice of LUCs for Soil and Groundwater Contamination was sent to federal, state, and local officials, and to the Texas Department of Licensing and Regulation (Water Well Drillers and Pump Installers Section) on February 23, 2021 showing the final area covered by the groundwater use restriction LUC (**Appendix A**).

The following actions were performed to implement LUCs for LHAAP-04:

- Finalize the boundaries of the LUCs as part of the remedial action (See **Figure 1-3** and **Appendix A**).
- Survey the LUC boundary. The final boundary was surveyed by a State of Texas licensed surveyor. A legal description of the surveyed area accompanies the survey plat.
- Record the Notice of LUCs at Harrison County. The LUC plats and legal descriptions and LUC restriction language were recorded at the Harrison County Courthouse in accordance with Title 30 TAC §335.566 (**Appendix A**).
- Transmit the notice to federal, state, and local governments involved at LHAAP-04, and to owners and occupants of the property whom are subject to restrictions and LUCs. The notice of the final boundary for LUCs was sent to federal, state, and local officials including:
  - State Representatives, the Harrison County Judge, Harrison County Historical Courthouse, the City of Uncertain Mayor, and Caddo Lake and Leigh Water Supply Corporations' Presidents. Notice will also be sent to the Caddo Lake National Wildlife Refuge Manager—as a representative of the U.S. Fish and Wildlife Service (the future transferee of the property), and the Water Well Driller and Pump Installer's Program at the Texas Department of Licensing and Registration.

Following implementation of the LUCs, the administrative maintenance activities required to ensure LUCs remain in place and effective will include:

- Annual field inspections of LHAAP-04 to confirm that no violations of the LUCs have occurred. Documentation of the inspection will be included on the Inspection and Maintenance Checklist (see **Appendix A**).
- Annual certifications that no LUC-restricted activities have been authorized and that LHAAP-04 conditions and use are consistent with the LUCs. The Annual LUC Compliance Certification Form is presented in **Appendix A**.
- Periodic transmittal of a LUC Notice to federal, state, and local authorities. The notice will include the land use restrictions referenced in the ROD, a written description of the LUCs, and a figure depicting the LUC boundary. The transmittal will coincide with each Five Year Review and will be documented in the report.
- The Final LUC Boundary and copies of filed notices will be added to the Comprehensive LUC Management Plan and the plan will be provided to the owner or occupant of LHAAP-04. The update to the Comprehensive LUC Management Plan will be completed during the next annual update, which will be in the fourth quarter of 2020.

The U.S. Army will address LUC problems within its control that are likely to impact remedy integrity and shall address problems as soon as practicable.

# 6.0 REFERENCES

AECOM Technical Services (AECOM). 2016. *Final Record of Decision LHAAP-04, Longhorn Army Ammunition Plant, Karnack, Texas*.

Bhate Environmental, Inc. (Bhate). 2018. *Final Installation-Wide Work Plan, Longhorn Army Ammunition Plant, Karnack, Texas*. May.

Bhate. 2019a. *Final Remedial Design and Remedial Action Work Plan for LHAAP-04, Longhorn Army Ammunition Plant, Karnack, Texas*. April.

Bhate. 2019b. *Memorandum for Record, August 2019 Underground Injection Control Substantive Requirements Notification for Remedy at LHAAP-04, Longhorn Army Ammunition Plant, Karnack, Texas*. August.

Shaw Environmental & Infrastructure, Inc. (Shaw). 2011. *Final Completion Report Non-Time-Critical Removal Action, Longhorn Army Ammunition Plant, Karnack, Texas. Houston, Texas*. August.

Texas Commission on Environmental Quality (TCEQ). 2019. *Amendment of Class V Injection Well Inventory, Class V No. 5X2600643, CN600126262/RN101264505, SUP126, Longhorn Army Ammunition Plant, Site LHAAP-35A (58)/LHAAP-35B (37), State Highway 43, Karnack, Texas*. September 12.

U.S. Department of the Army (U.S. Army). 2017. *Preliminary Notice of Land Use Controls*. Longhorn Army Ammunition Plant, Karnack, Texas. June.

U.S. Army. 2019. *Comprehensive Land Use Control Management Plan, Former Longhorn Army Ammunition Plant (LHAAP), Karnack, Texas*. October 2019 Revision.

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Final • Rev 0 • April 2021

**This page intentionally left blank.**

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Final • Rev 0 • April 2021

# Tables

## Table 2-1
## Baseline and Design Effectiveness Monitoring Network Locations and Analyses

| Monitoring Location | Primary Rationale for Well Selection | Proposed Analyses | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Baseline | | | | | | | | Design Effectiveness [b] (7 days post-injection) |
| | | Perchlorate (314.0) | Dissolved Oxygen (field reading) | Oxidation-Reduction Potential (field reading) | pH (field reading) | Ferrous Iron (field reading) | Alkalinity (2320B) | Anions [c] (E300.0) | Total Organic Carbon (SW9060) | Total Organic Carbon (SW9060) |
| 04WW05 | Performance data within the treatment zone | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 04WW07 [a] | Performance data within the treatment zone | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 04WW09 [a] | Performance data within the treatment zone | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 04WW10 [a] | Performance data within the treatment zone | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 04WW01 [a] | Downgradient well for measuring plume stability | ✓ | ✓ | ✓ | ✓ | | | | | |
| 04WW04 | Upgradient well for measuring plume stability | ✓ | ✓ | ✓ | ✓ | | | | | |
| 04WW06 | Upgradient well for measuring plume stability | ✓ | ✓ | ✓ | ✓ | | | | | |
| 04WW11 | Downgradient well for measuring plume stability | ✓ | ✓ | ✓ | ✓ | | | | | |
| LHSMW01 | Crossgradient well for measuring plume stability | ✓ | ✓ | ✓ | ✓ | | | | | |
| LHSMW02 | Crossgradient well | ✓ | ✓ | ✓ | ✓ | | | | | |
| 04WW02 | Upgradient well | ✓ | ✓ | ✓ | ✓ | | | | | |
| 04WW03 | Upgradient well | ✓ | ✓ | ✓ | ✓ | | | | | |
| 04WW08 | Intermediate Zone well | ✓ | ✓ | ✓ | ✓ | | | | | |
| Fire Station Well | Downgradient well | ✓ | ✓ | ✓ | ✓ | | | | | |

Notes:

[a] The baseline samples were collected near the completion of injections and emulsified vegetable oil was present in monitoring wells 04WW01, 04WW07, 04WW09, and 04WW10 when baseline sampling was attempted. Samples were not collected from these wells during the November 5-6, 2019 sampling event. The January 2019 sample results will be used as the baseline at these locations. Samples were only analyzed for perchlorate during the January 2019 sampling event.

[b] To be conducted approximately 7 days after the completion of substrate injection.

[c] Anions include nitrate, nitrites, and sulfate.

✓ Indicates that sample will be collected and analyzed for the listed analyte.

**Table 2-2**

**Baseline Sampling Results**

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Location Code | | | 04WW01 [a] | | 04WW02 | | 04WW03 | | 04WW04 | | 04WW05 | | 04WW06 | | 04WW07 [a] | |
| Sample ID | | | 04WW01-190122 | | 04WW02-191105 | | 04WW03-191106 | | 04WW04-191106 | | 04WW05-191106 | | 04WW06-191106 | | 04WW07-190122 | |
| Sample Date | | | 1/22/2019 | | 11/5/2019 | | 11/5/2019 | | 11/6/2019 | | 11/6/2019 | | 11/6/2019 | | 1/22/2019 | |
| Location Description | | | Shallow Zone, Downgradient of Plume | | Shallow Zone, Upgradient of Plume | | Shallow Zone, Upgradient of Plume | | Shallow Zone, Within Plume Area | | Shallow Zone, Within Plume Area | | Shallow Zone, Cross-Gradient to Plume Area | | Shallow Zone, Within Treatment Zone | |
| Analyte | Units | PCL | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| General Chemistry | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | NA | | NA | | NA | | NA | | 438 | | NA | | NA | |
| Sulfate | mg/L | NV | NA | | NA | | NA | | NA | | 72.8 | | NA | | NA | |
| Total organic carbon | mg/L | NV | NA | | NA | | NA | | NA | | 20 | | NA | | NA | |
| Perchlorate | | | | | | | | | | | | | | | | |
| Perchlorate | µg/L | 17 | < 2 | U | < 2 | U | <2 | U | < 2 | U | < 2 | U | < 2 | U | 110 | |
| Field Parameters | | | | | | | | | | | | | | | | |
| Dissolved Oxygen | mg/L | NV | 0.15 | | 1.44 | | 1.26 | | 0.06 | | 0.18 | | 0.10 | | 1.83 | |
| Oxidation-Reduction Potential | mV | NV | 327 | | 221 | | 153 | | -43 | | -36 | | 2 | | 338 | |
| pH | Std Units | NV | 6.17 | | 6.08 | | 6.13 | | 6.3 | | 5.94 | | 6.65 | | 6.22 | |
| Ferrous Iron | mg/L | NV | NM | | NM | | NM | | NM | | 0.31 | | NM | | NM | |

Notes:

Blue highlighting indicates concentrations above the PCL.

[a] The baseline samples were collected near the completion of injections and emulsified vegetable oil was present in monitoring wells 04WW01, 04WW07, 04WW09, and 04WW10 when baseline sampling was attempted. Samples were not collected from these wells during the November 5–6, 2019 sampling event. The January 2019 sample results will be used as the baseline at these locations. Samples were only analyzed for perchlorate during the January 2019 sampling event.

< The analyte was not detected above the laboratory reporting limit shown.

µg/L - micrograms per liter

U - Undetected: The analyte was analyzed for, but not detected.

mg/L - milligrams per liter

mV - millivolts

NA - not analyzed

NM - not measured

NV - No PCL value has been established for the analyte.

PCL - Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Level.

Std Units - standard units

Val Qual - validation qualifier

**Table 2-2**

**Baseline Sampling Results**

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Location Code | | | 04WW08 | | 04WW09 [a] | | 04WW10 [a] | | 04WW11 | | LHSMW01 | | LHSMW02 | | Fire Station Well | |
| Sample ID | | | 04WW08-191106 | | 04WW09-190122 | | 04WW10-190122 | | 04WW11-191106 | | LHSMW01-191106 | | LHSMW02-191105 | | Fire Station Well-191106 | |
| Sample Date | | | 11/6/2019 | | 1/22/2019 | | 1/22/2019 | | 11/6/2019 | | 11/6/2019 | | 11/5/2019 | | 11/6/2019 | |
| Location Description | | | Intermediate Zone, Slightly Upgradient of Plume | | Shallow Zone, Within Treatment Area | | Shallow Zone, Within Treatment Area | | Shallow Zone, Downgradient of Plume | | Shallow Zone, Cross-Gradient to Plume | | Shallow Zone, Downgradient of Plume | | Deep Zone, Downgradient of Plume | |
| Analyte | Units | PCL | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| General Chemistry | | | | | | | | | | | | | | | | |
| Alkalinity | mg/L | NV | NA | | NA | | NA | | NA | | NA | | NA | | NA | |
| Sulfate | mg/L | NV | NA | | NA | | NA | | NA | | NA | | NA | | NA | |
| Total organic carbon | mg/L | NV | NA | | NA | | NA | | NA | | NA | | NA | | NA | |
| Perchlorate | | | | | | | | | | | | | | | | |
| Perchlorate | µg/L | 17 | 13 | | 2,100 | | 10,000 | | < 2 | U | < 2 | U | < 2 | U | < 2 | U |
| Field Parameters | | | | | | | | | | | | | | | | |
| Dissolved Oxygen | mg/L | NV | 0.03 | | 5.78 | | 3.59 | | 3.21 | | 0.48 | | 0.22 | | NM | |
| Oxidation-Reduction Potential | mV | NV | -151 | | 326 | | 333 | | 158 | | 127 | | 52 | | NM | |
| pH | Std Units | NV | 8.65 | | 6.02 | | 5.62 | | 7.13 | | 6.34 | | 5.79 | | NM | |
| Ferrous Iron | mg/L | NV | NM | | NM | | NM | | NM | | NM | | NM | | NM | |

Notes:

Blue highlighting indicates concentrations above the PCL.

[a] The baseline samples were collected near the completion of injections and emulsified vegetable oil was present in monitoring wells 04WW01, 04WW07, 04WW09, and 04WW10 when baseline sampling was attempted. Samples were not collected from these wells during the November 5–6, 2019 sampling event. The January 2019 sample results will be used as the baseline at these locations. Samples were only analyzed for perchlorate during the January 2019 sampling event.

< The analyte was not detected above the laboratory reporting limit shown.

µg/L - micrograms per liter

U - Undetected: The analyte was analyzed for, but not detected.

mg/L - milligrams per liter

mV - millivolts

NA - not analyzed

NM - not measured

NV - No PCL value has been established for the analyte.

PCL - Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Level.

Std Units - standard units

Val Qual - validation qualifier

**Table 3-1**
**Injection Locations and Amendment Volumes**

| DPT Location | Amendment Volume per Location | | | Nearest Monitoring Well | DPT Injection Depths (ft bgs) |
|---|---|---|---|---|---|
| | Gallons of EVO **(EDS-ER™ or** Equivalent) | Gallons of Nutrients (DAP) | Gallons of Water | | |
| 04DPT03, -06, and -07 | 15 | 6 | 1,463 | 04WW05 | 12 - 20 |
| 04DPT01, -02, -04, and -05 | 15 | 6 | 1,463 | 04WW09 | 6 - 14 |
| 04DPT08, -09, -10, -11, -12, -13, -14, -17, -18, -19, -20, -24, and -25 | 15 | 6 | 1,463 | 04WW10 | 7 - 15 |
| 04DPT15, -16, -21, -22, and -23 | 15 | 6 | 1,463 | 04WW07 | 7 - 15 |

Notes:

DAP - Diammonium phosphate

DPT - direct-push technology

EDS-ER™ - Electron Donor Solution–Extended Release

EVO - emulsified vegetable oil

ft bgs - feet below ground surface

**Table 4-1**
**Design Effectiveness Sampling Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Location Code | | | 04WW05 | | | | 04WW07 | | 04WW09 | | 04WW10 | |
| Sample ID | | | 04WW05-191106 | | 04WW05-191113-POST-INJ | | 04WW07-191113-POST-INJ | | 04WW09-191113-POST-INJ | | 04WW010-191113-POST-INJ | |
| Sample Date | | | 11/6/2019 | | 11/13/2019 | | 11/13/2019 | | 11/13/2019 | | 11/13/2019 | |
| Location Description | | | Shallow Zone, Within Plume Area - Baseline | | Shallow Zone, Within Plume Area - Post Injection | | Shallow Zone, Within Plume Area | | Shallow Zone, Within Treatment Area | | Shallow Zone, Within Treatment Area | |
| Analyte | Units | PCL | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual | Result | Val Qual |
| Field Measurements | | | | | | | | | | | | |
| Dissolved Oxygen | mg/L | NV | 0.18 | | 0.46 | | 0.08 | | 0.33 | | 0.08 | |
| Oxidation-Reduction Potential | mV | NV | -36 | | -135.1 | | -333.1 | | -27.5 | | -291.8 | |
| pH | Std Units | NV | 5.94 | | 5.68 | | 5.96 | | 4.36 | | 5.61 | |
| General Chemistry | | | | | | | | | | | | |
| Total organic carbon | mg/L | NV | 20 | | 32.8 | | 35.3 | | 680 | | 65 | |

Notes:

ID - identification

INJ - injection

mg/L - milligrams per liter

mV - millivolts

NV - No PCL value has been established for the analyte.

PCL - Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Level.

Std Units - standard units

Val Qual - validation qualifier

## Table 4-2
## LHAAP-04 Performance Monitoring Plan

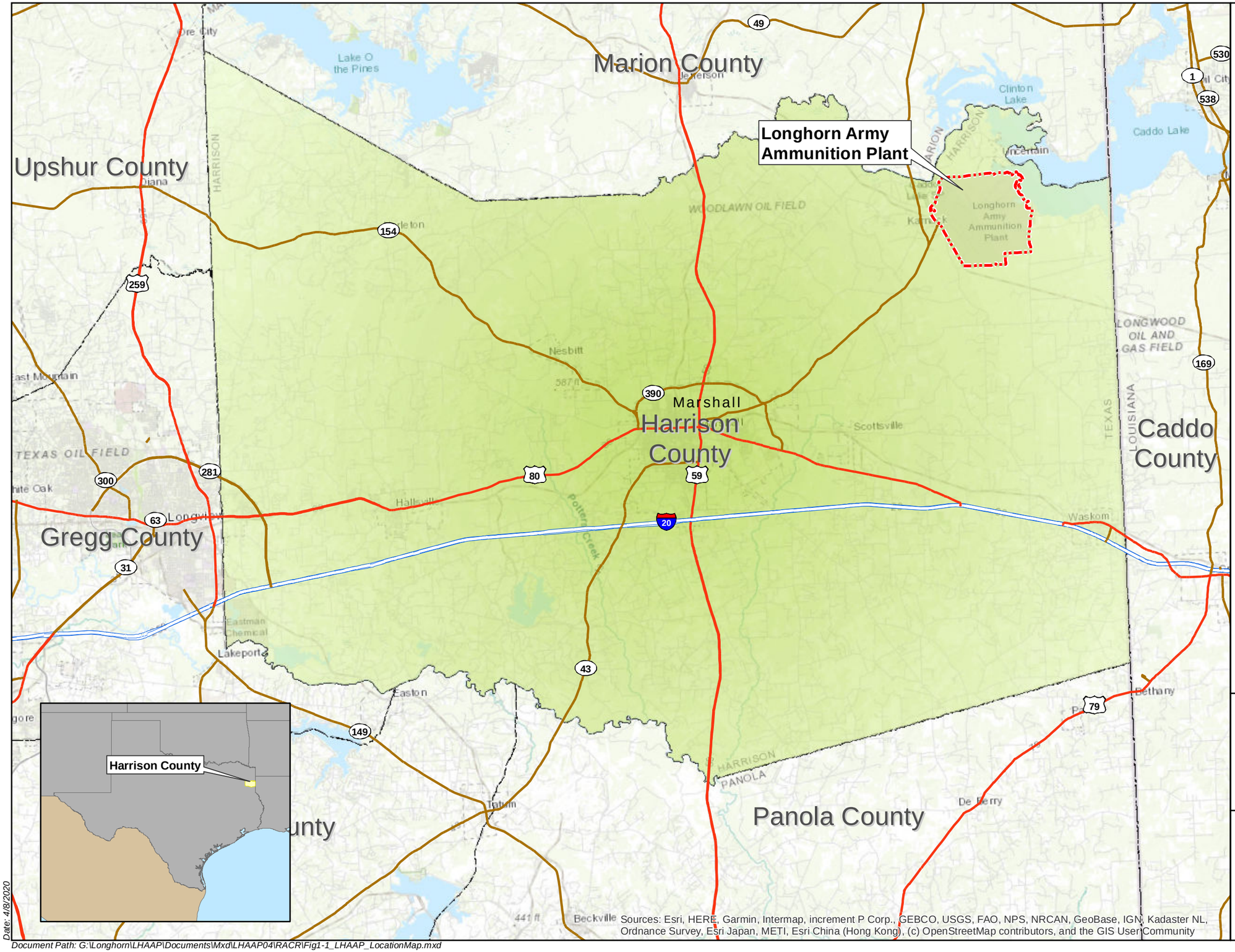
| Monitoring Location | Primary Rationale for Well Selection | Performance – Years 1 and 2 (Quarterly) | | | | | | | | LTM – Years 3 thru 5 (Semiannual) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Perchlorate (314.0) | Dissolved Oxygen (field) | Oxidation-Reduction Potential (field) | pH (field) | Ferrous Iron (field reading) | Alkalinity (2320B) | Anions [a] (E300.0) | Total Organic Carbon (SW9060) | Perchlorate (314.0) | Dissolved Oxygen (field) | Oxidation-Reduction Potential (field) | pH (field reading) | Total Organic Carbon (SW9060) |
| 04WW05 | Performance data within the treatment zone | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 04WW07 | Performance data within the treatment zone | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 04WW09 | Performance data within the treatment zone | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 04WW10 | Performance data within the treatment zone | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 04WW01 | Downgradient well for measuring plume stability | ✓ | ✓ | ✓ | ✓ | | | | | ✓ | ✓ | ✓ | ✓ | |
| 04WW04 | Upgradient well for measuring plume stability | ✓ | ✓ | ✓ | ✓ | | | | | ✓ | ✓ | ✓ | ✓ | |
| 04WW06 | Upgradient well for measuring plume stability | ✓ | ✓ | ✓ | ✓ | | | | | ✓ | ✓ | ✓ | ✓ | |
| 04WW11 | Downgradient well for measuring plume stability | ✓ | ✓ | ✓ | ✓ | | | | | ✓ | ✓ | ✓ | ✓ | |
| LHSMW01 | Crossgradient well for measuring plume stability | ✓ | ✓ | ✓ | ✓ | | | | | ✓ | ✓ | ✓ | ✓ | |
| LHSMW02 | Crossgradient well | ✓ | ✓ | ✓ | ✓ | | | | | ✓ | ✓ | ✓ | ✓ | |
| 04WW08 | Intermediate Zone well | ✓ | ✓ | ✓ | ✓ | | | | | ✓ | ✓ | ✓ | ✓ | |
| 04WW02 | Upgradient well | ✓ | ✓ | ✓ | ✓ | Monitoring well 04WW02 will be sampled for the first 2 quarters of Year 1 and the results will be used to evaluate the need for further sampling | | | | | | | | |

Notes:
The wells where MNA parameters are included in the analyte list above are shown in blue on Figure 2-1. The remaining wells that are only being analyzed for perchlorate are shown on Figure 2-1 in green. 04WW02 is shown in black on Figure 2-1 since it will not be determined if it is included in the performance or LTM monitoring network until after the 2nd quarterly sampling event is complete.

[a] Anions include nitrate, nitrites, and sulfate.

✓ Indicates that sample will be collected and analyzed for the listed analyte.

# Figures




U.S. ARMY CORP OF ENGINEERS
TULSA DISTRICT
TULSA, OKLAHOMA

bhate APTIM

Figure 1-1

LHAAP Location Map

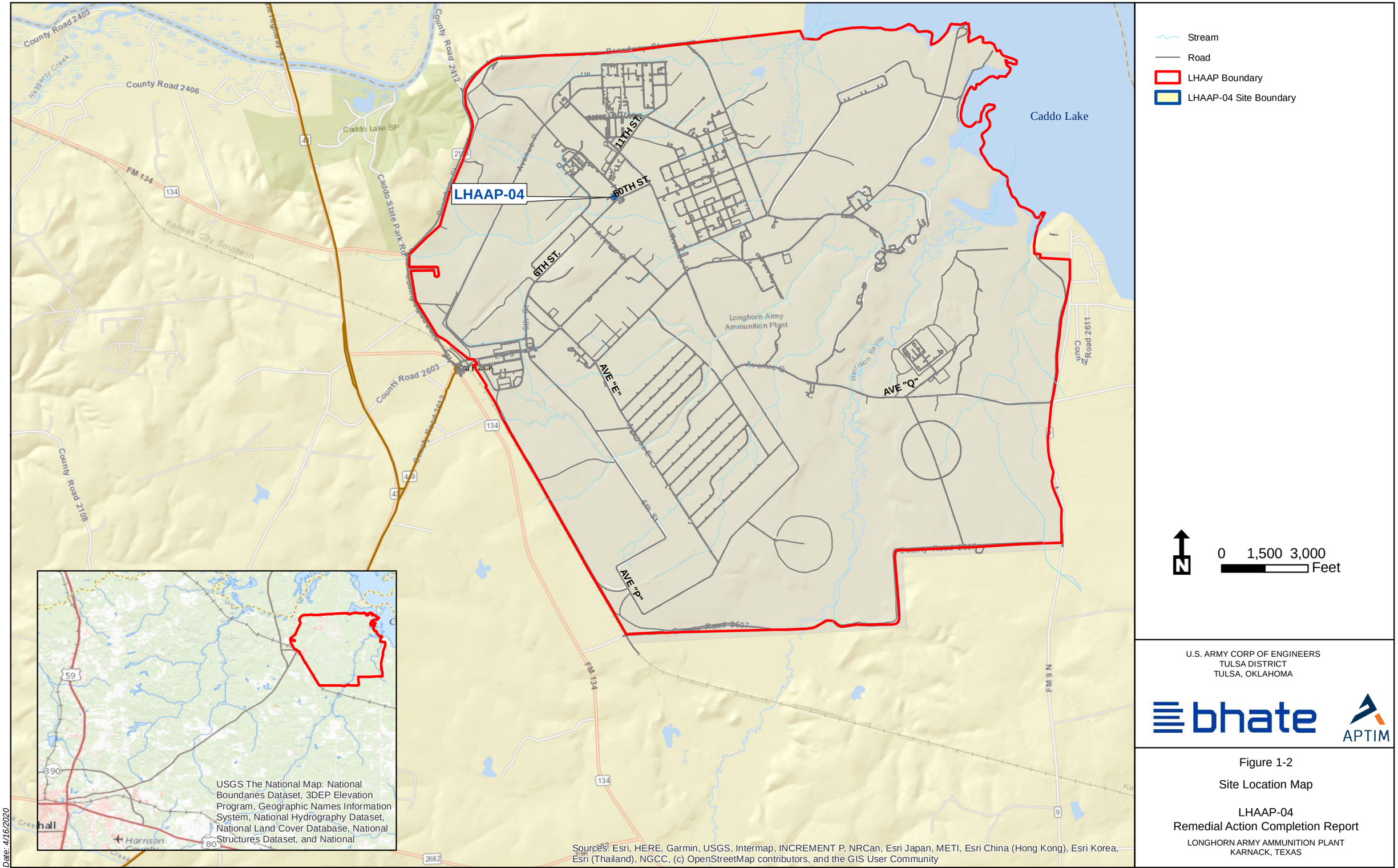
LHAAP-04
Remedial Action Completion Report

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Date: 4/8/2020

Document Path: G:\Longhorn\LHAAP\Documents\Mxd\LHAAP04\RACR\Fig1-1_LHAAP_LocationMap.mxd




U.S. ARMY CORP OF ENGINEERS
TULSA DISTRICT
TULSA, OKLAHOMA

bhate APTIM

Figure 1-2

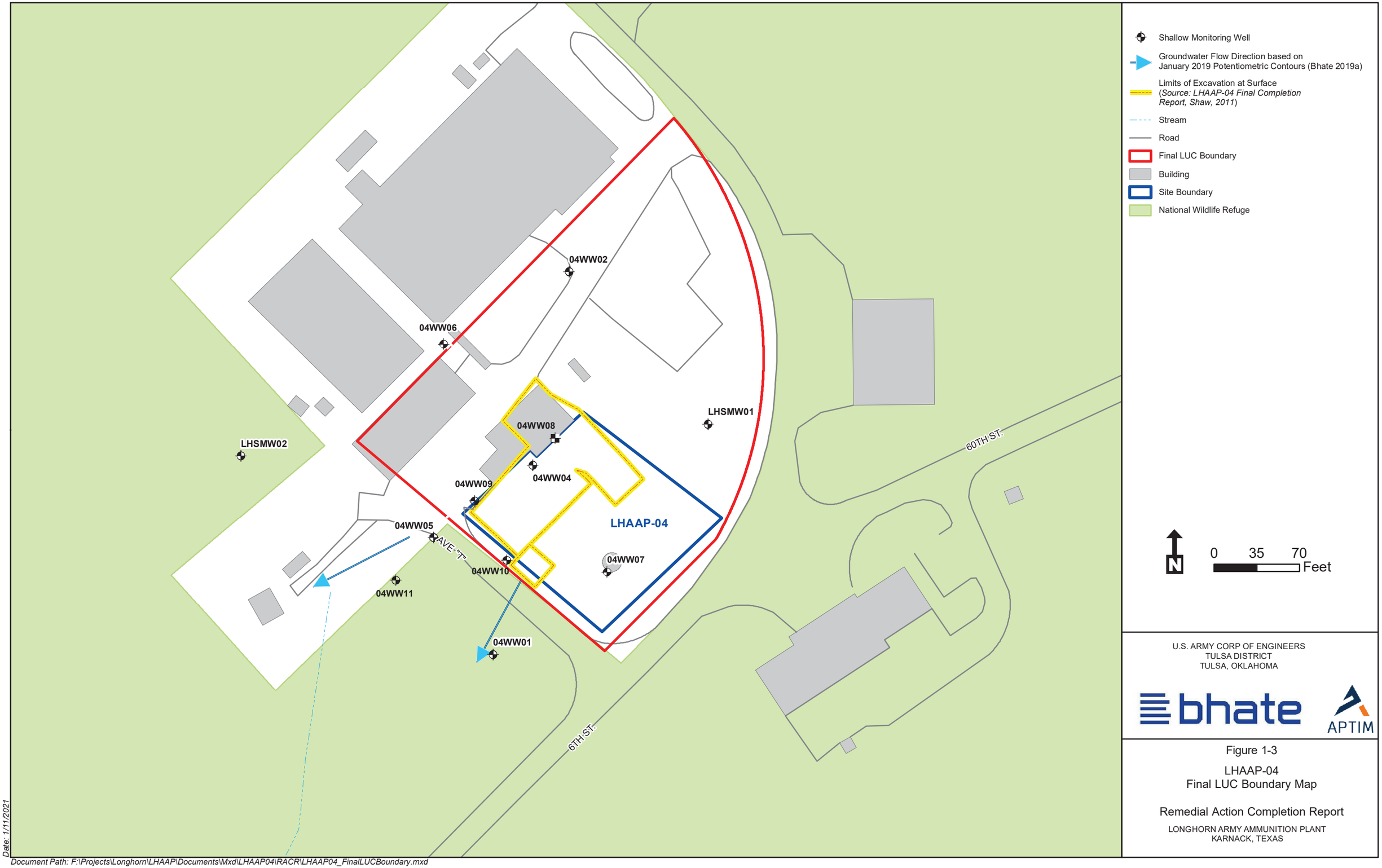
Site Location Map

LHAAP-04
Remedial Action Completion Report

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 4/16/2020

*Document Path: G:\Longhorn\LHAAP\Documents\Mxd\LHAAP04\RACR\Fig1-2_LHAAP_SiteLocationMap.mxd*




U.S. ARMY CORP OF ENGINEERS
TULSA DISTRICT
TULSA, OKLAHOMA

bhate APTIM

Figure 1-3

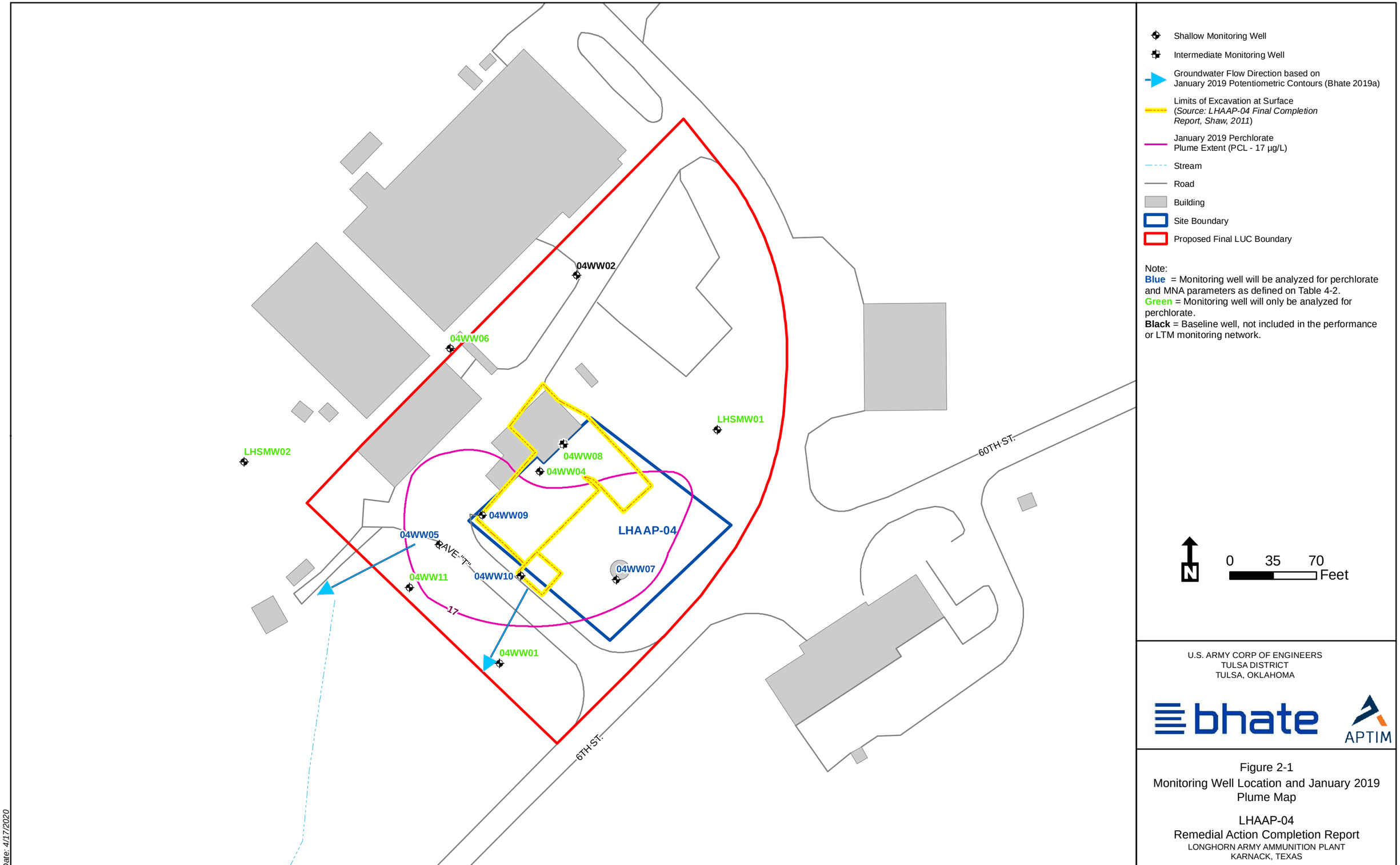
LHAAP-04
Final LUC Boundary Map

Remedial Action Completion Report

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 1/11/2021

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP04\RACR\LHAAP04_FinalLUCBoundary.mxd




U.S. ARMY CORP OF ENGINEERS
TULSA DISTRICT
TULSA, OKLAHOMA

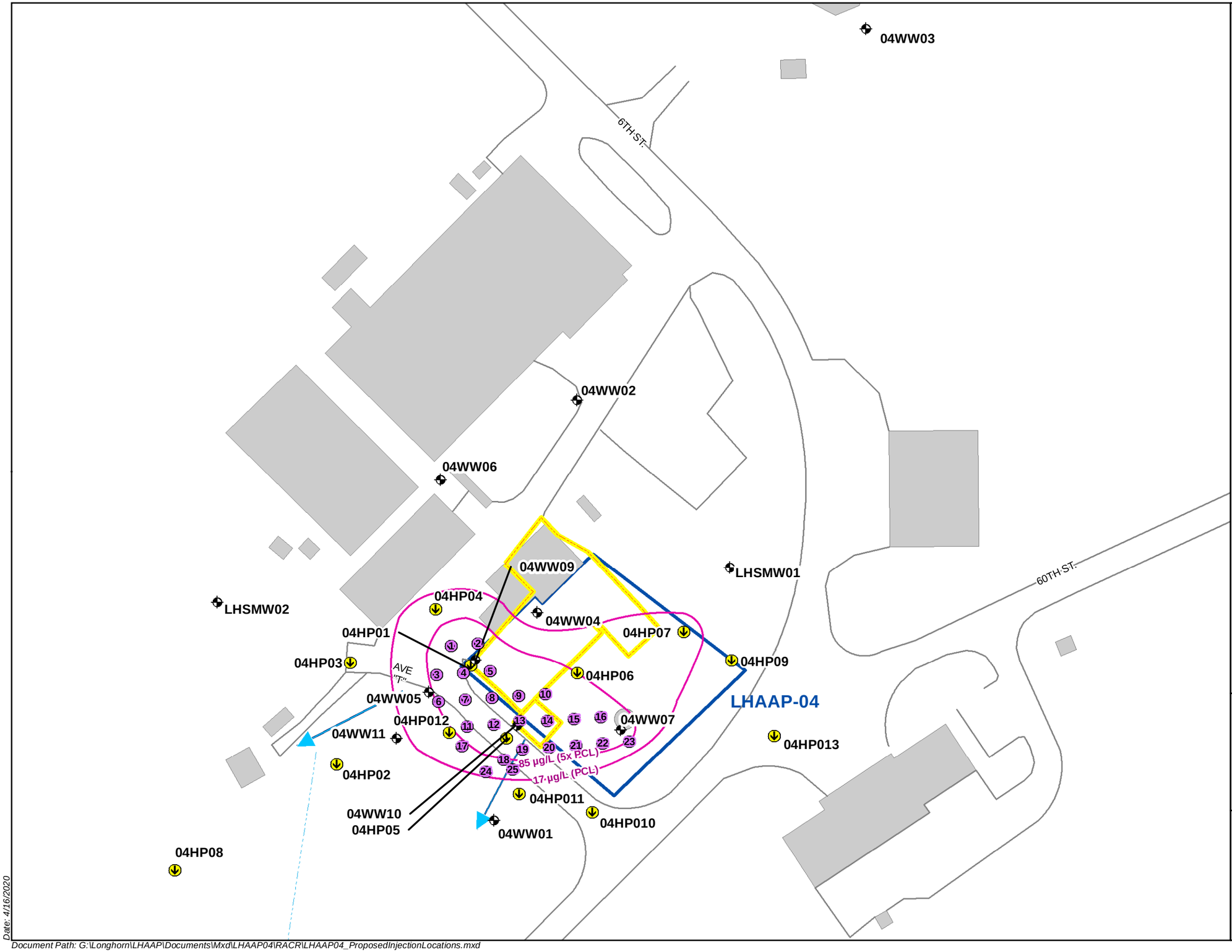
bhate APTIM

Figure 2-1
Monitoring Well Location and January 2019 Plume Map

LHAAP-04
Remedial Action Completion Report
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 4/17/2020

Document Path: G:\Longhorn\LHAAP\Documents\Mxd\LHAAP04\RACR\LHAAP04_Performance Monitoring Network.mxd




Shallow Monitoring Well

Proposed Injection Location

Hydropunch Location

Groundwater Flow Direction based on January 2019 Potentiometric Contours (Bhate 2019a)

January 2019 Perchlorate Plume Extent (PCL - 17 µg/L)

Limits of Excavation at Surface (*Source: LHAAP-04 Final Completion Report, Shaw, 2011*)

Stream

Road

Building

Site Boundary

Note:
1. Plume boundaries based on most recent results available at each well (2018).
2. PCL - Texas Risk Reduction Program Protective Concentration Level for Residential Groundwater
3. The injection pattern generally targets the area within the 85 µg/L contour, but has been shifted to the southwest to account for future migration.

N

0 50 100 Feet

U.S. ARMY CORP OF ENGINEERS
TULSA DISTRICT
TULSA, OKLAHOMA

bhate APTIM

Figure 3-1

In Situ Bioremediation Injection Map

LHAAP-04
Remedial Action Completion Report
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 4/16/2020

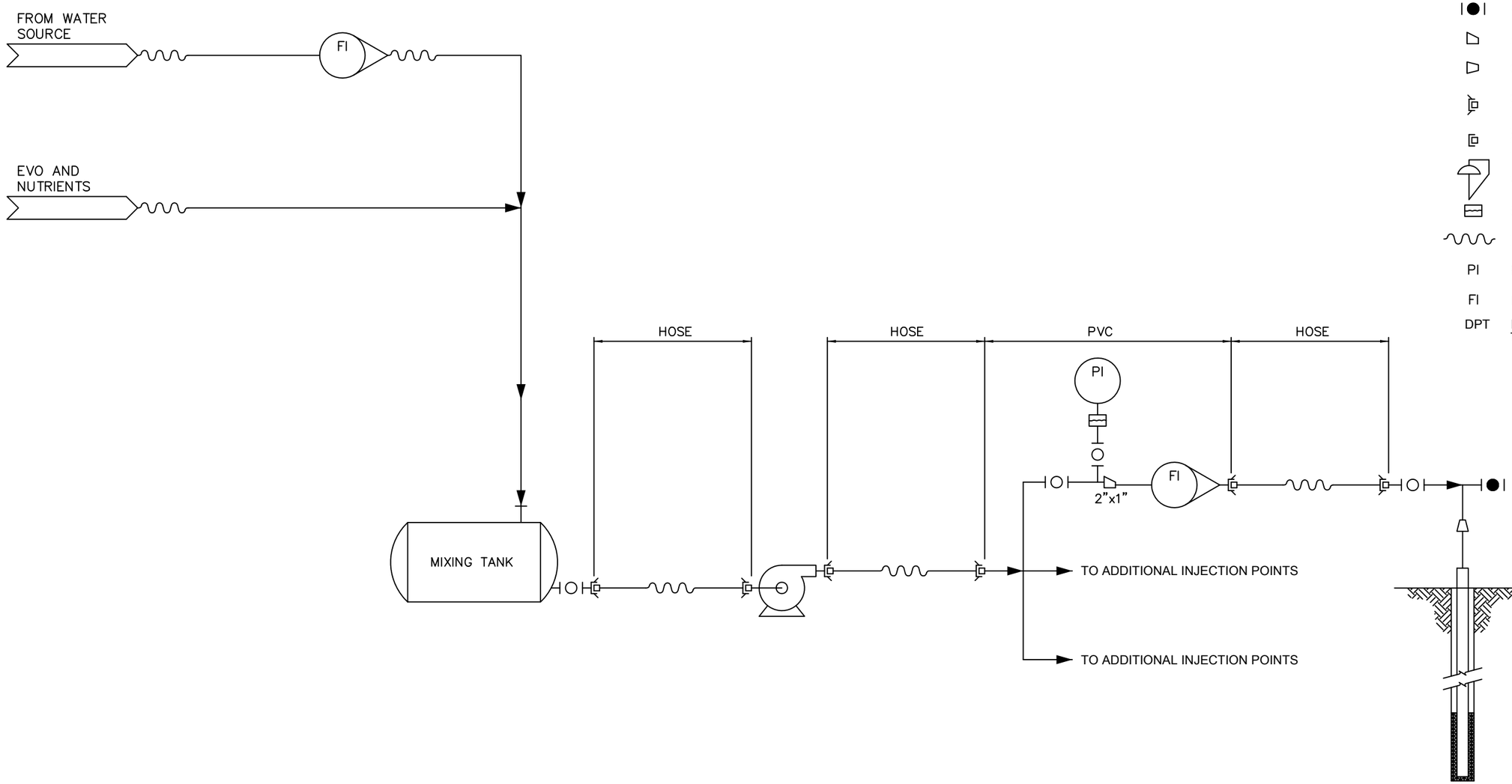
Document Path: G:\Longhorn\LHAAP\Documents\Mxd\LHAAP04\RACR\LHAAP04_ProposedInjectionLocations.mxd

NOTE:

1. EVO – EMULSIFIED VEGETABLE OIL.

LEGEND:

- BALL VALVE (OPEN)
- BALL VALVE (CLOSED)
- ECCENTRIC REDUCER
- CONCENTRIC REDUCER
- CAMLOCK QUICK DISCONNECT
- BALL LOCK QUICK DISCONNECT
- PNEUMATIC ACTUATOR
- SEAL
- FLEXHOSE
- PI PRESSURE INDICATOR
- FI FLOW INDICATOR
- DPT DIRECT PUSH TECHNOLOGY




U.S. ARMY CORP OF ENGINEERS TULSA DISTRICT
TULSA, OKLAHOMA

bhate APTIM

Figure 3-2
ISB DPT Injection System

LHAAP-04
Remedial Action Completion Report
Longhorn Army Ammunition Plant
Karnack, Texas

G:\Ft_Gillem\GIS_Documents\Output\FTG_07\FTG07_Treatment_System_Diagrams\FTG07_ISEB-DPT Injection System.ai

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Final • Rev 0 • April 2021

# Appendix A

# Notice of LUCs and Final LUC Boundary

2021-000003203

*** DO NOT REMOVE THIS PAGE – IT IS A PART OF THIS INSTRUMENT***

NOTICE

8 Pages

| FILED AND RECORDED-OPR | CLERKS NOTES |
|---|---|
| On: 03/22/2021 03:29 PM<br>Document Number: 2021-000003203<br>Receipt No: 2103298<br>Amount: $ 50.00<br>By: Emily Najera, Deputy<br>Elizabeth James, County Clerk<br>Harrison County, Texas | |

STATE OF TEXAS

COUNTY OF HARRISON

I hereby certify that this instrument was filed on the date and time stamped hereon by me and was duly recorded in the Official Public Records of Harrison County, Texas.

Elizabeth James

Elizabeth James, Harrison County Clerk

Record and Return To:

WILLIAM FOSS
2500 CITY WEST BLVD., SUITE 1700

HOUSTON, TX 77042

STATE OF TEXAS

HARRISON COUNTY

**INDUSTRIAL SOLID WASTE**
**NOTICE OF LAND USE CONTROLS AT LHAAP-04**

KNOW ALL MEN BY THESE PRESENTS THAT:

Pursuant to the Rules of the Texas Commission on Environmental Quality (TCEQ) pertaining to Industrial Solid Waste Management, this document is hereby filed in the Public Records of Harrison County, Texas in compliance with the recordation requirements of said rules:

I

The U.S. Army, Department of Defense, has performed remedial activities at the land described herein. The remediation site is a former pilot wastewater treatment plant, located in the central portion of the Former Longhorn Army Ammunition Plant (LHAAP) and is designated as LHAAP-04. LHAAP was placed on the National Priorities List (NPL) in August 1990. After its listing on the NPL, the U.S. Army, United States Environmental Protection Agency (USEPA) and the TCEQ (formerly known as the Texas Water Commission) entered into an agreement under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 120 for remedial activities. The CERCLA Section 120 Agreement, referred to as the Federal Facility Agreement (FFA), became effective on December 30, 1991. Remedial activities at LHAAP-04 were performed in accordance with the FFA requirements.

Wastewater treatment operations began at LHAAP-04 in 1984. The demolition of the former pilot wastewater treatment facility structures, tanks, and piping, and the disposal of the associated wastes were completed in the summer of 1997 as part of the Resource Conservation and Recovery Act closure of the plant. The final remedy for soil was conducted in 2009 as a Non-Time-Critical Removal Action under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) program. The soil was removed to non-residential levels. The Site was not remediated to levels suitable for unrestricted use. The U.S. Department of the Army issued the Final Record of Decision (ROD) for LHAAP-04 in October 2016, and the ROD was signed by the Army on December 15, 2016, and the U.S. Environmental Protection Agency on March 30, 2017. The Texas Commission on Environmental Quality (TCEQ) issued a letter concurring with the ROD on February 7, 2017. The final remedy selected in the ROD included in-situ bioremediation for perchlorate concentrations in groundwater, long-term monitoring of groundwater, and Land Use Controls (LUCs). The LUCs at LHAAP-04 will ensure protection of human health by restricting groundwater use to environmental monitoring and testing only, requiring only non-residential

use of the site, and maintaining groundwater monitoring systems until levels of contaminants of concern (COCs) allow for unlimited use and unrestricted exposure.

Further information may be found by examination of the Notice of Registration No. 30990 files, which are available for inspection upon request at TCEQ, Central File Room Customer Service Center, Building E (Room 103. first floor) 12100 Park 35 Circle, Austin, Texas 78753, (512) 239-2900, Monday through Friday 8:00 am to 5:00 pm, or the Administrative Record available at the Marshall Public Library, 300 South Alamo Boulevard, Marshall, Texas 75670, (930) 935-4465, Monday through Friday 9:30AM – 5:30PM.

The TCEQ requires certain persons to provide recordation in the real property records to notify the public on the conditions of the land and/or the occurrence of remediation. This notification is not a representation or warranty by the TCEQ of the suitability of this land for any purpose.

II

The LHAAP-04 site covers an area of approximately 0.44 acres, more or less, located in Harrison County, Texas, near the town of Karnack, being more particularly described with survey plat and metes and bounds established in **Exhibit A.** The LUC boundary, which includes the LHAAP-04 site, encompasses a 1.885 acre tract, more or less, as described in **Exhibit A**. The LUC Boundary is also presented in the attached **Figure 1.**

Future use of the parcel is intended as a national wildlife refuge, consistent with non-residential use. For the purposes of this certification, residential land use includes, but is not limited to, single family to multi-family residences; child care facilities; nursing home or assisted living facilities; and any type of education purpose for children/young adults in grades kindergarten through 12. The U.S. Department of the Army has undertaken careful environmental study of the LHAAP-04 site and concluded that the LUCs set forth below are required to ensure protection of human health and the environment:

- Groundwater Use Restriction. The groundwater use restriction boundary consists of the 1.885-acre tract, more or less. Groundwater underlying this land is contaminated with perchlorate. A prohibition of groundwater use (except for monitoring and testing) as a potable source will remain in place until the levels of COCs in soil and groundwater allow for unlimited use and unrestricted exposure.

- Non-Residential Use Restriction. The non-residential use restriction boundary is coincident with the boundary for Groundwater Use Restriction and consists of the 1.885-acre tract, more or less. The site is restricted to nonresidential use until it is demonstrated that surface and subsurface soil and groundwater COCs are at levels that allow for unlimited use and unrestricted exposure.

- Maintain Integrity of Monitoring Systems. The integrity of any current or future remedial or monitoring systems will remain in place until the cleanup levels of COCs in groundwater are met.

III

The owner of this site is the Department of the Army, and its address where more specific information may be obtained is as follows:

ATTN: DAIN-ISE-LO (H. Procter)
Program Manager/Analyst
Office of the Deputy Chief of Staff, (DAIN-ISE)
Environmental Division, BRAC Field Branch
600 Army Pentagon
Washington, D.C. 22310-0600

Or

Mr. Thomas A. Lineer
Chief
Office of the Deputy Chief of Staff, (DAIN-ISE)
Environmental Division, BRAC Field Branch
600 Army Pentagon
Washington, D.C. 22310-0600

Rose M. Zeiler
Longhorn AP Site Manager

EXECUTED this the 25th day of Feb., 2021.

BEFORE ME, on this 25th day of Feb 2021, personally appeared Rose M. Zeiler, of the United States Army, United States Department of Defense, known to me to be the person and agent of said agency whose name is subscribed to the foregoing instrument, and she acknowledged to me that she executed the same for the purposes and in the capacity therein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the 25th day of February 2021.

STATE OF ARKANSAS NOTARY PUBLIC
KAREN DAVIS
MY COMMISSION # 12382216
EXPIRES: May 20, 2021
Logan County

Notary Public in and for the State of Arkansas,
County of Logan

# Exhibit A

## Survey and Legal Plat

# G. W. LEWIS SURVEY, A–426
# HARRISON COUNTY, TEXAS

Legal Description

All that certain 1.885 acre tract of land contained within Longhorn Army Ammunition Plant, Harrison County, Texas, said 1.885 acre tract more particularly described as follows:

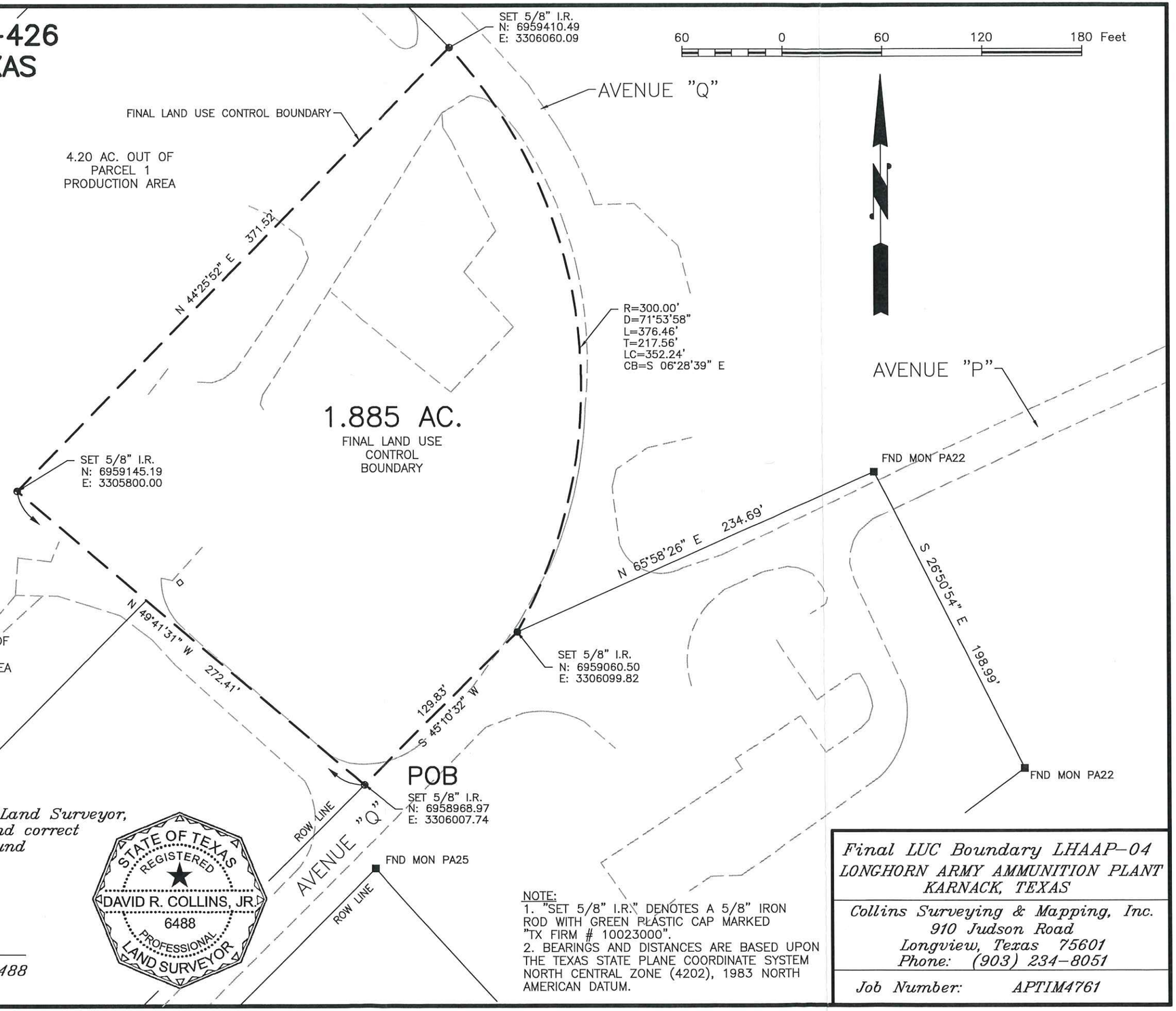
BEGINNING at a 5/8" iron rod set in the northwest right of way line of Avenue "Q" for the southeast corner of this tract with the coordinates of N: 6958968.97, E: 3306007.74;

THENCE: N 49°41'31" W with the southwest line of this tract 272.41 feet to a 5/8" iron rod set for the southwest corner of this tract with the coordinates of N: 6959145.19, E: 3305800.00;

THENCE: N 44°25'52" E with the northwest line of this tract 371.52 feet to a 5/8" iron rod set in the southwest right of way line of said Avenue "Q" for the northwest corner of this tract with the coordinates of N: 6959410.49, E: 3306060.09;

THENCE: in a southweasterly direction with said right of way line and along a cureve to the right having a radius of 300.00 feet, an arc length of 376.46 feet, and a chord bearing and destance of S 06°28'39" 352.24 feet to a 5/8" iron rod set for the end of said curve with the coordinates of N: 6959060.50, E: 3306099.82, from which a monument found in the northwest right of way line of Avenue "P" bears N 65°58'26" E 234.69 feet;

THENCE: S 45°10'32" W with said northwest right of line Avenue "Q" 129.83 feet to th e POINT OF BEGINNING, containing 1.885 acres of land, more or less.




*I, David R. Collins, Jr., Reg. Professional Land Surveyor, do hereby certify that this Plat is true and correct according to a survey made upon the ground JANUARY 6, 2021.*

*David R. Collins, Jr.* *R.P.L.S. #6488*
*Firm License #10023000*

STATE OF TEXAS
REGISTERED
DAVID R. COLLINS, JR.
6488
PROFESSIONAL
LAND SURVEYOR

NOTE:
1. "SET 5/8" I.R." DENOTES A 5/8" IRON ROD WITH GREEN PLASTIC CAP MARKED "TX FIRM # 10023000".
2. BEARINGS AND DISTANCES ARE BASED UPON THE TEXAS STATE PLANE COORDINATE SYSTEM NORTH CENTRAL ZONE (4202), 1983 NORTH AMERICAN DATUM.

*Final LUC Boundary LHAAP–04*
*LONGHORN ARMY AMMUNITION PLANT*
*KARNACK, TEXAS*

*Collins Surveying & Mapping, Inc.*
*910 Judson Road*
*Longview, Texas 75601*
*Phone: (903) 234–8051*

*Job Number: APTIM4761*

**Figure 1**

**Final LUC Boundary**




U.S. ARMY CORP OF ENGINEERS
TULSA DISTRICT
TULSA, OKLAHOMA

bhate APTIM

Figure 1

LHAAP-04
Final LUC Boundary Map

Remedial Action Completion Report

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 1/11/2021

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP04\RACR\LHAAP04_FinalLUCBoundary.mxd

# LUC Inspection and Maintenance Checklist

| General Information | |
|---|---|
| Project Name | LUC Inspection and Maintenance, LHAAP-04 Longhorn Army Ammunition Plant, Karnack, TX |
| Contractor | |
| Inspector's Name | |
| Inspector's Title | |
| Inspector's Signature | |
| Inspector's Contact Number | |
| Inspection Date | |
| Type of Inspection | ☐ Quarterly ☐ Semiannual ☐ Annual<br>☐ Prior to forecast rain ☐ After a rain event ☐ Other ---------- |

| A. Groundwater Monitoring Wells | | | | | | |
|---|---|---|---|---|---|---|
| D.1 | Are the installed groundwater monitoring wells in poor condition? | | | | | |
| D.2 | Is the well cleared of vegetation and accessible? | | | | | |
| D.3 | Any other relevant observations? | | | | | |
| D.4 | Are there any significant cracks present? | | | | | |
| D.5 | Are there any damaged areas? | | | | | |

**Annual Land Use Control Compliance Certification Form**

In accordance with the Remedial Design dated _____ for LHAAP-04 an inspection of the site was conducted by _____ [indicate transferee] on _____.

The land use control mechanisms are:

- Groundwater restrictions - The groundwater underlying LHAAP-04 within the LUC boundary shall not be accessed or used for any purpose (except for environmental monitoring and testing) without the prior written approval of U.S. Army, the USEPA and the TCEQ. The LUC to prohibiting groundwater use shall be implemented and shall remain in place at the site until the levels of contaminants of concern (COCs) in soil and groundwater allow for unlimited use and unrestricted exposure.;
- Land use restrictions - restrict land use within the LUC boundary to nonresidential;
- Integrity of remedial and monitoring systems - maintain the integrity of any current or future remedial or monitoring systems until cleanup goals are met.

No unauthorized activities or uses have occurred. Compliance with land use controls and restrictions is as follows:

- No use of groundwater (other than environmental testing and monitoring), installation of new groundwater wells, or tampering with existing monitoring wells;
- No land use other than nonresidential; and
- No activities that would compromise the integrity of the remedial or monitoring systems.

I, the undersigned, do document that the inspection was conducted as indicated above, and that the above information is true and correct to the best of my knowledge, information, and belief.

Date: _____

Name/Title: _____

Signature: _____

Annual compliance certification forms shall be completed no later than March 1 of each year for the previous calendar year, retained in the file and provided to Army, EPA and TCEQ upon request.

**DEPARTMENT OF THE ARMY**
**LONGHORN ARMY AMMUNITION PLANT**
**POST OFFICE BOX 220**
**RATCLIFF, AR 72951**

February 23, 2021

DAIN-ODB-LO

Hon. Chad L. Sims
Harrison County Judge
#1 Peter Whetstone Square, Room 314
Marshall, Texas 75670

**Re: Land Use Controls and Final Land Use Control Boundary for Soil and Groundwater Contamination at Two Environmental Sites at Former Longhorn Army Ammunition Plant, Karnack, Texas, February 2021**

Dear Judge Sims,

The final remedial actions for two sites, LHAAP 04, Former Pilot Wastewater Treatment Plant; and LHAAP-16 Landfill 16, were completed in November 2019 and December 2019, respectively. The attached information is provided to fulfill a requirement of the Remedial Action Completion Report for each site by giving notice of the land use restrictions referenced in the Record of Decision and to provide a Final Land Use Control boundary map. These notices are being sent to federal, state and local governments involved at this site and the owners and occupants of the property subject to the use restrictions and land use controls.

The point of contact for this action is the undersigned. I may be contacted at 479-635-0110, or by email at rose.m.zeiler.civ@mail.mil

Sincerely,

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager

Attachments:
LHAAP-04 Land Use Controls for Soil and Groundwater Contamination
LHAAP-04 Site Location Map
LHAAP-04 Final Land Use Control Boundary Map
LHAAP-16 Land Use Controls for Soil and Groundwater Contamination
LHAAP-16 Site Location Map
LHAAP-16 Final Land Use Control Boundary Map

Copies furnished:
A. Palmie, TCEQ, Austin, TX
L. Poulos, USEPA, Dallas, TX
K. Nemmers, Bhate, Lakewood, CO (Administrative Record)

**DEPARTMENT OF THE ARMY**
**LONGHORN ARMY AMMUNITION PLANT**
**POST OFFICE BOX 220**
**RATCLIFF, AR 72951**

February 23, 2021

DAIN-ODB-LO

Mr. Thomas Speir
Chairman, Harrison County Historical Commission
200 West Houston Street
Marshall, Texas 75670

**Re: Land Use Controls and Final Land Use Control Boundary for Soil and Groundwater Contamination at Two Environmental Sites at Former Longhorn Army Ammunition Plant, Karnack, Texas, February 2021**

Dear Mr. Speir,

The final remedial actions for two sites, LHAAP 04, Former Pilot Wastewater Treatment Plant; and LHAAP-16 Landfill 16, were completed in November 2019 and December 2019, respectively. The attached information is provided to fulfill a requirement of the Remedial Action Completion Report for each site by giving notice of the land use restrictions referenced in the Record of Decision and to provide a Final Land Use Control boundary map. These notices are being sent to federal, state and local governments involved at this site and the owners and occupants of the property subject to the use restrictions and land use controls.

The point of contact for this action is the undersigned. I may be contacted at 479-635-0110, or by email at rose.m.zeiler.civ@mail.mil

Sincerely,

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager

Attachments:
LHAAP-04 Land Use Controls for Soil and Groundwater Contamination
LHAAP-04 Site Location Map
LHAAP-04 Final Land Use Control Boundary Map
LHAAP-16 Land Use Controls for Soil and Groundwater Contamination
LHAAP-16 Site Location Map
LHAAP-16 Final Land Use Control Boundary Map

Copies furnished:
A. Palmie, TCEQ, Austin, TX
L. Poulos, USEPA, Dallas, TX
K. Nemmers, Bhate, Lakewood, CO (Administrative Record)

**DEPARTMENT OF THE ARMY**
**LONGHORN ARMY AMMUNITION PLANT**
**POST OFFICE BOX 220**
**RATCLIFF, AR 72951**

February 23, 2021

DAIN-ODB-LO

Mr. William D. Hatfield
Harrison County Commissioner, Precinct 1
Waskom Sub-Courthouse
165 West Texas Avenue
Waskom, Texas 75692

**Re: Land Use Controls and Final Land Use Control Boundary for Soil and Groundwater Contamination at Two Environmental Sites at Former Longhorn Army Ammunition Plant, Karnack, Texas, February 2021**

Dear Commissioner Hatfield,

The final remedial actions for two sites, LHAAP 04, Former Pilot Wastewater Treatment Plant; and LHAAP-16 Landfill 16, were completed in November 2019 and December 2019, respectively. The attached information is provided to fulfill a requirement of the Remedial Action Completion Report for each site by giving notice of the land use restrictions referenced in the Record of Decision and to provide a Final Land Use Control boundary map. These notices are being sent to federal, state and local governments involved at this site and the owners and occupants of the property subject to the use restrictions and land use controls.

The point of contact for this action is the undersigned. I may be contacted at 479-635-0110, or by email at rose.m.zeiler.civ@mail.mil

Sincerely,

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager

Attachments:
LHAAP-04 Land Use Controls for Soil and Groundwater Contamination
LHAAP-04 Site Location Map
LHAAP-04 Final Land Use Control Boundary Map
LHAAP-16 Land Use Controls for Soil and Groundwater Contamination
LHAAP-16 Site Location Map
LHAAP-16 Final Land Use Control Boundary Map

Copies furnished:
A. Palmie, TCEQ, Austin, TX
L. Poulos, USEPA, Dallas, TX
K. Nemmers, Bhate, Lakewood, CO (Administrative Record)

**DEPARTMENT OF THE ARMY**
**LONGHORN ARMY AMMUNITION PLANT**
**POST OFFICE BOX 220**
**RATCLIFF, AR 72951**

February 23, 2021

DAIN-ODB-LO

Hon. Judye Patterson
Mayor, City of Uncertain, Texas
P.O. Box 277
Uncertain, Texas 75661

**Re: Land Use Controls and Final Land Use Control Boundary for Soil and Groundwater Contamination at Two Environmental Sites at Former Longhorn Army Ammunition Plant, Karnack, Texas, February 2021**

Dear Mayor Patterson,

The final remedial actions for two sites, LHAAP 04, Former Pilot Wastewater Treatment Plant; and LHAAP-16 Landfill 16, were completed in November 2019 and December 2019, respectively. The attached information is provided to fulfill a requirement of the Remedial Action Completion Report for each site by giving notice of the land use restrictions referenced in the Record of Decision and to provide a Final Land Use Control boundary map. These notices are being sent to federal, state and local governments involved at this site and the owners and occupants of the property subject to the use restrictions and land use controls.

The point of contact for this action is the undersigned. I may be contacted at 479-635-0110, or by email at rose.m.zeiler.civ@mail.mil

Sincerely,

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager

Attachments:
LHAAP-04 Land Use Controls for Soil and Groundwater Contamination
LHAAP-04 Site Location Map
LHAAP-04 Final Land Use Control Boundary Map
LHAAP-16 Land Use Controls for Soil and Groundwater Contamination
LHAAP-16 Site Location Map
LHAAP-16 Final Land Use Control Boundary Map

Copies furnished:
A. Palmie, TCEQ, Austin, TX
L. Poulos, USEPA, Dallas, TX
K. Nemmers, Bhate, Lakewood, CO (Administrative Record)

**DEPARTMENT OF THE ARMY**
**LONGHORN ARMY AMMUNITION PLANT**
**POST OFFICE BOX 220**
**RATCLIFF, AR 72951**

February 23, 2021

DAIN-ODB-LO

Mr. Eric Duerkop
Manager, Caddo Lake National Wildlife Refuge
15600 Highway 134
Karnack, Texas 75661

**Re: Land Use Controls and Final Land Use Control Boundary for Soil and Groundwater Contamination at Two Environmental Sites at Former Longhorn Army Ammunition Plant, Karnack, Texas, February 2021**

Dear Mr. Duerkop,

The final remedial actions for two sites, LHAAP 04, Former Pilot Wastewater Treatment Plant; and LHAAP-16 Landfill 16, were completed in November 2019 and December 2019, respectively. The attached information is provided to fulfill a requirement of the Remedial Action Completion Report for each site by giving notice of the land use restrictions referenced in the Record of Decision and to provide a Final Land Use Control boundary map. These notices are being sent to federal, state and local governments involved at this site and the owners and occupants of the property subject to the use restrictions and land use controls.

The point of contact for this action is the undersigned. I may be contacted at 479-635-0110, or by email at rose.m.zeiler.civ@mail.mil

Sincerely,

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager

Attachments:
LHAAP-04 Land Use Controls for Soil and Groundwater Contamination
LHAAP-04 Site Location Map
LHAAP-04 Final Land Use Control Boundary Map
LHAAP-16 Land Use Controls for Soil and Groundwater Contamination
LHAAP-16 Site Location Map
LHAAP-16 Final Land Use Control Boundary Map

Copies furnished:
A. Palmie, TCEQ, Austin, TX
L. Poulos, USEPA, Dallas, TX
K. Nemmers, Bhate, Lakewood, CO (Administrative Record)

**DEPARTMENT OF THE ARMY**
**LONGHORN ARMY AMMUNITION PLANT**
**POST OFFICE BOX 220**
**RATCLIFF, AR 72951**

February 23, 2021

DAIN-ODB-LO

Mr. Terry Britt
President, Caddo Lake Water Supply Corporation
P.O. Box 136
Uncertain, Texas 75661

**Re: Land Use Controls and Final Land Use Control Boundary for Soil and Groundwater Contamination at Two Environmental Sites at Former Longhorn Army Ammunition Plant, Karnack, Texas, February 2021**

Dear Mr. Britt,

The final remedial actions for two sites, LHAAP 04, Former Pilot Wastewater Treatment Plant; and LHAAP-16 Landfill 16, were completed in November 2019 and December 2019, respectively. The attached information is provided to fulfill a requirement of the Remedial Action Completion Report for each site by giving notice of the land use restrictions referenced in the Record of Decision and to provide a Final Land Use Control boundary map. These notices are being sent to federal, state and local governments involved at this site and the owners and occupants of the property subject to the use restrictions and land use controls.

The point of contact for this action is the undersigned. I may be contacted at 479-635-0110, or by email at rose.m.zeiler.civ@mail.mil

Sincerely,

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager

Attachments:
LHAAP-04 Land Use Controls for Soil and Groundwater Contamination
LHAAP-04 Site Location Map
LHAAP-04 Final Land Use Control Boundary Map
LHAAP-16 Land Use Controls for Soil and Groundwater Contamination
LHAAP-16 Site Location Map
LHAAP-16 Final Land Use Control Boundary Map

Copies furnished:
A. Palmie, TCEQ, Austin, TX
L. Poulos, USEPA, Dallas, TX
K. Nemmers, Bhate, Lakewood, CO (Administrative Record)

**DEPARTMENT OF THE ARMY**
**LONGHORN ARMY AMMUNITION PLANT**
**POST OFFICE BOX 220**
**RATCLIFF, AR 72951**

February 23, 2021

DAIN-ODB-LO

Mr. Carl Shelton
President, Leigh Water Supply Corporation
342 Byrd Circle
Karnack, Texas 75661

**Re: Land Use Controls and Final Land Use Control Boundary for Soil and Groundwater Contamination at Two Environmental Sites at Former Longhorn Army Ammunition Plant, Karnack, Texas, February 2021**

Dear Mr. Shelton,

The final remedial actions for two sites, LHAAP 04, Former Pilot Wastewater Treatment Plant; and LHAAP-16 Landfill 16, were completed in November 2019 and December 2019, respectively. The attached information is provided to fulfill a requirement of the Remedial Action Completion Report for each site by giving notice of the land use restrictions referenced in the Record of Decision and to provide a Final Land Use Control boundary map. These notices are being sent to federal, state and local governments involved at this site and the owners and occupants of the property subject to the use restrictions and land use controls.

The point of contact for this action is the undersigned. I may be contacted at 479-635-0110, or by email at rose.m.zeiler.civ@mail.mil

Sincerely,

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager

Attachments:
LHAAP-04 Land Use Controls for Soil and Groundwater Contamination
LHAAP-04 Site Location Map
LHAAP-04 Final Land Use Control Boundary Map
LHAAP-16 Land Use Controls for Soil and Groundwater Contamination
LHAAP-16 Site Location Map
LHAAP-16 Final Land Use Control Boundary Map

Copies furnished:
A. Palmie, TCEQ, Austin, TX
L. Poulos, USEPA, Dallas, TX
K. Nemmers, Bhate, Lakewood, CO (Administrative Record)

**DEPARTMENT OF THE ARMY**
**LONGHORN ARMY AMMUNITION PLANT**
**POST OFFICE BOX 220**
**RATCLIFF, AR 72951**

February 23, 2021

DAIN-ODB-LO

Rep. Chris Paddie
Texas House of Representatives, District 9
102 West Houston Street
Marshall, Texas 75670

**Re: Land Use Controls and Final Land Use Control Boundary for Soil and Groundwater Contamination at Two Environmental Sites at Former Longhorn Army Ammunition Plant, Karnack, Texas, February 2021**

Dear Representative Paddie,

The final remedial actions for two sites, LHAAP 04, Former Pilot Wastewater Treatment Plant; and LHAAP-16 Landfill 16, were completed in November 2019 and December 2019, respectively. The attached information is provided to fulfill a requirement of the Remedial Action Completion Report for each site by giving notice of the land use restrictions referenced in the Record of Decision and to provide a Final Land Use Control boundary map. These notices are being sent to federal, state and local governments involved at this site and the owners and occupants of the property subject to the use restrictions and land use controls.

