# LONGHORN ARMY AMMUNITION PLANT KARNACK, TEXAS

# ADMINISTRATIVE RECORD

**Volume 26**

**2018**

**Bate Stamp Numbers**
**00875743 - 00877592**

**Prepared for**

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

**1976 – 2018**

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

VOLUME 26

2018

A. Title: Report (cont'd) – Draft Quarterly Evaluation Report 4th Quarter (October - December) 2017, Groundwater Treatment Plant, Longhorn Army Ammunition Plant, Karnack, Texas
Author(s): Bhate Environmental Associates, Inc.
Recipient: U. S. Army Corps of Engineers
Date: May 1, 2018
Bate Stamp: 00875743 – 00877592

# STANDARD REPORT

## Working Standard - CLO4 QC WRK

**CLO4 QC WRK** — Description - 6850 QC WKG STD 100ug/L

Standard: 36750
MFG: ALS/SLC
MFG Lot: TNB: 05/11/17
Part ID:

Created By: T. Bosch
Create Date: 05/11/2017
Lab Lot: CLO4 QC WRK 100.ug/L

Amount: 10 mL
Expires: 05/11/2018
Usable: Yes

| 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 |
| 36749 | CLO4 QC INT | 6850 QC Intrmdt Std-QC 10ug/mL | CLO4 QC INT 10.ug/mL | 0.1 mL | 05/11/2018 |

# STANDARD REPORT

## Constituent

## Working Standard - CLO4 QC INT

| CLO4 QC INT | | Description - 6850 QC Intrmdt Std-QC 10ug/mL |
|---|---|---|
| Standard: 36749 | Created By: T. Bosch | Amount: 10 mL |
| MFG: ALS/SLC | Create Date: 05/11/2017 | Expires: 05/11/2018 |
| MFG Lot: TNB: 05/11/2017 | Lab Lot: CLO4 QC INT 10.ug/mL | Usable: Yes |
| Part ID: | | |

| 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 |

# 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: 10/6/2005 | Expires: 11/7/2025 |
| MFG Lot: | Lab Lot: LAB 109 | Usable: Yes |
| Part ID: | | |

| Pos. | Analyte | Name | Concentration |
|---|---|---|---|
| Solvent - Analyte(s) not applicable | | | |

# STANDARD REPORT

## Constituent

## Stock Standard - CLO4 QCSTOCK

**CLO4 QCSTOCK** — Description - 6850 QC Stock STD 1,000ug/mL

Standard: 36748
MFG: Ultra Scientific
MFG Lot: CP-0860
Part ID: ICC-013

Created By: T. Bosch
Create Date: 5/11/2017
Lab Lot: CLO4 QC STOCK

Amount: 100 mL
Expires: 3/31/2020
Usable: Yes

| Pos. | Analyte | Name | Concentration |
|---|---|---|---|
| 1 | 14797-73-0 | Perchlorate | 1000 ug/mL |

# STANDARD REPORT

## Working Standard - CLO4ISTDWRK

**CLO4ISTDWRK** — **Description - Perchlorate ISTD Wrk 1,000ug/L**

| | | | | | |
|---|---|---|---|---|---|
| Standard: | **38780** | Created By: | Thomas Bosch | Amount: | 10 mL |
| MFG: | ALS/SLC | Create Date: | 10/09/2017 01:10PM | Expires: | 10/09/2018 |
| MFG Lot: | TNB: 10/09/17 | 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 |
|---|---|---|---|---|---|
| 23118 | CLO4ISTDSTK | Perchlorate ISTD Stock | CLO4ISTDSTK | 0.1 mL | 02/27/2024 |

# STANDARD REPORT

## Constituent

## Stock Standard - CLO4ISTDSTK

**CLO4ISTDSTK** — **Description - Perchlorate ISTD Stock**

| | | | | | |
|---|---|---|---|---|---|
| **Standard:** | 23118 | **Created By:** | Thomas Bosch | **Amount:** | 1 mL |
| **MFG:** | Cambridge Isotope | **Create Date:** | 04/04/2014 03:04PM | **Expires:** | 02/27/2024 |
| **MFG Lot:** | SDDG-013 | **Verified By:** | Thomas Bosch | **Usable:** | Yes |
| **Part ID:** | OLM-7310-S | **Verify Date:** | 02/05/2009 12:02AM | **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

TRIPLE ISO CERTIFICATION ISO 17025 • ISO GUIDE 34 • ISO 9001 ULTRA

## 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.

ANAB ACCREDITED ISO 17025 REFERENCE MATERIAL PRODUCER
ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY



ALS

ULTRA SCIENTIFIC
Analytical Solutions

# Certificate of Analysis

TRIPLE ISO CERTIFICATION ULTRA ISO 17025 ISO GUIDE 34 ISO 9001

## ISO Guide 34 Reference Material

Product Number: ICC-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

ANAB ACCREDITED ISO GUIDE 34 REFERENCE MATERIAL PRODUCER

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY



ALS

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New Haven, CT 06513
USA

AccuStandard®, Inc.

Tel (203)786-5290
Fax (203)786-5287
www.AccuStandard.com

# CERTIFICATE OF ANALYSIS

## AccuTrace™ Reference Standard

Catalog No: IC-PER-10X-1
Description: Perchlorate Standard
Element: Perchlorate ($ClO_4$)
SRM: Ind. Std.
Lot: 216095148
Matrix: Water
Hazards: *Refer to SDS for complete safety information*

Signal Word: Warning

Date Certified: Oct 4, 2016
Expiration: Oct 4, 2018
Sample Size: 100 mL
Components: 1
Storage Condition: Ambient (>5 °C)
Included on ISO/IEC 17025 Scope of Accreditation: Yes
Included on ISO Guide 34 Scope of Accreditation: Yes

| Component | | SRM # | Prepared Concentration (µg/mL) |
|---|---|---|---|
| $ClO_4$ | Perchlorate | Ind. Std. | 1000 |

The gravimetric uncertainty for this product is ±0.2%. See reverse side for details.
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 Guide 34, ISO/IEC 17025 and certified to ISO 9001

# Cambridge Isotope Laboratories, Inc.

# Certificate of Analysis

Quality Standards:
ISO Guide 34 • ISO/IEC 17025 • ISO 13485 • cGMP

23118

| | |
|---|---|
| **Product Name:** (Isotopic Label & Enrichment Specification) | PERCHLORIC ACID, SODIUM SALT (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% |
| LC/MS for Concentration | 109.4 ± 2.8 µg/mL (k=2) |

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

# Raw Data

Batch Report: C:\HPCHEM\1\DATA\25OCT17P\25OCT17P.B

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-PR3.M

['#' ==> Run has not been reprocessed with Batch Review Method
'*' ==> Run has been saved with batch file]

| #* | Sample | Location | Inj | SampleType | Run | CLO4-89-ISTD Area | CLO4-89-ISTD RT | CLO4-89-ISTD Amount |
|---|---|---|---|---|---|---|---|---|
| * | 571094 CCV@25 | Vial 81 | 1 | Control | 1 | 5.07839e5 | 12.477 | 5.00000 |
| * | 571095 LODV@1. | Vial 82 | 1 | Control | 2 | 5.87535e5 | 12.518 | 5.00000 |
| * | 571096 ICS@1. | Vial 83 | 1 | Control | 3 | 3.96155e5 | 12.246 | 5.00000 |
| * | 571097 LMB | Vial 84 | 1 | Control | 4 | 6.68336e5 | 12.435 | 5.00000 |
| * | 571098 LCS@5. | Vial 85 | 1 | Control | 5 | 6.65647e5 | 12.053 | 5.00000 |
| * | 1728943001 | Vial 86 | 1 | Sample | 6 | 4.70592e5 | 12.157 | 5.00000 |
| * | 571099 289431S | Vial 87 | 1 | Sample | 7 | 4.66918e5 | 12.127 | 5.00000 |
| * | 571100 289431D | Vial 88 | 1 | Sample | 8 | 5.24243e5 | 12.117 | 5.00000 |
| * | 1728945001 | Vial 89 | 1 | Sample | 9 | 4.60455e5 | 12.109 | 5.00000 |
| * | 1728946001 | Vial 90 | 1 | Sample | 10 | 2.94801e5 | 10.198 | 5.00000 |
| * | 1729349001 | Vial 91 | 1 | Sample | 11 | 4.46975e5 | 11.983 | 5.00000 |
| * | 1728946001 1K | Vial 71 | 1 | Sample | 12 | 5.98771e5 | 12.478 | 5000.00000 |
| * | Rinse | Vial 72 | 1 | Sample | 13 | 0.00000 | 0.000 | 0.00000 |
| * | 1729821001 | Vial 92 | 1 | Sample | 14 | 3.92983e5 | 12.135 | 5.00000 |
| * | 571101 CCV@25 | Vial 81 | 1 | Control | 15 | 5.86465e5 | 12.119 | 5.00000 |
| * | 571102 LODV@1. | Vial 82 | 1 | Control | 16 | 6.36963e5 | 12.465 | 5.00000 |

| #* | Sample | Location | Inj | SampleType | Run | Perchlorate Area | Perchlorate RT | Perchlorate Amount |
|---|---|---|---|---|---|---|---|---|
| * | 571094 CCV@25 | Vial 81 | 1 | Control | 1 | 3.48090e6 | 12.453 | 26.43897 |
| * | 571095 LODV@1. | Vial 82 | 1 | Control | 2 | 1.05939e5 | 12.486 | 8.38965e-1 |
| * | 571096 ICS@1. | Vial 83 | 1 | Control | 3 | 9.86085e4 | 12.204 | 1.15261 |
| * | 571097 LMB | Vial 84 | 1 | Control | 4 | 0.00000 | 0.000 | 0.00000 |
| * | 571098 LCS@5. | Vial 85 | 1 | Control | 5 | 7.88523e5 | 12.038 | 5.29061 |
| * | 1728943001 | Vial 86 | 1 | Sample | 6 | 0.00000 | 0.000 | 0.00000 |
| * | 571099 289431S | Vial 87 | 1 | Sample | 7 | 4.65291e5 | 12.108 | 4.47866 |
| * | 571100 289431D | Vial 88 | 1 | Sample | 8 | 5.27314e5 | 12.088 | 4.51921 |
| * | 1728945001 | Vial 89 | 1 | Sample | 9 | 0.00000 | 0.000 | 0.00000 |
| * | 1728946001 | Vial 90 | 1 | Sample | 10 | 5.98622e8 | 10.207 | 1043.03365 |
| * | 1729349001 | Vial 91 | 1 | Sample | 11 | 4.79980e4 | 11.934 | 5.03905e-1 |
| * | 1728946001 1K | Vial 71 | 1 | Sample | 12 | 6.41886e5 | 12.455 | 4805.68409 |
| * | Rinse | Vial 72 | 1 | Sample | 13 | 0.00000 | 0.000 | 0.00000 |
| * | 1729821001 | Vial 92 | 1 | Sample | 14 | 0.00000 | 0.000 | 0.00000 |
| * | 571101 CCV@25 | Vial 81 | 1 | Control | 15 | 3.56041e6 | 12.091 | 23.81767 |
| * | 571102 LODV@1. | Vial 82 | 1 | Control | 16 | 1.32751e5 | 12.440 | 9.67623e-1 |

| #* | Sample | Location | Inj | SampleType | Run | CLO4-85 Area | CLO4-85 RT | CLO4-85 Amount |
|---|---|---|---|---|---|---|---|---|
| * | 571094 CCV@25 | Vial 81 | 1 | Control | 1 | 1.10813e6 | 12.467 | 27.31669 |
| * | 571095 LODV@1. | Vial 82 | 1 | Control | 2 | 4.28376e4 | 12.497 | 1.02423 |
| * | 571096 ICS@1. | Vial 83 | 1 | Control | 3 | 3.22687e4 | 12.206 | 1.14363 |
| * | 571097 LMB | Vial 84 | 1 | Control | 4 | 0.00000 | 0.000 | 0.00000 |
| * | 571098 LCS@5. | Vial 85 | 1 | Control | 5 | 2.47122e5 | 12.042 | 5.11794 |
| * | 1728943001 | Vial 86 | 1 | Sample | 6 | 0.00000 | 0.000 | 0.00000 |
| * | 571099 289431S | Vial 87 | 1 | Sample | 7 | 1.48406e5 | 12.125 | 4.39612 |
| * | 571100 289431D | Vial 88 | 1 | Sample | 8 | 1.66736e5 | 12.107 | 4.39896 |
| * | 1728945001 | Vial 89 | 1 | Sample | 9 | 0.00000 | 0.000 | 0.00000 |
| * | 1728946001 | Vial 90 | 1 | Sample | 10 | 2.21716e8 | 10.218 | 1404.77710 |
| * | 1729349001 | Vial 91 | 1 | Sample | 11 | 1.42527e4 | 11.985 | 4.49144e-1 |
| * | 1728946001 1K | Vial 71 | 1 | Sample | 12 | 2.07773e5 | 12.473 | 4790.74371 |
| * | Rinse | Vial 72 | 1 | Sample | 13 | 0.00000 | 0.000 | 0.00000 |
| * | 1729821001 | Vial 92 | 1 | Sample | 14 | 0.00000 | 0.000 | 0.00000 |
| * | 571101 CCV@25 | Vial 81 | 1 | Control | 15 | 1.09294e6 | 12.102 | 23.68621 |
| * | 571102 LODV@1. | Vial 82 | 1 | Control | 16 | 5.13231e4 | 12.438 | 1.13133 |

*** End of Report ***

Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2017\OCT\25OCT17P.S

Sequence Table:

Method and Injection Info Part:

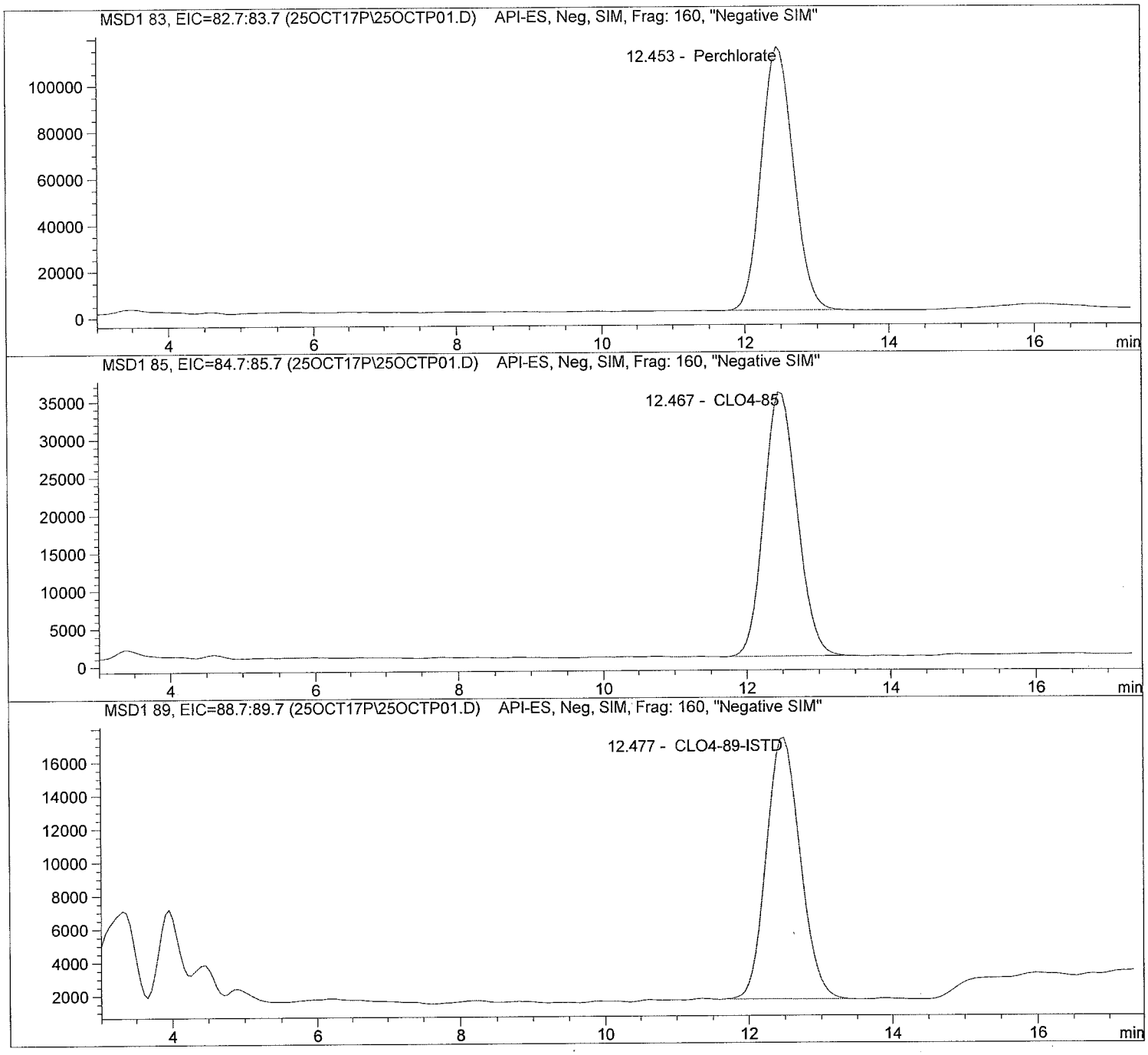
| Line | Location | SampleName | Method | Inj | SampleType | InjVolume | DataFile |
|---|---|---|---|---|---|---|---|
| 1 | Vial 81 | 571094 CCV@25 | CLO4-AQN | 1 | Ctrl Samp | | |
| 2 | Vial 82 | 571095 LODV@1. | CLO4-AQN | 1 | Ctrl Samp | | |
| 3 | Vial 83 | 571096 ICS@1. | CLO4-AQN | 1 | Ctrl Samp | | |
| 4 | Vial 84 | 571097 LMB | CLO4-AQN | 1 | Ctrl Samp | | |
| 5 | Vial 85 | 571098 LCS@5. | CLO4-AQN | 1 | Ctrl Samp | | |
| 6 | Vial 86 | 1728943001 | CLO4-AQN | 1 | Sample | | |
| 7 | Vial 87 | 571099 289431S | CLO4-AQN | 1 | Sample | | |
| 8 | Vial 88 | 571100 289431D | CLO4-AQN | 1 | Sample | | |
| 9 | Vial 89 | 1728945001 | CLO4-AQN | 1 | Sample | | |
| 10 | Vial 90 | 1728946001 | CLO4-AQN | 1 | Sample | | |
| 11 | Vial 91 | 1729349001 | CLO4-AQN | 1 | Sample | | |
| 12 | Vial 71 | 1728946001 1K | CLO4-AQN | 1 | Sample | | |
| 13 | Vial 72 | Rinse | CLO4-AQN | 1 | Sample | | |
| 14 | Vial 92 | 1729821001 | CLO4-AQN | 1 | Sample | | |
| 15 | Vial 81 | 571101 CCV@25 | CLO4-AQN | 1 | Ctrl Samp | | |
| 16 | Vial 82 | 571102 LODV@1. | CLO4-AQN | 1 | Ctrl Samp | | |

Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP01.D  Sample Name: 571094  CCV@25

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 09:02:43 | Seq Line: | 1 |
| Sample Name: | 571094 CCV@25 | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP01.D  Sample Name: 571094  CCV@25

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 09:02:43 | Seq Line: | 1 |
| Sample Name: | 571094 CCV@25 | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 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 |
|---|---|---|---|---|
| 12.453 | PBA | 3480904.8 | 26.4390 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.467 | PBA | 1108132.5 | 27.3167 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.477 | BBA | 507839.4 | 5.0000 | CLO4-89-ISTD |

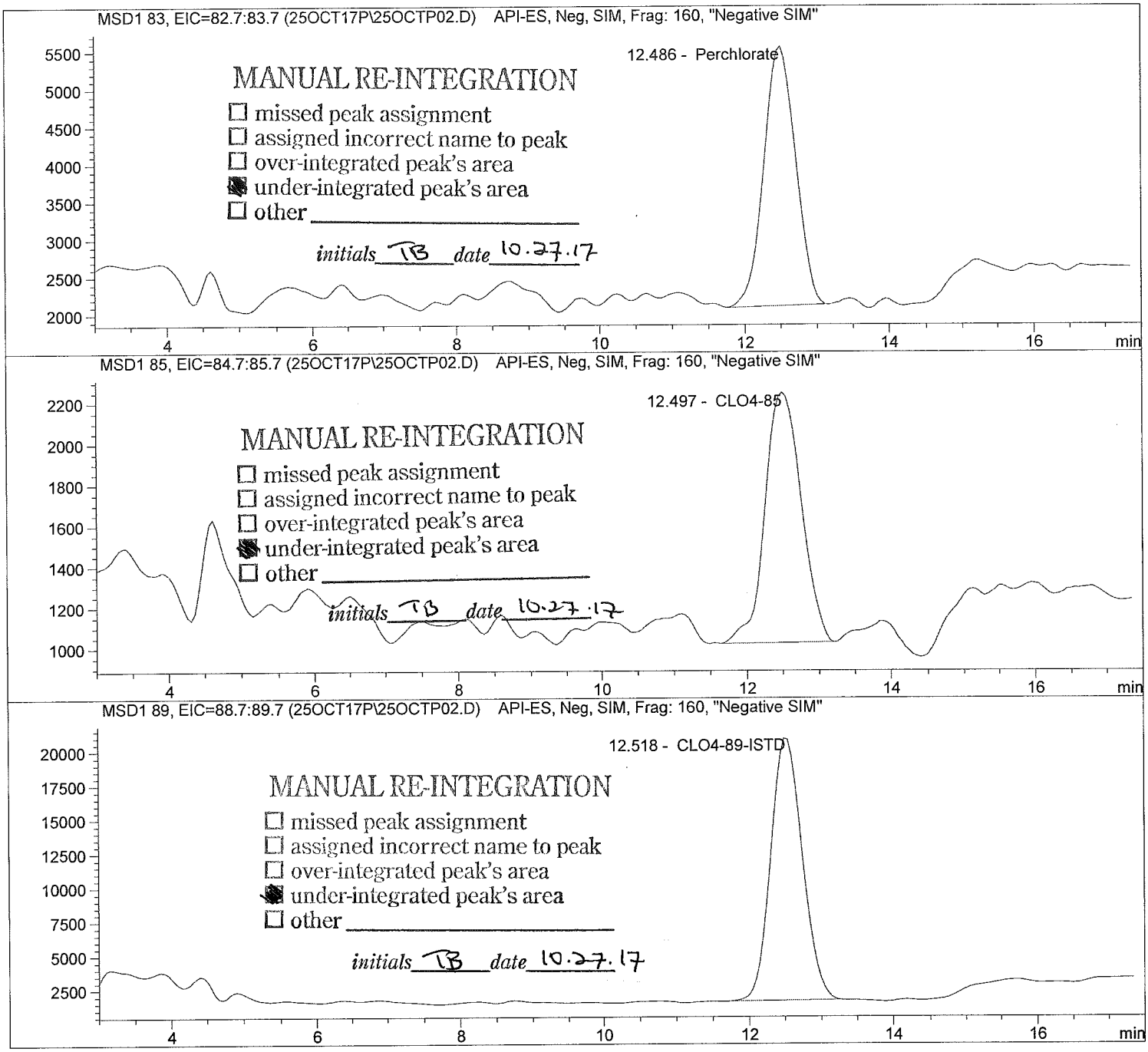
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP02.D Sample Name: 571095 LODV@1.

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 09:24:24 | Seq Line: | 2 |
| Sample Name: | 571095 LODV@1. | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP02.D  Sample Name: 571095  LODV@1.

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 09:24:24 | Seq Line: | 2 |
| Sample Name: | 571095 LODV@1. | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 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 |
|---|---|---|---|---|
| 12.486 | MM | 105938.9 | 0.8390 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.497 | MM | 42837.6 | 1.0242 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.518 | MM | 587535.4 | 5.0000 | CLO4-89-ISTD |

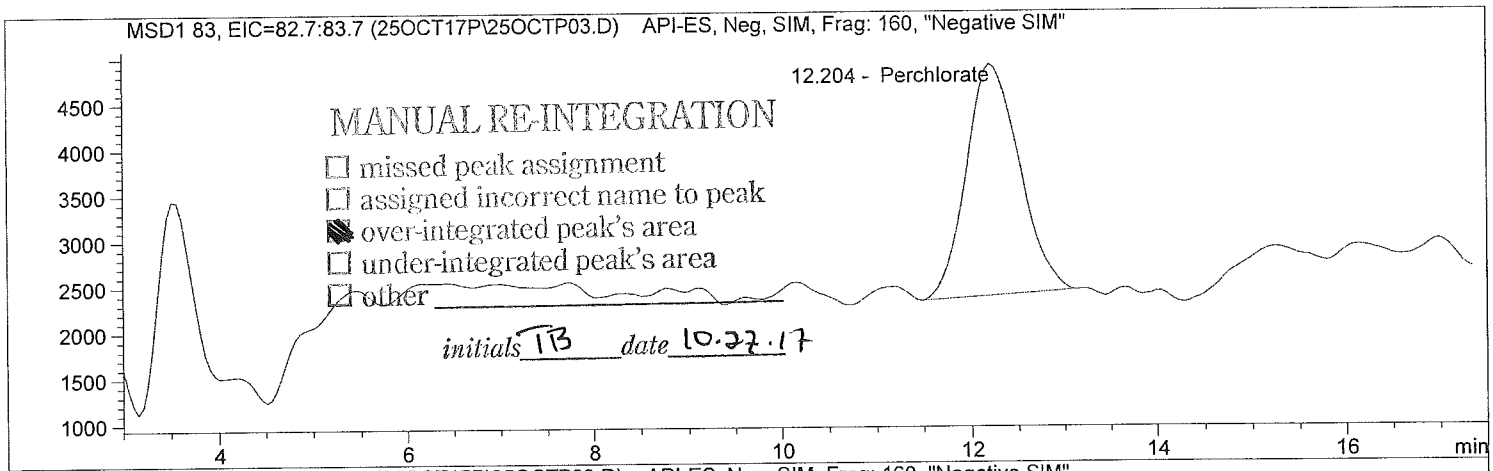
*** End of Report ***

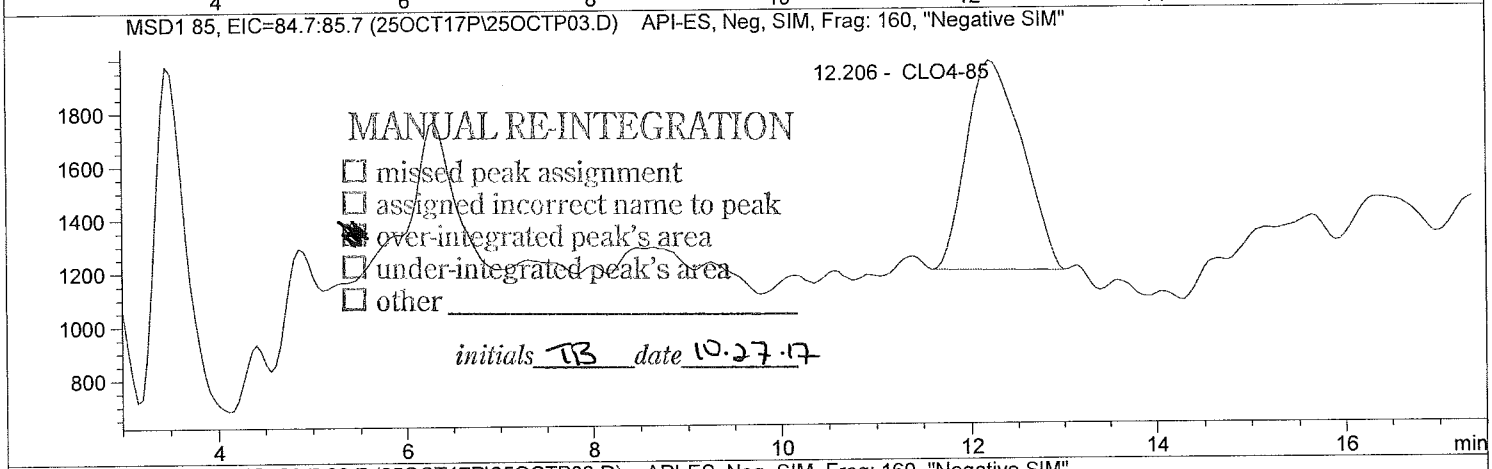
Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP03.D  Sample Name: 571096  ICS@1.

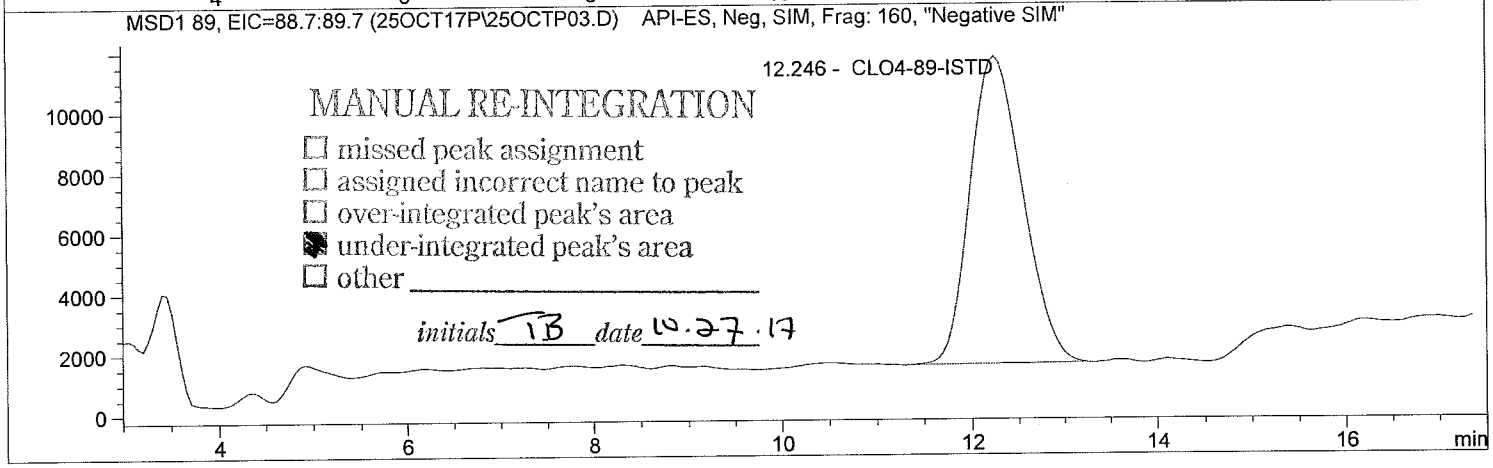
| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 09:43:38 | Seq Line: | 3 |
| Sample Name: | 571096 ICS@1. | Location: | Vial 83 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP03.D  Sample Name: 571096  ICS@1.

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 09:43:38 | Seq Line: | 3 |
| Sample Name: | 571096 ICS@1. | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 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 |
|---|---|---|---|---|
| 12.204 | MM | 98608.5 | 1.1526 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.206 | MM | 32268.7 | 1.1436 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.246 | MM | 396154.9 | 5.0000 | CLO4-89-ISTD |

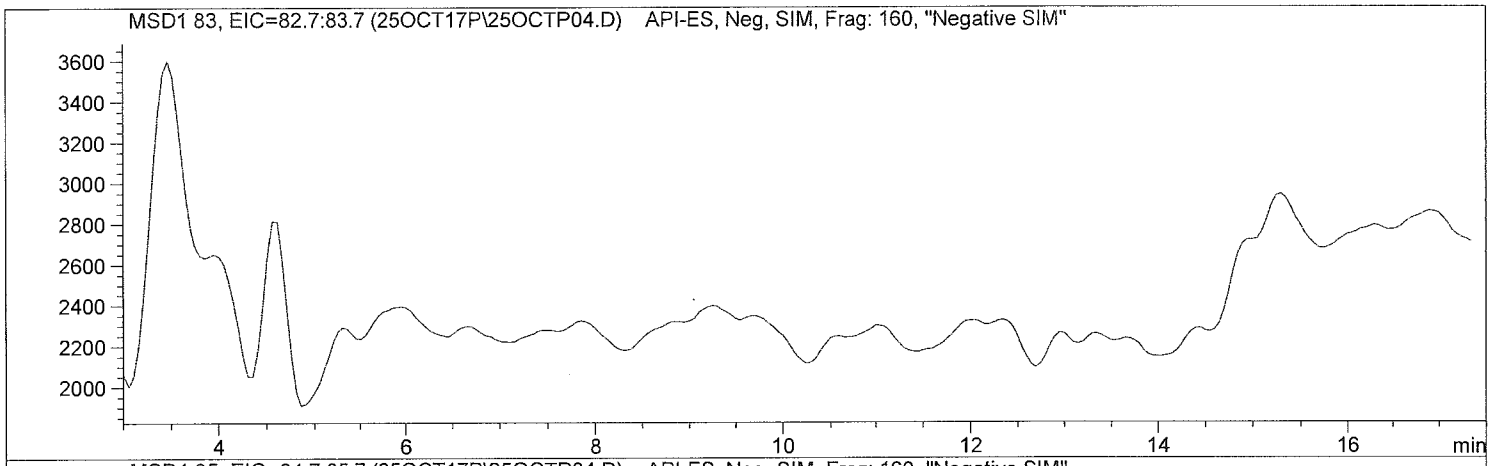
*** End of Report ***

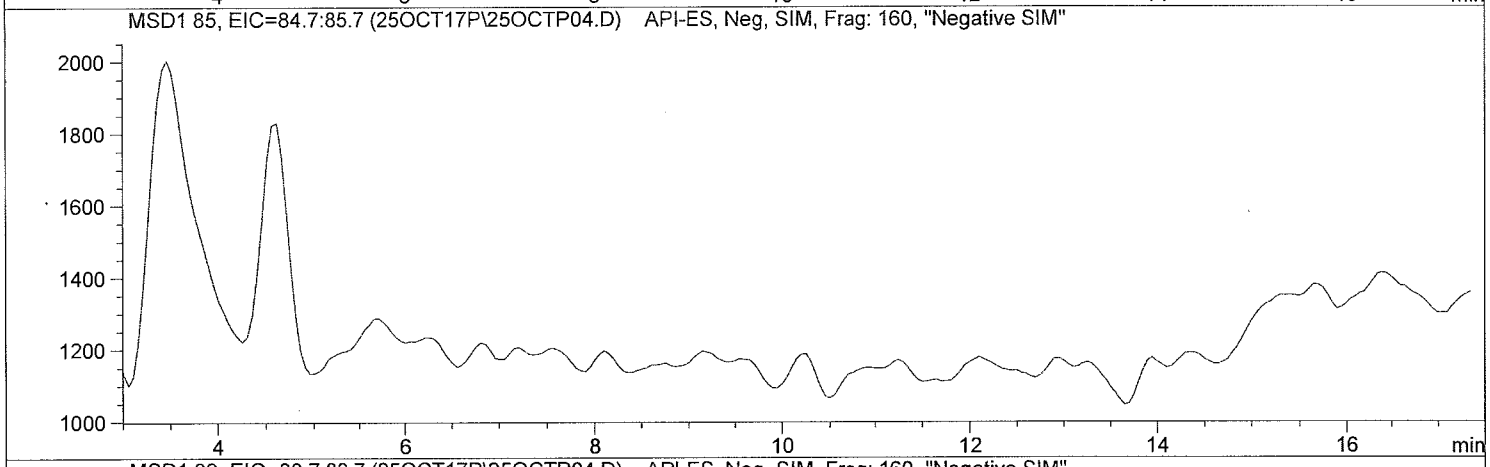
Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP04.D  Sample Name: 571097  LMB

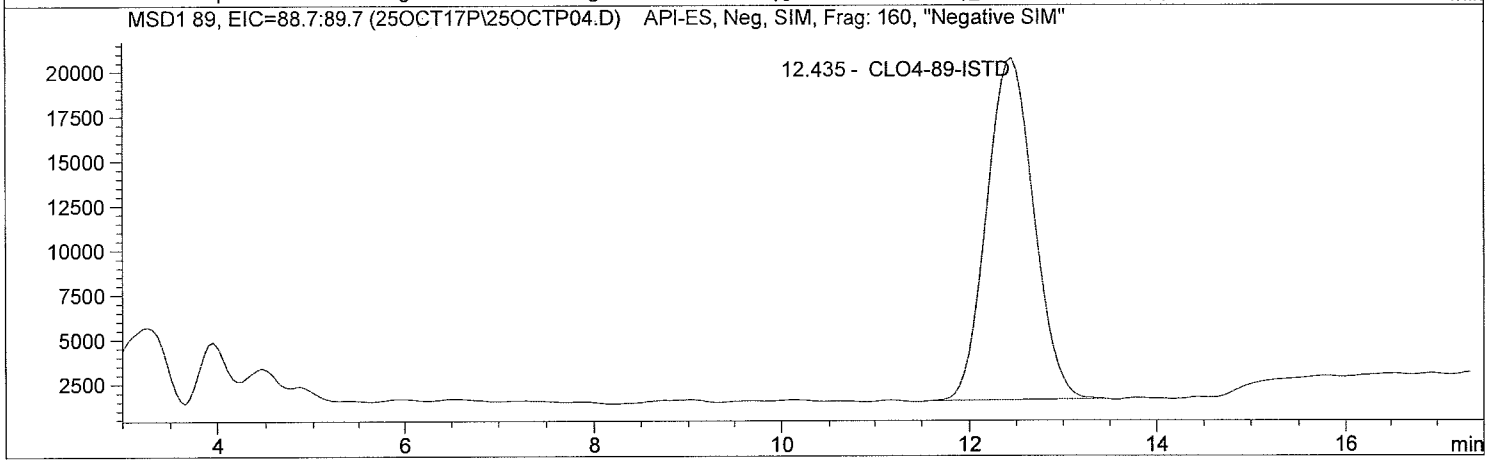
| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 10:02:51 | Seq Line: | 4 |
| Sample Name: | 571097 LMB | Location: | Vial 84 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP04.D  Sample Name: 571097  LMB

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 10:02:51 | Seq Line: | 4 |
| Sample Name: | 571097 LMB | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 12.435 | PBA | 668336.3 | 5.0000 | CLO4-89-ISTD |

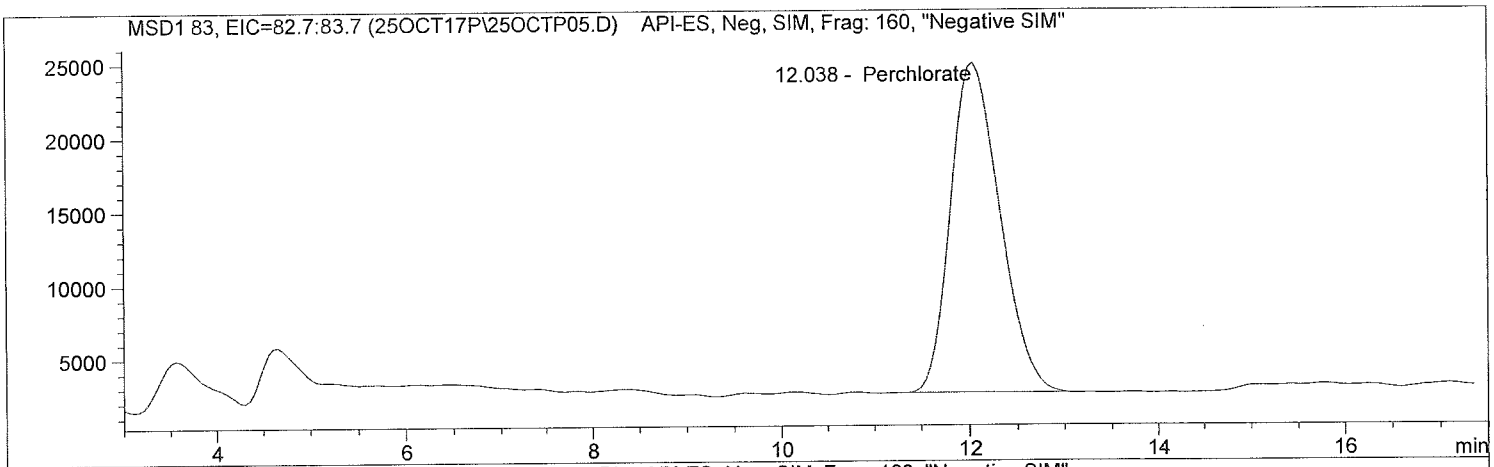
*** End of Report ***

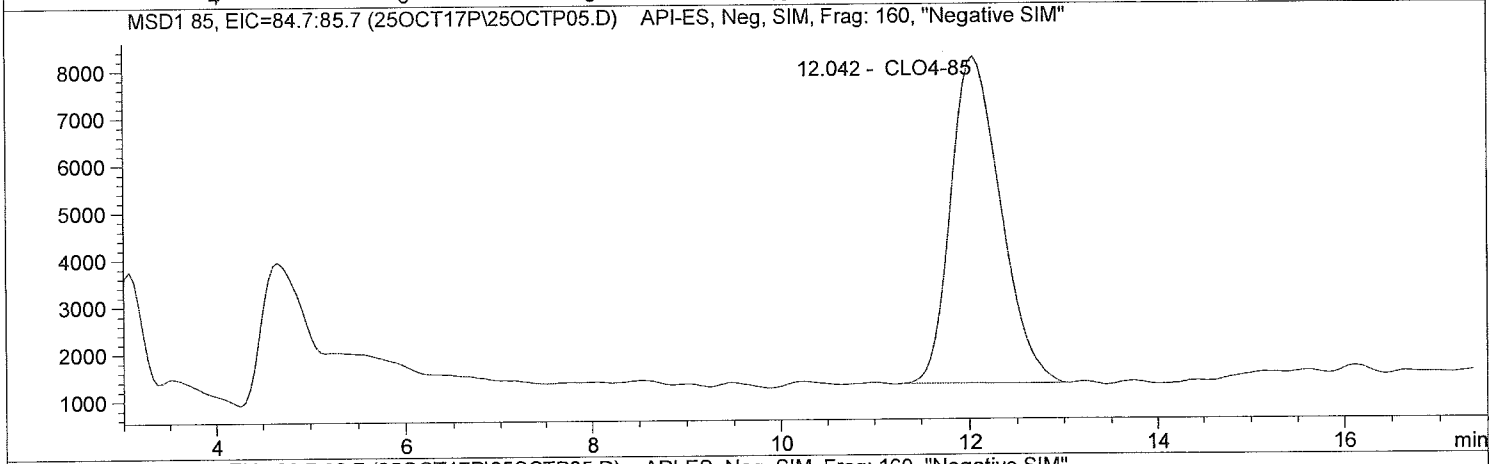
Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP05.D  Sample Name: 571098  LCS@5.

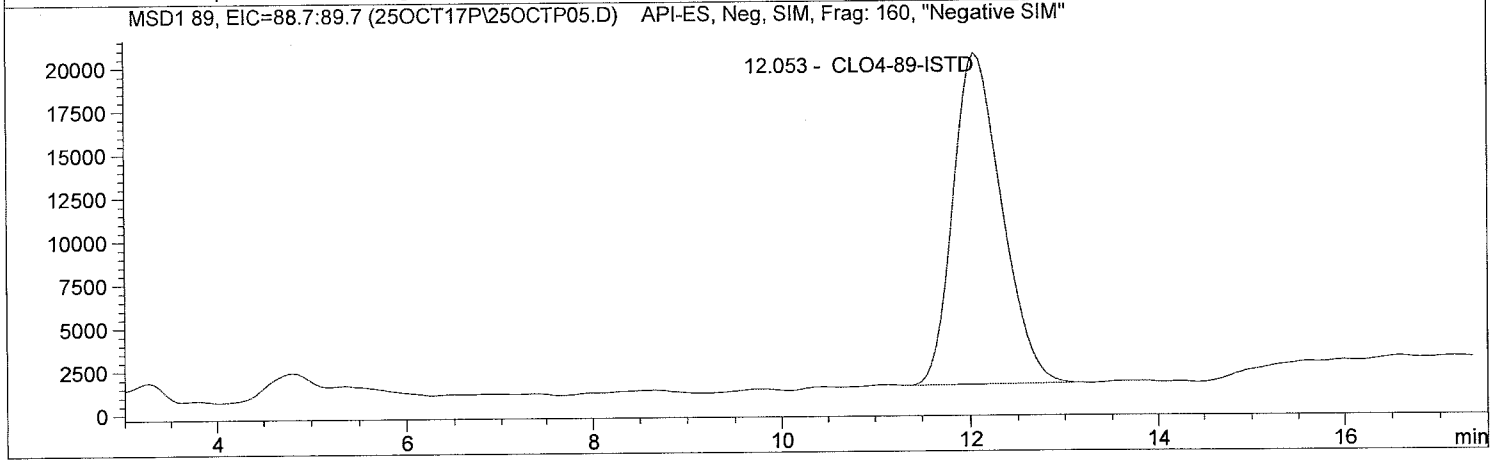
| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 10:22:05 | Seq Line: | 5 |
| Sample Name: | 571098 LCS@5. | Location: | Vial 85 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP05.D  Sample Name: 571098  LCS@5.

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 10:22:05 | Seq Line: | 5 |
| Sample Name: | 571098 LCS@5. | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 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 |
|---|---|---|---|---|
| 12.038 | BBA | 788522.6 | 5.2906 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.042 | PBA | 247122.1 | 5.1179 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.053 | PBA | 665647.0 | 5.0000 | CLO4-89-ISTD |

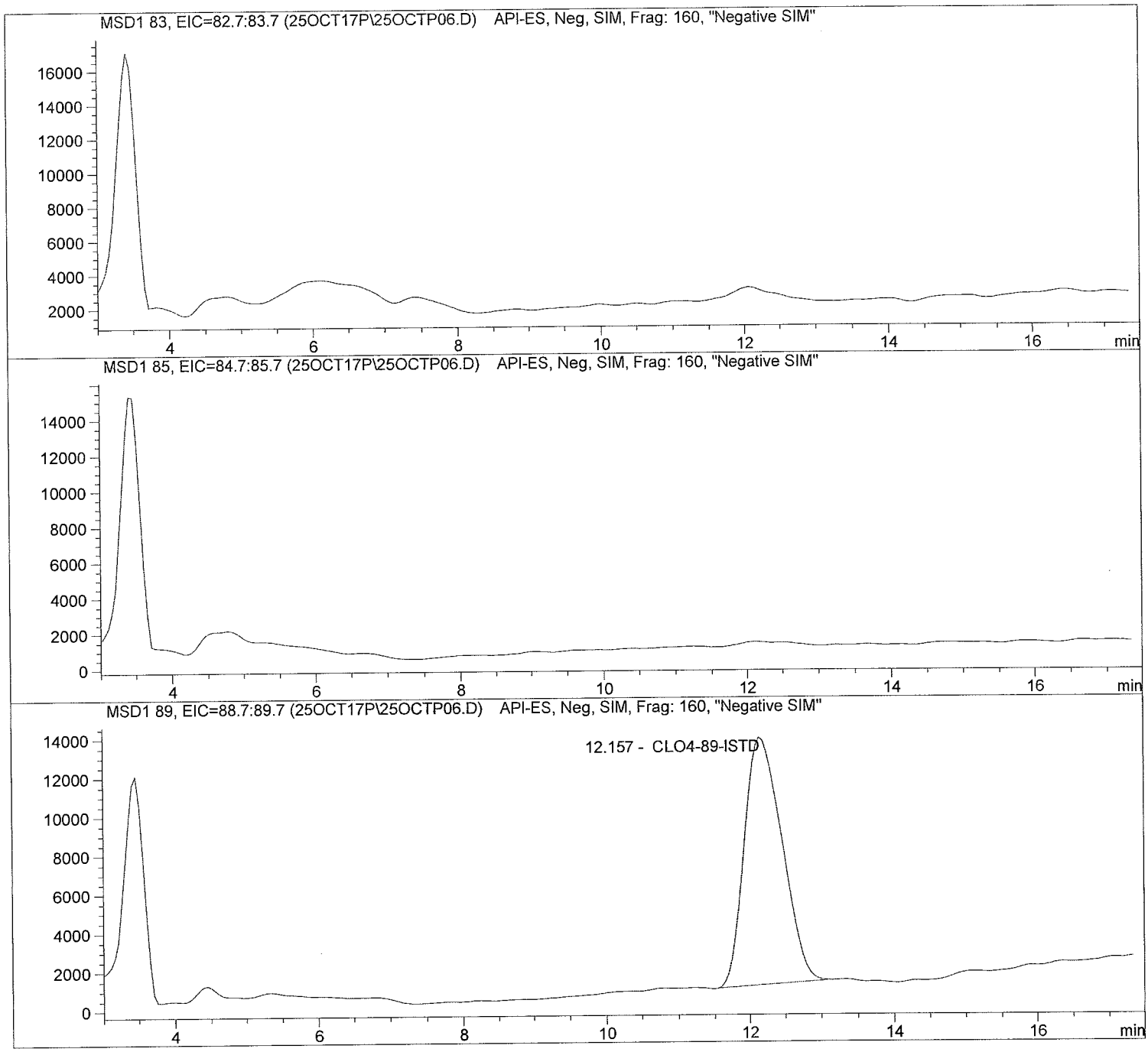
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP06.D Sample Name: 1728943001

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 10:44:39 | Seq Line: | 6 |
| Sample Name: | 1728943001 | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP06.D  Sample Name: 1728943001

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 10:44:39 | Seq Line: | 6 |
| Sample Name: | 1728943001 | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 12.157 | PBA | 470591.7 | 5.0000 | CLO4-89-ISTD |

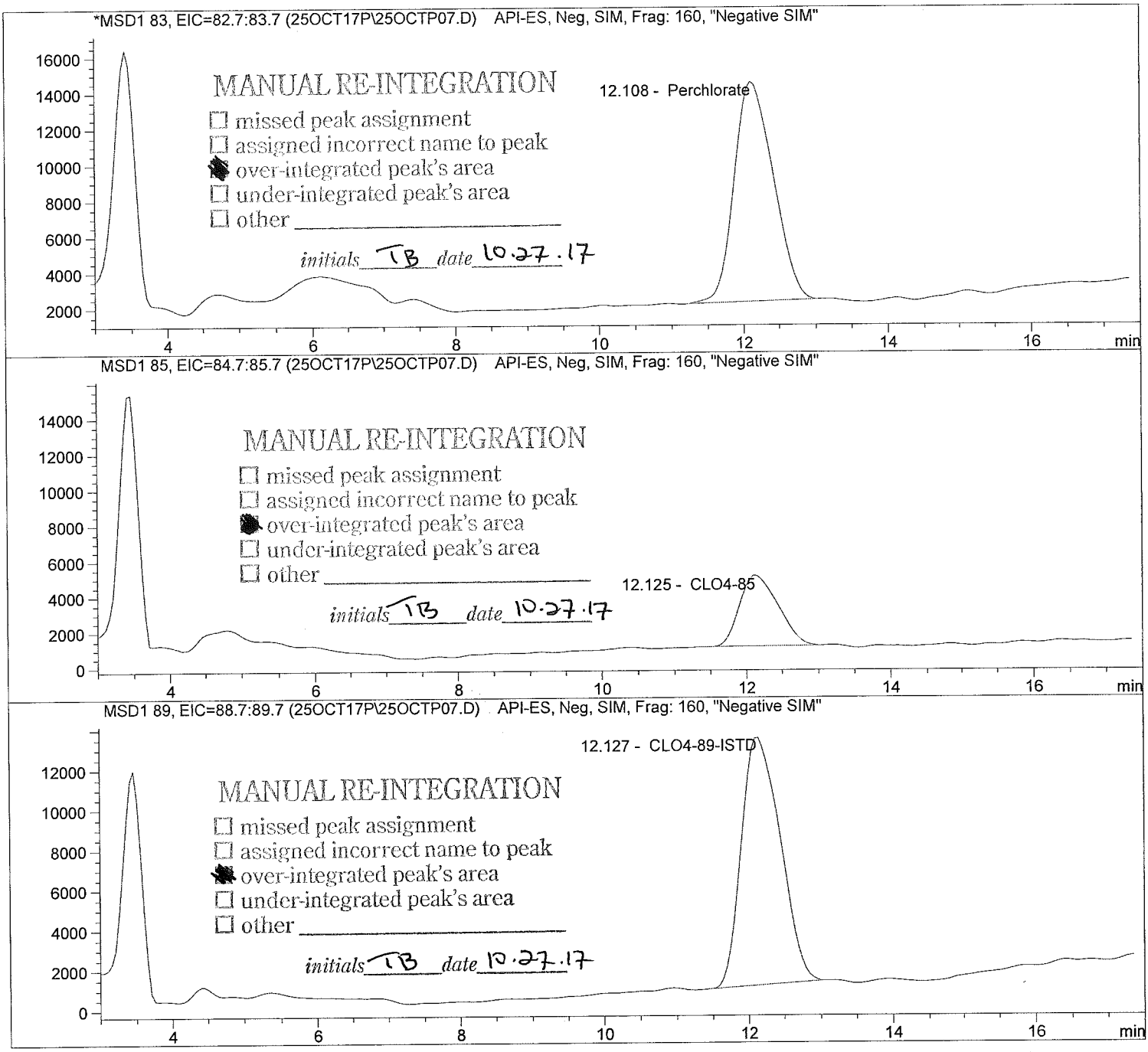
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP07.D  Sample Name: 571099  289431S

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 11:03:53 | Seq Line: | 7 |
| Sample Name: | 571099 289431S | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP07.D  Sample Name: 571099  289431S

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 11:03:53 | Seq Line: | 7 |
| Sample Name: | 571099 289431S | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 12.108 | MM | 465290.7 | 4.4787 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.125 | MM | 148406.0 | 4.3961 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.127 | MM | 466917.6 | 5.0000 | CLO4-89-ISTD |

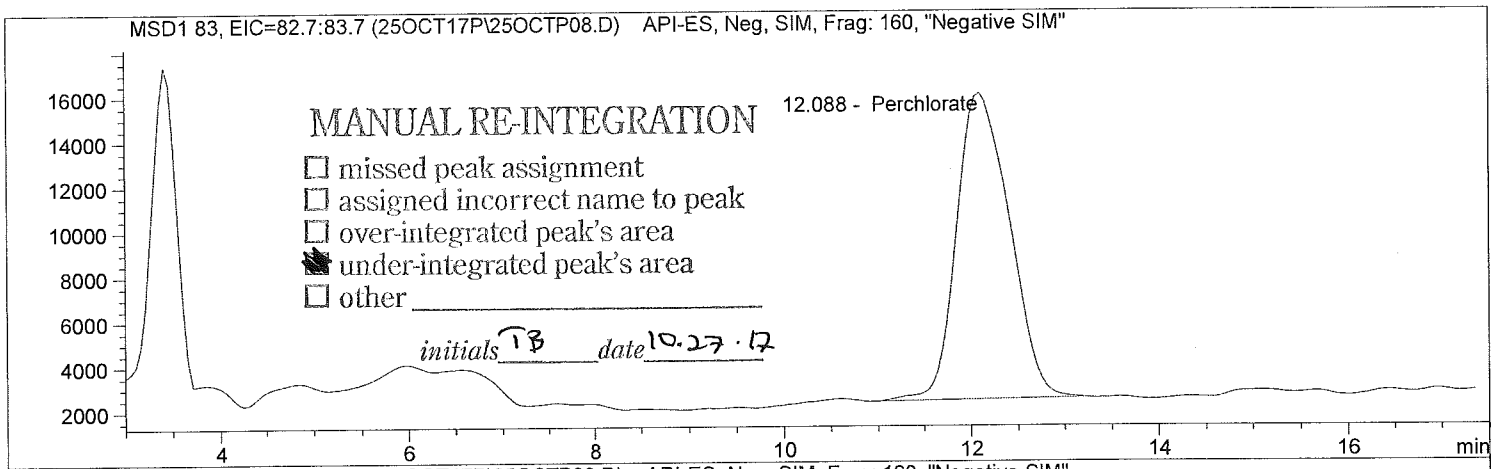
*** End of Report ***

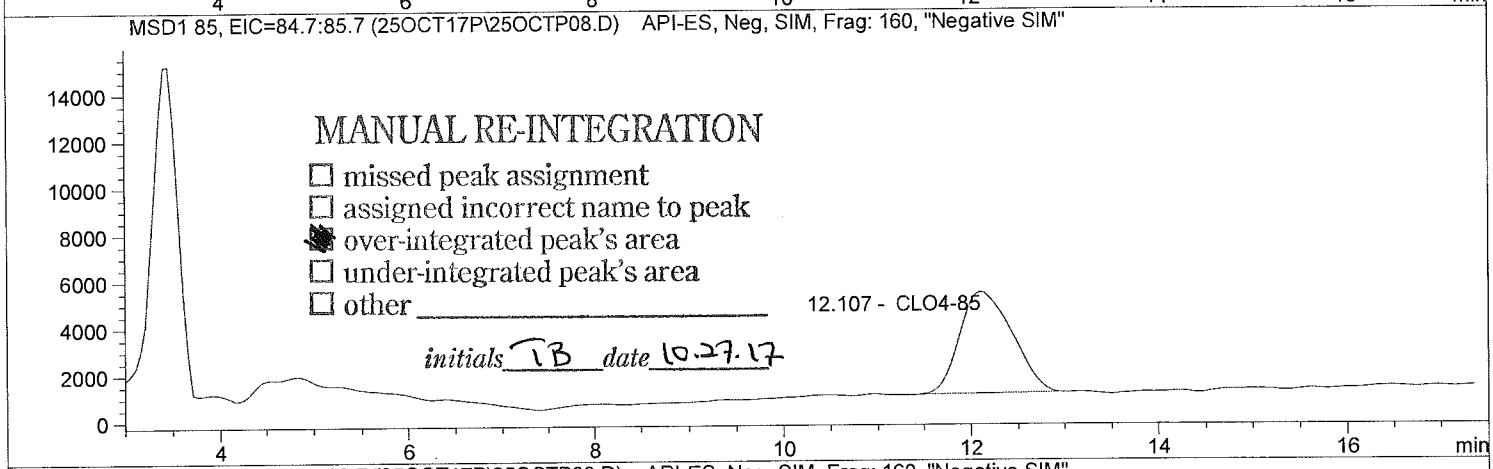
Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP08.D  Sample Name: 571100  289431D

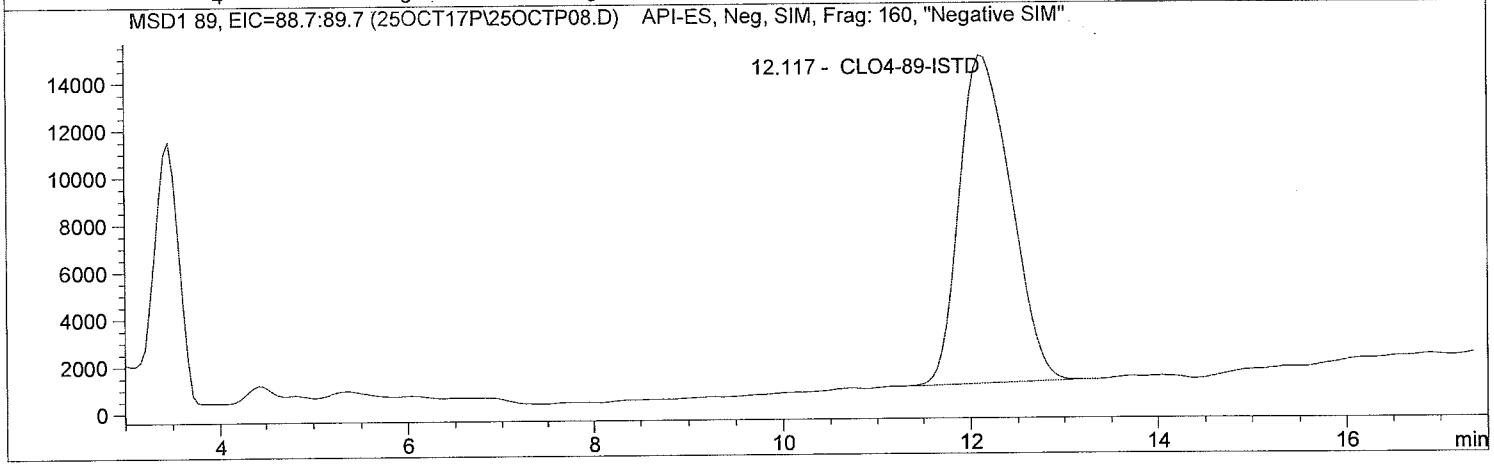
| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 11:23:08 | Seq Line: | 8 |
| Sample Name: | 571100 289431D | Location: | Vial 88 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP08.D  Sample Name: 571100  289431D

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 11:23:08 | Seq Line: | 8 |
| Sample Name: | 571100 289431D | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 12.088 | MM | 527314.1 | 4.5192 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.107 | MM | 166736.0 | 4.3990 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.117 | BBA | 524243.2 | 5.0000 | CLO4-89-ISTD |

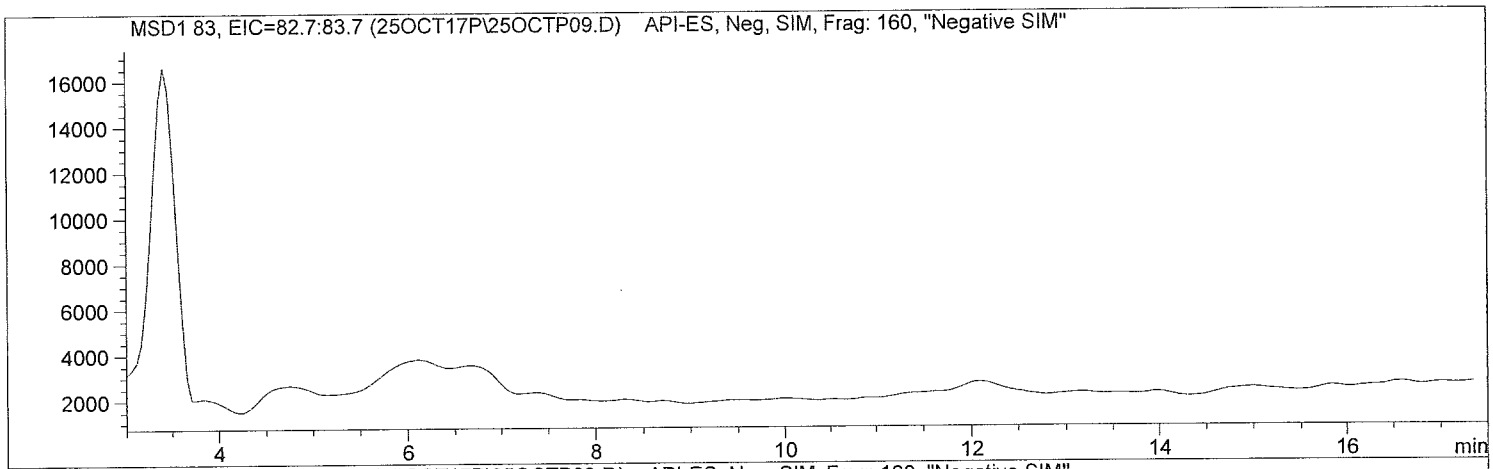
*** End of Report ***

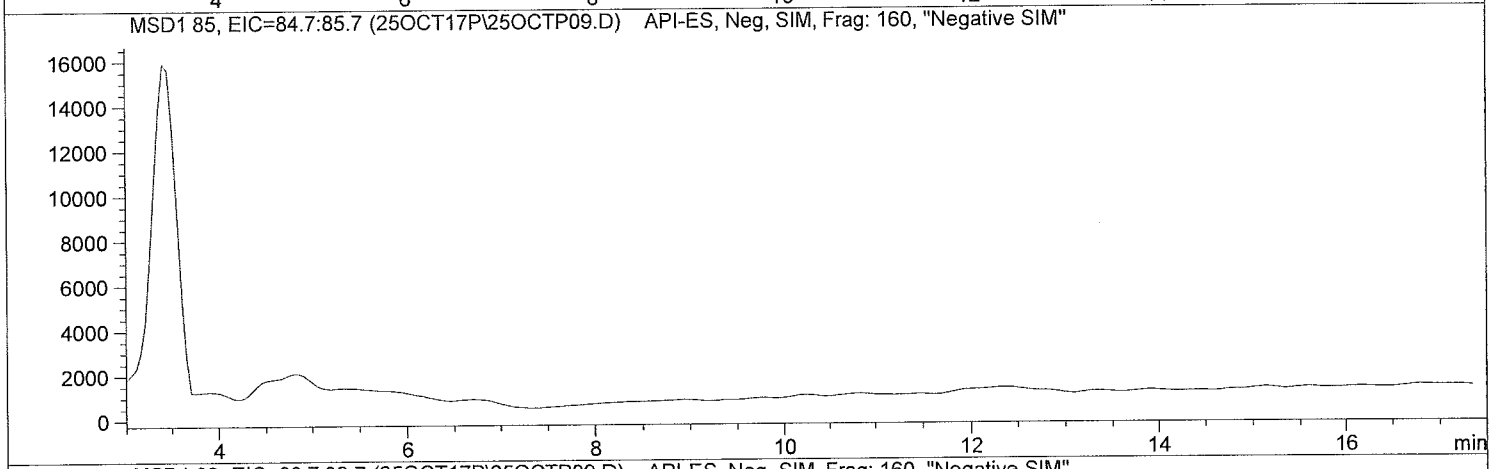
Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP09.D Sample Name: 1728945001

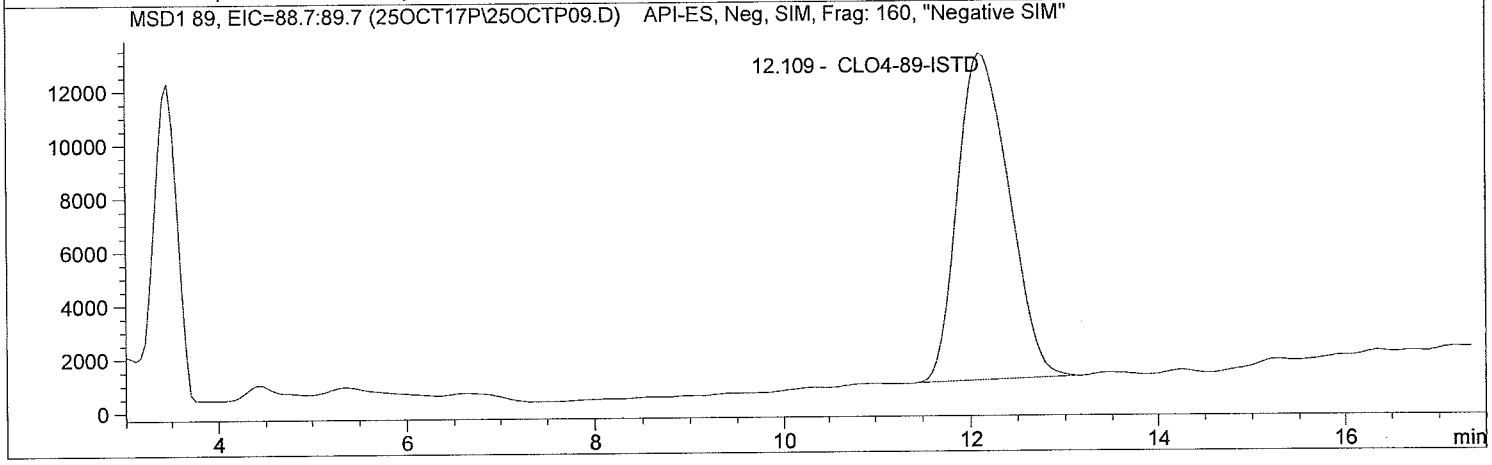
| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 11:43:34 | Seq Line: | 9 |
| Sample Name: | 1728945001 | Location: | Vial 89 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP09.D  Sample Name: 1728945001

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 11:43:34 | Seq Line: | 9 |
| Sample Name: | 1728945001 | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 12.109 | PBA | 460454.9 | 5.0000 | CLO4-89-ISTD |

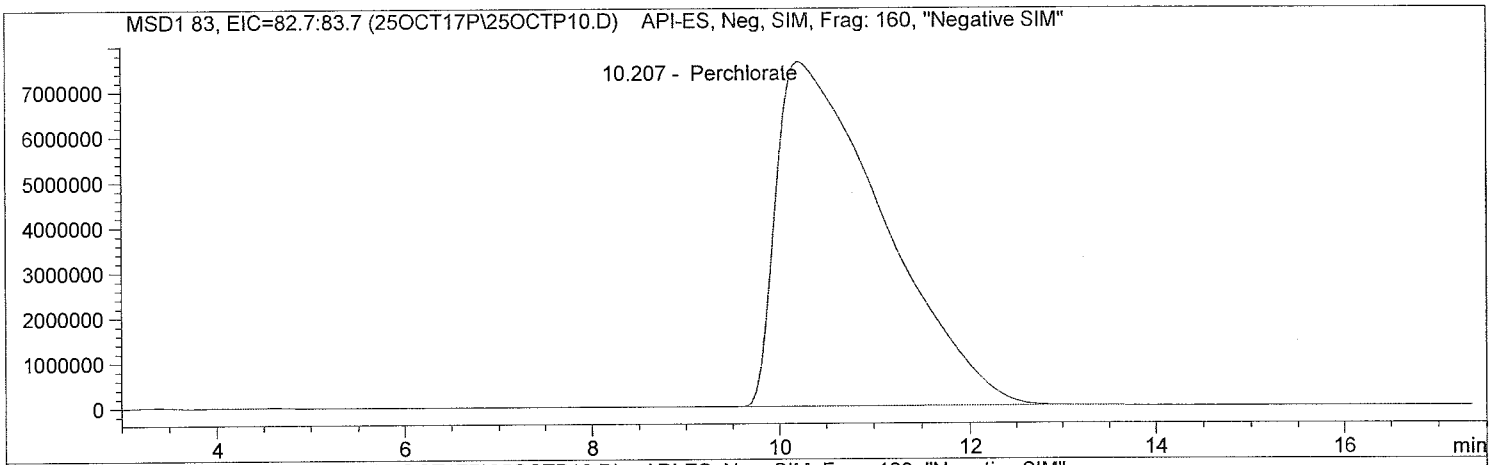
*** End of Report ***

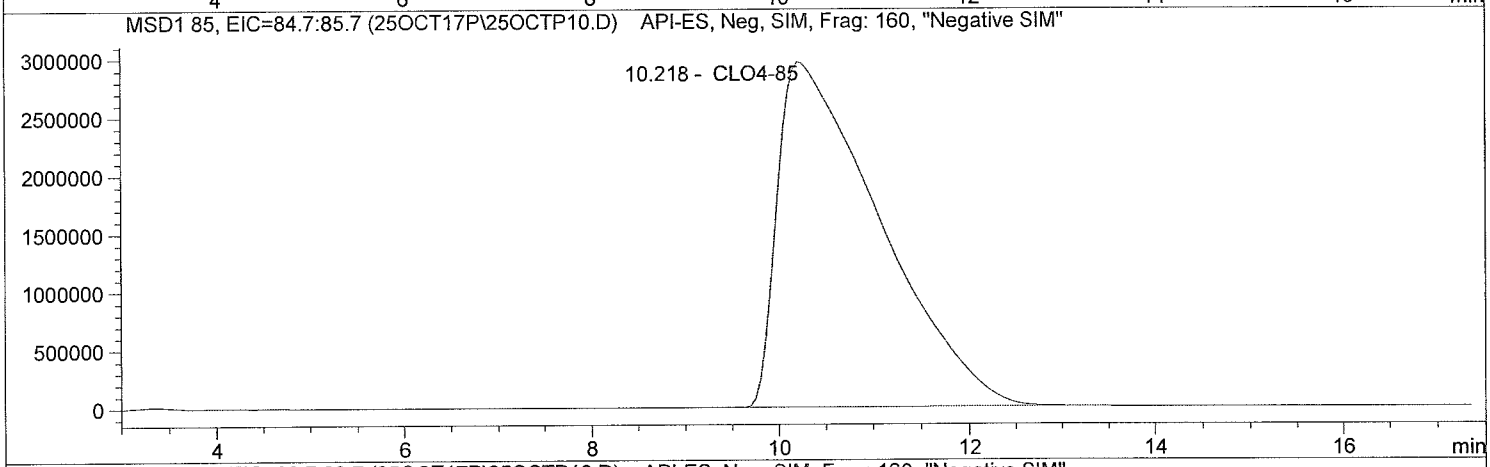
Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP10.D Sample Name: 1728946001

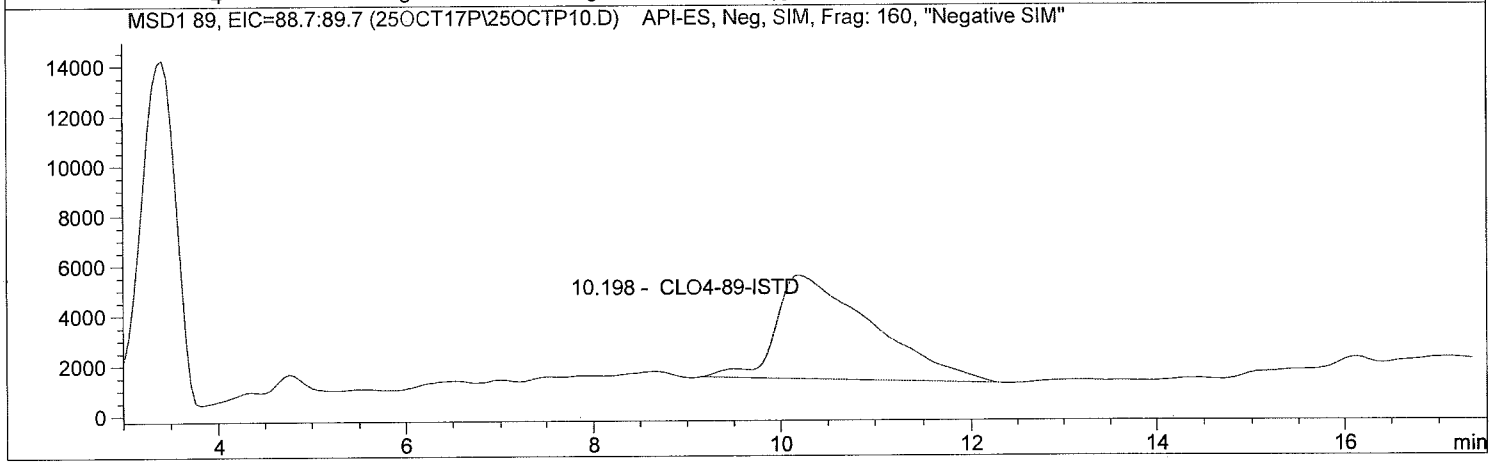
| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 12:02:51 | Seq Line: | 10 |
| Sample Name: | 1728946001 | Location: | Vial 90 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP10.D  Sample Name: 1728946001

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 12:02:51 | Seq Line: | 10 |
| Sample Name: | 1728946001 | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 10.207 | PBA | 598622272.0 | 1043.0336 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 10.218 | PBA | 221715600.0 | 1404.7771 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 10.198 | PBA | 294801.1 | 5.0000 | CLO4-89-ISTD |

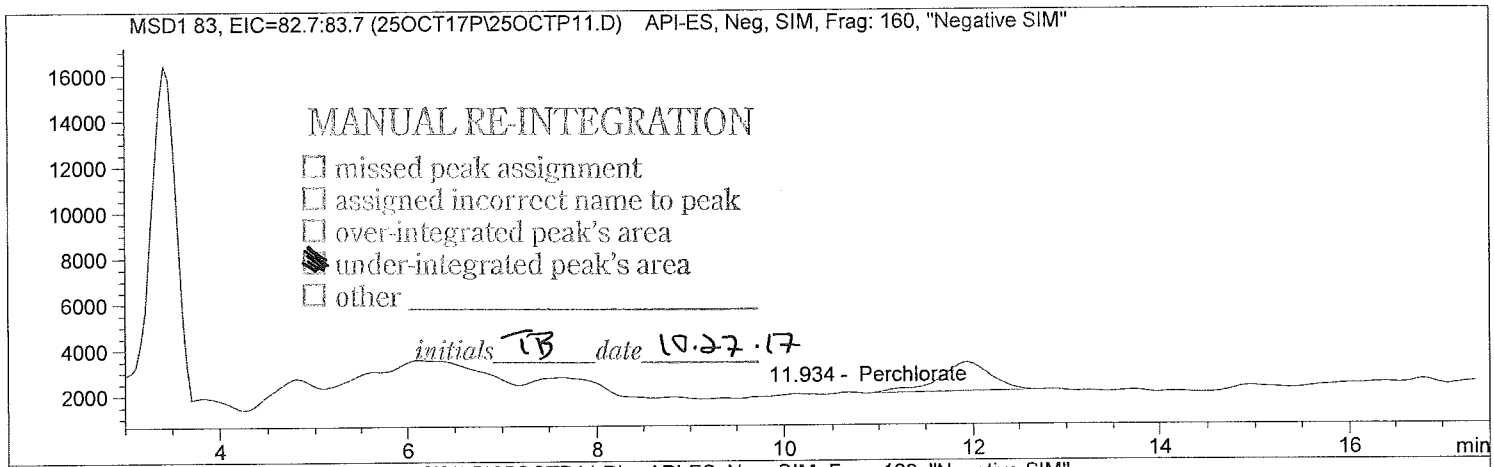
*** End of Report ***

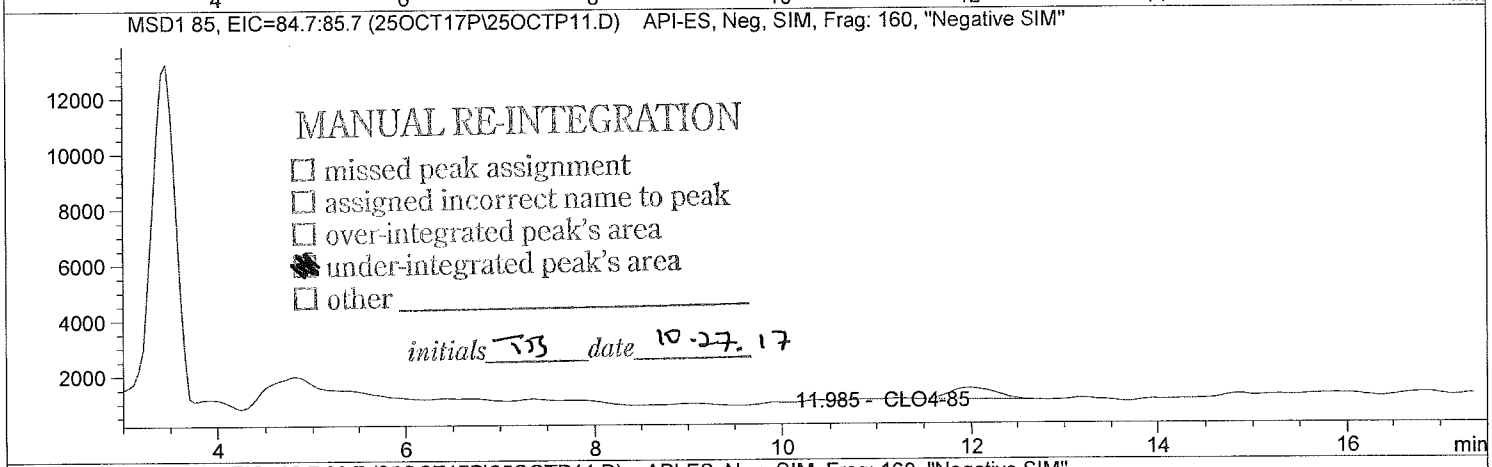
Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP11.D  Sample Name: 1729349001

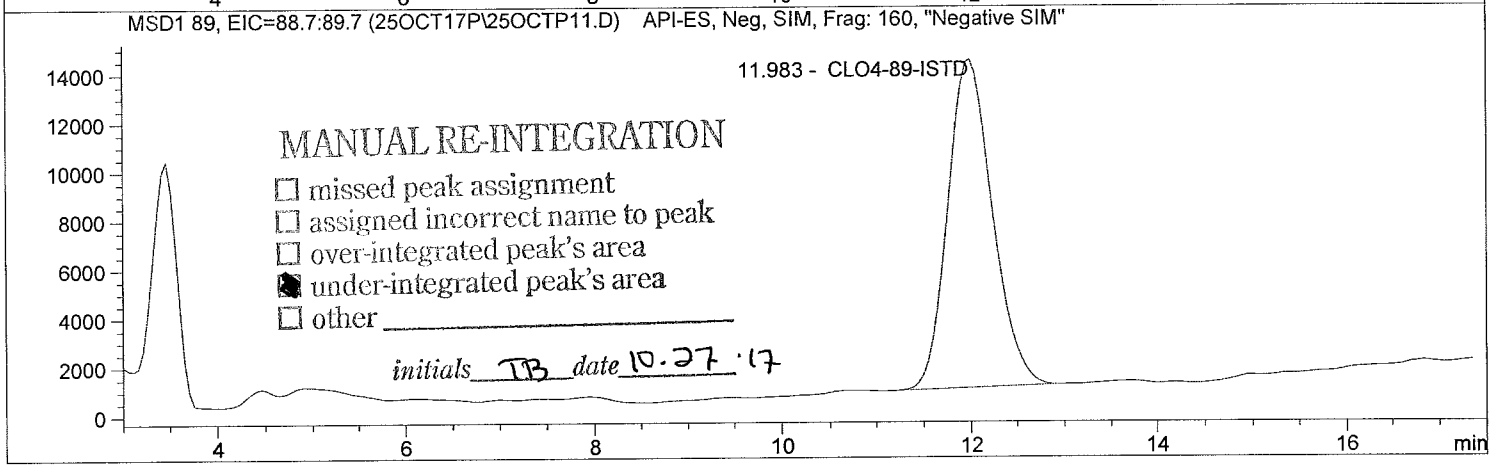
| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 12:22:07 | Seq Line: | 11 |
| Sample Name: | 1729349001 | Location: | Vial 91 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP11.D  Sample Name: 1729349001

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 12:22:07 | Seq Line: | 11 |
| Sample Name: | 1729349001 | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 11.934 | MM | 47998.0 | 0.5039 | Perchlorate |

< RL/MDL

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.985 | MM | 14252.7 | 0.4491 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.983 | MM | 446974.5 | 5.0000 | CLO4-89-ISTD |

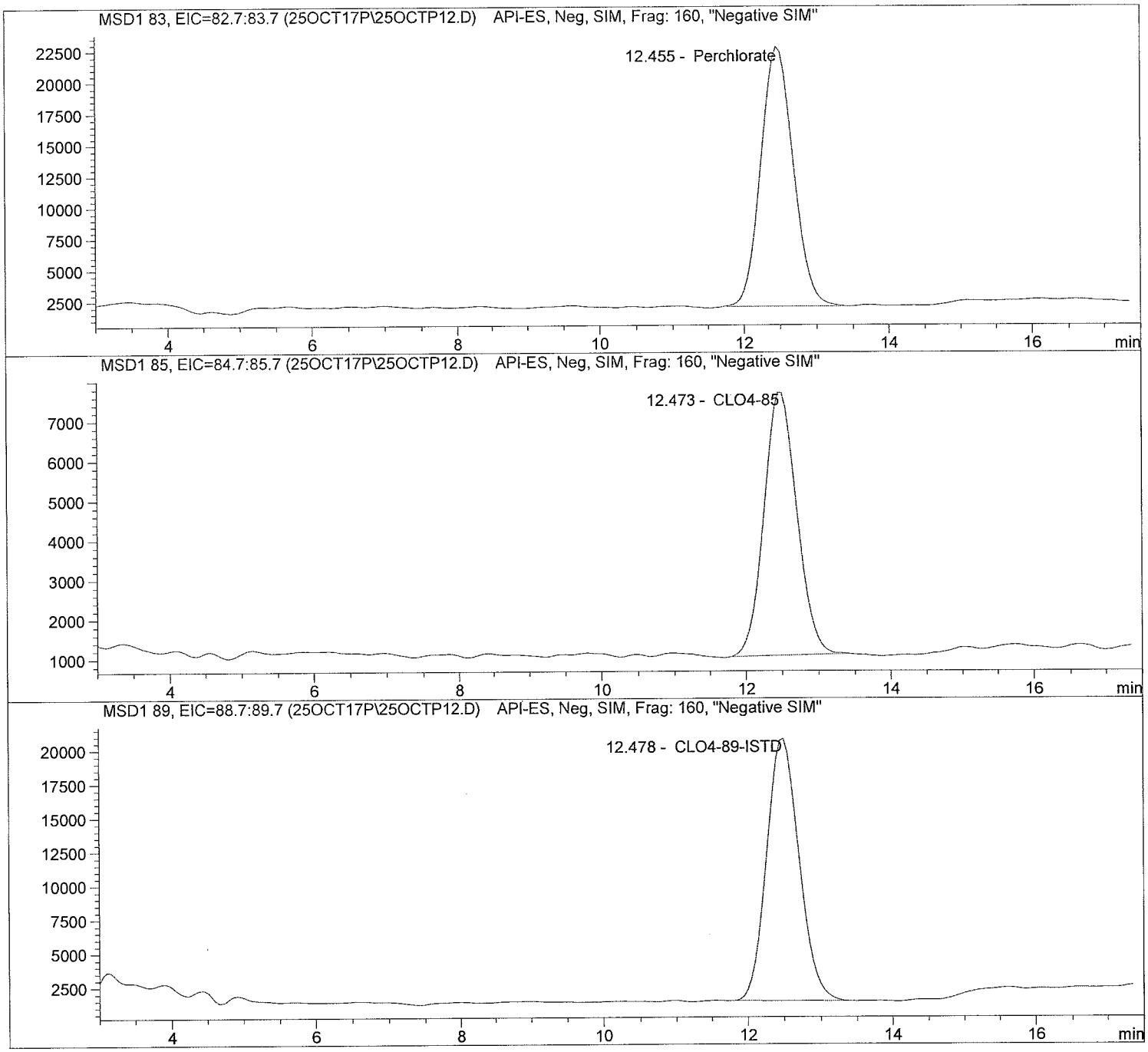
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP12.D  Sample Name: 1728946001  1K

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 12:42:54 | Seq Line: | 12 |
| Sample Name: | 1728946001 1K | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP12.D Sample Name: 1728946001 1K

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 12:42:54 | Seq Line: | 12 |
| Sample Name: | 1728946001 1K | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 12.455 | BBA | 641885.6 | 4805.6841 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.473 | PBA | 207772.7 | 4790.7437 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.478 | BBA | 598771.3 | 5000.0000 | CLO4-89-ISTD |

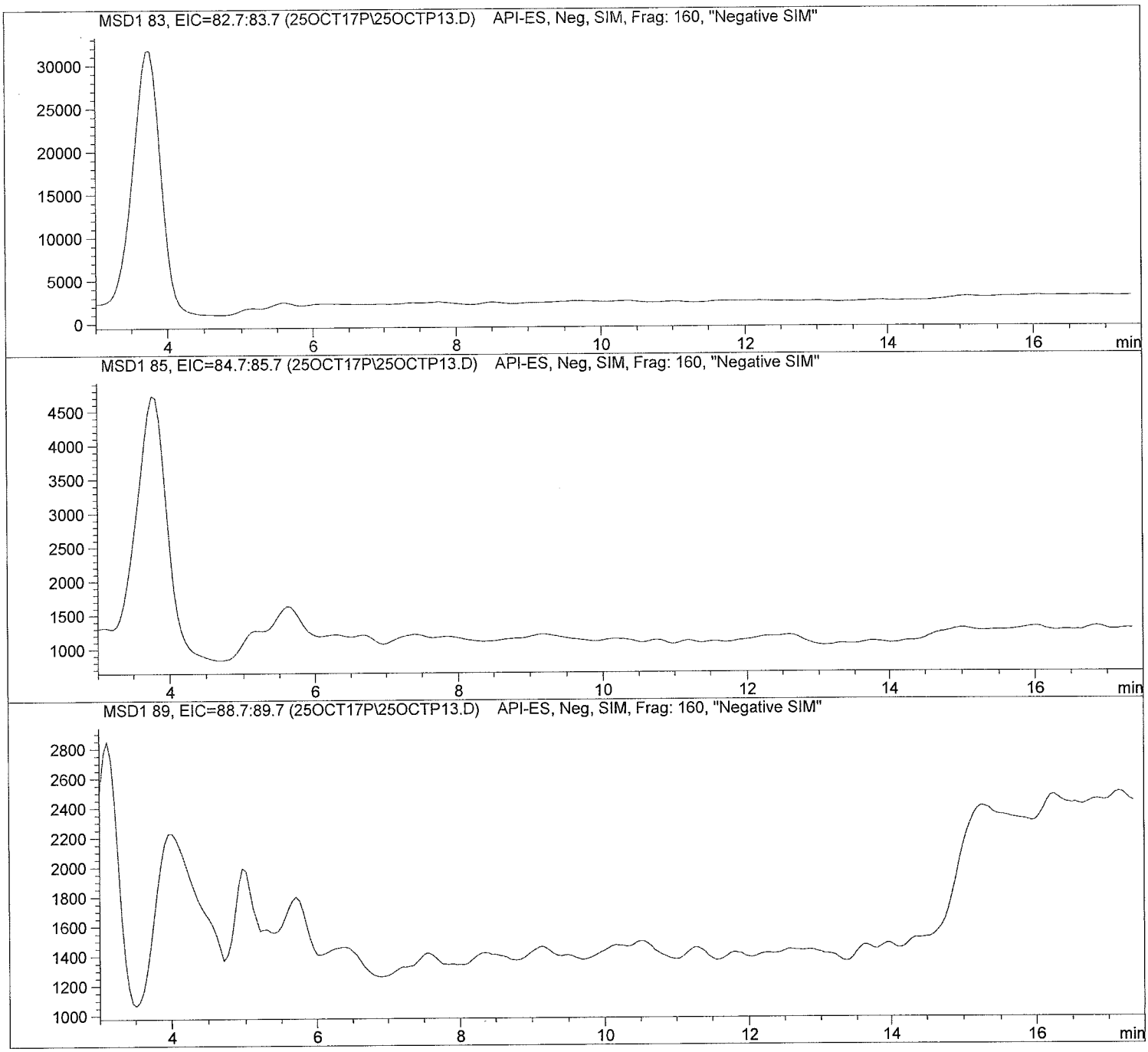
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP13.D  Sample Name: Rinse

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 13:02:08 | Seq Line: | 13 |
| Sample Name: | Rinse | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP13.D  Sample Name: Rinse

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 13:02:08 | Seq Line: | 13 |
| Sample Name: | Rinse | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.000 |

## LCMS Results

Signal1: MSDl 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 |
|---|---|---|---|---|
| 0.000 | | 0.0 | 0.0000 | CLO4-89-ISTD |

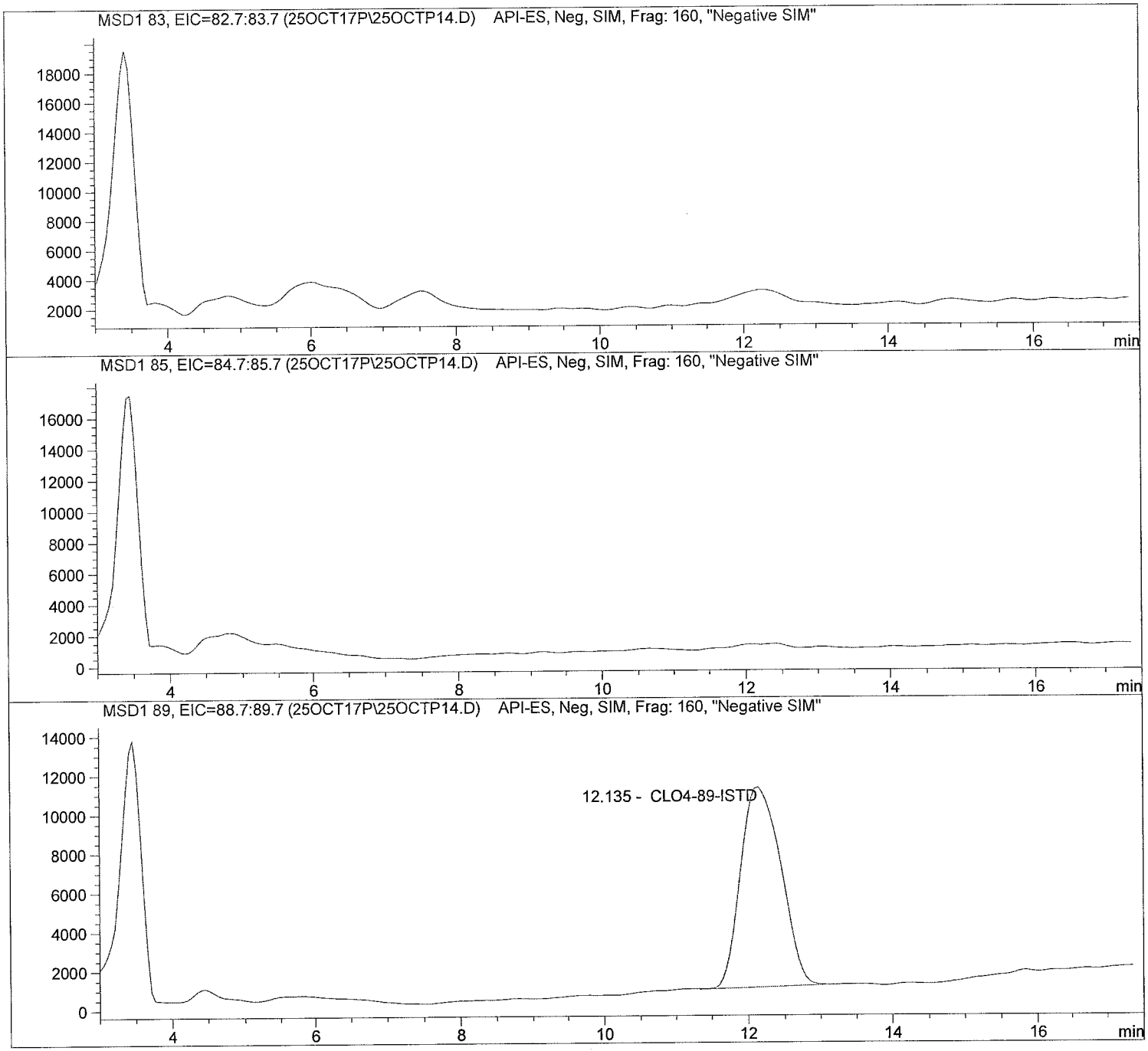
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP14.D  Sample Name: 1729821001

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 13:21:24 | Seq Line: | 14 |
| Sample Name: | 1729821001 | Location: | Vial 92 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP14.D  Sample Name: 1729821001

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 13:21:24 | Seq Line: | 14 |
| Sample Name: | 1729821001 | Location: | Vial 92 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 12.135 | BBA | 392983.3 | 5.0000 | CLO4-89-ISTD |

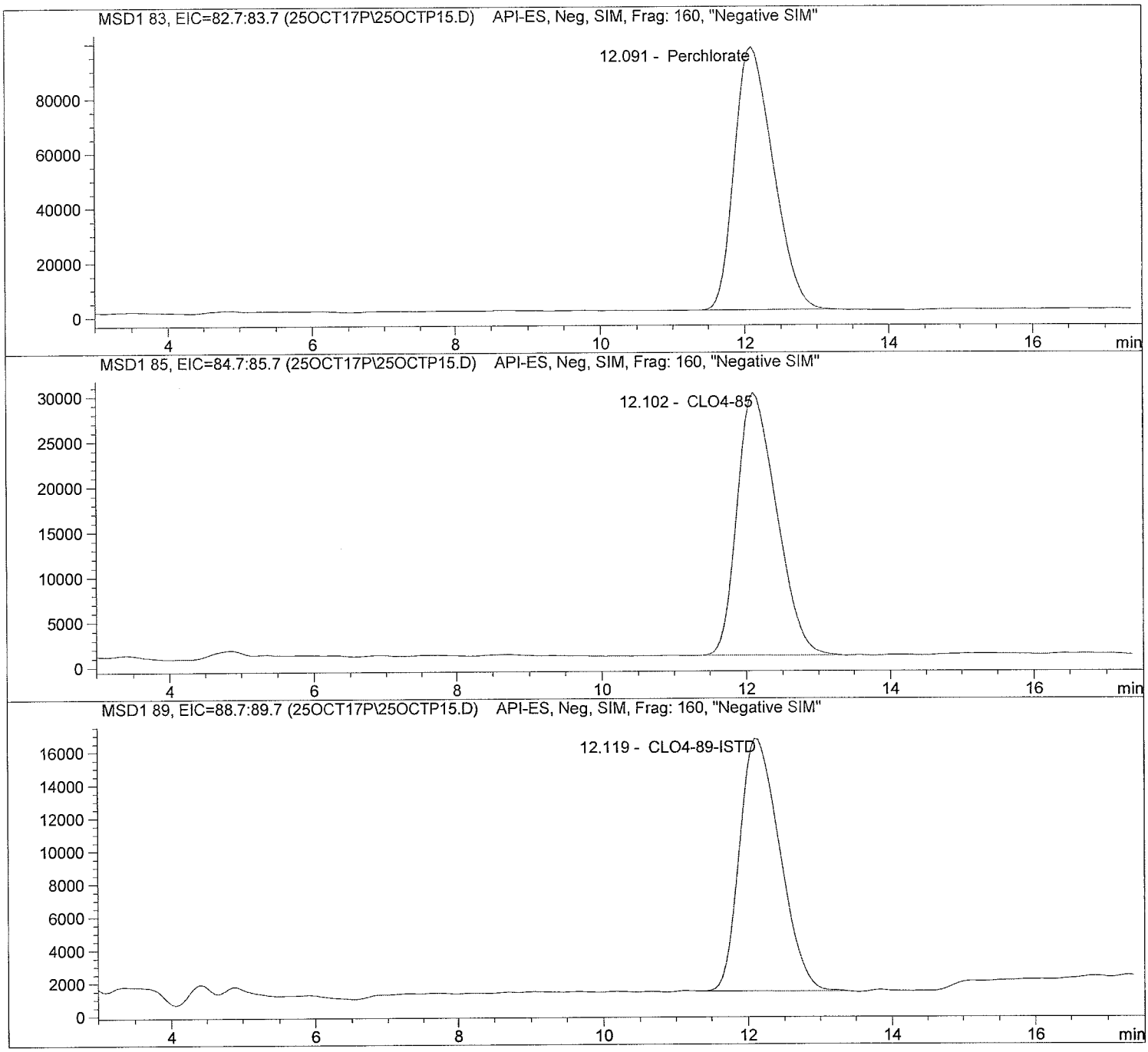
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP15.D  Sample Name: 571101  CCV@25

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 14:46:57 | Seq Line: | 15 |
| Sample Name: | 571101 CCV@25 | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP15.D  Sample Name: 571101  CCV@25

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 14:46:57 | Seq Line: | 15 |
| Sample Name: | 571101 CCV@25 | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 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 |
|---|---|---|---|---|
| 12.091 | BBA | 3560409.2 | 23.8177 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.102 | PBA | 1092944.3 | 23.6862 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.119 | BBA | 586464.6 | 5.0000 | CLO4-89-ISTD |

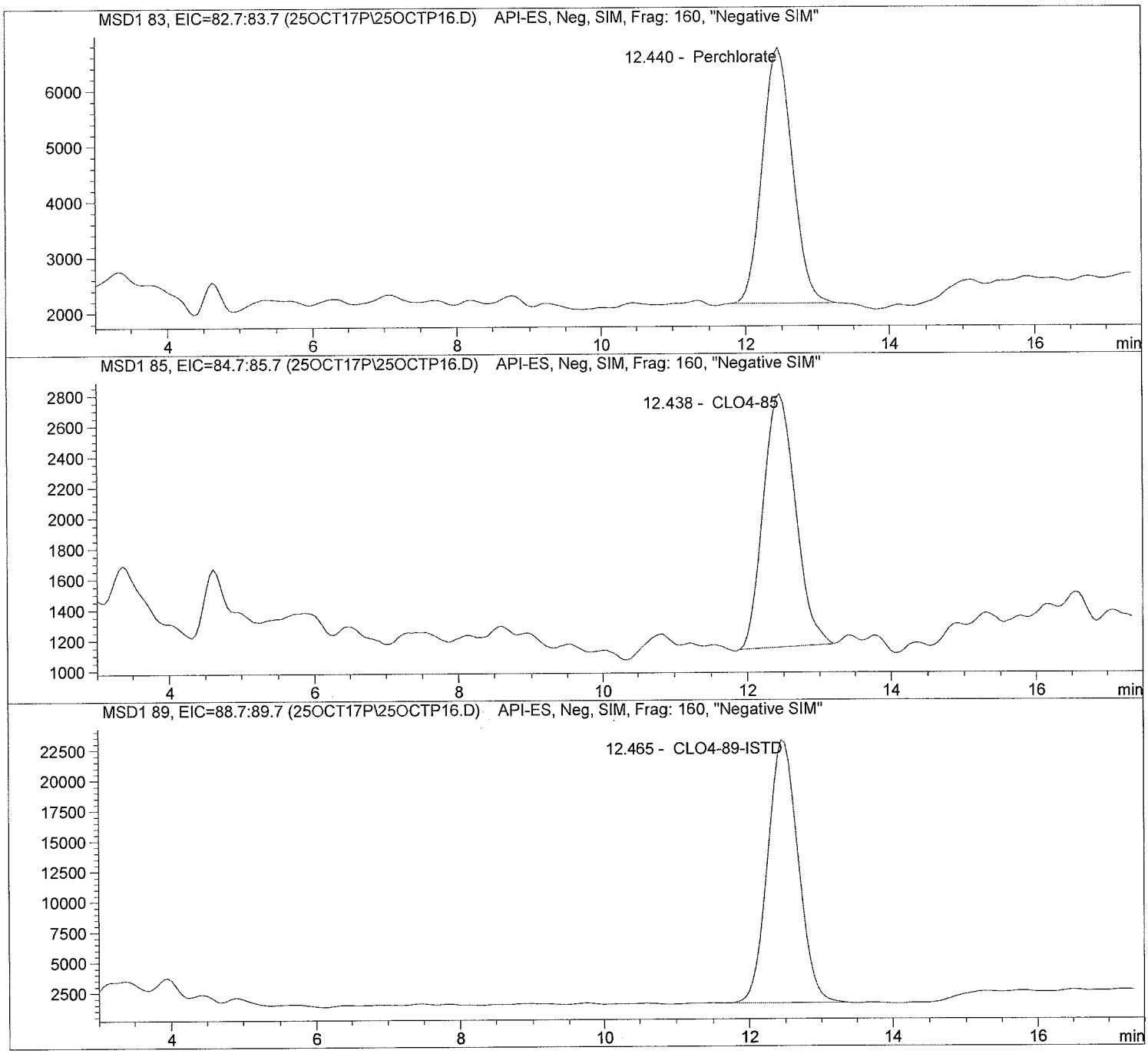
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP16.D  Sample Name: 571102  LODV@1.

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 15:06:11 | Seq Line: | 16 |
| Sample Name: | 571102 LODV@1. | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP16.D  Sample Name: 571102  LODV@1.

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 15:06:11 | Seq Line: | 16 |
| Sample Name: | 571102 LODV@1. | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 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 |
|---|---|---|---|---|
| 12.440 | PBA | 132751.2 | 0.9676 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.438 | PBA | 51323.1 | 1.1313 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.465 | BBA | 636963.2 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

# Raw Data

## Initial Calibration

Batch Report: C:\HPCHEM\1\DATA\21AUG17P\21AUG17P.B

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-PR3.M

['#' ==> Run has not been reprocessed with Batch Review Method
'*' ==> Run has been saved with batch file]

| # | Sample Location | Inj | SampleType | Run | CLO4-85 Area | CLO4-85 RT | CLO4-85 Amount |
|---|---|---|---|---|---|---|---|
| * | ICAL1@ .05ug/L Vial 71 | 1 | Control | 1 | 4365.90820 | 12.226 | 9.14000e-2 |
| * | ICAL2@ .10ug/L Vial 72 | 1 | Control | 2 | 9514.03027 | 12.210 | 2.01141e-1 |
| * | ICAL3@ .20ug/L Vial 73 | 1 | Control | 3 | 1.35331e4 | 12.236 | 2.88584e-1 |
| * | ICAL4@ 0.5ug/L Vial 74 | 1 | Control | 4 | 2.76171e4 | 12.161 | 5.95393e-1 |
| * | ICAL5@ 1.0ug/L Vial 75 | 1 | Control | 5 | 4.75097e4 | 12.226 | 1.01731 |
| * | ICAL6@ 5.0ug/L Vial 76 | 1 | Control | 6 | 2.30426e5 | 12.209 | 5.01082 |
| * | ICAL7@ 10.ug/L Vial 77 | 1 | Control | 7 | 4.46570e5 | 12.212 | 9.64041 |
| * | ICAL8@ 25.ug/L Vial 78 | 1 | Control | 8 | 1.19993e6 | 12.134 | 25.19412 |
| * | ICAL9@ 50.ug/L Vial 79 | 1 | Control | 9 | 2.60933e6 | 12.150 | 49.96977 |
| * | ICAL Verf@10ug/L Vial 80 | 1 | Control | 10 | 4.49703e5 | 12.232 | 9.41499 |

| # | Sample Location | Inj | SampleType | Run | Perchlorate Area | Perchlorate RT | Perchlorate Amount |
|---|---|---|---|---|---|---|---|
| * | ICAL1@ .05ug/L Vial 71 | 1 | Control | 1 | 8930.38184 | 12.237 | 6.88583e-2 |
| * | ICAL2@ .10ug/L Vial 72 | 1 | Control | 2 | 1.15052e4 | 12.248 | 8.73938e-2 |
| * | ICAL3@ .20ug/L Vial 73 | 1 | Control | 3 | 2.62111e4 | 12.238 | 1.91166e-1 |
| * | ICAL4@ 0.5ug/L Vial 74 | 1 | Control | 4 | 6.28912e4 | 12.159 | 4.52946e-1 |
| * | ICAL5@ 1.0ug/L Vial 75 | 1 | Control | 5 | 1.30706e5 | 12.231 | 9.25591e-1 |
| * | ICAL6@ 5.0ug/L Vial 76 | 1 | Control | 6 | 6.80205e5 | 12.200 | 4.80762 |
| * | ICAL7@ 10.ug/L Vial 77 | 1 | Control | 7 | 1.41057e6 | 12.196 | 9.74126 |
| * | ICAL8@ 25.ug/L Vial 78 | 1 | Control | 8 | 4.00474e6 | 12.118 | 25.78802 |
| * | ICAL9@ 50.ug/L Vial 79 | 1 | Control | 9 | 8.85683e6 | 12.137 | 49.73658 |
| * | ICAL Verf@10ug/L Vial 80 | 1 | Control | 10 | 1.36065e6 | 12.218 | 9.14332 |

| # | Sample Location | Inj | SampleType | Run | CLO4-89-ISTD Area | CLO4-89-ISTD RT | CLO4-89-ISTD Amount |
|---|---|---|---|---|---|---|---|
| * | ICAL1@ .05ug/L Vial 71 | 1 | Control | 1 | 6.73943e5 | 12.272 | 5.00000 |
| * | ICAL2@ .10ug/L Vial 72 | 1 | Control | 2 | 6.67016e5 | 12.250 | 5.00000 |
| * | ICAL3@ .20ug/L Vial 73 | 1 | Control | 3 | 6.61031e5 | 12.267 | 5.00000 |
| * | ICAL4@ 0.5ug/L Vial 74 | 1 | Control | 4 | 6.52904e5 | 12.190 | 5.00000 |
| * | ICAL5@ 1.0ug/L Vial 75 | 1 | Control | 5 | 6.56071e5 | 12.242 | 5.00000 |
| * | ICAL6@ 5.0ug/L Vial 76 | 1 | Control | 6 | 6.34251e5 | 12.221 | 5.00000 |
| * | ICAL7@ 10.ug/L Vial 77 | 1 | Control | 7 | 6.25689e5 | 12.216 | 5.00000 |
| * | ICAL8@ 25.ug/L Vial 78 | 1 | Control | 8 | 6.01523e5 | 12.141 | 5.00000 |
| * | ICAL9@ 50.ug/L Vial 79 | 1 | Control | 9 | 5.97661e5 | 12.156 | 5.00000 |
| * | ICAL Verf@10ug/L Vial 80 | 1 | Control | 10 | 6.45815e5 | 12.234 | 5.00000 |

*** End of Report ***

Method C:\HPCHEM\1\METHODS\CLO4-PR3.M

## Calibration Table

Perchlorate

Calib. Data Modified : 8/21/2017 2:55:52 PM

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 |
|---|---|---|---|---|---|---|---|---|
| 12.226 | 2 | 1 | 5.00000e-2 | 4365.90820 | 1.14524e-5 | | 1 | CLO4-85 |
| | | 2 | 1.00000e-1 | 9514.03027 | 1.05108e-5 | | | |
| | | 3 | 2.00000e-1 | 1.35331e4 | 1.47786e-5 | | | |
| | | 4 | 5.00000e-1 | 2.76171e4 | 1.81047e-5 | | | |
| | | 5 | 1.00000 | 4.75097e4 | 2.10483e-5 | | | |
| | | 6 | 5.00000 | 2.30426e5 | 2.16990e-5 | | | |
| | | 7 | 10.00000 | 4.46570e5 | 2.23929e-5 | | | |
| | | 8 | 25.00000 | 1.19993e6 | 2.08345e-5 | | | |
| | | 9 | 50.00000 | 2.60933e6 | 1.91620e-5 | | | |
| 12.237 | 1 | 1 | 5.00000e-2 | 8930.38184 | 5.59886e-6 | | 1 | Perchlorate |
| | | 2 | 1.00000e-1 | 1.15052e4 | 8.69173e-6 | | | |
| | | 3 | 2.00000e-1 | 2.62111e4 | 7.63037e-6 | | | |
| | | 4 | 5.00000e-1 | 6.28912e4 | 7.95024e-6 | | | |
| | | 5 | 1.00000 | 1.30706e5 | 7.65074e-6 | | | |
| | | 6 | 5.00000 | 6.80205e5 | 7.35073e-6 | | | |
| | | 7 | 10.00000 | 1.41057e6 | 7.08933e-6 | | | |
| | | 8 | 25.00000 | 4.00474e6 | 6.24259e-6 | | | |
| | | 9 | 50.00000 | 8.85683e6 | 5.64536e-6 | | | |
| 12.272 | 3 | 1 | 5.00000 | 6.73943e5 | 7.41903e-6 | +I1 | | CLO4-89-ISTD |
| | | 2 | 5.00000 | 6.67016e5 | 7.49607e-6 | | | |

Method C:\HPCHEM\1\METHODS\CLO4-PR3.M

| RetTime [min] | Lvl Sig | Amount | Area | Amt/Area | Ref | Grp | Name |
|---|---|---|---|---|---|---|---|
| | 3 | 5.00000 | 6.61031e5 | 7.56394e-6 | | | |
| | 4 | 5.00000 | 6.52904e5 | 7.65809e-6 | | | |
| | 5 | 5.00000 | 6.56071e5 | 7.62113e-6 | | | |
| | 6 | 5.00000 | 6.34251e5 | 7.88331e-6 | | | |
| | 7 | 5.00000 | 6.25689e5 | 7.99119e-6 | | | |
| | 8 | 5.00000 | 6.01523e5 | 8.31223e-6 | | | |
| | 9 | 5.00000 | 5.97661e5 | 8.36594e-6 | | | |

More compound-specific settings:

Compound: CLO4-85
- Time Window : From 10.676 min To 13.166 min
- Curve Type : Quadratic
- Origin : Forced
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 1
  - Level 3 : 1
  - Level 4 : 1
  - Level 5 : 1
  - Level 6 : 1
  - Level 7 : 1
  - Level 8 : 1
  - Level 9 : 1

Compound: Perchlorate
- Time Window : From 10.737 min To 13.198 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 0.5
  - Level 3 : 0.25
  - Level 4 : 0.1
  - Level 5 : 0.05
  - Level 6 : 0.01
  - Level 7 : 0.005
  - Level 8 : 0.002
  - Level 9 : 0.001

Compound: CLO4-89-ISTD
- Time Window : From 10.704 min To 13.272 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
  - Level 8 : 1
  - Level 9 : 1

==========

Peak Sum Table

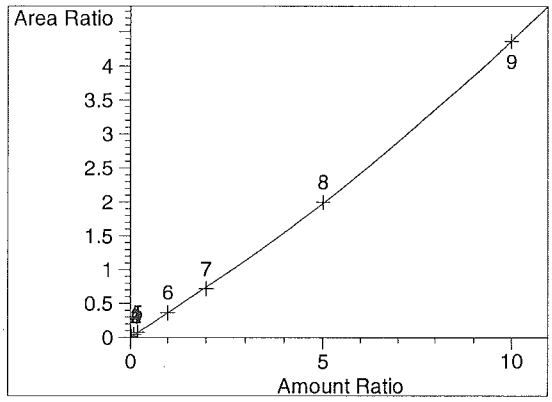
==========

***No Entries in table***

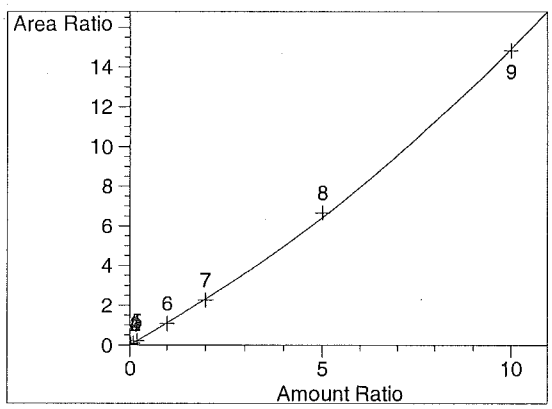
==========

Method C:\HPCHEM\1\METHODS\CLO4-PR3.M

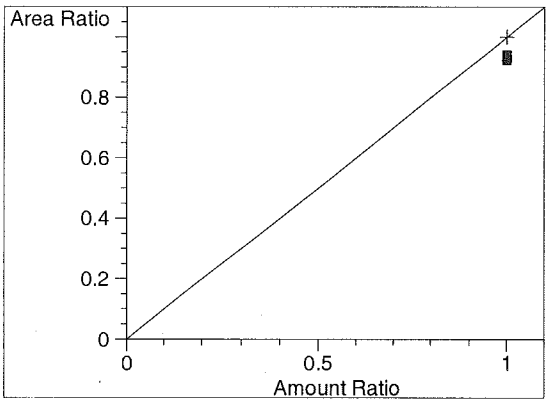
## Calibration Curves




CLO4-85 at exp. RT: 12.226
MSD1 85, EIC=84.7:85.7
Correlation: 0.99997
Residual Std. Dev.: 0.01235
Formula: $y = ax^2 + bx$
a: 8.26698e-3
b: 3.54234e-1
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
Level 8 : 1
Level 9 : 1




Perchlorate at exp. RT: 12.237
MSD1 83, EIC=82.7:83.7
Correlation: 0.99970
Residual Std. Dev.: 0.10168
Formula: $y = ax^2 + bx + c$
a: 4.14991e-2
b: 1.07712
c: -1.59065e-3
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.5
Level 3 : 0.25
Level 4 : 0.1
Level 5 : 0.05
Level 6 : 0.01
Level 7 : 0.005
Level 8 : 0.002
Level 9 : 0.001




CLO4-89-ISTD at exp. RT: 12.272
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
Level 8 : 1
Level 9 : 1

Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2017\AUG\21AUG17P.S

Sequence Table:

Method and Injection Info Part:

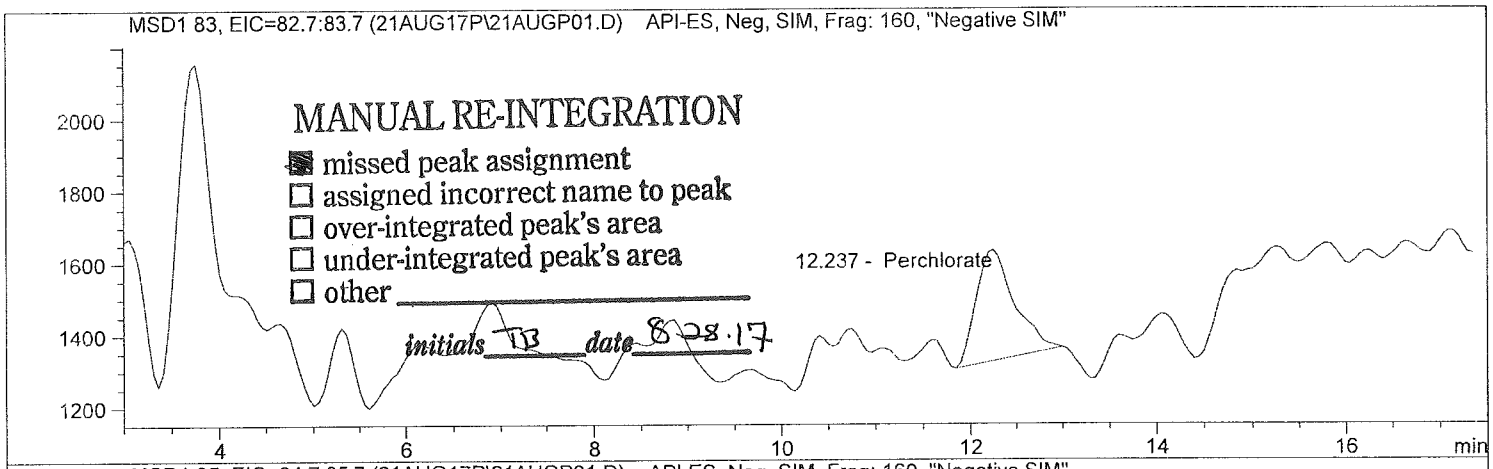
| Line | Location | SampleName | Method | Inj | SampleType | InjVolume | DataFile |
|---|---|---|---|---|---|---|---|
| 1 | Vial 71 | ICAL1@ .05ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 2 | Vial 72 | ICAL2@ .10ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 3 | Vial 73 | ICAL3@ .20ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 4 | Vial 74 | ICAL4@ 0.5ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 5 | Vial 75 | ICAL5@ 1.0ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 6 | Vial 76 | ICAL6@ 5.0ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 7 | Vial 77 | ICAL7@ 10.ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 8 | Vial 78 | ICAL8@ 25.ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 9 | Vial 79 | ICAL9@ 50.ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 10 | Vial 80 | ICAL Verf@10ug/L | CLO4-AQN | 1 | Ctrl Samp | | |

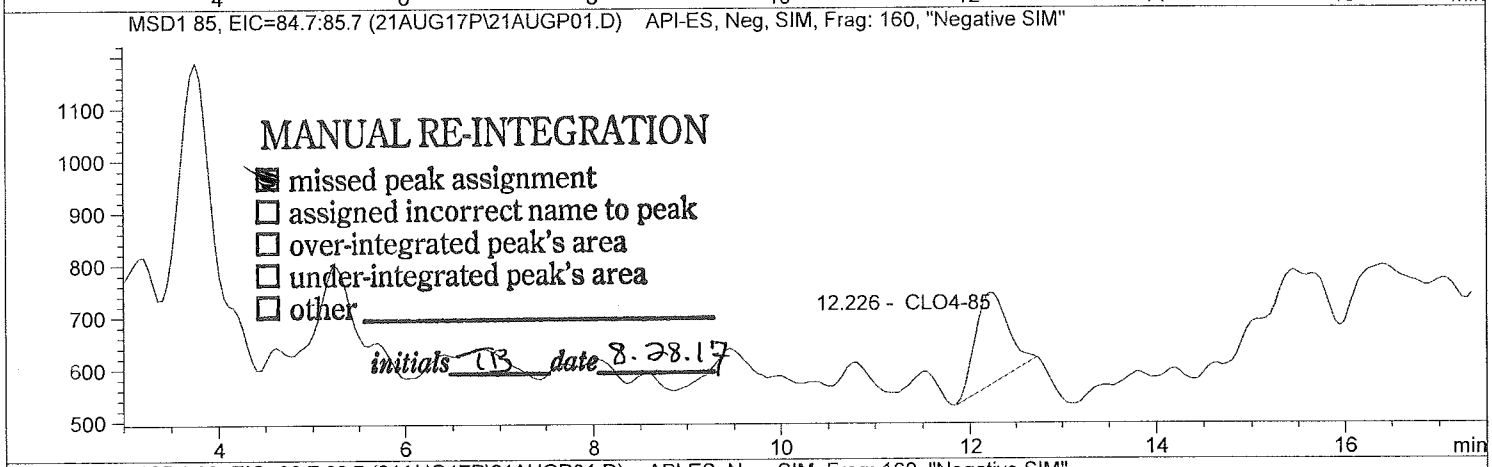
Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP01.D  Sample Name: ICAL1@ .05ug/L

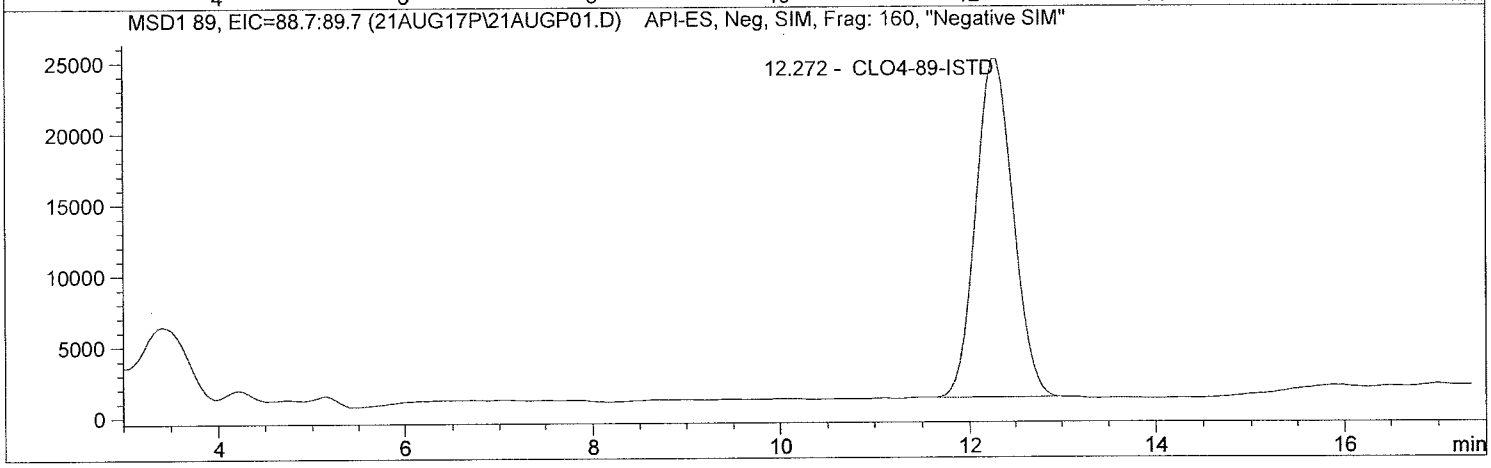
| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 09:42:32 | Seq Line: | 1 |
| Sample Name: | ICAL1@ .05ug/L | Location: | Vial 71 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP01.D  Sample Name: ICAL1@ .05ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 09:42:32 | Seq Line: | 1 |
| Sample Name: | ICAL1@ .05ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis

## Sample Information

Sorted By: Signal
Calib. Data Modified: Mon, 21. Aug. 2017,02:55:52 pm
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.050

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.237 | MM | 8930.4 | 0.0689 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.226 | MM | 4365.9 | 0.0914 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.272 | BBA | 673942.9 | 5.0000 | CLO4-89-ISTD |

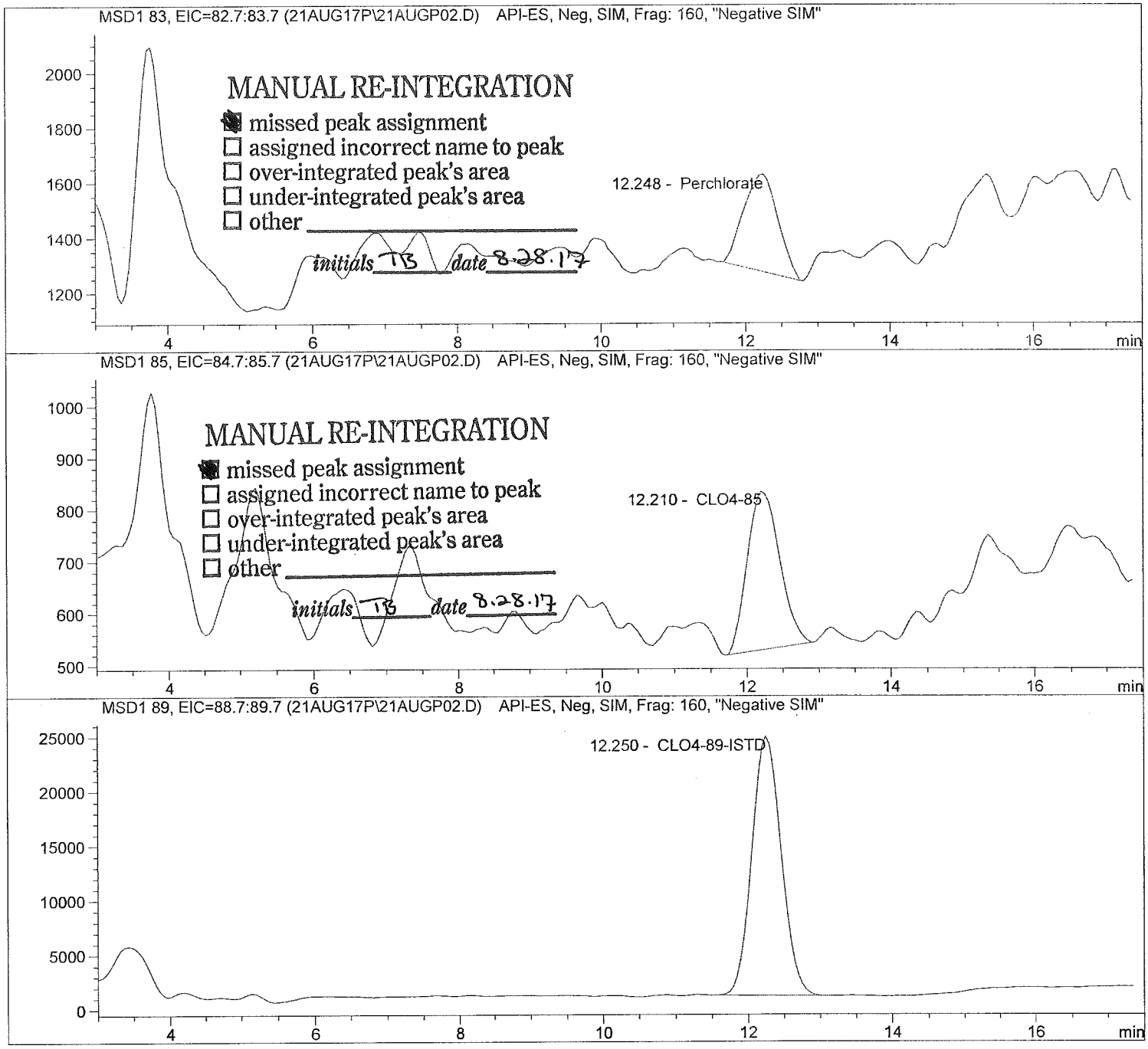
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP02.D  Sample Name: ICAL2@ .10ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:01:47 | Seq Line: | 2 |
| Sample Name: | ICAL2@ .10ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP02.D  Sample Name: ICAL2@ .10ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:01:47 | Seq Line: | 2 |
| Sample Name: | ICAL2@ .10ug/L | 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-PR3.M |
| Last Changed: | 8/21/2017 14:55:53 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.100 |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.248 | MM | 11505.2 | 0.0874 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.210 | MM | 9514.0 | 0.2011 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.250 | BBA | 667016.3 | 5.0000 | CLO4-89-ISTD |

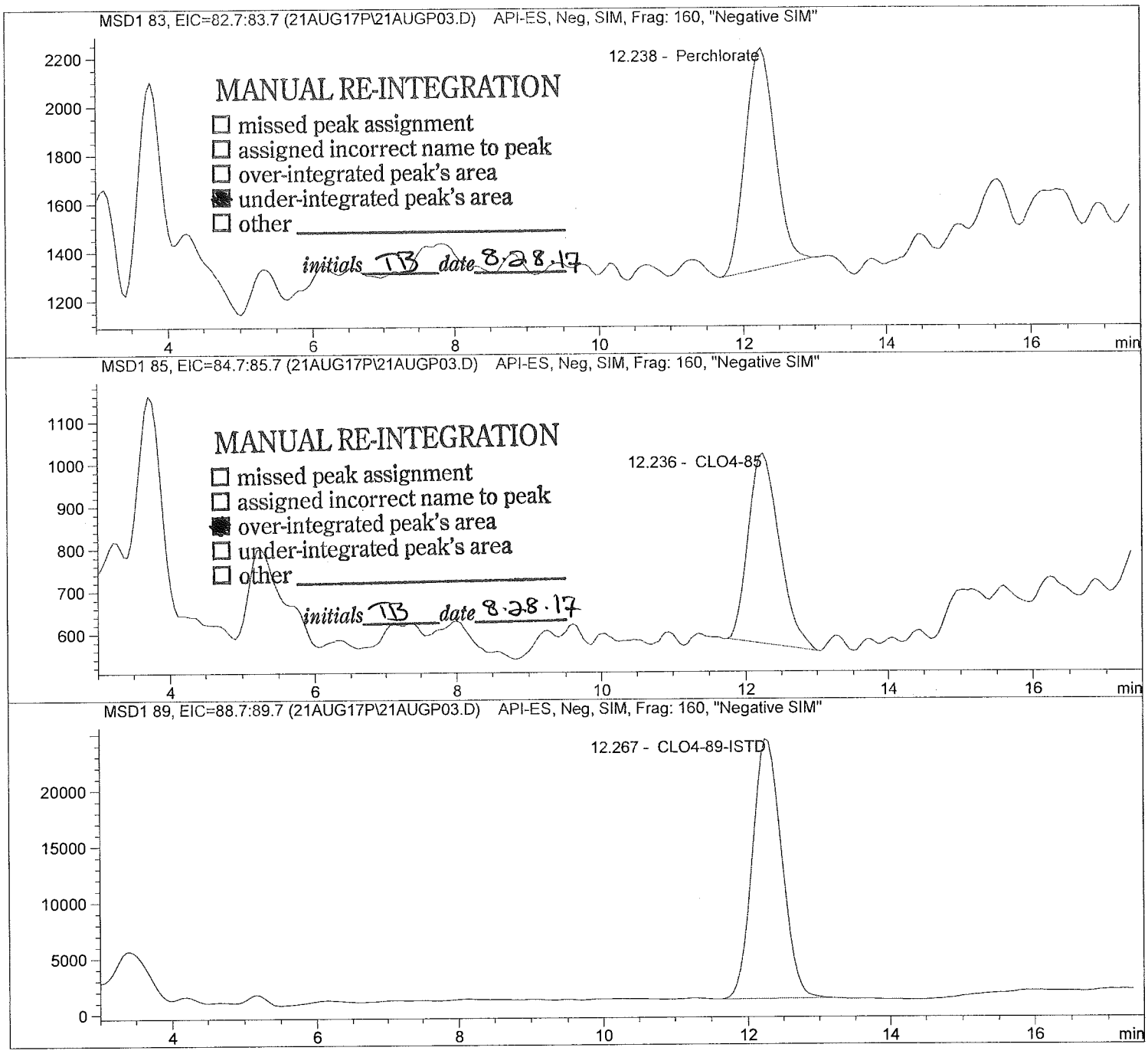
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP03.D  Sample Name: ICAL3@ .20ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:21:02 | Seq Line: | 3 |
| Sample Name: | ICAL3@ .20ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP03.D Sample Name: ICAL3@ .20ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:21:02 | Seq Line: | 3 |
| Sample Name: | ICAL3@ .20ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.200 |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.238 | MM | 26211.1 | 0.1912 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.236 | MM | 13533.1 | 0.2886 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.267 | PBA | 661030.8 | 5.0000 | CLO4-89-ISTD |

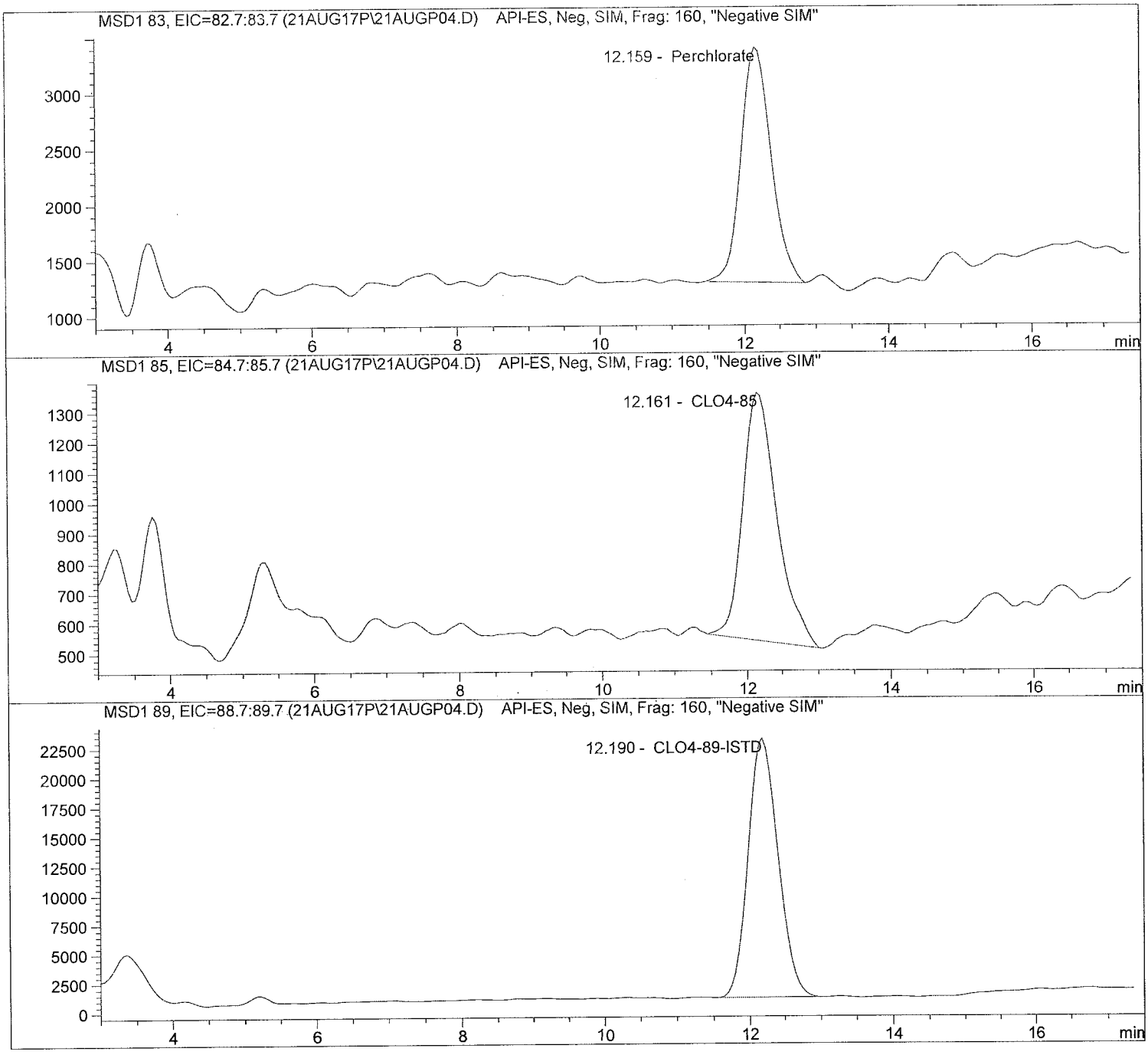
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP04.D  Sample Name: ICAL4@ 0.5ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:40:22 | Seq Line: | 4 |
| Sample Name: | ICAL4@ 0.5ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP04.D  Sample Name: ICAL4@ 0.5ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:40:22 | Seq Line: | 4 |
| Sample Name: | ICAL4@ 0.5ug/L | 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-PR3.M |
| Last Changed: | 8/21/2017 14:55:53 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.500 |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.159 | BBA | 62891.2 | 0.4529 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.161 | PBA | 27617.1 | 0.5954 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.190 | PBA | 652904.1 | 5.0000 | CLO4-89-ISTD |

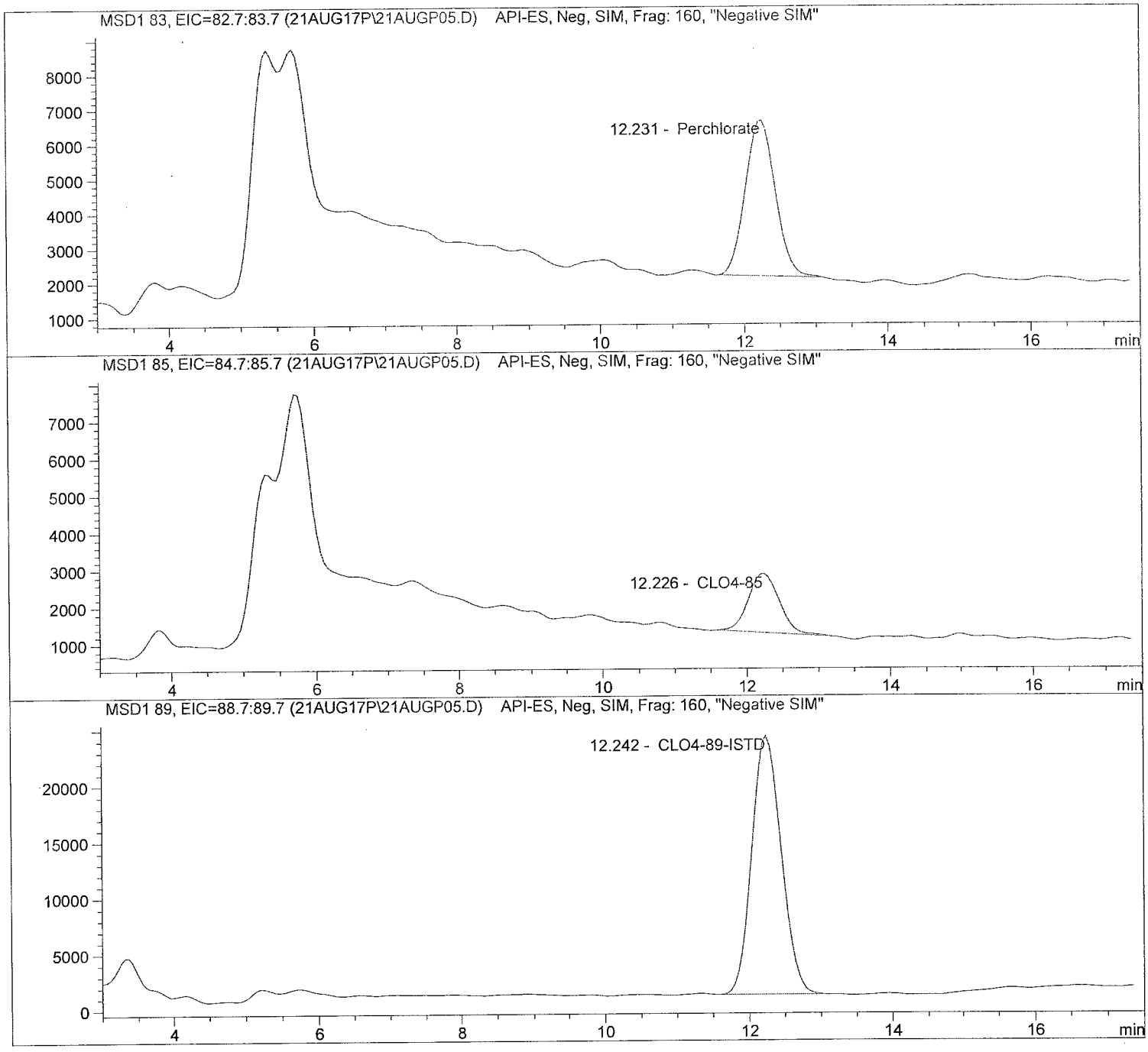
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP05.D  Sample Name: ICAL5@ 1.0ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:59:36 | Seq Line: | 5 |
| Sample Name: | ICAL5@ 1.0ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP05.D  Sample Name: ICAL5@ 1.0ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:59:36 | Seq Line: | 5 |
| Sample Name: | ICAL5@ 1.0ug/L | 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-PR3.M |
| Last Changed: | 8/21/2017 14:55:53 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| 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 |
|---|---|---|---|---|
| 12.231 | PBA | 130706.3 | 0.9256 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.226 | PBA | 47509.7 | 1.0173 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.242 | PBA | 656070.7 | 5.0000 | CLO4-89-ISTD |

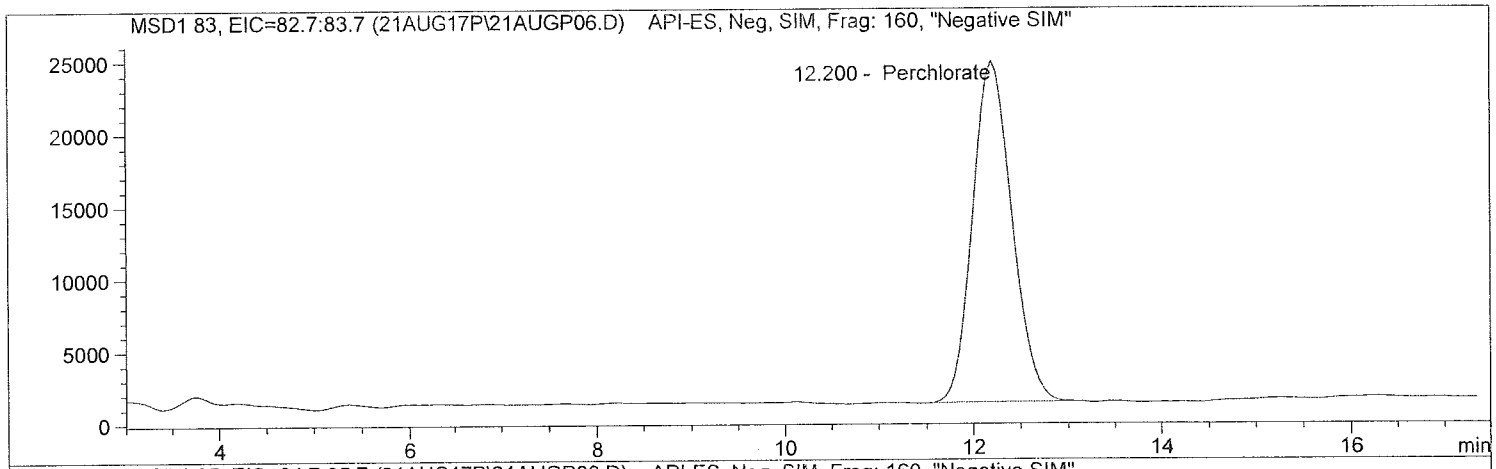
*** End of Report ***

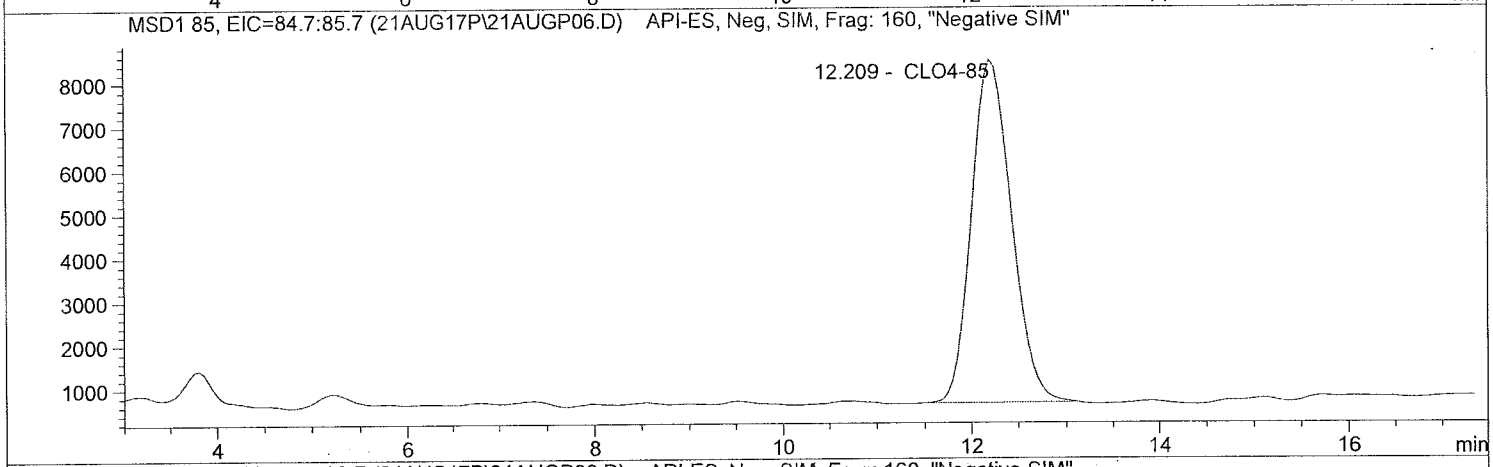
Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP06.D  Sample Name: ICAL6@ 5.0ug/L

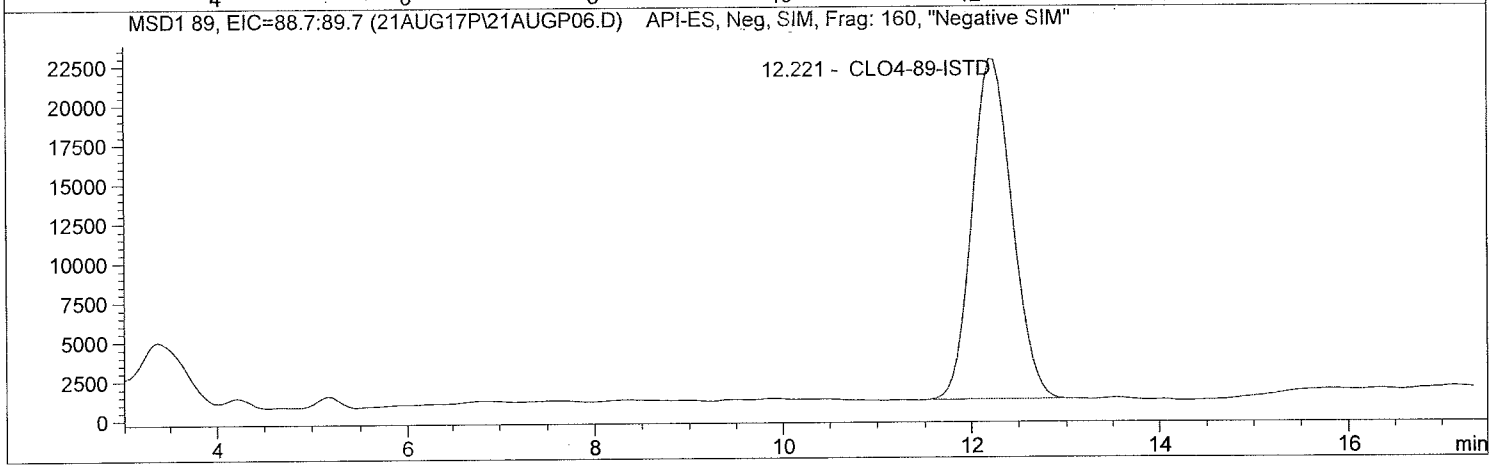
| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 11:18:53 | Seq Line: | 6 |
| Sample Name: | ICAL6@ 5.0ug/L | Location: | Vial 76 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP06.D  Sample Name: ICAL6@ 5.0ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 11:18:53 | Seq Line: | 6 |
| Sample Name: | ICAL6@ 5.0ug/L | 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-PR3.M |
| Last Changed: | 8/21/2017 14:55:53 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| 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 |
|---|---|---|---|---|
| 12.200 | PBA | 680204.6 | 4.8076 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.209 | BBA | 230425.8 | 5.0108 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.221 | BBA | 634251.4 | 5.0000 | CLO4-89-ISTD |

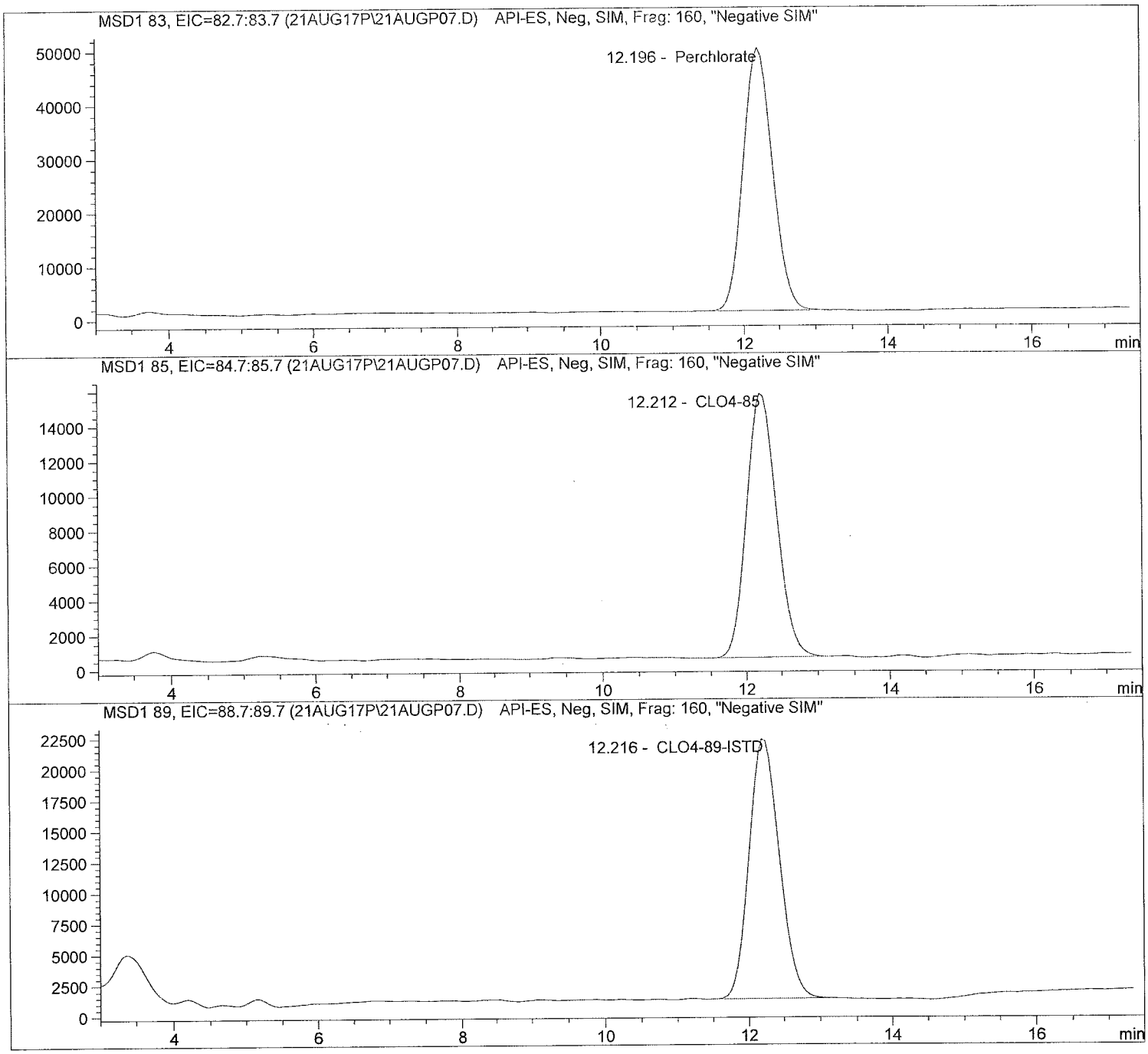
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP07.D  Sample Name: ICAL7@ 10.ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 11:38:12 | Seq Line: | 7 |
| Sample Name: | ICAL7@ 10.ug/L | 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-PR3.M |
| Last Changed: | 8/21/2017 14:55:53 |

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP07.D  Sample Name: ICAL7@ 10.ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 11:38:12 | Seq Line: | 7 |
| Sample Name: | ICAL7@ 10.ug/L | 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-PR3.M |
| Last Changed: | 8/21/2017 14:55:53 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| 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 |
|---|---|---|---|---|
| 12.196 | BBA | 1410569.9 | 9.7413 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.212 | PBA | 446569.7 | 9.6404 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.216 | PBA | 625689.1 | 5.0000 | CLO4-89-ISTD |

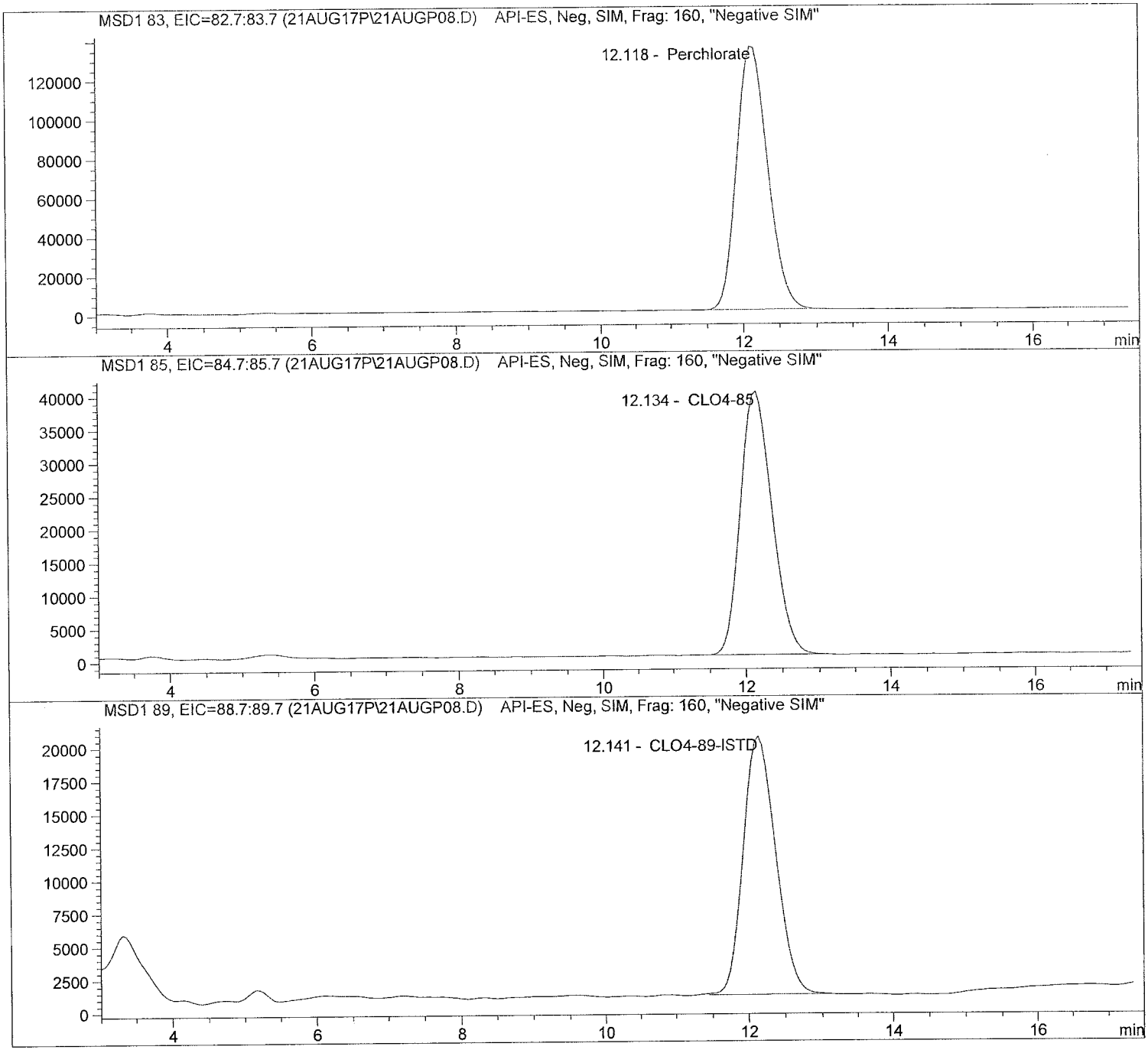
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP08.D  Sample Name: ICAL8@ 25.ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 13:12:50 | Seq Line: | 8 |
| Sample Name: | ICAL8@ 25.ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP08.D  Sample Name: ICAL8@ 25.ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 13:12:50 | Seq Line: | 8 |
| Sample Name: | ICAL8@ 25.ug/L | 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-PR3.M |
| Last Changed: | 8/21/2017 14:55:53 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 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 |
|---|---|---|---|---|
| 12.118 | BBA | 4004745.0 | 25.7880 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.134 | BBA | 1199930.0 | 25.1941 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.141 | BBA | 601523.1 | 5.0000 | CLO4-89-ISTD |

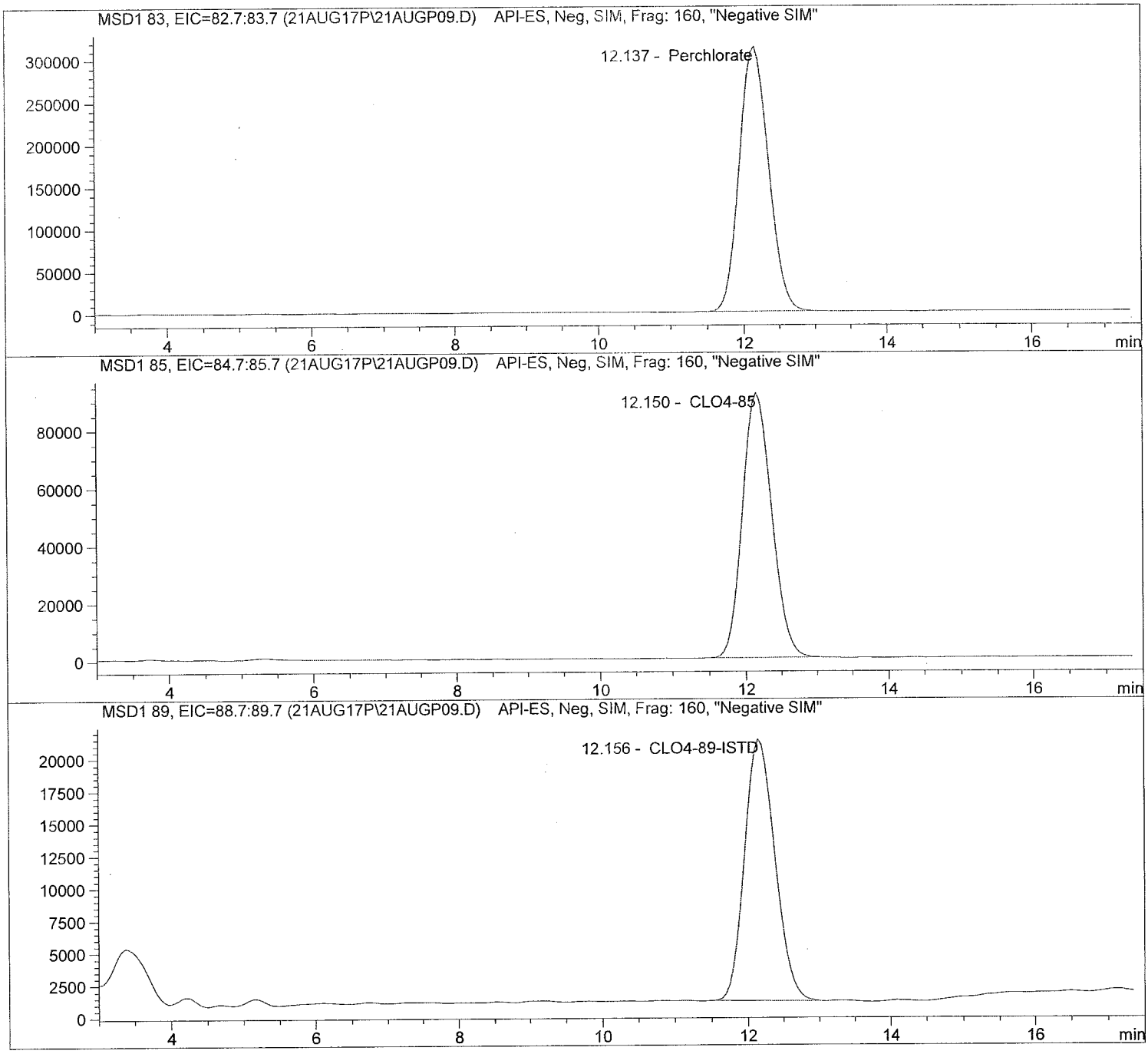
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP09.D  Sample Name: ICAL9@ 50.ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 13:32:10 | Seq Line: | 9 |
| Sample Name: | ICAL9@ 50.ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP09.D  Sample Name: ICAL9@ 50.ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 13:32:10 | Seq Line: | 9 |
| Sample Name: | ICAL9@ 50.ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| 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 |
|---|---|---|---|---|
| 12.137 | PBA | 8856831.0 | 49.7366 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.150 | BBA | 2609327.3 | 49.9698 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.156 | BBA | 597661.2 | 5.0000 | CLO4-89-ISTD |

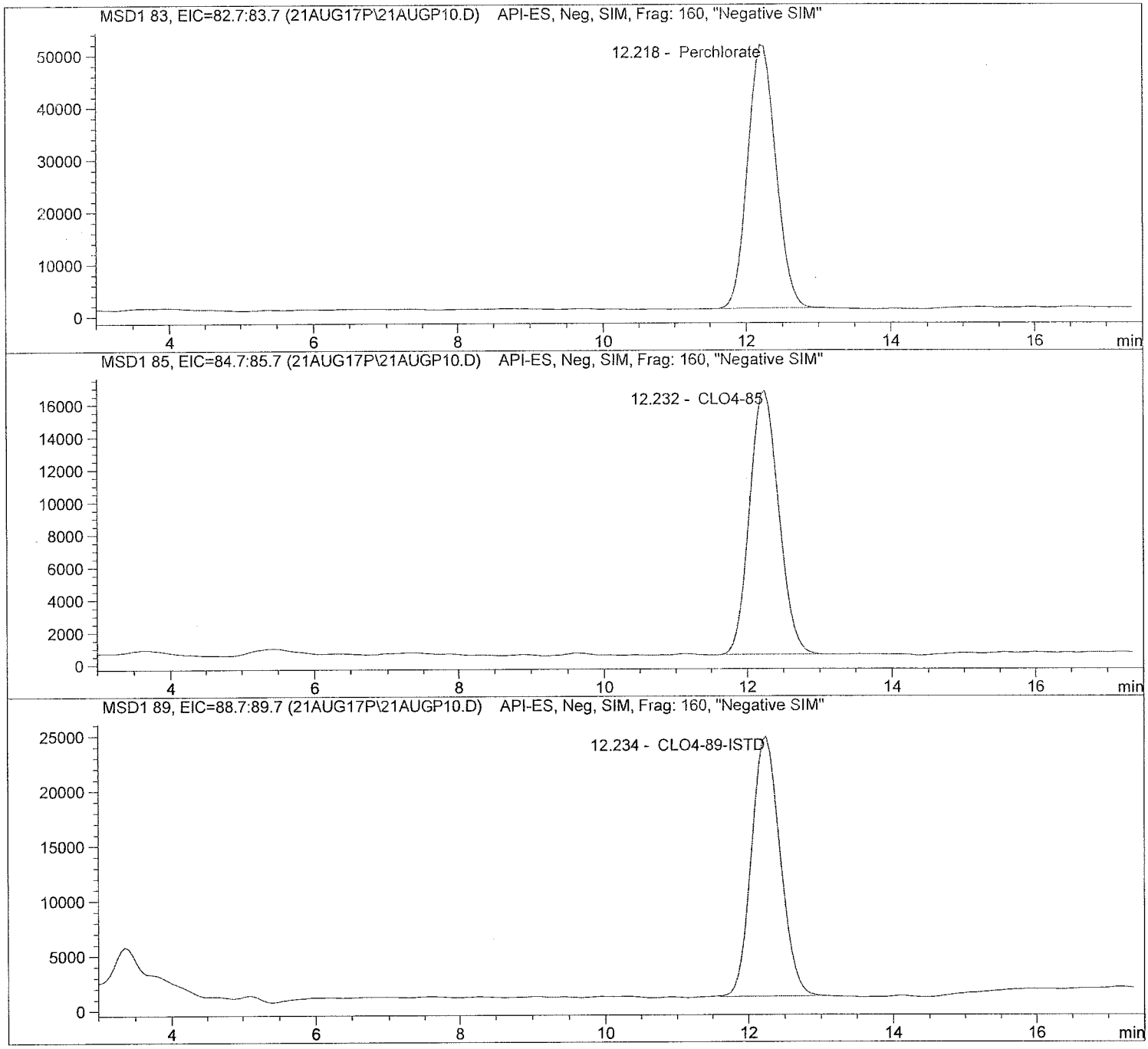
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP10.D  Sample Name: ICAL Verf@10ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 13:51:27 | Seq Line: | 10 |
| Sample Name: | ICAL Verf@10ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP10.D  Sample Name: ICAL Verf@10ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 13:51:27 | Seq Line: | 10 |
| Sample Name: | ICAL Verf@10ug/L | 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-PR3.M |
| Last Changed: | 8/21/2017 14:55:53 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| 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 |
|---|---|---|---|---|
| 12.218 | BBA | 1360649.7 | 9.1433 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.232 | PBA | 449703.0 | 9.4150 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.234 | BBA | 645815.0 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

# Raw Data

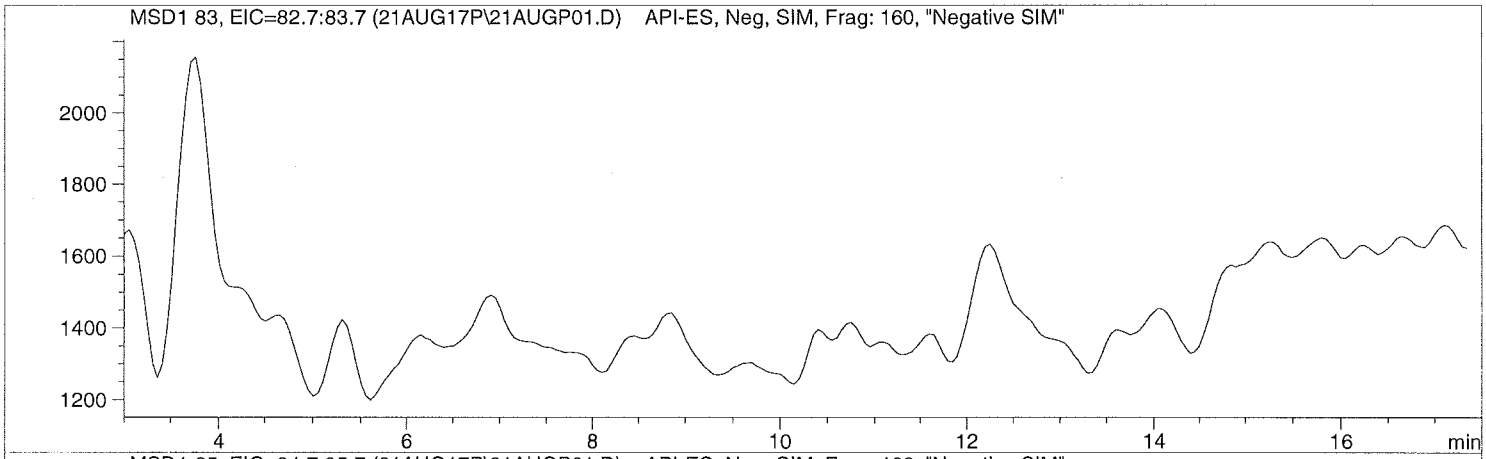
## Unmodified

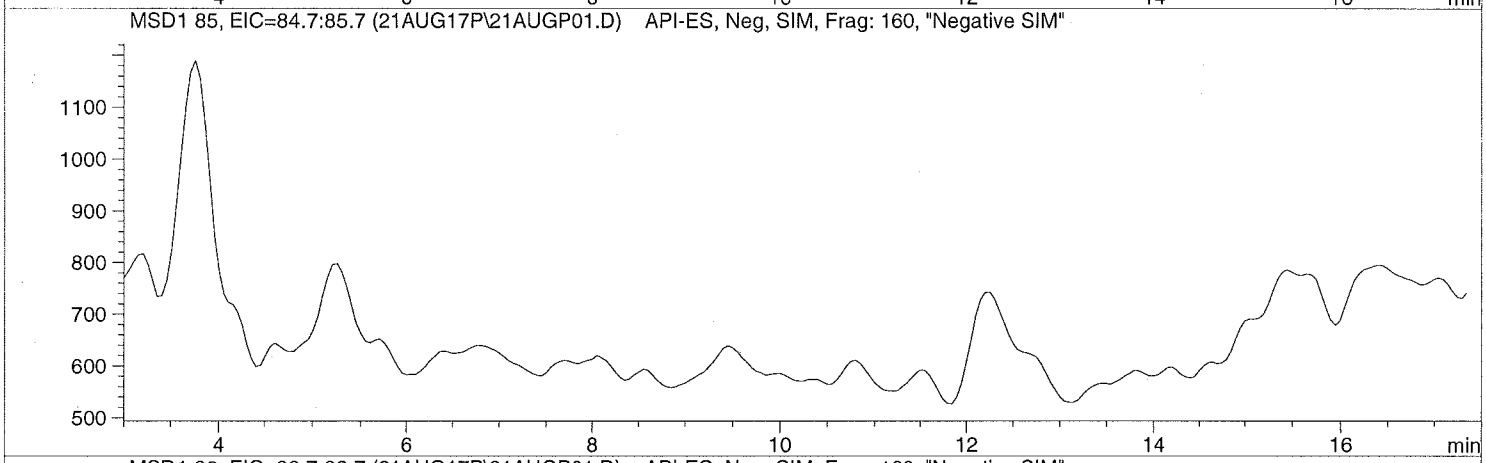
Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP01.D  Sample Name: ICAL1@ .05ug/L

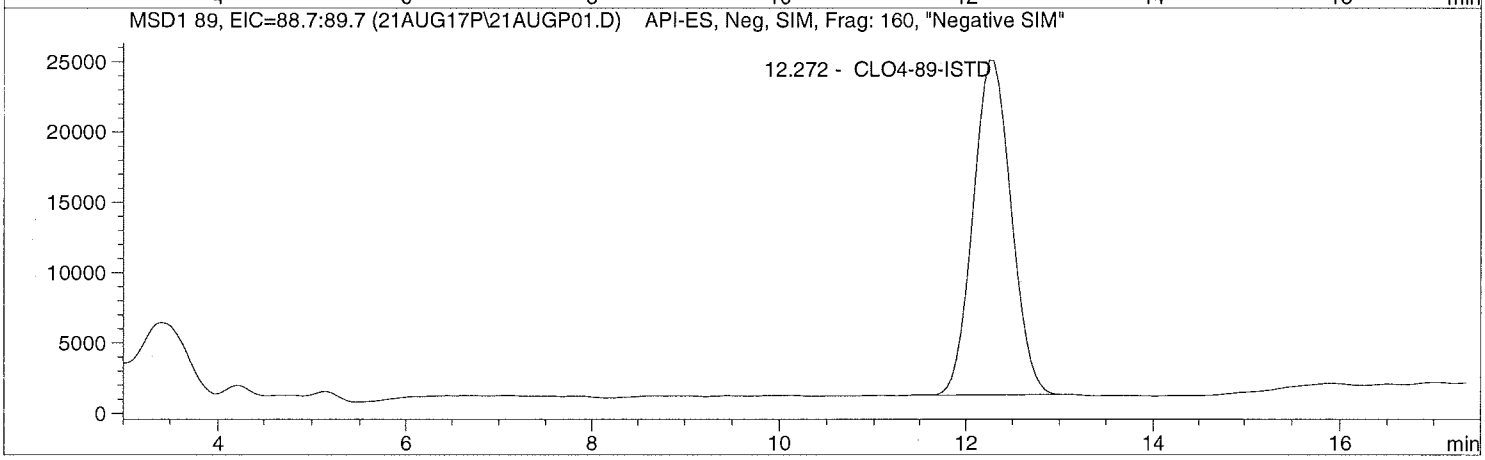
| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 09:42:32 | Seq Line: | 1 |
| Sample Name: | ICAL1@ .05ug/L | Location: | Vial 71 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP01.D  Sample Name: ICAL1@ .05ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 09:42:32 | Seq Line: | 1 |
| Sample Name: | ICAL1@ .05ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.050 |

## 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 |
|---|---|---|---|---|
| 12.272 | BBA | 673942.9 | 5.0000 | CLO4-89-ISTD |

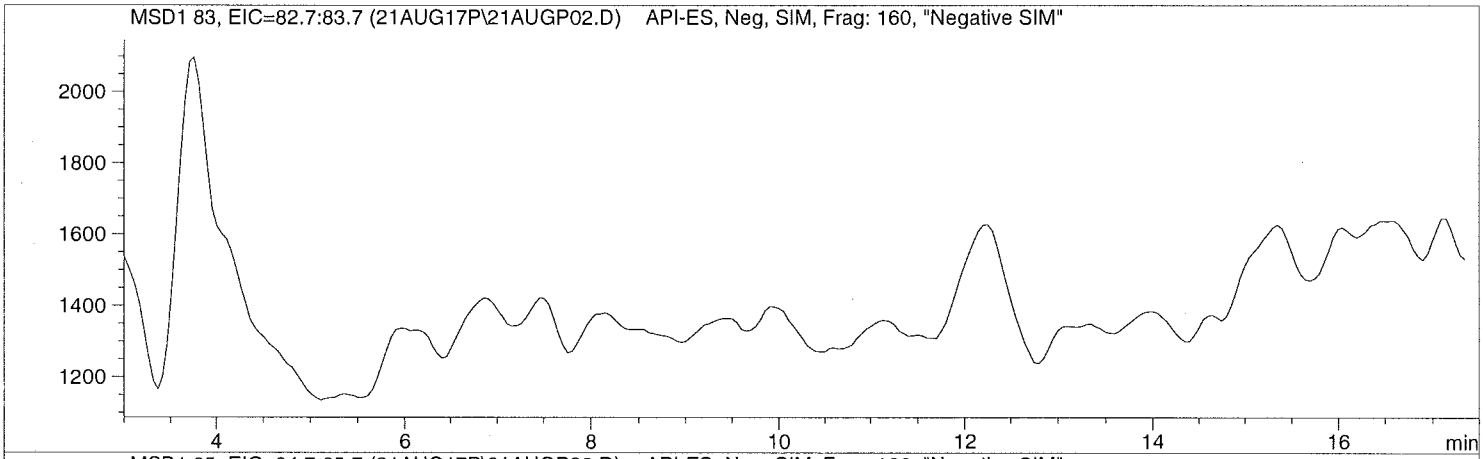
*** End of Report ***

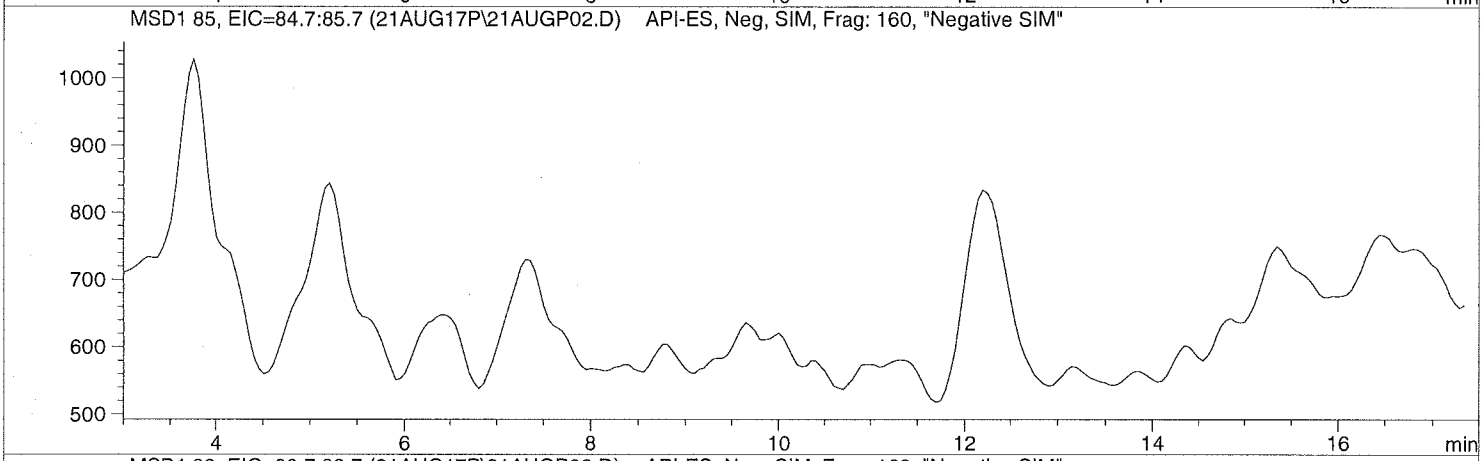
Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP02.D  Sample Name: ICAL2@ .10ug/L

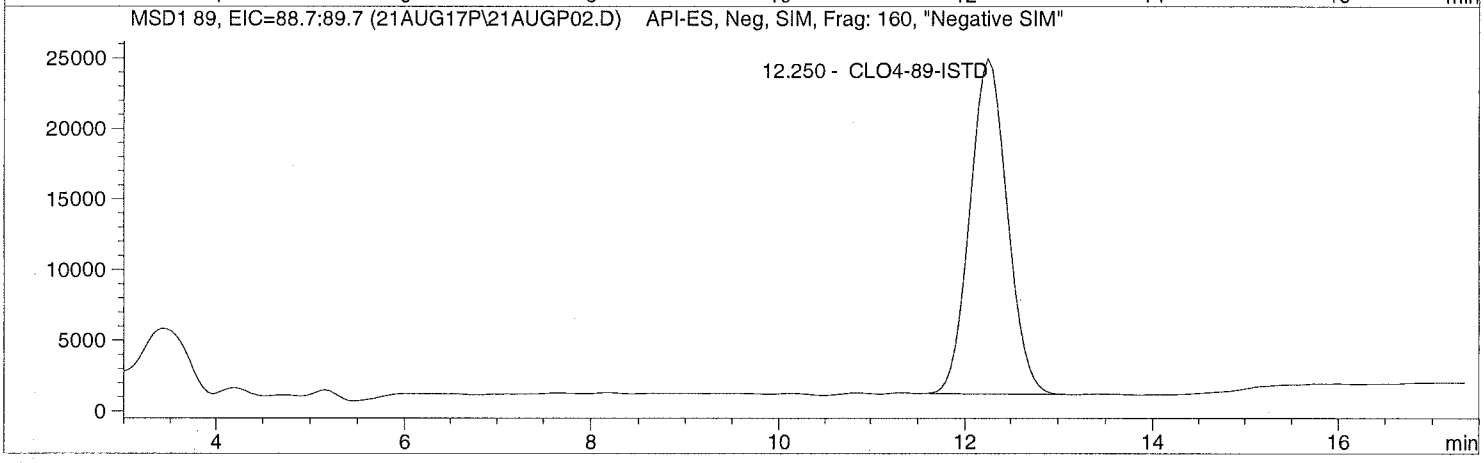
| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:01:47 | Seq Line: | 2 |
| Sample Name: | ICAL2@ .10ug/L | Location: | Vial 72 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP02.D Sample Name: ICAL2@ .10ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:01:47 | Seq Line: | 2 |
| Sample Name: | ICAL2@ .10ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.100 |

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 |
|---|---|---|---|---|
| 12.250 | BBA | 667016.3 | 5.0000 | CLO4-89-ISTD |

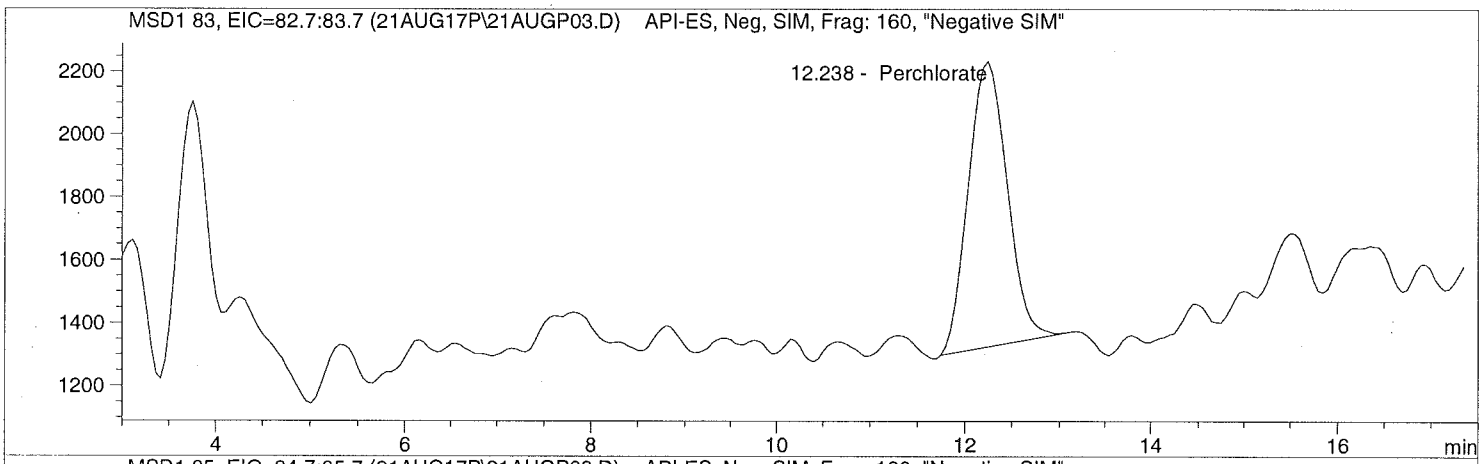
*** End of Report ***

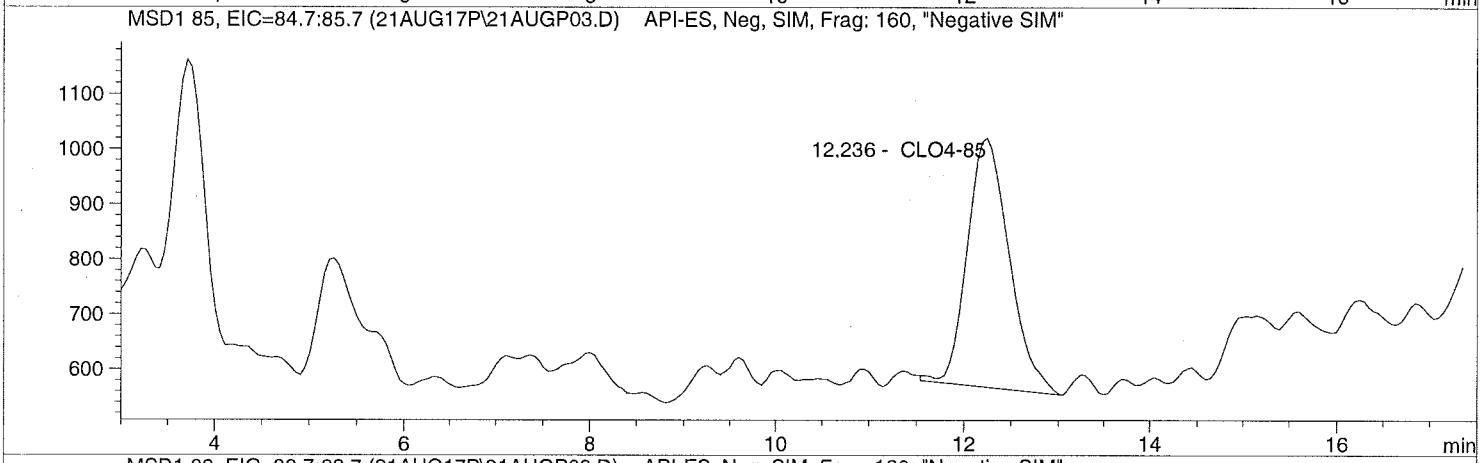
Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP03.D  Sample Name: ICAL3@ .20ug/L

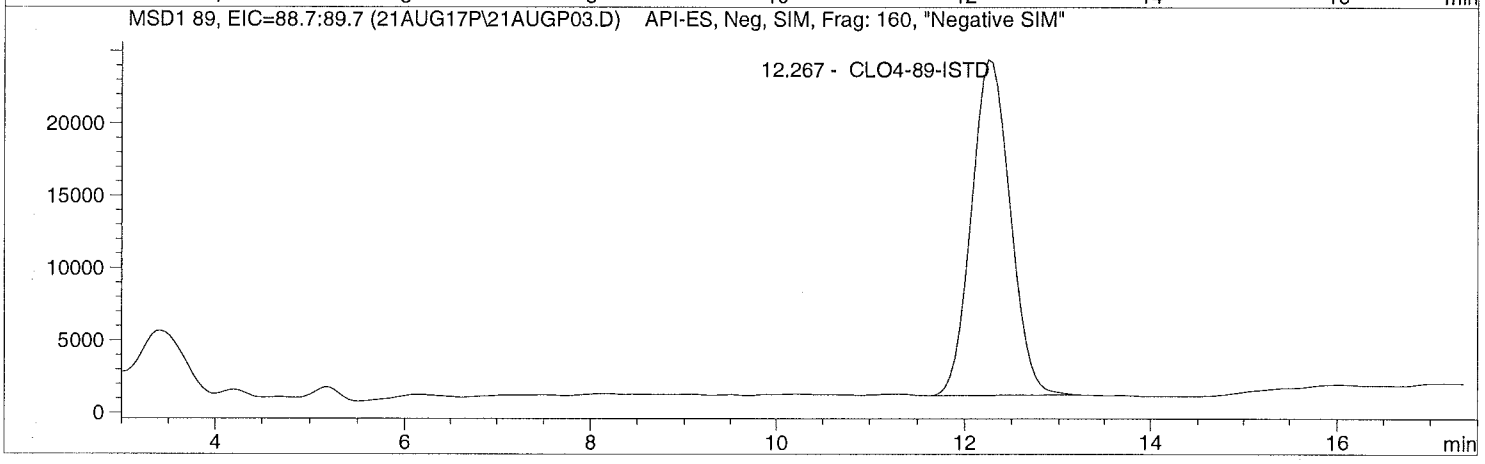
| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:21:02 | Seq Line: | 3 |
| Sample Name: | ICAL3@ .20ug/L | Location: | Vial 73 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP03.D  Sample Name: ICAL3@ .20ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:21:02 | Seq Line: | 3 |
| Sample Name: | ICAL3@ .20ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.200 |

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.238 | PBA | 26023.7 | 0.1899 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.236 | BBA | 13974.8 | 0.2980 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.267 | PBA | 661030.8 | 5.0000 | CLO4-89-ISTD |

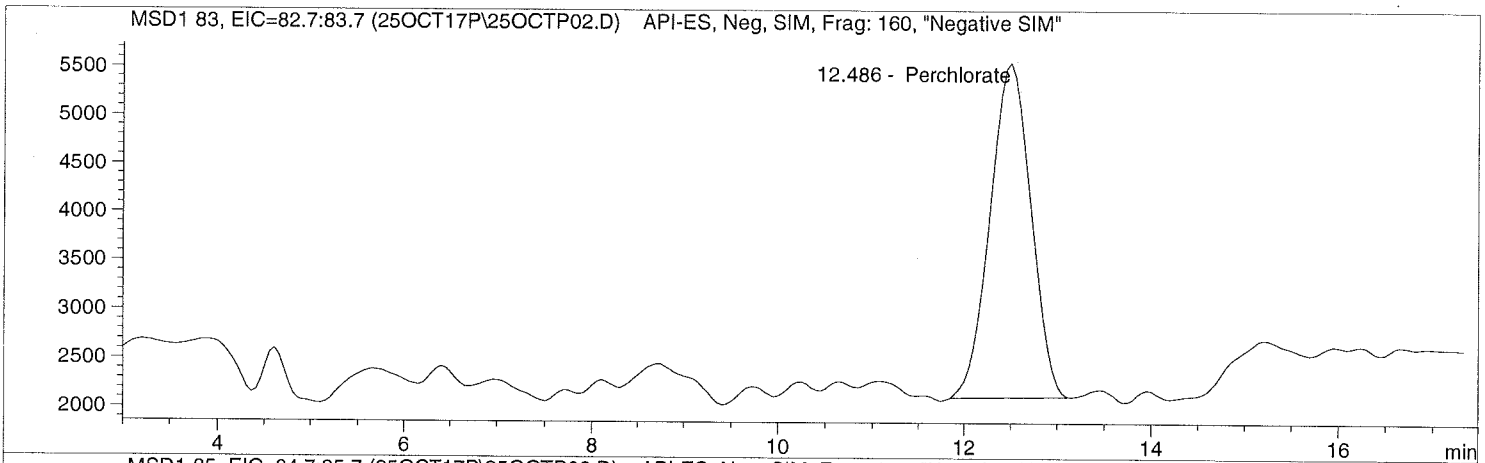
*** End of Report ***

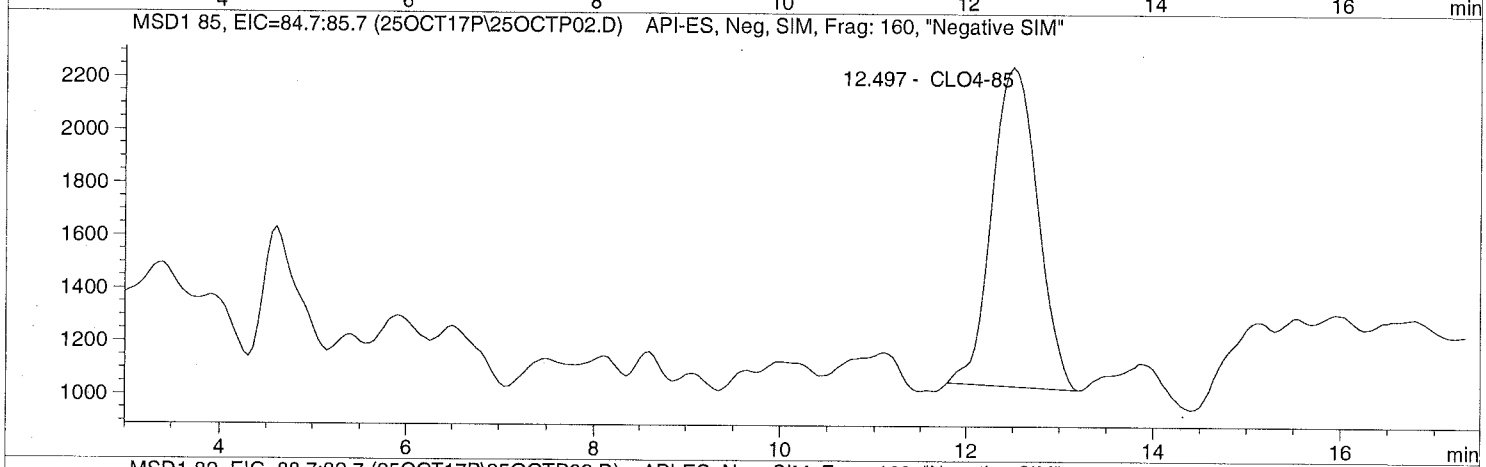
Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP02.D  Sample Name: 571095  LODV@1.

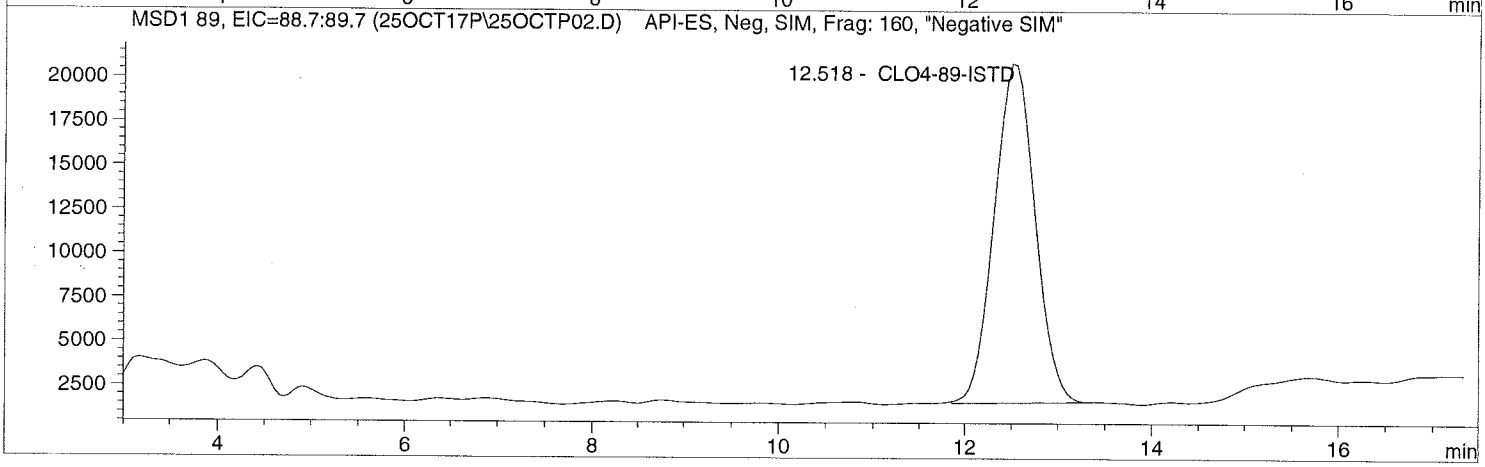
| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 09:24:24 | Seq Line: | 2 |
| Sample Name: | 571095 LODV@1. | Location: | Vial 82 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP02.D Sample Name: 571095 LODV@1.

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 09:24:24 | Seq Line: | 2 |
| Sample Name: | 571095 LODV@1. | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 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 |
|---|---|---|---|---|
| 12.486 | PBA | 104727.6 | 0.8301 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.497 | PBA | 41351.7 | 0.9895 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.518 | BBA | 587146.0 | 5.0000 | CLO4-89-ISTD |

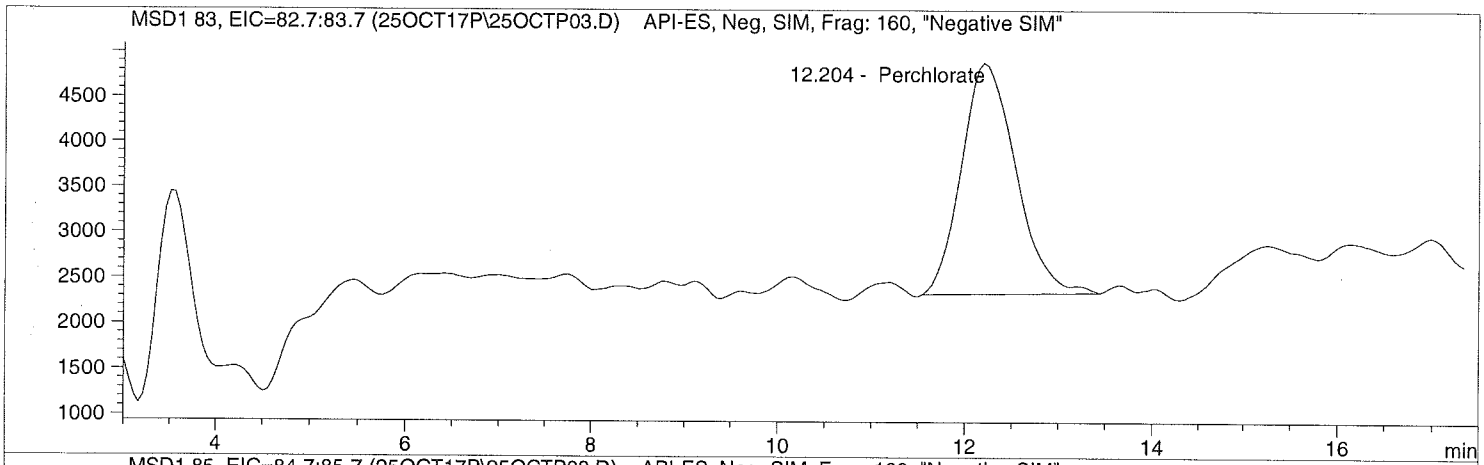
*** End of Report ***

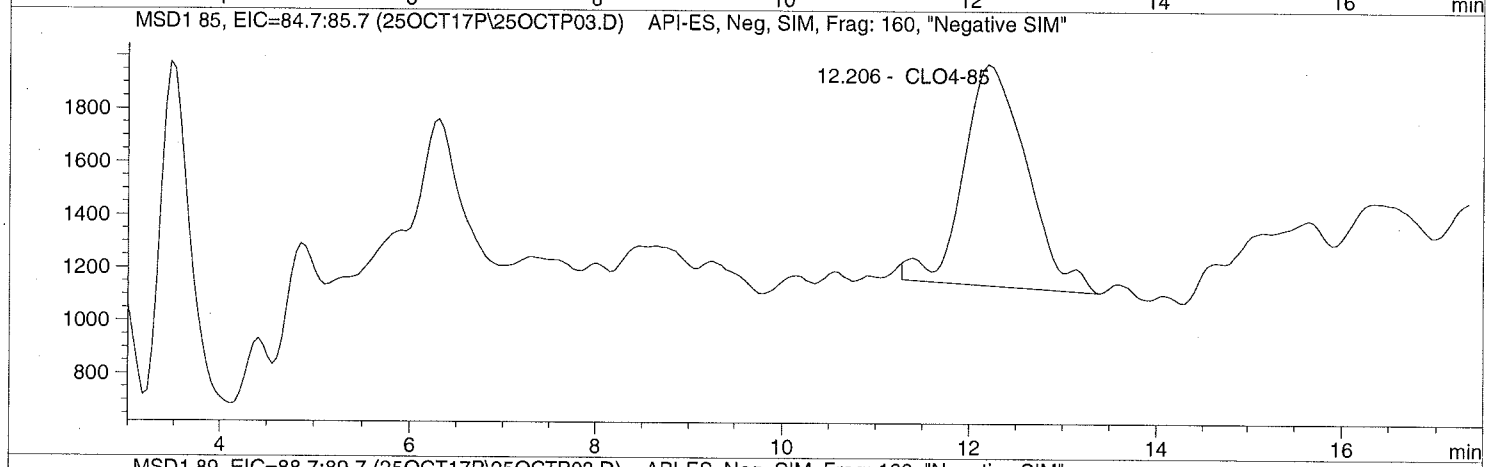
Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP03.D  Sample Name: 571096  ICS@1.

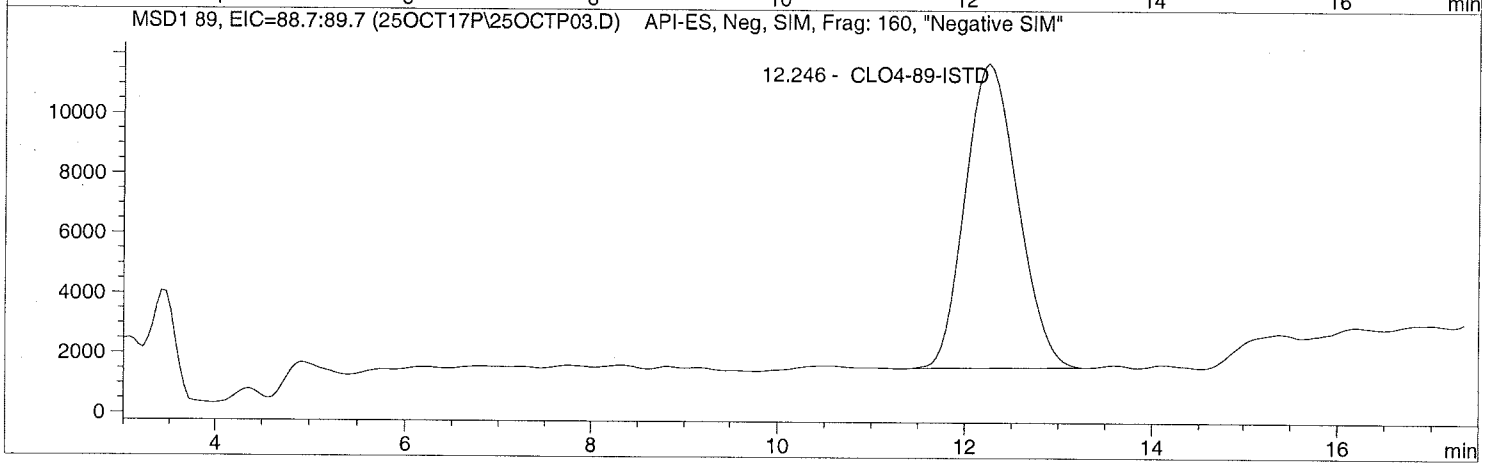
| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 09:43:38 | Seq Line: | 3 |
| Sample Name: | 571096 ICS@1. | Location: | Vial 83 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP03.D Sample Name: 571096 ICS@1.

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 09:43:38 | Seq Line: | 3 |
| Sample Name: | 571096 ICS@1. | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 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 |
|---|---|---|---|---|
| 12.204 | PBA | 102130.1 | 1.1974 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.206 | BBA | 39099.6 | 1.3892 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.246 | PBA | 394708.7 | 5.0000 | CLO4-89-ISTD |

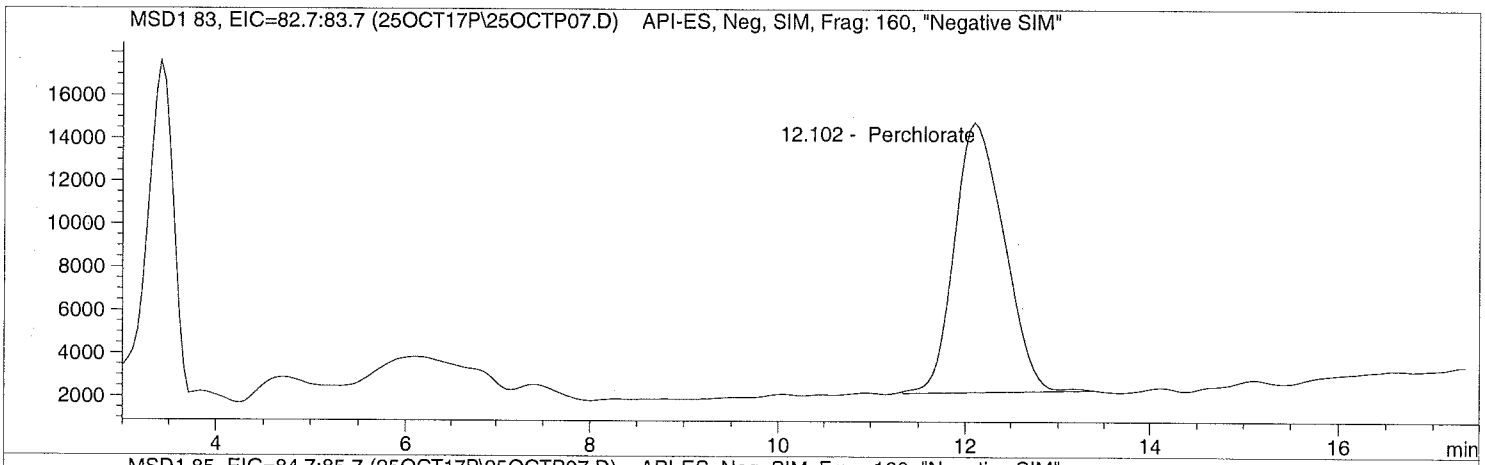
*** End of Report ***

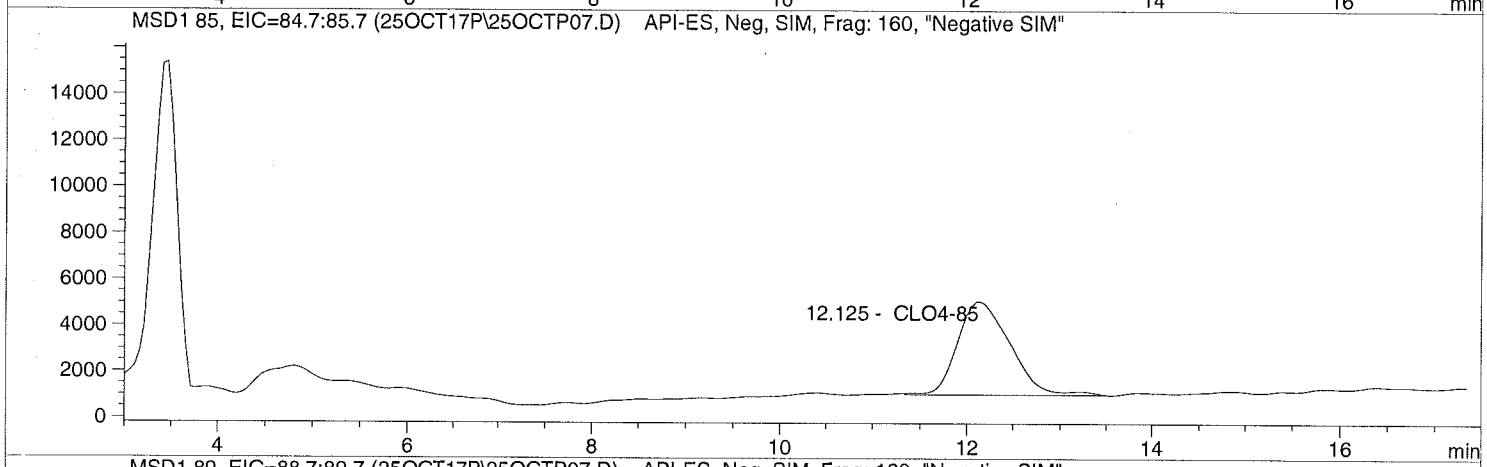
Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP07.D  Sample Name: 571099  289431S

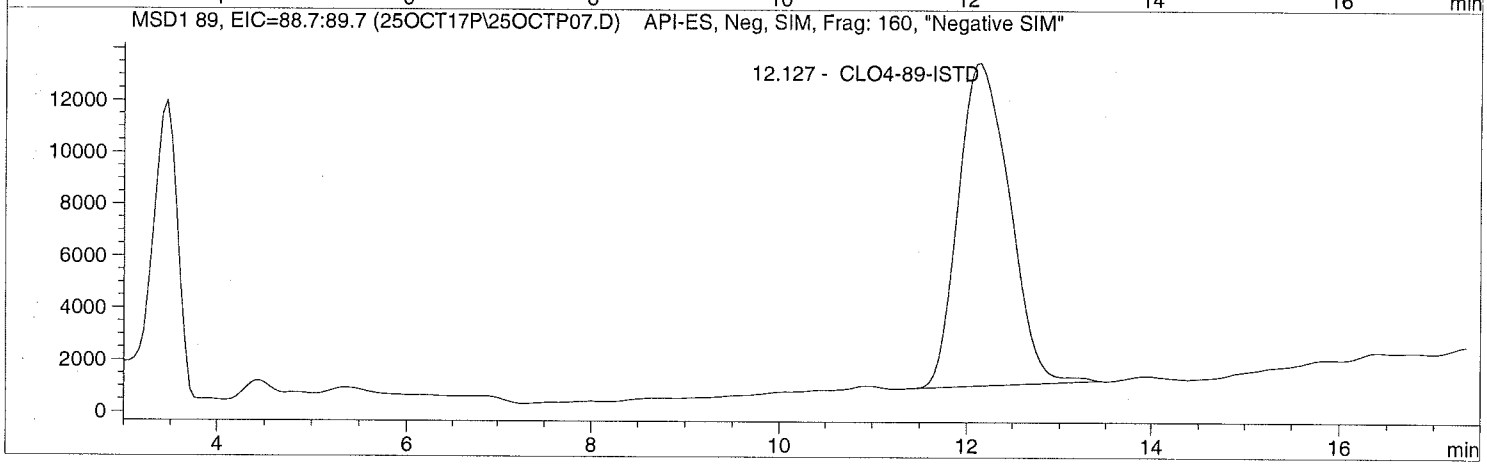
| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 11:03:53 | Seq Line: | 7 |
| Sample Name: | 571099 289431S | Location: | Vial 87 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP07.D Sample Name: 571099 289431S

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 11:03:53 | Seq Line: | 7 |
| Sample Name: | 571099 289431S | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 12.102 | BBA | 470901.2 | 4.4182 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.125 | BBA | 160251.8 | 4.6202 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.127 | PBA | 479241.3 | 5.0000 | CLO4-89-ISTD |

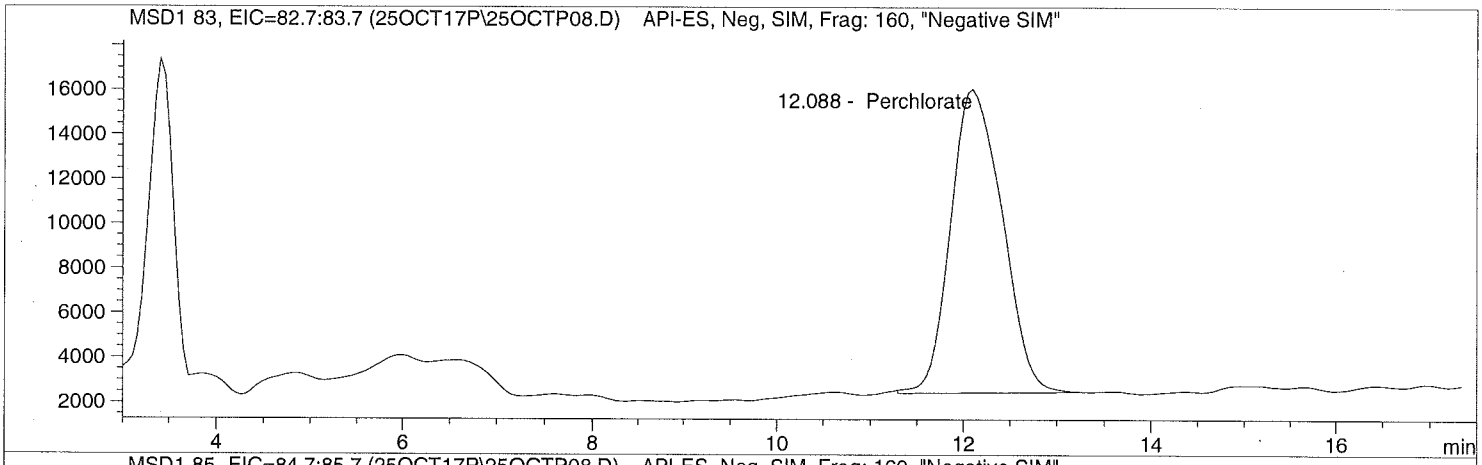
*** End of Report ***

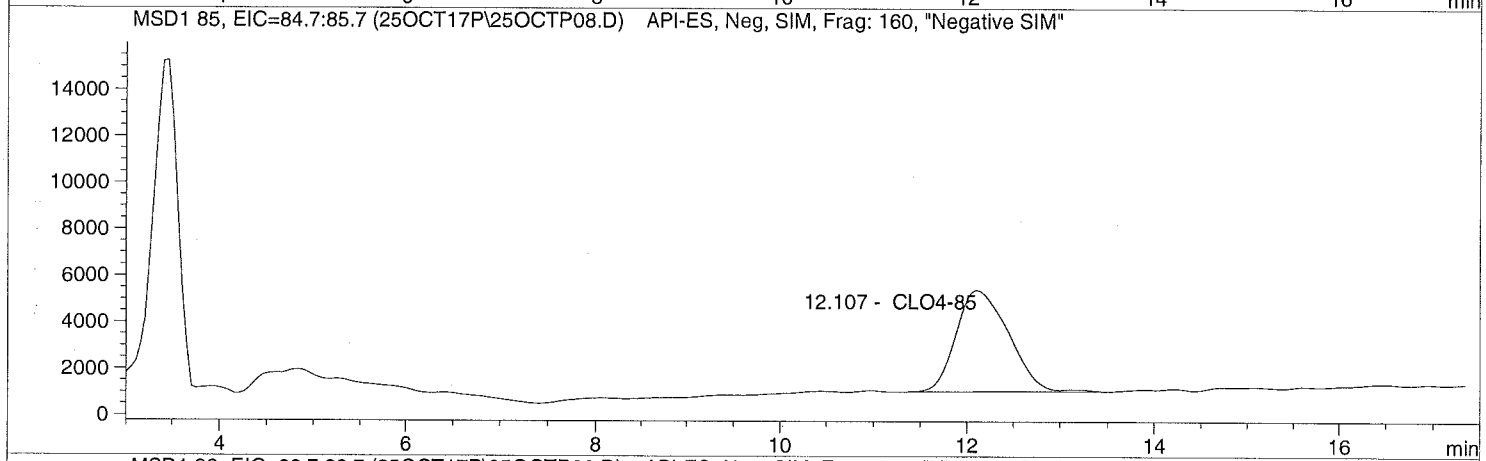
Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP08.D  Sample Name: 571100  289431D

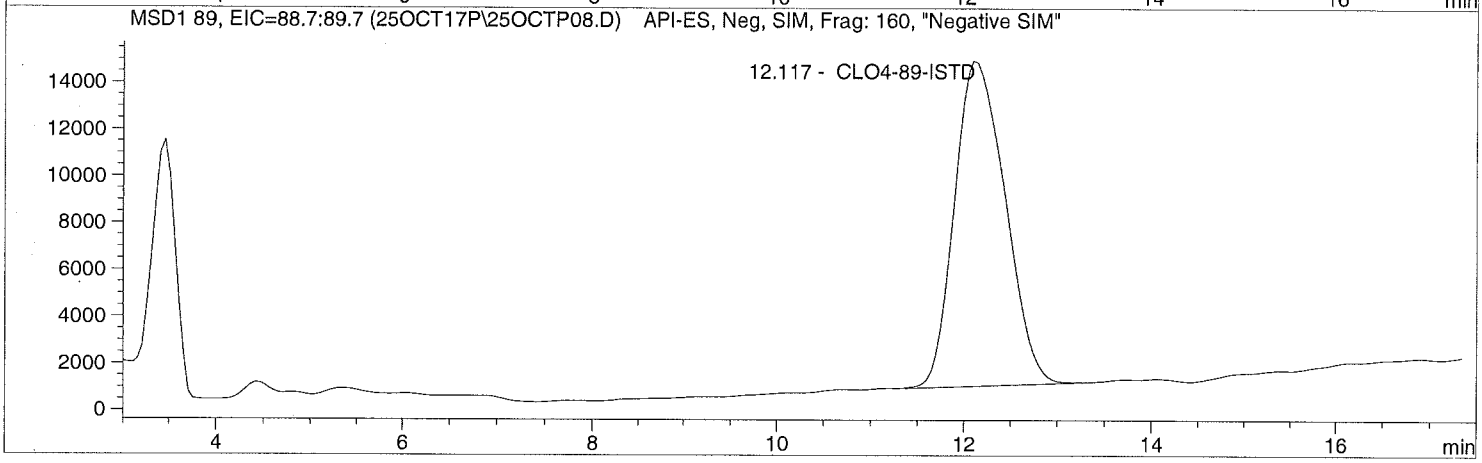
| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 11:23:08 | Seq Line: | 8 |
| Sample Name: | 571100 289431D | Location: | Vial 88 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP08.D  Sample Name: 571100  289431D

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 11:23:08 | Seq Line: | 8 |
| Sample Name: | 571100 289431D | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 12.088 | BBA | 523181.5 | 4.4850 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.107 | PBA | 171769.7 | 4.5291 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.117 | BBA | 524243.2 | 5.0000 | CLO4-89-ISTD |

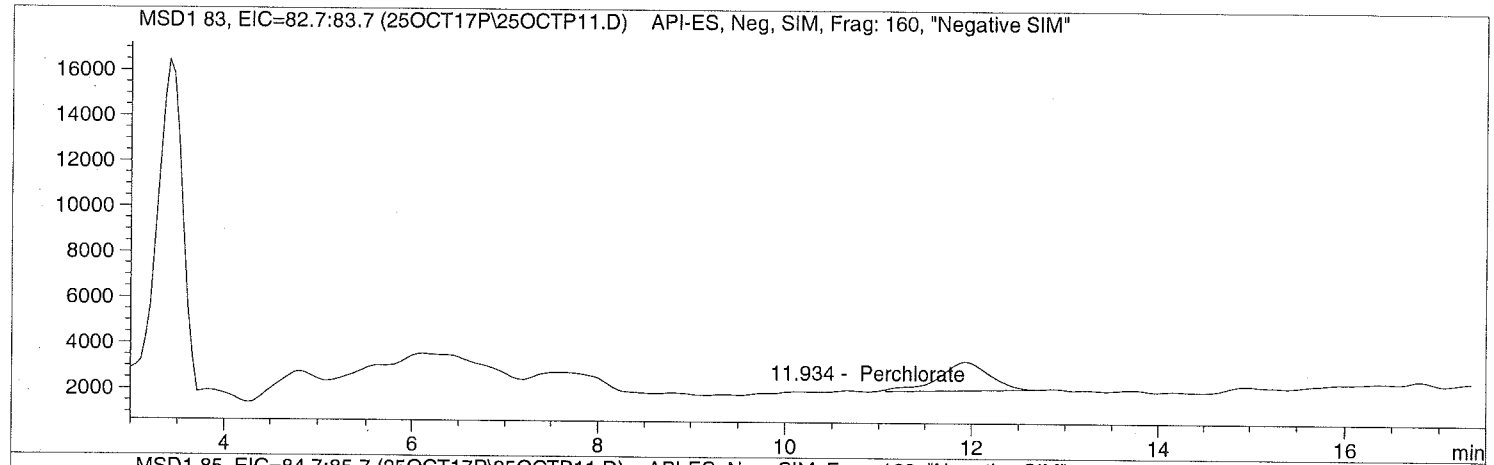
*** End of Report ***

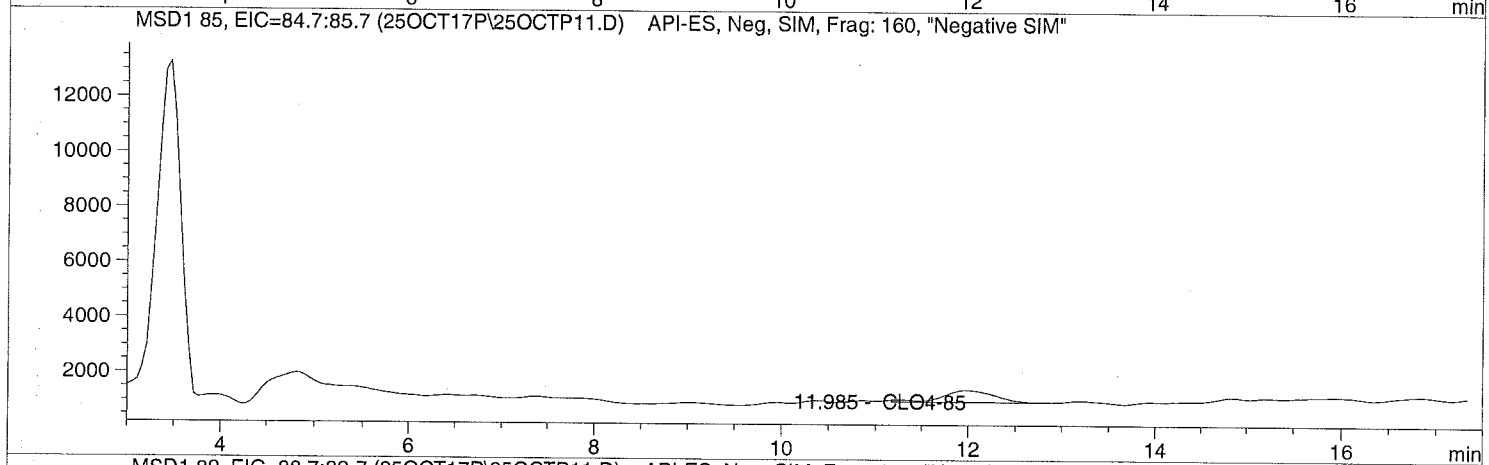
Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP11.D  Sample Name: 1729349001

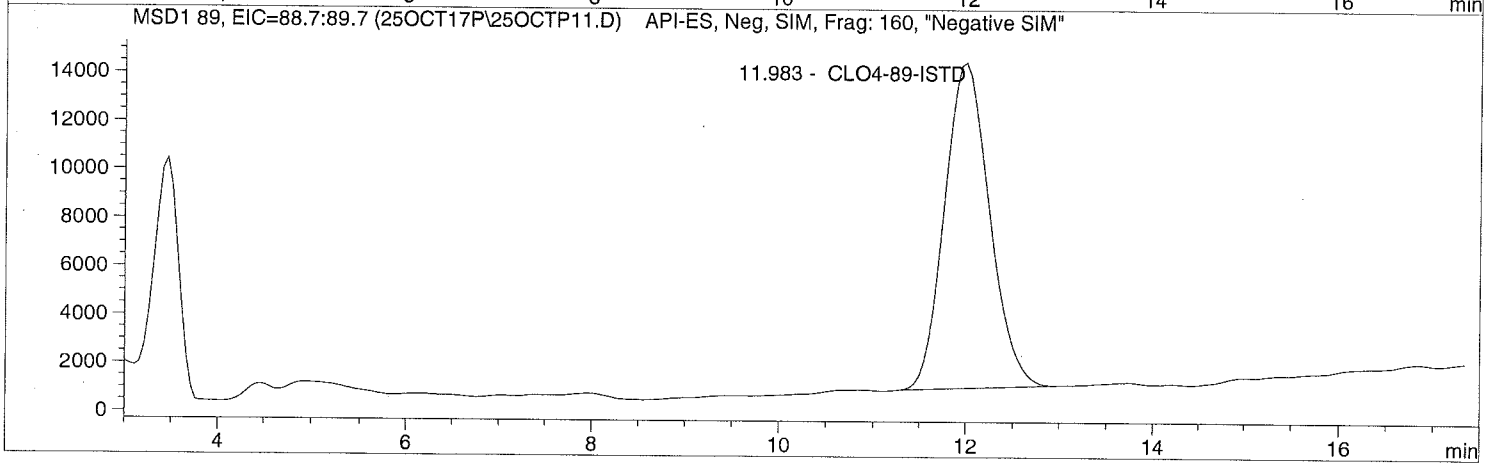
| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 12:22:07 | Seq Line: | 11 |
| Sample Name: | 1729349001 | Location: | Vial 91 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP11.D Sample Name: 1729349001

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 12:22:07 | Seq Line: | 11 |
| Sample Name: | 1729349001 | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 11.934 | BBA | 46725.3 | 0.4923 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.985 | BBA | 16396.4 | 0.5182 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.983 | PBA | 445548.6 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***

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# WorkOrder: HS17100714

## Groundwater Treatment Plant Weekly Samples

## Bhate Environmental Associates, Inc.

Marcia Olive
445 Union Blvd Ste 129
Lakewood CO 80228

**03-Nov-2017**

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

October 31, 2017

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd Ste 129
Lakewood, CO 80228

Work Order: **HS17100714**

Laboratory Results for: **Groundwater Treatment Plant Weekly Samples**

Dear Marcia,

ALS Environmental received 1 sample(s) on Oct 13, 2017 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,

Sonia West

**Generated By: Jumoke.Lawal**
Sonia West
Project Manager

**ALS Group USA, Corp** Date: 31-Oct-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Weekly Samples
**Work Order:** HS17100714

## SAMPLE SUMMARY

| Lab Samp ID | Client Sample ID | Matrix | TagNo | Collection Date | Date Received | Hold |
|---|---|---|---|---|---|---|
| HS17100714-01 | LH18/24-SP650_101217 | Water | | 12-Oct-2017 14:00 | 13-Oct-2017 08:35 | ☐ |

**ALS Group USA, Corp** Date: 31-Oct-17

**Client:** Bhate Environmental Associates, Inc. **CASE NARRATIVE**
**Project:** Groundwater Treatment Plant Weekly Samples
**Work Order:** HS17100714

## Work Order Comments

• The analysis for Perchlorate was subcontracted to ALS Environmental in Salt Lake Cit, UT. Final report attached.

## WetChemistry by Method E350.3

### Batch ID: R304135

• The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

## WetChemistry by Method E415.1

### Batch ID: R304007

• The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

## WetChemistry by Method E365.3

### Batch ID: R303395

• The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

**ALS Group USA, Corp** Date: 31-Oct-17

Client: Bhate Environmental Associates, Inc.
**ANALYTICAL REPORT**
Project: Groundwater Treatment Plant Weekly Samples
WorkOrder:HS17100714
Sample ID: LH18/24-SP650_101217
Lab ID:HS17100714-01
Collection Date: 12-Oct-2017 14:00
Matrix:Water

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **AMMONIA AS N BY E350.3(ISE)** | | **Method:E350.3** | | | | | | Analyst: KMU |
| **Nitrogen, Ammonia (As N)** | **24** | | **1.0** | **1.0** | **1.0** | **mg/L** | 5 | 25-Oct-2017 14:00 |
| **ORTHO PHOSPHATE (PO4) AS P BY E365.3** | | **Method:E365.3** | | | | | | Analyst: SAP |
| **Phosphorus, Total Orthophosphate (As P)** | **1.72** | | **0.100** | **0.125** | **0.250** | **mg/L** | 10 | 13-Oct-2017 17:30 |
| **TOTAL ORGANIC CARBON BY E415.1** | | **Method:E415.1** | | | | | | Analyst: KMU |
| **Organic Carbon, Total** | **80.0** | | **2.50** | **2.50** | **5.00** | **mg/L** | 5 | 24-Oct-2017 00:29 |
| **SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)** | | **Method:NA** | | | | | | Analyst: SUB |
| Subcontract Analysis | See Attached | | 0 | 0 | | | 1 | 27-Oct-2017 16:05 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 31-Oct-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Weekly Samples
**WorkOrder:** HS17100714

## DATES REPORT

| Sample ID | Client Samp ID | Collection Date | TCLP Date | Prep Date | Analysis Date | DF |
|---|---|---|---|---|---|---|
| **Batch ID** R303395 | **Test Name :** ORTHO PHOSPHATE (PO4) AS P BY E365.3 | | | **Matrix:** Water | | |
| HS17100714-01 | LH18/24-SP650_101217 | 12 Oct 2017 14:00 | | | 13 Oct 2017 17:30 | 10 |
| **Batch ID** R304007 | **Test Name :** TOTAL ORGANIC CARBON BY E415.1 | | | **Matrix:** Water | | |
| HS17100714-01 | LH18/24-SP650_101217 | 12 Oct 2017 14:00 | | | 24 Oct 2017 00:29 | 5 |
| **Batch ID** R304135 | **Test Name :** AMMONIA AS N BY E350.3(ISE) | | | **Matrix:** Water | | |
| HS17100714-01 | LH18/24-SP650_101217 | 12 Oct 2017 14:00 | | | 25 Oct 2017 14:00 | 5 |
| **Batch ID** R304313 | **Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850) | | | **Matrix:** Water | | |
| HS17100714-01 | LH18/24-SP650_101217 | 12 Oct 2017 14:00 | | | 27 Oct 2017 16:05 | 1 |

**ALS Group USA, Corp** Date: 31-Oct-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Weekly Samples
**WorkOrder:** HS17100714

**QC BATCH REPORT**

**Batch ID: R303395** **Instrument: UV-2450** **Method: E365.3**

**MBLK** Sample ID: **MBLK-303395** Units: **mg/L** Analysis Date: **13-Oct-2017 17:30**
Client ID: Run ID: **UV-2450_303395** SeqNo: **4263113** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Phosphorus, Total Orthophosphate (As P) | 0.0125 | 0.0250 | | | | | | | | U |

**LCS** Sample ID: **LCS-303395** Units: **mg/L** Analysis Date: **13-Oct-2017 17:30**
Client ID: Run ID: **UV-2450_303395** SeqNo: **4263114** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Phosphorus, Total Orthophosphate (As P) | 0.238 | 0.0250 | 0.25 | 0 | 95.2 | 80 - 120 | | | | |

**MS** Sample ID: **HS17100714-01MS** Units: **mg/L** Analysis Date: **13-Oct-2017 17:30**
Client ID: **LH18/24-SP650_101217** Run ID: **UV-2450_303395** SeqNo: **4263115** PrepDate: DF: **10**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Phosphorus, Total Orthophosphate (As P) | 3.94 | 0.250 | 2.5 | 1.72 | 88.8 | 80 - 120 | | | | |

**MSD** Sample ID: **HS17100714-01MSD** Units: **mg/L** Analysis Date: **13-Oct-2017 17:30**
Client ID: **LH18/24-SP650_101217** Run ID: **UV-2450_303395** SeqNo: **4263116** PrepDate: DF: **10**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Phosphorus, Total Orthophosphate (As P) | 4.15 | 0.250 | 2.5 | 1.72 | 97.2 | 80 - 120 | 3.94 | 5.19 | 20 | |

**The following samples were analyzed in this batch:** HS17100714-01

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 31-Oct-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Weekly Samples
**WorkOrder:** HS17100714

**QC BATCH REPORT**

**Batch ID: R304007** **Instrument: TOC_02** **Method: E415.1**

**MBLK** Sample ID: **WBLKW1-102317** Units: **mg/L** Analysis Date: **23-Oct-2017 20:50**
Client ID: Run ID: **TOC_02_304007** SeqNo: **4276621** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Organic Carbon, Total | 0.500 | 1.00 | | | | | | | | U |

**LCS** Sample ID: **WLCSW1-102317** Units: **mg/L** Analysis Date: **23-Oct-2017 21:04**
Client ID: Run ID: **TOC_02_304007** SeqNo: **4276622** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Organic Carbon, Total | 9.511 | 1.00 | 10 | 0 | 95.1 | 80 - 120 | | | | |

**LCSD** Sample ID: **WLCSDW1-102317** Units: **mg/L** Analysis Date: **23-Oct-2017 21:19**
Client ID: Run ID: **TOC_02_304007** SeqNo: **4276623** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Organic Carbon, Total | 9.416 | 1.00 | 10 | 0 | 94.2 | 80 - 120 | 9.511 | 1 | 20 | |

**MS** Sample ID: **HS17100883-01MS** Units: **mg/L** Analysis Date: **23-Oct-2017 21:51**
Client ID: Run ID: **TOC_02_304007** SeqNo: **4276625** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Organic Carbon, Total | 19.66 | 1.00 | 10 | 10.01 | 96.5 | 80 - 120 | | | | |

**The following samples were analyzed in this batch:** HS17100714-01

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 31-Oct-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Weekly Samples
**WorkOrder:** HS17100714

**QC BATCH REPORT**

**Batch ID: R304135** **Instrument: WetChem_HS** **Method: E350.3**

**MBLK** Sample ID: **MBLK-R304135** Units: **mg/L** Analysis Date: **25-Oct-2017 14:00**
Client ID: Run ID: **WetChem_HS_304135** SeqNo: **4279583** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, Ammonia (As N) | 0.20 | 0.20 | | | | | | | | U |

**LCS** Sample ID: **LCS-R304135** Units: **mg/L** Analysis Date: **25-Oct-2017 14:00**
Client ID: Run ID: **WetChem_HS_304135** SeqNo: **4279582** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, Ammonia (As N) | 10.35 | 0.20 | 10 | 0 | 104 | 80 - 120 | | | | |

**MS** Sample ID: **HS17100911-02MS** Units: **mg/L** Analysis Date: **25-Oct-2017 14:00**
Client ID: Run ID: **WetChem_HS_304135** SeqNo: **4279585** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, Ammonia (As N) | 10.09 | 0.20 | 10 | 0.1682 | 99.2 | 80 - 120 | | | | |

**MSD** Sample ID: **HS17100911-02MSD** Units: **mg/L** Analysis Date: **25-Oct-2017 14:00**
Client ID: Run ID: **WetChem_HS_304135** SeqNo: **4279584** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, Ammonia (As N) | 10.11 | 0.20 | 10 | 0.1682 | 99.4 | 80 - 120 | 10.09 | 0.198 | 20 | |

**The following samples were analyzed in this batch:** HS17100714-01

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 31-Oct-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Weekly Samples
**WorkOrder:** **HS17100714**

**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 |

## CERTIFICATIONS,ACCREDITATIONS & LICENSES

| Agency | Number | Expire Date |
|---|---|---|
| Arkansas | 17-027-0 | 27-Mar-2018 |
| California | 2919 2016-2018 | 31-Jul-2018 |
| Illinois | 004112 | 09-May-2018 |
| Kentucky | 123043 | 30-Apr-2018 |
| Louisiana | 03087 2017-2017 | 30-Jun-2018 |
| North Carolina | 624-2017 | 31-Dec-2017 |
| North Dakota | R193 2017-2017 | 30-Apr-2018 |
| Oklahoma | 2017-088 | 31-Aug-2018 |
| Texas | T104704231-17-19 | 30-Apr-2018 |

**ALS Group USA, Corp** Date: 31-Oct-17

## Sample Receipt Checklist

Client Name: Bhate Environmental
Work Order: HS17100714
Date/Time Received: **13-Oct-2017 08:35**
Received by: **JRM**

Checklist completed by: *Jared R. Makan* eSignature 13-Oct-2017 Date
Reviewed by: *Sonia West* eSignature 15-Oct-2017 Date

Matrices: **Water**
Carrier name: **ALS Courier**

| | | | |
|---|---|---|---|
| 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 ☑ |
| Chain of custody present? | Yes ☑ | No ☐ | |
| Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | |
| Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | |
| Samples in proper container/bottle? | Yes ☑ | No ☐ | |
| Sample containers intact? | Yes ☑ | No ☐ | |
| TX1005 solids received in hermetically sealed vials? | Yes ☐ | No ☐ | N/A ☑ |
| 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): | 1.7c/2.0c UC/C | IR11 | |
| Cooler(s)/Kit(s): | Blue | | |
| Date/Time sample(s) sent to storage: | 10/13/2017 11:10 | | |
| 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:

# CHAIN OF CUSTODY

Name Of Lab Shipping To: ALS 10450 Stancliff Rd. Suite 210 Houston, TX. 77099 (281) 530-5656 ATTN: SONIA WEST



Project: BHATE
LONGHORN ARMY AMMN. PLANT (LHAAP)
GROUNDWATER TREATMENT PLANT (GWTP)
KARNACK, TEXAS

Project No.
NWO1312.0150.0
16.0001

Job:
**GROUNDWATER TREATMENT PLANT WEEKLY SAMPLES**

Prepared By:
Scott Beesinger

P.O. Number

| Field Sample I.D. | Sample Matrix | Date / Time | MS / MSD | No. OF CONTAINERS | AMMONIA-N | TOTAL ORGANIC CARBON | ORTHO-PHOSPHATE | PERCHLORATE | | | | | | Remarks (Preservatives, etc.) | Lab I.D.# |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Analyses | | | | | | | | | | |
| LH18/24-SP650_101217 | Water | 10/12/17 / 14:00 | | 2 | X | X | | | | | | | | H2SO4 | |
| LH18/24-SP650_101217 | Water | 10/12/17 / 14:00 | | 2 | | | X | X | | | | | | NONE | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |

Additional Remarks: **Standard TAT on all parameters**

| Relinquished By: | Date | Time | Received By: | Date | Time | Relinquished By: | Date | Time | Received By: | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Scott Beesinger | 10/12/17 | 14:30 | | | | | | | | | |

For Lab Use Only

| Received At Lab By: | Date | Time | Airbill No. | Opened By: | Date | Time | Temp of Container | Seal No. | Condition |
|---|---|---|---|---|---|---|---|---|---|
| J. Mangum | 10/13/17 | 08:35 | | | | | | | |

Remarks:

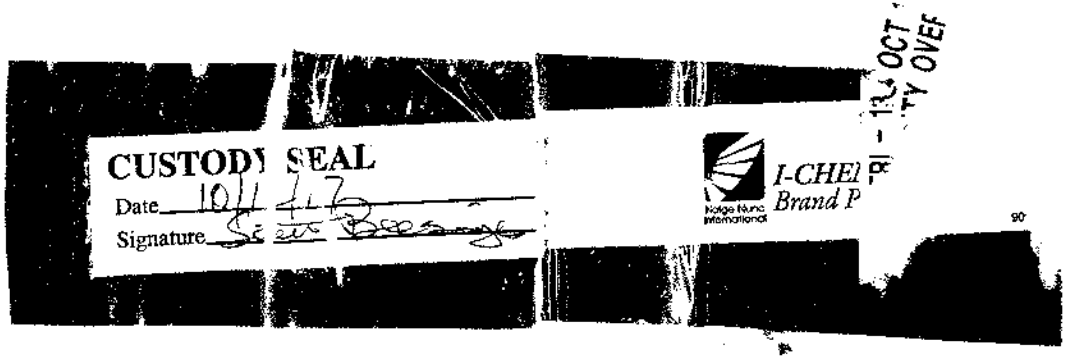
Cooler - Blue IR#1
Temp 1.7 CF 0.3

(Word) S:\1-ces\Forms\Chain of Custody - BiWeekly

**HS17100714**

Bhate Environmental Associates, Inc.
Groundwater Treatment Plant Weekly Samples


fedEx
8106 9583 8369
PRIORI
AB SGRA


CUSTODY SEAL
Date 10/11/17
Signature
I-CHEM
Brand P
Norge Nunc International
OCT
OVER

# Wet Chemistry Raw Data

Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Monthly Influent Sample
ALS WO# HS17100714

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

HS17100714

Logbook **30509**

# Ion Selective Electrode Logbook

Analyst: KMH

Date: 10/25/17 @ 2:06pm

Method: SM4500NH3-D or SM4500 F⁻ C or SW9214 F⁻ or 351.3/4500NH3

SOP: WC-027 or WC-004 or WC-007 or WC-033

Probe Calibration

Prep'd: 10/25/17 ID # 304-147(801-806)

| Std Level | | Cal Std ID: mV | Conc., mg/L: |
|---|---|---|---|
| STD 1 (mg/L): | 0.2 | 107.2 | 0.2005 |
| STD 2 (mg/L): | 1.0 | 72.3 | 1.004 |
| STD 3 (mg/L): | 5.0 | 35.4 | 5.006 |

Probe ID: SR1-15910

Matrix: Water / Soil (1: 10 -- soil -gm : DI Water -ml)

| Std Level | mV | Conc., mg/L: |
|---|---|---|
| STD 4 (mg/L): 10 | 18.6 | 10.03 |
| STD 5 (mg/L): 50 | -20.4 | 50.00 |

LSC / MS Spike ID: 297-020-4006

Ical Slope: KMH 10/25/17 ~~94~~ 94.97 / -56.0 mV

Ical Date: 10/25/17

| WO # / SX # | Bottle # | Initial g or ml | Final Vol. ml | Dilution Factor | Initial Conc. mg/L | Final Conc. mg/L | Comments |
|---|---|---|---|---|---|---|---|
| ICV | | 50 | 50 | 1 | 9.995 | 9.995 | |
| ICB/CCB-1 | | | | 1 | 0.03492 | 0.03492 | |
| WB(KCl)-102517 | | | | 1 | 0.03376 | 0.03376 | |
| WLCS(Cl)-102517 | | | | 1 | 10.35 | 10.35 | |
| HS17100714-01 | 1 | 10 mL | | 5 | 4.766 | 23.83 | Nit-Amm-W-E350.3-ISE odor |
| 966-01 | | 10 mL | | 5 | 3.082 | 15.41 | odor |
| 911-02 | | 50 | | 1 | 0.1682 | 0.1682 | Nit-Amm-W-ISE |
| 911-02MS | | | | | 10.09 | 10.09 | |
| 911-02MSD | | | | | 10.11 | 10.11 | |
| 912-02 | | | | | 0.1003 | 0.1003 | |
| 839-01 | | | | | 0.05232 | 0.05232 | HT07 |
| 840-01 | | | | | 0.04221 | 0.04221 | HT07 |
| CCV-2 | | | | | 9.527 | 9.527 | |
| CCB-2 | | | | | 0.03963 | 0.03963 | |
| HS17100841-01 | 1 | | | | 0.04642 | 0.04642 | HT07 |
| 0842-01 | | | | | 0.04765 | 0.04765 | HT07 |
| 0843-01 | | | | | 0.04613 | 0.04613 | HT07 |
| 0845-01 | | | | | 0.04419 | 0.04419 | HT07 |
| 0868-01 | | | | | 0.09993 | 0.09993 | KMH 10/25/17 |
| 1343-01 | | 25mL | | 2 | 0.008371 | 0.016742 | +Cl₂ ✓ treated w/dilution Nit-Amm-W-E350.3 ISE IRLOI |
| 1343-02 | | 25mL | | 2 | 0.008195 | 0.01639 | +Cl₂ ✓ treated |
| 1343-03 | | 25mL | | 2 | 0.008211 | 0.016422 | +Cl₂ ✓ treated |
| 0933-01 | | 25mL | | 2 | 2.969 | 5.938 | +Cl₂ ✓ treated Nit-Amm-W-ISE |
| 0935-01 | | 10mL | | 5 | 2.688 | 13.44 | +Cl₂ treated |
| CCV-3 | | 50 | — | 1 | 9.923 | 9.923 | |

Continue to Next Page

Batch ID: E350.3 Amm-ISE 304135 ✓ 304136 ✓

Reported By: KMH

Reviewed By: [signature] 10/26/17





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ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Continued from pg. 17

Logbook **30509**

# Ion Selective Electrode Logbook

| | | | | | |
|---|---|---|---|---|---|
| Analyst: KMH see pg. 17 | | | | Date: 10/25/17 @ 6:50pm | |
| Method: SM4500NH3-D or SM4500 F⁻ C or SW9214 F⁻ or 351.3/4500NH3 | | | | SOP: WC-027 or WC-004 or WC-007 or WC-033 | |
| Probe Calibration | | Cal Std ID: | | Probe ID: SR1-15910 | |
| Std Level | | mV | Conc., mg/L: | Matrix: Water / Soil (1: 10 -- soil -gm : DI Water -ml) | |
| STD 1 (mg/L): | | | | Std Level | mV / Conc., mg/L: |
| STD 2 (mg/L): | | | | STD 4 (mg/L): | |
| STD 3 (mg/L): | | | | STD 5 (mg/L): | |
| LSC / MS Spike ID: | | | | Ical Slope: | Ical Date: |

| WO # / SX # | Bottle # | Initial g or ml | Final Vol. ml | Dilution Factor | Initial Conc. mg/L | Final Conc. mg/L | Comments |
|---|---|---|---|---|---|---|---|
| CCB-3 | | 50 | 50 | 1 | 0.07319 | 0.07319 | Nit-Amm-W-ISE |
| MS1710938-01 | | 10mL | | 5 | 5.880 | 29.40 | +Cl2V treated w/bleach |
| CCV-4 | | 50 | | 1 | 9.681 | 9.681 | |
| CCB-4 | | 50 | | 1 | 0.03261 | 0.03261 | |

KMH

| Batch ID: | Reported By | Reviewed By: |
|---|---|---|
| R# 304136 | KMH | |

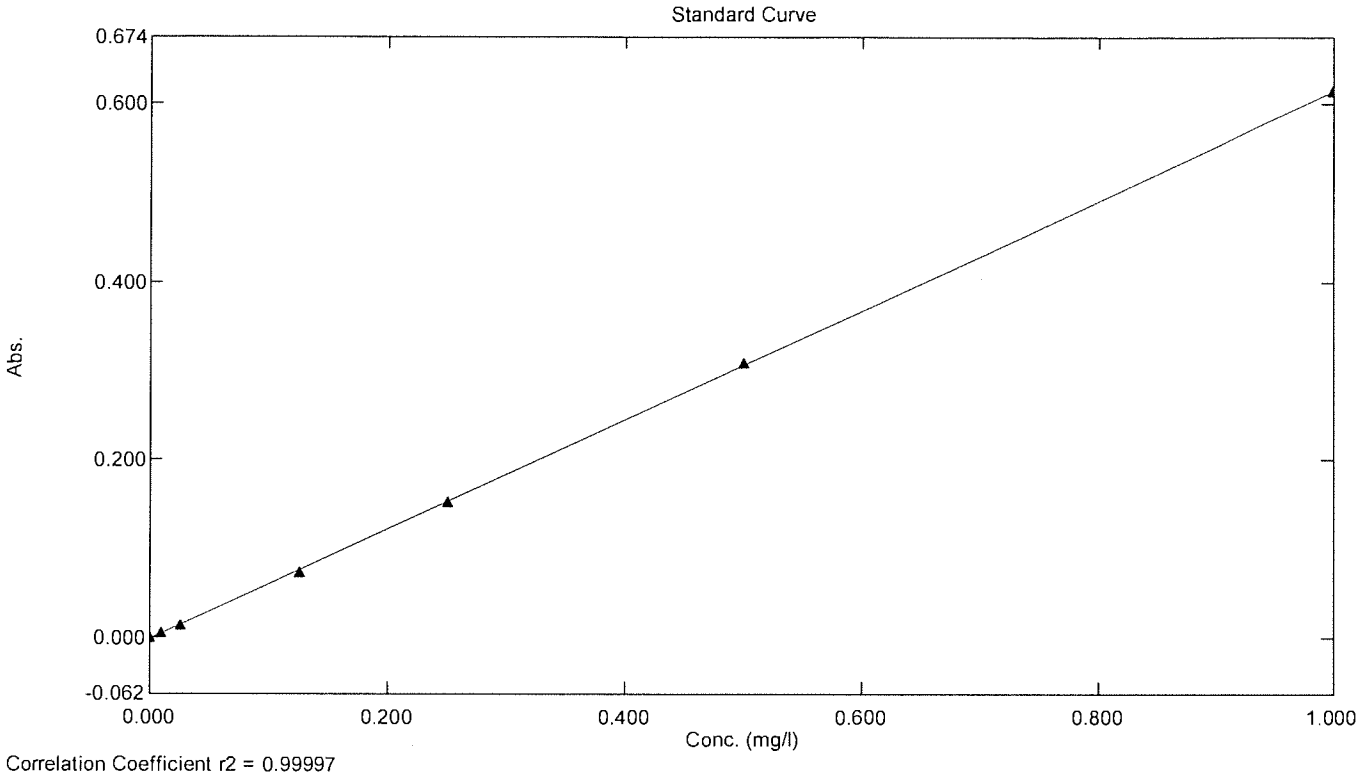

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HS1710071 4

# Standard Table Report

10/31/2017 09:51:18 AM

File Name: Q:\UVProbe\O_PO4_UNKNOWN\171013_P_ORTHO_W.pho




Correlation Coefficient r2 = 0.99997

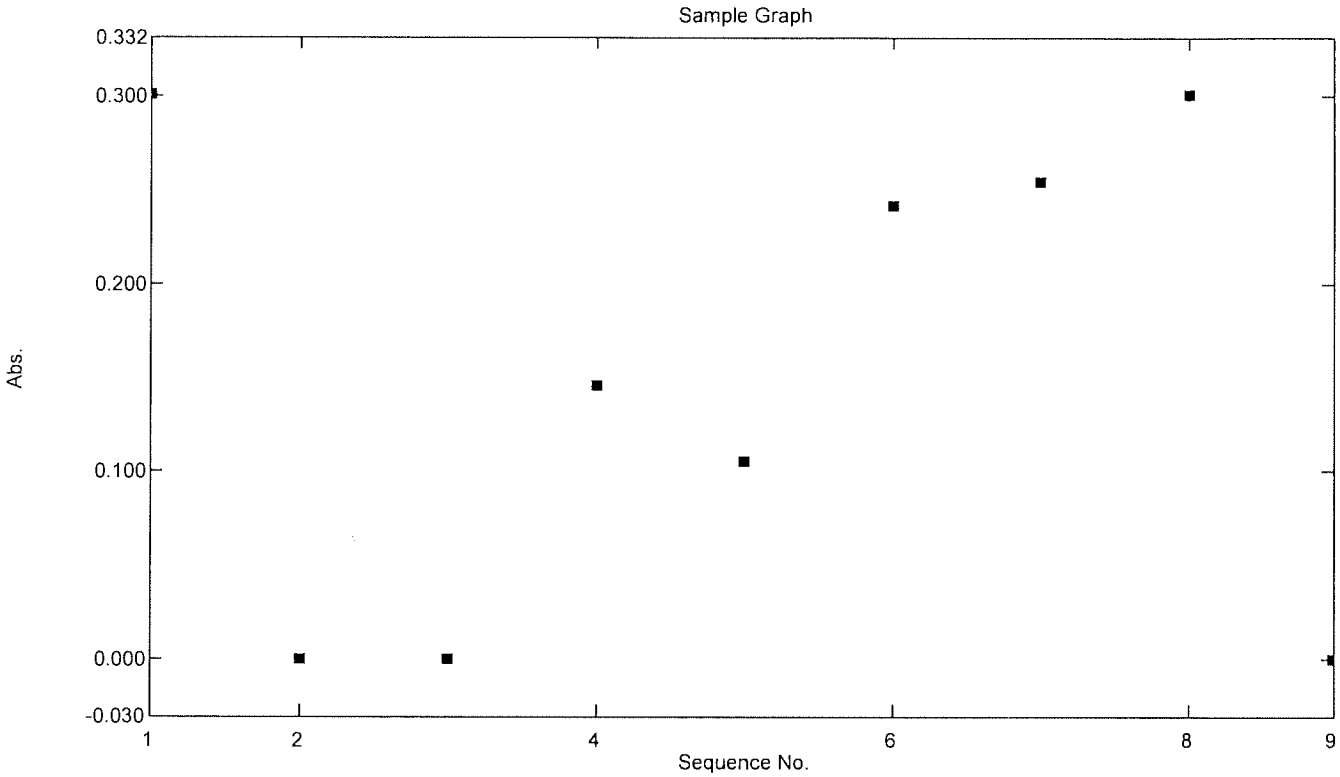
Standard Table

| | Sample ID | Type | Ex | Conc | WL880.0 | Wgt.Facto | Comments |
|---|---|---|---|---|---|---|---|
| 1 | STD1 | Standard | | 0.000 | 0.000 | 1.000 | |
| 2 | STD2 | Standard | | 0.010 | 0.006 | 1.000 | |
| 3 | STD3 | Standard | | 0.025 | 0.015 | 1.000 | |
| 4 | STD4 | Standard | | 0.125 | 0.074 | 1.000 | |
| 5 | STD5 | Standard | | 0.250 | 0.152 | 1.000 | |
| 6 | STD6 | Standard | | 0.500 | 0.308 | 1.000 | |
| 7 | STD7 | Standard | | 1.000 | 0.613 | 1.000 | |
| 8 | | | | | | | |

# Sample Table Report

10/31/2017 09:51:20 AM

File Name: Q:\UVProbe\O_PO4_UNKNOWN\171013_P_ORTHO_W.pho




Sample Table

| | Sample ID | Type | Ex | Conc | WL880.0 | Comments |
|---|---|---|---|---|---|---|
| 1 | CCV | Unknown | | 0.492 | 0.301 | |
| 2 | CCB | Unknown | | 0.001 | -0.000 | |
| 3 | WBLNKW1 | Unknown | | 0.002 | 0.001 | |
| 4 | WLCSW1 | Unknown | | 0.238 | 0.146 | |
| 5 | 17100714.01 | Unknown | | 0.172 | 0.105 | DF-10X |
| 6 | 17100714.01MS | Unknown | | 0.394 | 0.241 | DF-10X |
| 7 | 17100714.01MSD | Unknown | | 0.415 | 0.254 | DF-10X |
| 8 | CCV2 | Unknown | | 0.491 | 0.301 | |
| 9 | CCB2 | Unknown | | 0.002 | 0.001 | |
| 10 | | | | | | |

HS17100714



| | Analysis | Sample Name | Sample ID | Origin | Result | Status | Date / Time | Vial |
|---|---|---|---|---|---|---|---|---|
| 1 | NPOC | CCV | 304.147.105 | 10-19-2017_W | NPOC:25.83mg/L | Completed | 10/23/2017 8:26:33 PM | 1 |
| 2 | NPOC | CCB | Untitled | 10-19-2017_W | NPOC:0.4213mg/L | Completed | 10/23/2017 8:41:51 PM | 2 |
| 3 | NPOC | WBLKW1-102317 | 5310B | 10-19-2017_W | NPOC:0.2895mg/L | Completed | 10/23/2017 8:54:59 PM | 3 |
| 4 | NPOC | WLCSW1-102317 | 297.020.4418 | 10-19-2017_W | NPOC:9.511mg/L | Completed | 10/23/2017 9:10:22 PM | 4 |
| 5 | NPOC | WLCSDW1-102317 | Untitled | 10-19-2017_W | NPOC:9.416mg/L | Completed | 10/23/2017 9:25:56 PM | 5 |
| 6 | NPOC | HS17100883-01 | TOC_W1/2 | 10-19-2017_W | NPOC:10.01mg/L | Completed | 10/23/2017 9:41:09 PM | 6 |
| 7 | NPOC | HS17100883-01MS | 1/2 | 10-19-2017_W | NPOC:19.66mg/L | Completed | 10/23/2017 9:55:12 PM | 7 |
| 8 | NPOC | HS17100621-01 | 1/2 | 10-19-2017_W | NPOC:3.018mg/L | Completed | 10/23/2017 10:10:30 PM | 8 |
| 9 | NPOC | HS17100621-04 | 1/2 | 10-19-2017_W | NPOC:3.306mg/L | Completed | 10/23/2017 10:25:43 PM | 9 |
| 10 | NPOC | HS17100625-01 | 1/2 | 10-19-2017_W | NPOC:2.691mg/L | Completed | 10/23/2017 10:41:03 PM | 10 |
| 11 | NPOC | HS17100914-01 | 1/2 | 10-19-2017_W | NPOC:9.783mg/L | Completed | 10/23/2017 10:54:11 PM | 11 |
| 12 | NPOC | HS17100916-01 | 1/2 | 10-19-2017_W | NPOC:12.42mg/L | Completed | 10/23/2017 11:09:29 PM | 12 |
| 13 | NPOC | CCV | Untitled | 10-19-2017_W | NPOC:24.21mg/L | Completed | 10/23/2017 11:22:54 PM | 13 |
| 14 | NPOC | CCB | Untitled | 10-19-2017_W | NPOC:0.3109mg/L | Completed | 10/23/2017 11:38:12 PM | 14 |
| 15 | NPOC | HS17100950-01DF100 | 1/1 | 10-19-2017_W | NPOC:82.86mg/L | Completed | 10/23/2017 11:51:44 PM | 15 |
| 16 | NPOC | HS17100950-02DF100 | 1/1 | 10-19-2017_W | NPOC:61.94mg/L | Completed | 10/24/2017 12:04:57 AM | 16 |
| 17 | NPOC | FLUSH | Untitled | 10-19-2017_W | NPOC:0.3530mg/L | Completed | 10/24/2017 12:20:15 AM | 17 |
| 18 | NPOC | HS17100714-01DF5 | TOC_W 1/1 | 10-19-2017_W | NPOC:15.99mg/L | Completed | 10/24/2017 12:33:23 AM | 18 |
| 19 | NPOC | HS17100966-01DF5 | TOC_W 1/1 | 10-19-2017_W | NPOC:8.466mg/L | Completed | 10/24/2017 12:46:36 AM | 19 |
| 20 | NPOC | CCV | Untitled | 10-19-2017_W | NPOC:25.04mg/L | Completed | 10/24/2017 12:59:49 AM | 20 |
| 21 | NPOC | CCB | Untitled | 10-19-2017_W | NPOC:0.3007mg/L | Completed | 10/24/2017 1:15:07 AM | 21 |
| 22 | NPOC | FLUSH | Untitled | 10-19-2017_W | NPOC:0.2535mg/L | Completed | 10/24/2017 1:28:15 AM | 22 |
| 23 | NPOC | FLUSH | Untitled | 10-19-2017_W | NPOC:0.2520mg/L | Completed | 10/24/2017 1:41:28 AM | 23 |
| 24 | NPOC | CCV | Untitled | 10-19-2017_W | NPOC:25.11mg/L | Completed | 10/24/2017 11:33:09 AM | 1 |
| 25 | NPOC | CCB | Untitled | 10-19-2017_W | NPOC:0.2694mg/L | Completed | 10/24/2017 11:48:27 AM | 2 |
| 26 | NPOC | HS17100950-01DF200 | 1/1 | 10-19-2017_W | NPOC:42.81mg/L | Completed | 10/24/2017 12:01:44 PM | 3 |
| 27 | NPOC | HS17100950-02DF200 | 1/1 | 10-19-2017_W | NPOC:31.93mg/L | Completed | 10/24/2017 12:14:57 PM | 4 |
| 28 | NPOC | CCV | Untitled | 10-19-2017_W | NPOC:25.40mg/L | Completed | 10/24/2017 12:28:10 PM | 5 |
| 29 | NPOC | CCB | Untitled | 10-19-2017_W | NPOC:0.3121mg/L | Completed | 10/24/2017 12:41:23 PM | 6 |

Instr.Information

| | |
|---|---|
| System | TOC csh with asi |
| Instrument Options | TOC/ASI/IC Unit/ |
| Catalyst | Regular Sensitivity |

Cal. Curve

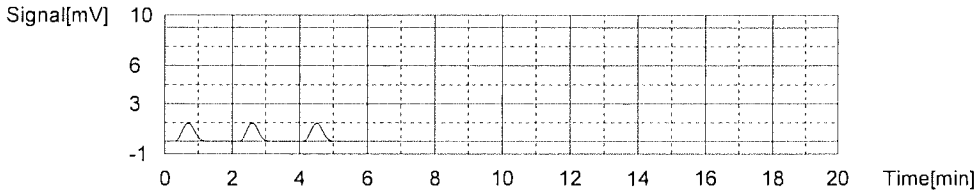
| | |
|---|---|
| Sample Name: | CAL |
| Sample ID: | 304146903 |
| Cal. Curve: | 10-19-2017_W.2017_10_19_18_40_46.cal |
| Status | Completed |

| Type | Anal. |
|---|---|
| Standard | NPOC |

Conc: 1.000mg/L

| No. | Area | Inj. Vol. | Aut. Dil. | Rem. | Ex. | Date / Time |
|---|---|---|---|---|---|---|
| 1 | 3.543 | 50uL | 1 | ******* | | 10/19/2017 6:49:30 PM |
| 2 | 3.482 | 50uL | 1 | ******* | | 10/19/2017 6:51:35 PM |
| 3 | 3.421 | 50uL | 1 | ******* | | 10/19/2017 6:53:40 PM |

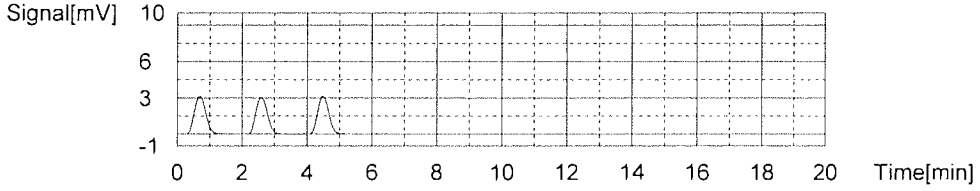
Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 3.482




Conc: 2.000mg/L

| No. | Area | Inj. Vol. | Aut. Dil. | Rem. | Ex. | Date / Time |
|---|---|---|---|---|---|---|
| 1 | 7.485 | 50uL | 1 | ******* | | 10/19/2017 7:02:43 PM |
| 2 | 7.402 | 50uL | 1 | ******* | | 10/19/2017 7:04:48 PM |
| 3 | 7.385 | 50uL | 1 | ******* | | 10/19/2017 7:06:53 PM |

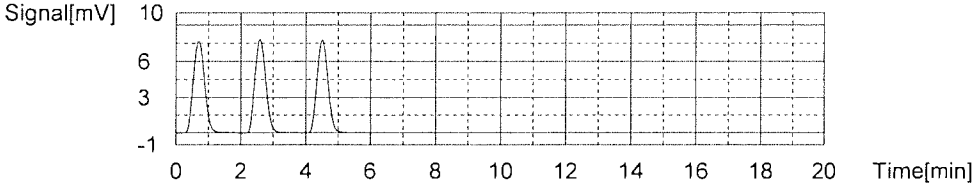
Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 7.424




Conc: 5.000mg/L

| No. | Area | Inj. Vol. | Aut. Dil. | Rem. | Ex. | Date / Time |
|---|---|---|---|---|---|---|
| 1 | 18.12 | 50uL | 1 | ******* | | 10/19/2017 7:15:56 PM |
| 2 | 18.26 | 50uL | 1 | ******* | | 10/19/2017 7:18:01 PM |
| 3 | 18.18 | 50uL | 1 | ******* | | 10/19/2017 7:20:06 PM |

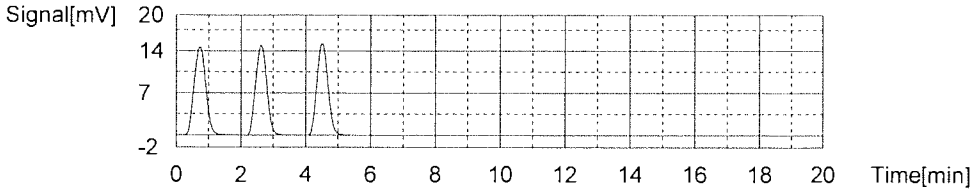
Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 18.19




Conc: 10.00mg/L

| No. | Area | Inj. Vol. | Aut. Dil. | Rem. | Ex. | Date / Time |
|---|---|---|---|---|---|---|
| 1 | 35.95 | 50uL | 1 | ******* | | 10/19/2017 7:29:09 PM |
| 2 | 36.03 | 50uL | 1 | ******* | | 10/19/2017 7:31:14 PM |
| 3 | 36.14 | 50uL | 1 | ******* | | 10/19/2017 7:33:19 PM |

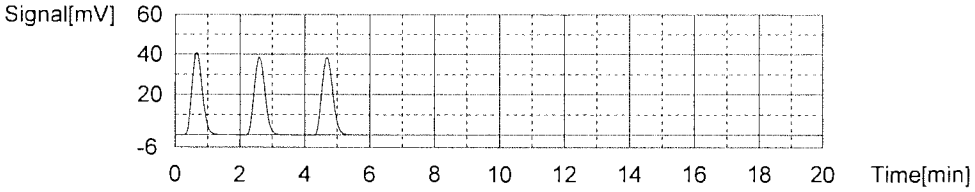
Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 36.04




Conc: 25.00mg/L

| No. | Area | Inj. Vol. | Aut. Dil. | Rem. | Ex. | Date / Time |
|---|---|---|---|---|---|---|
| 1 | 90.02 | 50uL | 1 | ******* | | 10/19/2017 7:42:22 PM |
| 2 | 89.62 | 50uL | 1 | ******* | | 10/19/2017 7:44:39 PM |
| 3 | 89.06 | 50uL | 1 | ******* | | 10/19/2017 7:46:44 PM |

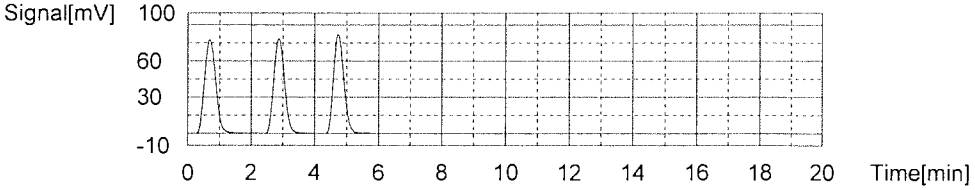
Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 89.57



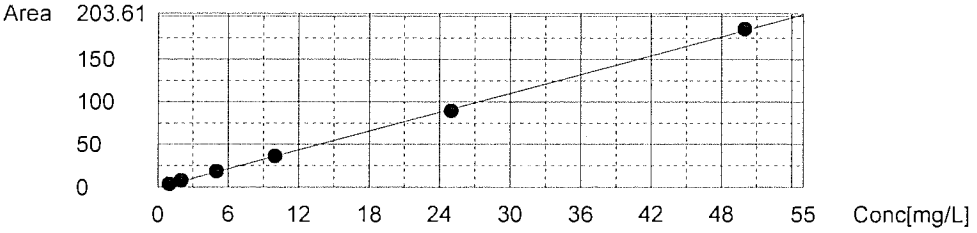

Conc: 50.00mg/L

| No. | Area | Inj. Vol. | Aut. Dil. | Rem. | Ex. | Date / Time |
|---|---|---|---|---|---|---|
| 1 | 187.0 | 50uL | 1 | ******* | | 10/19/2017 7:56:03 PM |
| 2 | 184.6 | 50uL | 1 | ******* | | 10/19/2017 7:58:08 PM |
| 3 | 183.7 | 50uL | 1 | ******* | | 10/19/2017 8:00:13 PM |

Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 185.1




Slope: 3.693
Intercept -0.6056
r^2 0.9997
r 0.9999
Zero Shift No




Sample

Sample Name: ICV
Sample ID: 304147002
Origin: 10-19-2017_W.cal
Status Completed
Chk. Result

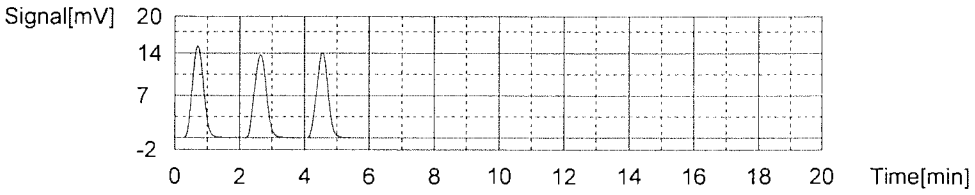
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:9.584mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 35.50 | 9.777mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/19/2017 8:09:16 PM |
| 2 | 34.71 | 9.563mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/19/2017 8:11:21 PM |
| 3 | 34.15 | 9.412mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/19/2017 8:13:26 PM |

Mean Area 34.79
Mean Conc. 9.584mg/L




Sample

Sample Name: ICB
Sample ID: Untitled
Origin: 10-19-2017_W.cal
Status Completed
Chk. Result

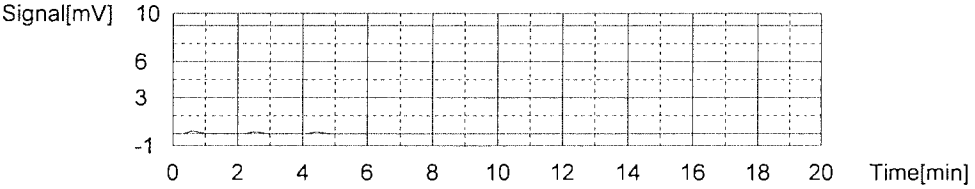
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:0.2527mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 0.4094 | 0.2749mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/19/2017 8:22:29 PM |
| 2 | 0.2915 | 0.2429mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/19/2017 8:24:34 PM |
| 3 | 0.2819 | 0.2403mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/19/2017 8:26:39 PM |

Mean Area 0.3276
Mean Conc. 0.2527mg/L



Instr.Information

| | |
|---|---|
| System | TOC csh with asi |
| Instrument Options | TOC/ASI/IC Unit/ |
| Catalyst | Regular Sensitivity |

Sample

| | |
|---|---|
| Sample Name: | CCV |
| Sample ID: | 304.147.105 |
| Origin: | 10-19-2017_W.cal |
| Status | Completed |
| Chk. Result | |

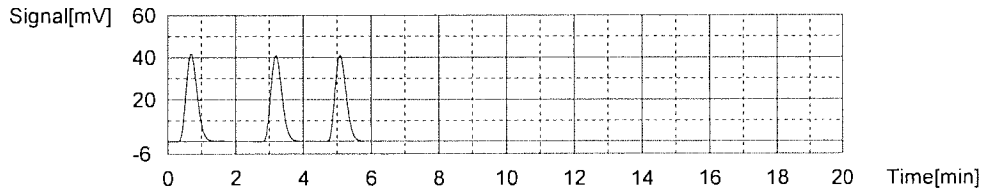
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:25.83mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 96.43 | 26.28mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 8:22:23 PM |
| 2 | 93.75 | 25.55mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 8:24:28 PM |
| 3 | 94.16 | 25.66mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 8:26:33 PM |

Mean Area 94.78
Mean Conc. 25.83mg/L




Sample

| | |
|---|---|
| Sample Name: | CCB |
| Sample ID: | Untitled |
| Origin: | 10-19-2017_W.cal |
| Status | Completed |
| Chk. Result | |

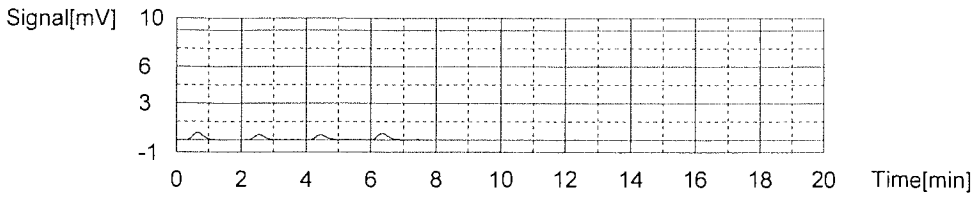
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:0.4213mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 1.280 | 0.5106mg/L | 50uL | 1 | E | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 8:35:36 PM |
| 2 | 0.8839 | 0.4033mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 8:37:41 PM |
| 3 | 0.8428 | 0.3922mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 8:39:46 PM |
| 4 | 1.124 | 0.4684mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 8:41:51 PM |

Mean Area 0.9502
Mean Conc. 0.4213mg/L




Sample

Sample Name: WBLKW1-102317
Sample ID: 5310B
Origin: 10-19-2017_W.cal
Status Completed
Chk. Result

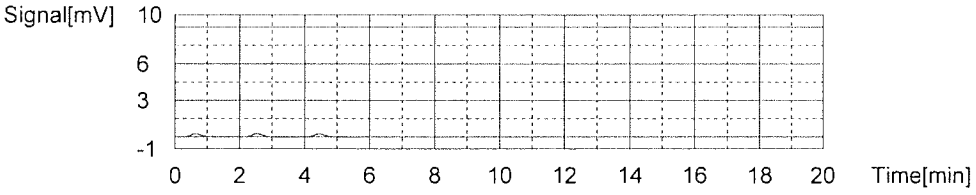
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:0.2895mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 0.4407 | 0.2833mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 8:50:49 PM |
| 2 | 0.4808 | 0.2942mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 8:52:54 PM |
| 3 | 0.4695 | 0.2911mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 8:54:59 PM |

Mean Area 0.4637
Mean Conc. 0.2895mg/L




Sample

Sample Name: WLCSW1-102317
Sample ID: 297.020.4418
Origin: 10-19-2017_W.cal
Status Completed
Chk. Result

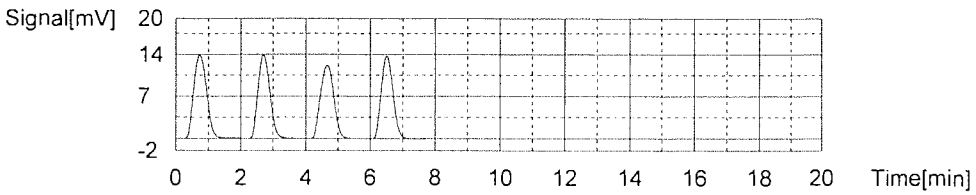
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:9.511mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 37.53 | 10.33mg/L | 50uL | 1 | E | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 9:04:07 PM |
| 2 | 35.00 | 9.642mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 9:06:12 PM |
| 3 | 34.45 | 9.493mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 9:08:17 PM |
| 4 | 34.10 | 9.398mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 9:10:22 PM |

Mean Area 34.52
Mean Conc. 9.511mg/L




Sample

Sample Name: WLCSDW1-102317
Sample ID: Untitled
Origin: 10-19-2017_W.cal
Status Completed
Chk. Result

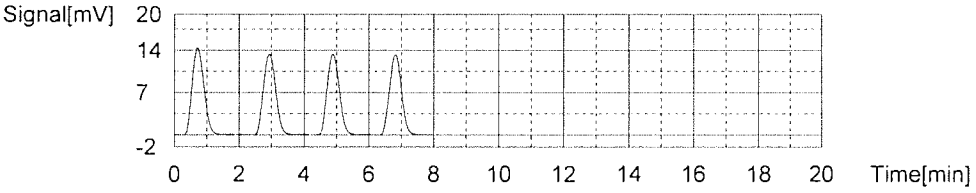
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:9.416mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 35.77 | 9.850mg/L | 50uL | 1 | E | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 9:19:37 PM |
| 2 | 34.62 | 9.539mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 9:21:46 PM |
| 3 | 34.27 | 9.444mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 9:23:51 PM |
| 4 | 33.61 | 9.265mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 9:25:56 PM |

Mean Area 34.17
Mean Conc. 9.416mg/L




Sample

Sample Name: HS17100883-01
Sample ID: TOC_W1/2
Origin: 10-19-2017_W.cal
Status Completed
Chk. Result

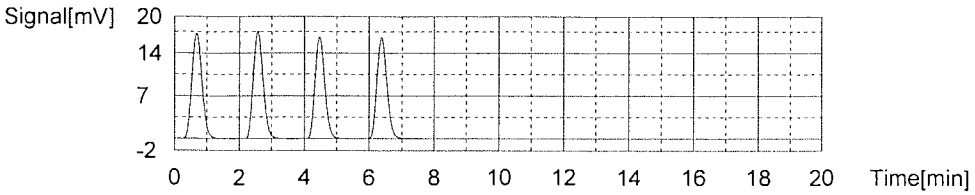
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:10.01mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 36.98 | 10.18mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 9:34:54 PM |
| 2 | 37.07 | 10.20mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 9:36:59 PM |
| 3 | 34.59 | 9.531mg/L | 50uL | 1 | E | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 9:39:04 PM |
| 4 | 35.06 | 9.658mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 9:41:09 PM |

Mean Area 36.37
Mean Conc. 10.01mg/L




Sample

Sample Name: HS17100883-01MS
Sample ID: 1/2
Origin: 10-19-2017_W.cal
Status Completed
Chk. Result

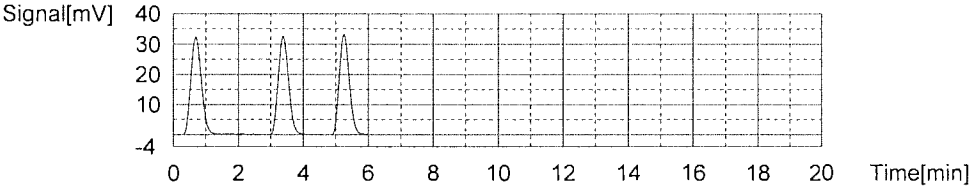
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:19.66mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 73.17 | 19.98mg/L | 50ul | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 9:51:02 PM |
| 2 | 72.08 | 19.68mg/L | 50ul | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 9:53:07 PM |
| 3 | 70.69 | 19.31mg/L | 50ul | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 9:55:12 PM |

Mean Area 71.98
Mean Conc. 19.66mg/L




Sample

Sample Name: CCV
Sample ID: Untitled
Origin: 10-19-2017_W.cal
Status Completed
Chk. Result

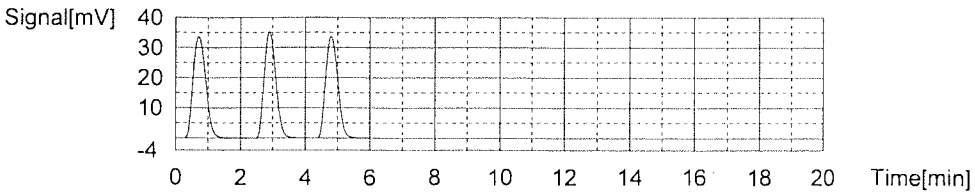
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:24.21mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 90.16 | 24.58mg/L | 50ul | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 11:18:44 PM |
| 2 | 88.86 | 24.23mg/L | 50ul | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 11:20:49 PM |
| 3 | 87.34 | 23.82mg/L | 50ul | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 11:22:54 PM |

Mean Area 88.79
Mean Conc. 24.21mg/L




Sample

Sample Name: CCB
Sample ID: Untitled
Origin: 10-19-2017_W.cal
Status Completed
Chk. Result

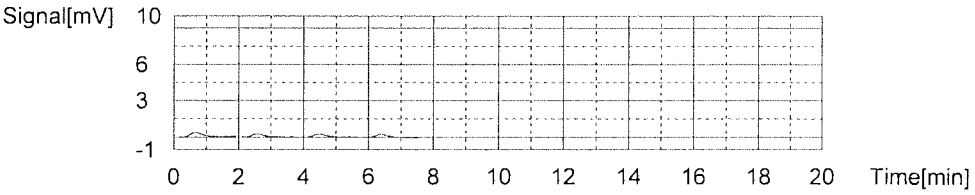
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:0.3109mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 0.8431 | 0.3923mg/L | 50uL | 1 | E | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 11:31:57 PM |
| 2 | 0.5632 | 0.3165mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 11:34:02 PM |
| 3 | 0.5506 | 0.3131mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 11:36:07 PM |
| 4 | 0.5138 | 0.3031mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 11:38:12 PM |

Mean Area 0.5425
Mean Conc. 0.3109mg/L




Sample

Sample Name: HS17100714-01DF5
Sample ID: TOC_W 1/1
Origin: 10-19-2017_W.cal
Status Completed
Chk. Result

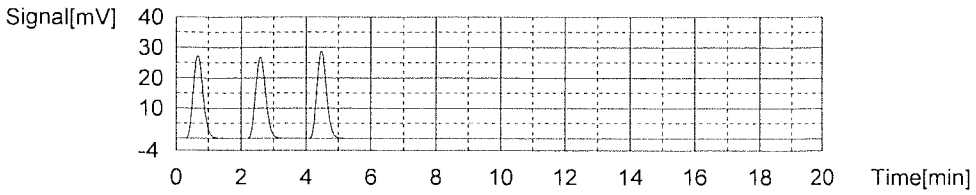
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:15.99mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 57.83 | 15.82mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/24/2017 12:29:13 AM |
| 2 | 58.08 | 15.89mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/24/2017 12:31:18 AM |
| 3 | 59.41 | 16.25mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/24/2017 12:33:23 AM |

Mean Area 58.44
Mean Conc. 15.99mg/L




Sample

Sample Name: CCV
Sample ID: Untitled
Origin: 10-19-2017_W.cal
Status Completed
Chk. Result

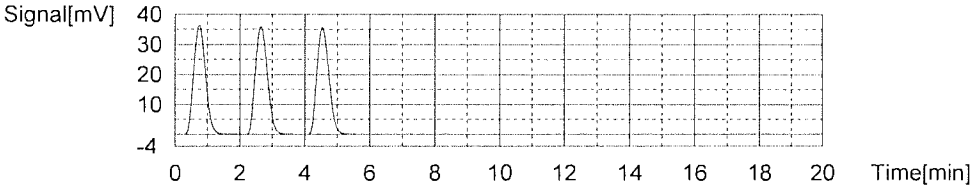
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:25.04mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 91.76 | 25.01mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/24/2017 12:55:39 AM |
| 2 | 92.30 | 25.16mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/24/2017 12:57:44 AM |
| 3 | 91.50 | 24.94mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/24/2017 12:59:49 AM |

Mean Area 91.85
Mean Conc. 25.04mg/L




Sample

Sample Name: CCB
Sample ID: Untitled
Origin: 10-19-2017_W.cal
Status Completed
Chk. Result

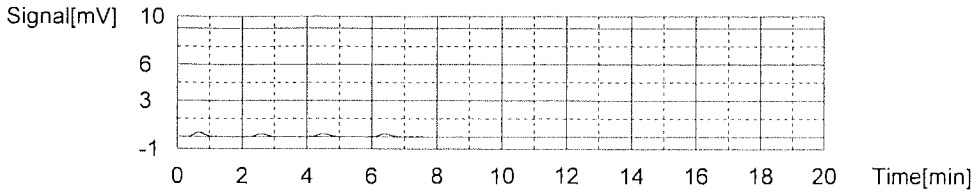
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:0.3007mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 0.7570 | 0.3690mg/L | 50uL | 1 | E | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/24/2017 1:08:52 AM |
| 2 | 0.5050 | 0.3007mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/24/2017 1:10:57 AM |
| 3 | 0.4823 | 0.2946mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/24/2017 1:13:02 AM |
| 4 | 0.5277 | 0.3069mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/24/2017 1:15:07 AM |

| | |
|---|---|
| Mean Area | 0.5050 |
| Mean Conc. | 0.3007mg/L |



# Sub Contract Data

Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Monthly Influent Sample
ALS WO# HS17100714

# Case Narrative

**Method:** 6850
**Analysis:** Perchlorate
**Analysis SOP:** LC-MS-CLO4
**ALS WO ID(s):** 1728943; 1728945; 1728946; 1729349

**Client:** ALS Laboratories (Houston, TX)
**Matrix:** Water
**ELMS Batch (HBN):** 1985 (201123)

**General Set Information:** There were four 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:** Sample 1728946001 was re-analyzed and reported at a 1 in 1,000 dilution. The reporting limits have been adjusted accordingly.