The point of contact for this action is the undersigned. I may be contacted at 479-635-0110, or by email at rose.m.zeiler.civ@mail.mil

Sincerely,

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager

Attachments:
LHAAP-04 Land Use Controls for Soil and Groundwater Contamination
LHAAP-04 Site Location Map
LHAAP-04 Final Land Use Control Boundary Map
LHAAP-16 Land Use Controls for Soil and Groundwater Contamination
LHAAP-16 Site Location Map
LHAAP-16 Final Land Use Control Boundary Map

Copies furnished:
A. Palmie, TCEQ, Austin, TX
L. Poulos, USEPA, Dallas, TX
K. Nemmers, Bhate, Lakewood, CO (Administrative Record)

**DEPARTMENT OF THE ARMY**
**LONGHORN ARMY AMMUNITION PLANT**
**POST OFFICE BOX 220**
**RATCLIFF, AR 72951**

February 23, 2021

DAIN-ODB-LO

Sen. Bryan Hughes
Texas State Senate, District 1
201 West Houston Street, Suite 106
Marshall, Texas 75670

**Re: Land Use Controls and Final Land Use Control Boundary for Soil and Groundwater Contamination at Two Environmental Sites at Former Longhorn Army Ammunition Plant, Karnack, Texas, February 2021**

Dear Senator Hughes,

The final remedial actions for two sites, LHAAP 04, Former Pilot Wastewater Treatment Plant; and LHAAP-16 Landfill 16, were completed in November 2019 and December 2019, respectively. The attached information is provided to fulfill a requirement of the Remedial Action Completion Report for each site by giving notice of the land use restrictions referenced in the Record of Decision and to provide a Final Land Use Control boundary map. These notices are being sent to federal, state and local governments involved at this site and the owners and occupants of the property subject to the use restrictions and land use controls.

The point of contact for this action is the undersigned. I may be contacted at 479-635-0110, or by email at rose.m.zeiler.civ@mail.mil

Sincerely,

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager

Attachments:
LHAAP-04 Land Use Controls for Soil and Groundwater Contamination
LHAAP-04 Site Location Map
LHAAP-04 Final Land Use Control Boundary Map
LHAAP-16 Land Use Controls for Soil and Groundwater Contamination
LHAAP-16 Site Location Map
LHAAP-16 Final Land Use Control Boundary Map

Copies furnished:
A. Palmie, TCEQ, Austin, TX
L. Poulos, USEPA, Dallas, TX
K. Nemmers, Bhate, Lakewood, CO (Administrative Record)

**DEPARTMENT OF THE ARMY**
**LONGHORN ARMY AMMUNITION PLANT**
**POST OFFICE BOX 220**
**RATCLIFF, AR 72951**

February 23, 2021

DAIN-ODB-LO

Texas Department of Licensing and Regulation
Water Well Drillers and Pump Installers Program
P.O. Box 12157
Austin, Texas 78711

**Re: Land Use Controls and Final Land Use Control Boundary for Soil and Groundwater Contamination at Two Environmental Sites at Former Longhorn Army Ammunition Plant, Karnack, Texas, February 2021**

The final remedial actions for two sites, LHAAP 04, Former Pilot Wastewater Treatment Plant; and LHAAP-16 Landfill 16, were completed in November 2019 and December 2019, respectively. The attached information is provided to fulfill a requirement of the Remedial Action Completion Report for each site by giving notice of the land use restrictions referenced in the Record of Decision and to provide a Final Land Use Control boundary map. These notices are being sent to federal, state and local governments involved at this site and the owners and occupants of the property subject to the use restrictions and land use controls.

The point of contact for this action is the undersigned. I may be contacted at 479-635-0110, or by email at rose.m.zeiler.civ@mail.mil

Sincerely,

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager

Attachments:
LHAAP-04 Land Use Controls for Soil and Groundwater Contamination
LHAAP-04 Site Location Map
LHAAP-04 Final Land Use Control Boundary Map
LHAAP-16 Land Use Controls for Soil and Groundwater Contamination
LHAAP-16 Site Location Map
LHAAP-16 Final Land Use Control Boundary Map

Copies furnished:
A. Palmie, TCEQ, Austin, TX
L. Poulos, USEPA, Dallas, TX
K. Nemmers, Bhate, Lakewood, CO (Administrative Record)

**DEPARTMENT OF THE ARMY**
**LONGHORN ARMY AMMUNITION PLANT**
**POST OFFICE BOX 220**
**RATCLIFF, AR 72951**

February 23, 2021

DAIN-ODB-LO

Rep. Louis Gohmert
United States House of Representatives
Texas 1st Congressional District
102 West Houston Street
Marshall, Texas 75670

**Re: Land Use Controls and Final Land Use Control Boundary for Soil and Groundwater Contamination at Two Environmental Sites at Former Longhorn Army Ammunition Plant, Karnack, Texas, February 2021**

Dear Representative Gohmert,

The final remedial actions for two sites, LHAAP 04, Former Pilot Wastewater Treatment Plant; and LHAAP-16 Landfill 16, were completed in November 2019 and December 2019, respectively. The attached information is provided to fulfill a requirement of the Remedial Action Completion Report for each site by giving notice of the land use restrictions referenced in the Record of Decision and to provide a Final Land Use Control boundary map. These notices are being sent to federal, state and local governments involved at this site and the owners and occupants of the property subject to the use restrictions and land use controls.

The point of contact for this action is the undersigned. I may be contacted at 479-635-0110, or by email at rose.m.zeiler.civ@mail.mil

Sincerely,

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager

Attachments:
LHAAP-04 Land Use Controls for Soil and Groundwater Contamination
LHAAP-04 Site Location Map
LHAAP-04 Final Land Use Control Boundary Map
LHAAP-16 Land Use Controls for Soil and Groundwater Contamination
LHAAP-16 Site Location Map
LHAAP-16 Final Land Use Control Boundary Map

Copies furnished:
A. Palmie, TCEQ, Austin, TX
L. Poulos, USEPA, Dallas, TX
K. Nemmers, Bhate, Lakewood, CO (Administrative Record)

**DEPARTMENT OF THE ARMY**
**LONGHORN ARMY AMMUNITION PLANT**
**POST OFFICE BOX 220**
**RATCLIFF, AR 72951**

February 23, 2021

DAIN-ODB-LO

Sen. John Cornyn
United States Senate
Regions Bank Building
100 East Ferguson Street, Suite 1004
Tyler, Texas 75702

**Re: Land Use Controls and Final Land Use Control Boundary for Soil and Groundwater Contamination at Two Environmental Sites at Former Longhorn Army Ammunition Plant, Karnack, Texas, February 2021**

Dear Senator Cornyn,

The final remedial actions for two sites, LHAAP 04, Former Pilot Wastewater Treatment Plant; and LHAAP-16 Landfill 16, were completed in November 2019 and December 2019, respectively. The attached information is provided to fulfill a requirement of the Remedial Action Completion Report for each site by giving notice of the land use restrictions referenced in the Record of Decision and to provide a Final Land Use Control boundary map. These notices are being sent to federal, state and local governments involved at this site and the owners and occupants of the property subject to the use restrictions and land use controls.

The point of contact for this action is the undersigned. I may be contacted at 479-635-0110, or by email at rose.m.zeiler.civ@mail.mil

Sincerely,

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager

Attachments:
LHAAP-04 Land Use Controls for Soil and Groundwater Contamination
LHAAP-04 Site Location Map
LHAAP-04 Final Land Use Control Boundary Map
LHAAP-16 Land Use Controls for Soil and Groundwater Contamination
LHAAP-16 Site Location Map
LHAAP-16 Final Land Use Control Boundary Map

Copies furnished:
A. Palmie, TCEQ, Austin, TX
L. Poulos, USEPA, Dallas, TX
K. Nemmers, Bhate, Lakewood, CO (Administrative Record)

**DEPARTMENT OF THE ARMY**
**LONGHORN ARMY AMMUNITION PLANT**
**POST OFFICE BOX 220**
**RATCLIFF, AR 72951**

February 23, 2021

DAIN-ODB-LO

Sen. Ted Cruz
United States Senate
305 South Broadway, Suite 501
Tyler, Texas 75702

**Re: Land Use Controls and Final Land Use Control Boundary for Soil and Groundwater Contamination at Two Environmental Sites at Former Longhorn Army Ammunition Plant, Karnack, Texas, February 2021**

Dear Senator Cruz,

The final remedial actions for two sites, LHAAP 04, Former Pilot Wastewater Treatment Plant; and LHAAP-16 Landfill 16, were completed in November 2019 and December 2019, respectively. The attached information is provided to fulfill a requirement of the Remedial Action Completion Report for each site by giving notice of the land use restrictions referenced in the Record of Decision and to provide a Final Land Use Control boundary map. These notices are being sent to federal, state and local governments involved at this site and the owners and occupants of the property subject to the use restrictions and land use controls.

The point of contact for this action is the undersigned. I may be contacted at 479-635-0110, or by email at rose.m.zeiler.civ@mail.mil

Sincerely,

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager

Attachments:
LHAAP-04 Land Use Controls for Soil and Groundwater Contamination
LHAAP-04 Site Location Map
LHAAP-04 Final Land Use Control Boundary Map
LHAAP-16 Land Use Controls for Soil and Groundwater Contamination
LHAAP-16 Site Location Map
LHAAP-16 Final Land Use Control Boundary Map

Copies furnished:
A. Palmie, TCEQ, Austin, TX
L. Poulos, USEPA, Dallas, TX
K. Nemmers, Bhate, Lakewood, CO (Administrative Record)

# Land Use Controls for Soil and Groundwater Contamination

LHAAP-04 Former Pilot Wastewater Treatment Plant
Longhorn Army Ammunition Plant, Karnack, Texas

The Longhorn Army Ammunition Plant (LHAAP) is an inactive government-owned, formerly contractor-operated and maintained Department of Defense facility located in central east Texas in the northeast corner of Harrison County. LHAAP is approximately 14 miles northeast of Marshall, Texas. The facility is approximately 40 miles west of Shreveport, Louisiana. The installation occupies approximately 1,100 of its former 8,416 acres between State Highway 43 at Karnack, Texas and the southwestern shore of Caddo Lake. The installation can be accessed by State Highways 43 and 134.

LHAAP was placed on the National Priorities List (NPL) on August 9, 1990. Activities to remediate contamination began in 1990. After its listing on the NPL, the U.S. Army, the USEPA, and the Texas Water Commission (currently known as the Texas Commission of Environmental Quality [TCEQ]) entered into a CERCLA Section 120 Federal Facilities Agreement (FFA) for remedial activities at LHAAP. The FFA became effective December 30, 1991. LHAAP operated until 1997 when it was placed on inactive status and classified by the U.S. Army Armament, Munitions, and Chemical Command as excess property.

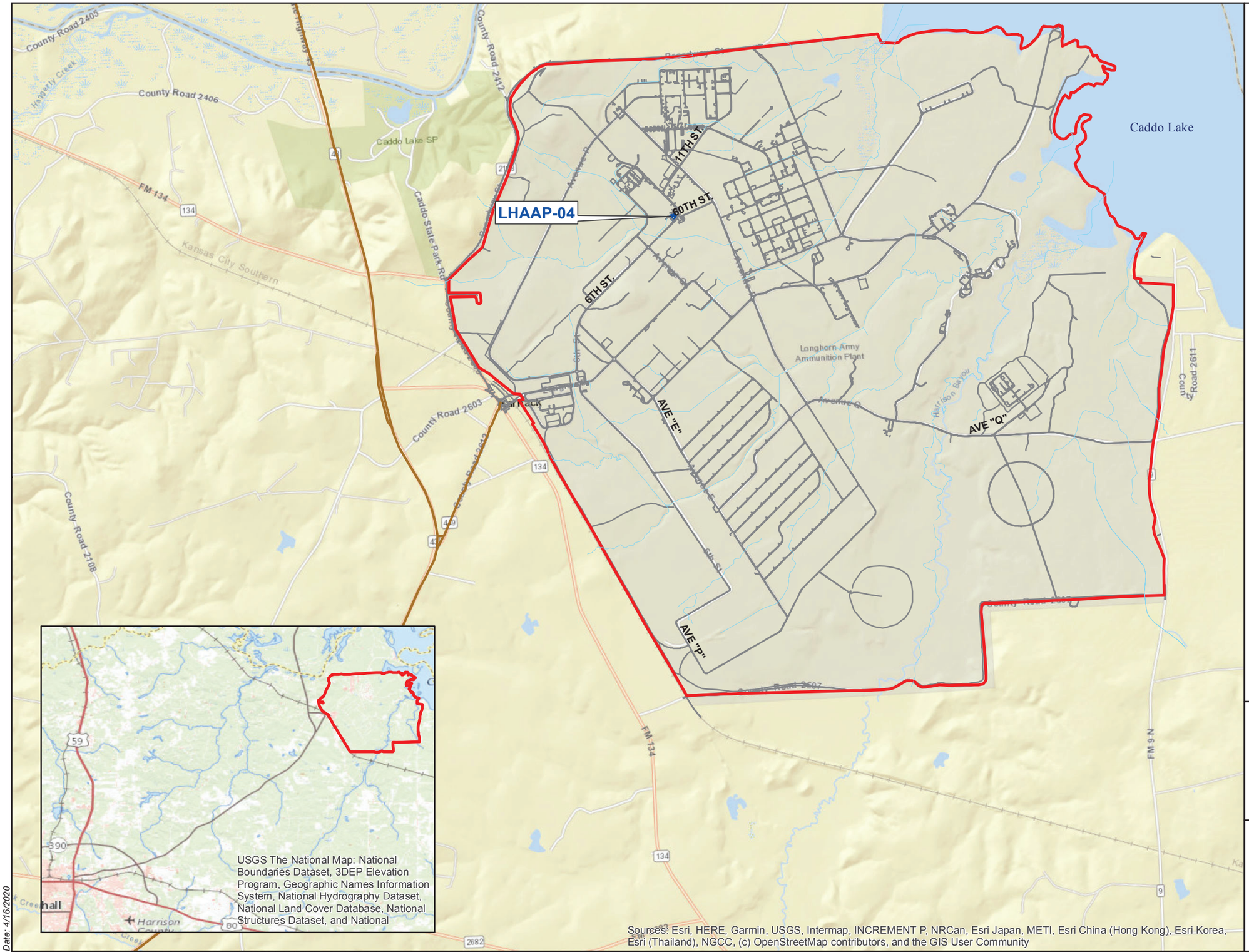
The site addressed in this Final Notice of Land Use Controls is LHAAP-04, which is shown on the attached figures (Figures 1-2 and 1-3 from the Response Action Completion Report) and discussed below. Land Use Controls (LUCs) are applied at LHAAP-04 as part of the remedy in accordance with the LHAAP-04 Record of Decision (ROD) finalized March 30, 2017. The LUCs are necessary because contaminants are present in groundwater at levels that do not support unlimited use and unrestricted exposure. The Final LUC boundary shown is the same as the preliminary boundary that was provided in the Initial Notice of LUCs provided on June 26, 2017.

**Contaminants of Concern (COCs)**
The only COC identified in the ROD for groundwater at LHAAP-04 was perchlorate, which was found at concentrations exceeding the TCEQ Protective Concentration Levels in the shallow zone.

**Land Use Controls**

- A LUC prohibiting groundwater use (except for environmental monitoring and testing) shall be implemented and shall remain in place at the site until the levels of COCs in soil and groundwater allow for unlimited use and unrestricted exposure.
- A LUC restricting land use to nonresidential shall be implemented and shall remain in place at the site until the levels of COCs in surface and subsurface soil, and groundwater allow for unlimited use and unrestricted exposure.
- A LUC to maintain the integrity of any current or future remedial or monitoring systems shall remain in place until groundwater cleanup levels of COCs are met.

Further information may be found in the Administrative Record at the Marshall Public Library, at www.longhornaap.com or by contacting Rose M. Zeiler (479-635-0110 or rose.m.zeiler.civ@mail.mil).




U.S. ARMY CORP OF ENGINEERS
TULSA DISTRICT
TULSA, OKLAHOMA

bhate APTIM

Figure 1-2

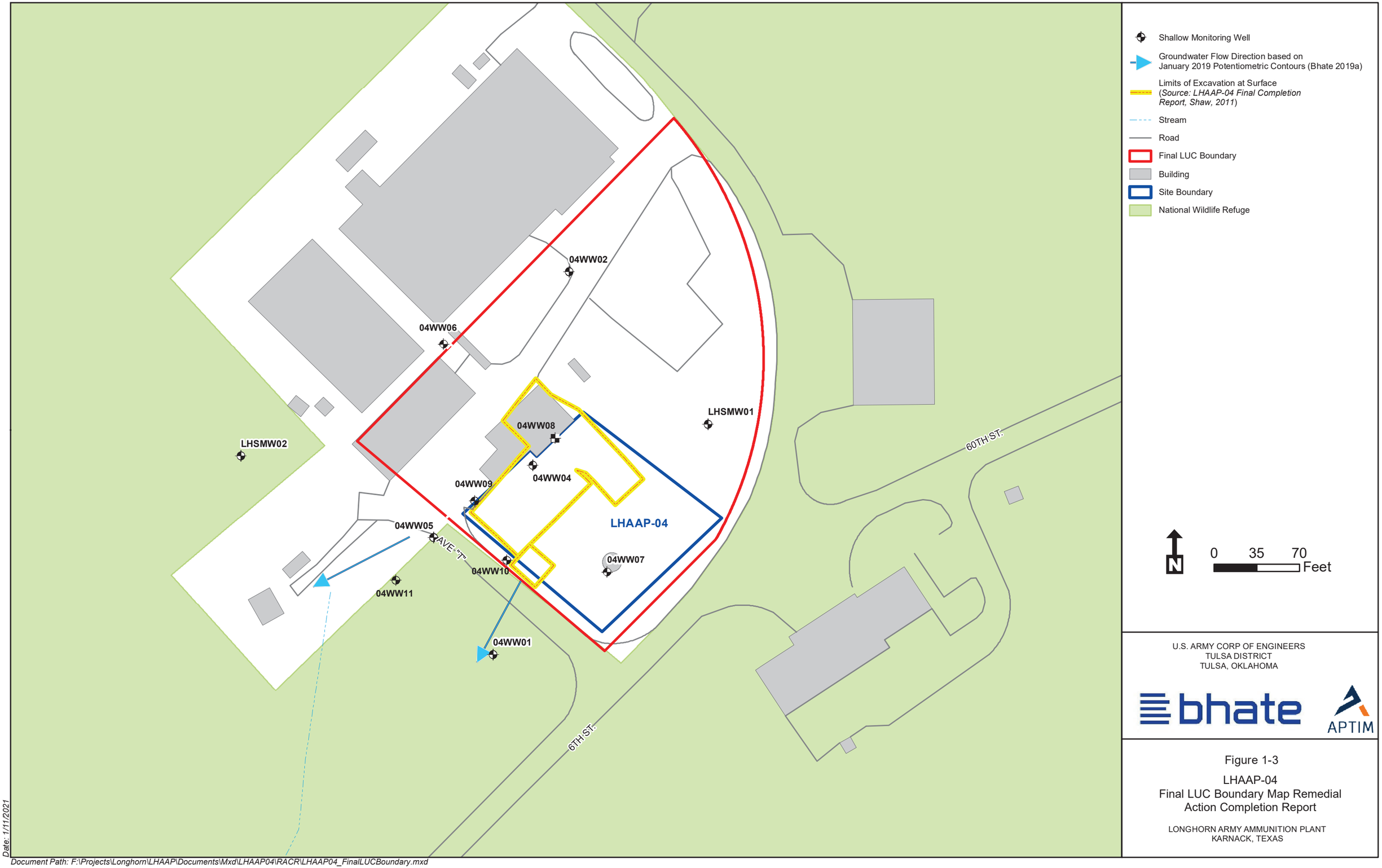
Site Location Map

LHAAP-04
Remedial Action Completion Report

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 4/16/2020

*Document Path: G:\Longhorn\LHAAP\Documents\Mxd\LHAAP04\RACR\Fig1-2_LHAAP_SiteLocationMap.mxd*




U.S. ARMY CORP OF ENGINEERS
TULSA DISTRICT
TULSA, OKLAHOMA

bhate APTIM

Figure 1-3

LHAAP-04
Final LUC Boundary Map Remedial Action Completion Report

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 1/11/2021

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP04\RACR\LHAAP04_FinalLUCBoundary.mxd

# Land Use Controls for Soil and Groundwater Contamination
## Landfill 16 (LHAAP-16)
## Longhorn Army Ammunition Plant, Karnack, Texas

The former Longhorn Army Ammunition Plant (LHAAP) is an inactive government-owned, formerly contractor-operated and maintained Department of Defense facility located in central east Texas in the northeast corner of Harrison County. LHAAP is approximately 14 miles northeast of Marshall, Texas. The facility is approximately 40 miles west of Shreveport, Louisiana. The former U.S. Army installation occupied nearly 8,416 acres between State Highway 43 at Karnack, Texas, and the southwestern shore of Caddo Lake and is accessed by State Highways 43 and 134.

LHAAP was placed on the National Priorities List (NPL) on August 9, 1990. Activities to remediate contamination began in 1990. After its listing on the NPL, the U.S. Army, the USEPA, and the Texas Water Commission (currently known as the Texas Commission on Environmental Quality [TCEQ]) entered into a CERCLA Section 120 Federal Facilities Agreement (FFA) for remedial activities at LHAAP. The FFA became effective December 30, 1991. LHAAP operated until 1997 when it was placed on inactive status and classified by the U.S. Army Armament, Munitions, and Chemical Command as excess property.

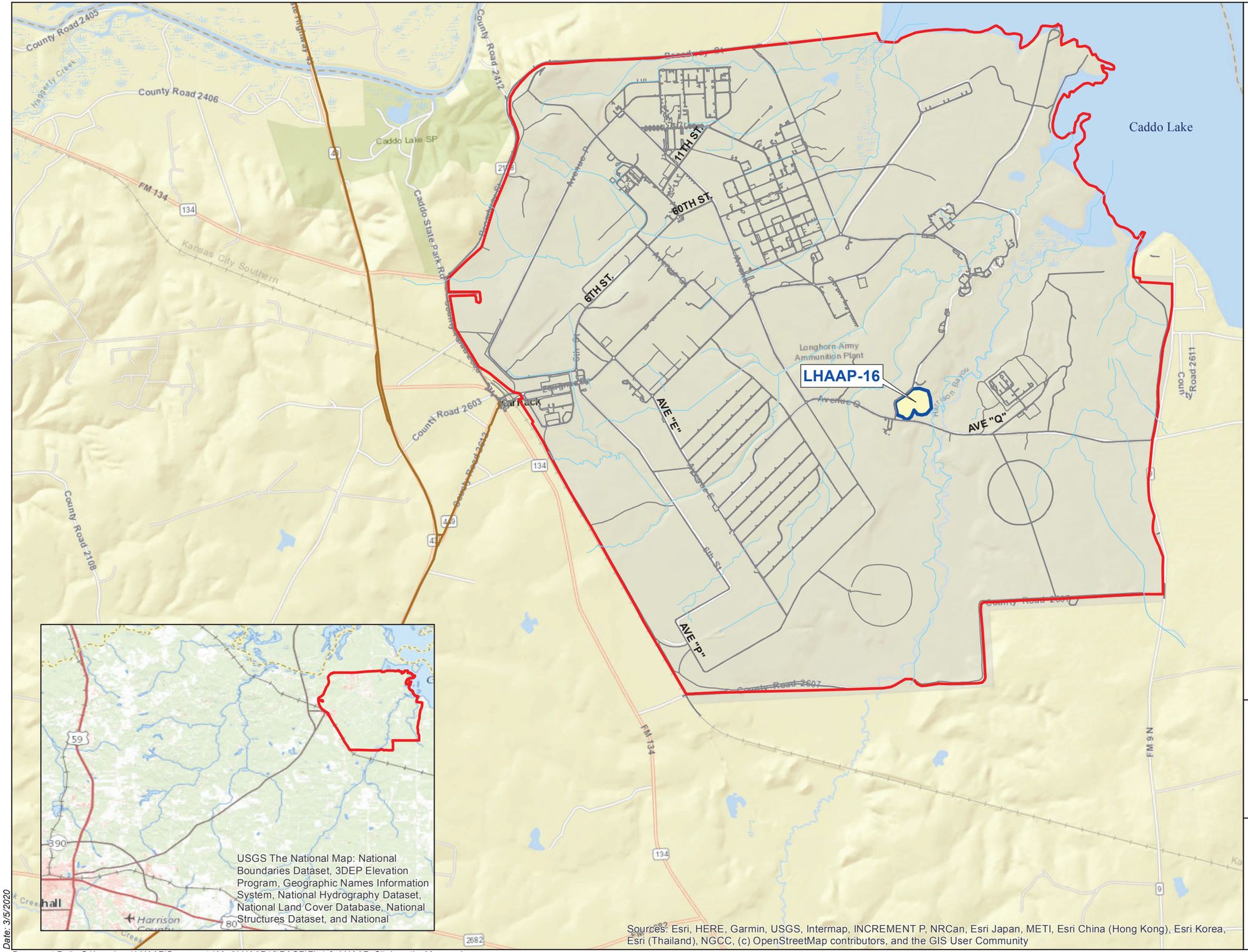
Land Use Controls (LUCs) are applied at LHAAP-16 as part of the remedy in accordance with the LHAAP-16 Record of Decision signed September 13, 2016. The LUCs are necessary because contaminants are present in groundwater at levels that do not support unlimited use and unrestricted exposure and landfill waste remains at the site under the existing landfill cap.

**Contaminants of Concern (COCs)**
In the shallow and intermediate groundwater zones, the COCs are volatile organic compounds (VOCs) (trichloroethene [TCE], cis-1,2-dichloroethene [DCE], 1,1-DCE, 1,2-dichloroethane, 1,1,2-trichloroethane, methylene chloride, and vinyl chloride [VC]), perchlorate, and five metals (arsenic, chromium, manganese, nickel, and thallium).

**Land Use Controls**

- The LUC to preserve the integrity of the landfill cap and restrict intrusive activities (e.g., digging) that would degrade or alter the cap shall remain in place as long as the landfill waste remains at the site or until the levels of COCs allow for unlimited use and unrestricted exposure.
- The LUC prohibiting groundwater use (except for environmental monitoring and testing) as a potable source shall be implemented and shall remain in place at the site until the levels of COCs in soil and groundwater allow for unlimited use and unrestricted exposure.
- The LUC restricting land use to nonresidential shall be implemented and shall remain in place at the site until the levels of COCs in surface and subsurface soil and groundwater allow for unlimited use and unrestricted exposure.
- The LUC to maintain the integrity of any current or future remedial or monitoring systems shall remain in place until groundwater cleanup levels of COCs are met.

Further information may be found in the Administrative Record at the Marshall Public Library, at www.longhornaap.com or by contacting Rose M. Zeiler (479-635-0110 or rose.m.zeiler.civ@mail.mil).




U.S. ARMY CORP OF ENGINEERS
TULSA DISTRICT
TULSA, OKLAHOMA

bhate APTIM

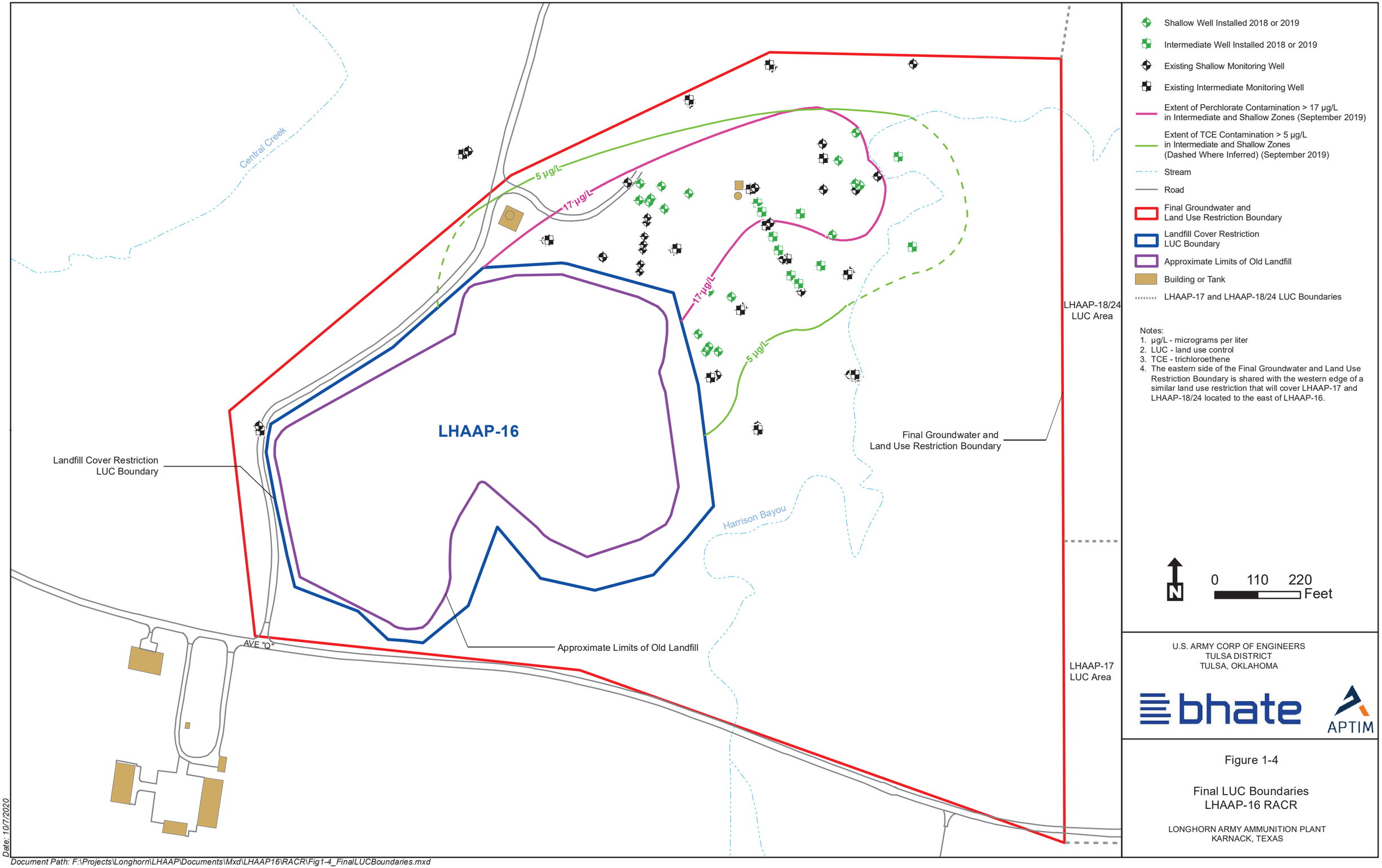
Figure 1-2

LHAAP Site Location Map
LHAAP-16 RACR

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 3/5/2020

*Document Path: G:\Longhorn\LHAAP\Documents\Mxd\LHAAP16\RACR\Fig1-2_LHAAP_SiteLocationMap.mxd*




U.S. ARMY CORP OF ENGINEERS
TULSA DISTRICT
TULSA, OKLAHOMA

bhate APTIM

Figure 1-4

Final LUC Boundaries
LHAAP-16 RACR

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 10/7/2020

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP16\RACR\Fig1-4_FinalLUCBoundaries.mxd

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Final • Rev 0 • April 2021

# Appendix B

# Field Injection and Sample Collection Logs

(Note: The sample collection logs from the November 2019 baseline sampling event have been revised to correct inaccurate screened interval information recorded on the forms in the field. The original monitoring well logs and the surveyed ground surface and top of casing elevations were used to correct the screened interval values, where necessary.)

01043615

## LHAAP-04 Injection Log

| Injection Location | Treatment Interval (ft) | Injection Thickness (ft) | Injection Interval (ft) | Volume per Interval (gallons) | Volume on Flow meter (gallons) | Flow Rate (gpm) | Pressure (psi) | Total Volume Expected (gallons | Volume Injected (gallons) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| 04DPT-01 | 6-14 | 4 | 10-14 | 739 | 739 | 7.02 | 20 | 1,478 | 739 10/28/19 | 10-24-19 1455 START |
| | | 4 | 6-10 | 739 | 1478 | 3.36 | 15 | total | 1478 | Time Completed: 1405 Finish 10/28/19 |
| 04DPT-02 | 6-14 | 4 | 10-14 | 739 | 739 | 3.46 | 30 | 1,478 | 10/28/19 746 1030 | 10/28/19 1420 start |
| | | 4 | 6-10 | 739 | 1478 | 2.00 | 15 | 1485 | 10/28/19 739 1730 | Time Completed: 10/29/19 1730 Finish |
| 04DPT-03 | 12-20 | 4 | 16-20 | 739 | 739 | 2.7 | 20 | 1,478 | 740 10/30/19 0926 | start 10/29/19 1540 |
| | | 4 | 12-16 | 739 | 1478 | 6.6 | 15 | 1490 | 750 10/30/19 1400 | Time Completed: Finish 10/30/19 1400 |
| 04DPT-04 | 6-14 | 4 | 10-14 | 739 | 739 | 3.5 | 15 | 1,478 | 740 11/1/19 1030 | 10/30/19 1400 start |
| | | 4 | 6-10 | 739 | 1478 | 1.5 | 5 | total | 1478.34 | Time Completed: 11-4-19 1607 Finished |
| 04DPT-05 | 6-14 | 4 | 10-14 | 739 | 739 | 6.86 | 5 | 1,478 | 717.9 10/28/19 | 10-24-19 1500 START |
| | | 4 | 6-10 | 739 | 1478 | 1.75 | 5 | 1478 | 756.55 stop | Time Completed: 11-6-19 / 1804 |
| 04DPT-06 | 12-20 | 4 | 16-20 | 739 | 739 | 2.72 | 35 | 1,478 | 739 10/29/19 0935 | 10/28/19 1435 start |
| | | 4 | 12-16 | 739 | 1478 | 6.00 | 10 | 1478 | 739 10/29/19 1430 | Time Completed: 10/29/19 1430 |
| 04DPT-07 | 12-20 | 4 | 16-20 | 739 | 739 | 1.5 | 15 | 1,478 | 779 10/1/19 1010 | 10/31/19 1215 Start |
| | | 4 | 12-16 | 739 | 1478 | 2.6 | 5 | 1478 | 699 11/1/19 1455 | Time Completed: 11/1/19 1455 Finish |
| 04DPT-08 | 7-15 | 4 | 11-15 | 739 | 739 | 0.90 | 10 | 1,478 | 1478.25 | 11-4-19 1135 |
| | | 4 | 7-11 | 739 | 1478 | 1.80 | 15 | | | Time Completed: 11-5-19 1730 |
| 04DPT-09 | 7-15 | 4 | 11-15 | 739 | 739 | 3.38 | 20 | 1,478 | 10/31/19 1215 682 stop | 10/30/19 0845 start |
| | | 4 | 7-11 | 739 | 1478 | 0.94 | 5 | total | 1478.54 | Time Completed: 11-5-19 1735 |
| 04DPT-10 | 7-15 | 4 | 11-15 | 739 | 739 | 8.75 | 10 | 1,478 | Total 1479.2 | 10/23/19 - 1555 - 1630 |
| | | 4 | 7-11 | 739 | 1478 | 4.98 | 20 | | | Time Completed: 1403 10-24-19 |
| 04DPT-11 | 7-15 | 4 | 11-15 | 739 | 739 | 4.96 | 20 | 1,478 | total 1478.18 | 10/22/19 1524 - 1700 |
| | | 4 | 7-11 | 739 | 1478 | 3.79 | 20 | | | Time Completed: 10-24-19 1230 |
| 04DPT-12 | 7-15 | 4 | 11-15 | 739 | 739 | 1.2 | 30 | 1,478 | 739 10/29/19 0935 | 10/28/19 - 1525 start |
| | | 4 | 7-11 | 739 | 1478 | 2.05 | 25 | 1478 | 739 10/29/19 1440 | Time Completed: 10/29/19 1440 |

04DPT 10 - Innacurate (Red Sandy Clay) Daylighting at Borehole moved 5ft N
04DPT 05 - Daylighting got progressively worse. Pulled out after 717.9. Moved 5's for 6-10' push. Still daylighting. Pull off to 04DPT

01043616

## LHAAP-04 Injection Log

| Injection Location | Treatment Interval (ft) | Injection Thickness (ft) | Injection Interval (ft) | Volume per Interval (gallons) | Volume on Flow meter (gallons) | Flow Rate (gpm) | Pressure (psi) | Total Volume Expected (gallons | Volume Injected (gallons) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| 04DPT-13 | 7-15 | 4 | 11-15 | 739 | 739 | 0.86 | 5 | ✓1,478 | 234.48 11-4-19 | 11-4-19 / 1300 |
| | | 4 | 7-11 | 739 | 1478 | 1.17 | 5 | | 1478 11-4-19 | Time Completed: 11-6-19 / |
| 04DPT-14 | 7-15 | 4 | 11-15 | 739 | 739 | 1.51 | 5 | ✓1,478 | 966.26 | 11-4-19 0930 |
| | | 4 | 7-11 | 739 | 1478 | 1.27 | 5 | | 1478 | Time Completed: 11-5-19 / 1505 |
| 04DPT-15 | 7-15 | 4 | 11-15 | 739 | 739 | 3.12 | 32 | ✓1,478 | 10/29/19 739 1245 10/30/19 739 0930 | 10/29/19 1450 start |
| | | 4 | 7-11 | 739 | 1478 | 1.4 | 20 | | | Time Completed: 10/30/19 0930 |
| 04DPT-16 | 7-15 | 4 | 11-15 | 739 | 739 | 8.75 | 40 | ✓1,478 | 1474.0 | 10/23/19 1133 - |
| | | 4 | 7-11 | 739 | 1478 | 7.65 | 20 | | | Time Completed: 10/23/19 1505 |
| 04DPT-17 | 7-15 | 4 | 11-15 | 739 | 739 | 6.20 | 30 | ✓1,478 | 739 10/28/19 1478 | 10-24-19 1239 START |
| | | 4 | 7-11 | 739 | 1478 | 3.15 | 20 | | | Time Completed: 10/28/19 1510 finish |
| 04DPT-18 | 7-15 | 4 | 11-15 | 739 | 739 | 4.8 | 15 | ✓1,478 | 743 10/28/19 1003 | start 10/29/19 1550 |
| | | 4 | 7-11 | 739 | 1478 | 1.9 | 15 | 1478.06 | | Time Completed: 11-4-19 / 1130 |
| 04DPT-19 | 7-15 | 4 | 11-15 | 739 | 739 | 7.41 | 30 | ✓1,478 | 1478.68 | 10/22/19 0944 |
| | | 4 | 7-11 | 739 | 1478 | 20 | 8-76 | | | Time Completed: ~~10-23-19~~ 10-24-19 0905 |
| 04DPT-20 | 7-15 | 4 | 11-15 | 739 | 739 | 2.74 | 20 | ✓1,478 | Initial 582.42 | 10/22/19 0955 - 1505 Daylight |
| | | 4 | 7-11 | 739 | 1478 | 5.90 | 20 | | 1478.25 | Time Completed: 10-24-19 1355 |
| 04DPT-21 | 7-15 | 4 | 11-15 | 739 | 739 | 1.98 | 10 | ✓1,478 | 739 1030 11/1/19 1478.14 | start 10/30/19 0940 |
| | | 4 | 7-11 | 739 | 1478 | 1.5 | 20 | | | Time Completed: 11-04-19 / 1248 |
| 04DPT-22 | 7-15 | 4 | 11-15 | 739 | 739 | 3.83 | 20 | ✓1,478 | 739 10/28/19 1478 10/28/19 | 10-24-19 1416 START |
| | | 4 | 7-11 | 739 | 1478 | 3.24 | 25 | | | Time Completed: 1340 10/28/19 finish |
| 04DPT-23 | 7-15 | 4 | 11-15 | 739 | 739 | 8.70 | 40 | ✓1,478 | 1478.05 | 10/22/19 1455 - 1700 |
| | | 4 | 7-11 | 739 | 1478 | 5.20 | 20 | | | Time Completed: 10/23/19 815 - 1111 Fin |
| 04DPT-24 | 7-15 | 4 | 11-15 | 739 | 739 | 5.62 | 40 | ✓1,478 | 1478.0 | 10/22/19 0945 - 1700 |
| | | 4 | 7-11 | 739 | 1478 | 0.97 | 5.0 | | | Time Completed: 10/23/19 1610 Fin |
| 04DPT-25 | 7-15 | 4 | 11-15 | 739 | 739 | 4.98 | 20 | ✓1,478 | Initial 220gal 1478.25 | 10/22/19 0915 - 1425 daylight |
| | | 4 | 7-11 | 739 | 1478 | 5.87 | 20 | | | Time Completed: 10-24-19 1400 |

04DPT-19 - Daylight 4ft S of Bore hole.

04DPT-20 - Daylight in same area as DPT-19

04DPT-06 - Daylighting on upper 1.ft.

01043617

# WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 50032
Client: ARmy
Site Name: 04

Well ID: 04WW02
Inspection Date: 11/5/19
Well Completion Depth/ Measured Depth: 26.68
Inspector: Scott Beesinger

**ABOVE GROUND**

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

**☐ FLUSH MOUNTED** NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

**CONCRETE PAD:**

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

**WELL CONDITION:**

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

**WELL INTEGRITY:**

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

**COMMENTS:**

01043618

# WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 04

Well ID: LHSMW02
Inspection Date: 11/5/19
Well Completion Depth/ Measured Depth: 19.00
Inspector: Scott Beesinger

**ABOVE GROUND**

| | | | | | |
|---|---|---|---|---|---|
| Well Accessible? | | | | | ☒ Yes ☐ No |
| Protective casing? | | | | | ☒ Yes ☐ No |
| Material: METAL | | | | | |
| Condition: | ☒ Good | ☐ Broken | ☐ Cracked | ☐ Need Paint | |
| Lid Condition: | ☒ Good | ☐ Broken | ☐ Cracked | | |
| Hinge Condition: | ☒ Good | ☐ Less than 50% rusted | ☐ More than 50% rusted | | |

**☐ FLUSH MOUNTED** NA

| | | | | |
|---|---|---|---|---|
| Well cover present? | | | | ☐ Yes ☐ No |
| Condition: | ☐ Good | ☐ Broken | ☐ Cracked | |
| Condition of Sump: | ☐ Clean | ☐ Dry | ☐ Standing Water | |

**CONCRETE PAD:**

| | |
|---|---|
| Sloped away from casing? | ☒ Yes ☐ No |
| Pad Area Cleared of Vegetation? | ☒ Yes ☐ No |

Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

**WELL CONDITION:**

Inner Diameter (inches): 4"

| | | | | | |
|---|---|---|---|---|---|
| Condition: | ☒ Good | ☐ Broken | ☐ Cracked | ☐ Other (describe) | |
| Cap present? | | | | | ☒ Yes ☐ No |
| Well lock present? | | | | | ☒ Yes ☐ No |
| Lock functioning properly? | | | | | ☒ Yes ☐ No |
| Are bollards present and stable? | | | | | ☒ Yes ☐ No |
| Well ID visible? | | | | | ☒ Yes ☐ No |

**WELL INTEGRITY:**

| | |
|---|---|
| Bailer present? | ☐ Yes ☒ No |
| Visual obstruction? | ☐ Yes ☒ No |
| Is well open to completed depth? (complete when gauging) | ☒ Yes ☐ No |
| Is silt present in well? (complete when gauging) | ☐ Yes ☒ No |
| Is silt greater than 10% of well screen length? (complete when gauging) | ☐ Yes ☒ No |

**COMMENTS:**

01043619

# WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 04

Well ID: 04MW03
Inspection Date: 11/6/19
Well Completion Depth/ Measured Depth: 26.90
Inspector: Scott Bussinger

**ABOVE GROUND**

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

**☐ FLUSH MOUNTED**

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

**CONCRETE PAD:**

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

**WELL CONDITION:**

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

**WELL INTEGRITY:**

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

**COMMENTS:**

01043620

# WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 04

Well ID: 04MW06
Inspection Date: 11/5/19
Well Completion Depth/ Measured Depth: 28.08
Inspector: Scott Bessinger

**☒ ABOVE GROUND**

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

**☐ FLUSH MOUNTED**

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

**CONCRETE PAD:**

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

**WELL CONDITION:**

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

**WELL INTEGRITY:**

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

**COMMENTS:**

01043621

# WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARmy
Site Name: 04

Well ID: 04MW11
Inspection Date: 11/6/19
Well Completion Depth/ Measured Depth: 18.50
Inspector: Scott Beesinger

**☒ ABOVE GROUND**

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

**☐ FLUSH MOUNTED** NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

**CONCRETE PAD:**

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

**WELL CONDITION:**

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

**WELL INTEGRITY:**

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

**COMMENTS:**

01043622

# WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 04

Well ID: 04WW05
Inspection Date: 11/6/19
Well Completion Depth/ Measured Depth:
Inspector: Scott Bressinger

☒ ABOVE GROUND
Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED
Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:
Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:
Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:
Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01043623

# WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 04
Well ID: 04MW05
Inspection Date: 11/6/19
Well Completion Depth/ Measured Depth: 29.62
Inspector: Scott Bressinger

**☒ ABOVE GROUND**

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

**☐ FLUSH MOUNTED** NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

**CONCRETE PAD:**

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

**WELL CONDITION:**

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

**WELL INTEGRITY:**

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

**COMMENTS:**

01043624

# WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 04

Well ID: 04MW08
Inspection Date: 11/6/14
Well Completion Depth/ Measured Depth: 43.68
Inspector: Scott Beesinger

**☒ ABOVE GROUND**

| | | | | | |
|---|---|---|---|---|---|
| Well Accessible? | | | | ☒ Yes | ☐ No |
| Protective casing? | | | | ☒ Yes | ☐ No |
| Material: METAL | | | | | |
| Condition: | ☒ Good | ☐ Broken | ☐ Cracked | ☐ Need Paint | |
| Lid Condition: | ☒ Good | ☐ Broken | ☒ Cracked | | |
| Hinge Condition: | ☒ Good | ☐ Less than 50% rusted | ☐ More than 50% rusted | | |

**☐ FLUSH MOUNTED** NA

| | | | | | |
|---|---|---|---|---|---|
| Well cover present? | | | | ☐ Yes | ☐ No |
| Condition: | ☐ Good | ☐ Broken | ☐ Cracked | | |
| Condition of Sump: | ☐ Clean | ☐ Dry | ☐ Standing Water | | |

**CONCRETE PAD:**

| | | |
|---|---|---|
| Sloped away from casing? | ☒ Yes | ☐ No |
| Pad Area Cleared of Vegetation? | ☒ Yes | ☐ No |

Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

**WELL CONDITION:**

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)

| | | |
|---|---|---|
| Cap present? | ☒ Yes | ☐ No |
| Well lock present? | ☒ Yes | ☐ No |
| Lock functioning properly? | ☒ Yes | ☐ No |
| Are bollards present and stable? | ☒ Yes | ☐ No |
| Well ID visible? | ☒ Yes | ☐ No |

**WELL INTEGRITY:**

| | | |
|---|---|---|
| Bailer present? | ☐ Yes | ☒ No |
| Visual obstruction? | ☐ Yes | ☒ No |
| Is well open to completed depth? (complete when gauging) | ☒ Yes | ☐ No |
| Is silt present in well? (complete when gauging) | ☐ Yes | ☒ No |
| Is silt greater than 10% of well screen length? (complete when gauging) | ☐ Yes | ☒ No |

**COMMENTS:**

01043625

# WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARmy
Site Name: 04
Well ID: 04WW04
Inspection Date: 11/6/19
Well Completion Depth/ Measured Depth: 21.55
Inspector: Scott Bessinger

**☒ ABOVE GROUND**

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

**☐ FLUSH MOUNTED** NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

**CONCRETE PAD:**

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

**WELL CONDITION:**

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

**WELL INTEGRITY:**

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

**COMMENTS:**

01043626

# WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: OU
Well ID: LHSMW01
Inspection Date: 11/6/19
Well Completion Depth/ Measured Depth: 17.95
Inspector: Scott Bressinger

**ABOVE GROUND**

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☐ Good ☐ Less than 50% rusted ☒ More than 50% rusted

**FLUSH MOUNTED**

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

**CONCRETE PAD:**

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

**WELL CONDITION:**

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

**WELL INTEGRITY:**

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

**COMMENTS:**

01043627

# EQUIPMENT CALIBRATION DAILY LOG

| | | | |
|---|---|---|---|
| Date: | 11/5/19 | Project Name: | LHAAP-04 |
| Project Number: | 501032 | Recorded By: | Scott Beesinger |

| PID | Model: | | Bulb: 10.6 meV | | Morning Calibration | Evening Check | Additional Calib./Check (if necessary) |
|---|---|---|---|---|---|---|---|
| | Equipment ID #: | | | | | | |
| | Parameter | Standard | Exp. Date | Lot # | Time: | Time: | Time: |
| | | | | | Initials: | Initials: | Initials: |
| First Point Calibration | Vapor conc. (ppm) | 0.0 (ambient air) | NA | NA | Value: | Value: | Value: |
| Second Point Calibration | Vapor conc. (ppm) | (isobutylene) | | | Value: | Value: | Value: |

| COMB. GAS/$O_2$ METER | Model: | | | | Morning Calibration | Evening Check | Additional Calib./Check (if necessary) |
|---|---|---|---|---|---|---|---|
| | Equipment ID #: | | | | | | |
| | Parameter | Standard | Exp. Date | Lot # | Time: | Time: | Time: |
| | | | | | Initials: | Initials: | Initials: |
| First Point Calibration | O2 (%) | | | | Value: | Value: | Value: |
| | % LEL Pentane | | | | Value: | Value: | Value: |

| WATER QUALITY METER | Model: | U-52 HORIBA | | | Morning Calibration/Check | Evening Check (one point only) | Additional Calib./Check (if necessary) |
|---|---|---|---|---|---|---|---|
| | Equipment ID #: | | | | | | |
| | Parameter | Standard | Exp. Date | Lot # | Time: 0725 | Time: | Time: |
| | | | | | Initials: SB | Initials: | Initials: |
| First Point Calibration (Auto) | pH | 4.00 | 04/20 | GCJ695 | Value: 4.00 | Value: | Value: |
| | Conductivity (mS/cm) | 4.49 | | | Value: 4.49 | Value: | Value: |
| | Turbidity (NTU) | 0 | | | Value: 0.0 | Value: | Value: |
| | DO (mg/L) | 8.9-9.1 (ambient air) | NA | NA | Value: 9.02 | Value: | Value: |
| Second Point Calibration | pH | 6.86 | | | Value: | Value: | Value: |
| | Conductivity (mS/cm) | 53.7 | | | Value: | Value: | Value: |
| | Turbidity (NTU) | 100 | | | Value: | Value: | Value: |
| Third Point Calibration | pH | 9.18 | | | Value: | Value: | Value: |
| | Conductivity (mS/cm) | 53.7 | | | Value: | Value: | Value: |
| | Turbidity (NTU) | 100 | | | Value: | Value: | Value: |

**Additional Remarks:**

01043628

# EQUIPMENT CALIBRATION DAILY LOG

| | | | |
|---|---|---|---|
| Date: | 11/6/19 | Project Name: | LHAAP-04 |
| Project Number: | 501032 | Recorded By: | Scott Bassinger |

| PID | Model: | | Bulb: 10.6 meV | | Morning Calibration | Evening Check | Additional Calib./Check (if necessary) |
|---|---|---|---|---|---|---|---|
| | Equipment ID #: | | | | | | |
| | Parameter | Standard | Exp. Date | Lot # | Time: | Time: | Time: |
| | | | | | Initials: | Initials: | Initials: |
| First Point Calibration | Vapor conc. (ppm) | 0.0 (ambient air) | NA | NA | Value: | Value: | Value: |
| Second Point Calibration | Vapor conc. (ppm) | (isobutylene) | | | Value: | Value: | Value: |

| COMB. GAS/$O_2$ METER | Model: | | | | Morning Calibration | Evening Check | Additional Calib./Check (if necessary) |
|---|---|---|---|---|---|---|---|
| | Equipment ID #: | | | | | | |
| | Parameter | Standard | Exp. Date | Lot # | Time: | Time: | Time: |
| | | | | | Initials: | Initials: | Initials: |
| First Point Calibration | O2 (%) | | | | Value: | Value: | Value: |
| | % LEL Pentane | | | | Value: | Value: | Value: |

| WATER QUALITY METER | Model: U-52 HoRiBA | | | | Morning Calibration/Check | Evening Check (one point only) | Additional Calib./Check (if necessary) |
|---|---|---|---|---|---|---|---|
| | Equipment ID #: | | | | | | |
| | Parameter | Standard | Exp. Date | Lot # | Time: 0720 | Time: | Time: |
| | | | | | Initials: SB | Initials: | Initials: |
| First Point Calibration (Auto) | pH | 4.00 | 04/20 | 6CJ695 | Value: 4.00 | Value: | Value: |
| | Conductivity (mS/cm) | 4.49 | | | Value: 4.49 | Value: | Value: |
| | Turbidity (NTU) | 0 | | | Value: 0.0 | Value: | Value: |
| | DO (mg/L) | 8.9-9.1 (ambient air) | NA | NA | Value: 9.01 | Value: | Value: |
| Second Point Calibration | pH | 6.86 | | | Value: | Value: | Value: |
| | Conductivity (mS/cm) | 53.7 | | | Value: | Value: | Value: |
| | Turbidity (NTU) | 100 | | | Value: | Value: | Value: |
| Third Point Calibration | pH | 9.18 | | | Value: | Value: | Value: |
| | Conductivity (mS/cm) | 53.7 | | | Value: | Value: | Value: |
| | Turbidity (NTU) | 100 | | | Value: | Value: | Value: |

**Additional Remarks:**

APTIM

# Sample Collection Log



Project Name: **Longhorn AAP**

Location ID: **LHSMW02**

Project No: **501032**

Sampler(s): Scott Beesinger

## FIELD CONDITIONS

Cloudy

## SAMPLING INFORMATION

**Sample No:** LHSMW02-191105 **DATE/TIME:** 11/5/19 0849 **Pump Inlet Depth:** 16.00

**Sampling Method:** **Sample Purpose:** REG **Sample Matrix:** GW

| Appearance of Sample | Assoc. QC Samples | Decontamination Procedures |
|---|---|---|
| | | |

| Chain of Custody | COC Notes | Lab | Analyses | Container | Preserv |
|---|---|---|---|---|---|
| | | ALSHT | Perchlorate in Water by 6850 | 1 x 125 mL HDPE | Cool 4C |

## WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Lowflow/Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/5/19 0925

Depth to Water - Initial (DTWi) (ft) 15.32

Purge End Date/Time: 11/5/19 0955

Depth to Well Bottom (ft) 19.00

Discharge Tube Length: NA

PID Reading: NA

W Foss 04/10/2020 7.18 - 17.18

Screen Interval (ft): ~~8.50 - 18.50~~

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 16.00

Pump Start Time: 0925

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DEPTH TO WATER - 15.32

APTIM

# Sample Collection Log



| Location ID: LHSMW02 | | | | Sample No: LHSMW02-1911 05 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Date of Reading** | **Time of Reading** | **Purge Rate** | **Total Purge** | **DTW** | **Cond.** | **Temp.** | **pH** | **Turbidity** | **ORP** | **DO** |
| | | **(ml/min)** | **(L)** | **(ft)** | **(mS/cm)** | **(°C)** | | **(NTU)** | **(mV)** | **(mg/L)** |
| | Purge Stabilization Criteria | - | - | Drawdown limit 0.3 ft | ±10% | | ±0.1 units | No criteria | | ± 10% or 0.2 mg/L |
| 11/5/19 | 0930 | 100 | .5 | 15.40 | 1.09 | 20.34 | 6.05 | 37.3 | 55 | 0.99 |
| | 0935 | 100 | 1.0 | 15.46 | 1.10 | 20.22 | 5.94 | 34.0 | 46 | 0.39 |
| | 0940 | 100 | 1.5 | 15.50 | 1.10 | 20.21 | 5.81 | 34.9 | 50 | 0.24 |
| | 0945 | 100 | 2.0 | 15.53 | 1.10 | 20.20 | 5.80 | 35.4 | 51 | 0.23 |
| | 0950 | 100 | 2.5 | 15.55 | 1.10 | 20.19 | 5.79 | 36.0 | 51 | 0.22 |
| ↓ | 0955 | 100 | 3.0 | 15.57 | 1.10 | 20.18 | 5.79 | 36.5 | 52 | 0.22 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

# Sample Collection Log



Project Name: **Longhorn AAP**

Location ID: **04WW03**

Project No: **501032**

Sampler(s): Scott Bressinger

## FIELD CONDITIONS

Clear | cool

## SAMPLING INFORMATION

**Sample No:** 04WW03-191106 **DATE/TIME:** 11/6/19 0739 **Pump Inlet Depth:** 21.00

**Sampling Method:** **Sample Purpose:** REG **Sample Matrix:** GW

| Appearance of Sample | Assoc. QC Samples | Decontamination Procedures |
|---|---|---|
| | | |

| Chain of Custody | COC Notes | Lab | Analyses | Container | Preserv |
|---|---|---|---|---|---|
| | | ALSHT | Perchlorate in Water by 6850 | 1 x 125 mL HDPE | Cool 4C |

## WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Lowflow/Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/6/19 0750

Depth to Water - Initial (DTWi) (ft) 11.00

Purge End Date/Time: 11/6/19 0820

Depth to Well Bottom (ft) 26.90

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): ~~16.00 - 26.00~~ W Foss 04/10/2020 16.55 - 26.55

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / N

Approximate depth of pump inlet*(ft): 21.00

Pump Start Time: 0750

Ferrous Iron (Required Y or N) _____ mg/L

2ND DEPTH TO WATER 11.00

APTIM

# Sample Collection Log



| Location ID: 04WW03 | | Sample No: 04WW03-191106 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date of Reading | Time of Reading | Purge Rate | Total Purge | DTW | Cond. | Temp. | pH | Turbidity | ORP | DO |
| | | (ml/min) | (L) | (ft) | (mS/cm) | (°C) | | (NTU) | (mV) | (mg/L) |
| | Purge Stabilization Criteria | - | - | Drawdown limit 0.3 ft | ±10% | | ±0.1 units | No criteria | | ± 10% or 0.2 mg/L |
| 11/6/19 | 0755 | 100 | .5 | 11.08 | 0.967 | 18.74 | 5.87 | 12.4 | 183 | 1.79 |
| | 0800 | 100 | 1.0 | 11.14 | 0.854 | 19.43 | 6.17 | 7.8 | 196 | 1.38 |
| | 0805 | 100 | 1.5 | 11.19 | 0.841 | 19.47 | 6.14 | 7.6 | 150 | 1.32 |
| | 0810 | 100 | 2.0 | 11.21 | 0.840 | 19.53 | 6.13 | 7.7 | 151 | 1.30 |
| | 0815 | 100 | 2.5 | 11.23 | 0.839 | 19.58 | 6.13 | 7.6 | 152 | 1.28 |
| | 0820 | 100 | 3.0 | 11.24 | 0.839 | 19.61 | 6.13 | 7.5 | 153 | 1.26 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

# Sample Collection Log



Project Name: **Longhorn AAP**

Location ID: **04WW06**

Project No: **501032**

Sampler(s): Scott Bussinger

**FIELD CONDITIONS** Clear / Cool

**SAMPLING INFORMATION**

**Sample No:** 04WW06-191106 **DATE/TIME:** 11/6/19 0829 **Pump Inlet Depth:** 23.00

**Sampling Method:** **Sample Purpose:** REG **Sample Matrix:** GW

**Appearance of Sample** **Assoc. QC Samples** **Decontamination Procedures**

| Chain of Custody | COC Notes | Lab | Analyses | Container | Preserv |
|---|---|---|---|---|---|
| | | ALSHT | Perchlorate in Water by 6850 | 1 x 125 mL HDPE | Cool 4C |

**WELL AND PURGING INFORMATION**

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow / BLADDER Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/6/19 0840

Depth to Water - Initial (DTWi) (ft) 7.05

Purge End Date/Time: 11/6/19 0910

Depth to Well Bottom (ft) 28.03

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): ~~18.00 - 28.00~~

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

W Foss 04/10/2020 18.11 - 28.11

Approximate depth of pump inlet*(ft): 23.00

Pump Start Time: 0840

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DEPTH TO WATER - 7.05

APTIM

# Sample Collection Log



| Location ID: 04WW06 | | Sample No: 04WW06-191106 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date of Reading | Time of Reading | Purge Rate | Total Purge | DTW | Cond. | Temp. | pH | Turbidity | ORP | DO |
| | | (ml/min) | (L) | (ft) | (mS/cm) | (°C) | | (NTU) | (mV) | (mg/L) |
| | Purge Stabilization Criteria | - | - | Drawdown limit 0.3 ft | ±10% | | ±0.1 units | No criteria | | ± 10% or 0.2 mg/L |
| 11/6/19 | 0845 | 100 | .5 | 7.12 | 1.56 | 20.92 | 6.48 | 26.2 | [illegible] | 1.01 |
| | 0850 | 100 | 1.0 | 7.17 | 1.65 | 21.22 | 6.59 | 19.8 | 12 | 0.27 |
| | 0855 | 100 | 1.5 | 7.21 | 1.60 | 21.51 | 6.63 | 20.3 | 3 | 0.11 |
| | 0900 | 100 | 2.0 | 7.23 | 1.59 | 21.58 | 6.64 | 20.7 | 3 | 0.11 |
| | 0905 | 100 | 2.5 | 7.25 | 1.59 | 21.65 | 6.65 | 21.0 | 2 | 0.10 |
| ↓ | 0910 | 100 | 3.0 | 7.26 | 1.59 | 21.72 | 6.65 | 21.3 | 2 | 0.10 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

# Sample Collection Log



Project Name: **Longhorn AAP**

Location ID: **04WW05**

Project No: **501032**

Sampler(s): Scott Beesinger

## FIELD CONDITIONS

CLEAR

## SAMPLING INFORMATION

**Sample No:** 04WW05-1911 06 **DATE/TIME:** 11/6/19 **Pump Inlet Depth:** 24.00

**Sampling Method:** **Sample Purpose:** REG **Sample Matrix:** GW

| Appearance of Sample | Assoc. QC Samples | Decontamination Procedures |
|---|---|---|
| | | |

| Chain of Custody | COC Notes | Lab | Analyses | Container | Preserv |
|---|---|---|---|---|---|
| | | ALSHT | Alkalinity in Water by SM2320B | 1 x 250 mL HDPE | Cool 4C |
| | | ALSHT | Anions (nitrite/nitrate/sulfate) in Water by SW9056 | 1 x 250 mL HDPE | Cool 4C |
| | | ALSHT | Perchlorate in Water by 6850 | 1 x 125 mL HDPE | Cool 4C |
| | | ALSHT | TOC in Water by SM5310C | 2 x 40 mL Amber | H2SO4 |

## WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/Bladder Pump

Casing ID (in.): 2"

Purge Start Date/Time: 11/6/19 1015

Depth to Water - Initial (DTWi) (ft) 7.88

Purge End Date/Time: 11/6/19 1045

Depth to Well Bottom (ft) 29.62

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): ~~19.00 - 29.00~~ 18.7 - 28.7 W Foss 04/10/2020

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 24.00

Pump Start Time: 1015

Ferrous Iron (Required (Y) or N) 0.31 mg/L

2ND DEPTH TO WATER - 7.88

APTIM

# Sample Collection Log



| Location ID: 04WW05 | | Sample No: 04WW05-1911 06 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date of Reading | Time of Reading | Purge Rate | Total Purge | DTW | Cond. | Temp. | pH | Turbidity | ORP | DO |
| | | (ml/min) | (L) | (ft) | (mS/cm) | (°C) | | (NTU) | (mV) | (mg/L) |
| | Purge Stabilization Criteria | - | - | Drawdown limit 0.3 ft | ±10% | | ±0.1 units | No criteria | | ± 10% or 0.2 mg/L |
| 11/6/19 | 1020 | 100 | .5 | 7.95 | 0.884 | 21.80 | 6.47 | 140 | -83 | 0.93 |
| ↓ | 1025 | 100 | 1.0 | 8.00 | 0.823 | 22.25 | 6.03 | 119 | -45 | 0.29 |
| | 1030 | 100 | 1.5 | 8.04 | 0.795 | 22.50 | 5.95 | 108 | -38 | 0.19 |
| | 1035 | 100 | 2.0 | 8.07 | 0.794 | 22.57 | 5.95 | 107 | -37 | 0.19 |
| | 1040 | 100 | 2.5 | 8.09 | 0.794 | 22.65 | 5.94 | 106 | -37 | 0.18 |
| ↓ | 1045 | 100 | 3.0 | 8.11 | 0.794 | 22.73 | 5.94 | 106 | -36 | 0.18 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

# Sample Collection Log



Project Name: **Longhorn AAP**

Location ID: **04WW08**

Project No: **501032**

Sampler(s): Scott Beesinger

## FIELD CONDITIONS

CLEAR

## SAMPLING INFORMATION

**Sample No:** 04WW08-1911 06 **DATE/TIME:** 11/6/19 1056 **Pump Inlet Depth:** 36.00

**Sampling Method:** **Sample Purpose: REG** **Sample Matrix: GW**

| Appearance of Sample | Assoc. QC Samples | Decontamination Procedures |
|---|---|---|
| | | |

| Chain of Custody | COC Notes | Lab | Analyses | Container | Preserv |
|---|---|---|---|---|---|
| | | ALSHT | Perchlorate in Water by 6850 | 1 x 125 mL HDPE | Cool 4C |

## WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/6/19 1105

Depth to Water - Initial (DTWi) (ft) 16.13

Purge End Date/Time: 11/6/19 1135

Depth to Well Bottom (ft) 43.68

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): ~~31.00 41.00~~ 33.75 - 43.75

W Foss 04/10/2020

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 36.00

Pump Start Time: 1105

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DEPTH TO WATER - 16.13

APTIM

# Sample Collection Log



| Location ID: 04WW08 | | Sample No: 04WW08-191106 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date of Reading | Time of Reading | Purge Rate | Total Purge | DTW | Cond. | Temp. | pH | Turbidity | ORP | DO |
| | | (ml/min) | (L) | (ft) | (mS/cm) | (°C) | | (NTU) | (mV) | (mg/L) |
| | Purge Stabilization Criteria | - | - | Drawdown limit 0.3 ft | ±10% | | ±0.1 units | No criteria | | ± 10% or 0.2 mg/L |
| 11/6/19 | 1110 | 100 | .5 | 16.20 | 2.61 | 23.88 | 7.92 | 77.3 | -125 | 1.09 |
| | 1115 | 100 | 1.0 | 16.26 | 2.53 | 23.57 | 8.69 | 61.5 | -145 | 0.22 |
| | 1120 | 100 | 1.5 | 16.30 | 2.56 | 23.81 | 8.67 | 47.9 | -148 | 0.04 |
| | 1125 | 100 | 2.0 | 16.32 | 2.57 | 23.89 | 8.66 | 47.2 | -149 | 0.04 |
| | 1130 | 100 | 2.5 | 16.34 | 2.57 | 23.95 | 8.65 | 46.5 | -150 | 0.03 |
| ↓ | 1135 | 100 | 3.0 | 16.35 | 2.57 | 24.04 | 8.65 | 46.0 | -151 | 0.03 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

# Sample Collection Log



Project Name: **Longhorn AAP** Location ID: **04WW04**

Project No: **501032** Sampler(s): Scott Bassinger

## FIELD CONDITIONS

Clear/ Sunny

## SAMPLING INFORMATION

**Sample No:** 04WW04-191106 **DATE/TIME:** 11/6/19 1144 **Pump Inlet Depth:** 16.00

**Sampling Method:** **Sample Purpose:** REG **Sample Matrix:** GW

| Appearance of Sample | Assoc. QC Samples | Decontamination Procedures |
|---|---|---|
| | | |

| Chain of Custody | COC Notes | Lab | Analyses | Container | Preserv |
|---|---|---|---|---|---|
| | | ALSHT | Perchlorate in Water by 6850 | 1 x 125 mL HDPE | Cool 4C |

## WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/BLADDER Pump

Casing ID (in.): 2"

Purge Start Date/Time: 11/6/19 1150

Depth to Water - Initial (DTWi) (ft) 5.20

Purge End Date/Time: 11/6/19 1226

Depth to Well Bottom (ft) 21.55

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): ~~11.00 - 21.00~~ 10.80 - 20.80

W Foss 04/10/2020

Discharge Tube Diameter: 1/4"

Immersible Layer: Y (N)

Approximate depth of pump inlet*(ft): 16.00

Pump Start Time: 1150

Ferrous Iron (Required Y or N) _____ mg/L

2ND DEPTH TO WATER - 5.20

APTIM

# Sample Collection Log



| Location ID: 04WW04 | | Sample No: 04WW04-191106 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date of Reading | Time of Reading | Purge Rate | Total Purge | DTW | Cond. | Temp. | pH | Turbidity | ORP | DO |
| | | (ml/min) | (L) | (ft) | (mS/cm) | (°C) | | (NTU) | (mV) | (mg/L) |
| | Purge Stabilization Criteria | - | - | Drawdown limit 0.3 ft | ±10% | | ±0.1 units | No criteria | | ± 10% or 0.2 mg/L |
| 11/6/19 | 1155 | 100 | .5 | 5.28 | 0.497 | 25.09 | 6.98 | 159 | -63 | 0.84 |
| ↓ | 1200 | 100 | 1.0 | 5.33 | 0.661 | 25.13 | 6.45 | 130 | -47 | 0.20 |
| | 1205 | 100 | 1.5 | 5.37 | 0.790 | 25.18 | 6.32 | 122 | -46 | 0.07 |
| | 1210 | 100 | 2.0 | 5.40 | 0.790 | 25.20 | 6.31 | 121 | -45 | 0.06 |
| | 1215 | 100 | 2.5 | 5.42 | 0.791 | 25.23 | 6.30 | 121 | -44 | 0.06 |
| ↓ | 1220 | 100 | 3.0 | 5.43 | 0.791 | 25.25 | 6.30 | 120 | -43 | 0.06 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

# Sample Collection Log



Project Name: **Longhorn AAP** Location ID: **LHSMW01**

Project No: **501032** Sampler(s): Scott Beesinger

**FIELD CONDITIONS** CLEAR/ SUNNY

**SAMPLING INFORMATION**

**Sample No:** LHSMW01-1911 06 **DATE/TIME:** 11/6/19 1236 **Pump Inlet Depth:** 12.50

**Sampling Method:** **Sample Purpose:** REG **Sample Matrix:** GW

| Appearance of Sample | Assoc. QC Samples | Decontamination Procedures |
|---|---|---|
| | | |

| Chain of Custody | COC Notes | Lab | Analyses | Container | Preserv |
|---|---|---|---|---|---|
| | | ALSHT | Perchlorate in Water by 6850 | 1 x 125 mL HDPE | Cool 4C |

**WELL AND PURGING INFORMATION**

Measuring Point : Top of Casing Purging Method/Equipment: Low flow/BLADDER Pump

Casing ID (in.): 4" Purge Start Date/Time: 11/6/19 1245

Depth to Water - Initial (DTWi) (ft) 7.35 Purge End Date/Time: 11/6/19 1315

Depth to Well Bottom (ft) 17.95 Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): ~~7.50 - 17.50~~ Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