**Method QC data:** The method blank (LMB 571097) was less than 1/2 the CRDL. The recovery for the LCS (571098) was within acceptable parameters.

**MS/MSD Analysis:** The matrix spike and matrix spike duplicate (MS/MSD) was performed on sample 1728943001 (Client ID: LH18/24-SP650_101217). 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):** None were required for this set.

**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 5.0. Manual Integrations were performed for some of the Initial Calibration analyses (datafiles: 21AUGP01-03) along with datafiles 25OCTP02/03/07/08/11.

Thomas Bosch October 27, 2017
Date

# ANALYTICAL REPORT

Report Date: October 27, 2017

Sonia West
ALS Environmental
10450 Stancliff Rd.
Suite 210
Houston, TX 77099

Phone: (281) 530-5656

E-mail: Sonia.West@alsglobal.com

Workorder: **34-1728943**
Project ID: HS17100714 101217
Purchase Order: HS17100714
Project Manager Kevin W. Griffiths

| Client Sample ID | Lab ID | Collect Date | Receive Date | Sampling Site |
|---|---|---|---|---|
| LH18/24-SP650_101217 | 1728943001 | 10/12/17 | 10/14/17 | |

# ANALYTICAL REPORT

**Workorder:** 34-1728943
**Client:** ALS Environmental (Houston)
**Project Manager:** Kevin W. Griffiths

## Analytical Results

| | | |
|---|---|---|
| Sample ID: **LH18/24-SP650_101217** | Sampling Site: NA | Collected: 10/12/2017 |
| Lab ID: 1728943001 | Media: 125 mL Nalgene | Received: 10/14/2017 |
| 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/1985 (HBN: 201123) | **Percent Solid:** NA |
| | **Analyzed:** 10/25/2017 10:44 | **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 |

## 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>10/26/2017 14:50 | /S/ Stephen Brose<br>10/27/2017 10:17 |

## 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

# ANALYTICAL REPORT

**Workorder:** 34-1728943
**Client:** ALS Environmental (Houston)
**Project Manager:** Kevin W. Griffiths

## 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 (Standard) | Certificate Number | Website |
|---|---|---|---|
| Environmental | ANAB (DoD ELAP) | ADE-1420 | http://www.anab.org/accredited-organizations/ |
| | Utah (NELAC) | DATA1 | http://health.utah.gov/lab/labimp/ |
| | Nevada | UT00009 | http://ndep.nv.gov/bsdw/labservice.htm |
| | Oklahoma | UT00009 | http://www.deq.state.ok.us/CSDnew/ |
| | Iowa | IA# 376 | http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx |
| | Texas (TNI) | T104704456-11-1 | http://www.tceq.texas.gov/field/qa/lab_accred_certif.html |
| | Washington | C596-16 | http://www.ecy.wa.gov/programs/eap/labs/index.html |
| | Kansas | E-10416 | http://www.kdheks.gov/lipo/index.html |
| Industrial Hygiene | AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP) | 101574 | http://www.aihaaccreditedlabs.org |
| | Washington | C596-16 | http://www.ecy.wa.gov/programs/eap/labs/index.html |
| Lead Testing: | | | |
| CPSC | ANAB (ISO 17025, CPSC) | ADE-1420 | http://www.anab.org/accredited-organizations/ |
| Soil, Dust, Paint ,Air | AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP) | 101574 | http://www.aihaaccreditedlabs.org |
| Dietary Supplements | ACLASS (ISO 17025) | ADE-1420 | http://www.aclasscorp.com |

# ANALYTICAL REPORT

**Workorder:** 34-1728943
**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:** 1728943

| | | | | | |
|---|---|---|---|---|---|
| **Limits:** | Client SOW/Contract Specified | **Preparation:** | NA | **Analysis:** | EPA 6850 |
| **Basis:** | DoD QSM | **Batch:** | NA | **Batch:** | ELMS/1985 (HBN: 201123) |
| | | **Prepared By:** | NA | **Analyzed By:** | Thomas Bosch |

### Blank

**LMB:** 571097
**Analyzed:** 10/25/2017 10:02
**Units:** ug/L

| Analyte | Result | MDL | RL |
|---|---|---|---|
| Perchlorate | ND | 1 | 2.00 |

### Laboratory Control Sample

**LCS:** 571098
**Analyzed:** 10/25/2017 10:22
**Dilution:** 1
**Units:** ug/L

| Analyte | Result | Target | % Rec | QC Limits | |
|---|---|---|---|---|---|
| Perchlorate | 5.29 | 5.00 | 106 | 78.8 | 123.8 |

### Matrix Spike - Matrix Spike Duplicate

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sample:** | 1728943001 | **MS:** | 571099 | | | | **MSD:** | 571100 | | | |
| **Analyzed:** | 10/25/2017 10:44 | **Analyzed:** | 10/25/2017 11:03 | | | | **Analyzed:** | 10/25/2017 11:23 | | | |
| **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 | 4.48 | 5 | 89.6 | 78.8 | 123.8 | 4.52 | 90.4 | 0.9 | 0.0 | 20.0 |

### Continuing Calibration Verification

| | | | | | | |
|---|---|---|---|---|---|---|
| **CCV:** | 571094 | | | **CCV:** | 571101 | |
| **Analyzed:** | 10/25/2017 09:02 | | | **Analyzed:** | 10/25/2017 14:46 | |
| **Units:** | ug/L | | | **Units:** | ug/L | |
| **Criteria:** | ± 15% | | | **Criteria:** | ± 15% | |

| Analyte | Result | Target | % Rec. | Result | Target | % Rec. |
|---|---|---|---|---|---|---|
| Perchlorate | 26.4 | 25.0 | 106 | 23.8 | 25.0 | 95.3 |

### Interference Check Sample

**ICSA:** 571096
**Analyzed:** 10/25/2017 09:43
**Units:** ug/L
**Criteria:** ± 30%

| Analyte | Result | Target | % Rec. |
|---|---|---|---|
| Perchlorate | 1.15 | 1.00 | 115 |

### Limit of Detection Verification

| | | | | | | |
|---|---|---|---|---|---|---|
| **LODV:** | 571095 | | | **LODV:** | 571102 | |
| **Analyzed:** | 10/25/2017 09:24 | | | **Analyzed:** | 10/25/2017 15:06 | |
| **Units:** | ug/L | | | **Units:** | ug/L | |
| **Criteria:** | ± 50% | | | **Criteria:** | ± 50% | |

| Analyte | Result | Target | % Rec. | Result | Target | % Rec. |
|---|---|---|---|---|---|---|
| Perchlorate | 0.839 | 1.00 | 83.9 | 0.968 | 1.00 | 96.8 |

# Quality Control Sample
# Batch Report

## Analysis Information

**Workorder:** **1728943**

| | | | | | |
|---|---|---|---|---|---|
| **Limits:** | Client SOW/Contract Specified | **Preparation:** | NA | **Analysis:** | EPA 6850 |
| **Basis:** | DoD QSM | **Batch:** | NA | **Batch:** | ELMS/1985 (HBN: 201123) |
| | | **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 |
| 10/26/2017 14:50 | 10/27/2017 10:17 |

## 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

18698/#2

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

W 1728943

# Subcontract Chain of Custody 1728943

**COC ID: 7816**

**SUBCONTRACT TO:**

ALS Laboratory Group
960 LeVoy Dr
Salt Lake City, UT 84123

**Phone:** +1 801 266 7700

**CUSTOMER INFORMATION:**

| | |
|---|---|
| **Company:** | ALS Houston |
| **Contact:** | Sonia West |
| **Address:** | 10450 Stancliff Rd, Ste 210 |
| **Phone:** | +1 281 530 5656 |
| **Email:** | Sonia.West@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:** | HS17100714 |
| **TSR:** | Danielle Winnings |

| | LAB SAMPLE ID | CLIENT SAMPLE ID | MATRIX | COLLECT DATE |
|---|---|---|---|---|
| | ANALYSIS REQUESTED | | | DUE DATE |
| **1.** | **HS17100714-01** | **LH18/24-SP650_101217** | **Water** | **12 Oct 2017 14:00** |
| | SUB_Perch-6850 | | | 27 Oct 2017 |

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

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

Relinquished By: _____ Date/Time: Oct 13, 2017 1800

Received By: _____ Date/Time: 10/14/17 0815

Cooler ID(s): 7915 Temperature(s): 2°

# ALS - SALT LAKE CITY-RELATED INFORMATION REPORT (CRIR)

## COOLER OR CONTAINER INFORMATION CHECKLIST (Fill In or Circle)

Client Name: ALS Houston

Project/Task/Site: 1725943

Date/Time of Receipt: 10/14/17 855

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 | TOC Preserved | Yes/No/NA |

| Cooler Received | ALS Cooler No. | Temp. | Cooler Received | ALS Cooler No. | Temp. | Cooler Received | ALSL Cooler No. | Temp. |
|---|---|---|---|---|---|---|---|---|
| 1 | C17- 7915 | 2 °C | 4 | C17- | °C | 7 | C17- | °C |
| 2 | C17- | °C | 5 | C17- | °C | 8 | C17- | °C |
| 3 | C17- | °C | 6 | C17- | °C | 9 | C17- | °C |

Taken By: Mereedith Edwards (Signature) Mereedith Edwards (Printed Name) 10/14/17 (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:

E-mailed to Client? YES ☐ NO ☐

**Response Required Within 24 Hours**

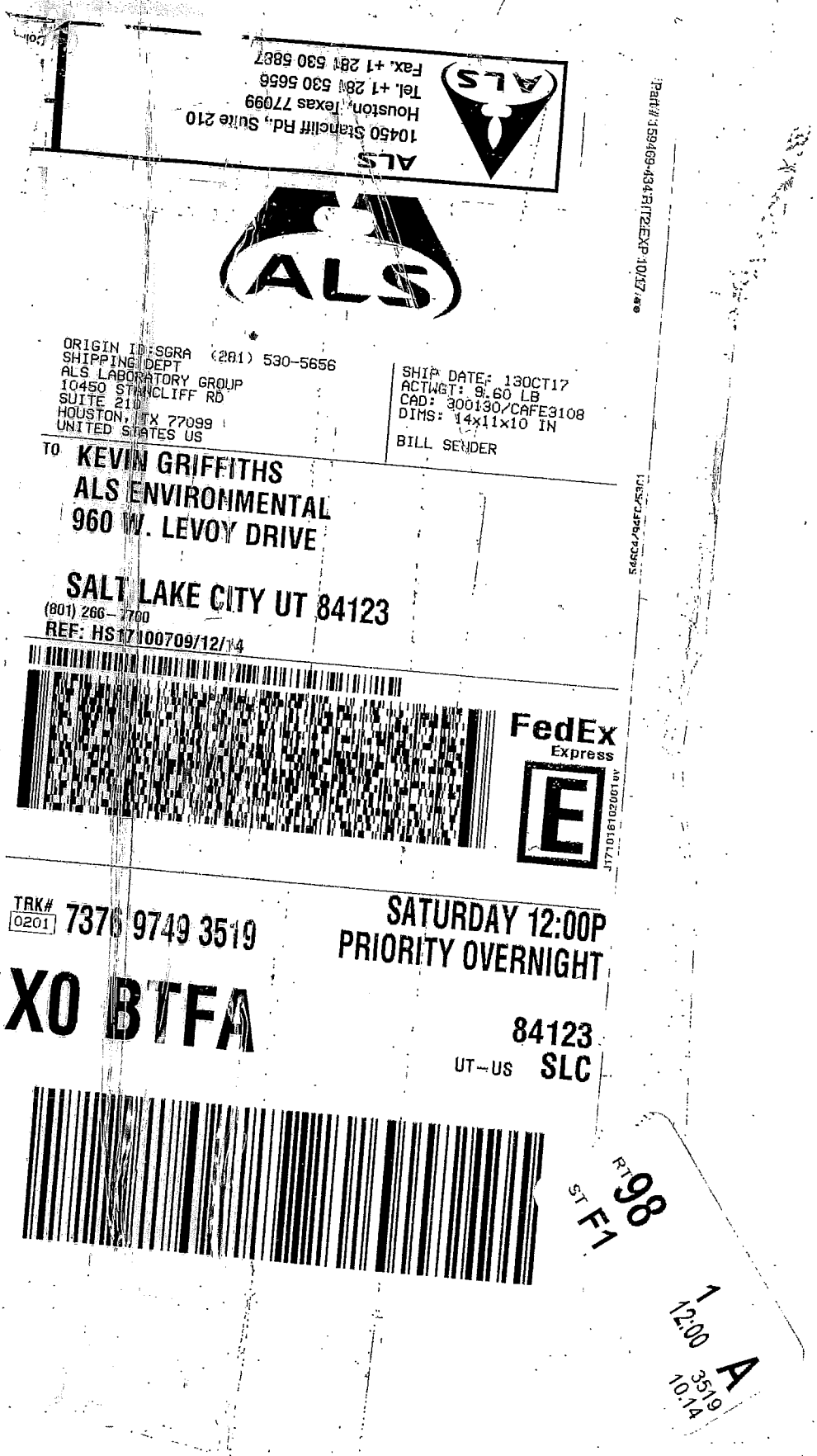
## PROJECT MANAGEMENT

PROJECT MANAGER COMMENTS:

ALS Project Manager: _____ (Printed Name) Returned to Sample Receipt by: _____ (Signature) Date: _____

CRIR.dot

Revised 1/1/15



ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5857

ALS

ORIGIN ID:SGRA (281) 530-5656
SHIPPING DEPT
ALS LABORATORY GROUP
10450 STANCLIFF RD
SUITE 210
HOUSTON, TX 77099
UNITED STATES US

SHIP DATE: 13OCT17
ACTWGT: 9.60 LB
CAD: 300130/CAFE3108
DIMS: 14x11x10 IN
BILL SENDER

TO KEVIN GRIFFITHS
ALS ENVIRONMENTAL
960 W. LEVOY DRIVE

SALT LAKE CITY UT 84123
(801) 266-7700
REF: HS17100709/12/14

FedEx Express

TRK# 0201 7376 9749 3519

SATURDAY 12:00P
PRIORITY OVERNIGHT

XO BTFA

84123
UT-US SLC

RT 98
ST F1

1
12:00
A
3519
10.14

Part#:159469-434-R1T2:EXP:10/17

546C4/94FC/53C1

00875873

# ALS Environmental

## CHAIN-OF-CUSTODY

| | | | |
|---|---|---|---|
| **Project / Job / Task:** HS17100714 | *Split:* | **Workorder ID:** 1728943 | **Level:** ENV_LVL4 |
| **Client:** ALS Environmental (Houston) | | **Account:** 8101 | **Type:** 125Poly |
| **Comments:** | | | **Preservatives** COOL |

| Item | Collect Date/Time | Sample ID | Lab ID | QC | Matrix | Containers ID(s) | Containers Count | Requested Analysis: EPA 6850, DoD QSM |
|---|---|---|---|---|---|---|---|---|
| 1 | 10/12/2017 14:00 | LH18/24-SP650_101217 | 1728943001 | | Water | A | 1 | A |
| 2 | | | | | | | | |
| 3 | | | | | | | | |
| 4 | | | | | | | | |
| 5 | | | | | | | | |
| 6 | | | | | | | | |
| 7 | | | | | | | | |
| 8 | | | | | | | | |
| 9 | | | | | | | | |
| 10 | | | | | | | | |

43 of 138

### ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

| Relinquished By: (Signature) | Date / Time | Received By: (Signature) | Reason for Transfer / Storage Location |
|---|---|---|---|
| Warath, Julie | 10/14/2017 08:55 | ALS Sample Receiving | Sample Login |
| Julie Warath | 10/16/17 1300 | 14C | storage |
| R.33.1 | 10.25.17/07:55 | TJBush | 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 |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

# tch Worklist

**Batch:** ELMS/ 1985 **Created:** 10/20/2017 11:25 **Instrument:** **HBN:** 201123
**Rule:** EPA 6850, DoD QSM Water **Analyst:** T. Bosch **Status:** WP

**Workorder: 1728943 [ENV_LVL4]**
**Workorder: 1728945 [ENV_LVL4]**
**Workorder: 1728946 [ENV_LVL4]**
**Workorder: 1729349 [ENV_LVL4]**
**Workorder: 1729821 [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 | 571094 | CCV for HBN 201123 [ELMS/1985] | | | | CCV | 3 | | E685041C3Q | 5311 | | 10/27/2017 | |
| 2 | 571095 | LODV for HBN 201123 [ELMS/1985 | | | | LODV | 3 | | E6850..D3Q | 5311 | | 10/27/2017 | |
| 3 | 571096 | ICS for HBN 201123 [ELMS/1985] | | | | ICS | 3 | | E6850..D3Q | 5311 | | 10/27/2017 | |
| 4 | 571097 | LMB for HBN 201123 [ELMS/1985] | | | | LMB | 3 | | E6850Q413Q | 5311 | | 10/27/2017 | |
| 5 | 571098 | LCS for HBN 201123 [ELMS/1985] | | | | LCS | 3 | | E6850Q413Q | 5311 | | 10/27/2017 | |
| 6 | 1728943001 | LH18/24-SP650_101217 | | | | SAMPLE | 3 | 1728943001-A | E6850Q41.3 | 5480 | 11/9/2017 | 11/4/2017 | |
| 7 | 571099 | LH18/24-SP650...(1728943001MS) | | | | MS | 3 | | E6850Q413Q | 5311 | | 10/27/2017 | |
| 8 | 571100 | LH18/24-SP65...(1728943001MSD) | | | | MSD | 3 | | E6850Q413Q | 5311 | | 10/27/2017 | |
| 9 | 1728945001 | LH18/24-SP650_101217 | | | | SAMPLE | 3 | 1728945001-A | E6850Q41.3 | 5480 | 11/9/2017 | 11/4/2017 | |
| 10 | 1728946001 | LH18/24-SP140_101217 | | | | SAMPLE | 3 | 1728946001-A | E6850Q41.3 | 5480 | 11/9/2017 | 11/4/2017 | |
| 11 | 1729349001 | LH18/24-SP650_101817 | | | | SAMPLE | 3 | 1729349001-A | E6850Q41.3 | 5480 | 11/15/2017 | 11/10/2017 | |
| 12 | 1729821001 | LH18/24-SP650_1017W | | | | SAMPLE | 3 | 1729821001-A | E6850Q41.3 | 5480 | 11/2/2017 | 10/27/2017 | |
| 13 | 571101 | CCV for HBN 201123 [ELMS/1985] | | | | CCV | 3 | | E685041C3Q | 5311 | | 10/27/2017 | |
| 14 | 571102 | LODV for HBN 201123 [ELMS/1985 | | | | LODV | 3 | | E6850..D3Q | 5311 | | 10/27/2017 | |





00875874

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

# Analytical Documentation

ALS Work Order #'s & Sample #( )'s: 1728943 (001); 1728945 (001); 1728946 (001); 1729349 (001); 1729821 (001)
ELMS Batch/HBN ID: 1985 (201123)
Prep Date: 10/25/2017 Analysis Date: 10/25/2017 Analyst: T. Bosch
Analyte: **Perchlorate** Matrix: **Water** Method: **6850**
Sequence:\\HPCHEM\1\SEQUENCE\CLO4\2017\OCT\25OCT17P.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 DI735)/0.1% glacial acetic acid (JT-Baker Lot 04802).
Eluent B1: 95% ACN (B&J Lot DI735)/ 5% ASTM Type II water (ALS)/0.1% glacial acetic acid (JT-Baker Lot 04802).

**STANDARDS:** Internal Standard Spiking Solution Horizon# 38780. Dilutions of Working Standard Solution ID 32373 used for CCV's, LODV's, RLVS and IPC.

**CALIBRATION CURVE:** Used curve from 08/21/2017, sequence 21AUG17P.s Offline Quantitation Method: CLO4-PR3.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: 6 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 | 0.60 |
| 4.0 | 0.60 |
| 5.0 | 0.25 |
| 14.5 | 0.25 |
| 15.0 | 0.60 |
| 17.5 | 0.60 |

**QC DATA:** 5.0µL of QC Solution Horizon ID 36749 was used for LCS 570667; Target = 5.0µg/L. ASTM type II water was used for LMB 570666.

**MS/MSD:** MS/MSD was performed on sample 1728943001 (Client ID: LH18/24-SP650_101217). 5.0µl of Working Standard Solution Horizon ID 36735 was added to 10.0mL of sample preparation. Spike target = 5.0µg/L.

**COMMENTS:**

1) Results reported in µg/L. Sample 1728946001 was re-analyzed and reported at a 1 in 1,000 dilution. The reporting limits have been adjusted accordingly.
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\2017\OCT\HBN# or through NuGenesis\Tree\PrintData\LCMS\DefaultView.
4) Due to limitations of the Chemstation Software, many of the chromatographic peaks require manual integration. Manual Integrations were performed for some of the Initial Calibration analyses (datafiles: 21AUGP01-03) along with datafiles 25OCTP02/03/07/08/11.
5) Notebook: \\alsltws013\ORGANIC\BOSCH\LCMS\Perchlorates\Waters\2017\CLO4-201123-L-ALS-HSTN-KLSO or through \\ALSLTWS013\DATAREVIEW\HBN#

# STANDARD REPORT

## Working Standard - CLO4 WRK

**CLO4 WRK** — **Description - 6850 WKG Std 100.ug/L**

**Standard:** 36735
**MFG:** ALS/SLC
**MFG Lot:** TNB: 05/10/17
**Part ID:**

**Created By:** T. Bosch
**Create Date:** 05/10/2017
**Lab Lot:** CLO4 WRK

**Amount:** 10 mL
**Expires:** 05/10/2018
**Usable:** Yes

| 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 |
| 36734 | CLO4 INT | 6850 Intermdt AccStd 10.ug/mL | CLO4 INT | 0.1 mL | 05/10/2018 |

# STANDARD REPORT

## Constituent

## Stock Standard - CLO4 STOCK

**CLO4 STOCK** — Description - 6850 Stock AccStd 1,000ug/mL

Standard: 36733
MFG: AccuStandard
MFG Lot: 216095148
Part ID: IC-PER-10X-1

Created By: T. Bosch
Create Date: 5/10/2017
Lab Lot: CLO4 STOCK

Amount: 100 mL
Expires: 10/4/2018
Usable: Yes

| Pos. | Analyte | Name | Concentration |
|---|---|---|---|
| 1 | 14797-73-0 | Perchlorate | 1000 ug/mL |

# 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: 10/6/2005 | Expires: 11/7/2025 |
| MFG Lot: | Lab Lot: LAB 109 | Usable: Yes |
| Part ID: | | |

| Pos. | Analyte | Name | Concentration |
|---|---|---|---|
| Solvent - Analyte(s) not applicable | | | |

# STANDARD REPORT

## Constituent

## Working Standard - CLO4 INT

**CLO4 INT** — Description - 6850 Intermdt AccStd 10.ug/mL

Standard: 36734
MFG: ALS/SLC
MFG Lot: TNB: 05/10/17
Part ID:

Created By: T. Bosch
Create Date: 05/10/2017
Lab Lot: CLO4 INT

Amount: 10 mL
Expires: 05/10/2018
Usable: Yes

| 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 |
| 36733 | CLO4 STOCK | 6850 Stock AccStd 1,000ug/mL | CLO4 STOCK | 0.1 mL | 10/04/2018 |

STANDARD REPORT

## Working Standard - CLO4 QC WRK

**CLO4 QC WRK** — Description - 6850 QC WKG STD 100ug/L

Standard: 36750
MFG: ALS/SLC
MFG Lot: TNB: 05/11/17
Part ID:

Created By: T. Bosch
Create Date: 05/11/2017
Lab Lot: CLO4 QC WRK 100.ug/L

Amount: 10 mL
Expires: 05/11/2018
Usable: Yes

| 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 |
| 36749 | CLO4 QC INT | 6850 QC Intrmdt Std-QC 10ug/mL | CLO4 QC INT 10.ug/mL | 0.1 mL | 05/11/2018 |

# STANDARD REPORT

## Constituent

## Working Standard - CLO4 QC INT

**CLO4 QC INT** — Description - 6850 QC Intrmdt Std-QC 10ug/mL

Standard: 36749
MFG: ALS/SLC
MFG Lot: TNB: 05/11/2017
Part ID:

Created By: T. Bosch
Create Date: 05/11/2017
Lab Lot: CLO4 QC INT 10.ug/mL

Amount: 10 mL
Expires: 05/11/2018
Usable: Yes

| 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 |

# 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: 10/6/2005 | Expires: 11/7/2025 |
| MFG Lot: | Lab Lot: LAB 109 | Usable: Yes |
| Part ID: | | |

| Pos. | Analyte | Name | Concentration |
|---|---|---|---|
| Solvent - Analyte(s) not applicable | | | |

# STANDARD REPORT

## Constituent

## Stock Standard - CLO4 QCSTOCK

**CLO4 QCSTOCK** — Description - 6850 QC Stock STD 1,000ug/mL

Standard: 36748
MFG: Ultra Scientific
MFG Lot: CP-0860
Part ID: ICC-013

Created By: T. Bosch
Create Date: 5/11/2017
Lab Lot: CLO4 QC STOCK

Amount: 100 mL
Expires: 3/31/2020
Usable: Yes

| Pos. | Analyte | Name | Concentration |
|---|---|---|---|
| 1 | 14797-73-0 | Perchlorate | 1000 ug/mL |

# STANDARD REPORT

## Working Standard - CLO4ISTDWRK

| CLO4ISTDWRK | | Description - Perchlorate ISTD Wrk 1,000ug/L |
|---|---|---|
| Standard: 38780 | Created By: Thomas Bosch | Amount: 10 mL |
| MFG: ALS/SLC | Create Date: 10/09/2017 01:10PM | Expires: 10/09/2018 |
| MFG Lot: TNB: 10/09/17 | 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 |
|---|---|---|---|---|---|
| 23118 | CLO4ISTDSTK | Perchlorate ISTD Stock | CLO4ISTDSTK | 0.1 mL | 02/27/2024 |

# STANDARD REPORT

## Constituent

## Stock Standard - CLO4ISTDSTK

**CLO4ISTDSTK** — **Description - Perchlorate ISTD Stock**

| | | | | | |
|---|---|---|---|---|---|
| **Standard:** | 23118 | **Created By:** | Thomas Bosch | **Amount:** | 1 mL |
| **MFG:** | Cambridge Isotope | **Create Date:** | 04/04/2014 03:04PM | **Expires:** | 02/27/2024 |
| **MFG Lot:** | SDDG-013 | **Verified By:** | Thomas Bosch | **Usable:** | Yes |
| **Part ID:** | OLM-7310-S | **Verify Date:** | 02/05/2009 12:02AM | **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

TRIPLE ISO CERTIFICATION ISO 9001 • ISO 17025 • ISO GUIDE 34 ULTRA

## 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

TRIPLE ISO CERTIFICATION ULTRA ISO 17025 ISO GUIDE 34 ISO 9001

## ISO Guide 34 Reference Material

Product Number: ICC-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

125 Market Street
New Haven, CT 06513
USA

AccuStandard®, Inc.

Tel (203)786-5290
Fax (203)786-5287
www.AccuStandard.com

# CERTIFICATE OF ANALYSIS

## AccuTrace™ Reference Standard

Catalog No: IC-PER-10X-1
Description: Perchlorate Standard
Element: Perchlorate ($ClO_4$)
SRM: Ind. Std.
Lot: 216095148
Matrix: Water
Hazards: *Refer to SDS for complete safety information*

Signal Word: Warning

Date Certified: Oct 4, 2016
Expiration: Oct 4, 2018
Sample Size: 100 mL
Components: 1
Storage Condition: Ambient (>5 °C)
Included on ISO/IEC 17025 Scope of Accreditation: Yes
Included on ISO Guide 34 Scope of Accreditation: Yes

| Component | | SRM # | Prepared Concentration (µg/mL) |
|---|---|---|---|
| $ClO_4$ | Perchlorate | Ind. Std. | 1000 |

The gravimetric uncertainty for this product is ±0.2%. See reverse side for details.
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 Guide 34, ISO/IEC 17025 and certified to ISO 9001

Cambridge Isotope Laboratories, Inc.

# Certificate of Analysis

Quality Standards:
ISO Guide 34 • ISO/IEC 17025 • ISO 13485 • cGMP

23118

| | |
|---|---|
| **Product Name:** (Isotopic Label & Enrichment Specification) | PERCHLORIC ACID, SODIUM SALT (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% |
| LC/MS for Concentration | 109.4 ± 2.8 µg/mL (k=2) |



ALS

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

# Raw Data

Batch Report: C:\HPCHEM\1\DATA\25OCT17P\25OCT17P.B

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-PR3.M

['#' ==> Run has not been reprocessed with Batch Review Method
'*' ==> Run has been saved with batch file]

| #* | Sample | Location | Inj | SampleType | Run | CLO4-89-ISTD Area | CLO4-89-ISTD RT | CLO4-89-ISTD Amount |
|---|---|---|---|---|---|---|---|---|
| * | 571094 CCV@25 | Vial 81 | 1 | Control | 1 | 5.07839e5 | 12.477 | 5.00000 |
| * | 571095 LODV@1. | Vial 82 | 1 | Control | 2 | 5.87535e5 | 12.518 | 5.00000 |
| * | 571096 ICS@1. | Vial 83 | 1 | Control | 3 | 3.96155e5 | 12.246 | 5.00000 |
| * | 571097 LMB | Vial 84 | 1 | Control | 4 | 6.68336e5 | 12.435 | 5.00000 |
| * | 571098 LCS@5. | Vial 85 | 1 | Control | 5 | 6.65647e5 | 12.053 | 5.00000 |
| * | 1728943001 | Vial 86 | 1 | Sample | 6 | 4.70592e5 | 12.157 | 5.00000 |
| * | 571099 289431S | Vial 87 | 1 | Sample | 7 | 4.66918e5 | 12.127 | 5.00000 |
| * | 571100 289431D | Vial 88 | 1 | Sample | 8 | 5.24243e5 | 12.117 | 5.00000 |
| * | 1728945001 | Vial 89 | 1 | Sample | 9 | 4.60455e5 | 12.109 | 5.00000 |
| * | 1728946001 | Vial 90 | 1 | Sample | 10 | 2.94801e5 | 10.198 | 5.00000 |
| * | 1729349001 | Vial 91 | 1 | Sample | 11 | 4.46975e5 | 11.983 | 5.00000 |
| * | 1728946001 1K | Vial 71 | 1 | Sample | 12 | 5.98771e5 | 12.478 | 5000.00000 |
| * | Rinse | Vial 72 | 1 | Sample | 13 | 0.00000 | 0.000 | 0.00000 |
| * | 1729821001 | Vial 92 | 1 | Sample | 14 | 3.92983e5 | 12.135 | 5.00000 |
| * | 571101 CCV@25 | Vial 81 | 1 | Control | 15 | 5.86465e5 | 12.119 | 5.00000 |
| * | 571102 LODV@1. | Vial 82 | 1 | Control | 16 | 6.36963e5 | 12.465 | 5.00000 |

| #* | Sample | Location | Inj | SampleType | Run | Perchlorate Area | Perchlorate RT | Perchlorate Amount |
|---|---|---|---|---|---|---|---|---|
| * | 571094 CCV@25 | Vial 81 | 1 | Control | 1 | 3.48090e6 | 12.453 | 26.43897 |
| * | 571095 LODV@1. | Vial 82 | 1 | Control | 2 | 1.05939e5 | 12.486 | 8.38965e-1 |
| * | 571096 ICS@1. | Vial 83 | 1 | Control | 3 | 9.86085e4 | 12.204 | 1.15261 |
| * | 571097 LMB | Vial 84 | 1 | Control | 4 | 0.00000 | 0.000 | 0.00000 |
| * | 571098 LCS@5. | Vial 85 | 1 | Control | 5 | 7.88523e5 | 12.038 | 5.29061 |
| * | 1728943001 | Vial 86 | 1 | Sample | 6 | 0.00000 | 0.000 | 0.00000 |
| * | 571099 289431S | Vial 87 | 1 | Sample | 7 | 4.65291e5 | 12.108 | 4.47866 |
| * | 571100 289431D | Vial 88 | 1 | Sample | 8 | 5.27314e5 | 12.088 | 4.51921 |
| * | 1728945001 | Vial 89 | 1 | Sample | 9 | 0.00000 | 0.000 | 0.00000 |
| * | 1728946001 | Vial 90 | 1 | Sample | 10 | 5.98622e8 | 10.207 | 1043.03365 |
| * | 1729349001 | Vial 91 | 1 | Sample | 11 | 4.79980e4 | 11.934 | 5.03905e-1 |
| * | 1728946001 1K | Vial 71 | 1 | Sample | 12 | 6.41886e5 | 12.455 | 4805.68409 |
| * | Rinse | Vial 72 | 1 | Sample | 13 | 0.00000 | 0.000 | 0.00000 |
| * | 1729821001 | Vial 92 | 1 | Sample | 14 | 0.00000 | 0.000 | 0.00000 |
| * | 571101 CCV@25 | Vial 81 | 1 | Control | 15 | 3.56041e6 | 12.091 | 23.81767 |
| * | 571102 LODV@1. | Vial 82 | 1 | Control | 16 | 1.32751e5 | 12.440 | 9.67623e-1 |

| #* | Sample | Location | Inj | SampleType | Run | CLO4-85 Area | CLO4-85 RT | CLO4-85 Amount |
|---|---|---|---|---|---|---|---|---|
| * | 571094 CCV@25 | Vial 81 | 1 | Control | 1 | 1.10813e6 | 12.467 | 27.31669 |
| * | 571095 LODV@1. | Vial 82 | 1 | Control | 2 | 4.28376e4 | 12.497 | 1.02423 |
| * | 571096 ICS@1. | Vial 83 | 1 | Control | 3 | 3.22687e4 | 12.206 | 1.14363 |
| * | 571097 LMB | Vial 84 | 1 | Control | 4 | 0.00000 | 0.000 | 0.00000 |
| * | 571098 LCS@5. | Vial 85 | 1 | Control | 5 | 2.47122e5 | 12.042 | 5.11794 |
| * | 1728943001 | Vial 86 | 1 | Sample | 6 | 0.00000 | 0.000 | 0.00000 |
| * | 571099 289431S | Vial 87 | 1 | Sample | 7 | 1.48406e5 | 12.125 | 4.39612 |
| * | 571100 289431D | Vial 88 | 1 | Sample | 8 | 1.66736e5 | 12.107 | 4.39896 |
| * | 1728945001 | Vial 89 | 1 | Sample | 9 | 0.00000 | 0.000 | 0.00000 |
| * | 1728946001 | Vial 90 | 1 | Sample | 10 | 2.21716e8 | 10.218 | 1404.77710 |
| * | 1729349001 | Vial 91 | 1 | Sample | 11 | 1.42527e4 | 11.985 | 4.49144e-1 |
| * | 1728946001 1K | Vial 71 | 1 | Sample | 12 | 2.07773e5 | 12.473 | 4790.74371 |
| * | Rinse | Vial 72 | 1 | Sample | 13 | 0.00000 | 0.000 | 0.00000 |
| * | 1729821001 | Vial 92 | 1 | Sample | 14 | 0.00000 | 0.000 | 0.00000 |
| * | 571101 CCV@25 | Vial 81 | 1 | Control | 15 | 1.09294e6 | 12.102 | 23.68621 |
| * | 571102 LODV@1. | Vial 82 | 1 | Control | 16 | 5.13231e4 | 12.438 | 1.13133 |

*** End of Report ***

Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2017\OCT\25OCT17P.S

Sequence Table:

Method and Injection Info Part:

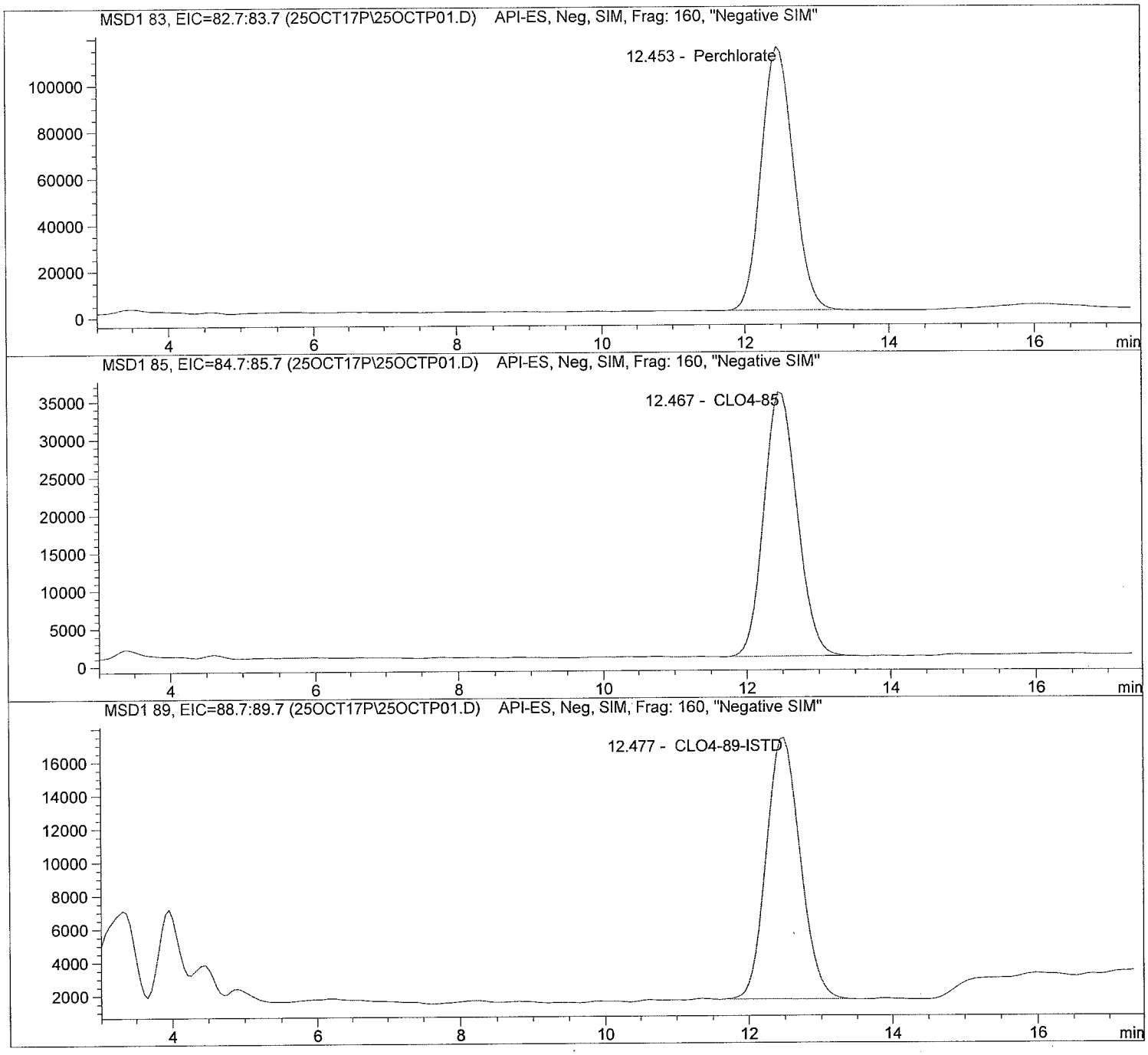
| Line | Location | SampleName | | Method | Inj | SampleType | InjVolume | DataFile |
|---|---|---|---|---|---|---|---|---|
| 1 | Vial 81 | 571094 | CCV@25 | CLO4-AQN | 1 | Ctrl Samp | | |
| 2 | Vial 82 | 571095 | LODV@1. | CLO4-AQN | 1 | Ctrl Samp | | |
| 3 | Vial 83 | 571096 | ICS@1. | CLO4-AQN | 1 | Ctrl Samp | | |
| 4 | Vial 84 | 571097 | LMB | CLO4-AQN | 1 | Ctrl Samp | | |
| 5 | Vial 85 | 571098 | LCS@5. | CLO4-AQN | 1 | Ctrl Samp | | |
| 6 | Vial 86 | 1728943001 | | CLO4-AQN | 1 | Sample | | |
| 7 | Vial 87 | 571099 | 289431S | CLO4-AQN | 1 | Sample | | |
| 8 | Vial 88 | 571100 | 289431D | CLO4-AQN | 1 | Sample | | |
| 9 | Vial 89 | 1728945001 | | CLO4-AQN | 1 | Sample | | |
| 10 | Vial 90 | 1728946001 | | CLO4-AQN | 1 | Sample | | |
| 11 | Vial 91 | 1729349001 | | CLO4-AQN | 1 | Sample | | |
| 12 | Vial 71 | 1728946001 | 1K | CLO4-AQN | 1 | Sample | | |
| 13 | Vial 72 | Rinse | | CLO4-AQN | 1 | Sample | | |
| 14 | Vial 92 | 1729821001 | | CLO4-AQN | 1 | Sample | | |
| 15 | Vial 81 | 571101 | CCV@25 | CLO4-AQN | 1 | Ctrl Samp | | |
| 16 | Vial 82 | 571102 | LODV@1. | CLO4-AQN | 1 | Ctrl Samp | | |

Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP01.D  Sample Name: 571094  CCV@25

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 09:02:43 | Seq Line: | 1 |
| Sample Name: | 571094 CCV@25 | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP01.D  Sample Name: 571094  CCV@25

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 09:02:43 | Seq Line: | 1 |
| Sample Name: | 571094 CCV@25 | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 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 |
|---|---|---|---|---|
| 12.453 | PBA | 3480904.8 | 26.4390 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.467 | PBA | 1108132.5 | 27.3167 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.477 | BBA | 507839.4 | 5.0000 | CLO4-89-ISTD |

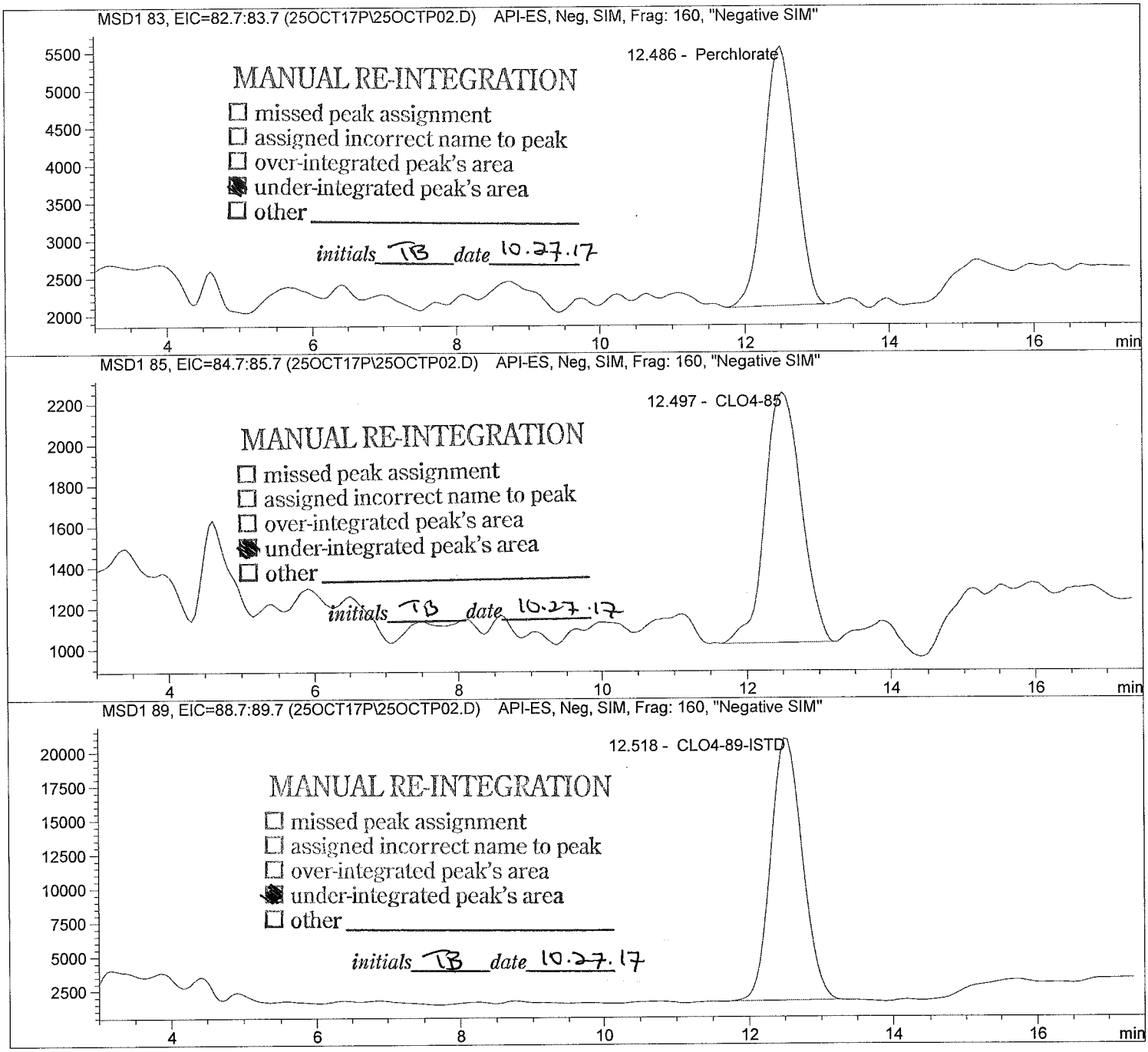
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP02.D  Sample Name: 571095  LODV@1.

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 09:24:24 | Seq Line: | 2 |
| Sample Name: | 571095 LODV@1. | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP02.D  Sample Name: 571095  LODV@1.

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 09:24:24 | Seq Line: | 2 |
| Sample Name: | 571095 LODV@1. | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 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 |
|---|---|---|---|---|
| 12.486 | MM | 105938.9 | 0.8390 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.497 | MM | 42837.6 | 1.0242 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.518 | MM | 587535.4 | 5.0000 | CLO4-89-ISTD |

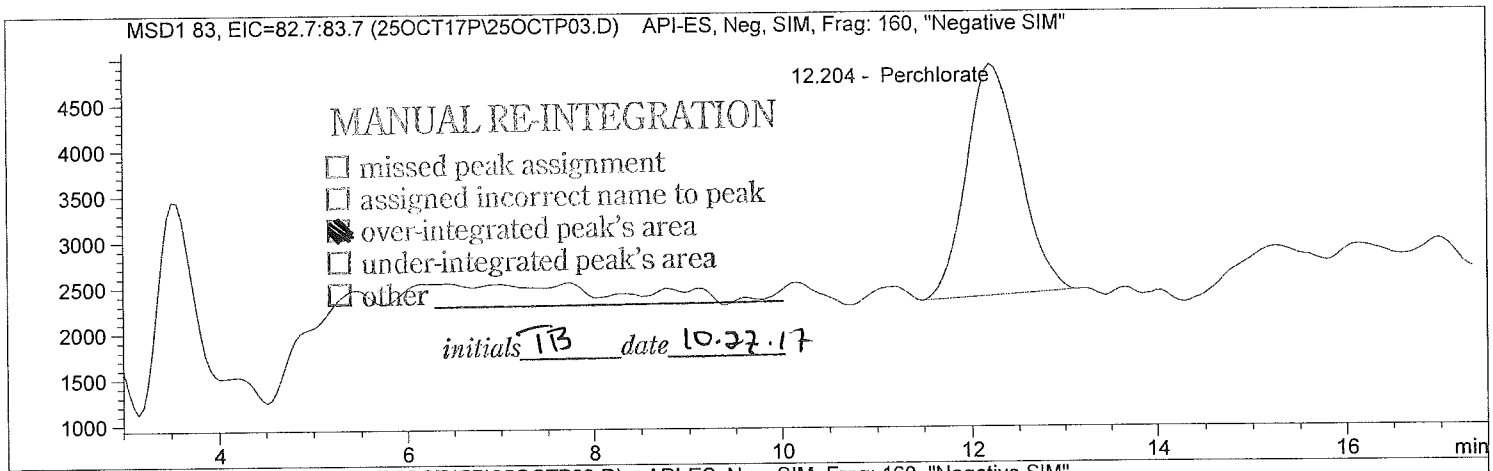
*** End of Report ***

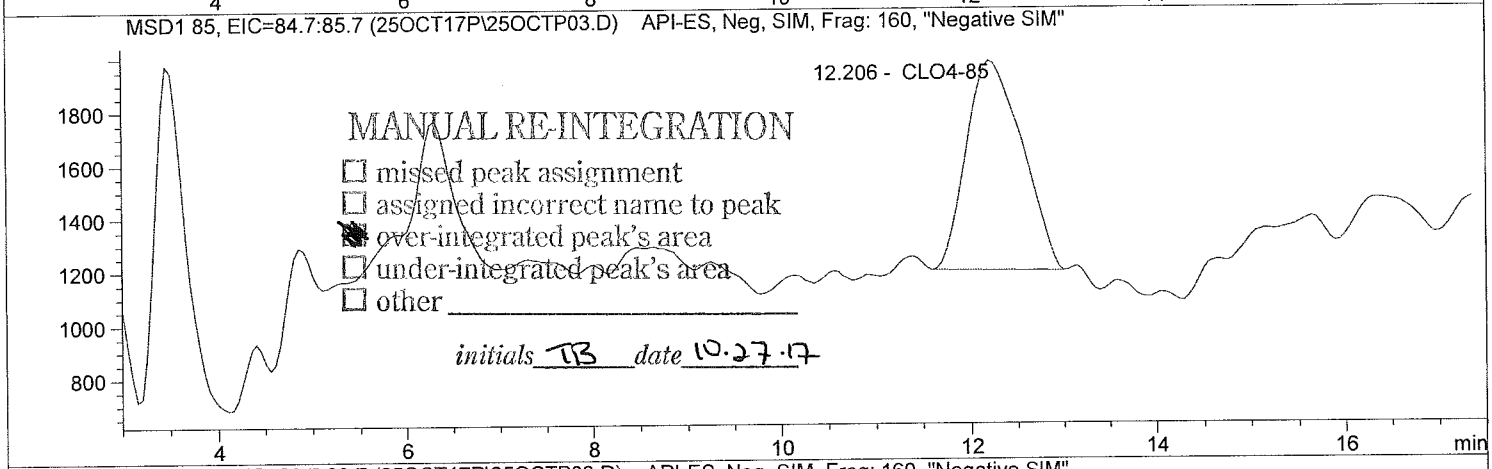
Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP03.D  Sample Name: 571096  ICS@1.

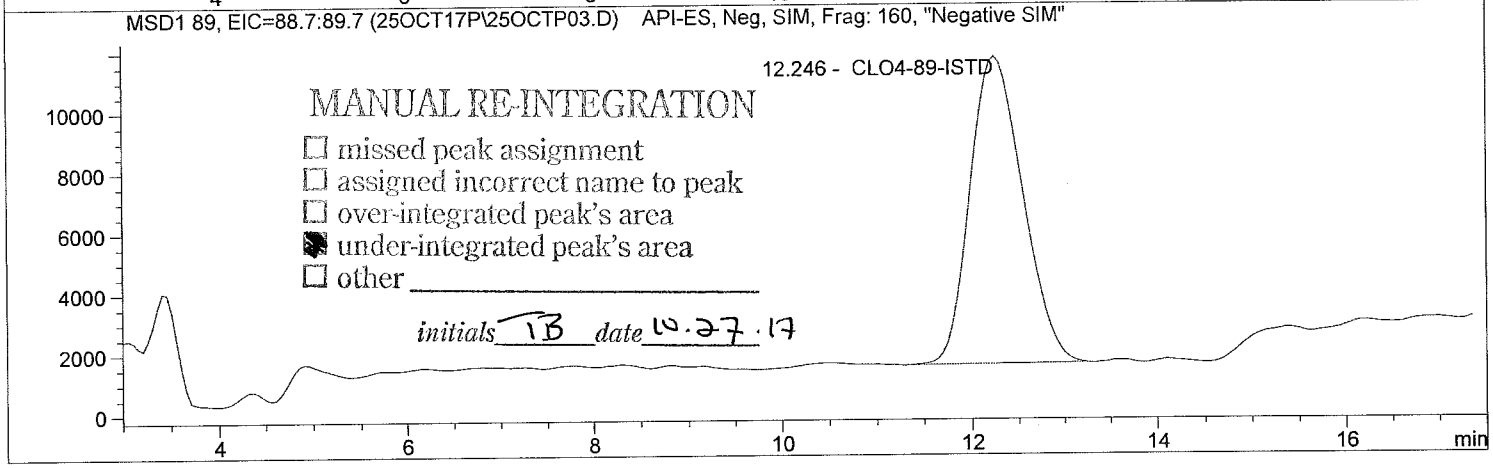
| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 09:43:38 | Seq Line: | 3 |
| Sample Name: | 571096 ICS@1. | Location: | Vial 83 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP03.D  Sample Name: 571096  ICS@1.

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 09:43:38 | Seq Line: | 3 |
| Sample Name: | 571096 ICS@1. | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 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 |
|---|---|---|---|---|
| 12.204 | MM | 98608.5 | 1.1526 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.206 | MM | 32268.7 | 1.1436 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.246 | MM | 396154.9 | 5.0000 | CLO4-89-ISTD |

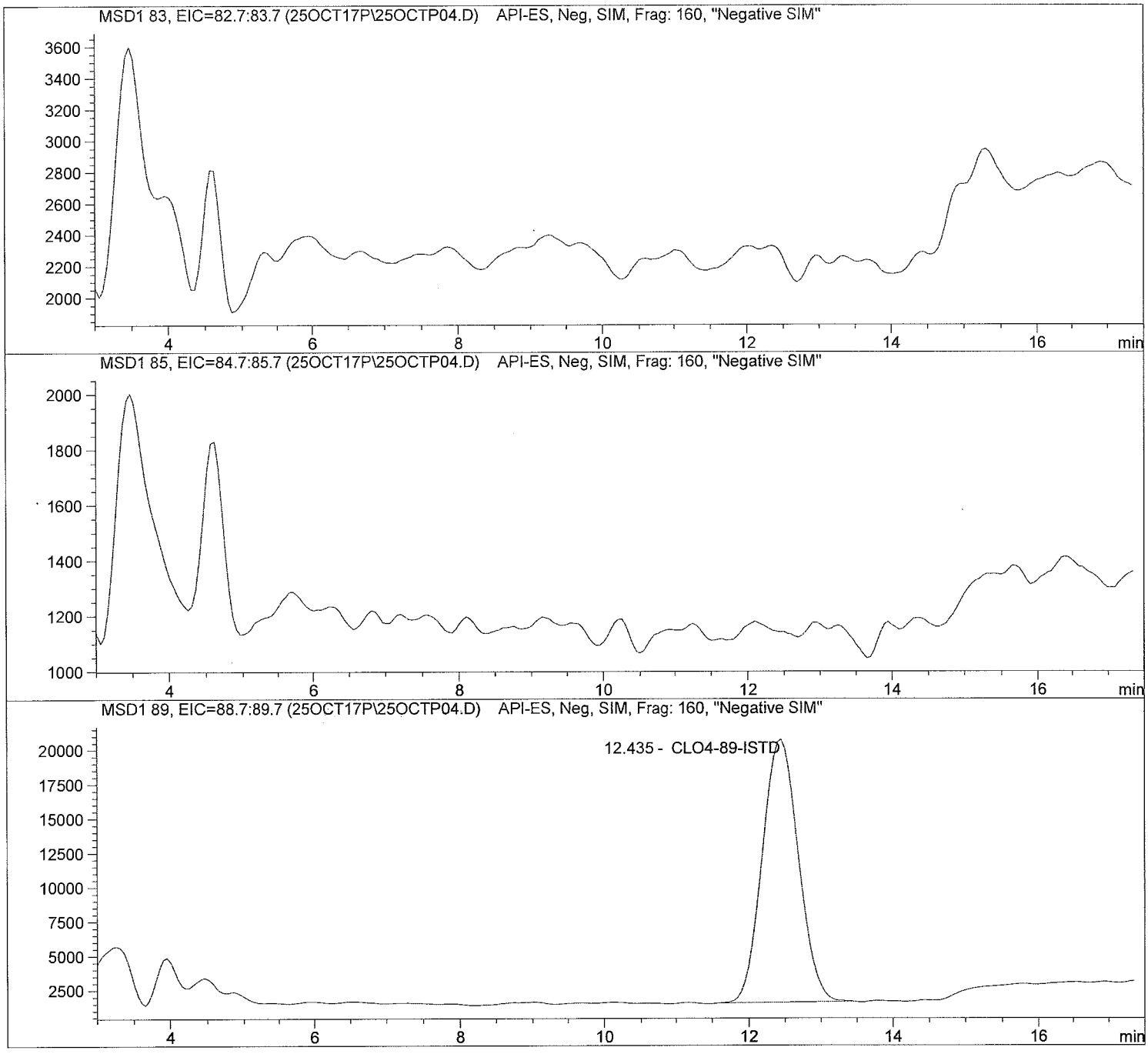
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP04.D  Sample Name: 571097  LMB

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 10:02:51 | Seq Line: | 4 |
| Sample Name: | 571097 LMB | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP04.D  Sample Name: 571097  LMB

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 10:02:51 | Seq Line: | 4 |
| Sample Name: | 571097 LMB | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 12.435 | PBA | 668336.3 | 5.0000 | CLO4-89-ISTD |

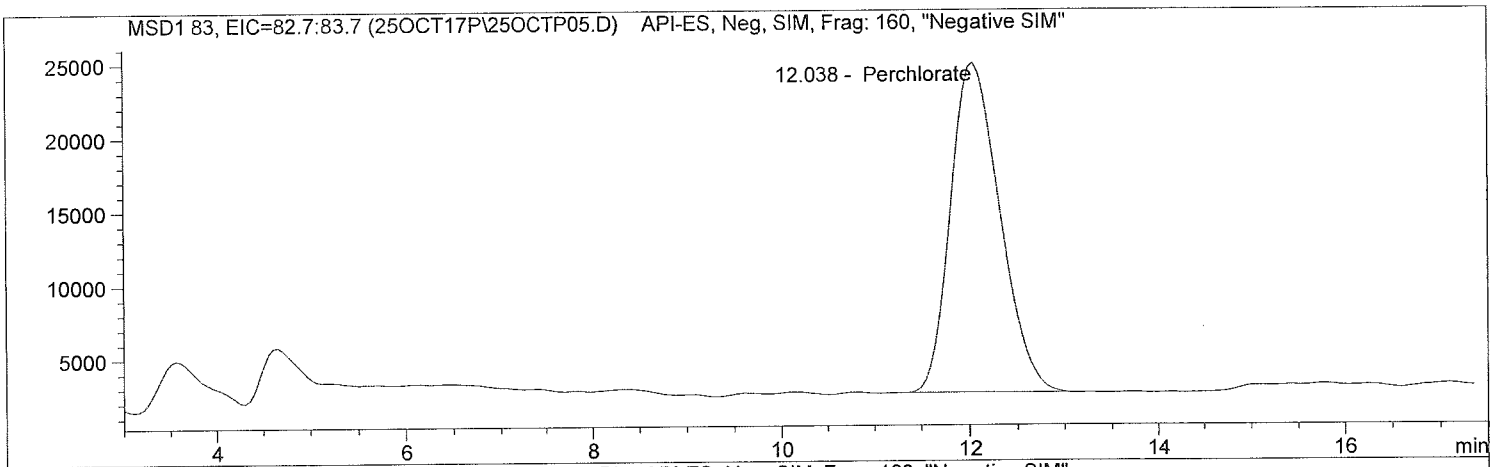
*** End of Report ***

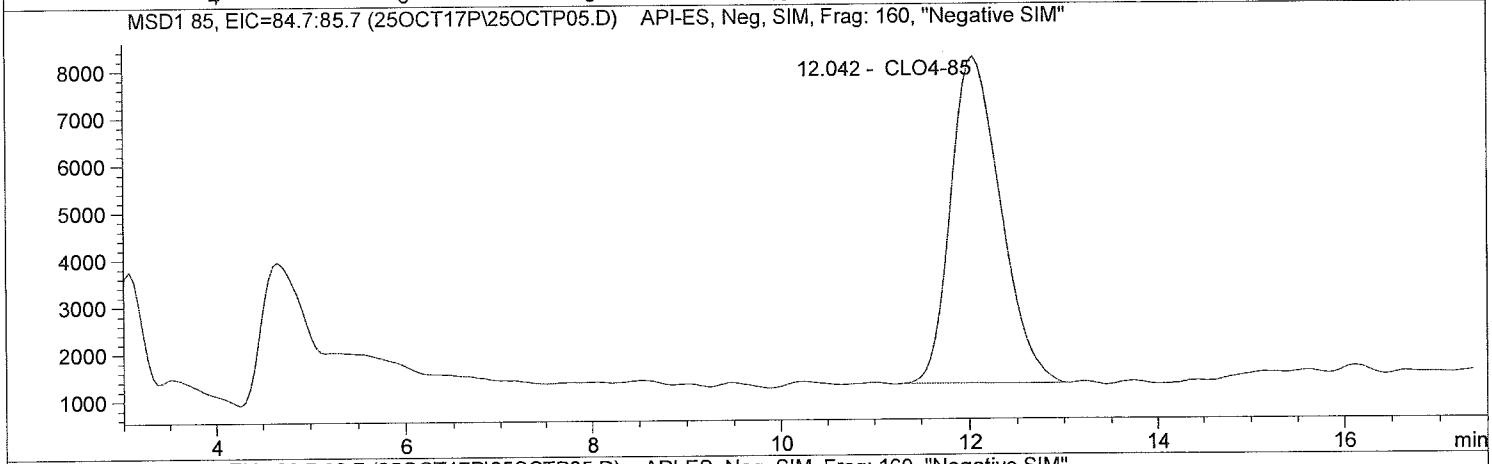
Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP05.D  Sample Name: 571098  LCS@5.

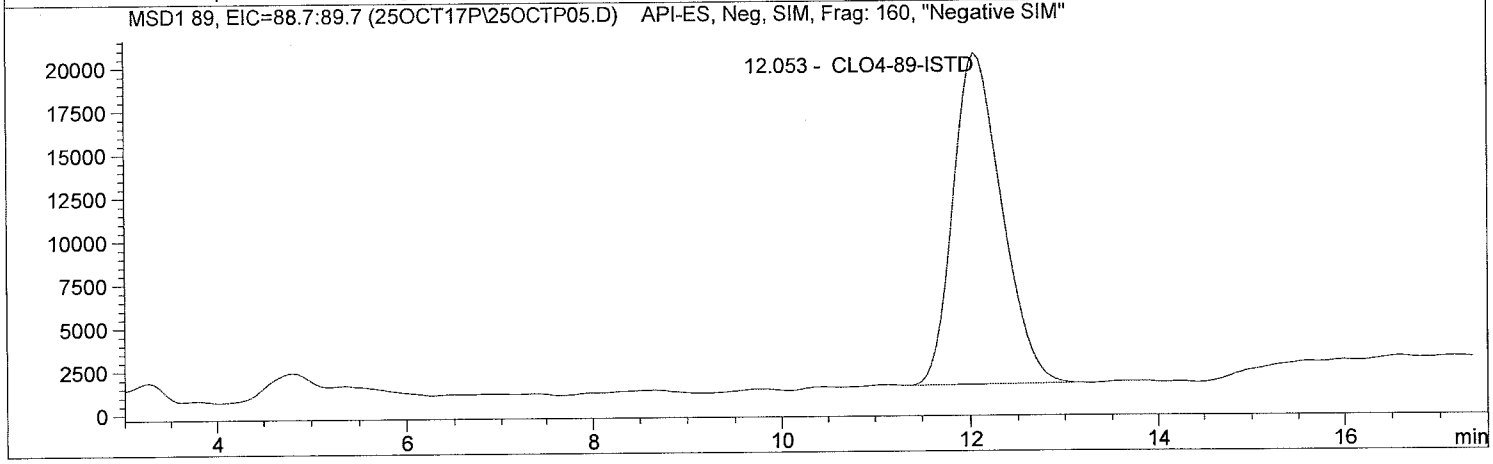
| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 10:22:05 | Seq Line: | 5 |
| Sample Name: | 571098 LCS@5. | Location: | Vial 85 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP05.D  Sample Name: 571098  LCS@5.

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 10:22:05 | Seq Line: | 5 |
| Sample Name: | 571098 LCS@5. | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 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 |
|---|---|---|---|---|
| 12.038 | BBA | 788522.6 | 5.2906 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.042 | PBA | 247122.1 | 5.1179 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.053 | PBA | 665647.0 | 5.0000 | CLO4-89-ISTD |

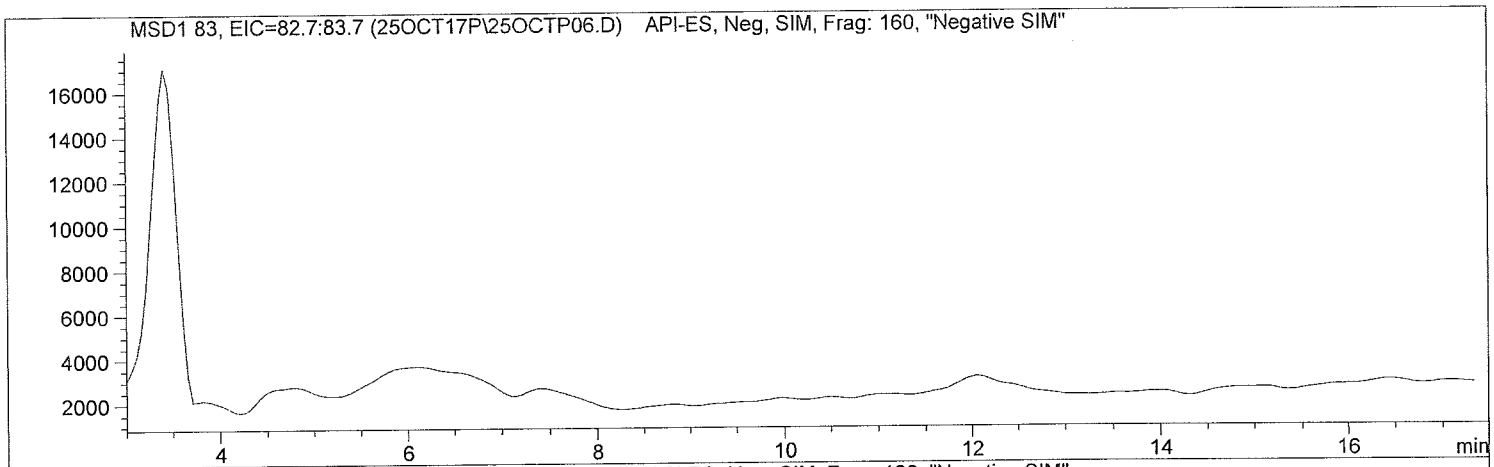
*** End of Report ***

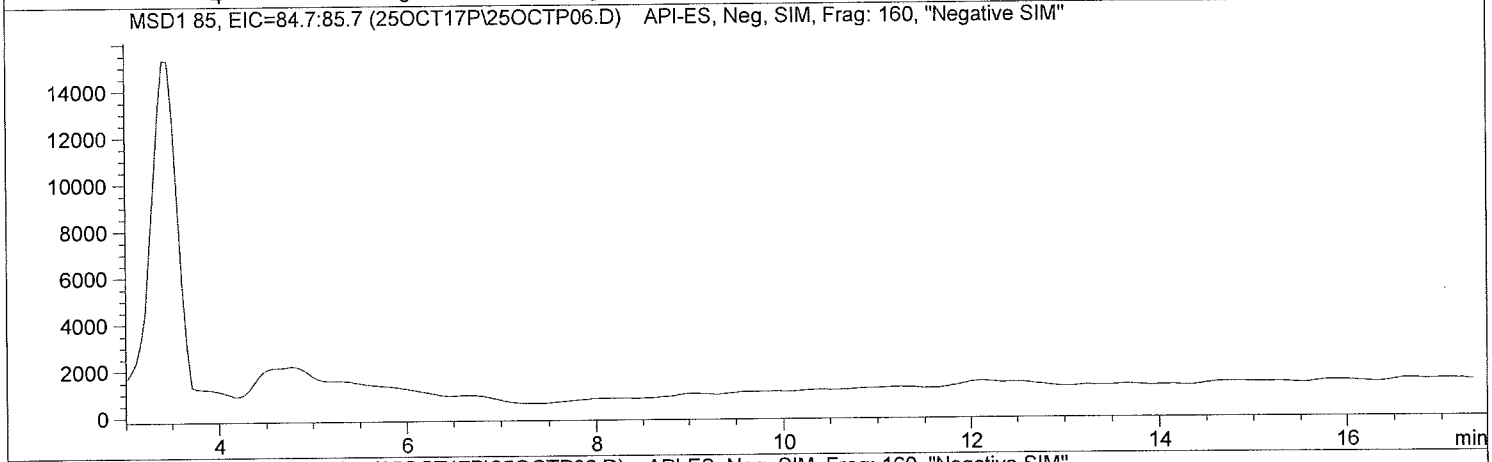
Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP06.D Sample Name: 1728943001

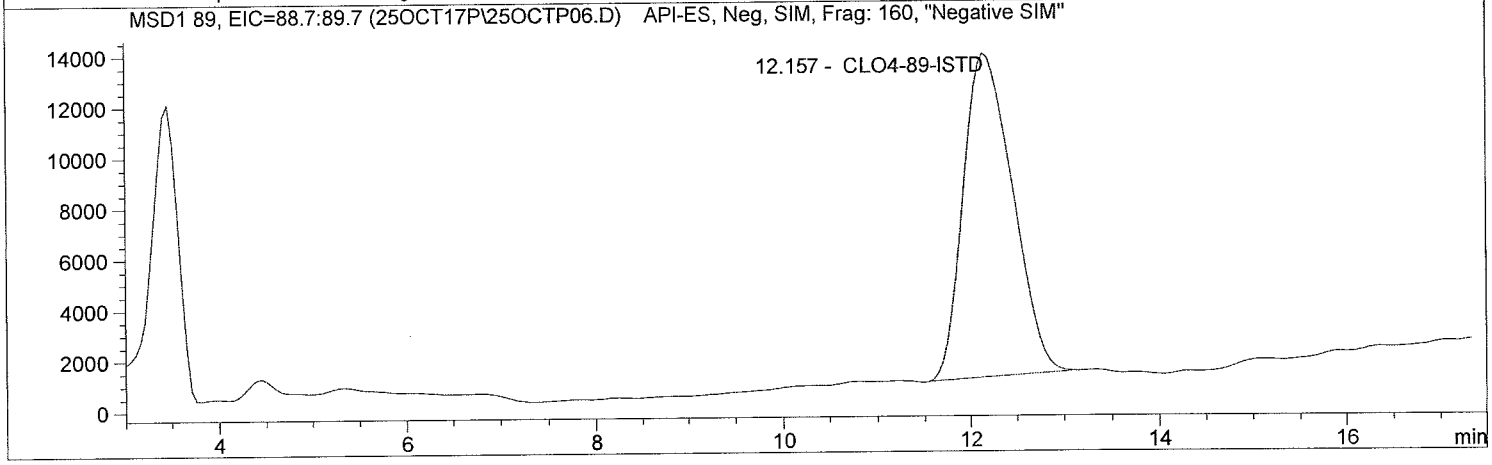
| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 10:44:39 | Seq Line: | 6 |
| Sample Name: | 1728943001 | Location: | Vial 86 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

| | |
|---|---|
| Acq. Method: | CLO4-AQN.M |
| Analysis Method: | C:\HPCHEM\1\METHODS\CLO4-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP06.D  Sample Name: 1728943001

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 10:44:39 | Seq Line: | 6 |
| Sample Name: | 1728943001 | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 12.157 | PBA | 470591.7 | 5.0000 | CLO4-89-ISTD |

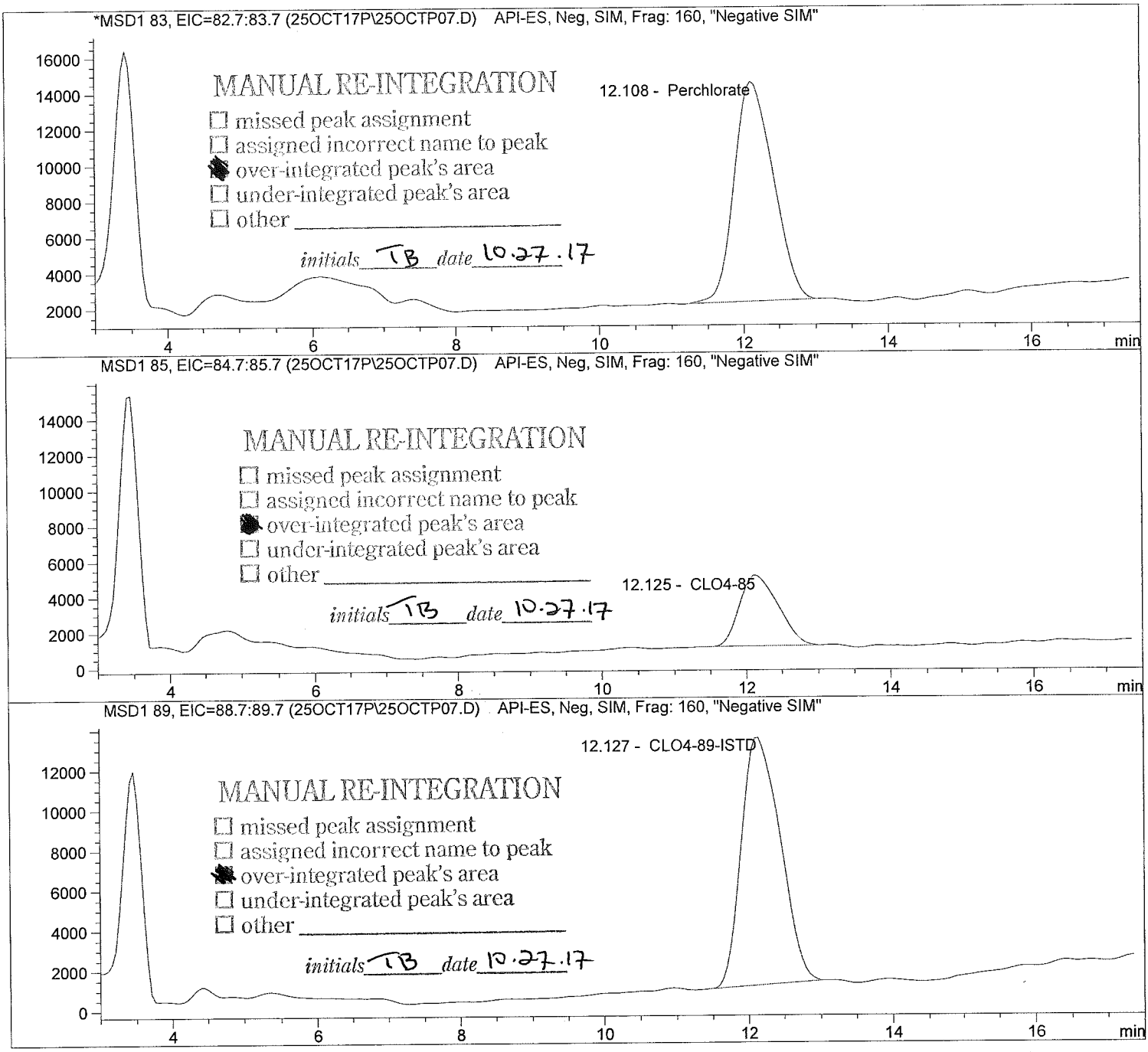
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP07.D Sample Name: 571099 289431S

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 11:03:53 | Seq Line: | 7 |
| Sample Name: | 571099 289431S | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP07.D  Sample Name: 571099  289431S

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 11:03:53 | Seq Line: | 7 |
| Sample Name: | 571099 289431S | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 12.108 | MM | 465290.7 | 4.4787 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.125 | MM | 148406.0 | 4.3961 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.127 | MM | 466917.6 | 5.0000 | CLO4-89-ISTD |

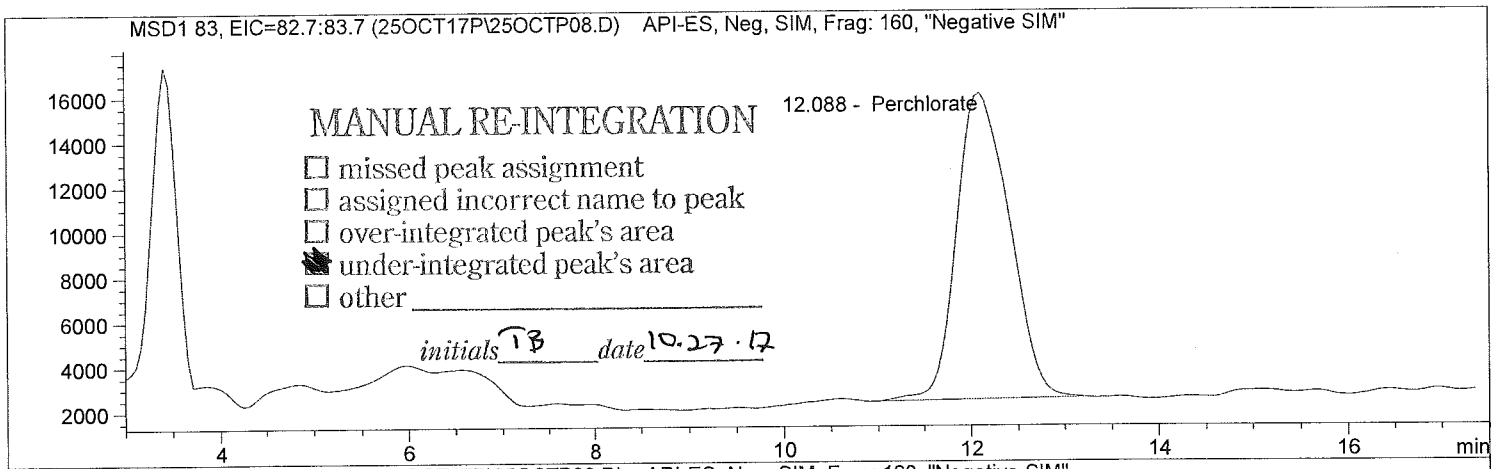
*** End of Report ***

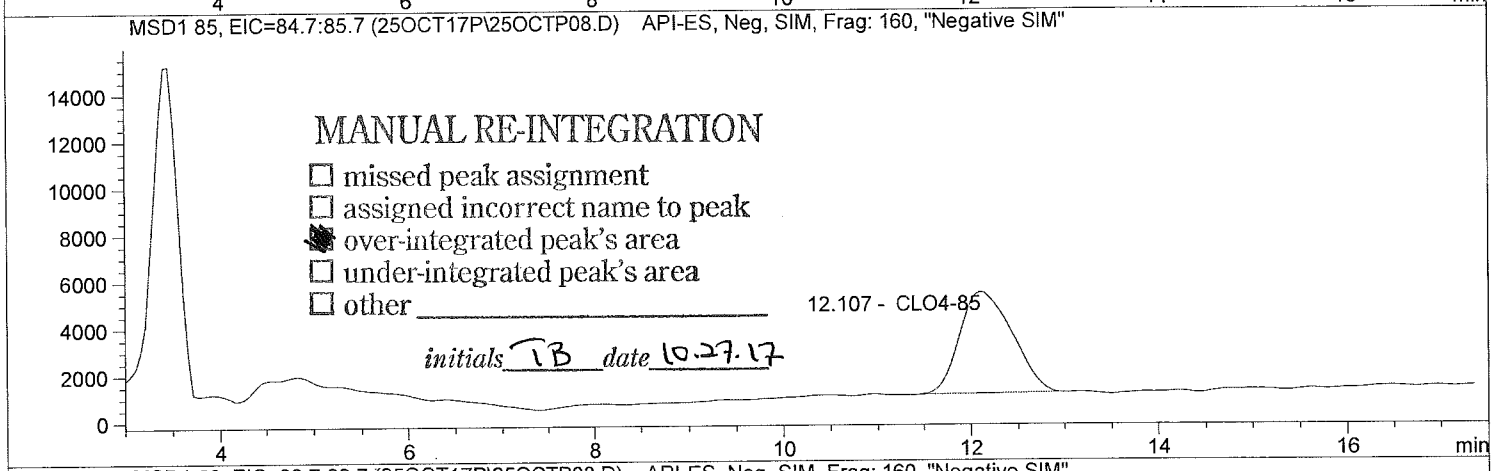
Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP08.D  Sample Name: 571100  289431D

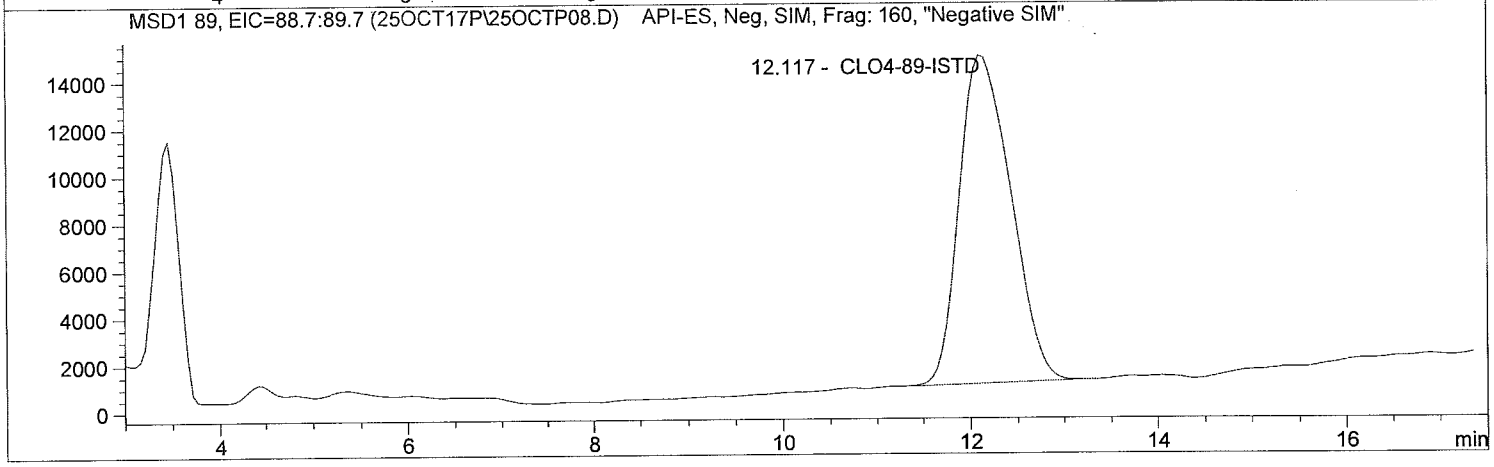
| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 11:23:08 | Seq Line: | 8 |
| Sample Name: | 571100 289431D | Location: | Vial 88 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP08.D  Sample Name: 571100  289431D

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 11:23:08 | Seq Line: | 8 |
| Sample Name: | 571100 289431D | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 12.088 | MM | 527314.1 | 4.5192 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.107 | MM | 166736.0 | 4.3990 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.117 | BBA | 524243.2 | 5.0000 | CLO4-89-ISTD |

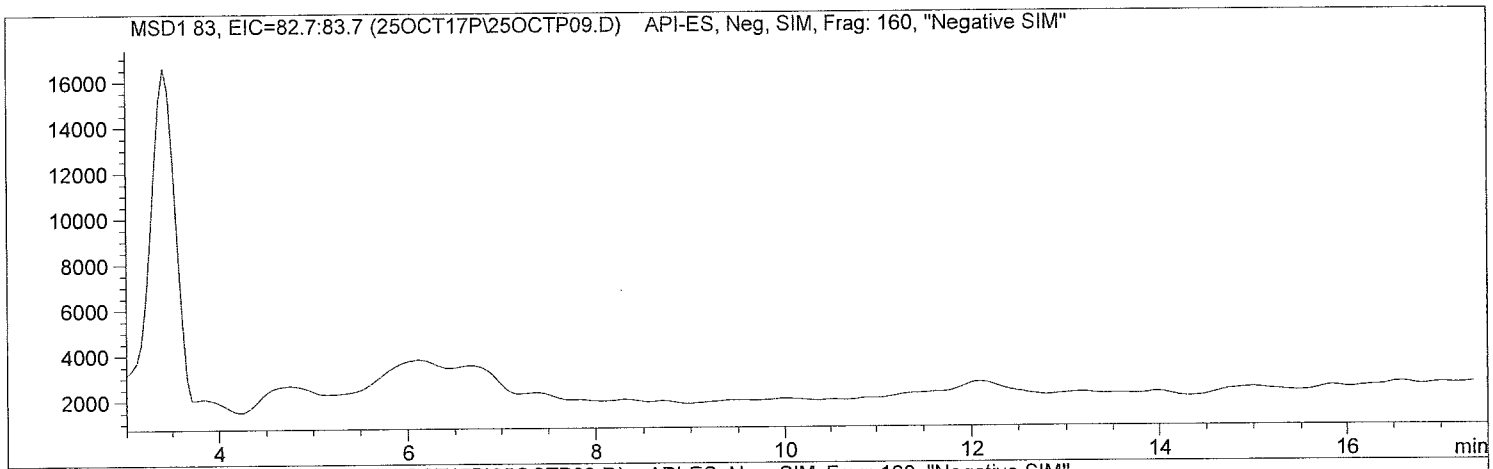
*** End of Report ***

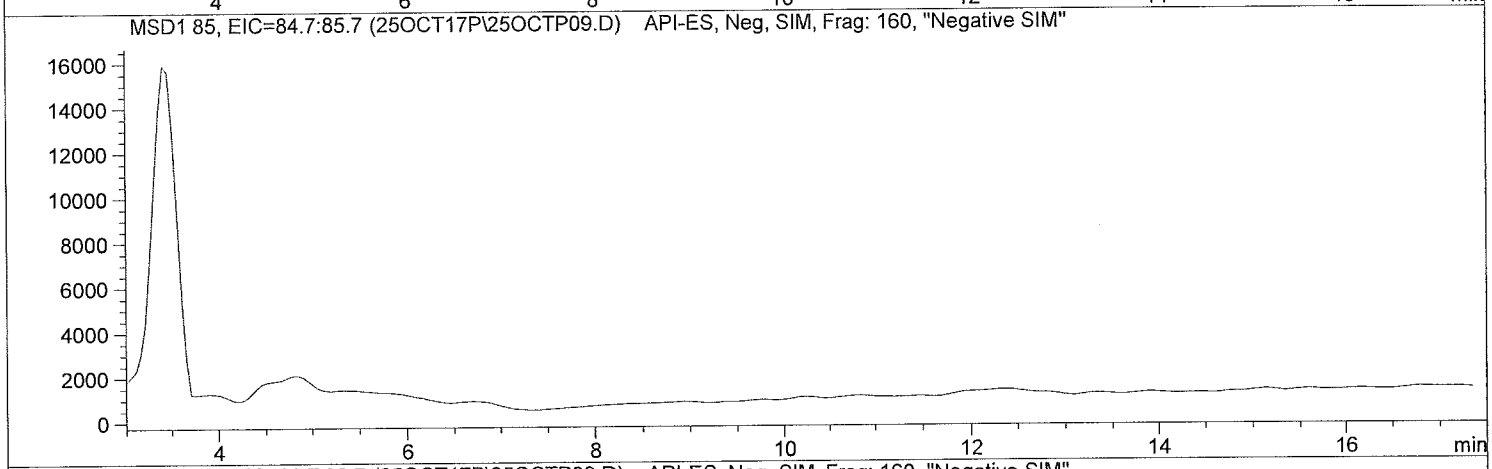
Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP09.D  Sample Name: 1728945001

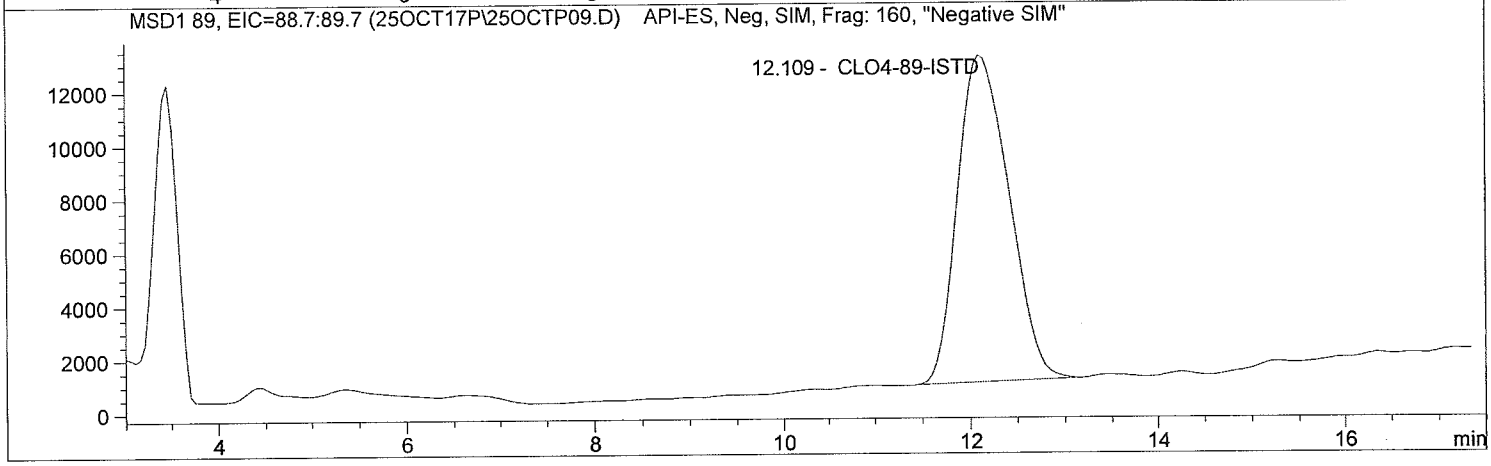
| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 11:43:34 | Seq Line: | 9 |
| Sample Name: | 1728945001 | Location: | Vial 89 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP09.D  Sample Name: 1728945001

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 11:43:34 | Seq Line: | 9 |
| Sample Name: | 1728945001 | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 12.109 | PBA | 460454.9 | 5.0000 | CLO4-89-ISTD |

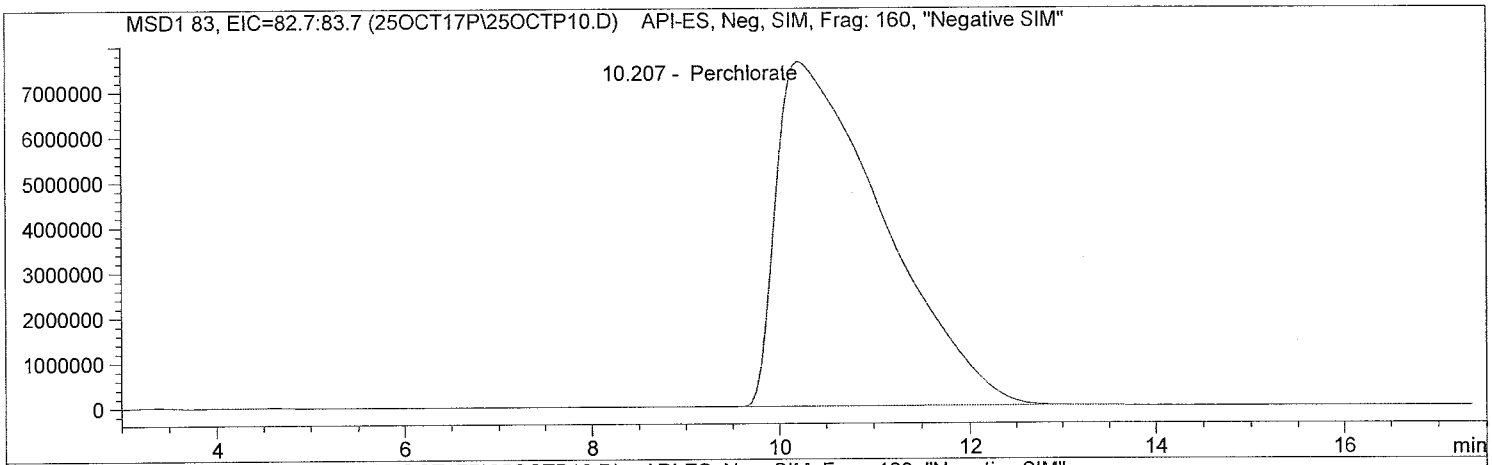
*** End of Report ***

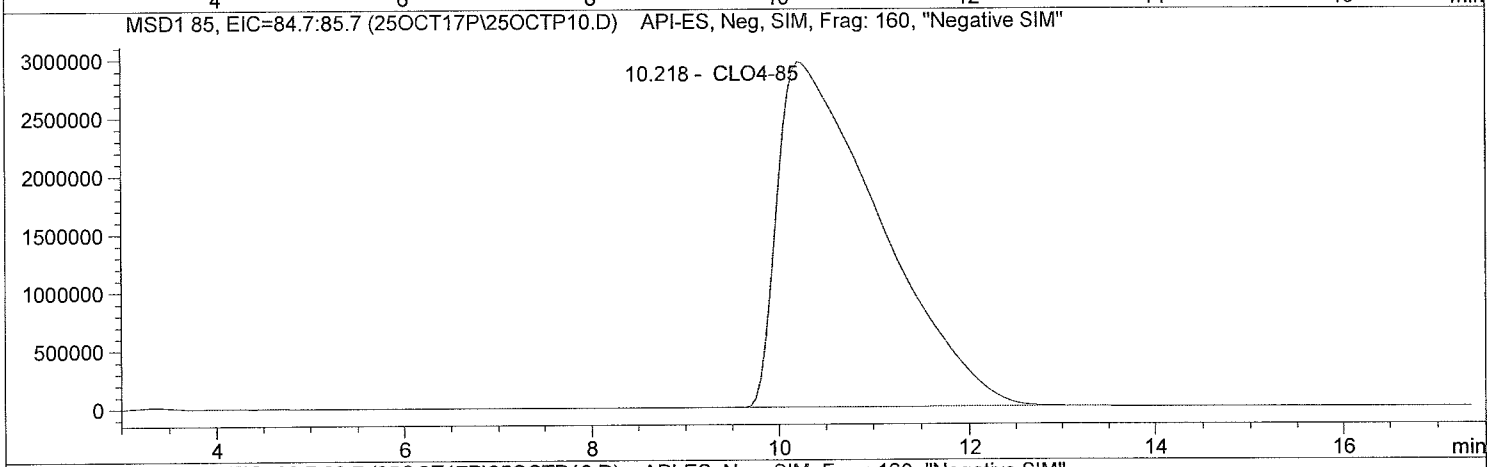
Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP10.D Sample Name: 1728946001

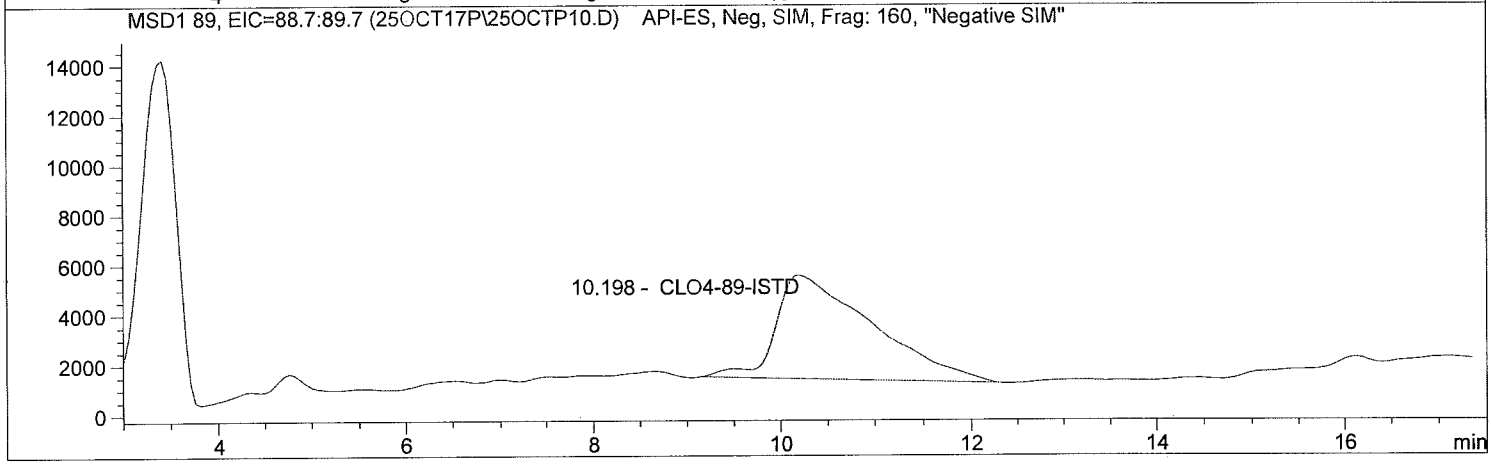
| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 12:02:51 | Seq Line: | 10 |
| Sample Name: | 1728946001 | Location: | Vial 90 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP10.D  Sample Name: 1728946001

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 12:02:51 | Seq Line: | 10 |
| Sample Name: | 1728946001 | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 10.207 | PBA | 598622272.0 | 1043.0336 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 10.218 | PBA | 221715600.0 | 1404.7771 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 10.198 | PBA | 294801.1 | 5.0000 | CLO4-89-ISTD |

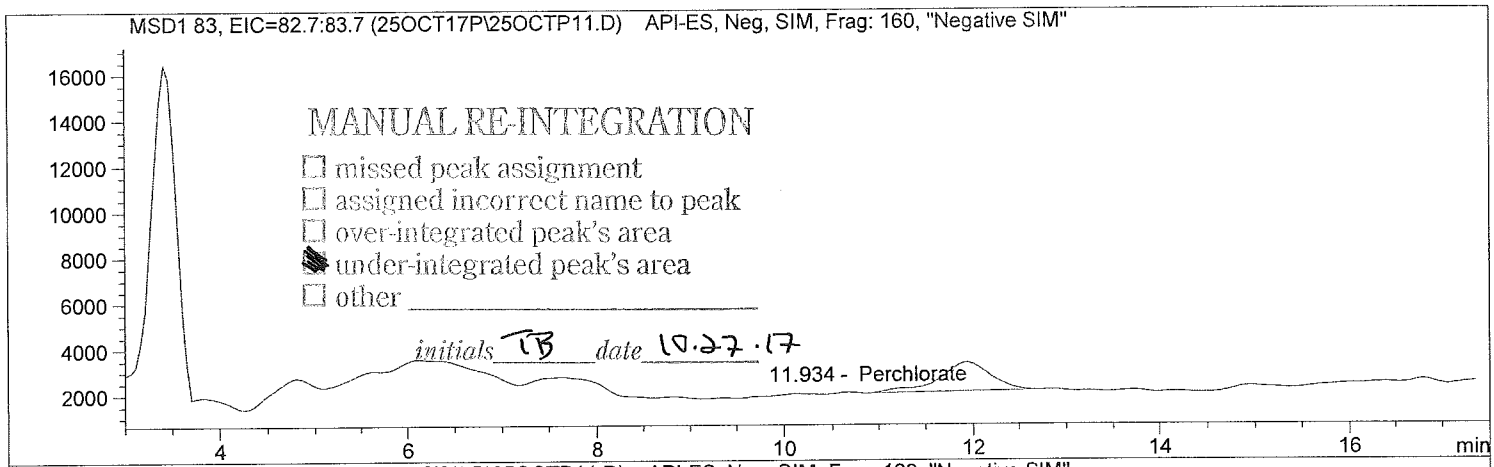
*** End of Report ***

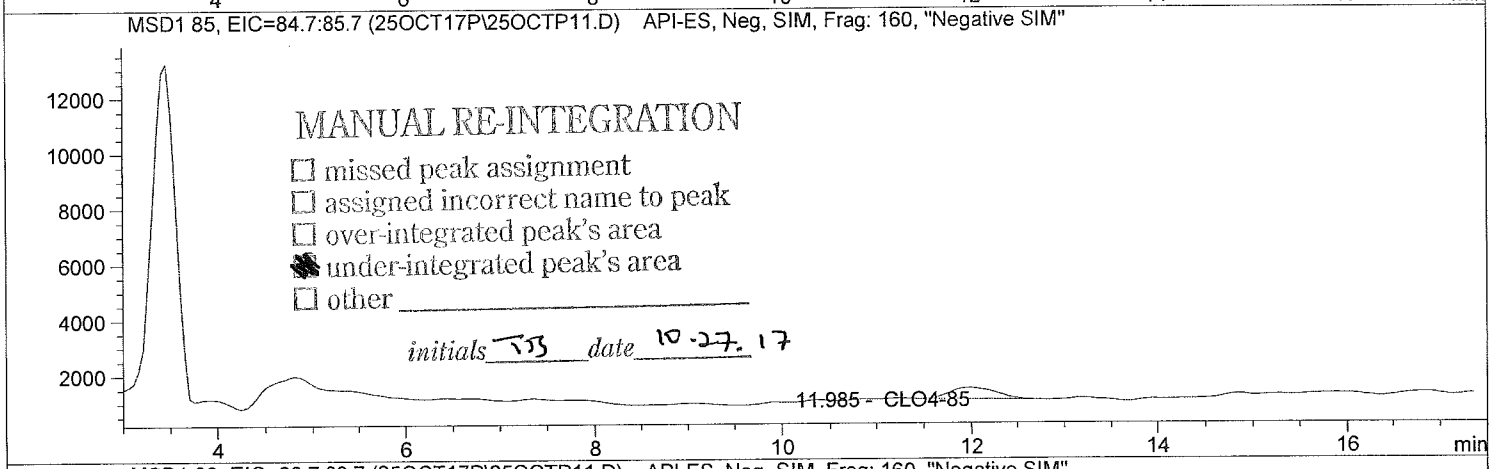
Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP11.D  Sample Name: 1729349001

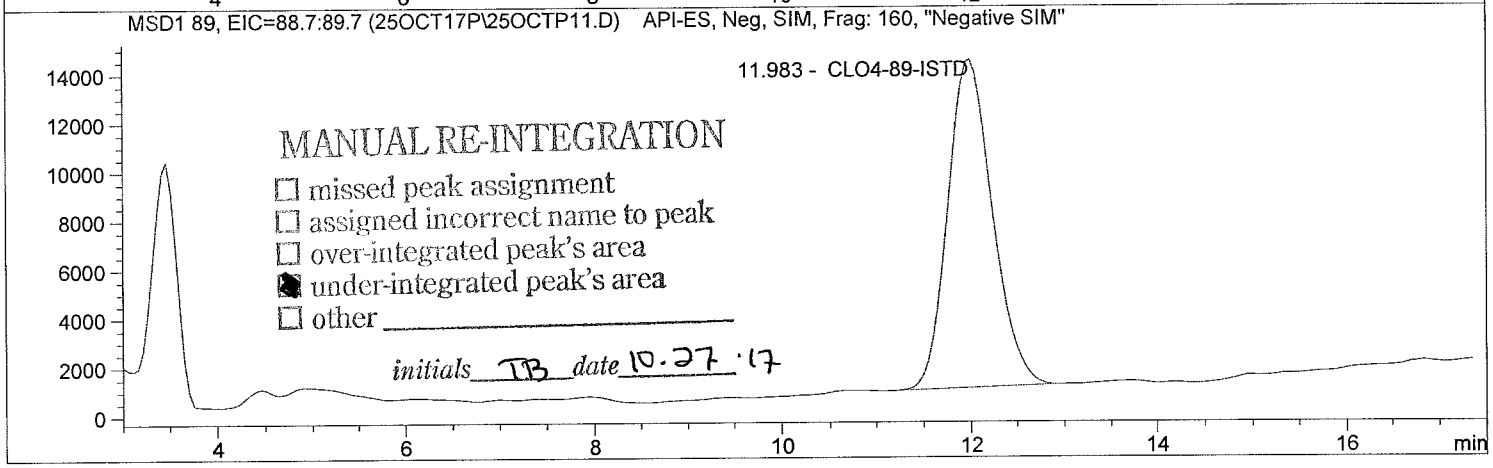
| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 12:22:07 | Seq Line: | 11 |
| Sample Name: | 1729349001 | Location: | Vial 91 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP11.D  Sample Name: 1729349001

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 12:22:07 | Seq Line: | 11 |
| Sample Name: | 1729349001 | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 11.934 | MM | 47998.0 | 0.5039 | Perchlorate |

< RL/MDL

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.985 | MM | 14252.7 | 0.4491 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.983 | MM | 446974.5 | 5.0000 | CLO4-89-ISTD |

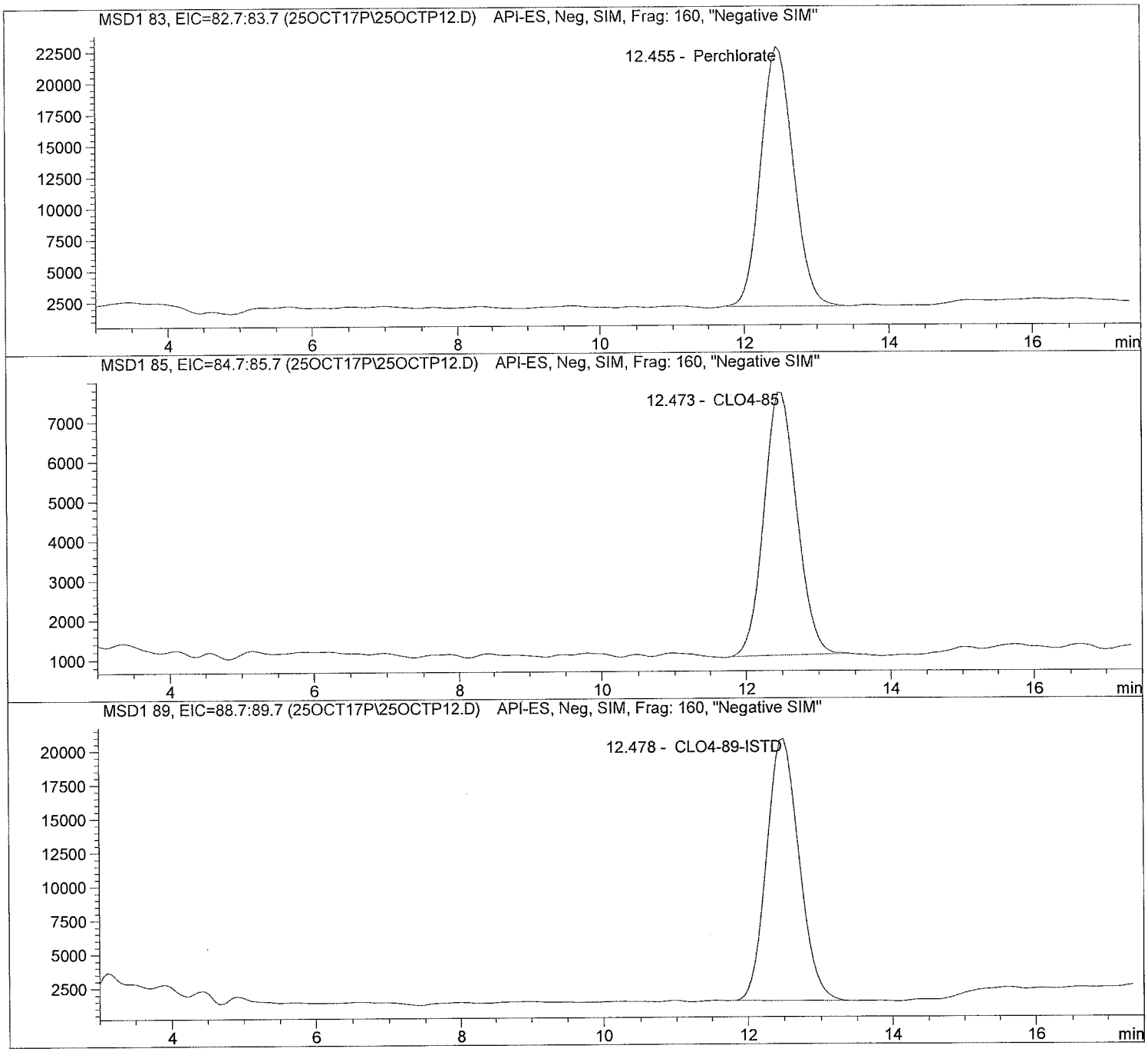
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP12.D  Sample Name: 1728946001  1K

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 12:42:54 | Seq Line: | 12 |
| Sample Name: | 1728946001 1K | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP12.D  Sample Name: 1728946001  1K

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 12:42:54 | Seq Line: | 12 |
| Sample Name: | 1728946001 1K | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

Sorted By: Signal
Calib. Data Modified: Thu, 26. Oct. 2017,08:21:56 am
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 |
|---|---|---|---|---|
| 12.455 | BBA | 641885.6 | 4805.6841 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.473 | PBA | 207772.7 | 4790.7437 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.478 | BBA | 598771.3 | 5000.0000 | CLO4-89-ISTD |

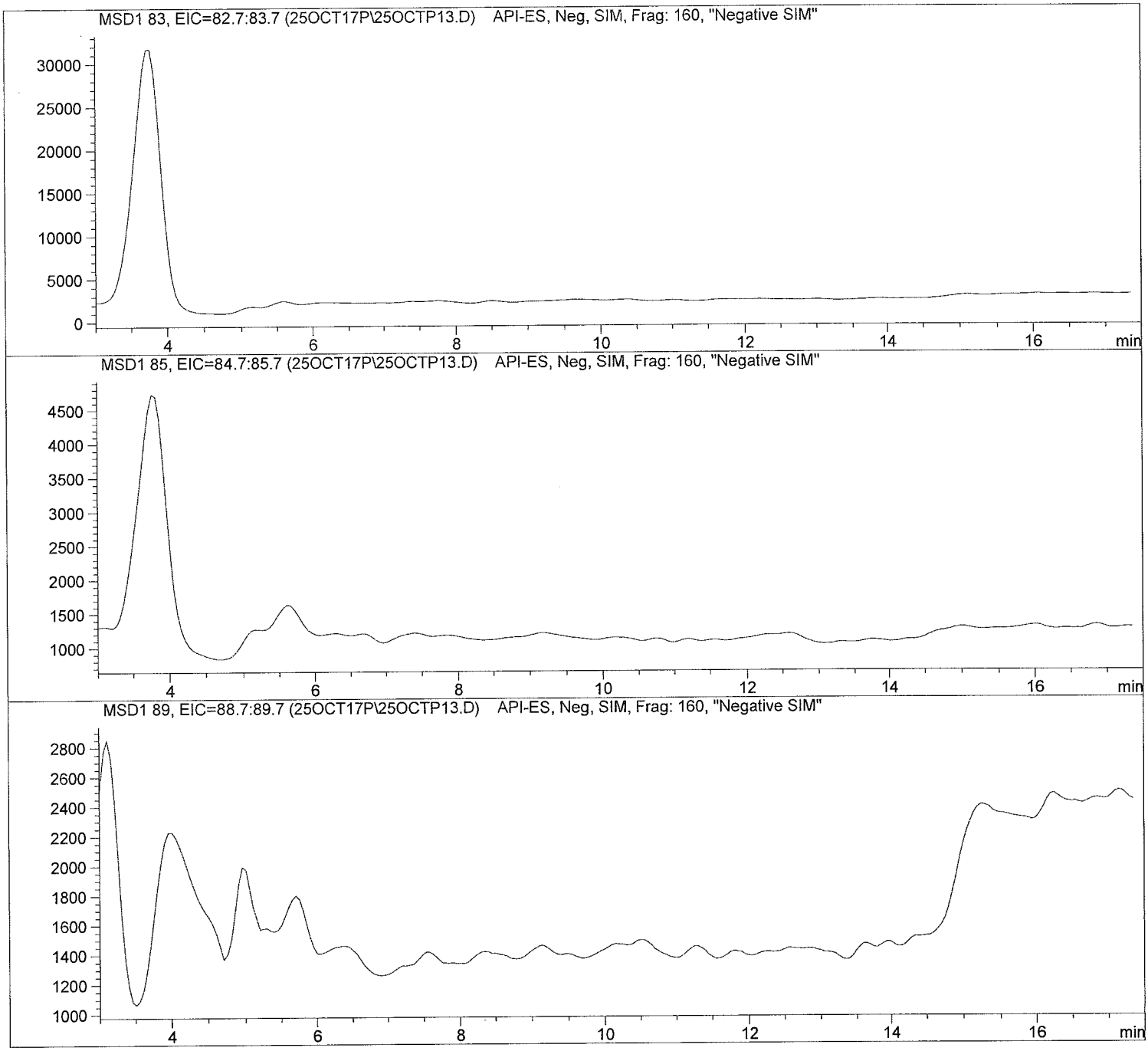
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP13.D  Sample Name: Rinse

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 13:02:08 | Seq Line: | 13 |
| Sample Name: | Rinse | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP13.D Sample Name: Rinse

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 13:02:08 | Seq Line: | 13 |
| Sample Name: | Rinse | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 0.000 | | 0.0 | 0.0000 | CLO4-89-ISTD |

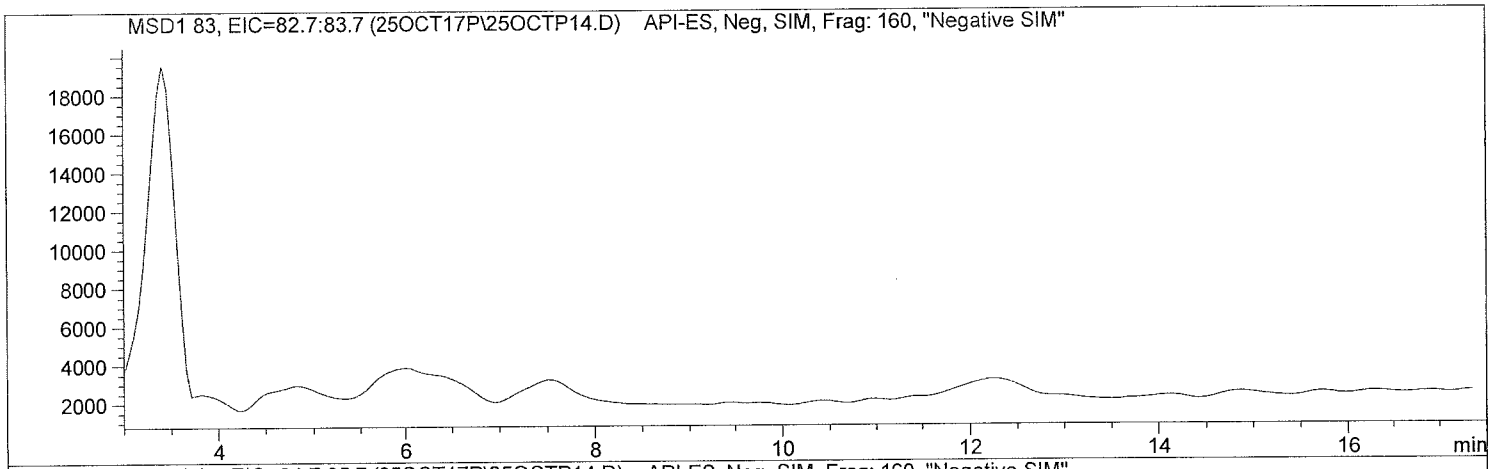
*** End of Report ***

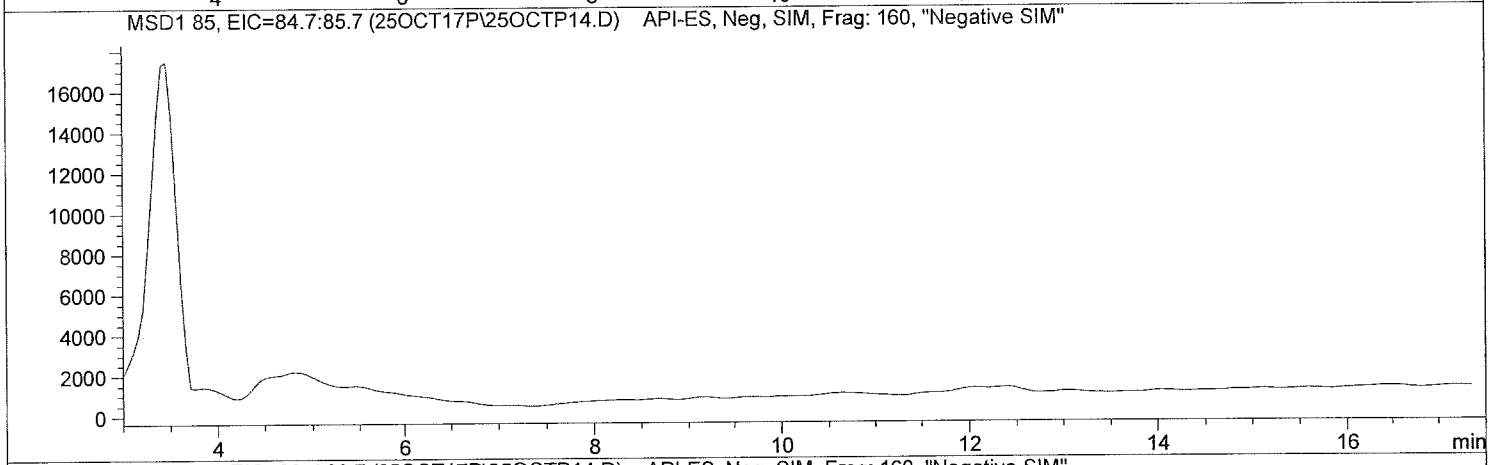
Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP14.D Sample Name: 1729821001

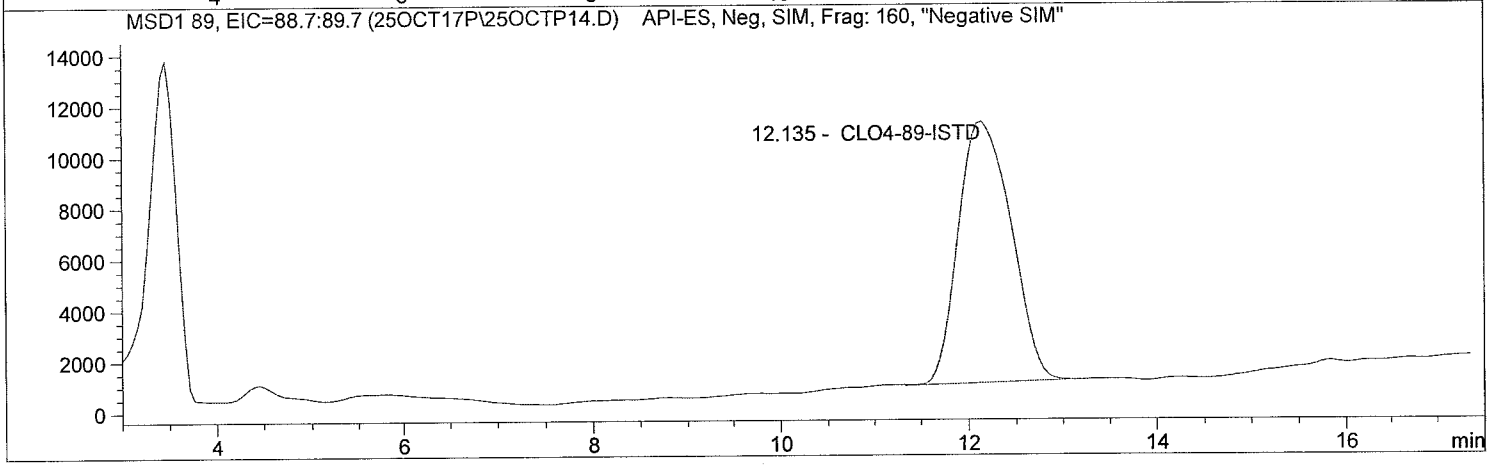
| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 13:21:24 | Seq Line: | 14 |
| Sample Name: | 1729821001 | Location: | Vial 92 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP14.D  Sample Name: 1729821001

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 13:21:24 | Seq Line: | 14 |
| Sample Name: | 1729821001 | Location: | Vial 92 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

| | |
|---|---|
| Acq. Method: | CLO4-AQN.M |
| Analysis Method: | C:\HPCHEM\1\METHODS\CLO4-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 12.135 | BBA | 392983.3 | 5.0000 | CLO4-89-ISTD |

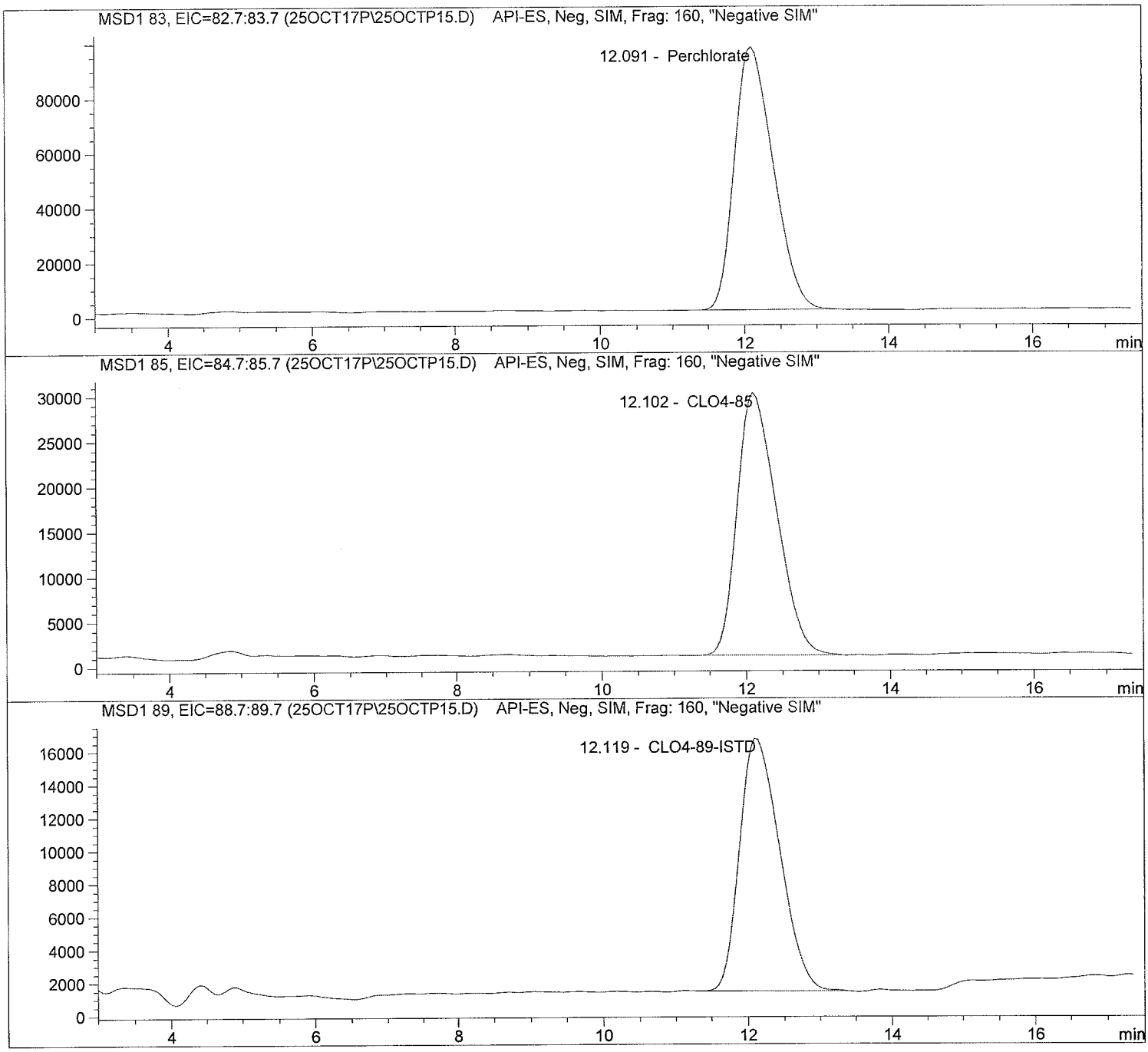
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP15.D  Sample Name: 571101  CCV@25

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 14:46:57 | Seq Line: | 15 |
| Sample Name: | 571101 CCV@25 | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP15.D  Sample Name: 571101  CCV@25

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 14:46:57 | Seq Line: | 15 |
| Sample Name: | 571101 CCV@25 | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 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 |
|---|---|---|---|---|
| 12.091 | BBA | 3560409.2 | 23.8177 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.102 | PBA | 1092944.3 | 23.6862 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.119 | BBA | 586464.6 | 5.0000 | CLO4-89-ISTD |

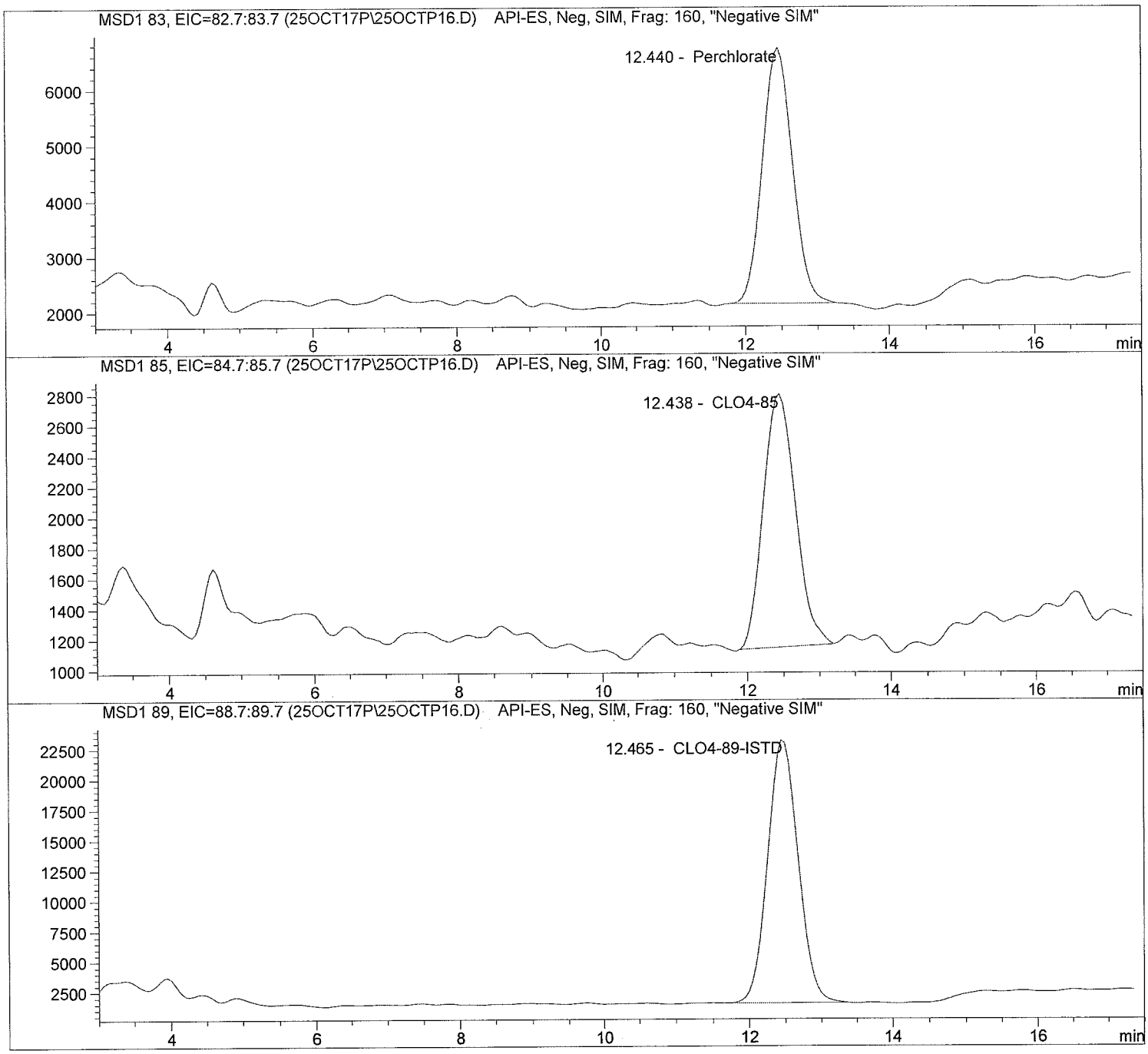
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP16.D  Sample Name: 571102  LODV@1.

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 15:06:11 | Seq Line: | 16 |
| Sample Name: | 571102 LODV@1. | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP16.D Sample Name: 571102 LODV@1.

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 15:06:11 | Seq Line: | 16 |
| Sample Name: | 571102 LODV@1. | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 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 |
|---|---|---|---|---|
| 12.440 | PBA | 132751.2 | 0.9676 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.438 | PBA | 51323.1 | 1.1313 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.465 | BBA | 636963.2 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

# Raw Data

## Initial Calibration

Batch Report: C:\HPCHEM\1\DATA\21AUG17P\21AUG17P.B

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-PR3.M

['#' ==> Run has not been reprocessed with Batch Review Method
'*' ==> Run has been saved with batch file]

| #* | Sample Location | Inj | SampleType | Run | CLO4-85 Area | CLO4-85 RT | CLO4-85 Amount |
|---|---|---|---|---|---|---|---|
| * | ICAL1@ .05ug/L Vial 71 | 1 | Control | 1 | 4365.90820 | 12.226 | 9.14000e-2 |
| * | ICAL2@ .10ug/L Vial 72 | 1 | Control | 2 | 9514.03027 | 12.210 | 2.01141e-1 |
| * | ICAL3@ .20ug/L Vial 73 | 1 | Control | 3 | 1.35331e4 | 12.236 | 2.88584e-1 |
| * | ICAL4@ 0.5ug/L Vial 74 | 1 | Control | 4 | 2.76171e4 | 12.161 | 5.95393e-1 |
| * | ICAL5@ 1.0ug/L Vial 75 | 1 | Control | 5 | 4.75097e4 | 12.226 | 1.01731 |
| * | ICAL6@ 5.0ug/L Vial 76 | 1 | Control | 6 | 2.30426e5 | 12.209 | 5.01082 |
| * | ICAL7@ 10.ug/L Vial 77 | 1 | Control | 7 | 4.46570e5 | 12.212 | 9.64041 |
| * | ICAL8@ 25.ug/L Vial 78 | 1 | Control | 8 | 1.19993e6 | 12.134 | 25.19412 |
| * | ICAL9@ 50.ug/L Vial 79 | 1 | Control | 9 | 2.60933e6 | 12.150 | 49.96977 |
| * | ICAL Verf@10ug/L Vial 80 | 1 | Control | 10 | 4.49703e5 | 12.232 | 9.41499 |

| #* | Sample Location | Inj | SampleType | Run | Perchlorate Area | Perchlorate RT | Perchlorate Amount |
|---|---|---|---|---|---|---|---|
| * | ICAL1@ .05ug/L Vial 71 | 1 | Control | 1 | 8930.38184 | 12.237 | 6.88583e-2 |
| * | ICAL2@ .10ug/L Vial 72 | 1 | Control | 2 | 1.15052e4 | 12.248 | 8.73938e-2 |
| * | ICAL3@ .20ug/L Vial 73 | 1 | Control | 3 | 2.62111e4 | 12.238 | 1.91166e-1 |
| * | ICAL4@ 0.5ug/L Vial 74 | 1 | Control | 4 | 6.28912e4 | 12.159 | 4.52946e-1 |
| * | ICAL5@ 1.0ug/L Vial 75 | 1 | Control | 5 | 1.30706e5 | 12.231 | 9.25591e-1 |
| * | ICAL6@ 5.0ug/L Vial 76 | 1 | Control | 6 | 6.80205e5 | 12.200 | 4.80762 |
| * | ICAL7@ 10.ug/L Vial 77 | 1 | Control | 7 | 1.41057e6 | 12.196 | 9.74126 |
| * | ICAL8@ 25.ug/L Vial 78 | 1 | Control | 8 | 4.00474e6 | 12.118 | 25.78802 |
| * | ICAL9@ 50.ug/L Vial 79 | 1 | Control | 9 | 8.85683e6 | 12.137 | 49.73658 |
| * | ICAL Verf@10ug/L Vial 80 | 1 | Control | 10 | 1.36065e6 | 12.218 | 9.14332 |

| #* | Sample Location | Inj | SampleType | Run | CLO4-89-ISTD Area | CLO4-89-ISTD RT | CLO4-89-ISTD Amount |
|---|---|---|---|---|---|---|---|
| * | ICAL1@ .05ug/L Vial 71 | 1 | Control | 1 | 6.73943e5 | 12.272 | 5.00000 |
| * | ICAL2@ .10ug/L Vial 72 | 1 | Control | 2 | 6.67016e5 | 12.250 | 5.00000 |
| * | ICAL3@ .20ug/L Vial 73 | 1 | Control | 3 | 6.61031e5 | 12.267 | 5.00000 |
| * | ICAL4@ 0.5ug/L Vial 74 | 1 | Control | 4 | 6.52904e5 | 12.190 | 5.00000 |
| * | ICAL5@ 1.0ug/L Vial 75 | 1 | Control | 5 | 6.56071e5 | 12.242 | 5.00000 |
| * | ICAL6@ 5.0ug/L Vial 76 | 1 | Control | 6 | 6.34251e5 | 12.221 | 5.00000 |
| * | ICAL7@ 10.ug/L Vial 77 | 1 | Control | 7 | 6.25689e5 | 12.216 | 5.00000 |
| * | ICAL8@ 25.ug/L Vial 78 | 1 | Control | 8 | 6.01523e5 | 12.141 | 5.00000 |
| * | ICAL9@ 50.ug/L Vial 79 | 1 | Control | 9 | 5.97661e5 | 12.156 | 5.00000 |
| * | ICAL Verf@10ug/L Vial 80 | 1 | Control | 10 | 6.45815e5 | 12.234 | 5.00000 |

*** End of Report ***

Method C:\HPCHEM\1\METHODS\CLO4-PR3.M

## Calibration Table

Perchlorate

Calib. Data Modified : 8/21/2017 2:55:52 PM

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 |
|---|---|---|---|---|---|---|---|---|
| 12.226 | 2 | 1 | 5.00000e-2 | 4365.90820 | 1.14524e-5 | | 1 | CLO4-85 |
| | | 2 | 1.00000e-1 | 9514.03027 | 1.05108e-5 | | | |
| | | 3 | 2.00000e-1 | 1.35331e4 | 1.47786e-5 | | | |
| | | 4 | 5.00000e-1 | 2.76171e4 | 1.81047e-5 | | | |
| | | 5 | 1.00000 | 4.75097e4 | 2.10483e-5 | | | |
| | | 6 | 5.00000 | 2.30426e5 | 2.16990e-5 | | | |
| | | 7 | 10.00000 | 4.46570e5 | 2.23929e-5 | | | |
| | | 8 | 25.00000 | 1.19993e6 | 2.08345e-5 | | | |
| | | 9 | 50.00000 | 2.60933e6 | 1.91620e-5 | | | |
| 12.237 | 1 | 1 | 5.00000e-2 | 8930.38184 | 5.59886e-6 | | 1 | Perchlorate |
| | | 2 | 1.00000e-1 | 1.15052e4 | 8.69173e-6 | | | |
| | | 3 | 2.00000e-1 | 2.62111e4 | 7.63037e-6 | | | |
| | | 4 | 5.00000e-1 | 6.28912e4 | 7.95024e-6 | | | |
| | | 5 | 1.00000 | 1.30706e5 | 7.65074e-6 | | | |
| | | 6 | 5.00000 | 6.80205e5 | 7.35073e-6 | | | |
| | | 7 | 10.00000 | 1.41057e6 | 7.08933e-6 | | | |
| | | 8 | 25.00000 | 4.00474e6 | 6.24259e-6 | | | |
| | | 9 | 50.00000 | 8.85683e6 | 5.64536e-6 | | | |
| 12.272 | 3 | 1 | 5.00000 | 6.73943e5 | 7.41903e-6 | +I1 | | CLO4-89-ISTD |
| | | 2 | 5.00000 | 6.67016e5 | 7.49607e-6 | | | |

Method C:\HPCHEM\1\METHODS\CLO4-PR3.M

| RetTime [min] | Sig | Lvl | Amount | Area | Amt/Area | Ref | Grp | Name |
|---|---|---|---|---|---|---|---|---|
| | | 3 | 5.00000 | 6.61031e5 | 7.56394e-6 | | | |
| | | 4 | 5.00000 | 6.52904e5 | 7.65809e-6 | | | |
| | | 5 | 5.00000 | 6.56071e5 | 7.62113e-6 | | | |
| | | 6 | 5.00000 | 6.34251e5 | 7.88331e-6 | | | |
| | | 7 | 5.00000 | 6.25689e5 | 7.99119e-6 | | | |
| | | 8 | 5.00000 | 6.01523e5 | 8.31223e-6 | | | |
| | | 9 | 5.00000 | 5.97661e5 | 8.36594e-6 | | | |

More compound-specific settings:

Compound: CLO4-85
- Time Window : From 10.676 min To 13.166 min
- Curve Type : Quadratic
- Origin : Forced
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 1
  - Level 3 : 1
  - Level 4 : 1
  - Level 5 : 1
  - Level 6 : 1
  - Level 7 : 1
  - Level 8 : 1
  - Level 9 : 1

Compound: Perchlorate
- Time Window : From 10.737 min To 13.198 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 0.5
  - Level 3 : 0.25
  - Level 4 : 0.1
  - Level 5 : 0.05
  - Level 6 : 0.01
  - Level 7 : 0.005
  - Level 8 : 0.002
  - Level 9 : 0.001

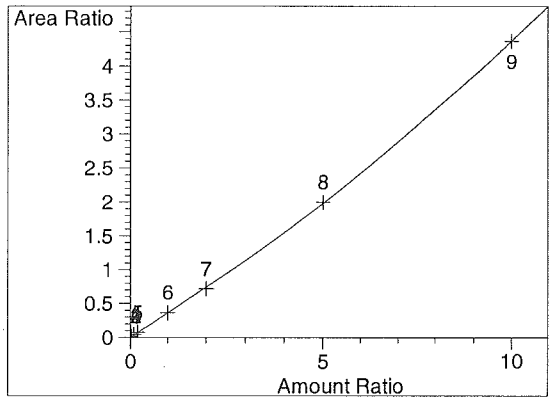
Compound: CLO4-89-ISTD
- Time Window : From 10.704 min To 13.272 min
- Curve Type : Linear
- Origin : Included
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 1
  - Level 3 : 1
  - Level 4 : 1
  - Level 5 : 1
  - Level 6 : 1
  - Level 7 : 1
  - Level 8 : 1
  - Level 9 : 1

Peak Sum Table

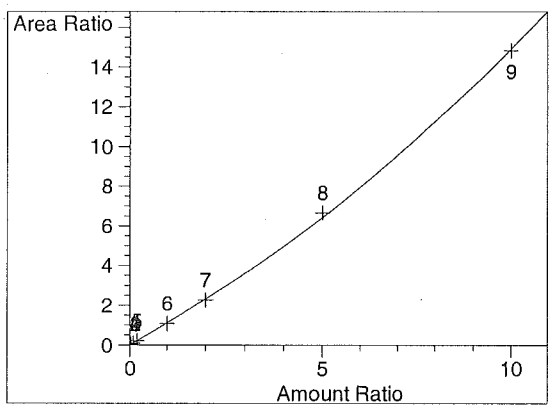
***No Entries in table***

Method C:\HPCHEM\1\METHODS\CLO4-PR3.M

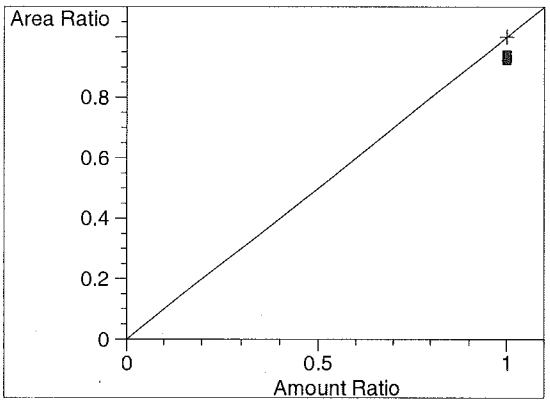
## Calibration Curves




CLO4-85 at exp. RT: 12.226
MSD1 85, EIC=84.7:85.7
Correlation: 0.99997
Residual Std. Dev.: 0.01235
Formula: $y = ax^2 + bx$
a: 8.26698e-3
b: 3.54234e-1
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
Level 8 : 1
Level 9 : 1




Perchlorate at exp. RT: 12.237
MSD1 83, EIC=82.7:83.7
Correlation: 0.99970
Residual Std. Dev.: 0.10168
Formula: $y = ax^2 + bx + c$
a: 4.14991e-2
b: 1.07712
c: -1.59065e-3
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.5
Level 3 : 0.25
Level 4 : 0.1
Level 5 : 0.05
Level 6 : 0.01
Level 7 : 0.005
Level 8 : 0.002
Level 9 : 0.001




CLO4-89-ISTD at exp. RT: 12.272
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
Level 8 : 1
Level 9 : 1

Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2017\AUG\21AUG17P.S

Sequence Table:

Method and Injection Info Part:

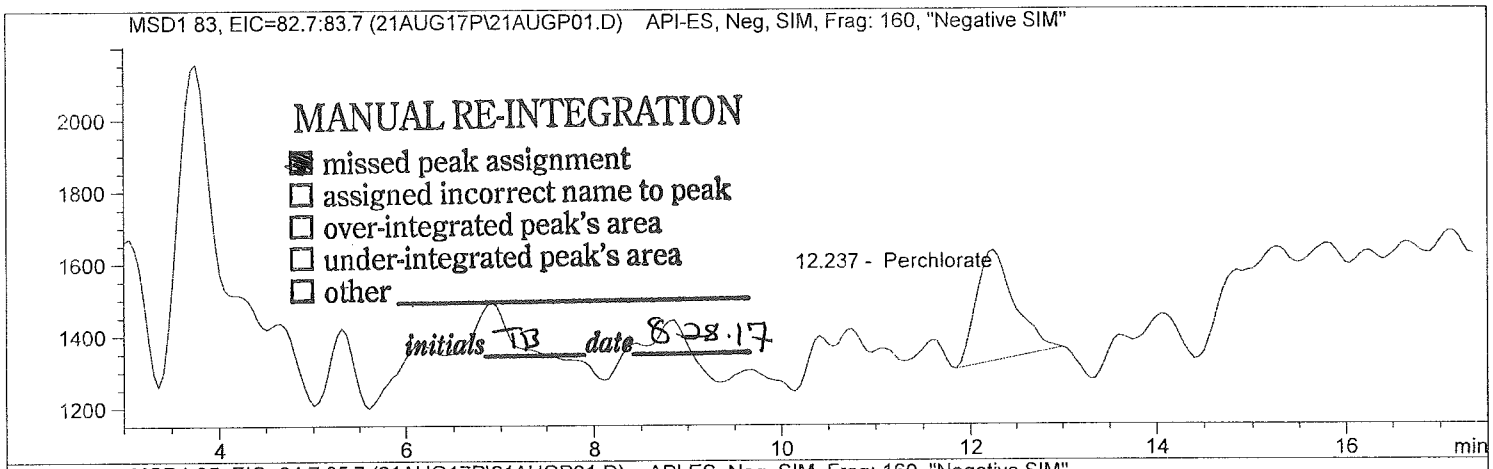
| Line | Location | SampleName | Method | Inj | SampleType | InjVolume | DataFile |
|---|---|---|---|---|---|---|---|
| 1 | Vial 71 | ICAL1@ .05ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 2 | Vial 72 | ICAL2@ .10ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 3 | Vial 73 | ICAL3@ .20ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 4 | Vial 74 | ICAL4@ 0.5ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 5 | Vial 75 | ICAL5@ 1.0ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 6 | Vial 76 | ICAL6@ 5.0ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 7 | Vial 77 | ICAL7@ 10.ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 8 | Vial 78 | ICAL8@ 25.ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 9 | Vial 79 | ICAL9@ 50.ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 10 | Vial 80 | ICAL Verf@10ug/L | CLO4-AQN | 1 | Ctrl Samp | | |

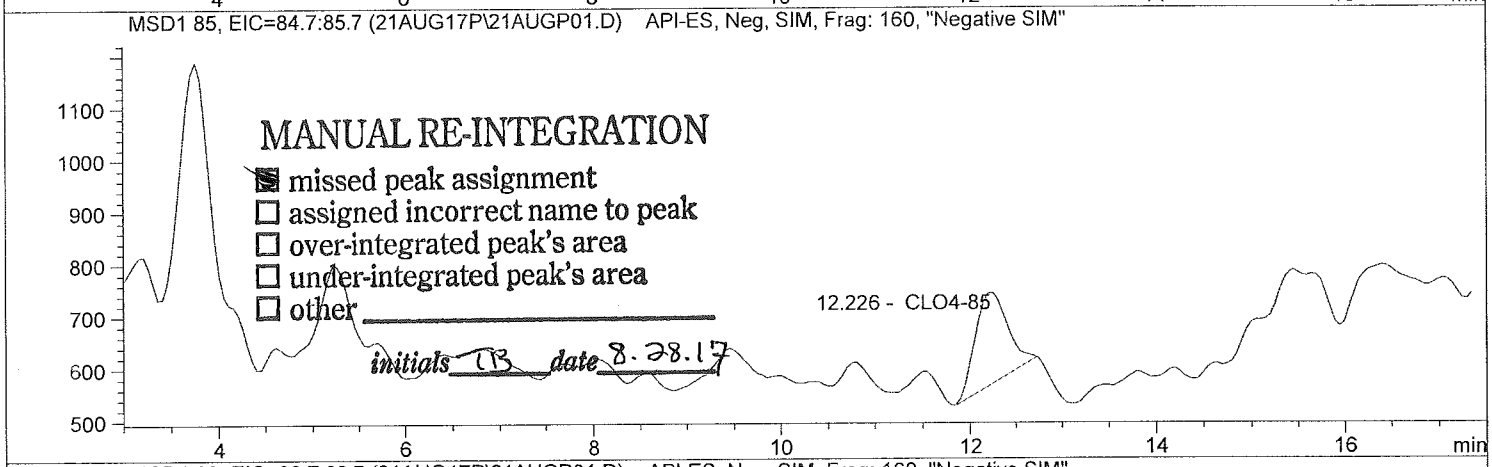
Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP01.D  Sample Name: ICAL1@ .05ug/L

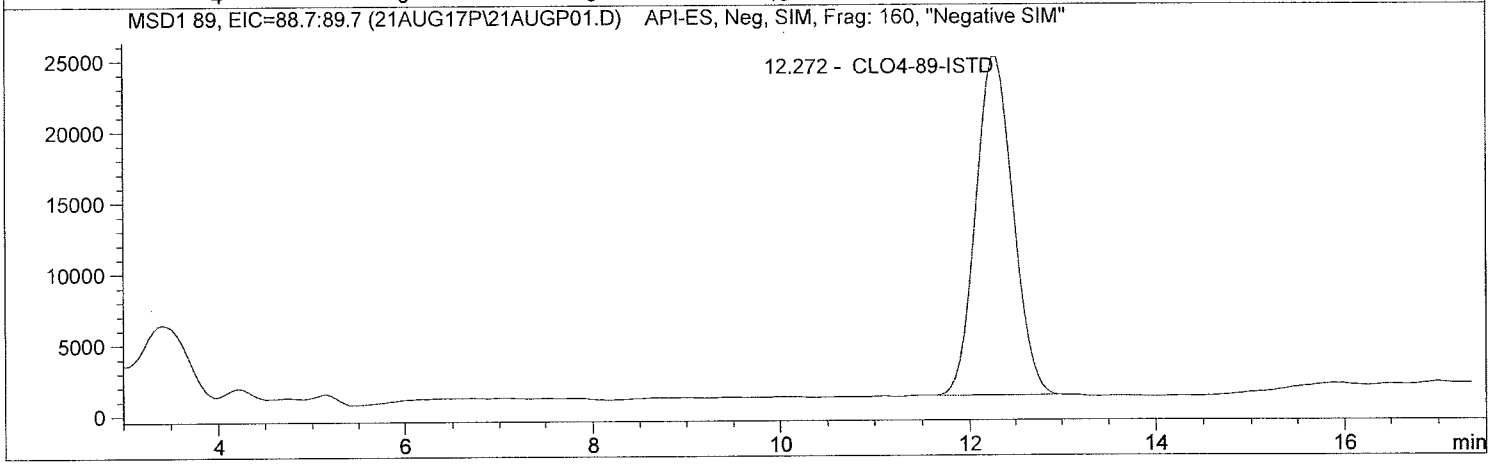
| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 09:42:32 | Seq Line: | 1 |
| Sample Name: | ICAL1@ .05ug/L | Location: | Vial 71 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP01.D  Sample Name: ICAL1@ .05ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 09:42:32 | Seq Line: | 1 |
| Sample Name: | ICAL1@ .05ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.050 |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.237 | MM | 8930.4 | 0.0689 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.226 | MM | 4365.9 | 0.0914 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.272 | BBA | 673942.9 | 5.0000 | CLO4-89-ISTD |

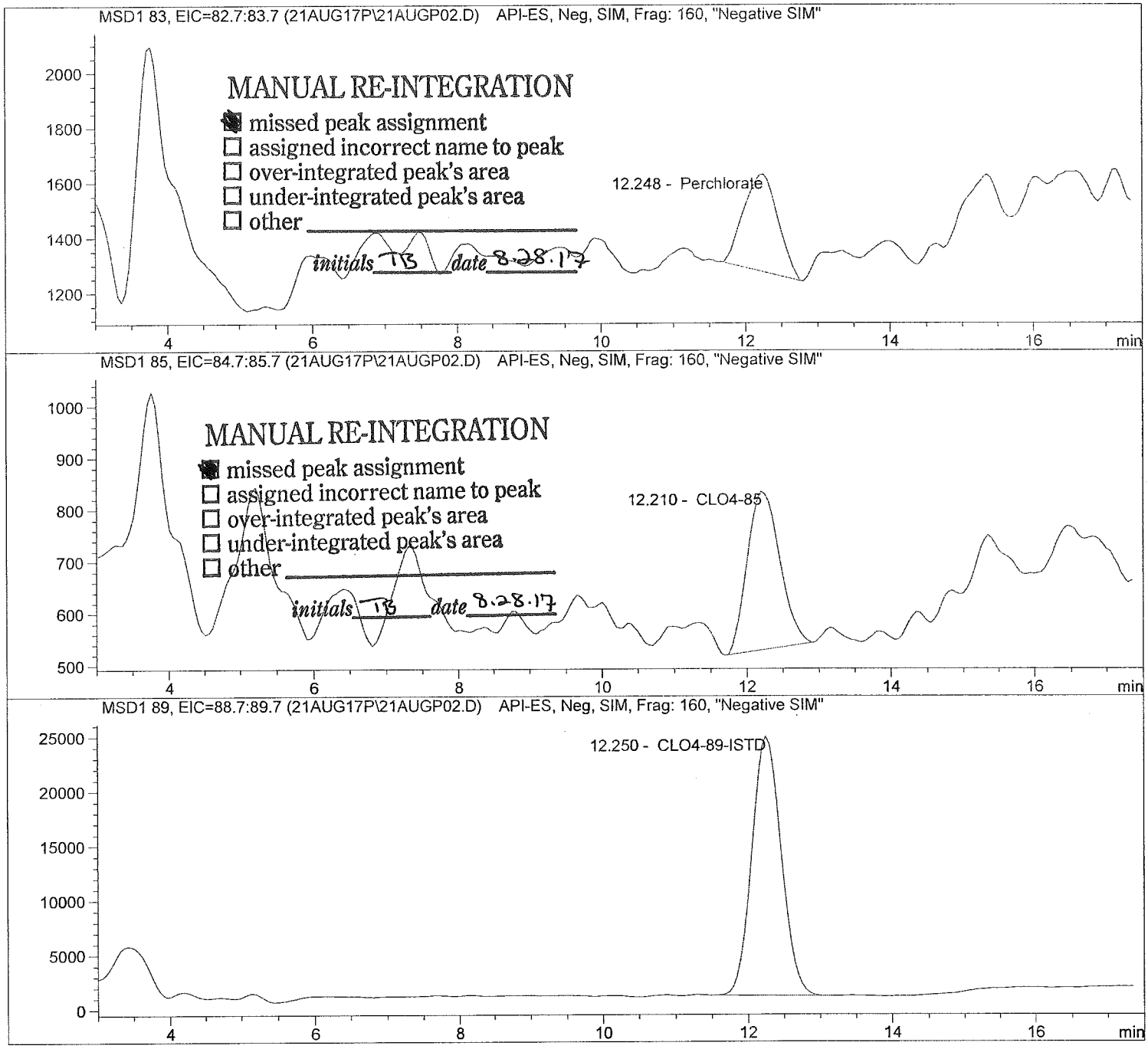
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP02.D  Sample Name: ICAL2@ .10ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:01:47 | Seq Line: | 2 |
| Sample Name: | ICAL2@ .10ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP02.D  Sample Name: ICAL2@ .10ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:01:47 | Seq Line: | 2 |
| Sample Name: | ICAL2@ .10ug/L | 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-PR3.M |
| Last Changed: | 8/21/2017 14:55:53 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.100 |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.248 | MM | 11505.2 | 0.0874 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.210 | MM | 9514.0 | 0.2011 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.250 | BBA | 667016.3 | 5.0000 | CLO4-89-ISTD |

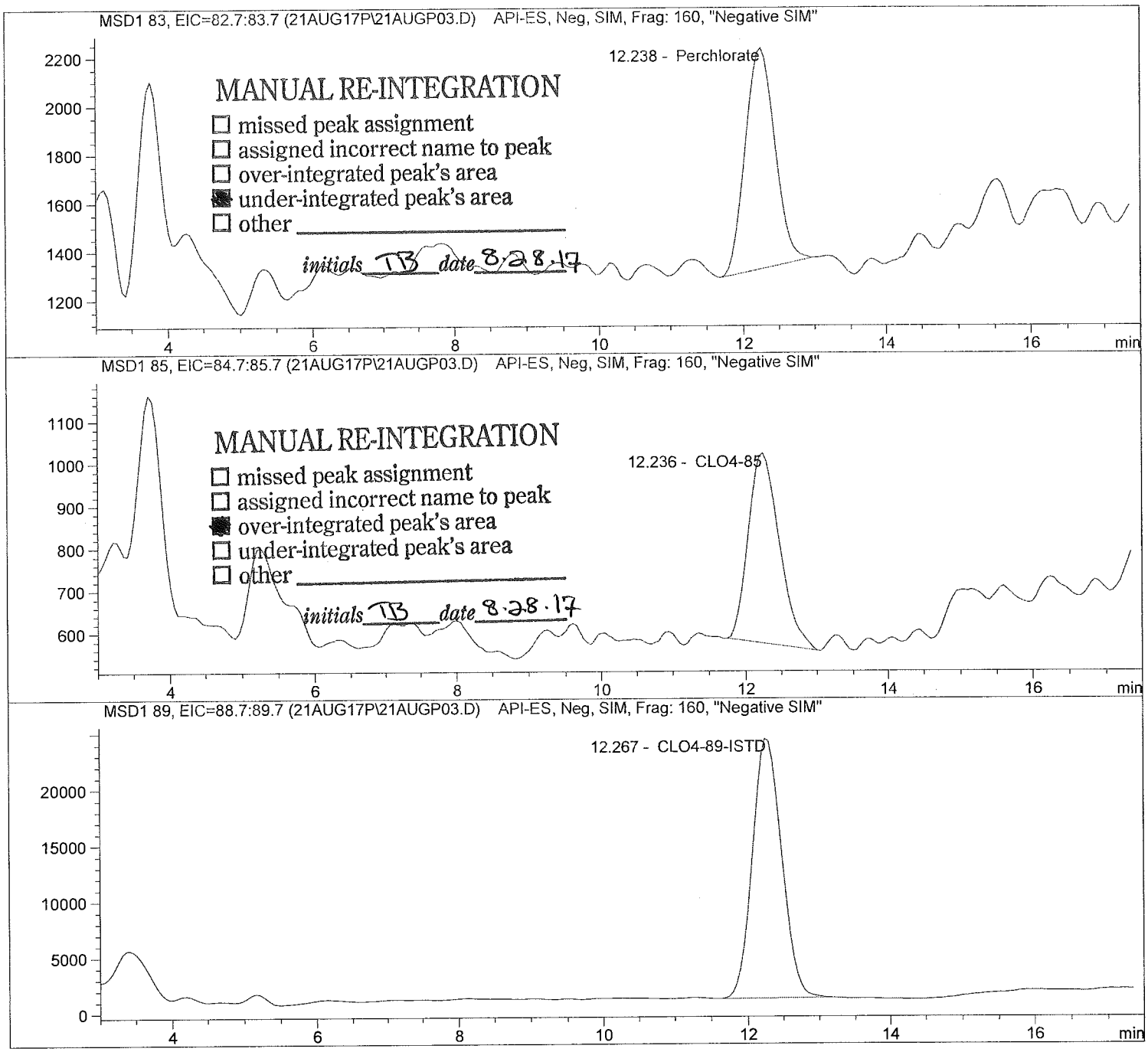
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP03.D  Sample Name: ICAL3@ .20ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:21:02 | Seq Line: | 3 |
| Sample Name: | ICAL3@ .20ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP03.D  Sample Name: ICAL3@ .20ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:21:02 | Seq Line: | 3 |
| Sample Name: | ICAL3@ .20ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.200 |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.238 | MM | 26211.1 | 0.1912 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.236 | MM | 13533.1 | 0.2886 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.267 | PBA | 661030.8 | 5.0000 | CLO4-89-ISTD |

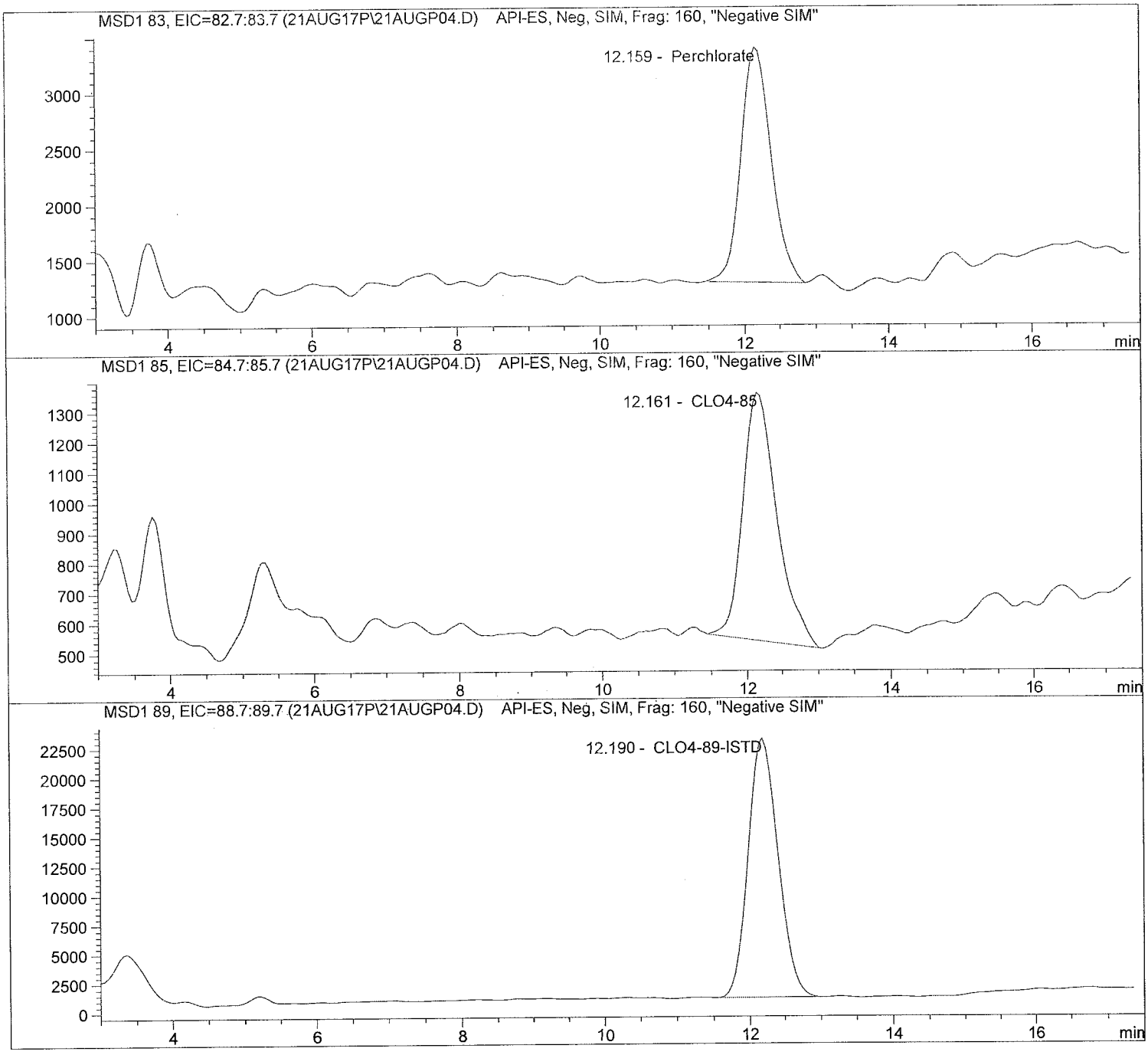
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP04.D  Sample Name: ICAL4@ 0.5ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:40:22 | Seq Line: | 4 |
| Sample Name: | ICAL4@ 0.5ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP04.D Sample Name: ICAL4@ 0.5ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:40:22 | Seq Line: | 4 |
| Sample Name: | ICAL4@ 0.5ug/L | 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-PR3.M |
| Last Changed: | 8/21/2017 14:55:53 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.500 |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.159 | BBA | 62891.2 | 0.4529 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.161 | PBA | 27617.1 | 0.5954 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.190 | PBA | 652904.1 | 5.0000 | CLO4-89-ISTD |

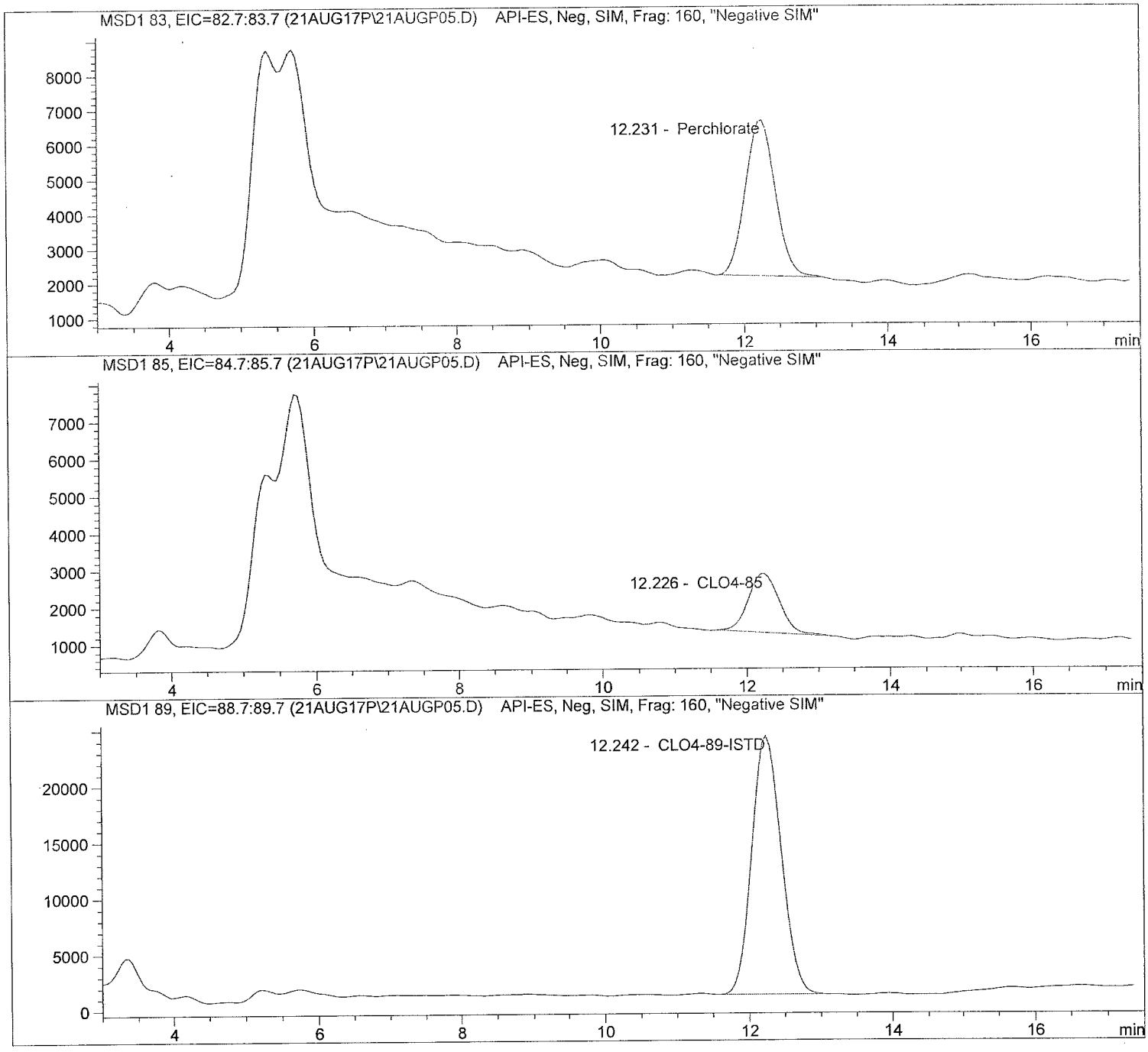
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP05.D  Sample Name: ICAL5@ 1.0ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:59:36 | Seq Line: | 5 |
| Sample Name: | ICAL5@ 1.0ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP05.D  Sample Name: ICAL5@ 1.0ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:59:36 | Seq Line: | 5 |
| Sample Name: | ICAL5@ 1.0ug/L | 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-PR3.M |
| Last Changed: | 8/21/2017 14:55:53 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| 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 |
|---|---|---|---|---|
| 12.231 | PBA | 130706.3 | 0.9256 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.226 | PBA | 47509.7 | 1.0173 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.242 | PBA | 656070.7 | 5.0000 | CLO4-89-ISTD |

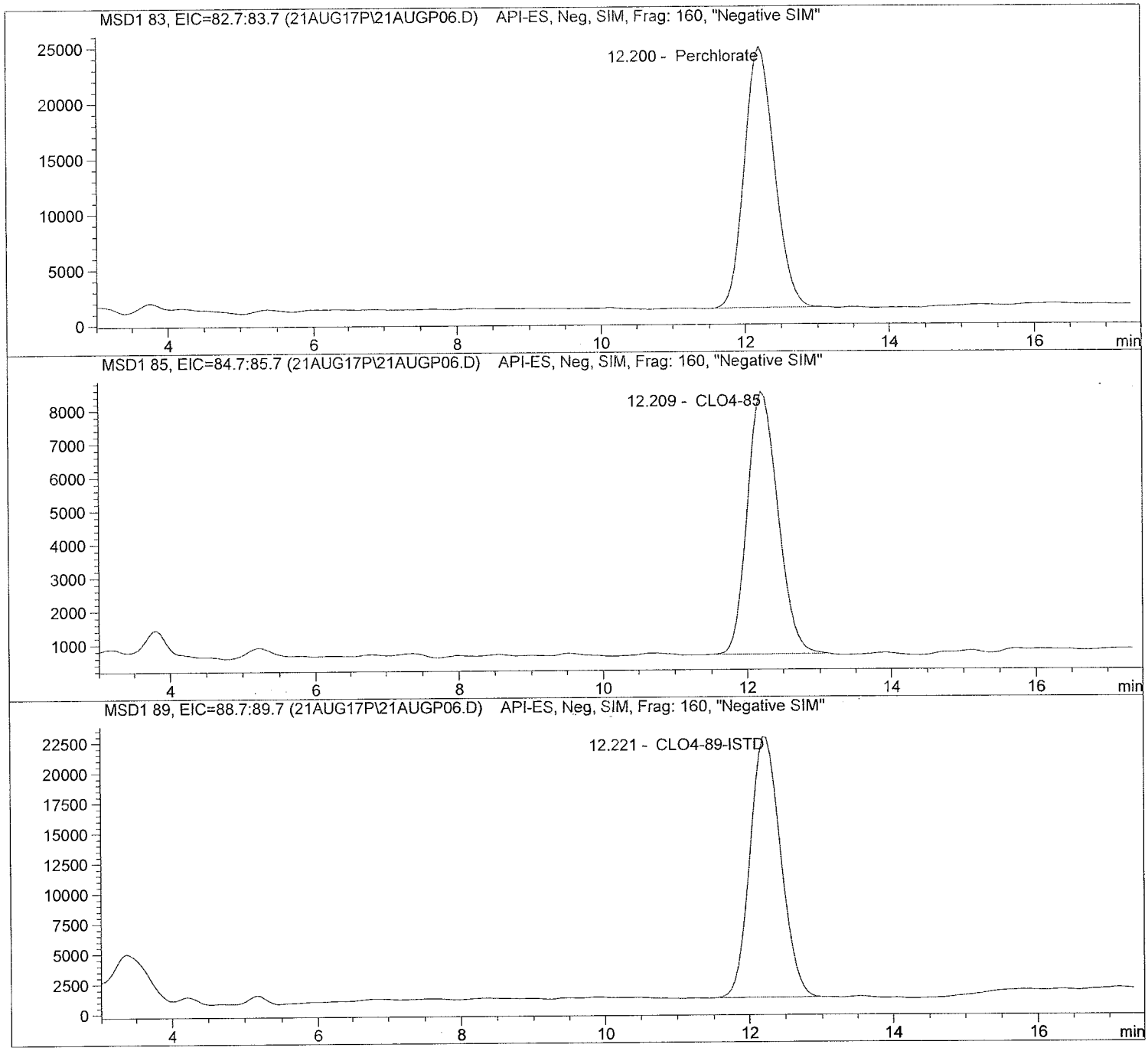
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP06.D  Sample Name: ICAL6@ 5.0ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 11:18:53 | Seq Line: | 6 |
| Sample Name: | ICAL6@ 5.0ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP06.D  Sample Name: ICAL6@ 5.0ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 11:18:53 | Seq Line: | 6 |
| Sample Name: | ICAL6@ 5.0ug/L | 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-PR3.M |
| Last Changed: | 8/21/2017 14:55:53 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| 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 |
|---|---|---|---|---|
| 12.200 | PBA | 680204.6 | 4.8076 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.209 | BBA | 230425.8 | 5.0108 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.221 | BBA | 634251.4 | 5.0000 | CLO4-89-ISTD |

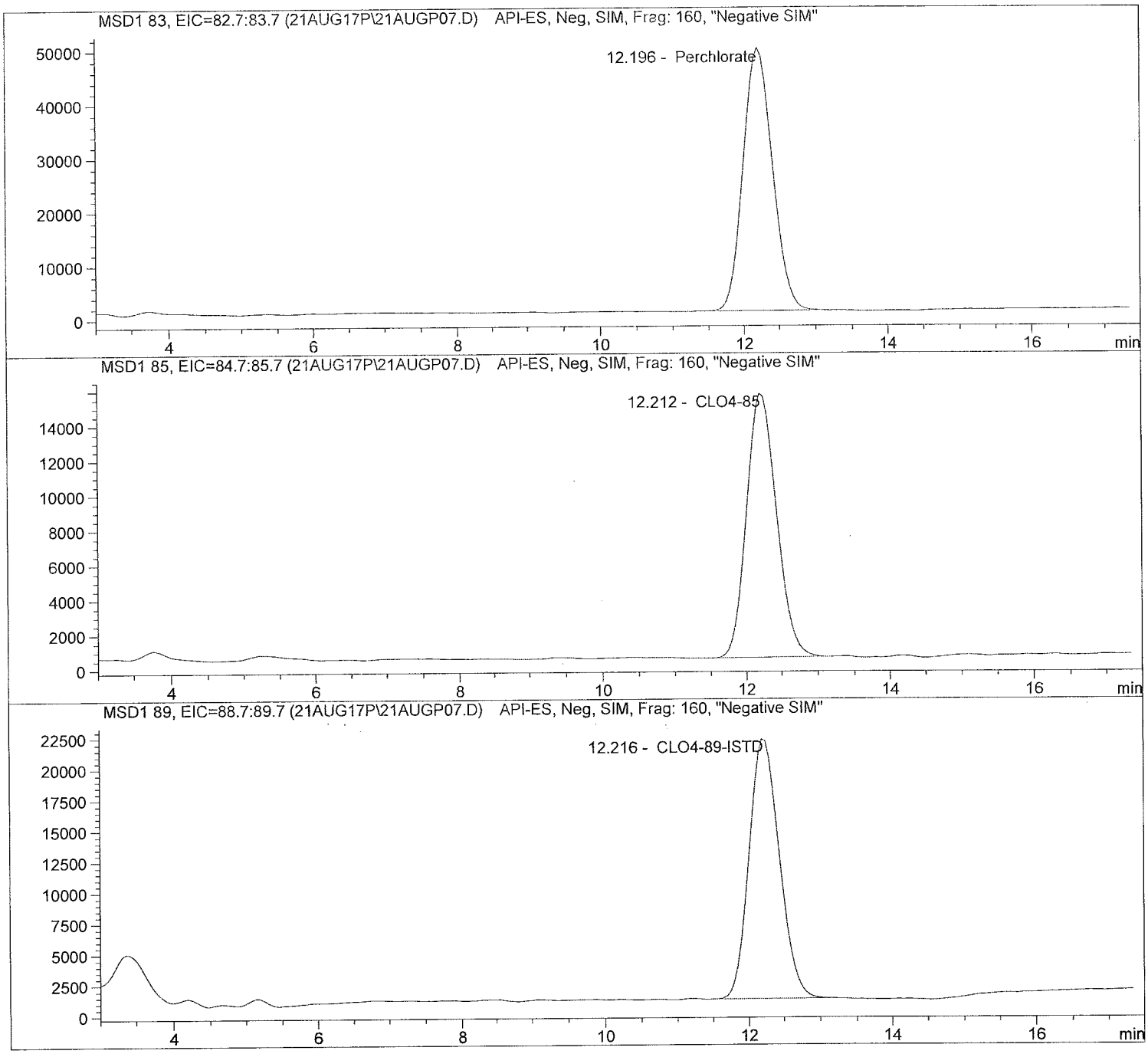
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP07.D  Sample Name: ICAL7@ 10.ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 11:38:12 | Seq Line: | 7 |
| Sample Name: | ICAL7@ 10.ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP07.D  Sample Name: ICAL7@ 10.ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 11:38:12 | Seq Line: | 7 |
| Sample Name: | ICAL7@ 10.ug/L | 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-PR3.M |
| Last Changed: | 8/21/2017 14:55:53 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| 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 |
|---|---|---|---|---|
| 12.196 | BBA | 1410569.9 | 9.7413 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.212 | PBA | 446569.7 | 9.6404 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.216 | PBA | 625689.1 | 5.0000 | CLO4-89-ISTD |

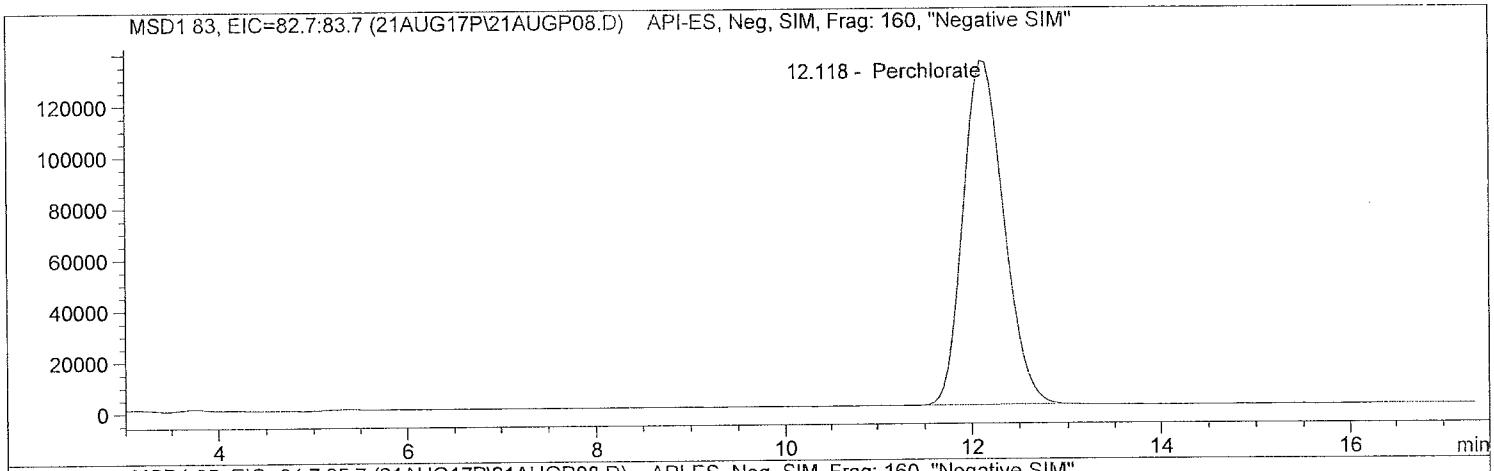
*** End of Report ***

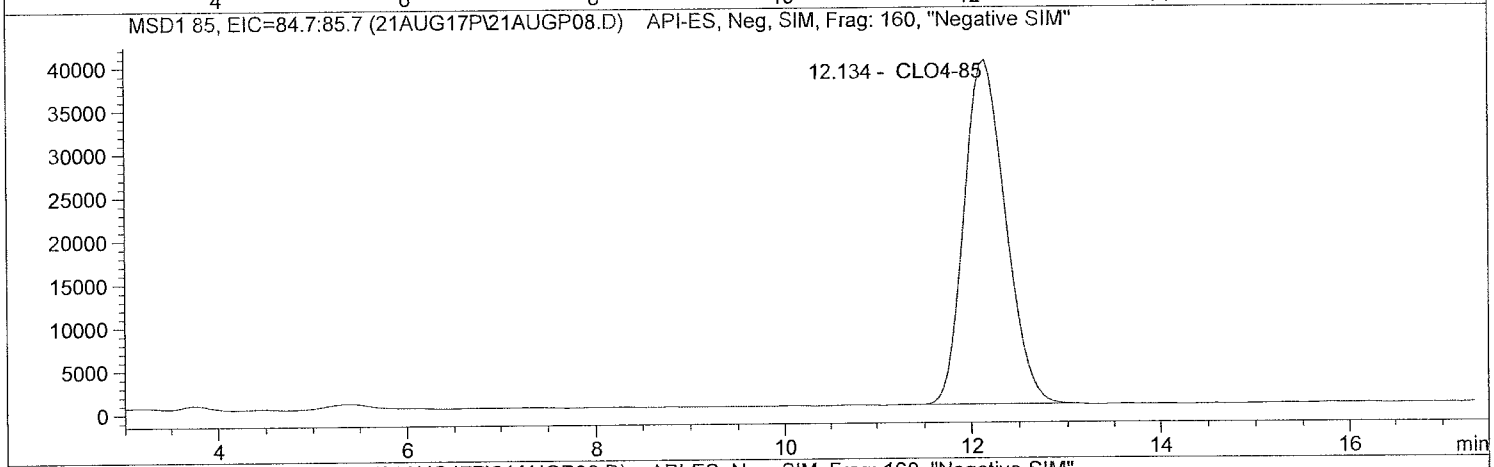
Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP08.D  Sample Name: ICAL8@ 25.ug/L

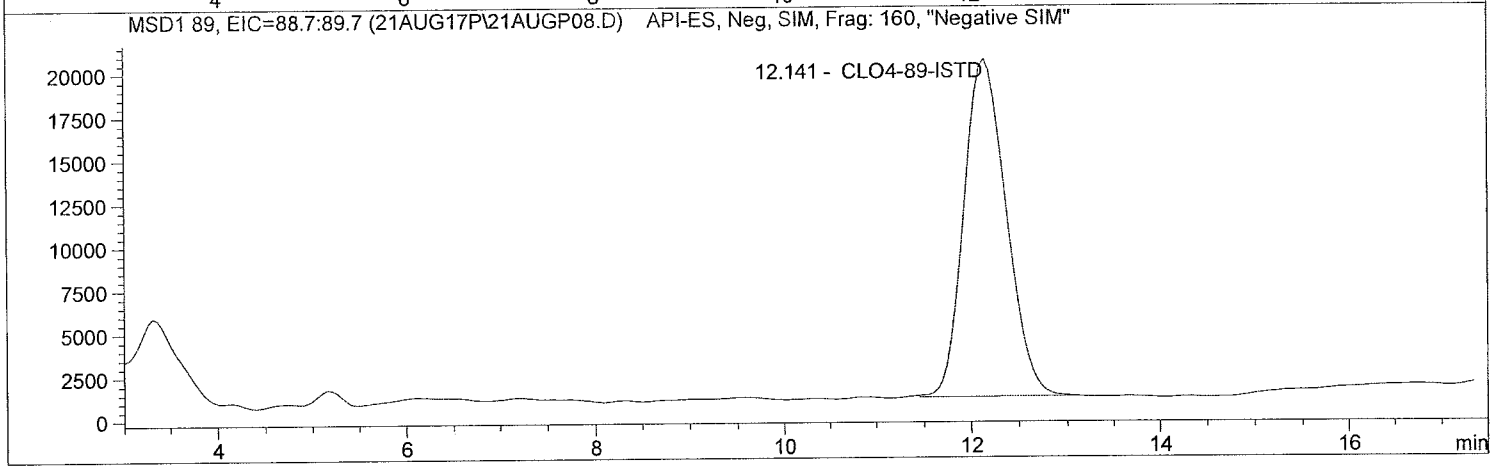
| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 13:12:50 | Seq Line: | 8 |
| Sample Name: | ICAL8@ 25.ug/L | Location: | Vial 78 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP08.D  Sample Name: ICAL8@ 25.ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 13:12:50 | Seq Line: | 8 |
| Sample Name: | ICAL8@ 25.ug/L | 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-PR3.M |
| Last Changed: | 8/21/2017 14:55:53 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 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 |
|---|---|---|---|---|
| 12.118 | BBA | 4004745.0 | 25.7880 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.134 | BBA | 1199930.0 | 25.1941 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.141 | BBA | 601523.1 | 5.0000 | CLO4-89-ISTD |

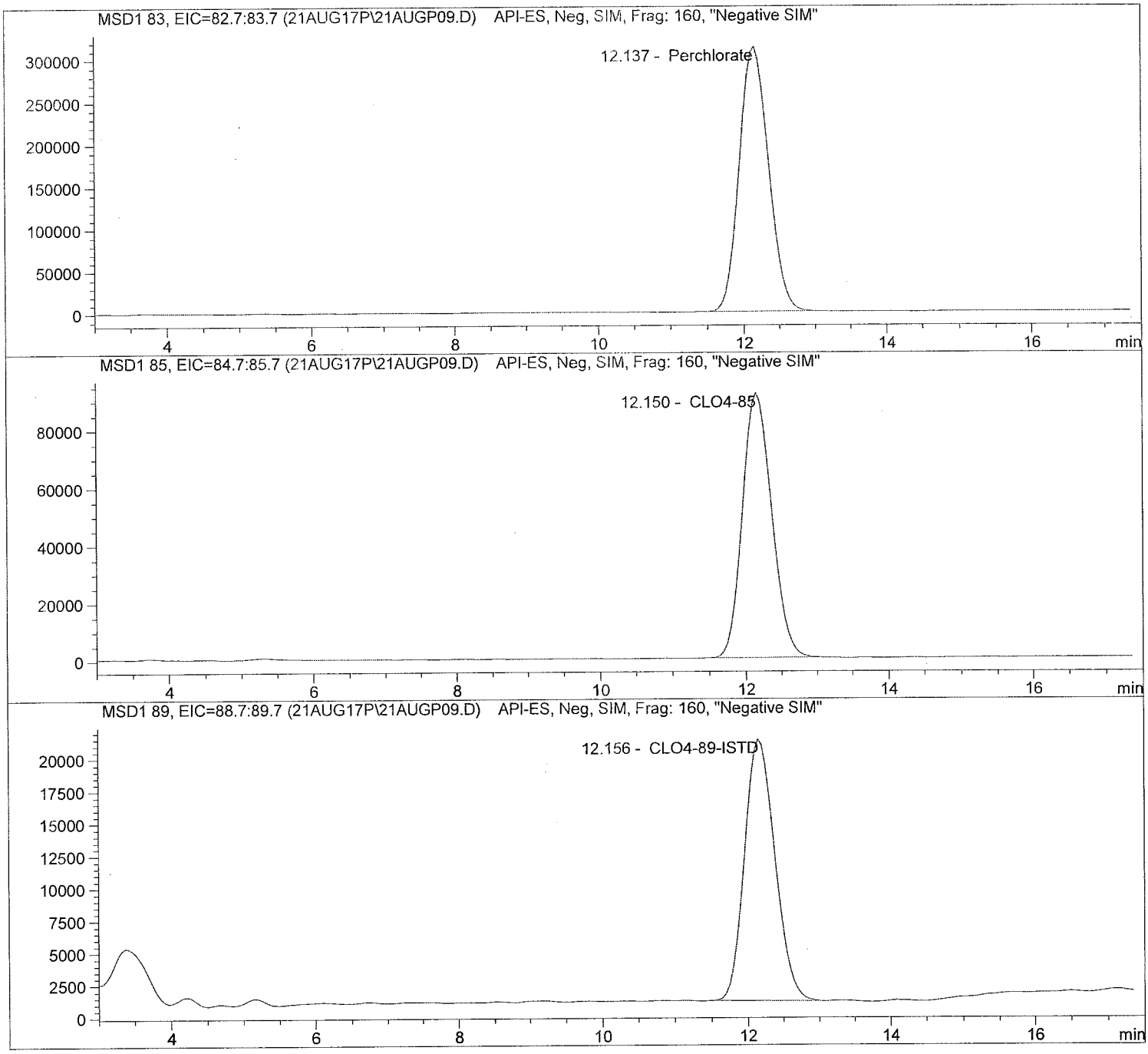
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP09.D  Sample Name: ICAL9@ 50.ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 13:32:10 | Seq Line: | 9 |
| Sample Name: | ICAL9@ 50.ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP09.D  Sample Name: ICAL9@ 50.ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 13:32:10 | Seq Line: | 9 |
| Sample Name: | ICAL9@ 50.ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| 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 |
|---|---|---|---|---|
| 12.137 | PBA | 8856831.0 | 49.7366 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.150 | BBA | 2609327.3 | 49.9698 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.156 | BBA | 597661.2 | 5.0000 | CLO4-89-ISTD |

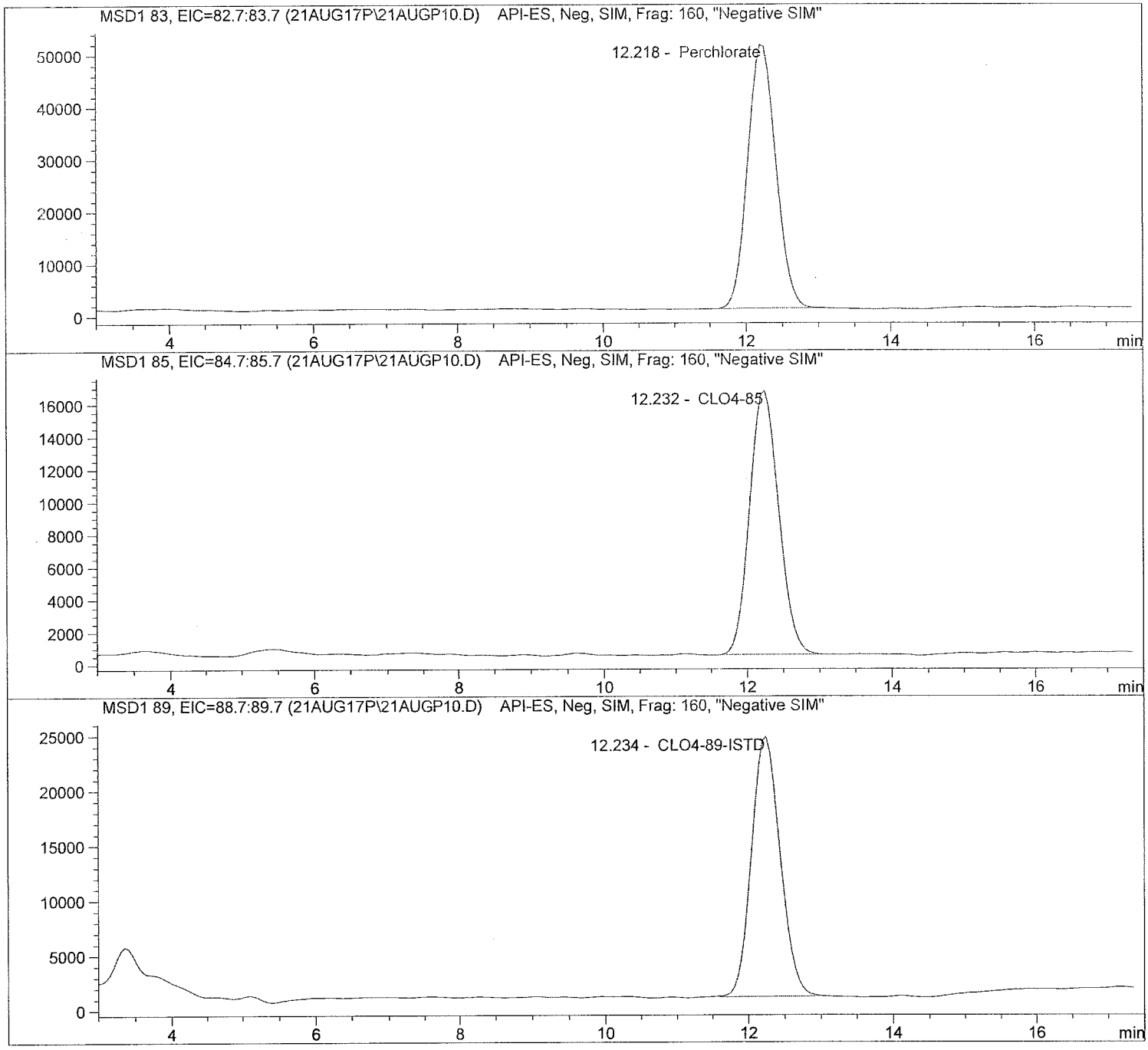
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP10.D  Sample Name: ICAL Verf@10ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 13:51:27 | Seq Line: | 10 |
| Sample Name: | ICAL Verf@10ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP10.D  Sample Name: ICAL Verf@10ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 13:51:27 | Seq Line: | 10 |
| Sample Name: | ICAL Verf@10ug/L | 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-PR3.M |
| Last Changed: | 8/21/2017 14:55:53 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| 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 |
|---|---|---|---|---|
| 12.218 | BBA | 1360649.7 | 9.1433 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.232 | PBA | 449703.0 | 9.4150 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.234 | BBA | 645815.0 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***



ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

# Raw Data

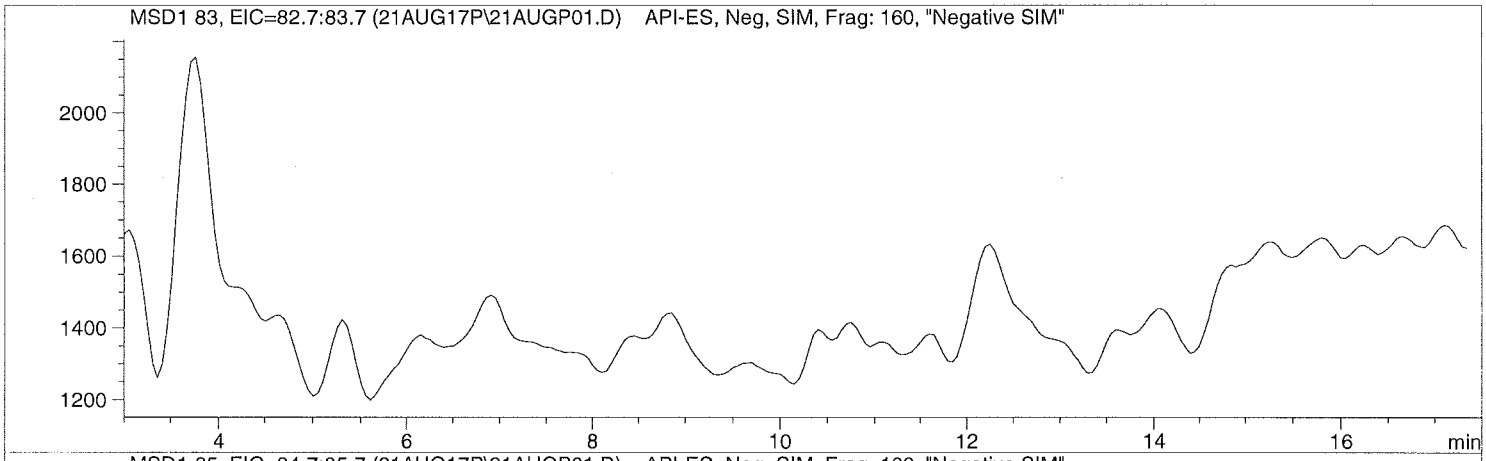
## Unmodified

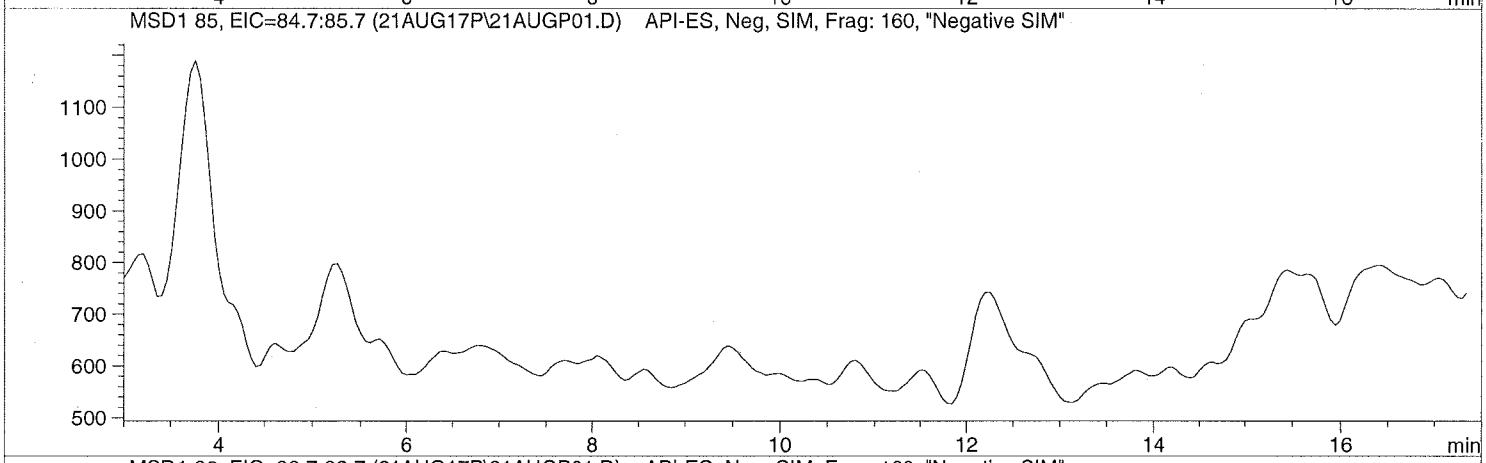
Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP01.D  Sample Name: ICAL1@ .05ug/L

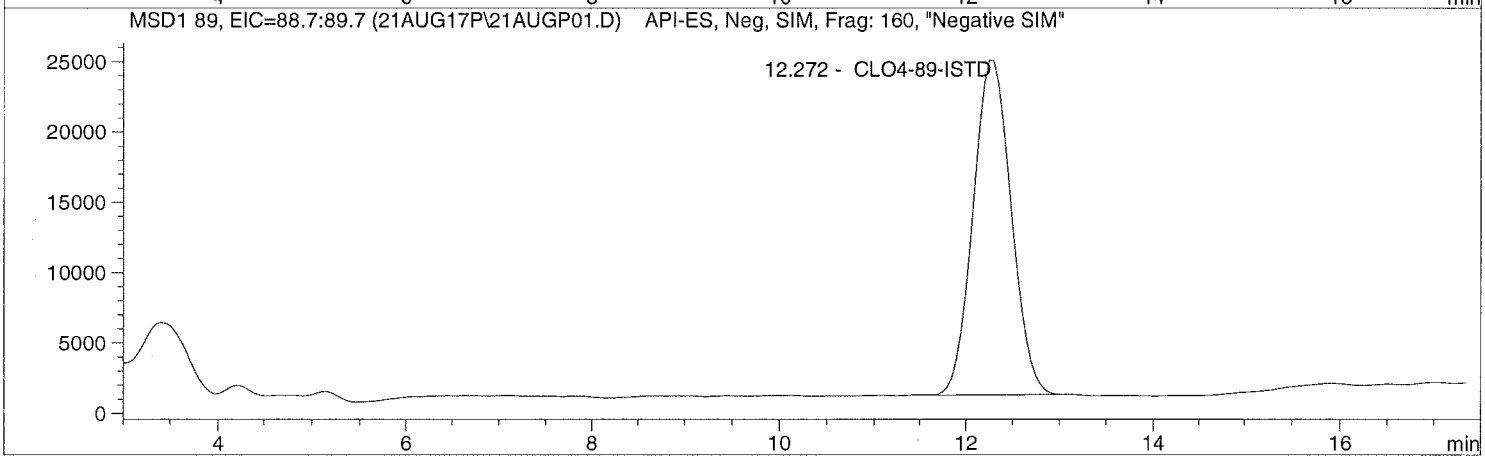
| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 09:42:32 | Seq Line: | 1 |
| Sample Name: | ICAL1@ .05ug/L | Location: | Vial 71 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP01.D Sample Name: ICAL1@ .05ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 09:42:32 | Seq Line: | 1 |
| Sample Name: | ICAL1@ .05ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.050 |

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 |
|---|---|---|---|---|
| 12.272 | BBA | 673942.9 | 5.0000 | CLO4-89-ISTD |

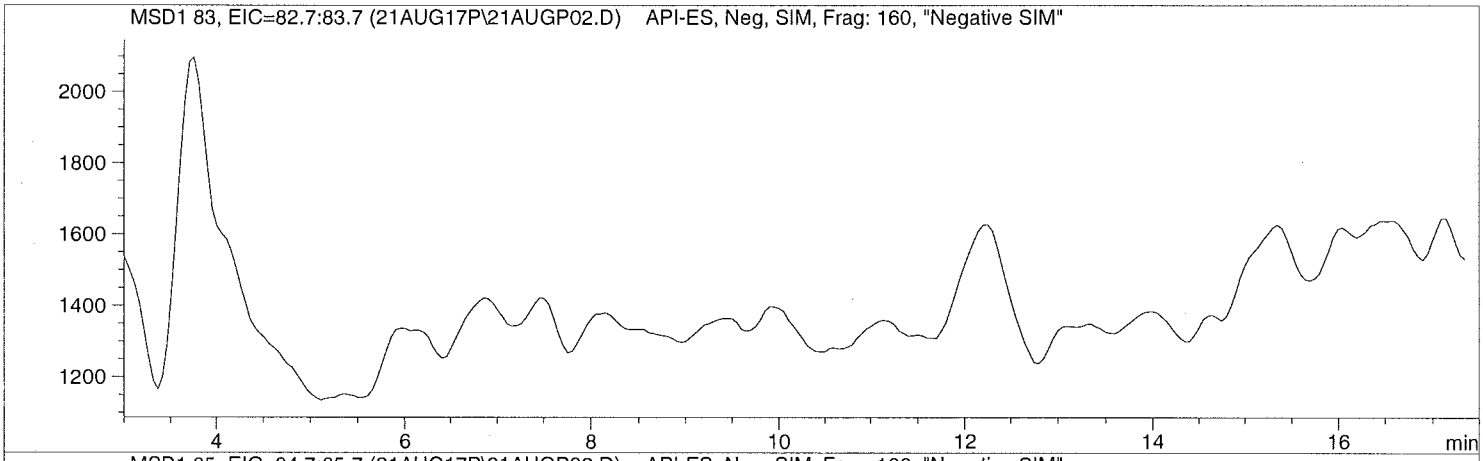
*** End of Report ***

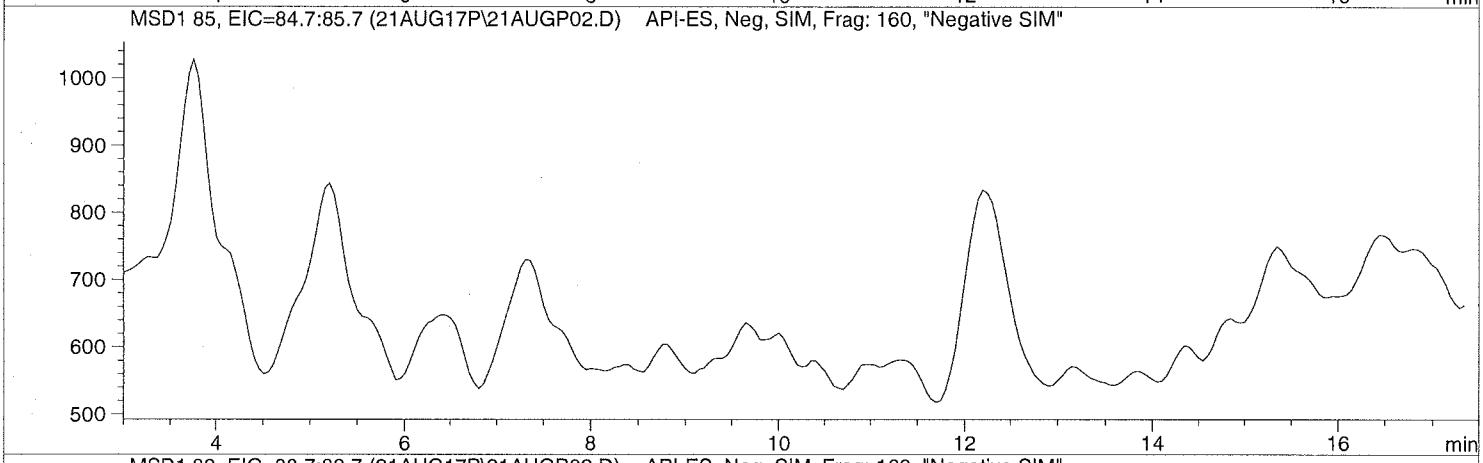
Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP02.D  Sample Name: ICAL2@ .10ug/L

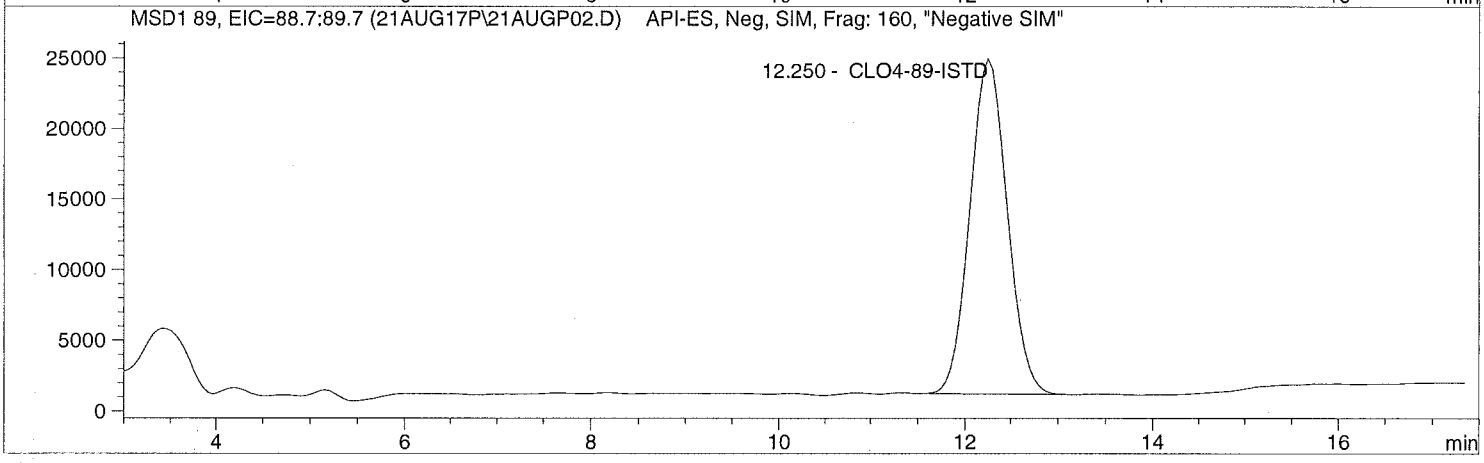
| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:01:47 | Seq Line: | 2 |
| Sample Name: | ICAL2@ .10ug/L | Location: | Vial 72 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP02.D  Sample Name: ICAL2@ .10ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:01:47 | Seq Line: | 2 |
| Sample Name: | ICAL2@ .10ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.100 |

## 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 |
|---|---|---|---|---|
| 12.250 | BBA | 667016.3 | 5.0000 | CLO4-89-ISTD |

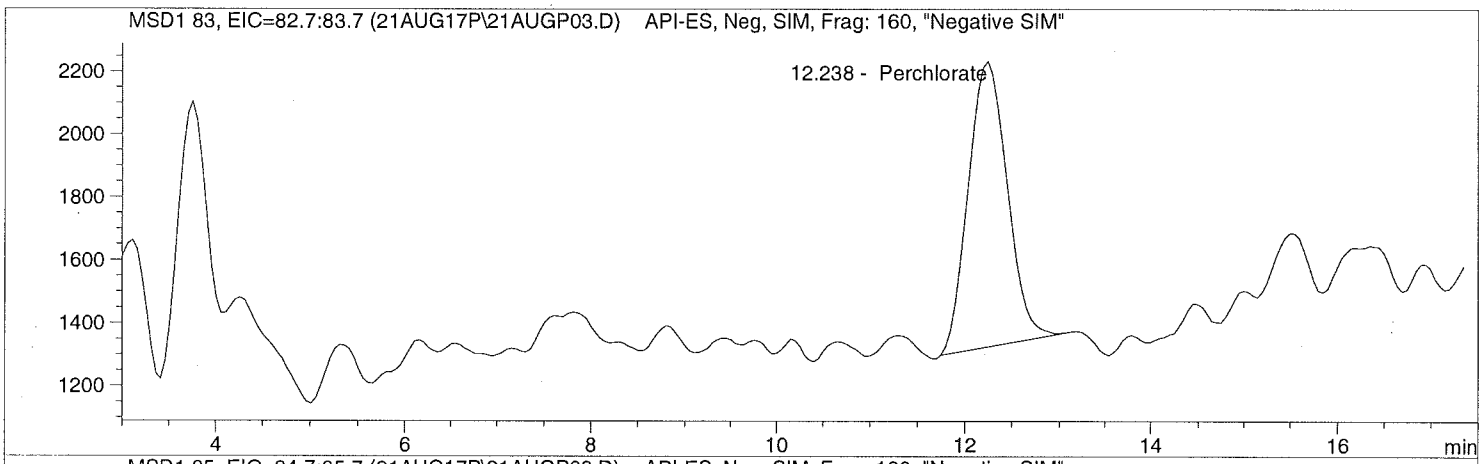
*** End of Report ***

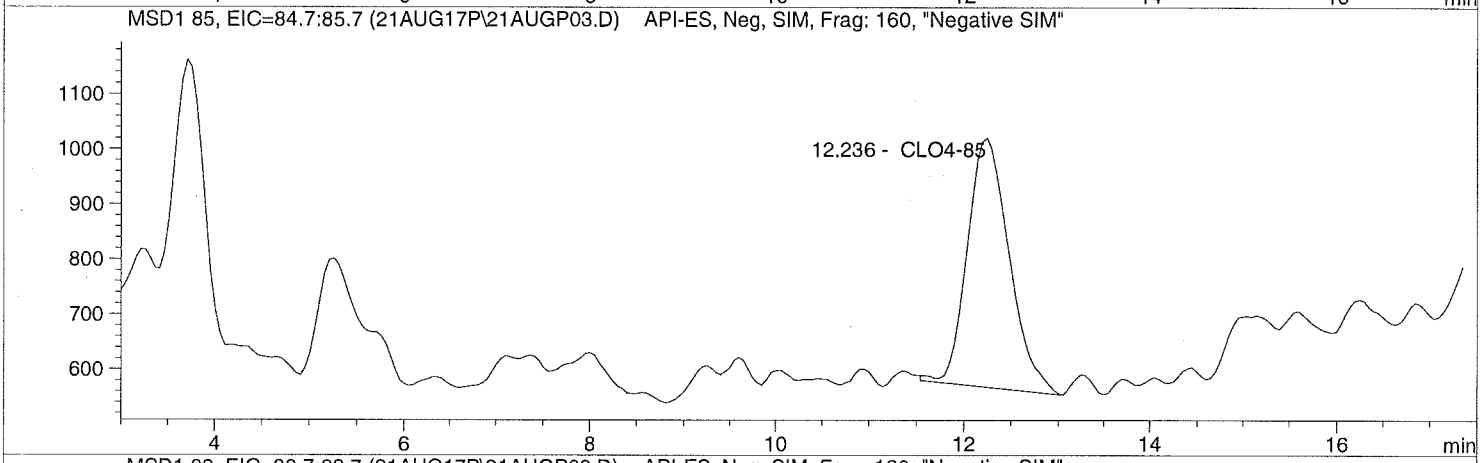
Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP03.D  Sample Name: ICAL3@ .20ug/L

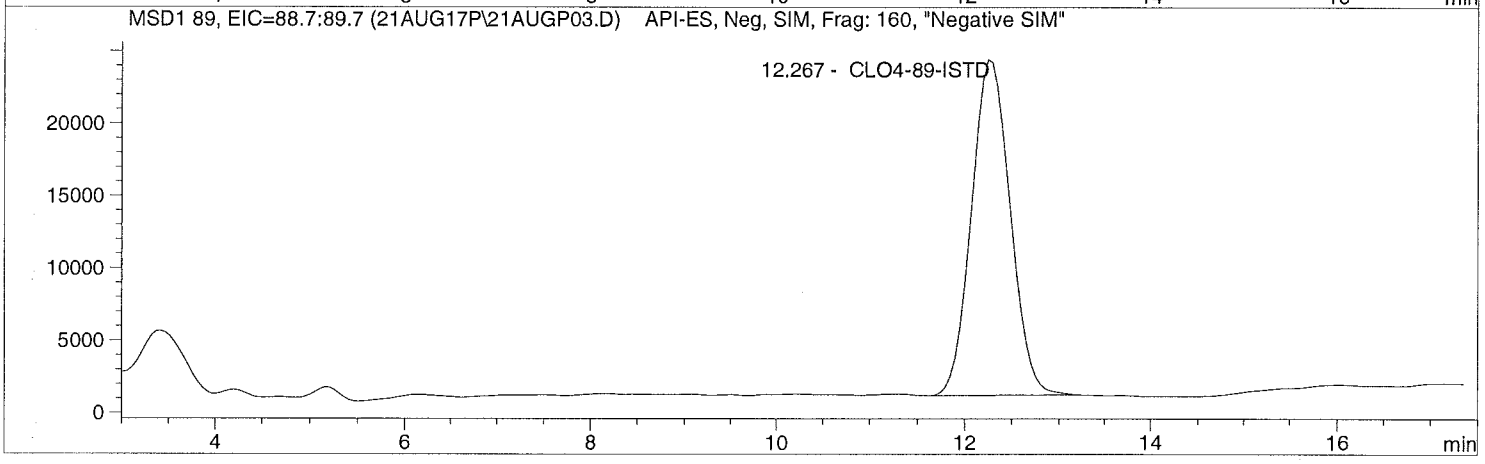
| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:21:02 | Seq Line: | 3 |
| Sample Name: | ICAL3@ .20ug/L | Location: | Vial 73 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP03.D  Sample Name: ICAL3@ .20ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:21:02 | Seq Line: | 3 |
| Sample Name: | ICAL3@ .20ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.200 |

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.238 | PBA | 26023.7 | 0.1899 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.236 | BBA | 13974.8 | 0.2980 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.267 | PBA | 661030.8 | 5.0000 | CLO4-89-ISTD |

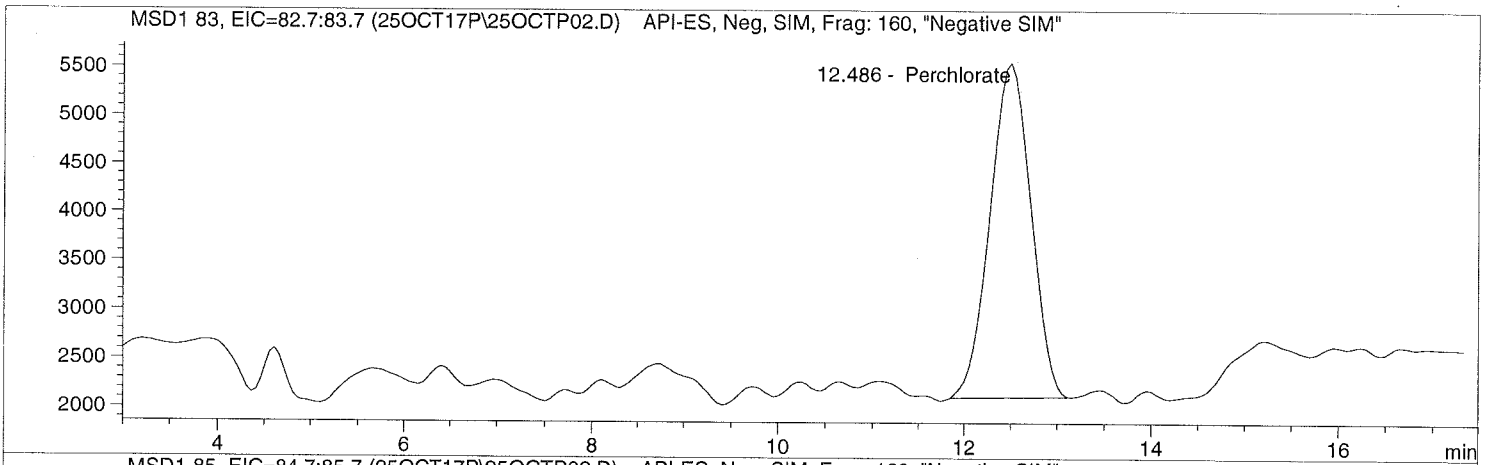
*** End of Report ***

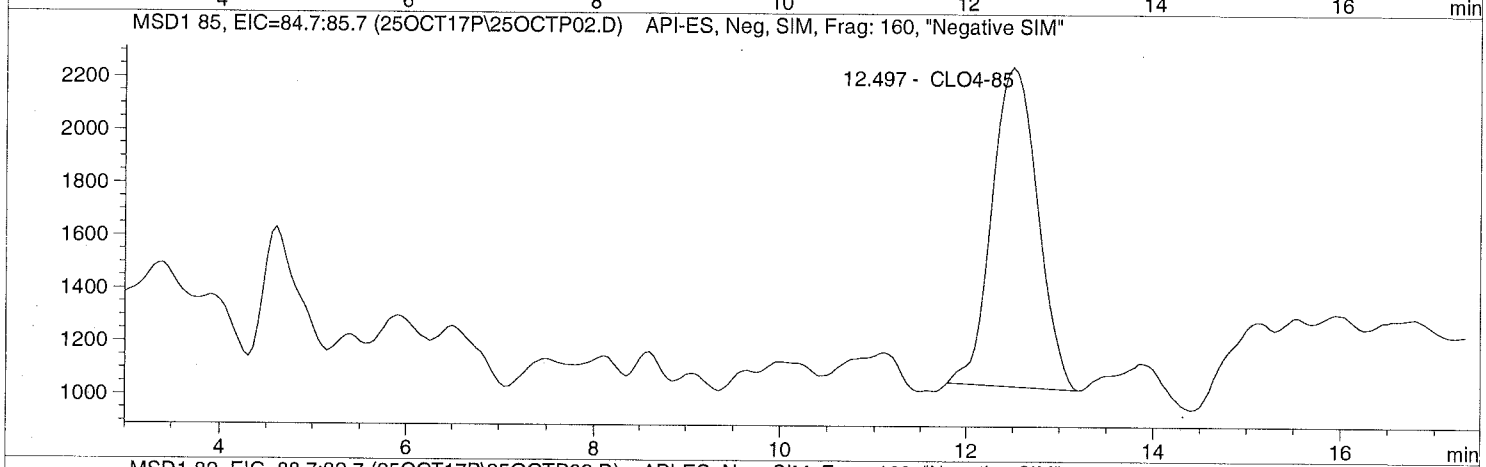
Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP02.D Sample Name: 571095 LODV@1.

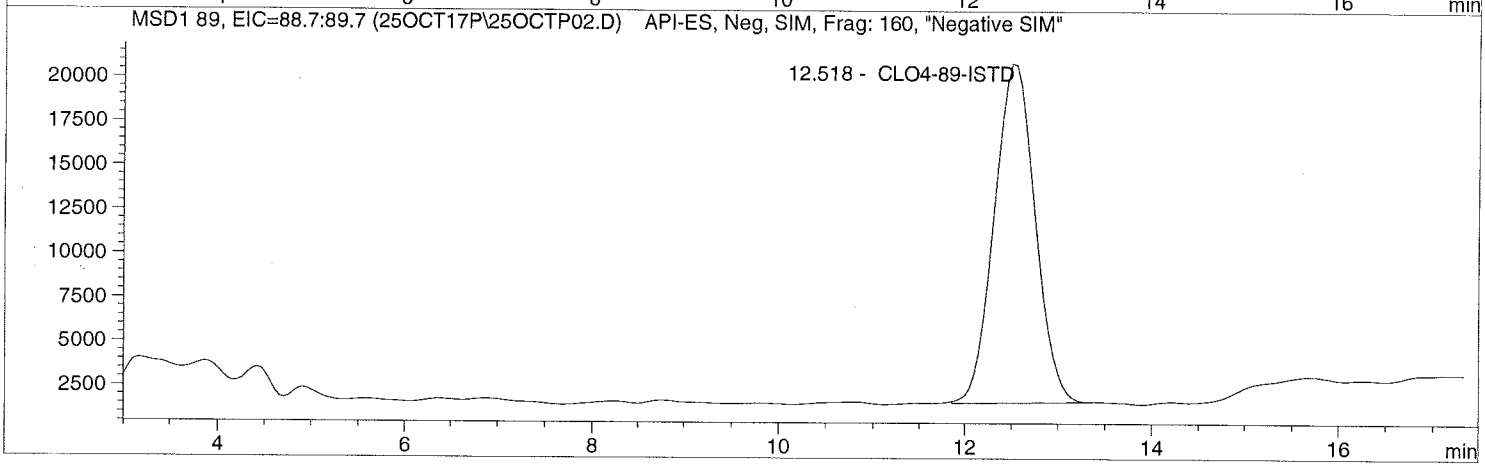
| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 09:24:24 | Seq Line: | 2 |
| Sample Name: | 571095 LODV@1. | Location: | Vial 82 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP02.D Sample Name: 571095 LODV@1.

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 09:24:24 | Seq Line: | 2 |
| Sample Name: | 571095 LODV@1. | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 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 |
|---|---|---|---|---|
| 12.486 | PBA | 104727.6 | 0.8301 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.497 | PBA | 41351.7 | 0.9895 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.518 | BBA | 587146.0 | 5.0000 | CLO4-89-ISTD |

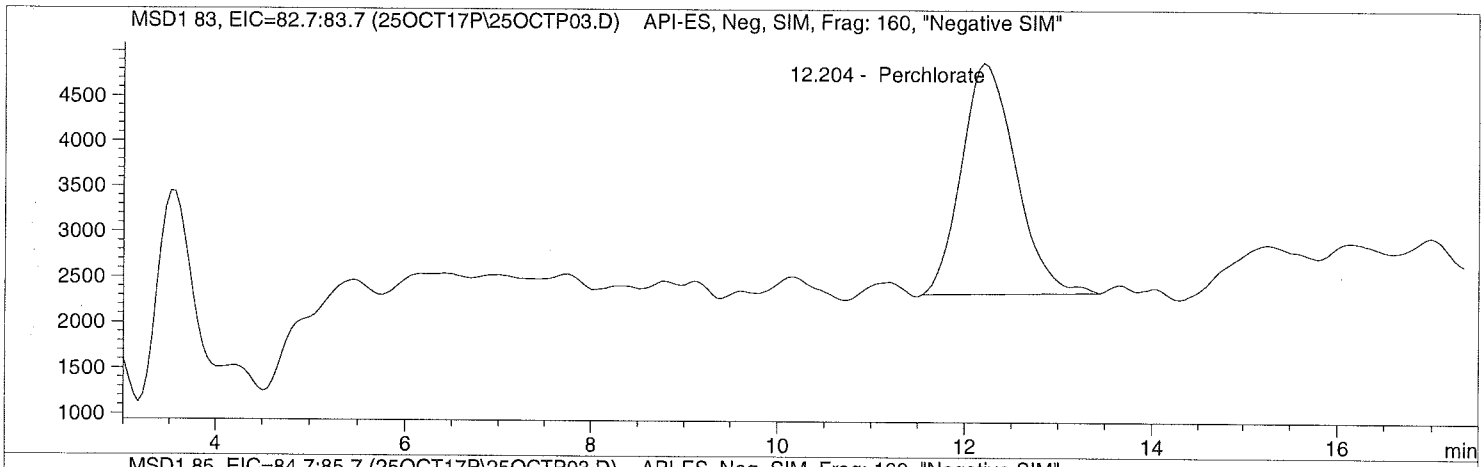
*** End of Report ***

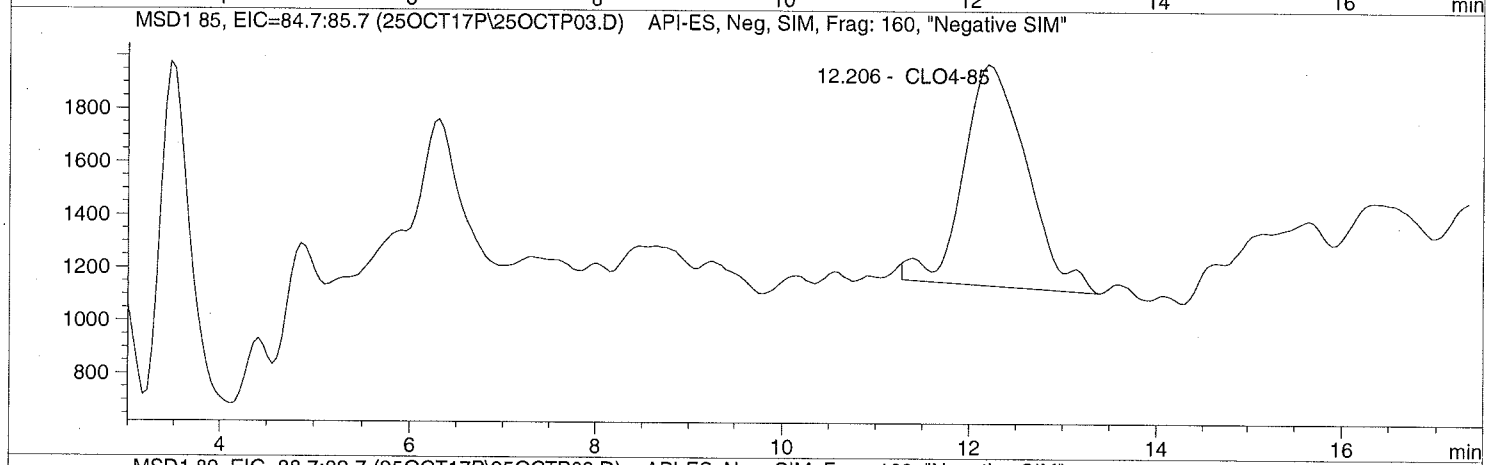
Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP03.D  Sample Name: 571096  ICS@1.

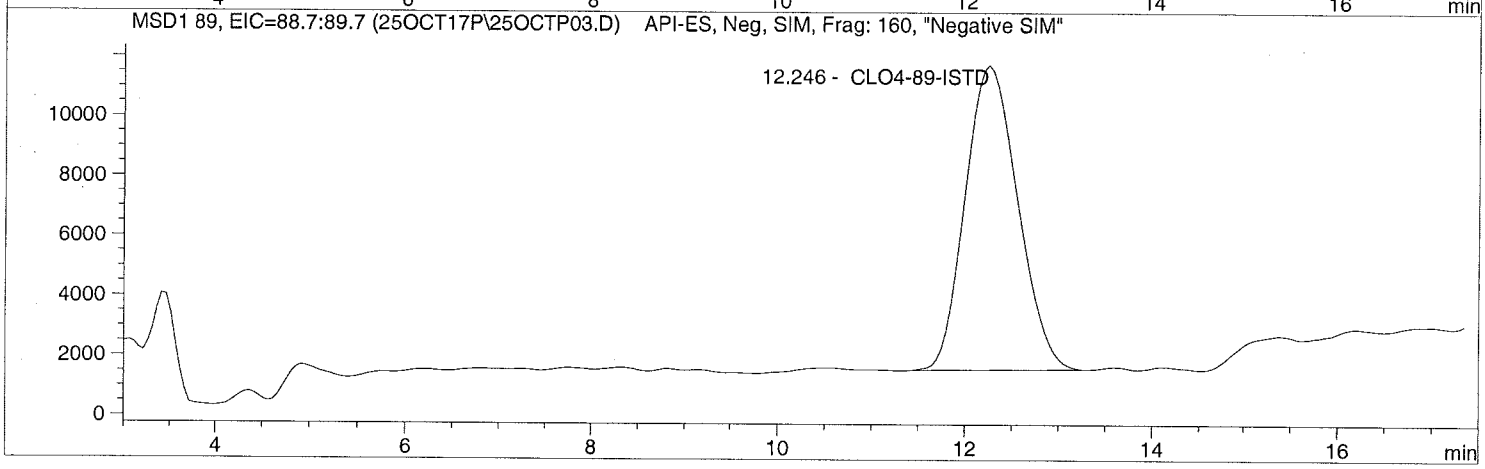
| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 09:43:38 | Seq Line: | 3 |
| Sample Name: | 571096 ICS@1. | Location: | Vial 83 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP03.D Sample Name: 571096 ICS@1.

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 09:43:38 | Seq Line: | 3 |
| Sample Name: | 571096 ICS@1. | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 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 |
|---|---|---|---|---|
| 12.204 | PBA | 102130.1 | 1.1974 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.206 | BBA | 39099.6 | 1.3892 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.246 | PBA | 394708.7 | 5.0000 | CLO4-89-ISTD |

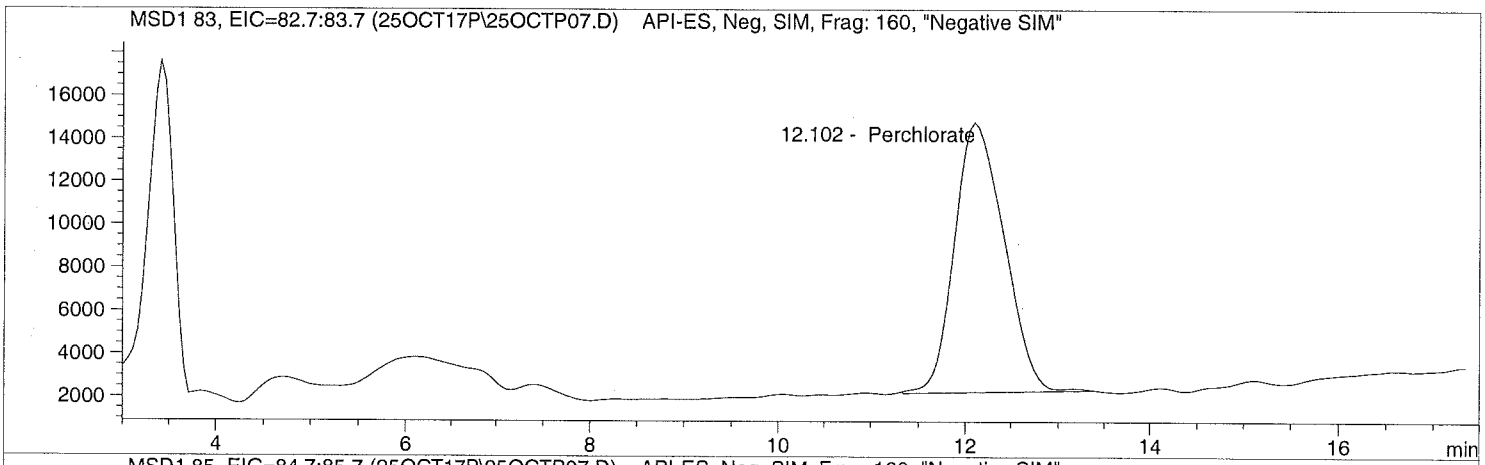
*** End of Report ***

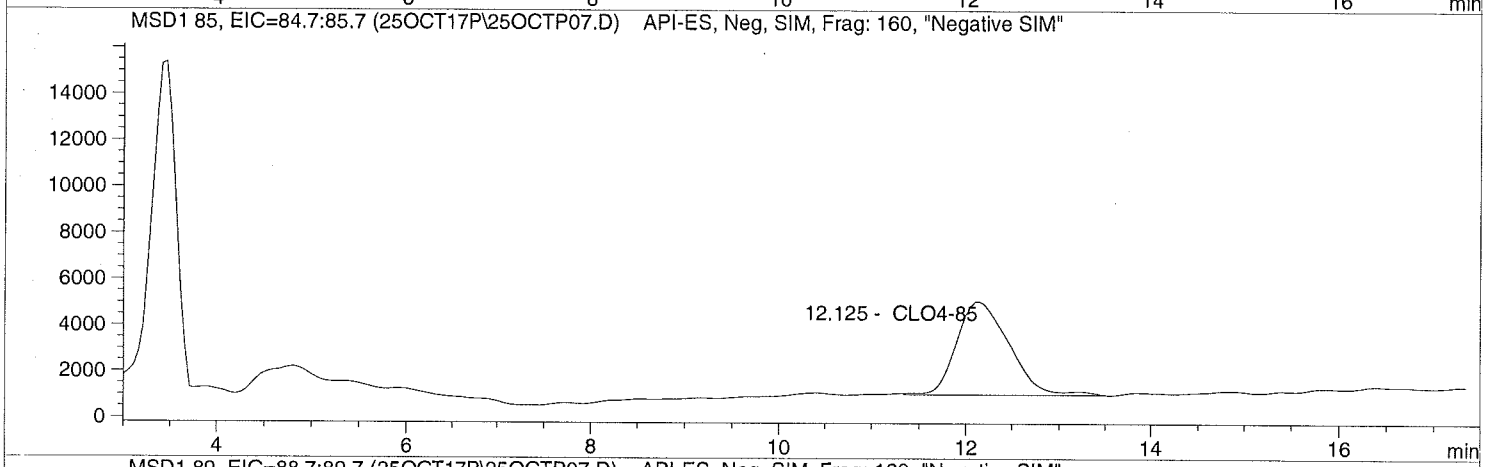
Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP07.D  Sample Name: 571099  289431S

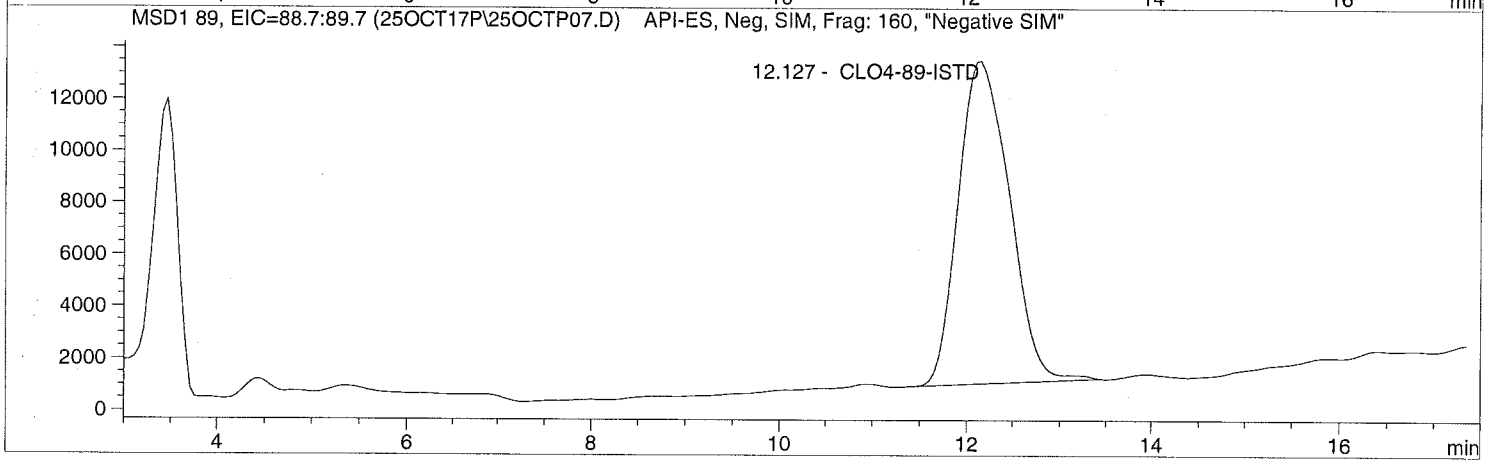
| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 11:03:53 | Seq Line: | 7 |
| Sample Name: | 571099 289431S | Location: | Vial 87 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP07.D Sample Name: 571099 289431S

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 11:03:53 | Seq Line: | 7 |
| Sample Name: | 571099 289431S | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 12.102 | BBA | 470901.2 | 4.4182 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.125 | BBA | 160251.8 | 4.6202 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.127 | PBA | 479241.3 | 5.0000 | CLO4-89-ISTD |

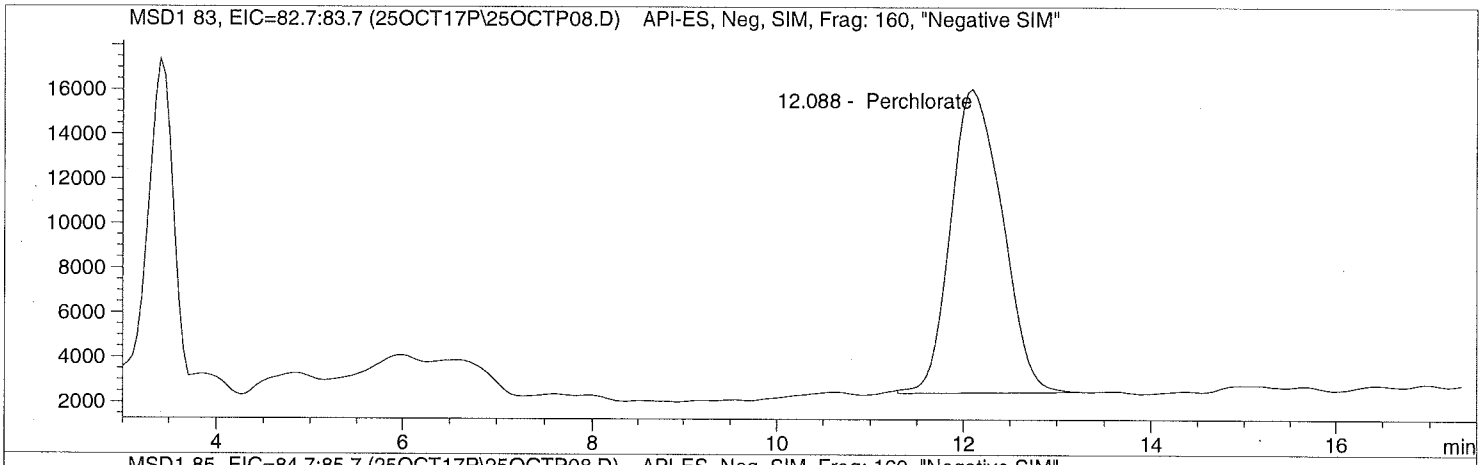
*** End of Report ***

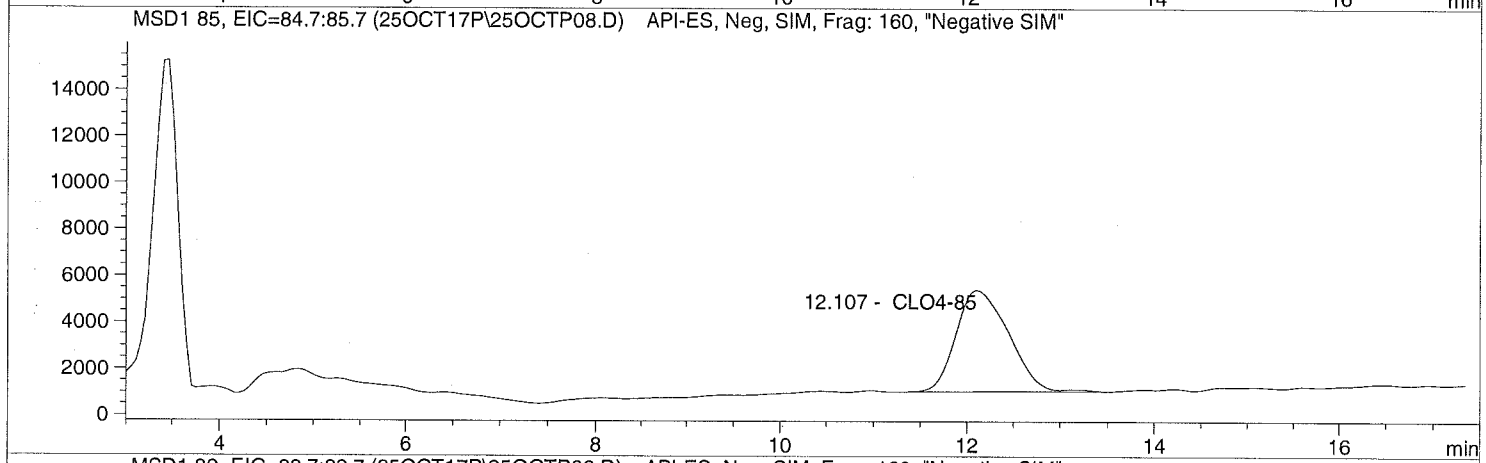
Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP08.D  Sample Name: 571100  289431D

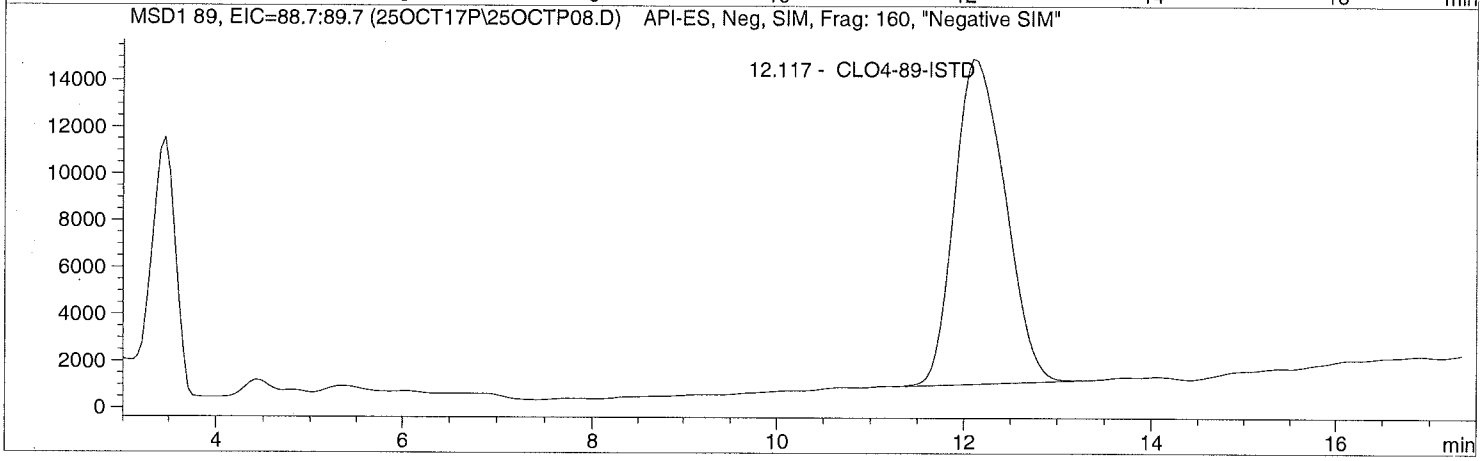
| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 11:23:08 | Seq Line: | 8 |
| Sample Name: | 571100 289431D | Location: | Vial 88 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP08.D Sample Name: 571100 289431D

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 11:23:08 | Seq Line: | 8 |
| Sample Name: | 571100 289431D | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 12.088 | BBA | 523181.5 | 4.4850 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.107 | PBA | 171769.7 | 4.5291 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.117 | BBA | 524243.2 | 5.0000 | CLO4-89-ISTD |

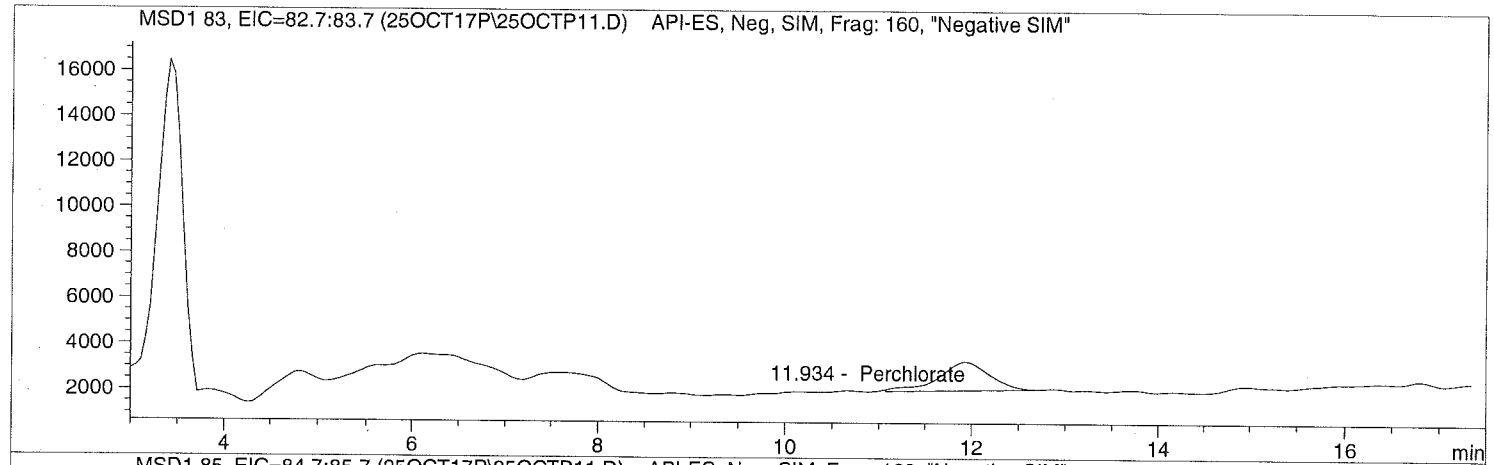
*** End of Report ***

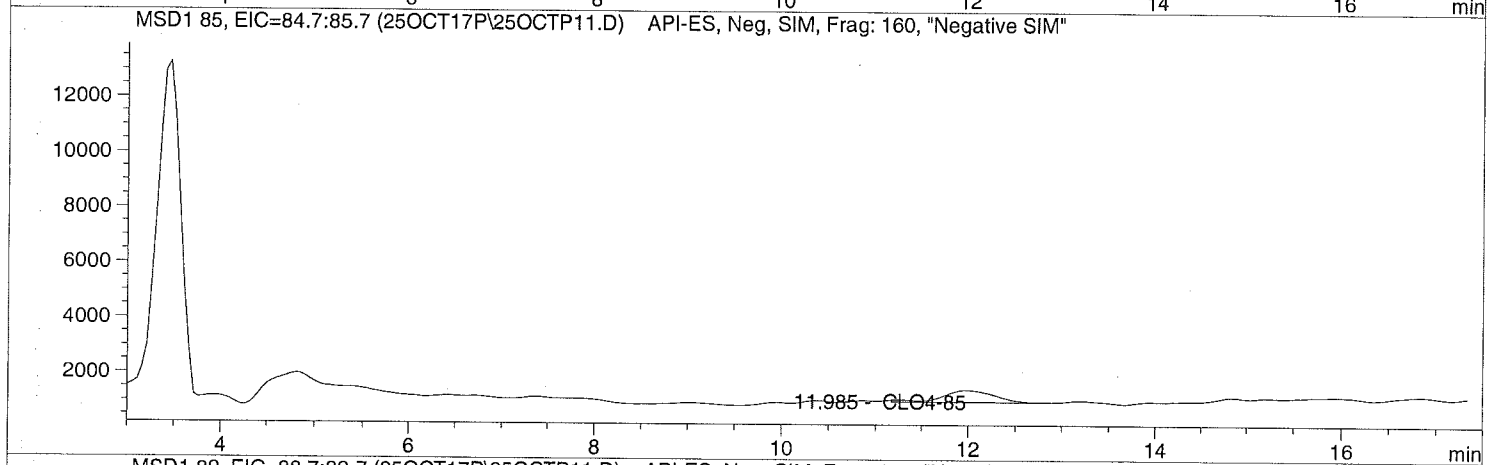
Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP11.D  Sample Name: 1729349001

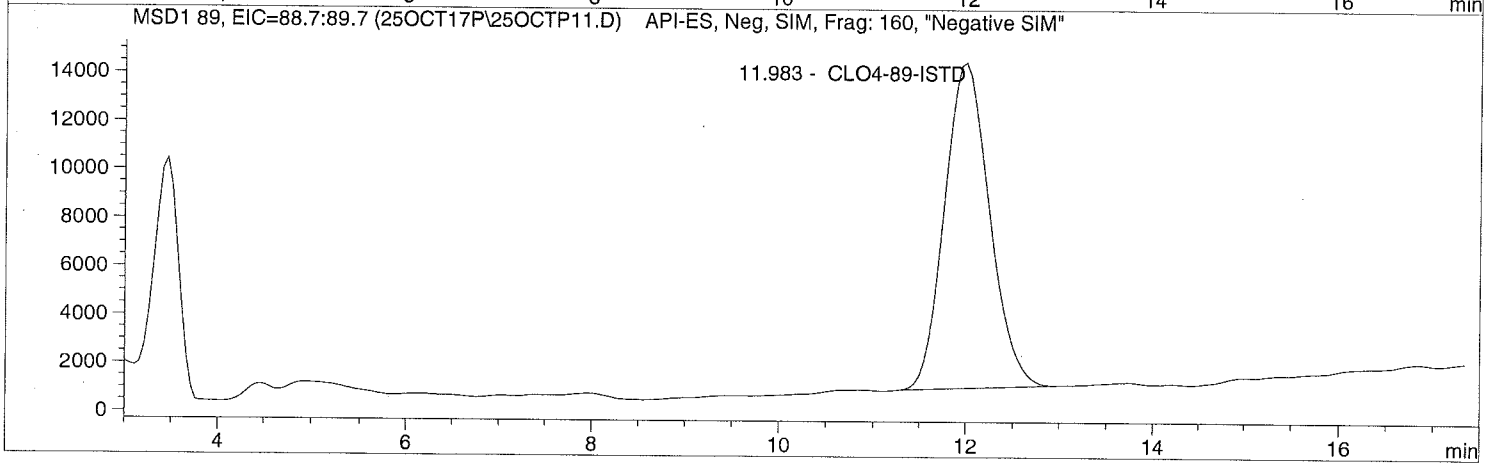
| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 12:22:07 | Seq Line: | 11 |
| Sample Name: | 1729349001 | Location: | Vial 91 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP11.D Sample Name: 1729349001

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 12:22:07 | Seq Line: | 11 |
| Sample Name: | 1729349001 | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 11.934 | BBA | 46725.3 | 0.4923 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.985 | BBA | 16396.4 | 0.5182 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.983 | PBA | 445548.6 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***

10450 Stancliff Rd. Suite 210
Houston, TX 77099
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www.alsglobal.com

# WorkOrder: HS17100966

## Groundwater Treatment Plant Weekly Samples

## Bhate Environmental Associates, Inc.

Marcia Olive
445 Union Blvd Ste 129
Lakewood CO 80228

**15-Nov-2017**

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

October 31, 2017

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd Ste 129
Lakewood, CO 80228

Work Order: **HS17100966**

Laboratory Results for: **Groundwater Treatment Plant Weekly Samples**

Dear Marcia,

ALS Environmental received 1 sample(s) on Oct 19, 2017 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,

Sonia West

**Generated By: Jumoke.Lawal**
Sonia West
Project Manager

**ALS Group USA, Corp** Date: 31-Oct-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Weekly Samples
**Work Order:** HS17100966

## SAMPLE SUMMARY

| Lab Samp ID | Client Sample ID | Matrix | TagNo | Collection Date | Date Received | Hold |
|---|---|---|---|---|---|---|
| HS17100966-01 | LH18/24-SP650_101817 | Water | | 18-Oct-2017 14:00 | 19-Oct-2017 08:25 | ☐ |

**ALS Group USA, Corp** Date: 31-Oct-17

**Client:** Bhate Environmental Associates, Inc. **CASE NARRATIVE**
**Project:** Groundwater Treatment Plant Weekly Samples
**Work Order:** HS17100966

## Work Order Comments

• The analysis for Perchlorate was subcontracted to ALS Environmental in Salt Lake Cit, UT. Final report attached.