W Foss 04/10/2020 7.74 - 17.74

Approximate depth of pump inlet*(ft): 12.50 Pump Start Time: 1245

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DEPTH TO WATER 7.35

APTIM

# Sample Collection Log



Location ID: LHSMW01 Sample No: LHSMW01-191106

| Date of Reading | Time of Reading | Purge Rate | Total Purge | DTW | Cond. | Temp. | pH | Turbidity | ORP | DO |
|---|---|---|---|---|---|---|---|---|---|---|
| | | (ml/min) | (L) | (ft) | (mS/cm) | (°C) | | (NTU) | (mV) | (mg/L) |
| | Purge Stabilization Criteria | - | - | Drawdown limit 0.3 ft | ±10% | | ±0.1 units | No criteria | | ± 10% or 0.2 mg/L |
| 11/6/19 | 1250 | 100 | .5 | 7.43 | 0.271 | 26.00 | 6.72 | 30.3 | 42 | 1.21 |
| | 1255 | 100 | 1.0 | 7.49 | 0.248 | 25.00 | 6.38 | 24.7 | 116 | 0.54 |
| | 1300 | 100 | 1.5 | 7.53 | 0.247 | 24.97 | 6.35 | 23.1 | 126 | 0.50 |
| | 1305 | 100 | 2.0 | 7.55 | 0.247 | 24.94 | 6.34 | 22.7 | 126 | 0.49 |
| | 1310 | 100 | 2.5 | 7.57 | 0.247 | 24.91 | 6.34 | 22.2 | 127 | 0.48 |
| | 1315 | 100 | 3.0 | 7.58 | 0.247 | 24.88 | 6.34 | 21.8 | 127 | 0.48 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

# Sample Collection Log



Project Name: **Longhorn AAP**

Location ID: **04WW02**

Project No: **501032**

Sampler(s): Scott Beesinger

## FIELD CONDITIONS

Cool / cloudy

## SAMPLING INFORMATION

**Sample No:** 04WW02-191105 **DATE/TIME:** 11/5/19 0745 **Pump Inlet Depth:** 21.00

**Sampling Method:** **Sample Purpose:** REG **Sample Matrix:** GW

**Appearance of Sample** **Assoc. QC Samples** **Decontamination Procedures**

| Chain of Custody | COC Notes | Lab | Analyses | Container | Preserv |
|---|---|---|---|---|---|
| | | ALSHT | Perchlorate in Water by 6850 | 1 x 125 mL HDPE | Cool 4C |

## WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow / BLADDER PUMP

Casing ID (in.): 4"

Purge Start Date/Time: 11/5/19 0800

Depth to Water - Initial (DTWi) (ft) 7.25

Purge End Date/Time: 11/5/19 0830

Depth to Well Bottom (ft) 26.68

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): ~~16.00 - 26.00~~ 16.9 - 26.9

W Foss 04/10/2020

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 21.00

Pump Start Time: 0800

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DEPTH TO WATER 7.25

APTIM

# Sample Collection Log



| Location ID: 04WW02 | | | | Sample No: 04WW02-1911 05 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date of Reading | Time of Reading | Purge Rate | Total Purge | DTW | Cond. | Temp. | pH | Turbidity | ORP | DO |
| | | (ml/min) | (L) | (ft) | (mS/cm) | (°C) | | (NTU) | (mV) | (mg/L) |
| | Purge Stabilization Criteria | - | - | Drawdown limit 0.3 ft | ±10% | | ±0.1 units | No criteria | | ± 10% or 0.2 mg/L |
| 11/5/19 | 0805 | 100 | .5 | 7.33 | 0.364 | 22.74 | 6.05 | 26.5 | 208 | 1.56 |
| | 0810 | 100 | 1.0 | 7.38 | 0.296 | 23.49 | 6.18 | 13.1 | 202 | 1.50 |
| | 0815 | 100 | 1.5 | 7.41 | 0.293 | 23.60 | 6.10 | 9.9 | 219 | 1.48 |
| | 0820 | 100 | 2.0 | 7.43 | 0.293 | 23.68 | 6.09 | 9.7 | 220 | 1.46 |
| | 0825 | 100 | 2.5 | 7.45 | 0.292 | 23.75 | 6.08 | 9.4 | 221 | 1.45 |
| ↓ | 0830 | 100 | 3.0 | 7.46 | 0.292 | 23.80 | 6.08 | 9.0 | 221 | 1.44 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

# Sample Collection Log



Project Name: **Longhorn AAP** Location ID: **04WW02**

Project No: **501032** Sampler(s): Scott Beesinger

## FIELD CONDITIONS

## SAMPLING INFORMATION

**Sample No:** 04WW02-1911**05**-FD **DATE/TIME:** 11/5/19 0745 **Pump Inlet Depth:** 21.00

**Sampling Method:** **Sample Purpose:** FD **Sample Matrix:** GW

| Appearance of Sample | Assoc. QC Samples | Decontamination Procedures |
|---|---|---|
| | | |

| Chain of Custody | COC Notes | Lab | Analyses | Container | Preserv |
|---|---|---|---|---|---|
| | | ALSHT | Perchlorate in Water by 6850 | 1 x 125 mL HDPE | Cool 4C |

## WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/BLADDER Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/5/19 0800

Depth to Water - Initial (DTWi) (ft) 7.25

Purge End Date/Time: 11/5/19 0830

Depth to Well Bottom (ft) 26.68

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): ~~16.00 - 26.00~~ 16.9 - 26.9

W Foss 04/10/2020

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 21.00

Pump Start Time: 0800

Ferrous Iron (Required Y or (N)) _____ mg/L

APTIM

# Sample Collection Log



| Location ID: 04WW02 | Sample No: 04WW02-1911 05 -FD | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Date of Reading** | **Time of Reading** | **Purge Rate** | **Total Purge** | **DTW** | **Cond.** | **Temp.** | **pH** | **Turbidity** | **ORP** | **DO** |
| | | **(ml/min)** | **(L)** | **(ft)** | **(mS/cm)** | **(°C)** | | **(NTU)** | **(mV)** | **(mg/L)** |
| | Purge Stabilization Criteria | - | - | Drawdown limit 0.3 ft | ±10% | | ±0.1 units | No criteria | | ± 10% or 0.2 mg/L |
| 11/5/19 | 0805 | 100 | .5 | 7.33 | 0.364 | 22.74 | 6.05 | 26.5 | 208 | 1.56 |
| ↓ | 0810 | 100 | 1.0 | 7.38 | 0.296 | 23.49 | 6.18 | 13.1 | 202 | 1.50 |
| | 0815 | 100 | 1.5 | 7.41 | 0.293 | 23.60 | 6.10 | 9.9 | 219 | 1.48 |
| | 0820 | 100 | 2.0 | 7.43 | 0.293 | 23.68 | 6.09 | 9.7 | 220 | 1.46 |
| | 0825 | 100 | 2.5 | 7.45 | 0.292 | 23.75 | 6.08 | 9.4 | 221 | 1.45 |
| ↓ | 0830 | 100 | 3.0 | 7.46 | 0.292 | 23.80 | 6.08 | 9.0 | 221 | 1.44 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

# Sample Collection Log



Project Name: **Longhorn AAP**

Location ID: **04WW11**

Project No: **501032**

Sampler(s): Scott Baessinger

## FIELD CONDITIONS

CLEAR

## SAMPLING INFORMATION

**Sample No:** 04WW11-191106 **DATE/TIME:** 11/6/19 0919 **Pump Inlet Depth:** 13.50

**Sampling Method:** **Sample Purpose:** REG **Sample Matrix:** GW

| Appearance of Sample | Assoc. QC Samples | Decontamination Procedures |
|---|---|---|
| | | |

| Chain of Custody | COC Notes | Lab | Analyses | Container | Preserv |
|---|---|---|---|---|---|
| | | ALSHT | Perchlorate in Water by 6850 | 1 x 125 mL HDPE | Cool 4C |

## WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Lowflow / Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/6/19 0925

Depth to Water - Initial (DTWi) (ft) 7.72

Purge End Date/Time: 11/6/19 0955

Depth to Well Bottom (ft) 18.50

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): ~~8.50 - 18.50~~

W Foss 04/10/2020 8.2 - 18.2

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 13.50

Pump Start Time: 0925

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DEPTH TO WATER - 7.72

APTIM

# Sample Collection Log



| Location ID: 04WW11 | | Sample No: 04WW11-191106 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date of Reading | Time of Reading | Purge Rate | Total Purge | DTW | Cond. | Temp. | pH | Turbidity | ORP | DO |
| | | (ml/min) | (L) | (ft) | (mS/cm) | (°C) | | (NTU) | (mV) | (mg/L) |
| | Purge Stabilization Criteria | - | - | Drawdown limit 0.3 ft | ±10% | | ±0.1 units | No criteria | | ± 10% or 0.2 mg/L |
| 11/6/19 | 0930 | 100 | .5 | 7.80 | 0.630 | 20.47 | 7.12 | 88.3 | 139 | 3.89 |
| | 0935 | 100 | 1.0 | 7.86 | 0.609 | 20.50 | 7.11 | 76.1 | 152 | 3.45 |
| | 0940 | 100 | 1.5 | 7.90 | 0.607 | 20.53 | 7.12 | 68.0 | 156 | 3.27 |
| | 0945 | 100 | 2.0 | 7.93 | 0.607 | 20.56 | 7.13 | 67.6 | 157 | 3.25 |
| | 0950 | 100 | 2.5 | 7.95 | 0.607 | 20.59 | 7.13 | 67.0 | 158 | 3.23 |
| | 0955 | 100 | 3.0 | 7.96 | 0.607 | 20.63 | 7.13 | 66.6 | 158 | 3.21 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

# Sample Collection Log



Project Name: **Longhorn AAP**

Location ID: **04WW11**

Project No: **501032**

Sampler(s): Scott Beesinger

## FIELD CONDITIONS

CLEAR

## SAMPLING INFORMATION

**Sample No:** 04WW11-191106 -MS **DATE/TIME:** 11/6/19 0919 **Pump Inlet Depth:** 13.50

**Sampling Method:** **Sample Purpose:** MS **Sample Matrix:** GW

**Appearance of Sample** **Assoc. QC Samples** **Decontamination Procedures**

| Chain of Custody | COC Notes | Lab | Analyses | Container | Preserv |
|---|---|---|---|---|---|
| | | ALSHT | Perchlorate in Water by 6850 | 1 x 125 mL HDPE | Cool 4C |

## WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/6/19 0925

Depth to Water - Initial (DTWi) (ft) 7.72

Purge End Date/Time: 11/6/19 0955

Depth to Well Bottom (ft) 18.50

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): ~~8.50 - 18.50~~

W Foss 04/10/2020 8.2 - 18.2

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 13.50

Pump Start Time: 0925

Ferrous Iron (Required Y or (N) _____ mg/L

APTIM

# Sample Collection Log



| Location ID: 04WW11 | Sample No: 04WW11-1911 06 -MS | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date of Reading | Time of Reading | Purge Rate | Total Purge | DTW | Cond. | Temp. | pH | Turbidity | ORP | DO |
| | | (ml/min) | (L) | (ft) | (mS/cm) | (°C) | | (NTU) | (mV) | (mg/L) |
| | Purge Stabilization Criteria | - | - | Drawdown limit 0.3 ft | ±10% | | ±0.1 units | No criteria | | ± 10% or 0.2 mg/L |
| 11/6/19 | 0930 | 100 | .5 | 7.80 | 0.630 | 20.47 | 7.12 | 88.3 | 139 | 3.89 |
| | 0935 | 100 | 1.0 | 7.86 | 0.609 | 20.50 | 7.11 | 76.1 | 152 | 3.45 |
| | 0940 | 100 | 1.5 | 7.90 | 0.607 | 20.53 | 7.12 | 68.0 | 156 | 3.27 |
| | 0945 | 100 | 2.0 | 7.93 | 0.607 | 20.56 | 7.13 | 67.6 | 157 | 3.25 |
| | 0950 | 100 | 2.5 | 7.95 | 0.607 | 20.59 | 7.13 | 67.0 | 158 | 3.23 |
| ↓ | 0955 | 100 | 3.0 | 7.96 | 0.607 | 20.63 | 7.13 | 66.6 | 158 | 3.21 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

# Sample Collection Log



Project Name: **Longhorn AAP** Location ID: **04WW11**

Project No: **501032** Sampler(s): Scott Beesinger

**FIELD CONDITIONS** Clear

**SAMPLING INFORMATION**

**Sample No:** 04WW11-191106-MSD **DATE/TIME:** 11/6/19 0999 **Pump Inlet Depth:** 13.50

**Sampling Method:** **Sample Purpose: MSD** **Sample Matrix: GW**

**Appearance of Sample** **Assoc. QC Samples** **Decontamination Procedures**

| Chain of Custody | COC Notes | Lab | Analyses | Container | Preserv |
|---|---|---|---|---|---|
| | | ALSHT | Perchlorate in Water by 6850 | 1 x 125 mL HDPE | Cool 4C |

**WELL AND PURGING INFORMATION**

Measuring Point : Top of Casing Purging Method/Equipment: Low flow/Bladder Pump

Casing ID (in.): 4" Purge Start Date/Time: 11/6/19 0925

Depth to Water - Initial (DTWi) (ft) 7.72 Purge End Date/Time: 11/6/19 0955

Depth to Well Bottom (ft) 18.50 Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): ~~8.50 - 18.50~~ Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

W Foss 04/10/2020 8.2 - 18.2

Approximate depth of pump inlet*(ft): 13.50 Pump Start Time: 0925

Ferrous Iron (Required Y or N) _____ mg/L

APTIM

# Sample Collection Log



Location ID: 04WW11 Sample No: 04WW11-191106-MSD

| Date of Reading | Time of Reading | Purge Rate | Total Purge | DTW | Cond. | Temp. | pH | Turbidity | ORP | DO |
|---|---|---|---|---|---|---|---|---|---|---|
| | | (ml/min) | (L) | (ft) | (mS/cm) | (°C) | | (NTU) | (mV) | (mg/L) |
| | Purge Stabilization Criteria | - | - | Drawdown limit 0.3 ft | ±10% | | ±0.1 units | No criteria | | ± 10% or 0.2 mg/L |
| 11/6/19 | 0930 | 100 | .5 | 7.80 | 0.630 | 20.47 | 7.12 | 88.3 | 139 | 3.89 |
| | 0935 | 100 | 1.0 | 7.86 | 0.609 | 20.50 | 7.11 | 76.1 | 152 | 3.45 |
| | 0940 | 100 | 1.5 | 7.90 | 0.607 | 20.53 | 7.12 | 68.0 | 156 | 3.27 |
| | 0945 | 100 | 2.0 | 7.93 | 0.607 | 20.56 | 7.13 | 67.6 | 157 | 3.25 |
| | 0950 | 100 | 2.5 | 7.95 | 0.607 | 20.59 | 7.13 | 67.0 | 158 | 3.23 |
| ↓ | 0955 | 100 | 3.0 | 7.96 | 0.607 | 20.63 | 7.13 | 66.6 | 158 | 3.21 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Page 1 of _____

COC ID: LHAAP04 Baseline Nov 2019 | TURNAROUND TIME: Standard | RUSH: No

| PROJECT/CLIENT INFO | | | | LABORATORY | | | | OTHER INFO | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Facility Name | Longhorn AAP | | | Lab Name | ALS Laboratories | | | Email Invoice To | FedInvoices@aptim.com | | |
| Project Number | 501032 | | | Lab Contact | RJ Modashia | | | | | | |
| | LHAAP-50 | | | Email | RJ.Modashia@alsglobal.com | | | Email Report To | Susan.Huang@aptim.com | | |
| Address | 1203-B East Grand Avenue | | | Address | 10450 Stancliff Rd., Suite 210 | | | Mail Reports To | Susan Huang | | |
| | PMB 202 | | | | | | | Address | 4005 Port Chicago Highway, Suite 200 | | |
| City | Marshall | State | TX | City | Houston | State | TX | City | Concord | State | CA |
| Postal Code | 75670 | Country | USA | Postal Code | 77099 | Country | USA | Postal Code | 94520 | Country | USA |
| Phone Number | 713.243.7264 | | | Phone Number | 281.575.2279 or 281.530.5656 | | | | | | |
| Project Manager | Praveen Srivastav | | | | | | | Shipping Company | | | |

SAMPLE DETAILS / ANALYSIS REQUESTED

| Sample ID | Location | Start Depth | End Depth | Depth Unit | Field Matrix | Date | Time (24hr) | # Of Cont. | Sample Container and Preservatives / ANALYSIS | 1-125ml /Cool to 6 deg C: Perchlorate by SW6850 | 1-250ml /Cool to 6 deg C: Anions (sulfate/nitrate/Nitrite) by SW9056 | 1-250ml /Cool to 6 deg C: Alkalinity by SM2320B | 2-40ml Amber/H2SO4: TOC by SM5310C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 04WW02-191105 | LHAAP 04 | | | | WG | 11/5/19 | 0830 | 1 | | X | | | |
| 04WW02-191105-FB | LHAAP 04 | | | | WG | 11/5/19 | 0830 | 1 | | X | | | |
| LHSMW02-191105 | LHAAP 04 | | | | WG | 11/5/19 | 0955 | 1 | | X | | | |
| 04WW03-191106 | LHAAP 04 | | | | WG | 11/6/19 | 0820 | 1 | | X | | | |
| 04WW06-191106 | LHAAP 04 | | | | WG | 11/6/19 | 0910 | 1 | | X | | | |
| 04WW11-191106 | LHAAP 04 | | | | WG | 11/6/19 | 0955 | 1 | | X | | | |
| 04WW11-191106-MS | LHAAP 04 | | | | WG | 11/6/19 | 0955 | 1 | | X | | | |
| 04WW11-191106-MSD | LHAAP 04 | | | | WG | 11/6/19 | 0955 | 1 | | X | | | |
| 04WW05-191106 | LHAAP 04 | | | | WG | 11/6/19 | 1045 | 4 | | X | X | X | X |
| 04WW08-191106 | LHAAP 04 | | | | WG | 11/6/19 | 1135 | 1 | | X | | | |
| 04WW04-191106 | LHAAP 04 | | | | WG | 11/6/19 | 1220 | 1 | | X | | | |
| LHSMW01-191106 | LHAAP 04 | | | | WG | 11/6/19 | 1315 | 1 | | X | | | |
| Fire Station well-191106 | LHAAP 04 | | | | WG | 11/6/19 | 1335 | 1 | | X | | | |

| ADDITIONAL COMMENTS/SPECIAL INSTRUCTIONS | RELINQUISHED BY/AFFILIATION | DATE/TIME | ACCEPTED BY/AFFILIATION | DATE/TIME |
|---|---|---|---|---|
| | BHATT | 11/6/19 1400 | | |

APTIM

# Sample Collection Log



Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **04WW05**

Sampler(s): MBM

**FIELD CONDITIONS** O/C 46°F

**SAMPLING INFORMATION**

**Sample No:** 04WW05-191113 Post-Inj **DATE/TIME:** 11-13-19/ **Pump Inlet Depth:** 23.70'

**Sampling Method:** LF **Sample Purpose:** REG **Sample Matrix:** GW

| Appearance of Sample | Assoc. QC Samples | Decontamination Procedures |
|---|---|---|
| Transparent / Clear 47°F | N/A | N/A |

| Chain of Custody | COC Notes | Lab | Analyses | Container | Preserv |
|---|---|---|---|---|---|
| | | ALSHT | TOC in Water by SM5310C | 2 x 40 mL Amber | H2SO4 |

**WELL AND PURGING INFORMATION**

Measuring Point : Top of Casing

Purging Method/Equipment: LF/BP

Casing ID (in.): 2"

Purge Start Date/Time: 11-13-19/1352

Depth to Water - Initial (DTWi) (ft) 7.65

Purge End Date/Time: 11-13-19/1433

Depth to Well Bottom (ft) 29.55'

Discharge Tube Length: N/A

PID Reading: 0.0

Screen Interval (ft): 18.70' - 28.70'

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / N

Approximate depth of pump inlet*(ft): 23.70'

Pump Start Time: 1352

Ferrous Iron (Required Y or N) N mg/L

APTIM

# Sample Collection Log



Location ID: 04WW05 Sample No: 04WW05-1911/3 Post-Inj

| Date of Reading | Time of Reading | Purge Rate | Total Purge | DTW | Cond. | Temp. | pH | Turbidity | ORP | DO |
|---|---|---|---|---|---|---|---|---|---|---|
| | | (ml/min) | (L) | (ft) | (mS/cm) | (°C) | | (NTU) | (mV) | (mg/L) |
| | Purge Stabilization Criteria | - | - | Drawdown limit 0.3 ft | ±10% | | ±0.1 units | No criteria | | ± 10% or 0.2 mg/L |
| 11-13-19 | 1400 | 100 | 1.0 | 7.85 | 0.958 | 18.36 | 5.51 | 4.4 | -102.4 | 0.85 |
| 11-13-19 | 1405 | 100 | 1.5 | 7.85 | 0.991 | 19.03 | 5.60 | 4.4 | -116.4 | 0.64 |
| 11-13-19 | 1410 | 100 | 2.0 | 7.85 | 1.004 | 19.29 | 5.63 | 3.4 | -122.8 | 0.54 |
| 11-13-19 | 1415 | 100 | 2.5 | 7.85 | 1.015 | 19.30 | 5.64 | 3.0 | -126.7 | 0.51 |
| 11-13-19 | 1420 | 100 | 3.0 | 7.83 | 1.035 | 19.27 | 5.66 | 4.0 | -129.1 | 0.49 |
| 11-13-19 | 1425 | 100 | 3.5 | 7.83 | 1.036 | 19.25 | 5.68 | 3.6 | -133.1 | 0.47 |
| 11-13-19 | 1430 | 100 | 4.0 | 7.83 | 1.037 | 19.25 | 5.68 | 3.1 | -135.1 | 0.46 |
| 11-13-19 | Sample | | | | | | | | | |
| | | | | | | | | | | |

Logged by: _____ Date: 11-13-19

QC'd by: _____ Date: _____

APTIM

# Sample Collection Log



Project Name: **Longhorn AAP** Location ID: **04WW07**

Project No: **501032** Sampler(s): MSM

**FIELD CONDITIONS** O/C 46°F

**SAMPLING INFORMATION**

**Sample No:** 04WW07-1911 13 Post-Inj **DATE/TIME:** 11-13-19 **Pump Inlet Depth:** 17.98'

**Sampling Method:** LF **Sample Purpose:** REG **Sample Matrix:** GW

| Appearance of Sample | Assoc. QC Samples | Decontamination Procedures |
|---|---|---|
| Opaque / Cloudy 47°F | N/A | N/A |

| Chain of Custody | COC Notes | Lab | Analyses | Container | Preserv |
|---|---|---|---|---|---|
| | | ALSHT | TOC in Water by SM5310C | 2 x 40 mL Amber | H2SO4 |

**WELL AND PURGING INFORMATION**

Measuring Point : Top of Casing Purging Method/Equipment: LF/PP

Casing ID (in.): 4" Purge Start Date/Time: 11-13-19/1443

Depth to Water - Initial (DTWi) (ft) 8.85' Purge End Date/Time: 11-13-19/1524

Depth to Well Bottom (ft) 22.61' Discharge Tube Length: N4 PID Reading: 0.6

Screen Interval (ft): 12.98'-22.98' Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Approximate depth of pump inlet*(ft): 17.98' Pump Start Time: 1443

Ferrous Iron (Required Y or N) N mg/L

APTIM

# Sample Collection Log



| Location ID: 04WW07 | | Sample No: 04WW07-1911[13]Post-Inj | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date of Reading | Time of Reading | Purge Rate | Total Purge | DTW | Cond. | Temp. | pH | Turbidity | ORP | DO |
| | | (ml/min) | (L) | (ft) | (mS/cm) | (°C) | | (NTU) | (mV) | (mg/L) |
| | Purge Stabilization Criteria | - | - | Drawdown limit 0.3 ft | ±10% | | ±0.1 units | No criteria | | ± 10% or 0.2 mg/L |
| 11-13-19 | 1480 | 100 | 1.0 | 9.15 | 6.440 | 20.07 | 5.98 | 115.4 | -303.8 | 0.25 |
| 11-13-19 | 1485 | 100 | 1.5 | 9.20 | 6.593 | 19.35 | 6.06 | 122.3 | -340.1 | 0.11 |
| 11-13-19 | 1500 | 100 | 2.0 | 9.26 | 6.562 | 19.10 | 6.04 | 172.1 | -340.3 | 0.10 |
| 11-13-19 | 1505 | 100 | 2.5 | 9.26 | 6.479 | 18.76 | 6.02 | 115.4 | -338.3 | 0.09 |
| 11-13-19 | 1510 | 100 | 3.0 | 9.26 | 6.409 | 18.79 | 5.98 | 133.1 | -336.3 | 0.08 |
| 11-13-19 | 1515 | 100 | 3.5 | 9.26 | 6.400 | 18.77 | 5.97 | 131.6 | -333.1 | 0.08 |
| 11-13-19 | 1520 | 100 | 4.0 | 9.26 | 6.399 | 18.75 | 5.96 | 139.1 | -333.1 | 0.08 |
| | | Sample | | | | | | | | |
| | | | | | | | | | | |

Logged by: _____ Date: 11-13-19

QC'd by: _____ Date: _____

APTIM

# Sample Collection Log



Project Name: **Longhorn AAP** Location ID: **04WW09**

Project No: **501032** Sampler(s): MSM

**FIELD CONDITIONS** O/C 46°F

**SAMPLING INFORMATION**

**Sample No:** 04WW09-1911/3 Post-Inj **DATE/TIME:** 11-13-19/1335 **Pump Inlet Depth:** 18.14'

**Sampling Method:** LF **Sample Purpose:** REG **Sample Matrix:** GW

| Appearance of Sample | Assoc. QC Samples | Decontamination Procedures |
|---|---|---|
| Clear / Heavy Cloud 47°F | NA | NA |

| Chain of Custody | COC Notes | Lab | Analyses | Container | Preserv |
|---|---|---|---|---|---|
| | | ALSHT | TOC in Water by SM5310C | 2 x 40 mL Amber | H2SO4 |

**WELL AND PURGING INFORMATION**

Measuring Point : Top of Casing Purging Method/Equipment: LF/PP

Casing ID (in.): 4" Purge Start Date/Time: 11-13-19 / 1300

Depth to Water - Initial (DTWi) (ft) 3.81' Purge End Date/Time: 11-13-19 / 1338

Depth to Well Bottom (ft) 23.42' Discharge Tube Length: NA PID Reading: 0.0

Screen Interval (ft): 13.14'-23.14' Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Approximate depth of pump inlet*(ft): 18.14' Pump Start Time: 1300

Ferrous Iron (Required Y or N) N mg/L

APTIM

# Sample Collection Log



**Location ID: 04WW09** **Sample No: 04WW09-1911/3 Post-Inj**

| Date of Reading | Time of Reading | Purge Rate | Total Purge | DTW | Cond. | Temp. | pH | Turbidity | ORP | DO |
|---|---|---|---|---|---|---|---|---|---|---|
| | | (ml/min) | (L) | (ft) | (mS/cm) | (°C) | | (NTU) | (mV) | (mg/L) |
| | Purge Stabilization Criteria | - | - | Drawdown limit 0.3 ft | ±10% | | ±0.1 units | No criteria | | ± 10% or 0.2 mg/L |
| 11-13-19 | 1305 | 200 | 1 | 4.10 | 1.963 | 18.29 | 4.25 | 776 | -0.2 | 1.97 |
| 11-13-19 | 1310 | 200 | 2 | 4.10 | 1.999 | 18.03 | 4.32 | 721.1 | -13.0 | 0.95 |
| 11-13-19 | 1315 | 200 | 3 | 4.10 | 1.995 | 17.58 | 4.34 | 911.5 | -16.3 | 0.67 |
| 11-13-19 | 1320 | 200 | 4 | 4.10 | 1.991 | 17.57 | 4.35 | 986.5 | -18.2 | 0.49 |
| 11-13-19 | 1325 | 200 | 5 | 4.10 | 1.984 | 17.16 | 4.35 | 989.3 | -20.8 | 0.35 |
| 11-13-19 | 1330 | 200 | 6 | 4.10 | 1.980 | 17.16 | 4.36 | 991.1 | -25.4 | 0.34 |
| 11-13-19 | 1335 | 200 | 7 | 4.10 | 1.981 | 17.17 | 4.36 | 996.3 | -27.5 | 0.33 |
| 11-13-19 | Sample | | | | | | | | | |
| | | | | | | | | | | |

Logged by: _____ Date: 11-13-19

QC'd by: _____ Date: _____

APTIM

# Sample Collection Log



Project Name: **Longhorn AAP** Location ID: **04WW10**

Project No: **501032** Sampler(s): MBM

**FIELD CONDITIONS** O/C 46°F

**SAMPLING INFORMATION**

**Sample No:** 04WW10-1911 B Post-Inj **DATE/TIME:** 11-13-19 **Pump Inlet Depth:** 17.27'

**Sampling Method:** LF **Sample Purpose:** REG **Sample Matrix:** GW

| Appearance of Sample | Assoc. QC Samples | Decontamination Procedures |
|---|---|---|
| Orange / Slightly Cloudy 47°F | NA | NA |

| Chain of Custody | COC Notes | Lab | Analyses | Container | Preserv |
|---|---|---|---|---|---|
| | | ALSHT | TOC in Water by SM5310C | 2 x 40 mL Amber | H2SO4 |

**WELL AND PURGING INFORMATION**

Measuring Point : Top of Casing Purging Method/Equipment: LF/AP

Casing ID (in.): 4" Purge Start Date/Time: 11-13-19 / 1545

Depth to Water - Initial (DTWi) (ft) 4.75 Purge End Date/Time: 11-13-19 / 1627

Depth to Well Bottom (ft) 22.46 Discharge Tube Length: NA PID Reading: 0.0

Screen Interval (ft): 12.27' - 22.27' Discharge Tube Diameter: 1/4 Immersible Layer: Y / N

Approximate depth of pump inlet*(ft): 17.27 Pump Start Time: 1545

Ferrous Iron (Required Y or N) N mg/L

APTIM

# Sample Collection Log



Location ID: 04WW10 Sample No: 04WW10-1911 15 Post-Inj

| Date of Reading | Time of Reading | Purge Rate | Total Purge | DTW | Cond. | Temp. | pH | Turbidity | ORP | DO |
|---|---|---|---|---|---|---|---|---|---|---|
| | | (ml/min) | (L) | (ft) | (mS/cm) | (°C) | | (NTU) | (mV) | (mg/L) |
| | Purge Stabilization Criteria | - | - | Drawdown limit 0.3 ft | ±10% | | ±0.1 units | No criteria | | ± 10% or 0.2 mg/L |
| 11-13-19 | 1550 | 100 | 1.0 | 5.21 | 1.858 | 17.36 | 5.72 | 51.7 | -288.4 | 0.20 |
| 11-13-19 | 1555 | 100 | 1.5 | 5.28 | 1.849 | 17.18 | 5.66 | 34.9 | -290.7 | 0.18 |
| 11-13-19 | 1600 | 100 | 2.0 | 5.33 | 1.820 | 16.91 | 5.64 | 35.9 | -291.4 | 0.12 |
| 11-13-19 | 1605 | 100 | 2.5 | 5.39 | 1.796 | 16.60 | 5.64 | 31.7 | -292.1 | 0.10 |
| 11-13-19 | 1610 | 100 | 3.0 | 5.44 | 1.786 | 16.48 | 5.63 | 32.4 | -292.1 | 0.09 |
| 11-13-19 | 1615 | 100 | 3.5 | 5.48 | 1.779 | 16.48 | 5.61 | 31.8 | -291.1 | 0.09 |
| 11-13-19 | 1620 | 100 | 4.0 | 5.50 | 1.776 | 16.46 | 5.61 | 35.8 | -291.8 | 0.08 |
| 11-13-19 | | Sample | | | | | | | | |
| | | | | | | | | | | |

Logged by: _____ Date: 11-13-19

QC'd by: _____ Date: _____

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Final • Rev 0 • April 2021

# Appendix C

# Site Photographs

# SITE PHOTOGRAPHS

| Photo No. | Date | Task and Description |
|---|---|---|
| 1 | 10/28/19 | Injection Trailer and Mobile 4,000-gallon Tank at LHAAP-04 |
| 2 | 10/28/19 | Injection Hoses Connected to 04DPT01 and 04DPT05 |
| 3 | 10/28/19 | DPT Rig Setting Up to Push 04DPT17 North of Ditch and Culvert |
| 4 | 10/29/19 | Grouting Completed DPT Locations |



*PHOTO 1: Injection Trailer and Mobile 4,000-gallon Tank at LHAAP-04*
*DATE: October 28, 2019*



*PHOTO 2: Injection Hoses Connected to 04DPT01 and 04DPT05*
*DATE: October 28, 2019*



*PHOTO 3: DPT Rig Setting Up to Push 04DPT17 North of Ditch and Culvert*
*DATE: October 28, 2019*



*PHOTO 4: Grouting Completed DPT Locations*
*DATE: October 29, 2019*

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Final • Rev 0 • April 2021

# Appendix D

# Laboratory Analytical Reports

**(Provided electronically on CD and Portal)**

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887
www.alsglobal.com

# WorkOrder: HS19011046

**LHAAP-04**

**Aptim Environmental & Infrastucture, Inc.**

Susan Huang
2500 City West Blvd., Suite 1700
Houston TX 77042

**29-Jan-2019**



RIGHT SOLUTIONS | RIGHT PARTNER

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

January 29, 2019

Susan Huang
Aptim Environmental & Infrastucture, Inc.
2500 City West Blvd., Suite 1700
Houston, TX 77042

Work Order: **HS19011046**

Laboratory Results for: **LHAAP-04**

Dear Susan,

ALS Environmental received 7 sample(s) on Jan 23, 2019 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

**Generated By: JUMOKE.LAWAL**
RJ Modashia
Project Manager

**ALS Houston, US** Date: 29-Jan-19

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** LHAAP-04
**Work Order:** HS19011046

## SAMPLE SUMMARY

| Lab Samp ID | Client Sample ID | Matrix | TagNo | Collection Date | Date Received | Hold |
|---|---|---|---|---|---|---|
| HS19011046-01 | 04WW11_190122 | Groundwater | | 22-Jan-2019 08:20 | 23-Jan-2019 08:00 | ☐ |
| HS19011046-02 | 04WW09_190122 | Groundwater | | 22-Jan-2019 09:05 | 23-Jan-2019 08:00 | ☐ |
| HS19011046-03 | 04WW09_190122-FD | Groundwater | | 22-Jan-2019 09:05 | 23-Jan-2019 08:00 | ☐ |
| HS19011046-04 | 04WW10_190122 | Groundwater | | 22-Jan-2019 09:55 | 23-Jan-2019 08:00 | ☐ |
| HS19011046-05 | LHSMW01_190122 | Groundwater | | 22-Jan-2019 10:50 | 23-Jan-2019 08:00 | ☐ |
| HS19011046-06 | 04WW07_190122 | Groundwater | | 22-Jan-2019 11:40 | 23-Jan-2019 08:00 | ☐ |
| HS19011046-07 | 04WW01_190122 | Groundwater | | 22-Jan-2019 12:30 | 23-Jan-2019 08:00 | ☐ |



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 29-Jan-19

**Client:** Aptim Environmental & Infrastucture, Inc. **CASE NARRATIVE**
**Project:** LHAAP-04
**Work Order:**

**Work Order Comments**

- The analysis for Perchlorate was subcontracted to ALS Salt Lake City, UT. Final report attached.



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 29-Jan-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-04
Sample ID: 04WW11_190122
Collection Date: 22-Jan-2019 08:20

**ANALYTICAL REPORT**
WorkOrder:HS19011046
Lab ID:HS19011046-01
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)** | | **Method:NA** | | | | | | Analyst: SUB |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 29-Jan-2019 15:59 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 29-Jan-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-04
Sample ID: 04WW09_190122
Collection Date: 22-Jan-2019 09:05

**ANALYTICAL REPORT**
WorkOrder:HS19011046
Lab ID:HS19011046-02
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)** | | **Method:NA** | | | | | | Analyst: SUB |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 29-Jan-2019 15:59 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 29-Jan-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-04
Sample ID: 04WW09_190122-FD
Collection Date: 22-Jan-2019 09:05

**ANALYTICAL REPORT**
WorkOrder:HS19011046
Lab ID:HS19011046-03
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)** | | **Method:NA** | | | | | | Analyst: SUB |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 29-Jan-2019 15:59 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 29-Jan-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-04
Sample ID: 04WW10_190122
Collection Date: 22-Jan-2019 09:55

**ANALYTICAL REPORT**
WorkOrder:HS19011046
Lab ID:HS19011046-04
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)** | | **Method:NA** | | | | | | Analyst: SUB |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 29-Jan-2019 15:59 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 29-Jan-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-04
Sample ID: LHSMW01_190122
Collection Date: 22-Jan-2019 10:50

**ANALYTICAL REPORT**
WorkOrder:HS19011046
Lab ID:HS19011046-05
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)** | | **Method:NA** | | | | | | Analyst: SUB |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 29-Jan-2019 15:59 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 29-Jan-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-04
Sample ID: 04WW07_190122
Collection Date: 22-Jan-2019 11:40

**ANALYTICAL REPORT**
WorkOrder:HS19011046
Lab ID:HS19011046-06
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)** | | **Method:NA** | | | | | | Analyst: SUB |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 29-Jan-2019 15:59 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 29-Jan-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-04
Sample ID: 04WW01_190122
Collection Date: 22-Jan-2019 12:30

**ANALYTICAL REPORT**
WorkOrder:HS19011046
Lab ID:HS19011046-07
Matrix:Groundwater

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)** | | **Method:NA** | | | | | | Analyst: SUB |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 29-Jan-2019 15:59 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.



RIGHT SOLUTIONS | RIGHT PARTNER

**ALS Houston, US** Date: 29-Jan-19

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** LHAAP-04
**WorkOrder:** HS19011046

## DATES REPORT

| Sample ID | Client Samp ID | Collection Date | TCLP Date | Prep Date | Analysis Date | DF |
|---|---|---|---|---|---|---|
| **Batch ID** R331887 | **Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850) | **Matrix:** Groundwater | | | | |
| HS19011046-01 | 04WW11_190122 | 22 Jan 2019 08:20 | | | 29 Jan 2019 15:59 | 1 |
| HS19011046-02 | 04WW09_190122 | 22 Jan 2019 09:05 | | | 29 Jan 2019 15:59 | 1 |
| HS19011046-03 | 04WW09_190122-FD | 22 Jan 2019 09:05 | | | 29 Jan 2019 15:59 | 1 |
| HS19011046-04 | 04WW10_190122 | 22 Jan 2019 09:55 | | | 29 Jan 2019 15:59 | 1 |
| HS19011046-05 | LHSMW01_190122 | 22 Jan 2019 10:50 | | | 29 Jan 2019 15:59 | 1 |
| HS19011046-06 | 04WW07_190122 | 22 Jan 2019 11:40 | | | 29 Jan 2019 15:59 | 1 |
| HS19011046-07 | 04WW01_190122 | 22 Jan 2019 12:30 | | | 29 Jan 2019 15:59 | 1 |



RIGHT SOLUTIONS | RIGHT PARTNER

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** LHAAP-04
**WorkOrder:** **HS19011046**

**QUALIFIERS, ACRONYMS, UNITS**

| Qualifier | Description |
|---|---|
| * | Value exceeds Regulatory Limit |
| a | Not accredited |
| B | Analyte detected in the associated Method Blank above the Reporting Limit |
| E | Value above quantitation range |
| H | Analyzed outside of Holding Time |
| J | Analyte detected below quantitation limit |
| M | Manually integrated, see raw data for justification |
| n | Not offered for accreditation |
| ND | Not Detected at the Reporting Limit |
| O | Sample amount is > 4 times amount spiked |
| P | Dual Column results percent difference > 40% |
| R | RPD above laboratory control limit |
| S | Spike Recovery outside laboratory control limits |
| U | Analyzed but not detected above the MDL/SDL |

| Acronym | Description |
|---|---|
| DCS | Detectability Check Study |
| DUP | Method Duplicate |
| LCS | Laboratory Control Sample |
| LCSD | Laboratory Control Sample Duplicate |
| MBLK | Method Blank |
| MDL | Method Detection Limit |
| MQL | Method Quantitation Limit |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| PDS | Post Digestion Spike |
| PQL | Practical Quantitaion Limit |
| SD | Serial Dilution |
| SDL | Sample Detection Limit |
| TRRP | Texas Risk Reduction Program |



RIGHT SOLUTIONS | RIGHT PARTNER

## CERTIFICATIONS,ACCREDITATIONS & LICENSES

| Agency | Number | Expire Date |
|---|---|---|
| Arkansas | 88-0356 | 27-Mar-2019 |
| Texas | T10470231-18-21 | 30-Apr-2019 |
| North Dakota | R193 2018-2019 | 30-Apr-2019 |
| Illinois | 004438 | 29-Jun-2019 |
| Louisiana | 03087 | 30-Jun-2019 |
| Dept of Defense | ANAB L2231 | 20-Dec-2021 |
| Kentucky | 123043 - 2018 | 30-Apr-2019 |
| Kansas | E-10352 2018-2019 | 31-Jul-2019 |
| Oklahoma | 2018-156 | 31-Aug-2019 |

**ALS Houston, US** Date: 29-Jan-19

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** LHAAP-04
**Work Order:** HS19011046

**SAMPLE TRACKING**

| Lab Samp ID | Client Sample ID | Action | Date | Person | New Location |
|---|---|---|---|---|---|
| HS19011046-01 | 04WW11_190122 | Login | 1/22/2019 8:24:25 PM | JRM | Sub |
| HS19011046-02 | 04WW09_190122 | Login | 1/22/2019 8:24:25 PM | JRM | Sub |
| HS19011046-03 | 04WW09_190122-FD | Login | 1/22/2019 8:24:25 PM | JRM | Sub |
| HS19011046-04 | 04WW10_190122 | Login | 1/22/2019 8:24:25 PM | JRM | Sub |
| HS19011046-05 | LHSMW01_190122 | Login | 1/22/2019 8:24:25 PM | JRM | Sub |
| HS19011046-06 | 04WW07_190122 | Login | 1/22/2019 8:24:25 PM | JRM | Sub |
| HS19011046-07 | 04WW01_190122 | Login | 1/22/2019 8:24:25 PM | JRM | Sub |



RIGHT SOLUTIONS | RIGHT PARTNER

APTIM

COC ID: LHAAP04-JAN2019-ALSsaltLake-1901-22 | TURNAROUND TIME: 5 BUSINESS DAYS | RUSH: YES | Page 1 of 1

| PROJECT/CLIENT INFO | | | | LABORATORY | | | | OTHER INFO | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Facility Name | Longhorn AAP | | | Lab Name | ALS Laboratories | | | Email Invoice To | FedInvoices@aptim.com | | |
| Project Number | 501032 | | | Lab Contact | RJ Modashia | | | | | | |
| | LHAAP-04 | | | Email | RJ.Modashia@alsglobal.com | | | Email Report To | Susan.Huang@aptim.com | | |
| Address | 1203-B East Grand Avenue | | | Address | 960 W. LeVoy Drive | | | Mail Reports To | Susan Huang | | |
| | PMB 202 | | | | | | | Address | 4005 Port Chicago Highway, Suite 200 | | |
| City | Marshall | State | TX | City | Salt Lake | State | UTAH | City | Concord | State | CA |
| Postal Code | 75670 | Country | USA | Postal Code | 84123 | Country | USA | Postal Code | 94520 | Country | USA |
| Phone Number | 713.243.7264 | | | Phone Number | 281.575.2279 or 281.530.5656 | | | | | | |
| Project Manager | Praveen Srivastav | | | | | | | Shipping Company | | | |

SAMPLE DETAILS

| Sample ID | Location | Start Depth | End Depth | Depth Unit | Field Matrix | Date | Time (24hr) | # Of Cont. | ANALYSIS: Sample Container and Preservative: 1x125 ml HDPE, Ice — Perchlorate in Water by 6850 |
|---|---|---|---|---|---|---|---|---|---|
| 04mw11-190122 | LHAAP 04 | 5.13 | 5.36 | | WG | 1/22/19 | 0820 | 1 | X |
| 04mw04-190122 | LHAAP 04 | 6.50 | 6.74 | | WG | 1/22/19 | 0905 | 1 | X |
| 04mw04-190122-FD | LHAAP 04 | 6.50 | 6.74 | | WG | 1/22/19 | 0905 | 1 | X |
| 04mw10-190122 | LHAAP 04 | 6.79 | 7.01 | | WG | 1/22/19 | 0955 | 1 | X |
| LHSmw01-190122 | LHAAP 04 | 4.45 | 4.63 | | WG | 1/22/19 | 1050 | 1 | X |
| LHSmw01-190122-MS | LHAAP 04 | 4.45 | 4.63 | | WG | 1/22/19 | 1050 | 1 | X |
| LHSmw01-190122-MSD | LHAAP 04 | 4.45 | 4.63 | | WG | 1/22/19 | 1050 | 1 | X |
| 04mw07-190122 | LHAAP 04 | 6.63 | 6.84 | | WG | 1/22/19 | 1140 | 1 | X |
| 04mw01-190122 | LHAAP 04 | 7.33 | 7.56 | | WG | 1/22/19 | 1230 | 1 | X |

ANALYSIS REQUESTED

**HS19011046**

Aptim Environmental & Infrastucture. Inc.

LHAAP-04

| ADDITIONAL COMMENTS/SPECIAL INSTRUCTIONS | RELINQUISHED BY/AFFILIATION | DATE/TIME | ACCEPTED BY/AFFILIATION | DATE/TIME |
|---|---|---|---|---|
| | Sam Beesinger/BHATT | 1/22/19 1400 | | |



RIGHT SOLUTIONS | RIGHT PARTNER

# Case Narrative

**Method:** 6850
**Analysis:** Perchlorate
**Analysis SOP:** LC-MS-CLO4
**ALS WO ID(s):** 1902253; 1902392

**Client:** ALS Laboratories (Houston, TX)
**Matrix:** Water
**ELMS Batch (HBN):** 2212 (231797)

**General Set Information:** There were fourteen field samples in this Work Order. The samples were analyzed for perchlorate.

**Method Summary:** Each sample was prepared as noted below and analyzed using an Agilent 1100 LC/MSD system in select ion monitoring (SIM) mode at m/z 83 and 85, which corresponds to the loss of one oxygen atom from the perchlorate molecule. ChemStation software was used for instrument control and data analysis. The ion ratio of m/z 83 to 85 was used to positively identify the response peak as perchlorate. Quantitation was performed using the m/z 83 peak area. An internal standard (ISTD) of $^{18}O$ labeled perchlorate was added to each sample to establish the perchlorate peak retention time and used in quantitation.

**Sample Preparation:** A 10.0mL aliquot of each sample was transferred into a 15-mL centrifuge tube. 50µL of an $^{18}O$ labeled perchlorate solution was added to each sample as an internal standard. The samples were then capped, vortexed, and filtered into autosampler vial using Phenex PES membrane 0.45µm Syringe filters.

**Holding Times:** Holding times were met for all analyses.

**Dilutions:** Field samples 1902253007 and 1902392008 were analyzed and reported from 1:10 dilutions. Field samples 1902392002/03 were analyzed and reported from 1:100 dilutions. Field sample 1902392004 was analyzed and reported from a 1:1,000 dilution. The reporting limits have been adjusted accordingly.

**Method QC data:** The method blank (LMB 637599) was less than 1/2 the CRDL. The recovery for the LCS (637600) was within acceptable parameters.



RIGHT SOLUTIONS | RIGHT PARTNER

**MS/MSD Analysis:** MS/MSD was performed on samples 1902392006/07 (Client ID's: LHSMW01-190122). 5.0µl of Working Standard Solution Horizon ID 43701 was added to 10.0mL of sample preparation. The spike target was 5.µg/L. The MS/MSD percent recoveries and relative percent difference (RPD) were within the performance limits.

**Instrument QC:** Instrument initial and continuing calibrations were performed in accordance with published procedures.

**NC/CAR(s):** NA

**Sample Calculation:** Samples were reported in µg/L. Results were calculated in µg/L by the equation (A)x(B),

where: A = Analyte concentration from the standard curve (µg/L)
B = Dilution performed at time of analysis

**Miscellaneous Comments:** These samples were analyzed in accordance with the requirements found in the DOD QSM Version 5.1.1. The Reporting Limit Verification Standard (RLVS – 637597) is reported from the analysis of the Laboratory Control Sample (LCS – 637600) at a level 4.0µg/L. . Samples 1902253007 and 1902392002 failed the 50-150% method requirement for ISTD recovery. These samples were re-prepped, re-analyzed and reported.

Thomas Bosch January 29, 2019
Analyst Date



RIGHT SOLUTIONS | RIGHT PARTNER

# ANALYTICAL REPORT

Report Date: January 29, 2019

RJ Modashia
ALS Environmental (Houston)
10450 Stancliff Road
Suite 210
Houston, TX 77099

Phone: 281 530-5656

E-mail: RJ.Modashia@ALSGlobal.com

Workorder: **34-1902392**
Project ID: HS19011046
Purchase Order: HS19011046
Project Manager Kevin W. Griffiths

| Client Sample ID | Lab ID | Collect Date | Receive Date | Sampling Site |
|---|---|---|---|---|
| 04WW11-190122 | 1902392001 | 01/22/19 | 01/23/19 | LHAAP-04 |
| 04WW09-190122 | 1902392002 | 01/22/19 | 01/23/19 | LHAAP-04 |
| 04WW09-190122-FD | 1902392003 | 01/22/19 | 01/23/19 | LHAAP-04 |
| 04WW10-190122 | 1902392004 | 01/22/19 | 01/23/19 | LHAAP-04 |
| LHSMW01-190122 | 1902392005 | 01/22/19 | 01/23/19 | LHAAP-04 |
| 04WW07-190122 | 1902392008 | 01/22/19 | 01/23/19 | LHAAP-04 |
| 04WW01-190122 | 1902392009 | 01/22/19 | 01/23/19 | LHAAP-04 |

| Client QC ID * | Lab ID | Collect Date | Receive Date | Sampling Site |
|---|---|---|---|---|
| LHSMW01-190122-MS | 1902392006 | 01/22/19 | 01/23/19 | LHAAP-04 |
| LHSMW01-190122-MSD | 1902392007 | 01/22/19 | 01/23/19 | LHAAP-04 |

***Client QC is reported as part of the Quality Control results report, if requested.**

# ANALYTICAL REPORT

**Workorder:** 34-1902392
**Client:** ALS Environmental (Houston)
**Project Manager:** Kevin W. Griffiths

## Analytical Results

Sample ID: **04WW11-190122** | Sampling Site: LHAAP-04 | Collected: 01/22/2019
Lab ID: 1902392001 | Media: 125 mL Nalgene | Received: 01/23/2019
Matrix: Water | Sampling Parameter: NA

**Analysis Method - EPA 6850, DoD QSM**

**Preparation:** Not Applicable
**Analysis:** EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
**Batch:** ELMS/2212 (HBN: 231797) | **Percent Solid:** NA
**Analyzed:** 01/28/2019 11:39 | **Report Basis:** Wet

| Analyte | Result (ug/L) | DL (ug/L) | LOD (ug/L) | LOQ (ug/L) | Dilution | Qual |
|---|---|---|---|---|---|---|
| Perchlorate | ND | 1.0 | 2.0 | 4.0 | 1 | U |

Sample ID: **04WW09-190122** | Sampling Site: LHAAP-04 | Collected: 01/22/2019
Lab ID: 1902392002 | Media: 125 mL Nalgene | Received: 01/23/2019
Matrix: Water | Sampling Parameter: NA

**Analysis Method - EPA 6850, DoD QSM**

**Preparation:** Not Applicable
**Analysis:** EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
**Batch:** ELMS/2212 (HBN: 231797) | **Percent Solid:** NA
**Analyzed:** 01/28/2019 14:11 | **Report Basis:** Wet

| Analyte | Result (ug/L) | DL (ug/L) | LOD (ug/L) | LOQ (ug/L) | Dilution | Qual |
|---|---|---|---|---|---|---|
| Perchlorate | **2100** | 100 | 200 | 400 | 100 | |

Sample ID: **04WW09-190122-FD** | Sampling Site: LHAAP-04 | Collected: 01/22/2019
Lab ID: 1902392003 | Media: 125 mL Nalgene | Received: 01/23/2019
Matrix: Water | Sampling Parameter: NA

**Analysis Method - EPA 6850, DoD QSM**

**Preparation:** Not Applicable
**Analysis:** EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
**Batch:** ELMS/2212 (HBN: 231797) | **Percent Solid:** NA
**Analyzed:** 01/28/2019 12:07 | **Report Basis:** Wet

| Analyte | Result (ug/L) | DL (ug/L) | LOD (ug/L) | LOQ (ug/L) | Dilution | Qual |
|---|---|---|---|---|---|---|
| Perchlorate | **2300** | 100 | 200 | 400 | 100 | |

Sample ID: **04WW10-190122** | Sampling Site: LHAAP-04 | Collected: 01/22/2019
Lab ID: 1902392004 | Media: 125 mL Nalgene | Received: 01/23/2019
Matrix: Water | Sampling Parameter: NA

**Analysis Method - EPA 6850, DoD QSM**

**Preparation:** Not Applicable
**Analysis:** EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
**Batch:** ELMS/2212 (HBN: 231797) | **Percent Solid:** NA
**Analyzed:** 01/28/2019 14:25 | **Report Basis:** Wet

| Analyte | Result (ug/L) | DL (ug/L) | LOD (ug/L) | LOQ (ug/L) | Dilution | Qual |
|---|---|---|---|---|---|---|
| Perchlorate | **10000** | 1000 | 2000 | 4000 | 1000 | |

# ANALYTICAL REPORT

**Workorder:** 34-1902392
**Client:** ALS Environmental (Houston)
**Project Manager:** Kevin W. Griffiths

## Analytical Results

Sample ID: **LHSMW01-190122** | Sampling Site: LHAAP-04 | Collected: 01/22/2019
Lab ID: 1902392005 | Media: 125 mL Nalgene | Received: 01/23/2019
Matrix: Water | Sampling Parameter: NA

**Analysis Method - EPA 6850, DoD QSM**

**Preparation:** Not Applicable
**Analysis:** EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
**Batch:** ELMS/2212 (HBN: 231797) | **Percent Solid:** NA
**Analyzed:** 01/28/2019 12:49 | **Report Basis:** Wet

| Analyte | Result (ug/L) | DL (ug/L) | LOD (ug/L) | LOQ (ug/L) | Dilution | Qual |
|---|---|---|---|---|---|---|
| Perchlorate | ND | 1.0 | 2.0 | 4.0 | 1 | U |

Sample ID: **04WW07-190122** | Sampling Site: LHAAP-04 | Collected: 01/22/2019
Lab ID: 1902392008 | Media: 125 mL Nalgene | Received: 01/23/2019
Matrix: Water | Sampling Parameter: NA

**Analysis Method - EPA 6850, DoD QSM**

**Preparation:** Not Applicable
**Analysis:** EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
**Batch:** ELMS/2212 (HBN: 231797) | **Percent Solid:** NA
**Analyzed:** 01/28/2019 13:30 | **Report Basis:** Wet

| Analyte | Result (ug/L) | DL (ug/L) | LOD (ug/L) | LOQ (ug/L) | Dilution | Qual |
|---|---|---|---|---|---|---|
| Perchlorate | **110** | 10 | 20 | 40 | 10 | |

Sample ID: **04WW01-190122** | Sampling Site: LHAAP-04 | Collected: 01/22/2019
Lab ID: 1902392009 | Media: 125 mL Nalgene | Received: 01/23/2019
Matrix: Water | Sampling Parameter: NA

**Analysis Method - EPA 6850, DoD QSM**

**Preparation:** Not Applicable
**Analysis:** EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
**Batch:** ELMS/2212 (HBN: 231797) | **Percent Solid:** NA
**Analyzed:** 01/28/2019 13:44 | **Report Basis:** Wet

| Analyte | Result (ug/L) | DL (ug/L) | LOD (ug/L) | LOQ (ug/L) | Dilution | Qual |
|---|---|---|---|---|---|---|
| Perchlorate | ND | 1.0 | 2.0 | 4.0 | 1 | U |

## Comments

**Quality Control:** **EPA 6850, DoD QSM - (HBN: 231797)**

Field samples 1902253007 and 1902392008 were analyzed and reported from 1:10 dilutions. Field samples 1902392002/03 were analyzed and reported from 1:100 dilutions. Field sample 1902392004 was analyzed and reported from a 1:1,000 dilution. The reporting limits have been adjusted accordingly.

## Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

| Method | Analyst | Peer Review |
|---|---|---|
| **EPA 6850, DoD QSM** | /S/ Thomas Bosch<br>01/29/2019 08:13 | /S/ Stephen Brose<br>01/29/2019 13:52 |

# ANALYTICAL REPORT

**Workorder:** 34-1902392
**Client:** ALS Environmental (Houston)
**Project Manager:** Kevin W. Griffiths

## Laboratory Contact Information

ALS Environmental
960 W Levoy Drive
Salt Lake City, Utah 84123

Phone: (801) 266-7700
Email: alslt.lab@ALSGlobal.com
Web: www.alsslc.com

## General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of ALS.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

All quality control samples processed with the samples in this report yielded acceptable results unless otherwise noted.

ALS is accredited for specific fields of testing (scopes) in the following testing sectors. The quality system implemented at ALS conforms to accreditation requirements and is applied to all analytical testing performed by ALS. The following table lists testing sector, accreditation body, accreditation number and website. Please contact these accrediting bodies or your ALS project manager for the current scope of accreditation that applies to your analytical testing.

| Testing Sector | Accreditation Body | Certificate Number | Website |
|---|---|---|---|
| Environmental | PJLA (DoD ELAP) | | |
| | Utah (TNI) | | |
| | Nevada | | |
| | Oklahoma | | |
| | Iowa | | |

# ANALYTICAL REPORT

**Workorder:** 34-1902392
**Client:** ALS Environmental (Houston)
**Project Manager:** Kevin W. Griffiths

## Result Symbol Definitions

MDL = Method Detection Limit, a statistical estimate of method/media/instrument sensitivity.
RL = Reporting Limit, a verified value of method/media/instrument sensitivity.
CRDL = Contract Required Detection Limit
Reg. Limit = Regulatory Limit.
ND = Not Detected, testing result not detected above the MDL or RL.
< This testing result is less than the numerical value.
** No result could be reported, see sample comments for details.

## Qualifier Symbol Definitions

U = Qualifier indicates that the analyte was not detected above the MDL.
J = Qualifier Indicates that the analyte value is between the MDL and the RL. It is also used to indicate an estimated value for tentatively identified compounds in mass spectrometry where a 1:1 response is assumed.
B = Qualifier indicates that the analyte was detected in the blank.
E = Qualifier indicates that the analyte result exceeds calibration range.
P = Qualifier indicates that the RPD between the two columns is greater than 40%.

# Quality Control Sample Batch Report

## Analysis Information

**Workorder:** 1902392

| | | | | | |
|---|---|---|---|---|---|
| **Limits:** | Client SOW/Contract Specified | **Preparation:** | NA | **Analysis:** | EPA 6850, DoD QSM |
| **Basis:** | DoD QSM | **Batch:** | NA | **Batch:** | ELMS/2212 (HBN: 231797) |
| | | **Prepared By:** | NA | **Analyzed By:** | Thomas Bosch |

### Blank

**LMB:** 637599
**Analyzed:** 01/28/2019 09:49
**Units:** ug/L

| Analyte | Result | MDL | RL |
|---|---|---|---|
| Perchlorate | ND | 1 | 2.00 |

### Laboratory Control Sample

**LCS:** 637600
**Analyzed:** 01/28/2019 09:21
**Dilution:** 1
**Units:** ug/L

| Analyte | Result | Target | % Rec | QC Limits | |
|---|---|---|---|---|---|
| Perchlorate | 3.81 | 4.00 | 95.3 | 78.8 | 123.8 |

### Matrix Spike - Matrix Spike Duplicate

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sample:** | 1902392005 | **MS:** | 1902392006 | | | | **MSD:** | 1902392007 | | | |
| **Analyzed:** | 01/28/2019 12:49 | **Analyzed:** | 01/28/2019 14:39 | | | | **Analyzed:** | 01/28/2019 13:16 | | | |
| **Dilution:** | 1 | **Dilution:** | 1 | | | | **Dilution:** | 1 | | | |
| **Units:** | ug/L | **Units:** | ug/L | | | | **Units:** | ug/L | | | |

| Analyte | Result | Result | Target | % Rec | QC Limits | | Result | % Rec | RPD | QC Limits | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Perchlorate | ND | 4.18 | 4 | 105 | 78.8 | 123.8 | 3.76 | 94.0 | 10.7 | 0.0 | 20.0 |

### Continuing Calibration Verification

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **CCV:** | 637596 | | | **CCV:** | 637601 | | | **CCV:** | 637602 | | |
| **Analyzed:** | 01/28/2019 09:06 | | | **Analyzed:** | 01/28/2019 12:21 | | | **Analyzed:** | 01/28/2019 14:53 | | |
| **Units:** | ug/L | | | **Units:** | ug/L | | | **Units:** | ug/L | | |
| **Criteria:** | ± 15% | | | **Criteria:** | ± 15% | | | **Criteria:** | ± 15% | | |

| Analyte | Result | Target | % Rec. | Result | Target | % Rec. | Result | Target | % Rec. |
|---|---|---|---|---|---|---|---|---|---|
| Perchlorate | 26.0 | 25.0 | 104 | 26.5 | 25.0 | 106 | 26.9 | 25.0 | 108 |

### Interference Check Sample

**ICSA:** 637598
**Analyzed:** 01/28/2019 09:35
**Units:** ug/L
**Criteria:** ± 30%

| Analyte | Result | Target | % Rec. |
|---|---|---|---|
| Perchlorate | 3.84 | 4.00 | 95.9 |

## Comments

Field samples 1902253007 and 1902392008 were analyzed and reported from 1:10 dilutions. Field samples 1902392002/03 were analyzed and reported from 1:100 dilutions. Field sample 1902392004 was analyzed and reported from a 1:1,000 dilution. The reporting limits have been adjusted accordingly.



RIGHT SOLUTIONS | RIGHT PARTNER

# Quality Control Sample
# Batch Report

## Analysis Information

**Workorder:** **1902392**

| | | | | | |
|---|---|---|---|---|---|
| **Limits:** | Client SOW/Contract Specified | **Preparation:** | NA | **Analysis:** | EPA 6850, DoD QSM |
| **Basis:** | DoD QSM | **Batch:** | NA | **Batch:** | ELMS/2212 (HBN: 231797) |
| | | **Prepared By:** | NA | **Analyzed By:** | Thomas Bosch |

## QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

| Analyst | Peer Review |
|---|---|
| /S/ Thomas Bosch | /S/ Stephen Brose |
| 01/29/2019 10:02 | 01/29/2019 13:48 |

## Symbols and Definitions

* - Analyte above reporting limit or outside of control limits
▲ - Sample result is greater than 4 times the spike added
◆ - Sample and Matrix Duplicate less than 5 times the reporting limit
● - Result is above the calibration range
# - The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable



RIGHT SOLUTIONS | RIGHT PARTNER

01043692

18698/#5 1902392

1902392 P04-JAN2019-ALSsaltLake-1901-22 TURNAROUND TIME: 5 BUSINESS DAYS RUSH: YES Page 1 of 1

| PROJECT/CLIENT INFO | | | | LABORATORY | | | | OTHER INFO | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Facility Name | Longhorn AAP | | | Lab Name | ALS Laboratories | | | Email Invoice To | FedInvoices@aptim.com | | |
| Project Number | 501032 | | | Lab Contact | RJ Modashia | | | | | | |
| | LHAAP-04 | | | Email | RJ.Modashia@alsglobal.com | | | Email Report To | Susan.Huang@aptim.com | | |
| Address | 1203-B East Grand Avenue | | | Address | 960 W. LeVoy Drive | | | Mail Reports To | Susan Huang | | |
| | PMB 202 | | | | | | | Address | 4005 Port Chicago Highway, Suite 200 | | |
| City | Marshall | State | TX | City | Salt Lake | State | UTAH | City | Concord | State | CA |
| Postal Code | 75670 | Country | USA | Postal Code | 84123 | Country | USA | Postal Code | 94520 | Country | USA |
| Phone Number | 713.243.7264 | | | Phone Number | 281.575.2279 or 281.530.5656 | | | | | | |
| Project Manager | Praveen Srivastav | | | | | | | Shipping Company | | | |

SAMPLE DETAILS / ANALYSIS REQUESTED

| Sample ID | Location | Start Depth | End Depth | Depth Unit | Field Matrix | Date | Time (24hr) | # Of Cont. | Sample Container and Preservatives: 1x125 ml HDPE, Ice — ANALYSIS: Perchlorate in Water by 6850 |
|---|---|---|---|---|---|---|---|---|---|
| 04MW11-190122 | LHAAP04 | 5.13 | 5.36 | | WG | 1/22/19 | 0820 | 1 | X |
| 04MW08-190122 | LHAAP04 | 6.50 | 6.74 | | WG | 1/22/19 | 0905 | 1 | X |
| 04MW09-190122-FD | LHAAP04 | 6.50 | 6.74 | | WG | 1/22/19 | 0905 | 1 | X |
| 04MW10-190122 | LHAAP04 | 6.79 | 7.01 | | WG | 1/22/19 | 0955 | 1 | X |
| LHSMW01-190122 | LHAAP04 | 4.45 | 4.63 | | WG | 1/22/19 | 1050 | 1 | X |
| LHSMW01-190122-MS | LHAAP04 | 4.45 | 4.63 | | WG | 1/22/19 | 1050 | 1 | X |
| LHSMW01-190122-MSD | LHAAP04 | 4.45 | 4.63 | | WG | 1/22/19 | 1050 | 1 | X |
| 04MW07-190122 | LHAAP04 | 6.63 | 6.84 | | WG | 1/22/19 | 1140 | 1 | X |
| 04MW01-190122 | LHAAP04 | 7.33 | 7.56 | | WG | 1/22/19 | 1230 | 1 | X |

| ADDITIONAL COMMENTS/SPECIAL INSTRUCTIONS | RELINQUISHED BY/AFFILIATION | DATE/TIME | ACCEPTED BY/AFFILIATION | DATE/TIME |
|---|---|---|---|---|
| | Justin Beesinger / BHATT | 1/22/19 1400 | | 01/23/2019 9:45 |

RIGHT SOLUTIONS | RIGHT PARTNER

# ALS Environmental

## CHAIN-OF-CUSTODY

| Project / Job / Task: 501032 | Split: | Workorder ID: 1902392 | Level: ENV_LVL4 | Requested Analysis |
|---|---|---|---|---|
| Client: ALS Environmental (Houston) | | Account: 8101 | Type: 125Poly | |
| Comments: | | | Preservatives | |
| | | | COOL | |
| | | | Containers | |

| Item | Collect Date/Time | Sample ID | Lab ID | QC | Matrix | ID(s) | Count | EPA 6850, DoD QSM |
|---|---|---|---|---|---|---|---|---|
| 1 | 01/22/2019 08:20 | 04WW11-190122/LHAAP04 | 1902392001 | | Water | A | 1 | A |
| 2 | 01/22/2019 09:05 | 04WW09-190122/LHAAP04 | 1902392002 | | Water | A | 1 | A |
| 3 | 01/22/2019 09:05 | 04WW09-190122-FD/LHAAP04 | 1902392003 | | Water | A | 1 | A |
| 4 | 01/22/2019 09:55 | 04WW10-190122/LHAAP04 | 1902392004 | | Water | A | 1 | A |
| 5 | 01/22/2019 10:50 | LHSMW01-190122/LHAAP04 | 1902392005 | | Water | A | 1 | A |
| 6 | 01/22/2019 10:50 | LHSMW01-190122-MS/LHAAP04 | 1902392006 | MS | Water | A | 1 | A |
| 7 | 01/22/2019 10:50 | LHSMW01-190122-MSD/LHAAP04 | 1902392007 | MSD | Water | A | 1 | A |
| 8 | 01/22/2019 11:40 | 04WW07-190122/LHAAP04 | 1902392008 | | Water | A | 1 | A |
| 9 | 01/22/2019 12:30 | 04WW01-190122/LHAAP04 | 1902392009 | | Water | A | 1 | A |
| 10 | | | | | | | | |

### ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

| Relinquished By: (Signature) | Date / Time | Received By: (Signature) | Reason for Transfer / Storage Location |
|---|---|---|---|
| Schmith, Marianne | 01/23/2019 09:45 | ALS Sample Receiving | Sample Login |
| [signature] | 01/23/19 13:24 | R.331 SB | Storage |
| R.33.1 | 01/24/19 13:30 | T. Bosch | 6850 |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

### SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

| Relinquished By: (Signature) | Date / Time | Received By: (Signature) | Reason for Transfer / Storage Location |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

RIGHT SOLUTIONS | RIGHT PARTNER

1902392

10450 Stancliff Rd, Ste 210
Houston, TX 77099
**T:** +1 281 530 5656
**F:** +1 281 530 5887
**www.alsglobal.com**

# Subcontract Chain of Custody

**COC ID: 10639**

**SUBCONTRACT TO:**

ALS Laboratory Group
960 LeVoy Dr
Salt Lake City, UT 84123

**Phone:** +1 801 266 7700

**CUSTOMER INFORMATION:**

| | |
|---|---|
| **Company:** | ALS Houston |
| **Contact:** | RJ Modashia |
| **Address:** | 10450 Stancliff Rd, Ste 210 |
| **Phone:** | +1 281 530 5656 |
| **Email:** | RJ.Modashia@alsglobal.com |
| **Alternate Contact:** | Jumoke M. Lawal |
| **Email:** | jumoke.lawal@alsglobal.com |

**INVOICE INFORMATION:**

| | |
|---|---|
| **Company:** | ALS Houston |
| **Contact:** | Accounts Payable |
| **Address:** | 10450 Stancliff Rd, Ste 210 |
| **Phone:** | +1 281 530 5656 |
| **Reference:** | HS19011046 |
| **TSR:** | Sonia West |

| | LAB SAMPLE ID | CLIENT SAMPLE ID | MATRIX | COLLECT DATE |
|---|---|---|---|---|
| | ANALYSIS REQUESTED | | | DUE DATE |
| 1. | **HS19011046-01** | **04WW11_190122** | **Groundwater** | **22 Jan 2019 08:20** |
| | SUB_Perch-6850 | | | 06 Feb 2019 |
| 2. | **HS19011046-02** | **04WW09_190122** | **Groundwater** | **22 Jan 2019 09:05** |
| | SUB_Perch-6850 | | | 06 Feb 2019 |
| 3. | **HS19011046-03** | **04WW09_190122-FD** | **Groundwater** | **22 Jan 2019 09:05** |
| | SUB_Perch-6850 | | | 06 Feb 2019 |
| 4. | **HS19011046-04** | **04WW10_190122** | **Groundwater** | **22 Jan 2019 09:55** |
| | SUB_Perch-6850 | | | 06 Feb 2019 |
| 5. | **HS19011046-05** | **LHSMW01_190122** | **Groundwater** | **22 Jan 2019 10:50** |
| | SUB_Perch-6850 | | | 06 Feb 2019 |
| 6. | **HS19011046-06** | **04WW07_190122** | **Groundwater** | **22 Jan 2019 11:40** |
| | SUB_Perch-6850 | | | 06 Feb 2019 |
| 7. | **HS19011046-07** | **04WW01_190122** | **Groundwater** | **22 Jan 2019 12:30** |
| | SUB_Perch-6850 | | | 06 Feb 2019 |

**Comments:**



RIGHT SOLUTIONS | RIGHT PARTNER
RIGHT SOLUTIONS | RIGHT PARTNER

# Subcontract Chain of Custody

**COC ID: 10639**

Please analyze for the analysis listed above.
Send report to the emails shown above.

HS19011046-05 MS/MSD

**QC Level:** DOD IV (DoD Data Package)

Relinquished By: _____ Date/Time: _____

Received By: _____ Date/Time: _____

Cooler ID(s): _____ Temperature(s): _____

# ALS-SALT LAKE CITY-RELATED INFORMATION REPORT (CRIR)

## COOLER OR CONTAINER INFORMATION CHECKLIST (Fill In or Circle)

Client Name: APTIM

Project/Task/Site: _____

Date/Time of Receipt: 01/23/2019 09:45

Number of Coolers Received: 1

| | | | |
|---|---|---|---|
| Condition of Coolers: | Acceptable/Unacceptable | Temperature Control: | Present/Not Included |
| Cooler Custody Seals: | Present/Absent/NA<br>Intact/Broken/NA | Location Temp Taken: | Control/Between Samples |
| Container Custody Seals: | Present/Absent/NA<br>Intact/Broken/NA | Are all temperatures within project specific guidelines? | Yes/No/NA |
| Ice Present: | Yes/No/NA<br>Frozen/Melted/NA | VOA Headspace Present? | Yes/No/NA |

| pH Check Performed: | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Metals | Yes/No/NA | Total Phenolics | Yes/No/NA | NO3/NO2 | Yes/No/NA |
| | Cyanide | Yes/No/NA | TPH – 418.1 | Yes/No/NA | Oil & Grease | Yes/No/NA |
| | Sulfide | Yes/No/NA | COD | Yes/No/NA | Total Phosphorous | Yes/No/NA |
| | Ammonia | Yes/No/NA | TKN | Yes/No/NA | Gross A.B, Gamma Spec | Yes/No/NA |

| Cooler Received | DCL Cooler No. | Temp. | Cooler Received | DCL Cooler No. | Temp. | Cooler Received | DCL Cooler No. | Temp. |
|---|---|---|---|---|---|---|---|---|
| 1 | C19 9111 | 5 °C | 4 | C19 | °C | 7 | C19 | °C |
| 2 | C19 | °C | 5 | C19 | °C | 8 | C19 | °C |
| 3 | C19 | °C | 6 | C19 | °C | 9 | C19 | °C |

Taken By: _____ (Signature) M Schmith (Printed Name) 01/23/2019 (Date)

## CLIENT-RELATED INFORMATION

| | | | |
|---|---|---|---|
| ☐ Missing Cooler | ☐ Missing Samples/Bottles | ☐ Incorrect Preservation | ☐ Insufficient Sample Volume |
| ☐ Cooler Conditions | ☐ Broken/Leaking Samples | ☐ pH Criteria Not Met | ☐ Chain of Custody Problems |
| ☐ Missing Paperwork | ☐ Incorrect Bottle Type | ☐ Residual Chlorine Present | ☐ Other: |
| ☐ Missing/Incorrect Bottle Labels | ☐ Cooler Temperatures Out of Range | ☐ Head Space in Bottles | |

**BRIEFLY DESCRIBE THE PROBLEM AND THE ACTION TAKEN:**

125

Client Notified? YES ☐ NO ☐

**Response Required Within 24 Hours**

## PROJECT MANAGEMENT

**PROJECT MANAGER COMMENTS:**

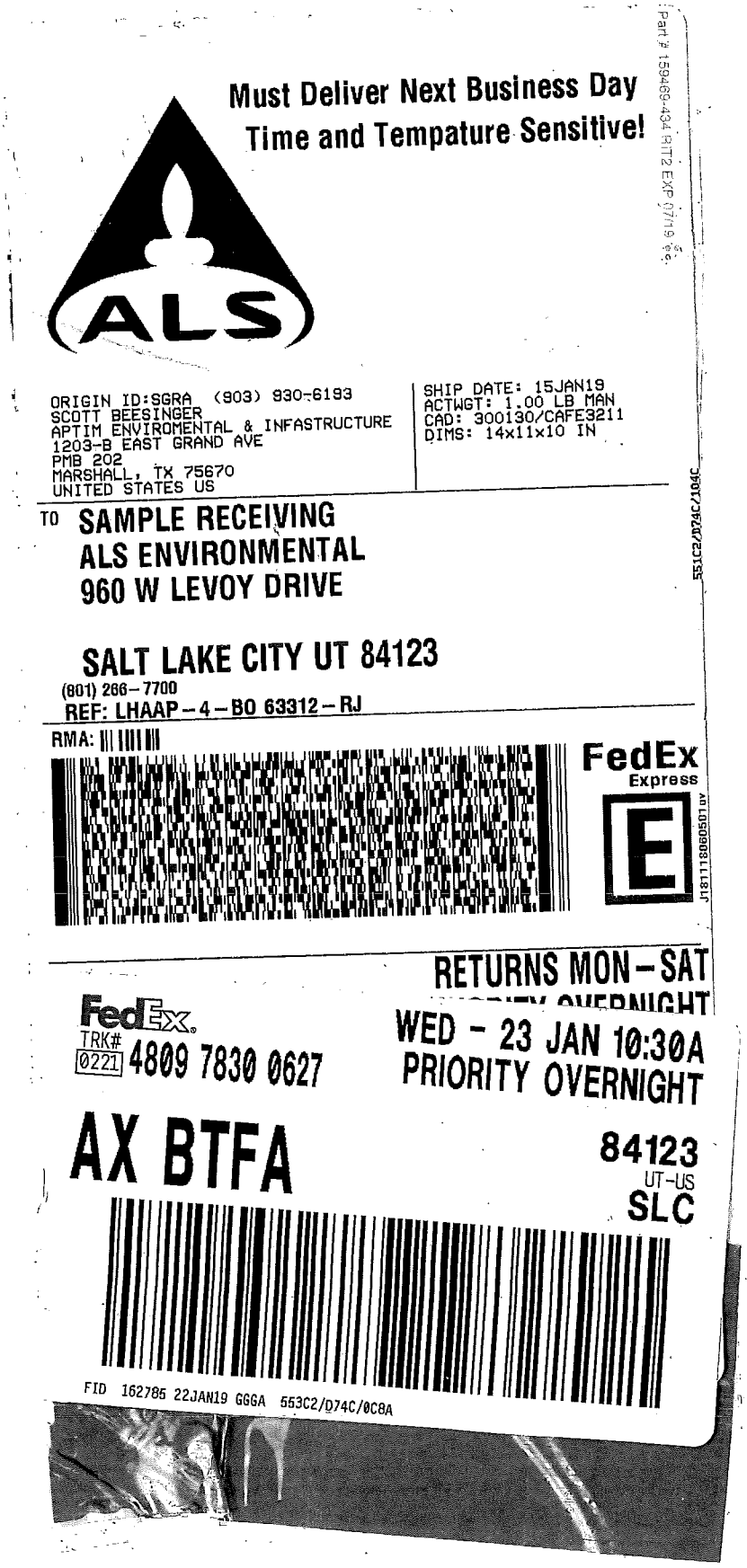
ALS Project Manager: _____ (Printed Name) Returned to Sample Receipt by: _____ (Signature) Date: _____

CRIR.doc

Revised 01/01/2018



RIGHT SOLUTIONS | RIGHT PARTNER



Must Deliver Next Business Day
Time and Tempature Sensitive!

Part # 159469-434 INT2 EXP 07/19

ORIGIN ID:SGRA (903) 930-6193
SCOTT BEESINGER
APTIM ENVIRONMENTAL & INFASTRUCTURE
1203-B EAST GRAND AVE
PMB 202
MARSHALL, TX 75670
UNITED STATES US

SHIP DATE: 15JAN19
ACTWGT: 1.00 LB MAN
CAD: 300130/CAFE3211
DIMS: 14x11x10 IN

TO SAMPLE RECEIVING
ALS ENVIRONMENTAL
960 W LEVOY DRIVE

SALT LAKE CITY UT 84123
(801) 266-7700
REF: LHAAP-4-BO 63312-RJ

RMA:

FedEx Express

J181118060501uv

RETURNS MON-SAT

FedEx
TRK# 0221 4809 7830 0627

WED - 23 JAN 10:30A
PRIORITY OVERNIGHT

AX BTFA

84123
UT-US
SLC

FID 162785 22JAN19 GGGA 553C2/D74C/0C8A



RIGHT SOLUTIONS | RIGHT PARTNER

# Batch Worklist

Batch: ELMS/ 2212
Rule: EPA 6850, DoD QSM Water

Created: 1/28/2019 08:41
Analyst: T. Bosch

Instrument:
Status: WP

HBN: 231797

Workorder: 1902253 [ENV_LVL4]
Workorder: 1902392 [ENV_LVL4]

| Pos | Lab ID | Sample ID | Prep Initial | Prep Final | Dust Weight | Type | Mx | Container | Procedure | Mgr | Expire Date | Due Date | Run Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 637596 | CCV for HBN 231797 [ELMS/2212] | | | | CCV | 3 | | E685041C3Q | 5311 | | 1/29/2019 | |
| 2 | 637597 | RLVS for HBN 231797 [ELMS/2212 | | | | RLVS | 3 | | E685041C3Q | 5311 | | 1/29/2019 | |
| 3 | 637598 | ICS for HBN 231797 [ELMS/2212] | | | | ICS | 3 | | E6850..D3Q | 5311 | | 1/29/2019 | |
| 4 | 637599 | LMB for HBN 231797 [ELMS/2212] | | | | LMB | 3 | | E6850Q413Q | 5311 | | 1/29/2019 | |
| 5 | 637600 | LCS for HBN 231797 [ELMS/2212] | | | | LCS | 3 | | E6850Q413Q | 5311 | | 1/29/2019 | |
| 6 | 1902253001 | 04WW03_190121 | | | | SAMPLE | 3 | 1902253001-A | E6850Q41.3 | 5480 | 2/18/2019 | 1/29/2019 | |
| 7 | 1902253002 | 04WW02_190121 | | | | SAMPLE | 3 | 1902253002-A | E6850Q41.3 | 5480 | 2/18/2019 | 1/29/2019 | |
| 8 | 1902253003 | 04WW02_190121-FD | | | | SAMPLE | 3 | 1902253003-A | E6850Q41.3 | 5480 | 2/18/2019 | 1/29/2019 | |
| 9 | 1902253004 | 04WW06_190121 | | | | SAMPLE | 3 | 1902253004-A | E6850Q41.3 | 5480 | 2/18/2019 | 1/29/2019 | |
| 10 | 1902253005 | LHSMW02_190121 | | | | SAMPLE | 3 | 1902253005-A | E6850Q41.3 | 5480 | 2/18/2019 | 1/29/2019 | |
| 11 | 1902253006 | 04WW04_190121 | | | | SAMPLE | 3 | 1902253006-A | E6850Q41.3 | 5480 | 2/18/2019 | 1/29/2019 | |
| 12 | 1902253007 | 04WW05_190121 | | | | SAMPLE | 3 | 1902253007-A | E6850Q41.3 | 5480 | 2/18/2019 | 1/29/2019 | |
| 13 | 1902392001 | 04WW11-190122 | | | | SAMPLE | 3 | 1902392001-A | E6850Q41.3 | 5480 | 2/19/2019 | 1/30/2019 | |
| 14 | 1902392002 | 04WW09-190122 | | | | SAMPLE | 3 | 1902392002-A | E6850Q41.3 | 5480 | 2/19/2019 | 1/30/2019 | |
| 15 | 1902392003 | 04WW09-190122-FD | | | | SAMPLE | 3 | 1902392003-A | E6850Q41.3 | 5480 | 2/19/2019 | 1/30/2019 | |
| 16 | 637601 | CCV for HBN 231797 [ELMS/2212] | | | | CCV | 3 | | E685041C3Q | 5311 | | 1/29/2019 | |
| 17 | 1902392004 | 04WW10-190122 | | | | SAMPLE | 3 | 1902392004-A | E6850Q41.3 | 5480 | 2/19/2019 | 1/30/2019 | |
| 18 | 1902392005 | LHSMW01-190122 | | | | SAMPLE | 3 | 1902392005-A | E6850Q41.3 | 5480 | 2/19/2019 | 1/30/2019 | |
| 19 | 1902392006 | LHSMW01-190122-MS | | | | MS | 3 | 1902392006-A | E6850Q413Q | 5480 | | 1/29/2019 | |
| 20 | 1902392007 | LHSMW01-190122-MSD | | | | MSD | 3 | 1902392007-A | E6850Q413Q | 5480 | | 1/29/2019 | |
| 21 | 1902392008 | 04WW07-190122 | | | | SAMPLE | 3 | 1902392008-A | E6850Q41.3 | 5480 | 2/19/2019 | 1/30/2019 | |
| 22 | 1902392009 | 04WW01-190122 | | | | SAMPLE | 3 | 1902392009-A | E6850Q41.3 | 5480 | 2/19/2019 | 1/30/2019 | |
| 23 | 637602 | CCV for HBN 231797 [ELMS/2212] | | | | CCV | 3 | | E685041C3Q | 5311 | | 1/29/2019 | |

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

# Analytical Documentation



RIGHT SOLUTIONS | RIGHT PARTNER

ALS Work Order #'s & Sample #( )'s: 1902253 (001-07); 1902392 (001-09)
ELMS Batch/HBN ID: 2212 (231797)
Prep Date: 01/27/2019 Analysis Date: 01/27/2019 Analyst: T. Bosch
Analyte: **Perchlorate** Matrix: **Water** Method: **6850**
Sequence: \\HPCHEM\1\SEQUENCE\CLO4\2019\JAN\15JAN19D.s
Reported DL: **1.0µg/L** Reported LOD: **2.0µg/L** Reported LOQ: **4.0µg/L**

**SAMPLE PREPARATION/ANALYSIS:**

**Water:** Samples were prepared by TNB. 10.0mL of each sample was pipetted into a 15-mL centrifuge tube, and 50µL of an oxygen-18 labeled perchlorate solution was added as an internal standard. The samples were capped, vortexed, and filtered with Phenex PES membrane 0.45µm Syringe filters prior to analysis.

**REAGENTS:** Eluent A1: 95% ASTM Type II water (ALS)/ 5% ACN (B&J Lot AH015-4)/0.1% glacial acetic acid (JT-Baker Lot 04802).
Eluent B1: 95% ACN (B&J Lot AH015-4)/ 5% ASTM Type II water (ALS)/0.1% glacial acetic acid (JT-Baker Lot 04802).

**STANDARDS:** Internal Standard Spiking Solution Horizon# 43730. Dilutions of Working Standard Solution ID 43702 used for CCV's, LODV's, RLVS and IPC.

**CALIBRATION CURVE:** Used curve from 10/08/2018, sequence 08OCT18D.s Offline Quantitation Method: CLO4-DPR.M

**INSTRUMENT CONDITIONS:** Samples were analyzed with an Agilent 1100 LC/MSD system, in negative SIM mode, monitoring m/z 83, 85, and 89.
**Instrument ID**: **LCMS04** Online Acquisition Method: CLO4-AQN.M Fragmentor: 160 Output Gain: 3 Injection Volume: 30µL
Column: KP-RPPX C8 separator, 250mm Mobile Phase: 70% Eluent A1; 30% Eluent B1

**FLOW GRADIENT:**

| Time (min.) | Flow (mL/min) |
|---|---|
| 0 | 0.50 |
| 5.0 | 0.50 |
| 5.3 | 0.25 |
| 10.0 | 0.25 |
| 10.5 | 0.50 |
| 12.0 | 0.50 |

**QC DATA:** 5.0µL of QC Solution Horizon ID 41830 was used for LCS 637600; Target = 5.0µg/L. ASTM type II water was used for LMB 637599.

**MS/MSD:** MS/MSD were performed on samples 1902392006/07 (Client ID's: LHSMW01-190122). 5.0µl of Working Standard Solution Horizon ID 43701 was added to 10.0mL of sample preparation. Spike target = 5.0µg/L.

**COMMENTS:**
1) Results reported in µg/L. Field samples 1902253007 and 1902392008 were analyzed and reported from 1:10 dilutions. Field samples 1902392002/03 were analyzed and reported from 1:100 dilutions. Field sample 1902392004 was analyzed and reported from a 1:1,000 dilution. The reporting limits have been adjusted accordingly. Samples 1902253007 and 1902392002 failed the 50-150% method requirement for ISTD recovery. These samples were re-prepped, re-analyzed and reported.
2) All QC, Blank, CCV, and MS/MSD results were within method parameters.
3) Sample data can be viewed at two directories within the ALS system: \\ALSLTWS013\LCMS\LCMS04\2019\JAN\HBN# or through NuGenesis\Tree\PrintData\LCMS\DefaultView.
4) Notebook: \\alsltws013\ORGANIC\BOSCH\LCMS\Perchlorates\Waters\2019\231797-DoD-ALS-Hstn LCMS4 or through \\ALSLTWS013\DATAREVIEW\HBN#
5) The Reporting Limit Verification Standard (RLVS – 637597) is reported from the analysis of the Laboratory Control Sample (LCS – 637600) at a level 4.0µg/L.


RIGHT SOLUTIONS | RIGHT PARTNER

5.5 Chromatography (GC, HPLC and LC/MS) Technical Review

**Note: It is the peer reviewer's responsibility to ensure that appropriate criteria are used as defined in the HORIZON PROFILE. The evaluation criteria are prioritized as per Section 2.2 of this SOP. These items must be checked for all projects. The following checklist will be completed by both the analyst and the peer reviewer and scanned into the HBN folder with the raw data.**

| Chromatography (GC, HPLC, LC/MS) Technical Review Criteria<br>Batch(es)/SDG: ELMS: 2212 HBN: 231797<br>Sample Set IDs if Applicable: 190253 / 190392 | Analyst Initials | Reviewer Initials |
|---|---|---|
| Calibration standards analyzed and meets criteria | TB | SK |
| Standards traceability checked and meets criteria | TB | SK |
| Standard curve coefficients evaluated and meet criteria | TB | SK |
| ICVs analyzed and meet acceptance criteria | TB | SK |
| CCVs analyzed and meet acceptance criteria | TB | SK |
| Method Blanks analyzed and meet acceptance criteria | TB | SK |
| Retention Time Windows checked | TB | SK |
| **For method 8081A, Endrin/DDT Breakdown is checked for compliance** | — | — |
| Surrogate recoveries checked and appropriately addressed | — | — |
| Method Preparation Blanks analyzed and meet acceptance criteria | TB | SK |
| MSs, MSDs, and/or MDs analyzed and calculations checked; applicable flags applied on QC reports; LCSs analyzed and meet acceptance criteria when performed | TB | SK |
| RLVS analyzed | TB | SK |
| Preparation and analysis hold times met | TB | SK |
| Preparation deviations and re-preparations noted when performed | TB | SK |
| Analysis deviations and re-analyses noted when performed | TB | SK |
| Sample dilution factors noted on reports | TB | SK |
| Electronic records in HBN transcription accuracy and completeness checked | TB | SK |
| Preparation and analysis calculations checked | TB | SK |
| NCRs are completed as necessary NC/CAR# _____ | — | — |
| Report forms are complete and accurate | TB | SK |
| Manual integrations checked | TB | SK |



RIGHT SOLUTIONS | RIGHT PARTNER

## Working Standard - CLO4 WRK

**CLO4 WRK** — Description - 6850 WKG Std 100.ug/L

**Standard:** 43702 | **Created By:** Thomas Bosch | **Amount:** 10 mL
**MFG:** ALS/SLC | **Create Date:** 09/18/2018 02:09PM | **Expires:** 09/18/2019
**MFG Lot:** TNB: 09/18/2018 | **Usable:** Yes
**Pipette ID:** Not Provided | **Lab Lot:** CLO4 WRK

| Pos. | Analyte | Name | Concentration |
|---|---|---|---|
| 1 | 14797-73-0 | Perchlorate | 0.1 ug/mL |

**Composition**

| Standard | Standard ID | Description | Lab Lot ID | Volume | Expires |
|---|---|---|---|---|---|
| 109 | ASTM H2O | ASTM Type II Water | LAB 109 | 9.9 mL | 11/07/2025 |
| 43701 | CLO4 INT | 6850 Intermdt AccStd 10.ug/mL | CLO4 INT | 0.1 mL | 09/18/2019 |



RIGHT SOLUTIONS | RIGHT PARTNER

## STANDARD REPORT

### Constituent

## Stock Standard - CLO4 STOCK

| CLO4 STOCK | Description - 6850 Stock AccStd 1,000ug/mL |
|---|---|

| | | | |
|---|---|---|---|
| **Standard:** 43659 | **Created By:** Thomas Bosch | **Amount:** 100 mL |
| **MFG:** AccuStandard | **Create Date:** 09/17/2018 09:09AM | **Expires:** 07/25/2020 |
| **MFG Lot:** 218065075 | | **Usable:** No |
| **Part ID:** IC-PER-10X-1 | | **Lab Lot:** CLO4 STOCK |

| Pos. | Analyte | Name | Concentration |
|---|---|---|---|
| 1 | 14797-73-0 | Perchlorate | 1000 ug/mL |



RIGHT SOLUTIONS | RIGHT PARTNER

STANDARD REPORT

## Constituent

### Solvent Standard - ASTM H2O

| ASTM H2O | | Description - ASTM Type II Water |
|---|---|---|
| Standard: 109 | Created By: ALS Support (Lims) | Amount: 1000 L |
| MFG: DCL In House | Create Date: 10/06/2005 09:10AM | Expires: 11/07/2025 |
| MFG Lot: Not Provided | | Usable: Yes |
| Part ID: Not Provided | | Lab Lot: LAB 109 |

| Pos. | Analyte | Name | Concentration |
|---|---|---|---|
| Solvent - Analyte(s) not applicable | | | |



RIGHT SOLUTIONS | RIGHT PARTNER

STANDARD REPORT

*Constituent*

## Working Standard - CLO4 INT

| CLO4 INT | | Description - 6850 Intermdt AccStd 10.ug/mL |
|---|---|---|
| **Standard:** 43701 | **Created By:** Thomas Bosch | **Amount:** 10 mL |
| **MFG:** ALS/SLC | **Create Date:** 09/18/2018 02:09PM | **Expires:** 09/18/2019 |
| **MFG Lot:** TNB: 09/18/2018 | | **Usable:** Yes |
| **Pipette ID:** Not Provided | | **Lab Lot:** CLO4 INT |

| Pos. | Analyte | Name | Concentration |
|---|---|---|---|
| 1 | 14797-73-0 | Perchlorate | 10 ug/mL |

**Composition**

| Standard | Standard ID | Description | Lab Lot ID | Volume | Expires |
|---|---|---|---|---|---|
| 109 | ASTM H2O | ASTM Type II Water | LAB 109 | 9.9 mL | 11/07/2025 |
| 43659 | CLO4 STOCK | 6850 Stock AccStd 1,000ug/mL | CLO4 STOCK | 0.1 mL | 07/25/2020 |



RIGHT SOLUTIONS | RIGHT PARTNER

STANDARD REPORT

## Working Standard - CLO4 QC WRK

| CLO4 QC WRK | | Description - 6850 QC WKG STD 100ug/L |
|---|---|---|
| Standard: 41831 | Created By: Thomas Bosch | Amount: 10 mL |
| MFG: ALS/SLC | Create Date: 05/09/2018 10:05AM | Expires: 05/09/2019 |
| MFG Lot: TNB: 05/09/2018 | | Usable: Yes |
| Pipette ID: Not Provided | | Lab Lot: CLO4 QC WRK 100.ug/L |

| Pos. | Analyte | Name | Concentration |
|---|---|---|---|
| 1 | 14797-73-0 | Perchlorate | 100 ug/L |

**Composition**

| Standard | Standard ID | Description | Lab Lot ID | Volume | Expires |
|---|---|---|---|---|---|
| 109 | ASTM H2O | ASTM Type II Water | LAB 109 | 9.9 mL | 11/07/2025 |
| 41830 | CLO4 QC INT | 6850 QC Intrmdt Std-QC 10ug/mL | CLO4 QC INT 10.ug/mL | 0.1 mL | 05/09/2019 |



RIGHT SOLUTIONS | RIGHT PARTNER

# STANDARD REPORT

## Constituent

## Working Standard - CLO4 QC INT

**CLO4 QC INT** — Description: 6850 QC Intrmdt Std-QC 10ug/mL

Standard: 41830
MFG: ALS/SLC
MFG Lot: TNB: 05/09/2018
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 05/09/2018 10:05AM

Amount: 10 mL
Expires: 05/09/2019
Usable: Yes
Lab Lot: CLO4 QC INT 10.ug/mL

| Pos. | Analyte | Name | Concentration |
|---|---|---|---|
| 1 | 14797-73-0 | Perchlorate | 10 ug/mL |

**Composition**

| Standard | Standard ID | Description | Lab Lot ID | Volume | Expires |
|---|---|---|---|---|---|
| 109 | ASTM H2O | ASTM Type II Water | LAB 109 | 9.9 mL | 11/07/2025 |
| 36748 | CLO4 QCSTOCK | 6850 QC Stock STD 1,000ug/mL | CLO4 QC STOCK | 0.1 mL | 03/31/2020 |



RIGHT SOLUTIONS | RIGHT PARTNER

STANDARD REPORT

*Constituent*

## Solvent Standard - ASTM H2O

| ASTM H2O | | Description - ASTM Type II Water |
|---|---|---|
| Standard: 109 | Created By: ALS Support (Lims) | Amount: 1000 L |
| MFG: DCL In House | Create Date: 10/06/2005 09:10AM | Expires: 11/07/2025 |
| MFG Lot: Not Provided | | Usable: Yes |
| Part ID: Not Provided | | Lab Lot: LAB 109 |

| Pos. | Analyte | Name | Concentration |
|---|---|---|---|
| Solvent - Analyte(s) not applicable | | | |



RIGHT SOLUTIONS | RIGHT PARTNER

STANDARD REPORT

*Constituent*

## Stock Standard - CLO4 QCSTOCK

| CLO4 QCSTOCK | | Description - 6850 QC Stock STD 1,000ug/mL |
|---|---|---|
| Standard: 36748 | Created By: Thomas Bosch | Amount: 100 mL |
| MFG: Ultra Scientific | Create Date: 05/11/2017 01:05PM | Expires: 03/31/2020 |
| MFG Lot: CP-0860 | | Usable: Yes |
| Part ID: ICC-013 | | Lab Lot: CLO4 QC STOCK |

| Pos | Analyte | Name | Concentration |
|---|---|---|---|
| 1 | 14797-73-0 | Perchlorate | 1000 ug/mL |



RIGHT SOLUTIONS | RIGHT PARTNER

## Working Standard - CLO4ISTDWRK

**CLO4ISTDWRK** — Description - Perchlorate ISTD Wrk 1,000ug/L

| | | | | | |
|---|---|---|---|---|---|
| **Standard:** | 43730 | **Created By:** | Thomas Bosch | **Amount:** | 25 mL |
| **MFG:** | ALS/SLC | **Create Date:** | 09/20/2018 09:09AM | **Expires:** | 09/20/2019 |
| **MFG Lot:** | TNB: 05/09/2018 | **Verified By:** | Thomas Bosch | **Usable:** | Yes |
| **Pipette ID:** | Not Provided | **Verify Date:** | | **Lab Lot:** | CLO4ISTDWRK |

| Pos. | Analyte | Name | Concentration |
|---|---|---|---|
| 1 | 14797-73-0-8385 | Perchlorate 83:85 Ratio | 1000 ug/L |
| 2 | 14797-73-0-89 | Perchlorate 89 | 1000 ug/L |

**Composition**

| Standard | Standard ID | Description | Lab Lot ID | Volume | Expires |
|---|---|---|---|---|---|
| 43729 | CLO4ISTDSTK | Perchlorate ISTD Stock | CLO4ISTDSTK | 0.25 mL | 04/28/2026 |



RIGHT SOLUTIONS | RIGHT PARTNER

STANDARD REPORT

*Constituent*

## Stock Standard - CLO4ISTDSTK

| CLO4ISTDSTK | | Description - Perchlorate ISTD Stock |
|---|---|---|
| **Standard:** 43729 | **Created By:** Thomas Bosch | **Amount:** 1 mL |
| **MFG:** Cambridge Isotope | **Create Date:** 09/20/2018 09:09AM | **Expires:** 04/28/2026 |
| **MFG Lot:** SDFF-012A | **Verified By:** Thomas Bosch | **Usable:** Yes |
| **Part ID:** OLM-7310-S | **Verify Date:** | **Lab Lot:** CLO4ISTDSTK |

| Pos. | Analyte | Name | Concentration |
|---|---|---|---|
| 1 | 14797-73-0-8385 | Perchlorate 83:85 Ratio | 100 ug/mL |
| 2 | 14797-73-0-89 | Perchlorate 89 | 100 ug/mL |

ULTRA SCIENTIFIC
Analytical Solutions

# Certificate of Analysis

## ISO Guide 34 Reference Material

Product Number: ICC-013
Lot Number: CP-0860

Lot Issue Date: 29-Feb 2016
Expiration Date: 31-Mar 2020

Product Name: Perchlorate IC Standard

Description:
This Reference Material (RM) was gravimetrically prepared in accordance with ISO Guide 34 and under ULTRA Scientific's ISO 9001 registered quality system. The neat materials used for this product have been verified by ULTRA's ISO 17025 laboratory and under ULTRA's ISO Guide 34 accreditation. The analyte concentrations were verified by ULTRA's ISO 17025 accredited laboratory. For each analyte, the true value, with its uncertainty value calculated at the 95% confidence level, is reported below.

| Analyte | Starting Material | Lot Number | Purity (%) | Calculated Value | True Value | Traceability & Method |
|---|---|---|---|---|---|---|
| perchlorate | potassium perchlorate | RM07987 | 100 | 1001 ± 5 µg/mL | 976 ± 6 µg/mL | NIST SRM 3141A; ICP-OES |

Solvent: water (low TOC, < 50 ppb)

Storage: Store at Room Temperature (15° to 30°C).

Traceability:
Traceability has been established through an unbroken chain of comparisons, each having stated uncertainties. Comparisons are based on appropriate physical or chemical measurements, including gravimetric or volumetric dilution, where the mass or volume of a solution before and after dilution is measured. The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1, ISO 9001, ISO 17025, and ISO Guide 34. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 819.

Estimation of Uncertainties:
The true value is reported, with its uncertainty value calculated at the 95% confidence level.

Homogeneity:
This RM was formulated and unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Intended Use:
This RM is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods and continuing calibration verification.

Instructions for Use:
Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening and should be processed without delay for the true value to be valid within the stated uncertainties. Do not pipet from the bottle. Do not return any material removed for pipetting to the bottle. Tightly cap the bottle after removing any material and store according to the instructions noted above.

Hazards:
Refer to the Safety Data Sheet for information regarding this RM.

Expiration of Certification:
The certification of this RM is valid, within the measurement uncertainty specified, until the expiration date specified above, provided the RM is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the RM is damaged, contaminated, or otherwise modified.

ULTRA SCIENTIFIC
Analytical Solutions

# Certificate of Analysis

## ISO Guide 34 Reference Material

Product Number: JCC-013
Lot Number: CP-0860

Lot Issue Date: 29-Feb 2016
Expiration Date: 31-Mar 2020

Maintenance of Certification:
The real-time, long term stability of the RM may be monitored over the lifetime of the certification. If substantive changes occur that affect the certification before the expiration of this certificate, ULTRA Scientific will notify the purchaser.

Peter A. King, Ph.D.
VP, Technical Operations

Daniel J. Lamendola
Director of QA/RA



RIGHT SOLUTIONS | RIGHT PARTNER

125 Market Street
New Haven, CT 06513
USA

AccuStandard®

Tel (203)786-5290
Fax (203)786-5287
www.AccuStandard.com

# CERTIFICATE OF ANALYSIS

S 43659

## AccuTrace™ Reference Standard

Catalog No: IC-PER-10X-1
Description: Perchlorate Standard
Element: Perchlorate ($ClO_4$)
SRM: Ind. Std.
Lot: 218065075
Matrix: Water
Hazards: *Refer to SDS for complete safety information*

Date Certified: Jun 25, 2018
Expiration: Jul 25, 2020
Sample Size: 100 mL
Components: 1
Storage Condition: Ambient (>5 °C)
Included on ISO/IEC 17025 Scope of Accreditation: Yes
Included on ISO 17034 Scope of Accreditation: Yes

Signal Word: None

| Component | | SRM # | Prepared Concentration (µg/mL) |
|---|---|---|---|
| $ClO_4$ | Perchlorate | Ind. Std. | 1000 |

The gravimetric uncertainty for this product is ±0.24%.
The final solution was checked against an independent standard to verify its concentration.
We use the highest purity raw materials available to minimize impurity levels in the final solution. Typically 99.999%+ pure starting materials are used as well as ASTM Type I 18 megohm deionized water.
All solutions are filtered through a 0.2 µm filter prior to being bottled.
All glassware used in preparation is Class A and calibrated regularly.
All weights are traceable through NIST, Test No. 822-275872-11
All bottles are triple rinsed with deionized water prior to use.
Shake bottle prior to use and do not pipette directly out of the bottle. Use only cleaned Class A volumetric glassware.
We certify the accuracy of this standard to be ±0.5% of the stated value until its expiration date provided it is kept tightly capped and stored under the conditions stated above.

Certified By: Meigan O'Leary
Meigan O'Leary, Inorganic QC Manager



*For use in routine laboratory analysis.*



AccuStandard is accredited to ISO 17034, ISO/IEC 17025 and certified to ISO 9001:2015
QR-ORG/INO-001
RIGHT SOLUTIONS | RIGHT PARTNER

Cambridge Isotope Laboratories, Inc.

# Certificate of Analysis

Quality Standards:
ISO Guide 34 • ISO/IEC 17025 • ISO 13485 • cGMP

23118

| | |
|---|---|
| Product Name:<br>(Isotopic Label & Enrichment Specification) | PERCHLORIC ACID, SODIUM SALT<br>(18O4, 90%+) 100 UG/ML IN WATER |
| Lot Number: | SDDG-013 |
| Catalog Number: | OLM-7310-S |

## Product Information

| | |
|---|---|
| Chemical Purity Specification: | ≥98% |
| Labeled CAS Number: | NA |
| Unlabeled CAS Number: | 7601-89-0 |
| MW*: | 130.4 |
| Chemical Formula: | NaCl*O4 |
| Storage: | Store at room temperature away from light and moisture. |
| Stability: | See storage and expiration date. |

## Certification

Cambridge Isotope Laboratories, Inc. guarantees that this material meets or exceeds the specifications stated. Absolute identity as well as chemical and isotopic purities are assured by the use of unambiguous synthetic routes and multiple chemical analyses whenever possible. Results are representative of QC testing at time of release from Quality Control unless otherwise stated.

Volumetric measurements were made with Class A glassware. Gravimetry is traceable to the NIST through calibrated balances and certified, calibrated, standard weights. The calibrations are traceable to the NIST under Test No. 822/270236-04. The calibrations also meet specifications outlined in ISO 9001, ISO/IEC 17025, ANSI/NSCL Z540-1-1994, NCR Document 10CFR50 Appendix B, and applicable subdocuments.

This COA references the bulk catalog number before packaging. The COA also applies to the CIL finished good catalog number. Some possible packaging sizes and their corresponding suffix are -1.2, -1, -0.5, -10, or -0.1.

* *For isotopically labeled compounds, MW listed is for the fully enriched product.*

**Approved by:** T. J. Eckersley

Timothy J. Eckersley, Ph.D., Quality Assurance

## Quality Control Tests and Results

| | |
|---|---|
| QC Release Date | 2/27/2014 |
| Expiration Date | 2/27/2024 |
| Concentration Based on Gravimetry | 102 µg/mL |
| Chemical Purity of Neat Material(s) | 98% |
| /MS for Concentration | 109.4 ± 2.8 µg/mL (k=2) |



RIGHT SOLUTIONS | RIGHT PARTNER

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

# Raw Data



RIGHT SOLUTIONS | RIGHT PARTNER

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-DPR.M

['#' ==> Run has not been reprocessed with Batch Review Method
'*' ==> Run has been saved with batch file]

| # | Sample | Location | Inj | SampleType | Run | Perchlorate Area | Perchlorat RT | Perchlorate Amount |
|---|---|---|---|---|---|---|---|---|
| * | 637596 CCV@25 | Vial 71 | 1 | Control | 1 | 3.12100e6 | 9.015 | 25.95102 |
| * | 637600 QC@4.0 | Vial 72 | 1 | Control | 2 | 4.13390e5 | 8.849 | 3.81271 |
| * | 637598 ICS@4.0 | Vial 73 | 1 | Control | 3 | 4.96412e5 | 9.081 | 3.83557 |
| * | 637599 LMB | Vial 74 | 1 | Control | 4 | 0.00000 | 0.000 | 0.00000 |
| * | 1902253001 | Vial 75 | 1 | Sample | 5 | 0.00000 | 0.000 | 0.00000 |
| * | 1902253002 | Vial 76 | 1 | Sample | 6 | 0.00000 | 0.000 | 0.00000 |
| * | 1902253003 | Vial 77 | 1 | Sample | 7 | 0.00000 | 0.000 | 0.00000 |
| * | 1902253004 | Vial 78 | 1 | Sample | 8 | 0.00000 | 0.000 | 0.00000 |
| * | 1902253005 | Vial 79 | 1 | Sample | 9 | 0.00000 | 0.000 | 0.00000 |
| * | 1902253006 | Vial 80 | 1 | Sample | 10 | 0.00000 | 0.000 | 0.00000 |
| * | 1902253007 10X | Vial 81 | 1 | Sample | 11 | 1.57986e6 | 8.971 | 79.67959 RE |
| * | 1902392001 | Vial 82 | 1 | Sample | 12 | 4.27875e4 | 8.564 | 5.29415e-1 |
| * | 1902392002 100 | Vial 83 | 1 | Sample | 13 | 4.30851e6 | 9.025 | 2083.70176 RE |
| * | 1902392003 100 | Vial 84 | 1 | Sample | 14 | 3.95123e6 | 9.042 | 2283.02829 |
| * | 637601 CCV@25 | Vial 71 | 1 | Control | 15 | 3.78068e6 | 9.018 | 26.51174 |
| * | 1902392004 100 | Vial 85 | 1 | Sample | 16 | 1.38682e7 | 9.019 | 1.01848e4 |
| * | 1902392005 | Vial 86 | 1 | Sample | 17 | 5.14429e4 | 8.580 | 6.81182e-1 |
| * | 1902392007 MSD | Vial 88 | 1 | Sample | 19 | 3.89106e5 | 8.606 | 3.75866 |
| * | 1902392008 10X | Vial 89 | 1 | Sample | 20 | 1.26964e6 | 8.800 | 112.54970 |
| * | 1902392009 | Vial 90 | 1 | Sample | 21 | 0.00000 | 0.000 | 0.00000 |
| * | 1902253007 10X | Vial 81 | 1 | Sample | 22 | 9.77785e5 | 8.973 | 77.80146 |
| * | 1902392002 100 | Vial 83 | 1 | Sample | 23 | 3.10068e6 | 9.026 | 2101.46339 |
| * | 1902392004 1K | Vial 91 | 1 | Sample | 24 | 1.68105e6 | 9.042 | 1.02454e4 |
| * | 1902392006 MS | Vial 87 | 1 | Sample | 25 | 6.94066e5 | 9.071 | 4.18291 |
| * | 637602 CCV@25 | Vial 71 | 1 | Control | 26 | 3.49567e6 | 9.030 | 26.89841 |

| # | Sample | Location | Inj | SampleType | Run | CLO4-85 Area | CLO4-85 RT | CLO4-85 Amount |
|---|---|---|---|---|---|---|---|---|
| * | 637596 CCV@25 | Vial 71 | 1 | Control | 1 | 9.02235e5 | 9.029 | 24.89900 |
| * | 637600 QC@4.0 | Vial 72 | 1 | Control | 2 | 1.60136e5 | 8.861 | 4.78853 |
| * | 637598 ICS@4.0 | Vial 73 | 1 | Control | 3 | 1.66004e5 | 9.100 | 4.17764 |
| * | 637599 LMB | Vial 74 | 1 | Control | 4 | 0.00000 | 0.000 | 0.00000 |
| * | 1902253001 | Vial 75 | 1 | Sample | 5 | 0.00000 | 0.000 | 0.00000 |
| * | 1902253002 | Vial 76 | 1 | Sample | 6 | 0.00000 | 0.000 | 0.00000 |
| * | 1902253003 | Vial 77 | 1 | Sample | 7 | 0.00000 | 0.000 | 0.00000 |
| * | 1902253004 | Vial 78 | 1 | Sample | 8 | 0.00000 | 0.000 | 0.00000 |
| * | 1902253005 | Vial 79 | 1 | Sample | 9 | 0.00000 | 0.000 | 0.00000 |
| * | 1902253006 | Vial 80 | 1 | Sample | 10 | 0.00000 | 0.000 | 0.00000 |
| * | 1902253007 10X | Vial 81 | 1 | Sample | 11 | 4.64346e5 | 8.989 | 77.67649 |
| * | 1902392001 | Vial 82 | 1 | Sample | 12 | 1.74136e4 | 8.594 | 5.27632e-1 |
| * | 1902392002 100 | Vial 83 | 1 | Sample | 13 | 1.24153e6 | 9.041 | 1996.47343 |
| * | 1902392003 100 | Vial 84 | 1 | Sample | 14 | 1.14330e6 | 9.057 | 2194.74179 |
| * | 637601 CCV@25 | Vial 71 | 1 | Control | 15 | 1.08432e6 | 9.034 | 25.24310 |
| * | 1902392004 100 | Vial 85 | 1 | Sample | 16 | 4.16084e6 | 9.034 | 9801.36420 |
| * | 1902392005 | Vial 86 | 1 | Sample | 17 | 2.26997e4 | 8.597 | 7.91263e-1 |
| * | 1902392007 MSD | Vial 88 | 1 | Sample | 19 | 1.31669e5 | 8.620 | 4.13838 |
| * | 1902392008 10X | Vial 89 | 1 | Sample | 20 | 3.91954e5 | 8.817 | 115.32711 |
| * | 1902392009 | Vial 90 | 1 | Sample | 21 | 0.00000 | 0.000 | 0.00000 |
| * | 1902253007 10X | Vial 81 | 1 | Sample | 22 | 3.04113e5 | 8.985 | 80.10603 |
| * | 1902392002 100 | Vial 83 | 1 | Sample | 23 | 8.94469e5 | 9.042 | 2015.49432 |
| * | 1902392004 1K | Vial 91 | 1 | Sample | 24 | 4.99807e5 | 9.055 | 1.01195e4 |
| * | 1902392006 MS | Vial 87 | 1 | Sample | 25 | 2.15905e5 | 9.083 | 4.25837 |
| * | 637602 CCV@25 | Vial 71 | 1 | Control | 26 | 9.92722e5 | 9.046 | 25.37122 |



RIGHT SOLUTIONS | RIGHT PARTNER

Batch Report: C:\HPCHEM\1\DATA\28JAN19D\28JAN19S.B

| #* | Sample | Location | Inj | SampleType | Run | CLO4-89-ISTD Area | CLO4-89-IS RT | CLO4-89-ISTD Amount |
|---|---|---|---|---|---|---|---|---|
| * | 637596 CCV@25 | Vial 71 | 1 | Control | 1 | 3.58268e5 | 9.038 | 5.00000 |
| * | 637600 QC@4.0 | Vial 72 | 1 | Control | 2 | 3.52345e5 | 8.868 | 5.00000 |
| * | 637598 ICS@4.0 | Vial 73 | 1 | Control | 3 | 4.20424e5 | 9.104 | 5.00000 |
| * | 637599 LMB | Vial 74 | 1 | Control | 4 | 4.30750e5 | 9.078 | 5.00000 |
| * | 1902253001 | Vial 75 | 1 | Sample | 5 | 4.04683e5 | 8.623 | 5.00000 |
| * | 1902253002 | Vial 76 | 1 | Sample | 6 | 4.72599e5 | 8.800 | 5.00000 |
| * | 1902253003 | Vial 77 | 1 | Sample | 7 | 4.74255e5 | 8.815 | 5.00000 |
| * | 1902253004 | Vial 78 | 1 | Sample | 8 | 3.82664e5 | 8.517 | 5.00000 |
| * | 1902253005 | Vial 79 | 1 | Sample | 9 | 4.90120e5 | 8.870 | 5.00000 |
| * | 1902253006 | Vial 80 | 1 | Sample | 10 | 4.95621e5 | 8.809 | 5.00000 |
| * | 1902253007 10X | Vial 81 | 1 | Sample | 11 | 6.20862e5 | 8.993 | 50.00000 |
| * | 1902392001 | Vial 82 | 1 | Sample | 12 | 4.11974e5 | 8.590 | 5.00000 |
| * | 1902392002 100 | Vial 83 | 1 | Sample | 13 | 6.22673e5 | 9.047 | 500.00000 |
| * | 1902392003 100 | Vial 84 | 1 | Sample | 14 | 5.18929e5 | 9.060 | 500.00000 |
| * | 637601 CCV@25 | Vial 71 | 1 | Control | 15 | 4.24334e5 | 9.040 | 5.00000 |
| * | 1902392004 100 | Vial 85 | 1 | Sample | 16 | 3.56653e5 | 9.034 | 500.00000 |
| * | 1902392005 | Vial 86 | 1 | Sample | 17 | 3.36196e5 | 8.605 | 5.00000 |
| * | 1902392007 MSD | Vial 88 | 1 | Sample | 19 | 3.36729e5 | 8.630 | 5.00000 |
| * | 1902392008 10X | Vial 89 | 1 | Sample | 20 | 3.48447e5 | 8.824 | 50.00000 |
| * | 1902392009 | Vial 90 | 1 | Sample | 21 | 3.02558e5 | 8.511 | 5.00000 |
| * | 1902253007 10X | Vial 81 | 1 | Sample | 22 | 3.93917e5 | 8.994 | 50.00000 |
| * | 1902392002 100 | Vial 83 | 1 | Sample | 23 | 4.44153e5 | 9.044 | 500.00000 |
| * | 1902392004 1K | Vial 91 | 1 | Sample | 24 | 5.08672e5 | 9.062 | 5000.00000 |
| * | 1902392006 MS | Vial 87 | 1 | Sample | 25 | 5.36117e5 | 9.092 | 5.00000 |
| * | 637602 CCV@25 | Vial 71 | 1 | Control | 26 | 3.86404e5 | 9.053 | 5.00000 |

*** End of Report ***



RIGHT SOLUTIONS | RIGHT PARTNER

Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2019\JAN\28JAN19D.S

Sequence Table:

Method and Injection Info Part:

| Line | Location | SampleName | | Method | Inj | SampleType | InjVolume | DataFile |
|---|---|---|---|---|---|---|---|---|
| 1 | Vial 71 | 637596 | CCV@25 | CLO4-AQN | 1 | Ctrl Samp | | |
| 2 | Vial 72 | 637600 | QC@4.0 | CLO4-AQN | 1 | Ctrl Samp | | |
| 3 | Vial 73 | 637598 | ICS@4.0 | CLO4-AQN | 1 | Ctrl Samp | | |
| 4 | Vial 74 | 637599 | LMB | CLO4-AQN | 1 | Ctrl Samp | | |
| 5 | Vial 75 | 1902253001 | | CLO4-AQN | 1 | Sample | | |
| 6 | Vial 76 | 1902253002 | | CLO4-AQN | 1 | Sample | | |
| 7 | Vial 77 | 1902253003 | | CLO4-AQN | 1 | Sample | | |
| 8 | Vial 78 | 1902253004 | | CLO4-AQN | 1 | Sample | | |
| 9 | Vial 79 | 1902253005 | | CLO4-AQN | 1 | Sample | | |
| 10 | Vial 80 | 1902253006 | | CLO4-AQN | 1 | Sample | | |
| 11 | Vial 81 | 1902253007 | 10X | CLO4-AQN | 1 | Sample | | |
| 12 | Vial 82 | 1902392001 | | CLO4-AQN | 1 | Sample | | |
| 13 | Vial 83 | 1902392002 | 100 | CLO4-AQN | 1 | Sample | | |
| 14 | Vial 84 | 1902392003 | 100 | CLO4-AQN | 1 | Sample | | |
| 15 | Vial 71 | 637601 | CCV@25 | CLO4-AQN | 1 | Ctrl Samp | | |
| 16 | Vial 85 | 1902392004 | 100 | CLO4-AQN | 1 | Sample | | |
| 17 | Vial 86 | 1902392005 | | CLO4-AQN | 1 | Sample | | |
| 18 | Vial 87 | 1902392006 | MS | CLO4-AQN | 1 | Sample | | |
| 19 | Vial 88 | 1902392007 | MSD | CLO4-AQN | 1 | Sample | | |
| 20 | Vial 89 | 1902392008 | 10X | CLO4-AQN | 1 | Sample | | |
| 21 | Vial 90 | 1902392009 | | CLO4-AQN | 1 | Sample | | |
| 22 | Vial 81 | 1902253007 | 10X | CLO4-AQN | 1 | Sample | | |
| 23 | Vial 83 | 1902392002 | 100 | CLO4-AQN | 1 | Sample | | |
| 24 | Vial 91 | 1902392004 | 1K | CLO4-AQN | 1 | Sample | | |
| 25 | Vial 87 | 1902392006 | MS | CLO4-AQN | 1 | Sample | | |
| 26 | Vial 71 | 637602 | CCV@25 | CLO4-AQN | 1 | Ctrl Samp | | |



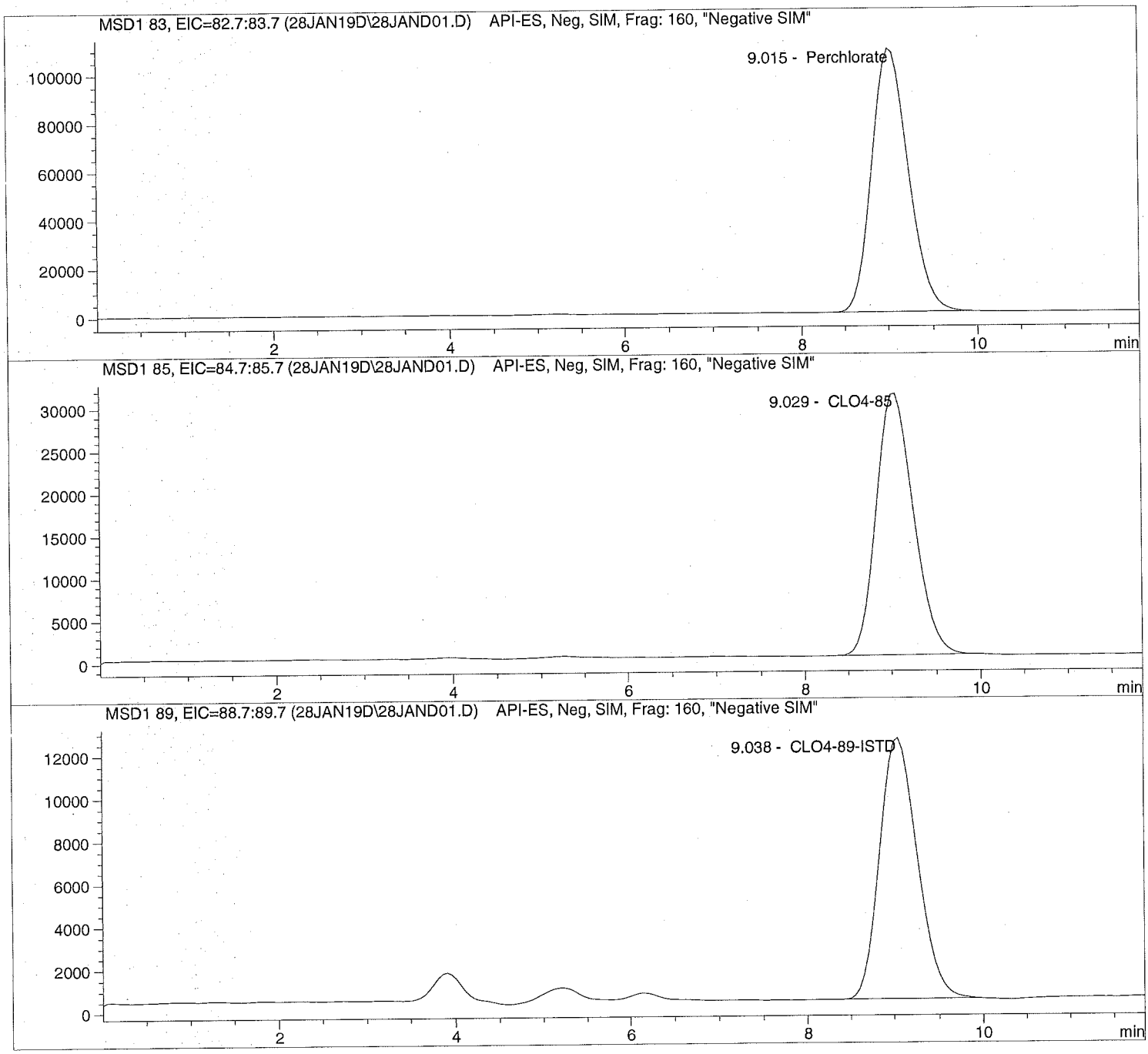
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND01.D Sample Name: 637596 CCV@25

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 09:06:47 | Seq Line: | 1 |
| Sample Name: | 637596 CCV@25 | Location: | Vial 71 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2018 12:46:06

Perchlorate analysis






RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND01.D  Sample Name: 637596  CCV@25

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 09:06:47 | Seq Line: | 1 |
| Sample Name: | 637596 CCV@25 | Location: | Vial 71 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

| | |
|---|---|
| Acq. Method: | CLO4-AQN.M |
| Analysis Method: | C:\HPCHEM\1\METHODS\CLO4-DPR.M |
| Last Changed: | 12/3/2018 12:46:06 |

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 3. Dec. 2018, 00:29:27 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 25.000 |

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.015 | PBA | 3120997.8 | 25.9510 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.029 | PBA | 902234.6 | 24.8990 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.038 | BBA | 358267.7 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***



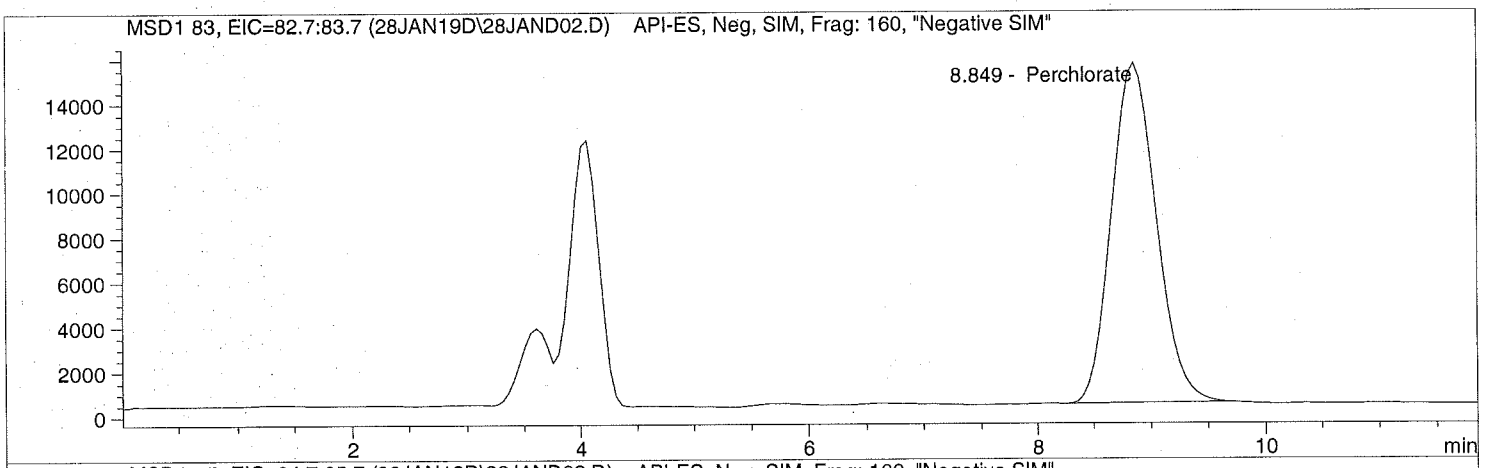
RIGHT SOLUTIONS | RIGHT PARTNER

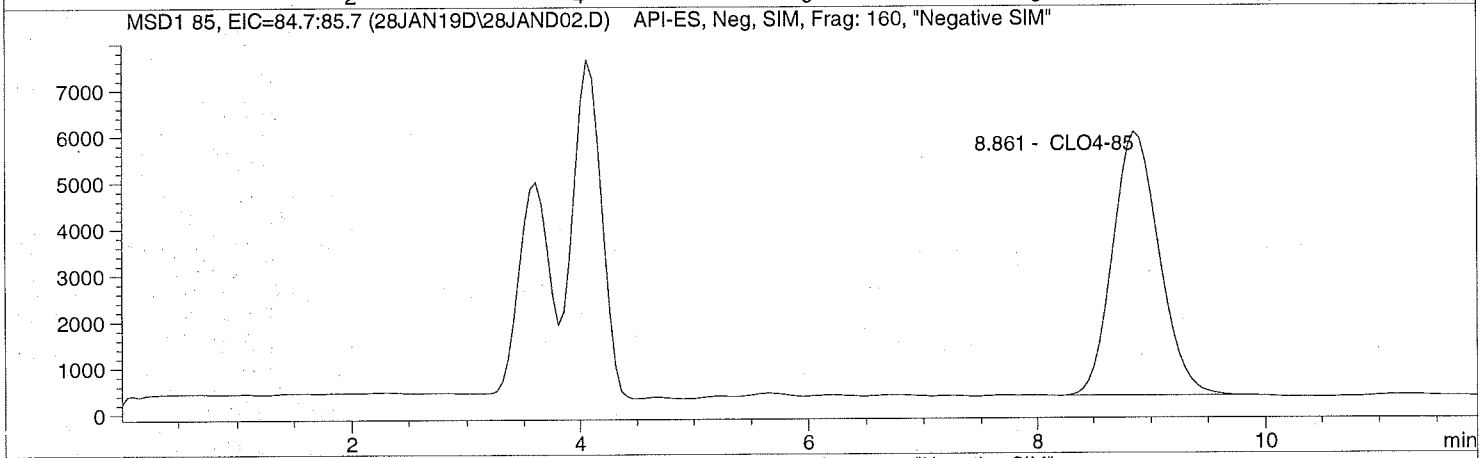
Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND02.D Sample Name: 637600 QC@4.0

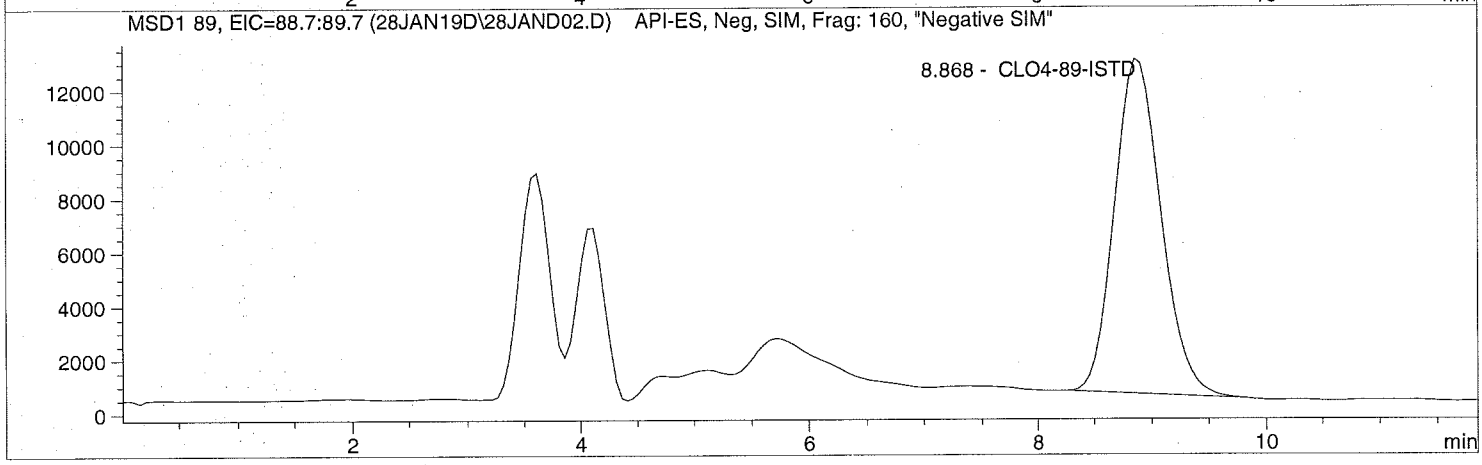
| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 09:21:26 | Seq Line: | 2 |
| Sample Name: | 637600 QC@4.0 | Location: | Vial 72 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2018 12:46:06

Perchlorate analysis






RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND02.D Sample Name: 637600 QC@4.0

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 09:21:26 | Seq Line: | 2 |
| Sample Name: | 637600 QC@4.0 | Location: | Vial 72 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2018 12:46:06

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 3. Dec. 2018, 00:29:27 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 4.000 |

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 8.849 | PBA | 413389.9 | 3.8127 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 8.861 | PBA | 160136.1 | 4.7885 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 8.868 | PBA | 352344.9 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***



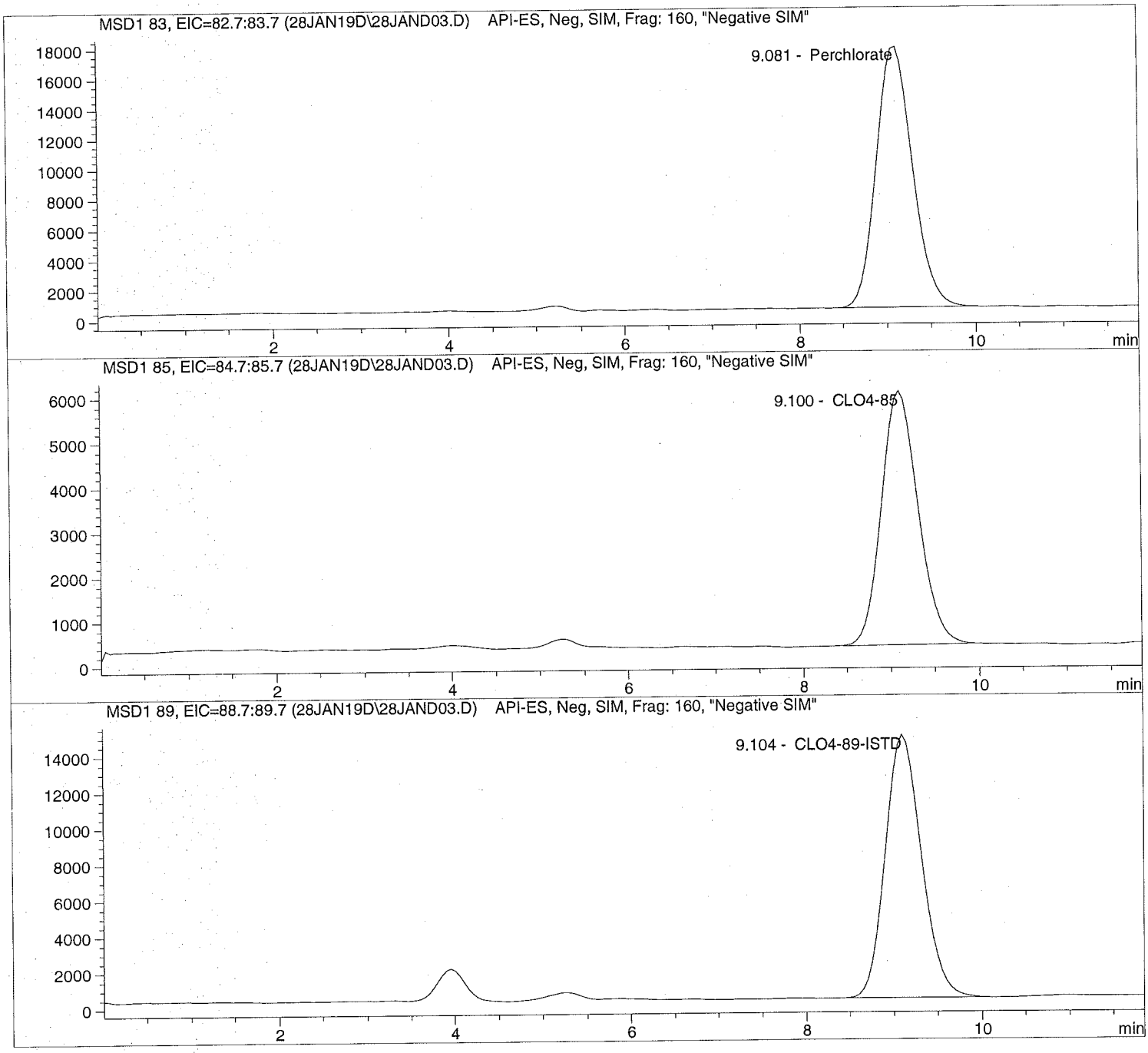
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND03.D Sample Name: 637598 ICS@4.0

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 09:35:13 | Seq Line: | 3 |
| Sample Name: | 637598 ICS@4.0 | Location: | Vial 73 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2018 12:46:06

Perchlorate analysis






RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND03.D Sample Name: 637598 ICS@4.0

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 09:35:13 | Seq Line: | 3 |
| Sample Name: | 637598 ICS@4.0 | Location: | Vial 73 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2018 12:46:06

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 3. Dec. 2018, 00:29:27 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 4.000 |

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.081 | PBA | 496412.4 | 3.8356 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.100 | BBA | 166003.7 | 4.1776 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.104 | PBA | 420423.8 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***



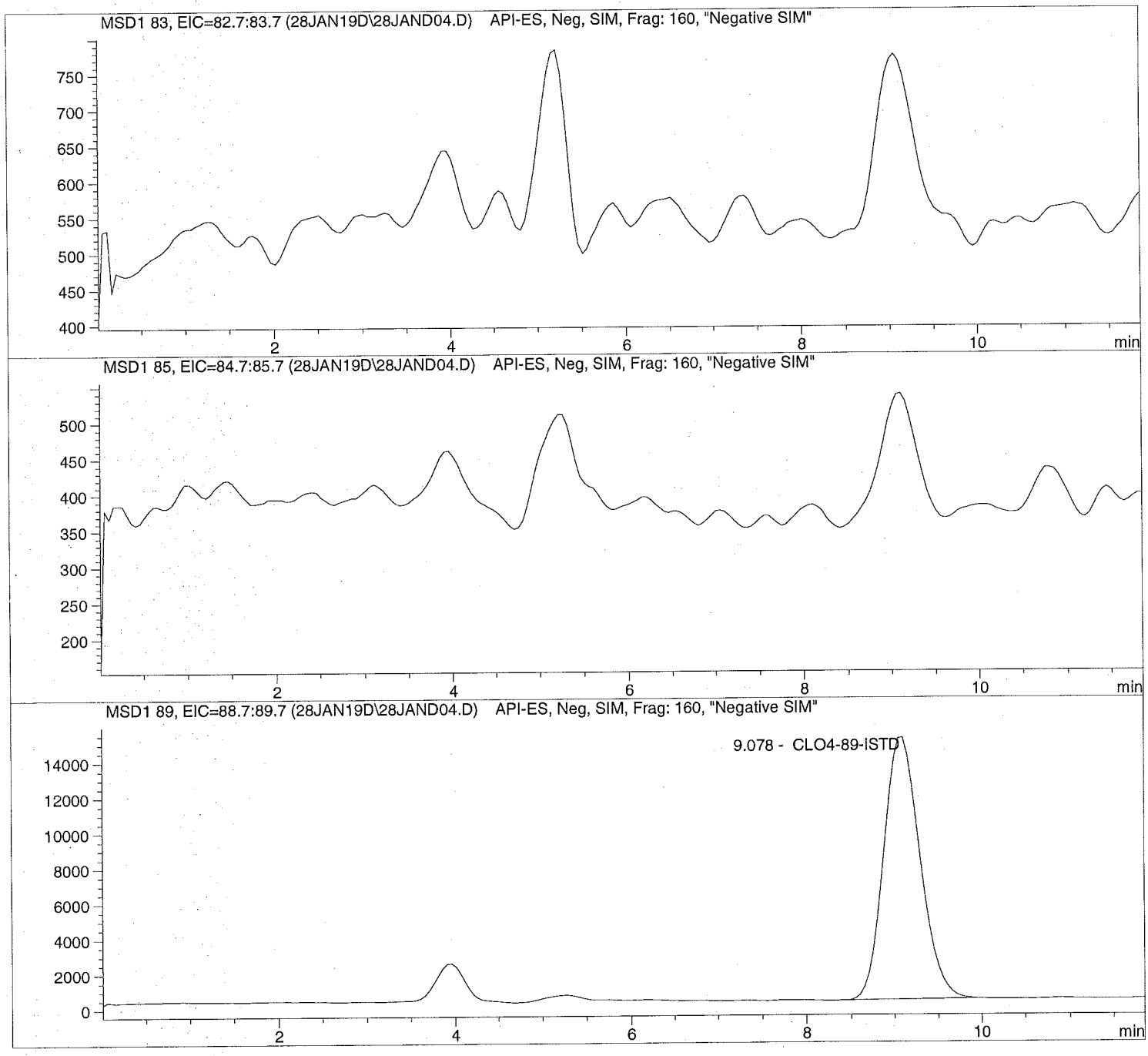
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND04.D Sample Name: 637599 LMB

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 09:49:03 | Seq Line: | 4 |
| Sample Name: | 637599 LMB | Location: | Vial 74 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2018 12:46:06

Perchlorate analysis






RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND04.D Sample Name: 637599 LMB

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 09:49:03 | Seq Line: | 4 |
| Sample Name: | 637599 LMB | Location: | Vial 74 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2018 12:46:06

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 3. Dec. 2018, 00:29:27 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.000 |

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 0.000 | | 0.0 | 0.0000 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 0.000 | | 0.0 | 0.0000 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.078 | PBA | 430750.0 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***



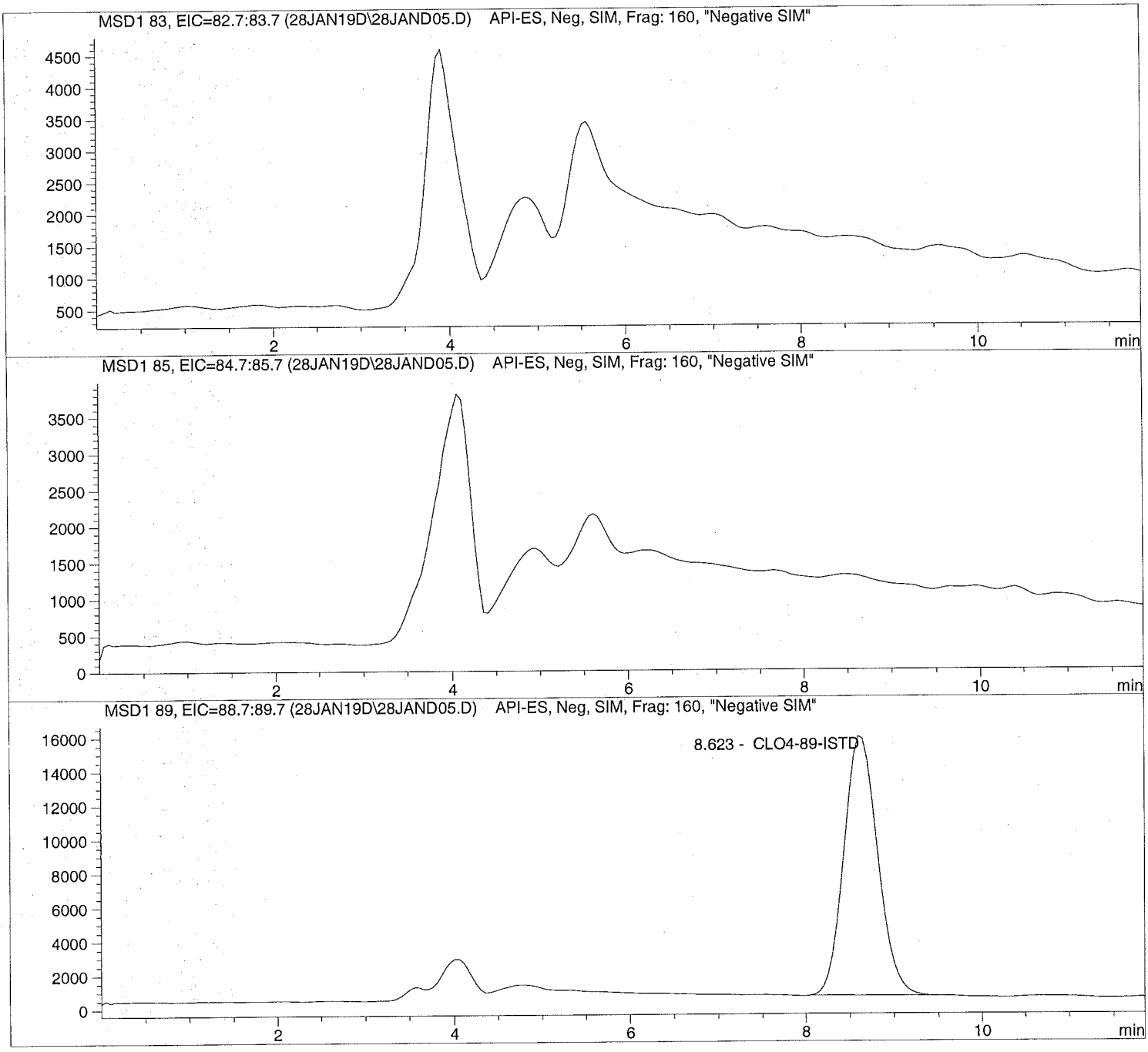
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND05.D Sample Name: 1902253001