## WetChemistry by Method E350.3

### Batch ID: R304135

• The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

## WetChemistry by Method E415.1

### Batch ID: R304007

• The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

## WetChemistry by Method E365.3

### Batch ID: R303849

• The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

**ALS Group USA, Corp** Date: 31-Oct-17

Client: Bhate Environmental Associates, Inc.
**ANALYTICAL REPORT**
Project: Groundwater Treatment Plant Weekly Samples
WorkOrder:HS17100966
Sample ID: LH18/24-SP650_101817
Lab ID:HS17100966-01
Collection Date: 18-Oct-2017 14:00
Matrix:Water

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **AMMONIA AS N BY E350.3(ISE)** | | **Method:E350.3** | | | | | | Analyst: KMU |
| **Nitrogen, Ammonia (As N)** | **15** | | **1.0** | **1.0** | **1.0** | **mg/L** | 5 | 25-Oct-2017 14:00 |
| **ORTHO PHOSPHATE (PO4) AS P BY E365.3** | | **Method:E365.3** | | | | | | Analyst: JHD |
| **Phosphorus, Total Orthophosphate (As P)** | **2.06** | | **0.0500** | **0.0625** | **0.125** | **mg/L** | 5 | 20-Oct-2017 13:15 |
| **TOTAL ORGANIC CARBON BY E415.1** | | **Method:E415.1** | | | | | | Analyst: KMU |
| **Organic Carbon, Total** | **42.3** | | **2.50** | **2.50** | **5.00** | **mg/L** | 5 | 24-Oct-2017 00:42 |
| **SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)** | | **Method:NA** | | | | | | Analyst: SUB |
| Subcontract Analysis | See Attached | | 0 | 0 | | | 1 | 27-Oct-2017 16:05 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 31-Oct-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Weekly Samples
**WorkOrder:** HS17100966

**DATES REPORT**

| Sample ID | Client Samp ID | Collection Date | TCLP Date | Prep Date | Analysis Date | DF |
|---|---|---|---|---|---|---|
| **Batch ID** R303849 | **Test Name :** ORTHO PHOSPHATE (PO4) AS P BY E365.3 | | | **Matrix:** Water | | |
| HS17100966-01 | LH18/24-SP650_101817 | 18 Oct 2017 14:00 | | | 20 Oct 2017 13:15 | 5 |
| **Batch ID** R304007 | **Test Name :** TOTAL ORGANIC CARBON BY E415.1 | | | **Matrix:** Water | | |
| HS17100966-01 | LH18/24-SP650_101817 | 18 Oct 2017 14:00 | | | 24 Oct 2017 00:42 | 5 |
| **Batch ID** R304135 | **Test Name :** AMMONIA AS N BY E350.3(ISE) | | | **Matrix:** Water | | |
| HS17100966-01 | LH18/24-SP650_101817 | 18 Oct 2017 14:00 | | | 25 Oct 2017 14:00 | 5 |
| **Batch ID** R304313 | **Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850) | | | **Matrix:** Water | | |
| HS17100966-01 | LH18/24-SP650_101817 | 18 Oct 2017 14:00 | | | 27 Oct 2017 16:05 | 1 |

**ALS Group USA, Corp** Date: 31-Oct-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Weekly Samples
**WorkOrder:** HS17100966

**QC BATCH REPORT**

**Batch ID: R303849** **Instrument: UV-2450** **Method: E365.3**

**MBLK** Sample ID: **MBLK-303849** Units: **mg/L** Analysis Date: **20-Oct-2017 13:15**
Client ID: Run ID: **UV-2450_303849** SeqNo: **4273112** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Phosphorus, Total Orthophosphate (As P) | 0.0125 | 0.0250 | | | | | | | | U |

**LCS** Sample ID: **LCS-303849** Units: **mg/L** Analysis Date: **20-Oct-2017 13:15**
Client ID: Run ID: **UV-2450_303849** SeqNo: **4273113** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Phosphorus, Total Orthophosphate (As P) | 0.243 | 0.0250 | 0.25 | 0 | 97.2 | 80 - 120 | | | | |

**MS** Sample ID: **HS17100966-01MS** Units: **mg/L** Analysis Date: **20-Oct-2017 13:15**
Client ID: **LH18/24-SP650_101817** Run ID: **UV-2450_303849** SeqNo: **4273115** PrepDate: DF: **5**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Phosphorus, Total Orthophosphate (As P) | 3.225 | 0.125 | 1.25 | 2.06 | 93.2 | 80 - 120 | | | | |

**MSD** Sample ID: **HS17100966-01MSD** Units: **mg/L** Analysis Date: **20-Oct-2017 13:15**
Client ID: **LH18/24-SP650_101817** Run ID: **UV-2450_303849** SeqNo: **4273116** PrepDate: DF: **5**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Phosphorus, Total Orthophosphate (As P) | 3.195 | 0.125 | 1.25 | 2.06 | 90.8 | 80 - 120 | 3.225 | 0.935 | 20 | |

**The following samples were analyzed in this batch:** HS17100966-01

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 31-Oct-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Weekly Samples
**WorkOrder:** HS17100966

**QC BATCH REPORT**

**Batch ID: R304007** **Instrument: TOC_02** **Method: E415.1**

**MBLK** Sample ID: **WBLKW1-102317** Units: **mg/L** Analysis Date: **23-Oct-2017 20:50**
Client ID: Run ID: **TOC_02_304007** SeqNo: **4276621** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Organic Carbon, Total | 0.500 | 1.00 | | | | | | | | U |

**LCS** Sample ID: **WLCSW1-102317** Units: **mg/L** Analysis Date: **23-Oct-2017 21:04**
Client ID: Run ID: **TOC_02_304007** SeqNo: **4276622** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Organic Carbon, Total | 9.511 | 1.00 | 10 | 0 | 95.1 | 80 - 120 | | | | |

**LCSD** Sample ID: **WLCSDW1-102317** Units: **mg/L** Analysis Date: **23-Oct-2017 21:19**
Client ID: Run ID: **TOC_02_304007** SeqNo: **4276623** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Organic Carbon, Total | 9.416 | 1.00 | 10 | 0 | 94.2 | 80 - 120 | 9.511 | 1 | 20 | |

**MS** Sample ID: **HS17100883-01MS** Units: **mg/L** Analysis Date: **23-Oct-2017 21:51**
Client ID: Run ID: **TOC_02_304007** SeqNo: **4276625** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Organic Carbon, Total | 19.66 | 1.00 | 10 | 10.01 | 96.5 | 80 - 120 | | | | |

**The following samples were analyzed in this batch:** HS17100966-01

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 31-Oct-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Weekly Samples
**WorkOrder:** HS17100966

**QC BATCH REPORT**

**Batch ID: R304135** **Instrument: WetChem_HS** **Method: E350.3**

**MBLK** Sample ID: **MBLK-R304135** Units: **mg/L** Analysis Date: **25-Oct-2017 14:00**
Client ID: Run ID: **WetChem_HS_304135** SeqNo: **4279583** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, Ammonia (As N) | 0.20 | 0.20 | | | | | | | | U |

**LCS** Sample ID: **LCS-R304135** Units: **mg/L** Analysis Date: **25-Oct-2017 14:00**
Client ID: Run ID: **WetChem_HS_304135** SeqNo: **4279582** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, Ammonia (As N) | 10.35 | 0.20 | 10 | 0 | 104 | 80 - 120 | | | | |

**MS** Sample ID: **HS17100911-02MS** Units: **mg/L** Analysis Date: **25-Oct-2017 14:00**
Client ID: Run ID: **WetChem_HS_304135** SeqNo: **4279585** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, Ammonia (As N) | 10.09 | 0.20 | 10 | 0.1682 | 99.2 | 80 - 120 | | | | |

**MSD** Sample ID: **HS17100911-02MSD** Units: **mg/L** Analysis Date: **25-Oct-2017 14:00**
Client ID: Run ID: **WetChem_HS_304135** SeqNo: **4279584** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, Ammonia (As N) | 10.11 | 0.20 | 10 | 0.1682 | 99.4 | 80 - 120 | 10.09 | 0.198 | 20 | |

**The following samples were analyzed in this batch:** HS17100966-01

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 31-Oct-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Weekly Samples
**WorkOrder:** **HS17100966**

**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 |

## CERTIFICATIONS,ACCREDITATIONS & LICENSES

| Agency | Number | Expire Date |
|---|---|---|
| Arkansas | 17-027-0 | 27-Mar-2018 |
| California | 2919 2016-2018 | 31-Jul-2018 |
| Illinois | 004112 | 09-May-2018 |
| Kentucky | 123043 | 30-Apr-2018 |
| Louisiana | 03087 2017-2017 | 30-Jun-2018 |
| North Carolina | 624-2017 | 31-Dec-2017 |
| North Dakota | R193 2017-2017 | 30-Apr-2018 |
| Oklahoma | 2017-088 | 31-Aug-2018 |
| Texas | T104704231-17-19 | 30-Apr-2018 |

**ALS Group USA, Corp** Date: 31-Oct-17

## Sample Receipt Checklist

Client Name: Bhate Environmental
Work Order: HS17100966
Date/Time Received: **19-Oct-2017 08:25**
Received by: **JRM**

Checklist completed by: *Raegen Giga* eSignature 19-Oct-2017 Date
Reviewed by: *Corey Grandits* eSignature 25-Oct-2017 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 ☑ |
| Chain of custody present? | Yes ☑ | No ☐ | |
| Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | |
| Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | |
| Samples in proper container/bottle? | Yes ☑ | No ☐ | |
| Sample containers intact? | Yes ☑ | No ☐ | |
| TX1005 solids received in hermetically sealed vials? | Yes ☐ | No ☐ | N/A ☑ |
| 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): | 1.0c/1.3c uc/c | IR 11 | |
| Cooler(s)/Kit(s): | 43237 | | |
| Date/Time sample(s) sent to storage: | 10/19/2017 11:25 | | |
| 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:

00875981

HS17100966

Bhate Environmental Associates, Inc.
Groundwater Treatment Plant Weekly Samples

# CHAIN OF CUSTODY

Name Of Lab Shipping To: ALS 10450 Stancliff Rd. Suite 210 Houston, TX. 77099 (281) 530-5656 ATTN: SONIA WEST

| Project: BHATE<br>LONGHORN ARMY AMMN. PLANT (LHAAP)<br>GROUNDWATER TREATMENT PLANT (GWTP)<br>KARNACK, TEXAS | Project No.<br>NWO1312.0150.0<br>16.0001 |
|---|---|
| Job:<br>**GROUNDWATER TREATMENT PLANT WEEKLY SAMPLES** | |
| Prepared By:<br>Scott Beesinger | P.O. Number |

| Field Sample I.D. | Sample Matrix | Date / Time | MS / MSD | No. OF CONTAINERS | Analyses: AMMONIA-N | TOTAL ORGANIC CARBON | ORTHO-PHOSPHATE | PERCHLORATE | Remarks (Preservatives, etc.) | Lab I.D.# |
|---|---|---|---|---|---|---|---|---|---|---|
| LH18/24-SP650_101817 | Water | 10/18/17 / 14:00 | | 2 | X | X | | | H2SO4 | |
| LH18/24-SP650_101817 | Water | 10/18/17 / 14:00 | | 2 | | | X | X | NONE | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Additional Remarks: **Standard TAT on all parameters**

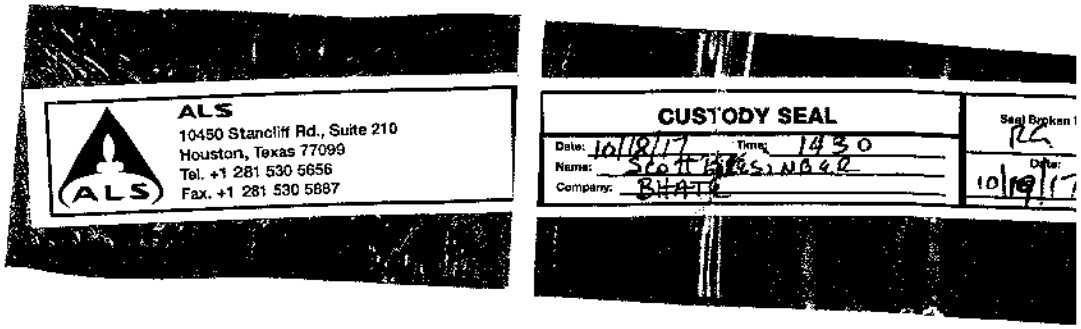
| Relinquished By: | Date | Time | Received By: | Date | Time | Relinquished By: | Date | Time | Received By: | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Scott Beesinger | 10/18/17 | 14:30 | JM | 10/19/17 | 08:25 | | | | | | |

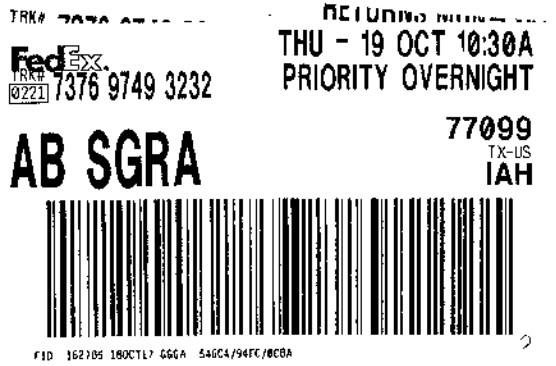
**For Lab Use Only**

| Received At Lab By: | Date | Time | Airbill No. | Opened By: | Date | Time | Temp of Container | Seal No. | Condition |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |

Remarks: Cooler - Blue 1x11
Temp 1.0 CF0.3

(Word) S:\M-ces\Forms\Chain of Custody - BiWeekly


ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5687
CUSTODY SEAL
Date: 10/18/17
Time: 1430
Name:
Company:
Seal Broken
Date:
10/19/17


FedEx
TRK# 0221 7376 9749 3232
THU - 19 OCT 10:30A
PRIORITY OVERNIGHT
77099
TX-US
IAH
AB SGRA

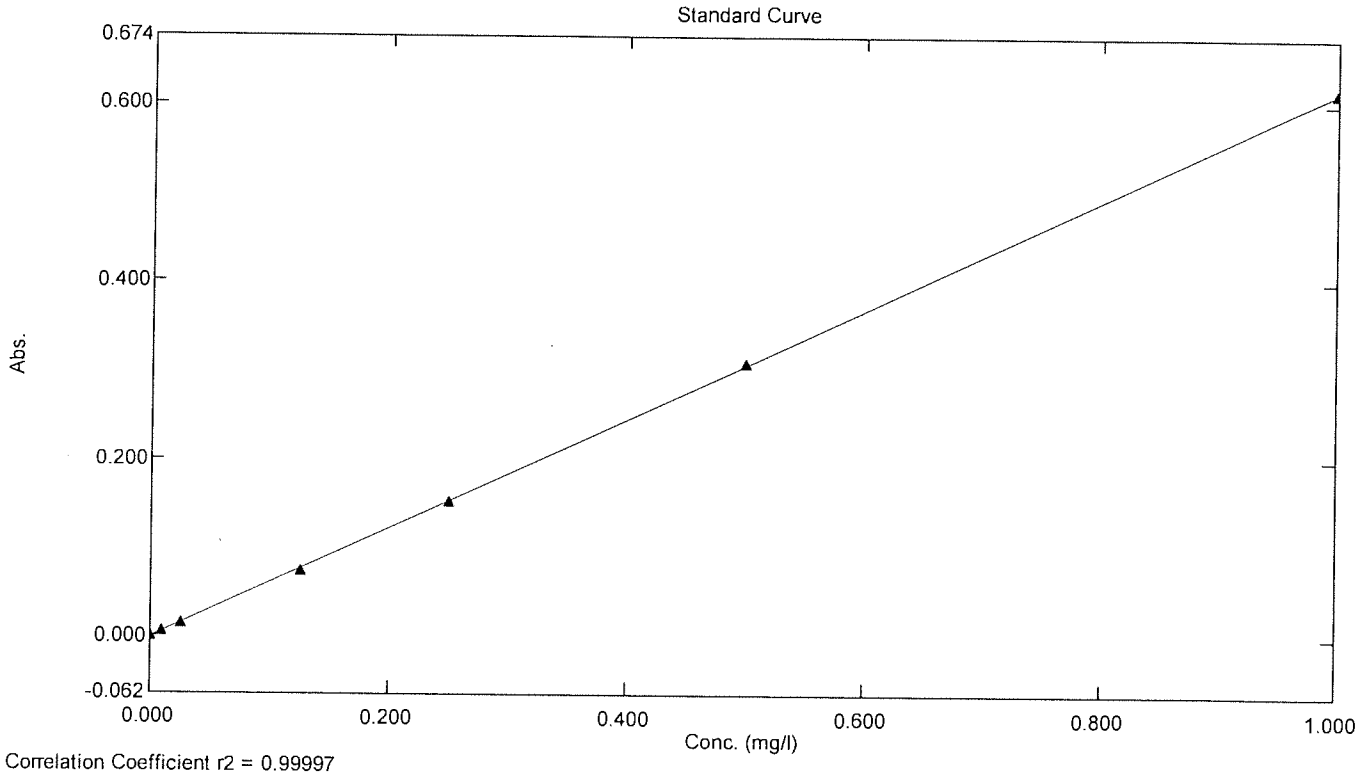
# Wet Chemistry Raw Data

Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Weekly Samples
ALS WO# HS17100966

# Standard Table Report

11/06/2017 03:52:10 PM

File Name: Q:\UVProbe\O_PO4_UNKNOWN\171020_P_ORTHO_W.pho




Correlation Coefficient r2 = 0.99997

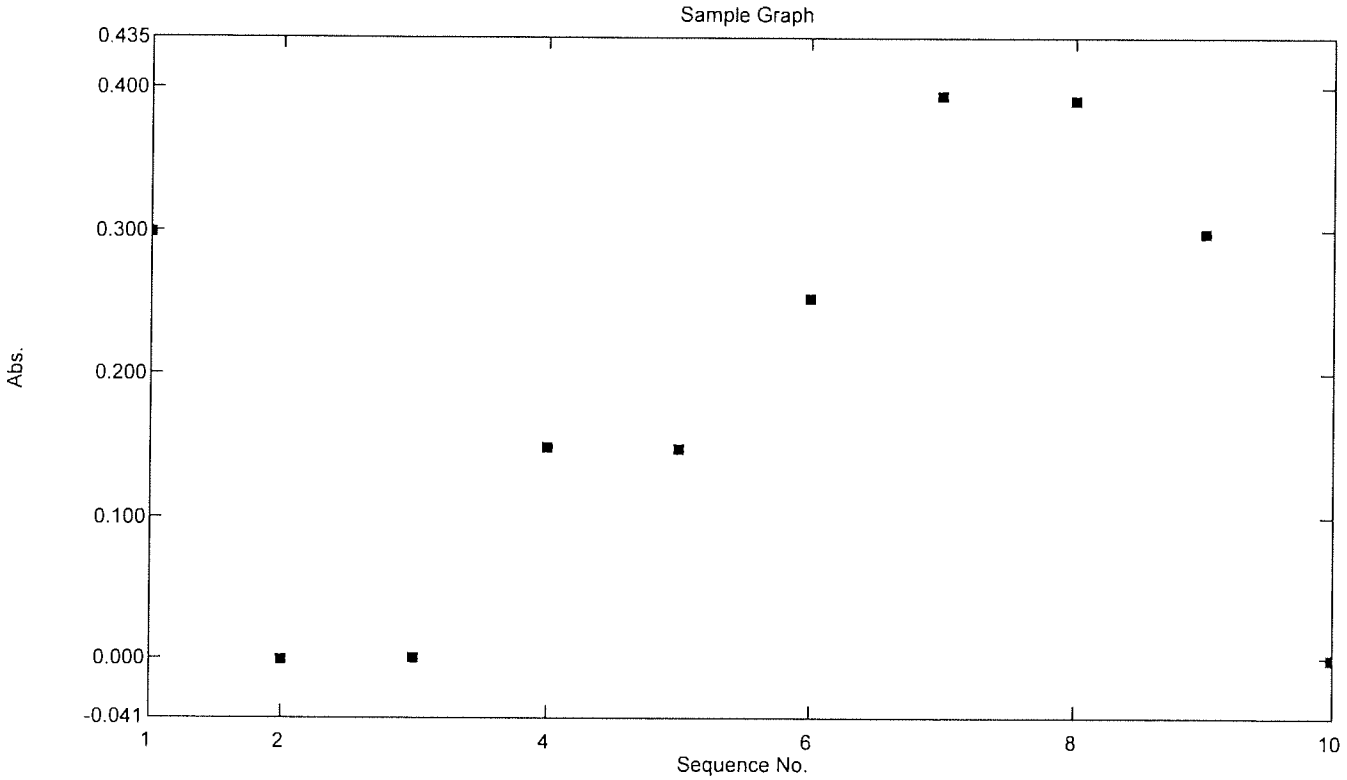
Standard Table

| | Sample ID | Type | Ex | Conc | WL880.0 | Wgt.Facto | Comments |
|---|---|---|---|---|---|---|---|
| 1 | STD1 | Standard | | 0.000 | 0.000 | 1.000 | |
| 2 | STD2 | Standard | | 0.010 | 0.006 | 1.000 | |
| 3 | STD3 | Standard | | 0.025 | 0.015 | 1.000 | |
| 4 | STD4 | Standard | | 0.125 | 0.074 | 1.000 | |
| 5 | STD5 | Standard | | 0.250 | 0.152 | 1.000 | |
| 6 | STD6 | Standard | | 0.500 | 0.308 | 1.000 | |
| 7 | STD7 | Standard | | 1.000 | 0.613 | 1.000 | |
| 8 | | | | | | | |

# Sample Table Report

11/06/2017 03:52:13 PM

File Name: Q:\UVProbe\O_PO4_UNKNOWN\171020_P_ORTHO_W.pho




Sample Table

| | Sample ID | Type | Ex | Conc | WL880.0 | Comments |
|---|---|---|---|---|---|---|
| 1 | CCV | Unknown | | 0.488 | 0.299 | |
| 2 | CCB | Unknown | | -0.001 | -0.001 | |
| 3 | MBLK | Unknown | | 0.001 | -0.000 | |
| 4 | LCS | Unknown | | 0.243 | 0.149 | |
| 5 | LCSD | Unknown | | 0.241 | 0.148 | |
| 6 | 17100966.01 | Unknown | | 0.412 | 0.252 | PF-5X,1:15PM |
| 7 | 17100966.01MS | Unknown | | 0.645 | 0.395 | PF-5X |
| 8 | 17100966.01MSD | Unknown | | 0.639 | 0.392 | PF-5X |
| 9 | CCV2 | Unknown | | 0.485 | 0.297 | |
| 10 | CCB2 | Unknown | | -0.000 | -0.001 | |
| 11 | | | | | | |

HS1710 0966

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

# Ion Selective Electrode Logbook

Analyst: KMH

Date: 10/25/17 @ 2:00pm

Method: SM4500NH3-D or SM4500 F⁻ C or SW9214 F⁻ or 351.3/4500NH3

SOP: WC-027 or WC-004 or WC-007 or WC-033

Probe Calibration

Prep'd: 10/25/17 ID # 304-147(801-806)

| Std Level | | mV | Conc., mg/L: |
|---|---|---|---|
| STD 1 (mg/L): | 0.2 | 107.2 | 0.2005 |
| STD 2 (mg/L): | 1.0 | 72.3 | 1.009 |
| STD 3 (mg/L): | 5.0 | 35.4 | 5.005 |

Probe ID: SR1-15910

Matrix: Water / Soil (1: 10 -- soil -gm : DI Water -ml)

| Std Level | mV | Conc., mg/L: |
|---|---|---|
| STD 4 (mg/L): 10 | 15.6 | 10.03 |
| STD 5 (mg/L): 50 | -20.4 | 50.00 |

LSC / MS Spike ID: 297-020-4006

Ical Slope: KMH 10/25/A ~~94.9%~~ 94.9% / -56.0 mV

Ical Date: 10/25/17

| WO # / SX # | Bottle # | Initial g or ml | Final Vol. ml | Dilution Factor | Initial Conc. mg/L | Final Conc. mg/L | Comments |
|---|---|---|---|---|---|---|---|
| ICV | | 50 | 50 | 1 | 9.995 | 9.995 | |
| ICB/CCB-1 | | | | 1 | 0.03492 | 0.03492 | |
| WB(UKLW)-102517 | | | | 1 | 0.03376 | 0.03376 | |
| WLCS(W)-102517 | | | | 1 | 10.35 | 10.35 | |
| HS1710 0714-01 | | 10 mL | | 5 | 4.766 | 23.83 | N-T-Amm-W-E350.3 ISE. odor |
| 966-01 | | 10 mL | | 5 | 3.082 | 15.41 | . odor |
| 911-02 | | 50 | | 1 | 0.1682 | 0.1682 | N-T-Amm-W ISE |
| 911-02MS | | | | | 10.09 | 10.09 | |
| 911-02MSD | | | | | 10.11 | 10.11 | |
| 912-02 | | | | | 0.1003 | 0.1003 | |
| 839-01 | | | | | 0.05232 | 0.05232 | HT07 |
| 840-01 | | | | | 0.04221 | 0.04221 | HT07 |
| CCV-2 | | | | | 9.527 | 9.527 | |
| CCB-2 | | | | | 0.03963 | 0.03963 | |
| HS1710 0841-01 | | | | | 0.04642 | 0.04642 | HT07 |
| 0842-01 | | | | | 0.04765 | 0.04765 | HT07 |
| 0843-01 | | | | | 0.04613 | 0.04613 | HT07 |
| 0845-01 | | | | | 0.04419 | 0.04419 | HT07 |
| 0868-01 | | | | | 0.09993 | 0.09993 | [illegible] |
| 1343-01 | | 25mL | | 2 | 0.008371 | 0.016742 | +Cl2 ✓ treated with dilution N-T-Amm-W-E350.3 ISE (RL 0.1) |
| 1343-02 | | 25mL | | 2 | 0.008195 | 0.01639 | +Cl2 ✓ treated |
| 1343-03 | | 25mL | | 2 | 0.008211 | 0.016422 | +Cl2 ✓ treated |
| 0933-01 | | 25mL | | 2 | 2.969 | 5.938 | +Cl2 ✓ treated N-T-Amm-W-ISE |
| 0935-01 | | 10mL | | 5 | 2.688 | 13.44 | +Cl2 treated |
| CCV-3 | | 50 | — | 1 | 9.923 | 9.923 | Continue to Next Page |

Batch ID: E350.3 NH3-W-ISE 304135 ✓ 304136 ✓

Reported By: KMH

Reviewed By: [signature] 10/26/17

HS17100966



| | Analysis | Sample Name | Sample ID | Origin | Result | Status | Date / Time | Vial |
|---|---|---|---|---|---|---|---|---|
| 1 | NPOC | CCV | 304.147.105 | 10-19-2017_W | NPOC:25.83mg/L | Completed | 10/23/2017 8:26:33 PM | 1 |
| 2 | NPOC | CCB | Untitled | 10-19-2017_W | NPOC:0.4213mg/L | Completed | 10/23/2017 8:41:51 PM | 2 |
| 3 | NPOC | WBLKW1-102317 | 5310B | 10-19-2017_W | NPOC:0.2895mg/L | Completed | 10/23/2017 8:54:59 PM | 3 |
| 4 | NPOC | WLCSW1-102317 | 297.020.4418 | 10-19-2017_W | NPOC:9.511mg/L | Completed | 10/23/2017 9:10:22 PM | 4 |
| 5 | NPOC | WLCSDW1-102317 | Untitled | 10-19-2017_W | NPOC:9.416mg/L | Completed | 10/23/2017 9:25:56 PM | 5 |
| 6 | NPOC | HS17100883-01 | TOC_W1/2 | 10-19-2017_W | NPOC:10.01mg/L | Completed | 10/23/2017 9:41:09 PM | 6 |
| 7 | NPOC | HS17100883-01MS | 1/2 | 10-19-2017_W | NPOC:19.66mg/L | Completed | 10/23/2017 9:55:12 PM | 7 |
| 8 | NPOC | HS17100621-01 | 1/2 | 10-19-2017_W | NPOC:3.018mg/L | Completed | 10/23/2017 10:10:30 PM | 8 |
| 9 | NPOC | HS17100621-04 | 1/2 | 10-19-2017_W | NPOC:3.306mg/L | Completed | 10/23/2017 10:25:43 PM | 9 |
| 10 | NPOC | HS17100625-01 | 1/2 | 10-19-2017_W | NPOC:2.691mg/L | Completed | 10/23/2017 10:41:03 PM | 10 |
| 11 | NPOC | HS17100914-01 | 1/2 | 10-19-2017_W | NPOC:9.783mg/L | Completed | 10/23/2017 10:54:11 PM | 11 |
| 12 | NPOC | HS17100916-01 | 1/2 | 10-19-2017_W | NPOC:12.42mg/L | Completed | 10/23/2017 11:09:29 PM | 12 |
| 13 | NPOC | CCV | Untitled | 10-19-2017_W | NPOC:24.21mg/L | Completed | 10/23/2017 11:22:54 PM | 13 |
| 14 | NPOC | CCB | Untitled | 10-19-2017_W | NPOC:0.3109mg/L | Completed | 10/23/2017 11:38:12 PM | 14 |
| 15 | NPOC | HS17100950-01DF100 | 1/1 | 10-19-2017_W | NPOC:82.86mg/L | Completed | 10/23/2017 11:51:44 PM | 15 |
| 16 | NPOC | HS17100950-02DF100 | 1/1 | 10-19-2017_W | NPOC:61.94mg/L | Completed | 10/24/2017 12:04:57 AM | 16 |
| 17 | NPOC | FLUSH | Untitled | 10-19-2017_W | NPOC:0.3530mg/L | Completed | 10/24/2017 12:20:15 AM | 17 |
| 18 | NPOC | HS17100714-01DF5 | TOC_W 1/1 | 10-19-2017_W | NPOC:15.99mg/L | Completed | 10/24/2017 12:33:23 AM | 18 |
| 19 | NPOC | HS17100966-01DF5 | TOC_W 1/1 | 10-19-2017_W | NPOC:8.466mg/L | Completed | 10/24/2017 12:46:36 AM | 19 |
| 20 | NPOC | CCV | Untitled | 10-19-2017_W | NPOC:25.04mg/L | Completed | 10/24/2017 12:59:49 AM | 20 |
| 21 | NPOC | CCB | Untitled | 10-19-2017_W | NPOC:0.3007mg/L | Completed | 10/24/2017 1:15:07 AM | 21 |
| 22 | NPOC | FLUSH | Untitled | 10-19-2017_W | NPOC:0.2535mg/L | Completed | 10/24/2017 1:28:15 AM | 22 |
| 23 | NPOC | FLUSH | Untitled | 10-19-2017_W | NPOC:0.2520mg/L | Completed | 10/24/2017 1:41:28 AM | 23 |
| 24 | NPOC | CCV | Untitled | 10-19-2017_W | NPOC:25.11mg/L | Completed | 10/24/2017 11:33:09 AM | 1 |
| 25 | NPOC | CCB | Untitled | 10-19-2017_W | NPOC:0.2694mg/L | Completed | 10/24/2017 11:48:27 AM | 2 |
| 26 | NPOC | HS17100950-01DF200 | 1/1 | 10-19-2017_W | NPOC:42.81mg/L | Completed | 10/24/2017 12:01:44 PM | 3 |
| 27 | NPOC | HS17100950-02DF200 | 1/1 | 10-19-2017_W | NPOC:31.93mg/L | Completed | 10/24/2017 12:14:57 PM | 4 |
| 28 | NPOC | CCV | Untitled | 10-19-2017_W | NPOC:25.40mg/L | Completed | 10/24/2017 12:28:10 PM | 5 |
| 29 | NPOC | CCB | Untitled | 10-19-2017_W | NPOC:0.3121mg/L | Completed | 10/24/2017 12:41:23 PM | 6 |

Instr.Information

| | |
|---|---|
| System | TOC csh with asi |
| Instrument Options | TOC/ASI/IC Unit/ |
| Catalyst | Regular Sensitivity |

Cal. Curve

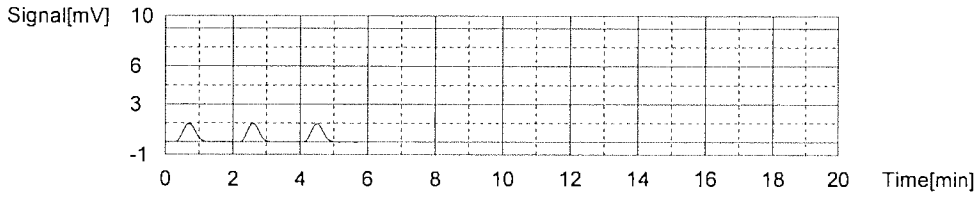
| | |
|---|---|
| Sample Name: | CAL |
| Sample ID: | 304146903 |
| Cal. Curve: | 10-19-2017_W.2017_10_19_18_40_46.cal |
| Status | Completed |

| Type | Anal. |
|---|---|
| Standard | NPOC |

Conc: 1.000mg/L

| No. | Area | Inj. Vol. | Aut. Dil. | Rem. | Ex. | Date / Time |
|---|---|---|---|---|---|---|
| 1 | 3.543 | 50uL | 1 | ******* | | 10/19/2017 6:49:30 PM |
| 2 | 3.482 | 50uL | 1 | ******* | | 10/19/2017 6:51:35 PM |
| 3 | 3.421 | 50uL | 1 | ******* | | 10/19/2017 6:53:40 PM |

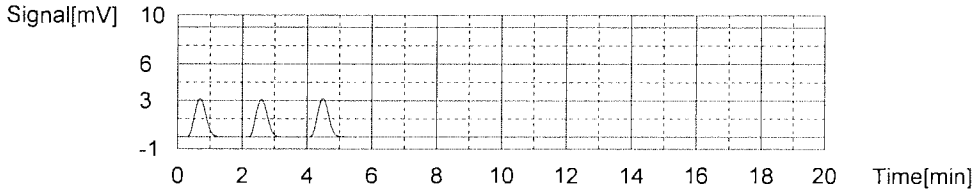
Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 3.482




Conc: 2.000mg/L

| No. | Area | Inj. Vol. | Aut. Dil. | Rem. | Ex. | Date / Time |
|---|---|---|---|---|---|---|
| 1 | 7.485 | 50uL | 1 | ******* | | 10/19/2017 7:02:43 PM |
| 2 | 7.402 | 50uL | 1 | ******* | | 10/19/2017 7:04:48 PM |
| 3 | 7.385 | 50uL | 1 | ******* | | 10/19/2017 7:06:53 PM |

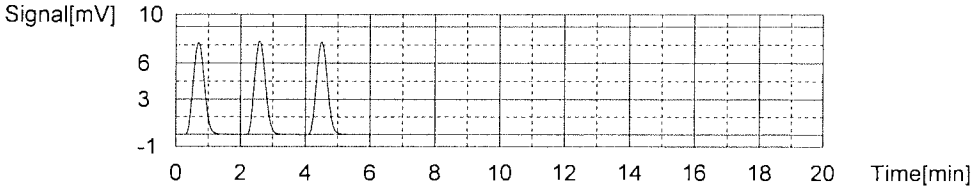
Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 7.424




Conc: 5.000mg/L

| No. | Area | Inj. Vol. | Aut. Dil. | Rem. | Ex. | Date / Time |
|---|---|---|---|---|---|---|
| 1 | 18.12 | 50uL | 1 | ******* | | 10/19/2017 7:15:56 PM |
| 2 | 18.26 | 50uL | 1 | ******* | | 10/19/2017 7:18:01 PM |
| 3 | 18.18 | 50uL | 1 | ******* | | 10/19/2017 7:20:06 PM |

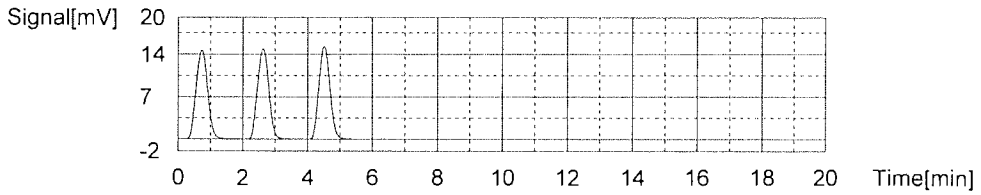
Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 18.19




Conc: 10.00mg/L

| No. | Area | Inj. Vol. | Aut. Dil. | Rem. | Ex. | Date / Time |
|---|---|---|---|---|---|---|
| 1 | 35.95 | 50uL | 1 | ******* | | 10/19/2017 7:29:09 PM |
| 2 | 36.03 | 50uL | 1 | ******* | | 10/19/2017 7:31:14 PM |
| 3 | 36.14 | 50uL | 1 | ******* | | 10/19/2017 7:33:19 PM |

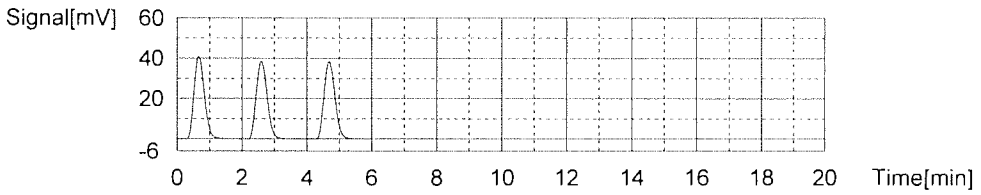
Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 36.04




Conc: 25.00mg/L

| No. | Area | Inj. Vol. | Aut. Dil. | Rem. | Ex. | Date / Time |
|---|---|---|---|---|---|---|
| 1 | 90.02 | 50uL | 1 | ******* | | 10/19/2017 7:42:22 PM |
| 2 | 89.62 | 50uL | 1 | ******* | | 10/19/2017 7:44:39 PM |
| 3 | 89.06 | 50uL | 1 | ******* | | 10/19/2017 7:46:44 PM |

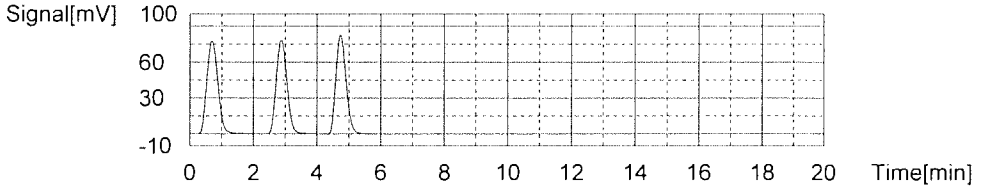
Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 89.57



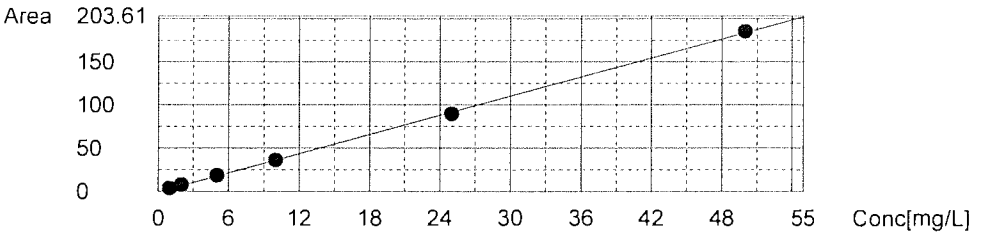

Conc: 50.00mg/L

| No. | Area | Inj. Vol. | Aut. Dil. | Rem. | Ex. | Date / Time |
|---|---|---|---|---|---|---|
| 1 | 187.0 | 50uL | 1 | ******* | | 10/19/2017 7:56:03 PM |
| 2 | 184.6 | 50uL | 1 | ******* | | 10/19/2017 7:58:08 PM |
| 3 | 183.7 | 50uL | 1 | ******* | | 10/19/2017 8:00:13 PM |

Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 185.1




Slope: 3.693
Intercept -0.6056
r^2 0.9997
r 0.9999
Zero Shift No




Sample

Sample Name: ICV
Sample ID: 304147002
Origin: 10-19-2017_W.cal
Status Completed
Chk. Result

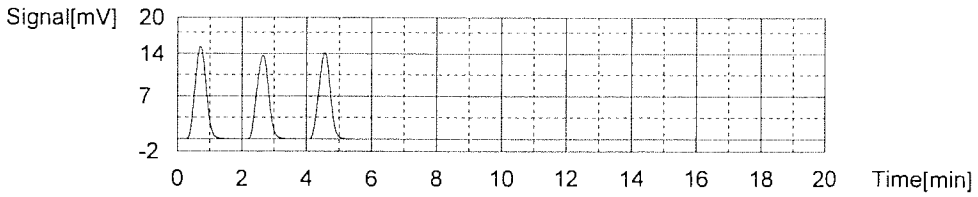
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:9.584mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 35.50 | 9.777mg/L | 50ul | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/19/2017 8:09:16 PM |
| 2 | 34.71 | 9.563mg/L | 50ul | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/19/2017 8:11:21 PM |
| 3 | 34.15 | 9.412mg/L | 50ul | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/19/2017 8:13:26 PM |

Mean Area 34.79
Mean Conc. 9.584mg/L




Sample

Sample Name: ICB
Sample ID: Untitled
Origin: 10-19-2017_W.cal
Status Completed
Chk. Result

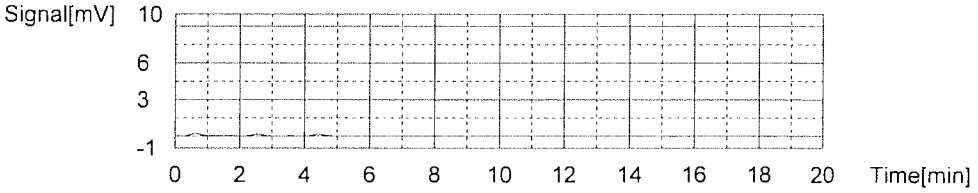
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:0.2527mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 0.4094 | 0.2749mg/L | 50ul | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/19/2017 8:22:29 PM |
| 2 | 0.2915 | 0.2429mg/L | 50ul | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/19/2017 8:24:34 PM |
| 3 | 0.2819 | 0.2403mg/L | 50ul | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/19/2017 8:26:39 PM |

Mean Area 0.3276
Mean Conc. 0.2527mg/L



Instr.Information

| | |
|---|---|
| System | TOC csh with asi |
| Instrument Options | TOC/ASI/IC Unit/ |
| Catalyst | Regular Sensitivity |

Sample

| | |
|---|---|
| Sample Name: | CCV |
| Sample ID: | 304.147.105 |
| Origin: | 10-19-2017_W.cal |
| Status | Completed |
| Chk. Result | |

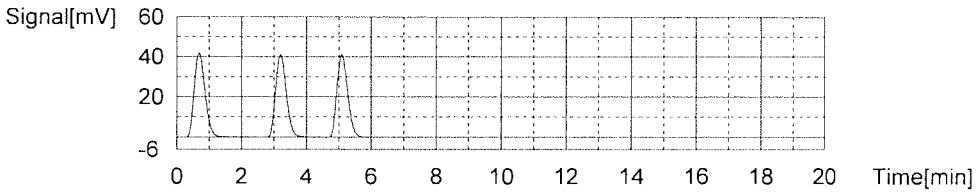
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:25.83mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 96.43 | 26.28mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 8:22:23 PM |
| 2 | 93.75 | 25.55mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 8:24:28 PM |
| 3 | 94.16 | 25.66mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 8:26:33 PM |

| | |
|---|---|
| Mean Area | 94.78 |
| Mean Conc. | 25.83mg/L |




Sample

| | |
|---|---|
| Sample Name: | CCB |
| Sample ID: | Untitled |
| Origin: | 10-19-2017_W.cal |
| Status | Completed |
| Chk. Result | |

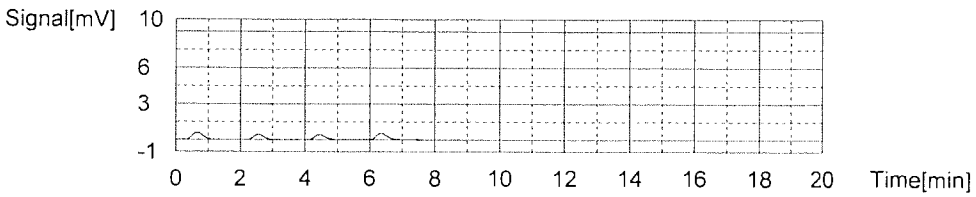
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:0.4213mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 1.280 | 0.5106mg/L | 50uL | 1 | E | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 8:35:36 PM |
| 2 | 0.8839 | 0.4033mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 8:37:41 PM |
| 3 | 0.8428 | 0.3922mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 8:39:46 PM |
| 4 | 1.124 | 0.4684mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 8:41:51 PM |

Mean Area 0.9502
Mean Conc. 0.4213mg/L




Sample

Sample Name: WBLKW1-102317
Sample ID: 5310B
Origin: 10-19-2017_W.cal
Status Completed
Chk. Result

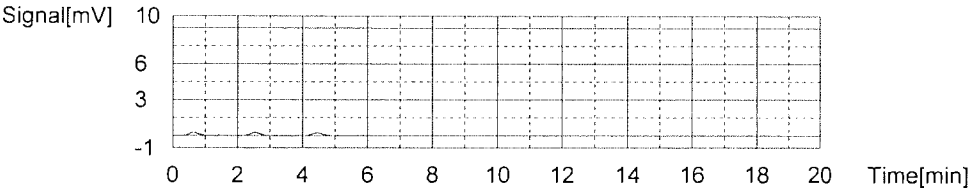
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:0.2895mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 0.4407 | 0.2833mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 8:50:49 PM |
| 2 | 0.4808 | 0.2942mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 8:52:54 PM |
| 3 | 0.4695 | 0.2911mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 8:54:59 PM |

Mean Area 0.4637
Mean Conc. 0.2895mg/L




Sample

Sample Name: WLCSW1-102317
Sample ID: 297.020.4418
Origin: 10-19-2017_W.cal
Status Completed
Chk. Result

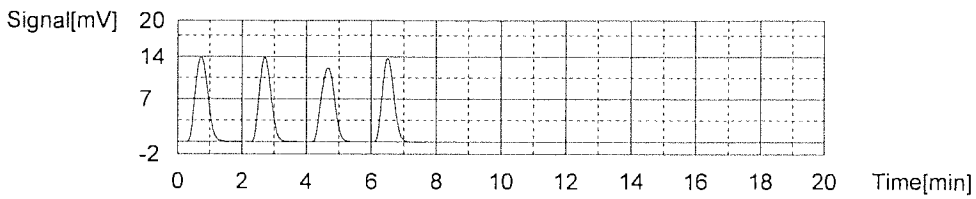
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:9.511mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 37.53 | 10.33mg/L | 50uL | 1 | E | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 9:04:07 PM |
| 2 | 35.00 | 9.642mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 9:06:12 PM |
| 3 | 34.45 | 9.493mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 9:08:17 PM |
| 4 | 34.10 | 9.398mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 9:10:22 PM |

Mean Area 34.52
Mean Conc. 9.511mg/L




Sample

Sample Name: WLCSDW1-102317
Sample ID: Untitled
Origin: 10-19-2017_W.cal
Status Completed
Chk. Result

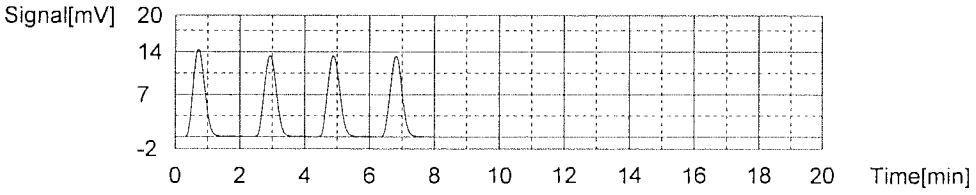
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:9.416mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 35.77 | 9.850mg/L | 50uL | 1 | E | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 9:19:37 PM |
| 2 | 34.62 | 9.539mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 9:21:46 PM |
| 3 | 34.27 | 9.444mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 9:23:51 PM |
| 4 | 33.61 | 9.265mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 9:25:56 PM |

Mean Area 34.17
Mean Conc. 9.416mg/L




Sample

Sample Name: HS17100883-01
Sample ID: TOC_W1/2
Origin: 10-19-2017_W.cal
Status Completed
Chk. Result

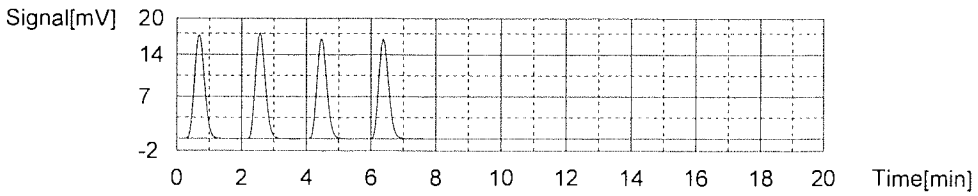
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:10.01mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 36.98 | 10.18mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 9:34:54 PM |
| 2 | 37.07 | 10.20mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 9:36:59 PM |
| 3 | 34.59 | 9.531mg/L | 50uL | 1 | E | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 9:39:04 PM |
| 4 | 35.06 | 9.658mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 9:41:09 PM |

Mean Area 36.37
Mean Conc. 10.01mg/L




Sample

Sample Name: HS17100883-01MS
Sample ID: 1/2
Origin: 10-19-2017_W.cal
Status Completed
Chk. Result

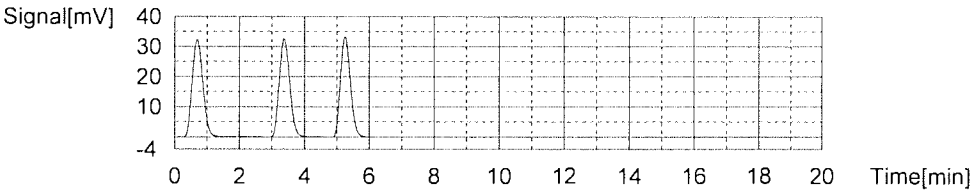
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:19.66mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 73.17 | 19.98mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 9:51:02 PM |
| 2 | 72.08 | 19.68mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 9:53:07 PM |
| 3 | 70.69 | 19.31mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 9:55:12 PM |

Mean Area 71.98
Mean Conc. 19.66mg/L




Sample

Sample Name: CCV
Sample ID: Untitled
Origin: 10-19-2017_W.cal
Status Completed
Chk. Result

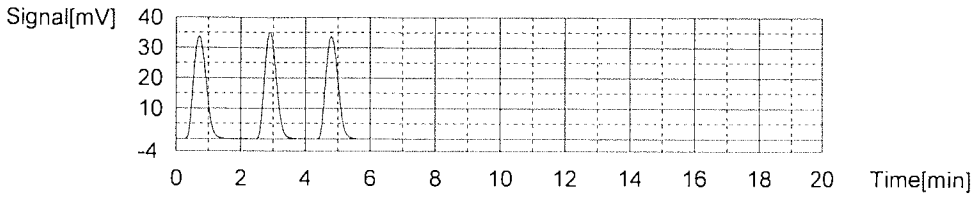
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:24.21mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 90.16 | 24.58mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 11:18:44 PM |
| 2 | 88.86 | 24.23mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 11:20:49 PM |
| 3 | 87.34 | 23.82mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 11:22:54 PM |

Mean Area 88.79
Mean Conc. 24.21mg/L




Sample

Sample Name: CCB
Sample ID: Untitled
Origin: 10-19-2017_W.cal
Status Completed
Chk. Result

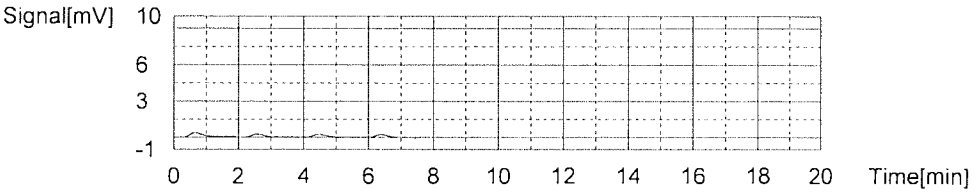
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:0.3109mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 0.8431 | 0.3923mg/L | 50ul | 1 | E | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 11:31:57 PM |
| 2 | 0.5632 | 0.3165mg/L | 50ul | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 11:34:02 PM |
| 3 | 0.5506 | 0.3131mg/L | 50ul | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 11:36:07 PM |
| 4 | 0.5138 | 0.3031mg/L | 50ul | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/23/2017 11:38:12 PM |

Mean Area 0.5425
Mean Conc. 0.3109mg/L




Sample

Sample Name: HS17100966-01DF5
Sample ID: TOC_W 1/1
Origin: 10-19-2017_W.cal
Status Completed
Chk. Result

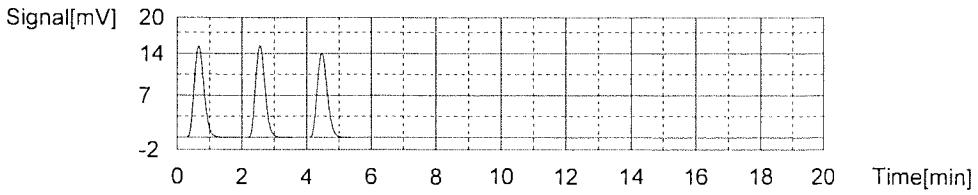
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:8.466mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 31.21 | 8.616mg/L | 50ul | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/24/2017 12:42:26 AM |
| 2 | 30.63 | 8.458mg/L | 50ul | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/24/2017 12:44:31 AM |
| 3 | 30.13 | 8.323mg/L | 50ul | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/24/2017 12:46:36 AM |

Mean Area 30.66
Mean Conc. 8.466mg/L




Sample

Sample Name: CCV
Sample ID: Untitled
Origin: 10-19-2017_W.cal
Status Completed
Chk. Result

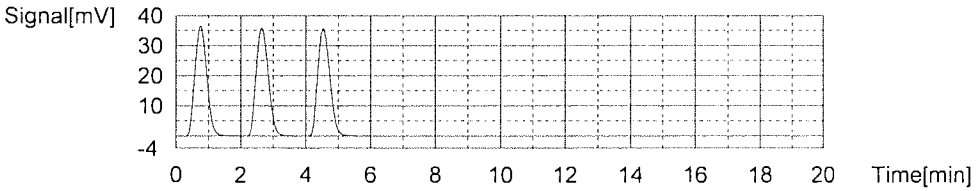
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:25.04mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 91.76 | 25.01mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/24/2017 12:55:39 AM |
| 2 | 92.30 | 25.16mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/24/2017 12:57:44 AM |
| 3 | 91.50 | 24.94mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/24/2017 12:59:49 AM |

Mean Area 91.85
Mean Conc. 25.04mg/L




Sample

Sample Name: CCB
Sample ID: Untitled
Origin: 10-19-2017_W.cal
Status Completed
Chk. Result

| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:0.3007mg/L |

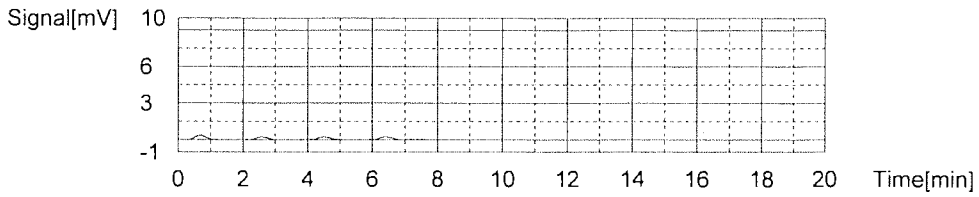
1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 0.7570 | 0.3690mg/L | 50uL | 1 | E | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/24/2017 1:08:52 AM |
| 2 | 0.5050 | 0.3007mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/24/2017 1:10:57 AM |
| 3 | 0.4823 | 0.2946mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/24/2017 1:13:02 AM |
| 4 | 0.5277 | 0.3069mg/L | 50uL | 1 | | 10-19-2017_W.2017_10_19_18_40_46.cal | 10/24/2017 1:15:07 AM |

Kelly 10/24/2017 1:02:39 PM 2017_10_23_001.t32

| | |
|---|---|
| Mean Area | 0.5050 |
| Mean Conc. | 0.3007mg/L |



# ALS Salt Lake Utah Perchlorate Data

Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Weekly Samples
ALS WO# HS17100966

# Case Narrative

**Method:** 6850
**Analysis:** Perchlorate
**Analysis SOP:** LC-MS-CLO4
**ALS WO ID(s):** 1728943; 1728945; 1728946; 1729349

**Client:** ALS Laboratories (Houston, TX)
**Matrix:** Water
**ELMS Batch (HBN):** 1985 (201123)

**General Set Information:** There were four 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:** Sample 1728946001 was re-analyzed and reported at a 1 in 1,000 dilution. The reporting limits have been adjusted accordingly.

**Method QC data:** The method blank (LMB 571097) was less than 1/2 the CRDL. The recovery for the LCS (571098) was within acceptable parameters.

**MS/MSD Analysis:** The matrix spike and matrix spike duplicate (MS/MSD) was performed on sample 1728943001 (Client ID: LH18/24-SP650_101217). 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):** None were required for this set.

**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 5.0. Manual Integrations were performed for some of the Initial Calibration analyses (datafiles: 21AUGP01-03) along with datafiles 25OCTP02/03/07/08/11.

Thomas Bosch October 27, 2017
Date

# ANALYTICAL REPORT

Report Date: October 27, 2017

Sonia West
ALS Environmental
10450 Stancliff Rd.
Suite 210
Houston, TX 77099

Phone: (281) 530-5656

E-mail: Sonia.West@alsglobal.com

Workorder: **34-1729349**
Project ID: HS17100966 101817
Purchase Order: HS17100966
Project Manager Kevin W. Griffiths

| Client Sample ID | Lab ID | Collect Date | Receive Date | Sampling Site |
|---|---|---|---|---|
| LH18/24-SP650_101817 | 1729349001 | 10/18/17 | 10/20/17 | |

# ANALYTICAL REPORT

**Workorder:** 34-1729349
**Client:** ALS Environmental (Houston)
**Project Manager:** Kevin W. Griffiths

## Analytical Results

| | | |
|---|---|---|
| Sample ID: **LH18/24-SP650_101817** | Sampling Site: NA | Collected: 10/18/2017 |
| Lab ID: 1729349001 | Media: 125 mL Nalgene | Received: 10/20/2017 |
| 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/1985 (HBN: 201123) | **Percent Solid:** NA |
| | **Analyzed:** 10/25/2017 12:22 | **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 |

## 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>10/26/2017 14:50 | /S/ Stephen Brose<br>10/27/2017 10:17 |

## 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

# ANALYTICAL REPORT

**Workorder:** 34-1729349
**Client:** ALS Environmental (Houston)
**Project Manager:** Kevin W. Griffiths

## 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 (Standard) | Certificate Number | Website |
|---|---|---|---|
| Environmental | ANAB (DoD ELAP) | ADE-1420 | http://www.anab.org/accredited-organizations/ |
| | Utah (NELAC) | DATA1 | http://health.utah.gov/lab/labimp/ |
| | Nevada | UT00009 | http://ndep.nv.gov/bsdw/labservice.htm |
| | Oklahoma | UT00009 | http://www.deq.state.ok.us/CSDnew/ |
| | Iowa | IA# 376 | http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx |
| | Texas (TNI) | T104704456-11-1 | http://www.tceq.texas.gov/field/qa/lab_accred_certif.html |
| | Washington | C596-16 | http://www.ecy.wa.gov/programs/eap/labs/index.html |
| | Kansas | E-10416 | http://www.kdheks.gov/lipo/index.html |
| Industrial Hygiene | AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP) | 101574 | http://www.aihaaccreditedlabs.org |
| | Washington | C596-16 | http://www.ecy.wa.gov/programs/eap/labs/index.html |
| Lead Testing: | | | |
| CPSC | ANAB (ISO 17025, CPSC) | ADE-1420 | http://www.anab.org/accredited-organizations/ |
| Soil, Dust, Paint ,Air | AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP) | 101574 | http://www.aihaaccreditedlabs.org |
| Dietary Supplements | ACLASS (ISO 17025) | ADE-1420 | http://www.aclasscorp.com |

# ANALYTICAL REPORT

**Workorder:** 34-1729349
**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:** 1729349

| | | | | | |
|---|---|---|---|---|---|
| **Limits:** | Client SOW/Contract Specified | **Preparation:** | NA | **Analysis:** | EPA 6850 |
| **Basis:** | DoD QSM | **Batch:** | NA | **Batch:** | ELMS/1985 (HBN: 201123) |
| | | **Prepared By:** | NA | **Analyzed By:** | Thomas Bosch |

### Blank

**LMB:** 571097
**Analyzed:** 10/25/2017 10:02
**Units:** ug/L

| Analyte | Result | MDL | RL |
|---|---|---|---|
| Perchlorate | ND | 1 | 2.00 |

### Laboratory Control Sample

**LCS:** 571098
**Analyzed:** 10/25/2017 10:22
**Dilution:** 1
**Units:** ug/L

| Analyte | Result | Target | % Rec | QC Limits | |
|---|---|---|---|---|---|
| Perchlorate | 5.29 | 5.00 | 106 | 78.8 | 123.8 |

### Matrix Spike - Matrix Spike Duplicate

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sample:** | 1728943001 | **MS:** | 571099 | | | | **MSD:** | 571100 | | | |
| **Analyzed:** | 10/25/2017 10:44 | **Analyzed:** | 10/25/2017 11:03 | | | | **Analyzed:** | 10/25/2017 11:23 | | | |
| **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 | 4.48 | 5 | 89.6 | 78.8 | 123.8 | 4.52 | 90.4 | 0.9 | 0.0 | 20.0 |

### Continuing Calibration Verification

| | | | | | | |
|---|---|---|---|---|---|---|
| **CCV:** | 571094 | | | **CCV:** | 571101 | |
| **Analyzed:** | 10/25/2017 09:02 | | | **Analyzed:** | 10/25/2017 14:46 | |
| **Units:** | ug/L | | | **Units:** | ug/L | |
| **Criteria:** | ± 15% | | | **Criteria:** | ± 15% | |

| Analyte | Result | Target | % Rec. | Result | Target | % Rec. |
|---|---|---|---|---|---|---|
| Perchlorate | 26.4 | 25.0 | 106 | 23.8 | 25.0 | 95.3 |

### Interference Check Sample

**ICSA:** 571096
**Analyzed:** 10/25/2017 09:43
**Units:** ug/L
**Criteria:** ± 30%

| Analyte | Result | Target | % Rec. |
|---|---|---|---|
| Perchlorate | 1.15 | 1.00 | 115 |

### Limit of Detection Verification

| | | | | | | |
|---|---|---|---|---|---|---|
| **LODV:** | 571095 | | | **LODV:** | 571102 | |
| **Analyzed:** | 10/25/2017 09:24 | | | **Analyzed:** | 10/25/2017 15:06 | |
| **Units:** | ug/L | | | **Units:** | ug/L | |
| **Criteria:** | ± 50% | | | **Criteria:** | ± 50% | |

| Analyte | Result | Target | % Rec. | Result | Target | % Rec. |
|---|---|---|---|---|---|---|
| Perchlorate | 0.839 | 1.00 | 83.9 | 0.968 | 1.00 | 96.8 |

# Quality Control Sample
# Batch Report

## Analysis Information

**Workorder:** **1729349**

| | | | | | |
|---|---|---|---|---|---|
| **Limits:** | Client SOW/Contract Specified | **Preparation:** | NA | **Analysis:** | EPA 6850 |
| **Basis:** | DoD QSM | **Batch:** | NA | **Batch:** | ELMS/1985 (HBN: 201123) |
| | | **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 |
| 10/26/2017 14:50 | 10/27/2017 10:17 |

## 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

W 1729349

18698 #2

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

1729349

# Subcontract Chain of Custody

**COC ID: 7866**

**SUBCONTRACT TO:**

ALS Laboratory Group
960 LeVoy Dr
Salt Lake City, UT 84123

**Phone:** +1 801 266 7700

**CUSTOMER INFORMATION:**

| | |
|---|---|
| **Company:** | ALS Houston |
| **Contact:** | Sonia West |
| **Address:** | 10450 Stancliff Rd, Ste 210 |
| **Phone:** | +1 281 530 5656 |
| **Email:** | Sonia.West@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:** | HS17100966 |
| **TSR:** | Danielle Winnings |

| | LAB SAMPLE ID | CLIENT SAMPLE ID | MATRIX | COLLECT DATE |
|---|---|---|---|---|
| | ANALYSIS REQUESTED | | | DUE DATE |
| **1.** | **HS17100966-01** | **LH18/24-SP650_101817** | **Water** | **18 Oct 2017 14:00** |
| | SUB_Perch-6850 | | | 27 Oct 2017 |

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

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

Relinquished By: R Giga Date/Time: 10/19/17 18:00

Received By: Date/Time: 10/20/2017 1020

Cooler ID(s): 7028 Temperature(s): 2°

# ALS - SALT LAKE CITY-RELATED INFORMATION REPORT (CRIR)

## COOLER OR CONTAINER INFORMATION CHECKLIST (Fill In or Circle)

Client Name: ALS Houston

Project/Task/Site: 729349

Date/Time of Receipt: 10/20/17 1000

Number of Coolers Received: 1

| | |
|---|---|
| Condition of Coolers: | Acceptable/Unacceptable |
| Cooler Custody Seals: | Present/Absent/NA |
| | Intact/Broken/NA |
| Container Custody Seals: | Present/Absent/NA |
| | Intact/Broken/NA |
| Ice Present: | Yes/No/NA |
| | Frozen/Melted/NA |
| Temperature Control: | Present/Not Included |
| Location Temp Taken: | Control/Between Samples |
| Are all temperatures within project specific guidelines? | Yes/No/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 | TOC Preserved | Yes/No/NA |

| Cooler Received | ALS Cooler No. | Temp. | Cooler Received | ALS Cooler No. | Temp. | Cooler Received | ALSL Cooler No. | Temp. |
|---|---|---|---|---|---|---|---|---|
| 1 | C17- 7028 | 2 °C | 4 | C17- | °C | 7 | C17- | °C |
| 2 | C17- | °C | 5 | C17- | °C | 8 | C17- | °C |
| 3 | C17- | °C | 6 | C17- | °C | 9 | C17- | °C |

Taken By: [signature] Signature — [signature] Printed Name — 10/20/2017 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:

E-mailed to Client? 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.dot

Revised 1/1/15

ALS
10450 Stan
Houston, Te
Tel. +1 281
Fax. +1 281

Part # 159469-434 RITE EXP 10/17

ORIGIN ID:SGRA (281) 530-5656
SHIPPING DEPT
ALS LABORATORY GROUP
10450 STANCLIFF RD
SUITE 210
HOUSTON, TX 77099
UNITED STATES US

SHIP DATE: 19OCT17
ACTWGT: 13.25 LB
CAD: 300130/CAFE3108
DIMS: 14x11x10 IN

BILL SENDER

TO PAUL POPE
ALS ENVIRONMENTAL
960 W. LEVOY DRIVE

SALT LAKE CITY UT 84123
(801) 266-7700
REF: HS17100966 SW

FedEx Express

TRK# 0201 7376 9749 4949

FRI - 20 OCT 3:00P
STANDARD OVERNIGHT

AX BTFA

84123
UT-US SLC

Seal Broken By:

Date:

00876010

# ALS Environmental

## CHAIN-OF-CUSTODY

| | | | |
|---|---|---|---|
| **Project / Job / Task:** HS17100966 | ***Split:*** | **Workorder ID:** 1729349 | **Level:** ENV_LVL4 |
| **Client:** ALS Environmental (Houston) | | **Account:** 8101 | **Type:** 125Poly |
| **Comments:** | | | **Preservatives** |

| Item | Collect Date/Time | Sample ID | Lab ID | QC | Matrix | Containers ID(s) | Containers Count | Requested Analysis: EPA 6850, DoD QSM |
|---|---|---|---|---|---|---|---|---|
| 1 | 10/18/2017 14:00 | LH18/24-SP650_101817 | 1729349001 | | Water | A | 1 | A |
| 2 | | | | | | | | |
| 3 | | | | | | | | |
| 4 | | | | | | | | |
| 5 | | | | | | | | |
| 6 | | | | | | | | |
| 7 | | | | | | | | |
| 8 | | | | | | | | |
| 9 | | | | | | | | |
| 10 | | | | | | | | |

42 of 137

## ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

| Relinquished By: (Signature) | Date / Time | Received By: (Signature) | Reason for Transfer / Storage Location |
|---|---|---|---|
| Warath, Julie | 10/20/2017 10:00 | ALS Sample Receiving | Sample Login |
| Julie Warath | 10/20/17 1145 | 14B | Storage |
| R.33.1 | 10.25.17/07:55 | 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 |
|---|---|---|---|
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# tch Worklist

**Batch:** ELMS/ 1985 **Created:** 10/20/2017 11:25 **Instrument:** **HBN:** 201123
**Rule:** EPA 6850, DoD QSM Water **Analyst:** T. Bosch **Status:** WP

**Workorder: 1728943 [ENV_LVL4]**
**Workorder: 1728945 [ENV_LVL4]**
**Workorder: 1728946 [ENV_LVL4]**
**Workorder: 1729349 [ENV_LVL4]**
**Workorder: 1729821 [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 | 571094 | CCV for HBN 201123 [ELMS/1985] | | | | CCV | 3 | | E685041C3Q | 5311 | | 10/27/2017 | |
| 2 | 571095 | LODV for HBN 201123 [ELMS/1985 | | | | LODV | 3 | | E6850..D3Q | 5311 | | 10/27/2017 | |
| 3 | 571096 | ICS for HBN 201123 [ELMS/1985] | | | | ICS | 3 | | E6850..D3Q | 5311 | | 10/27/2017 | |
| 4 | 571097 | LMB for HBN 201123 [ELMS/1985] | | | | LMB | 3 | | E6850Q413Q | 5311 | | 10/27/2017 | |
| 5 | 571098 | LCS for HBN 201123 [ELMS/1985] | | | | LCS | 3 | | E6850Q413Q | 5311 | | 10/27/2017 | |
| 6 | 1728943001 | LH18/24-SP650_101217 | | | | SAMPLE | 3 | 1728943001-A | E6850Q41.3 | 5480 | 11/9/2017 | 11/4/2017 | |
| 7 | 571099 | LH18/24-SP650...(1728943001MS) | | | | MS | 3 | | E6850Q413Q | 5311 | | 10/27/2017 | |
| 8 | 571100 | LH18/24-SP65...(1728943001MSD) | | | | MSD | 3 | | E6850Q413Q | 5311 | | 10/27/2017 | |
| 9 | 1728945001 | LH18/24-SP650_101217 | | | | SAMPLE | 3 | 1728945001-A | E6850Q41.3 | 5480 | 11/9/2017 | 11/4/2017 | |
| 10 | 1728946001 | LH18/24-SP140_101217 | | | | SAMPLE | 3 | 1728946001-A | E6850Q41.3 | 5480 | 11/9/2017 | 11/4/2017 | |
| 11 | 1729349001 | LH18/24-SP650_101817 | | | | SAMPLE | 3 | 1729349001-A | E6850Q41.3 | 5480 | 11/15/2017 | 11/10/2017 | |
| 12 | 1729821001 | LH18/24-SP650_1017W | | | | SAMPLE | 3 | 1729821001-A | E6850Q41.3 | 5480 | 11/2/2017 | 10/27/2017 | |
| 13 | 571101 | CCV for HBN 201123 [ELMS/1985] | | | | CCV | 3 | | E685041C3Q | 5311 | | 10/27/2017 | |
| 14 | 571102 | LODV for HBN 201123 [ELMS/1985 | | | | LODV | 3 | | E6850..D3Q | 5311 | | 10/27/2017 | |

43 of 137



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ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

# Analytical Documentation

ALS Work Order #'s & Sample #( )'s: 1728943 (001); 1728945 (001); 1728946 (001); 1729349 (001); 1729821 (001)
ELMS Batch/HBN ID: 1985 (201123)
Prep Date: 10/25/2017 Analysis Date: 10/25/2017 Analyst: T. Bosch
Analyte: **Perchlorate** Matrix: **Water** Method: **6850**
Sequence:\\HPCHEM\1\SEQUENCE\CLO4\2017\OCT\25OCT17P.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 DI735)/0.1% glacial acetic acid (JT-Baker Lot 04802).
Eluent B1: 95% ACN (B&J Lot DI735)/ 5% ASTM Type II water (ALS)/0.1% glacial acetic acid (JT-Baker Lot 04802).

**STANDARDS:** Internal Standard Spiking Solution Horizon# 38780. Dilutions of Working Standard Solution ID 32373 used for CCV's, LODV's, RLVS and IPC.

**CALIBRATION CURVE:** Used curve from 08/21/2017, sequence 21AUG17P.s Offline Quantitation Method: CLO4-PR3.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: 6 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 | 0.60 |
| 4.0 | 0.60 |
| 5.0 | 0.25 |
| 14.5 | 0.25 |
| 15.0 | 0.60 |
| 17.5 | 0.60 |

**QC DATA:** 5.0µL of QC Solution Horizon ID 36749 was used for LCS 570667; Target = 5.0µg/L. ASTM type II water was used for LMB 570666.

**MS/MSD:** MS/MSD was performed on sample 1728943001 (Client ID: LH18/24-SP650_101217). 5.0µl of Working Standard Solution Horizon ID 36735 was added to 10.0mL of sample preparation. Spike target = 5.0µg/L.

**COMMENTS:**

1) Results reported in µg/L. Sample 1728946001 was re-analyzed and reported at a 1 in 1,000 dilution. The reporting limits have been adjusted accordingly.
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\2017\OCT\HBN# or through NuGenesis\Tree\PrintData\LCMS\DefaultView.
4) Due to limitations of the Chemstation Software, many of the chromatographic peaks require manual integration. Manual Integrations were performed for some of the Initial Calibration analyses (datafiles: 21AUGP01-03) along with datafiles 25OCTP02/03/07/08/11.
5) Notebook: \\alsltws013\ORGANIC\BOSCH\LCMS\Perchlorates\Waters\2017\CLO4-201123-L-ALS-HSTN-KLSO or through \\ALSLTWS013\DATAREVIEW\HBN#

# STANDARD REPORT

## Working Standard - CLO4 WRK

**CLO4 WRK** — **Description - 6850 WKG Std 100.ug/L**

**Standard:** 36735
**MFG:** ALS/SLC
**MFG Lot:** TNB: 05/10/17
**Part ID:**

**Created By:** T. Bosch
**Create Date:** 05/10/2017
**Lab Lot:** CLO4 WRK

**Amount:** 10 mL
**Expires:** 05/10/2018
**Usable:** Yes

| 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 |
| 36734 | CLO4 INT | 6850 Intermdt AccStd 10.ug/mL | CLO4 INT | 0.1 mL | 05/10/2018 |

# STANDARD REPORT

## Constituent

## Stock Standard - CLO4 STOCK

**CLO4 STOCK** — **Description - 6850 Stock AccStd 1,000ug/mL**

Standard: 36733
MFG: AccuStandard
MFG Lot: 216095148
Part ID: IC-PER-10X-1

Created By: T. Bosch
Create Date: 5/10/2017
Lab Lot: CLO4 STOCK

Amount: 100 mL
Expires: 10/4/2018
Usable: Yes

| Pos. | Analyte | Name | Concentration |
|---|---|---|---|
| 1 | 14797-73-0 | Perchlorate | 1000 ug/mL |

# 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: 10/6/2005 | Expires: 11/7/2025 |
| MFG Lot: | Lab Lot: LAB 109 | Usable: Yes |
| Part ID: | | |

| Pos. | Analyte | Name | Concentration |
|---|---|---|---|
| Solvent - Analyte(s) not applicable | | | |

# STANDARD REPORT

## Constituent

## Working Standard - CLO4 INT

**CLO4 INT** — Description - 6850 Intermdt AccStd 10.ug/mL

Standard: 36734
MFG: ALS/SLC
MFG Lot: TNB: 05/10/17
Part ID:

Created By: T. Bosch
Create Date: 05/10/2017
Lab Lot: CLO4 INT

Amount: 10 mL
Expires: 05/10/2018
Usable: Yes

| 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 |
| 36733 | CLO4 STOCK | 6850 Stock AccStd 1,000ug/mL | CLO4 STOCK | 0.1 mL | 10/04/2018 |

# STANDARD REPORT

## Working Standard - CLO4 QC WRK

**CLO4 QC WRK** — **Description - 6850 QC WKG STD 100ug/L**

Standard: 36750
MFG: ALS/SLC
MFG Lot: TNB: 05/11/17
Part ID:

Created By: T. Bosch
Create Date: 05/11/2017
Lab Lot: CLO4 QC WRK 100.ug/L

Amount: 10 mL
Expires: 05/11/2018
Usable: Yes

| 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 |
| 36749 | CLO4 QC INT | 6850 QC Intrmdt Std-QC 10ug/mL | CLO4 QC INT 10.ug/mL | 0.1 mL | 05/11/2018 |

# STANDARD REPORT

## Constituent

## Working Standard - CLO4 QC INT

**CLO4 QC INT** — Description - 6850 QC Intrmdt Std-QC 10ug/mL

Standard: 36749
MFG: ALS/SLC
MFG Lot: TNB: 05/11/2017
Part ID:

Created By: T. Bosch
Create Date: 05/11/2017
Lab Lot: CLO4 QC INT 10.ug/mL

Amount: 10 mL
Expires: 05/11/2018
Usable: Yes

| 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 |

# 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: 10/6/2005 | Expires: 11/7/2025 |
| MFG Lot: | Lab Lot: LAB 109 | Usable: Yes |
| Part ID: | | |

| Pos. | Analyte | Name | Concentration |
|---|---|---|---|
| Solvent - Analyte(s) not applicable | | | |

# STANDARD REPORT

## Constituent

## Stock Standard - CLO4 QCSTOCK

**CLO4 QCSTOCK** — Description - 6850 QC Stock STD 1,000ug/mL

Standard: 36748
MFG: Ultra Scientific
MFG Lot: CP-0860
Part ID: ICC-013

Created By: T. Bosch
Create Date: 5/11/2017
Lab Lot: CLO4 QC STOCK

Amount: 100 mL
Expires: 3/31/2020
Usable: Yes

| Pos. | Analyte | Name | Concentration |
|---|---|---|---|
| 1 | 14797-73-0 | Perchlorate | 1000 ug/mL |

# STANDARD REPORT

## Working Standard - CLO4ISTDWRK

| CLO4ISTDWRK | | Description - Perchlorate ISTD Wrk 1,000ug/L |
|---|---|---|
| Standard: 38780 | Created By: Thomas Bosch | Amount: 10 mL |
| MFG: ALS/SLC | Create Date: 10/09/2017 01:10PM | Expires: 10/09/2018 |
| MFG Lot: TNB: 10/09/17 | 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 |
|---|---|---|---|---|---|
| 23118 | CLO4ISTDSTK | Perchlorate ISTD Stock | CLO4ISTDSTK | 0.1 mL | 02/27/2024 |

# STANDARD REPORT

## Constituent

## Stock Standard - CLO4ISTDSTK

**CLO4ISTDSTK** — **Description - Perchlorate ISTD Stock**

| | | | | | |
|---|---|---|---|---|---|
| **Standard:** | 23118 | **Created By:** | Thomas Bosch | **Amount:** | 1 mL |
| **MFG:** | Cambridge Isotope | **Create Date:** | 04/04/2014 03:04PM | **Expires:** | 02/27/2024 |
| **MFG Lot:** | SDDG-013 | **Verified By:** | Thomas Bosch | **Usable:** | Yes |
| **Part ID:** | OLM-7310-S | **Verify Date:** | 02/05/2009 12:02AM | **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

TRIPLE ISO CERTIFICATION ISO 17025 • ISO GUIDE 34 • ISO 9001 ULTRA

## 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.

ANAB ACCREDITED ISO 17025 REFERENCE MATERIAL PRODUCER
ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY



ALS

ULTRA SCIENTIFIC
Analytical Solutions

# Certificate of Analysis

TRIPLE ISO CERTIFICATION ULTRA ISO 17025 ISO GUIDE 34 ISO 9001

## ISO Guide 34 Reference Material

Product Number: ICC-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

125 Market Street
New Haven, CT 06513
USA

AccuStandard®, Inc.

Tel (203)786-5290
Fax (203)786-5287
www.AccuStandard.com

# CERTIFICATE OF ANALYSIS

## AccuTrace™ Reference Standard

Catalog No: IC-PER-10X-1
Description: Perchlorate Standard
Element: Perchlorate ($ClO_4$)
SRM: Ind. Std.
Lot: 216095148
Matrix: Water
Hazards: *Refer to SDS for complete safety information*

Signal Word: Warning

Date Certified: Oct 4, 2016
Expiration: Oct 4, 2018
Sample Size: 100 mL
Components: 1
Storage Condition: Ambient (>5 °C)
Included on ISO/IEC 17025 Scope of Accreditation: Yes
Included on ISO Guide 34 Scope of Accreditation: Yes

| Component | | SRM # | Prepared Concentration (µg/mL) |
|---|---|---|---|
| $ClO_4$ | Perchlorate | Ind. Std. | 1000 |

The gravimetric uncertainty for this product is ±0.2%. See reverse side for details.
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 Guide 34, ISO/IEC 17025 and certified to ISO 9001

# Cambridge Isotope Laboratories, Inc.

# Certificate of Analysis

Quality Standards:
ISO Guide 34 • ISO/IEC 17025 • ISO 13485 • cGMP

23118

| | |
|---|---|
| **Product Name:** (Isotopic Label & Enrichment Specification) | PERCHLORIC ACID, SODIUM SALT (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% |
| LC/MS for Concentration | 109.4 ± 2.8 µg/mL (k=2) |

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

# Raw Data

Batch Report: C:\HPCHEM\1\DATA\25OCT17P\25OCT17P.B

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-PR3.M

['#' ==> Run has not been reprocessed with Batch Review Method
'*' ==> Run has been saved with batch file]

| #* | Sample | Location | Inj | SampleType | Run | CLO4-89-ISTD Area | CLO4-89-ISTD RT | CLO4-89-ISTD Amount |
|---|---|---|---|---|---|---|---|---|
| * | 571094 CCV@25 | Vial 81 | 1 | Control | 1 | 5.07839e5 | 12.477 | 5.00000 |
| * | 571095 LODV@1. | Vial 82 | 1 | Control | 2 | 5.87535e5 | 12.518 | 5.00000 |
| * | 571096 ICS@1. | Vial 83 | 1 | Control | 3 | 3.96155e5 | 12.246 | 5.00000 |
| * | 571097 LMB | Vial 84 | 1 | Control | 4 | 6.68336e5 | 12.435 | 5.00000 |
| * | 571098 LCS@5. | Vial 85 | 1 | Control | 5 | 6.65647e5 | 12.053 | 5.00000 |
| * | 1728943001 | Vial 86 | 1 | Sample | 6 | 4.70592e5 | 12.157 | 5.00000 |
| * | 571099 289431S | Vial 87 | 1 | Sample | 7 | 4.66918e5 | 12.127 | 5.00000 |
| * | 571100 289431D | Vial 88 | 1 | Sample | 8 | 5.24243e5 | 12.117 | 5.00000 |
| * | 1728945001 | Vial 89 | 1 | Sample | 9 | 4.60455e5 | 12.109 | 5.00000 |
| * | 1728946001 | Vial 90 | 1 | Sample | 10 | 2.94801e5 | 10.198 | 5.00000 |
| * | 1729349001 | Vial 91 | 1 | Sample | 11 | 4.46975e5 | 11.983 | 5.00000 |
| * | 1728946001 1K | Vial 71 | 1 | Sample | 12 | 5.98771e5 | 12.478 | 5000.00000 |
| * | Rinse | Vial 72 | 1 | Sample | 13 | 0.00000 | 0.000 | 0.00000 |
| * | 1729821001 | Vial 92 | 1 | Sample | 14 | 3.92983e5 | 12.135 | 5.00000 |
| * | 571101 CCV@25 | Vial 81 | 1 | Control | 15 | 5.86465e5 | 12.119 | 5.00000 |
| * | 571102 LODV@1. | Vial 82 | 1 | Control | 16 | 6.36963e5 | 12.465 | 5.00000 |

| #* | Sample | Location | Inj | SampleType | Run | Perchlorate Area | Perchlorate RT | Perchlorate Amount |
|---|---|---|---|---|---|---|---|---|
| * | 571094 CCV@25 | Vial 81 | 1 | Control | 1 | 3.48090e6 | 12.453 | 26.43897 |
| * | 571095 LODV@1. | Vial 82 | 1 | Control | 2 | 1.05939e5 | 12.486 | 8.38965e-1 |
| * | 571096 ICS@1. | Vial 83 | 1 | Control | 3 | 9.86085e4 | 12.204 | 1.15261 |
| * | 571097 LMB | Vial 84 | 1 | Control | 4 | 0.00000 | 0.000 | 0.00000 |
| * | 571098 LCS@5. | Vial 85 | 1 | Control | 5 | 7.88523e5 | 12.038 | 5.29061 |
| * | 1728943001 | Vial 86 | 1 | Sample | 6 | 0.00000 | 0.000 | 0.00000 |
| * | 571099 289431S | Vial 87 | 1 | Sample | 7 | 4.65291e5 | 12.108 | 4.47866 |
| * | 571100 289431D | Vial 88 | 1 | Sample | 8 | 5.27314e5 | 12.088 | 4.51921 |
| * | 1728945001 | Vial 89 | 1 | Sample | 9 | 0.00000 | 0.000 | 0.00000 |
| * | 1728946001 | Vial 90 | 1 | Sample | 10 | 5.98622e8 | 10.207 | 1043.03365 |
| * | 1729349001 | Vial 91 | 1 | Sample | 11 | 4.79980e4 | 11.934 | 5.03905e-1 |
| * | 1728946001 1K | Vial 71 | 1 | Sample | 12 | 6.41886e5 | 12.455 | 4805.68409 |
| * | Rinse | Vial 72 | 1 | Sample | 13 | 0.00000 | 0.000 | 0.00000 |
| * | 1729821001 | Vial 92 | 1 | Sample | 14 | 0.00000 | 0.000 | 0.00000 |
| * | 571101 CCV@25 | Vial 81 | 1 | Control | 15 | 3.56041e6 | 12.091 | 23.81767 |
| * | 571102 LODV@1. | Vial 82 | 1 | Control | 16 | 1.32751e5 | 12.440 | 9.67623e-1 |

| #* | Sample | Location | Inj | SampleType | Run | CLO4-85 Area | CLO4-85 RT | CLO4-85 Amount |
|---|---|---|---|---|---|---|---|---|
| * | 571094 CCV@25 | Vial 81 | 1 | Control | 1 | 1.10813e6 | 12.467 | 27.31669 |
| * | 571095 LODV@1. | Vial 82 | 1 | Control | 2 | 4.28376e4 | 12.497 | 1.02423 |
| * | 571096 ICS@1. | Vial 83 | 1 | Control | 3 | 3.22687e4 | 12.206 | 1.14363 |
| * | 571097 LMB | Vial 84 | 1 | Control | 4 | 0.00000 | 0.000 | 0.00000 |
| * | 571098 LCS@5. | Vial 85 | 1 | Control | 5 | 2.47122e5 | 12.042 | 5.11794 |
| * | 1728943001 | Vial 86 | 1 | Sample | 6 | 0.00000 | 0.000 | 0.00000 |
| * | 571099 289431S | Vial 87 | 1 | Sample | 7 | 1.48406e5 | 12.125 | 4.39612 |
| * | 571100 289431D | Vial 88 | 1 | Sample | 8 | 1.66736e5 | 12.107 | 4.39896 |
| * | 1728945001 | Vial 89 | 1 | Sample | 9 | 0.00000 | 0.000 | 0.00000 |
| * | 1728946001 | Vial 90 | 1 | Sample | 10 | 2.21716e8 | 10.218 | 1404.77710 |
| * | 1729349001 | Vial 91 | 1 | Sample | 11 | 1.42527e4 | 11.985 | 4.49144e-1 |
| * | 1728946001 1K | Vial 71 | 1 | Sample | 12 | 2.07773e5 | 12.473 | 4790.74371 |
| * | Rinse | Vial 72 | 1 | Sample | 13 | 0.00000 | 0.000 | 0.00000 |
| * | 1729821001 | Vial 92 | 1 | Sample | 14 | 0.00000 | 0.000 | 0.00000 |
| * | 571101 CCV@25 | Vial 81 | 1 | Control | 15 | 1.09294e6 | 12.102 | 23.68621 |
| * | 571102 LODV@1. | Vial 82 | 1 | Control | 16 | 5.13231e4 | 12.438 | 1.13133 |

*** End of Report ***

Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2017\OCT\25OCT17P.S

Sequence Table:

Method and Injection Info Part:

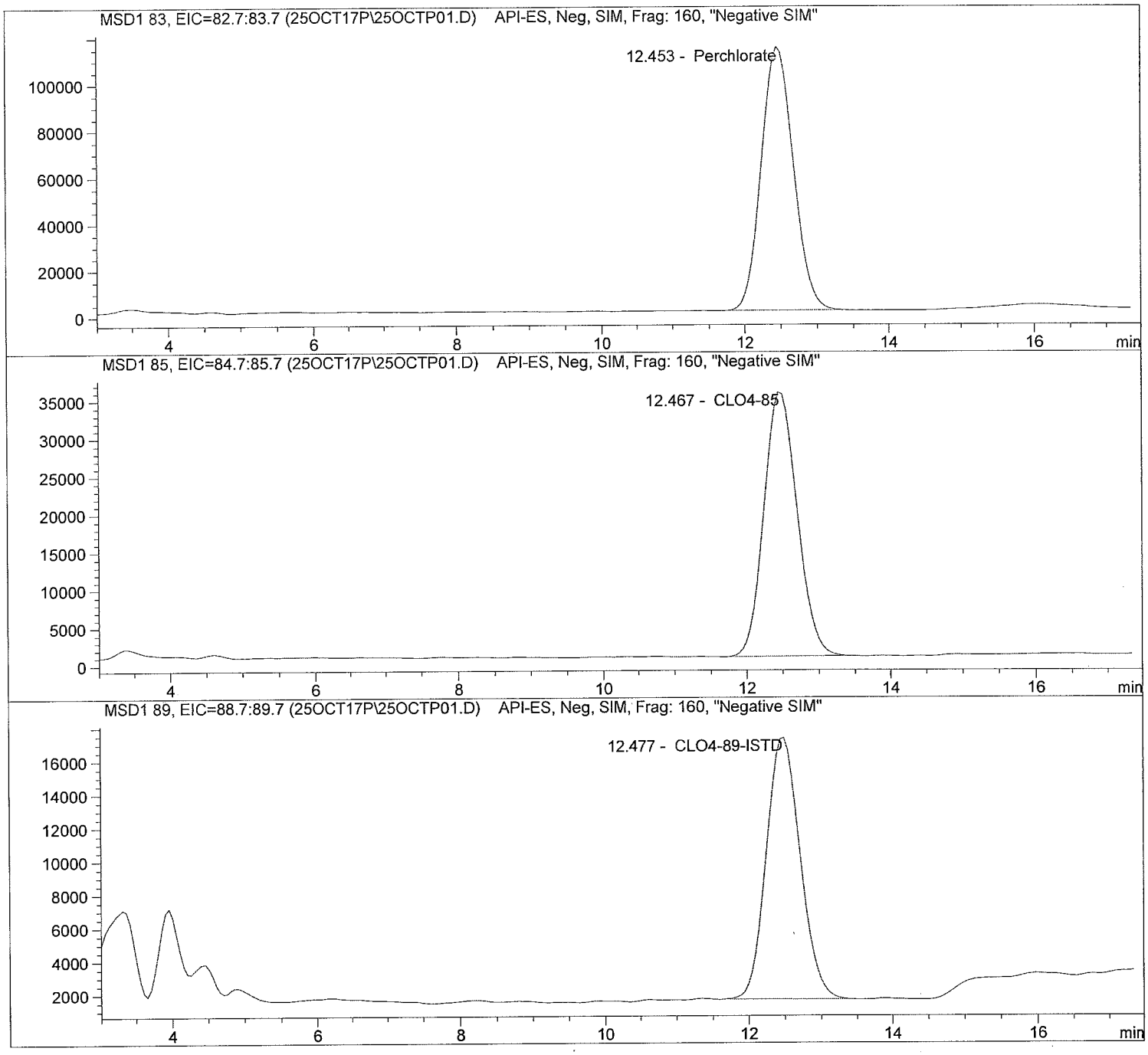
| Line | Location | SampleName | | Method | Inj | SampleType | InjVolume | DataFile |
|---|---|---|---|---|---|---|---|---|
| 1 | Vial 81 | 571094 | CCV@25 | CLO4-AQN | 1 | Ctrl Samp | | |
| 2 | Vial 82 | 571095 | LODV@1. | CLO4-AQN | 1 | Ctrl Samp | | |
| 3 | Vial 83 | 571096 | ICS@1. | CLO4-AQN | 1 | Ctrl Samp | | |
| 4 | Vial 84 | 571097 | LMB | CLO4-AQN | 1 | Ctrl Samp | | |
| 5 | Vial 85 | 571098 | LCS@5. | CLO4-AQN | 1 | Ctrl Samp | | |
| 6 | Vial 86 | 1728943001 | | CLO4-AQN | 1 | Sample | | |
| 7 | Vial 87 | 571099 | 289431S | CLO4-AQN | 1 | Sample | | |
| 8 | Vial 88 | 571100 | 289431D | CLO4-AQN | 1 | Sample | | |
| 9 | Vial 89 | 1728945001 | | CLO4-AQN | 1 | Sample | | |
| 10 | Vial 90 | 1728946001 | | CLO4-AQN | 1 | Sample | | |
| 11 | Vial 91 | 1729349001 | | CLO4-AQN | 1 | Sample | | |
| 12 | Vial 71 | 1728946001 | 1K | CLO4-AQN | 1 | Sample | | |
| 13 | Vial 72 | Rinse | | CLO4-AQN | 1 | Sample | | |
| 14 | Vial 92 | 1729821001 | | CLO4-AQN | 1 | Sample | | |
| 15 | Vial 81 | 571101 | CCV@25 | CLO4-AQN | 1 | Ctrl Samp | | |
| 16 | Vial 82 | 571102 | LODV@1. | CLO4-AQN | 1 | Ctrl Samp | | |

Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP01.D  Sample Name: 571094  CCV@25

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 09:02:43 | Seq Line: | 1 |
| Sample Name: | 571094 CCV@25 | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis






S04  Thu, 26. Oct. 2017  08:51:14 am

Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP01.D  Sample Name: 571094  CCV@25

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 09:02:43 | Seq Line: | 1 |
| Sample Name: | 571094 CCV@25 | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 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 |
|---|---|---|---|---|
| 12.453 | PBA | 3480904.8 | 26.4390 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.467 | PBA | 1108132.5 | 27.3167 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.477 | BBA | 507839.4 | 5.0000 | CLO4-89-ISTD |

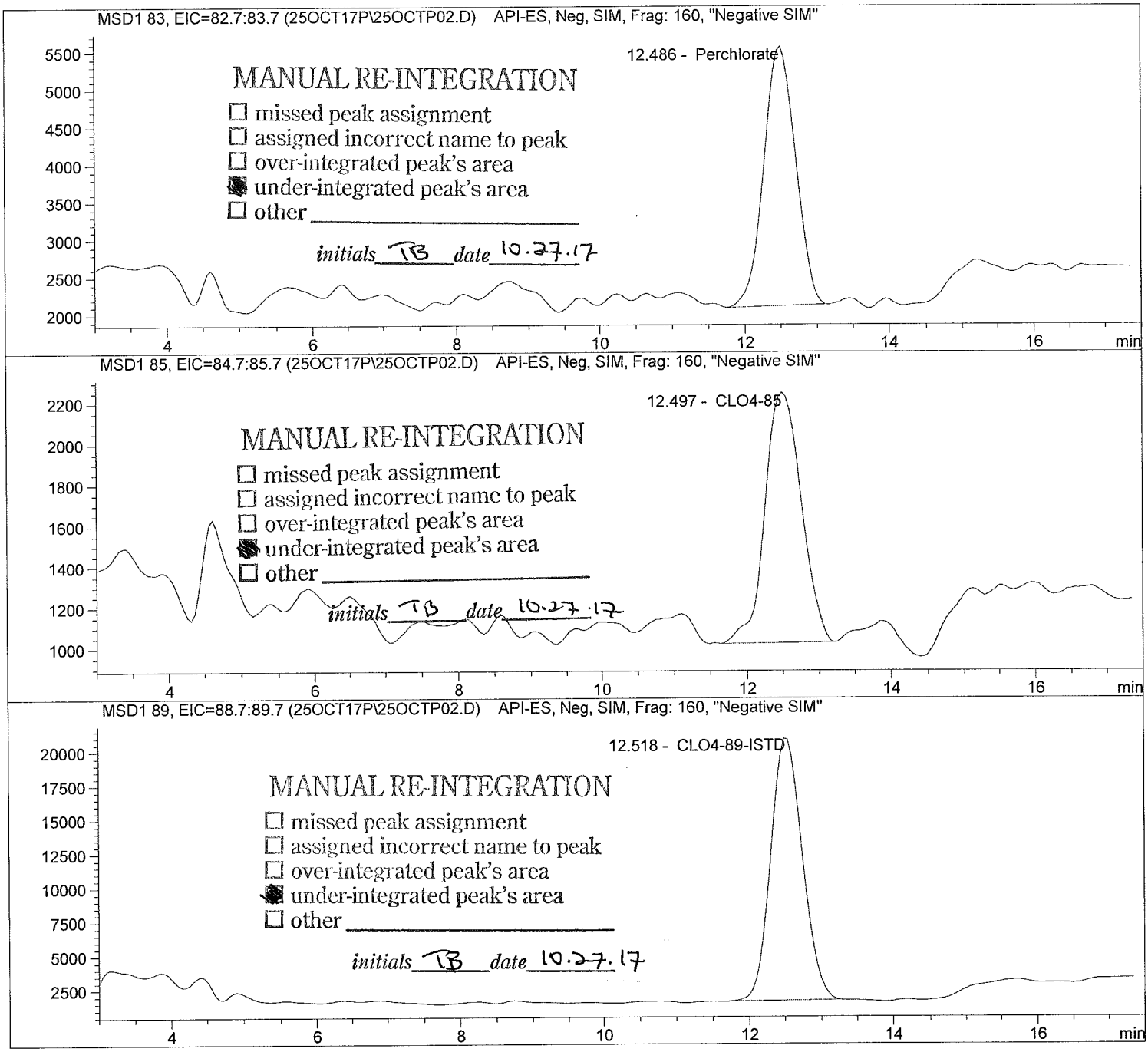
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP02.D  Sample Name: 571095  LODV@1.

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 09:24:24 | Seq Line: | 2 |
| Sample Name: | 571095 LODV@1. | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP02.D  Sample Name: 571095  LODV@1.

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 09:24:24 | Seq Line: | 2 |
| Sample Name: | 571095 LODV@1. | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 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 |
|---|---|---|---|---|
| 12.486 | MM | 105938.9 | 0.8390 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.497 | MM | 42837.6 | 1.0242 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.518 | MM | 587535.4 | 5.0000 | CLO4-89-ISTD |

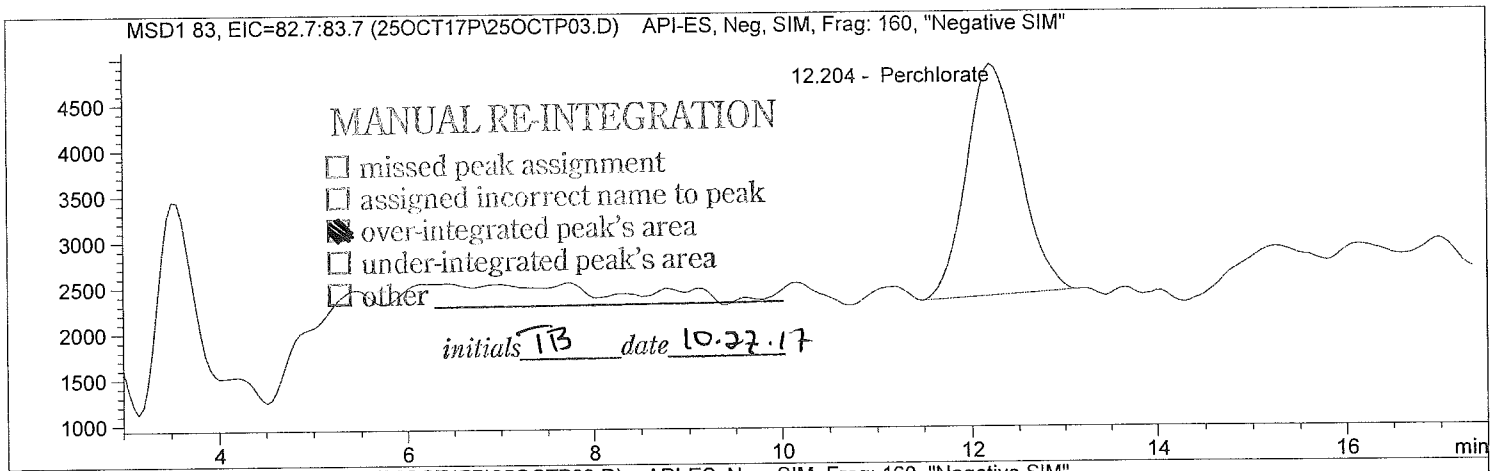
*** End of Report ***

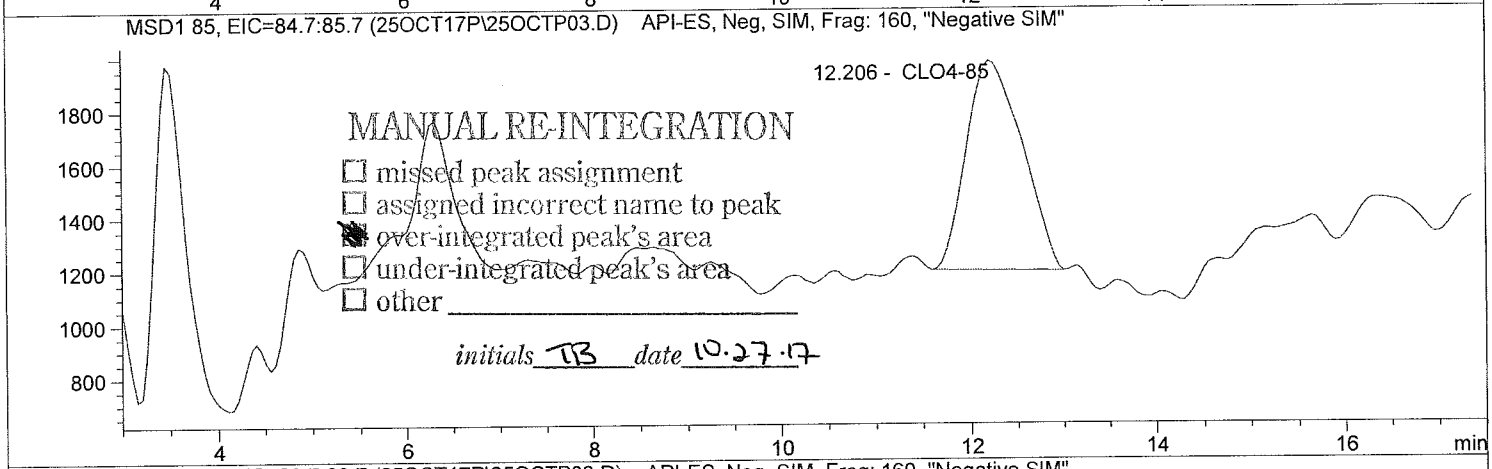
Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP03.D  Sample Name: 571096  ICS@1.

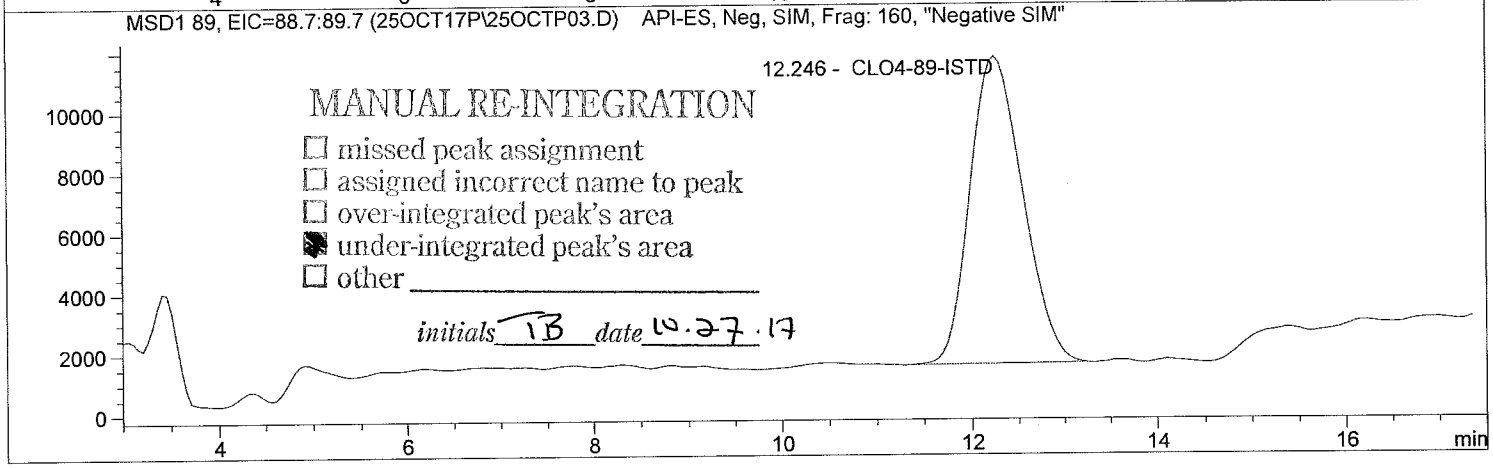
| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 09:43:38 | Seq Line: | 3 |
| Sample Name: | 571096 ICS@1. | Location: | Vial 83 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP03.D  Sample Name: 571096  ICS@1.

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 09:43:38 | Seq Line: | 3 |
| Sample Name: | 571096 ICS@1. | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 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 |
|---|---|---|---|---|
| 12.204 | MM | 98608.5 | 1.1526 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.206 | MM | 32268.7 | 1.1436 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.246 | MM | 396154.9 | 5.0000 | CLO4-89-ISTD |

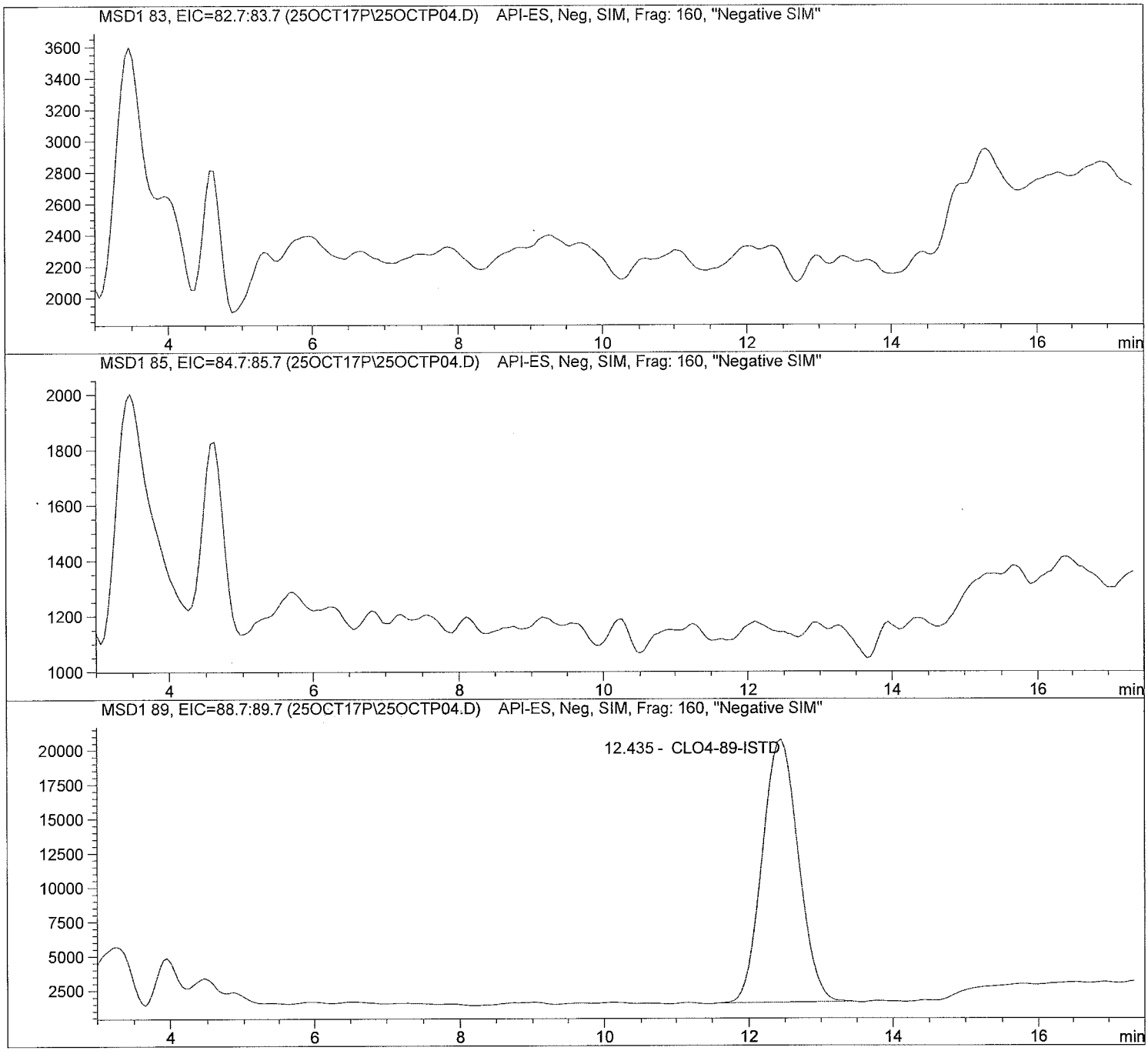
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP04.D  Sample Name: 571097  LMB

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 10:02:51 | Seq Line: | 4 |
| Sample Name: | 571097 LMB | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP04.D  Sample Name: 571097  LMB

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 10:02:51 | Seq Line: | 4 |
| Sample Name: | 571097 LMB | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 12.435 | PBA | 668336.3 | 5.0000 | CLO4-89-ISTD |

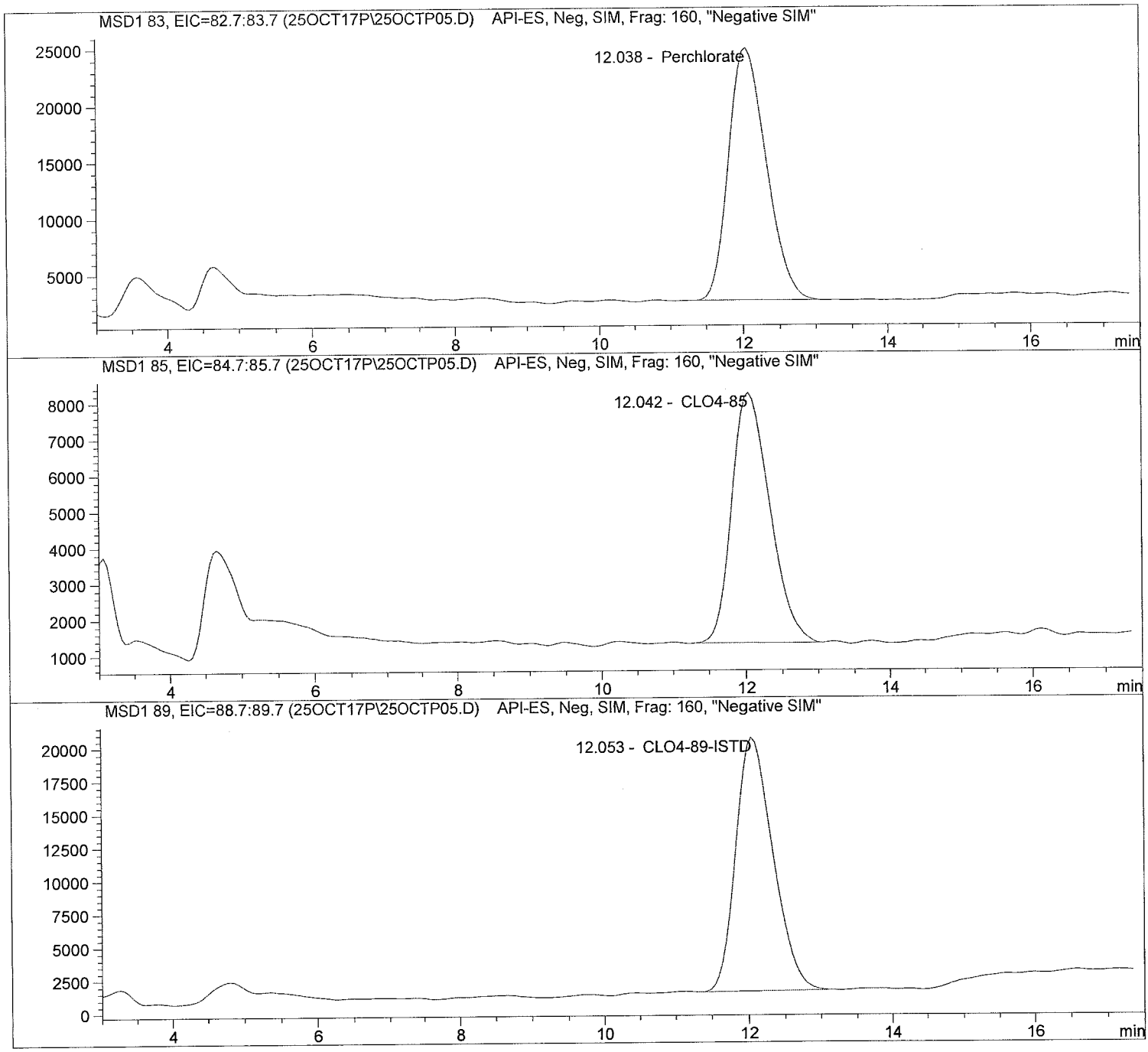
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP05.D  Sample Name: 571098  LCS@5.

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 10:22:05 | Seq Line: | 5 |
| Sample Name: | 571098 LCS@5. | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP05.D  Sample Name: 571098  LCS@5.