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 10:02:50 | Seq Line: | 5 |
| Sample Name: | 1902253001 | Location: | Vial 75 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2018 12:46:06

Perchlorate analysis






RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND05.D Sample Name: 1902253001

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 10:02:50 | Seq Line: | 5 |
| Sample Name: | 1902253001 | Location: | Vial 75 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

| | |
|---|---|
| Acq. Method: | CLO4-AQN.M |
| Analysis Method: | C:\HPCHEM\1\METHODS\CLO4-DPR.M |
| Last Changed: | 12/3/2018 12:46:06 |

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 3. Dec. 2018, 00:29:27 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.000 |

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 0.000 | | 0.0 | 0.0000 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 0.000 | | 0.0 | 0.0000 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 8.623 | PBA | 404682.6 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***



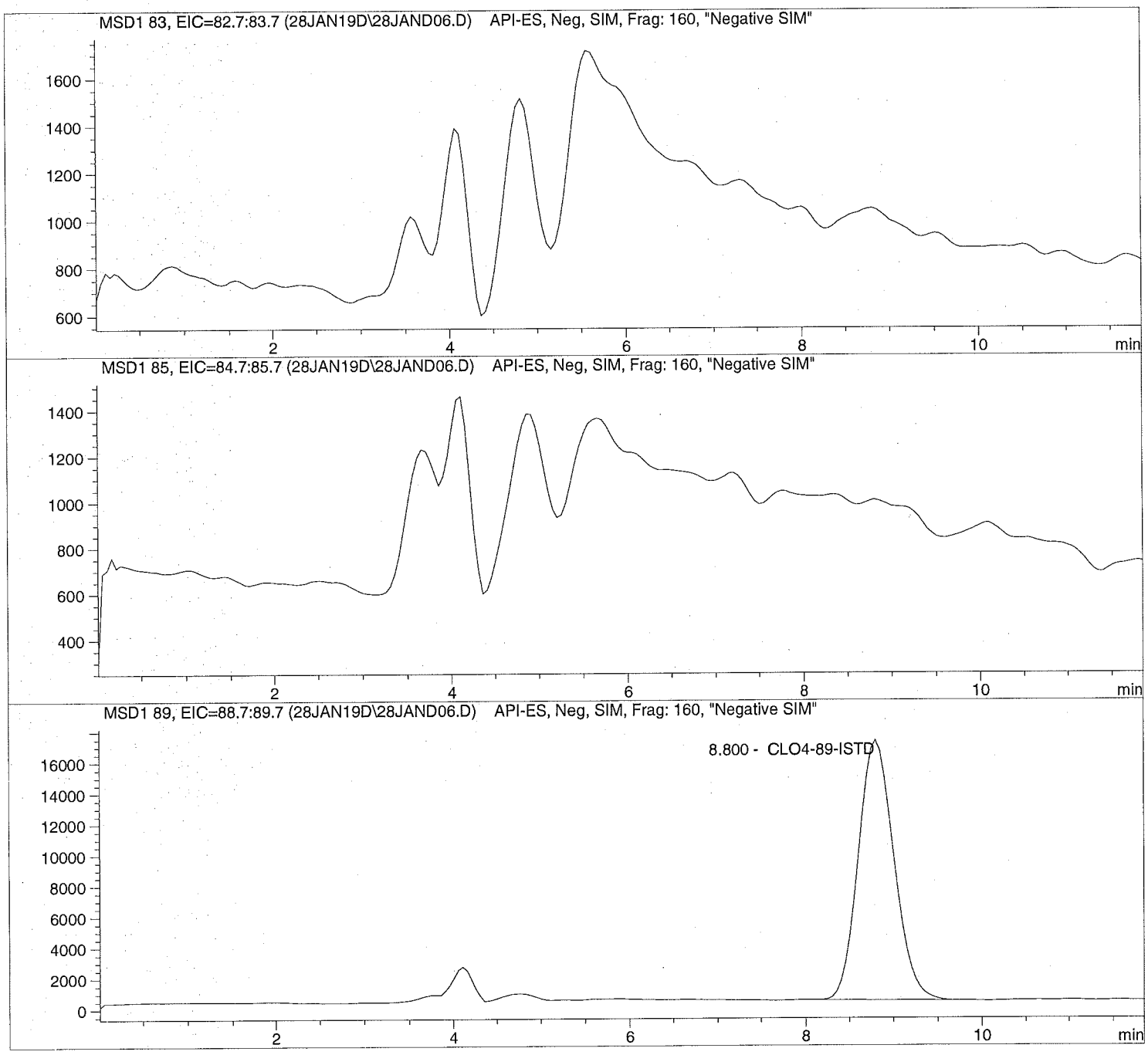
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND06.D Sample Name: 1902253002

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 10:16:43 | Seq Line: | 6 |
| Sample Name: | 1902253002 | Location: | Vial 76 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2018 12:46:06

Perchlorate analysis






RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND06.D Sample Name: 1902253002

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 10:16:43 | Seq Line: | 6 |
| Sample Name: | 1902253002 | Location: | Vial 76 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2018 12:46:06

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 3. Dec. 2018, 00:29:27 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.000 |

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 0.000 | | 0.0 | 0.0000 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 0.000 | | 0.0 | 0.0000 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 8.800 | BBA | 472598.8 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***



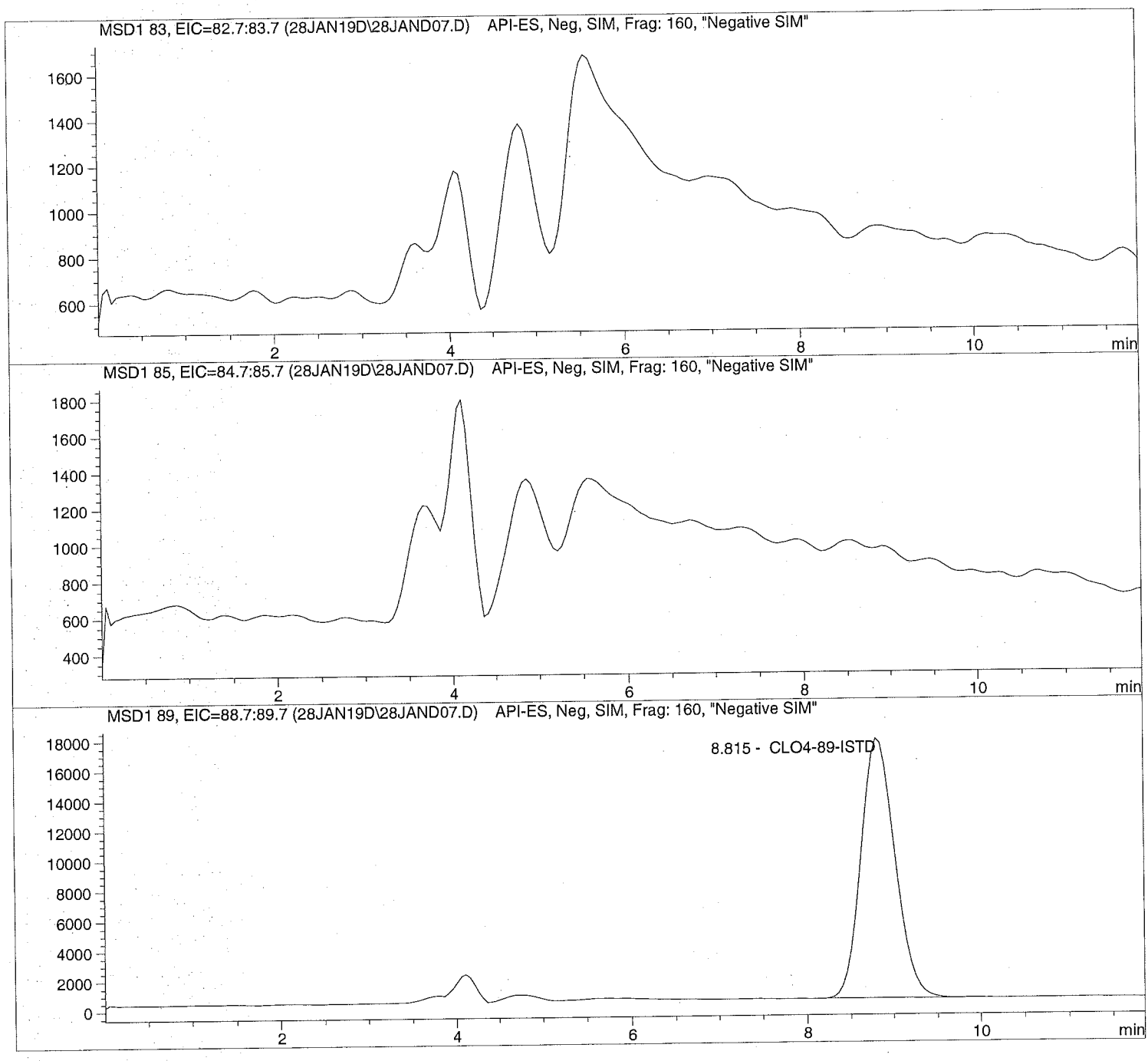
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND07.D Sample Name: 1902253003

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 10:30:41 | Seq Line: | 7 |
| Sample Name: | 1902253003 | Location: | Vial 77 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2018 12:46:06

Perchlorate analysis






RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND07.D Sample Name: 1902253003

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 10:30:41 | Seq Line: | 7 |
| Sample Name: | 1902253003 | Location: | Vial 77 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

| | |
|---|---|
| Acq. Method: | CLO4-AQN.M |
| Analysis Method: | C:\HPCHEM\1\METHODS\CLO4-DPR.M |
| Last Changed: | 12/3/2018 12:46:06 |

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 3. Dec. 2018, 00:29:27 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.000 |

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 0.000 | | 0.0 | 0.0000 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 0.000 | | 0.0 | 0.0000 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 8.815 | PBA | 474255.2 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***



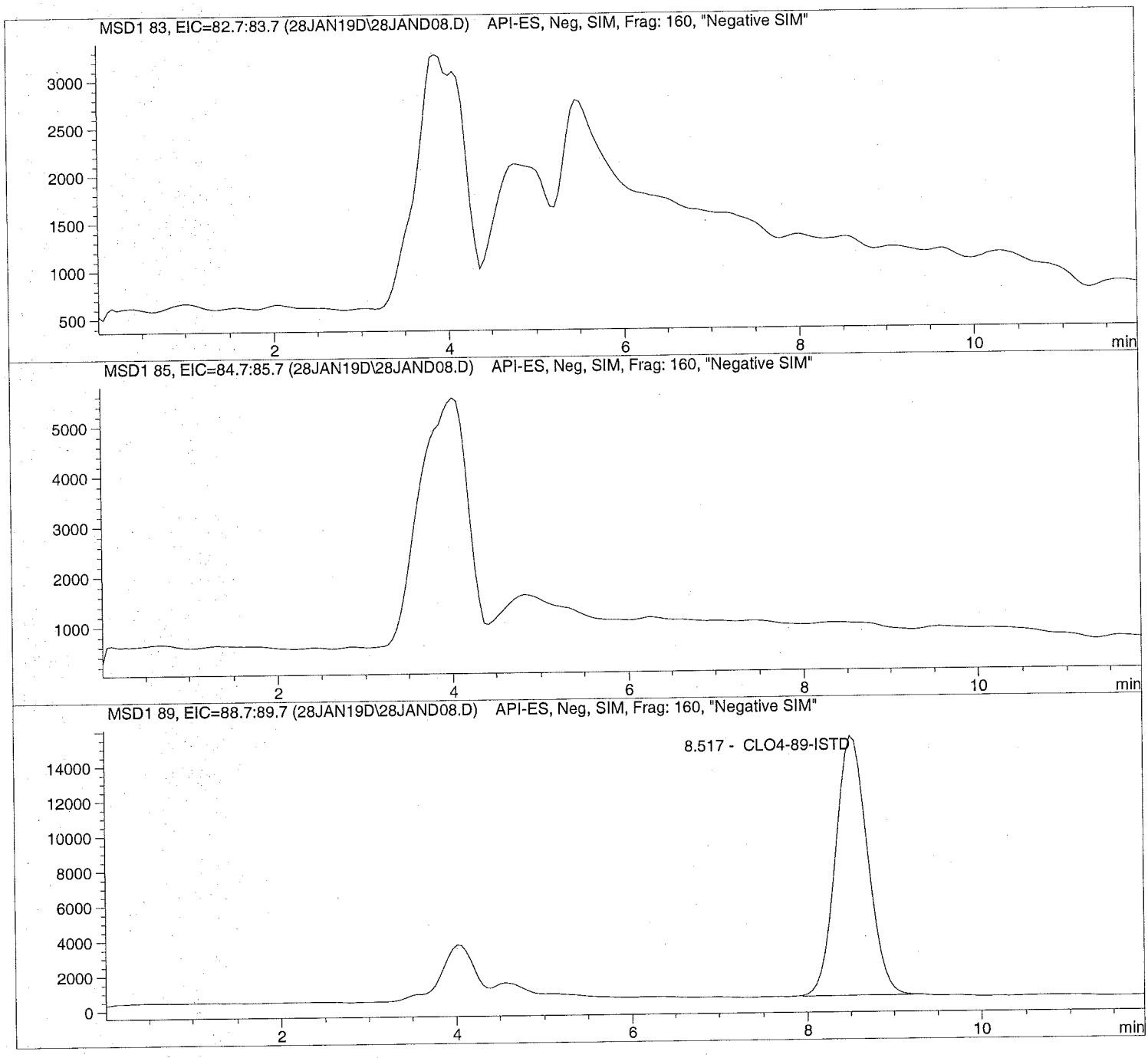
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND08.D Sample Name: 1902253004

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 10:44:28 | Seq Line: | 8 |
| Sample Name: | 1902253004 | Location: | Vial 78 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2018 12:46:06

Perchlorate analysis






RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND08.D Sample Name: 1902253004

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 10:44:28 | Seq Line: | 8 |
| Sample Name: | 1902253004 | Location: | Vial 78 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

| | |
|---|---|
| Acq. Method: | CLO4-AQN.M |
| Analysis Method: | C:\HPCHEM\1\METHODS\CLO4-DPR.M |
| Last Changed: | 12/3/2018 12:46:06 |

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 3. Dec. 2018, 00:29:27 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.000 |

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 0.000 | | 0.0 | 0.0000 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 0.000 | | 0.0 | 0.0000 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 8.517 | BBA | 382663.6 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***



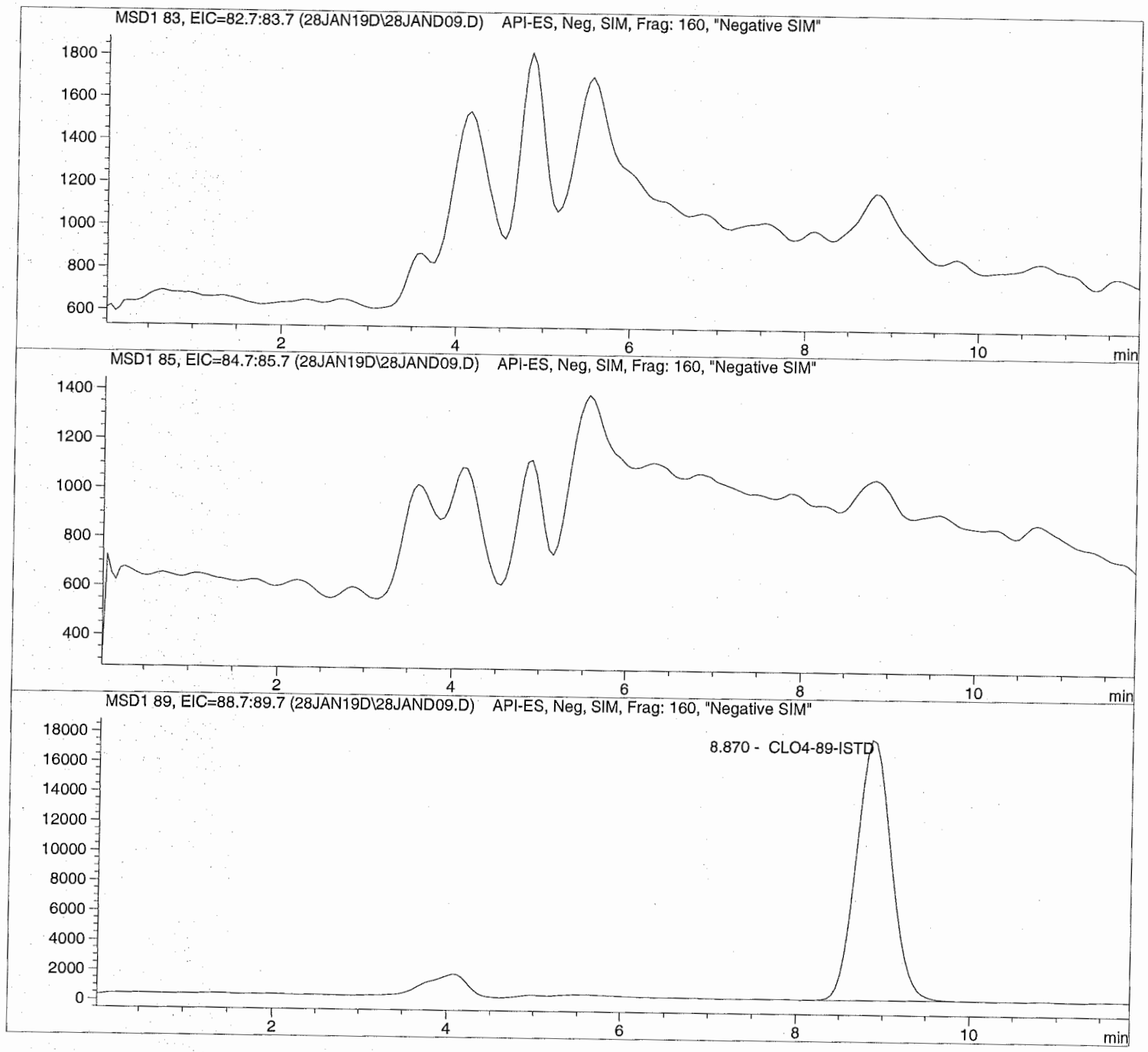
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND09.D Sample Name: 1902253005

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 10:58:22 | Seq Line: | 9 |
| Sample Name: | 1902253005 | Location: | Vial 79 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2018 12:46:06

Perchlorate analysis






RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND09.D Sample Name: 1902253005

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 10:58:22 | Seq Line: | 9 |
| Sample Name: | 1902253005 | Location: | Vial 79 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

| | |
|---|---|
| Acq. Method: | CLO4-AQN.M |
| Analysis Method: | C:\HPCHEM\1\METHODS\CLO4-DPR.M |
| Last Changed: | 12/3/2018 12:46:06 |

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 3. Dec. 2018, 00:29:27 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.000 |

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 0.000 | | 0.0 | 0.0000 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 0.000 | | 0.0 | 0.0000 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 8.870 | PBA | 490120.0 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***



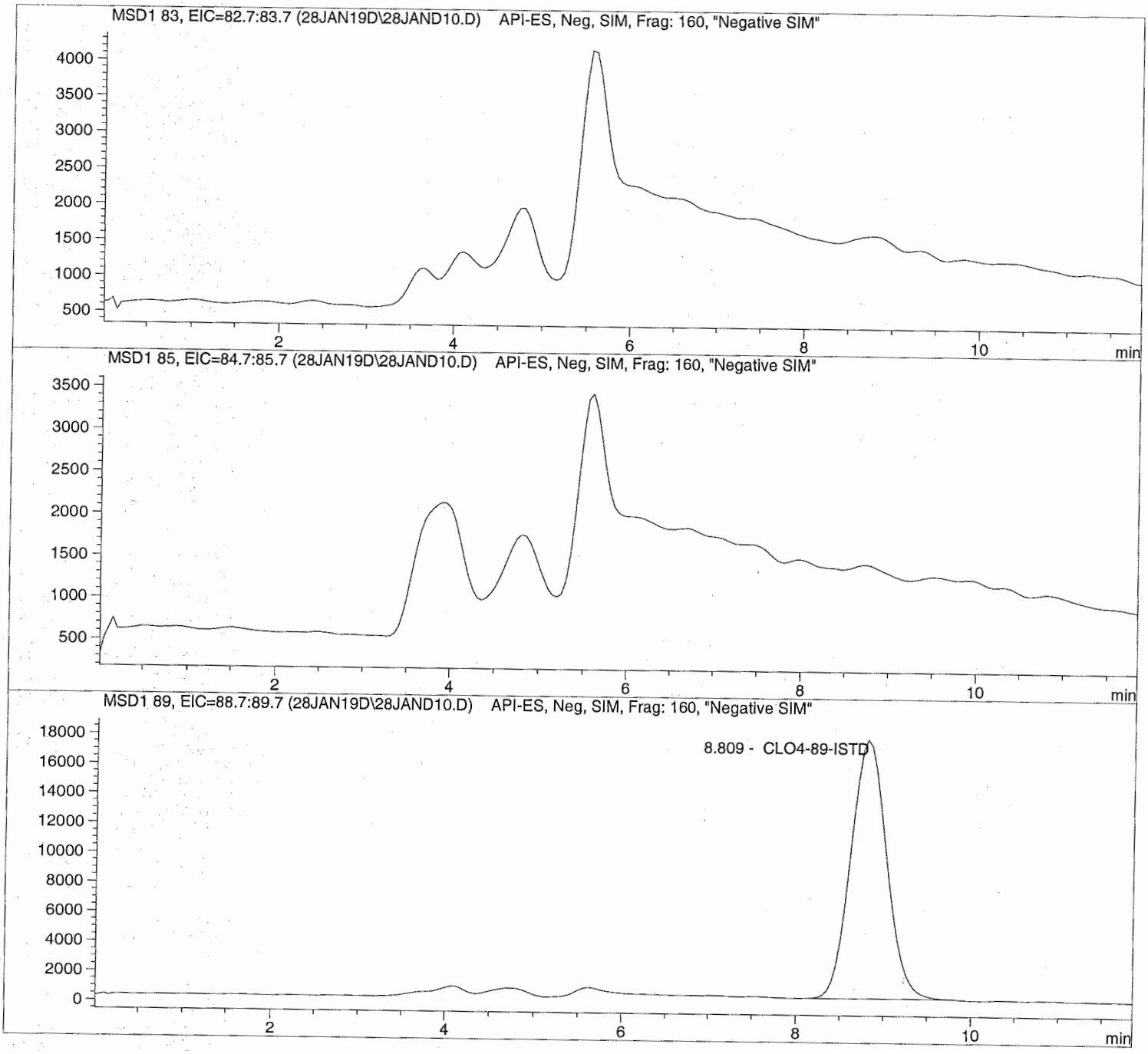
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND10.D Sample Name: 1902253006

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 11:12:12 | Seq Line: | 10 |
| Sample Name: | 1902253006 | Location: | Vial 80 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2018 12:46:06

Perchlorate analysis






RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND10.D Sample Name: 1902253006

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 11:12:12 | Seq Line: | 10 |
| Sample Name: | 1902253006 | Location: | Vial 80 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

| | |
|---|---|
| Acq. Method: | CLO4-AQN.M |
| Analysis Method: | C:\HPCHEM\1\METHODS\CLO4-DPR.M |
| Last Changed: | 12/3/2018 12:46:06 |

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 3. Dec. 2018, 00:29:27 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.000 |

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 0.000 | | 0.0 | 0.0000 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 0.000 | | 0.0 | 0.0000 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 8.809 | PBA | 495621.1 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***



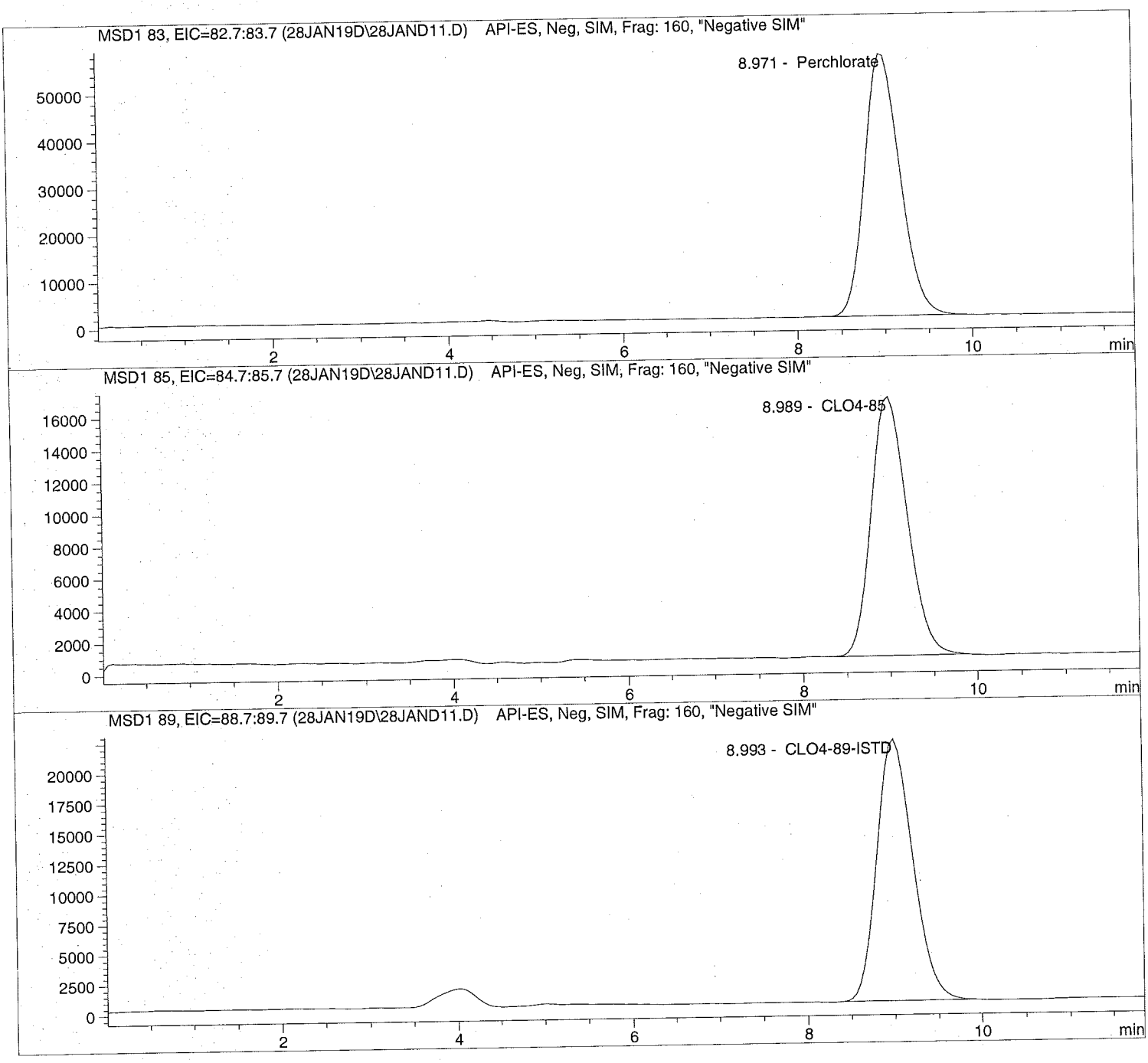
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND11.D  Sample Name: 1902253007  10X

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 11:26:10 | Seq Line: | 11 |
| Sample Name: | 1902253007 10X | Location: | Vial 81 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2018 12:46:06

Perchlorate analysis






RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND11.D Sample Name: 1902253007 10X

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 11:26:10 | Seq Line: | 11 |
| Sample Name: | 1902253007 10X | Location: | Vial 81 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

| | |
|---|---|
| Acq. Method: | CLO4-AQN.M |
| Analysis Method: | C:\HPCHEM\1\METHODS\CLO4-DPR.M |
| Last Changed: | 12/3/2018 12:46:06 |

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 3. Dec. 2018, 00:29:27 pm |
| Multiplier: | 1.000000 |
| Dilution: | 10.000000 |
| Sample Amount: | 0.000 |

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 8.971 | BBA | 1579865.0 | 79.6796 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 8.989 | BBA | 464345.6 | 77.6765 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 8.993 | PBA | 620861.9 | 50.0000 | CLO4-89-ISTD |

*** End of Report ***



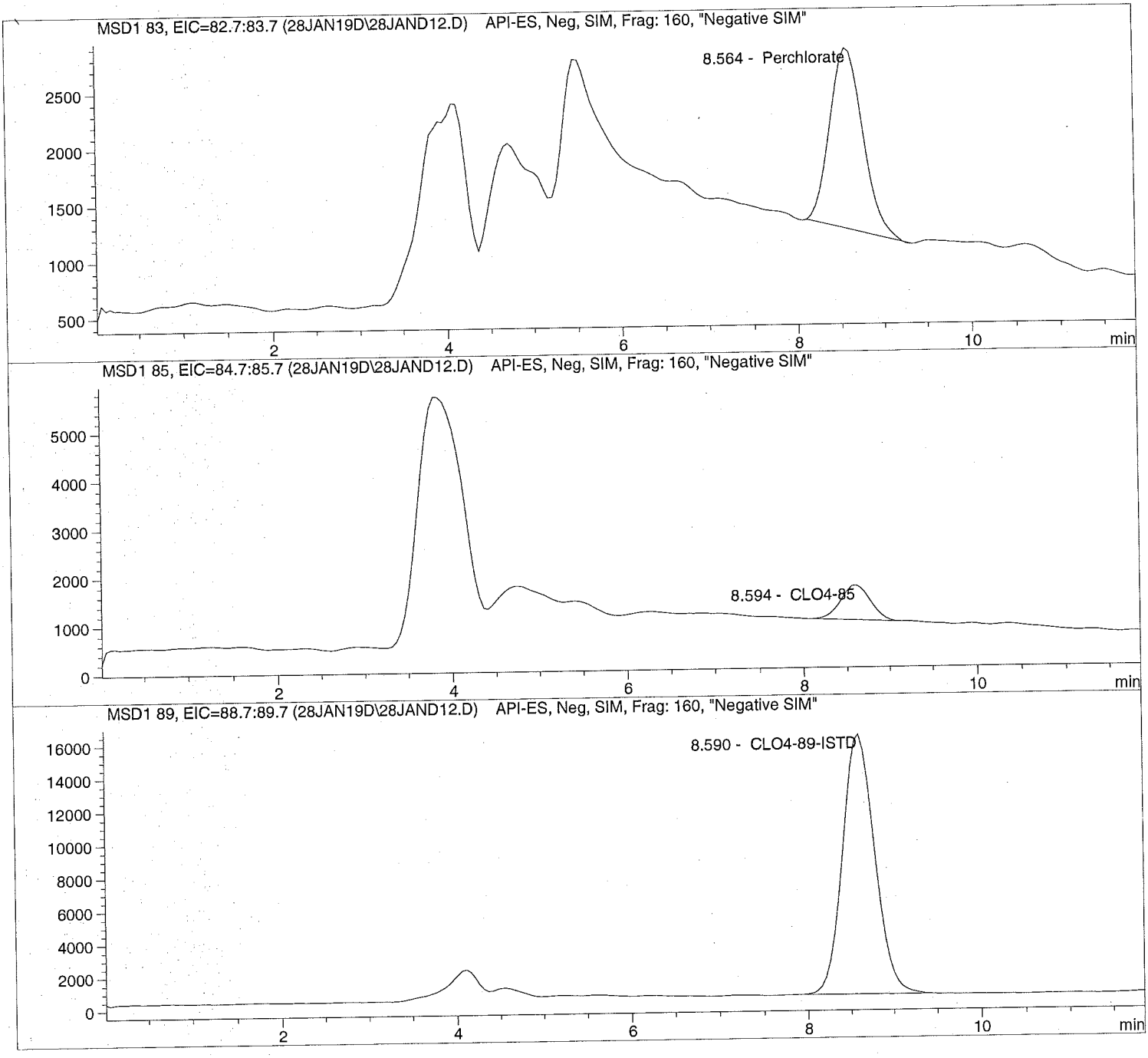
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND12.D Sample Name: 1902392001

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 11:39:55 | Seq Line: | 12 |
| Sample Name: | 1902392001 | Location: | Vial 82 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2018 12:46:06

Perchlorate analysis






RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND12.D Sample Name: 1902392001

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 11:39:55 | Seq Line: | 12 |
| Sample Name: | 1902392001 | Location: | Vial 82 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

| | |
|---|---|
| Acq. Method: | CLO4-AQN.M |
| Analysis Method: | C:\HPCHEM\1\METHODS\CLO4-DPR.M |
| Last Changed: | 12/3/2018 12:46:06 |

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 3. Dec. 2018, 00:29:27 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.000 |

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 8.564 | PBA | 42787.5 | 0.5294 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 8.594 | PBA | 17413.6 | 0.5276 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 8.590 | BBA | 411974.2 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***



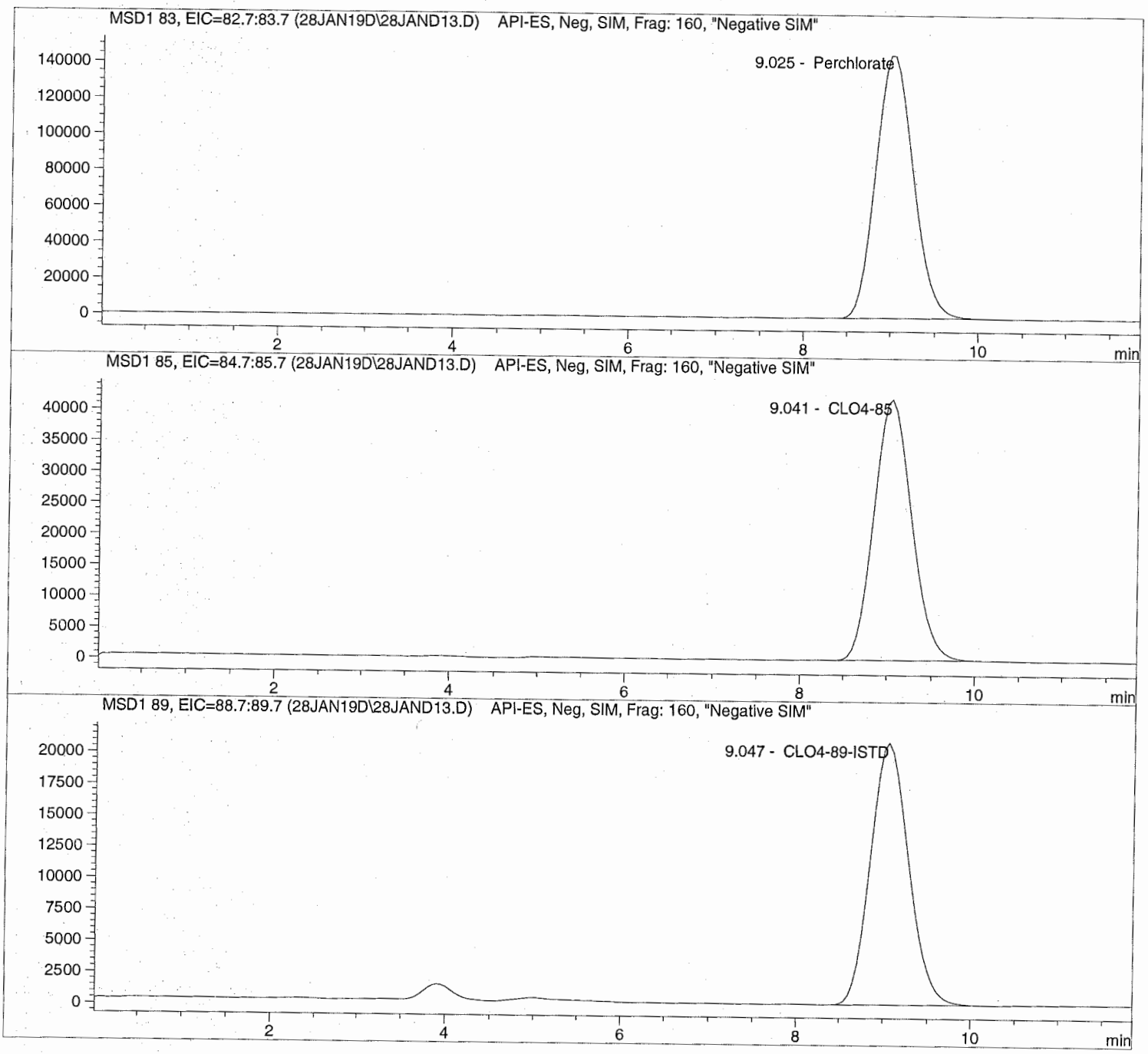
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND13.D Sample Name: 1902392002 100

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 11:53:40 | Seq Line: | 13 |
| Sample Name: | 1902392002 100 | Location: | Vial 83 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2018 12:46:06

Perchlorate analysis






RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND13.D Sample Name: 1902392002 100

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 11:53:40 | Seq Line: | 13 |
| Sample Name: | 1902392002 100 | Location: | Vial 83 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2018 12:46:06

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 3. Dec. 2018, 00:29:27 pm |
| Multiplier: | 1.000000 |
| Dilution: | 100.000000 |
| Sample Amount: | 0.000 |

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.025 | BBA | 4308506.0 | 2083.7018 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.041 | PBA | 1241533.1 | 1996.4734 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.047 | PBA | 622672.9 | 500.0000 | CLO4-89-ISTD |

*** End of Report ***



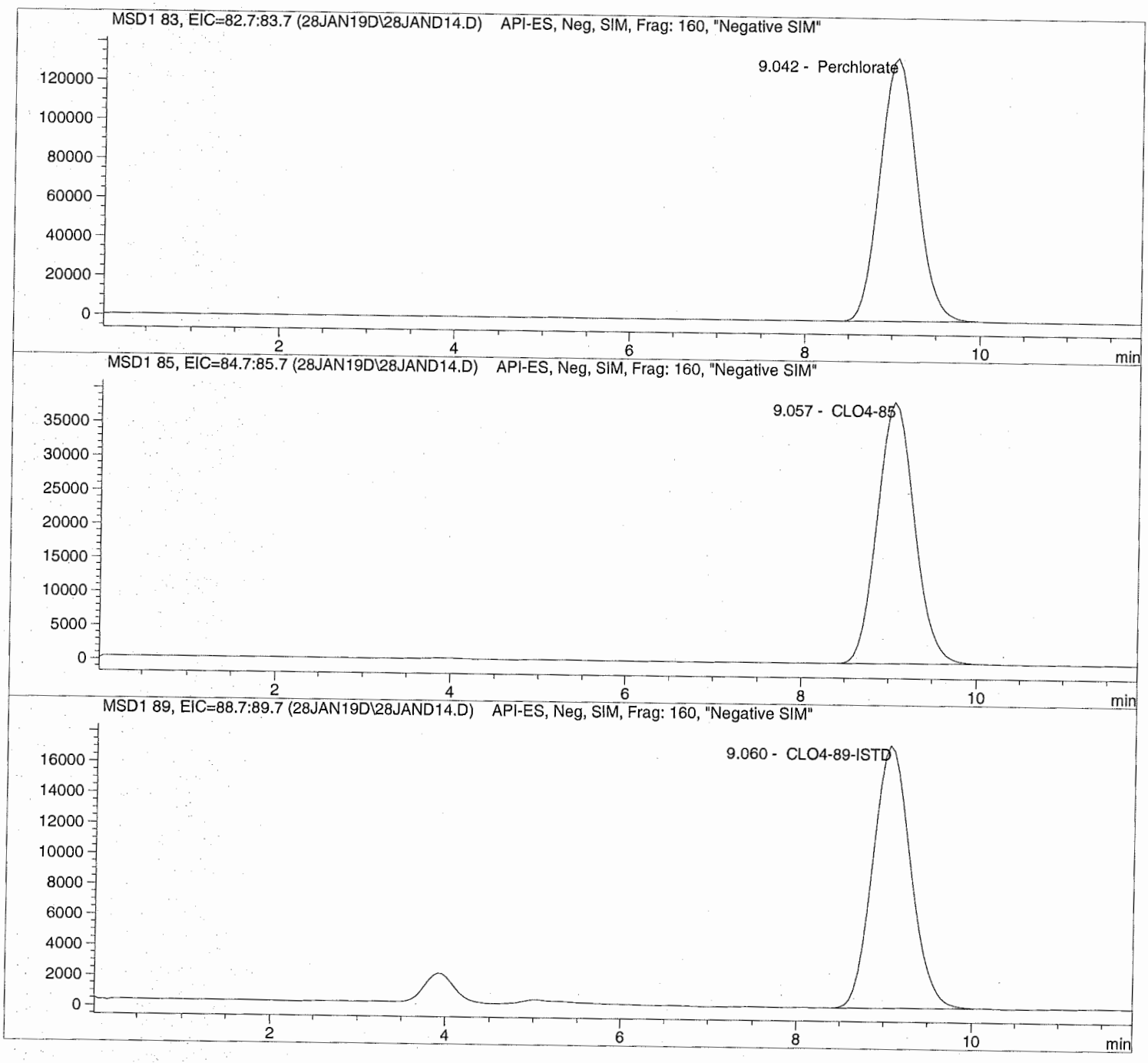
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND14.D Sample Name: 1902392003 100

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 12:07:33 | Seq Line: | 14 |
| Sample Name: | 1902392003 100 | Location: | Vial 84 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2018 12:46:06

Perchlorate analysis






RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND14.D Sample Name: 1902392003 100

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 12:07:33 | Seq Line: | 14 |
| Sample Name: | 1902392003 100 | Location: | Vial 84 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2018 12:46:06

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 3. Dec. 2018, 00:29:27 pm |
| Multiplier: | 1.000000 |
| Dilution: | 100.000000 |
| Sample Amount: | 0.000 |

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.042 | PBA | 3951233.8 | 2283.0283 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.057 | PBA | 1143303.5 | 2194.7418 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.060 | PBA | 518929.0 | 500.0000 | CLO4-89-ISTD |

*** End of Report ***



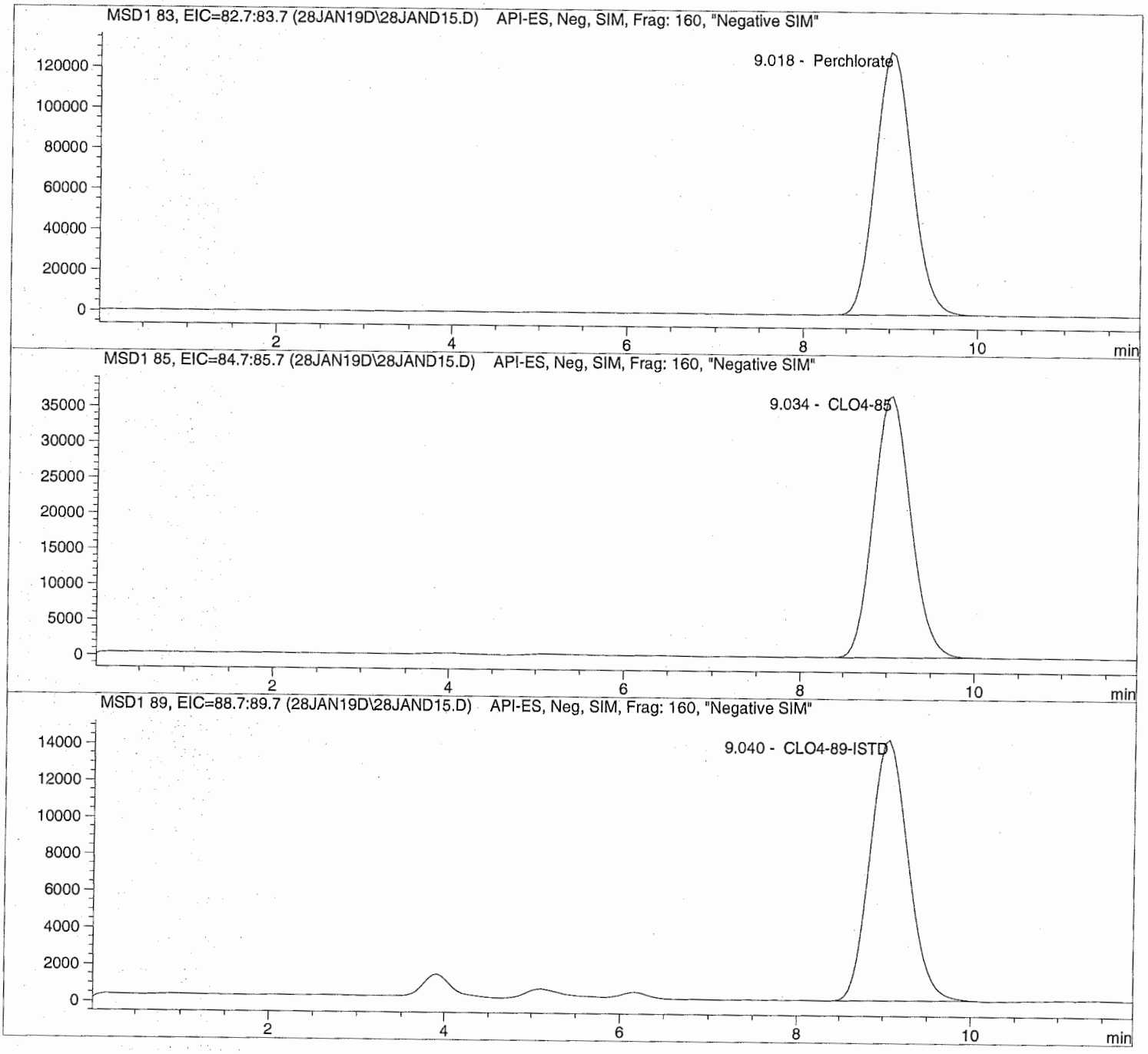
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND15.D Sample Name: 637601 CCV@25

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 12:21:18 | Seq Line: | 15 |
| Sample Name: | 637601 CCV@25 | Location: | Vial 71 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2018 12:46:06

Perchlorate analysis






RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND15.D Sample Name: 637601 CCV@25

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 12:21:18 | Seq Line: | 15 |
| Sample Name: | 637601 CCV@25 | Location: | Vial 71 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2018 12:46:06

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 3. Dec. 2018, 00:29:27 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 25.000 |

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.018 | PBA | 3780684.7 | 26.5117 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.034 | PBA | 1084316.3 | 25.2431 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.040 | BBA | 424334.0 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***



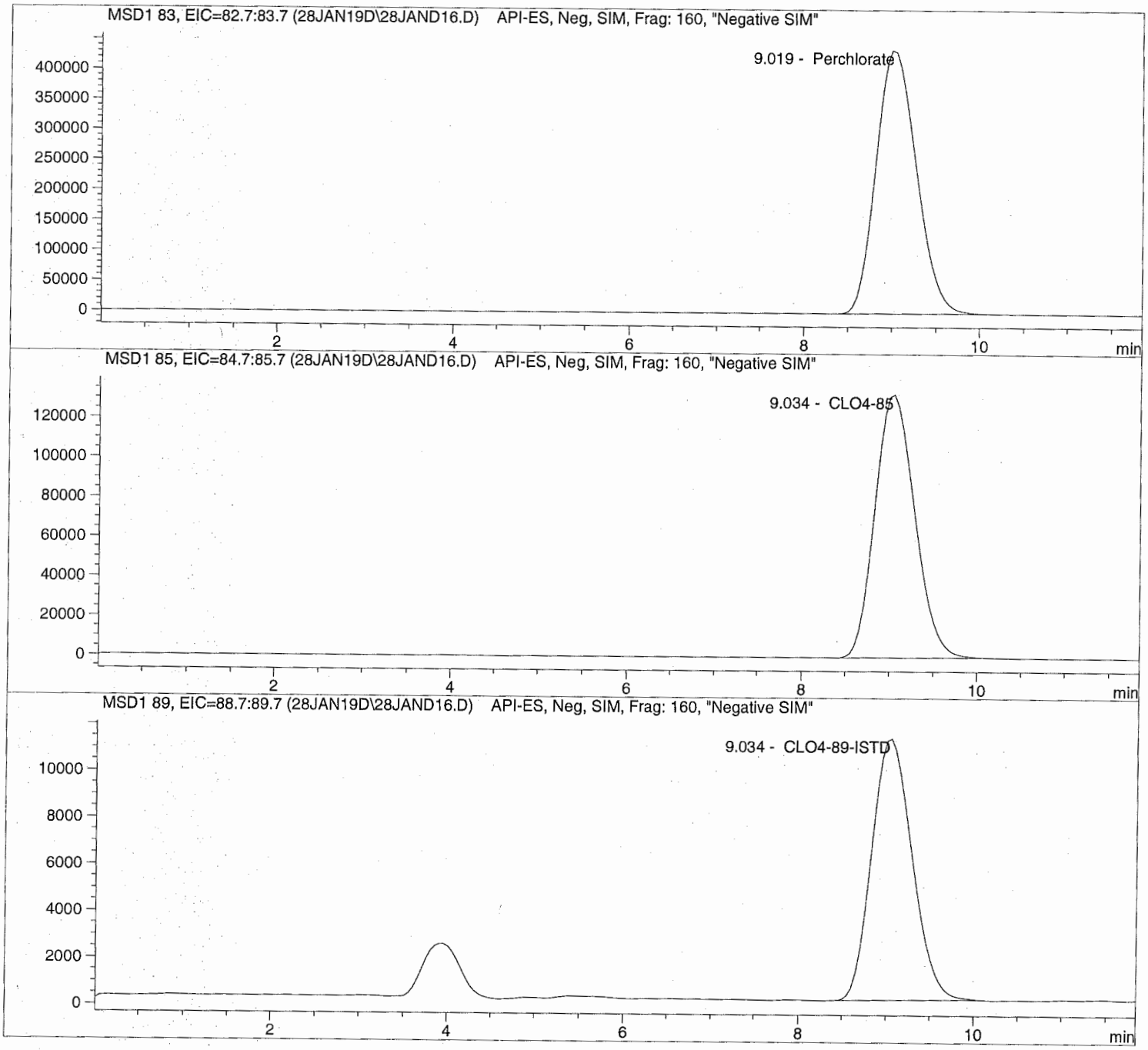
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND16.D Sample Name: 1902392004 100

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 12:35:04 | Seq Line: | 16 |
| Sample Name: | 1902392004 100 | Location: | Vial 85 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2018 12:46:06

Perchlorate analysis






RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND16.D Sample Name: 1902392004 100

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 12:35:04 | Seq Line: | 16 |
| Sample Name: | 1902392004 100 | Location: | Vial 85 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

| | |
|---|---|
| Acq. Method: | CLO4-AQN.M |
| Analysis Method: | C:\HPCHEM\1\METHODS\CLO4-DPR.M |
| Last Changed: | 12/3/2018 12:46:06 |

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 3. Dec. 2018, 00:29:27 pm |
| Multiplier: | 1.000000 |
| Dilution: | 100.000000 |
| Sample Amount: | 0.000 |

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.019 | PBA | 13868192.0 | 10184.8136 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.034 | PBA | 4160845.0 | 9801.3642 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.034 | PBA | 356653.1 | 500.0000 | CLO4-89-ISTD |

*** End of Report ***



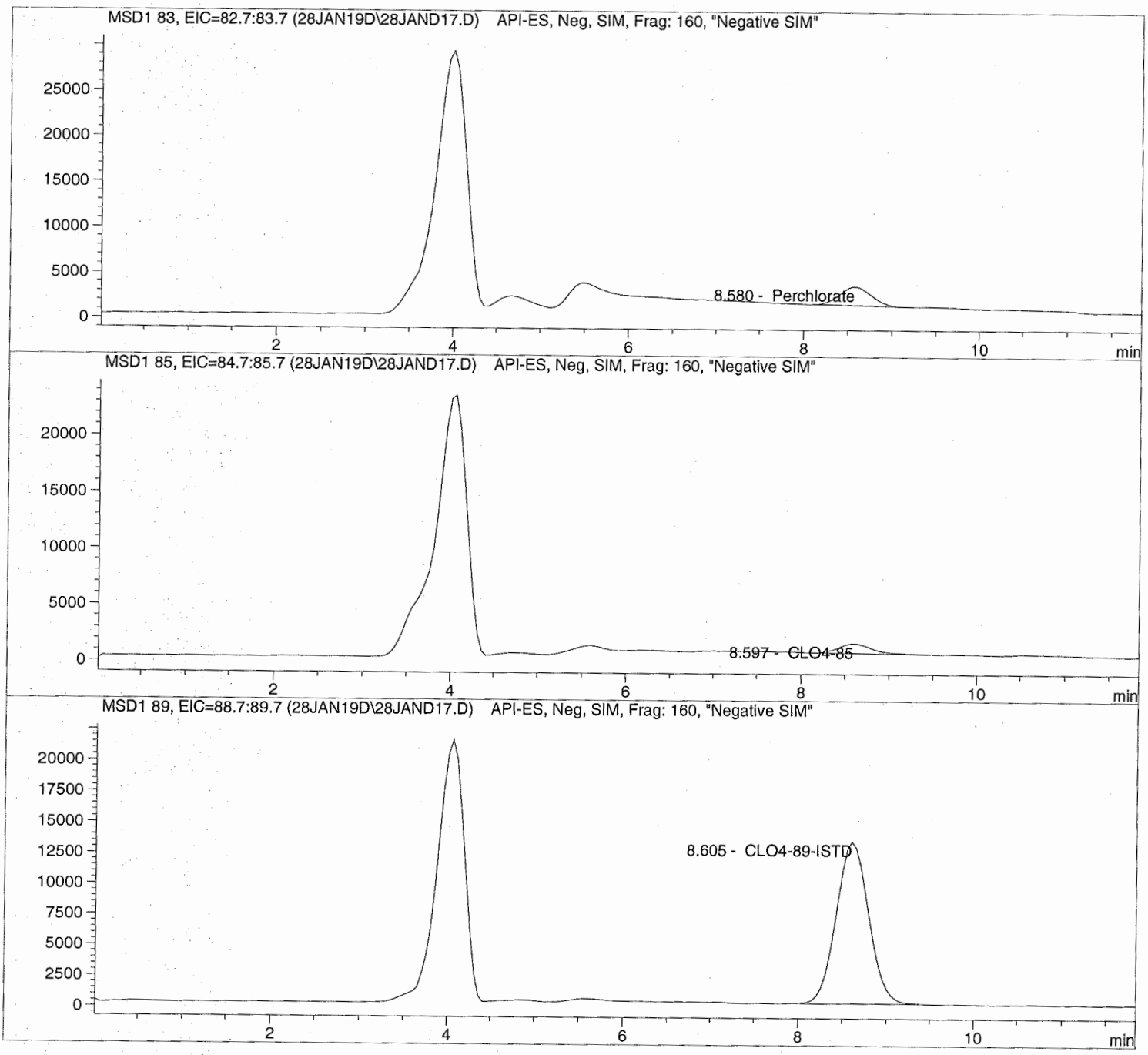
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND17.D Sample Name: 1902392005

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 12:49:00 | Seq Line: | 17 |
| Sample Name: | 1902392005 | Location: | Vial 86 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2018 12:46:06

Perchlorate analysis






RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND17.D Sample Name: 1902392005

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 12:49:00 | Seq Line: | 17 |
| Sample Name: | 1902392005 | Location: | Vial 86 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2018 12:46:06

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 3. Dec. 2018, 00:29:27 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.000 |

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 8.580 | PBA | 51442.9 | 0.6812 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 8.597 | PBA | 22699.7 | 0.7913 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 8.605 | BBA | 336195.9 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***



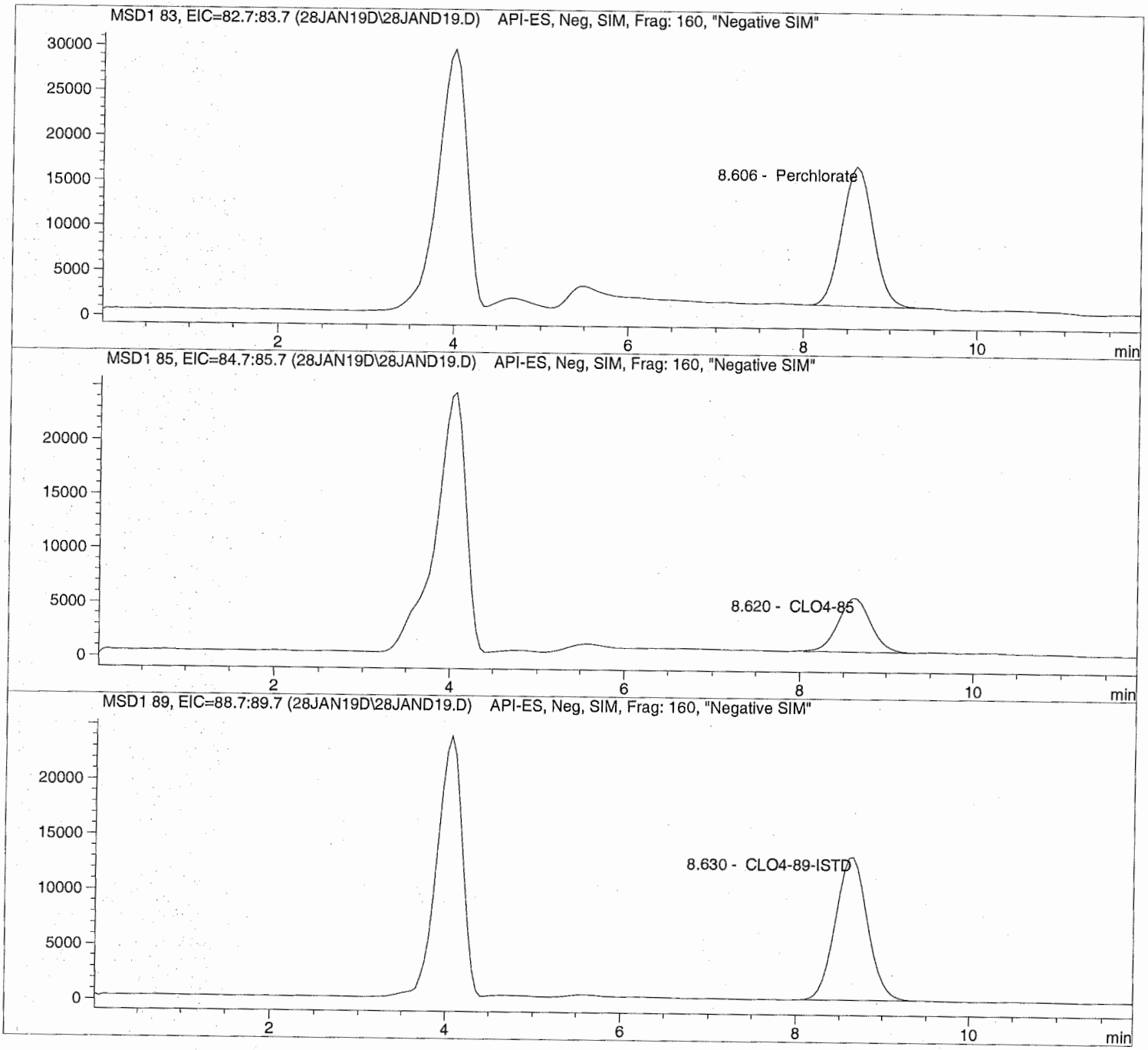
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND19.D Sample Name: 1902392007 MSD

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 13:16:32 | Seq Line: | 19 |
| Sample Name: | 1902392007 MSD | Location: | Vial 88 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2018 12:46:06

Perchlorate analysis






RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND19.D Sample Name: 1902392007 MSD

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 13:16:32 | Seq Line: | 19 |
| Sample Name: | 1902392007 MSD | Location: | Vial 88 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

| | |
|---|---|
| Acq. Method: | CLO4-AQN.M |
| Analysis Method: | C:\HPCHEM\1\METHODS\CLO4-DPR.M |
| Last Changed: | 12/3/2018 12:46:06 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 3. Dec. 2018, 00:29:27 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.000 |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 8.606 | PBA | 389105.6 | 3.7587 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 8.620 | BBA | 131668.6 | 4.1384 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 8.630 | BBA | 336729.2 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***



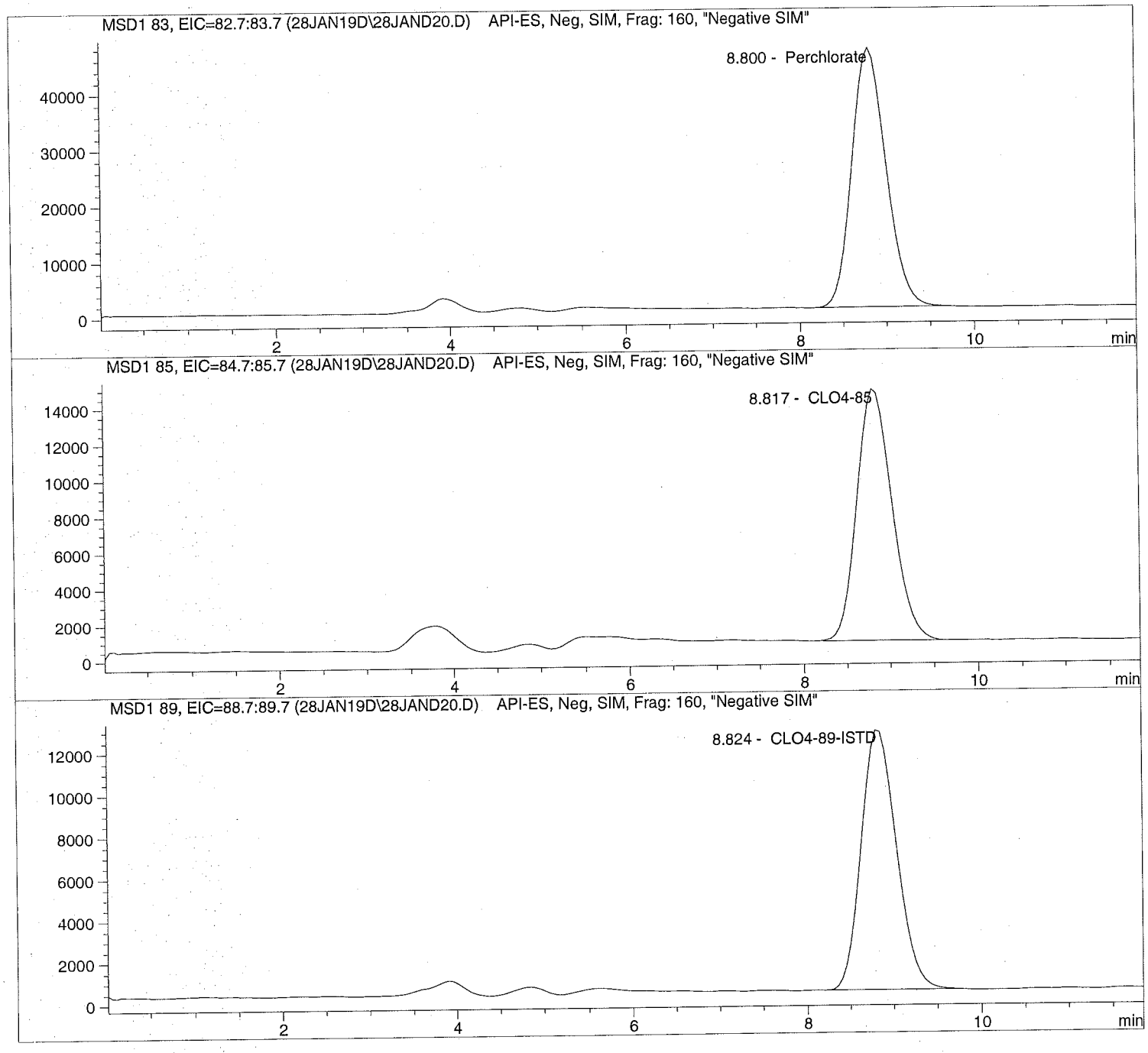
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND20.D Sample Name: 1902392008 10X

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 13:30:27 | Seq Line: | 20 |
| Sample Name: | 1902392008 10X | Location: | Vial 89 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2018 12:46:06

Perchlorate analysis






RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND20.D Sample Name: 1902392008 10X

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 13:30:27 | Seq Line: | 20 |
| Sample Name: | 1902392008 10X | Location: | Vial 89 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2018 12:46:06

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 3. Dec. 2018, 00:29:27 pm |
| Multiplier: | 1.000000 |
| Dilution: | 10.000000 |
| Sample Amount: | 0.000 |

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 8.800 | PBA | 1269636.9 | 112.5497 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 8.817 | PBA | 391953.7 | 115.3271 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 8.824 | PBA | 348447.3 | 50.0000 | CLO4-89-ISTD |

*** End of Report ***



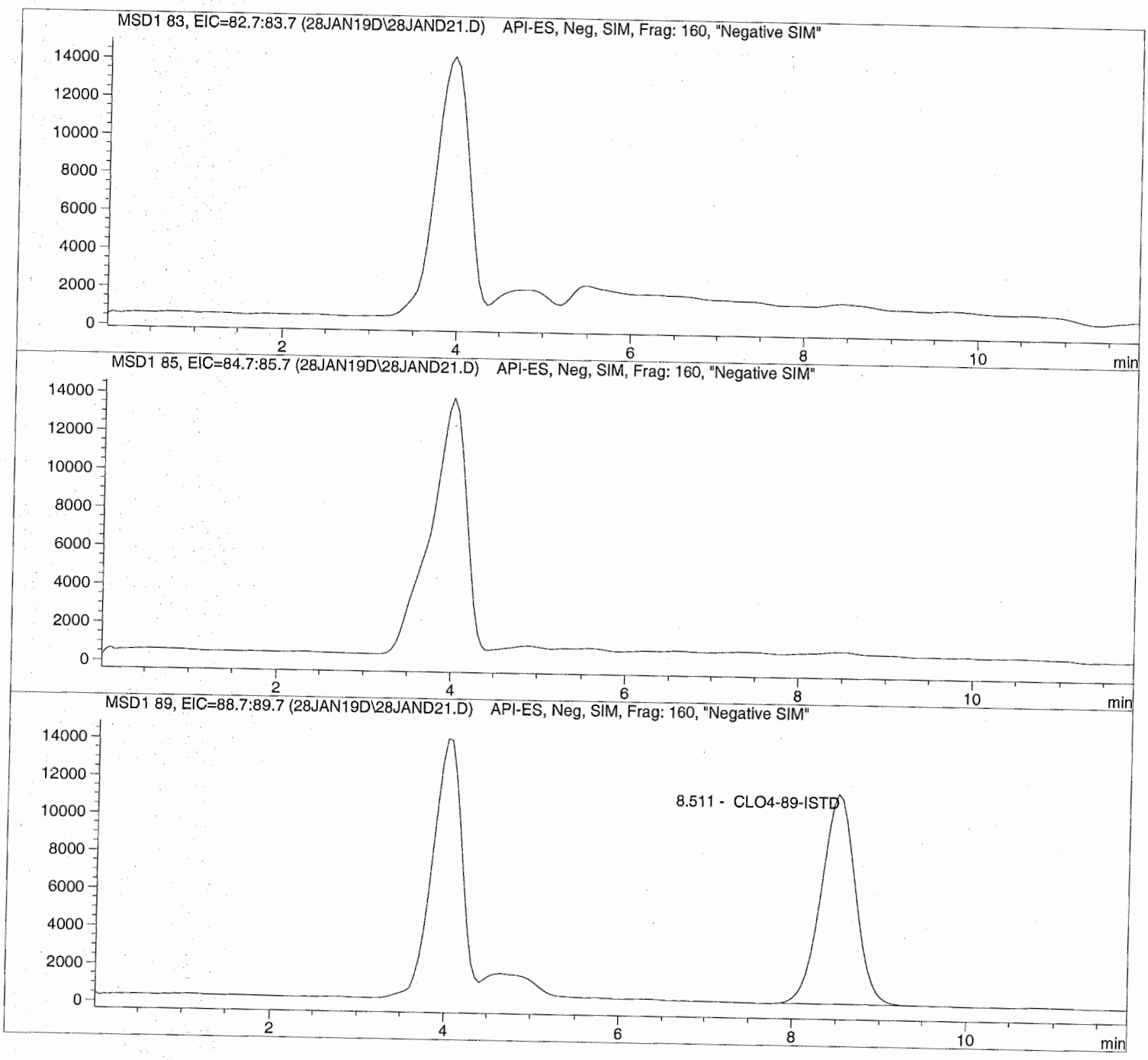
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND21.D Sample Name: 1902392009

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 13:44:15 | Seq Line: | 21 |
| Sample Name: | 1902392009 | Location: | Vial 90 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2018 12:46:06

Perchlorate analysis






RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND21.D  Sample Name: 1902392009

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 13:44:15 | Seq Line: | 21 |
| Sample Name: | 1902392009 | Location: | Vial 90 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

| | |
|---|---|
| Acq. Method: | CLO4-AQN.M |
| Analysis Method: | C:\HPCHEM\1\METHODS\CLO4-DPR.M |
| Last Changed: | 12/3/2018 12:46:06 |

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 3. Dec. 2018, 00:29:27 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.000 |

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 0.000 | | 0.0 | 0.0000 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 0.000 | | 0.0 | 0.0000 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 8.511 | BBA | 302558.0 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***



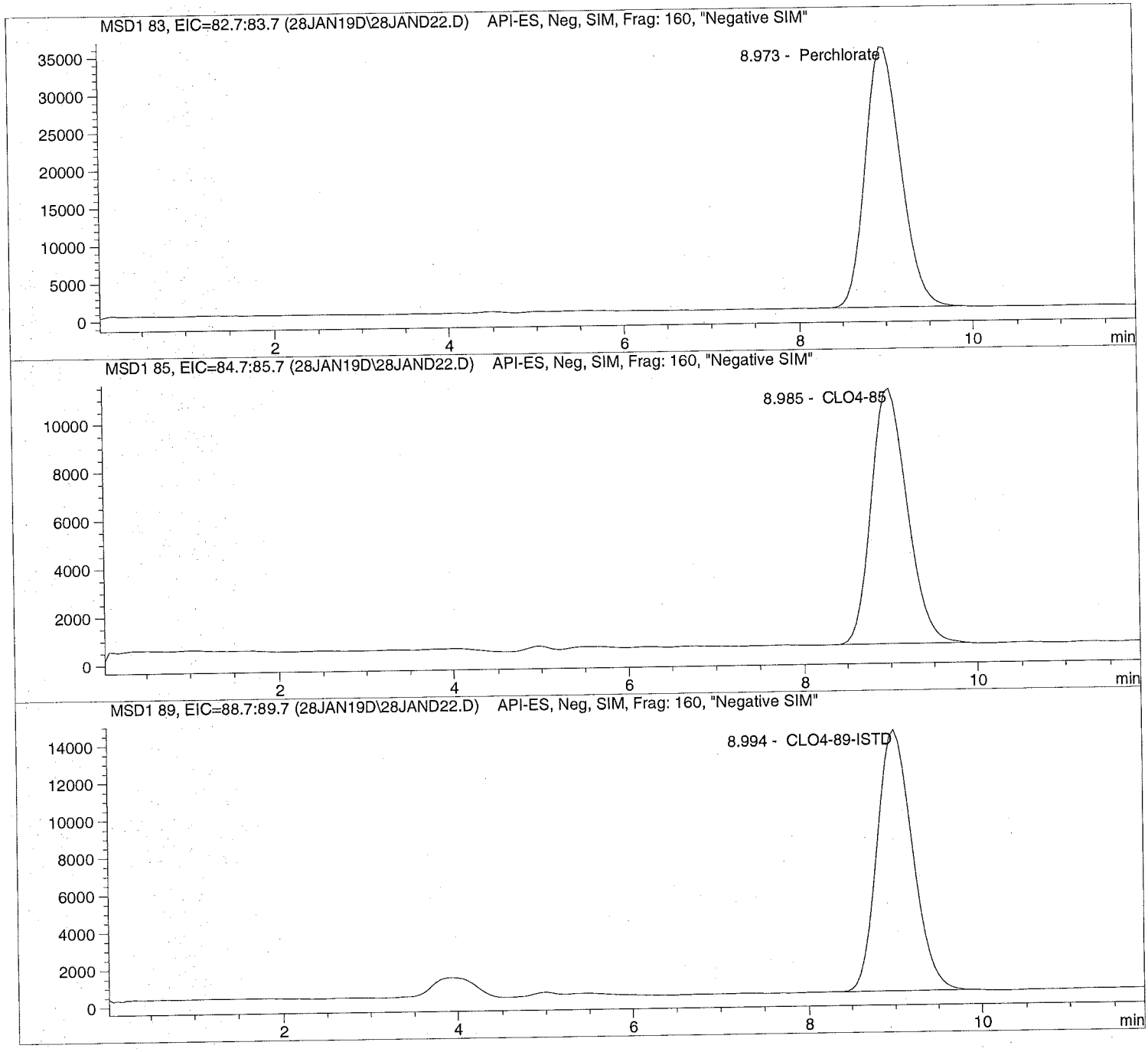
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND22.D Sample Name: 1902253007 10X

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 13:58:01 | Seq Line: | 22 |
| Sample Name: | 1902253007 10X | Location: | Vial 81 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2018 12:46:06

Perchlorate analysis






RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND22.D  Sample Name: 1902253007  10X

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 13:58:01 | Seq Line: | 22 |
| Sample Name: | 1902253007 10X | Location: | Vial 81 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

| | |
|---|---|
| Acq. Method: | CLO4-AQN.M |
| Analysis Method: | C:\HPCHEM\1\METHODS\CLO4-DPR.M |
| Last Changed: | 12/3/2018 12:46:06 |

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 3. Dec. 2018, 00:29:27 pm |
| Multiplier: | 1.000000 |
| Dilution: | 10.000000 |
| Sample Amount: | 0.000 |

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 8.973 | BBA | 977785.3 | 77.8015 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 8.985 | PBA | 304112.6 | 80.1060 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 8.994 | BBA | 393916.7 | 50.0000 | CLO4-89-ISTD |

*** End of Report ***



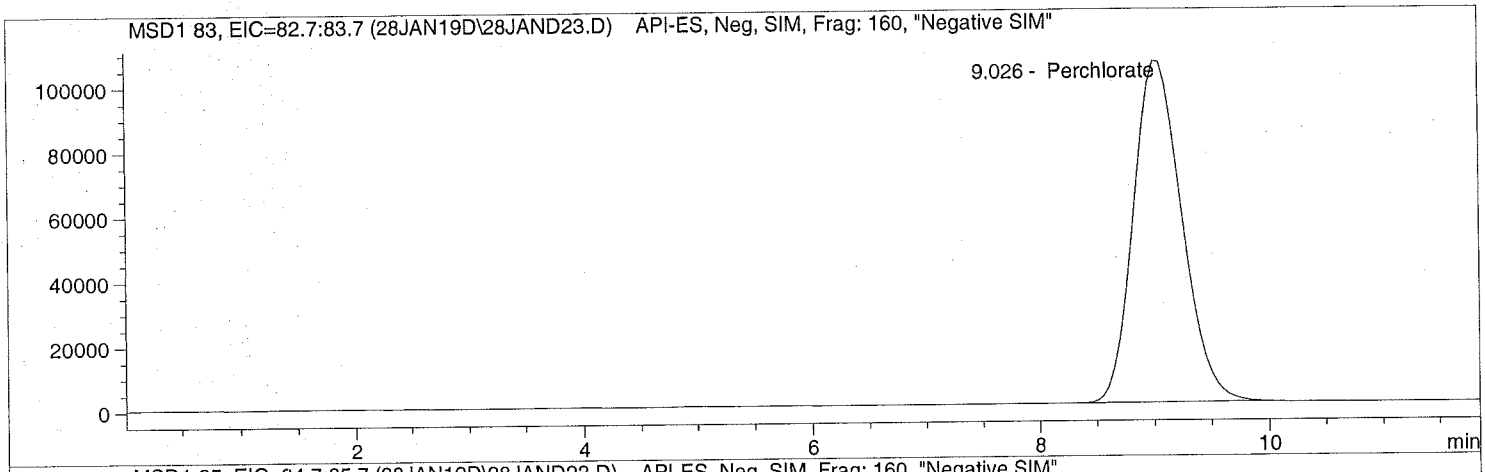
RIGHT SOLUTIONS | RIGHT PARTNER

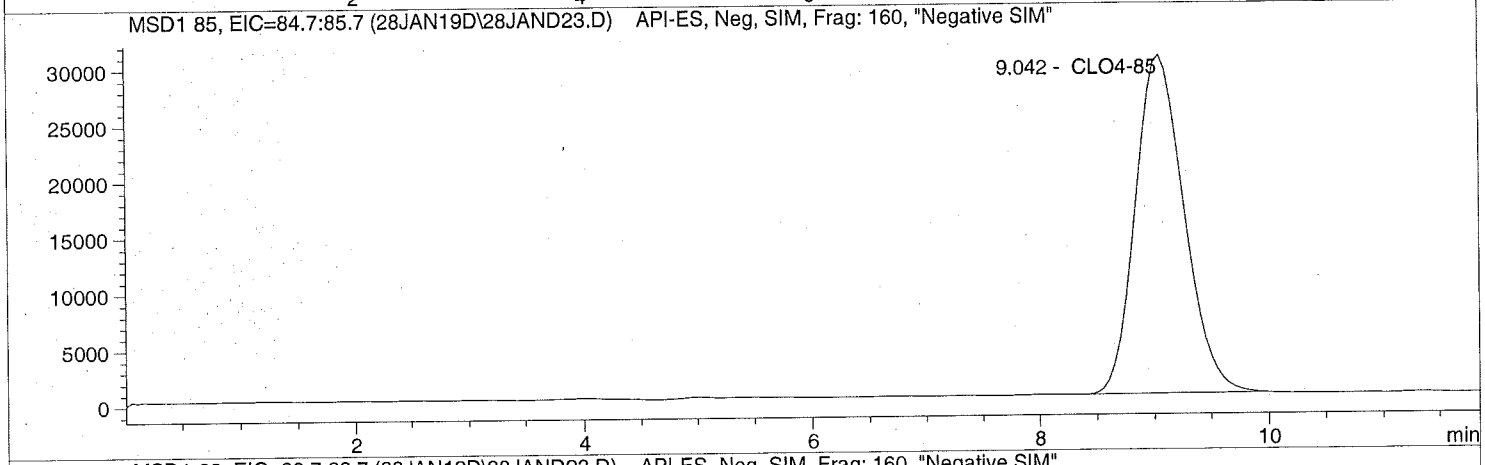
Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND23.D Sample Name: 1902392002 100

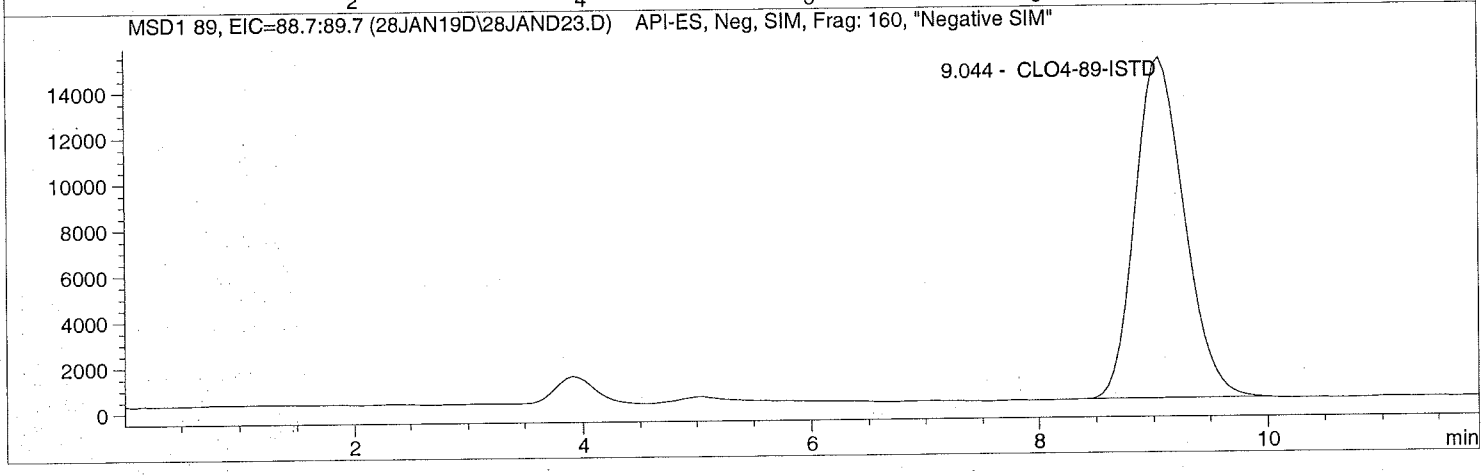
| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 14:11:46 | Seq Line: | 23 |
| Sample Name: | 1902392002 100 | Location: | Vial 83 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2018 12:46:06

Perchlorate analysis






RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND23.D  Sample Name: 1902392002  100

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 14:11:46 | Seq Line: | 23 |
| Sample Name: | 1902392002 100 | Location: | Vial 83 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

| | |
|---|---|
| Acq. Method: | CLO4-AQN.M |
| Analysis Method: | C:\HPCHEM\1\METHODS\CLO4-DPR.M |
| Last Changed: | 12/3/2018 12:46:06 |

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 3. Dec. 2018, 00:29:27 pm |
| Multiplier: | 1.000000 |
| Dilution: | 100.000000 |
| Sample Amount: | 0.000 |

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.026 | PBA | 3100678.5 | 2101.4634 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.042 | PBA | 894469.5 | 2015.4943 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.044 | PBA | 444153.2 | 500.0000 | CLO4-89-ISTD |

*** End of Report ***



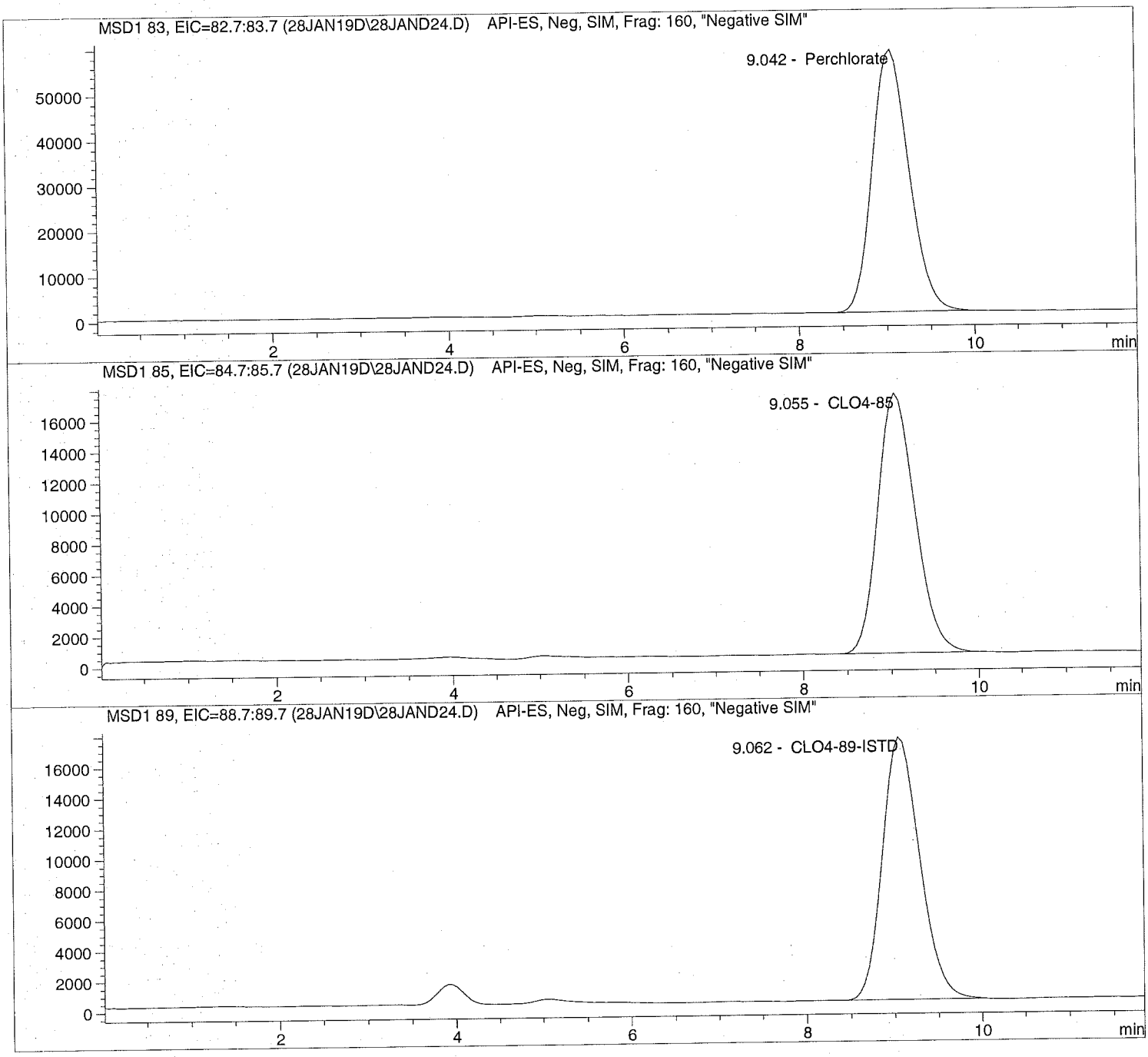
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND24.D Sample Name: 1902392004 1K

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 14:25:34 | Seq Line: | 24 |
| Sample Name: | 1902392004 1K | Location: | Vial 91 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2018 12:46:06

Perchlorate analysis






RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND24.D  Sample Name: 1902392004  1K

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 14:25:34 | Seq Line: | 24 |
| Sample Name: | 1902392004 1K | Location: | Vial 91 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

| | |
|---|---|
| Acq. Method: | CLO4-AQN.M |
| Analysis Method: | C:\HPCHEM\1\METHODS\CLO4-DPR.M |
| Last Changed: | 12/3/2018 12:46:06 |

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 3. Dec. 2018, 00:29:27 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1000.000000 |
| Sample Amount: | 0.000 |

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.042 | PBA | 1681054.9 | 10245.3827 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.055 | PBA | 499806.8 | 10119.5370 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.062 | PBA | 508672.5 | 5000.0000 | CLO4-89-ISTD |

*** End of Report ***



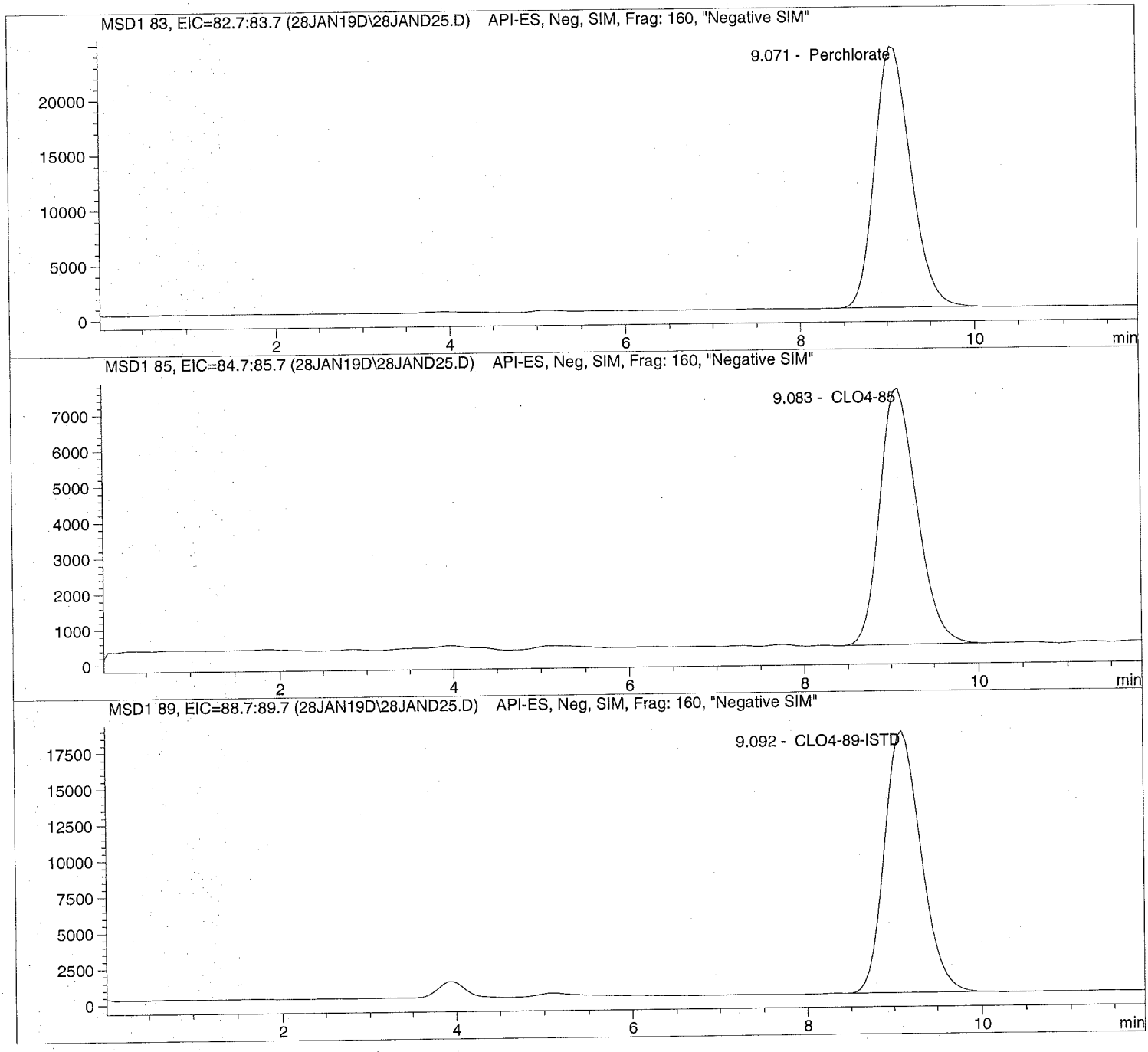
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND25.D  Sample Name: 1902392006  MS

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 14:39:20 | Seq Line: | 25 |
| Sample Name: | 1902392006 MS | Location: | Vial 87 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2018 12:46:06

Perchlorate analysis






RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND25.D Sample Name: 1902392006 MS

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 14:39:20 | Seq Line: | 25 |
| Sample Name: | 1902392006 MS | Location: | Vial 87 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

| | |
|---|---|
| Acq. Method: | CLO4-AQN.M |
| Analysis Method: | C:\HPCHEM\1\METHODS\CLO4-DPR.M |
| Last Changed: | 12/3/2018 12:46:06 |

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 3. Dec. 2018, 00:29:27 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.000 |

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.071 | BBA | 694065.9 | 4.1829 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.083 | PBA | 215904.9 | 4.2584 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.092 | BBA | 536116.9 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***



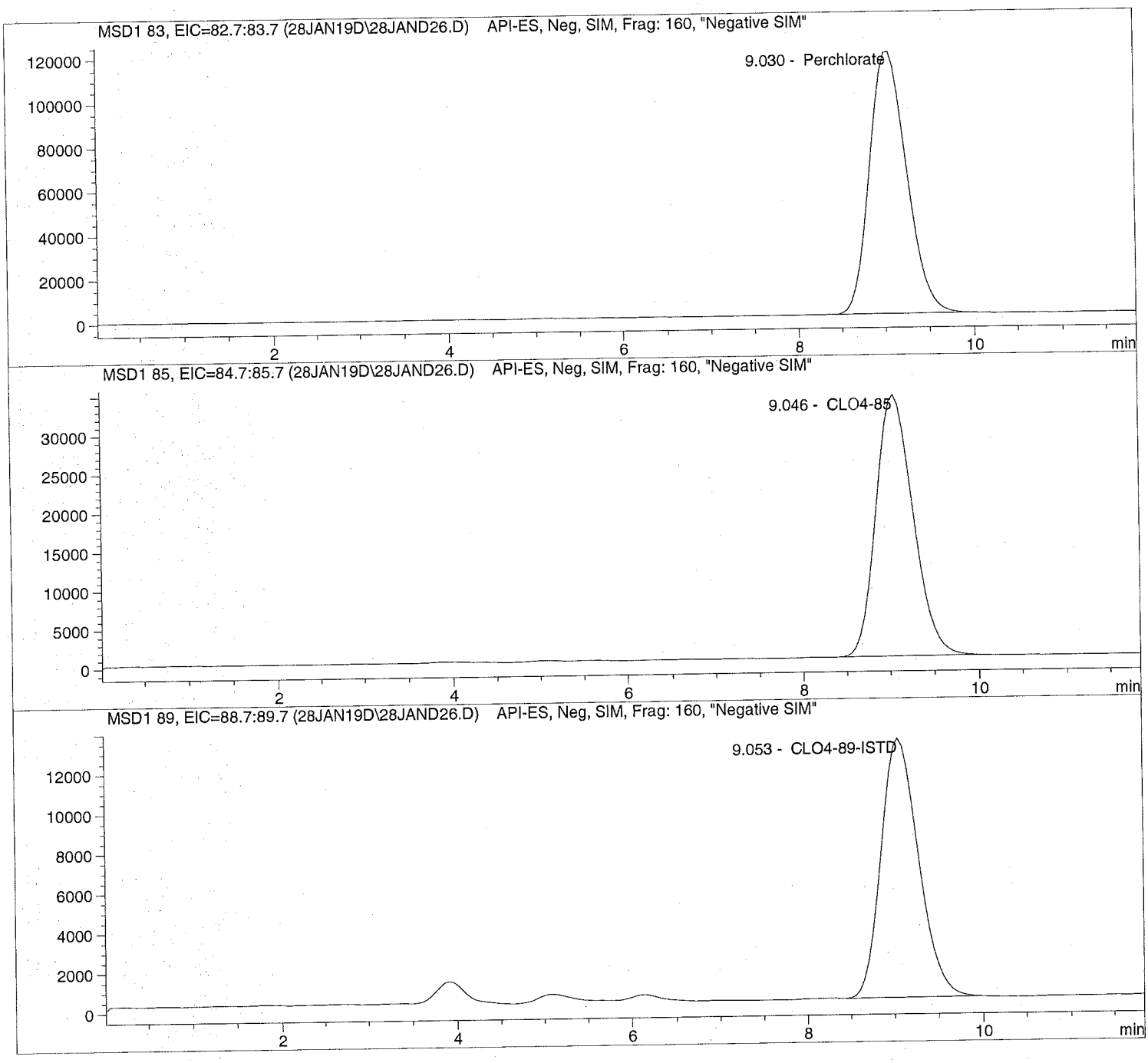
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND26.D Sample Name: 637602 CCV@25

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 14:53:57 | Seq Line: | 26 |
| Sample Name: | 637602 CCV@25 | Location: | Vial 71 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2018 12:46:06

Perchlorate analysis






RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\28JAN19D\28JAND26.D Sample Name: 637602 CCV@25

| | | | |
|---|---|---|---|
| Injection Date: | 1/28/2019 14:53:57 | Seq Line: | 26 |
| Sample Name: | 637602 CCV@25 | Location: | Vial 71 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

| | |
|---|---|
| Acq. Method: | CLO4-AQN.M |
| Analysis Method: | C:\HPCHEM\1\METHODS\CLO4-DPR.M |
| Last Changed: | 12/3/2018 12:46:06 |

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 3. Dec. 2018, 00:29:27 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 25.000 |

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.030 | PBA | 3495668.0 | 26.8984 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.046 | PBA | 992722.0 | 25.3712 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.053 | PBA | 386403.7 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***



RIGHT SOLUTIONS | RIGHT PARTNER

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

# Raw Data

## Initial Calibration



RIGHT SOLUTIONS | RIGHT PARTNER

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-DPR.M

['#' ==> Run has not been reprocessed with Batch Review Method
'*' ==> Run has been saved with batch file]

| # | Sample | Location | Inj | SampleType | Run | Perchlorate Area | Perchlorate RT | Perchlorate Amount |
|---|---|---|---|---|---|---|---|---|
| #* | CLO4@ 1.0u | Vial 74 | 1 | Control | 4 | 9.40790e4 | 9.287 | 9.73826e-1 |
| #* | CLO4@ 2.0u | Vial 75 | 1 | Control | 5 | 2.26957e5 | 9.259 | 2.19167 |
| #* | CLO4@ 5.0u | Vial 76 | 1 | Control | 6 | 5.50307e5 | 9.208 | 4.80912 |
| #* | CLO4@ 10.u | Vial 77 | 1 | Control | 7 | 1.07623e6 | 9.246 | 9.38291 |
| #* | CLO4@ 25.u | Vial 78 | 1 | Control | 8 | 2.88097e6 | 9.175 | 25.83039 |
| #* | CLO4@ 50.u | Vial 79 | 1 | Control | 9 | 6.29507e6 | 9.261 | 49.91981 |
| #* | CLO4@ 75.u | Vial 80 | 1 | Control | 10 | 9.45737e6 | 9.236 | 74.88523 |
| * | ICAL Verf@ | Vial 81 | 1 | Control | 11 | 1.10069e6 | 9.244 | 9.38952 |

| # | Sample | Location | Inj | SampleType | Run | CLO4-89-ISTD Area | CLO4-89-ISTD RT | CLO4-89-ISTD Amount |
|---|---|---|---|---|---|---|---|---|
| #* | CLO4@ 1.0u | Vial 74 | 1 | Control | 4 | 3.79545e5 | 9.314 | 5.00000 |
| #* | CLO4@ 2.0u | Vial 75 | 1 | Control | 5 | 3.52582e5 | 9.297 | 5.00000 |
| #* | CLO4@ 5.0u | Vial 76 | 1 | Control | 6 | 3.66805e5 | 9.223 | 5.00000 |
| #* | CLO4@ 10.u | Vial 77 | 1 | Control | 7 | 3.56815e5 | 9.266 | 5.00000 |
| #* | CLO4@ 25.u | Vial 78 | 1 | Control | 8 | 3.32340e5 | 9.196 | 5.00000 |
| #* | CLO4@ 50.u | Vial 79 | 1 | Control | 9 | 3.59393e5 | 9.277 | 5.00000 |
| #* | CLO4@ 75.u | Vial 80 | 1 | Control | 10 | 3.45193e5 | 9.253 | 5.00000 |
| * | ICAL Verf@ | Vial 81 | 1 | Control | 11 | 3.64657e5 | 9.264 | 5.00000 |

| # | Sample | Location | Inj | SampleType | Run | CLO4-85 Area | CLO4-85 RT | CLO4-85 Amount |
|---|---|---|---|---|---|---|---|---|
| #* | CLO4@ 1.0u | Vial 74 | 1 | Control | 4 | 3.17987e4 | 9.316 | 9.60861e-1 |
| #* | CLO4@ 2.0u | Vial 75 | 1 | Control | 5 | 7.05436e4 | 9.273 | 2.16955 |
| #* | CLO4@ 5.0u | Vial 76 | 1 | Control | 6 | 1.69833e5 | 9.217 | 4.87565 |
| #* | CLO4@ 10.u | Vial 77 | 1 | Control | 7 | 3.31565e5 | 9.259 | 9.58732 |
| #* | CLO4@ 25.u | Vial 78 | 1 | Control | 8 | 8.62978e5 | 9.187 | 25.62680 |
| #* | CLO4@ 50.u | Vial 79 | 1 | Control | 9 | 1.91847e6 | 9.278 | 49.74848 |
| #* | CLO4@ 75.u | Vial 80 | 1 | Control | 10 | 2.93835e6 | 9.251 | 75.02646 |
| * | ICAL Verf@ | Vial 81 | 1 | Control | 11 | 3.27974e5 | 9.261 | 9.28908 |

*** End of Report ***



RIGHT SOLUTIONS | RIGHT PARTNER

Calibration Table

Perchlorate

Calib. Data Modified : 10/9/2018 8:01:57 AM

Calculate : Internal Standard
Based on : Peak Area

Rel. Reference Window : 20.000 %
Abs. Reference Window : 0.000 min
Rel. Non-ref. Window : 20.000 %
Abs. Non-ref. Window : 0.000 min
Use Multiplier & Dilution Factor with ISTDs
Uncalibrated Peaks : not reported
Partial Calibration : No recalibration if peaks missing

Curve Type : Quadratic (some peaks differ, see below)
Origin : Ignored (some peaks differ, see below)
Weight : Linear (Amnt) (some peaks differ, see below)

Recalibration Settings:
Average Response : Average all calibrations
Average Retention Time: Floating Average New 75%

Calibration Report Options :
Printout of recalibrations within a sequence:
Calibration Table after Recalibration
Normal Report after Recalibration
If the sequence is done with bracketing:
Results of first cycle (ending previous bracket)

Default Sample ISTD Information (if not set in sample table):

| ISTD # | ISTD Amount | Name |
|---|---|---|
| 1 | 5.00000 | CLO4-89-ISTD |

Signal 1: MSD1 83, EIC=82.7:83.7
Signal 2: MSD1 85, EIC=84.7:85.7
Signal 3: MSD1 89, EIC=88.7:89.7

| RetTime [min] | Sig | Lvl | Amount | Area | Amt/Area | Ref | Grp | Name |
|---|---|---|---|---|---|---|---|---|
| 9.287 | 1 | 1 | 1.00000 | 9.40790e4 | 1.06294e-5 | 1 | | Perchlorate |
| | | 2 | 2.00000 | 2.26957e5 | 8.81224e-6 | | | |
| | | 3 | 5.00000 | 5.50307e5 | 9.08584e-6 | | | |
| | | 4 | 10.00000 | 1.07623e6 | 9.29172e-6 | | | |
| | | 5 | 25.00000 | 2.88097e6 | 8.67764e-6 | | | |
| | | 6 | 50.00000 | 6.29507e6 | 7.94272e-6 | | | |
| | | 7 | 75.00000 | 9.45737e6 | 7.93033e-6 | | | |
| 9.314 | 3 | 1 | 5.00000 | 3.79545e5 | 1.31737e-5 | +I1 | | CLO4-89-ISTD |
| | | 2 | 5.00000 | 3.52582e5 | 1.41811e-5 | | | |
| | | 3 | 5.00000 | 3.66805e5 | 1.36312e-5 | | | |
| | | 4 | 5.00000 | 3.56815e5 | 1.40129e-5 | | | |
| | | 5 | 5.00000 | 3.32340e5 | 1.50448e-5 | | | |
| | | 6 | 5.00000 | 3.59393e5 | 1.39124e-5 | | | |
| | | 7 | 5.00000 | 3.45193e5 | 1.44847e-5 | | | |
| 9.316 | 2 | 1 | 1.00000 | 3.17987e4 | 3.14479e-5 | 1 | | CLO4-85 |
| | | 2 | 2.00000 | 7.05436e4 | 2.83513e-5 | | | |
| | | 3 | 5.00000 | 1.69833e5 | 2.94406e-5 | | | |
| | | 4 | 10.00000 | 3.31565e5 | 3.01600e-5 | | | |
| | | 5 | 25.00000 | 8.62978e5 | 2.89695e-5 | | | |
| | | 6 | 50.00000 | 1.91847e6 | 2.60625e-5 | | | |


RIGHT SOLUTIONS | RIGHT PARTNER

| RetTime [min] | Sig | Lvl | Amount | Area | Amt/Area | Ref | Grp | Name |
|---|---|---|---|---|---|---|---|---|
| | | 7 | 75.00000 | 2.93835e6 | 2.55246e-5 | | | |

More compound-specific settings:

Compound: Perchlorate
- Time Window : From 7.196 min To 11.196 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 0.5
  - Level 3 : 0.2
  - Level 4 : 0.1
  - Level 5 : 0.04
  - Level 6 : 0.02
  - Level 7 : 0.013333

Compound: CLO4-89-ISTD
- Time Window : From 7.207 min To 11.192 min
- Curve Type : Linear
- Origin : Included
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 1
  - Level 3 : 1
  - Level 4 : 1
  - Level 5 : 1
  - Level 6 : 1
  - Level 7 : 1

Compound: CLO4-85
- Time Window : From 7.211 min To 11.211 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 0.5
  - Level 3 : 0.2
  - Level 4 : 0.1
  - Level 5 : 0.04
  - Level 6 : 0.02
  - Level 7 : 0.013333

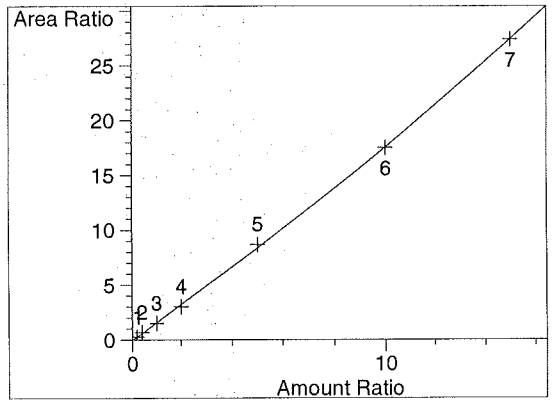
Peak Sum Table

***No Entries in table***

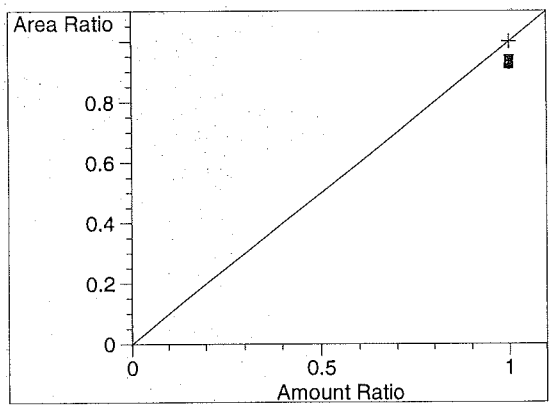


RIGHT SOLUTIONS | RIGHT PARTNER

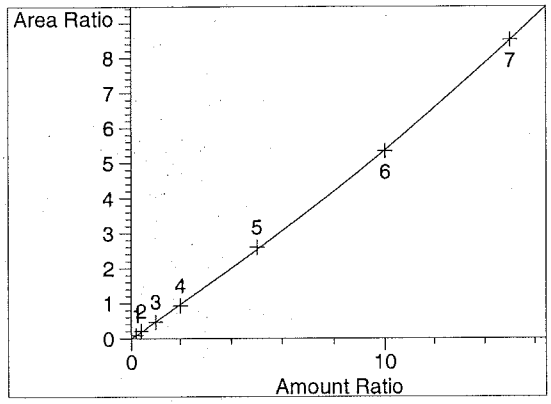
Calibration Curves




Perchlorate at exp. RT: 9.287
MSD1 83, EIC=82.7:83.7
Correlation: 0.99971
Residual Std. Dev.: 0.16701
Formula: $y = ax^2 + bx + c$
a: 1.45482e-2
b: 1.61590
c: -6.73998e-2
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.5
Level 3 : 0.2
Level 4 : 0.1
Level 5 : 0.04
Level 6 : 0.02
Level 7 : 0.013333




CLO4-89-ISTD at exp. RT: 9.314
MSD1 89, EIC=88.7:89.7
Correlation: 1.00000
Residual Std. Dev.: 0.00000
Formula: $y = mx + b$
m: 1.00000
b: 0.00000
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 1
Level 3 : 1
Level 4 : 1
Level 5 : 1
Level 6 : 1
Level 7 : 1




CLO4-85 at exp. RT: 9.316
MSD1 85, EIC=84.7:85.7
Correlation: 0.99984
Residual Std. Dev.: 0.03901
Formula: $y = ax^2 + bx + c$
a: 6.03220e-3
b: 4.77309e-1
c: -8.16718e-3
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.5
Level 3 : 0.2
Level 4 : 0.1
Level 5 : 0.04
Level 6 : 0.02
Level 7 : 0.013333



RIGHT SOLUTIONS | RIGHT PARTNER

Sequence Table:

Method and Injection Info Part:

| Line | Location | SampleName | Method | Inj | SampleType | InjVolume | DataFile |
|---|---|---|---|---|---|---|---|
| 1 | Vial 71 | CLO4@ .10ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 2 | Vial 72 | CLO4@ .20ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 3 | Vial 73 | CLO4@ 0.5ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 4 | Vial 74 | CLO4@ 1.0ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 5 | Vial 75 | CLO4@ 2.0ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 6 | Vial 76 | CLO4@ 5.0ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 7 | Vial 77 | CLO4@ 10.ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 8 | Vial 78 | CLO4@ 25.ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 9 | Vial 79 | CLO4@ 50.ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 10 | Vial 80 | CLO4@ 75.ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 11 | Vial 81 | ICAL Verf@10ug/L | CLO4-AQN | 1 | Ctrl Samp | | |



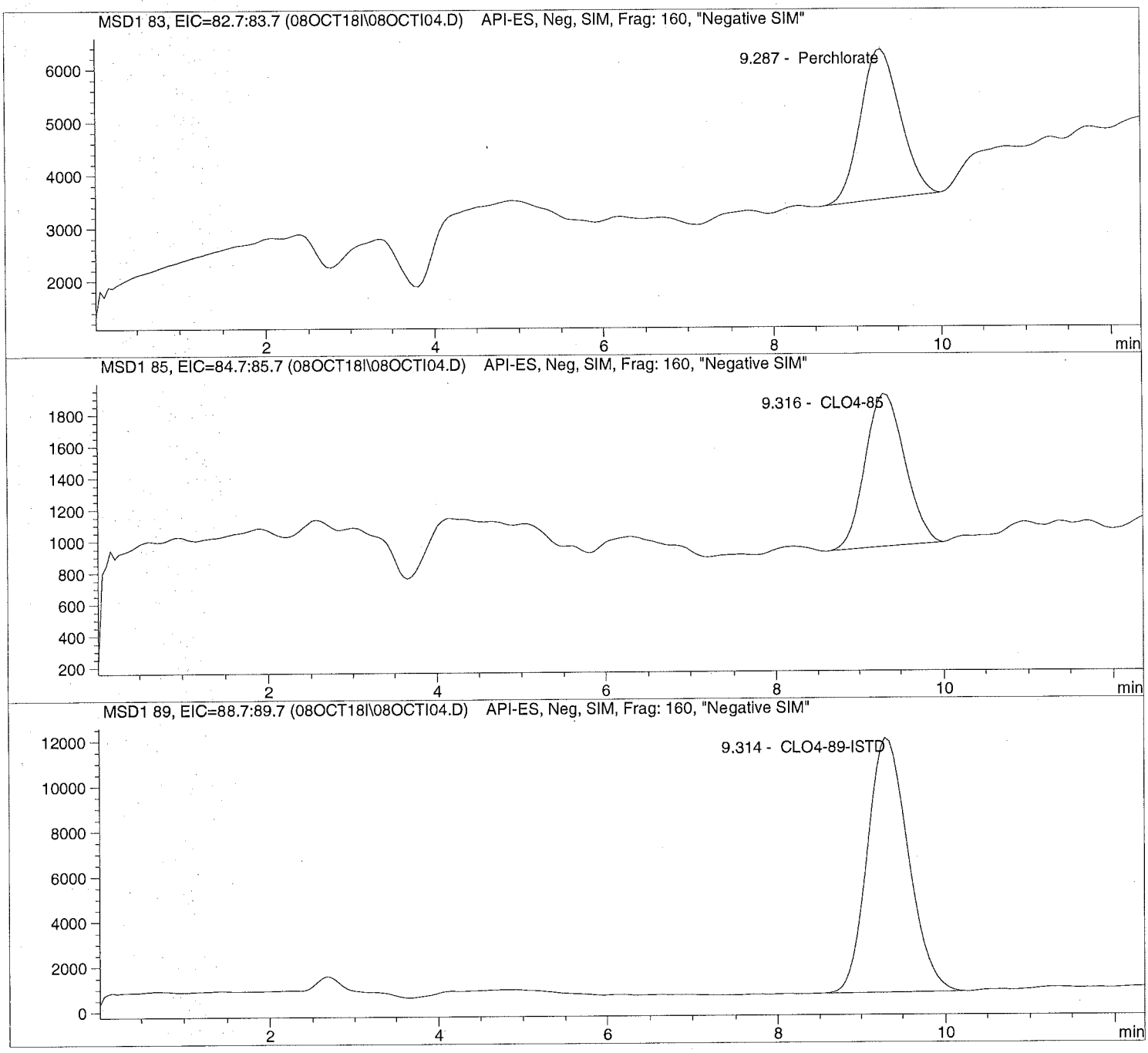
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\08OCT18I\08OCTI04.D Sample Name: CLO4@ 1.0ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 10/08/2018 11:37:35 | Seq Line: | 4 |
| Sample Name: | CLO4@ 1.0ug/L | Location: | Vial 74 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 25 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 10/9/2018 08:22:51

Perchlorate analysis






RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\08OCT18I\08OCTI04.D Sample Name: CLO4@ 1.0ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 10/08/2018 11:37:35 | Seq Line: | 4 |
| Sample Name: | CLO4@ 1.0ug/L | Location: | Vial 74 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 25 µl |

| | |
|---|---|
| Acq. Method: | CLO4-AQN.M |
| Analysis Method: | C:\HPCHEM\1\METHODS\CLO4-DPR.M |
| Last Changed: | 10/9/2018 08:22:51 |

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Tue, 9. Oct. 2018, 08:01:57 am |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 1.000 |

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.287 | PBA | 94079.0 | 0.9738 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.316 | PBA | 31798.7 | 0.9609 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.314 | PBA | 379544.7 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***



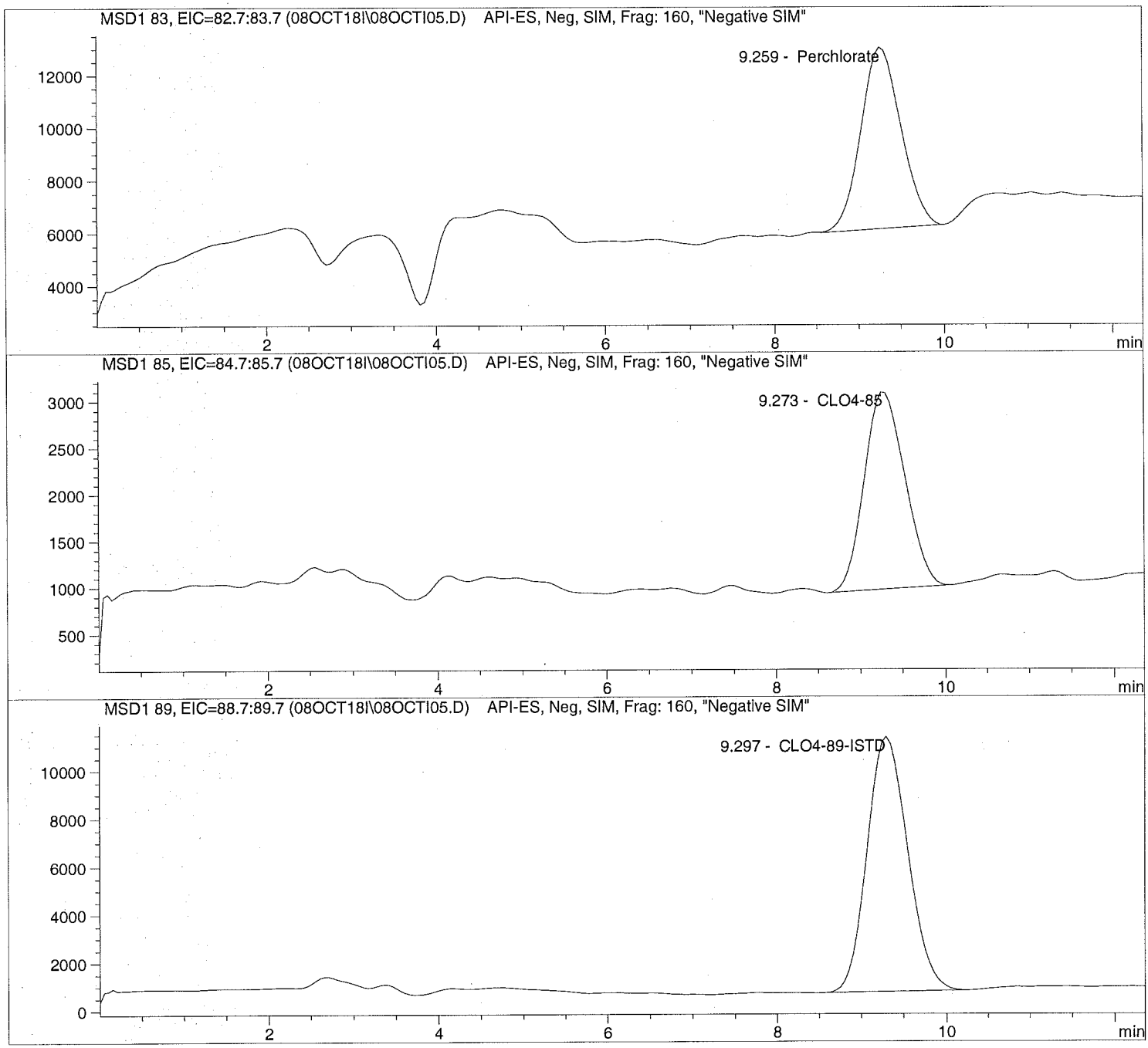
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\08OCT18I\08OCTI05.D Sample Name: CLO4@ 2.0ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 10/08/2018 11:51:45 | Seq Line: | 5 |
| Sample Name: | CLO4@ 2.0ug/L | Location: | Vial 75 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 25 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 10/9/2018 08:22:51

Perchlorate analysis






RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\08OCT18I\08OCTI05.D Sample Name: CLO4@ 2.0ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 10/08/2018 11:51:45 | Seq Line: | 5 |
| Sample Name: | CLO4@ 2.0ug/L | Location: | Vial 75 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 25 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 10/9/2018 08:22:51

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Tue, 9. Oct. 2018, 08:01:57 am |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 2.000 |

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.259 | BBA | 226957.1 | 2.1917 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.273 | PBA | 70543.6 | 2.1695 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.297 | PBA | 352581.8 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***



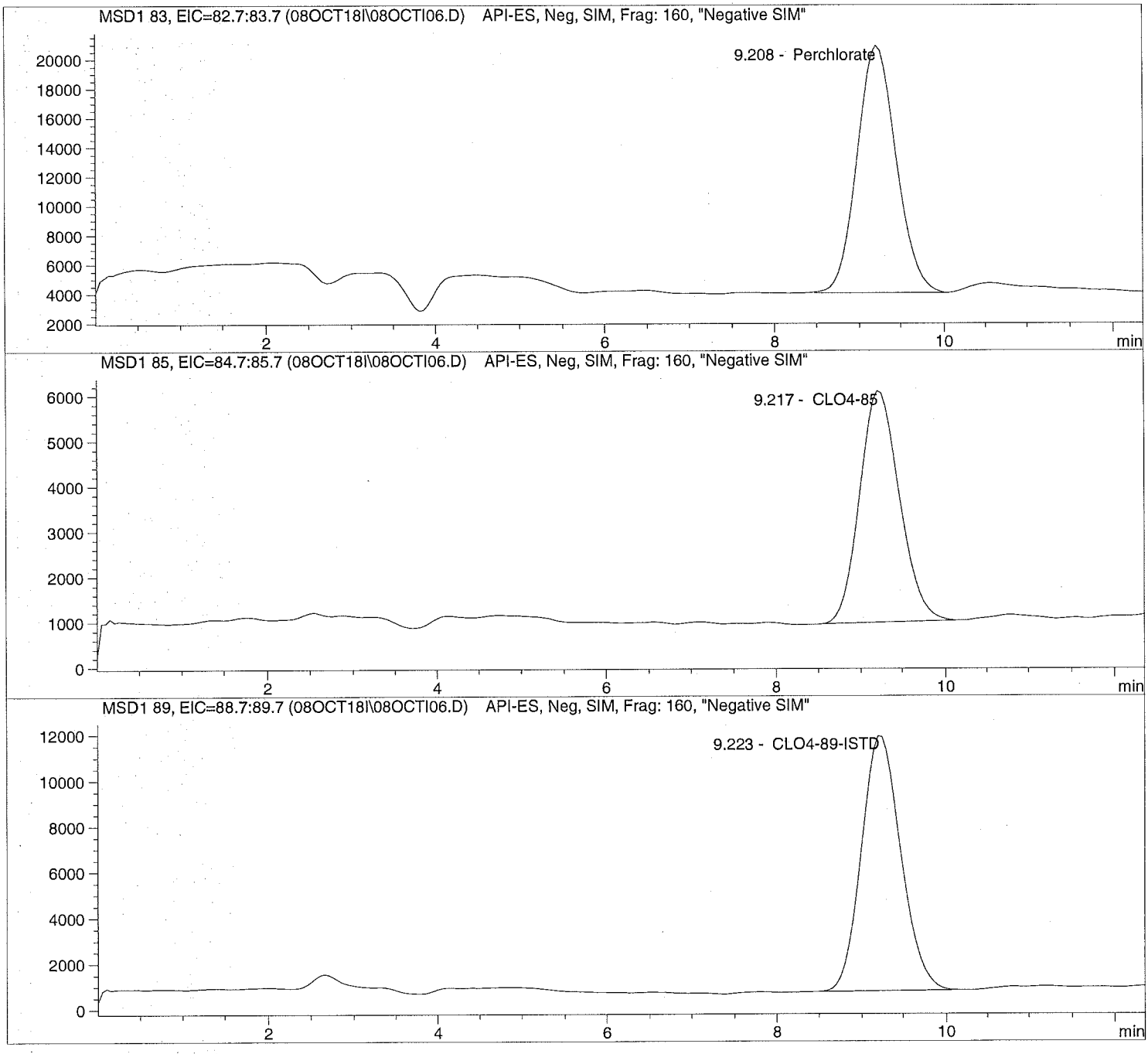
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\08OCT18I\08OCTI06.D Sample Name: CLO4@ 5.0ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 10/08/2018 12:05:59 | Seq Line: | 6 |
| Sample Name: | CLO4@ 5.0ug/L | Location: | Vial 76 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 25 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 10/9/2018 08:22:51

Perchlorate analysis






RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\08OCT18I\08OCTI06.D Sample Name: CLO4@ 5.0ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 10/08/2018 12:05:59 | Seq Line: | 6 |
| Sample Name: | CLO4@ 5.0ug/L | Location: | Vial 76 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 25 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 10/9/2018 08:22:51

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Tue, 9. Oct. 2018, 08:01:57 am |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 5.000 |

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.208 | BBA | 550306.9 | 4.8091 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.217 | PBA | 169833.3 | 4.8757 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.223 | PBA | 366804.8 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***



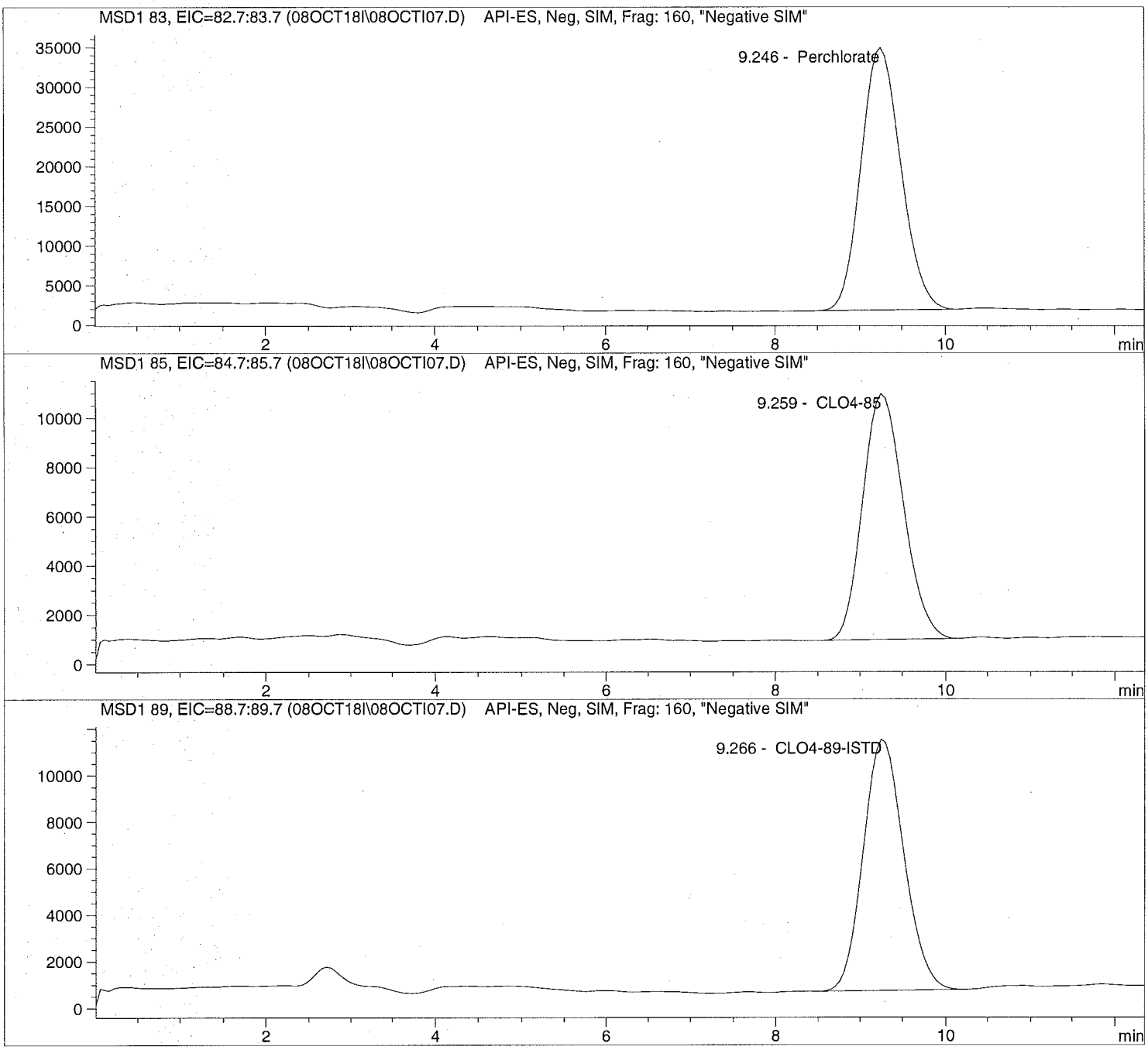
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\08OCT18I\08OCTI07.D Sample Name: CLO4@ 10.ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 10/08/2018 12:20:10 | Seq Line: | 7 |
| Sample Name: | CLO4@ 10.ug/L | Location: | Vial 77 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 25 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 10/9/2018 08:22:51

Perchlorate analysis






RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\08OCT18I\08OCTI07.D Sample Name: CLO4@ 10.ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 10/08/2018 12:20:10 | Seq Line: | 7 |
| Sample Name: | CLO4@ 10.ug/L | Location: | Vial 77 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 25 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 10/9/2018 08:22:51

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Tue, 9. Oct. 2018, 08:01:57 am |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 10.000 |

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.246 | PBA | 1076227.4 | 9.3829 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.259 | PBA | 331564.9 | 9.5873 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.266 | PBA | 356815.3 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***



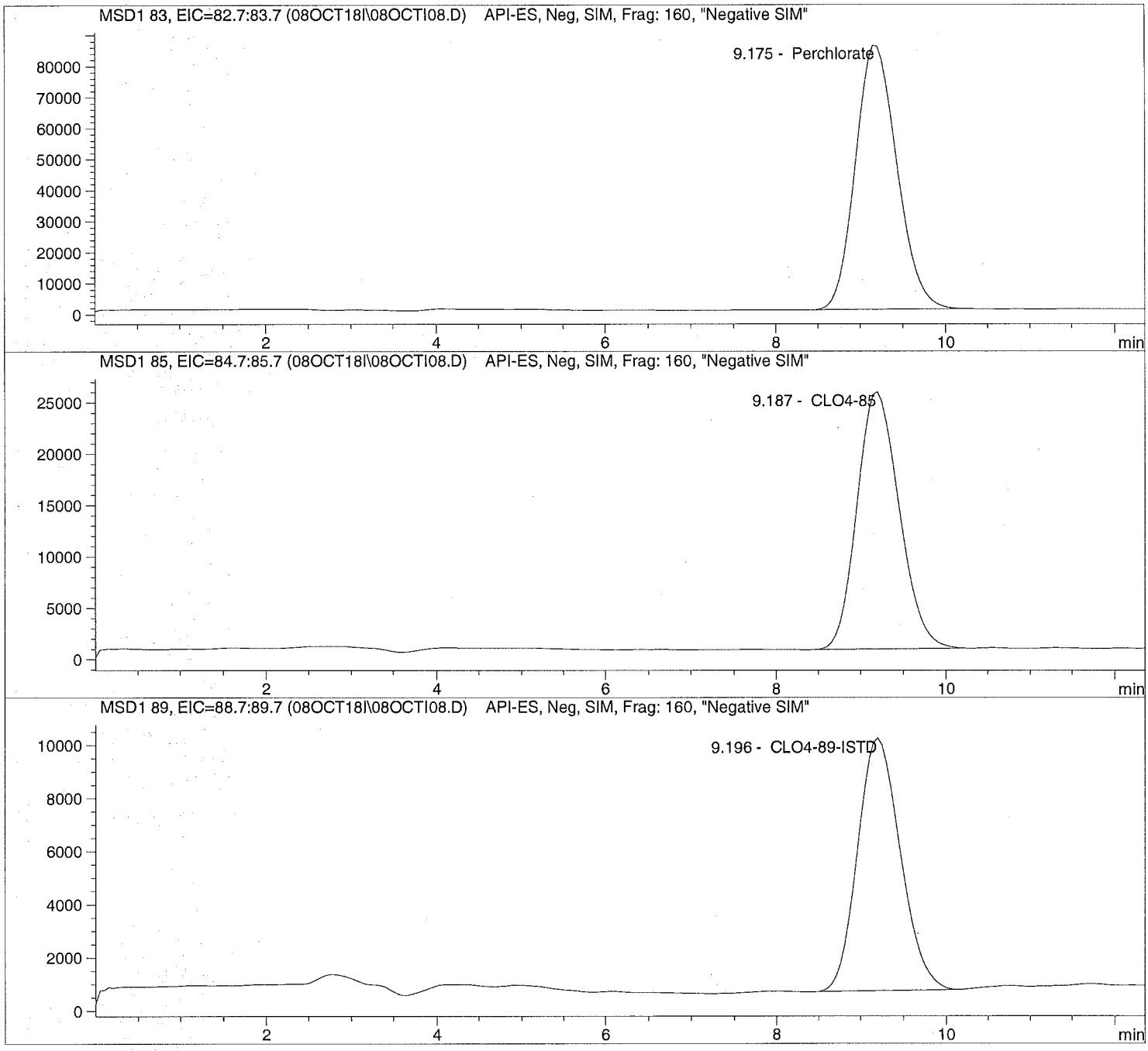
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\08OCT18I\08OCTI08.D Sample Name: CLO4@ 25.ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 10/08/2018 12:34:24 | Seq Line: | 8 |
| Sample Name: | CLO4@ 25.ug/L | Location: | Vial 78 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 25 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 10/9/2018 08:22:51

Perchlorate analysis






RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\08OCT18I\08OCTI08.D  Sample Name: CLO4@ 25.ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 10/08/2018 12:34:24 | Seq Line: | 8 |
| Sample Name: | CLO4@ 25.ug/L | Location: | Vial 78 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 25 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 10/9/2018 08:22:51

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Tue, 9. Oct. 2018, 08:01:57 am |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 25.000 |

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.175 | PBA | 2880966.0 | 25.8304 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.187 | PBA | 862978.0 | 25.6268 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.196 | PBA | 332339.7 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***



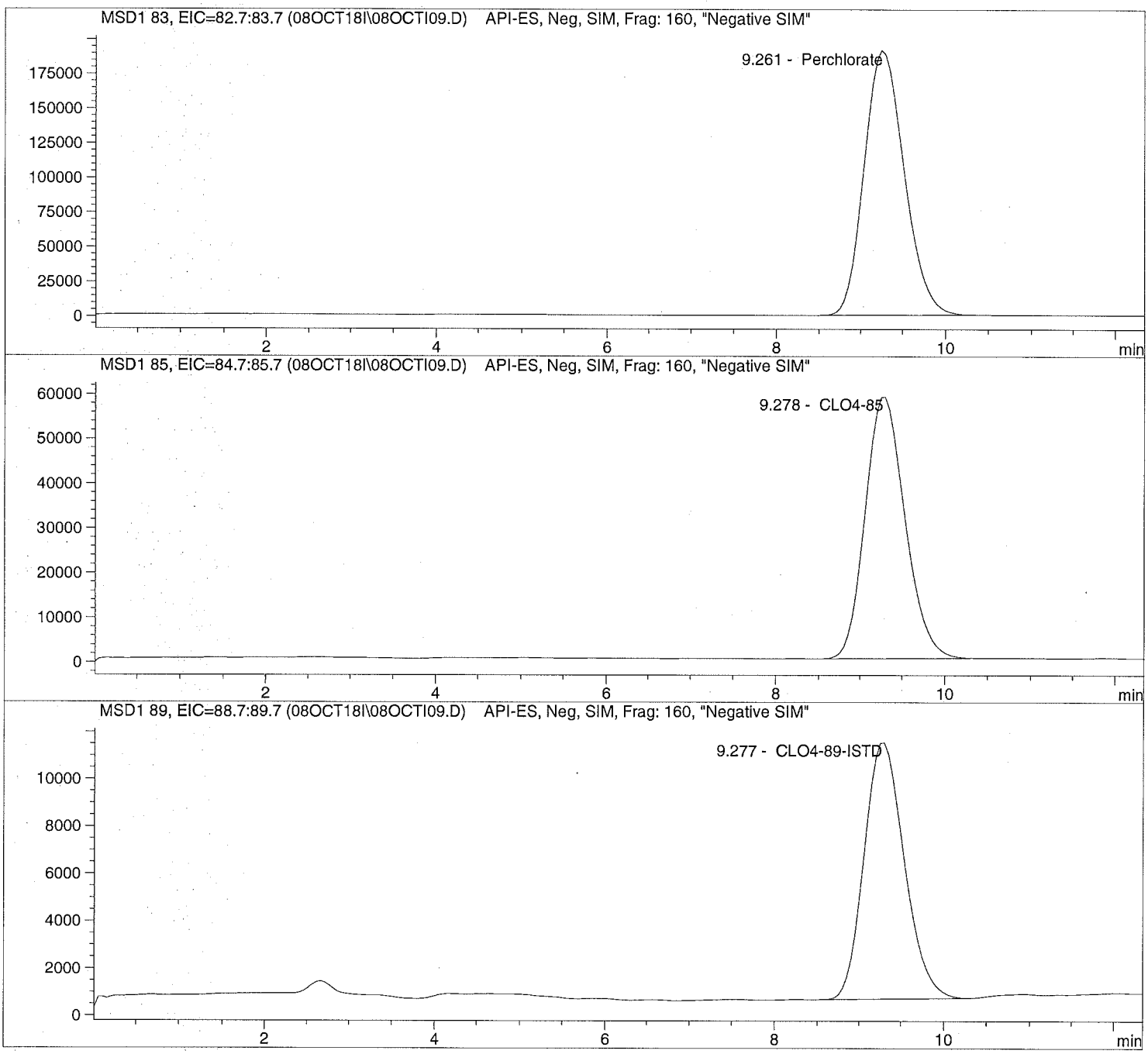
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\08OCT18I\08OCTI09.D Sample Name: CLO4@ 50.ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 10/08/2018 12:48:34 | Seq Line: | 9 |
| Sample Name: | CLO4@ 50.ug/L | Location: | Vial 79 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 25 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 10/9/2018 08:22:51

Perchlorate analysis






RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\08OCT18I\08OCTI09.D  Sample Name: CLO4@ 50.ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 10/08/2018 12:48:34 | Seq Line: | 9 |
| Sample Name: | CLO4@ 50.ug/L | Location: | Vial 79 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 25 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 10/9/2018 08:22:51

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Tue, 9. Oct. 2018, 08:01:57 am |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 50.000 |

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.261 | PBA | 6295070.5 | 49.9198 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.278 | PBA | 1918466.9 | 49.7485 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.277 | PBA | 359392.8 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***



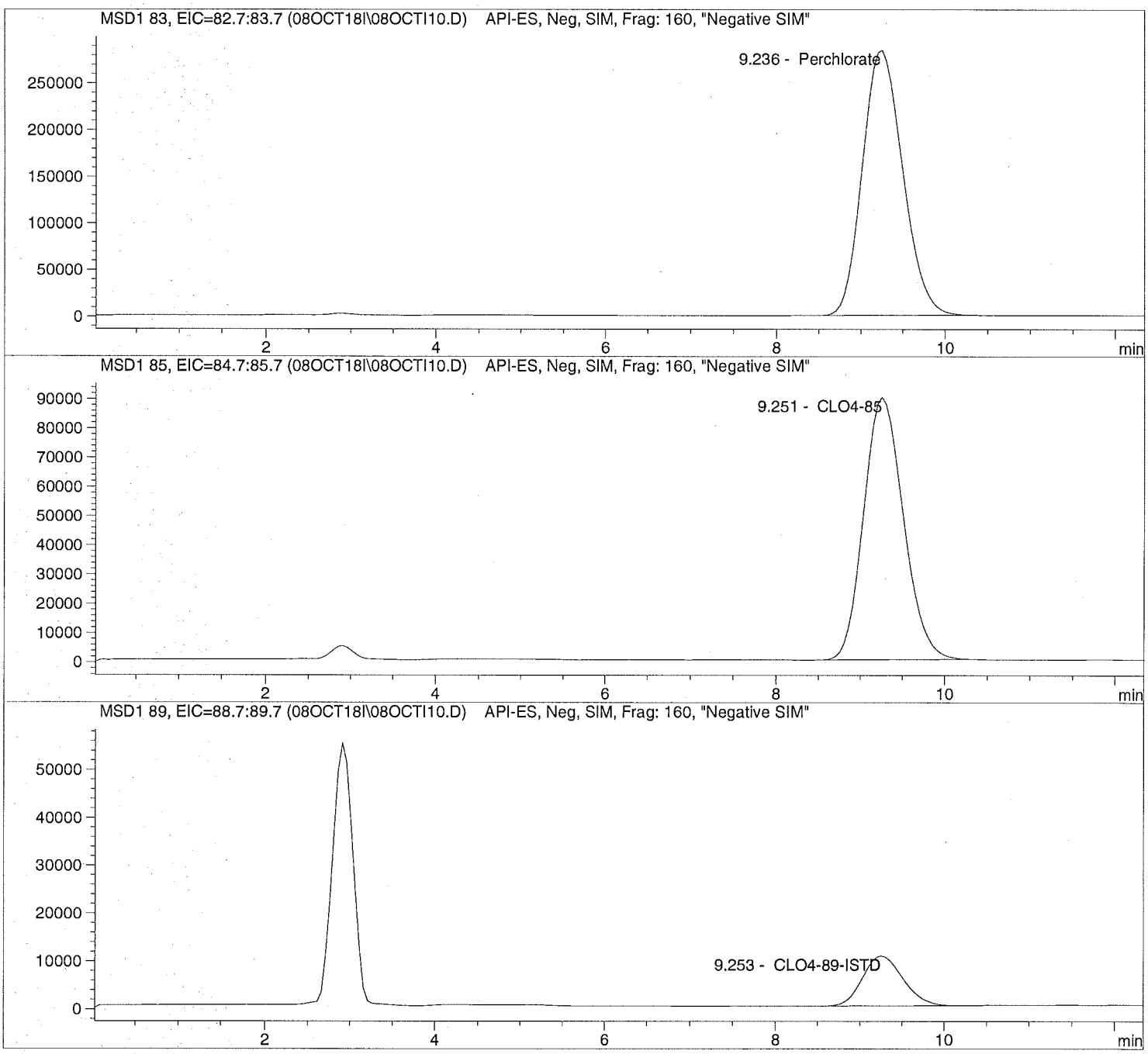
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\08OCT18I\08OCTI10.D Sample Name: CLO4@ 75.ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 10/08/2018 13:02:48 | Seq Line: | 10 |
| Sample Name: | CLO4@ 75.ug/L | Location: | Vial 80 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 25 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 10/9/2018 08:22:51

Perchlorate analysis






RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\08OCT18I\08OCTI10.D Sample Name: CLO4@ 75.ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 10/08/2018 13:02:48 | Seq Line: | 10 |
| Sample Name: | CLO4@ 75.ug/L | Location: | Vial 80 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 25 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 10/9/2018 08:22:51

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Tue, 9. Oct. 2018, 08:01:57 am |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 75.000 |

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.236 | PBA | 9457367.0 | 74.8852 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.251 | PBA | 2938347.5 | 75.0265 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.253 | PBA | 345192.7 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***



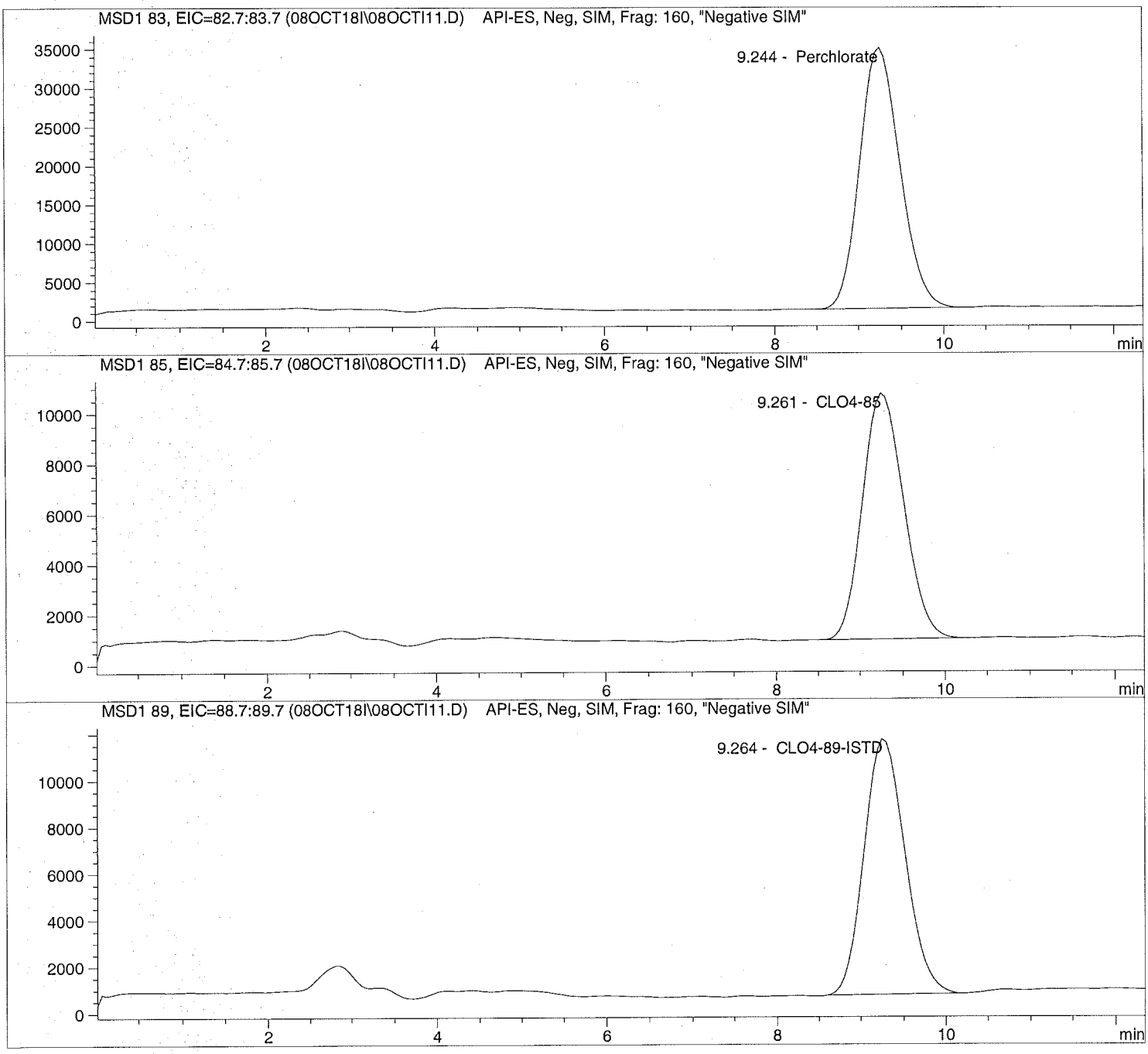
RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\08OCT18I\08OCTI11.D  Sample Name: ICAL Verf@10ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 10/08/2018 13:17:00 | Seq Line: | 11 |
| Sample Name: | ICAL Verf@10ug/L | Location: | Vial 81 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 25 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 10/9/2018 08:22:51

Perchlorate analysis






RIGHT SOLUTIONS | RIGHT PARTNER

Data file: C:\HPCHEM\1\DATA\08OCT18I\08OCTI11.D  Sample Name: ICAL Verf@10ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 10/08/2018 13:17:00 | Seq Line: | 11 |
| Sample Name: | ICAL Verf@10ug/L | Location: | Vial 81 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 25 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 10/9/2018 08:22:51

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Tue, 9. Oct. 2018, 08:01:57 am |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 10.000 |

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.244 | PBA | 1100685.7 | 9.3895 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.261 | PBA | 327974.4 | 9.2891 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.264 | PBA | 364657.2 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***



RIGHT SOLUTIONS | RIGHT PARTNER

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

November 27, 2019

Susan Huang
Aptim Environmental & Infrastucture, Inc.
2500 City West Blvd., Suite 1700
Houston, TX 77042

Work Order: **HS19110320**

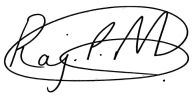
Laboratory Results for: **Longhorn Army Ammunition Plant**

Dear Susan,

ALS Environmental received 11 sample(s) on Nov 07, 2019 for the analysis presented in the following report.