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 10:22:05 | Seq Line: | 5 |
| Sample Name: | 571098 LCS@5. | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 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 |
|---|---|---|---|---|
| 12.038 | BBA | 788522.6 | 5.2906 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.042 | PBA | 247122.1 | 5.1179 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.053 | PBA | 665647.0 | 5.0000 | CLO4-89-ISTD |

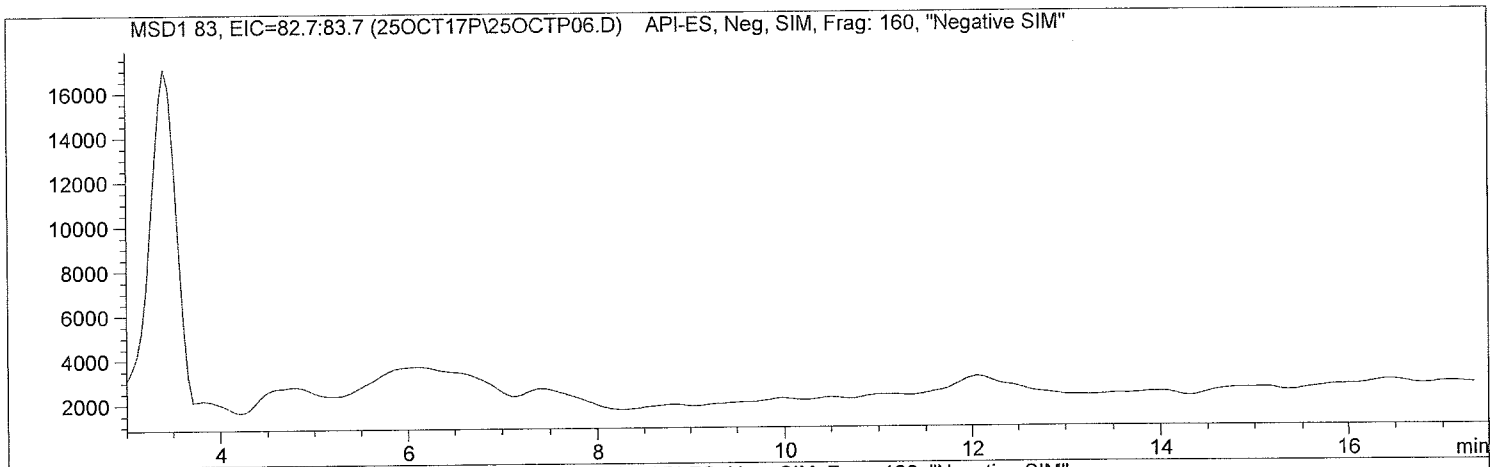
*** End of Report ***

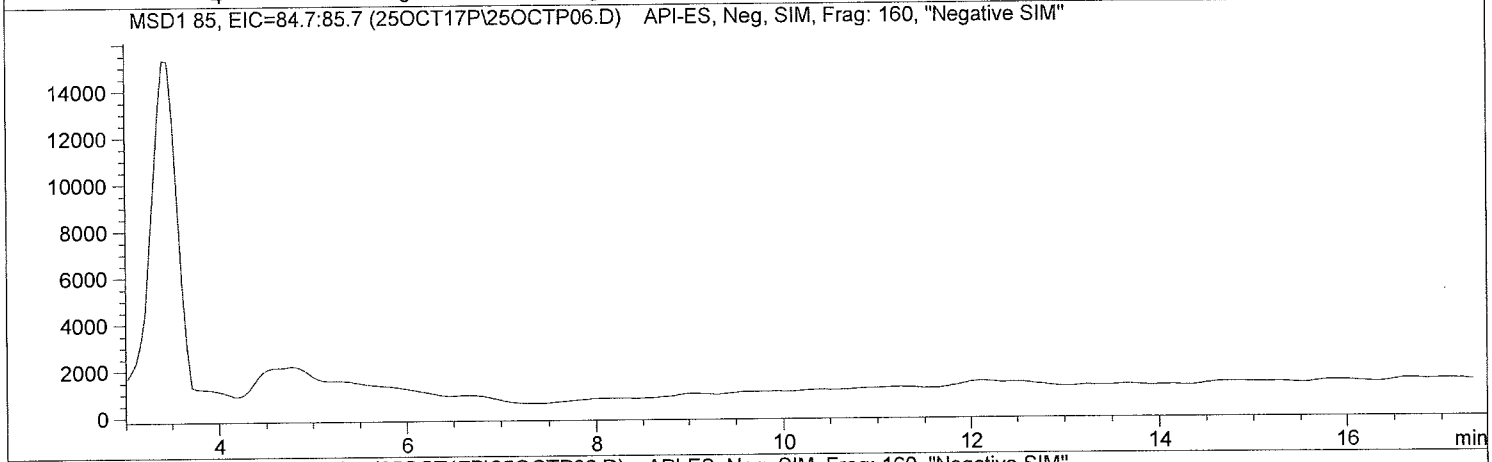
Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP06.D Sample Name: 1728943001

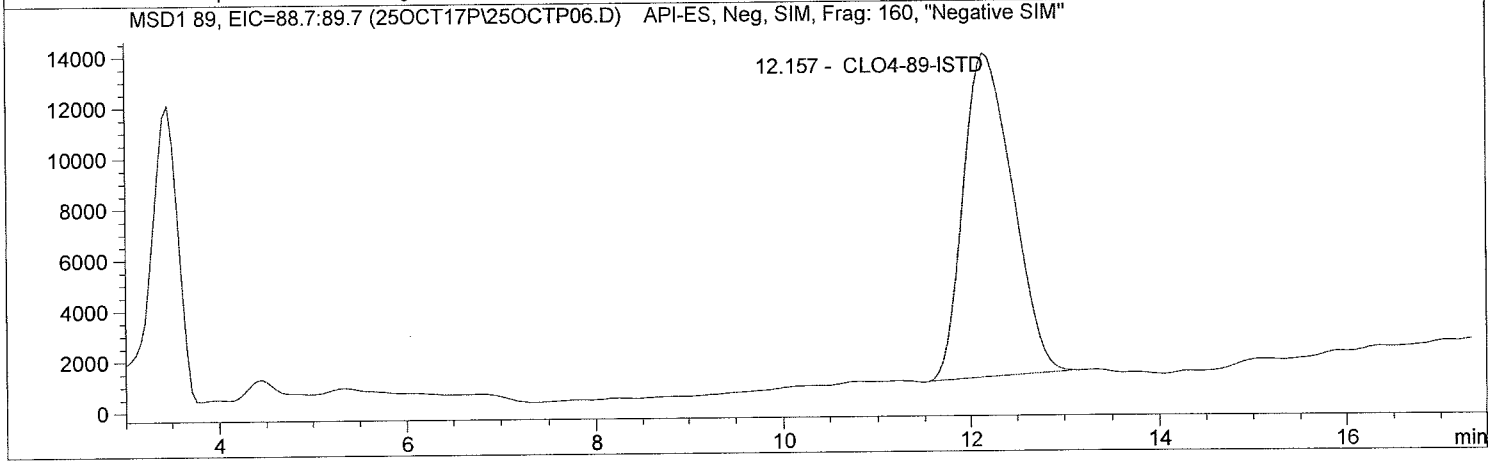
| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 10:44:39 | Seq Line: | 6 |
| Sample Name: | 1728943001 | Location: | Vial 86 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

| | |
|---|---|
| Acq. Method: | CLO4-AQN.M |
| Analysis Method: | C:\HPCHEM\1\METHODS\CLO4-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP06.D  Sample Name: 1728943001

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 10:44:39 | Seq Line: | 6 |
| Sample Name: | 1728943001 | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 12.157 | PBA | 470591.7 | 5.0000 | CLO4-89-ISTD |

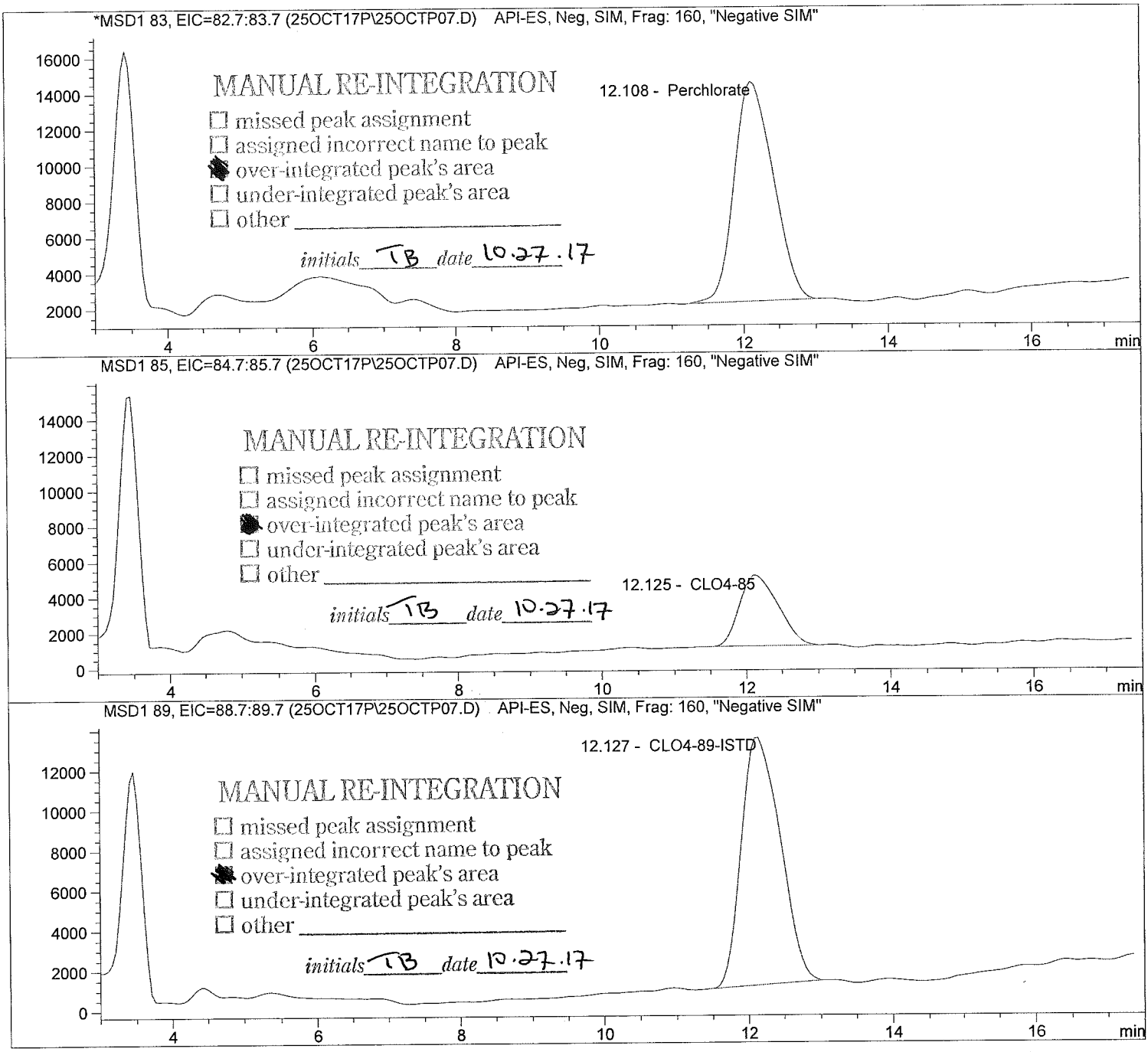
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP07.D Sample Name: 571099 289431S

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 11:03:53 | Seq Line: | 7 |
| Sample Name: | 571099 289431S | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP07.D  Sample Name: 571099  289431S

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 11:03:53 | Seq Line: | 7 |
| Sample Name: | 571099 289431S | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 12.108 | MM | 465290.7 | 4.4787 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.125 | MM | 148406.0 | 4.3961 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.127 | MM | 466917.6 | 5.0000 | CLO4-89-ISTD |

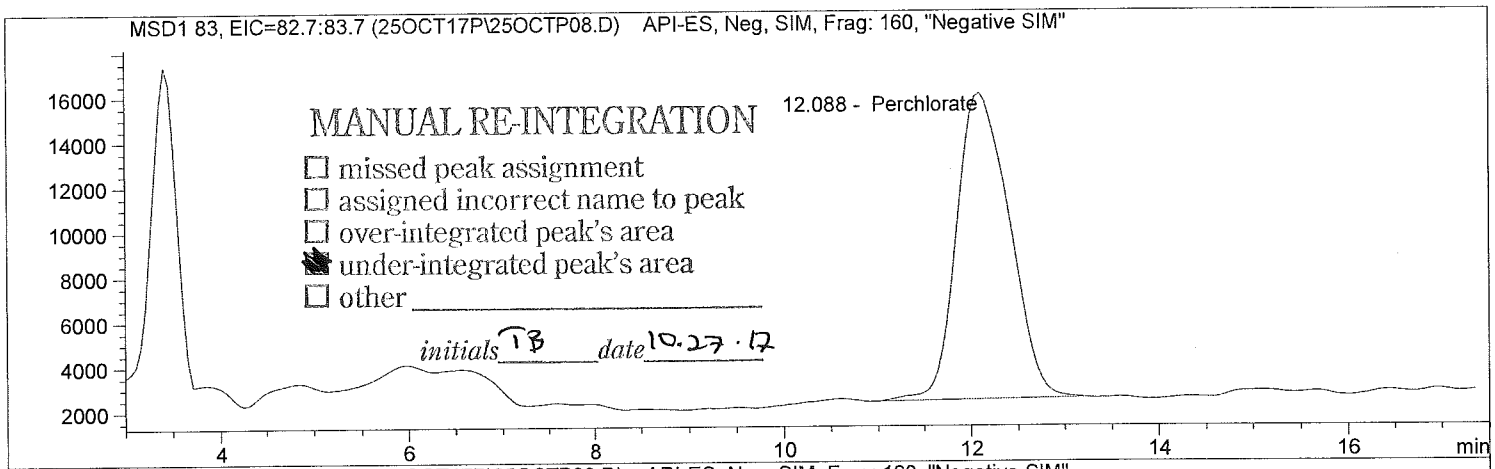
*** End of Report ***

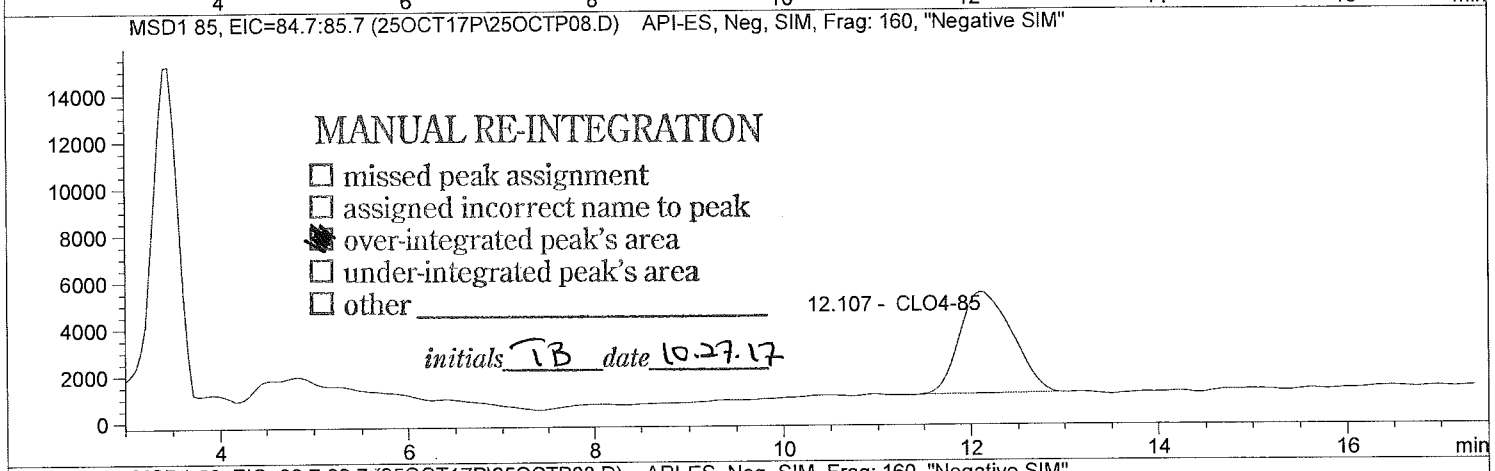
Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP08.D  Sample Name: 571100  289431D

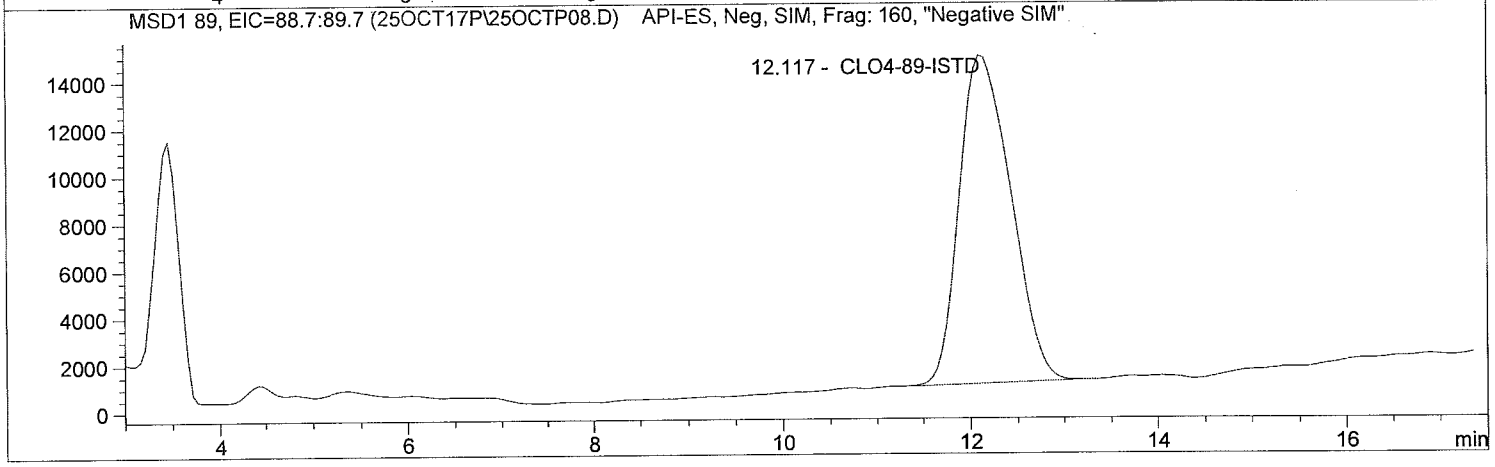
| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 11:23:08 | Seq Line: | 8 |
| Sample Name: | 571100 289431D | Location: | Vial 88 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP08.D  Sample Name: 571100  289431D

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 11:23:08 | Seq Line: | 8 |
| Sample Name: | 571100 289431D | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 12.088 | MM | 527314.1 | 4.5192 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.107 | MM | 166736.0 | 4.3990 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.117 | BBA | 524243.2 | 5.0000 | CLO4-89-ISTD |

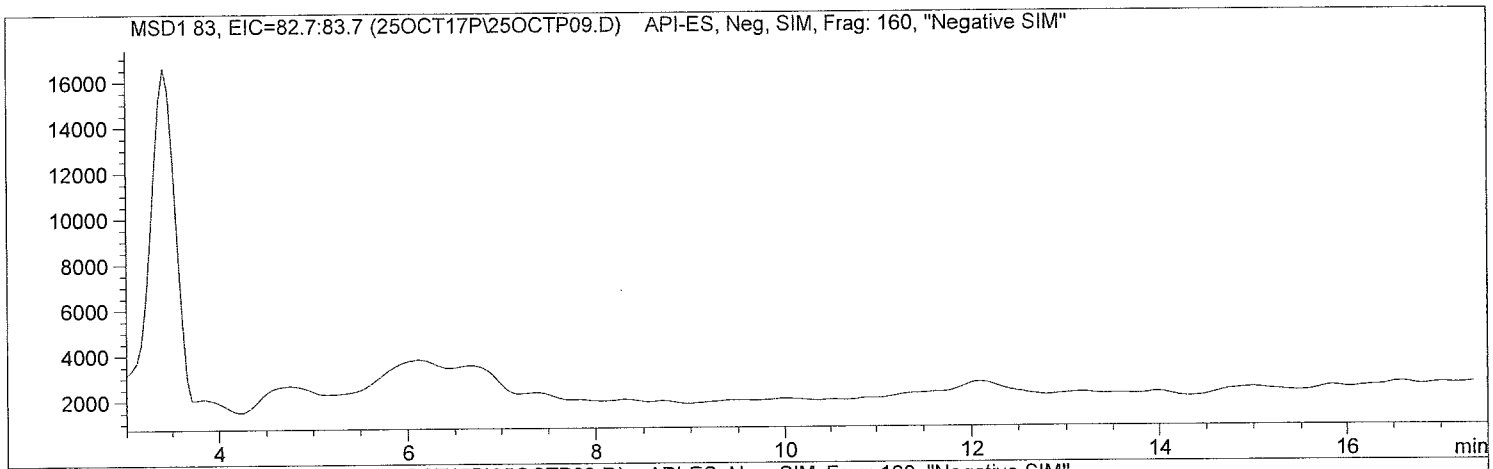
*** End of Report ***

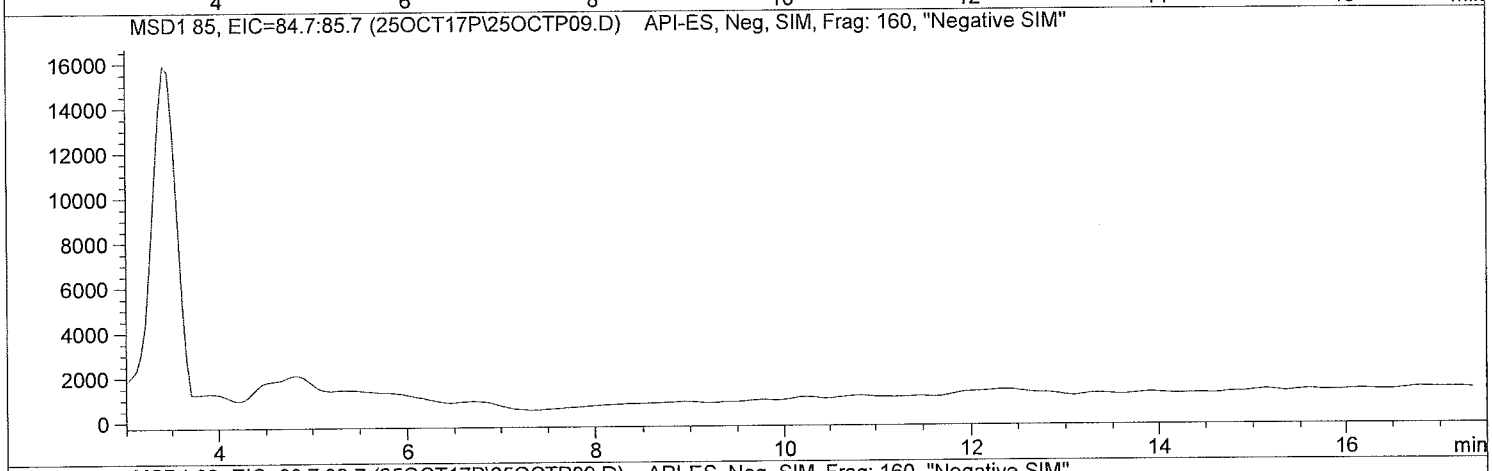
Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP09.D Sample Name: 1728945001

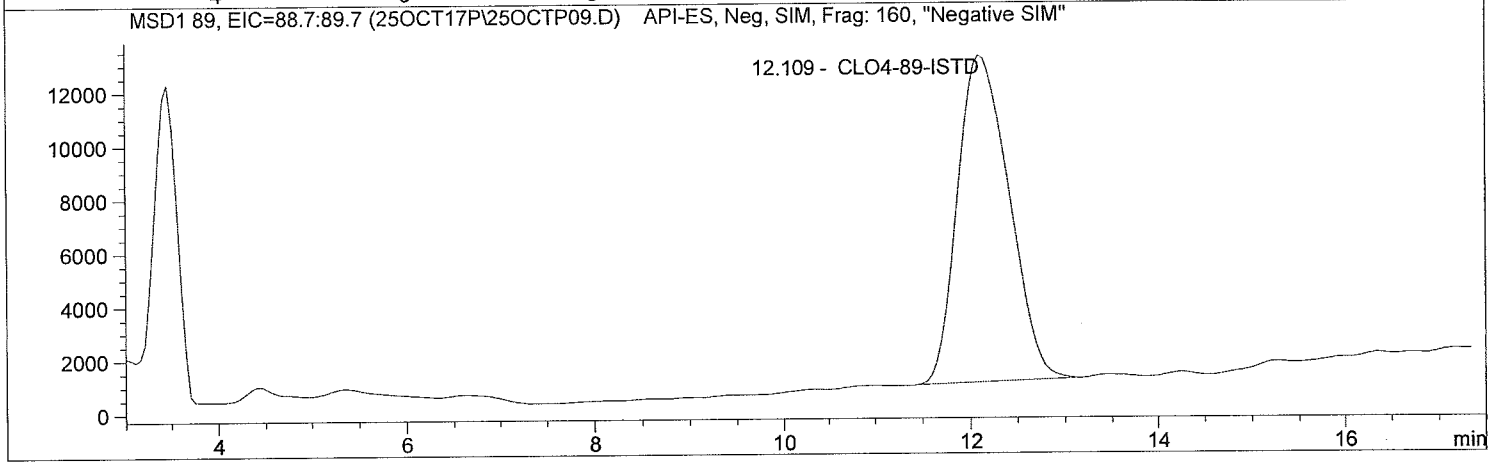
| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 11:43:34 | Seq Line: | 9 |
| Sample Name: | 1728945001 | Location: | Vial 89 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP09.D  Sample Name: 1728945001

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 11:43:34 | Seq Line: | 9 |
| Sample Name: | 1728945001 | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 12.109 | PBA | 460454.9 | 5.0000 | CLO4-89-ISTD |

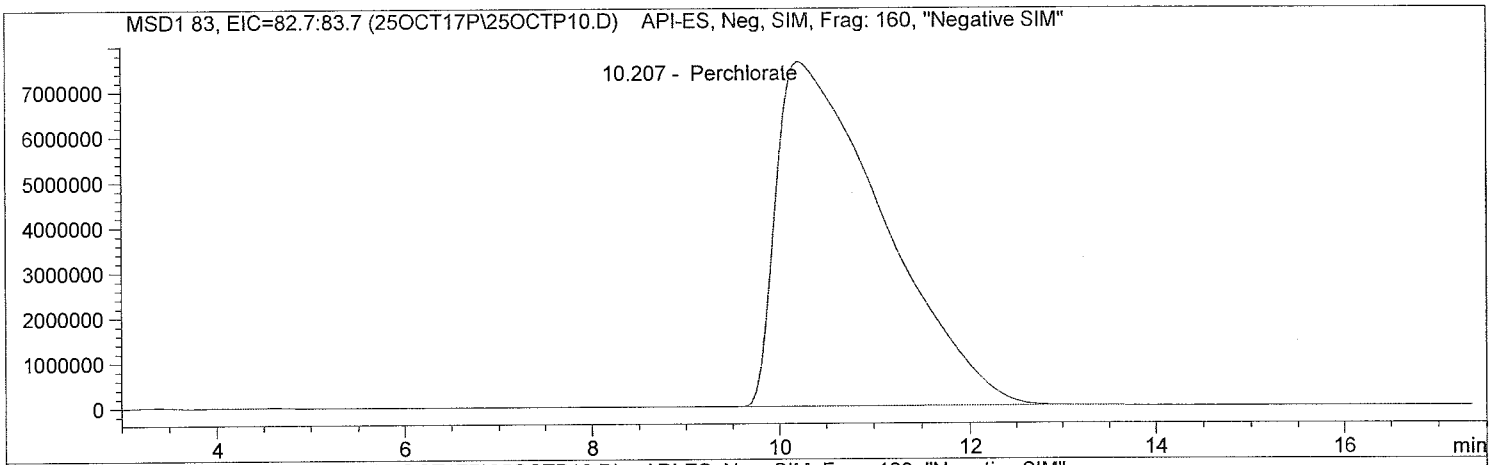
*** End of Report ***

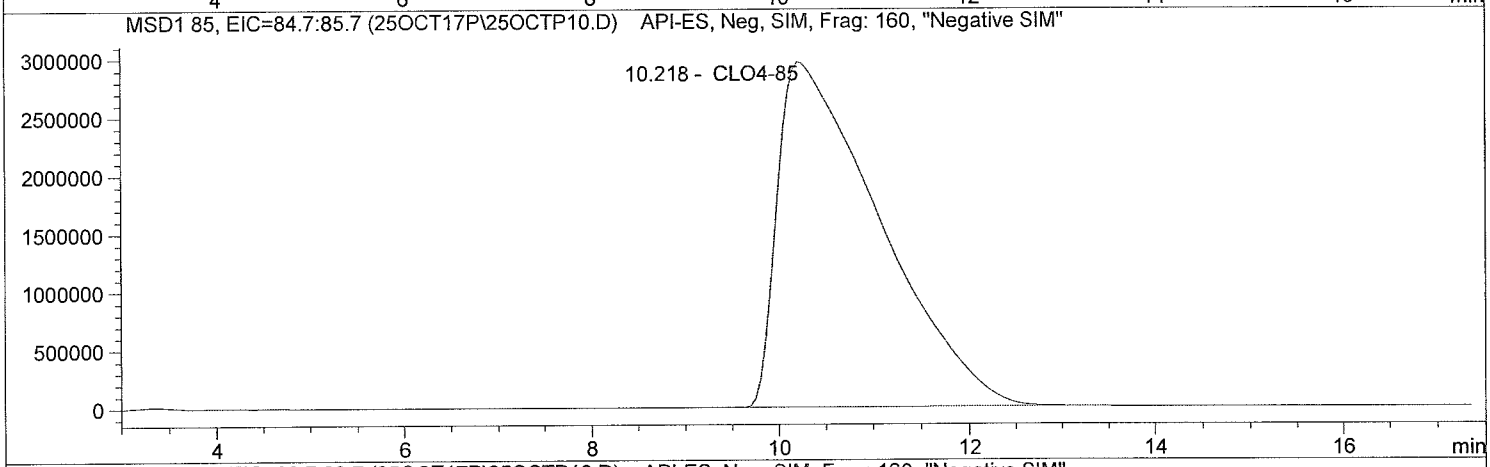
Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP10.D  Sample Name: 1728946001

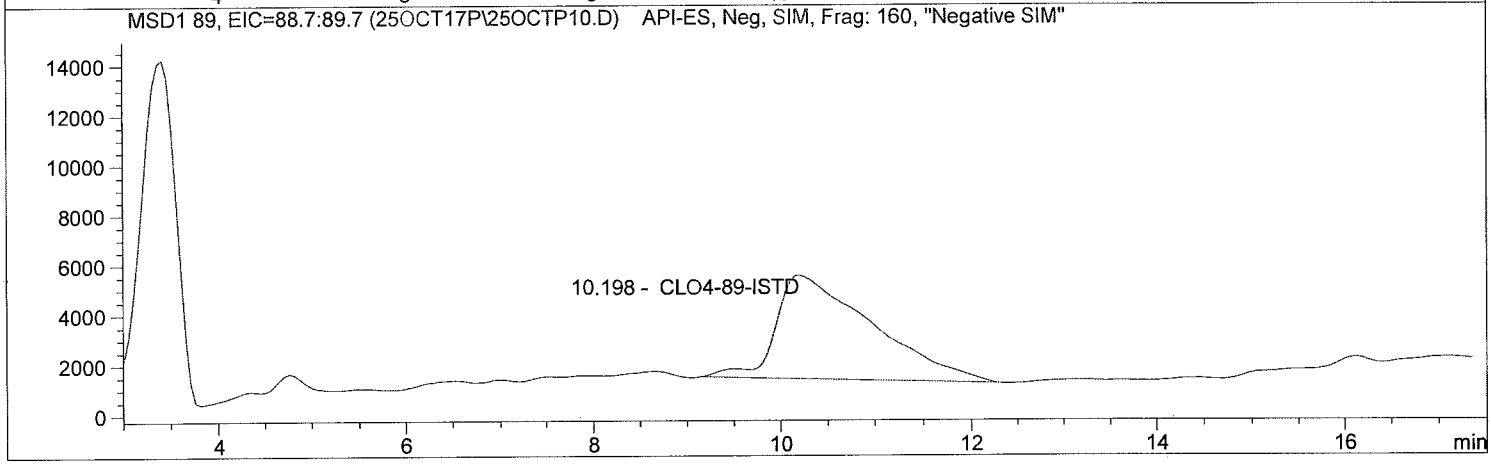
| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 12:02:51 | Seq Line: | 10 |
| Sample Name: | 1728946001 | Location: | Vial 90 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP10.D  Sample Name: 1728946001

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 12:02:51 | Seq Line: | 10 |
| Sample Name: | 1728946001 | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 10.207 | PBA | 598622272.0 | 1043.0336 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 10.218 | PBA | 221715600.0 | 1404.7771 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 10.198 | PBA | 294801.1 | 5.0000 | CLO4-89-ISTD |

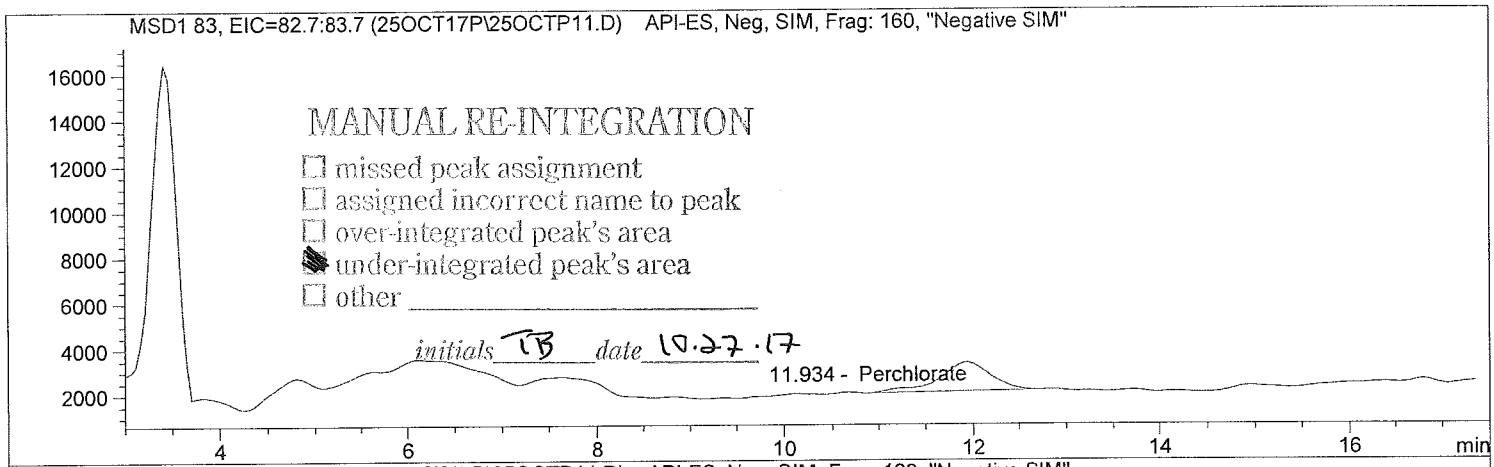
*** End of Report ***

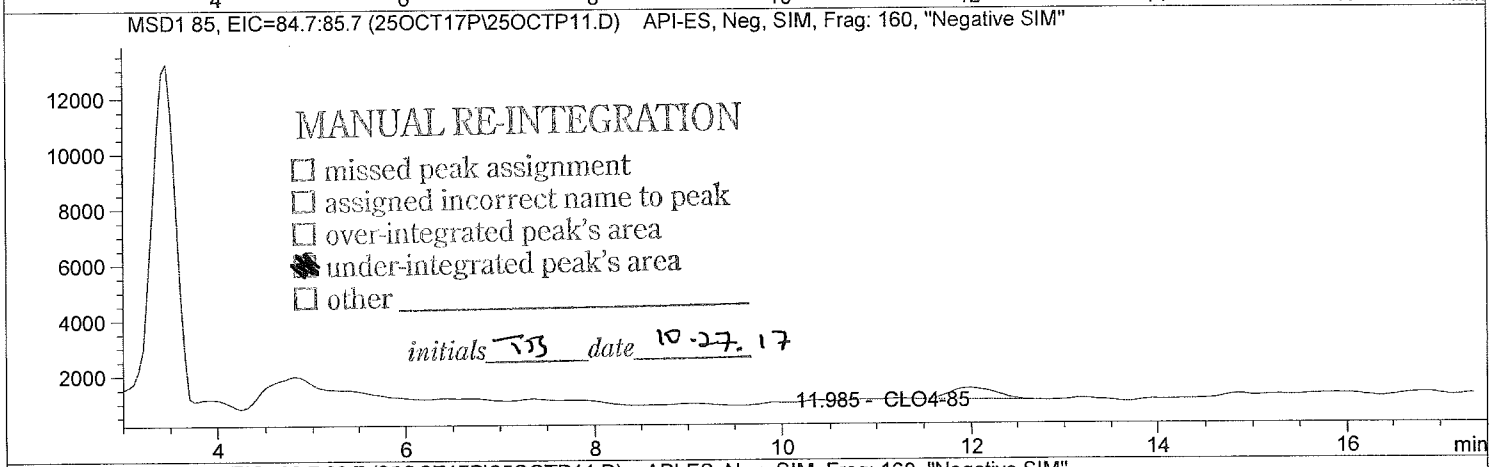
Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP11.D  Sample Name: 1729349001

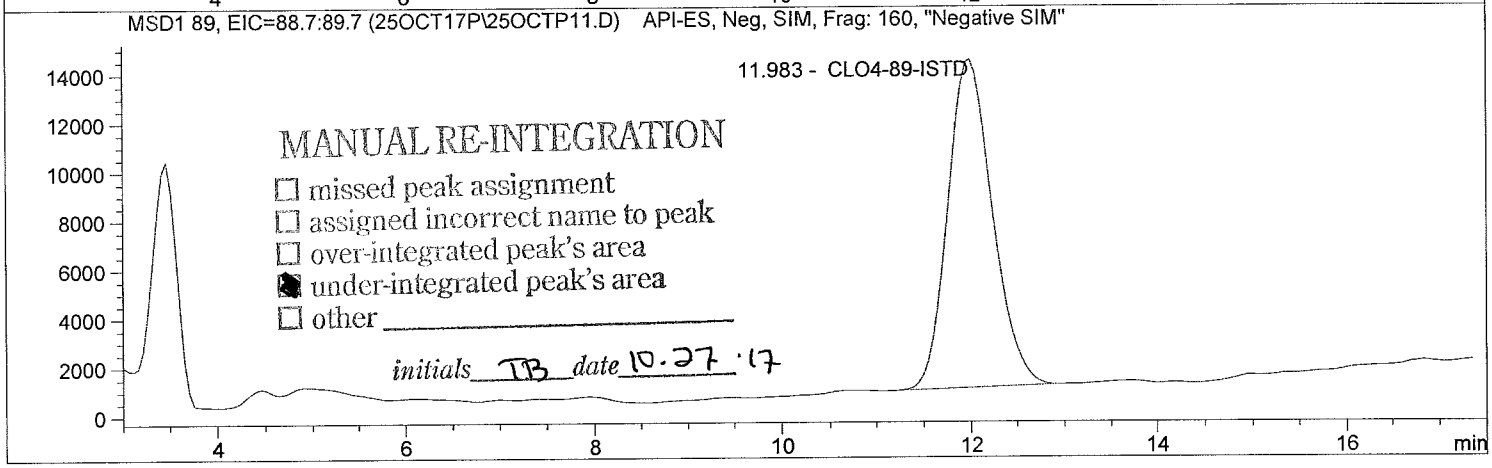
| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 12:22:07 | Seq Line: | 11 |
| Sample Name: | 1729349001 | Location: | Vial 91 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP11.D  Sample Name: 1729349001

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 12:22:07 | Seq Line: | 11 |
| Sample Name: | 1729349001 | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 11.934 | MM | 47998.0 | 0.5039 | Perchlorate |

< RL/MDL

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.985 | MM | 14252.7 | 0.4491 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.983 | MM | 446974.5 | 5.0000 | CLO4-89-ISTD |

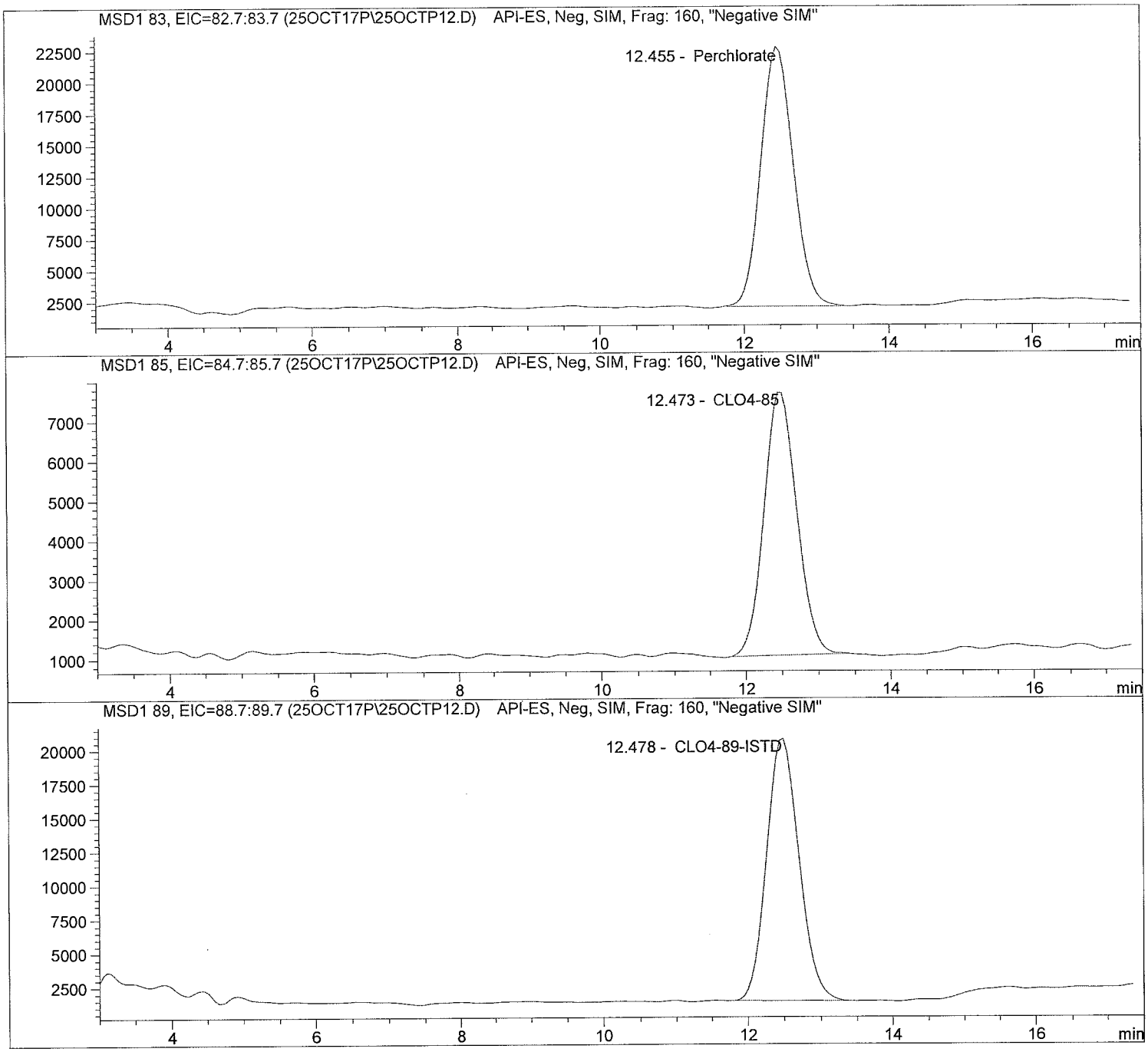
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP12.D  Sample Name: 1728946001  1K

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 12:42:54 | Seq Line: | 12 |
| Sample Name: | 1728946001 1K | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP12.D Sample Name: 1728946001 1K

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 12:42:54 | Seq Line: | 12 |
| Sample Name: | 1728946001 1K | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 12.455 | BBA | 641885.6 | 4805.6841 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.473 | PBA | 207772.7 | 4790.7437 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.478 | BBA | 598771.3 | 5000.0000 | CLO4-89-ISTD |

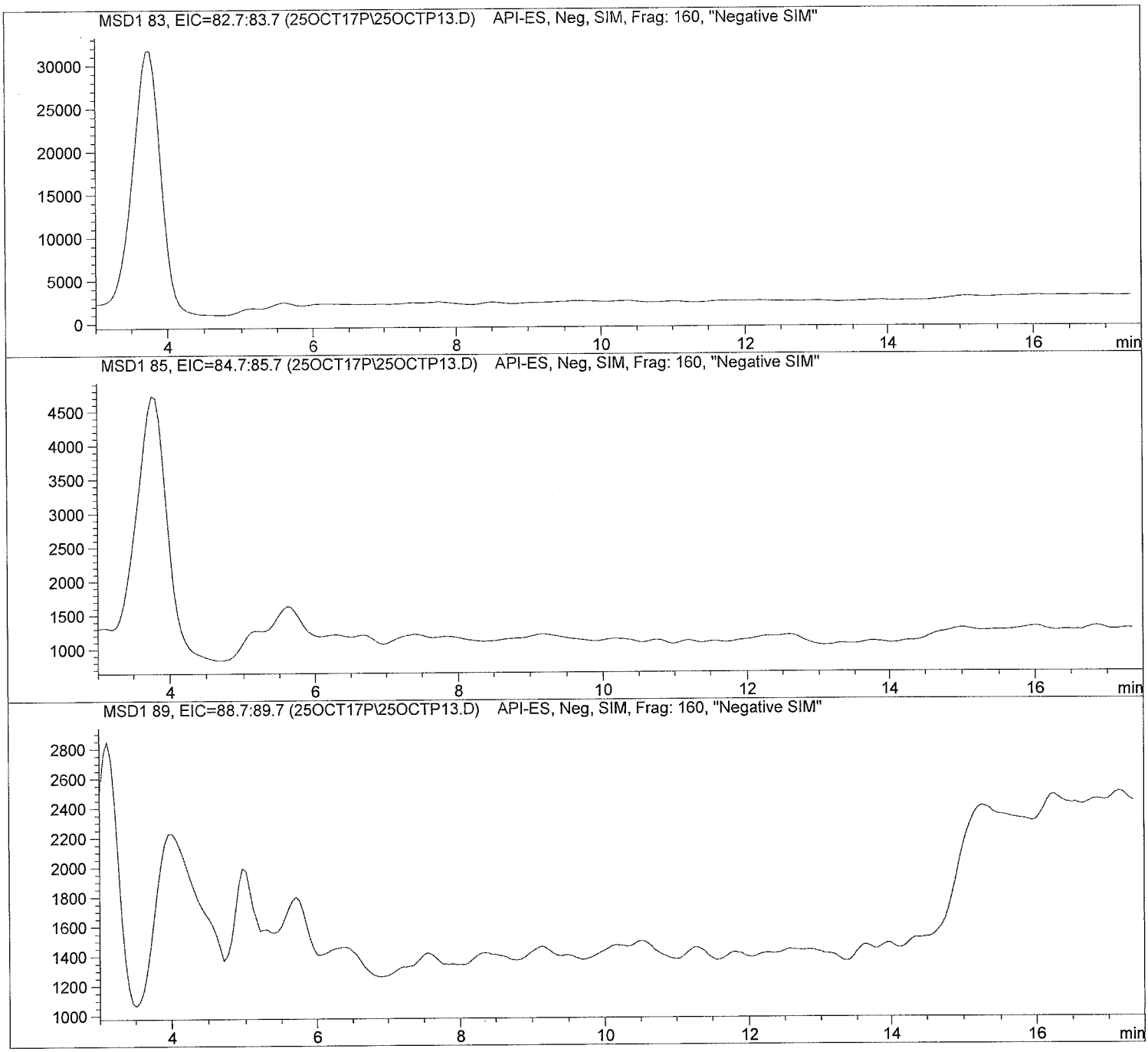
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP13.D  Sample Name: Rinse

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 13:02:08 | Seq Line: | 13 |
| Sample Name: | Rinse | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP13.D Sample Name: Rinse

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 13:02:08 | Seq Line: | 13 |
| Sample Name: | Rinse | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 0.000 | | 0.0 | 0.0000 | CLO4-89-ISTD |

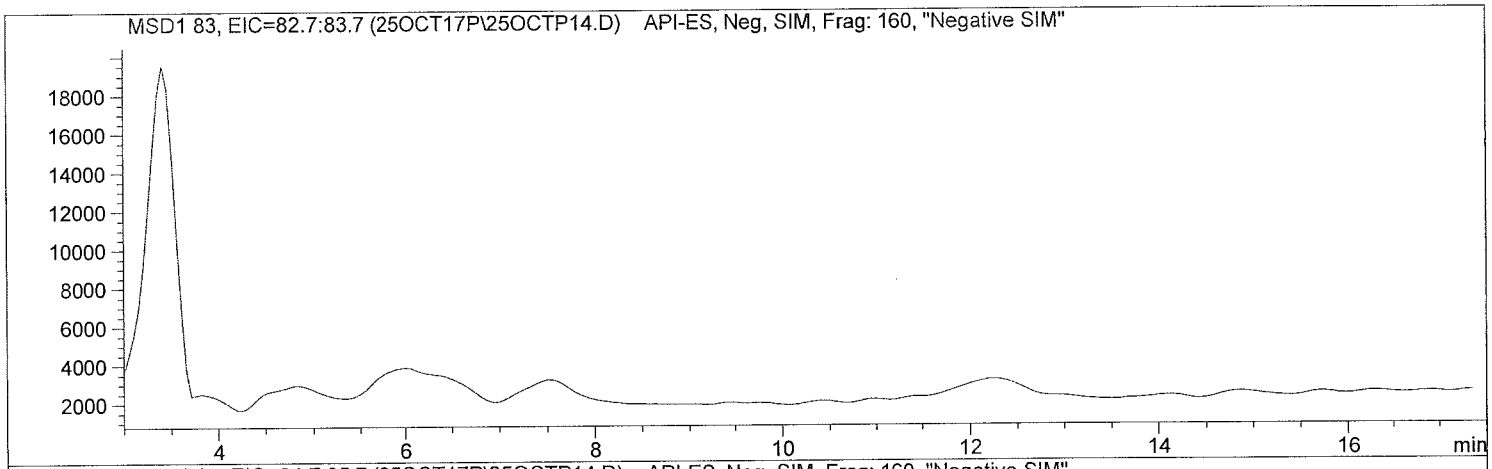
*** End of Report ***

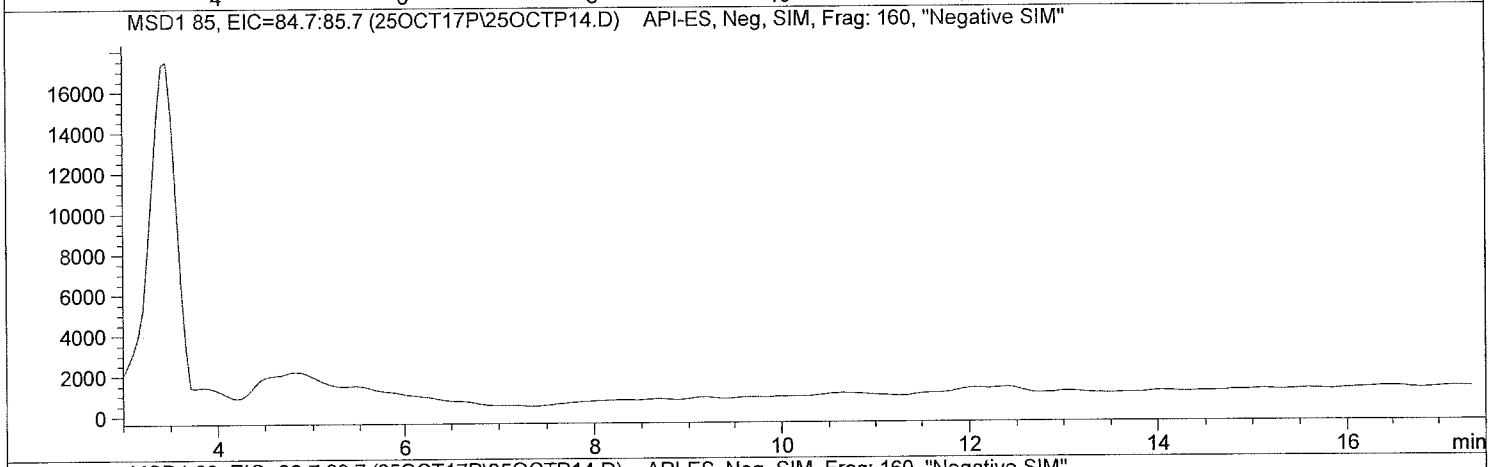
Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP14.D Sample Name: 1729821001

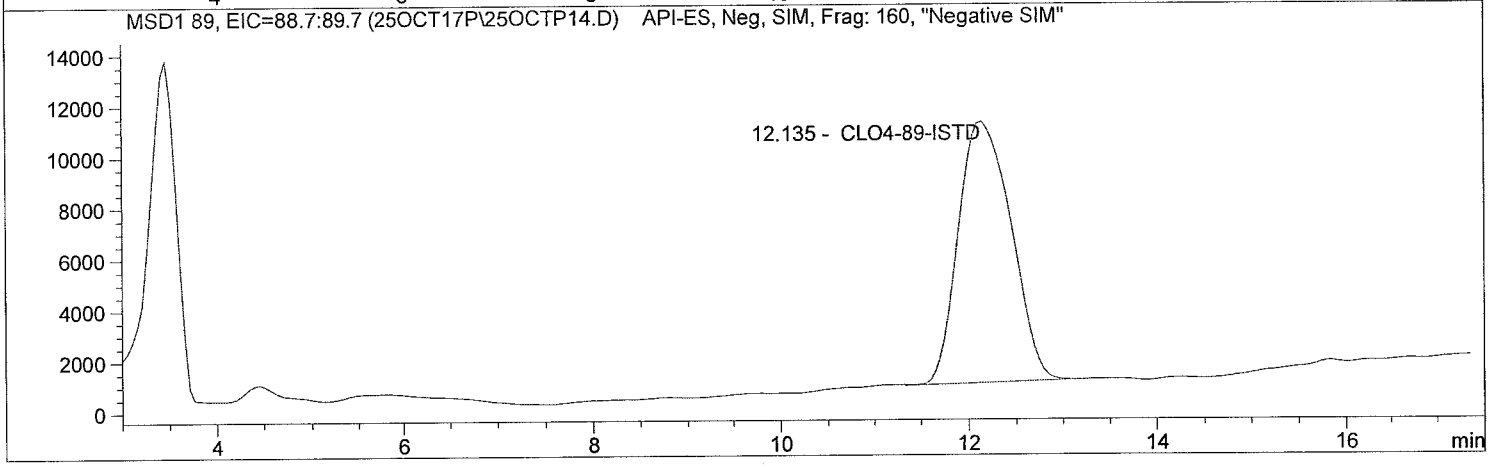
| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 13:21:24 | Seq Line: | 14 |
| Sample Name: | 1729821001 | Location: | Vial 92 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP14.D  Sample Name: 1729821001

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 13:21:24 | Seq Line: | 14 |
| Sample Name: | 1729821001 | Location: | Vial 92 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

| | |
|---|---|
| Acq. Method: | CLO4-AQN.M |
| Analysis Method: | C:\HPCHEM\1\METHODS\CLO4-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 12.135 | BBA | 392983.3 | 5.0000 | CLO4-89-ISTD |

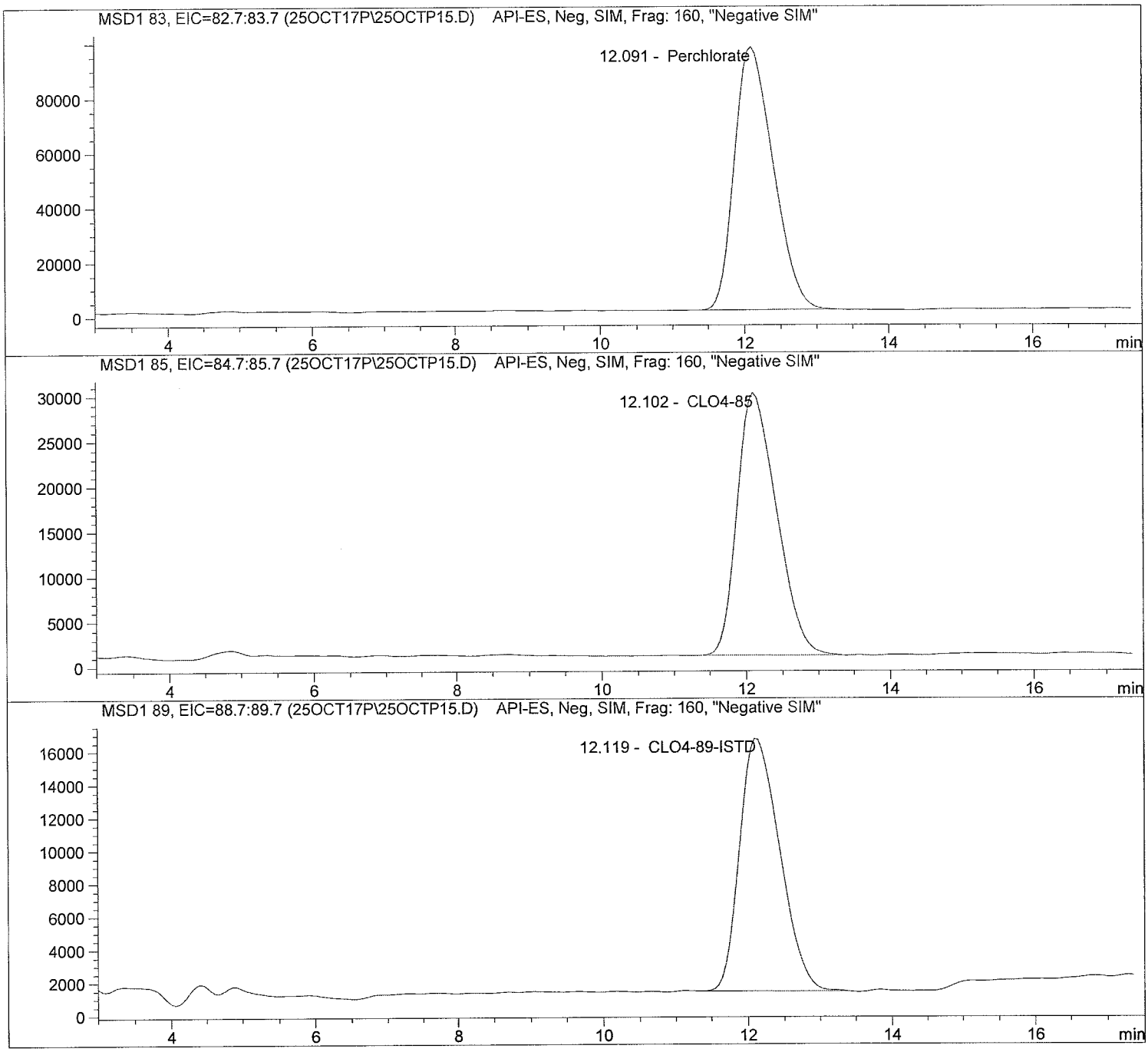
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP15.D  Sample Name: 571101  CCV@25

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 14:46:57 | Seq Line: | 15 |
| Sample Name: | 571101 CCV@25 | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP15.D  Sample Name: 571101  CCV@25

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 14:46:57 | Seq Line: | 15 |
| Sample Name: | 571101 CCV@25 | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 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 |
|---|---|---|---|---|
| 12.091 | BBA | 3560409.2 | 23.8177 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.102 | PBA | 1092944.3 | 23.6862 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.119 | BBA | 586464.6 | 5.0000 | CLO4-89-ISTD |

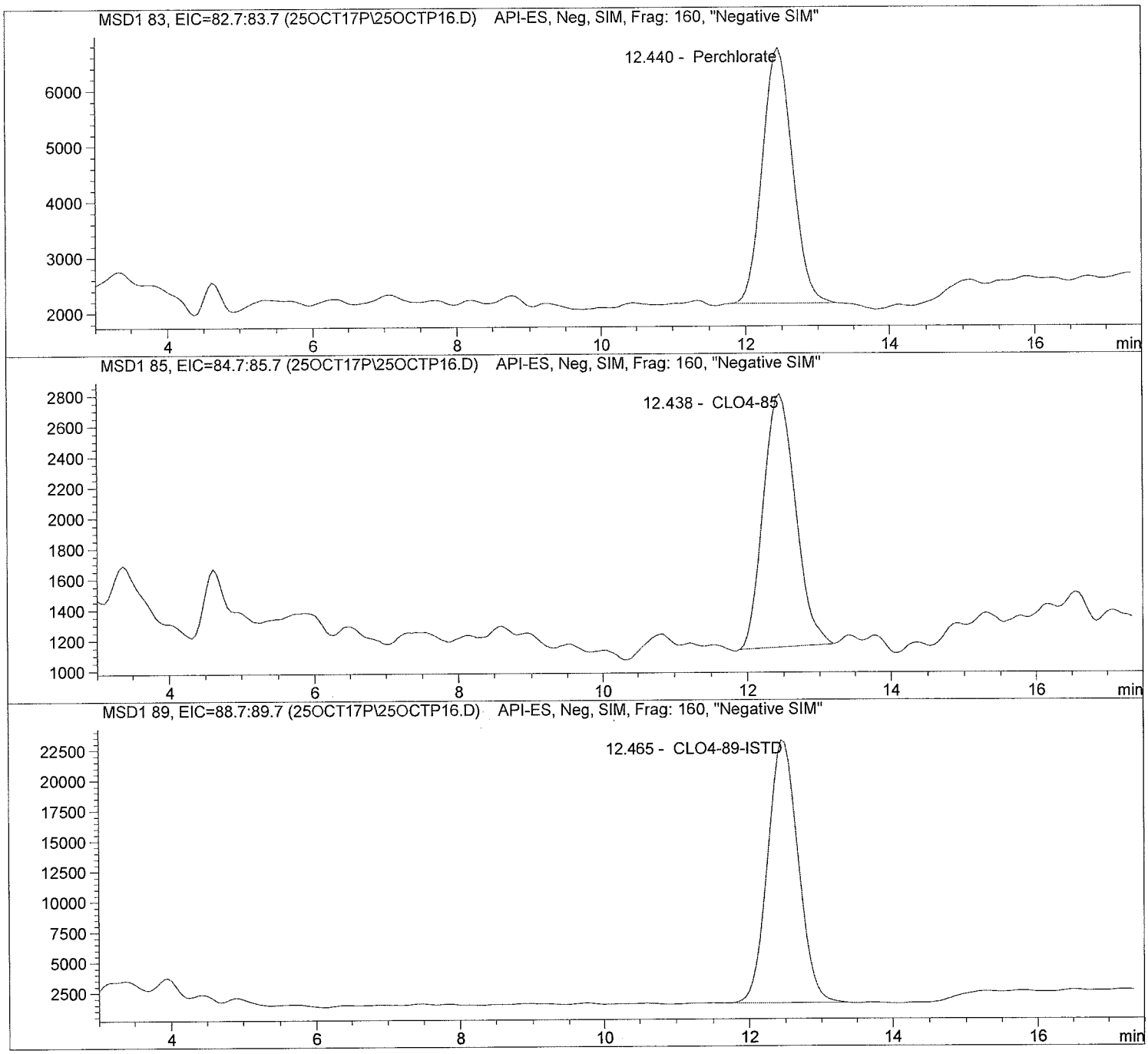
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP16.D  Sample Name: 571102  LODV@1.

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 15:06:11 | Seq Line: | 16 |
| Sample Name: | 571102 LODV@1. | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP16.D  Sample Name: 571102  LODV@1.

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 15:06:11 | Seq Line: | 16 |
| Sample Name: | 571102 LODV@1. | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 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 |
|---|---|---|---|---|
| 12.440 | PBA | 132751.2 | 0.9676 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.438 | PBA | 51323.1 | 1.1313 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.465 | BBA | 636963.2 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

# Raw Data

## Initial Calibration

Batch Report: C:\HPCHEM\1\DATA\21AUG17P\21AUG17P.B

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-PR3.M

['#' ==> Run has not been reprocessed with Batch Review Method
'*' ==> Run has been saved with batch file]

| #* | Sample Location | Inj | SampleType | Run | CLO4-85 Area | CLO4-85 RT | CLO4-85 Amount |
|---|---|---|---|---|---|---|---|
| * | ICAL1@ .05ug/L Vial 71 | 1 | Control | 1 | 4365.90820 | 12.226 | 9.14000e-2 |
| * | ICAL2@ .10ug/L Vial 72 | 1 | Control | 2 | 9514.03027 | 12.210 | 2.01141e-1 |
| * | ICAL3@ .20ug/L Vial 73 | 1 | Control | 3 | 1.35331e4 | 12.236 | 2.88584e-1 |
| * | ICAL4@ 0.5ug/L Vial 74 | 1 | Control | 4 | 2.76171e4 | 12.161 | 5.95393e-1 |
| * | ICAL5@ 1.0ug/L Vial 75 | 1 | Control | 5 | 4.75097e4 | 12.226 | 1.01731 |
| * | ICAL6@ 5.0ug/L Vial 76 | 1 | Control | 6 | 2.30426e5 | 12.209 | 5.01082 |
| * | ICAL7@ 10.ug/L Vial 77 | 1 | Control | 7 | 4.46570e5 | 12.212 | 9.64041 |
| * | ICAL8@ 25.ug/L Vial 78 | 1 | Control | 8 | 1.19993e6 | 12.134 | 25.19412 |
| * | ICAL9@ 50.ug/L Vial 79 | 1 | Control | 9 | 2.60933e6 | 12.150 | 49.96977 |
| * | ICAL Verf@10ug/L Vial 80 | 1 | Control | 10 | 4.49703e5 | 12.232 | 9.41499 |

| #* | Sample Location | Inj | SampleType | Run | Perchlorate Area | Perchlorate RT | Perchlorate Amount |
|---|---|---|---|---|---|---|---|
| * | ICAL1@ .05ug/L Vial 71 | 1 | Control | 1 | 8930.38184 | 12.237 | 6.88583e-2 |
| * | ICAL2@ .10ug/L Vial 72 | 1 | Control | 2 | 1.15052e4 | 12.248 | 8.73938e-2 |
| * | ICAL3@ .20ug/L Vial 73 | 1 | Control | 3 | 2.62111e4 | 12.238 | 1.91166e-1 |
| * | ICAL4@ 0.5ug/L Vial 74 | 1 | Control | 4 | 6.28912e4 | 12.159 | 4.52946e-1 |
| * | ICAL5@ 1.0ug/L Vial 75 | 1 | Control | 5 | 1.30706e5 | 12.231 | 9.25591e-1 |
| * | ICAL6@ 5.0ug/L Vial 76 | 1 | Control | 6 | 6.80205e5 | 12.200 | 4.80762 |
| * | ICAL7@ 10.ug/L Vial 77 | 1 | Control | 7 | 1.41057e6 | 12.196 | 9.74126 |
| * | ICAL8@ 25.ug/L Vial 78 | 1 | Control | 8 | 4.00474e6 | 12.118 | 25.78802 |
| * | ICAL9@ 50.ug/L Vial 79 | 1 | Control | 9 | 8.85683e6 | 12.137 | 49.73658 |
| * | ICAL Verf@10ug/L Vial 80 | 1 | Control | 10 | 1.36065e6 | 12.218 | 9.14332 |

| #* | Sample Location | Inj | SampleType | Run | CLO4-89-ISTD Area | CLO4-89-ISTD RT | CLO4-89-ISTD Amount |
|---|---|---|---|---|---|---|---|
| * | ICAL1@ .05ug/L Vial 71 | 1 | Control | 1 | 6.73943e5 | 12.272 | 5.00000 |
| * | ICAL2@ .10ug/L Vial 72 | 1 | Control | 2 | 6.67016e5 | 12.250 | 5.00000 |
| * | ICAL3@ .20ug/L Vial 73 | 1 | Control | 3 | 6.61031e5 | 12.267 | 5.00000 |
| * | ICAL4@ 0.5ug/L Vial 74 | 1 | Control | 4 | 6.52904e5 | 12.190 | 5.00000 |
| * | ICAL5@ 1.0ug/L Vial 75 | 1 | Control | 5 | 6.56071e5 | 12.242 | 5.00000 |
| * | ICAL6@ 5.0ug/L Vial 76 | 1 | Control | 6 | 6.34251e5 | 12.221 | 5.00000 |
| * | ICAL7@ 10.ug/L Vial 77 | 1 | Control | 7 | 6.25689e5 | 12.216 | 5.00000 |
| * | ICAL8@ 25.ug/L Vial 78 | 1 | Control | 8 | 6.01523e5 | 12.141 | 5.00000 |
| * | ICAL9@ 50.ug/L Vial 79 | 1 | Control | 9 | 5.97661e5 | 12.156 | 5.00000 |
| * | ICAL Verf@10ug/L Vial 80 | 1 | Control | 10 | 6.45815e5 | 12.234 | 5.00000 |

*** End of Report ***

Method C:\HPCHEM\1\METHODS\CLO4-PR3.M

## Calibration Table

Perchlorate

Calib. Data Modified : 8/21/2017 2:55:52 PM

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 |
|---|---|---|---|---|---|---|---|---|
| 12.226 | 2 | 1 | 5.00000e-2 | 4365.90820 | 1.14524e-5 | | 1 | CLO4-85 |
| | | 2 | 1.00000e-1 | 9514.03027 | 1.05108e-5 | | | |
| | | 3 | 2.00000e-1 | 1.35331e4 | 1.47786e-5 | | | |
| | | 4 | 5.00000e-1 | 2.76171e4 | 1.81047e-5 | | | |
| | | 5 | 1.00000 | 4.75097e4 | 2.10483e-5 | | | |
| | | 6 | 5.00000 | 2.30426e5 | 2.16990e-5 | | | |
| | | 7 | 10.00000 | 4.46570e5 | 2.23929e-5 | | | |
| | | 8 | 25.00000 | 1.19993e6 | 2.08345e-5 | | | |
| | | 9 | 50.00000 | 2.60933e6 | 1.91620e-5 | | | |
| 12.237 | 1 | 1 | 5.00000e-2 | 8930.38184 | 5.59886e-6 | | 1 | Perchlorate |
| | | 2 | 1.00000e-1 | 1.15052e4 | 8.69173e-6 | | | |
| | | 3 | 2.00000e-1 | 2.62111e4 | 7.63037e-6 | | | |
| | | 4 | 5.00000e-1 | 6.28912e4 | 7.95024e-6 | | | |
| | | 5 | 1.00000 | 1.30706e5 | 7.65074e-6 | | | |
| | | 6 | 5.00000 | 6.80205e5 | 7.35073e-6 | | | |
| | | 7 | 10.00000 | 1.41057e6 | 7.08933e-6 | | | |
| | | 8 | 25.00000 | 4.00474e6 | 6.24259e-6 | | | |
| | | 9 | 50.00000 | 8.85683e6 | 5.64536e-6 | | | |
| 12.272 | 3 | 1 | 5.00000 | 6.73943e5 | 7.41903e-6 | +I1 | | CLO4-89-ISTD |
| | | 2 | 5.00000 | 6.67016e5 | 7.49607e-6 | | | |

Method C:\HPCHEM\1\METHODS\CLO4-PR3.M

| RetTime [min] | Lvl | Amount | Area | Amt/Area | Ref | Grp | Name |
|---|---|---|---|---|---|---|---|
| Sig | | | | | | | |
| | 3 | 5.00000 | 6.61031e5 | 7.56394e-6 | | | |
| | 4 | 5.00000 | 6.52904e5 | 7.65809e-6 | | | |
| | 5 | 5.00000 | 6.56071e5 | 7.62113e-6 | | | |
| | 6 | 5.00000 | 6.34251e5 | 7.88331e-6 | | | |
| | 7 | 5.00000 | 6.25689e5 | 7.99119e-6 | | | |
| | 8 | 5.00000 | 6.01523e5 | 8.31223e-6 | | | |
| | 9 | 5.00000 | 5.97661e5 | 8.36594e-6 | | | |

More compound-specific settings:

Compound: CLO4-85
- Time Window : From 10.676 min To 13.166 min
- Curve Type : Quadratic
- Origin : Forced
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 1
  - Level 3 : 1
  - Level 4 : 1
  - Level 5 : 1
  - Level 6 : 1
  - Level 7 : 1
  - Level 8 : 1
  - Level 9 : 1

Compound: Perchlorate
- Time Window : From 10.737 min To 13.198 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 0.5
  - Level 3 : 0.25
  - Level 4 : 0.1
  - Level 5 : 0.05
  - Level 6 : 0.01
  - Level 7 : 0.005
  - Level 8 : 0.002
  - Level 9 : 0.001

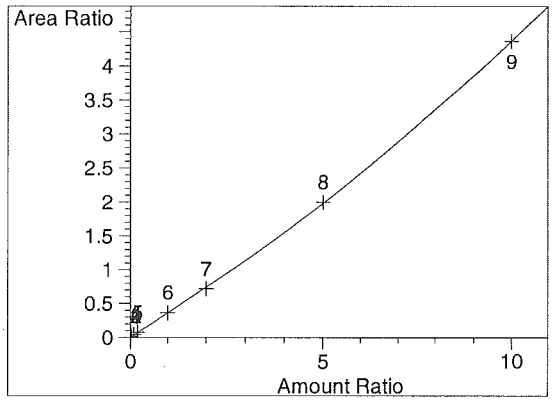
Compound: CLO4-89-ISTD
- Time Window : From 10.704 min To 13.272 min
- Curve Type : Linear
- Origin : Included
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 1
  - Level 3 : 1
  - Level 4 : 1
  - Level 5 : 1
  - Level 6 : 1
  - Level 7 : 1
  - Level 8 : 1
  - Level 9 : 1

Peak Sum Table

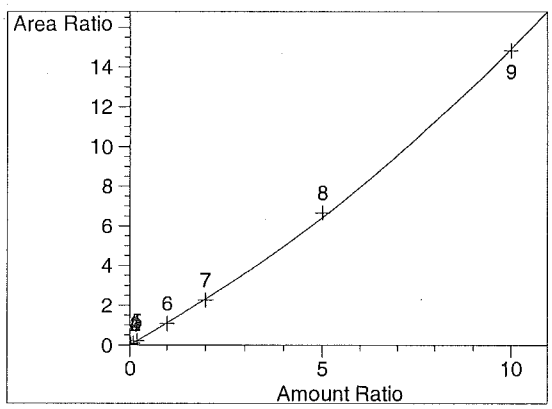
***No Entries in table***

Method C:\HPCHEM\1\METHODS\CLO4-PR3.M

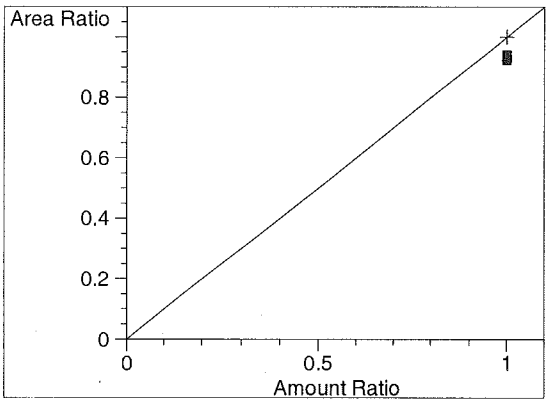
## Calibration Curves




CLO4-85 at exp. RT: 12.226
MSD1 85, EIC=84.7:85.7
Correlation: 0.99997
Residual Std. Dev.: 0.01235
Formula: $y = ax^2 + bx$
a: 8.26698e-3
b: 3.54234e-1
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
Level 8 : 1
Level 9 : 1




Perchlorate at exp. RT: 12.237
MSD1 83, EIC=82.7:83.7
Correlation: 0.99970
Residual Std. Dev.: 0.10168
Formula: $y = ax^2 + bx + c$
a: 4.14991e-2
b: 1.07712
c: -1.59065e-3
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.5
Level 3 : 0.25
Level 4 : 0.1
Level 5 : 0.05
Level 6 : 0.01
Level 7 : 0.005
Level 8 : 0.002
Level 9 : 0.001




CLO4-89-ISTD at exp. RT: 12.272
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
Level 8 : 1
Level 9 : 1

Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2017\AUG\21AUG17P.S

Sequence Table:

Method and Injection Info Part:

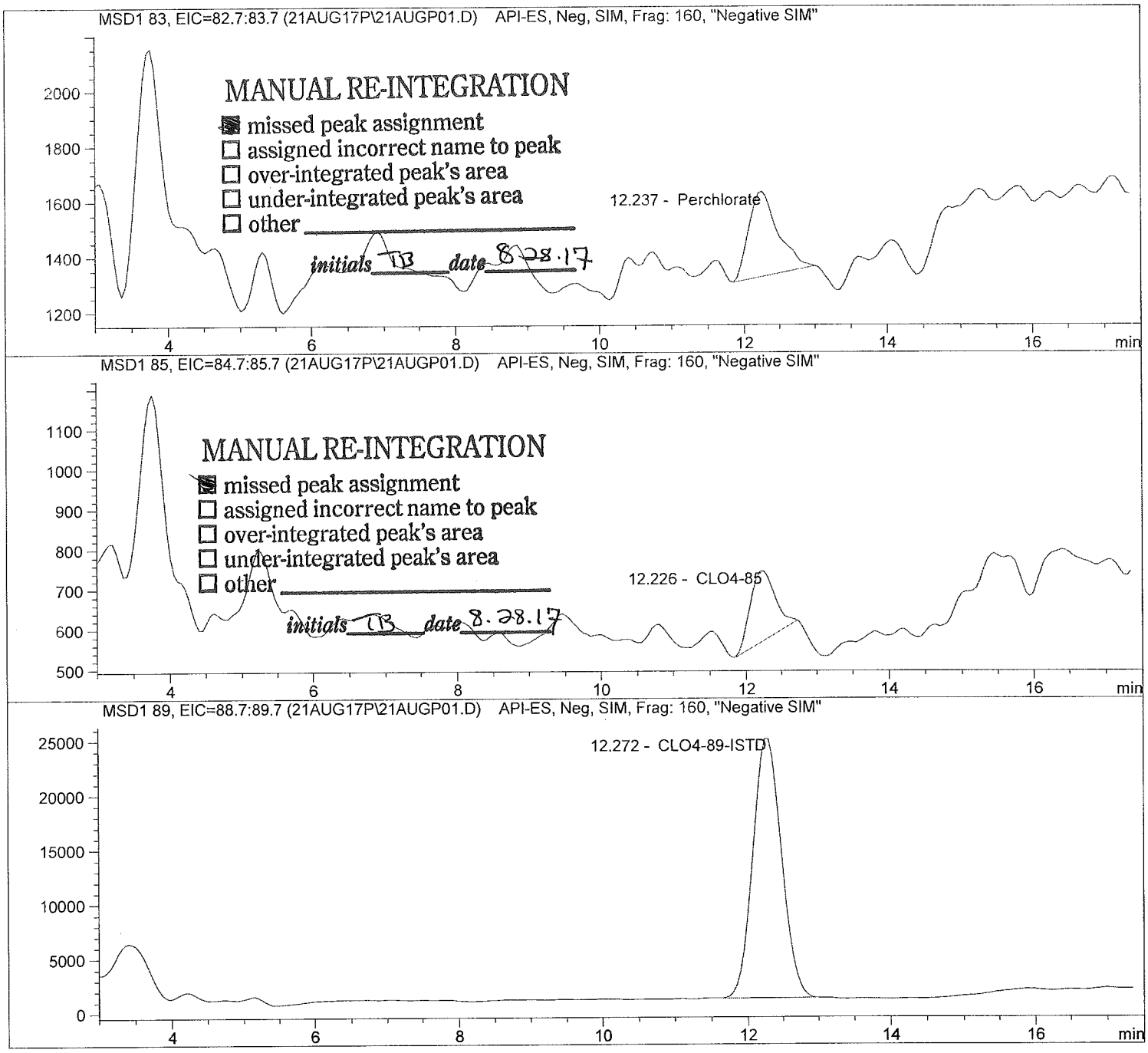
| Line | Location | SampleName | Method | Inj | SampleType | InjVolume | DataFile |
|---|---|---|---|---|---|---|---|
| 1 | Vial 71 | ICAL1@ .05ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 2 | Vial 72 | ICAL2@ .10ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 3 | Vial 73 | ICAL3@ .20ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 4 | Vial 74 | ICAL4@ 0.5ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 5 | Vial 75 | ICAL5@ 1.0ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 6 | Vial 76 | ICAL6@ 5.0ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 7 | Vial 77 | ICAL7@ 10.ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 8 | Vial 78 | ICAL8@ 25.ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 9 | Vial 79 | ICAL9@ 50.ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 10 | Vial 80 | ICAL Verf@10ug/L | CLO4-AQN | 1 | Ctrl Samp | | |

Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP01.D  Sample Name: ICAL1@ .05ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 09:42:32 | Seq Line: | 1 |
| Sample Name: | ICAL1@ .05ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis






S04 Mon, 28. Aug. 2017 03:58:06 pm

Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP01.D  Sample Name: ICAL1@ .05ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 09:42:32 | Seq Line: | 1 |
| Sample Name: | ICAL1@ .05ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.050 |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.237 | MM | 8930.4 | 0.0689 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.226 | MM | 4365.9 | 0.0914 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.272 | BBA | 673942.9 | 5.0000 | CLO4-89-ISTD |

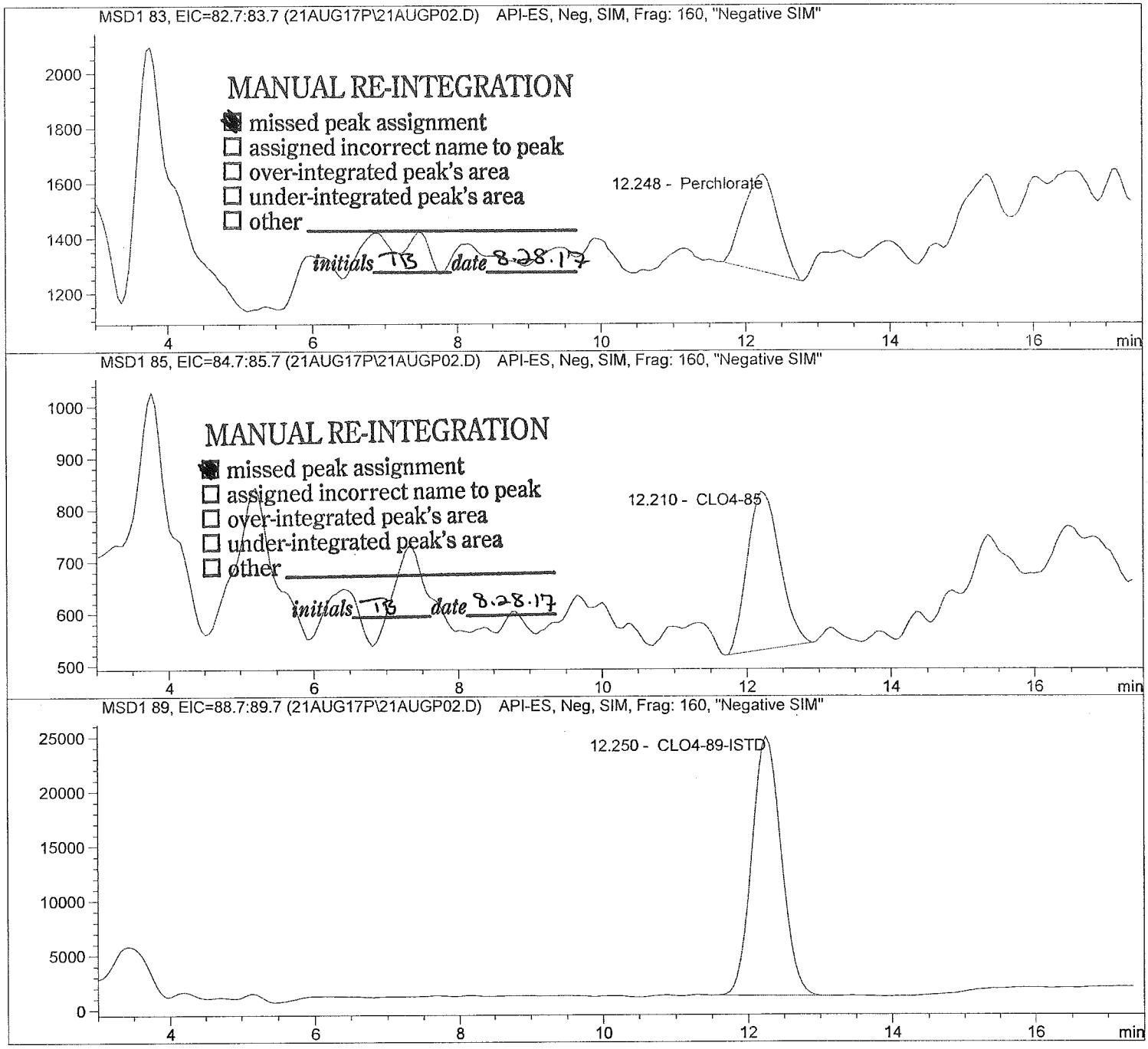
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP02.D  Sample Name: ICAL2@ .10ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:01:47 | Seq Line: | 2 |
| Sample Name: | ICAL2@ .10ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP02.D  Sample Name: ICAL2@ .10ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:01:47 | Seq Line: | 2 |
| Sample Name: | ICAL2@ .10ug/L | 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-PR3.M |
| Last Changed: | 8/21/2017 14:55:53 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.100 |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.248 | MM | 11505.2 | 0.0874 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.210 | MM | 9514.0 | 0.2011 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.250 | BBA | 667016.3 | 5.0000 | CLO4-89-ISTD |

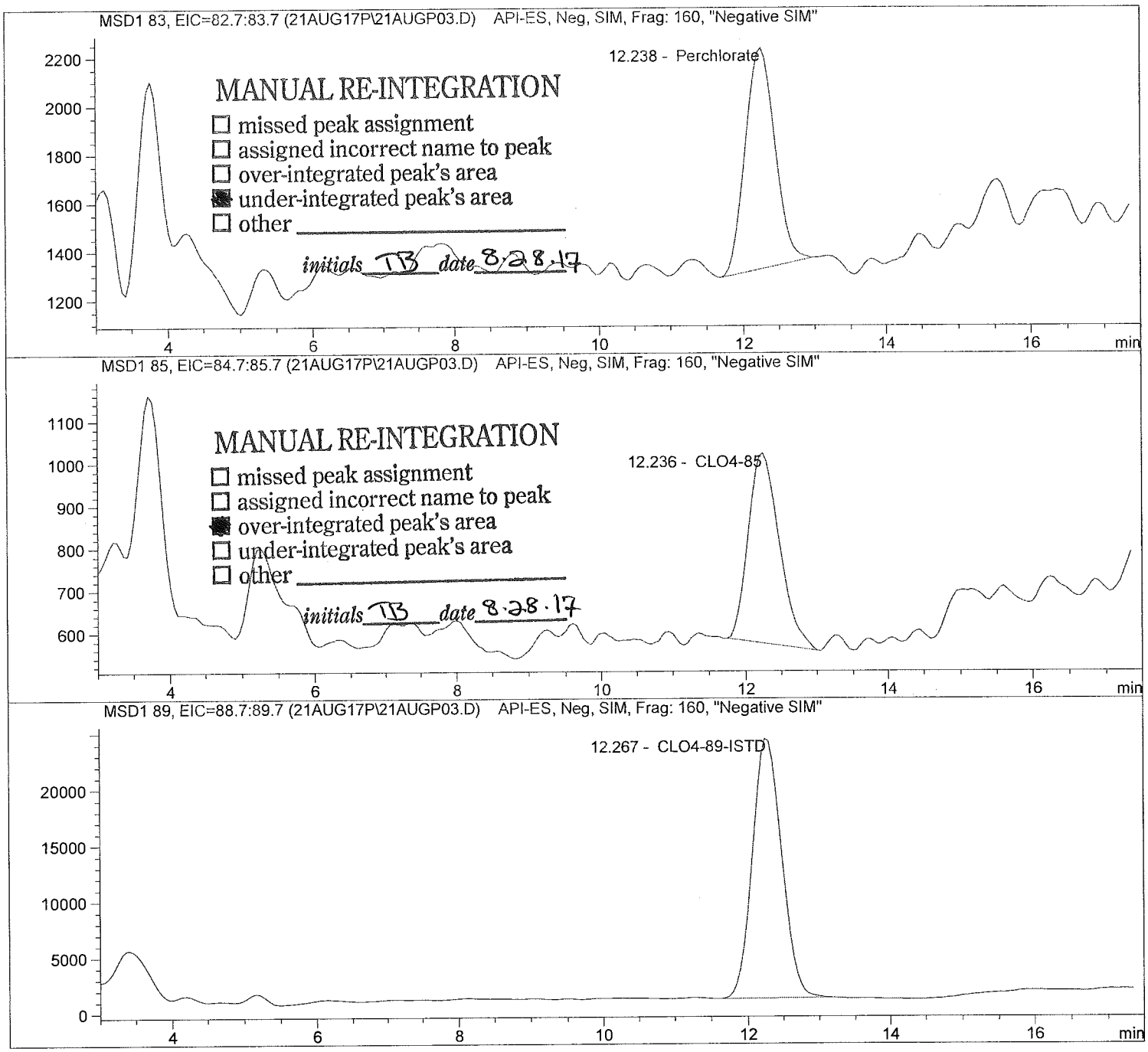
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP03.D  Sample Name: ICAL3@ .20ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:21:02 | Seq Line: | 3 |
| Sample Name: | ICAL3@ .20ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP03.D Sample Name: ICAL3@ .20ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:21:02 | Seq Line: | 3 |
| Sample Name: | ICAL3@ .20ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.200 |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.238 | MM | 26211.1 | 0.1912 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.236 | MM | 13533.1 | 0.2886 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.267 | PBA | 661030.8 | 5.0000 | CLO4-89-ISTD |

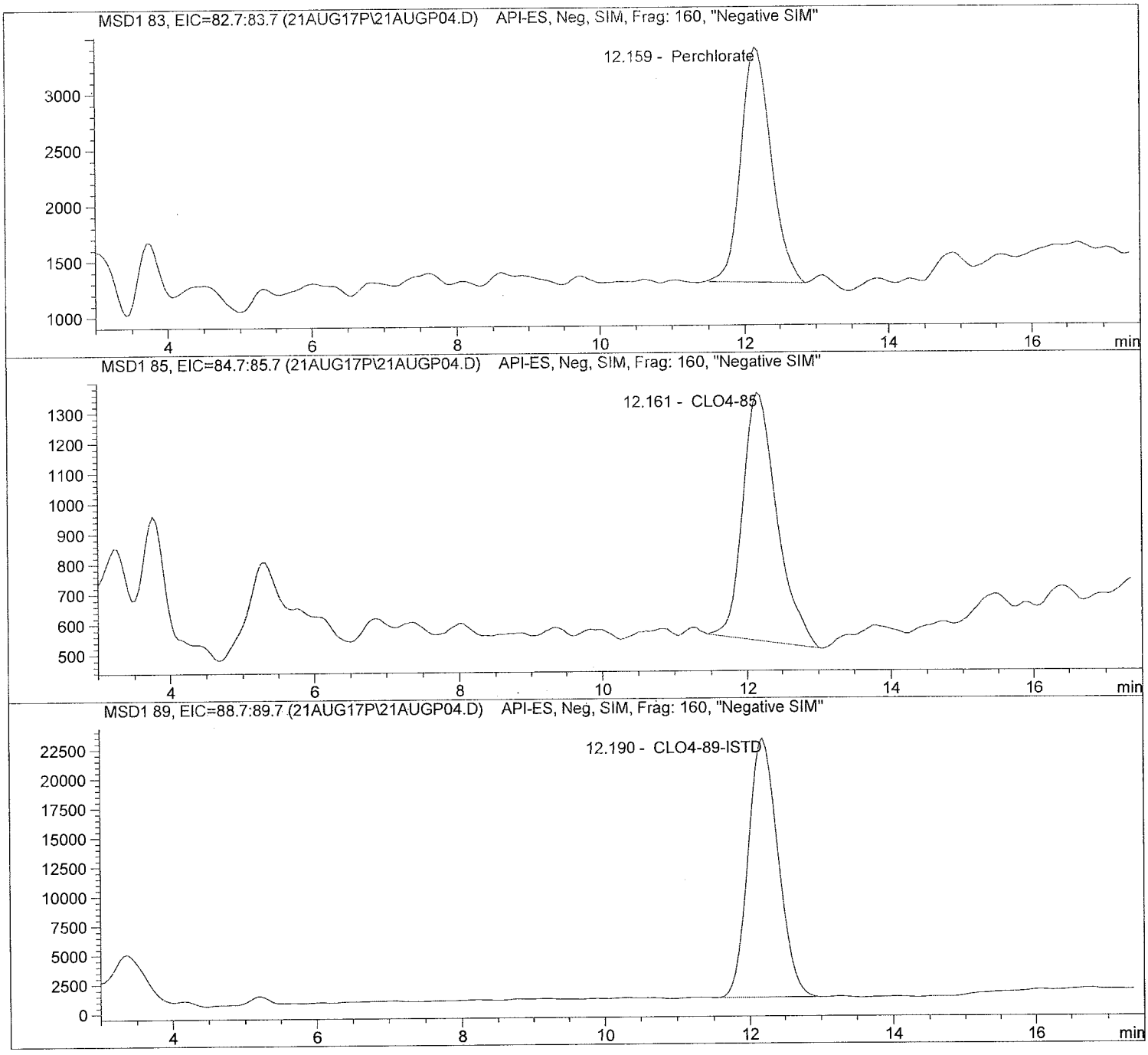
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP04.D Sample Name: ICAL4@ 0.5ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:40:22 | Seq Line: | 4 |
| Sample Name: | ICAL4@ 0.5ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP04.D  Sample Name: ICAL4@ 0.5ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:40:22 | Seq Line: | 4 |
| Sample Name: | ICAL4@ 0.5ug/L | 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-PR3.M |
| Last Changed: | 8/21/2017 14:55:53 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.500 |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.159 | BBA | 62891.2 | 0.4529 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.161 | PBA | 27617.1 | 0.5954 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.190 | PBA | 652904.1 | 5.0000 | CLO4-89-ISTD |

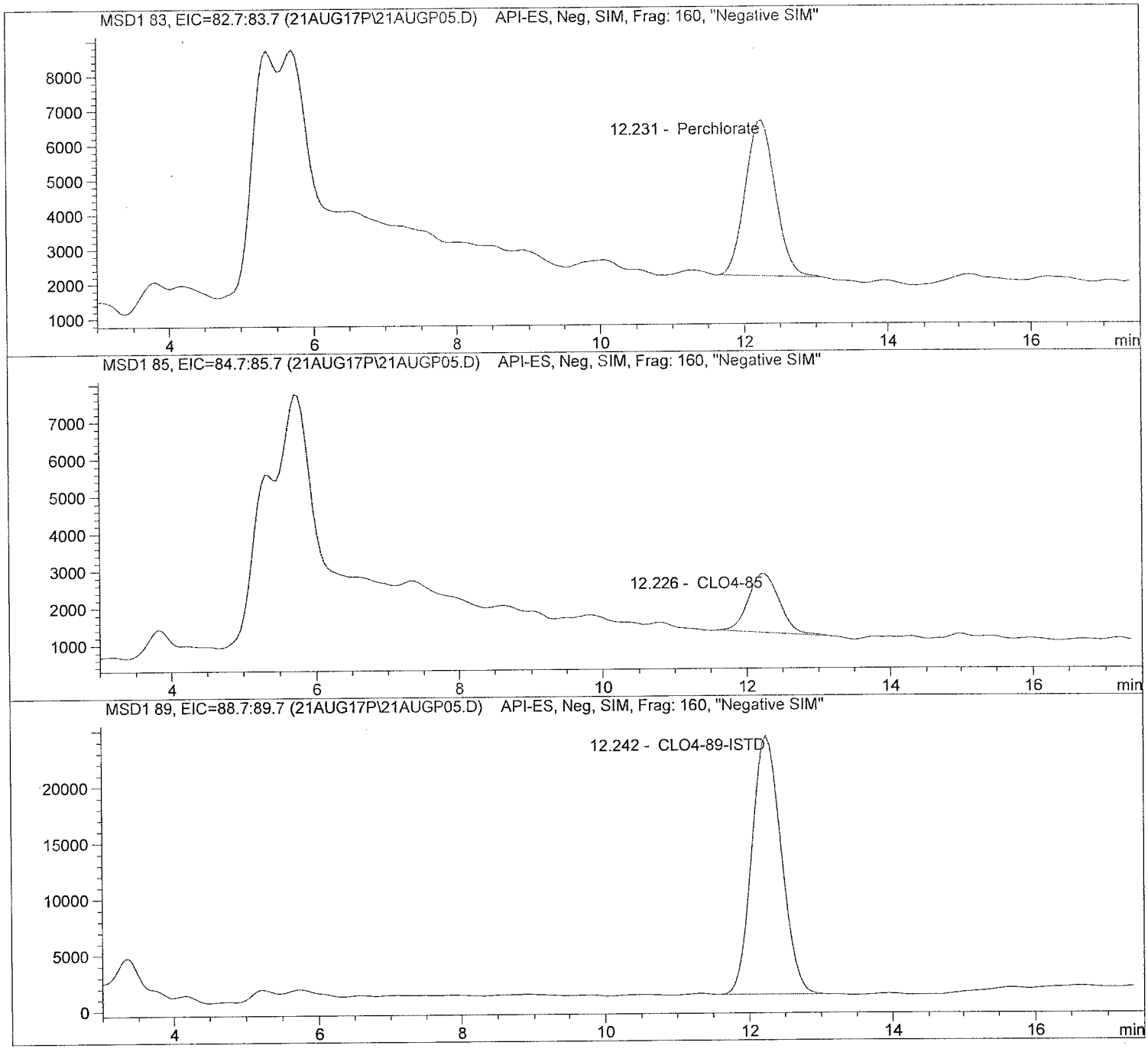
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP05.D  Sample Name: ICAL5@ 1.0ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:59:36 | Seq Line: | 5 |
| Sample Name: | ICAL5@ 1.0ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP05.D  Sample Name: ICAL5@ 1.0ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:59:36 | Seq Line: | 5 |
| Sample Name: | ICAL5@ 1.0ug/L | 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-PR3.M |
| Last Changed: | 8/21/2017 14:55:53 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| 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 |
|---|---|---|---|---|
| 12.231 | PBA | 130706.3 | 0.9256 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.226 | PBA | 47509.7 | 1.0173 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.242 | PBA | 656070.7 | 5.0000 | CLO4-89-ISTD |

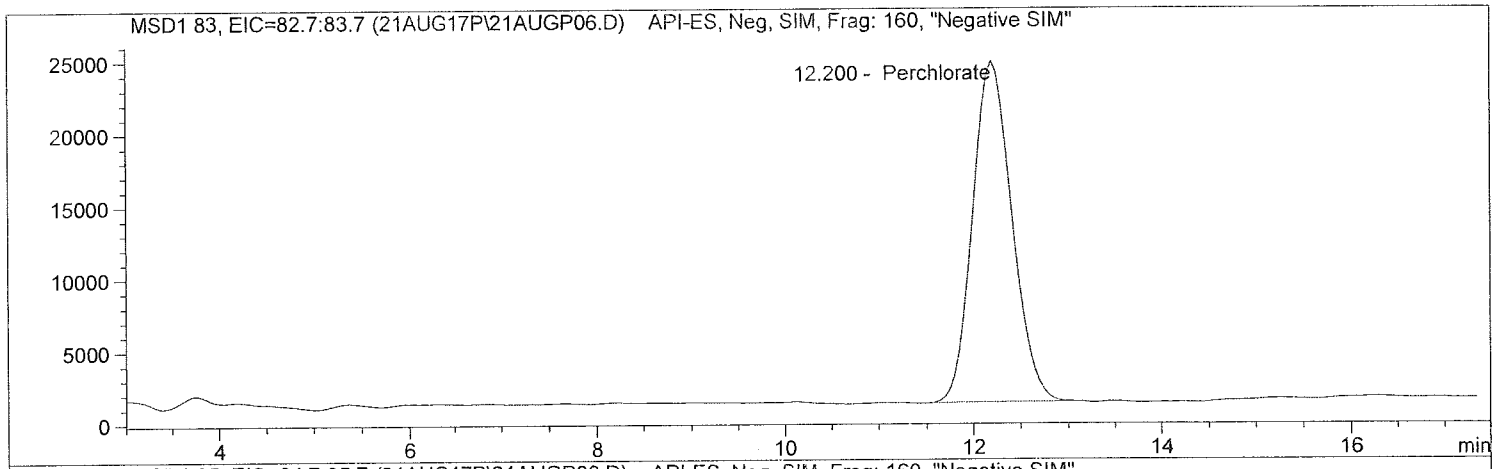
*** End of Report ***

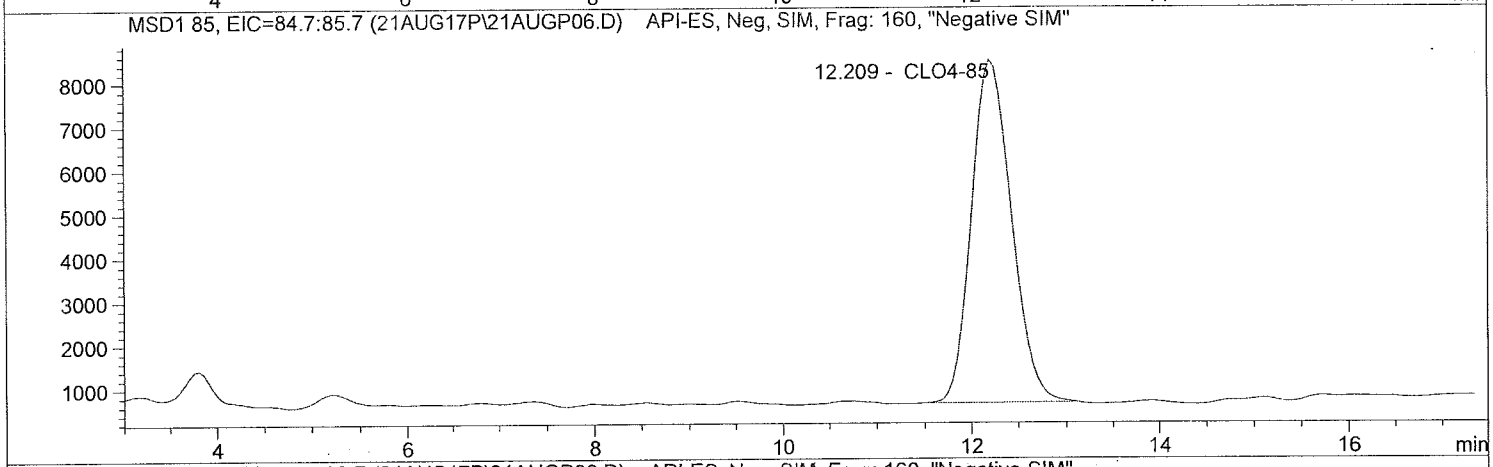
Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP06.D  Sample Name: ICAL6@ 5.0ug/L

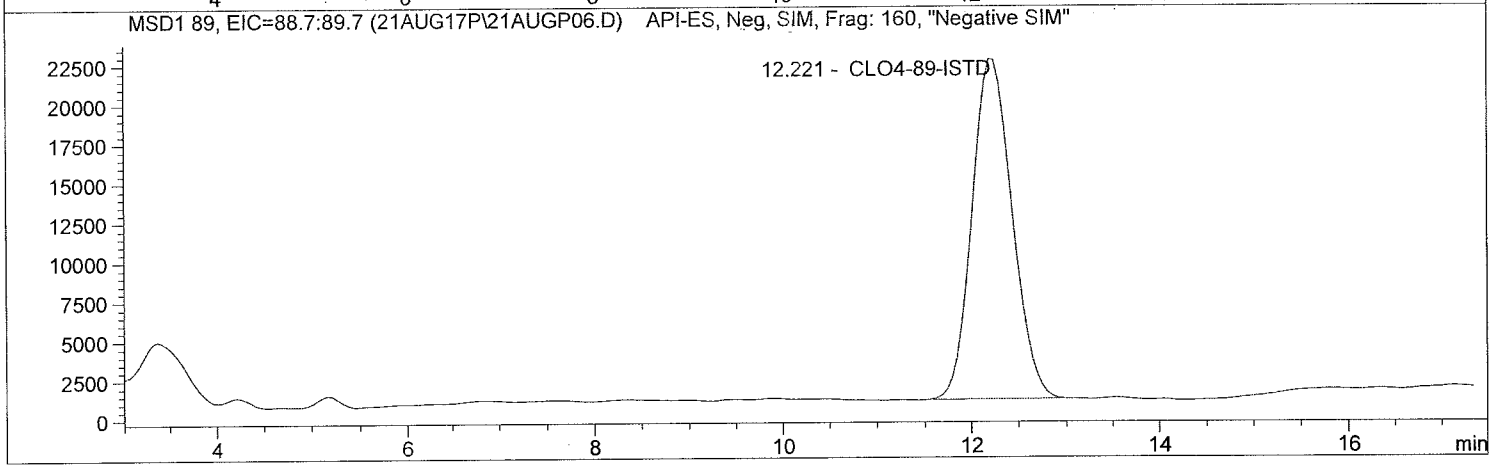
| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 11:18:53 | Seq Line: | 6 |
| Sample Name: | ICAL6@ 5.0ug/L | Location: | Vial 76 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP06.D  Sample Name: ICAL6@ 5.0ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 11:18:53 | Seq Line: | 6 |
| Sample Name: | ICAL6@ 5.0ug/L | 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-PR3.M |
| Last Changed: | 8/21/2017 14:55:53 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| 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 |
|---|---|---|---|---|
| 12.200 | PBA | 680204.6 | 4.8076 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.209 | BBA | 230425.8 | 5.0108 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.221 | BBA | 634251.4 | 5.0000 | CLO4-89-ISTD |

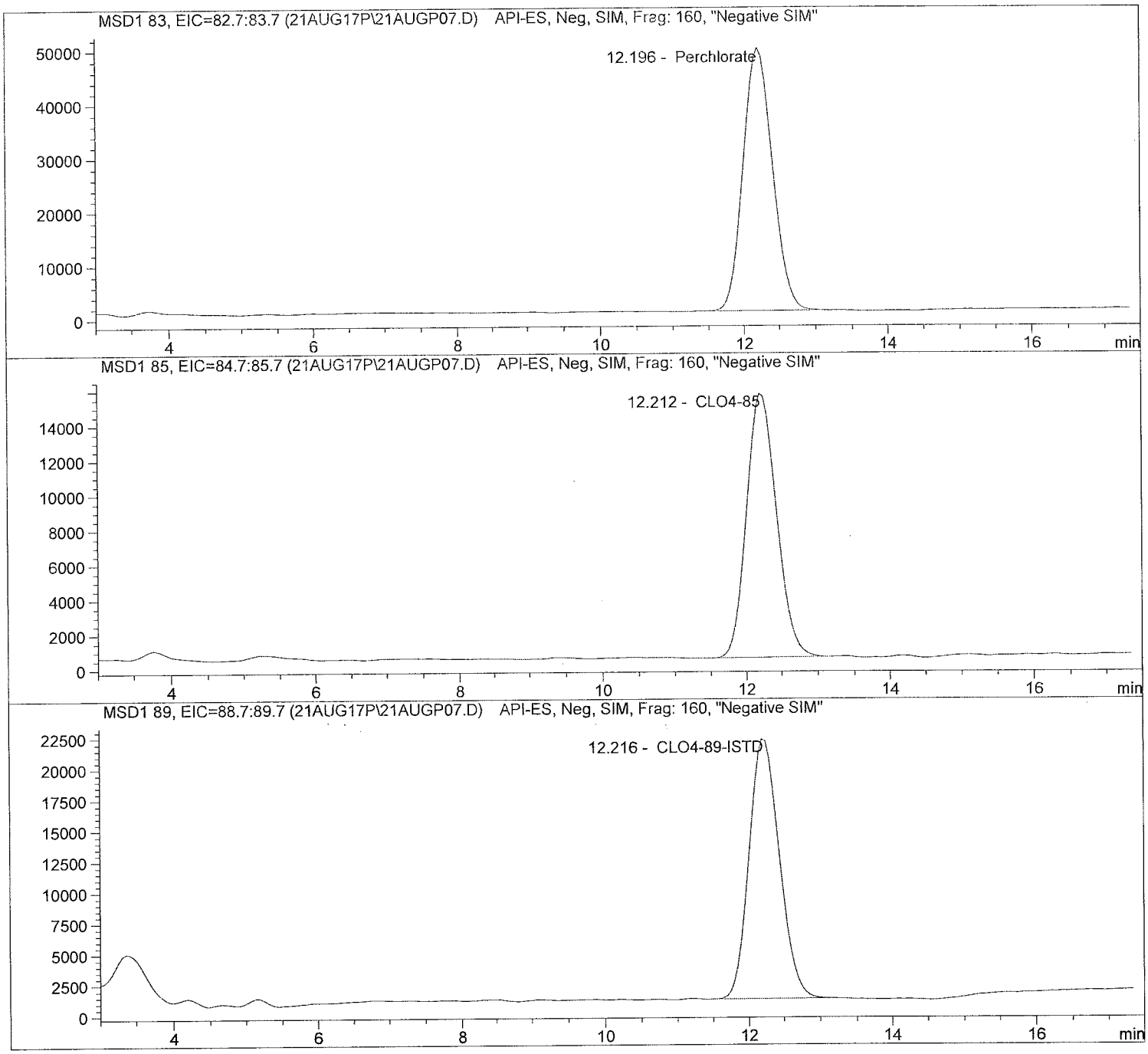
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP07.D  Sample Name: ICAL7@ 10.ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 11:38:12 | Seq Line: | 7 |
| Sample Name: | ICAL7@ 10.ug/L | 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-PR3.M |
| Last Changed: | 8/21/2017 14:55:53 |

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP07.D  Sample Name: ICAL7@ 10.ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 11:38:12 | Seq Line: | 7 |
| Sample Name: | ICAL7@ 10.ug/L | 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-PR3.M |
| Last Changed: | 8/21/2017 14:55:53 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| 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 |
|---|---|---|---|---|
| 12.196 | BBA | 1410569.9 | 9.7413 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.212 | PBA | 446569.7 | 9.6404 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.216 | PBA | 625689.1 | 5.0000 | CLO4-89-ISTD |

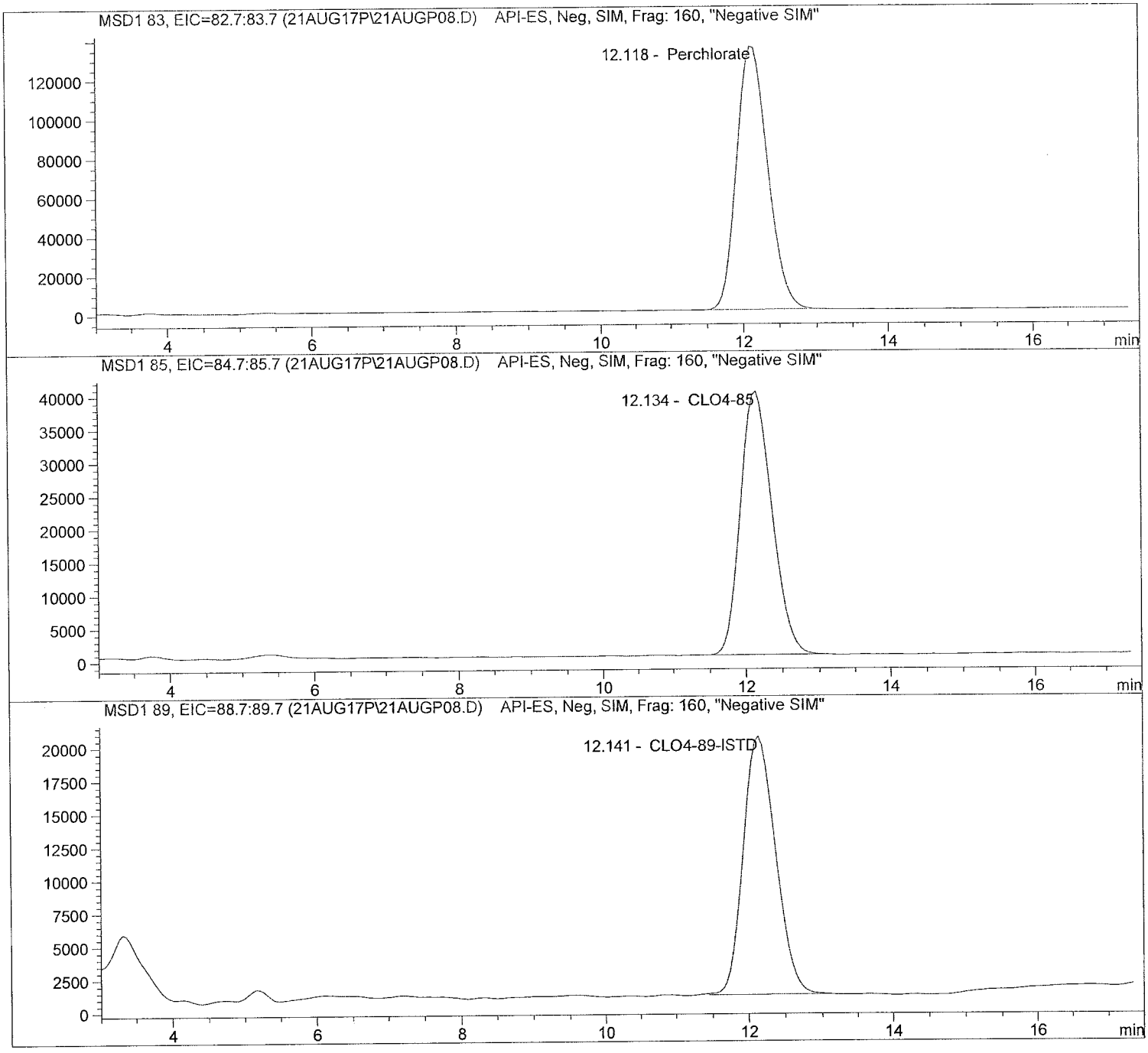
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP08.D  Sample Name: ICAL8@ 25.ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 13:12:50 | Seq Line: | 8 |
| Sample Name: | ICAL8@ 25.ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP08.D  Sample Name: ICAL8@ 25.ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 13:12:50 | Seq Line: | 8 |
| Sample Name: | ICAL8@ 25.ug/L | 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-PR3.M |
| Last Changed: | 8/21/2017 14:55:53 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 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 |
|---|---|---|---|---|
| 12.118 | BBA | 4004745.0 | 25.7880 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.134 | BBA | 1199930.0 | 25.1941 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.141 | BBA | 601523.1 | 5.0000 | CLO4-89-ISTD |

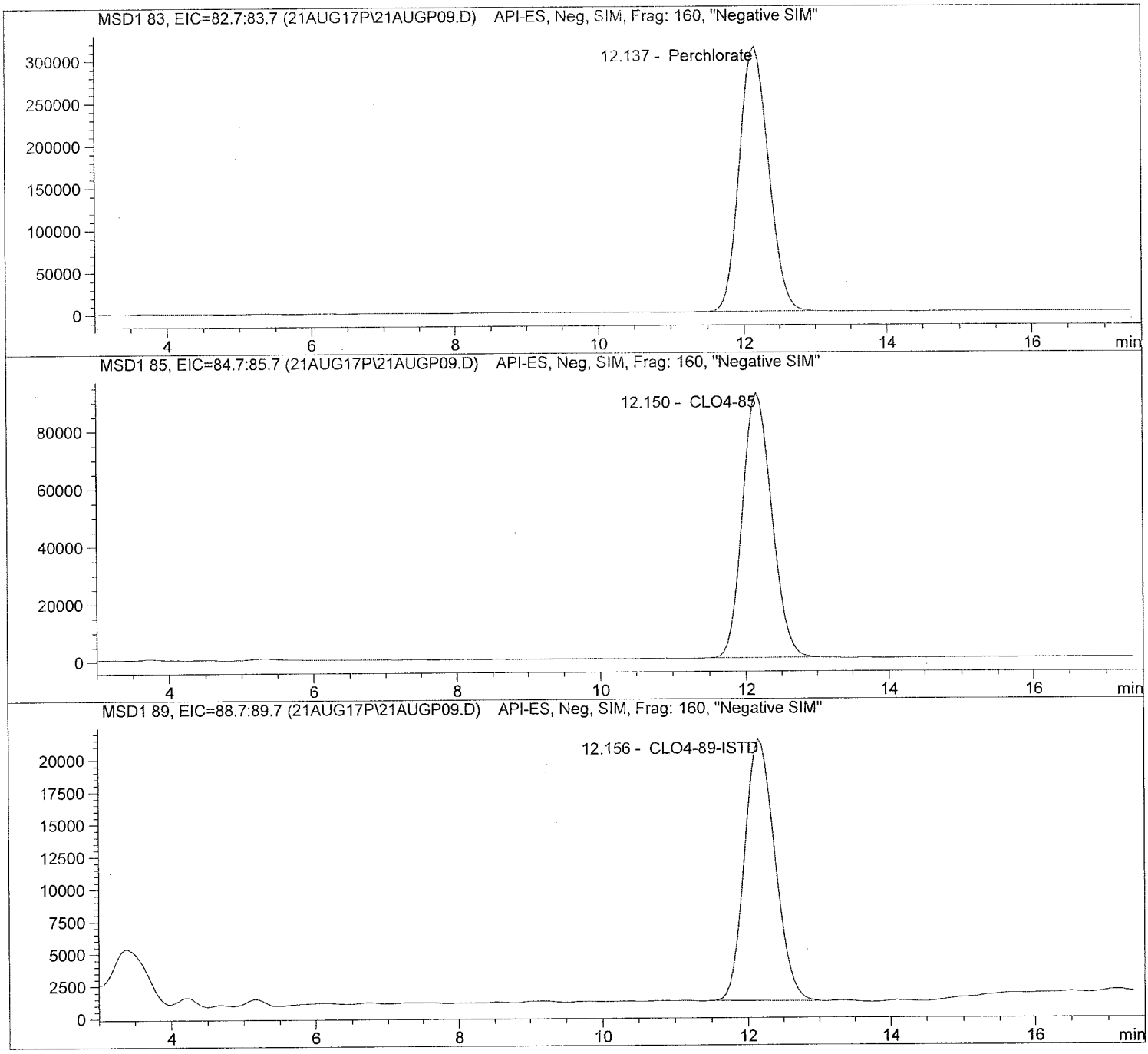
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP09.D  Sample Name: ICAL9@ 50.ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 13:32:10 | Seq Line: | 9 |
| Sample Name: | ICAL9@ 50.ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP09.D  Sample Name: ICAL9@ 50.ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 13:32:10 | Seq Line: | 9 |
| Sample Name: | ICAL9@ 50.ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| 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 |
|---|---|---|---|---|
| 12.137 | PBA | 8856831.0 | 49.7366 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.150 | BBA | 2609327.3 | 49.9698 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.156 | BBA | 597661.2 | 5.0000 | CLO4-89-ISTD |

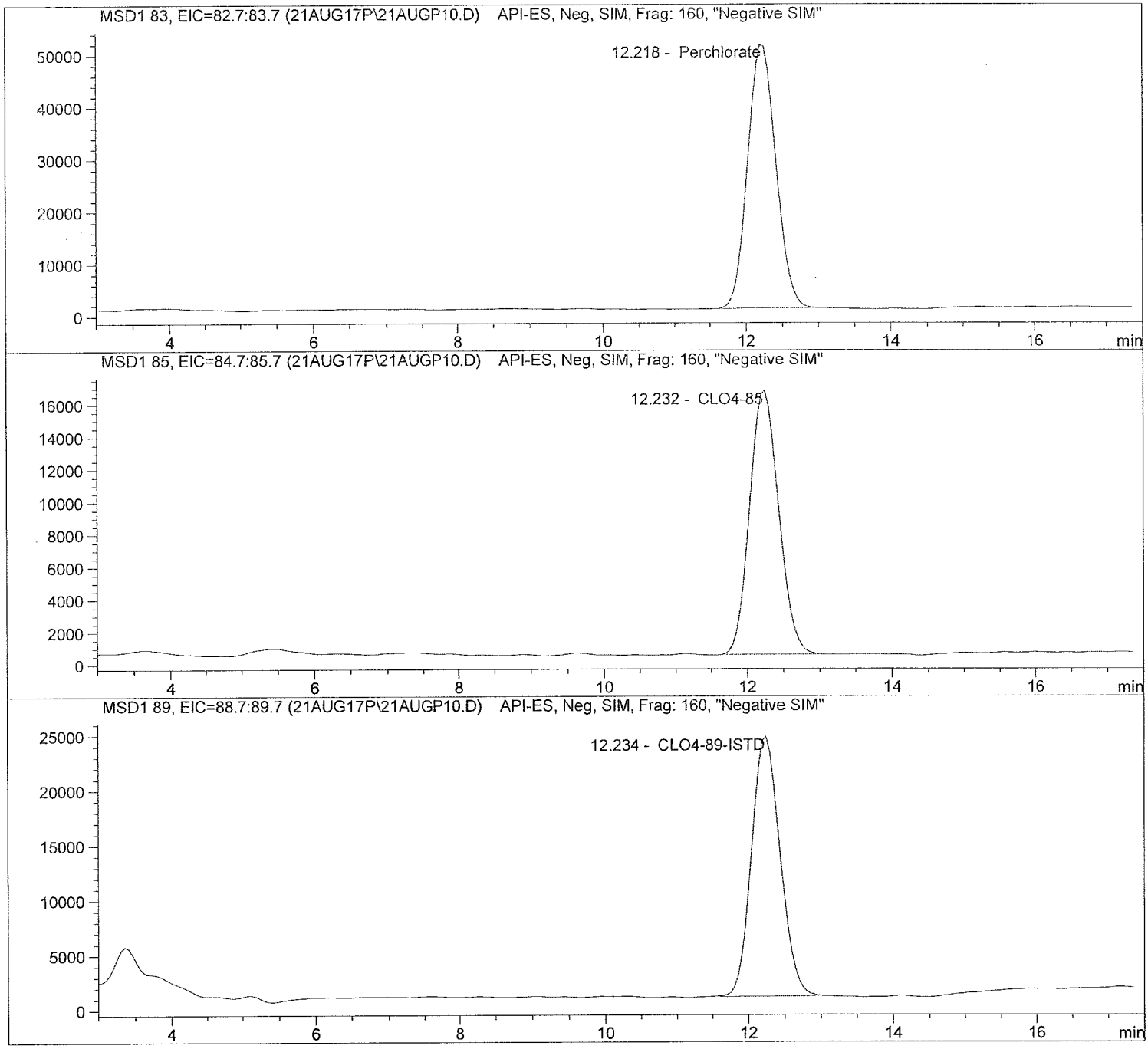
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP10.D  Sample Name: ICAL Verf@10ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 13:51:27 | Seq Line: | 10 |
| Sample Name: | ICAL Verf@10ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP10.D  Sample Name: ICAL Verf@10ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 13:51:27 | Seq Line: | 10 |
| Sample Name: | ICAL Verf@10ug/L | 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-PR3.M |
| Last Changed: | 8/21/2017 14:55:53 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| 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 |
|---|---|---|---|---|
| 12.218 | BBA | 1360649.7 | 9.1433 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.232 | PBA | 449703.0 | 9.4150 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.234 | BBA | 645815.0 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

# Raw Data

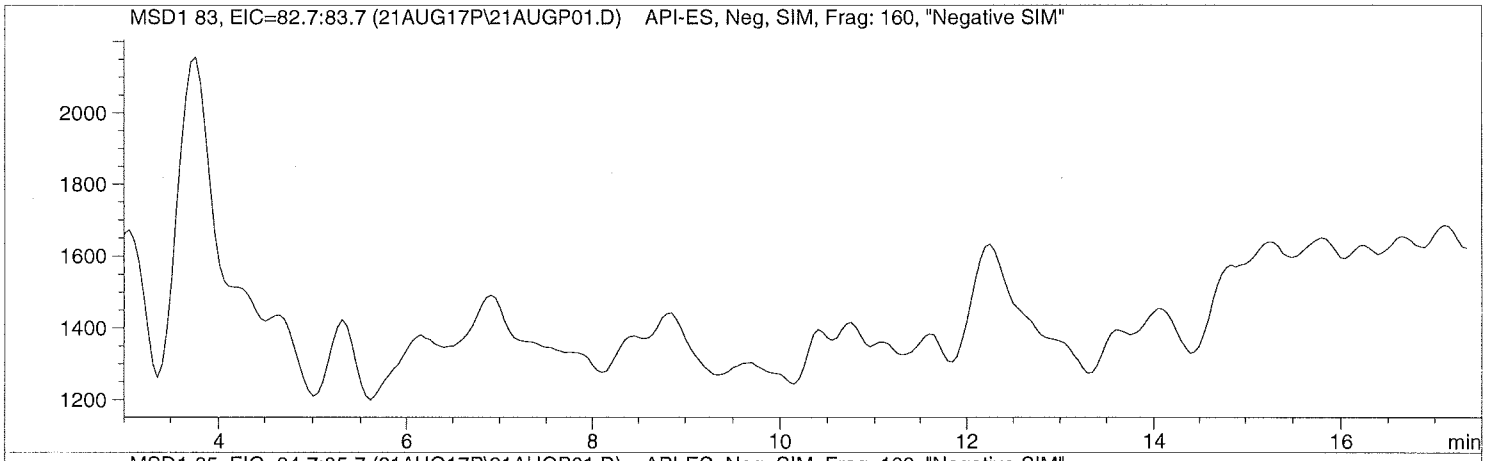
## Unmodified

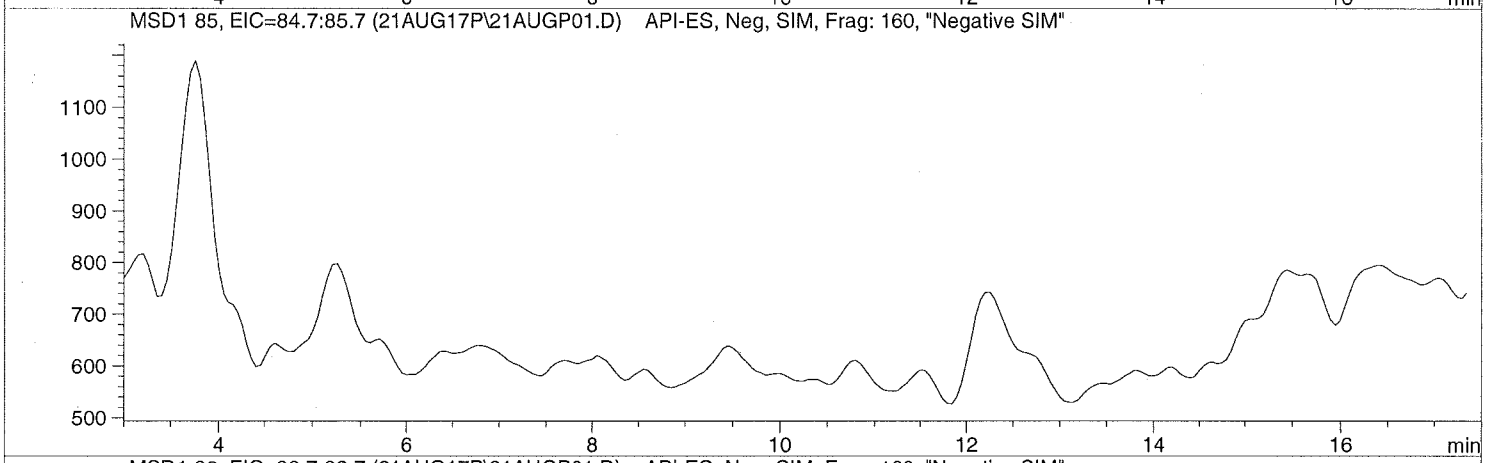
Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP01.D  Sample Name: ICAL1@ .05ug/L

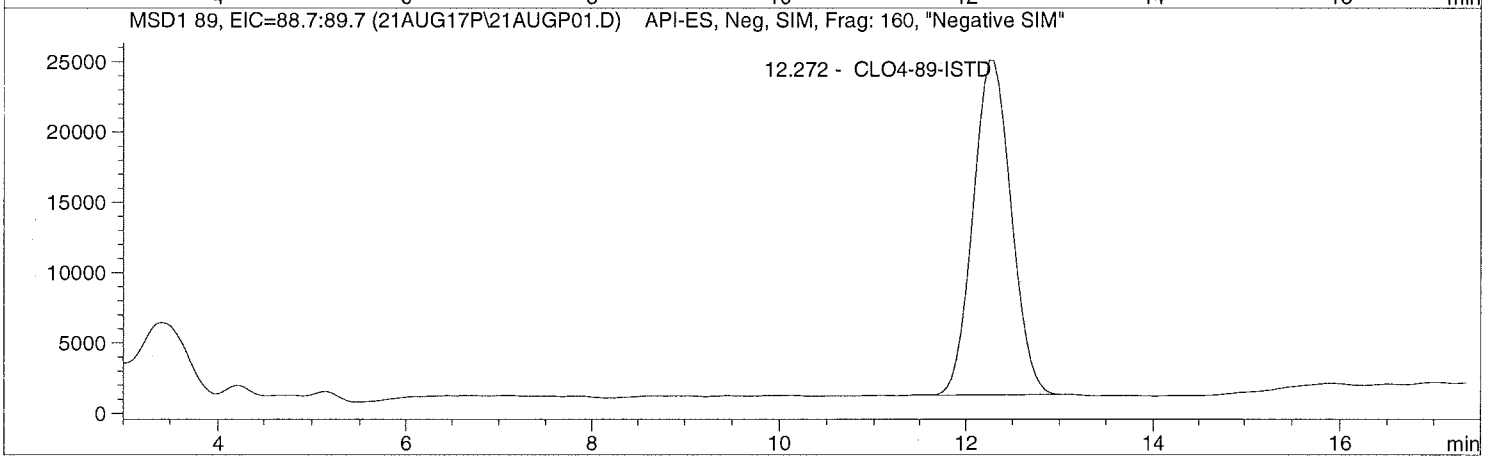
| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 09:42:32 | Seq Line: | 1 |
| Sample Name: | ICAL1@ .05ug/L | Location: | Vial 71 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP01.D Sample Name: ICAL1@ .05ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 09:42:32 | Seq Line: | 1 |
| Sample Name: | ICAL1@ .05ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.050 |

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 |
|---|---|---|---|---|
| 12.272 | BBA | 673942.9 | 5.0000 | CLO4-89-ISTD |

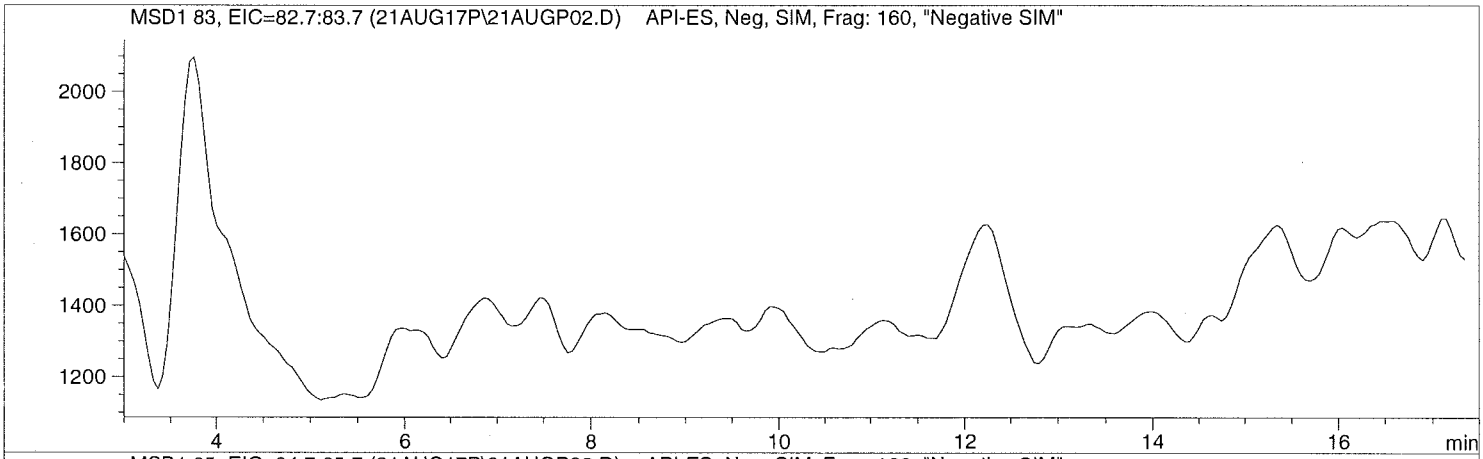
*** End of Report ***

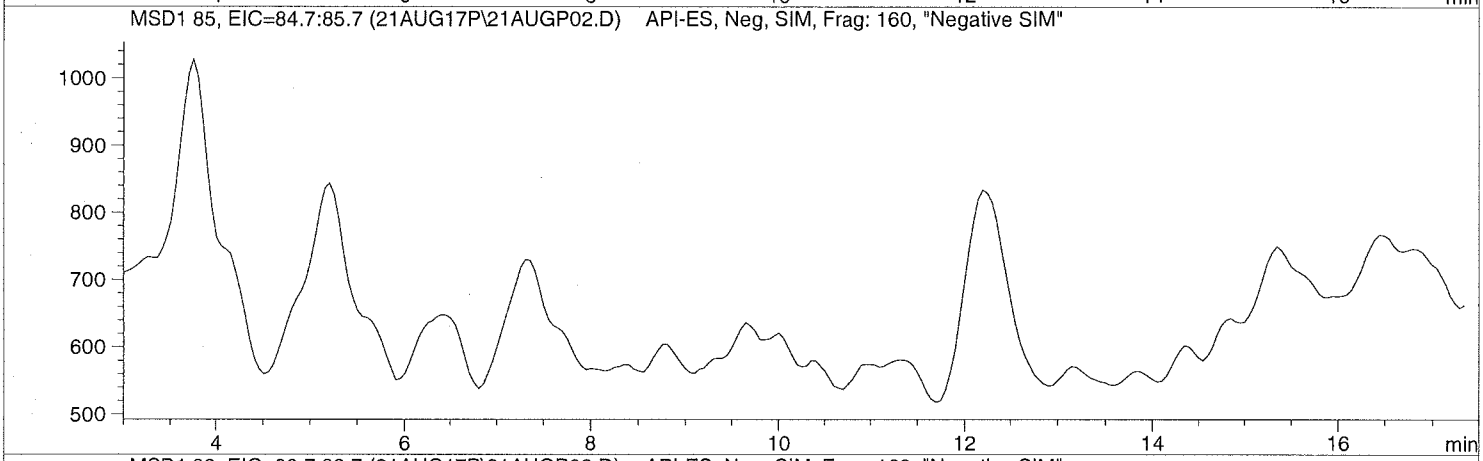
Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP02.D  Sample Name: ICAL2@ .10ug/L

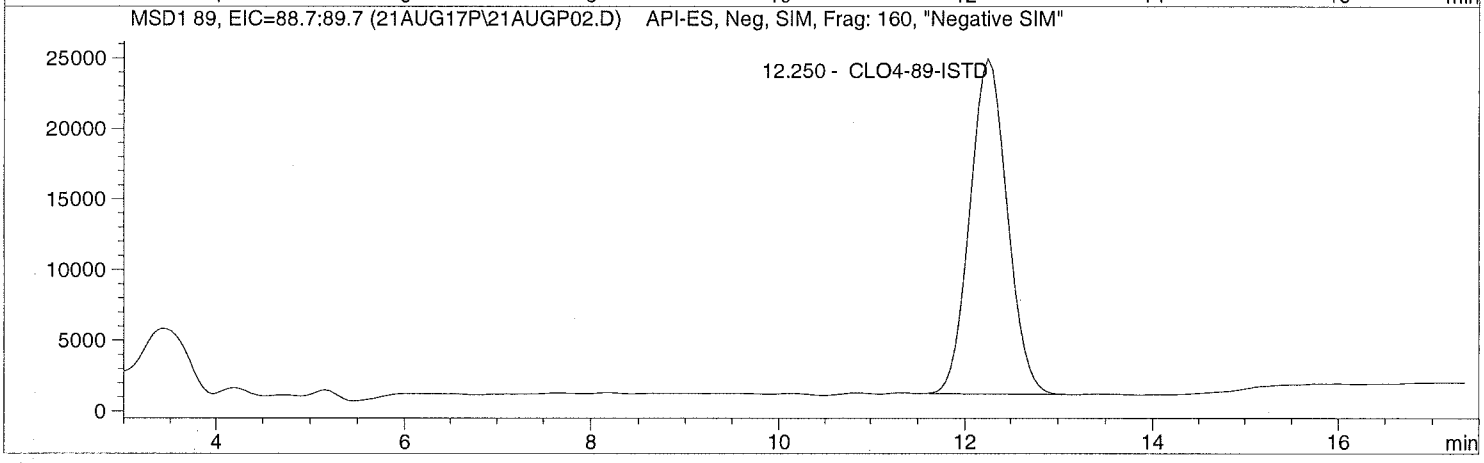
| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:01:47 | Seq Line: | 2 |
| Sample Name: | ICAL2@ .10ug/L | Location: | Vial 72 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP02.D Sample Name: ICAL2@ .10ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:01:47 | Seq Line: | 2 |
| Sample Name: | ICAL2@ .10ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.100 |

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 |
|---|---|---|---|---|
| 12.250 | BBA | 667016.3 | 5.0000 | CLO4-89-ISTD |

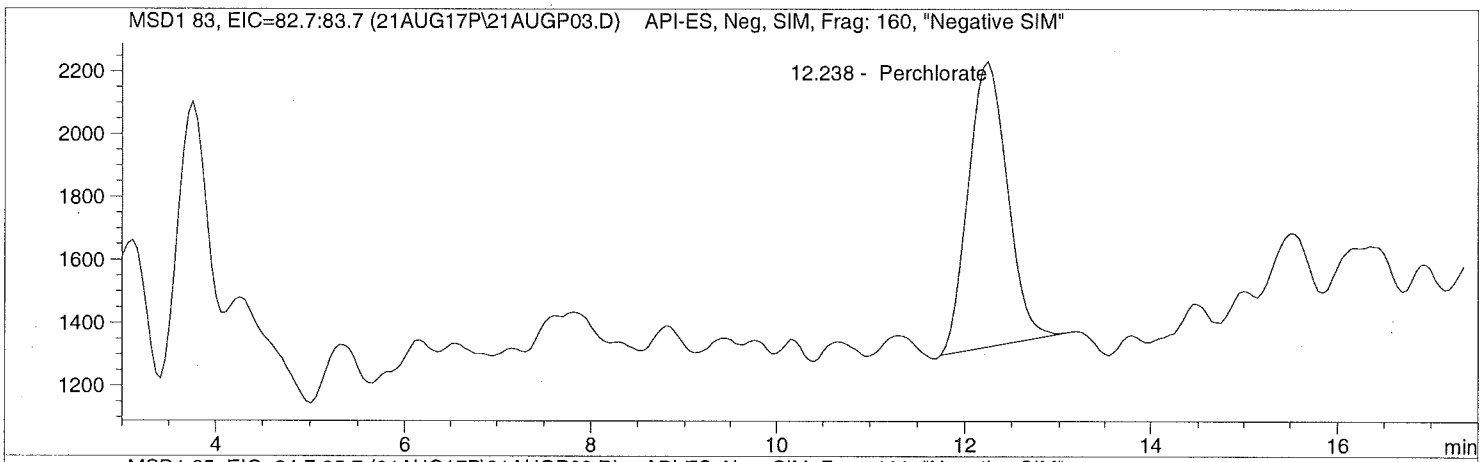
*** End of Report ***

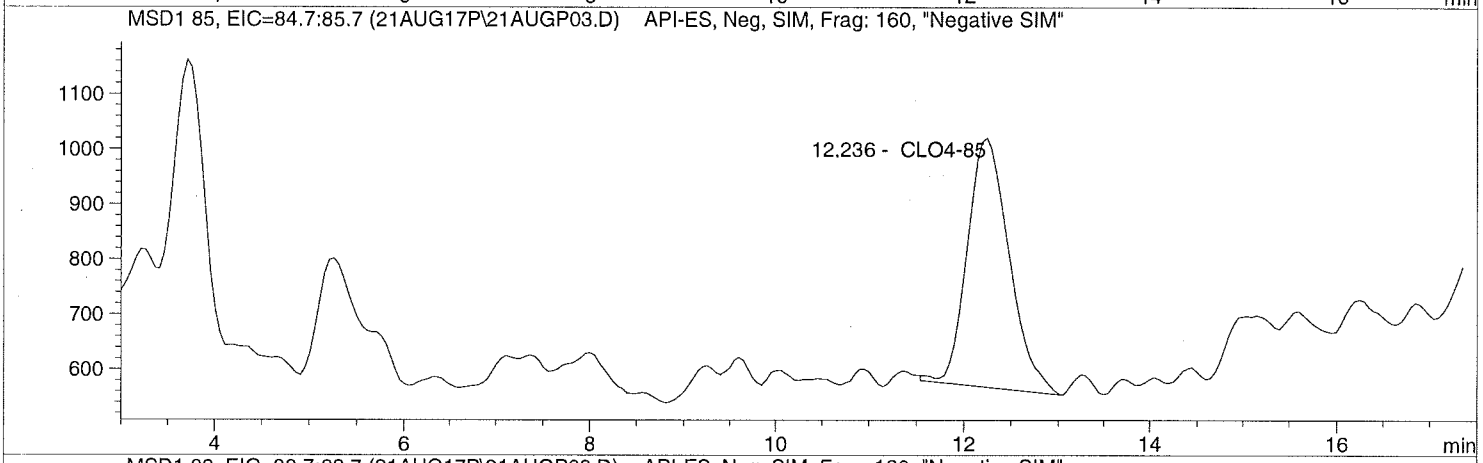
Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP03.D  Sample Name: ICAL3@ .20ug/L

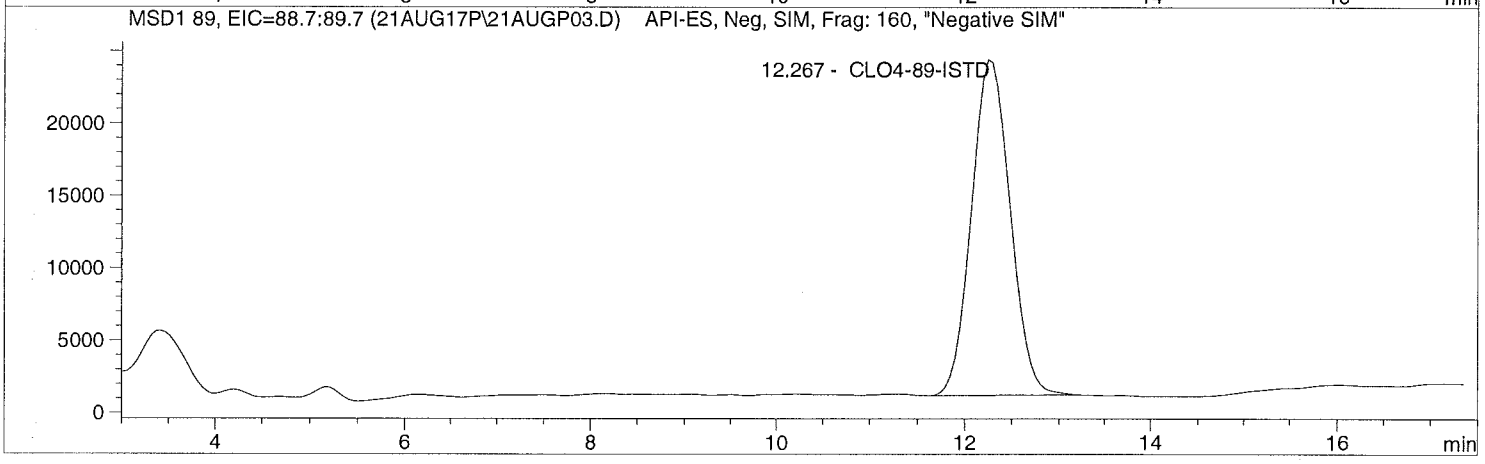
| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:21:02 | Seq Line: | 3 |
| Sample Name: | ICAL3@ .20ug/L | Location: | Vial 73 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP03.D  Sample Name: ICAL3@ .20ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:21:02 | Seq Line: | 3 |
| Sample Name: | ICAL3@ .20ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.200 |

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.238 | PBA | 26023.7 | 0.1899 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.236 | BBA | 13974.8 | 0.2980 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.267 | PBA | 661030.8 | 5.0000 | CLO4-89-ISTD |

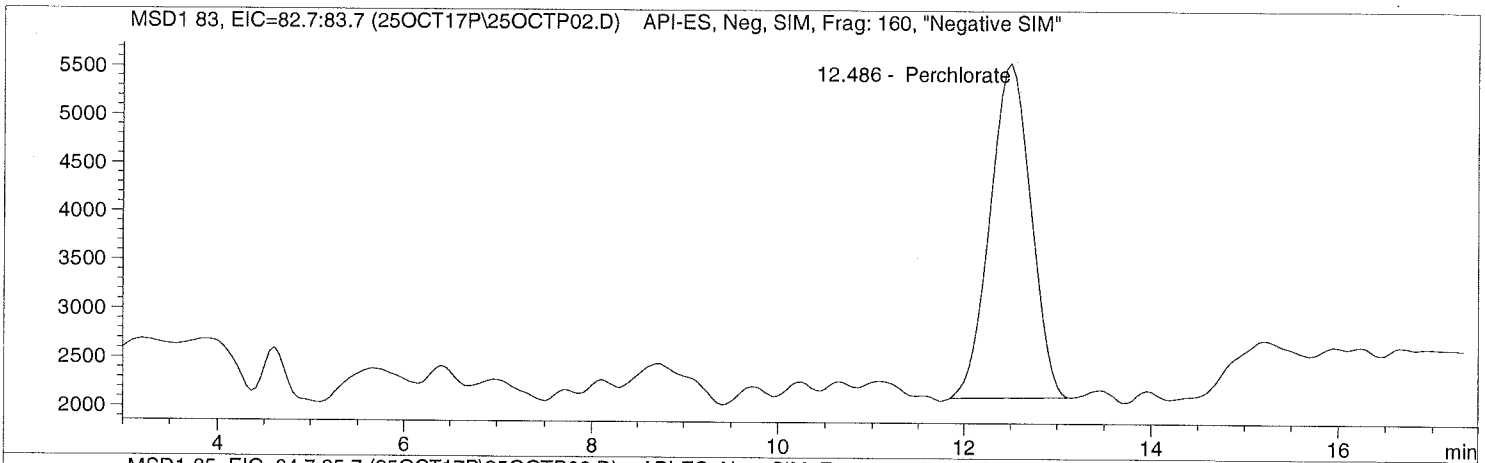
*** End of Report ***

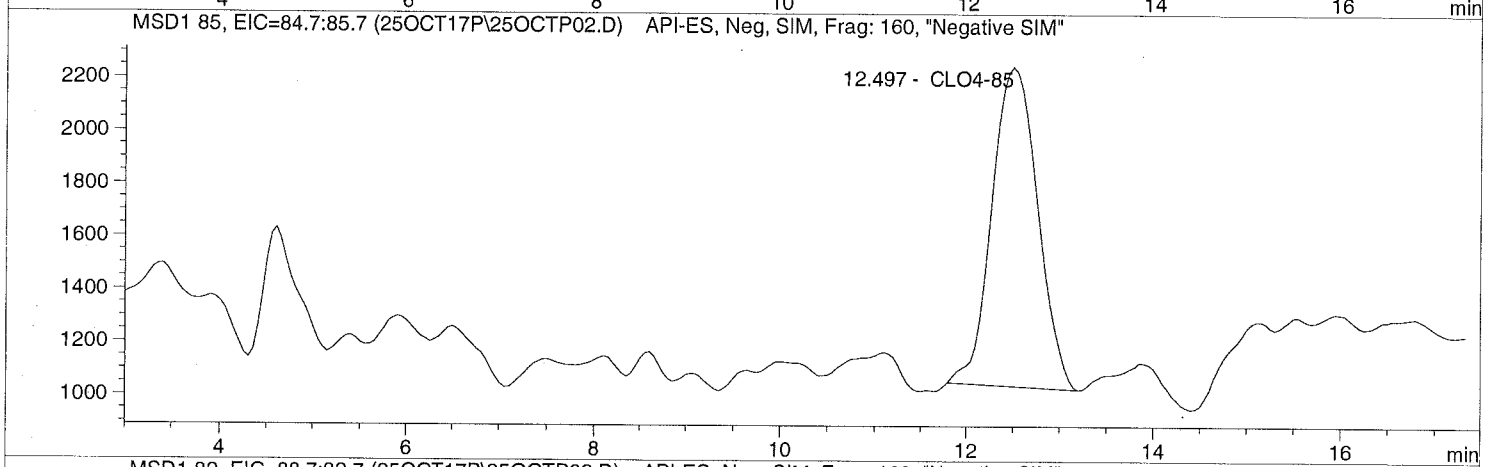
Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP02.D  Sample Name: 571095  LODV@1.