This is a REVISED REPORT. Please see the Case Narrative for discussion concerning this revision.

Regards,



**Generated By: JUMOKE.LAWAL**
RJ Modashia
Project Manager

**ALS Houston, US** Date: 27-Nov-19

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** Longhorn Army Ammunition Plant
**Work Order:** HS19110320

## SAMPLE SUMMARY

| Lab Samp ID | Client Sample ID | Matrix | TagNo | Collection Date | Date Received | Hold |
|---|---|---|---|---|---|---|
| HS19110320-01 | 04WW02-191105 | Water | | 05-Nov-2019 08:30 | 07-Nov-2019 14:00 | ☐ |
| HS19110320-02 | 04WW02-191105-FD | Water | | 05-Nov-2019 08:30 | 07-Nov-2019 14:00 | ☐ |
| HS19110320-03 | LHSMW02-191105 | Water | | 05-Nov-2019 09:55 | 07-Nov-2019 14:00 | ☐ |
| HS19110320-04 | 04WW03-191106 | Water | | 06-Nov-2019 08:20 | 07-Nov-2019 14:00 | ☐ |
| HS19110320-05 | 04WW06-191106 | Water | | 06-Nov-2019 09:10 | 07-Nov-2019 14:00 | ☐ |
| HS19110320-06 | 04WW11-191106 | Water | | 06-Nov-2019 09:55 | 07-Nov-2019 14:00 | ☐ |
| HS19110320-07 | 04WW05-191106 | Water | | 06-Nov-2019 10:45 | 07-Nov-2019 14:00 | ☐ |
| HS19110320-08 | 04WW08-191106 | Water | | 06-Nov-2019 11:35 | 07-Nov-2019 14:00 | ☐ |
| HS19110320-09 | 04WW04-191106 | Water | | 06-Nov-2019 12:20 | 07-Nov-2019 14:00 | ☐ |
| HS19110320-10 | LHSMW01-191106 | Water | | 06-Nov-2019 13:15 | 07-Nov-2019 14:00 | ☐ |
| HS19110320-11 | Fire Station Well-191106 | Water | | 06-Nov-2019 13:35 | 07-Nov-2019 14:00 | ☐ |

**Revision:**1

**ALS Houston, US** Date: 27-Nov-19

**Client:** Aptim Environmental & Infrastucture, Inc. **CASE NARRATIVE**
**Project:** Longhorn Army Ammunition Plant
**Work Order:** HS19110320

## Work Order Comments

- Anions were missed by the lab, revised to report Nitrate/Nitrite and Sulfate.
  Nitrate/Nitrite preserved on 11/26/2019 per client request.
- The analysis for Perchlorate was subcontracted to ALS Salt Lake City, UT. Final report attached.
- The analysis for TOC was subcontracted to ALS Kelso WA. Final report attached.

## Wet Chemistry by Method SW9056

### Batch ID: R351466

**Sample ID: 04WW05-191106 (HS19110320-07)**

- The reporting limit is elevated due to dilution for high concentrations of non-target analytes

### Batch ID: R351465

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

## WetChemistry by Method SM2320B

### Batch ID: R350238

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

**ALS Houston, US** Date: 27-Nov-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 04WW02-191105
Collection Date: 05-Nov-2019 08:30

**ANALYTICAL REPORT**
WorkOrder:HS19110320
Lab ID:HS19110320-01
Matrix:Water

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)** | | **Method:NA** | | | | | | Analyst: SUB |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 21-Nov-2019 16:31 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Revision:** 1

**ALS Houston, US** Date: 27-Nov-19

| | | |
|---|---|---|
| Client: | Aptim Environmental & Infrastucture, Inc. | **ANALYTICAL REPORT** |
| Project: | Longhorn Army Ammunition Plant | WorkOrder:HS19110320 |
| Sample ID: | 04WW02-191105-FD | Lab ID:HS19110320-02 |
| Collection Date: | 05-Nov-2019 08:30 | Matrix:Water |

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)** | | **Method:NA** | | | | | | Analyst: SUB |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 21-Nov-2019 16:31 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

**ALS Houston, US** Date: 27-Nov-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: LHSMW02-191105
Collection Date: 05-Nov-2019 09:55

**ANALYTICAL REPORT**
WorkOrder:HS19110320
Lab ID:HS19110320-03
Matrix:Water

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)** | | **Method:NA** | | | | | | Analyst: SUB |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 21-Nov-2019 16:31 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Revision:** 1

**ALS Houston, US** Date: 27-Nov-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 04WW03-191106
Collection Date: 06-Nov-2019 08:20

**ANALYTICAL REPORT**
WorkOrder:HS19110320
Lab ID:HS19110320-04
Matrix:Water

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)** | | **Method:NA** | | | | | | Analyst: SUB |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 21-Nov-2019 16:31 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Revision:** 1

**ALS Houston, US** Date: 27-Nov-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant WorkOrder:HS19110320
Sample ID: 04WW06-191106 Lab ID:HS19110320-05
Collection Date: 06-Nov-2019 09:10 Matrix:Water

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)** | | **Method:NA** | | | | | | Analyst: SUB |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 21-Nov-2019 16:31 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

**ALS Houston, US** Date: 27-Nov-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 04WW11-191106
Collection Date: 06-Nov-2019 09:55

**ANALYTICAL REPORT**
WorkOrder:HS19110320
Lab ID:HS19110320-06
Matrix:Water

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)** | | **Method:NA** | | | | | | Analyst: SUB |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 21-Nov-2019 16:31 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Revision:** 1

**ALS Houston, US** Date: 27-Nov-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 04WW05-191106
Collection Date: 06-Nov-2019 10:45

**ANALYTICAL REPORT**
WorkOrder:HS19110320
Lab ID:HS19110320-07
Matrix:Water

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **ALKALINITY BY SM2320B** | | **Method:SM2320B** | | | | | | Analyst: TH |
| **Alkalinity, Total (As CaCO3)** | **438** | | **5.00** | **5.00** | **5.00** | **mg/L** | 1 | 09-Nov-2019 18:54 |
| **ANIONS BY SW9056A** | | **Method:SW9056** | | | | | | Analyst: KMU |
| **Sulfate** | **72.8** | | **0.200** | **0.500** | **0.500** | **mg/L** | 1 | 27-Nov-2019 10:54 |
| **NITRATE/NITRITE BY IC BY SW9056A** | | **Method:SW9056** | | | | | | Analyst: KMU |
| Nitrogen, Nitrate-Nitrite | 0.500 | U | 0.150 | 0.500 | 1.00 | mg/L | 5 | 27-Nov-2019 12:00 |
| **SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)** | | **Method:NA** | | | | | | Analyst: SUB |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 21-Nov-2019 16:31 |
| **SUBCONTRACT ANALYSIS - TOC ANALYSIS** | | **Method:NA** | | | | | | Analyst: SUBK |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 25-Nov-2019 09:52 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Revision:** 1

**ALS Houston, US** Date: 27-Nov-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant WorkOrder:HS19110320
Sample ID: 04WW08-191106 Lab ID:HS19110320-08
Collection Date: 06-Nov-2019 11:35 Matrix:Water

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)** | | **Method:NA** | | | | | | Analyst: SUB |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 21-Nov-2019 16:31 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

**ALS Houston, US** Date: 27-Nov-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 04WW04-191106
Collection Date: 06-Nov-2019 12:20

**ANALYTICAL REPORT**
WorkOrder:HS19110320
Lab ID:HS19110320-09
Matrix:Water

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)** | | **Method:NA** | | | | | | Analyst: SUB |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 21-Nov-2019 16:31 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Revision:** 1

**ALS Houston, US** Date: 27-Nov-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant WorkOrder:HS19110320
Sample ID: LHSMW01-191106 Lab ID:HS19110320-10
Collection Date: 06-Nov-2019 13:15 Matrix:Water

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)** | | **Method:NA** | | | | | | Analyst: SUB |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 21-Nov-2019 16:31 |

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

**ALS Houston, US** Date: 27-Nov-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: Fire Station Well-191106
Collection Date: 06-Nov-2019 13:35

**ANALYTICAL REPORT**
WorkOrder:HS19110320
Lab ID:HS19110320-11
Matrix:Water

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)** | | **Method:NA** | | | | | | Analyst: SUB |
| Subcontract Analysis | See Attached | | 0 | 0 | | NA | 1 | 21-Nov-2019 16:31 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**Revision:** 1

**ALS Houston, US** Date: 27-Nov-19

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** Longhorn Army Ammunition Plant
**WorkOrder:** HS19110320

**DATES REPORT**

| Sample ID | Client Samp ID | Collection Date | Leachate Date | Prep Date | Analysis Date | DF |
|---|---|---|---|---|---|---|
| **Batch ID:** R350238 ( 0 ) | **Test Name :** ALKALINITY BY SM2320B | | | | **Matrix:** Water | |
| HS19110320-07 | 04WW05-191106 | 06 Nov 2019 10:45 | | | 09 Nov 2019 18:54 | 1 |
| **Batch ID:** R351046 ( 0 ) | **Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850) | | | | **Matrix:** Water | |
| HS19110320-01 | 04WW02-191105 | 05 Nov 2019 08:30 | | | 21 Nov 2019 16:31 | 1 |
| HS19110320-02 | 04WW02-191105-FD | 05 Nov 2019 08:30 | | | 21 Nov 2019 16:31 | 1 |
| HS19110320-03 | LHSMW02-191105 | 05 Nov 2019 09:55 | | | 21 Nov 2019 16:31 | 1 |
| HS19110320-04 | 04WW03-191106 | 06 Nov 2019 08:20 | | | 21 Nov 2019 16:31 | 1 |
| HS19110320-05 | 04WW06-191106 | 06 Nov 2019 09:10 | | | 21 Nov 2019 16:31 | 1 |
| HS19110320-06 | 04WW11-191106 | 06 Nov 2019 09:55 | | | 21 Nov 2019 16:31 | 1 |
| HS19110320-07 | 04WW05-191106 | 06 Nov 2019 10:45 | | | 21 Nov 2019 16:31 | 1 |
| HS19110320-08 | 04WW08-191106 | 06 Nov 2019 11:35 | | | 21 Nov 2019 16:31 | 1 |
| HS19110320-09 | 04WW04-191106 | 06 Nov 2019 12:20 | | | 21 Nov 2019 16:31 | 1 |
| HS19110320-10 | LHSMW01-191106 | 06 Nov 2019 13:15 | | | 21 Nov 2019 16:31 | 1 |
| HS19110320-11 | Fire Station Well-191106 | 06 Nov 2019 13:35 | | | 21 Nov 2019 16:31 | 1 |
| **Batch ID:** R351196 ( 0 ) | **Test Name :** SUBCONTRACT ANALYSIS - TOC ANALYSIS | | | | **Matrix:** Water | |
| HS19110320-07 | 04WW05-191106 | 06 Nov 2019 10:45 | | | 25 Nov 2019 09:52 | 1 |
| **Batch ID:** R351465 ( 0 ) | **Test Name :** ANIONS BY SW9056A | | | | **Matrix:** Water | |
| HS19110320-07 | 04WW05-191106 | 06 Nov 2019 10:45 | | | 27 Nov 2019 10:54 | 1 |
| **Batch ID:** R351466 ( 0 ) | **Test Name :** NITRATE/NITRITE BY IC BY SW9056A | | | | **Matrix:** Water | |
| HS19110320-07 | 04WW05-191106 | 06 Nov 2019 10:45 | | | 27 Nov 2019 12:00 | 5 |

**Revision:** 1

**ALS Houston, US** Date: 27-Nov-19

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** Longhorn Army Ammunition Plant
**WorkOrder:** HS19110320

**QC BATCH REPORT**

**Batch ID: R350238 ( 0 )** **Instrument: ManTech01** **Method: ALKALINITY BY SM2320B**

**MBLK** Sample ID: **WBLKW1-191109** Units: **mg/L** Analysis Date: **09-Nov-2019 16:34**
Client ID: Run ID: **ManTech01_350238** SeqNo: **5339051** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (As CaCO3) | 5.00 | 5.00 | | | | | | | | U |

**LCS** Sample ID: **LCS1-1911029** Units: **mg/L** Analysis Date: **09-Nov-2019 16:43**
Client ID: Run ID: **ManTech01_350238** SeqNo: **5339052** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (As CaCO3) | 1014 | 5.00 | 1000 | 0 | 101 | 85 - 115 | | | | |

**LCSD** Sample ID: **LCSD1-191109** Units: **mg/L** Analysis Date: **09-Nov-2019 16:51**
Client ID: Run ID: **ManTech01_350238** SeqNo: **5339053** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (As CaCO3) | 1013 | 5.00 | 1000 | 0 | 101 | 85 - 115 | 1014 | 0.116 | 20 | |

**DUP** Sample ID: **HS19110347-01DUP** Units: **mg/L** Analysis Date: **09-Nov-2019 17:04**
Client ID: Run ID: **ManTech01_350238** SeqNo: **5339055** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total (As CaCO3) | 152.3 | 5.00 | | | | | 150.1 | 1.42 | 20 | |

**The following samples were analyzed in this batch:** HS19110320-07

**Revision:** 1

**ALS Houston, US** Date: 27-Nov-19

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** Longhorn Army Ammunition Plant
**WorkOrder:** HS19110320

**QC BATCH REPORT**

**Batch ID: R351465 ( 0 )** **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

**MBLK** Sample ID: **WBLKW1-112619** Units: **mg/L** Analysis Date: **26-Nov-2019 18:46**
Client ID: Run ID: **ICS-Integrion_351465** SeqNo: **5365056** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 0.500 | 0.500 | | | | | | | | U |

**LCS** Sample ID: **WLCSW1-112619** Units: **mg/L** Analysis Date: **26-Nov-2019 19:02**
Client ID: Run ID: **ICS-Integrion_351465** SeqNo: **5365057** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 19.3 | 0.500 | 20 | 0 | 96.5 | 80 - 120 | | | | |

**LCSD** Sample ID: **WLCSDW1-112619** Units: **mg/L** Analysis Date: **26-Nov-2019 19:19**
Client ID: Run ID: **ICS-Integrion_351465** SeqNo: **5365058** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 19.24 | 0.500 | 20 | 0 | 96.2 | 80 - 120 | 19.3 | 0.31 | 20 | |

**MS** Sample ID: **HS19111343-06MS** Units: **mg/L** Analysis Date: **26-Nov-2019 21:08**
Client ID: Run ID: **ICS-Integrion_351465** SeqNo: **5365062** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 45.49 | 0.500 | 10 | 37.09 | 84.0 | 80 - 120 | | | | |

**MS** Sample ID: **HS19111189-03MS** Units: **mg/L** Analysis Date: **26-Nov-2019 22:48**
Client ID: Run ID: **ICS-Integrion_351465** SeqNo: **5365068** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 9.474 | 0.500 | 10 | 0.1582 | 93.2 | 80 - 120 | | | | |

**MSD** Sample ID: **HS19111343-06MSD** Units: **mg/L** Analysis Date: **26-Nov-2019 21:25**
Client ID: Run ID: **ICS-Integrion_351465** SeqNo: **5365063** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 45.88 | 0.500 | 10 | 37.09 | 87.8 | 80 - 120 | 45.49 | 0.842 | 20 | |

**Revision:** 1

**ALS Houston, US** Date: 27-Nov-19

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** Longhorn Army Ammunition Plant
**WorkOrder:** HS19110320

**QC BATCH REPORT**

**Batch ID: R351465 ( 0 )** **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

**MSD** Sample ID: **HS19111189-03MSD** Units: **mg/L** Analysis Date: **26-Nov-2019 23:04**
Client ID: Run ID: **ICS-Integrion_351465** SeqNo: **5365069** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 9.812 | 0.500 | 10 | 0.1582 | 96.5 | 80 - 120 | 9.474 | 3.51 | 20 | |

**The following samples were analyzed in this batch:** HS19110320-07

**Revision:** 1

**ALS Houston, US** Date: 27-Nov-19

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** Longhorn Army Ammunition Plant
**WorkOrder:** HS19110320

**QC BATCH REPORT**

**Batch ID: R351466 ( 0 )** **Instrument: ICS-Integrion** **Method: NITRATE/NITRITE BY IC BY SW9056A**

**MBLK** Sample ID: **WBLKW1-112719** Units: **mg/L** Analysis Date: **27-Nov-2019 11:10**
Client ID: Run ID: **ICS-Integrion_351466** SeqNo: **5365082** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, Nitrate-Nitrite | 0.100 | 0.200 | | | | | | | | U |

**LCS** Sample ID: **WLCSW1-112719** Units: **mg/L** Analysis Date: **27-Nov-2019 11:27**
Client ID: Run ID: **ICS-Integrion_351466** SeqNo: **5365083** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, Nitrate-Nitrite | 8.566 | 0.200 | 8 | 0 | 107 | 90 - 110 | | | | |

**LCSD** Sample ID: **WLCSDW1-112719** Units: **mg/L** Analysis Date: **27-Nov-2019 11:44**
Client ID: Run ID: **ICS-Integrion_351466** SeqNo: **5365084** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, Nitrate-Nitrite | 8.585 | 0.200 | 8 | 0 | 107 | 90 - 110 | 8.566 | 0.224 | 20 | |

**MS** Sample ID: **HS19110320-07MS** Units: **mg/L** Analysis Date: **27-Nov-2019 12:17**
Client ID: **04WW05-191106** Run ID: **ICS-Integrion_351466** SeqNo: **5365086** PrepDate: DF: **5**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, Nitrate-Nitrite | 20.85 | 1.00 | 20 | 0 | 104 | 80 - 120 | | | | |

**MSD** Sample ID: **HS19110320-07MSD** Units: **mg/L** Analysis Date: **27-Nov-2019 12:33**
Client ID: **04WW05-191106** Run ID: **ICS-Integrion_351466** SeqNo: **5365087** PrepDate: DF: **5**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, Nitrate-Nitrite | 20.82 | 1.00 | 20 | 0 | 104 | 80 - 120 | 20.85 | 0.161 | 20 | |

**The following samples were analyzed in this batch:** HS19110320-07

**Revision:** 1

**ALS Houston, US** Date: 27-Nov-19

**Client:** Aptim Environmental & Infrastucture, Inc.
**Project:** Longhorn Army Ammunition Plant
**WorkOrder:** **HS19110320**

**QUALIFIERS, ACRONYMS, UNITS**

| Qualifier | Description |
|---|---|
| * | Value exceeds Regulatory Limit |
| a | Not accredited |
| B | Analyte detected in the associated Method Blank above the Reporting Limit |
| E | Value above quantitation range |
| H | Analyzed outside of Holding Time |
| J | Analyte detected below quantitation limit |
| M | Manually integrated, see raw data for justification |
| n | Not offered for accreditation |
| ND | Not Detected at the Reporting Limit |
| O | Sample amount is > 4 times amount spiked |
| P | Dual Column results percent difference > 40% |
| R | RPD above laboratory control limit |
| S | Spike Recovery outside laboratory control limits |
| U | Analyzed but not detected above the MDL/SDL |

| Acronym | Description |
|---|---|
| DCS | Detectability Check Study |
| DUP | Method Duplicate |
| LCS | Laboratory Control Sample |
| LCSD | Laboratory Control Sample Duplicate |
| MBLK | Method Blank |
| MDL | Method Detection Limit |
| MQL | Method Quantitation Limit |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| PDS | Post Digestion Spike |
| PQL | Practical Quantitaion Limit |
| SD | Serial Dilution |
| SDL | Sample Detection Limit |
| TRRP | Texas Risk Reduction Program |

| Unit Reported | Description |
|---|---|
| mg/L | Milligrams per Liter |

## CERTIFICATIONS,ACCREDITATIONS & LICENSES

| Agency | Number | Expire Date |
|---|---|---|
| Arkansas | 19-028-0 | 27-Mar-2020 |
| California | 2919, 2019-2020 | 30-Apr-2020 |
| Dept of Defense | ANAB L2231 | 20-Dec-2021 |
| Florida | E87611-28 | 30-Jun-2020 |
| Illinois | 2000322019-2 | 09-May-2020 |
| Kansas | E-10352 2019-2020 | 31-Jul-2020 |
| Kentucky | 123043, 2019-2020 | 30-Apr-2020 |
| Louisiana | 03087, 2019-2020 | 30-Jun-2020 |
| Maryland | 343, 2019-2020 | 30-Jun-2020 |
| North Carolina | 624-2019 | 31-Dec-2019 |
| North Dakota | R-193 2019-2020 | 30-Apr-2020 |
| Oklahoma | 2019-067 | 31-Aug-2020 |
| Texas | TX104704231-19-23 | 30-Apr-2020 |

**ALS Houston, US** Date: 27-Nov-19

## Sample Receipt Checklist

Client Name: CBI-Houston
Work Order: HS19110320
Date/Time Received: **07-Nov-2019 14:00**
Received by: **PMG**

Checklist completed by: *Jared R. Makan* eSignature 7-Nov-2019 Date
Reviewed by: *RJ Modashia* eSignature 7-Nov-2019 Date

Matrices: **Water**
Carrier name: **FedEx Priority Overnight**

| | | | |
|---|---|---|---|
| Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ |
| Custody seals intact on shipping container/cooler? | Yes ☑ | No ☐ | Not Present ☐ |
| Custody seals intact on sample bottles? | Yes ☐ | No ☐ | Not Present ☑ |
| VOA/TX1005/TX1006 Solids in hermetically sealed vials? | Yes ☐ | No ☐ | Not Present ☑ |
| Chain of custody present? | Yes ☑ | No ☐ | 1 Page(s) |
| Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | COC IDs:N/A |
| Samplers name present on COC? | Yes ☑ | No ☐ | |
| Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | |
| Samples in proper container/bottle? | Yes ☑ | No ☐ | |
| Sample containers intact? | Yes ☑ | No ☐ | |
| Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | |
| All samples received within holding time? | Yes ☑ | No ☐ | |
| Container/Temp Blank temperature in compliance? | Yes ☑ | No ☐ | |
| Temperature(s)/Thermometer(s): | 0.7°C / 0.7°C UC/C | IR25 | |
| Cooler(s)/Kit(s): | 42926 | | |
| Date/Time sample(s) sent to storage: | 11/07/2019 14:40 | | |
| Water - VOA vials have zero headspace? | Yes ☐ | No ☐ | No VOA vials submitted ☑ |
| Water - pH acceptable upon receipt? | Yes ☐ | No ☐ | N/A ☑ |
| pH adjusted? | Yes ☐ | No ☐ | N/A ☑ |
| pH adjusted by: | | | |

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

APTIM

Page 1 of _____

COC ID: LHAAP04 Baseline Nov 2019 TURNAROUND TIME: Standard RUSH: No

| PROJECT/CLIENT INFO | | | | LABORATORY | | | | OTHER INFO | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Facility Name | Longhorn AAP | | | Lab Name | ALS Laboratories | | | Email Invoice To | FedInvoices@aptim.com | | |
| Project Number | 501032 | | | Lab Contact | RJ Modashia | | | | | | |
| | LHAAP-50 | | | Email | RJ.Modashia@alsglobal.com | | | Email Report To | Susan.Huang@aptim.com | | |
| Address | 1203-B East Grand Avenue | | | Address | 10450 Stancliff Rd., Suite 210 | | | Mail Reports To | Susan Huang | | |
| | PMB 202 | | | | | | | Address | 4005 Port Chicago Highway, Suite 200 | | |
| City | Marshall | State | TX | City | Houston | State | TX | City | Concord | State | CA |
| Postal Code | 75670 | Country | USA | Postal Code | 77099 | Country | USA | Postal Code | 94520 | Country | USA |
| Phone Number | 713.243.7264 | | | Phone Number | 281.575.2279 or 281.530 5656 | | | | | | |
| Project Manager | Praveen Srivastav | | | | | | | Shipping Company | | | |

SAMPLE DETAILS — ANALYSIS REQUESTED

| Sample ID | Location | Start Depth | End Depth | Depth Unit | Field Matrix | Date | Time (24hr) | # Of Cont. | Sample Container and Preservatives | 1-125ml /Cool to 6 deg C | 1-250ml /Cool to 6 deg C | 1-250ml /Cool to 6 deg C | 2-40ml Amber/H2SO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | ANALYSIS | Perchlorate by SW6850 | Anions (sulfate/nitrate/Nitrite) by SW9056 | Alkalinity by SM2320B | TOC by SM5310C |
| 04WW02-191105 | LHAAP 04 | | | | WG | 11/5/19 | 0830 | 1 | | X | | | |
| 04WW02-191105-FD | LHAAP 04 | | | | WG | 11/5/19 | 0830 | 1 | | X | | | |
| LHSMW02-191105 | LHAAP 04 | | | | WG | 11/5/19 | 0955 | 1 | | X | | | |
| 04WW03-191106 | LHAAP 04 | | | | WG | 11/6/19 | 0820 | 1 | | X | | | |
| 04WW06-191106 | LHAAP 04 | | | | WG | 11/6/19 | 0910 | 1 | | X | | | |
| 04WW11-191106 | LHAAP 04 | | | | WG | 11/6/19 | 0955 | 1 | | X | | | |
| 04WW11-191106-MS | LHAAP 04 | | | | WG | 11/6/19 | 0955 | 1 | | X | | | |
| 04WW11-191106-MSD | LHAAP 04 | | | | WG | 11/6/19 | 0955 | 1 | | X | | | |
| 04WW05-191106 | LHAAP 04 | | | | WG | 11/6/19 | 1045 | 4 | | X | X | X | X |
| 04WW08-191106 | LHAAP 04 | | | | WG | 11/6/19 | 1135 | 1 | | X | | | |
| 04WW04-191106 | LHAAP 04 | | | | WG | 11/6/19 | 1220 | 1 | | X | | | |
| LHSMW01-191106 | LHAAP 04 | | | | WG | 11/6/19 | 1315 | 1 | | X | | | |
| Fire Station well-191106 | LHAAP 04 | | | | WG | 11/6/19 | 1335 | 1 | | X | | | |

| ADDITIONAL COMMENTS/SPECIAL INSTRUCTIONS | RELINQUISHED BY/AFFILIATION | DATE/TIME | ACCEPTED BY/AFFILIATION | DATE/TIME |
|---|---|---|---|---|
| | Brian Bearg / BHATE | 11/6/19 1400 | ALS | 11/7/19 08:42 |

**HS19110320**

Aptim Environmental & Infrastucture, Inc.

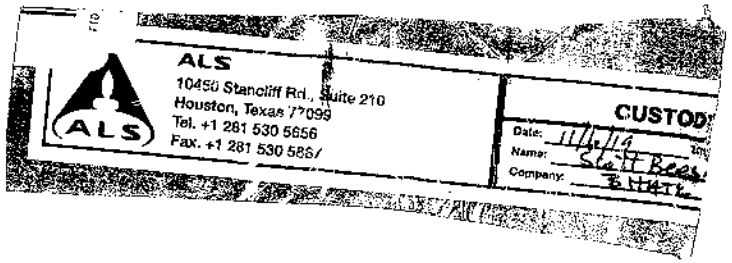
Longhorn Army Ammunition Plant

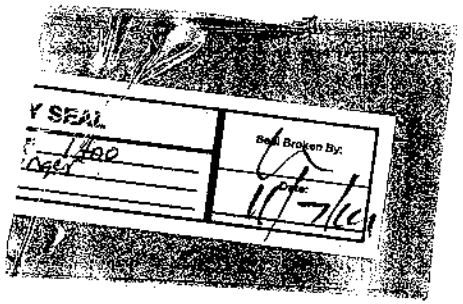
GLC.

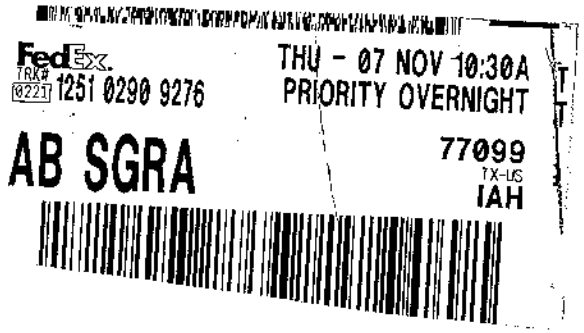
4292C. 0.7°

# 21

C(F 0.0'


ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5657
CUSTOD
Date:
Name:
Company:


Seal Broken By:


FedEx
TRK# 0221 1251 0290 9276
THU - 07 NOV 10:30A
PRIORITY OVERNIGHT
AB SGRA
77099
TX-US
IAH

ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
**T :** +1 360 577 7222
**F :** +1 360 636 1068
**www.alsglobal.com**

November 21, 2019

**Analytical Report for Service Request No:** K1910576

RJ Modashia
ALS Laboratory Group
10450 Stancliff Road
Suite 210
Houston, TX 77099-4338

**RE: HS19110320**

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory November 08, 2019
For your reference, these analyses have been assigned our service request number **K1910576.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3350. You may also contact me via email at Kelley.Lovejoy@alsglobal.com.

Respectfully submitted,

**ALS Group USA, Corp. dba ALS Environmental**

Kelley Lovejoy

Kelley Lovejoy
Project Manager


RIGHT SOLUTIONS | RIGHT PARTNER

ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
**T :** +1 360 577 7222
**F :** +1 360 636 1068
**www.alsglobal.com**

# Table of Contents

Acronyms
Qualifiers
State Certifications, Accreditations, And Licenses
Case Narrative
Chain of Custody
General Chemistry
Raw Data
    General Chemistry

## Acronyms

| | |
|---|---|
| ASTM | American Society for Testing and Materials |
| A2LA | American Association for Laboratory Accreditation |
| CARB | California Air Resources Board |
| CAS Number | Chemical Abstract Service registry Number |
| CFC | Chlorofluorocarbon |
| CFU | Colony-Forming Unit |
| DEC | Department of Environmental Conservation |
| DEQ | Department of Environmental Quality |
| DHS | Department of Health Services |
| DOE | Department of Ecology |
| DOH | Department of Health |
| EPA | U. S. Environmental Protection Agency |
| ELAP | Environmental Laboratory Accreditation Program |
| GC | Gas Chromatography |
| GC/MS | Gas Chromatography/Mass Spectrometry |
| LOD | Limit of Detection |
| LOQ | Limit of Quantitation |
| LUFT | Leaking Underground Fuel Tank |
| M | Modified |
| MCL | Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA. |
| MDL | Method Detection Limit |
| MPN | Most Probable Number |
| MRL | Method Reporting Limit |
| NA | Not Applicable |
| NC | Not Calculated |
| NCASI | National Council of the Paper Industry for Air and Stream Improvement |
| ND | Not Detected |
| NIOSH | National Institute for Occupational Safety and Health |
| PQL | Practical Quantitation Limit |
| RCRA | Resource Conservation and Recovery Act |
| SIM | Selected Ion Monitoring |
| TPH | Total Petroleum Hydrocarbons |
| tr | Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL. |

## Inorganic Data Qualifiers

| | |
|---|---|
| * | The result is an outlier. See case narrative. |
| # | The control limit criteria is not applicable. See case narrative. |
| B | The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards. |
| E | The result is an estimate amount because the value exceeded the instrument calibration range. |
| J | The result is an estimated value. |
| U | The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution. |
| i | The MRL/MDL or LOQ/LOD is elevated due to a matrix interference. |
| X | See case narrative. |
| Q | See case narrative. One or more quality control criteria was outside the limits. |
| H | The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory. |

## Metals Data Qualifiers

| | |
|---|---|
| # | The control limit criteria is not applicable. See case narrative. |
| J | The result is an estimated value. |
| E | The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample. |
| M | The duplicate injection precision was not met. |
| N | The Matrix Spike sample recovery is not within control limits. See case narrative. |
| S | The reported value was determined by the Method of Standard Additions (MSA). |
| U | The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution. |
| W | The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance. |
| i | The MRL/MDL or LOQ/LOD is elevated due to a matrix interference. |
| X | See case narrative. |
| + | The correlation coefficient for the MSA is less than 0.995. |
| Q | See case narrative. One or more quality control criteria was outside the limits. |

## Organic Data Qualifiers

| | |
|---|---|
| * | The result is an outlier. See case narrative. |
| # | The control limit criteria is not applicable. See case narrative. |
| A | A tentatively identified compound, a suspected aldol-condensation product. |
| B | The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards. |
| C | The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data. |
| D | The reported result is from a dilution. |
| E | The result is an estimated value. |
| J | The result is an estimated value. |
| N | The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed. |
| P | The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results. |
| U | The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution. |
| i | The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference. |
| X | See case narrative. |
| Q | See case narrative. One or more quality control criteria was outside the limits. |

## Additional Petroleum Hydrocarbon Specific Qualifiers

| | |
|---|---|
| F | The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard. |
| L | The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard. |
| H | The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard. |
| O | The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard. |
| Y | The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard. |
| Z | The chromatographic fingerprint does not resemble a petroleum product. |

**ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso**
**State Certifications, Accreditations, and Licenses**

| Agency | Web Site | Number |
|---|---|---|
| Alaska DEH | http://dec.alaska.gov/eh/lab/cs/csapproval.htm | UST-040 |
| Arizona DHS | http://www.azdhs.gov/lab/license/env.htm | AZ0339 |
| Arkansas - DEQ | http://www.adeq.state.ar.us/techsvs/labcert.htm | 88-0637 |
| California DHS (ELAP) | http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx | 2795 |
| DOD ELAP | http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm | L16-58-R4 |
| Florida DOH | http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm | E87412 |
| Hawaii DOH | http://health.hawaii.gov/ | - |
| ISO 17025 | http://www.pjlabs.com/ | L16-57 |
| Louisiana DEQ | http://www.deq.louisiana.gov/page/la-lab-accreditation | 03016 |
| Maine DHS | http://www.maine.gov/dhhs/ | WA01276 |
| Minnesota DOH | http://www.health.state.mn.us/accreditation | 053-999-457 |
| Nevada DEP | http://ndep.nv.gov/bsdw/labservice.htm | WA01276 |
| New Jersey DEP | http://www.nj.gov/dep/enforcement/oqa.html | WA005 |
| New York - DOH | https://www.wadsworth.org/regulatory/elap | 12060 |
| North Carolina DEQ | https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification | 605 |
| Oklahoma DEQ | http://www.deq.state.ok.us/CSDnew/labcert.htm | 9801 |
| Oregon – DEQ (NELAP) | http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx | WA100010 |
| South Carolina DHEC | http://www.scdhec.gov/environment/EnvironmentalLabCertification/ | 61002 |
| Texas CEQ | http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html | T104704427 |
| Washington DOE | http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html | C544 |
| Wyoming (EPA Region 8) | https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water- | - |
| Kelso Laboratory Website | www.alsglobal.com | NA |

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

# Case Narrative

**ALS Environmental—Kelso Laboratory**
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

1317 South 13th Ave, Kelso, WA 98626 | 1-360-577-7222 | www.alsglobal.com

**Client:** ALS Environmental - US
**Project:** HS19110320
**Sample Matrix:** Water

**Service Request:** K1910576
**Date Received:** 11/08/2019

## CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier level IV requested by the client.

**Sample Receipt:**

One water sample was received for analysis at ALS Environmental on 11/08/2019. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The sample was stored at minimum in accordance with the analytical method requirements.

**General Chemistry:**

No significant anomalies were noted with this analysis.

Approved by Kelley Lovejoy Date 11/21/2019

# Chain of Custody

**ALS Environmental—Kelso Laboratory**
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

KI 9105716

10450 Stancliff Rd, Ste 210
Houston, TX 77099
**T:** +1 281 530 5656
**F:** +1 281 530 5887
**www.alsglobal.com**

# Subcontract Chain of Custody

**SAMPLING STATE:** **Texas** **COC ID:** **12583**

**SUBCONTRACT TO:**

ALS Environmental Kelso
1317 S. 13th Avenue
Kelso, WA 98626

**Phone:** +1 360 501 3312

**CUSTOMER INFORMATION:**

| | |
|---|---|
| **Company:** | ALS Houston |
| **Contact:** | RJ Modashia |
| **Address:** | 10450 Stancliff Rd, Ste 210 |
| **Phone:** | +1 281 530 5656 |
| **Email:** | RJ.Modashia@alsglobal.com |
| **Alternate Contact:** | Jumoke M. Lawal |
| **Email:** | jumoke.lawal@alsglobal.com |

**INVOICE INFORMATION:**

| | |
|---|---|
| **Company:** | ALS Houston |
| **Contact:** | Accounts Payable |
| **Address:** | 10450 Stancliff Rd, Ste 210 |
| **Phone:** | +1 281 530 5656 |
| **Reference:** | HS19110320 |
| **TSR:** | Sonia West |

| | LAB SAMPLE ID | CLIENT SAMPLE ID | MATRIX | COLLECT DATE |
|---|---|---|---|---|
| | ANALYSIS REQUESTED | | | DUE DATE |
| **1.** | **HS19110320-07** | **04WW05-191106** | **Water** | **06 Nov 2019 10:45** |
| | TOC Analysis with DOD Level IV/EQuIS APTIM EDD | | | 21 Nov 2019 |

**Comments:** Please analyze for the analysis listed above.
Send report to the emails shown above.

**QC Level:** DOD IV (DoD Data Package)

KI 9105716

Relinquished By: _____ Date/Time: 11/7/19 1800

Received By: _____ Date/Time: 11/8/19 1000

Cooler ID(s): _____ Temperature(s): _____

PC KV

## Cooler Receipt and Preservation Form

Client ALS - Houston Service Request *K19* 105776

Received: 11/8/19 Opened: 11/8/19 By: BR Unloaded: 11/8/19 By: BR

1. Samples were received via? *USPS* (*Fed Ex*) *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) (*Cooler*) *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? 2 front

If present, were custody seals intact? (Y) N If present, were they signed and dated? (Y) N

| Raw Cooler Temp | Corrected Cooler Temp | Raw Temp Blank | Corrected Temp Blank | Corr. Factor | Thermometer ID | Cooler/COC ID | Tracking Number | Filed |
|---|---|---|---|---|---|---|---|---|
| -0.2 | 0.1 | — | — | +0.3 | 379 | (NA) | 1Z51029151901 | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

4. Packing material: *Inserts* (*Baggies*) (*Bubble Wrap*) *Gel Packs* (*Wet Ice*) *Dry Ice* *Sleeves* _____
5. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
6. Were samples received in good condition (temperature, unbroken)? *Indicate in the table below.* NA (Y) N

If applicable, tissue samples were received: ***Frozen*** ***Partially Thawed*** ***Thawed***

7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA (Y) N
8. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA (Y) N
9. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
10. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA (Y) N
11. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
12. Was C12/Res negative? (NA) Y N

| Sample ID on Bottle | Sample ID on COC | Identified by: |
|---|---|---|
| | | |
| | | |
| | | |

| Sample ID | Bottle Count Bottle Type | Out of Temp | Head-space | Broke | pH | Reagent | Volume added | Reagent Lot Number | Initials | Time |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

***Notes, Discrepancies, & Resolutions:*** _____

# General Chemistry

**ALS Environmental—Kelso Laboratory**
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

**ALS Group USA, Corp.**
**dba ALS Environmental**

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | K1910576 |
| **Project:** | HS19110320 | **Date Collected:** | 11/6/19 |
| **Sample Matrix:** | Water | **Date Received:** | 11/8/19 |
| **Analysis Method:** | SM 5310 C | **Units:** | mg/L |
| **Prep Method:** | None | **Basis:** | NA |

## Carbon, Total Organic

| Sample Name | Lab Code | Result | LOQ | LOD | MDL | Dil. | Date Analyzed | Q |
|---|---|---|---|---|---|---|---|---|
| 04WW05-191106 | K1910576-001 | **20.0** | 0.50 | 0.20 | 0.07 | 1 | 11/16/19 05:06 | |
| Method Blank | K1910576-MB | ND U | 0.50 | 0.20 | 0.07 | 1 | 11/15/19 23:54 | |

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | K1910576 |
| **Project** | HS19110320 | **Date Collected:** | 11/06/19 |
| **Sample Matrix:** | Water | **Date Received:** | 11/08/19 |
| | | **Date Analyzed:** | 11/16/19 |

## Replicate Sample Summary
## General Chemistry Parameters

| | | | |
|---|---|---|---|
| **Sample Name:** | 04WW05-191106 | **Units:** | mg/L |
| **Lab Code:** | K1910576-001 | **Basis:** | NA |

| Analyte Name | Analysis Method | LOQ | LOD | MDL | Sample Result | Duplicate Sample K1910576-001DUP Result | Average | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, Total Organic | SM 5310 C | 0.50 | 0.20 | 0.07 | 20.0 | 20.0 | 20.0 | <1 | 10 |

**Results flagged with an asterisk (*) indicate values outside control criteria.**

**Results flagged with a pound (#) indicate the control criteria is not applicable.**

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental - US | **Service Request:** | K1910576 |
| **Project:** | HS19110320 | **Date Analyzed:** | 11/16/19 |
| **Sample Matrix:** | Water | **Date Extracted:** | NA |

**Lab Control Sample Summary**
**Carbon, Total Organic**

| | | | |
|---|---|---|---|
| **Analysis Method:** | SM 5310 C | **Units:** | mg/L |
| **Prep Method:** | None | **Basis:** | NA |
| | | **Analysis Lot:** | 660113 |

| Sample Name | Lab Code | Result | Spike Amount | % Rec | % Rec Limits |
|---|---|---|---|---|---|
| Lab Control Sample | K1910576-LCS | 24.8 | 25.0 | 99 | 83-117 |

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

**Client:** ALS Environmental - US **Service Request:** K1910576
**Project:** HS19110320

## Continuing Calibration Verification (CCV) Summary

### Carbon, Total Organic

**Analysis Method:** SM 5310 C **Units:** mg/L

| | Analysis Lot | Lab Code | Date Analyzed | True Value | Measured Value | Percent Recovery | Acceptance Limits |
|---|---|---|---|---|---|---|---|
| CCV1 | 660113 | KQ1916989-01 | 11/15/19 23:25 | 25.0 | 24.3 | 97 | 90-110 |
| CCV2 | 660113 | KQ1916989-02 | 11/16/19 04:08 | 25.0 | 24.6 | 99 | 90-110 |
| CCV3 | 660113 | KQ1916989-03 | 11/16/19 09:05 | 25.0 | 24.2 | 97 | 90-110 |
| CCV4 | 660113 | KQ1916989-04 | 11/16/19 13:50 | 25.0 | 23.7 | 95 | 90-110 |

**ALS Group USA, Corp.**
**dba ALS Environmental**

QA/QC Report

**Client:** ALS Environmental - US **Service Request:**K1910576
**Project:** HS19110320

## Continuing Calibration Blank (CCB) Summary
### Carbon, Total Organic

**Analysis Method:** SM 5310 C **Units:**mg/L

| | Analysis Lot | Lab Code | Date Analyzed | LOQ | LOD | MDL | Result | Q |
|---|---|---|---|---|---|---|---|---|
| CCB1 | 660113 | KQ1916989-05 | 11/15/19 23:39 | 0.50 | 0.20 | 0.07 | ND | U |
| CCB2 | 660113 | KQ1916989-06 | 11/16/19 04:23 | 0.50 | 0.20 | 0.07 | ND | U |
| CCB3 | 660113 | KQ1916989-07 | 11/16/19 09:19 | 0.50 | 0.20 | 0.07 | ND | U |
| CCB4 | 660113 | KQ1916989-08 | 11/16/19 14:04 | 0.50 | 0.20 | 0.07 | ND | U |

# Raw Data

**ALS Environmental—Kelso Laboratory**
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

# General Chemistry

**ALS Environmental—Kelso Laboratory**
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Work Request # Original (K1910895, 160, 169, 187, 278, 332, 415, 473, 545, 147, 331, 473, 483, 561, 572, 576, 199, 254, 297, 760, 765)
Tier: II IV II I II I II II II IV II II II II II IV IV IV IV

Date Analyzed: 11/15/19

Analyst: BCP / BCP for HLM

Run # TOC: 660112, 660117, 660114, 660115

Analysis: TOC/DOC

**DATA QUALITY REPORT**
**INORGANICS**

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

| | | |
|---|---|---|
| 1. | Is the method name and number correct and appropriate? | (yes)/no/NA |
| 2. | Holding times met for all analyses and for all samples? | (yes)/no/NA |
| 3. | Are calculations correct? | (yes)/no/NA |
| 4. | Is the reporting basis correct? (Dry Weight) | (yes)/no/NA |
| 5. | All quality control criteria met? | (yes)/no |
| 6. | Is the calibration curve correlation coefficient ≥ 0.995? | (yes)/no/NA |
| 7. | MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency? | (yes)/no/NA |
| 8. | Are ICVs, CCVs, and CCBs all within acceptance limits? | (yes)/no/NA |
| 9. | Are results for methods blanks all ND? | (yes)/no/NA |
| 10. | Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.) | yes/(no)/NA |
| 11. | Are all exceptions explained? | (yes)/no/NA |
| 12. | Have all applicable service requests been reviewed? | (yes)/no/NA |
| 13. | Are all samples labeled correctly? | (yes)/no/NA |
| 14. | Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample, Form V) | (yes)/no/NA |
| 15. | Are detection limits and units reported correctly? | (yes)/no/NA |
| 16. | Is the unused space on the benchsheet crossed out? | (yes)/no/NA |
| 17. | Was analysis turned in by the due date? (n-2) (If not record SR#) | yes/(no)/NA |

**COMMENTS:** K1910160-3MS reports a low %Recovery due to suspected matrix interference.
K1910187-3/3d, 278-2/2d, 473-5/5d, 561-2/2d, 254-3/3d, 254-7/7d report a high %RSD. However, these samples are less than 5x the MRL.

Final Approved by: _____ Date: 11/19/19

DQREPORT

# Analytical Results Summary

**Instrument Name:** K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 660112 **Method/Testcode:** SM 5310 C/TOC T

| Lab Code | Target Analytes | QC | Parent Sample | Matrix | Raw Result | Sample Amt. | Final Result | Dil | MDL | PQL | % Rec | % RSD | Date Analyzed | QC? | Tier |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| K1910095-017 | Carbon, Total Organic | N/A | | Water | 4.92 mg/L | 10 mL | 246 mg/L | 50 | 4 | 25 | | | 11/15/19 15:25:00 | N | II |
| K1910095-018 | Carbon, Total Organic | N/A | | Water | 5.97 mg/L | 10 mL | 298 mg/L | 50 | 4 | 25 | | | 11/15/19 15:53:00 | N | II |
| K1910160-001 | Carbon, Total Organic | N/A | | Water | 1.69 mg/L | 10 mL | 1.69 mg/L | 1 | 0.07 | 0.50 | | | 11/15/19 16:36:00 | N | IV |
| K1910160-002 | Carbon, Total Organic | N/A | | Water | 1.38 mg/L | 10 mL | 1.38 mg/L | 1 | 0.07 | 0.50 | | | 11/15/19 17:04:00 | N | IV |
| K1910160-003 | Carbon, Total Organic | N/A | | Water | 1.23 mg/L | 10 mL | 1.23 mg/L | 1 | 0.07 | 0.50 | | | 11/15/19 17:32:00 | N | IV |
| K1910169-001 | Carbon, Total Organic | N/A | | Ground Water | 1.77 mg/L | 10 mL | 1.77 mg/L | 1 | 0.07 | 0.50 | | | 11/15/19 18:44:00 | N | II |
| K1910169-002 | Carbon, Total Organic | N/A | | Ground Water | 3.51 mg/L | 10 mL | 3.51 mg/L | 1 | 0.07 | 0.50 | | | 11/15/19 19:12:00 | N | II |
| K1910169-003 | Carbon, Total Organic | N/A | | Ground Water | 3.55 mg/L | 10 mL | 3.55 mg/L | 1 | 0.07 | 0.50 | | | 11/15/19 19:40:00 | N | II |
| K1910187-001 | Carbon, Total Organic | N/A | | Water | 2.41 mg/L | 10 mL | 2.41 mg/L | 1 | 0.07 | 0.50 | | | 11/15/19 20:08:00 | N | I |
| K1910187-002 | Carbon, Total Organic | N/A | | Water | 0.51 mg/L | 10 mL | 0.51 mg/L | 1 | 0.07 | 0.50 | | | 11/15/19 20:36:00 | N | I |
| K1910187-003 | Carbon, Total Organic | N/A | | Water | 0.51 mg/L | 10 mL | 0.51 mg/L | 1 | 0.07 | 0.50 | | | 11/15/19 21:04:00 | N | I |
| K1910278-001 | Carbon, Total Organic | N/A | | Ground Water | 3.33 mg/L | 10 mL | 3.33 mg/L | 1 | 0.07 | 0.50 | | | 11/15/19 22:57:00 | N | II |
| K1910278-002 | Carbon, Total Organic | N/A | | Ground Water | 0.34 mg/L | 10 mL | 0.34 mg/L J | 1 | 0.07 | 0.50 | | | 11/16/19 00:23:00 | N | II |
| K1910332-001 | Carbon, Total Organic | N/A | | Drinking Water | 0.37 mg/L | 10 mL | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 11/15/19 21:32:00 | N | I |
| K1910415-001 | Carbon, Total Organic | N/A | | Ocean Water | 0.00 mg/L | 10 mL | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 11/15/19 22:00:00 | N | II |
| K1910473-001 | Carbon, Total Organic | N/A | | Ground Water | 6.20 mg/L | 10 mL | 6.20 mg/L | 1 | 0.07 | 0.50 | | | 11/16/19 00:51:00 | N | II |
| K1910473-002 | Carbon, Total Organic | N/A | | Ground Water | 6.32 mg/L | 10 mL | 6.32 mg/L | 1 | 0.07 | 0.50 | | | 11/16/19 01:19:00 | N | II |
| K1910473-003 | Carbon, Total Organic | N/A | | Ground Water | 0.34 mg/L | 10 mL | 0.34 mg/L J | 1 | 0.07 | 0.50 | | | 11/16/19 01:48:00 | N | II |
| K1910545-001 | Carbon, Total Organic | N/A | | Water | 1.83 mg/L | 10 mL | 1.83 mg/L | 1 | 0.07 | 0.50 | | | 11/15/19 22:28:00 | N | II |
| KQ1916988-01 | Carbon, Total Organic | CCV | | Water | 24.50 mg/L | 10 mL | 24.5 mg/L | 1 | | | | | 11/15/19 14:11:00 | N | II |
| KQ1916988-02 | Carbon, Total Organic | CCV | | Water | 24.74 mg/L | 10 mL | 24.7 mg/L | 1 | | | | | 11/15/19 18:14:00 | N | II |
| KQ1916988-03 | Carbon, Total Organic | CCV | | Water | 24.27 mg/L | 10 mL | 24.3 mg/L | 1 | | | | | 11/15/19 23:25:00 | N | II |
| KQ1916988-04 | Carbon, Total Organic | CCV | | Water | 24.63 mg/L | 10 mL | 24.6 mg/L | 1 | | | | | 11/16/19 04:08:00 | N | II |
| KQ1916988-05 | Carbon, Total Organic | CCB | | Water | 0.00 mg/L | 10 mL | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 11/15/19 14:26:00 | N | II |
| KQ1916988-06 | Carbon, Total Organic | CCB | | Water | 0.00 mg/L | 10 mL | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 11/15/19 18:29:00 | N | II |
| KQ1916988-07 | Carbon, Total Organic | CCB | | Water | 0.00 mg/L | 10 mL | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 11/15/19 23:39:00 | N | II |
| KQ1916988-08 | Carbon, Total Organic | CCB | | Water | 0.00 mg/L | 10 mL | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 11/16/19 04:23:00 | N | II |
| KQ1916988-09 | Carbon, Total Organic | MB | | Water | 0.00 mg/L | 10 mL | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 11/15/19 14:41:00 | N | II |
| KQ1916988-10 | Carbon, Total Organic | LCS | | Water | 25.27 mg/L | 10 mL | 25.3 mg/L | 1 | 0.07 | 0.50 | 101 | | 11/15/19 14:56:00 | N | II |
| KQ1916988-11 | Carbon, Total Organic | MS | K1910160-003 | Water | 21.53 mg/L | 10 mL | 21.5 mg/L | 1 | 0.07 | 0.50 | 81* | | 11/15/19 18:00:00 | N | IV |
| KQ1916988-12 | Carbon, Total Organic | DUP | K1910095-017 | Water | 4.97 mg/L | 10 mL | 249 mg/L | 50 | 4 | 25 | | 1 | 11/15/19 15:25:00 | N | II |

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.



11/19/19

# Analytical Results Summary

**Instrument Name:** K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 660112 **Method/Testcode:** SM 5310 C/TOC T

| Lab Code | Target Analytes | QC | Parent Sample | Matrix | Raw Result | Sample Amt. | Final Result | Dil | MDL | PQL | % Rec | % RSD | Date Analyzed | QC? | Tier |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| KQ1916988-13 | Carbon, Total Organic | DUP | K1910095-018 | Water | 6.04 mg/L | 10 mL | 302 mg/L | 50 | 4 | 25 | | 1 | 11/15/19 15:53:00 | N | II |
| KQ1916988-15 | Carbon, Total Organic | DUP | K1910160-002 | Water | 1.32 mg/L | 10 mL | 1.32 mg/L | 1 | 0.07 | 0.50 | | 5 | 11/15/19 17:04:00 | N | IV |
| KQ1916988-16 | Carbon, Total Organic | DUP | K1910160-001 | Water | 1.57 mg/L | 10 mL | 1.57 mg/L | 1 | 0.07 | 0.50 | | 7 | 11/15/19 16:36:00 | N | IV |
| KQ1916988-17 | Carbon, Total Organic | DUP | K1910160-003 | Water | 1.20 mg/L | 10 mL | 1.20 mg/L | 1 | 0.07 | 0.50 | | 2 | 11/15/19 17:32:00 | N | IV |
| KQ1916988-18 | Carbon, Total Organic | DUP | K1910169-001 | Ground Water | 1.78 mg/L | 10 mL | 1.78 mg/L | 1 | 0.07 | 0.50 | | <1 | 11/15/19 18:44:00 | N | II |
| KQ1916988-19 | Carbon, Total Organic | DUP | K1910169-002 | Ground Water | 3.57 mg/L | 10 mL | 3.57 mg/L | 1 | 0.07 | 0.50 | | 2 | 11/15/19 19:12:00 | N | II |
| KQ1916988-20 | Carbon, Total Organic | DUP | K1910169-003 | Ground Water | 3.50 mg/L | 10 mL | 3.50 mg/L | 1 | 0.07 | 0.50 | | 2 | 11/15/19 19:40:00 | N | II |
| KQ1916988-21 | Carbon, Total Organic | DUP | K1910187-001 | Water | 2.39 mg/L | 10 mL | 2.39 mg/L | 1 | 0.07 | 0.50 | | <1 | 11/15/19 20:08:00 | N | I |
| KQ1916988-22 | Carbon, Total Organic | DUP | K1910187-002 | Water | 0.50 mg/L | 10 mL | 0.50 mg/L | 1 | 0.07 | 0.50 | | 2 | 11/15/19 20:36:00 | N | I |
| KQ1916988-23 | Carbon, Total Organic | DUP | K1910187-003 | Water | 0.57 mg/L | 10 mL | 0.57 mg/L | 1 | 0.07 | 0.50 | | 11* | 11/15/19 21:04:00 | N | I |
| KQ1916988-24 | Carbon, Total Organic | DUP | K1910278-001 | Ground Water | 3.20 mg/L | 10 mL | 3.20 mg/L | 1 | 0.07 | 0.50 | | 4 | 11/15/19 22:57:00 | N | II |
| KQ1916988-25 | Carbon, Total Organic | DUP | K1910278-002 | Ground Water | 0.24 mg/L | 10 mL | 0.24 mg/L J | 1 | 0.07 | 0.50 | | 37* | 11/16/19 00:23:00 | N | II |
| KQ1916988-26 | Carbon, Total Organic | DUP | K1910332-001 | Drinking Water | 0.42 mg/L | 10 mL | 0.42 mg/L J | 1 | 0.07 | 0.50 | | NC | 11/15/19 21:32:00 | N | I |
| KQ1916988-28 | Carbon, Total Organic | DUP | K1910473-001 | Ground Water | 6.24 mg/L | 10 mL | 6.24 mg/L | 1 | 0.07 | 0.50 | | <1 | 11/16/19 00:51:00 | N | II |
| KQ1916988-29 | Carbon, Total Organic | DUP | K1910473-002 | Ground Water | 6.33 mg/L | 10 mL | 6.33 mg/L | 1 | 0.07 | 0.50 | | <1 | 11/16/19 01:19:00 | N | II |
| KQ1916988-30 | Carbon, Total Organic | DUP | K1910473-003 | Ground Water | 0.37 mg/L | 10 mL | 0.37 mg/L J | 1 | 0.07 | 0.50 | | 7 | 11/16/19 01:48:00 | N | II |
| KQ1916988-31 | Carbon, Total Organic | DUP | K1910545-001 | Water | 1.88 mg/L | 10 mL | 1.88 mg/L | 1 | 0.07 | 0.50 | | 3 | 11/15/19 22:28:00 | N | II |
| KQ1916988-32 | Carbon, Total Organic | DUP | K1910415-001 | Ocean Water | 0.02 mg/L | 10 mL | 0.50 mg/L U | 1 | 0.07 | 0.50 | | NC | 11/15/19 22:00:00 | N | II |

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

# Analytical Results Summary

**Instrument Name:** K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 660113 **Method/Testcode:** SM 5310 C/TOC T

| Lab Code | Target Analytes | QC | Parent Sample | Matrix | Raw Result | Sample Amt. | Final Result | Dil | MDL | PQL | % Rec | % RSD | Date Analyzed | QC? | Tier |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| K1910147-001 | Carbon, Total Organic | N/A | | Water | 2.61 mg/L | 10 mL | 2.61 mg/L | 1 | 0.07 | 0.50 | | | 11/16/19 12:53:00 | N | IV |
| K1910331-001 | Carbon, Total Organic | N/A | | Water | 8.66 mg/L | 10 mL | 866 mg/L | 100 | 7 | 50 | | | 11/16/19 05:34:00 | N | II |
| K1910331-002 | Carbon, Total Organic | N/A | | Water | 9.22 mg/L | 10 mL | 922 mg/L | 100 | 7 | 50 | | | 11/16/19 06:02:00 | N | II |
| K1910331-003 | Carbon, Total Organic | N/A | | Water | 7.00 mg/L | 10 mL | 700 mg/L | 100 | 7 | 50 | | | 11/16/19 06:30:00 | N | II |
| K1910473-004 | Carbon, Total Organic | N/A | | Ground Water | 0.00 mg/L | 10 mL | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 11/16/19 02:16:00 | N | II |
| K1910473-005 | Carbon, Total Organic | N/A | | Ground Water | 0.74 mg/L | 10 mL | 0.74 mg/L | 1 | 0.07 | 0.50 | | | 11/16/19 02:44:00 | N | II |
| K1910473-006 | Carbon, Total Organic | N/A | | Ground Water | 0.00 mg/L | 10 mL | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 11/16/19 03:12:00 | N | II |
| K1910483-001 | Carbon, Total Organic | N/A | | Water | 3.41 mg/L | 10 mL | 3.41 mg/L | 1 | 0.07 | 0.50 | | | 11/16/19 03:40:00 | N | II |
| K1910483-003 | Carbon, Total Organic | N/A | | Water | 2.42 mg/L | 10 mL | 2.42 mg/L | 1 | 0.07 | 0.50 | | | 11/16/19 04:38:00 | N | II |
| K1910561-001 | Carbon, Total Organic | N/A | | Surface Water | 12.22 mg/L | 10 mL | 122 mg/L | 10 | 0.7 | 5.0 | | | 11/16/19 06:58:00 | N | II |
| K1910561-002 | Carbon, Total Organic | N/A | | Surface Water | 1.49 mg/L | 10 mL | 1.49 mg/L | 1 | 0.07 | 0.50 | | | 11/16/19 07:26:00 | N | II |
| K1910561-003 | Carbon, Total Organic | N/A | | Surface Water | 4.36 mg/L | 10 mL | 8.7 mg/L | 2 | 0.2 | 1.0 | | | 11/16/19 07:54:00 | N | II |
| K1910572-001 | Carbon, Total Organic | N/A | | Surface Water | 0.00 mg/L | 10 mL | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 11/16/19 08:22:00 | N | II |
| K1910572-002 | Carbon, Total Organic | N/A | | Surface Water | 0.01 mg/L | 10 mL | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 11/16/19 10:05:00 | N | II |
| K1910572-003 | Carbon, Total Organic | N/A | | Surface Water | 0.00 mg/L | 10 mL | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 11/16/19 10:33:00 | N | II |
| K1910572-004 | Carbon, Total Organic | N/A | | Surface Water | 0.00 mg/L | 10 mL | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 11/16/19 11:01:00 | N | II |
| K1910572-005 | Carbon, Total Organic | N/A | | Surface Water | 0.00 mg/L | 10 mL | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 11/16/19 11:29:00 | N | II |
| K1910572-006 | Carbon, Total Organic | N/A | | Surface Water | 0.00 mg/L | 10 mL | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 11/16/19 11:57:00 | N | II |
| K1910572-008 | Carbon, Total Organic | N/A | | Surface Water | 0.00 mg/L | 10 mL | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 11/16/19 12:25:00 | N | II |
| K1910576-001 | Carbon, Total Organic | N/A | | Water | 20.04 mg/L | 10 mL | 20.0 mg/L | 1 | 0.07 | 0.50 | | | 11/16/19 05:06:00 | N | IV |
| KQ1916989-01 | Carbon, Total Organic | CCV | | Ground Water | 24.27 mg/L | 10 mL | 24.3 mg/L | 1 | | | | | 11/15/19 23:25:00 | N | II |
| KQ1916989-02 | Carbon, Total Organic | CCV | | Ground Water | 24.63 mg/L | 10 mL | 24.6 mg/L | 1 | | | | | 11/16/19 04:08:00 | N | II |
| KQ1916989-03 | Carbon, Total Organic | CCV | | Ground Water | 24.21 mg/L | 10 mL | 24.2 mg/L | 1 | | | | | 11/16/19 09:05:00 | N | II |
| KQ1916989-04 | Carbon, Total Organic | CCV | | Ground Water | 23.71 mg/L | 10 mL | 23.7 mg/L | 1 | | | | | 11/16/19 13:50:00 | N | II |
| KQ1916989-05 | Carbon, Total Organic | CCB | | Ground Water | 0.00 mg/L | 10 mL | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 11/15/19 23:39:00 | N | II |
| KQ1916989-06 | Carbon, Total Organic | CCB | | Ground Water | 0.00 mg/L | 10 mL | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 11/16/19 04:23:00 | N | II |

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

11/19/19

# Analytical Results Summary

**Instrument Name:** K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 660113 **Method/Testcode:** SM 5310 C/TOC T

| Lab Code | Target Analytes | QC | Parent Sample | Matrix | Raw Result | Sample Amt. | Final Result | Dil | MDL | PQL | % Rec | % RSD | Date Analyzed | QC? | Tier |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| KQ1916989-07 | Carbon, Total Organic | CCB | | Ground Water | 0.00 mg/L | 10 mL | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 11/16/19 09:19:00 | N | II |
| KQ1916989-08 | Carbon, Total Organic | CCB | | Ground Water | 0.00 mg/L | 10 mL | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 11/16/19 14:04:00 | N | II |
| KQ1916989-09 | Carbon, Total Organic | MB | | Ground Water | 0.00 mg/L | 10 mL | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 11/15/19 23:54:00 | N | II |
| KQ1916989-10 | Carbon, Total Organic | LCS | | Ground Water | 24.76 mg/L | 10 mL | 24.8 mg/L | 1 | 0.07 | 0.50 | 99 | | 11/16/19 00:09:00 | N | II |
| KQ1916989-11 | Carbon, Total Organic | MS | K1910572-001 | Surface Water | 25.02 mg/L | 10 mL | 25.0 mg/L | 1 | 0.07 | 0.50 | 100 | | 11/16/19 08:50:00 | N | II |
| KQ1916989-12 | Carbon, Total Organic | DUP | K1910147-001 | Water | 2.59 mg/L | 10 mL | 2.59 mg/L | 1 | 0.07 | 0.50 | | <1 | 11/16/19 12:53:00 | N | IV |
| KQ1916989-13 | Carbon, Total Organic | DUP | K1910331-001 | Water | 8.72 mg/L | 10 mL | 872 mg/L | 100 | 7 | 50 | | <1 | 11/16/19 05:34:00 | N | II |
| KQ1916989-14 | Carbon, Total Organic | DUP | K1910331-002 | Water | 9.19 mg/L | 10 mL | 919 mg/L | 100 | 7 | 50 | | <1 | 11/16/19 06:02:00 | N | II |
| KQ1916989-15 | Carbon, Total Organic | DUP | K1910473-004 | Ground Water | 0.00 mg/L | 10 mL | 0.50 mg/L U | 1 | 0.07 | 0.50 | | NC | 11/16/19 02:16:00 | N | II |
| KQ1916989-16 | Carbon, Total Organic | DUP | K1910473-005 | Ground Water | 0.62 mg/L | 10 mL | 0.62 mg/L | 1 | 0.07 | 0.50 | | 18* | 11/16/19 02:44:00 | N | II |
| KQ1916989-17 | Carbon, Total Organic | DUP | K1910473-006 | Ground Water | 0.00 mg/L | 10 mL | 0.50 mg/L U | 1 | 0.07 | 0.50 | | NC | 11/16/19 03:12:00 | N | II |
| KQ1916989-18 | Carbon, Total Organic | DUP | K1910483-003 | Water | 2.37 mg/L | 10 mL | 2.37 mg/L | 1 | 0.07 | 0.50 | | 2 | 11/16/19 04:38:00 | N | II |
| KQ1916989-19 | Carbon, Total Organic | DUP | K1910483-001 | Water | 3.31 mg/L | 10 mL | 3.31 mg/L | 1 | 0.07 | 0.50 | | 3 | 11/16/19 03:40:00 | N | II |
| KQ1916989-20 | Carbon, Total Organic | DUP | K1910331-003 | Water | 6.84 mg/L | 10 mL | 684 mg/L | 100 | 7 | 50 | | 2 | 11/16/19 06:30:00 | N | II |
| KQ1916989-21 | Carbon, Total Organic | DUP | K1910561-001 | Surface Water | 12.17 mg/L | 10 mL | 122 mg/L | 10 | 0.7 | 5.0 | | <1 | 11/16/19 06:58:00 | N | II |
| KQ1916989-22 | Carbon, Total Organic | DUP | K1910561-002 | Surface Water | 1.28 mg/L | 10 mL | 1.28 mg/L | 1 | 0.07 | 0.50 | | 15* | 11/16/19 07:26:00 | N | II |
| KQ1916989-23 | Carbon, Total Organic | DUP | K1910561-003 | Surface Water | 4.18 mg/L | 10 mL | 8.4 mg/L | 2 | 0.2 | 1.0 | | 4 | 11/16/19 07:54:00 | N | II |
| KQ1916989-24 | Carbon, Total Organic | DUP | K1910572-002 | Surface Water | 0.00 mg/L | 10 mL | 0.50 mg/L U | 1 | 0.07 | 0.50 | | NC | 11/16/19 10:05:00 | N | II |
| KQ1916989-25 | Carbon, Total Organic | DUP | K1910572-003 | Surface Water | 0.00 mg/L | 10 mL | 0.50 mg/L U | 1 | 0.07 | 0.50 | | NC | 11/16/19 10:33:00 | N | II |
| KQ1916989-26 | Carbon, Total Organic | DUP | K1910572-004 | Surface Water | 0.00 mg/L | 10 mL | 0.50 mg/L U | 1 | 0.07 | 0.50 | | NC | 11/16/19 11:01:00 | N | II |
| KQ1916989-27 | Carbon, Total Organic | DUP | K1910572-005 | Surface Water | 0.00 mg/L | 10 mL | 0.50 mg/L U | 1 | 0.07 | 0.50 | | NC | 11/16/19 11:29:00 | N | II |
| KQ1916989-28 | Carbon, Total Organic | DUP | K1910572-006 | Surface Water | 0.00 mg/L | 10 mL | 0.50 mg/L U | 1 | 0.07 | 0.50 | | NC | 11/16/19 11:57:00 | N | II |
| KQ1916989-29 | Carbon, Total Organic | DUP | K1910572-008 | Surface Water | 0.00 mg/L | 10 mL | 0.50 mg/L U | 1 | 0.07 | 0.50 | | NC | 11/16/19 12:25:00 | N | II |
| KQ1916989-30 | Carbon, Total Organic | DUP | K1910572-001 | Surface Water | 0.00 mg/L | 10 mL | 0.50 mg/L U | 1 | 0.07 | 0.50 | | NC | 11/16/19 08:22:00 | N | II |
| KQ1916989-31 | Carbon, Total Organic | DUP | K1910576-001 | Water | 19.96 mg/L | 10 mL | 20.0 mg/L | 1 | 0.07 | 0.50 | | <1 | 11/16/19 05:06:00 | N | IV |

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

# Analytical Results Summary

**Instrument Name:** K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 660114 **Method/Testcode:** SM 5310 C/TOC T

| Lab Code | Target Analytes | QC | Parent Sample | Matrix | Raw Result | Sample Amt. | Final Result | Dil | MDL | PQL | % Rec | % RSD | Date Analyzed | QC? | Tier |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| K1910147-002 | Carbon, Total Organic | N/A | | Water | 2.64 mg/L | 10 mL | 2.64 mg/L | 1 | 0.07 | 0.50 | | | 11/16/19 13:22:00 | N | IV |
| K1910147-006 | Carbon, Total Organic | N/A | | Water | 3.06 mg/L | 10 mL | 3.06 mg/L | 1 | 0.07 | 0.50 | | | 11/16/19 14:19:00 | N | IV |
| K1910147-007 | Carbon, Total Organic | N/A | | Water | 4.59 mg/L | 10 mL | 4.59 mg/L | 1 | 0.07 | 0.50 | | | 11/16/19 14:47:00 | N | IV |
| K1910199-001 | Carbon, Total Organic | N/A | | Water | 1.80 mg/L | 10 mL | 1.80 mg/L | 1 | 0.07 | 0.50 | | | 11/16/19 15:15:00 | N | IV |
| K1910199-002 | Carbon, Total Organic | N/A | | Water | 1.52 mg/L | 10 mL | 1.52 mg/L | 1 | 0.07 | 0.50 | | | 11/16/19 15:43:00 | N | IV |
| K1910199-003 | Carbon, Total Organic | N/A | | Water | 1.23 mg/L | 10 mL | 1.23 mg/L | 1 | 0.07 | 0.50 | | | 11/16/19 16:12:00 | N | IV |
| K1910199-004 | Carbon, Total Organic | N/A | | Water | 1.40 mg/L | 10 mL | 1.40 mg/L | 1 | 0.07 | 0.50 | | | 11/16/19 16:40:00 | N | IV |
| K1910199-007 | Carbon, Total Organic | N/A | | Water | 1.93 mg/L | 10 mL | 1.93 mg/L | 1 | 0.07 | 0.50 | | | 11/16/19 17:08:00 | N | IV |
| K1910199-008 | Carbon, Total Organic | N/A | | Water | 1.89 mg/L | 10 mL | 1.89 mg/L | 1 | 0.07 | 0.50 | | | 11/16/19 17:36:00 | N | IV |
| K1910199-010 | Carbon, Total Organic | N/A | | Water | 1.51 mg/L | 10 mL | 1.51 mg/L | 1 | 0.07 | 0.50 | | | 11/16/19 18:04:00 | N | IV |
| K1910254-002 | Carbon, Total Organic | N/A | | Water | 1.73 mg/L | 10 mL | 1.73 mg/L | 1 | 0.07 | 0.50 | | | 11/16/19 19:46:00 | N | IV |
| K1910254-003 | Carbon, Total Organic | N/A | | Water | 0.99 mg/L | 10 mL | 0.99 mg/L | 1 | 0.07 | 0.50 | | | 11/16/19 20:14:00 | N | IV |
| K1910254-004 | Carbon, Total Organic | N/A | | Water | 2.33 mg/L | 10 mL | 2.33 mg/L | 1 | 0.07 | 0.50 | | | 11/16/19 20:42:00 | Y | IV |
| K1910254-005 | Carbon, Total Organic | N/A | | Water | 1.15 mg/L | 10 mL | 1.15 mg/L | 1 | 0.07 | 0.50 | | | 11/16/19 21:39:00 | N | IV |
| K1910254-006 | Carbon, Total Organic | N/A | | Water | 28.09 mg/L | 10 mL | 28.1 mg/L | 1 | 0.07 | 0.50 | | | 11/16/19 22:08:00 | N | IV |
| K1910254-007 | Carbon, Total Organic | N/A | | Water | 2.13 mg/L | 10 mL | 2.13 mg/L | 1 | 0.07 | 0.50 | | | 11/16/19 22:36:00 | N | IV |
| KQ1916990-01 | Carbon, Total Organic | CCV | | Water | 24.21 mg/L | 10 mL | 24.2149 mg/L | 1 | | | | | 11/16/19 09:05:00 | N | IV |
| KQ1916990-02 | Carbon, Total Organic | CCV | | Water | 23.71 mg/L | 10 mL | 23.7056 mg/L | 1 | | | | | 11/16/19 13:50:00 | N | IV |
| KQ1916990-03 | Carbon, Total Organic | CCV | | Water | 23.93 mg/L | 10 mL | 23.9330 mg/L | 1 | | | | | 11/16/19 18:47:00 | N | IV |
| KQ1916990-04 | Carbon, Total Organic | CCV | | Water | 23.87 mg/L | 10 mL | 23.8729 mg/L | 1 | | | | | 11/16/19 23:04:00 | N | IV |
| KQ1916990-05 | Carbon, Total Organic | CCB | | Water | 0.00 mg/L | 10 mL | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 11/16/19 09:19:00 | N | IV |
| KQ1916990-06 | Carbon, Total Organic | CCB | | Water | 0.00 mg/L | 10 mL | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 11/16/19 14:04:00 | N | IV |
| KQ1916990-07 | Carbon, Total Organic | CCB | | Water | 0.00 mg/L | 10 mL | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 11/16/19 19:02:00 | N | IV |
| KQ1916990-08 | Carbon, Total Organic | CCB | | Water | 0.00 mg/L | 10 mL | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 11/16/19 23:18:00 | N | IV |
| KQ1916990-09 | Carbon, Total Organic | MB | | Water | 0.00 mg/L | 10 mL | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 11/16/19 09:34:00 | N | IV |
| KQ1916990-10 | Carbon, Total Organic | LCS | | Water | 24.43 mg/L | 10 mL | 24.4 mg/L | 1 | 0.07 | 0.50 | | | 11/16/19 09:49:00 | N | IV |
| KQ1916990-11 | Carbon, Total Organic | DUP | K1910147-002 | Water | 2.62 mg/L | 10 mL | 2.62 mg/L | 1 | 0.07 | 0.50 | | <1 | 11/16/19 13:22:00 | N | IV |
| KQ1916990-12 | Carbon, Total Organic | DUP | K1910147-006 | Water | 2.99 mg/L | 10 mL | 2.99 mg/L | 1 | 0.07 | 0.50 | | 2 | 11/16/19 14:19:00 | N | IV |
| KQ1916990-13 | Carbon, Total Organic | DUP | K1910147-007 | Water | 4.39 mg/L | 10 mL | 4.39 mg/L | 1 | 0.07 | 0.50 | | 5 | 11/16/19 14:47:00 | N | IV |
| KQ1916990-14 | Carbon, Total Organic | DUP | K1910199-002 | Water | 1.53 mg/L | 10 mL | 1.53 mg/L | 1 | 0.07 | 0.50 | | <1 | 11/16/19 15:43:00 | N | IV |
| KQ1916990-15 | Carbon, Total Organic | DUP | K1910199-003 | Water | 1.24 mg/L | 10 mL | 1.24 mg/L | 1 | 0.07 | 0.50 | | 1 | 11/16/19 16:12:00 | N | IV |
| KQ1916990-16 | Carbon, Total Organic | DUP | K1910199-004 | Water | 1.38 mg/L | 10 mL | 1.38 mg/L | 1 | 0.07 | 0.50 | | 1 | 11/16/19 16:40:00 | N | IV |
| KQ1916990-17 | Carbon, Total Organic | DUP | K1910199-007 | Water | 1.86 mg/L | 10 mL | 1.86 mg/L | 1 | 0.07 | 0.50 | | 4 | 11/16/19 17:08:00 | N | IV |
| KQ1916990-18 | Carbon, Total Organic | DUP | K1910199-008 | Water | 1.89 mg/L | 10 mL | 1.89 mg/L | 1 | 0.07 | 0.50 | | <1 | 11/16/19 17:36:00 | N | IV |
| KQ1916990-19 | Carbon, Total Organic | DUP | K1910199-001 | Water | 1.83 mg/L | 10 mL | 1.83 mg/L | 1 | 0.07 | 0.50 | | 2 | 11/16/19 15:15:00 | N | IV |
| KQ1916990-20 | Carbon, Total Organic | DUP | K1910199-010 | Water | 1.59 mg/L | 10 mL | 1.59 mg/L | 1 | 0.07 | 0.50 | | 5 | 11/16/19 18:04:00 | N | IV |

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

# Analytical Results Summary

**Instrument Name:** K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 660114 **Method/Testcode:** SM 5310 C/TOC T

| Lab Code | Target Analytes | QC | Parent Sample | Matrix | Raw Result | Sample Amt. | Final Result | Dil | MDL | PQL | % Rec | % RSD | Date Analyzed | QC? | Tier |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| KQ1916990-22 | Carbon, Total Organic | DUP | K1910254-002 | Water | 1.59 mg/L | 10 mL | 1.59 mg/L | 1 | 0.07 | 0.50 | | 8 | 11/16/19 19:46:00 | N | IV |
| KQ1916990-23 | Carbon, Total Organic | DUP | K1910254-003 | Water | 1.11 mg/L | 10 mL | 1.11 mg/L | 1 | 0.07 | 0.50 | | 11* | 11/16/19 20:14:00 | N | IV |
| KQ1916990-24 | Carbon, Total Organic | DUP | K1910254-004 | Water | 2.30 mg/L | 10 mL | 2.30 mg/L | 1 | 0.07 | 0.50 | | 1 | 11/16/19 20:42:00 | N | IV |
| KQ1916990-25 | Carbon, Total Organic | DUP | K1910254-005 | Water | 1.11 mg/L | 10 mL | 1.11 mg/L | 1 | 0.07 | 0.50 | | 3 | 11/16/19 21:39:00 | N | IV |
| KQ1916990-26 | Carbon, Total Organic | DUP | K1910254-006 | Water | 28.17 mg/L | 10 mL | 28.2 mg/L | 1 | 0.07 | 0.50 | | <1 | 11/16/19 22:08:00 | N | IV |
| KQ1916990-27 | Carbon, Total Organic | DUP | K1910254-007 | Water | 1.84 mg/L | 10 mL | 1.84 mg/L | 1 | 0.07 | 0.50 | | 14* | 11/16/19 22:36:00 | N | IV |
| KQ1916990-28 | Carbon, Total Organic | MS | K1910254-004 | Water | 27.79 mg/L | 10 mL | 27.8 mg/L | 1 | 0.07 | 0.50 | | | 11/16/19 21:10:00 | N | IV |

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

# Analytical Results Summary

**Instrument Name:** K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 660115 **Method/Testcode:** SM 5310 C/TOC T

| Lab Code | Target Analytes | QC | Parent Sample | Matrix | Raw Result | Sample Amt. | Final Result | Dil | MDL | PQL | % Rec | % RSD | Date Analyzed | QC? | Tier |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| K1910254-008 | Carbon, Total Organic | N/A | | Water | 1.45 mg/L | 10 mL | 1.45 mg/L | 1 | 0.07 | 0.50 | | | 11/16/19 23:33:00 | N | IV |
| K1910299-001 | Carbon, Total Organic | N/A | | Water | 7.30 mg/L | 10 mL | 7.30 mg/L | 1 | 0.07 | 0.50 | | | 11/17/19 00:01:00 | N | IV |
| K1910760-001 | Carbon, Total Organic | N/A | | Water | 1.23 mg/L | 10 mL | 1.23 mg/L | 1 | 0.07 | 0.50 | | | 11/17/19 02:22:00 | N | IV |
| K1910765-001 | Carbon, Total Organic | N/A | | Ground Water | 9.06 mg/L | 10 mL | 9.06 mg/L | 1 | 0.07 | 0.50 | | | 11/17/19 00:29:00 | N | IV |
| K1910765-002 | Carbon, Total Organic | N/A | | Ground Water | 13.64 mg/L | 10 mL | 13.6 mg/L | 1 | 0.07 | 0.50 | | | 11/17/19 00:58:00 | N | IV |
| K1910765-003 | Carbon, Total Organic | N/A | | Ground Water | 22.60 mg/L | 10 mL | 22.6 mg/L | 1 | 0.07 | 0.50 | | | 11/17/19 01:26:00 | N | IV |
| K1910765-004 | Carbon, Total Organic | N/A | | Ground Water | 10.31 mg/L | 10 mL | 10.3 mg/L | 1 | 0.07 | 0.50 | | | 11/17/19 01:54:00 | N | IV |
| KQ1916991-01 | Carbon, Total Organic | CCV | | Water | 23.87 mg/L | 10 mL | 23.9 mg/L | 1 | | | | | 11/16/19 23:04:00 | N | IV |
| KQ1916991-02 | Carbon, Total Organic | CCV | | Water | 23.67 mg/L | 10 mL | 23.7 mg/L | 1 | | | | | 11/17/19 03:33:00 | N | IV |
| KQ1916991-03 | Carbon, Total Organic | CCB | | Water | 0.00 mg/L | 10 mL | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 11/16/19 23:18:00 | N | IV |
| KQ1916991-04 | Carbon, Total Organic | CCB | | Water | 0.00 mg/L | 10 mL | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 11/17/19 03:48:00 | N | IV |
| KQ1916991-05 | Carbon, Total Organic | MB | | Water | 0.00 mg/L | 10 mL | 0.50 mg/L U | 1 | 0.07 | 0.50 | | | 11/16/19 19:16:00 | N | IV |
| KQ1916991-06 | Carbon, Total Organic | LCS | | Water | 24.59 mg/L | 10 mL | 24.6 mg/L | 1 | 0.07 | 0.50 | 98 | | 11/16/19 19:31:00 | N | IV |
| KQ1916991-07 | Carbon, Total Organic | MS | K1910760-001 | Water | 25.85 mg/L | 10 mL | 25.8 mg/L | 1 | 0.07 | 0.50 | 98 | | 11/17/19 02:50:00 | N | IV |
| KQ1916991-08 | Carbon, Total Organic | DUP | K1910254-008 | Water | 1.42 mg/L | 10 mL | 1.42 mg/L | 1 | 0.07 | 0.50 | | 2 | 11/16/19 23:33:00 | N | IV |
| KQ1916991-09 | Carbon, Total Organic | DUP | K1910299-001 | Water | 7.01 mg/L | 10 mL | 7.01 mg/L | 1 | 0.07 | 0.50 | | 4 | 11/17/19 00:01:00 | N | IV |
| KQ1916991-10 | Carbon, Total Organic | DUP | K1910760-001 | Water | 1.12 mg/L | 10 mL | 1.12 mg/L | 1 | 0.07 | 0.50 | | 10 | 11/17/19 02:22:00 | N | IV |
| KQ1916991-11 | Carbon, Total Organic | DUP | K1910765-002 | Ground Water | 13.45 mg/L | 10 mL | 13.4 mg/L | 1 | 0.07 | 0.50 | | 1 | 11/17/19 00:58:00 | N | IV |
| KQ1916991-12 | Carbon, Total Organic | DUP | K1910765-001 | Ground Water | 8.90 mg/L | 10 mL | 8.90 mg/L | 1 | 0.07 | 0.50 | | 2 | 11/17/19 00:29:00 | N | IV |
| KQ1916991-13 | Carbon, Total Organic | DUP | K1910765-003 | Ground Water | 22.72 mg/L | 10 mL | 22.7 mg/L | 1 | 0.07 | 0.50 | | <1 | 11/17/19 01:26:00 | N | IV |
| KQ1916991-14 | Carbon, Total Organic | DUP | K1910765-004 | Ground Water | 9.87 mg/L | 10 mL | 9.87 mg/L | 1 | 0.07 | 0.50 | | 4 | 11/17/19 01:54:00 | N | IV |

11/19/19

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

TOC660112
660113
660114
660115

# Schedule: 11152019

**Version:** 15
**Instrument:** Fusion1
**Last Saved by:** Fusion1 (Fusion1)
**Last Saved on:** 2019/11/16 10:07 - Saturday

| Position | Sample Type | Sample ID | Method ID (Calibration ID) | Reps | Use | State |
|---|---|---|---|---|---|---|
| (Clean) | Clean | Clean | | 1 | True | Ready |
| (Clean) | Clean | Clean | | 1 | True | Ready |
| (Clean) | Clean | Clean | | 1 | True | Ready |
| (Blank) | Blank | Reagent/Acid Blank | | 1 | True | Ready |
| D | Sample | RB | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| B | Check Standard | [TOC] CCV 25 ppm [25 ppm] | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| D | Check Standard | [TOC] CCB [0 ppm] | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| 1 | Sample | MB1 | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| C | Check Standard | [TOC] LCS [24.0 ppm] | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| 2 | Sample | ICS | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| 3 | Sample | K1910095-017.08 50x | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 4 | Sample | K1910095-018.08 50x | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 5 | Sample | K1910157-001.02 25x | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| 6 | Sample | K1910160-001.02 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 7 | Sample | K1910160-002.02 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 8 | Sample | K1910160-003.01 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 9 | Sample | K1910160-003.01 ms | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| B | Check Standard | [TOC] CCV 25 ppm [25 ppm] | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| D | Check Standard | [TOC] CCB [0 ppm] | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| 10 | Sample | K1910169-001.08 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 11 | Sample | K1910169-002.08 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 12 | Sample | K1910169-003.08 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 13 | Sample | K1910187-001.03 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 14 | Sample | K1910187-002.03 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 15 | Sample | K1910187-003.03 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 16 | Sample | K1910332-001.01 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 17 | Sample | K1910415-001.01 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 18 | Sample | K1910545-001.01 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 19 | Sample | K1910278-001.08 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| B | Check Standard | [TOC] CCV 25 ppm [25 ppm] | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| D | Check Standard | [TOC] CCB [0 ppm] | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| 20 | Sample | MB2 | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| C | Check Standard | [TOC] LCS [24.0 ppm] | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| 21 | Sample | K1910278-002.08 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 22 | Sample | K1910473-001.13 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 23 | Sample | K1910473-002.12 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 24 | Sample | K1910473-003.12 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 25 | Sample | K1910473-004.12 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 26 | Sample | K1910473-005.12 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 27 | Sample | K1910473-006.12 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 28 | Sample | K1910483-001.01 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| B | Check Standard | [TOC] CCV 25 ppm [25 ppm] | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| D | Check Standard | [TOC] CCB [0 ppm] | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| 29 | Sample | K1910483-003.01 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 30 | Sample | K1910576-001.01 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 31 | Sample | K1910331-001.01 100x | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 32 | Sample | K1910331-002.01 100x | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 33 | Sample | K1910331-003.01 100x | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 34 | Sample | K1910561-001.15 10x | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 35 | Sample | K1910561-002.15 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 36 | Sample | K1910561-003.14 2x | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 37 | Sample | K1910572-001.16 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 38 | Sample | K1910572-001.16 ms | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| B | Check Standard | [TOC] CCV 25 ppm [25 ppm] | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |



11/19/19

# Schedule: 11152019

| Position | Sample Type | Sample ID | Method ID (Calibration ID) | Reps | Use | State |
|---|---|---|---|---|---|---|
| D | Check Standard | [TOC] CCB [0 ppm] | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| 39 | Sample | MB3 | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| C | Check Standard | [TOC] LCS [25.0 ppm] | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| 40 | Sample | K1910572-002.16 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 41 | Sample | K1910572-003.15 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 42 | Sample | K1910572-004.15 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 43 | Sample | K1910572-005.15 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 44 | Sample | K1910572-006.16 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 45 | Sample | K1910572-008.15 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 46 | Sample | K1910147-001.05 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 47 | Sample | K1910147-002.05 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| B | Check Standard | [TOC] CCV 25 ppm [25 ppm] | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| D | Check Standard | [TOC] CCB [0 ppm] | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| 48 | Sample | K1910147-006.04 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 49 | Sample | K1910147-007.04 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 50 | Sample | K1910199-001.04 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 51 | Sample | K1910199-002.04 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 52 | Sample | K1910199-003.04 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 53 | Sample | K1910199-004.04 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 54 | Sample | K1910199-007.04 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 55 | Sample | K1910199-008.04 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 56 | Sample | K1910199-010.04 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 57 | Sample | K1910254-001.04 | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| B | Check Standard | [TOC] CCV 25 ppm [25 ppm] | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| D | Check Standard | [TOC] CCB [0 ppm] | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| 58 | Sample | MB4 | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| C | Check Standard | [TOC] LCS [25.0 ppm] | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| 59 | Sample | K1910254-002.04 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 60 | Sample | K1910254-003.04 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 61 | Sample | K1910254-004.04 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 62 | Sample | K1910254-004.04 ms | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| 63 | Sample | rb | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| 64 | Sample | K1910254-005.04 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 65 | Sample | K1910254-006.04 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 66 | Sample | K1910254-007.04 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| B | Check Standard | [TOC] CCV 25 ppm [25 ppm] | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| D | Check Standard | [TOC] CCB [0 ppm] | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| 67 | Sample | K1910254-008.04 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 68 | Sample | K1910299-001.03 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 69 | Sample | K1910765-001.01 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 70 | Sample | K1910765-002.01 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 71 | Sample | K1910765-003.01 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 72 | Sample | K1910765-004.01 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 73 | Sample | K1910760-001.01 | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| 74 | Sample | K1910760-001.01 ms | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| 75 | Sample | RB | CAS_salt_010711 (CAS_salt_010711) | 2 | True | Ready |
| B | Check Standard | [TOC] CCV 25 ppm [25 ppm] | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| D | Check Standard | [TOC] CCB [0 ppm] | CAS_salt_010711 (CAS_salt_010711) | 1 | True | Ready |
| | | | | | False | |

# Fusion Report - 11152019
# Friday, November 15, 2019 12:08 PM

(View - Reps, Unused Reps, Meta-Data, Signature, History)
Printed on 2019/11/19 09:11 - Tuesday

## Report Summary Information

| | | | |
|---|---|---|---|
| Company Location: | Gen Chem Lab | | |
| Schedule Name: | 11152019 | Engine Version: | 1.1.5.1 |
| Instrument Name: | Fusion1 | Firmware Version: | 1.2.0696 |
| Report Version: | 1 of 1 | Connection: | RS232 COM1 |
| Report Creation by Operators (schedule version): | Fusion1 (Fusion1) (v4)<br>Fusion1 (Fusion1) (v6)<br>Fusion1 (Fusion1) (v7)<br>Fusion1 (Fusion1) (v8)<br>Fusion1 (Fusion1) (v10)<br>Fusion1 (Fusion1) (v11)<br>Fusion1 (Fusion1) (v13)<br>Fusion1 (Fusion1) (v14)<br>Fusion1 (Fusion1) (v15) | | |
| Comment: | | | |

## Report Results

11/19/19

**Sample Type**: Clean — From Schedule Version 4

| | Pos | Analysis Type | Sample ID | Start Time |
|---|---|---|---|---|
| ◈ | (clean) | | Clean | 2019/11/15 12:08 |

| Rep # | Base Analysis Type | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|
| 1 | IC Clean | 12.76 | 16.22 | 3.46 | 49.69 | 05:27 |
| | | | | | | |
| 2 | TC Clean | 5.39 | 8.81 | 3.42 | 49.82 | 07:17 |
| 3 | TC Clean | 1.94 | 5.58 | 3.64 | 49.82 | 07:04 |
| 4 | TC Clean | 1.93 | 5.53 | 3.60 | 49.84 | 07:02 |

**Sample Type**: Clean — From Schedule Version 6

| | Pos | Analysis Type | Sample ID | Start Time |
|---|---|---|---|---|
| ◈ | (clean) | | Clean | 2019/11/15 12:40 |

| Rep # | Base Analysis Type | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|
| 1 | IC Clean | 0.80 | 4.46 | 3.66 | 49.66 | 05:16 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 2 | TC Clean | 4.24 | 7.86 | 3.62 | 50.13 | 04:06 |
| 3 | TC Clean | 1.75 | 5.37 | 3.62 | 50.25 | 03:46 |
| 4 | TC Clean | 1.62 | 5.16 | 3.54 | 50.24 | 03:48 |

**Sample Type**: Clean From Schedule Version 6

| | Pos | Analysis Type | Sample ID | Start Time |
|---|---|---|---|---|
| ◆ | (clean) | | Clean | 2019/11/15 13:02 |

| Rep # | Base Analysis Type | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|
| 1 | IC Clean | 0.95 | 4.19 | 3.25 | 49.74 | 05:11 |
| | | | | | | |
| 2 | TC Clean | 4.91 | 8.40 | 3.49 | 50.60 | 04:00 |
| 3 | TC Clean | 2.28 | 5.87 | 3.59 | 50.40 | 03:47 |
| 4 | TC Clean | 1.86 | 5.44 | 3.58 | 50.34 | 03:44 |

**Sample Type**: Blank (Creating v1320) From Schedule Version 7

| | Pos | Analysis Type | Sample ID | Start Time |
|---|---|---|---|---|
| ◆ | (blank) | | Reagent/Acid Blank | 2019/11/15 13:23 |

| Rep # | Base Analysis Type | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|
| 1 | IC Clean | 7.01 | 10.68 | 3.68 | 49.53 | 05:10 |
| | | | | | | |
| 2 | TC Clean | 3.98 | 7.63 | 3.65 | 50.07 | 03:58 |
| 3 | TC Clean | 1.76 | 5.38 | 3.62 | 50.26 | 03:47 |
| 4 | TC Clean | 1.43 | 5.09 | 3.66 | 50.10 | 03:52 |
| | | | | | | |
| 5 | Reagent Blank | 6.99 | 10.63 | 3.64 | 50.08 | 05:07 |
| | | | | | | |
| 6 | Acid Blank | 1.76 | 5.53 | 3.77 | 49.64 | 05:30 |

**Sample Type**: Sample From Schedule Version 8

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | D | TOC | RB | 0.4469 ppm | 0.0000 ppm | 0.0000% | 2019/11/15 13:57 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.4469 | 4.4691 | 12.02 | 15.81 | 3.79 | 50.10 | 10:30 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

**Sample Type**: Check Standard --> CCV 25 ppm From Schedule Version 8

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◆ | B | TOC | 25.0000 | 1:2 | [TOC] CCV 25 ppm [25 ppm] | 0 / infinity ( NA / NA ) | 24.5004 ppm (PASS) | 0.0000 ppm | 0% | 2019/11/15 14:11 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| B | TOC | 25 ppm | 1 | 24.5004 | 245.0044 | 175.77 | 179.74 | 3.97 | 50.15 | 10:31 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos B |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) | 50 ppmC |

**Sample Type**: Check Standard --> CCB From Schedule Version 8

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◆ | D | TOC | 0.0000 | 1:1 | [TOC] CCB [0 ppm] | 0 / infinity ( NA / NA ) | 0.0000 ppm (PASS) | 0.0000 ppm | 0% | 2019/11/15 14:26 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| D | TOC | 0 ppm | 1 | 0.0000 | 0.0000 | 8.77 | 12.50 | 3.73 | 50.15 | 10:33 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos D |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) | 0 ppmC |

**Sample Type**: Sample From Schedule Version 10

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 1 | TOC | MB1 | 0.0000 ppm | 0.0000 ppm | 0.0000% | 2019/11/15 14:41 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0000 | 0.0000 | 8.28 | 11.96 | 3.68 | 50.14 | 10:31 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

**Sample Type**: Check Standard --> LCS From Schedule Version 11

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◆ | C | TOC | 25.0000 | 1:1 | [TOC] LCS [24.0 ppm] | 0 / infinity ( NA / NA ) | 25.2718 ppm (PASS) | 0.0000 ppm | 0% | 2019/11/15 14:56 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| C | TOC | 25.0 ppm | 1 | 25.2718 | 252.7180 | 181.01 | 184.83 | 3.83 | 50.15 | 10:29 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos C |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) | 25 ppmC |

**Sample Type**: Sample From Schedule Version 11

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 2 | TOC | ICS | 0.2494 ppm | 0.0000 ppm | 0.0000% | 2019/11/15 15:10 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.2494 | 2.4936 | 10.68 | 14.48 | 3.81 | 50.15 | 10:34 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 3 | TOC | K1910095-017.08 50x | 4.9489 ppm | 0.0367 ppm | 0.7400% | 2019/11/15 15:25 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 4.9229 | 49.2294 | 42.40 | 46.05 | 3.65 | 50.14 | 10:27 |
| 2 | TOC | 4.9748 | 49.7480 | 42.75 | 46.46 | 3.71 | 50.16 | 10:28 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 4 | TOC | K1910095-018.08 50x | 6.0030 ppm | 0.0514 ppm | 0.8600% | 2019/11/15 15:53 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 5.9667 | 59.6670 | 49.48 | 53.06 | 3.57 | 50.17 | 10:29 |
| 2 | TOC | 6.0393 | 60.3933 | 49.98 | 53.65 | 3.67 | 50.17 | 10:24 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 5 | TOC | K1910157-001.02 25x | 4.0567 ppm | 0.0000 ppm | 0.0000% | 2019/11/15 16:21 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 4.0567 | 40.5670 | 36.52 | 40.26 | 3.74 | 50.21 | 10:32 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 6 | TOC | K1910160-001.02 | 1.6341 ppm | 0.0855 ppm | 5.2300% | 2019/11/15 16:36 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 1.6946 | 16.9457 | 20.48 | 23.99 | 3.50 | 50.21 | 10:28 |
| 2 | TOC | 1.5736 | 15.7362 | 19.66 | 23.40 | 3.74 | 50.22 | 10:27 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 7 | TOC | K1910160-002.02 | 1.3500 ppm | 0.0433 ppm | 3.2100% | 2019/11/15 17:04 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 1.3806 | 13.8063 | 18.35 | 22.02 | 3.67 | 50.22 | 10:27 |
| 2 | TOC | 1.3193 | 13.1934 | 17.94 | 21.58 | 3.64 | 50.22 | 10:26 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 8 | TOC | K1910160-003.01 | 1.2163 ppm | 0.0172 ppm | 1.4100% | 2019/11/15 17:32 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 1.2284 | 12.2845 | 17.32 | 20.91 | 3.59 | 50.23 | 10:31 |
| 2 | TOC | 1.2041 | 12.0414 | 17.16 | 20.75 | 3.59 | 50.25 | 10:27 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 9 | TOC | K1910160-003.01 ms | 21.5289 ppm | 0.0000 ppm | 0.0000% | 2019/11/15 18:00 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 21.5289 | 215.2886 | 155.12 | 158.72 | 3.60 | 50.22 | 10:28 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

**Sample Type**: Check Standard --> CCV 25 ppm From Schedule Version 11

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◈ | B | TOC | 25.0000 | 1:2 | [TOC] CCV 25 ppm [25 ppm] | 0 / infinity ( NA / NA ) | 24.7429 ppm (PASS) | 0.0000 ppm | 0% | 2019/11/15 18:14 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| B | TOC | 25 ppm | 1 | 24.7429 | 247.4293 | 177.42 | 181.03 | 3.61 | 50.24 | 10:31 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos B |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) | 50 ppmC |

**Sample Type**: Check Standard --> CCB From Schedule Version 11

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◈ | D | TOC | 0.0000 | 1:1 | [TOC] CCB [0 ppm] | 0 / infinity ( NA / NA ) | 0.0000 ppm (PASS) | 0.0000 ppm | 0% | 2019/11/15 18:29 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| D | TOC | 0 ppm | 1 | 0.0000 | 0.0000 | 7.97 | 11.50 | 3.53 | 50.27 | 10:31 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos D |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) | 0 ppmC |

**Sample Type**: Sample From Schedule Version 11

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 10 | TOC | K1910169-001.08 | 1.7747 ppm | 0.0073 ppm | 0.4100% | 2019/11/15 18:44 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 1.7696 | 17.6955 | 20.99 | 24.65 | 3.66 | 50.27 | 10:25 |
| 2 | TOC | 1.7799 | 17.7987 | 21.06 | 24.79 | 3.73 | 50.24 | 10:25 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 11 | TOC | K1910169-002.08 | 3.5395 ppm | 0.0386 ppm | 1.0900% | 2019/11/15 19:12 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 3.5122 | 35.1220 | 32.82 | 36.70 | 3.88 | 50.26 | 10:26 |
| 2 | TOC | 3.5669 | 35.6686 | 33.19 | 36.76 | 3.56 | 50.26 | 10:30 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 12 | TOC | K1910169-003.08 | 3.5263 ppm | 0.0377 ppm | 1.0700% | 2019/11/15 19:40 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 3.5530 | 35.5301 | 33.10 | 36.72 | 3.62 | 50.26 | 10:27 |
| 2 | TOC | 3.4997 | 34.9968 | 32.74 | 36.33 | 3.59 | 50.26 | 10:27 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 13 | TOC | K1910187-001.03 | 2.3984 ppm | 0.0130 ppm | 0.5400% | 2019/11/15 20:08 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 2.4076 | 24.0760 | 25.32 | 29.11 | 3.78 | 50.30 | 10:30 |
| 2 | TOC | 2.3892 | 23.8918 | 25.20 | 28.77 | 3.57 | 50.28 | 10:28 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 14 | TOC | K1910187-002.03 | 0.5055 ppm | 0.0070 ppm | 1.3800% | 2019/11/15 20:36 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.5104 | 5.1041 | 12.45 | 16.08 | 3.63 | 50.26 | 10:28 |
| 2 | TOC | 0.5005 | 5.0054 | 12.38 | 16.05 | 3.67 | 50.27 | 10:26 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 15 | TOC | K1910187-003.03 | 0.5422 ppm | 0.0431 ppm | 7.9500% | 2019/11/15 21:04 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.5117 | 5.1173 | 12.46 | 16.08 | 3.62 | 50.26 | 10:31 |
| 2 | TOC | 0.5727 | 5.7273 | 12.87 | 16.45 | 3.58 | 50.26 | 10:24 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 16 | TOC | K1910332-001.01 | 0.3940 ppm | 0.0384 ppm | 9.7600% | 2019/11/15 21:32 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.3668 | 3.6677 | 11.47 | 15.05 | 3.58 | 50.27 | 10:27 |
| 2 | TOC | 0.4211 | 4.2113 | 11.84 | 15.41 | 3.57 | 50.27 | 10:28 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 17 | TOC | K1910415-001.01 | 0.0098 ppm | 0.0106 ppm | 108.2500% | 2019/11/15 22:00 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0023 | 0.0230 | 9.00 | 12.60 | 3.60 | 50.25 | 10:27 |
| 2 | TOC | 0.0173 | 0.1733 | 9.10 | 12.69 | 3.59 | 50.29 | 10:27 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 18 | TOC | K1910545-001.01 | 1.8523 ppm | 0.0385 ppm | 2.0800% | 2019/11/15 22:28 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 1.8251 | 18.2509 | 21.37 | 25.07 | 3.69 | 50.27 | 10:32 |
| 2 | TOC | 1.8796 | 18.7960 | 21.74 | 25.24 | 3.50 | 50.25 | 10:30 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 19 | TOC | K1910278-001.08 | 3.2661 ppm | 0.0957 ppm | 2.9300% | 2019/11/15 22:57 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 3.3338 | 33.3380 | 31.61 | 35.17 | 3.56 | 50.28 | 10:26 |
| 2 | TOC | 3.1984 | 31.9841 | 30.69 | 34.18 | 3.49 | 50.25 | 10:29 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

**Sample Type**: Check Standard --> CCV 25 ppm From Schedule Version 11

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◈ | B | TOC | 25.0000 | 1:2 | [TOC] CCV 25 ppm [25 ppm] | 0 / infinity ( NA / NA ) | 24.2686 ppm (PASS) | 0.0000 ppm | 0% | 2019/11/15 23:25 |

| Pos | Base Analysis | ID | Rep | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run |
|---|---|---|---|---|---|---|---|---|---|---|

| | Type | | # | | | | | | | Time |
|---|---|---|---|---|---|---|---|---|---|---|
| B | TOC | 25 ppm | 1 | 24.2686 | 242.6855 | 174.20 | 177.87 | 3.67 | 50.24 | 10:32 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos B |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) | 50 ppmC |

**Sample Type**: Check Standard --> CCB From Schedule Version 11

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◆ | D | TOC | 0.0000 | 1:1 | [TOC] CCB [0 ppm] | 0 / infinity ( NA / NA ) | 0.0000 ppm (PASS) | 0.0000 ppm | 0% | 2019/11/15 23:39 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| D | TOC | 0 ppm | 1 | 0.0000 | 0.0000 | 6.87 | 10.59 | 3.72 | 50.23 | 10:32 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos D |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) | 0 ppmC |

**Sample Type**: Sample From Schedule Version 11

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 20 | TOC | MB2 | 0.0000 ppm | 0.0000 ppm | 0.0000% | 2019/11/15 23:54 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0000 | 0.0000 | 6.26 | 9.99 | 3.73 | 50.23 | 10:30 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

**Sample Type**: Check Standard --> LCS From Schedule Version 11

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◆ | C | TOC | 25.0000 | 1:1 | [TOC] LCS [24.0 ppm] | 0 / infinity ( NA / NA ) | 24.7580 ppm (PASS) | 0.0000 ppm | 0% | 2019/11/16 00:09 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| C | TOC | 25.0 ppm | 1 | 24.7580 | 247.5795 | 177.52 | 181.15 | 3.63 | 50.25 | 10:34 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos C |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) | 25 ppmC |

**Sample Type**: Sample From Schedule Version 11

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 21 | TOC | K1910278-002.08 | 0.2897 ppm | 0.0752 ppm | 25.9600% | 2019/11/16 00:23 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.3429 | 3.4291 | 11.31 | 14.96 | 3.65 | 50.23 | 10:29 |
| 2 | TOC | 0.2365 | 2.3654 | 10.59 | 14.37 | 3.78 | 50.25 | 10:28 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 22 | TOC | K1910473-001.13 | 6.2195 ppm | 0.0283 ppm | 0.4600% | 2019/11/16 00:51 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 6.1995 | 61.9947 | 51.06 | 54.70 | 3.64 | 50.20 | 10:28 |
| 2 | TOC | 6.2395 | 62.3954 | 51.34 | 55.03 | 3.69 | 50.22 | 10:26 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 23 | TOC | K1910473-002.12 | 6.3251 ppm | 0.0117 ppm | 0.1800% | 2019/11/16 01:19 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 6.3169 | 63.1688 | 51.86 | 55.39 | 3.52 | 50.22 | 10:27 |
| 2 | TOC | 6.3334 | 63.3338 | 51.97 | 55.71 | 3.74 | 50.27 | 10:27 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 24 | TOC | K1910473-003.12 | 0.3568 ppm | 0.0176 ppm | 4.9300% | 2019/11/16 01:48 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.3444 | 3.4438 | 11.32 | 15.12 | 3.80 | 50.20 | 10:28 |
| 2 | TOC | 0.3693 | 3.6928 | 11.49 | 15.22 | 3.74 | 50.22 | 10:26 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 25 | TOC | K1910473-004.12 | 0.0000 ppm | 0.0000 ppm | 0.0000% | 2019/11/16 02:16 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0000 | 0.0000 | 7.93 | 11.60 | 3.67 | 50.20 | 10:28 |
| 2 | TOC | 0.0000 | 0.0000 | 7.22 | 10.80 | 3.58 | 50.21 | 10:25 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 26 | TOC | K1910473-005.12 | 0.6764 ppm | 0.0841 ppm | 12.4300% | 2019/11/16 02:44 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.7358 | 7.3581 | 13.98 | 17.62 | 3.64 | 50.18 | 10:30 |
| 2 | TOC | 0.6169 | 6.1692 | 13.17 | 16.93 | 3.76 | 50.18 | 10:25 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 27 | TOC | K1910473-006.12 | 0.0000 ppm | 0.0000 ppm | 0.0000% | 2019/11/16 03:12 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0000 | 0.0000 | 6.73 | 10.39 | 3.66 | 50.20 | 10:31 |
| 2 | TOC | 0.0000 | 0.0000 | 6.66 | 10.44 | 3.78 | 50.19 | 10:28 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 28 | TOC | K1910483-001.01 | 3.3577 ppm | 0.0669 ppm | 1.9900% | 2019/11/16 03:40 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 3.4050 | 34.0495 | 32.10 | 35.66 | 3.56 | 50.21 | 10:31 |
| 2 | TOC | 3.3104 | 33.1037 | 31.45 | 35.28 | 3.83 | 50.22 | 10:26 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

**Sample Type**: Check Standard --> CCV 25 ppm From Schedule Version 11

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◈ | B | TOC | 25.0000 | 1:2 | [TOC] CCV 25 ppm [25 ppm] | 0 / infinity ( NA / NA ) | 24.6323 ppm (PASS) | 0.0000 ppm | 0% | 2019/11/16 04:08 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| B | TOC | 25 ppm | 1 | 24.6323 | 246.3229 | 176.66 | 180.34 | 3.68 | 50.21 | 10:30 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos B |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) | 50 ppmC |

**Sample Type**: Check Standard --> CCB From Schedule Version 11

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◈ | D | TOC | 0.0000 | 1:1 | [TOC] CCB [0 ppm] | 0 / infinity ( NA / NA ) | 0.0000 ppm (PASS) | 0.0000 ppm | 0% | 2019/11/16 04:23 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| D | TOC | 0 ppm | 1 | 0.0000 | 0.0000 | 6.45 | 10.17 | 3.71 | 50.24 | 10:30 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos D |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) | 0 ppmC |

**Sample Type**: Sample From Schedule Version 11

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 29 | TOC | K1910483-003.01 | 2.3901 ppm | 0.0355 ppm | 1.4900% | 2019/11/16 04:38 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 2.4153 | 24.1526 | 25.38 | 28.86 | 3.48 | 50.20 | 10:28 |
| 2 | TOC | 2.3650 | 23.6502 | 25.04 | 28.74 | 3.70 | 50.23 | 10:24 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 30 | TOC | K1910576-001.01 | 20.0038 ppm | 0.0575 ppm | 0.2900% | 2019/11/16 05:06 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 20.0445 | 200.4446 | 145.04 | 148.74 | 3.70 | 50.22 | 10:30 |
| 2 | TOC | 19.9631 | 199.6314 | 144.49 | 148.32 | 3.83 | 50.23 | 10:26 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 31 | TOC | K1910331-001.01 100x | 8.6865 ppm | 0.0435 ppm | 0.5000% | 2019/11/16 05:34 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 8.6557 | 86.5574 | 67.74 | 71.55 | 3.81 | 50.23 | 10:27 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2 | TOC | 8.7173 | 87.1732 | 68.16 | 71.92 | 3.77 | 50.20 | 10:27 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 32 | TOC | K1910331-002.01 100x | 9.2041 ppm | 0.0188 ppm | 0.2000% | 2019/11/16 06:02 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 9.2173 | 92.1732 | 71.55 | 75.19 | 3.64 | 50.19 | 10:28 |
| 2 | TOC | 9.1908 | 91.9080 | 71.37 | 75.00 | 3.63 | 50.18 | 10:28 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 33 | TOC | K1910331-003.01 100x | 6.9189 ppm | 0.1166 ppm | 1.6800% | 2019/11/16 06:30 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 7.0013 | 70.0133 | 56.51 | 60.25 | 3.74 | 50.23 | 10:26 |
| 2 | TOC | 6.8365 | 68.3648 | 55.39 | 59.06 | 3.67 | 50.22 | 10:27 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 34 | TOC | K1910561-001.15 10x | 12.1977 ppm | 0.0334 ppm | 0.2700% | 2019/11/16 06:58 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 12.2213 | 122.2132 | 91.94 | 95.61 | 3.67 | 50.22 | 10:30 |
| 2 | TOC | 12.1740 | 121.7403 | 91.62 | 95.40 | 3.78 | 50.21 | 10:24 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

**Sample Type**: Sample From Schedule Version 13

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 35 | TOC | K1910561-002.15 | 1.3849 ppm | 0.1446 ppm | 10.4400% | 2019/11/16 07:26 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 1.4871 | 14.8714 | 19.08 | 22.85 | 3.78 | 50.22 | 10:26 |
| 2 | TOC | 1.2827 | 12.8266 | 17.69 | 21.42 | 3.73 | 50.23 | 10:28 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) | CAS_salt_010711 | CAS_salt_010711 |

(v1320) (v4) (v30)

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 36 | TOC | K1910561-003.14 2x | 4.2701 ppm | 0.1282 ppm | 3.0000% | 2019/11/16 07:54 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 4.3608 | 43.6077 | 38.58 | 42.30 | 3.72 | 50.20 | 10:28 |
| 2 | TOC | 4.1794 | 41.7942 | 37.35 | 40.99 | 3.63 | 50.21 | 10:27 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 37 | TOC | K1910572-001.16 | 0.0000 ppm | 0.0000 ppm | 0.0000% | 2019/11/16 08:22 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0000 | 0.0000 | 7.22 | 10.80 | 3.57 | 50.25 | 10:28 |
| 2 | TOC | 0.0000 | 0.0000 | 6.60 | 10.17 | 3.57 | 50.28 | 10:26 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 38 | TOC | K1910572-001.16 ms | 25.0218 ppm | 0.0000 ppm | 0.0000% | 2019/11/16 08:50 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 25.0218 | 250.2182 | 178.83 | 182.43 | 3.60 | 50.26 | 10:32 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

**Sample Type**: Check Standard --> CCV 25 ppm From Schedule Version 13

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◈ | B | TOC | 25.0000 | 1:2 | [TOC] CCV 25 ppm [25 ppm] | 0 / infinity ( NA / NA ) | 24.2149 ppm (PASS) | 0.0000 ppm | 0% | 2019/11/16 09:05 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| B | TOC | 25 ppm | 1 | 24.2149 | 242.1493 | 173.83 | 177.36 | 3.53 | 50.24 | 10:31 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos B |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) | 50 ppmC |

**Sample Type**: Check Standard --> CCB From Schedule Version 13

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◆ | D | TOC | 0.0000 | 1:1 | [TOC] CCB [0 ppm] | 0 / infinity ( NA / NA ) | 0.0000 ppm (PASS) | 0.0000 ppm | 0% | 2019/11/16 09:19 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| D | TOC | 0 ppm | 1 | 0.0000 | 0.0000 | 6.62 | 10.33 | 3.71 | 50.28 | 10:31 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos D |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) | 0 ppmC |

**Sample Type**: Sample From Schedule Version 13

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 39 | TOC | MB3 | 0.0000 ppm | 0.0000 ppm | 0.0000% | 2019/11/16 09:34 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0000 | 0.0000 | 6.12 | 9.77 | 3.65 | 50.22 | 10:30 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

**Sample Type**: Check Standard --> LCS From Schedule Version 13

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◆ | C | TOC | 25.0000 | 1:1 | [TOC] LCS [25.0 ppm] | 0 / infinity ( NA / NA ) | 24.4262 ppm (PASS) | 0.0000 ppm | 0% | 2019/11/16 09:49 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| C | TOC | 25.0 ppm | 1 | 24.4262 | 244.2619 | 175.27 | 178.87 | 3.61 | 50.21 | 10:33 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos C |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) | 25 ppmC |

**Sample Type**: Sample From Schedule Version 14

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 40 | TOC | K1910572-002.16 | 0.0031 ppm | 0.0044 ppm | 141.4200% | 2019/11/16 10:05 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0063 | 0.0628 | 9.02 | 12.56 | 3.53 | 50.19 | 10:26 |
| 2 | TOC | 0.0000 | 0.0000 | 8.21 | 11.78 | 3.57 | 50.21 | 10:28 |

**Dilution** 1:10 **Blank Contribution** (TC) 8.9824 (IC) (v1320) **Method** CAS_salt_010711 (v4) **Calibration** CAS_salt_010711 (v30)

**Sample Type**: Sample From Schedule Version 15

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 41 | TOC | K1910572-003.15 | 0.0000 ppm | 0.0000 ppm | 0.0000% | 2019/11/16 10:33 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0000 | 0.0000 | 7.12 | 10.60 | 3.48 | 50.21 | 10:27 |
| 2 | TOC | 0.0000 | 0.0000 | 7.16 | 10.64 | 3.49 | 50.21 | 10:26 |

**Dilution** 1:10 **Blank Contribution** (TC) 8.9824 (IC) (v1320) **Method** CAS_salt_010711 (v4) **Calibration** CAS_salt_010711 (v30)

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 42 | TOC | K1910572-004.15 | 0.0000 ppm | 0.0000 ppm | 0.0000% | 2019/11/16 11:01 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0000 | 0.0000 | 6.62 | 10.19 | 3.57 | 50.23 | 10:28 |
| 2 | TOC | 0.0000 | 0.0000 | 6.68 | 10.42 | 3.74 | 50.24 | 10:27 |

**Dilution** 1:10 **Blank Contribution** (TC) 8.9824 (IC) (v1320) **Method** CAS_salt_010711 (v4) **Calibration** CAS_salt_010711 (v30)

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 43 | TOC | K1910572-005.15 | 0.0000 ppm | 0.0000 ppm | 0.0000% | 2019/11/16 11:29 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0000 | 0.0000 | 6.56 | 10.22 | 3.66 | 50.27 | 10:29 |
| 2 | TOC | 0.0000 | 0.0000 | 6.90 | 10.35 | 3.45 | 50.27 | 10:27 |

**Dilution** 1:10 **Blank Contribution** (TC) 8.9824 (IC) (v1320) **Method** CAS_salt_010711 (v4) **Calibration** CAS_salt_010711 (v30)

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 44 | TOC | K1910572-006.16 | 0.0000 ppm | 0.0000 ppm | 0.0000% | 2019/11/16 11:57 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0000 | 0.0000 | 8.22 | 11.93 | 3.70 | 50.25 | 10:30 |
| 2 | TOC | 0.0000 | 0.0000 | 8.40 | 12.04 | 3.64 | 50.25 | 10:27 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 45 | TOC | K1910572-008.15 | 0.0000 ppm | 0.0000 ppm | 0.0000% | 2019/11/16 12:25 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0000 | 0.0000 | 8.44 | 11.97 | 3.53 | 50.25 | 10:27 |
| 2 | TOC | 0.0000 | 0.0000 | 8.27 | 11.78 | 3.51 | 50.25 | 10:27 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 46 | TOC | K1910147-001.05 | 2.6001 ppm | 0.0141 ppm | 0.5400% | 2019/11/16 12:53 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 2.6100 | 26.1001 | 26.70 | 30.36 | 3.66 | 50.25 | 10:31 |
| 2 | TOC | 2.5901 | 25.9013 | 26.56 | 30.27 | 3.71 | 50.25 | 10:27 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◆ | 47 | TOC | K1910147-002.05 | 2.6326 ppm | 0.0141 ppm | 0.5300% | 2019/11/16 13:22 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 2.6426 | 26.4257 | 26.92 | 30.45 | 3.53 | 50.24 | 10:30 |
| 2 | TOC | 2.6227 | 26.2268 | 26.78 | 30.30 | 3.52 | 50.28 | 10:28 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

**Sample Type**: Check Standard --> CCV 25 ppm From Schedule Version 15

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◆ | B | TOC | 25.0000 | 1:2 | [TOC] CCV 25 ppm [25 ppm] | 0 / infinity ( NA / NA ) | 23.7056 ppm (PASS) | 0.0000 ppm | 0% | 2019/11/16 13:50 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| B | TOC | 25 ppm | 1 | 23.7056 | 237.0564 | 170.38 | 173.90 | 3.53 | 50.25 | 10:32 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos B |
|---|---|---|---|---|
| Success - Criteria | Do Nothing | CAS_salt_010711 | CAS_salt_010711 | 50 ppmC |

| | | |
|---|---|---|
| met. | (v4) | (v30) |

**Sample Type**: Check Standard --> CCB From Schedule Version 15

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◈ | D | TOC | 0.0000 | 1:1 | [TOC] CCB [0 ppm] | 0 / infinity ( NA / NA ) | 0.0000 ppm (PASS) | 0.0000 ppm | 0% | 2019/11/16 14:04 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| D | TOC | 0 ppm | 1 | 0.0000 | 0.0000 | 6.11 | 9.76 | 3.65 | 50.27 | 10:35 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos D |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) | 0 ppmC |

**Sample Type**: Sample From Schedule Version 15

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 48 | TOC | K1910147-006.04 | 3.0222 ppm | 0.0485 ppm | 1.6100% | 2019/11/16 14:19 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 3.0565 | 30.5654 | 29.73 | 33.30 | 3.57 | 50.30 | 10:30 |
| 2 | TOC | 2.9879 | 29.8789 | 29.26 | 32.89 | 3.63 | 50.27 | 10:28 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 49 | TOC | K1910147-007.04 | 4.4869 ppm | 0.1435 ppm | 3.2000% | 2019/11/16 14:47 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 4.5884 | 45.8838 | 40.13 | 43.86 | 3.74 | 50.25 | 10:26 |
| 2 | TOC | 4.3854 | 43.8537 | 38.75 | 42.61 | 3.86 | 50.27 | 10:26 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 50 | TOC | K1910199-001.04 | 1.8117 ppm | 0.0221 ppm | 1.2200% | 2019/11/16 15:15 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 1.7961 | 17.9607 | 21.17 | 24.95 | 3.77 | 50.27 | 10:26 |
| 2 | TOC | 1.8273 | 18.2730 | 21.39 | 25.08 | 3.70 | 50.32 | 10:25 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 51 | TOC | K1910199-002.04 | 1.5258 ppm | 0.0105 ppm | 0.6900% | 2019/11/16 15:43 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 1.5184 | 15.1837 | 19.29 | 22.78 | 3.49 | 50.25 | 10:29 |
| 2 | TOC | 1.5333 | 15.3325 | 19.39 | 22.89 | 3.50 | 50.24 | 10:27 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 52 | TOC | K1910199-003.04 | 1.2318 ppm | 0.0092 ppm | 0.7400% | 2019/11/16 16:12 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 1.2254 | 12.2535 | 17.30 | 20.69 | 3.39 | 50.26 | 10:27 |
| 2 | TOC | 1.2383 | 12.3832 | 17.39 | 20.92 | 3.53 | 50.29 | 10:26 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 53 | TOC | K1910199-004.04 | 1.3880 ppm | 0.0127 ppm | 0.9200% | 2019/11/16 16:40 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 1.3970 | 13.9698 | 18.46 | 22.10 | 3.63 | 50.25 | 10:25 |
| 2 | TOC | 1.3790 | 13.7901 | 18.34 | 21.88 | 3.54 | 50.24 | 10:27 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 54 | TOC | K1910199-007.04 | 1.8976 ppm | 0.0515 ppm | 2.7100% | 2019/11/16 17:08 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 1.9340 | 19.3396 | 22.11 | 25.67 | 3.56 | 50.25 | 10:30 |
| 2 | TOC | 1.8612 | 18.6119 | 21.62 | 25.11 | 3.50 | 50.22 | 10:26 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 55 | TOC | K1910199-008.04 | 1.8928 ppm | 0.0022 ppm | 0.1200% | 2019/11/16 17:36 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 1.8943 | 18.9433 | 21.84 | 25.41 | 3.57 | 50.24 | 10:28 |
| 2 | TOC | 1.8912 | 18.9124 | 21.82 | 25.38 | 3.56 | 50.23 | 10:26 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 56 | TOC | K1910199-010.04 | 1.5466 ppm | 0.0566 ppm | 3.6600% | 2019/11/16 18:04 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 1.5066 | 15.0659 | 19.21 | 22.81 | 3.60 | 50.25 | 10:29 |
| 2 | TOC | 1.5866 | 15.8658 | 19.75 | 23.11 | 3.36 | 50.25 | 10:28 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 57 | TOC | K1910254-001.04 | 2.0643 ppm | 0.0000 ppm | 0.0000% | 2019/11/16 18:32 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 2.0643 | 20.6434 | 22.99 | 26.69 | 3.70 | 50.28 | 10:34 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

**Sample Type**: Check Standard --> CCV 25 ppm From Schedule Version 15

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◈ | B | TOC | 25.0000 | 1:2 | [TOC] CCV 25 ppm [25 ppm] | 0 / infinity ( NA / NA ) | 23.9330 ppm (PASS) | 0.0000 ppm | 0% | 2019/11/16 18:47 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| B | TOC | 25 ppm | 1 | 23.9330 | 239.3296 | 171.92 | 175.42 | 3.50 | 50.25 | 10:32 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos B |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) | 50 ppmC |

**Sample Type**: Check Standard --> CCB From Schedule Version 15

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◈ | D | TOC | 0.0000 | 1:1 | [TOC] CCB [0 ppm] | 0 / infinity ( NA / NA ) | 0.0000 ppm | 0.0000 ppm | 0% | 2019/11/16 19:02 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | (PASS) | | | | |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| D | TOC | 0 ppm | 1 | 0.0000 | 0.0000 | 5.78 | 9.45 | 3.66 | 50.24 | 10:34 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos D |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) | 0 ppmC |

**Sample Type**: Sample From Schedule Version 15

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 58 | TOC | MB4 | 0.0000 ppm | 0.0000 ppm | 0.0000% | 2019/11/16 19:16 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0000 | 0.0000 | 5.29 | 8.80 | 3.51 | 50.26 | 10:33 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

**Sample Type**: Check Standard --> LCS From Schedule Version 15

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◈ | C | TOC | 25.0000 | 1:1 | [TOC] LCS [25.0 ppm] | 0 / infinity ( NA / NA ) | 24.5930 ppm (PASS) | 0.0000 ppm | 0% | 2019/11/16 19:31 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| C | TOC | 25.0 ppm | 1 | 24.5930 | 245.9295 | 176.40 | 179.86 | 3.46 | 50.26 | 10:31 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos C |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) | 25 ppmC |

**Sample Type**: Sample From Schedule Version 15

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 59 | TOC | K1910254-002.04 | 1.6585 ppm | 0.0964 ppm | 5.8100% | 2019/11/16 19:46 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 1.7267 | 17.2668 | 20.70 | 24.27 | 3.57 | 50.28 | 10:30 |
| 2 | TOC | 1.5904 | 15.9041 | 19.78 | 23.42 | 3.64 | 50.25 | 10:27 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) | CAS_salt_010711 | CAS_salt_010711 |

(v1320) (v4) (v30)

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 60 | TOC | K1910254-003.04 | 1.0469 ppm | 0.0839 ppm | 8.0100% | 2019/11/16 20:14 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.9876 | 9.8758 | 15.69 | 19.40 | 3.72 | 50.25 | 10:29 |
| 2 | TOC | 1.1062 | 11.0617 | 16.49 | 20.11 | 3.61 | 50.24 | 10:28 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 61 | TOC | K1910254-004.04 | 2.3140 ppm | 0.0238 ppm | 1.0300% | 2019/11/16 20:42 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 2.3308 | 23.3084 | 24.80 | 28.50 | 3.69 | 50.24 | 10:30 |
| 2 | TOC | 2.2973 | 22.9725 | 24.58 | 27.88 | 3.30 | 50.26 | 10:25 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 62 | TOC | K1910254-004.04 ms | 27.7911 ppm | 0.0000 ppm | 0.0000% | 2019/11/16 21:10 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 27.7911 | 277.9114 | 197.63 | 201.14 | 3.51 | 50.25 | 10:34 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 63 | TOC | rb | 0.0000 ppm | 0.0000 ppm | 0.0000% | 2019/11/16 21:25 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0000 | 0.0000 | 5.64 | 9.30 | 3.66 | 50.26 | 10:30 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 64 | TOC | K1910254-005.04 | 1.1292 ppm | 0.0235 ppm | 2.0800% | 2019/11/16 21:39 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 1.1458 | 11.4580 | 16.76 | 20.42 | 3.66 | 50.25 | 10:26 |
| 2 | TOC | 1.1125 | 11.1251 | 16.53 | 20.33 | 3.79 | 50.24 | 10:27 |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 65 | TOC | K1910254-006.04 | 28.1311 ppm | 0.0561 ppm | 0.2000% | 2019/11/16 22:08 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 28.0914 | 280.9138 | 199.67 | 203.23 | 3.56 | 50.25 | 10:25 |
| 2 | TOC | 28.1708 | 281.7079 | 200.20 | 204.08 | 3.88 | 50.24 | 10:28 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 66 | TOC | K1910254-007.04 | 1.9818 ppm | 0.2031 ppm | 10.2500% | 2019/11/16 22:36 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 2.1255 | 21.2548 | 23.41 | 27.00 | 3.59 | 50.28 | 10:27 |
| 2 | TOC | 1.8382 | 18.3820 | 21.46 | 24.95 | 3.49 | 50.25 | 10:26 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

**Sample Type**: Check Standard --> CCV 25 ppm From Schedule Version 15

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◈ | B | TOC | 25.0000 | 1:2 | [TOC] CCV 25 ppm [25 ppm] | 0 / infinity ( NA / NA ) | 23.8729 ppm (PASS) | 0.0000 ppm | 0% | 2019/11/16 23:04 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| B | TOC | 25 ppm | 1 | 23.8729 | 238.7285 | 171.51 | 175.00 | 3.49 | 50.24 | 10:33 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos B |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) | 50 ppmC |

**Sample Type**: Check Standard --> CCB From Schedule Version 15

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◈ | D | TOC | 0.0000 | 1:1 | [TOC] CCB [0 ppm] | 0 / infinity ( NA / NA ) | 0.0000 ppm (PASS) | 0.0000 ppm | 0% | 2019/11/16 23:18 |

| Pos | Base Analysis | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|

| | Type | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| D | TOC | 0 ppm | 1 | 0.0000 | 0.0000 | 6.38 | 9.91 | 3.53 | 50.26 | 10:30 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos D |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) | 0 ppmC |

**Sample Type**: Sample From Schedule Version 15

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 67 | TOC | K1910254-008.04 | 1.4375 ppm | 0.0190 ppm | 1.3200% | 2019/11/16 23:33 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 1.4509 | 14.5090 | 18.83 | 22.51 | 3.68 | 50.25 | 10:28 |
| 2 | TOC | 1.4241 | 14.2409 | 18.65 | 22.21 | 3.56 | 50.31 | 10:29 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 68 | TOC | K1910299-001.03 | 7.1545 ppm | 0.2045 ppm | 2.8600% | 2019/11/17 00:01 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 7.2991 | 72.9907 | 58.53 | 62.07 | 3.54 | 50.24 | 10:30 |
| 2 | TOC | 7.0099 | 70.0988 | 56.57 | 60.19 | 3.63 | 50.26 | 10:26 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 69 | TOC | K1910765-001.01 | 8.9810 ppm | 0.1088 ppm | 1.2100% | 2019/11/17 00:29 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 9.0579 | 90.5792 | 70.47 | 73.94 | 3.47 | 50.27 | 10:31 |
| 2 | TOC | 8.9041 | 89.0412 | 69.42 | 73.00 | 3.58 | 50.23 | 10:32 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 70 | TOC | K1910765-002.01 | 13.5412 ppm | 0.1337 ppm | 0.9900% | 2019/11/17 00:58 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 13.6357 | 136.3574 | 101.54 | 105.14 | 3.60 | 50.23 | 10:28 |
| 2 | TOC | 13.4467 | 134.4673 | 100.26 | 104.04 | 3.78 | 50.25 | 10:28 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 71 | TOC | K1910765-003.01 | 22.6620 ppm | 0.0885 ppm | 0.3900% | 2019/11/17 01:26 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 22.5994 | 225.9944 | 162.39 | 166.08 | 3.69 | 50.23 | 10:26 |
| 2 | TOC | 22.7247 | 227.2466 | 163.24 | 166.80 | 3.56 | 50.12 | 10:28 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 72 | TOC | K1910765-004.01 | 10.0901 ppm | 0.3055 ppm | 3.0300% | 2019/11/17 01:54 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 10.3062 | 103.0616 | 78.94 | 82.74 | 3.80 | 50.11 | 10:30 |
| 2 | TOC | 9.8741 | 98.7407 | 76.01 | 79.77 | 3.76 | 50.16 | 10:27 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 73 | TOC | K1910760-001.01 | 1.1733 ppm | 0.0796 ppm | 6.7800% | 2019/11/17 02:22 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 1.2296 | 12.2963 | 17.33 | 20.90 | 3.57 | 50.08 | 10:28 |
| 2 | TOC | 1.1171 | 11.1707 | 16.57 | 20.17 | 3.61 | 50.20 | 10:24 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 74 | TOC | K1910760-001.01 ms | 25.8462 ppm | 0.0000 ppm | 0.0000% | 2019/11/17 02:50 |

| Rep # | Base Analysis Type | ppm | µg | Adjusted (Abs) | NDIR (Abs) | Baseline (Abs) | Pressure (psig) | Run Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 25.8462 | 258.4622 | 184.42 | 187.91 | 3.49 | 50.11 | 10:34 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

| | Pos | Analysis Type | Sample ID | Result (ppmC) | Std. Dev. (ppmC) | RSD | Start Time |
|---|---|---|---|---|---|---|---|
| ◈ | 75 | TOC | RB | 0.0000 ppm | 0.0000 ppm | 0.0000% | 2019/11/17 03:05 |

| Rep | Base | | | Adjusted | | Baseline | Pressure | Run |
|---|---|---|---|---|---|---|---|---|

| # | Analysis Type | ppm | µg | (Abs) | NDIR (Abs) | (Abs) | (psig) | Time |
|---|---|---|---|---|---|---|---|---|
| 1 | TOC | 0.0000 | 0.0000 | 6.30 | 9.69 | 3.39 | 50.09 | 10:28 |
| 2 | TOC | 0.0000 | 0.0000 | 5.64 | 9.26 | 3.62 | 50.11 | 10:28 |

| Dilution | Blank Contribution | Method | Calibration |
|---|---|---|---|
| 1:10 | (TC) 8.9824 (IC) (v1320) | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) |

**Sample Type**: Check Standard --> CCV 25 ppm From Schedule Version 15

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◈ | B | TOC | 25.0000 | 1:2 | [TOC] CCV 25 ppm [25 ppm] | 0 / infinity ( NA / NA ) | 23.6725 ppm (PASS) | 0.0000 ppm | 0% | 2019/11/17 03:33 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| B | TOC | 25 ppm | 1 | 23.6725 | 236.7250 | 170.15 | 173.77 | 3.62 | 50.15 | 10:35 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos B |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) | 50 ppmC |

**Sample Type**: Check Standard --> CCB From Schedule Version 15

| | Pos | BAT | Concentration (ppm) | Dil | Sample ID | Min / Max (% dev) | Result | Std. Dev. | RSD | Start Time |
|---|---|---|---|---|---|---|---|---|---|---|
| ◈ | D | TOC | 0.0000 | 1:1 | [TOC] CCB [0 ppm] | 0 / infinity ( NA / NA ) | 0.0000 ppm (PASS) | 0.0000 ppm | 0% | 2019/11/17 03:48 |

| Pos | Base Analysis Type | ID | Rep # | ppm | µg | Adjusted | NDIR | Baseline | Pressure | Run Time |
|---|---|---|---|---|---|---|---|---|---|---|
| D | TOC | 0 ppm | 1 | 0.0000 | 0.0000 | 5.73 | 9.31 | 3.58 | 50.18 | 10:30 |

| Completion State | Success Action | Method | Calibration | STD Conc - Pos D |
|---|---|---|---|---|
| Success - Criteria met. | Do Nothing | CAS_salt_010711 (v4) | CAS_salt_010711 (v30) | 0 ppmC |

## Meta Data Used in this Report

**Blanks**

| Version | Reagent (Abs) | Acid (Abs) | DI IC (Abs) | DI TC (Abs) | DI TOC (Abs) | Save Time | Operator |
|---|---|---|---|---|---|---|---|
| v1319 | 0.9217 | 1.0210 | 0.0000 | 0.0000 | 0.0000 | 2019/11/13 13:58 | Fusion1 (Fusion1) |
| v1320 | 2.3307 | 1.7570 | 0.0000 | 0.0000 | 0.0000 | 2019/11/15 13:57 | Fusion1 (Fusion1) |

## Calibrations

**Name: CAS_salt_010711 (TOC)**

| | | | |
|---|---|---|---|
| Version: | v30 | Calibration curve formula: | TOC: y = 6.788x + 9.463 |
| Ver Creation: | 2019/03/05 17:42 | $r^2$ value: | TOC: $r^2$ = 0.99963 |
| Comment: | | | |
| Operator: | Fusion1 (Fusion1) | | |
| Basic Analysis Type | TOC | | |

**Basic Analysis Type**: TOC

| Sample ID | Y Raw Value | X Expected | Message | End Time |
|---|---|---|---|---|
| DI Water | 7.8970 | 0.0000 | | 2019/03/05 16:15 |
| 0.500 ppm | 11.5280 | 0.5000 | | 2019/03/05 16:29 |
| 1.0 ppm | 14.9760 | 1.0000 | | 2019/03/05 16:44 |
| 5.0 ppm | 43.6500 | 5.0000 | | 2019/03/05 16:58 |
| 10 ppm | 79.6020 | 10.0000 | | 2019/03/05 17:12 |
| 25 ppm | 183.3580 | 25.0000 | | 2019/03/05 17:26 |
| 50 ppm | 346.3230 | 50.0000 | | 2019/03/05 17:40 |

## Methods

**Name: CAS_salt_010711 (TOC)**

| | | | |
|---|---|---|---|
| Version: | v4 | Operator: | Fusion1 (Fusion1) |
| Ver Creation: | 2019/02/21 17:57 | | |
| Comment: | | | |

| Parameter | Value |
|---|---|
| SampleVolume | 10.0 mL |
| Dilution | 1:10 |
| AcidVolume | 0.5 ml |
| ReagentVolume | 2.0 ml |
| UVReactorPrerinse | Off |
| UVReactorPrerinseVolume | 5.0 |
| NumberOfUVReactorPrerinses | 1 |
| ICSpargeTime | 1.00 mins |
| DetectorSweepFlow | 500 ml/min |
| PreSpargeTime | 2.00 mins |
| SystemFlow | 500 ml/min |

| Advanced Parameter | Value |
|---|---|
| NeedleRinseVolume | 5.0 ml |
| VialPrimeVolume | 2.0 ml |
| ICSamplePrimeVolume | 2.0 ml |
| ICSpargeRinseVolume | 12.0 ml |
| BaselineStabilizeTime | 0.70 min |
| DetectorPressureFlow | 150 ml/min |
| SyringeSpeedWaste | 10 |
| SyringeSpeedAcid | 7 |
| SyringeSpeedReagent | 7 |
| SyringeSpeedDIWater | 7 |
| NDIRPressurization | 60 psig |
| SyringeSpeedSampleDispense | 5 |
| SyringeSpeedSampleAspirate | 4 |
| SyringeSpeedUVDispense | 5 |
| SyringeSpeedUVAspirate | 5 |
| SyringeSpeedICDispense | 5 |
| SyringeSpeedICAspirate | 5 |
| NDIRPressureStabilize | 1.75 min |

| | |
|---|---|
| SampleMixing | Off |
| SampleMixingCycles | 1 |
| SampleMixingVolume | 10.0 |
| LowLevelFilterNDIR | Off |

## Acceptance / Approval

**Electronic Signatures**

| Report Version | User Name | Acceptance | Reason | Date |
|---|---|---|---|---|

## Report History

**Report History**

| Report Version | User Name | System Reason | User Reason | Date |
|---|---|---|---|---|
| 1 | Fusion1 (Fusion1) | Schedule completed | Schedule completed | 2019/11/17 04:03 |

ALS Environmental

StarLIMS Run: 660112, 660113, 660114, 660115

Analysis: DOC/TOC

Method: SM 5310 C, 9060A, 415.1, 9060

CCV: 11-GEN-05-82C 50 ppm LCS: 11-GEN-05-79J 25.0 ppm

ICAL Date: 3/6/19

ICAL ID: 11-GEN-05-76H

ICS ID: 11-GEN-05-78M

ICS TV: 25.0 ppm ICS % R < 1

Spike ID: 11-GEN-05-82C 0.05 ml of 5000 ppm stock ---> 10.0 ml = 25.0 ppm x dilution factor

Sodium Persulfate: 11-GEN-05-83A

21 % H3PO4: 11-GEN-05-82G

Equipment ID: K-TOC-03

PIPETTE ID: 124276B, 129001F, N11314F, Marge

FILTER ID: 16967789

| | |
|---|---|
| Analyzed By: BVP | Date Analyzed: 11/15/19 |
| Reviewed By: | Date Reviewed: 11/19/19 |

# Case Narrative

**Method:** 6850
**Analysis:** Perchlorate
**Analysis SOP:** LC-MS-CLO4
**ALS WO ID(s):** 1931753; 1932010

**Client:** ALS Laboratories (Houston, TX)
**Matrix:** Water
**ELMS Batch (HBN):** 2319 (252142)

**General Set Information:** There were twenty field samples in these Work Orders. The samples were analyzed for perchlorate.

**Method Summary:** Each sample was prepared as noted below and analyzed using an Agilent 1100 LC/MSD system in select ion monitoring (SIM) mode at m/z 83 and 85, which corresponds to the loss of one oxygen atom from the perchlorate molecule. ChemStation software was used for instrument control and data analysis. The ion ratio of m/z 83 to 85 was used to positively identify the response peak as perchlorate. Quantitation was performed using the m/z 83 peak area. An internal standard (ISTD) of $^{18}O$ labeled perchlorate was added to each sample to establish the perchlorate peak retention time and used in quantitation.

**Sample Preparation:** A 10.0mL aliquot of each sample was transferred into a 15-mL centrifuge tube. 50µL of an $^{18}O$ labeled perchlorate solution was added to each sample as an internal standard. The samples were then capped, vortexed, and filtered into autosampler vial using Phenex PES membrane 0.45µm Syringe filters.

**Holding Times:** Holding times were met for all analyses.

**Dilutions:** NA

**Method QC data:** The method blank (LMB 684808) was less than 1/2 the CRDL. The recovery for the LCS (684805) was within acceptable parameters.