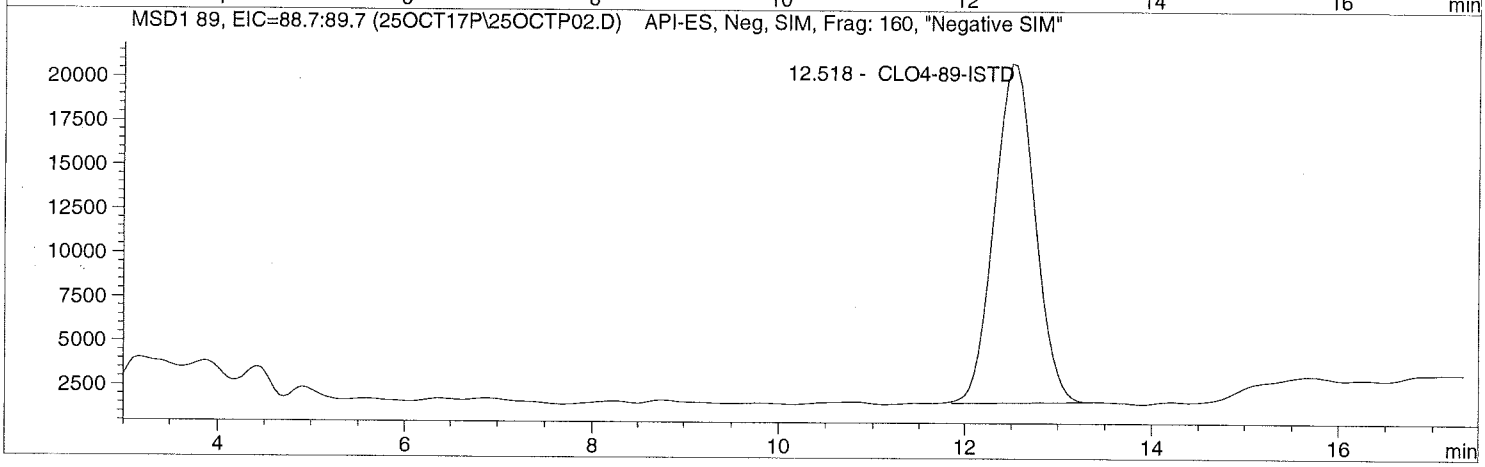
| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 09:24:24 | Seq Line: | 2 |
| Sample Name: | 571095 LODV@1. | Location: | Vial 82 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP02.D  Sample Name: 571095  LODV@1.

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 09:24:24 | Seq Line: | 2 |
| Sample Name: | 571095 LODV@1. | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 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 |
|---|---|---|---|---|
| 12.486 | PBA | 104727.6 | 0.8301 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.497 | PBA | 41351.7 | 0.9895 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.518 | BBA | 587146.0 | 5.0000 | CLO4-89-ISTD |

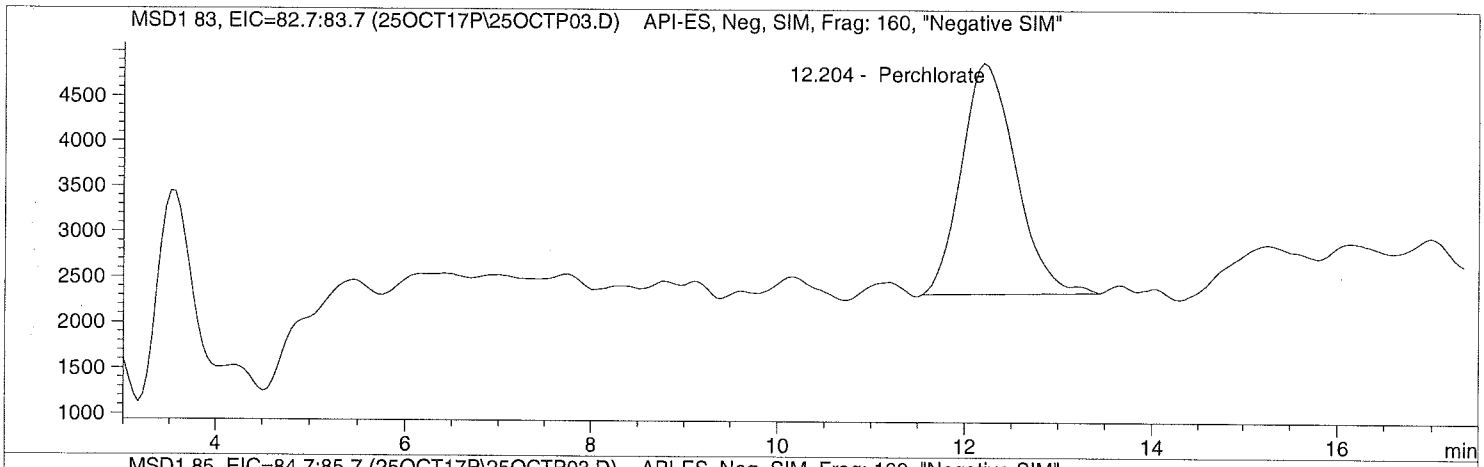
*** End of Report ***

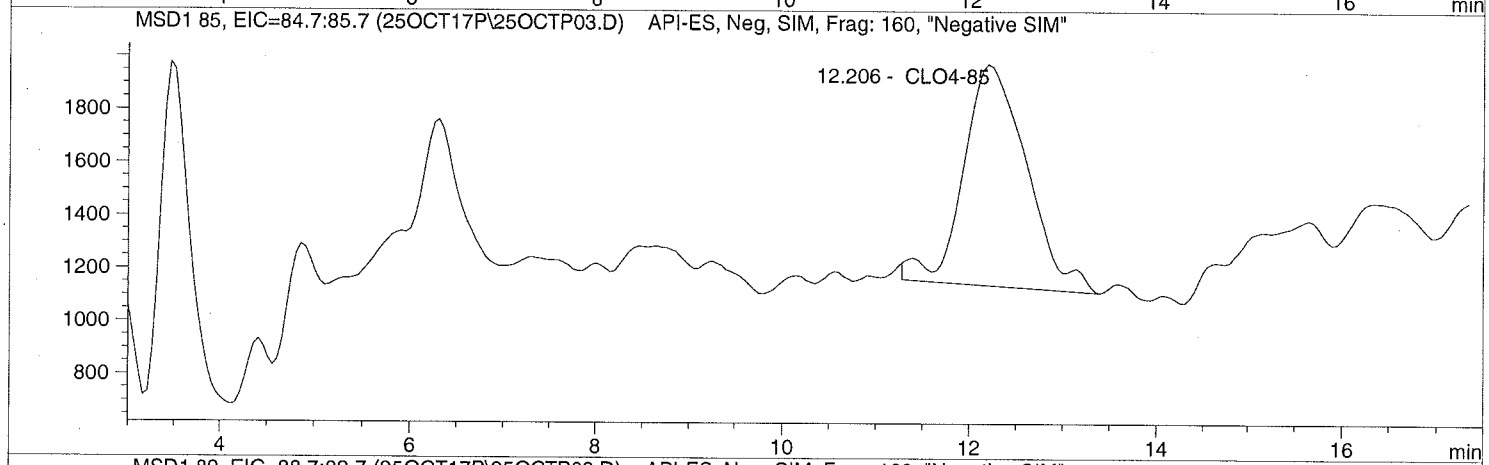
Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP03.D  Sample Name: 571096  ICS@1.

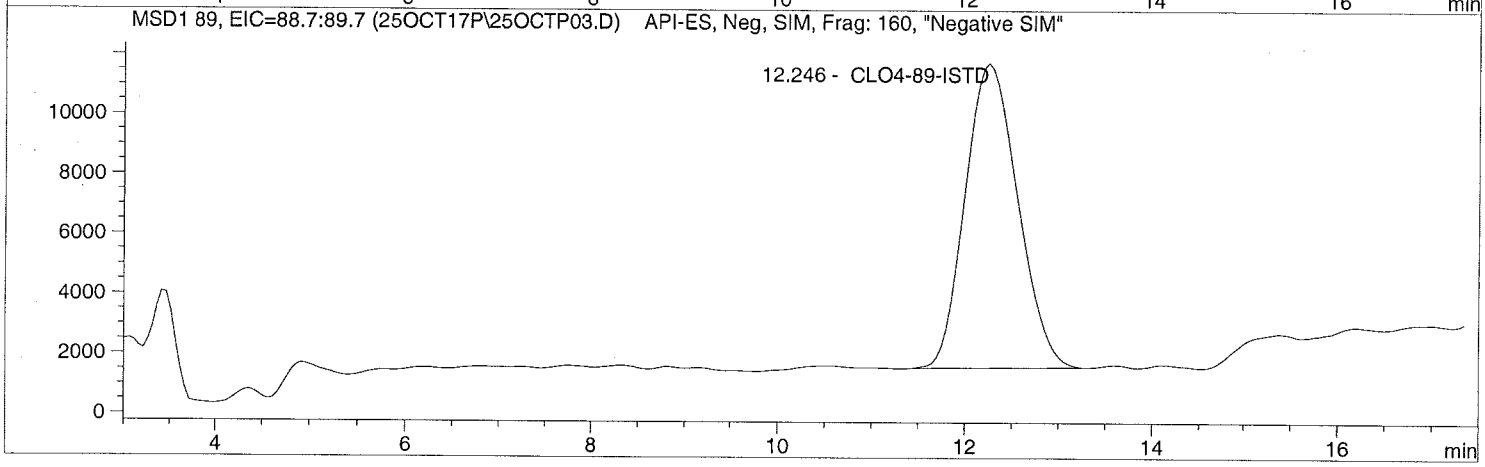
| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 09:43:38 | Seq Line: | 3 |
| Sample Name: | 571096 ICS@1. | Location: | Vial 83 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP03.D Sample Name: 571096 ICS@1.

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 09:43:38 | Seq Line: | 3 |
| Sample Name: | 571096 ICS@1. | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 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 |
|---|---|---|---|---|
| 12.204 | PBA | 102130.1 | 1.1974 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.206 | BBA | 39099.6 | 1.3892 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.246 | PBA | 394708.7 | 5.0000 | CLO4-89-ISTD |

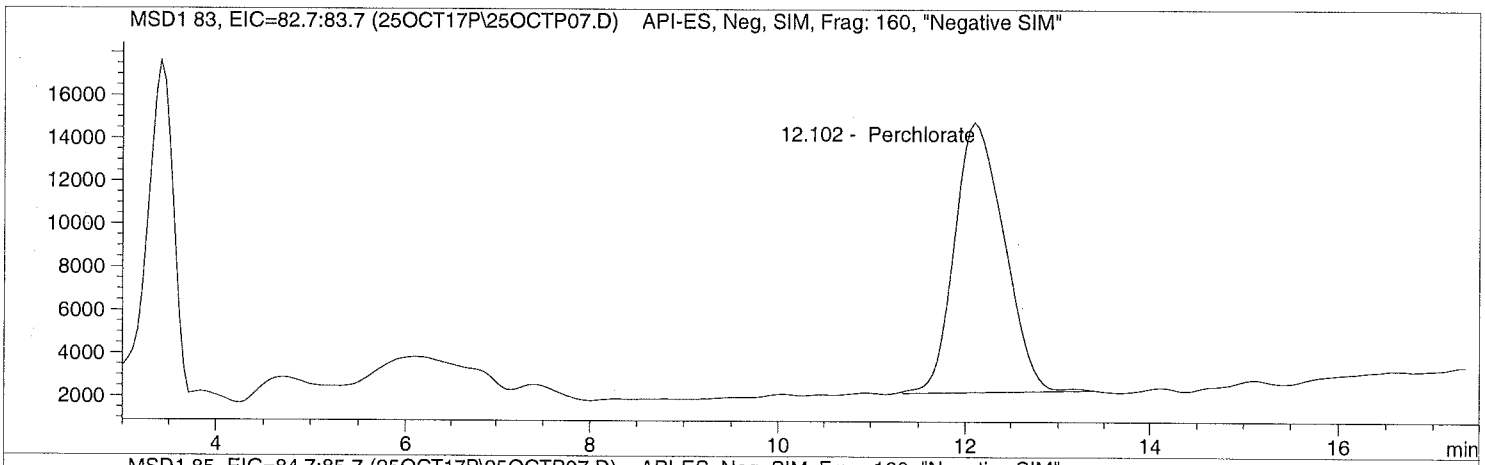
*** End of Report ***

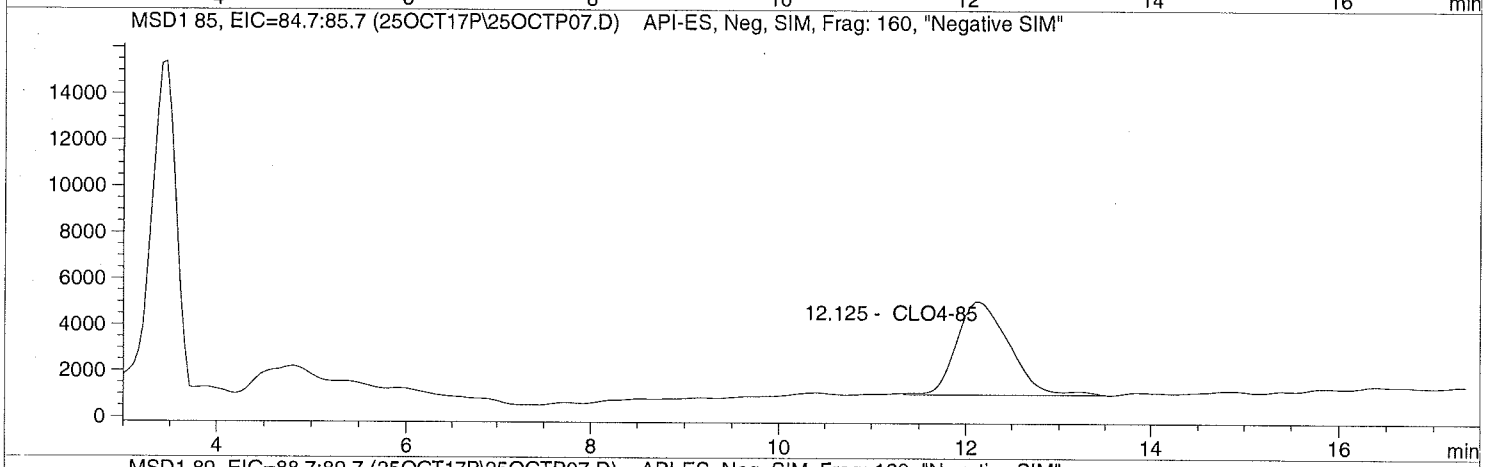
Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP07.D  Sample Name: 571099  289431S

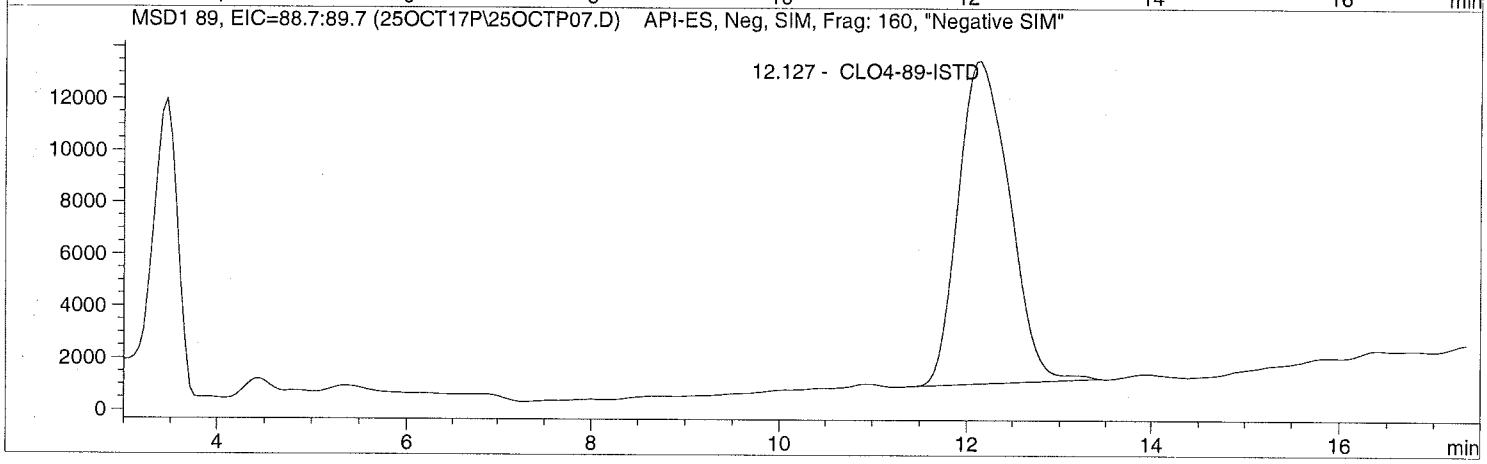
| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 11:03:53 | Seq Line: | 7 |
| Sample Name: | 571099 289431S | Location: | Vial 87 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP07.D Sample Name: 571099 289431S

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 11:03:53 | Seq Line: | 7 |
| Sample Name: | 571099 289431S | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 12.102 | BBA | 470901.2 | 4.4182 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.125 | BBA | 160251.8 | 4.6202 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.127 | PBA | 479241.3 | 5.0000 | CLO4-89-ISTD |

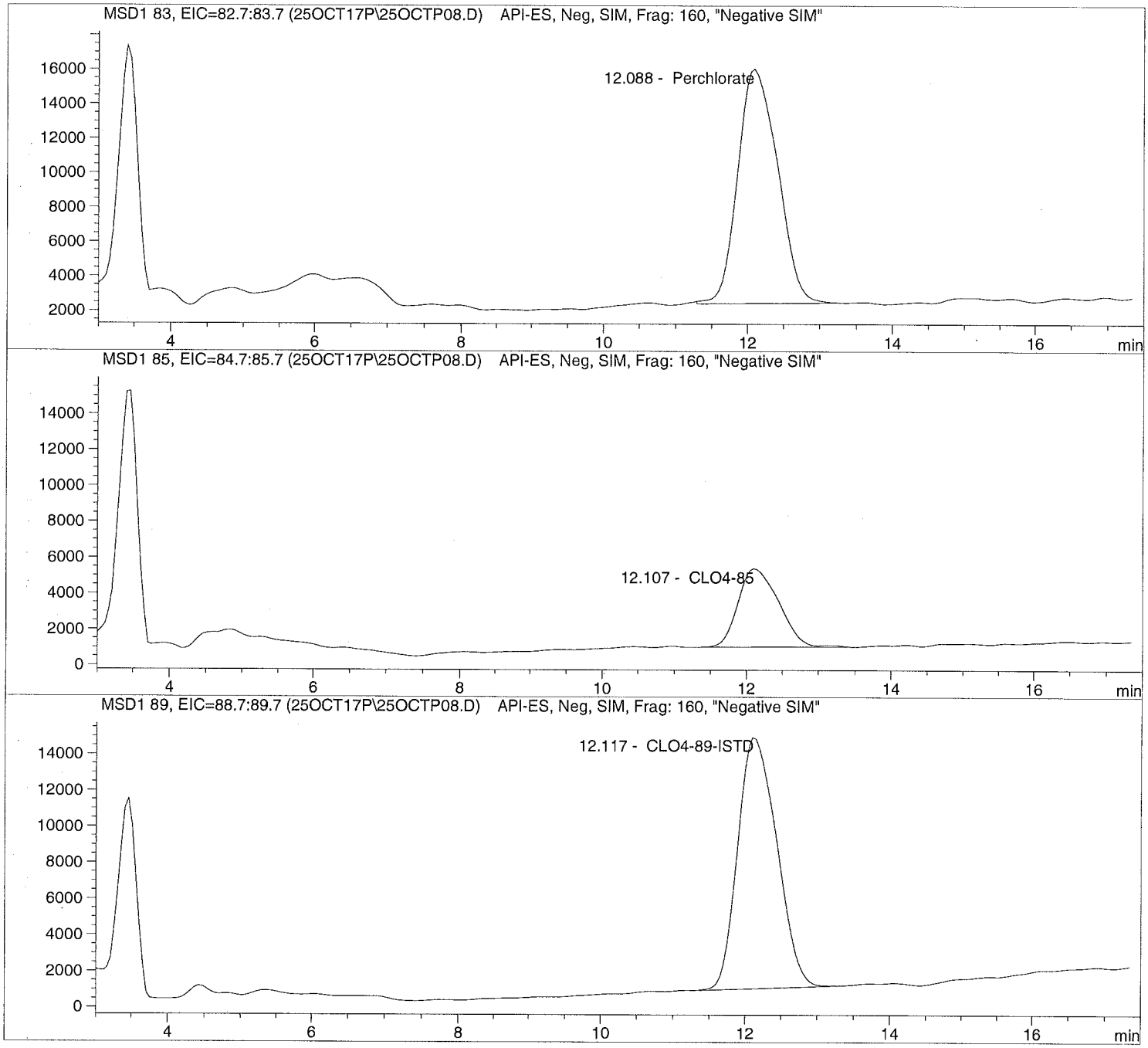
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP08.D  Sample Name: 571100  289431D

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 11:23:08 | Seq Line: | 8 |
| Sample Name: | 571100 289431D | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP08.D Sample Name: 571100 289431D

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 11:23:08 | Seq Line: | 8 |
| Sample Name: | 571100 289431D | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 12.088 | BBA | 523181.5 | 4.4850 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.107 | PBA | 171769.7 | 4.5291 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.117 | BBA | 524243.2 | 5.0000 | CLO4-89-ISTD |

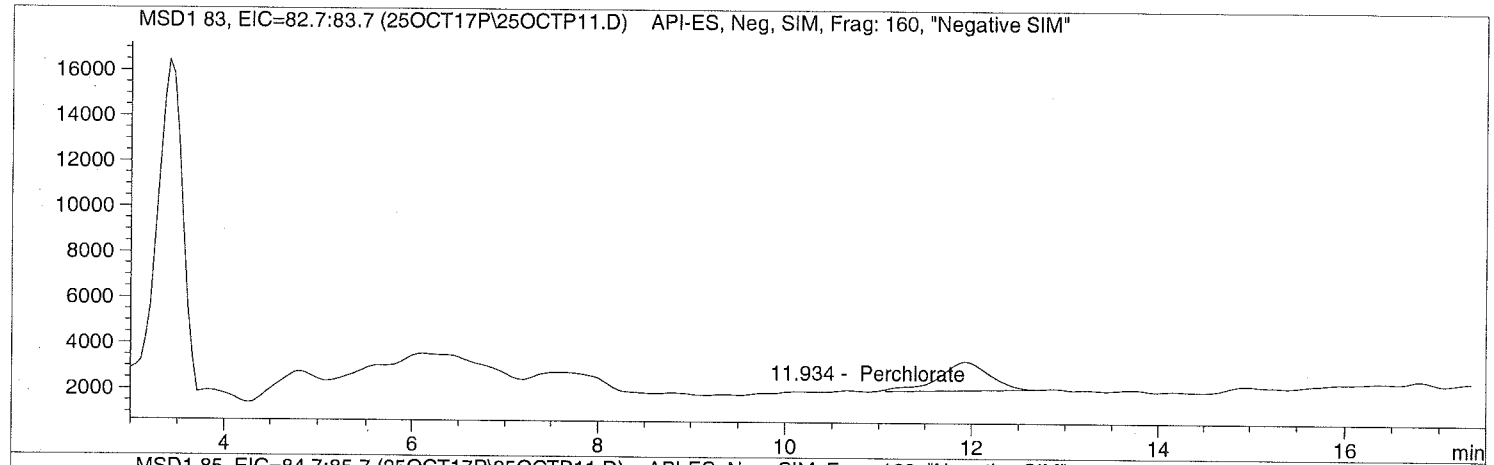
*** End of Report ***

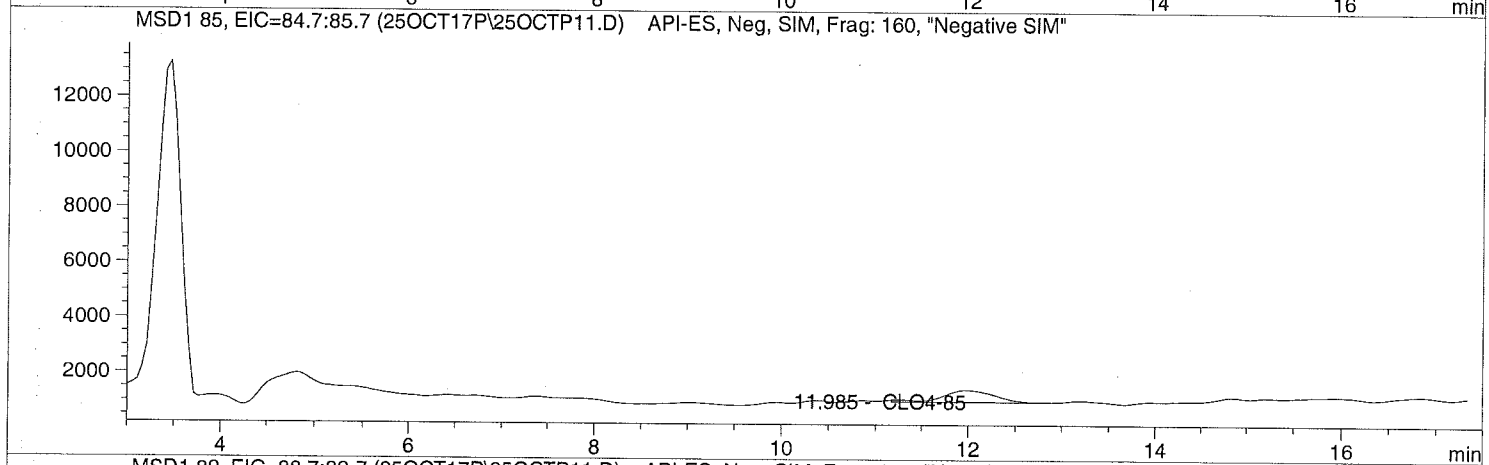
Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP11.D  Sample Name: 1729349001

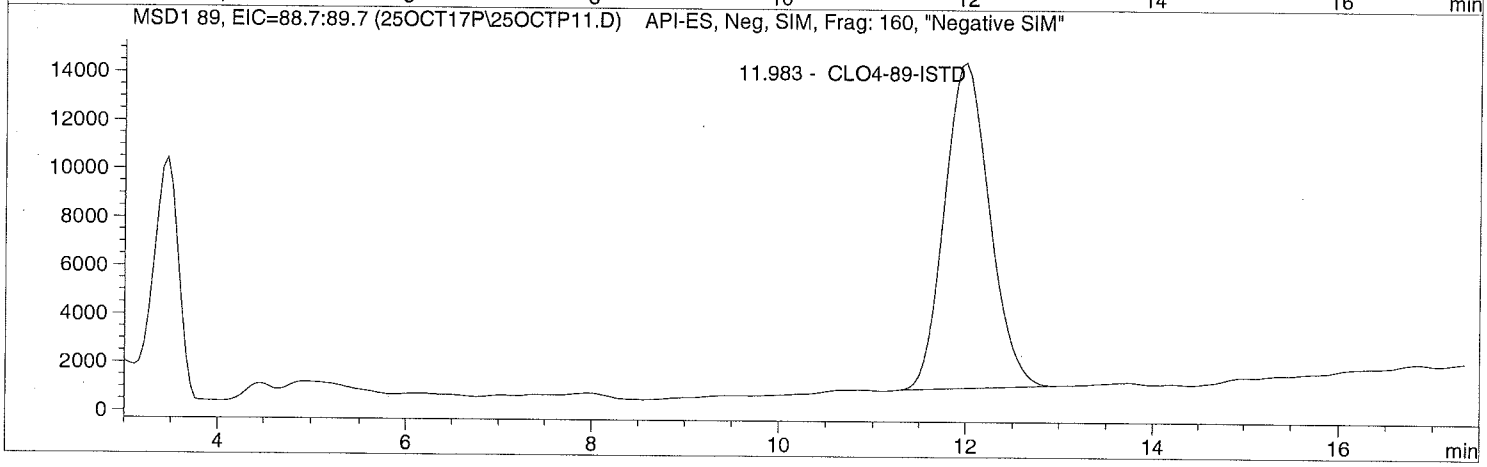
| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 12:22:07 | Seq Line: | 11 |
| Sample Name: | 1729349001 | Location: | Vial 91 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP11.D Sample Name: 1729349001

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 12:22:07 | Seq Line: | 11 |
| Sample Name: | 1729349001 | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 11.934 | BBA | 46725.3 | 0.4923 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.985 | BBA | 16396.4 | 0.5182 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.983 | PBA | 445548.6 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***

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

# WorkOrder: HS17100970

## Groundwater Treatment Plant Weekly Samples

## Bhate Environmental Associates, Inc.

Marcia Olive
445 Union Blvd Ste 129
Lakewood CO 80228

**08-Feb-2018**

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

October 31, 2017

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd Ste 129
Lakewood, CO 80228

Work Order: **HS17100970**

Laboratory Results for: **Groundwater Treatment Plant Weekly Samples**

Dear Marcia,

ALS Environmental received 2 sample(s) on Oct 19, 2017 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,

Sonia West

**Generated By: Dayna.Fisher**
Sonia West
Project Manager

**ALS Group USA, Corp** Date: 31-Oct-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Weekly Samples
**Work Order:** HS17100970

## SAMPLE SUMMARY

| Lab Samp ID | Client Sample ID | Matrix | TagNo | Collection Date | Date Received | Hold |
|---|---|---|---|---|---|---|
| HS17100970-01 | LH18/24-SP650_101817 | Water | | 18-Oct-2017 14:00 | 19-Oct-2017 08:25 | ☐ |
| HS17100970-02 | Trip Blank | Water | | 18-Oct-2017 00:01 | 19-Oct-2017 08:25 | ☐ |

**ALS Group USA, Corp** Date: 31-Oct-17

**Client:** Bhate Environmental Associates, Inc. **CASE NARRATIVE**
**Project:** Groundwater Treatment Plant Weekly Samples
**Work Order:** HS17100970

## GCMS Volatiles by Method SW8260

### Batch ID: R304072

**Sample ID: HS17100904-07MS**

- MS and MSD are for an unrelated sample

## WetChemistry by Method SW9056

### Batch ID: R304462

**Sample ID: LH18/24-SP650_101817 (HS17100970-01MS/MSD)**

- The MS and/or MSD recovery was outside of the control; however, the result in the parent sample is greater than 4x the spike amount. Chloride & Sulfate

**ALS Group USA, Corp** Date: 31-Oct-17

Client: Bhate Environmental Associates, Inc.
**ANALYTICAL REPORT**
Project: Groundwater Treatment Plant Weekly Samples
WorkOrder:HS17100970
Sample ID: LH18/24-SP650_101817
Lab ID:HS17100970-01
Collection Date: 18-Oct-2017 14:00
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 | 24-Oct-2017 15:19 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| 1,1-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| 1,1-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| 1,2,3-Trichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| 1,2,3-Trichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| 1,2,4-Trichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| 1,2-Dichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| 1,3-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| 1,4-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| 2-Hexanone | 1.0 | U | 1.0 | 1.0 | 2.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| 4-Chlorotoluene | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| 4-Methyl-2-pentanone | 1.0 | U | 0.70 | 1.0 | 2.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| Acetone | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| Bromobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 31-Oct-17

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Weekly Samples
Sample ID: LH18/24-SP650_101817
Collection Date: 18-Oct-2017 14:00

**ANALYTICAL REPORT**
WorkOrder:HS17100970
Lab ID:HS17100970-01
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 | 24-Oct-2017 15:19 |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| **cis-1,2-Dichloroethene** | **5.3** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 24-Oct-2017 15:19 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| Hexachlorobutadiene | 0.50 | U | 1.0 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| Methylene chloride | 0.50 | U | 0.40 | 0.50 | 2.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| n-Butylbenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 15:19 |
| **Vinyl chloride** | **0.90** | J | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 24-Oct-2017 15:19 |
| *Surr: 1,2-Dichloroethane-d4* | *106* | | | **0** | *81-118* | *%REC* | *1* | *24-Oct-2017 15:19* |
| *Surr: 4-Bromofluorobenzene* | *97.2* | | | **0** | *85-114* | *%REC* | *1* | *24-Oct-2017 15:19* |
| *Surr: Dibromofluoromethane* | *105* | | | **0** | *80-119* | *%REC* | *1* | *24-Oct-2017 15:19* |
| *Surr: Toluene-d8* | *95.0* | | | **0** | *89-112* | *%REC* | *1* | *24-Oct-2017 15:19* |
| **ANIONS BY SW9056A** | | **Method:SW9056** | | | | | | Analyst: JBA |
| **Chloride** | **601** | | **4.00** | **5.00** | **10.0** | **mg/L** | 20 | 30-Oct-2017 16:38 |
| **Sulfate** | **178** | | **4.00** | **5.00** | **10.0** | **mg/L** | 20 | 30-Oct-2017 16:38 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 31-Oct-17

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Weekly Samples
Sample ID: Trip Blank
Collection Date: 18-Oct-2017 00:01

**ANALYTICAL REPORT**
WorkOrder:HS17100970
Lab ID:HS17100970-02
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 | 24-Oct-2017 14:54 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| 1,1-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| 1,1-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| 1,2,3-Trichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| 1,2,3-Trichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| 1,2,4-Trichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| 1,2-Dichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| 1,3-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| 1,4-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| 2-Hexanone | 1.0 | U | 1.0 | 1.0 | 2.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| 4-Chlorotoluene | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| 4-Methyl-2-pentanone | 1.0 | U | 0.70 | 1.0 | 2.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| Acetone | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| Bromobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 31-Oct-17

Client: Bhate Environmental Associates, Inc.
**ANALYTICAL REPORT**
Project: Groundwater Treatment Plant Weekly Samples
WorkOrder:HS17100970
Sample ID: Trip Blank
Lab ID:HS17100970-02
Collection Date: 18-Oct-2017 00:01
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 | 24-Oct-2017 14:54 |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| Hexachlorobutadiene | 0.50 | U | 1.0 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| Methylene chloride | 0.50 | U | 0.40 | 0.50 | 2.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| n-Butylbenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 24-Oct-2017 14:54 |
| *Surr: 1,2-Dichloroethane-d4* | *105* | | | **0** | *81-118* | *%REC* | *1* | *24-Oct-2017 14:54* |
| *Surr: 4-Bromofluorobenzene* | *95.3* | | | **0** | *85-114* | *%REC* | *1* | *24-Oct-2017 14:54* |
| *Surr: Dibromofluoromethane* | *103* | | | **0** | *80-119* | *%REC* | *1* | *24-Oct-2017 14:54* |
| *Surr: Toluene-d8* | *93.5* | | | **0** | *89-112* | *%REC* | *1* | *24-Oct-2017 14:54* |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 31-Oct-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Weekly Samples
**WorkOrder:** HS17100970

## DATES REPORT

| Sample ID | Client Samp ID | Collection Date | TCLP Date | Prep Date | Analysis Date | DF |
|---|---|---|---|---|---|---|
| **Batch ID** R304072 | **Test Name :** VOLATILES ORGANICS BY METHOD 8260C | | | **Matrix:** Water | | |
| HS17100970-01 | LH18/24-SP650_101817 | 18 Oct 2017 14:00 | | | 24 Oct 2017 15:19 | 1 |
| HS17100970-02 | Trip Blank | 18 Oct 2017 00:01 | | | 24 Oct 2017 14:54 | 1 |
| **Batch ID** R304462 | **Test Name :** ANIONS BY SW9056A | | | **Matrix:** Water | | |
| HS17100970-01 | LH18/24-SP650_101817 | 18 Oct 2017 14:00 | | | 30 Oct 2017 16:38 | 20 |

**ALS Group USA, Corp** Date: 31-Oct-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Weekly Samples
**WorkOrder:** HS17100970

**QC BATCH REPORT**

**Batch ID: R304072** **Instrument: VOA6** **Method: SW8260**

**MBLK** Sample ID: **VBLKW-171024** Units: **ug/L** Analysis Date: **24-Oct-2017 14:04**
Client ID: Run ID: **VOA6_304072** SeqNo: **4278118** 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-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 | 0.50 | 1.0 | | | | | | | | U |
| 1,2,3-Trichloropropane | 0.50 | 1.0 | | | | | | | | U |
| 1,2,4-Trichlorobenzene | 0.50 | 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 | 0.50 | 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 | 0.50 | 1.0 | | | | | | | | U |
| 1,3-Dichloropropane | 0.50 | 1.0 | | | | | | | | U |
| 1,4-Dichlorobenzene | 0.50 | 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 | 1.0 | 2.0 | | | | | | | | U |
| 4-Chlorotoluene | 0.50 | 1.0 | | | | | | | | U |
| 4-Isopropyltoluene | 0.50 | 1.0 | | | | | | | | U |
| 4-Methyl-2-pentanone | 1.0 | 2.0 | | | | | | | | U |
| Acetone | 1.0 | 2.0 | | | | | | | | U |
| Benzene | 0.50 | 1.0 | | | | | | | | U |
| Bromobenzene | 0.50 | 1.0 | | | | | | | | U |
| Bromochloromethane | 0.50 | 1.0 | | | | | | | | U |
| Bromodichloromethane | 0.50 | 1.0 | | | | | | | | U |
| Bromoform | 0.50 | 1.0 | | | | | | | | U |
| Bromomethane | 0.50 | 1.0 | | | | | | | | U |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 31-Oct-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Weekly Samples
**WorkOrder:** HS17100970

**QC BATCH REPORT**

**Batch ID: R304072** **Instrument: VOA6** **Method: SW8260**

**MBLK** Sample ID: **VBLKW-171024** Units: **ug/L** Analysis Date: **24-Oct-2017 14:04**
Client ID: Run ID: **VOA6_304072** SeqNo: **4278118** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| 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 | 0.50 | 1.0 | | | | | | | | U |
| Isopropylbenzene | 0.50 | 1.0 | | | | | | | | U |
| m,p-Xylene | 1.0 | 2.0 | | | | | | | | U |
| Methylene chloride | 0.50 | 2.0 | | | | | | | | U |
| Naphthalene | 0.50 | 1.0 | | | | | | | | U |
| n-Butylbenzene | 0.50 | 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* | *51.99* | *1.0* | *50* | *0* | *104* | *81 - 118* | | | | |
| *Surr: 4-Bromofluorobenzene* | *47.65* | *1.0* | *50* | *0* | *95.3* | *85 - 114* | | | | |
| *Surr: Dibromofluoromethane* | *52.26* | *1.0* | *50* | *0* | *105* | *80 - 119* | | | | |
| *Surr: Toluene-d8* | *47.51* | *1.0* | *50* | *0* | *95.0* | *89 - 112* | | | | |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 31-Oct-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Weekly Samples
**WorkOrder:** HS17100970

**QC BATCH REPORT**

**Batch ID: R304072** **Instrument: VOA6** **Method: SW8260**

**LCS** Sample ID: **VLCSW-171024** Units: **ug/L** Analysis Date: **24-Oct-2017 12:50**
Client ID: Run ID: **VOA6_304072** SeqNo: **4278117** 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 | 45.21 | 1.0 | 50 | 0 | 90.4 | 78 - 124 | | | | |
| 1,1,1-Trichloroethane | 51.29 | 1.0 | 50 | 0 | 103 | 74 - 131 | | | | |
| 1,1,2,2-Tetrachloroethane | 50.27 | 1.0 | 50 | 0 | 101 | 71 - 121 | | | | |
| 1,1,2-Trichloroethane | 47.2 | 1.0 | 50 | 0 | 94.4 | 80 - 119 | | | | |
| 1,1-Dichloroethane | 52.78 | 1.0 | 50 | 0 | 106 | 77 - 125 | | | | |
| 1,1-Dichloroethene | 53.12 | 1.0 | 50 | 0 | 106 | 71 - 131 | | | | |
| 1,1-Dichloropropene | 50.41 | 1.0 | 50 | 0 | 101 | 79 - 125 | | | | |
| 1,2,3-Trichlorobenzene | 50.4 | 1.0 | 50 | 0 | 101 | 69 - 129 | | | | |
| 1,2,3-Trichloropropane | 49.04 | 1.0 | 50 | 0 | 98.1 | 73 - 122 | | | | |
| 1,2,4-Trichlorobenzene | 48.81 | 1.0 | 50 | 0 | 97.6 | 69 - 130 | | | | |
| 1,2,4-Trimethylbenzene | 43.97 | 1.0 | 50 | 0 | 87.9 | 76 - 124 | | | | |
| 1,2-Dibromo-3-chloropropane | 48.76 | 1.0 | 50 | 0 | 97.5 | 62 - 128 | | | | |
| 1,2-Dibromoethane | 47.28 | 1.0 | 50 | 0 | 94.6 | 77 - 121 | | | | |
| 1,2-Dichlorobenzene | 43.48 | 1.0 | 50 | 0 | 87.0 | 80 - 119 | | | | |
| 1,2-Dichloroethane | 50.11 | 1.0 | 50 | 0 | 100 | 73 - 128 | | | | |
| 1,2-Dichloropropane | 50.15 | 1.0 | 50 | 0 | 100 | 78 - 122 | | | | |
| 1,3,5-Trimethylbenzene | 43.88 | 1.0 | 50 | 0 | 87.8 | 75 - 124 | | | | |
| 1,3-Dichlorobenzene | 43.48 | 1.0 | 50 | 0 | 87.0 | 80 - 119 | | | | |
| 1,3-Dichloropropane | 46.93 | 1.0 | 50 | 0 | 93.9 | 80 - 119 | | | | |
| 1,4-Dichlorobenzene | 43.13 | 1.0 | 50 | 0 | 86.3 | 79 - 118 | | | | |
| 2,2-Dichloropropane | 52.78 | 1.0 | 50 | 0 | 106 | 60 - 139 | | | | |
| 2-Butanone | 118.3 | 2.0 | 100 | 0 | 118 | 56 - 143 | | | | |
| 2-Chlorotoluene | 45.13 | 1.0 | 50 | 0 | 90.3 | 79 - 122 | | | | |
| 2-Hexanone | 96.38 | 2.0 | 100 | 0 | 96.4 | 57 - 139 | | | | |
| 4-Chlorotoluene | 44.55 | 1.0 | 50 | 0 | 89.1 | 78 - 122 | | | | |
| 4-Isopropyltoluene | 42.88 | 1.0 | 50 | 0 | 85.8 | 77 - 127 | | | | |
| 4-Methyl-2-pentanone | 97.26 | 2.0 | 100 | 0 | 97.3 | 67 - 130 | | | | |
| Acetone | 119.5 | 2.0 | 100 | 0 | 119 | 39 - 160 | | | | |
| Benzene | 49.98 | 1.0 | 50 | 0 | 100.0 | 79 - 120 | | | | |
| Bromobenzene | 45.26 | 1.0 | 50 | 0 | 90.5 | 80 - 120 | | | | |
| Bromochloromethane | 50.97 | 1.0 | 50 | 0 | 102 | 78 - 123 | | | | |
| Bromodichloromethane | 49.65 | 1.0 | 50 | 0 | 99.3 | 79 - 125 | | | | |
| Bromoform | 46.56 | 1.0 | 50 | 0 | 93.1 | 66 - 130 | | | | |
| Bromomethane | 51.54 | 1.0 | 50 | 0 | 103 | 53 - 141 | | | | |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 31-Oct-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Weekly Samples
**WorkOrder:** HS17100970

**QC BATCH REPORT**

**Batch ID: R304072** **Instrument: VOA6** **Method: SW8260**

**LCS** Sample ID: **VLCSW-171024** Units: **ug/L** Analysis Date: **24-Oct-2017 12:50**
Client ID: Run ID: **VOA6_304072** SeqNo: **4278117** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Carbon disulfide | 102.5 | 2.0 | 100 | 0 | 102 | 64 - 133 | | | | |
| Carbon tetrachloride | 48.8 | 1.0 | 50 | 0 | 97.6 | 72 - 136 | | | | |
| Chlorobenzene | 46.38 | 1.0 | 50 | 0 | 92.8 | 80 - 120 | | | | |
| Chloroethane | 48.86 | 1.0 | 50 | 0 | 97.7 | 82 - 118 | | | | |
| Chloroform | 52.17 | 1.0 | 50 | 0 | 104 | 79 - 124 | | | | |
| Chloromethane | 51.74 | 1.0 | 50 | 0 | 103 | 50 - 139 | | | | |
| cis-1,2-Dichloroethene | 53.02 | 1.0 | 50 | 0 | 106 | 78 - 123 | | | | |
| cis-1,3-Dichloropropene | 49.58 | 1.0 | 50 | 0 | 99.2 | 75 - 124 | | | | |
| Dibromochloromethane | 46.54 | 1.0 | 50 | 0 | 93.1 | 74 - 126 | | | | |
| Dibromomethane | 51.14 | 1.0 | 50 | 0 | 102 | 79 - 123 | | | | |
| Dichlorodifluoromethane | 47.78 | 1.0 | 50 | 0 | 95.6 | 32 - 152 | | | | |
| Ethylbenzene | 46.42 | 1.0 | 50 | 0 | 92.8 | 79 - 121 | | | | |
| Hexachlorobutadiene | 42.96 | 1.0 | 50 | 0 | 85.9 | 66 - 134 | | | | |
| Isopropylbenzene | 46.64 | 1.0 | 50 | 0 | 93.3 | 72 - 131 | | | | |
| m,p-Xylene | 92.75 | 2.0 | 100 | 0 | 92.7 | 80 - 121 | | | | |
| Methylene chloride | 51.24 | 2.0 | 50 | 0 | 102 | 74 - 124 | | | | |
| Naphthalene | 46.92 | 1.0 | 50 | 0 | 93.8 | 61 - 128 | | | | |
| n-Butylbenzene | 45.01 | 1.0 | 50 | 0 | 90.0 | 75 - 128 | | | | |
| n-Propylbenzene | 44.35 | 1.0 | 50 | 0 | 88.7 | 76 - 126 | | | | |
| o-Xylene | 45.94 | 1.0 | 50 | 0 | 91.9 | 78 - 122 | | | | |
| sec-Butylbenzene | 42.41 | 1.0 | 50 | 0 | 84.8 | 77 - 126 | | | | |
| Styrene | 46.85 | 1.0 | 50 | 0 | 93.7 | 78 - 128 | | | | |
| tert-Butylbenzene | 42.21 | 1.0 | 50 | 0 | 84.4 | 78 - 124 | | | | |
| Tetrachloroethene | 45.16 | 1.0 | 50 | 0 | 90.3 | 74 - 129 | | | | |
| Toluene | 47.17 | 1.0 | 50 | 0 | 94.3 | 80 - 121 | | | | |
| trans-1,2-Dichloroethene | 52.76 | 1.0 | 50 | 0 | 106 | 75 - 124 | | | | |
| trans-1,3-Dichloropropene | 49.73 | 1.0 | 50 | 0 | 99.5 | 73 - 127 | | | | |
| Trichloroethene | 48.49 | 1.0 | 50 | 0 | 97.0 | 79 - 123 | | | | |
| Trichlorofluoromethane | 49.95 | 1.0 | 50 | 0 | 99.9 | 65 - 141 | | | | |
| Vinyl chloride | 51.71 | 1.0 | 50 | 0 | 103 | 58 - 137 | | | | |
| *Surr: 1,2-Dichloroethane-d4* | *51.48* | *1.0* | *50* | *0* | *103* | *81 - 118* | | | | |
| *Surr: 4-Bromofluorobenzene* | *48.6* | *1.0* | *50* | *0* | *97.2* | *85 - 114* | | | | |
| *Surr: Dibromofluoromethane* | *51.96* | *1.0* | *50* | *0* | *104* | *80 - 119* | | | | |
| *Surr: Toluene-d8* | *48.09* | *1.0* | *50* | *0* | *96.2* | *89 - 112* | | | | |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 31-Oct-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Weekly Samples
**WorkOrder:** HS17100970

**QC BATCH REPORT**

**Batch ID: R304072** **Instrument: VOA6** **Method: SW8260**

**MS** Sample ID: **HS17100904-07MS** Units: **ug/L** Analysis Date: **24-Oct-2017 16:09**
Client ID: Run ID: **VOA6_304072** SeqNo: **4278170** 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 | 43.4 | 1.0 | 50 | 0 | 86.8 | 78 - 124 | | | | |
| 1,1,1-Trichloroethane | 48.4 | 1.0 | 50 | 0 | 96.8 | 74 - 131 | | | | |
| 1,1,2,2-Tetrachloroethane | 52.36 | 1.0 | 50 | 0 | 105 | 71 - 121 | | | | |
| 1,1,2-Trichloroethane | 46.89 | 1.0 | 50 | 0 | 93.8 | 80 - 119 | | | | |
| 1,1-Dichloroethane | 50.7 | 1.0 | 50 | 0 | 101 | 77 - 125 | | | | |
| 1,1-Dichloroethene | 48.34 | 1.0 | 50 | 0 | 96.7 | 71 - 131 | | | | |
| 1,1-Dichloropropene | 45.33 | 1.0 | 50 | 0 | 90.7 | 79 - 125 | | | | |
| 1,2,3-Trichlorobenzene | 49.79 | 1.0 | 50 | 0 | 99.6 | 69 - 129 | | | | |
| 1,2,3-Trichloropropane | 52.34 | 1.0 | 50 | 0 | 105 | 73 - 122 | | | | |
| 1,2,4-Trichlorobenzene | 46.47 | 1.0 | 50 | 0 | 92.9 | 69 - 130 | | | | |
| 1,2,4-Trimethylbenzene | 40.42 | 1.0 | 50 | 0 | 80.8 | 76 - 124 | | | | |
| 1,2-Dibromo-3-chloropropane | 53.52 | 1.0 | 50 | 0 | 107 | 62 - 128 | | | | |
| 1,2-Dibromoethane | 47.44 | 1.0 | 50 | 0 | 94.9 | 77 - 121 | | | | |
| 1,2-Dichlorobenzene | 42.36 | 1.0 | 50 | 0 | 84.7 | 80 - 119 | | | | |
| 1,2-Dichloroethane | 49.91 | 1.0 | 50 | 0 | 99.8 | 73 - 128 | | | | |
| 1,2-Dichloropropane | 48.19 | 1.0 | 50 | 0 | 96.4 | 78 - 122 | | | | |
| 1,3,5-Trimethylbenzene | 40.34 | 1.0 | 50 | 0 | 80.7 | 75 - 124 | | | | |
| 1,3-Dichlorobenzene | 41.7 | 1.0 | 50 | 0 | 83.4 | 80 - 119 | | | | |
| 1,3-Dichloropropane | 46.38 | 1.0 | 50 | 0 | 92.8 | 80 - 119 | | | | |
| 1,4-Dichlorobenzene | 41.08 | 1.0 | 50 | 0 | 82.2 | 79 - 118 | | | | |
| 2,2-Dichloropropane | 49.02 | 1.0 | 50 | 0 | 98.0 | 60 - 139 | | | | |
| 2-Butanone | 129.4 | 2.0 | 100 | 0 | 129 | 56 - 143 | | | | |
| 2-Chlorotoluene | 41.92 | 1.0 | 50 | 0 | 83.8 | 79 - 122 | | | | |
| 2-Hexanone | 104.5 | 2.0 | 100 | 0 | 104 | 57 - 139 | | | | |
| 4-Chlorotoluene | 42.06 | 1.0 | 50 | 0 | 84.1 | 78 - 122 | | | | |
| 4-Isopropyltoluene | 37.92 | 1.0 | 50 | 0 | 75.8 | 77 - 127 | | | | S |
| 4-Methyl-2-pentanone | 107.2 | 2.0 | 100 | 0 | 107 | 67 - 130 | | | | |
| Acetone | 120.3 | 2.0 | 100 | 0 | 120 | 39 - 160 | | | | |
| Benzene | 46.84 | 1.0 | 50 | 0 | 93.7 | 79 - 120 | | | | |
| Bromobenzene | 43.75 | 1.0 | 50 | 0 | 87.5 | 80 - 120 | | | | |
| Bromochloromethane | 49.93 | 1.0 | 50 | 0 | 99.9 | 78 - 123 | | | | |
| Bromodichloromethane | 47.83 | 1.0 | 50 | 0 | 95.7 | 79 - 125 | | | | |
| Bromoform | 46.73 | 1.0 | 50 | 0 | 93.5 | 66 - 130 | | | | |
| Bromomethane | 34.69 | 1.0 | 50 | 0 | 69.4 | 53 - 141 | | | | |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 31-Oct-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Weekly Samples
**WorkOrder:** HS17100970

**QC BATCH REPORT**

**Batch ID: R304072** **Instrument: VOA6** **Method: SW8260**

**MS** Sample ID: **HS17100904-07MS** Units: **ug/L** Analysis Date: **24-Oct-2017 16:09**
Client ID: Run ID: **VOA6_304072** SeqNo: **4278170** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Carbon disulfide | 97.02 | 2.0 | 100 | 0 | 97.0 | 64 - 133 | | | | |
| Carbon tetrachloride | 43.25 | 1.0 | 50 | 0 | 86.5 | 72 - 136 | | | | |
| Chlorobenzene | 43.4 | 1.0 | 50 | 0 | 86.8 | 80 - 120 | | | | |
| Chloroethane | 68.97 | 1.0 | 50 | 0 | 138 | 82 - 118 | | | | S |
| Chloroform | 51.19 | 1.0 | 50 | 0 | 102 | 79 - 124 | | | | |
| Chloromethane | 48.02 | 1.0 | 50 | 0 | 96.0 | 50 - 139 | | | | |
| cis-1,2-Dichloroethene | 62.67 | 1.0 | 50 | 11.51 | 102 | 78 - 123 | | | | |
| cis-1,3-Dichloropropene | 48.37 | 1.0 | 50 | 0 | 96.7 | 75 - 124 | | | | |
| Dibromochloromethane | 45.56 | 1.0 | 50 | 0 | 91.1 | 74 - 126 | | | | |
| Dibromomethane | 50.21 | 1.0 | 50 | 0 | 100 | 79 - 123 | | | | |
| Dichlorodifluoromethane | 45.34 | 1.0 | 50 | 0 | 90.7 | 32 - 152 | | | | |
| Ethylbenzene | 41.78 | 1.0 | 50 | 0 | 83.6 | 79 - 121 | | | | |
| Hexachlorobutadiene | 34.69 | 1.0 | 50 | 0 | 69.4 | 66 - 134 | | | | |
| Isopropylbenzene | 41.63 | 1.0 | 50 | 0 | 83.3 | 72 - 131 | | | | |
| m,p-Xylene | 84.17 | 2.0 | 100 | 0 | 84.2 | 80 - 121 | | | | |
| Methylene chloride | 50.41 | 2.0 | 50 | 0 | 101 | 74 - 124 | | | | |
| Naphthalene | 49 | 1.0 | 50 | 0 | 98.0 | 61 - 128 | | | | |
| n-Butylbenzene | 38.64 | 1.0 | 50 | 0 | 77.3 | 75 - 128 | | | | |
| n-Propylbenzene | 39.92 | 1.0 | 50 | 0 | 79.8 | 76 - 126 | | | | |
| o-Xylene | 42.37 | 1.0 | 50 | 0 | 84.7 | 78 - 122 | | | | |
| sec-Butylbenzene | 37.46 | 1.0 | 50 | 0 | 74.9 | 77 - 126 | | | | S |
| Styrene | 42.88 | 1.0 | 50 | 0 | 85.8 | 78 - 128 | | | | |
| tert-Butylbenzene | 38.27 | 1.0 | 50 | 0 | 76.5 | 78 - 124 | | | | S |
| Tetrachloroethene | 40.56 | 1.0 | 50 | 0 | 81.1 | 74 - 129 | | | | |
| Toluene | 43.97 | 1.0 | 50 | 0 | 87.9 | 80 - 121 | | | | |
| trans-1,2-Dichloroethene | 50.37 | 1.0 | 50 | 1.368 | 98.0 | 75 - 124 | | | | |
| trans-1,3-Dichloropropene | 49.59 | 1.0 | 50 | 0 | 99.2 | 73 - 127 | | | | |
| Trichloroethene | 51.91 | 1.0 | 50 | 7.685 | 88.4 | 79 - 123 | | | | |
| Trichlorofluoromethane | 44.91 | 1.0 | 50 | 0 | 89.8 | 65 - 141 | | | | |
| Vinyl chloride | 49.51 | 1.0 | 50 | 0.8637 | 97.3 | 58 - 137 | | | | |
| *Surr: 1,2-Dichloroethane-d4* | *53.12* | *1.0* | *50* | *0* | *106* | *81 - 118* | | | | |
| *Surr: 4-Bromofluorobenzene* | *48.36* | *1.0* | *50* | *0* | *96.7* | *85 - 114* | | | | |
| *Surr: Dibromofluoromethane* | *51.79* | *1.0* | *50* | *0* | *104* | *80 - 119* | | | | |
| *Surr: Toluene-d8* | *47.8* | *1.0* | *50* | *0* | *95.6* | *89 - 112* | | | | |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 31-Oct-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Weekly Samples
**WorkOrder:** HS17100970

**QC BATCH REPORT**

**Batch ID: R304072** **Instrument: VOA6** **Method: SW8260**

**MSD** Sample ID: **HS17100904-07MSD** Units: **ug/L** Analysis Date: **24-Oct-2017 16:34**
Client ID: Run ID: **VOA6_304072** SeqNo: **4278171** 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 | 45.41 | 1.0 | 50 | 0 | 90.8 | 78 - 124 | 43.4 | 4.52 | 20 | |
| 1,1,1-Trichloroethane | 50.85 | 1.0 | 50 | 0 | 102 | 74 - 131 | 48.4 | 4.94 | 20 | |
| 1,1,2,2-Tetrachloroethane | 55.22 | 1.0 | 50 | 0 | 110 | 71 - 121 | 52.36 | 5.33 | 20 | |
| 1,1,2-Trichloroethane | 48.27 | 1.0 | 50 | 0 | 96.5 | 80 - 119 | 46.89 | 2.91 | 20 | |
| 1,1-Dichloroethane | 52.64 | 1.0 | 50 | 0 | 105 | 77 - 125 | 50.7 | 3.76 | 20 | |
| 1,1-Dichloroethene | 52.65 | 1.0 | 50 | 0 | 105 | 71 - 131 | 48.34 | 8.52 | 20 | |
| 1,1-Dichloropropene | 48.32 | 1.0 | 50 | 0 | 96.6 | 79 - 125 | 45.33 | 6.38 | 20 | |
| 1,2,3-Trichlorobenzene | 61.87 | 1.0 | 50 | 0 | 124 | 69 - 129 | 49.79 | 21.6 | 20 | R |
| 1,2,3-Trichloropropane | 54.04 | 1.0 | 50 | 0 | 108 | 73 - 122 | 52.34 | 3.2 | 20 | |
| 1,2,4-Trichlorobenzene | 54.52 | 1.0 | 50 | 0 | 109 | 69 - 130 | 46.47 | 16 | 20 | |
| 1,2,4-Trimethylbenzene | 43.88 | 1.0 | 50 | 0 | 87.8 | 76 - 124 | 40.42 | 8.22 | 20 | |
| 1,2-Dibromo-3-chloropropane | 59.52 | 1.0 | 50 | 0 | 119 | 62 - 128 | 53.52 | 10.6 | 20 | |
| 1,2-Dibromoethane | 49.13 | 1.0 | 50 | 0 | 98.3 | 77 - 121 | 47.44 | 3.51 | 20 | |
| 1,2-Dichlorobenzene | 44.77 | 1.0 | 50 | 0 | 89.5 | 80 - 119 | 42.36 | 5.53 | 20 | |
| 1,2-Dichloroethane | 51.21 | 1.0 | 50 | 0 | 102 | 73 - 128 | 49.91 | 2.57 | 20 | |
| 1,2-Dichloropropane | 49.67 | 1.0 | 50 | 0 | 99.3 | 78 - 122 | 48.19 | 3.01 | 20 | |
| 1,3,5-Trimethylbenzene | 42.56 | 1.0 | 50 | 0 | 85.1 | 75 - 124 | 40.34 | 5.36 | 20 | |
| 1,3-Dichlorobenzene | 43.45 | 1.0 | 50 | 0 | 86.9 | 80 - 119 | 41.7 | 4.12 | 20 | |
| 1,3-Dichloropropane | 48.53 | 1.0 | 50 | 0 | 97.1 | 80 - 119 | 46.38 | 4.53 | 20 | |
| 1,4-Dichlorobenzene | 43.56 | 1.0 | 50 | 0 | 87.1 | 79 - 118 | 41.08 | 5.86 | 20 | |
| 2,2-Dichloropropane | 51.38 | 1.0 | 50 | 0 | 103 | 60 - 139 | 49.02 | 4.71 | 20 | |
| 2-Butanone | 132.4 | 2.0 | 100 | 0 | 132 | 56 - 143 | 129.4 | 2.35 | 20 | |
| 2-Chlorotoluene | 44.29 | 1.0 | 50 | 0 | 88.6 | 79 - 122 | 41.92 | 5.5 | 20 | |
| 2-Hexanone | 108.8 | 2.0 | 100 | 0 | 109 | 57 - 139 | 104.5 | 4.05 | 20 | |
| 4-Chlorotoluene | 44.69 | 1.0 | 50 | 0 | 89.4 | 78 - 122 | 42.06 | 6.06 | 20 | |
| 4-Isopropyltoluene | 41.37 | 1.0 | 50 | 0 | 82.7 | 77 - 127 | 37.92 | 8.7 | 20 | |
| 4-Methyl-2-pentanone | 112.7 | 2.0 | 100 | 0 | 113 | 67 - 130 | 107.2 | 5.04 | 20 | |
| Acetone | 126.5 | 2.0 | 100 | 0 | 127 | 39 - 160 | 120.3 | 5.08 | 20 | |
| Benzene | 48.5 | 1.0 | 50 | 0 | 97.0 | 79 - 120 | 46.84 | 3.48 | 20 | |
| Bromobenzene | 44.61 | 1.0 | 50 | 0 | 89.2 | 80 - 120 | 43.75 | 1.94 | 20 | |
| Bromochloromethane | 49.98 | 1.0 | 50 | 0 | 100.0 | 78 - 123 | 49.93 | 0.097 | 20 | |
| Bromodichloromethane | 49.05 | 1.0 | 50 | 0 | 98.1 | 79 - 125 | 47.83 | 2.52 | 20 | |
| Bromoform | 48.81 | 1.0 | 50 | 0 | 97.6 | 66 - 130 | 46.73 | 4.34 | 20 | |
| Bromomethane | 42.49 | 1.0 | 50 | 0 | 85.0 | 53 - 141 | 34.69 | 20.2 | 20 | R |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 31-Oct-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Weekly Samples
**WorkOrder:** HS17100970

**QC BATCH REPORT**

**Batch ID: R304072** **Instrument: VOA6** **Method: SW8260**

**MSD** Sample ID: **HS17100904-07MSD** Units: **ug/L** Analysis Date: **24-Oct-2017 16:34**
Client ID: Run ID: **VOA6_304072** SeqNo: **4278171** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | RPD %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Carbon disulfide | 102.9 | 2.0 | 100 | 0 | 103 | 64 - 133 | 97.02 | 5.9 | 20 | |
| Carbon tetrachloride | 47.57 | 1.0 | 50 | 0 | 95.1 | 72 - 136 | 43.25 | 9.52 | 20 | |
| Chlorobenzene | 46.03 | 1.0 | 50 | 0 | 92.1 | 80 - 120 | 43.4 | 5.88 | 20 | |
| Chloroethane | 30.53 | 1.0 | 50 | 0 | 61.1 | 82 - 118 | 68.97 | 77.3 | 20 | SR |
| Chloroform | 52.31 | 1.0 | 50 | 0 | 105 | 79 - 124 | 51.19 | 2.16 | 20 | |
| Chloromethane | 48.99 | 1.0 | 50 | 0 | 98.0 | 50 - 139 | 48.02 | 1.99 | 20 | |
| cis-1,2-Dichloroethene | 63.24 | 1.0 | 50 | 11.51 | 103 | 78 - 123 | 62.67 | 0.896 | 20 | |
| cis-1,3-Dichloropropene | 49.04 | 1.0 | 50 | 0 | 98.1 | 75 - 124 | 48.37 | 1.38 | 20 | |
| Dibromochloromethane | 47.16 | 1.0 | 50 | 0 | 94.3 | 74 - 126 | 45.56 | 3.44 | 20 | |
| Dibromomethane | 52.16 | 1.0 | 50 | 0 | 104 | 79 - 123 | 50.21 | 3.81 | 20 | |
| Dichlorodifluoromethane | 47.64 | 1.0 | 50 | 0 | 95.3 | 32 - 152 | 45.34 | 4.95 | 20 | |
| Ethylbenzene | 44.59 | 1.0 | 50 | 0 | 89.2 | 79 - 121 | 41.78 | 6.51 | 20 | |
| Hexachlorobutadiene | 39.79 | 1.0 | 50 | 0 | 79.6 | 66 - 134 | 34.69 | 13.7 | 20 | |
| Isopropylbenzene | 44.62 | 1.0 | 50 | 0 | 89.2 | 72 - 131 | 41.63 | 6.92 | 20 | |
| m,p-Xylene | 89.66 | 2.0 | 100 | 0 | 89.7 | 80 - 121 | 84.17 | 6.32 | 20 | |
| Methylene chloride | 51.58 | 2.0 | 50 | 0 | 103 | 74 - 124 | 50.41 | 2.29 | 20 | |
| Naphthalene | 63.04 | 1.0 | 50 | 0 | 126 | 61 - 128 | 49 | 25.1 | 20 | R |
| n-Butylbenzene | 42.63 | 1.0 | 50 | 0 | 85.3 | 75 - 128 | 38.64 | 9.82 | 20 | |
| n-Propylbenzene | 43.11 | 1.0 | 50 | 0 | 86.2 | 76 - 126 | 39.92 | 7.67 | 20 | |
| o-Xylene | 45.06 | 1.0 | 50 | 0 | 90.1 | 78 - 122 | 42.37 | 6.17 | 20 | |
| sec-Butylbenzene | 40.84 | 1.0 | 50 | 0 | 81.7 | 77 - 126 | 37.46 | 8.62 | 20 | |
| Styrene | 46 | 1.0 | 50 | 0 | 92.0 | 78 - 128 | 42.88 | 7.03 | 20 | |
| tert-Butylbenzene | 41.41 | 1.0 | 50 | 0 | 82.8 | 78 - 124 | 38.27 | 7.87 | 20 | |
| Tetrachloroethene | 43.7 | 1.0 | 50 | 0 | 87.4 | 74 - 129 | 40.56 | 7.44 | 20 | |
| Toluene | 46.14 | 1.0 | 50 | 0 | 92.3 | 80 - 121 | 43.97 | 4.82 | 20 | |
| trans-1,2-Dichloroethene | 52.92 | 1.0 | 50 | 1.368 | 103 | 75 - 124 | 50.37 | 4.95 | 20 | |
| trans-1,3-Dichloropropene | 49.99 | 1.0 | 50 | 0 | 100.0 | 73 - 127 | 49.59 | 0.818 | 20 | |
| Trichloroethene | 53.29 | 1.0 | 50 | 7.685 | 91.2 | 79 - 123 | 51.91 | 2.64 | 20 | |
| Trichlorofluoromethane | 48.55 | 1.0 | 50 | 0 | 97.1 | 65 - 141 | 44.91 | 7.78 | 20 | |
| Vinyl chloride | 52.89 | 1.0 | 50 | 0.8637 | 104 | 58 - 137 | 49.51 | 6.61 | 20 | |
| *Surr: 1,2-Dichloroethane-d4* | *52.8* | *1.0* | *50* | *0* | *106* | *81 - 118* | *53.12* | *0.595* | *20* | |
| *Surr: 4-Bromofluorobenzene* | *48.54* | *1.0* | *50* | *0* | *97.1* | *85 - 114* | *48.36* | *0.373* | *20* | |
| *Surr: Dibromofluoromethane* | *52.7* | *1.0* | *50* | *0* | *105* | *80 - 119* | *51.79* | *1.74* | *20* | |
| *Surr: Toluene-d8* | *48.39* | *1.0* | *50* | *0* | *96.8* | *89 - 112* | *47.8* | *1.24* | *20* | |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 31-Oct-17

| | |
|---|---|
| **Client:** | Bhate Environmental Associates, Inc. |
| **Project:** | Groundwater Treatment Plant Weekly Samples |
| **WorkOrder:** | HS17100970 |

**QC BATCH REPORT**

| | | | | | |
|---|---|---|---|---|---|
| **Batch ID:** | **R304072** | **Instrument:** | **VOA6** | **Method:** | **SW8260** |

| | | |
|---|---|---|
| **The following samples were analyzed in this batch:** | HS17100970-01 | HS17100970-02 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 31-Oct-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Weekly Samples
**WorkOrder:** HS17100970

**QC BATCH REPORT**

**Batch ID: R304462** **Instrument: ICS2100** **Method: SW9056**

**MBLK** Sample ID: **WBLKW1-103017** Units: **mg/L** Analysis Date: **30-Oct-2017 13:04**
Client ID: Run ID: **ICS2100_304462** SeqNo: **4287025** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 0.243 | 0.500 | | | | | | | | J |
| Sulfate | 0.250 | 0.500 | | | | | | | | U |

**LCS** Sample ID: **WLCSW1-103017** Units: **mg/L** Analysis Date: **30-Oct-2017 13:19**
Client ID: Run ID: **ICS2100_304462** SeqNo: **4287026** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 20.05 | 0.500 | 20 | 0 | 100 | 80 - 120 | | | | |
| Sulfate | 19.93 | 0.500 | 20 | 0 | 99.6 | 80 - 120 | | | | |

**LCSD** Sample ID: **WLCSDW1-103017** Units: **mg/L** Analysis Date: **30-Oct-2017 13:33**
Client ID: Run ID: **ICS2100_304462** SeqNo: **4287027** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 19.9 | 0.500 | 20 | 0 | 99.5 | 80 - 120 | 20.05 | 0.776 | 20 | |
| Sulfate | 20.09 | 0.500 | 20 | 0 | 100 | 80 - 120 | 19.93 | 0.815 | 20 | |

**MS** Sample ID: **HS17100970-01MS** Units: **mg/L** Analysis Date: **30-Oct-2017 16:09**
Client ID: **LH18/24-SP650_101817** Run ID: **ICS2100_304462** SeqNo: **4287031** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 601.7 | 0.500 | 10 | 575.6 | 260 | 80 - 120 | | | | SEO |
| Sulfate | 193.1 | 0.500 | 10 | 177.5 | 156 | 80 - 120 | | | | SEO |

**MSD** Sample ID: **HS17100970-01MSD** Units: **mg/L** Analysis Date: **30-Oct-2017 16:24**
Client ID: **LH18/24-SP650_101817** Run ID: **ICS2100_304462** SeqNo: **4287032** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 575.4 | 0.500 | 10 | 575.6 | -2.85 | 80 - 120 | 601.7 | 4.47 | 20 | SEO |
| Sulfate | 184 | 0.500 | 10 | 177.5 | 64.7 | 80 - 120 | 193.1 | 4.85 | 20 | SEO |

**The following samples were analyzed in this batch:** HS17100970-01

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 31-Oct-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Weekly Samples
**WorkOrder:** **HS17100970**

**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 | 17-027-0 | 27-Mar-2018 |
| California | 2919 2016-2018 | 31-Jul-2018 |
| Illinois | 004112 | 09-May-2018 |
| Kentucky | 123043 | 30-Apr-2018 |
| Louisiana | 03087 2017-2017 | 30-Jun-2018 |
| North Carolina | 624-2017 | 31-Dec-2017 |
| North Dakota | R193 2017-2017 | 30-Apr-2018 |
| Oklahoma | 2017-088 | 31-Aug-2018 |
| Texas | T104704231-17-19 | 30-Apr-2018 |

**ALS Group USA, Corp** Date: 31-Oct-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Weekly Samples
**Work Order:** HS17100970

## SAMPLE TRACKING

| Lab Samp ID | Client Sample ID | Action | Date | Person | New Location |
|---|---|---|---|---|---|
| HS17100970-01 | LH18/24-SP650_101817 | Login | 10/19/2017 11:38:29 AM | CGG | GCP089 |
| HS17100970-01 | LH18/24-SP650_101817 | Login | 10/19/2017 11:38:29 AM | CGG | VOA096 |
| HS17100970-02 | Trip Blank | Login | 10/19/2017 11:40:42 AM | CGG | VOA096 |

**ALS Group USA, Corp** Date: 31-Oct-17

## Sample Receipt Checklist

Client Name: Bhate Environmental
Work Order: HS17100970
Date/Time Received: **19-Oct-2017 08:25**
Received by: **JRM**

Checklist completed by: *Raegen Giga* eSignature 19-Oct-2017 Date
Reviewed by: *Corey Grandits* eSignature 25-Oct-2017 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 ☑ |
| Chain of custody present? | Yes ☑ | No ☐ | |
| Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | |
| Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | |
| Samples in proper container/bottle? | Yes ☑ | No ☐ | |
| Sample containers intact? | Yes ☑ | No ☐ | |
| TX1005 solids received in hermetically sealed vials? | Yes ☐ | No ☐ | N/A ☑ |
| 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): | 1.0c/1.3c uc/c | IR 11 | |
| Cooler(s)/Kit(s): | 43237 | | |
| Date/Time sample(s) sent to storage: | 10/19/2017 11:25 | | |
| 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:

HS17100970

# CHAIN OF CUSTODY

Bhate Environmental Associates, Inc.
Groundwater Treatment Plant Weekly Samples

Name Of Lab Shipping To: ALS 10450 Stancliff Rd. Suite 210, Houston, Tx. 77099 ATTN: SONIA WEST

**Project:** BHATE
LONGHORN ARMY AMMN. PLANT (LHAAP)
GROUNDWATER TREATMENT PLANT (GWTP)
KARNACK, TEXAS

**Project No.** NWO1312.0150.0 16.0001

**Job:** GROUNDWATER TREATMENT PLANT BI-WEEKLY SAMPLES

**Prepared By:** Scott Beesinger

**P.O Number**

| Field Sample I.D. | Sample Matrix | Date / Time | MS / MSD | No. OF CONTAINERS | Analyses: VOC | CHLORIDE, SULFATE | | | | | | | | | Remarks (Preservatives, etc.) | Lab I.D.# |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LH18/24-SP650_101817 | Water | 10/18/17 / 14:00 | | 3 | 3 | | | | | | | | | | HCL | |
| LH18/24-SP650_101817 | Water | 10/18/17 / 14:00 | | 1 | | 1 | | | | | | | | | NONE | |
| Trip Blank | Water | 10/18/17 | | 2 | 2 | | | | | | | | | | HCL | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |

**Additional Remarks:** STANDARD TAT ON ALL PARAMETERS.

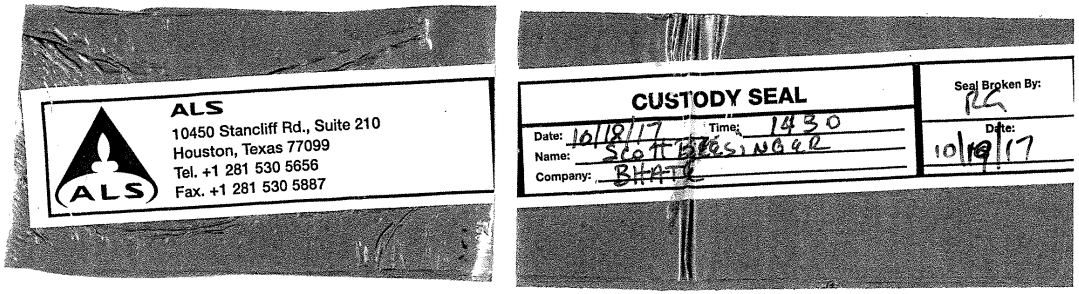
| Relinquished By: | Date | Time | Received By: | Date | Time | Relinquished By: | Date | Time | Received By: | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Scott Beesinger | 10/18/17 | 14:30 | JM | 10/19/17 | 08:25 | | | | | | |

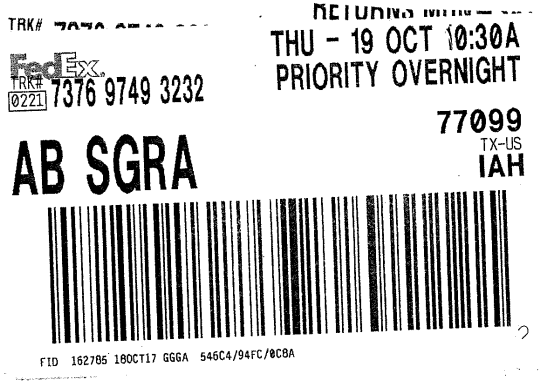
**9For Lab Use Only**

| Received At Lab By: | Date | Time | Airbill No. | Opened By: | Date | Time | Temp of Container | Seal No. | Condition |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |

Remarks: Cooler- Blue 1411
Temp 1.0 CF03

(Word) S:\1-ces\Forms\Chain of Custody - BiWeekly


ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887
CUSTODY SEAL
Date: 10/18/17
Time: 1430
Name: SCOTT BRESSINGER
Company: BHATE
Seal Broken By:
Date:
10/19/17


THU - 19 OCT 10:30A
PRIORITY OVERNIGHT
FedEx
TRK# 0221 7376 9749 3232
77099
TX-US
IAH
AB SGRA
FID 162705 18OCT17 GGGA 546C4/94FC/0C8A

# Volatile Organics Raw Data

Bhate Environmental Associates, Inc.
Project: GROUNDWATER TREATMENT PLANT
WEEKLY SAMPLES
ALS WO# HS17100970

# FORM 2
## WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17100970

| | CLIENT SAMPLE NO. | SMC1 (DCE) # | SMC2 # | SMC3 (TOL) # | OTHER # | TOT OUT |
|---|---|---|---|---|---|---|
| 01 | VLCSW-171024 | 103 | 104 | 96 | 97 | 0 |
| 02 | VBLKW-0171024 | 104 | 104 | 95 | 95 | 0 |
| 03 | HS17100970-02 | 104 | 103 | 94 | 95 | 0 |
| 04 | HS17100970-01 | 106 | 104 | 95 | 97 | 0 |
| 05 | HS17100904-07 | 106 | 104 | 96 | 97 | 0 |
| 06 | HS17100904-07 | 106 | 105 | 97 | 97 | 0 |
| 07 | | | | | | |
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| 28 | | | | | | |

| | | QC LIMITS |
|---|---|---|
| SMC1 (DCE) | = 1,2-Dichloroethane-d4 | (70-130) |
| SMC2 | = Dibromofluoromethane | (70-130) |
| SMC3 (TOL) | = Toluene-d8 | (70-130) |
| OTHER | = 4-Bromofluorobenzene | (70-130) |

# Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17100970

Matrix Spike - Sample No.: VSTD-ICV

| COMPOUND | SPIKE ADDED (ug/L) | SAMPLE AMOUNT (ug/l) | % REC # | QC. LIMITS REC. |
|---|---|---|---|---|
| 1,1,1-Trichloroethane | 50.00 | 45.45 | 91 | 80-120 |
| 1,1,1,2-Tetrachloroetha | 50.00 | 45.86 | 92 | 80-120 |
| tert-Butylbenzene | 50.00 | 43.64 | 87 | 80-120 |
| Naphthalene | 50.00 | 50.89 | 102 | 80-120 |
| sec-Butylbenzene | 50.00 | 43.25 | 86 | 80-120 |
| 1,1,2,2-Tetrachloroetha | 50.00 | 49.86 | 100 | 80-120 |
| 1,1,2-Trichloroethane | 50.00 | 46.21 | 92 | 80-120 |
| 1,1-Dichloropropene | 50.00 | 46.75 | 94 | 80-120 |
| 1,1-Dichloroethane | 50.00 | 46.49 | 93 | 80-120 |
| 1,1-Dichloroethene | 50.00 | 45.63 | 91 | 80-120 |
| 1,2,4-Trichlorobenzene | 50.00 | 53.20 | 106 | 80-120 |
| 1,2-Dibromo-3-Chloropro | 50.00 | 50.77 | 102 | 80-120 |
| 1,2-Dibromoethane | 50.00 | 47.49 | 95 | 80-120 |
| 1,2-Dichlorobenzene | 50.00 | 46.34 | 93 | 80-120 |
| 1,2-Dichloroethane | 50.00 | 46.42 | 93 | 80-120 |
| 1,2-Dichloropropane | 50.00 | 46.89 | 94 | 80-120 |
| 1,3-Dichlorobenzene | 50.00 | 46.21 | 92 | 80-120 |
| 1,4-Dichlorobenzene | 50.00 | 45.32 | 91 | 80-120 |
| 2-Butanone | 100.00 | 99.69 | 100 | 80-120 |
| 2-Hexanone | 100.00 | 92.25 | 92 | 80-120 |
| 4-Methyl-2-Pentanone | 100.00 | 90.89 | 91 | 80-120 |
| Acetone | 100.00 | 97.69 | 98 | 80-120 |
| Benzene | 50.00 | 47.52 | 95 | 80-120 |
| Bromodichloromethane | 50.00 | 47.09 | 94 | 80-120 |
| Bromoform | 50.00 | 45.93 | 92 | 80-120 |
| Bromomethane | 50.00 | 50.64 | 101 | 80-120 |
| Carbon Disulfide | 100.00 | 91.15 | 91 | 80-120 |
| Carbon Tetrachloride | 50.00 | 46.42 | 93 | 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.: HS17100970

Matrix Spike - Sample No.: VSTD-ICV

| COMPOUND | SPIKE ADDED (ug/L) | SAMPLE AMOUNT (ug/l) | % REC # | QC. LIMITS REC. |
|---|---|---|---|---|
| Chlorobenzene | 50.00 | 46.71 | 93 | 80-120 |
| Chloroethane | 50.00 | 44.27 | 88 | 80-120 |
| Chloroform | 50.00 | 46.28 | 92 | 80-120 |
| Chloromethane | 50.00 | 48.14 | 96 | 80-120 |
| cis-1,2-Dichloroethene | 50.00 | 47.14 | 94 | 80-120 |
| cis-1,3-Dichloropropene | 50.00 | 47.03 | 94 | 80-120 |
| Dibromochloromethane | 50.00 | 46.97 | 94 | 80-120 |
| Dichlorodifluoromethane | 50.00 | 45.01 | 90 | 80-120 |
| Ethylbenzene | 50.00 | 46.52 | 93 | 80-120 |
| Isopropylbenzene | 50.00 | 45.91 | 92 | 80-120 |
| Methylene Chloride | 50.00 | 45.22 | 90 | 80-120 |
| Tetrachloroethene | 50.00 | 46.15 | 92 | 80-120 |
| Toluene | 50.00 | 47.45 | 95 | 80-120 |
| trans-1,2-Dichloroethen | 50.00 | 45.95 | 92 | 80-120 |
| trans-1,3-Dichloroprope | 50.00 | 46.65 | 93 | 80-120 |
| Trichloroethene | 50.00 | 45.84 | 92 | 80-120 |
| Trichlorofluoromethane | 50.00 | 45.60 | 91 | 80-120 |
| Vinyl Chloride | 50.00 | 46.90 | 94 | 80-120 |
| m,p-Xylenes | 100.00 | 93.04 | 93 | 80-120 |
| o-Xylene | 50.00 | 45.76 | 92 | 80-120 |
| Xylenes (total) | 150.00 | 138.81 | 92 | 80-120 |
| 1,2,3-Trichloropropane | 50.00 | 47.72 | 95 | 80-120 |
| 1,2,3-Trichlorobenzene | 50.00 | 55.08 | 110 | 80-120 |
| 1,2,4-Trimethylbenzene | 50.00 | 45.71 | 91 | 80-120 |
| 1,3,5-Trimethylbenzene | 50.00 | 45.86 | 92 | 80-120 |
| 2,2-Dichloropropane | 50.00 | 46.49 | 93 | 80-120 |
| 1,3-Dichloropropane | 50.00 | 45.93 | 92 | 80-120 |
| 2-Chlorotoluene | 50.00 | 46.71 | 93 | 80-120 |

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

* Values outside of QC limits

COMMENTS: _____

_____

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17100970

Matrix Spike - Sample No.: VSTD-ICV

| COMPOUND | SPIKE ADDED (ug/L) | SAMPLE AMOUNT (ug/l) | % REC # | QC. LIMITS REC. |
|---|---|---|---|---|
| 4-Chlorotoluene | 50.00 | 45.96 | 92 | 80-120 |
| p-Isopropyltoluene | 50.00 | 44.84 | 90 | 80-120 |
| Bromochloromethane | 50.00 | 44.64 | 89 | 80-120 |
| Bromobenzene | 50.00 | 47.50 | 95 | 80-120 |
| Dibromomethane | 50.00 | 46.91 | 94 | 80-120 |
| Hexachlorobutadiene | 50.00 | 47.14 | 94 | 80-120 |
| n-Propylbenzene | 50.00 | 45.22 | 90 | 80-120 |
| n-Butylbenzene | 50.00 | 45.85 | 92 | 80-120 |
| Styrene | 50.00 | 46.93 | 94 | 80-120 |

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

* Values outside of QC limits

COMMENTS: _____

_____

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17100970

Lab File ID: X101001 BFB Injection Date: 10/10/17

Instrument ID: VOA6 BFB Injection Time: 1005

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 | 23.9 |
| 75 | 30.0 - 60.0% of mass 95 | 52.0 |
| 95 | Base Peak, 100% relative abundance | 100.0 |
| 96 | 5.0 - 9.0% of mass 95 | 7.0 |
| 173 | Less than 2.0% of mass 174 | 0.6 ( 1.1)1 |
| 174 | Greater than 50.0% of mass 95 | 53.5 |
| 175 | 5.0 - 9.0% of mass 174 | 4.4 ( 8.2)1 |
| 176 | 95.0 - 101.0% of mass 174 | 52.4 ( 98.0)1 |
| 177 | 5.0 - 9.0% of mass 176 | 3.9 ( 7.4)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 | VSTD000.5 | VSTD000.5 | X101003 | 10/10/17 | 1128 |
| 02 | VSTD001 | VSTD001 | X101004 | 10/10/17 | 1153 |
| 03 | VSTD002 | VSTD002 | X101005 | 10/10/17 | 1218 |
| 04 | VSTD005 | VSTD005 | X101006 | 10/10/17 | 1243 |
| 05 | VSTD020 | VSTD020 | X101007 | 10/10/17 | 1308 |
| 06 | VSTD050 | VSTD050 | X101008 | 10/10/17 | 1333 |
| 07 | VSTD100 | VSTD100 | X101009 | 10/10/17 | 1358 |
| 08 | VSTD150 | VSTD150 | X101010 | 10/10/17 | 1422 |
| 09 | VSTD200 | VSTD200 | X101011 | 10/10/17 | 1447 |
| 10 | VSTD-ICV | VSTD-ICV | X101013 | 10/10/17 | 1723 |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |
| 16 | | | | | |
| 17 | | | | | |
| 18 | | | | | |
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| 20 | | | | | |
| 21 | | | | | |
| 22 | | | | | |



FORM V VOA

# FORM 6
## VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17100970

Instrument ID: VOA6 Calibration Date(s): 10/10/17 10/10/17

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1014 1447

LAB FILE ID: RF0.5: X101003 RF1: X101004 RF2: X101005
RF5: X101006 RF20: X101007 RF50: X101008

| COMPOUND | RF0.5 | RF1 | RF2 | RF5 | RF20 | RF50 |
|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | 1.228 | 0.948 | 1.009 | 0.994 | 0.924 | 0.928 |
| 1,1,1,2-Tetrachloroethane | 0.460 | 0.386 | 0.374 | 0.371 | 0.351 | 0.339 |
| tert-Butylbenzene | 2.089 | 1.511 | 1.603 | 1.557 | 1.423 | 1.442 |
| Naphthalene | 2916 | 4030 | 8735 | 27541 | 125593 | 326975 |
| sec-Butylbenzene | 2.643 | 1.890 | 2.239 | 2.113 | 1.905 | 1.985 |
| 1,1,2,2-Tetrachloroethane | 4206 | 6731 | 13394 | 31643 | 118197 | 277176 |
| 1,1,2-Trichloroethane | 0.395 | 0.337 | 0.345 | 0.330 | 0.314 | 0.301 |
| 1,1-Dichloropropene | 0.582 | 0.525 | 0.578 | 0.546 | 0.523 | 0.532 |
| 1,1-Dichloroethane | 1.593 | 1.289 | 1.385 | 1.334 | 1.261 | 1.243 |
| 1,1-Dichloroethene | 0.704 | 0.519 | 0.627 | 0.575 | 0.558 | 0.560 |
| 1,2,4-Trichlorobenzene | 0.459 | 0.329 | 0.385 | 0.428 | 0.420 | 0.449 |
| 1,2-Dibromo-3-Chloropropane | 522 | 911 | 1484 | 3907 | 13745 | 33919 |
| 1,2-Dibromoethane | 0.448 | 0.366 | 0.398 | 0.401 | 0.373 | 0.356 |
| 1,2-Dichlorobenzene | 1.647 | 1.213 | 1.258 | 1.240 | 1.195 | 1.179 |
| 1,2-Dichloroethane | 0.652 | 0.557 | 0.614 | 0.562 | 0.534 | 0.534 |
| 1,2-Dichloropropane | 0.526 | 0.450 | 0.463 | 0.501 | 0.451 | 0.439 |
| 1,3-Dichlorobenzene | 1.700 | 1.267 | 1.295 | 1.278 | 1.193 | 1.232 |
| 1,4-Dichlorobenzene | 1.828 | 1.342 | 1.414 | 1.337 | 1.228 | 1.274 |
| 2-Butanone | 0.288 | 0.276 | 0.300 | 0.293 | 0.296 | 0.310 |
| 2-Hexanone | 0.516 | 0.371 | 0.414 | 0.398 | 0.398 | 0.385 |
| 4-Methyl-2-Pentanone | 0.524 | 0.434 | 0.429 | 0.449 | 0.433 | 0.405 |
| Acetone | 4739 | 6610 | 8765 | 17904 | 57879 | 134851 |
| Benzene | 1.813 | 1.689 | 1.671 | 1.657 | 1.577 | 1.579 |
| Bromodichloromethane | 0.719 | 0.588 | 0.559 | 0.559 | 0.534 | 0.527 |
| Bromoform | 0.357 | 0.271 | 0.281 | 0.283 | 0.274 | 0.262 |
| Bromomethane | 0.571 | 0.543 | 0.449 | 0.474 | 0.432 | 0.450 |
| Carbon Disulfide | 2.178 | 1.776 | 1.997 | 1.863 | 1.763 | 1.763 |
| Carbon Tetrachloride | 0.465 | 0.430 | 0.509 | 0.463 | 0.434 | 0.444 |
| Chlorobenzene | 1.228 | 1.021 | 1.063 | 1.009 | 0.978 | 0.958 |
| Chloroethane | 0.610 | 0.588 | 0.539 | 0.540 | 0.493 | 0.477 |
| Chloroform | 1.376 | 1.250 | 1.332 | 1.256 | 1.173 | 1.158 |
| Chloromethane | 4746 | 8919 | 17438 | 39933 | 152259 | 371695 |
| cis-1,2-Dichloroethene | 0.896 | 0.744 | 0.764 | 0.753 | 0.741 | 0.715 |
| cis-1,3-Dichloropropene | 0.854 | 0.710 | 0.727 | 0.734 | 0.700 | 0.685 |
| Dibromochloromethane | 0.503 | 0.404 | 0.445 | 0.437 | 0.410 | 0.402 |
| Dichlorodifluoromethane | 0.758 | 0.559 | 0.682 | 0.578 | 0.583 | 0.638 |
| Ethylbenzene | 0.654 | 0.484 | 0.534 | 0.514 | 0.492 | 0.477 |
| Isopropylbenzene | 1.465 | 1.107 | 1.316 | 1.266 | 1.211 | 1.171 |
| Methylene Chloride | 0.914 | 0.860 | 0.823 | 0.800 | 0.715 | 0.706 |
| Tetrachloroethene | 0.333 | 0.252 | 0.279 | 0.269 | 0.264 | 0.256 |
| Toluene | 1.909 | 1.566 | 1.657 | 1.638 | 1.589 | 1.534 |
| trans-1,2-Dichloroethene | 0.858 | 0.621 | 0.702 | 0.687 | 0.657 | 0.642 |
| trans-1,3-Dichloropropene | 0.717 | 0.647 | 0.642 | 0.614 | 0.586 | 0.590 |
| Trichloroethene | 0.504 | 0.400 | 0.407 | 0.400 | 0.378 | 0.375 |

FORM VI VOA

# FORM 6
## VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1710097

Instrument ID: VOA6 Calibration Date(s): 10/10/17 10/10/17

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1014 1447

LAB FILE ID: RF0.5: X101003 RF1: X101004 RF2: X101005
RF5: X101006 RF20: X101007 RF50: X101008

| COMPOUND | RF0.5 | RF1 | RF2 | RF5 | RF20 | RF50 |
|---|---|---|---|---|---|---|
| Trichlorofluoromethane | 1.077 | 0.749 | 0.852 | 0.805 | 0.762 | 0.827 |
| Vinyl Chloride | 0.975 | 0.708 | 0.902 | 0.847 | 0.825 | 0.850 |
| m,p-Xylenes | 0.786 | 0.573 | 0.619 | 0.615 | 0.589 | 0.581 |
| o-Xylene | 0.791 | 0.618 | 0.649 | 0.600 | 0.598 | 0.578 |
| Xylenes (total) | 0.792 | 0.586 | 0.619 | 0.603 | 0.590 | 0.585 |
| 1,2,3-Trichloropropane | 1.122 | 0.764 | 0.849 | 0.868 | 0.872 | 0.862 |
| 1,2,3-Trichlorobenzene | 0.347 | 0.229 | 0.279 | 0.307 | 0.294 | 0.315 |
| 1,2,4-Trimethylbenzene | 2.808 | 2.098 | 2.331 | 2.218 | 2.106 | 2.122 |
| 1,3,5-Trimethylbenzene | 2.536 | 1.954 | 2.144 | 2.136 | 1.973 | 1.979 |
| 2,2-Dichloropropane | 1.119 | 1.050 | 1.048 | 1.039 | 0.992 | 0.984 |
| 1,3-Dichloropropane | 0.840 | 0.674 | 0.758 | 0.698 | 0.664 | 0.642 |
| 2-Chlorotoluene | 2.478 | 2.024 | 2.172 | 2.086 | 1.946 | 1.975 |
| 4-Chlorotoluene | 3.044 | 2.325 | 2.468 | 2.408 | 2.280 | 2.301 |
| p-Isopropyltoluene | 2.339 | 1.654 | 1.821 | 1.858 | 1.677 | 1.718 |
| Bromochloromethane | 0.377 | 0.376 | 0.396 | 0.353 | 0.318 | 0.307 |
| Bromobenzene | 1.016 | 0.806 | 0.877 | 0.872 | 0.808 | 0.838 |
| Dibromomethane | 0.316 | 0.240 | 0.290 | 0.266 | 0.258 | 0.256 |
| Hexachlorobutadiene | 1021 | 1041 | 2823 | 6979 | 21569 | 58354 |
| n-Propylbenzene | 3.874 | 2.899 | 3.132 | 3.176 | 2.908 | 2.959 |
| n-Butylbenzene | 1.823 | 1.240 | 1.433 | 1.530 | 1.406 | 1.496 |
| Styrene | 1.350 | 1.127 | 1.156 | 1.109 | 1.072 | 1.035 |
| 1,2-Dichloroethane-d4 | 4869 | 8408 | 14296 | 35051 | 138773 | 340941 |
| Dibromofluoromethane | 3706 | 6592 | 11210 | 26199 | 111395 | 270013 |
| Toluene-d8 | 13883 | 25142 | 43375 | 94423 | 398851 | 994742 |
| 4-Bromofluorobenzene | 5297 | 8638 | 16347 | 36044 | 142465 | 354904 |

FORM VI VOA

# FORM 6
## VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1710097

Instrument ID: VOA6 Calibration Date(s): 10/10/17 10/10/17

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1014 1447

LAB FILE ID: RF100: X101009 RF150: X101010 RF200: X101011

| COMPOUND | RF100 | RF150 | RF200 |
|---|---|---|---|
| 1,1,1-Trichloroethane | 0.930 | 0.936 | 0.930 |
| 1,1,1,2-Tetrachloroethane | 0.350 | 0.346 | 0.339 |
| tert-Butylbenzene | 1.433 | 1.437 | 1.402 |
| Naphthalene | 677057 | 1113941 | 1535347 |
| sec-Butylbenzene | 1.917 | 1.974 | 1.932 |
| 1,1,2,2-Tetrachloroethane | 545730 | 810128 | 1055403 |
| 1,1,2-Trichloroethane | 0.301 | 0.294 | 0.288 |
| 1,1-Dichloropropene | 0.529 | 0.540 | 0.531 |
| 1,1-Dichloroethane | 1.262 | 1.243 | 1.210 |
| 1,1-Dichloroethene | 0.562 | 0.557 | 0.550 |
| 1,2,4-Trichlorobenzene | 0.452 | 0.477 | 0.481 |
| 1,2-Dibromo-3-Chloropropane | 65831 | 100495 | 136011 |
| 1,2-Dibromoethane | 0.356 | 0.350 | 0.344 |
| 1,2-Dichlorobenzene | 1.191 | 1.170 | 1.155 |
| 1,2-Dichloroethane | 0.529 | 0.530 | 0.511 |
| 1,2-Dichloropropane | 0.447 | 0.444 | 0.439 |
| 1,3-Dichlorobenzene | 1.230 | 1.198 | 1.182 |
| 1,4-Dichlorobenzene | 1.289 | 1.247 | 1.231 |
| 2-Butanone | 0.297 | 0.299 | 0.301 |
| 2-Hexanone | 0.400 | 0.399 | 0.404 |
| 4-Methyl-2-Pentanone | 0.417 | 0.414 | 0.416 |
| Acetone | 257034 | 376636 | 501328 |
| Benzene | 1.611 | 1.583 | 1.572 |
| Bromodichloromethane | 0.541 | 0.539 | 0.533 |
| Bromoform | 0.266 | 0.258 | 0.255 |
| Bromomethane | 0.466 | 0.496 | 0.484 |
| Carbon Disulfide | 1.753 | 1.753 | 1.749 |
| Carbon Tetrachloride | 0.450 | 0.459 | 0.462 |
| Chlorobenzene | 0.982 | 0.951 | 0.934 |
| Chloroethane | 0.475 | 0.478 | 0.468 |
| Chloroform | 1.173 | 1.147 | 1.119 |
| Chloromethane | 748853 | 1119443 | 1476509 |
| cis-1,2-Dichloroethene | 0.727 | 0.714 | 0.694 |
| cis-1,3-Dichloropropene | 0.698 | 0.702 | 0.704 |
| Dibromochloromethane | 0.408 | 0.399 | 0.393 |
| Dichlorodifluoromethane | 0.619 | 0.669 | 0.667 |
| Ethylbenzene | 0.486 | 0.478 | 0.471 |
| Isopropylbenzene | 1.179 | 1.182 | 1.159 |
| Methylene Chloride | 0.712 | 0.701 | 0.692 |
| Tetrachloroethene | 0.257 | 0.255 | 0.252 |
| Toluene | 1.560 | 1.520 | 1.496 |
| trans-1,2-Dichloroethene | 0.647 | 0.636 | 0.629 |
| trans-1,3-Dichloropropene | 0.598 | 0.596 | 0.584 |
| Trichloroethene | 0.385 | 0.387 | 0.385 |

# FORM 6
## VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1710097

Instrument ID: VOA6 Calibration Date(s): 10/10/17 10/10/17

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1014 1447

LAB FILE ID: RF100: X101009 RF150: X101010 RF200: X101011

| COMPOUND | RF100 | RF150 | RF200 |
|---|---|---|---|
| Trichlorofluoromethane | 0.805 | 0.838 | 0.825 |
| Vinyl Chloride | 0.858 | 0.871 | 0.868 |
| m,p-Xylenes | 0.583 | 0.577 | 0.565 |
| o-Xylene | 0.588 | 0.574 | 0.563 |
| Xylenes (total) | 0.594 | 0.597 | 0.585 |
| 1,2,3-Trichloropropane | 0.879 | 0.842 | 0.814 |
| 1,2,3-Trichlorobenzene | 0.324 | 0.345 | 0.356 |
| 1,2,4-Trimethylbenzene | 2.105 | 2.077 | 2.011 |
| 1,3,5-Trimethylbenzene | 1.990 | 1.968 | 1.910 |
| 2,2-Dichloropropane | 0.990 | 1.000 | 0.984 |
| 1,3-Dichloropropane | 0.644 | 0.622 | 0.620 |
| 2-Chlorotoluene | 1.977 | 1.901 | 1.878 |
| 4-Chlorotoluene | 2.320 | 2.262 | 2.192 |
| p-Isopropyltoluene | 1.672 | 1.703 | 1.668 |
| Bromochloromethane | 0.301 | 0.295 | 0.283 |
| Bromobenzene | 0.845 | 0.805 | 0.792 |
| Dibromomethane | 0.258 | 0.252 | 0.246 |
| Hexachlorobutadiene | 96788 | 161761 | 223916 |
| n-Propylbenzene | 2.972 | 2.924 | 2.867 |
| n-Butylbenzene | 1.411 | 1.458 | 1.409 |
| Styrene | 1.071 | 1.028 | 1.029 |
| 1,2-Dichloroethane-d4 | 681709 | | |
| Dibromofluoromethane | 550814 | | |
| Toluene-d8 | 2037259 | | |
| 4-Bromofluorobenzene | 718688 | | |

FORM VI VOA

# FORM 6
## VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1710097

Instrument ID: VOA6 Calibration Date(s): 10/10/17 10/10/17

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1014 1447

| COMPOUND | CURVE | COEFFICENTS A0 | COEFFICENTS A1 | COEFFICENTS A2 | %RSD OR R^2 | MAX %RSD OR R^2 |
|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | AVRG | | 0.98078541 | | 9.945 | 15.000 |
| 1,1,1,2-Tetrachloroethane | AVRG | | 0.36856885 | | 10.291 | 15.000 |
| tert-Butylbenzene | AVRG | | 1.54433337 | | 13.942 | 15.000 |
| Naphthalene | LINR | 5.948e-002 | 0.80478733 | | 0.9974376 | 0.9900000 |
| sec-Butylbenzene | AVRG | | 2.06624995 | | 11.819 | 15.000 |
| 1,1,2,2-Tetrachloroethane | LINR | -1.96e-002 | 1.15153646 | | 0.9995894 | 0.9900000 |
| 1,1,2-Trichloroethane | AVRG | | 0.32271760 | | 10.408 | 15.000 |
| 1,1-Dichloropropene | AVRG | | 0.54300023 | | 4.127 | 15.000 |
| 1,1-Dichloroethane | AVRG | | 1.31320487 | | 8.954 | 15.000 |
| 1,1-Dichloroethene | AVRG | | 0.57907612 | | 9.446 | 15.000 |
| 1,2,4-Trichlorobenzene | AVRG | | 0.43124571 | | 11.274 | 15.000 |
| 1,2-Dibromo-3-Chloropropane | LINR | 1.753e-003 | 9.07193640 | | 0.9997738 | 0.9900000 |
| 1,2-Dibromoethane | AVRG | | 0.37687398 | | 8.821 | 15.000 |
| 1,2-Dichlorobenzene | AVRG | | 1.24996367 | | 12.202 | 15.000 |
| 1,2-Dichloroethane | AVRG | | 0.55819611 | | 8.292 | 15.000 |
| 1,2-Dichloropropane | AVRG | | 0.46231513 | | 6.642 | 15.000 |
| 1,3-Dichlorobenzene | AVRG | | 1.28616380 | | 12.463 | 15.000 |
| 1,4-Dichlorobenzene | AVRG | | 1.35457164 | | 13.860 | 15.000 |
| 2-Butanone | AVRG | | 0.29561958 | | 3.122 | 15.000 |
| 2-Hexanone | AVRG | | 0.40971185 | | 10.159 | 15.000 |
| 4-Methyl-2-Pentanone | AVRG | | 0.43560474 | | 8.186 | 15.000 |
| Acetone | LINR | -6.28e-002 | 5.84029333 | | 0.9999375 | 0.9900000 |
| Benzene | AVRG | | 1.63914659 | | 4.822 | 15.000 |
| Bromodichloromethane | AVRG | | 0.56661926 | | 10.649 | 15.000 |
| Bromoform | AVRG | | 0.27860296 | | 11.125 | 15.000 |
| Bromomethane | AVRG | | 0.48495516 | | 9.401 | 15.000 |
| Carbon Disulfide | AVRG | | 1.84393774 | | 8.108 | 15.000 |
| Carbon Tetrachloride | AVRG | | 0.45733692 | | 5.084 | 15.000 |
| Chlorobenzene | AVRG | | 1.01385254 | | 8.827 | 15.000 |
| Chloroethane | AVRG | | 0.51879772 | | 10.217 | 15.000 |
| Chloroform | AVRG | | 1.22047141 | | 7.263 | 15.000 |
| Chloromethane | LINR | 5.277e-003 | 0.98055583 | | 0.9999346 | 0.9900000 |
| cis-1,2-Dichloroethene | AVRG | | 0.74988740 | | 7.865 | 15.000 |
| cis-1,3-Dichloropropene | AVRG | | 0.72370601 | | 7.038 | 15.000 |
| Dibromochloromethane | AVRG | | 0.42234822 | | 8.233 | 15.000 |
| Dichlorodifluoromethane | AVRG | | 0.63903284 | | 9.791 | 15.000 |
| Ethylbenzene | AVRG | | 0.51008269 | | 11.307 | 15.000 |
| Isopropylbenzene | AVRG | | 1.22852311 | | 8.767 | 15.000 |
| Methylene Chloride | AVRG | | 0.76949993 | | 10.659 | 15.000 |
| Tetrachloroethene | AVRG | | 0.26836531 | | 9.658 | 15.000 |
| Toluene | AVRG | | 1.60762897 | | 7.748 | 15.000 |
| trans-1,2-Dichloroethene | AVRG | | 0.67549576 | | 10.873 | 15.000 |
| trans-1,3-Dichloropropene | AVRG | | 0.61935471 | | 6.985 | 15.000 |
| Trichloroethene | AVRG | | 0.40237296 | | 9.830 | 15.000 |

FORM VI VOA

# FORM 6
## VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1710097

Instrument ID: VOA6 Calibration Date(s): 10/10/17 10/10/17

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1014 1447

| COMPOUND | CURVE | COEFFICENTS A0 | COEFFICENTS A1 | COEFFICENTS A2 | %RSD OR R^2 | MAX %RSD OR R^2 |
|---|---|---|---|---|---|---|
| Trichlorofluoromethane | AVRG | | 0.83790218 | | 11.423 | 15.000 |
| Vinyl Chloride | AVRG | | 0.85620998 | | 8.228 | 15.000 |
| m,p-Xylenes | AVRG | | 0.60978023 | | 11.275 | 15.000 |
| o-Xylene | AVRG | | 0.61758240 | | 11.314 | 15.000 |
| Xylenes (total) | AVRG | | 0.61670238 | | 10.803 | 15.000 |
| 1,2,3-Trichloropropane | AVRG | | 0.87475241 | | 11.389 | 15.000 |
| 1,2,3-Trichlorobenzene | AVRG | | 0.31068032 | | 12.866 | 15.000 |
| 1,2,4-Trimethylbenzene | AVRG | | 2.20857016 | | 10.999 | 15.000 |
| 1,3,5-Trimethylbenzene | AVRG | | 2.06575900 | | 9.383 | 15.000 |
| 2,2-Dichloropropane | AVRG | | 1.02299813 | | 4.430 | 15.000 |
| 1,3-Dichloropropane | AVRG | | 0.68466482 | | 10.538 | 15.000 |
| 2-Chlorotoluene | AVRG | | 2.04860978 | | 9.020 | 15.000 |
| 4-Chlorotoluene | AVRG | | 2.40002499 | | 10.600 | 15.000 |
| p-Isopropyltoluene | AVRG | | 1.78996364 | | 12.181 | 15.000 |
| Bromochloromethane | AVRG | | 0.33401360 | | 12.547 | 15.000 |
| Bromobenzene | AVRG | | 0.85099476 | | 8.103 | 15.000 |
| Dibromomethane | AVRG | | 0.26490593 | | 9.023 | 15.000 |
| Hexachlorobutadiene | LINR | 1.229e-002 | 5.58830222 | | 0.9967239 | 0.9900000 |
| n-Propylbenzene | AVRG | | 3.07907830 | | 10.271 | 15.000 |
| n-Butylbenzene | AVRG | | 1.46742302 | | 10.616 | 15.000 |
| Styrene | AVRG | | 1.10860465 | | 9.139 | 15.000 |
| 1,2-Dichloroethane-d4 | 2ORDR | -3.04e-003 | 1.13108115 | -2.49e-002 | 0.9999968 | 0.9900000 |
| Dibromofluoromethane | 2ORDR | -2.69e-003 | 1.44083816 | -6.55e-002 | 0.9999603 | 0.9900000 |
| Toluene-d8 | 2ORDR | -3.34e-003 | 0.67361520 | -1.64e-002 | 0.9999692 | 0.9900000 |
| 4-Bromofluorobenzene | 2ORDR | -5.03e-003 | 1.87811049 | -0.1026315 | 0.9999914 | 0.9900000 |

FORM VI VOA

# MSVOA06 -Logbook

**Batch:** 29513
**Date:** 10-10-2017
**Method:** 8260
**Comments:**

**Analyst:** Presenta Cabascango
**Reviewer:**
**Laboratory:** Houston

| # | Samp ID | Type | Analyzed | DF | Init Wt/Vol | Final Vol | File ID | Matrix | Status | pH |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | BFB | TUNE | 10-10-2017 10:05 am | 1.00 | 50 mL | 50 mL | X101001.D | Liquid | Y | NA |
| | *auto find/ purged* | | | | | | | | | |
| 2 | VSTD000.25 | ICAL1 | 10-10-2017 10:14 am | 1.00 | 50 mL | 50 mL | X101002.D | Liquid | Y | NA |
| | *0.10 uL cal std/100 mL DI* | | | | | | | | | |
| 3 | VSTD000.5 | ICAL2 | 10-10-2017 11:28 am | 1.00 | 50 mL | 50 mL | X101003.D | Liquid | Y | NA |
| | *0.10 uL cal std/50 mL DI* | | | | | | | | | |
| 4 | VSTD001 | ICAL3 | 10-10-2017 11:53 am | 1.00 | 50 mL | 50 mL | X101004.D | Liquid | Y | NA |
| | *0.20 uL cal std/50 mL DI* | | | | | | | | | |
| 5 | VSTD002 | ICAL4 | 10-10-2017 12:18 pm | 1.00 | 50 mL | 50 mL | X101005.D | Liquid | Y | NA |
| | *0.40 uL cal std/50 mL DI* | | | | | | | | | |
| 6 | VSTD005 | ICAL5 | 10-10-2017 12:43 pm | 1.00 | 50 mL | 50 mL | X101006.D | Liquid | Y | NA |
| | *1.0 uL cal std/50 mL DI* | | | | | | | | | |
| 7 | VSTD020 | ICAL6 | 10-10-2017 01:08 pm | 1.00 | 50 mL | 50 mL | X101007.D | Liquid | Y | NA |
| | *4.0 uL cal std/50 mL DI* | | | | | | | | | |
| 8 | VSTD050 | ICAL7 | 10-10-2017 01:33 pm | 1.00 | 50 mL | 50 mL | X101008.D | Liquid | Y | NA |
| | *10 uL cal std/50 mL DI* | | | | | | | | | |
| 9 | VSTD100 | ICAL8 | 10-10-2017 01:58 pm | 1.00 | 50 mL | 50 mL | X101009.D | Liquid | Y | NA |
| | *20 uL cal std/50 mL DI* | | | | | | | | | |
| 10 | VSTD150 | ICAL9 | 10-10-2017 02:22 pm | 1.00 | 50 mL | 50 mL | X101010.D | Liquid | Y | NA |
| | *30 uL cal std/50 mL DI* | | | | | | | | | |
| 11 | VSTD200 | ICAL | 10-10-2017 02:47 pm | 1.00 | 50 mL | 50 mL | X101011.D | Liquid | Y | NA |
| | *40 uL cal std/50 mL DI* | | | | | | | | | |
| 12 | BLKW | SAMP | 10-10-2017 04:29 pm | 1.00 | 50 mL | 50 mL | X101012.D | Liquid | Y | NA |
| 13 | VSTD050 | ICV | 10-10-2017 05:23 pm | 1.00 | 50 mL | 50 mL | X101013.D | Liquid | Y | NA |
| | *10 uL icv std/50 mL DI* | | | | | | | | | |

| Chemical | Value |
|---|---|
| SURR SPK ID | 29810-94-03 |
| IS ID | 29810-94-04 |
| ICV STD ID | 29814-87-01 |
| CAL STD ID | 29810-97-01/02 |
| BFB ID | 29810-94-03 |
| pH Paper | n/a |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101001.D



Date : 10-OCT-2017 10:05

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

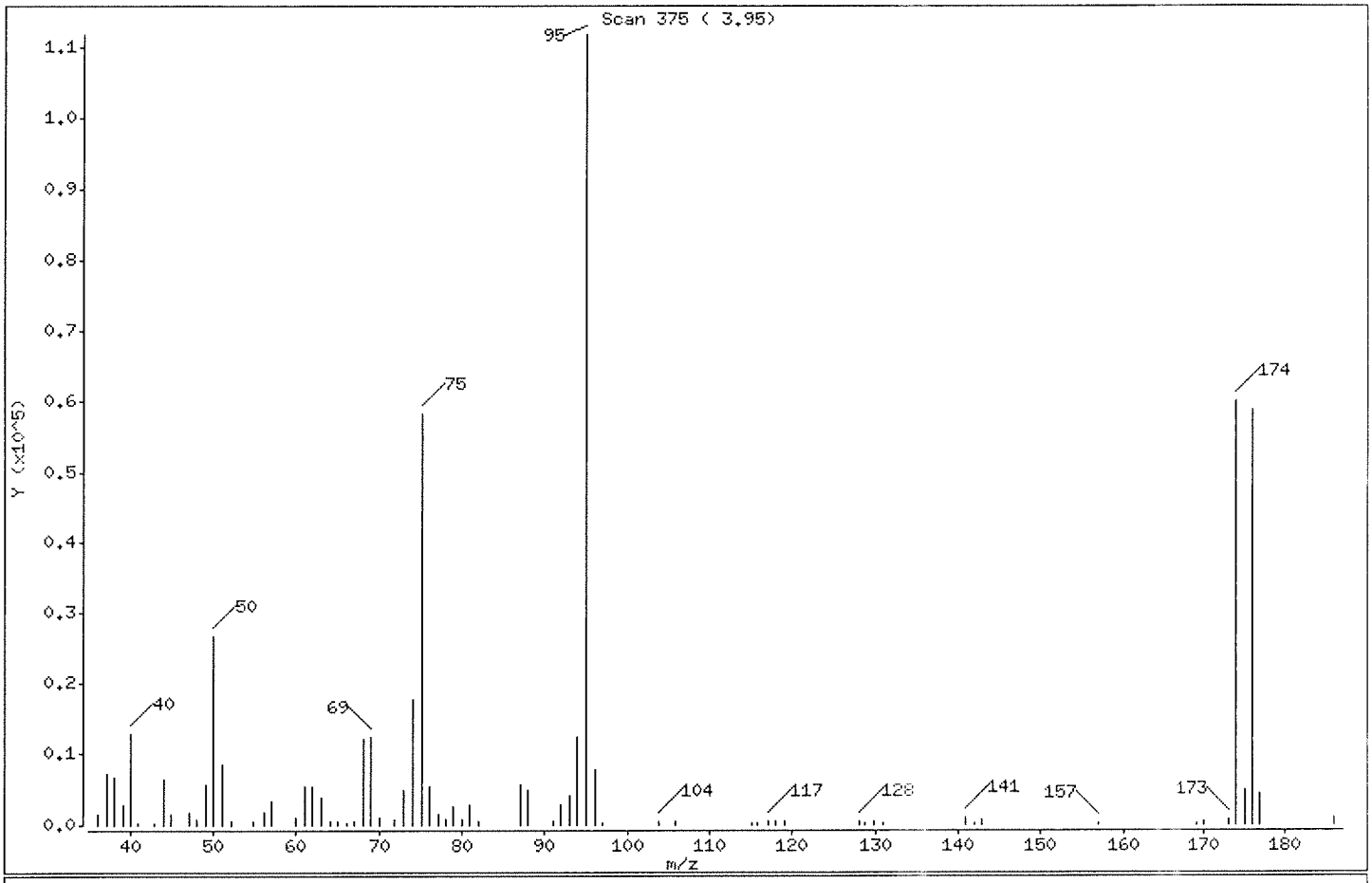
Volume Injected (uL): 2.0

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 | 23.88 |
| 75 | 30.00 - 60.00% of mass 95 | 51.99 |
| 96 | 5.00 - 9.00% of mass 95 | 6.95 |
| 173 | Less than 2.00% of mass 174 | 0.60 ( 1.12) |
| 174 | Greater than 50.00% of mass 95 | 53.51 |
| 175 | 5.00 - 9.00% of mass 174 | 4.37 ( 8.17) |
| 176 | 95.00 - 101.00% of mass 174 | 52.42 ( 97.97) |
| 177 | 5.00 - 9.00% of mass 176 | 3.90 ( 7.44) |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101001.D 

Date : 10-OCT-2017 10:05

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: X101001.D
Spectrum: Scan 375 ( 3.95)
Location of Maximum: 95.00
Number of points: 72

| m/z | Y | m/z | Y | m/z | Y | m/z | Y |
|---|---|---|---|---|---|---|---|
| 36.00 | 1579 | 61.00 | 5513 | 80.90 | 2924 | 128.80 | 266 |
| 37.10 | 7183 | 62.00 | 5494 | 81.90 | 576 | 129.90 | 395 |
| 38.10 | 6622 | 63.00 | 3893 | 87.00 | 5560 | 130.90 | 218 |
| 39.10 | 2880 | 64.10 | 570 | 88.00 | 4773 | 141.00 | 928 |
| 40.00 | 12897 | 65.00 | 484 | 91.00 | 433 | 142.00 | 267 |
| 41.00 | 233 | 66.10 | 204 | 92.00 | 2723 | 142.90 | 673 |
| 43.00 | 296 | 67.00 | 410 | 93.00 | 4109 | 157.00 | 299 |
| 44.00 | 6510 | 68.00 | 12120 | 94.00 | 12452 | 169.10 | 210 |
| 45.00 | 1543 | 69.00 | 12231 | 95.00 | 111840 | 170.00 | 449 |
| 47.10 | 1828 | 70.10 | 902 | 96.00 | 7777 | 173.10 | 672 |
| 48.00 | 837 | 71.90 | 796 | 97.00 | 232 | 173.90 | 59840 |
| 49.10 | 5768 | 73.00 | 4794 | 103.80 | 426 | 175.00 | 4887 |
| 50.10 | 26704 | 74.00 | 17664 | 105.90 | 425 | 175.90 | 58624 |
| 51.10 | 8588 | 75.10 | 58144 | 115.00 | 372 | 176.90 | 4360 |
| 52.10 | 543 | 76.10 | 5356 | 115.80 | 322 | 186.00 | 995 |
| 54.90 | 591 | 77.10 | 1525 | 117.00 | 594 | | |
| 56.10 | 1798 | 78.10 | 780 | 117.90 | 490 | | |
| 57.00 | 3414 | 79.00 | 2675 | 119.00 | 467 | | |
| 60.00 | 1073 | 79.90 | 737 | 128.00 | 492 | | |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101001.D Page 1

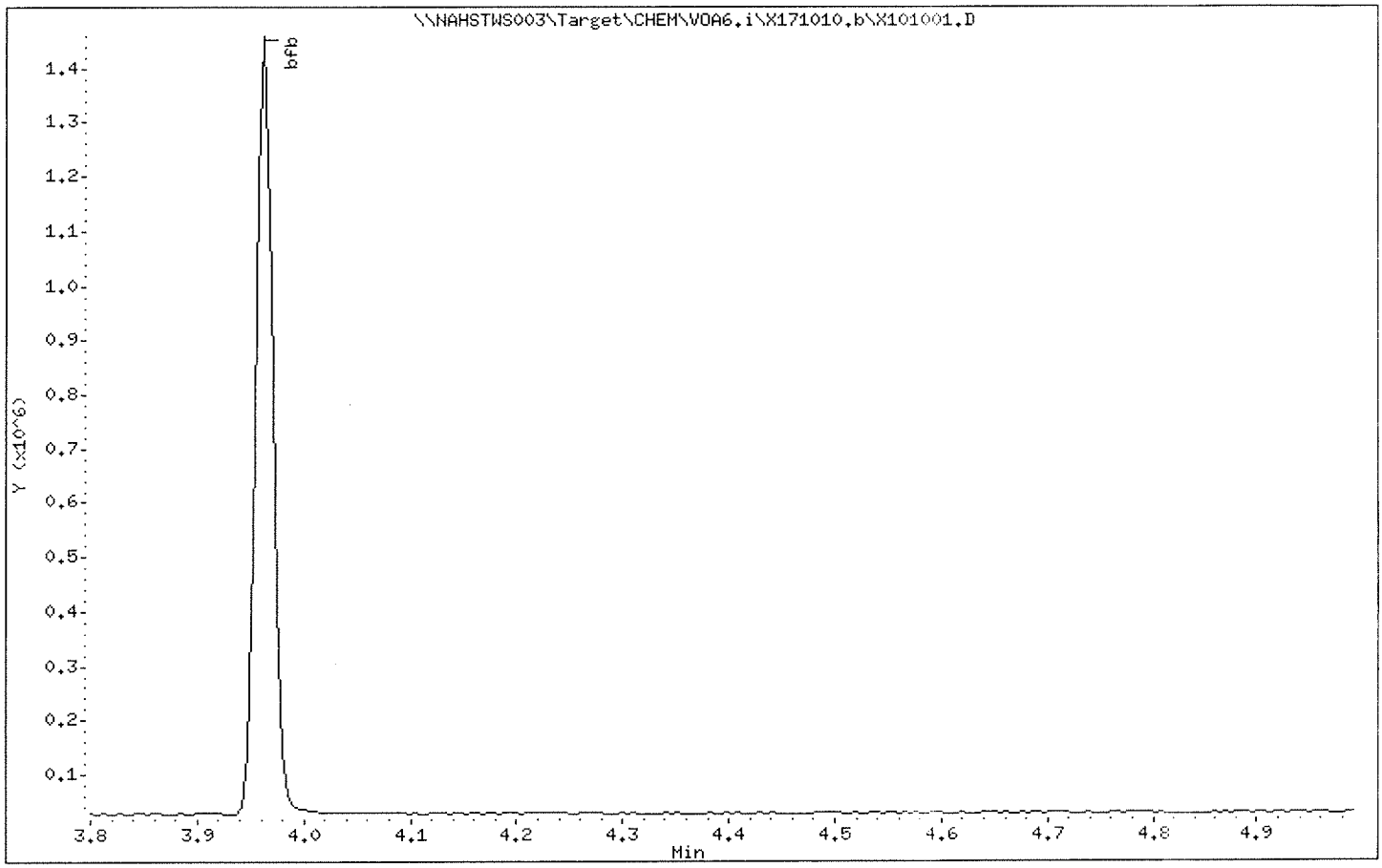
Date : 10-OCT-2017 10:05

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: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101003.D
Report Date: 06-Feb-2018 16:21

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101003.D
Lab Smp Id: VSTD000.5 Client Smp ID: VSTD000.5
Inj Date : 10-OCT-2017 11:28
Operator : PC Inst ID: voa6.i
Smp Info : VSTD000.5;VSTD000.5;1;2;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\CHEM\VOA6.i\X171010.b\8260W.m
Meth Date : 06-Feb-2018 16:21 diana.nguy Quant Type: ISTD
Cal Date : 10-OCT-2017 11:28 Cal File: X101003.D
Als bottle: 5 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.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) |
|---|---|---|---|---|---|---|---|---|
| | 31 1,1,1-Trichloroethane | 97 | 4.240 | 4.240 | (0.980) | 4759 | 0.50000 | 0.62 (aM) |
| * | 1 Pentafluorobenzene | 168 | 4.325 | 4.325 | (1.000) | 387612 | 50.0000 | |
| $ | 30 Dibromofluoromethane | 113 | 4.254 | 4.254 | (0.983) | 3706 | 0.50000 | 0.55 (a) |
| * | 36 1,4-Difluorobenzene | 114 | 5.085 | 5.085 | (1.000) | 656933 | 50.0000 | |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 4.612 | 4.612 | (1.066) | 4869 | 0.50000 | 0.55 (aM) |
| * | 47 Chlorobenzene-d5 | 117 | 7.742 | 7.742 | (1.000) | 660241 | 50.0000 | |
| $ | 48 Toluene-d8 | 98 | 6.474 | 6.474 | (0.836) | 13883 | 0.50000 | 0.54 (a) |
| $ | 69 4-Bromofluorobenzene | 95 | 8.759 | 8.759 | (1.131) | 5297 | 0.50000 | 0.50 (a) |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 9.726 | 9.726 | (1.000) | 313204 | 50.0000 | |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 8.903 | 8.903 | (0.915) | 4206 | 0.50000 | (aM) |
| | 53 1,1,2-Trichloroethane | 83 | 6.918 | 6.918 | (0.894) | 2607 | 0.50000 | 0.61 (aM) |
| | 32 1,1-Dichloropropene | 75 | 4.426 | 4.426 | (0.870) | 3826 | 0.50000 | 0.53 (aM) |
| | 22 1,1-Dichloroethane | 63 | 3.079 | 3.079 | (0.712) | 6175 | 0.50000 | 0.60 (aM) |
| | 11 1,1-Dichloroethene | 96 | 2.048 | 2.048 | (0.473) | 2728 | 0.50000 | 0.60 (aM) |
| | 90 1,2,4-Trichlorobenzene | 180 | 11.403 | 11.403 | (1.172) | 1438 | 0.50000 | 0.53 (aM) |
| | 89 1,2-Dibromo-3-Chloropropane | 155 | 10.722 | 10.722 | (1.102) | 522 | 0.50000 | 0.84 (aM) |
| | 57 1,2-Dibromoethane | 107 | 7.341 | 7.341 | (0.948) | 2956 | 0.50000 | 0.59 (aM) |
| | 88 1,2-Dichlorobenzene | 146 | 10.056 | 10.056 | (1.034) | 5159 | 0.50000 | 0.65 (a) |
| | 33 1,2-Dichloroethane | 62 | 4.698 | 4.698 | (0.924) | 4286 | 0.50000 | 0.58 (aM) |
| | 42 1,2-Dichloropropane | 63 | 5.543 | 5.543 | (1.090) | 3458 | 0.50000 | 0.56 (aM) |
| | 83 1,3-Dichlorobenzene | 146 | 9.669 | 9.669 | (0.994) | 5326 | 0.50000 | 0.66 (a) |
| | 84 1,4-Dichlorobenzene | 146 | 9.748 | 9.748 | (1.002) | 5426 | 0.50000 | 0.67 (a) |

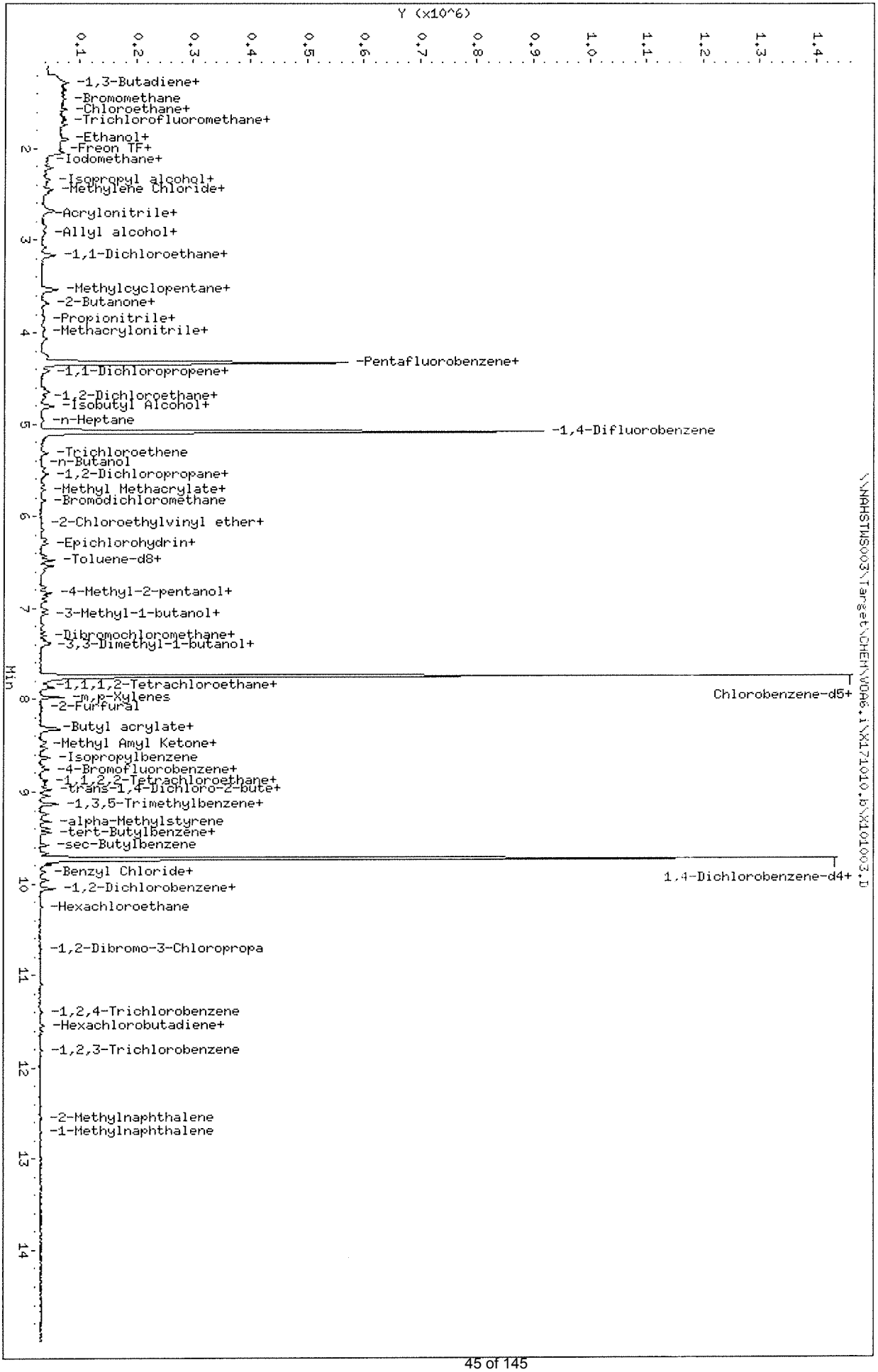
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101003.D
Report Date: 06-Feb-2018 16:21

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 24 | 2-Butanone | 43 | 3.767 | 3.767 | (0.871) | 2235 | 1.00000 | 0.97(a) |
| 52 | 2-Hexanone | 43 | 7.298 | 7.298 | (0.943) | 6814 | 1.00000 | 1.25(aM) |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.431 | 6.431 | (0.831) | 6916 | 1.00000 | 1.20(aM) |
| 10 | Acetone | 43 | 2.126 | 2.126 | (0.492) | 4739 | 1.00000 | 0.43(aM) |
| 37 | Benzene | 78 | 4.655 | 4.655 | (0.915) | 11911 | 0.50000 | 0.55(aM) |
| 39 | Bromodichloromethane | 83 | 5.830 | 5.830 | (1.146) | 4726 | 0.50000 | 0.63(aM) |
| 66 | Bromoform | 173 | 8.480 | 8.480 | (1.095) | 2358 | 0.50000 | 0.64(aM) |
| 6 | Bromomethane | 94 | 1.460 | 1.460 | (0.338) | 2213 | 0.50000 | 0.58(a) |
| 19 | Carbon Disulfide | 76 | 2.212 | 2.212 | (0.512) | 16888 | 1.00000 | 1.18(aM) |
| 34 | Carbon Tetrachloride | 117 | 4.411 | 4.411 | (0.868) | 3056 | 0.50000 | 0.50(aM) |
| 59 | Chlorobenzene | 112 | 7.764 | 7.764 | (1.003) | 8109 | 0.50000 | 0.60(aM) |
| 7 | Chloroethane | 64 | 1.525 | 1.525 | (0.353) | 2363 | 0.50000 | 0.58(aM) |
| 28 | Chloroform | 83 | 4.068 | 4.068 | (0.940) | 5333 | 0.50000 | 0.56(aM) |
| 3 | Chloromethane | 50 | 1.195 | 1.195 | (0.276) | 4746 | 0.50000 | 0.86(aM) |
| 27 | cis-1,2-Dichloroethene | 96 | 3.688 | 3.688 | (0.853) | 3473 | 0.50000 | 0.59(aM) |
| 46 | cis-1,3-Dichloropropene | 75 | 6.252 | 6.252 | (1.230) | 5607 | 0.50000 | 0.58(aM) |
| 55 | Dibromochloromethane | 129 | 7.255 | 7.255 | (0.937) | 3329 | 0.50000 | 0.59(a) |
| 2 | Dichlorodifluoromethane | 85 | 1.081 | 1.081 | (0.250) | 2937 | 0.50000 | 0.59(a) |
| 61 | Ethylbenzene | 106 | 7.871 | 7.871 | (1.017) | 4321 | 0.50000 | 0.64(aM) |
| 67 | Isopropylbenzene | 105 | 8.630 | 8.630 | (1.115) | 9673 | 0.50000 | 0.59(aM) |
| 17 | Methylene Chloride | 84 | 2.449 | 2.449 | (0.566) | 3545 | 0.50000 | 0.59(aM) |
| 56 | Tetrachloroethene | 164 | 7.012 | 7.012 | (0.906) | 2200 | 0.50000 | 0.62(aM) |
| 50 | Toluene | 91 | 6.532 | 6.532 | (0.844) | 12604 | 0.50000 | 0.59(aM) |
| 20 | trans-1,2-Dichloroethene | 96 | 2.678 | 2.678 | (0.619) | 3326 | 0.50000 | 0.63(aM) |
| 51 | trans-1,3-Dichloropropene | 75 | 6.768 | 6.768 | (1.331) | 4708 | 0.50000 | 0.57(aM) |
| 38 | Trichloroethene | 130 | 5.321 | 5.321 | (1.046) | 3311 | 0.50000 | 0.62(aM) |
| 8 | Trichlorofluoromethane | 101 | 1.689 | 1.689 | (0.391) | 4174 | 0.50000 | 0.64(a) |
| 5 | Vinyl Chloride | 62 | 1.260 | 1.260 | (0.291) | 3780 | 0.50000 | 0.56(aM) |
| 62 | m,p-Xylenes | 106 | 7.971 | 7.971 | (1.030) | 10386 | 1.00000 | 1.28(aM) |
| 63 | o-Xylene | 106 | 8.308 | 8.308 | (1.073) | 5221 | 0.50000 | 0.64(aM) |
| M 95 | Xylenes (total) | 106 | | | | 15607 | 1.50000 | 1.93(a) |
| 71 | 1,2,3-Trichloropropane | 75 | 8.931 | 8.931 | (0.918) | 3515 | 0.50000 | 0.64(aM) |
| 93 | 1,2,3-Trichlorobenzene | 180 | 11.804 | 11.804 | (1.214) | 1086 | 0.50000 | 0.55(aM) |
| 79 | 1,2,4-Trimethylbenzene | 105 | 9.440 | 9.440 | (0.971) | 8796 | 0.50000 | 0.63(aM) |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.132 | 9.132 | (0.939) | 7944 | 0.50000 | 0.61(aM) |
| 26 | 2,2-Dichloropropane | 77 | 3.666 | 3.666 | (0.848) | 4337 | 0.50000 | 0.54(aM) |
| 54 | 1,3-Dichloropropane | 76 | 7.062 | 7.062 | (0.912) | 5544 | 0.50000 | 0.61(aM) |
| 76 | 2-Chlorotoluene | 91 | 9.039 | 9.039 | (0.929) | 7760 | 0.50000 | 0.60(aM) |
| 77 | 4-Chlorotoluene | 91 | 9.139 | 9.139 | (0.940) | 9534 | 0.50000 | 0.63(aM) |
| 82 | p-Isopropyltoluene | 119 | 9.712 | 9.712 | (0.999) | 7327 | 0.50000 | 0.65(aM) |
| 29 | Bromochloromethane | 128 | 3.953 | 3.953 | (0.914) | 1461 | 0.50000 | 0.56(aM) |
| 74 | Bromobenzene | 156 | 8.874 | 8.874 | (0.912) | 3182 | 0.50000 | 0.59(aM) |
| 44 | Dibromomethane | 93 | 5.658 | 5.658 | (1.113) | 2079 | 0.50000 | 0.59(aM) |
| 91 | Hexachlorobutadiene | 225 | 11.539 | 11.539 | (1.186) | 1021 | 0.50000 | 1.52(a) |
| 73 | n-Propylbenzene | 91 | 8.974 | 8.974 | (0.923) | 12133 | 0.50000 | 0.62(aM) |
| 87 | n-Butylbenzene | 91 | 10.056 | 10.056 | (1.034) | 5709 | 0.50000 | 0.62(aM) |
| 81 | sec-Butylbenzene | 105 | 9.583 | 9.583 | (0.985) | 8277 | 0.50000 | 0.63(aM) |
| 92 | Naphthalene | 128 | 11.603 | 11.603 | (1.193) | 2916 | 0.50000 | 3.34(a) |
| 78 | tert-Butylbenzene | 119 | 9.397 | 9.397 | (0.966) | 6544 | 0.50000 | 0.67(aM) |
| 60 | 1,1,1,2-Tetrachloroethane | 131 | 7.850 | 7.850 | (1.014) | 3034 | 0.50000 | 0.62(aM) |
| 64 | Styrene | 104 | 8.330 | 8.330 | (1.076) | 8916 | 0.50000 | 0.60(aM) |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101003.D
Report Date: 06-Feb-2018 16:21

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.




Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101003.D
Date : 10-OCT-2017 11:28
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

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101004.D
Report Date: 06-Feb-2018 16:21

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101004.D
Lab Smp Id: VSTD001 Client Smp ID: VSTD001
Inj Date : 10-OCT-2017 11:53
Operator : PC Inst ID: voa6.i
Smp Info : VSTD001;VSTD001;1;3;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\8260W.m
Meth Date : 06-Feb-2018 16:21 diana.nguy Quant Type: ISTD
Cal Date : 10-OCT-2017 11:53 Cal File: X101004.D
Als bottle: 6 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.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) |
|---|---|---|---|---|---|---|---|---|
| | 31 1,1,1-Trichloroethane | 97 | 4.239 | 4.239 | (0.980) | 7325 | 1.00000 | 0.96(a) |
| * | 1 Pentafluorobenzene | 168 | 4.325 | 4.325 | (1.000) | 386230 | 50.0000 | |
| $ | 30 Dibromofluoromethane | 113 | 4.254 | 4.254 | (0.983) | 6592 | 1.00000 | 1.09(a) |
| * | 36 1,4-Difluorobenzene | 114 | 5.085 | 5.085 | (1.000) | 666505 | 50.0000 | |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 4.612 | 4.612 | (1.066) | 8408 | 1.00000 | 1.07(a) |
| * | 47 Chlorobenzene-d5 | 117 | 7.742 | 7.742 | (1.000) | 664695 | 50.0000 | |
| $ | 48 Toluene-d8 | 98 | 6.474 | 6.474 | (0.836) | 25142 | 1.00000 | 1.10(a) |
| $ | 69 4-Bromofluorobenzene | 95 | 8.759 | 8.759 | (1.131) | 8638 | 1.00000 | 0.96(a) |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 9.726 | 9.726 | (1.000) | 323044 | 50.0000 | |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 8.902 | 8.902 | (0.915) | 6731 | 1.00000 | 0.21(a) |
| | 53 1,1,2-Trichloroethane | 83 | 6.925 | 6.925 | (0.895) | 4486 | 1.00000 | 1.04(a) |
| | 32 1,1-Dichloropropene | 75 | 4.433 | 4.433 | (0.872) | 6995 | 1.00000 | 0.96(a) |
| | 22 1,1-Dichloroethane | 63 | 3.079 | 3.079 | (0.712) | 9957 | 1.00000 | 0.98(a) |
| | 11 1,1-Dichloroethene | 96 | 2.055 | 2.055 | (0.475) | 4008 | 1.00000 | 0.89(a) |
| | 90 1,2,4-Trichlorobenzene | 180 | 11.395 | 11.395 | (1.172) | 2125 | 1.00000 | 0.76(a) |
| | 89 1,2-Dibromo-3-Chloropropane | 155 | 10.715 | 10.715 | (1.102) | 911 | 1.00000 | 1.36(a) |
| | 57 1,2-Dibromoethane | 107 | 7.341 | 7.341 | (0.948) | 4867 | 1.00000 | 0.97(a) |
| | 88 1,2-Dichlorobenzene | 146 | 10.056 | 10.056 | (1.034) | 7838 | 1.00000 | 0.97(a) |
| | 33 1,2-Dichloroethane | 62 | 4.698 | 4.698 | (0.924) | 7424 | 1.00000 | 0.99(aM) |
| | 42 1,2-Dichloropropane | 63 | 5.543 | 5.543 | (1.090) | 6003 | 1.00000 | 0.97(aM) |
| | 83 1,3-Dichlorobenzene | 146 | 9.669 | 9.669 | (0.994) | 8186 | 1.00000 | 0.98(a) |
| | 84 1,4-Dichlorobenzene | 146 | 9.748 | 9.748 | (1.002) | 8670 | 1.00000 | 0.99(a) |

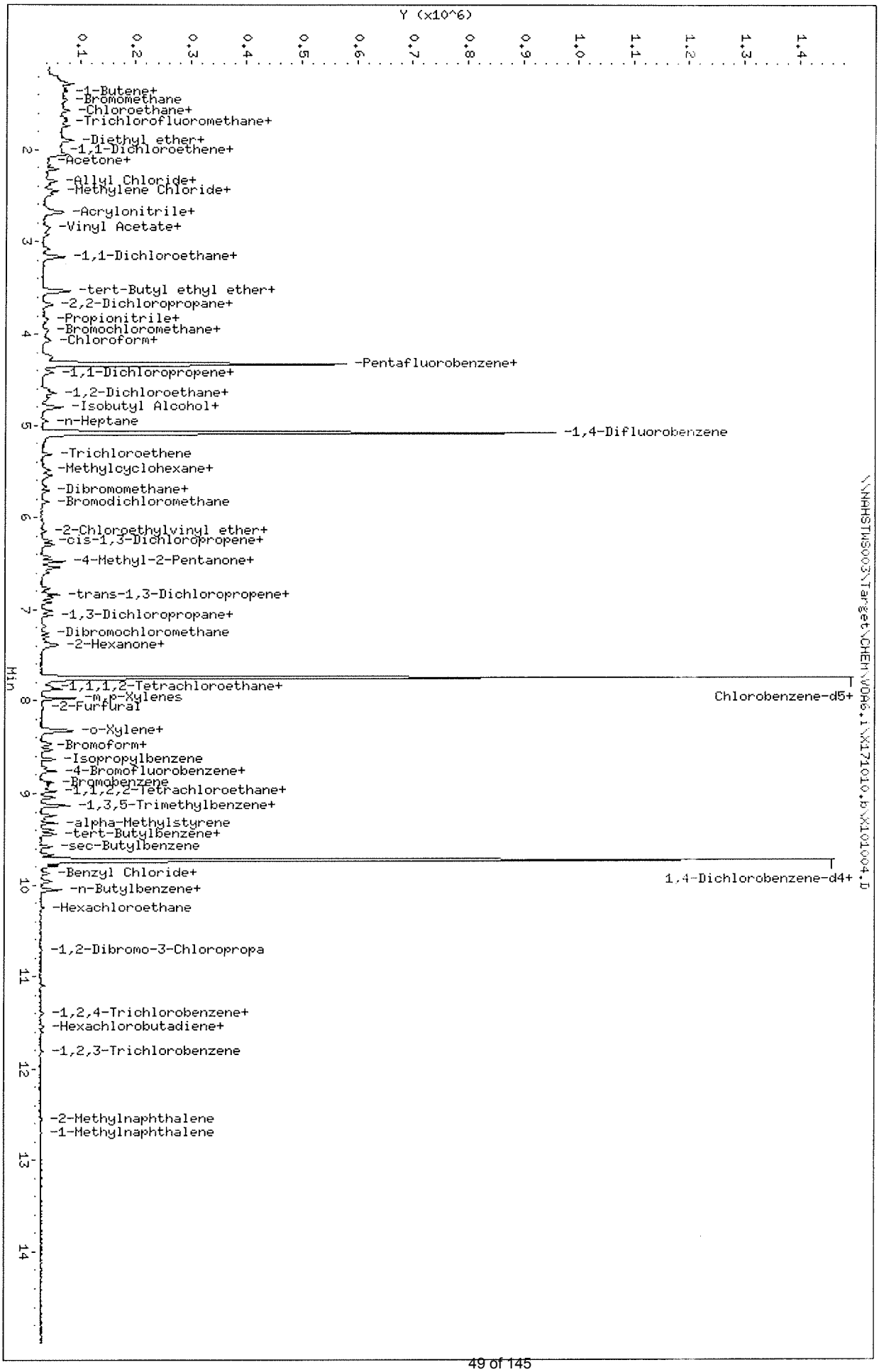
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101004.D
Report Date: 06-Feb-2018 16:21

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 24 | 2-Butanone | 43 | 3.759 | 3.759 | (0.869) | 4271 | 2.00000 | 1.87(a) |
| 52 | 2-Hexanone | 43 | 7.298 | 7.298 | (0.943) | 9876 | 2.00000 | 1.81(a) |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.431 | 6.431 | (0.831) | 11541 | 2.00000 | 1.99(a) |
| 10 | Acetone | 43 | 2.119 | 2.119 | (0.490) | 6610 | 2.00000 | 1.85(a) |
| 37 | Benzene | 78 | 4.648 | 4.648 | (0.914) | 22515 | 1.00000 | 1.03(a) |
| 39 | Bromodichloromethane | 83 | 5.830 | 5.830 | (1.146) | 7843 | 1.00000 | 1.03(a) |
| 66 | Bromoform | 173 | 8.480 | 8.480 | (1.095) | 3608 | 1.00000 | 0.97(Ta) |
| 6 | Bromomethane | 94 | 1.460 | 1.460 | (0.338) | 4193 | 1.00000 | 1.11(aM) |
| 19 | Carbon Disulfide | 76 | 2.212 | 2.212 | (0.512) | 27434 | 2.00000 | 1.92(a) |
| 34 | Carbon Tetrachloride | 117 | 4.411 | 4.411 | (0.868) | 5726 | 1.00000 | 0.93(a) |
| 59 | Chlorobenzene | 112 | 7.771 | 7.771 | (1.004) | 13569 | 1.00000 | 1.00(a) |
| 7 | Chloroethane | 64 | 1.525 | 1.525 | (0.353) | 4546 | 1.00000 | 1.13(aM) |
| 28 | Chloroform | 83 | 4.067 | 4.067 | (0.940) | 9658 | 1.00000 | 1.02(a) |
| 3 | Chloromethane | 50 | 1.195 | 1.195 | (0.276) | 8919 | 1.00000 | 1.39(aM) |
| 27 | cis-1,2-Dichloroethene | 96 | 3.688 | 3.688 | (0.853) | 5750 | 1.00000 | 0.99(a) |
| 46 | cis-1,3-Dichloropropene | 75 | 6.245 | 6.245 | (1.228) | 9472 | 1.00000 | 0.96(a) |
| 55 | Dibromochloromethane | 129 | 7.255 | 7.255 | (0.937) | 5573 | 1.00000 | 0.95(a) |
| 2 | Dichlorodifluoromethane | 85 | 1.080 | 1.080 | (0.250) | 4356 | 1.00000 | 0.87(a) |
| 61 | Ethylbenzene | 106 | 7.871 | 7.871 | (1.017) | 6454 | 1.00000 | 0.94(a) |
| 67 | Isopropylbenzene | 105 | 8.630 | 8.630 | (1.115) | 14713 | 1.00000 | 0.90(a) |
| 17 | Methylene Chloride | 84 | 2.449 | 2.449 | (0.566) | 6642 | 1.00000 | 1.11(a) |
| 56 | Tetrachloroethene | 164 | 7.011 | 7.011 | (0.906) | 3344 | 1.00000 | 0.93(a) |
| 50 | Toluene | 91 | 6.539 | 6.539 | (0.845) | 20814 | 1.00000 | 0.97(a) |
| 20 | trans-1,2-Dichloroethene | 96 | 2.678 | 2.678 | (0.619) | 4794 | 1.00000 | 0.91(a) |
| 51 | trans-1,3-Dichloropropene | 75 | 6.768 | 6.768 | (1.331) | 8624 | 1.00000 | 1.04(a) |
| 38 | Trichloroethene | 130 | 5.321 | 5.321 | (1.046) | 5333 | 1.00000 | 0.99(a) |
| 8 | Trichlorofluoromethane | 101 | 1.689 | 1.689 | (0.391) | 5789 | 1.00000 | 0.89(a) |
| 5 | Vinyl Chloride | 62 | 1.260 | 1.260 | (0.291) | 5469 | 1.00000 | 0.82(a) |
| 62 | m,p-Xylenes | 106 | 7.971 | 7.971 | (1.030) | 15225 | 2.00000 | 1.87(a) |
| 63 | o-Xylene | 106 | 8.308 | 8.308 | (1.073) | 8210 | 1.00000 | 0.99(a) |
| M 95 | Xylenes (total) | 106 | | | | 23435 | 3.00000 | 2.87(a) |
| 71 | 1,2,3-Trichloropropane | 75 | 8.931 | 8.931 | (0.918) | 4936 | 1.00000 | 0.87(aM) |
| 93 | 1,2,3-Trichlorobenzene | 180 | 11.804 | 11.804 | (1.214) | 1477 | 1.00000 | 0.73(aM) |
| 79 | 1,2,4-Trimethylbenzene | 105 | 9.440 | 9.440 | (0.971) | 13553 | 1.00000 | 0.94(a) |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.132 | 9.132 | (0.939) | 12625 | 1.00000 | 0.94(a) |
| 26 | 2,2-Dichloropropane | 77 | 3.673 | 3.673 | (0.849) | 8110 | 1.00000 | 1.02(a) |
| 54 | 1,3-Dichloropropane | 76 | 7.062 | 7.062 | (0.912) | 8967 | 1.00000 | 0.98(a) |
| 76 | 2-Chlorotoluene | 91 | 9.039 | 9.039 | (0.929) | 13078 | 1.00000 | 0.98(a) |
| 77 | 4-Chlorotoluene | 91 | 9.132 | 9.132 | (0.939) | 15023 | 1.00000 | 0.96(a) |
| 82 | p-Isopropyltoluene | 119 | 9.712 | 9.712 | (0.999) | 10688 | 1.00000 | 0.92(a) |
| 29 | Bromochloromethane | 128 | 3.953 | 3.953 | (0.914) | 2963 | 1.00000 | 1.12(a) |
| 74 | Bromobenzene | 156 | 8.874 | 8.874 | (0.912) | 5206 | 1.00000 | 0.94(a) |
| 44 | Dibromomethane | 93 | 5.658 | 5.658 | (1.113) | 3206 | 1.00000 | 0.90(a) |
| 91 | Hexachlorobutadiene | 225 | 11.538 | 11.538 | (1.186) | 1041 | 1.00000 | 1.51(a) |
| 73 | n-Propylbenzene | 91 | 8.974 | 8.974 | (0.923) | 18451 | 1.00000 | 0.94(a) |
| 87 | n-Butylbenzene | 91 | 10.056 | 10.056 | (1.034) | 8014 | 1.00000 | 0.84(a) |
| 81 | sec-Butylbenzene | 105 | 9.583 | 9.583 | (0.985) | 12208 | 1.00000 | 0.91(a) |
| 92 | Naphthalene | 128 | 11.603 | 11.603 | (1.193) | 4030 | 1.00000 | 3.47(a) |
| 78 | tert-Butylbenzene | 119 | 9.397 | 9.397 | (0.966) | 9762 | 1.00000 | 0.97(a) |
| 60 | 1,1,1,2-Tetrachloroethane | 131 | 7.850 | 7.850 | (1.014) | 5136 | 1.00000 | 1.04(a) |
| 64 | Styrene | 104 | 8.329 | 8.329 | (1.076) | 14988 | 1.00000 | 1.01(a) |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101004.D
Report Date: 06-Feb-2018 16:21

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.




Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101004.D
Date : 10-OCT-2017 11:53
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: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101005.D
Report Date: 06-Feb-2018 16:21

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101005.D
Lab Smp Id: VSTD002 Client Smp ID: VSTD002
Inj Date : 10-OCT-2017 12:18
Operator : PC Inst ID: voa6.i
Smp Info : VSTD002;VSTD002;1;4;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\8260W.m
Meth Date : 06-Feb-2018 16:21 diana.nguy Quant Type: ISTD
Cal Date : 10-OCT-2017 12:18 Cal File: X101005.D
Als bottle: 7 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.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) |
|---|---|---|---|---|---|---|---|---|
| | 31 1,1,1-Trichloroethane | 97 | 4.239 | 4.239 | (0.980) | 15568 | 2.00000 | 2.05(a) |
| * | 1 Pentafluorobenzene | 168 | 4.325 | 4.325 | (1.000) | 385876 | 50.0000 | |
| $ | 30 Dibromofluoromethane | 113 | 4.254 | 4.254 | (0.983) | 11210 | 2.00000 | 1.95(a) |
| * | 36 1,4-Difluorobenzene | 114 | 5.085 | 5.085 | (1.000) | 666206 | 50.0000 | |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 4.612 | 4.612 | (1.066) | 14296 | 2.00000 | 1.94(a) |
| * | 47 Chlorobenzene-d5 | 117 | 7.742 | 7.742 | (1.000) | 656030 | 50.0000 | |
| $ | 48 Toluene-d8 | 98 | 6.474 | 6.474 | (0.836) | 43375 | 2.00000 | 2.05(a) |
| $ | 69 4-Bromofluorobenzene | 95 | 8.752 | 8.752 | (1.130) | 16347 | 2.00000 | 2.08(a) |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 9.726 | 9.726 | (1.000) | 321349 | 50.0000 | |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 8.903 | 8.903 | (0.915) | 13394 | 2.00000 | 1.41(a) |
| | 53 1,1,2-Trichloroethane | 83 | 6.918 | 6.918 | (0.894) | 9046 | 2.00000 | 2.13(a) |
| | 32 1,1-Dichloropropene | 75 | 4.426 | 4.426 | (0.870) | 15414 | 2.00000 | 2.13(a) |
| | 22 1,1-Dichloroethane | 63 | 3.079 | 3.079 | (0.712) | 21378 | 2.00000 | 2.10(a) |
| | 11 1,1-Dichloroethene | 96 | 2.055 | 2.055 | (0.475) | 9678 | 2.00000 | 2.16(a) |
| | 90 1,2,4-Trichlorobenzene | 180 | 11.403 | 11.403 | (1.172) | 4947 | 2.00000 | 1.78(a) |
| | 89 1,2-Dibromo-3-Chloropropane | 155 | 10.715 | 10.715 | (1.102) | 1484 | 2.00000 | 2.18(a) |
| | 57 1,2-Dibromoethane | 107 | 7.341 | 7.341 | (0.948) | 10446 | 2.00000 | 2.11(a) |
| | 88 1,2-Dichlorobenzene | 146 | 10.056 | 10.056 | (1.034) | 16173 | 2.00000 | 2.01(a) |
| | 33 1,2-Dichloroethane | 62 | 4.691 | 4.691 | (0.923) | 16375 | 2.00000 | 2.20(a) |
| | 42 1,2-Dichloropropane | 63 | 5.543 | 5.543 | (1.090) | 12340 | 2.00000 | 2.00(aM) |
| | 83 1,3-Dichlorobenzene | 146 | 9.669 | 9.669 | (0.994) | 16650 | 2.00000 | 2.01(a) |
| | 84 1,4-Dichlorobenzene | 146 | 9.748 | 9.748 | (1.002) | 18183 | 2.00000 | 2.08(a) |

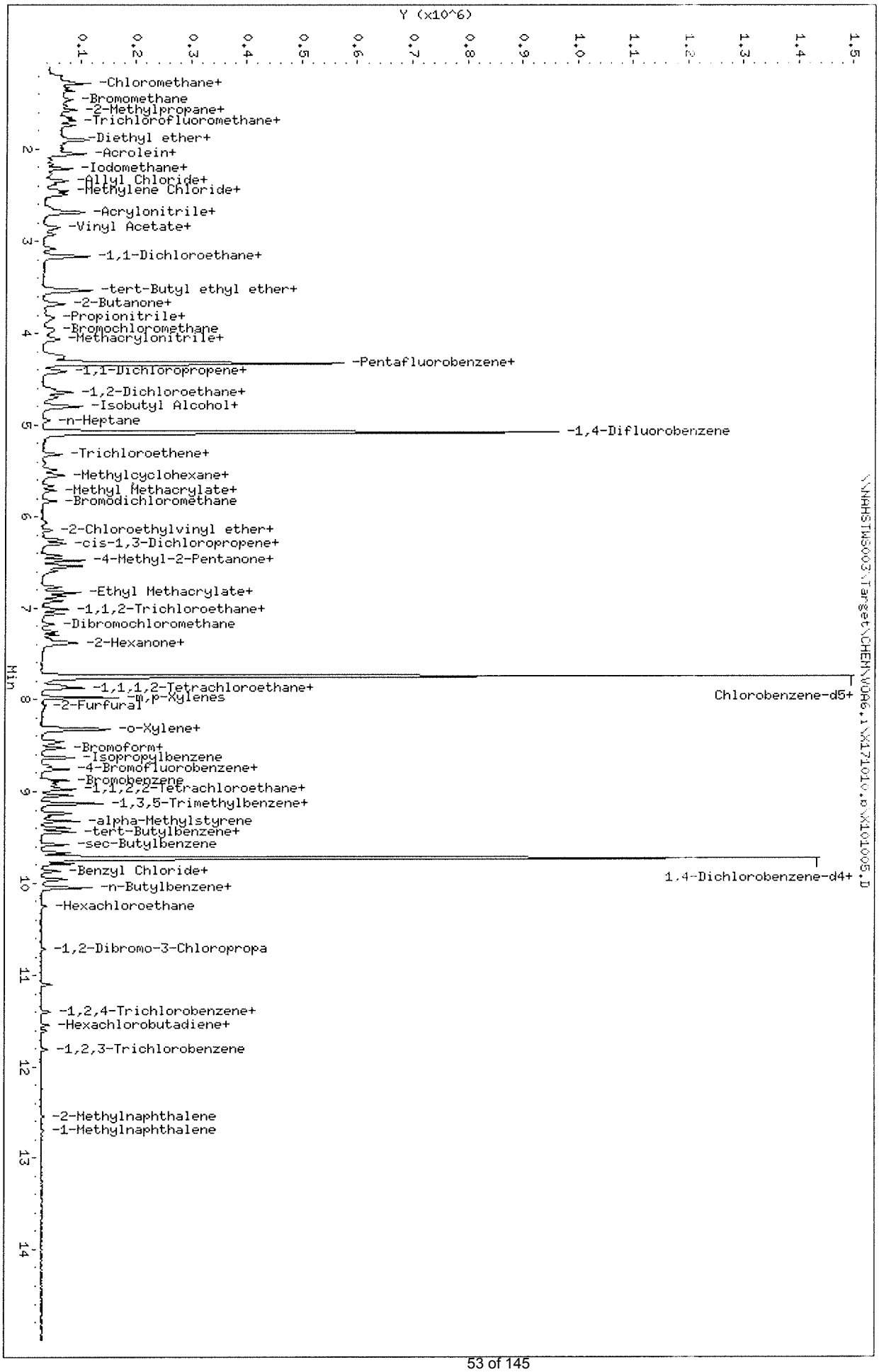
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101005.D
Report Date: 06-Feb-2018 16:21

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| | 24 2-Butanone | 43 | 3.745 | 3.745 | (0.866) | 9259 | 4.00000 | 4.05(a) |
| | 52 2-Hexanone | 43 | 7.291 | 7.291 | (0.942) | 21721 | 4.00000 | 4.04(a) |
| | 45 4-Methyl-2-Pentanone | 43 | 6.424 | 6.424 | (0.830) | 22526 | 4.00000 | 3.94(a) |
| | 10 Acetone | 43 | 2.119 | 2.119 | (0.490) | 8765 | 4.00000 | 3.49(a) |
| | 37 Benzene | 78 | 4.648 | 4.648 | (0.914) | 44531 | 2.00000 | 2.03(a) |
| | 39 Bromodichloromethane | 83 | 5.830 | 5.830 | (1.146) | 14694 | 2.00000 | 1.97(a) |
| | 66 Bromoform | 173 | 8.480 | 8.480 | (1.095) | 7371 | 2.00000 | 2.01(a) |
| | 6 Bromomethane | 94 | 1.460 | 1.460 | (0.338) | 6934 | 2.00000 | 1.85(a) |
| | 19 Carbon Disulfide | 76 | 2.212 | 2.212 | (0.512) | 61641 | 4.00000 | 4.33(a) |
| | 34 Carbon Tetrachloride | 117 | 4.411 | 4.411 | (0.868) | 13563 | 2.00000 | 2.22(a) |
| | 59 Chlorobenzene | 112 | 7.764 | 7.764 | (1.003) | 27896 | 2.00000 | 2.09(a) |
| | 7 Chloroethane | 64 | 1.525 | 1.525 | (0.353) | 8318 | 2.00000 | 2.07(aM) |
| | 28 Chloroform | 83 | 4.068 | 4.068 | (0.940) | 20561 | 2.00000 | 2.18(a) |
| | 3 Chloromethane | 50 | 1.195 | 1.195 | (0.276) | 17438 | 2.00000 | 2.47(a) |
| | 27 cis-1,2-Dichloroethene | 96 | 3.681 | 3.681 | (0.851) | 11799 | 2.00000 | 2.03(a) |
| | 46 cis-1,3-Dichloropropene | 75 | 6.245 | 6.245 | (1.228) | 19566 | 2.00000 | 2.00(a) |
| | 55 Dibromochloromethane | 129 | 7.255 | 7.255 | (0.937) | 11669 | 2.00000 | 2.10(a) |
| | 2 Dichlorodifluoromethane | 85 | 1.081 | 1.081 | (0.250) | 10521 | 2.00000 | 2.13(aM) |
| | 61 Ethylbenzene | 106 | 7.871 | 7.871 | (1.017) | 14011 | 2.00000 | 2.09(a) |
| | 67 Isopropylbenzene | 105 | 8.630 | 8.630 | (1.115) | 34535 | 2.00000 | 2.14(a) |
| | 17 Methylene Chloride | 84 | 2.449 | 2.449 | (0.566) | 12710 | 2.00000 | 2.14(a) |
| | 56 Tetrachloroethene | 164 | 7.012 | 7.012 | (0.906) | 7314 | 2.00000 | 2.07(a) |
| | 50 Toluene | 91 | 6.532 | 6.532 | (0.844) | 43485 | 2.00000 | 2.06(a) |
| | 20 trans-1,2-Dichloroethene | 96 | 2.678 | 2.678 | (0.619) | 10840 | 2.00000 | 2.07(a) |
| | 51 trans-1,3-Dichloropropene | 75 | 6.768 | 6.768 | (1.331) | 17113 | 2.00000 | 2.07(a) |
| | 38 Trichloroethene | 130 | 5.321 | 5.321 | (1.046) | 10841 | 2.00000 | 2.02(a) |
| | 8 Trichlorofluoromethane | 101 | 1.689 | 1.689 | (0.391) | 13158 | 2.00000 | 2.03(a) |
| | 5 Vinyl Chloride | 62 | 1.260 | 1.260 | (0.291) | 13927 | 2.00000 | 2.10(aM) |
| | 62 m,p-Xylenes | 106 | 7.971 | 7.971 | (1.030) | 32488 | 4.00000 | 4.06(a) |
| | 63 o-Xylene | 106 | 8.308 | 8.308 | (1.073) | 17034 | 2.00000 | 2.10(a) |
| M | 95 Xylenes (total) | 106 | | | | 49522 | 6.00000 | 6.16 |
| | 71 1,2,3-Trichloropropane | 75 | 8.931 | 8.931 | (0.918) | 10910 | 2.00000 | 1.94(aM) |
| | 93 1,2,3-Trichlorobenzene | 180 | 11.804 | 11.804 | (1.214) | 3582 | 2.00000 | 1.79(a) |
| | 79 1,2,4-Trimethylbenzene | 105 | 9.440 | 9.440 | (0.971) | 29965 | 2.00000 | 2.11(a) |
| | 75 1,3,5-Trimethylbenzene | 105 | 9.132 | 9.132 | (0.939) | 27562 | 2.00000 | 2.07(a) |
| | 26 2,2-Dichloropropane | 77 | 3.674 | 3.674 | (0.849) | 16165 | 2.00000 | 2.05(a) |
| | 54 1,3-Dichloropropane | 76 | 7.062 | 7.062 | (0.912) | 19687 | 2.00000 | 2.21(a) |
| | 76 2-Chlorotoluene | 91 | 9.039 | 9.039 | (0.929) | 27924 | 2.00000 | 2.12(a) |
| | 77 4-Chlorotoluene | 91 | 9.132 | 9.132 | (0.939) | 31719 | 2.00000 | 2.05(a) |
| | 82 p-Isopropyltoluene | 119 | 9.712 | 9.712 | (0.999) | 23404 | 2.00000 | 2.03(a) |
| | 29 Bromochloromethane | 128 | 3.960 | 3.960 | (0.916) | 6116 | 2.00000 | 2.37(aM) |
| | 74 Bromobenzene | 156 | 8.874 | 8.874 | (0.912) | 11269 | 2.00000 | 2.06(a) |
| | 44 Dibromomethane | 93 | 5.658 | 5.658 | (1.113) | 7729 | 2.00000 | 2.18(aM) |
| | 91 Hexachlorobutadiene | 225 | 11.539 | 11.539 | (1.186) | 2823 | 2.00000 | 3.06(a) |
| | 73 n-Propylbenzene | 91 | 8.974 | 8.974 | (0.923) | 40264 | 2.00000 | 2.03(a) |
| | 87 n-Butylbenzene | 91 | 10.056 | 10.056 | (1.034) | 18420 | 2.00000 | 1.95(a) |
| | 81 sec-Butylbenzene | 105 | 9.583 | 9.583 | (0.985) | 28775 | 2.00000 | 2.16(a) |
| | 92 Naphthalene | 128 | 11.603 | 11.603 | (1.193) | 8735 | 2.00000 | 4.06(a) |
| | 78 tert-Butylbenzene | 119 | 9.397 | 9.397 | (0.966) | 20607 | 2.00000 | 2.07(a) |
| | 60 1,1,1,2-Tetrachloroethane | 131 | 7.850 | 7.850 | (1.014) | 9813 | 2.00000 | 2.03(a) |
| | 64 Styrene | 104 | 8.330 | 8.330 | (1.076) | 30342 | 2.00000 | 2.08(a) |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101005.D
Report Date: 06-Feb-2018 16:21

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.




Data File: \\NAHSTW5003\Target\CHEM\VOA6.i\X171010.b\X101005.D
Date : 10-OCT-2017 12:18
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: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101006.D
Report Date: 06-Feb-2018 16:21

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101006.D
Lab Smp Id: VSTD005 Client Smp ID: VSTD005
Inj Date : 10-OCT-2017 12:43
Operator : PC Inst ID: voa6.i
Smp Info : VSTD005;VSTD005;1;5;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\8260W.m
Meth Date : 06-Feb-2018 16:21 diana.nguy Quant Type: ISTD
Cal Date : 10-OCT-2017 12:43 Cal File: X101006.D
Als bottle: 8 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.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) |
|---|---|---|---|---|---|---|---|---|
| | 31 1,1,1-Trichloroethane | 97 | 4.240 | 4.240 | (0.980) | 39012 | 5.00000 | 5.06 |
| * | 1 Pentafluorobenzene | 168 | 4.326 | 4.326 | (1.000) | 392557 | 50.0000 | |
| $ | 30 Dibromofluoromethane | 113 | 4.254 | 4.254 | (0.983) | 26199 | 5.00000 | 4.65(a) |
| * | 36 1,4-Difluorobenzene | 114 | 5.085 | 5.085 | (1.000) | 670592 | 50.0000 | |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 4.612 | 4.612 | (1.066) | 35051 | 5.00000 | 4.88(a) |
| * | 47 Chlorobenzene-d5 | 117 | 7.742 | 7.742 | (1.000) | 662461 | 50.0000 | |
| $ | 48 Toluene-d8 | 98 | 6.474 | 6.474 | (0.836) | 94423 | 5.00000 | 4.61(a) |
| $ | 69 4-Bromofluorobenzene | 95 | 8.752 | 8.752 | (1.130) | 36044 | 5.00000 | 4.84(a) |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 9.726 | 9.726 | (1.000) | 323946 | 50.0000 | |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 8.903 | 8.903 | (0.915) | 31643 | 5.00000 | 4.64(a) |
| | 53 1,1,2-Trichloroethane | 83 | 6.919 | 6.919 | (0.894) | 21840 | 5.00000 | 5.10 |
| | 32 1,1-Dichloropropene | 75 | 4.426 | 4.426 | (0.870) | 36620 | 5.00000 | 5.02 |
| | 22 1,1-Dichloroethane | 63 | 3.079 | 3.079 | (0.712) | 52379 | 5.00000 | 5.08 |
| | 11 1,1-Dichloroethene | 96 | 2.055 | 2.055 | (0.475) | 22577 | 5.00000 | 4.96(a) |
| | 90 1,2,4-Trichlorobenzene | 180 | 11.395 | 11.395 | (1.172) | 13883 | 5.00000 | 4.96(a) |
| | 89 1,2-Dibromo-3-Chloropropane | 155 | 10.715 | 10.715 | (1.102) | 3907 | 5.00000 | 5.55 |
| | 57 1,2-Dibromoethane | 107 | 7.341 | 7.341 | (0.948) | 26539 | 5.00000 | 5.31 |
| | 88 1,2-Dichlorobenzene | 146 | 10.056 | 10.056 | (1.034) | 40181 | 5.00000 | 4.96(a) |
| | 33 1,2-Dichloroethane | 62 | 4.691 | 4.691 | (0.923) | 37697 | 5.00000 | 5.03 |
| | 42 1,2-Dichloropropane | 63 | 5.543 | 5.543 | (1.090) | 33605 | 5.00000 | 5.41 |
| | 83 1,3-Dichlorobenzene | 146 | 9.669 | 9.669 | (0.994) | 41386 | 5.00000 | 4.96(a) |
| | 84 1,4-Dichlorobenzene | 146 | 9.748 | 9.748 | (1.002) | 43315 | 5.00000 | 4.93(a) |

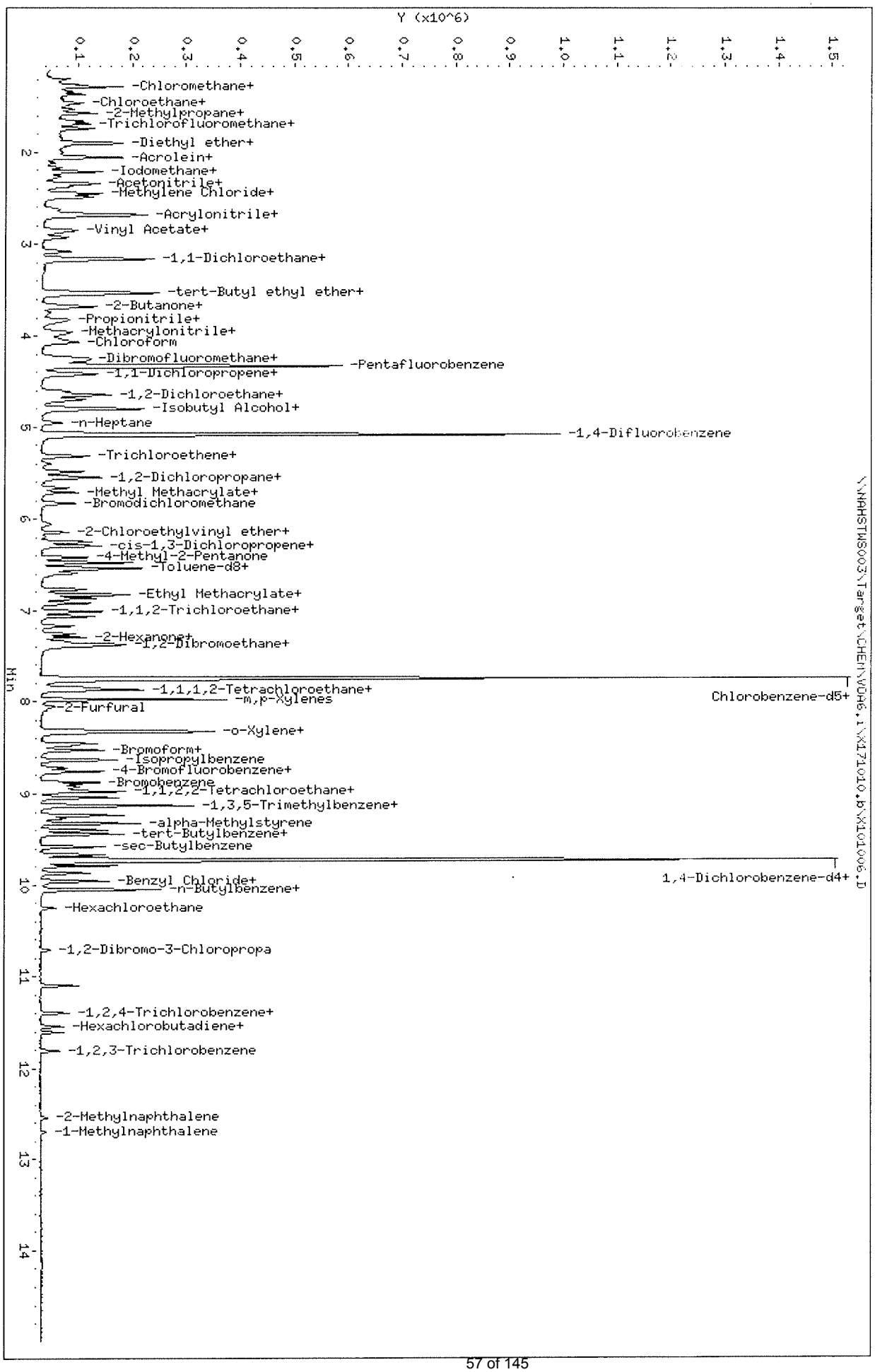
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101006.D
Report Date: 06-Feb-2018 16:21

| | | | QUANT SIG | | | | | AMOUNTS | |
|---|---|---|---|---|---|---|---|---|---|
| | | Compounds | MASS | RT | EXP RT | REL RT | RESPONSE | CAL-AMT ( ug/l) | ON-COL ( ug/l) |
| | 24 | 2-Butanone | 43 | 3.745 | 3.745 | (0.866) | 23019 | 10.0000 | 9.91 |
| | 52 | 2-Hexanone | 43 | 7.291 | 7.291 | (0.942) | 52800 | 10.0000 | 9.72 |
| | 45 | 4-Methyl-2-Pentanone | 43 | 6.417 | 6.417 | (0.829) | 59492 | 10.0000 | 10.30 |
| | 10 | Acetone | 43 | 2.119 | 2.119 | (0.490) | 17904 | 10.0000 | 10.17 |
| | 37 | Benzene | 78 | 4.648 | 4.648 | (0.914) | 111093 | 5.00000 | 5.05 |
| | 39 | Bromodichloromethane | 83 | 5.830 | 5.830 | (1.146) | 37494 | 5.00000 | 4.93(a) |
| | 66 | Bromoform | 173 | 8.480 | 8.480 | (1.095) | 18747 | 5.00000 | 5.07 |
| | 6 | Bromomethane | 94 | 1.460 | 1.460 | (0.338) | 18611 | 5.00000 | 4.88(aM) |
| | 19 | Carbon Disulfide | 76 | 2.212 | 2.212 | (0.512) | 146252 | 10.0000 | 10.10 |
| | 34 | Carbon Tetrachloride | 117 | 4.412 | 4.412 | (0.868) | 31056 | 5.00000 | 5.06 |
| | 59 | Chlorobenzene | 112 | 7.764 | 7.764 | (1.003) | 66842 | 5.00000 | 4.97(a) |
| | 7 | Chloroethane | 64 | 1.525 | 1.525 | (0.353) | 21206 | 5.00000 | 5.20 |
| | 28 | Chloroform | 83 | 4.068 | 4.068 | (0.940) | 49297 | 5.00000 | 5.14 |
| | 3 | Chloromethane | 50 | 1.188 | 1.188 | (0.275) | 39953 | 5.00000 | 5.25 |
| | 27 | cis-1,2-Dichloroethene | 96 | 3.688 | 3.688 | (0.853) | 29578 | 5.00000 | 5.02 |
| | 46 | cis-1,3-Dichloropropene | 75 | 6.245 | 6.245 | (1.228) | 49234 | 5.00000 | 5.07 |
| | 55 | Dibromochloromethane | 129 | 7.255 | 7.255 | (0.937) | 28938 | 5.00000 | 5.17 |
| | 2 | Dichlorodifluoromethane | 85 | 1.081 | 1.081 | (0.250) | 22677 | 5.00000 | 4.51(a) |
| | 61 | Ethylbenzene | 106 | 7.871 | 7.871 | (1.017) | 34021 | 5.00000 | 5.03 |
| | 67 | Isopropylbenzene | 105 | 8.631 | 8.631 | (1.115) | 83868 | 5.00000 | 5.15 |
| | 17 | Methylene Chloride | 84 | 2.449 | 2.449 | (0.566) | 31401 | 5.00000 | 5.19 |
| | 56 | Tetrachloroethene | 164 | 7.012 | 7.012 | (0.906) | 17817 | 5.00000 | 5.01 |
| | 50 | Toluene | 91 | 6.532 | 6.532 | (0.844) | 108480 | 5.00000 | 5.09 |
| | 20 | trans-1,2-Dichloroethene | 96 | 2.678 | 2.678 | (0.619) | 26967 | 5.00000 | 5.08 |
| | 51 | trans-1,3-Dichloropropene | 75 | 6.761 | 6.761 | (1.330) | 41166 | 5.00000 | 4.95(a) |
| | 38 | Trichloroethene | 130 | 5.321 | 5.321 | (1.046) | 26799 | 5.00000 | 4.96(a) |
| | 8 | Trichlorofluoromethane | 101 | 1.690 | 1.690 | (0.391) | 31607 | 5.00000 | 4.80(a) |
| | 5 | Vinyl Chloride | 62 | 1.260 | 1.260 | (0.291) | 33245 | 5.00000 | 4.84(a) |
| | 62 | m,p-Xylenes | 106 | 7.972 | 7.972 | (1.030) | 81493 | 10.0000 | 10.08 |
| | 63 | o-Xylene | 106 | 8.308 | 8.308 | (1.073) | 39776 | 5.00000 | 4.86(a) |
| M | 95 | Xylenes (total) | 106 | | | | 121269 | 15.0000 | 14.94 |
| | 71 | 1,2,3-Trichloropropane | 75 | 8.931 | 8.931 | (0.918) | 28131 | 5.00000 | 4.96(aM) |
| | 93 | 1,2,3-Trichlorobenzene | 180 | 11.804 | 11.804 | (1.214) | 9955 | 5.00000 | 4.94(a) |
| | 79 | 1,2,4-Trimethylbenzene | 105 | 9.440 | 9.440 | (0.971) | 71855 | 5.00000 | 5.02 |
| | 75 | 1,3,5-Trimethylbenzene | 105 | 9.132 | 9.132 | (0.939) | 69204 | 5.00000 | 5.17 |
| | 26 | 2,2-Dichloropropane | 77 | 3.667 | 3.667 | (0.848) | 40797 | 5.00000 | 5.07 |
| | 54 | 1,3-Dichloropropane | 76 | 7.062 | 7.062 | (0.912) | 46210 | 5.00000 | 5.09 |
| | 76 | 2-Chlorotoluene | 91 | 9.039 | 9.039 | (0.929) | 67575 | 5.00000 | 5.09 |
| | 77 | 4-Chlorotoluene | 91 | 9.132 | 9.132 | (0.939) | 77993 | 5.00000 | 5.01 |
| | 82 | p-Isopropyltoluene | 119 | 9.712 | 9.712 | (0.999) | 60193 | 5.00000 | 5.19 |
| | 29 | Bromochloromethane | 128 | 3.953 | 3.953 | (0.914) | 13859 | 5.00000 | 5.28 |
| | 74 | Bromobenzene | 156 | 8.874 | 8.874 | (0.912) | 28257 | 5.00000 | 5.12 |
| | 44 | Dibromomethane | 93 | 5.658 | 5.658 | (1.113) | 17851 | 5.00000 | 5.02 |
| | 91 | Hexachlorobutadiene | 225 | 11.539 | 11.539 | (1.186) | 6979 | 5.00000 | 6.63 |
| | 73 | n-Propylbenzene | 91 | 8.974 | 8.974 | (0.923) | 102872 | 5.00000 | 5.15 |
| | 87 | n-Butylbenzene | 91 | 10.056 | 10.056 | (1.034) | 49557 | 5.00000 | 5.21 |
| | 81 | sec-Butylbenzene | 105 | 9.583 | 9.583 | (0.985) | 68465 | 5.00000 | 5.11 |
| | 92 | Naphthalene | 128 | 11.603 | 11.603 | (1.193) | 27541 | 5.00000 | 6.39 |
| | 78 | tert-Butylbenzene | 119 | 9.397 | 9.397 | (0.966) | 50444 | 5.00000 | 5.04 |
| | 60 | 1,1,1,2-Tetrachloroethane | 131 | 7.850 | 7.850 | (1.014) | 24609 | 5.00000 | 5.03 |
| | 64 | Styrene | 104 | 8.330 | 8.330 | (1.076) | 73447 | 5.00000 | 5.00 |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101006.D
Report Date: 06-Feb-2018 16:21

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.




Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101006.D
Date : 10-OCT-2017 12:43
Client ID: WSTD005
Sample Info: VSTD005;VSTD005;1;5;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101007.D
Report Date: 06-Feb-2018 16:21

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101007.D
Lab Smp Id: VSTD020 Client Smp ID: VSTD020
Inj Date : 10-OCT-2017 13:08
Operator : PC Inst ID: voa6.i
Smp Info : VSTD020;VSTD020;1;6;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\8260W.m
Meth Date : 06-Feb-2018 16:21 diana.nguy Quant Type: ISTD
Cal Date : 10-OCT-2017 13:08 Cal File: X101007.D
Als bottle: 9 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.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) |
|---|---|---|---|---|---|---|---|---|
| | 31 1,1,1-Trichloroethane | 97 | 4.239 | 4.239 | (0.980) | 142617 | 20.0000 | 18.84 |
| * | 1 Pentafluorobenzene | 168 | 4.325 | 4.325 | (1.000) | 385613 | 50.0000 | |
| $ | 30 Dibromofluoromethane | 113 | 4.254 | 4.254 | (0.983) | 111396 | 20.0000 | 20.40 |
| * | 36 1,4-Difluorobenzene | 114 | 5.085 | 5.085 | (1.000) | 649639 | 50.0000 | |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 4.612 | 4.612 | (1.066) | 138773 | 20.0000 | 20.03 |
| * | 47 Chlorobenzene-d5 | 117 | 7.742 | 7.742 | (1.000) | 647033 | 50.0000 | |
| $ | 48 Toluene-d8 | 98 | 6.474 | 6.474 | (0.836) | 398851 | 20.0000 | 20.28 |
| $ | 69 4-Bromofluorobenzene | 95 | 8.752 | 8.752 | (1.130) | 142465 | 20.0000 | 20.17 |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 9.726 | 9.726 | (1.000) | 320561 | 50.0000 | |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 8.903 | 8.903 | (0.915) | 118197 | 20.0000 | 20.24 |
| | 53 1,1,2-Trichloroethane | 83 | 6.918 | 6.918 | (0.894) | 81341 | 20.0000 | 19.47 |
| | 32 1,1-Dichloropropene | 75 | 4.426 | 4.426 | (0.870) | 135837 | 20.0000 | 19.25 |
| | 22 1,1-Dichloroethane | 63 | 3.072 | 3.072 | (0.710) | 194464 | 20.0000 | 19.20 |
| | 11 1,1-Dichloroethene | 96 | 2.055 | 2.055 | (0.475) | 86071 | 20.0000 | 19.27 |
| | 90 1,2,4-Trichlorobenzene | 180 | 11.395 | 11.395 | (1.172) | 53884 | 20.0000 | 19.48 |
| | 89 1,2-Dibromo-3-Chloropropane | 155 | 10.715 | 10.715 | (1.102) | 13[illegible] | 20.0000 | 19.[illegible]3 |
| | 57 1,2-Dibromoethane | 107 | 7.341 | 7.341 | (0.948) | 96648 | 20.0000 | 19.81 |
| | 88 1,2-Dichlorobenzene | 146 | 10.056 | 10.056 | (1.034) | 153216 | 20.0000 | 19.11 |
| | 33 1,2-Dichloroethane | 62 | 4.691 | 4.691 | (0.923) | 138839 | 20.0000 | 19.14 |
| | 42 1,2-Dichloropropane | 63 | 5.543 | 5.543 | (1.090) | 117210 | 20.0000 | 19.61 |
| | 83 1,3-Dichlorobenzene | 146 | 9.669 | 9.669 | (0.994) | 152939 | 20.0000 | 18.54 |
| | 84 1,4-Dichlorobenzene | 146 | 9.741 | 9.741 | (1.001) | 157509 | 20.0000 | 18.13 |

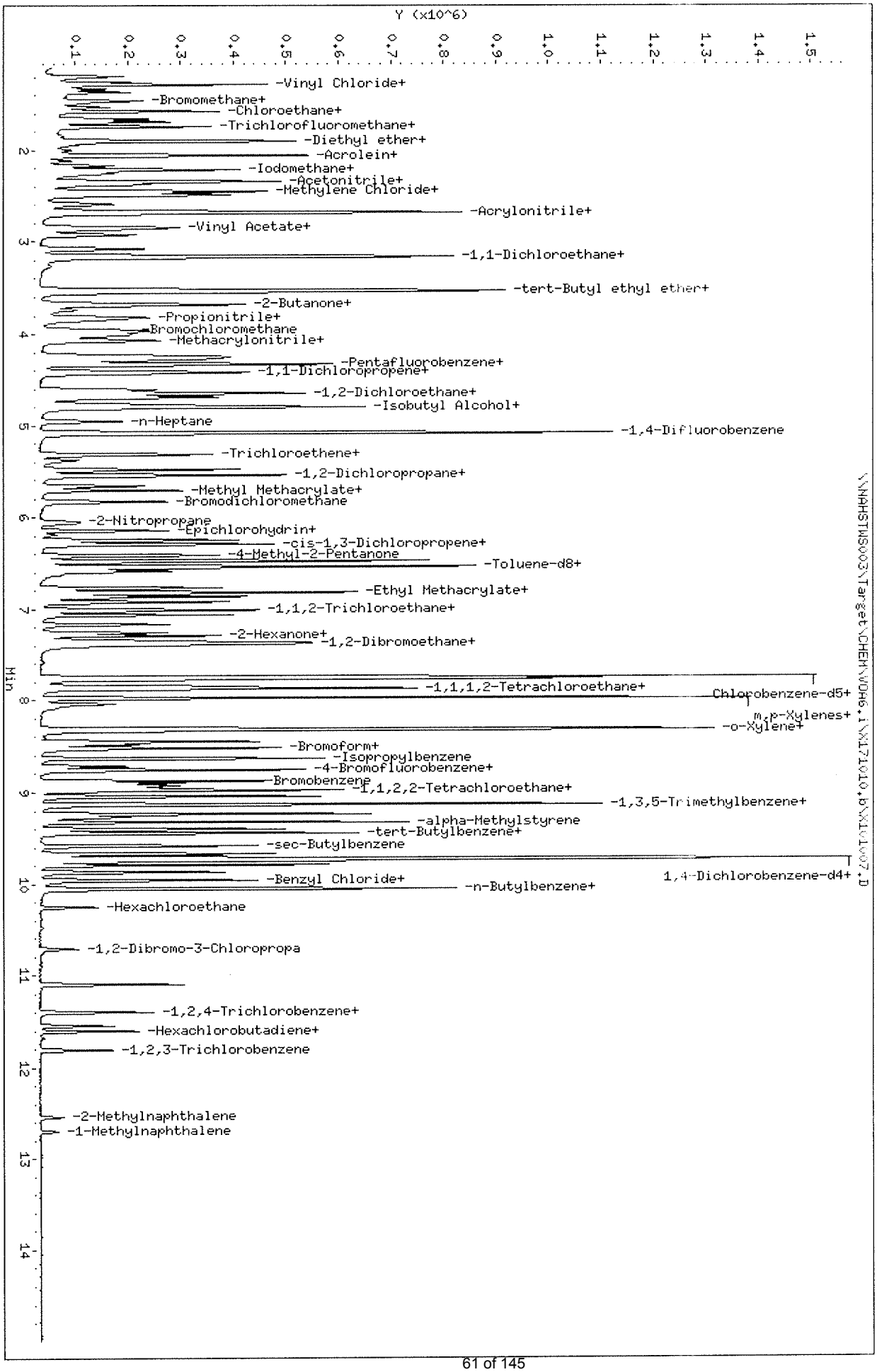
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101007.D
Report Date: 06-Feb-2018 16:21

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | ON-COL ( ug/l) | |
|---|---|---|---|---|---|---|---|---|---|
| 24 | 2-Butanone | 43 | 3.738 | 3.738 | (0.864) | 91292 | 40.0000 | 40.04 | |
| 52 | 2-Hexanone | 43 | 7.284 | 7.284 | (0.941) | 206121 | 40.0000 | 38.87 | |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.410 | 6.410 | (0.828) | 224337 | 40.0000 | 39.79 | |
| 10 | Acetone | 43 | 2.119 | 2.119 | (0.490) | 57879 | 40.0000 | 40.69 | |
| 37 | Benzene | 78 | 4.648 | 4.648 | (0.914) | 409889 | 20.0000 | 19.24 | |
| 39 | Bromodichloromethane | 83 | 5.830 | 5.830 | (1.146) | 138817 | 20.0000 | 18.85 | |
| 66 | Bromoform | 173 | 8.480 | 8.480 | (1.095) | 70979 | 20.0000 | 19.68 | |
| 6 | Bromomethane | 94 | 1.460 | 1.460 | (0.338) | 66628 | 20.0000 | 17.81 | |
| 19 | Carbon Disulfide | 76 | 2.212 | 2.212 | (0.512) | 543912 | 40.0000 | 38.24 | |
| 34 | Carbon Tetrachloride | 117 | 4.411 | 4.411 | (0.868) | 112876 | 20.0000 | 18.99 | |
| 59 | Chlorobenzene | 112 | 7.764 | 7.764 | (1.003) | 253108 | 20.0000 | 19.29 | |
| 7 | Chloroethane | 64 | 1.525 | 1.525 | (0.353) | 76107 | 20.0000 | 19.02 | |
| 28 | Chloroform | 83 | 4.068 | 4.068 | (0.940) | 180968 | 20.0000 | 19.22 | |
| 3 | Chloromethane | 50 | 1.188 | 1.188 | (0.275) | 152289 | 20.0000 | 19.62 | |
| 27 | cis-1,2-Dichloroethene | 96 | 3.681 | 3.681 | (0.851) | 114298 | 20.0000 | 19.76 | |
| 46 | cis-1,3-Dichloropropene | 75 | 6.245 | 6.245 | (1.228) | 181813 | 20.0000 | 19.43 | |
| 55 | Dibromochloromethane | 129 | 7.255 | 7.255 | (0.937) | 106031 | 20.0000 | 19.40 | |
| 2 | Dichlorodifluoromethane | 85 | 1.081 | 1.081 | (0.250) | 89877 | 20.0000 | 18.23 | |
| 61 | Ethylbenzene | 106 | 7.871 | 7.871 | (1.017) | 127320 | 20.0000 | 19.28 | |
| 67 | Isopropylbenzene | 105 | 8.623 | 8.623 | (1.114) | 313335 | 20.0000 | 19.70 | |
| 17 | Methylene Chloride | 84 | 2.449 | 2.449 | (0.566) | 110310 | 20.0000 | 18.58 | |
| 56 | Tetrachloroethene | 164 | 7.012 | 7.012 | (0.906) | 68304 | 20.0000 | 19.66 | |
| 50 | Toluene | 91 | 6.532 | 6.532 | (0.844) | 411381 | 20.0000 | 19.77 | |
| 20 | trans-1,2-Dichloroethene | 96 | 2.678 | 2.678 | (0.619) | 101300 | 20.0000 | 19.44 | |
| 51 | trans-1,3-Dichloropropene | 75 | 6.761 | 6.761 | (1.330) | 152342 | 20.0000 | 18.93 | |
| 38 | Trichloroethene | 130 | 5.321 | 5.321 | (1.046) | 98353 | 20.0000 | 18.80 | |
| 8 | Trichlorofluoromethane | 101 | 1.689 | 1.689 | (0.391) | 117592 | 20.0000 | 18.79 | |
| 5 | Vinyl Chloride | 62 | 1.260 | 1.260 | (0.291) | 127323 | 20.0000 | 19.28 | |
| 62 | m,p-Xylenes | 106 | 7.971 | 7.971 | (1.030) | 305076 | 40.0000 | 38.66 | |
| 63 | o-Xylene | 106 | 8.308 | 8.308 | (1.073) | 154844 | 20.0000 | 19.37 | |
| M 95 | Xylenes (total) | 106 | | | | 459920 | 60.0000 | 58.03 | |
| 71 | 1,2,3-Trichloropropane | 75 | 8.931 | 8.931 | (0.918) | 111837 | 20.0000 | 19.94 | (M) |
| 93 | 1,2,3-Trichlorobenzene | 180 | 11.804 | 11.804 | (1.214) | 37764 | 20.0000 | 18.95 | |
| 79 | 1,2,4-Trimethylbenzene | 105 | 9.440 | 9.440 | (0.971) | 270095 | 20.0000 | 19.07 | |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.132 | 9.132 | (0.939) | 252963 | 20.0000 | 19.10 | |
| 26 | 2,2-Dichloropropane | 77 | 3.666 | 3.666 | (0.848) | 152968 | 20.0000 | 19.38 | |
| 54 | 1,3-Dichloropropane | 76 | 7.062 | 7.062 | (0.912) | 171871 | 20.0000 | 19.39 | |
| 76 | 2-Chlorotoluene | 91 | 9.039 | 9.039 | (0.929) | 249582 | 20.0000 | 19.00 | |
| 77 | 4-Chlorotoluene | 91 | 9.132 | 9.132 | (0.939) | 292387 | 20.0000 | 19.00 | |
| 82 | p-Isopropyltoluene | 119 | 9.712 | 9.712 | (0.999) | 214988 | 20.0000 | 18.73 | |
| 29 | Bromochloromethane | 128 | 3.953 | 3.953 | (0.914) | 49132 | 20.0000 | 19.07 | |
| 74 | Bromobenzene | 156 | 8.874 | 8.874 | (0.912) | 103657 | 20.0000 | 18.99 | |
| 44 | Dibromomethane | 93 | 5.658 | 5.658 | (1.113) | 67157 | 20.0000 | 19.51 | |
| 91 | Hexachlorobutadiene | 225 | 11.539 | 11.539 | (1.186) | 21569 | 20.0000 | 19.41 | |
| 73 | n-Propylbenzene | 91 | 8.974 | 8.974 | (0.923) | 372948 | 20.0000 | 18.89 | |
| 87 | n-Butylbenzene | 91 | 10.056 | 10.056 | (1.034) | 180338 | 20.0000 | 19.16 | |
| 81 | sec-Butylbenzene | 105 | 9.583 | 9.583 | (0.985) | 244252 | 20.0000 | 18.43 | |
| 92 | Naphthalene | 128 | 11.603 | 11.603 | (1.193) | 125593 | 20.0000 | 18.73 | |
| 78 | tert-Butylbenzene | 119 | 9.397 | 9.397 | (0.966) | 182498 | 20.0000 | 18.43 | |
| 60 | 1,1,1,2-Tetrachloroethane | 131 | 7.842 | 7.842 | (1.013) | 90841 | 20.0000 | 19.04 | |
| 64 | Styrene | 104 | 8.322 | 8.322 | (1.075) | 277336 | 20.0000 | 19.33 | |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101007.D
Report Date: 06-Feb-2018 16:21

QC Flag Legend

M - Compound response manually integrated.




Data File: \\NAHSTWS003\Target\CHEM\VOA6\1\X171010\b\X101007.D
Date : 10-OCT-2017 13:08
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: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101009.D
Report Date: 06-Feb-2018 16:21

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101009.D
Lab Smp Id: VSTD100 Client Smp ID: VSTD100
Inj Date : 10-OCT-2017 13:58
Operator : PC Inst ID: voa6.i
Smp Info : VSTD100;VSTD100;1;8;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\8260W.m
Meth Date : 06-Feb-2018 16:21 diana.nguy Quant Type: ISTD
Cal Date : 10-OCT-2017 13:58 Cal File: X101009.D
Als bottle: 11 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.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) |
|---|---|---|---|---|---|---|---|---|
| | 31 1,1,1-Trichloroethane | 97 | 4.240 | 4.240 | (0.980) | 687167 | 100.000 | 94.85 |
| * | 1 Pentafluorobenzene | 168 | 4.325 | 4.325 | (1.000) | 369317 | 50.0000 | |
| $ | 30 Dibromofluoromethane | 113 | 4.254 | 4.254 | (0.983) | 550814 | 100.000 | 100.03 |
| * | 36 1,4-Difluorobenzene | 114 | 5.085 | 5.085 | (1.000) | 621154 | 50.0000 | |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 4.612 | 4.612 | (1.066) | 681709 | 100.000 | 99.99 |
| * | 47 Chlorobenzene-d5 | 117 | 7.742 | 7.742 | (1.000) | 631790 | 50.0000 | |
| $ | 48 Toluene-d8 | 98 | 6.474 | 6.474 | (0.836) | 2037259 | 100.000 | 100.01 |
| $ | 69 4-Bromofluorobenzene | 95 | 8.752 | 8.752 | (1.130) | 718683 | 100.000 | 100.01 |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 9.726 | 9.726 | (1.000) | 301010 | 50.0000 | |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 8.903 | 8.903 | (0.915) | 545730 | 100.000 | 103.40 |
| | 53 1,1,2-Trichloroethane | 83 | 6.918 | 6.918 | (0.894) | 379700 | 100.000 | 93.19 |
| | 32 1,1-Dichloropropene | 75 | 4.426 | 4.426 | (0.870) | 657729 | 100.000 | 97.50 |
| | 22 1,1-Dichloroethane | 63 | 3.072 | 3.072 | (0.710) | 931932 | 100.000 | 96.07 |
| | 11 1,1-Dichloroethene | 96 | 2.055 | 2.055 | (0.475) | 415159 | 100.000 | 97.06 |
| | 90 1,2,4-Trichlorobenzene | 180 | 11.395 | 11.395 | (1.172) | 272147 | 100.000 | 104.82 |
| | 89 1,2-Dibromo-3-Chloropropane | 155 | 10.715 | 10.715 | (1.102) | 65831 | 100.000 | 99.28 |
| | 57 1,2-Dibromoethane | 107 | 7.341 | 7.341 | (0.948) | 449604 | 100.000 | 94.49 |
| | 88 1,2-Dichlorobenzene | 146 | 10.056 | 10.056 | (1.034) | 717243 | 100.000 | 95.31 |
| | 33 1,2-Dichloroethane | 62 | 4.691 | 4.691 | (0.923) | 657258 | 100.000 | 94.78 |
| | 42 1,2-Dichloropropane | 63 | 5.543 | 5.543 | (1.090) | 554908 | 100.000 | 96.62 |
| | 83 1,3-Dichlorobenzene | 146 | 9.669 | 9.669 | (0.994) | 740308 | 100.000 | 95.61 |
| | 84 1,4-Dichlorobenzene | 146 | 9.748 | 9.748 | (1.002) | 776092 | 100.000 | 95.17 |

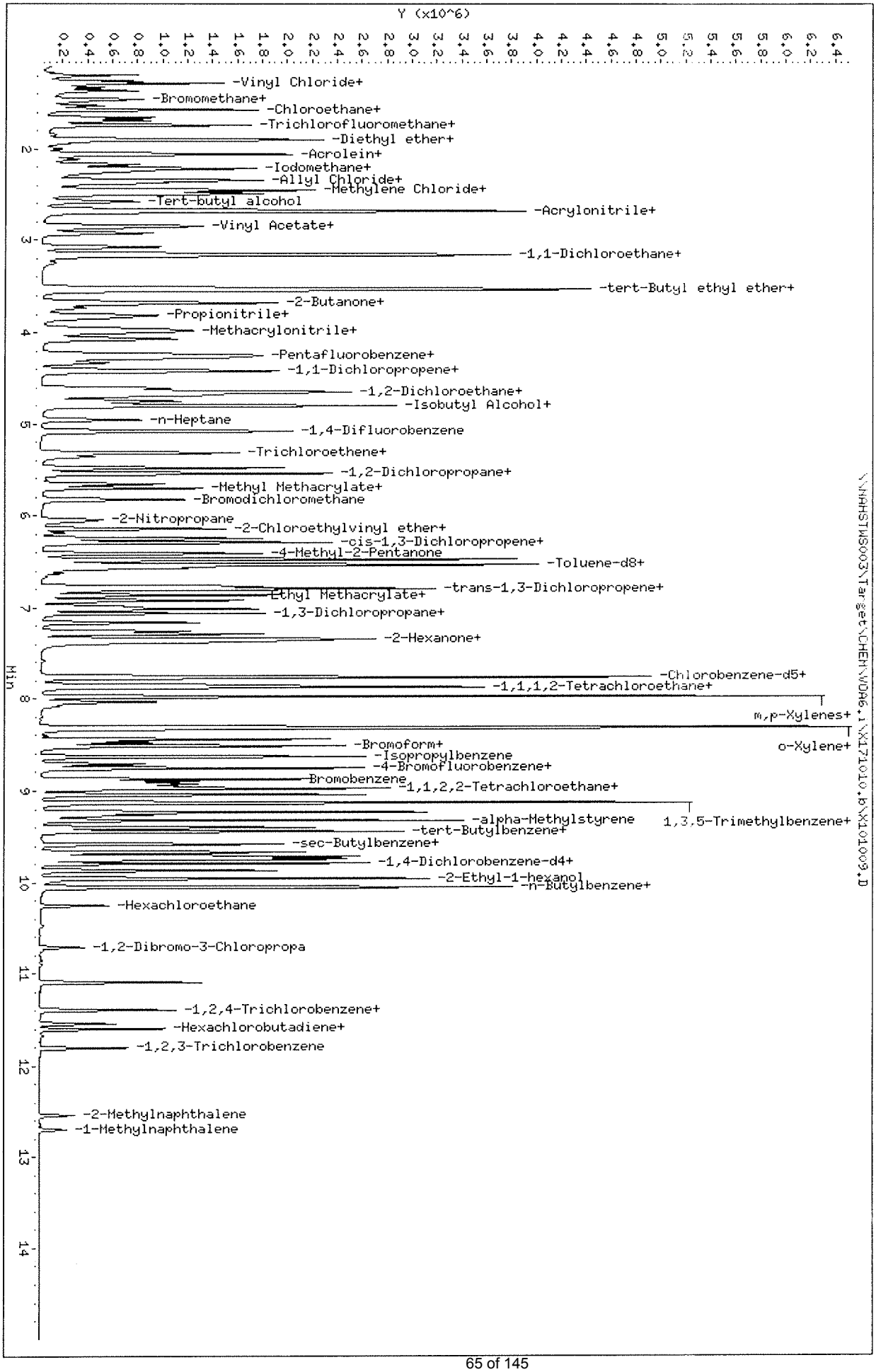
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101009.D
Report Date: 06-Feb-2018 16:21

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 24 | 2-Butanone | 43 | 3.731 | 3.731 | (0.863) | 439449 | 200.000 | 201.26 (A) |
| 52 | 2-Hexanone | 43 | 7.284 | 7.284 | (0.941) | 1009670 | 200.000 | 195.00 |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.410 | 6.410 | (0.828) | 1052917 | 200.000 | 191.33 |
| 10 | Acetone | 43 | 2.112 | 2.112 | (0.488) | 257954 | 200.000 | 200.19 (A) |
| 37 | Benzene | 78 | 4.648 | 4.648 | (0.914) | 2001428 | 100.000 | 98.28 |
| 39 | Bromodichloromethane | 83 | 5.830 | 5.830 | (1.146) | 671661 | 100.000 | 95.42 |
| 66 | Bromoform | 173 | 8.480 | 8.480 | (1.095) | 335757 | 100.000 | 95.46 |
| 6 | Bromomethane | 94 | 1.460 | 1.460 | (0.338) | 343961 | 100.000 | 96.02 |
| 19 | Carbon Disulfide | 76 | 2.212 | 2.212 | (0.512) | 2589759 | 200.000 | 190.14 |
| 34 | Carbon Tetrachloride | 117 | 4.411 | 4.411 | (0.868) | 558443 | 100.000 | 98.29 |
| 59 | Chlorobenzene | 112 | 7.764 | 7.764 | (1.003) | 1239714 | 100.000 | 96.85 |
| 7 | Chloroethane | 64 | 1.525 | 1.525 | (0.353) | 351134 | 100.000 | 91.63 |
| 28 | Chloroform | 83 | 4.068 | 4.068 | (0.940) | 866693 | 100.000 | 96.14 |
| 3 | Chloromethane | 50 | 1.188 | 1.188 | (0.275) | 748853 | 100.000 | 99.67 |
| 27 | cis-1,2-Dichloroethene | 96 | 3.681 | 3.681 | (0.851) | 536704 | 100.000 | 96.89 |
| 46 | cis-1,3-Dichloropropene | 75 | 6.245 | 6.245 | (1.228) | 866708 | 100.000 | 96.41 |
| 55 | Dibromochloromethane | 129 | 7.255 | 7.255 | (0.937) | 515584 | 100.000 | 96.69 |
| 2 | Dichlorodifluoromethane | 85 | 1.081 | 1.081 | (0.250) | 457433 | 100.000 | 96.91 |
| 61 | Ethylbenzene | 106 | 7.871 | 7.871 | (1.017) | 613961 | 100.000 | 95.34 |
| 67 | Isopropylbenzene | 105 | 8.623 | 8.623 | (1.114) | 1489007 | 100.000 | 96.00 |
| 17 | Methylene Chloride | 84 | 2.449 | 2.449 | (0.566) | 525988 | 100.000 | 92.54 |
| 56 | Tetrachloroethene | 164 | 7.012 | 7.012 | (0.906) | 324241 | 100.000 | 95.70 |
| 50 | Toluene | 91 | 6.532 | 6.532 | (0.844) | 1969216 | 100.000 | 97.02 |
| 20 | trans-1,2-Dichloroethene | 96 | 2.678 | 2.678 | (0.619) | 478246 | 100.000 | 95.85 |
| 51 | trans-1,3-Dichloropropene | 75 | 6.761 | 6.761 | (1.330) | 742568 | 100.000 | 96.51 |
| 38 | Trichloroethene | 130 | 5.321 | 5.321 | (1.046) | 478710 | 100.000 | 95.76 |
| 8 | Trichlorofluoromethane | 101 | 1.689 | 1.689 | (0.391) | 594603 | 100.000 | 96.07 |
| 5 | Vinyl Chloride | 62 | 1.260 | 1.260 | (0.291) | 633468 | 100.000 | 100.16 |
| 62 | m,p-Xylenes | 106 | 7.971 | 7.971 | (1.030) | 1471141 | 200.000 | 191.10 |
| 63 | o-Xylene | 106 | 8.308 | 8.308 | (1.073) | 741727 | 100.000 | 95.13 |
| M 95 | Xylenes (total) | 106 | | | | 2212868 | 300.000 | 286.23 |
| 71 | 1,2,3-Trichloropropane | 75 | 8.931 | 8.931 | (0.918) | 529256 | 100.000 | 100.50 (M) |
| 93 | 1,2,3-Trichlorobenzene | 180 | 11.804 | 11.804 | (1.214) | 195198 | 100.000 | 104.36 |
| 79 | 1,2,4-Trimethylbenzene | 105 | 9.440 | 9.440 | (0.971) | 1267474 | 100.000 | 95.32 |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.132 | 9.132 | (0.939) | 1198260 | 100.000 | 96.35 |
| 26 | 2,2-Dichloropropane | 77 | 3.666 | 3.666 | (0.848) | 731530 | 100.000 | 96.81 |
| 54 | 1,3-Dichloropropane | 76 | 7.062 | 7.062 | (0.912) | 813681 | 100.000 | 94.13 |
| 76 | 2-Chlorotoluene | 91 | 9.039 | 9.039 | (0.929) | 1189960 | 100.000 | 96.48 |
| 77 | 4-Chlorotoluene | 91 | 9.132 | 9.132 | (0.939) | 1396932 | 100.000 | 96.68 |
| 82 | p-Isopropyltoluene | 119 | 9.712 | 9.712 | (0.999) | 1006657 | 100.000 | 93.41 |
| 29 | Bromochloromethane | 128 | 3.960 | 3.960 | (0.916) | 222568 | 100.000 | 90.22 (M) |
| 74 | Bromobenzene | 156 | 8.874 | 8.874 | (0.912) | 508744 | 100.000 | 99.30 |
| 44 | Dibromomethane | 93 | 5.658 | 5.658 | (1.113) | 321007 | 100.000 | 97.54 |
| 91 | Hexachlorobutadiene | 225 | 11.539 | 11.539 | (1.186) | 96788 | 100.000 | 90.45 |
| 73 | n-Propylbenzene | 91 | 8.974 | 8.974 | (0.923) | 1789251 | 100.000 | 96.52 |
| 87 | n-Butylbenzene | 91 | 10.056 | 10.056 | (1.034) | 849544 | 100.000 | 96.16 |
| 81 | sec-Butylbenzene | 105 | 9.583 | 9.583 | (0.985) | 1153943 | 100.000 | 92.76 |
| 92 | Naphthalene | 128 | 11.603 | 11.603 | (1.193) | 677057 | 100.000 | 93.48 |
| 78 | tert-Butylbenzene | 119 | 9.397 | 9.397 | (0.966) | 862987 | 100.000 | 92.82 |
| 60 | 1,1,1,2-Tetrachloroethane | 131 | 7.850 | 7.850 | (1.014) | 442088 | 100.000 | 95.01 |
| 64 | Styrene | 104 | 8.322 | 8.322 | (1.075) | 1351996 | 100.000 | 96.60 |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101009.D
Report Date: 06-Feb-2018 16:21

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.




Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101009.D
Date : 10-OCT-2017 13:58
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: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101010.D
Report Date: 06-Feb-2018 16:21

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101010.D
Lab Smp Id: VSTD150 Client Smp ID: VSTD150
Inj Date : 10-OCT-2017 14:22
Operator : PC Inst ID: voa6.i
Smp Info : VSTD150;VSTD150;1;9;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\8260W.m
Meth Date : 06-Feb-2018 16:21 diana.nguy Quant Type: ISTD
Cal Date : 10-OCT-2017 14:22 Cal File: X101010.D
Als bottle: 12 Calibration Sample, Level: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.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) |
|---|---|---|---|---|---|---|---|---|
| | 31 1,1,1-Trichloroethane | 97 | 4.239 | 4.239 | (0.980) | 1027255 | 150.000 | 143.15 |
| * | 1 Pentafluorobenzene | 168 | 4.325 | 4.325 | (1.000) | 365822 | 50.0000 | |
| $ | 30 Dibromofluoromethane | 113 | 4.254 | 4.254 | (0.983) | 807409 | 150.000 | 142.92 |
| * | 36 1,4-Difluorobenzene | 114 | 5.085 | 5.085 | (1.000) | 611030 | 50.0000 | |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 4.612 | 4.612 | (1.066) | 1005478 | 150.000 | 145.89 |
| * | 47 Chlorobenzene-d5 | 117 | 7.742 | 7.742 | (1.000) | 633142 | 50.0000 | |
| $ | 48 Toluene-d8 | 98 | 6.474 | 6.474 | (0.836) | 2976689 | 150.000 | 140.10 |
| $ | 69 4-Bromofluorobenzene | 95 | 8.752 | 8.752 | (1.130) | 1051275 | 150.000 | 141.52 |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 9.726 | 9.726 | (1.000) | 308561 | 50.0000 | |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 8.903 | 8.903 | (0.915) | 810178 | 150.000 | 150.16 |
| | 53 1,1,2-Trichloroethane | 83 | 6.918 | 6.918 | (0.894) | 557993 | 150.000 | 136.84 |
| | 32 1,1-Dichloropropene | 75 | 4.426 | 4.426 | (0.870) | 990181 | 150.000 | 149.21 |
| | 22 1,1-Dichloroethane | 63 | 3.072 | 3.072 | (0.710) | 1363851 | 150.000 | 141.94 |
| | 11 1,1-Dichloroethene | 96 | 2.055 | 2.055 | (0.475) | 610869 | 150.000 | 144.18(M) |
| | 90 1,2,4-Trichlorobenzene | 180 | 11.395 | 11.395 | (1.172) | 442001 | 150.000 | 166.08 |
| | 89 1,2-Dibromo-3-Chloropropane | 155 | 10.715 | 10.715 | (1.102) | 100495 | 150.000 | 147.81 |
| | 57 1,2-Dibromoethane | 107 | 7.341 | 7.341 | (0.948) | 665490 | 150.000 | 139.44 |
| | 88 1,2-Dichlorobenzene | 146 | 10.056 | 10.056 | (1.034) | 1082709 | 150.000 | 140.35 |
| | 33 1,2-Dichloroethane | 62 | 4.691 | 4.691 | (0.923) | 971623 | 150.000 | 142.43 |
| | 42 1,2-Dichloropropane | 63 | 5.543 | 5.543 | (1.090) | 814386 | 150.000 | 144.14 |
| | 83 1,3-Dichlorobenzene | 146 | 9.669 | 9.669 | (0.994) | 1109075 | 150.000 | 139.73 |
| | 84 1,4-Dichlorobenzene | 146 | 9.741 | 9.741 | (1.001) | 1153992 | 150.000 | 138.04 |

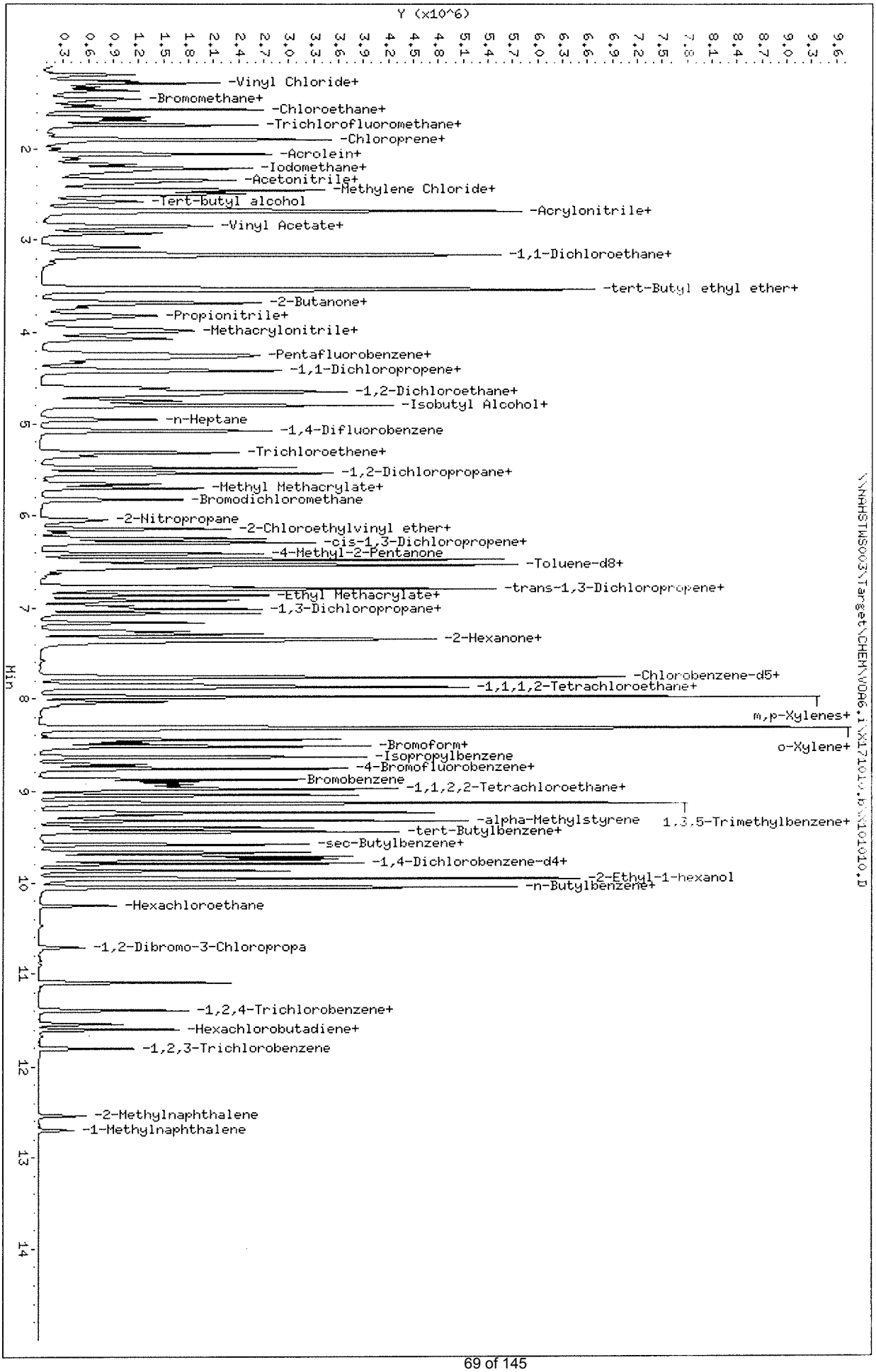
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101010.D
Report Date: 06-Feb-2018 16:21

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 24 | 2-Butanone | 43 | 3.731 | 3.731 | (0.863) | 656143 | 300.000 | 303.36 (A) |
| 52 | 2-Hexanone | 43 | 7.284 | 7.284 | (0.941) | 1517498 | 300.000 | 292.49 (A) |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.410 | 6.410 | (0.828) | 1571738 | 300.000 | 284.94 (A) |
| 10 | Acetone | 43 | 2.112 | 2.112 | (0.488) | 376636 | 300.000 | 297.50 (A) |
| 37 | Benzene | 78 | 4.648 | 4.648 | (0.914) | 2901936 | 150.000 | 144.86 |
| 39 | Bromodichloromethane | 83 | 5.823 | 5.823 | (1.145) | 988[illegible] | 150.000 | 142.[illegible] |
| 66 | Bromoform | 173 | 8.480 | 8.480 | (1.095) | 490387 | 150.000 | 139.[illegible] |
| 6 | Bromomethane | 94 | 1.460 | 1.460 | (0.338) | 544026 | 150.000 | 153.32 |
| 19 | Carbon Disulfide | 76 | 2.212 | 2.212 | (0.512) | 3847459 | 300.000 | 285.18 (A) |
| 34 | Carbon Tetrachloride | 117 | 4.411 | 4.411 | (0.868) | 841250 | 150.000 | 150.52 |
| 59 | Chlorobenzene | 112 | 7.764 | 7.764 | (1.003) | 1806011 | 150.000 | 140.67 |
| 7 | Chloroethane | 64 | 1.525 | 1.525 | (0.353) | 524463 | 150.000 | 138.17 |
| 28 | Chloroform | 83 | 4.068 | 4.068 | (0.940) | 1258886 | 150.000 | 140.98 |
| 3 | Chloromethane | 50 | 1.188 | 1.188 | (0.275) | 1119443 | 150.000 | 150.29 |
| 27 | cis-1,2-Dichloroethene | 96 | 3.681 | 3.681 | (0.851) | 783202 | 150.000 | 142.75 |
| 46 | cis-1,3-Dichloropropene | 75 | 6.245 | 6.245 | (1.228) | 1287432 | 150.000 | 145.56 |
| 55 | Dibromochloromethane | 129 | 7.255 | 7.255 | (0.937) | 757747 | 150.000 | 141.68 |
| 2 | Dichlorodifluoromethane | 85 | 1.081 | 1.081 | (0.250) | 733784 | 150.000 | 156.94 |
| 61 | Ethylbenzene | 106 | 7.871 | 7.871 | (1.017) | 908[illegible] | 150.000 | 140.[illegible] |
| 67 | Isopropylbenzene | 105 | 8.623 | 8.623 | (1.114) | 2245545 | 150.000 | 144.34 |
| 17 | Methylene Chloride | 84 | 2.449 | 2.449 | (0.566) | 769635 | 150.000 | 136.[illegible] |
| 56 | Tetrachloroethene | 164 | 7.012 | 7.012 | (0.906) | 484302 | 150.000 | 142.51 |
| 50 | Toluene | 91 | 6.532 | 6.532 | (0.844) | 2887123 | 150.000 | 141.82 |
| 20 | trans-1,2-Dichloroethene | 96 | 2.678 | 2.678 | (0.619) | 697965 | 150.000 | 141.22 |
| 51 | trans-1,3-Dichloropropene | 75 | 6.761 | 6.761 | (1.330) | 1092726 | 150.000 | 144.37 |
| 38 | Trichloroethene | 130 | 5.321 | 5.321 | (1.046) | 710112 | 150.000 | 144.41 |
| 8 | Trichlorofluoromethane | 101 | 1.689 | 1.689 | (0.391) | 919739 | 150.000 | 150.02 |
| 5 | Vinyl Chloride | 62 | 1.260 | 1.260 | (0.291) | 956365 | 150.000 | 152.66 |
| 62 | m,p-Xylenes | 106 | 7.971 | 7.971 | (1.030) | 2191660 | 300.000 | 283.63 (A) |
| 63 | o-Xylene | 106 | 8.308 | 8.308 | (1.073) | 1089461 | 150.000 | 139.31 |
| M 95 | Xylenes (total) | 106 | | | | 3281121 | 450.000 | 423.[illegible] |
| 71 | 1,2,3-Trichloropropane | 75 | 8.931 | 8.931 | (0.918) | 779047 | 150.000 | 144.31 (M) |
| 93 | 1,2,3-Trichlorobenzene | 180 | 11.804 | 11.804 | (1.214) | 319720 | 150.000 | 166.75 |
| 79 | 1,2,4-Trimethylbenzene | 105 | 9.440 | 9.440 | (0.971) | 1922[illegible] | 150.000 | 141.[illegible] |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.132 | 9.132 | (0.939) | 1822[illegible] | 150.000 | 142.94 |
| 26 | 2,2-Dichloropropane | 77 | 3.666 | 3.666 | (0.848) | 1097426 | 150.000 | 146.62 |
| 54 | 1,3-Dichloropropane | 76 | 7.062 | 7.062 | (0.912) | 1181727 | 150.000 | 136.30 |
| 76 | 2-Chlorotoluene | 91 | 9.039 | 9.039 | (0.929) | 1760111 | 150.000 | 139.22 |
| 77 | 4-Chlorotoluene | 91 | 9.132 | 9.132 | (0.939) | 2093660 | 150.000 | 141.[illegible] |
| 82 | p-Isopropyltoluene | 119 | 9.712 | 9.712 | (0.999) | 1576453 | 150.000 | 142.71 |
| 29 | Bromochloromethane | 128 | 3.960 | 3.960 | (0.916) | 323442 | 150.000 | 132.[illegible] |
| 74 | Bromobenzene | 156 | 8.874 | 8.874 | (0.912) | 744971 | 150.000 | 141.85 |
| 44 | Dibromomethane | 93 | 5.658 | 5.658 | (1.113) | 463015 | 150.000 | 143.02 |
| 91 | Hexachlorobutadiene | 225 | 11.539 | 11.539 | (1.186) | 161761 | 150.000 | 147.09 |
| 73 | n-Propylbenzene | 91 | 8.974 | 8.974 | (0.923) | 2706592 | 150.000 | 142.43 |
| 87 | n-Butylbenzene | 91 | 10.056 | 10.056 | (1.034) | 1350052 | 150.000 | 149.08 |
| 81 | sec-Butylbenzene | 105 | 9.583 | 9.583 | (0.985) | 1826856 | 150.000 | 143.[illegible] |
| 92 | Naphthalene | 128 | 11.603 | 11.603 | (1.193) | 1113941 | 150.000 | 148.24 |
| 78 | tert-Butylbenzene | 119 | 9.397 | 9.397 | (0.966) | 1330122 | 150.000 | 139.56 |
| 60 | 1,1,1,2-Tetrachloroethane | 131 | 7.850 | 7.850 | (1.014) | 657626 | 150.000 | 140.88 |
| 64 | Styrene | 104 | 8.322 | 8.322 | (1.075) | 1952650 | 150.000 | 139.09 |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101010.D
Report Date: 06-Feb-2018 16:21

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.




Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101010.D
Date : 10-OCT-2017 14:22
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: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101011.D
Report Date: 06-Feb-2018 16:21

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101011.D
Lab Smp Id: VSTD200 Client Smp ID: VSTD200
Inj Date : 10-OCT-2017 14:47
Operator : PC Inst ID: voa6.i
Smp Info : VSTD200;VSTD200;1;10;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\8260W.m
Meth Date : 06-Feb-2018 16:21 diana.nguy Quant Type: ISTD
Cal Date : 10-OCT-2017 14:47 Cal File: X101011.D
Als bottle: 13 Calibration Sample, Level: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.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) | |
|---|---|---|---|---|---|---|---|---|---|
| | 31 1,1,1-Trichloroethane | 97 | 4.240 | 4.240 | (0.980) | 1346837 | 200.000 | 189.72 | |
| * | 1 Pentafluorobenzene | 168 | 4.325 | 4.325 | (1.000) | 361891 | 50.0000 | | |
| $ | 30 Dibromofluoromethane | 113 | 4.254 | 4.254 | (0.983) | 1013155 | 200.000 | 175.90 | |
| * | 36 1,4-Difluorobenzene | 114 | 5.085 | 5.085 | (1.000) | 605229 | 50.0000 | | |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 4.612 | 4.612 | (1.066) | 1304355 | 200.000 | 187.52 | |
| * | 47 Chlorobenzene-d5 | 117 | 7.742 | 7.742 | (1.000) | 627272 | 50.0000 | | |
| $ | 48 Toluene-d8 | 98 | 6.474 | 6.474 | (0.836) | 3936343 | 200.000 | 178.98 | |
| $ | 69 4-Bromofluorobenzene | 95 | 8.752 | 8.752 | (1.130) | 1367102 | 200.000 | 180.03 | |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 9.726 | 9.726 | (1.000) | 305564 | 50.0000 | | |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 8.903 | 8.903 | (0.915) | 1055403 | 200.000 | 197.88 | |
| | 53 1,1,2-Trichloroethane | 83 | 6.926 | 6.926 | (0.895) | 722501 | 200.000 | 178.45 | |
| | 32 1,1-Dichloropropene | 75 | 4.426 | 4.426 | (0.870) | 1286445 | 200.000 | 195.72 | |
| | 22 1,1-Dichloroethane | 63 | 3.079 | 3.079 | (0.712) | 1751045 | 200.000 | 184.22 | |
| | 11 1,1-Dichloroethene | 96 | 2.055 | 2.055 | (0.475) | 796023 | 200.000 | 189.92 | (M) |
| | 90 1,2,4-Trichlorobenzene | 180 | 11.395 | 11.395 | (1.172) | 588209 | 200.000 | 223.18 | (A) |
| | 89 1,2-Dibromo-3-Chloropropane | 155 | 10.715 | 10.715 | (1.102) | 136011 | 200.000 | 201.99 | (A) |
| | 57 1,2-Dibromoethane | 107 | 7.341 | 7.341 | (0.948) | 862287 | 200.000 | 182.37 | |
| | 88 1,2-Dichlorobenzene | 146 | 10.056 | 10.056 | (1.034) | 1412182 | 200.000 | 184.86 | |
| | 33 1,2-Dichloroethane | 62 | 4.691 | 4.691 | (0.923) | 1236234 | 200.000 | 182.96 | |
| | 42 1,2-Dichloropropane | 63 | 5.543 | 5.543 | (1.090) | 1062996 | 200.000 | 189.96 | |
| | 83 1,3-Dichlorobenzene | 146 | 9.669 | 9.669 | (0.994) | 1445179 | 200.000 | 183.86 | |
| | 84 1,4-Dichlorobenzene | 146 | 9.748 | 9.748 | (1.002) | 1504696 | 200.000 | 181.76 | |

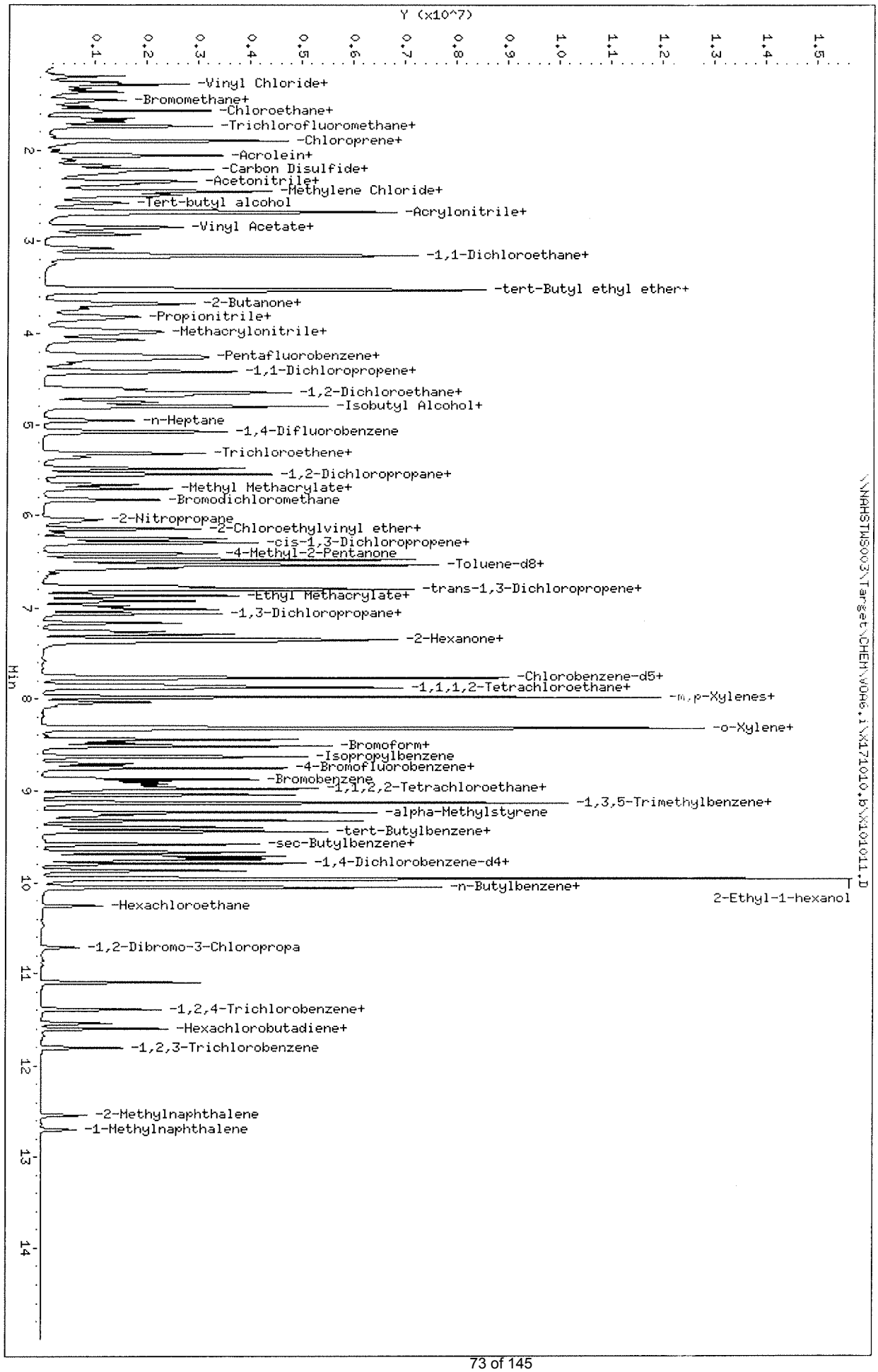
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101011.D
Report Date: 06-Feb-2018 16:21

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| | 24 2-Butanone | 43 | 3.731 | 3.731 | (0.863) | 871732 | 400.000 | 407.41(A) |
| | 52 2-Hexanone | 43 | 7.284 | 7.284 | (0.941) | 2030213 | 400.000 | 394.98(A) |
| | 45 4-Methyl-2-Pentanone | 43 | 6.410 | 6.410 | (0.828) | 2085182 | 400.000 | 381.56(A) |
| | 10 Acetone | 43 | 2.112 | 2.112 | (0.488) | 501328 | 400.000 | 401.38(A) |
| | 37 Benzene | 78 | 4.648 | 4.648 | (0.914) | 3804958 | 200.000 | 191.77 |
| | 39 Bromodichloromethane | 83 | 5.830 | 5.830 | (1.146) | 1289436 | 200.000 | 188.00 |
| | 66 Bromoform | 173 | 8.480 | 8.480 | (1.095) | 639971 | 200.000 | 183.10 |
| | 6 Bromomethane | 94 | 1.453 | 1.453 | (0.336) | 700366 | 200.000 | 199.53 |
| | 19 Carbon Disulfide | 76 | 2.212 | 2.212 | (0.512) | 5063736 | 400.000 | 379.41(A) |
| | 34 Carbon Tetrachloride | 117 | 4.411 | 4.411 | (0.868) | 1119346 | 200.000 | 202.19(A) |
| | 59 Chlorobenzene | 112 | 7.771 | 7.771 | (1.004) | 2344776 | 200.000 | 184.34 |
| | 7 Chloroethane | 64 | 1.525 | 1.525 | (0.353) | 677909 | 200.000 | 180.53 |
| | 28 Chloroform | 83 | 4.068 | 4.068 | (0.940) | 1619486 | 200.000 | 183.33 |
| | 3 Chloromethane | 50 | 1.188 | 1.188 | (0.275) | 1476509 | 200.000 | 200.29(A) |
| | 27 cis-1,2-Dichloroethene | 96 | 3.688 | 3.688 | (0.853) | 1005214 | 200.000 | 185.20(M) |
| | 46 cis-1,3-Dichloropropene | 75 | 6.245 | 6.245 | (1.228) | 1703619 | 200.000 | 194.47 |
| | 55 Dibromochloromethane | 129 | 7.255 | 7.255 | (0.937) | 986345 | 200.000 | 186.15 |
| | 2 Dichlorodifluoromethane | 85 | 1.081 | 1.081 | (0.250) | 965107 | 200.000 | 208.66(A) |
| | 61 Ethylbenzene | 106 | 7.871 | 7.871 | (1.017) | 1182773 | 200.000 | 184.83 |
| | 67 Isopropylbenzene | 105 | 8.630 | 8.630 | (1.115) | 2908508 | 200.000 | 188.71 |
| | 17 Methylene Chloride | 84 | 2.449 | 2.449 | (0.566) | 1002541 | 200.000 | 180.00 |
| | 56 Tetrachloroethene | 164 | 7.012 | 7.012 | (0.906) | 631132 | 200.000 | 187.45 |
| | 50 Toluene | 91 | 6.532 | 6.532 | (0.844) | 3753557 | 200.000 | 186.11 |
| | 20 trans-1,2-Dichloroethene | 96 | 2.678 | 2.678 | (0.619) | 910532 | 200.000 | 186.23 |
| | 51 trans-1,3-Dichloropropene | 75 | 6.761 | 6.761 | (1.330) | 1414101 | 200.000 | 188.62 |
| | 38 Trichloroethene | 130 | 5.321 | 5.321 | (1.046) | 931410 | 200.000 | 191.23 |
| | 8 Trichlorofluoromethane | 101 | 1.689 | 1.689 | (0.391) | 1193771 | 200.000 | 196.84 |
| | 5 Vinyl Chloride | 62 | 1.260 | 1.260 | (0.291) | 1257204 | 200.000 | 202.86(A) |
| | 62 m,p-Xylenes | 106 | 7.971 | 7.971 | (1.030) | 2834918 | 400.000 | 370.57(A) |
| | 63 o-Xylene | 106 | 8.308 | 8.308 | (1.073) | 1411763 | 200.000 | 182.21 |
| M | 95 Xylenes (total) | 106 | | | | 4246681 | 600.000 | 552.79 |
| | 71 1,2,3-Trichloropropane | 75 | 8.931 | 8.931 | (0.918) | 995064 | 200.000 | 186.13(M) |
| | 93 1,2,3-Trichlorobenzene | 180 | 11.804 | 11.804 | (1.214) | 434974 | 200.000 | 229.09(A) |
| | 79 1,2,4-Trimethylbenzene | 105 | 9.440 | 9.440 | (0.971) | 2458485 | 200.000 | 182.14 |
| | 75 1,3,5-Trimethylbenzene | 105 | 9.132 | 9.132 | (0.939) | 2334767 | 200.000 | 184.94 |
| | 26 2,2-Dichloropropane | 77 | 3.666 | 3.666 | (0.848) | 1425109 | 200.000 | 192.47 |
| | 54 1,3-Dichloropropane | 76 | 7.062 | 7.062 | (0.912) | 1555345 | 200.000 | 181.07 |
| | 76 2-Chlorotoluene | 91 | 9.039 | 9.039 | (0.929) | 2295489 | 200.000 | 183.35 |
| | 77 4-Chlorotoluene | 91 | 9.132 | 9.132 | (0.939) | 2679072 | 200.000 | 182.65 |
| | 82 p-Isopropyltoluene | 119 | 9.712 | 9.712 | (0.999) | 2038528 | 200.000 | 186.35 |
| | 29 Bromochloromethane | 128 | 3.960 | 3.960 | (0.916) | 409116 | 200.000 | 169.22 |
| | 74 Bromobenzene | 156 | 8.874 | 8.874 | (0.912) | 967507 | 200.000 | 186.03 |
| | 44 Dibromomethane | 93 | 5.658 | 5.658 | (1.113) | 595314 | 200.000 | 185.65 |
| | 91 Hexachlorobutadiene | 225 | 11.539 | 11.539 | (1.186) | 223916 | 200.000 | 205.36(A) |
| | 73 n-Propylbenzene | 91 | 8.974 | 8.974 | (0.923) | 3504630 | 200.000 | 186.24 |
| | 87 n-Butylbenzene | 91 | 10.056 | 10.056 | (1.034) | 1721697 | 200.000 | 191.98 |
| | 81 sec-Butylbenzene | 105 | 9.583 | 9.583 | (0.985) | 2361299 | 200.000 | 186.99 |
| | 92 Naphthalene | 128 | 11.603 | 11.603 | (1.193) | 1535347 | 200.000 | 205.16(A) |
| | 78 tert-Butylbenzene | 119 | 9.397 | 9.397 | (0.966) | 1713732 | 200.000 | 181.58 |
| | 60 1,1,1,2-Tetrachloroethane | 131 | 7.850 | 7.850 | (1.014) | 851188 | 200.000 | 184.08 |
| | 64 Styrene | 104 | 8.330 | 8.330 | (1.076) | 2582507 | 200.000 | 185.68 |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101011.D
Report Date: 06-Feb-2018 16:21

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.




Data File: \\NAHSTWS003\Target\CHEM\VOA6,i\X171010,b\X101011,D
Date : 10-OCT-2017 14:47
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: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101013.D
Report Date: 06-Feb-2018 16:21

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101013.D
Lab Smp Id: VSTD-ICV Client Smp ID: VSTD-ICV
Inj Date : 10-OCT-2017 17:23
Operator : PC Inst ID: voa6.i
Smp Info : VSTD-ICV;VSTD-ICV;2;;ICV
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\8260W.m
Meth Date : 06-Feb-2018 16:21 diana.nguy Quant Type: ISTD
Cal Date : 10-OCT-2017 14:47 Cal File: X101011.D
Als bottle: 19 QC Sample: METHSPIKE
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.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) |
|---|---|---|---|---|---|---|---|---|
| | 31 1,1,1-Trichloroethane | 97 | 4.232 | 4.240 | (0.978) | 330194 | 45.4590 | 45.45 |
| * | 1 Pentafluorobenzene | 168 | 4.326 | 4.325 | (1.000) | 370293 | 50.0000 | |
| $ | 30 Dibromofluoromethane | 113 | 4.254 | 4.254 | (0.983) | 255845 | 48.0784 | 48.07 |
| * | 36 1,4-Difluorobenzene | 114 | 5.085 | 5.085 | (1.000) | 622750 | 50.0000 | |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 4.612 | 4.612 | (1.066) | 312035 | 46.6210 | 46.62 |
| * | 47 Chlorobenzene-d5 | 117 | 7.742 | 7.742 | (1.000) | 624694 | 50.0000 | |
| $ | 48 Toluene-d8 | 98 | 6.474 | 6.474 | (0.836) | 958829 | 49.6020 | 49.60 |
| $ | 69 4-Bromofluorobenzene | 95 | 8.752 | 8.752 | (1.130) | 325748 | 47.3203 | 47.32 |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 9.727 | 9.726 | (1.000) | 303011 | 50.0000 | |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 8.903 | 8.903 | (0.915) | 267608 | 49.8685 | 49.86 |
| | 53 1,1,2-Trichloroethane | 83 | 6.919 | 6.926 | (0.894) | 186329 | 46.2126 | 46.21 |
| | 32 1,1-Dichloropropene | 75 | 4.426 | 4.426 | (0.870) | 316212 | 46.7557 | 46.75 |
| | 22 1,1-Dichloroethane | 63 | 3.072 | 3.079 | (0.710) | 452146 | 46.4912 | 46.49 |
| | 11 1,1-Dichloroethene | 96 | 2.055 | 2.055 | (0.475) | 195702 | 45.6335 | 45.63 |
| | 90 1,2,4-Trichlorobenzene | 180 | 11.396 | 11.395 | (1.172) | 139054 | 53.2072 | 53.20 |
| | 89 1,2-Dibromo-3-Chloropropane | 155 | 10.715 | 10.715 | (1.102) | 33858 | 50.7719 | 50.77 |
| | 57 1,2-Dibromoethane | 107 | 7.341 | 7.341 | (0.948) | 223641 | 47.4961 | 47.49 |
| | 88 1,2-Dichlorobenzene | 146 | 10.056 | 10.056 | (1.034) | 351056 | 46.3437 | 46.34 |
| | 33 1,2-Dichloroethane | 62 | 4.691 | 4.691 | (0.923) | 322761 | 46.4249 | 46.42 |
| | 42 1,2-Dichloropropane | 63 | 5.543 | 5.543 | (1.090) | 270039 | 46.8970 | 46.89 |
| | 83 1,3-Dichlorobenzene | 146 | 9.669 | 9.669 | (0.994) | 360182 | 46.2101 | 46.21 |
| | 84 1,4-Dichlorobenzene | 146 | 9.748 | 9.748 | (1.002) | 372094 | 45.3276 | 45.32 |

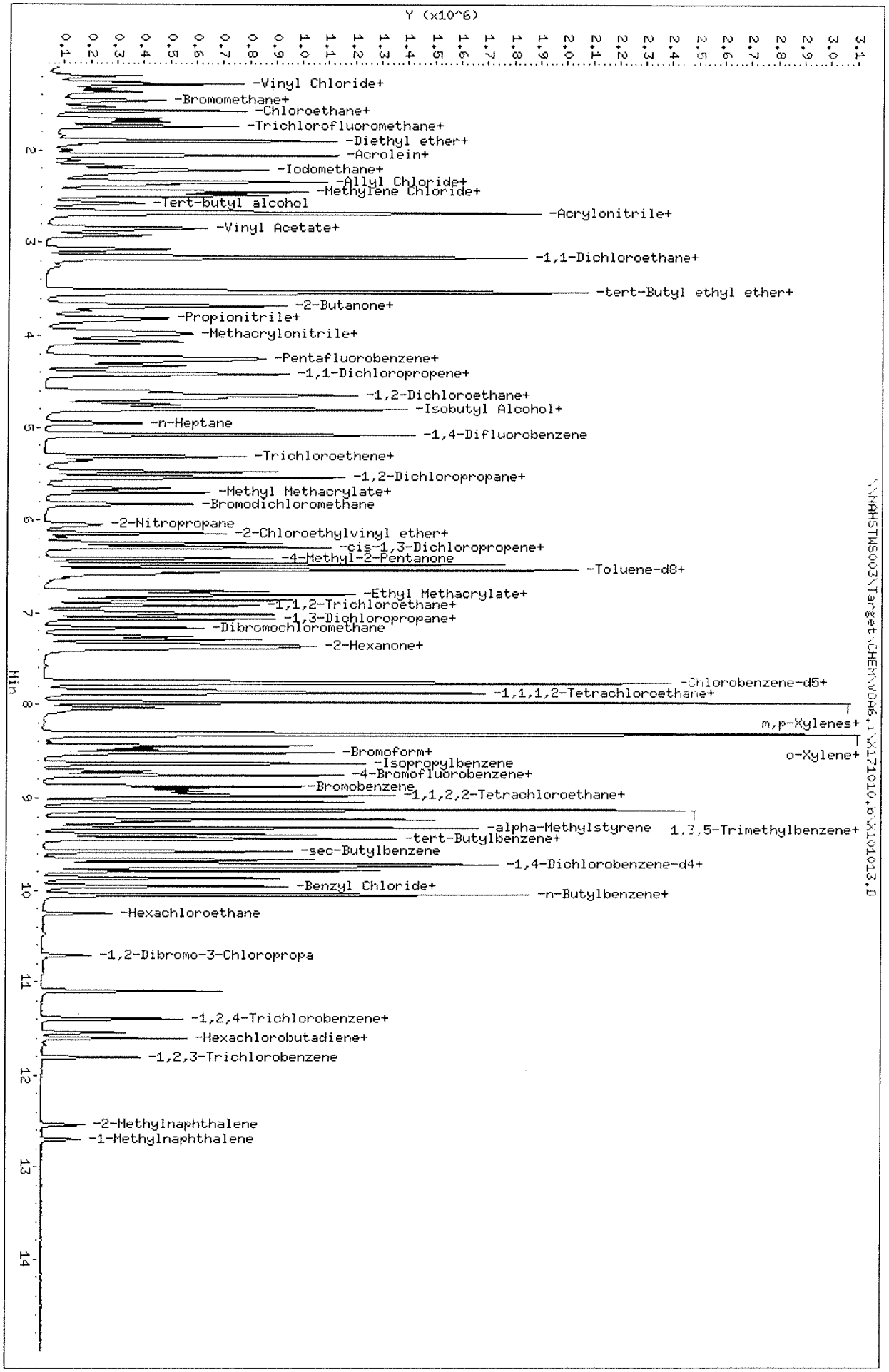
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101013.D
Report Date: 06-Feb-2018 16:21

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 24 | 2-Butanone | 43 | 3.731 | 3.731 | (0.863) | 218764 | 99.6950 | 99.69 |
| 52 | 2-Hexanone | 43 | 7.284 | 7.284 | (0.941) | 472262 | 92.2587 | 92.25 |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.410 | 6.410 | (0.828) | 494701 | 90.8977 | 90.89 |
| 10 | Acetone | 43 | 2.112 | 2.112 | (0.488) | 127869 | 97.6987 | 97.69 |
| 37 | Benzene | 78 | 4.648 | 4.648 | (0.914) | 970233 | 47.5242 | 47.52 |
| 39 | Bromodichloromethane | 83 | 5.830 | 5.830 | (1.146) | 332363 | 47.0953 | 47.09 |
| 66 | Bromoform | 173 | 8.480 | 8.480 | (1.095) | 159876 | 45.9304 | 45.93 |
| 6 | Bromomethane | 94 | 1.460 | 1.453 | (0.338) | 181883 | 50.6425 | 50.64 |
| 19 | Carbon Disulfide | 76 | 2.212 | 2.212 | (0.512) | 1244761 | 91.1516 | 91.15 |
| 34 | Carbon Tetrachloride | 117 | 4.412 | 4.411 | (0.868) | 264433 | 46.4233 | 46.42 |
| 59 | Chlorobenzene | 112 | 7.764 | 7.771 | (1.003) | 591722 | 46.7138 | 46.71 |
| 7 | Chloroethane | 64 | 1.525 | 1.525 | (0.353) | 170116 | 44.2763 | 44.27 |
| 28 | Chloroform | 83 | 4.068 | 4.068 | (0.940) | 418362 | 46.2859 | 46.28 |
| 3 | Chloromethane | 50 | 1.188 | 1.188 | (0.275) | 361661 | 48.1487 | 48.14 |
| 27 | cis-1,2-Dichloroethene | 96 | 3.681 | 3.688 | (0.851) | 261819 | 47.1443 | 47.14 |
| 46 | cis-1,3-Dichloropropene | 75 | 6.245 | 6.245 | (1.228) | 423956 | 47.0320 | 47.03 |
| 55 | Dibromochloromethane | 129 | 7.255 | 7.255 | (0.937) | 247866 | 46.9731 | 46.97 |
| 2 | Dichlorodifluoromethane | 85 | 1.081 | 1.081 | (0.250) | 213029 | 45.0132 | 45.01 |
| 61 | Ethylbenzene | 106 | 7.871 | 7.871 | (1.017) | 296509 | 46.5265 | 46.52 |
| 67 | Isopropylbenzene | 105 | 8.623 | 8.630 | (1.114) | 704708 | 45.9122 | 45.91 |
| 17 | Methylene Chloride | 84 | 2.449 | 2.449 | (0.566) | 257738 | 45.2266 | 45.22 |
| 56 | Tetrachloroethene | 164 | 7.012 | 7.012 | (0.906) | 154761 | 46.1570 | 46.15 |
| 50 | Toluene | 91 | 6.532 | 6.532 | (0.844) | 953124 | 47.4533 | 47.45 |
| 20 | trans-1,2-Dichloroethene | 96 | 2.678 | 2.678 | (0.619) | 229881 | 45.9521 | 45.95 |
| 51 | trans-1,3-Dichloropropene | 75 | 6.761 | 6.761 | (1.330) | 359920 | 46.6576 | 46.65 |
| 38 | Trichloroethene | 130 | 5.321 | 5.321 | (1.046) | 229755 | 45.8450 | 45.84 |
| 8 | Trichlorofluoromethane | 101 | 1.690 | 1.689 | (0.391) | 283021 | 45.6089 | 45.60 |
| 5 | Vinyl Chloride | 62 | 1.260 | 1.260 | (0.291) | 297435 | 46.9069 | 46.90 |
| 62 | m,p-Xylenes | 106 | 7.972 | 7.971 | (1.030) | 708897 | 93.0492 | 93.04 |
| 63 | o-Xylene | 106 | 8.308 | 8.308 | (1.073) | 353135 | 45.7666 | 45.76 |
| M 95 | Xylenes (total) | 106 | | | | 1062032 | 138.816 | 138.81 |
| 71 | 1,2,3-Trichloropropane | 75 | 8.931 | 8.931 | (0.918) | 252976 | 47.7206 | 47.72(M) |
| 93 | 1,2,3-Trichlorobenzene | 180 | 11.804 | 11.804 | (1.214) | 103709 | 55.0826 | 55.08 |
| 79 | 1,2,4-Trimethylbenzene | 105 | 9.440 | 9.440 | (0.971) | 611894 | 45.7169 | 45.71 |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.132 | 9.132 | (0.939) | 574137 | 45.8614 | 45.86 |
| 26 | 2,2-Dichloropropane | 77 | 3.667 | 3.666 | (0.848) | 352219 | 46.4903 | 46.49 |
| 54 | 1,3-Dichloropropane | 76 | 7.062 | 7.062 | (0.912) | 392974 | 45.9397 | 45.93 |
| 76 | 2-Chlorotoluene | 91 | 9.039 | 9.039 | (0.929) | 579988 | 46.7166 | 46.71 |
| 77 | 4-Chlorotoluene | 91 | 9.132 | 9.132 | (0.939) | 668490 | 45.9611 | 45.96 |
| 82 | p-Isopropyltoluene | 119 | 9.712 | 9.712 | (0.999) | 486474 | 44.8463 | 44.84 |
| 29 | Bromochloromethane | 128 | 3.953 | 3.960 | (0.914) | 110435 | 44.6444 | 44.64 |
| 74 | Bromobenzene | 156 | 8.874 | 8.874 | (0.912) | 244977 | 47.5018 | 47.50 |
| 44 | Dibromomethane | 93 | 5.658 | 5.658 | (1.113) | 154779 | 46.9112 | 46.91 |
| 91 | Hexachlorobutadiene | 225 | 11.539 | 11.539 | (1.186) | 50463 | 47.1479 | 47.14 |
| 73 | n-Propylbenzene | 91 | 8.974 | 8.974 | (0.923) | 843895 | 45.2251 | 45.22 |
| 87 | n-Butylbenzene | 91 | 10.056 | 10.056 | (1.034) | 407779 | 45.8544 | 45.85 |
| 81 | sec-Butylbenzene | 105 | 9.583 | 9.583 | (0.985) | 541614 | 43.2532 | 43.25 |
| 92 | Naphthalene | 128 | 11.603 | 11.603 | (1.193) | 360854 | 50.8950 | 50.89 |
| 78 | tert-Butylbenzene | 119 | 9.397 | 9.397 | (0.966) | 408431 | 43.6405 | 43.64 |
| 60 | 1,1,1,2-Tetrachloroethane | 131 | 7.850 | 7.850 | (1.014) | 211205 | 45.8657 | 45.86 |
| 64 | Styrene | 104 | 8.323 | 8.330 | (1.075) | 650153 | 46.9398 | 46.93 |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101013.D
Report Date: 06-Feb-2018 16:21

QC Flag Legend

M - Compound response manually integrated.


Y (x10^6)
Min
-Vinyl Chloride+
-Bromomethane+
-Chloroethane+
-Trichlorofluoromethane+
-Diethyl ether+
-Acrolein+
-Iodomethane+
-Allyl Chloride+
-Methylene Chloride+
-Tert-butyl alcohol
-Acrylonitrile+
-Vinyl Acetate+
-1,1-Dichloroethane+
-tert-Butyl ethyl ether+
-2-Butanone+
-Propionitrile+
-Methacrylonitrile+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-Isobutyl Alcohol+
-n-Heptane
-1,4-Difluorobenzene
-Trichloroethene+
-1,2-Dichloropropane+
-Methyl Methacrylate+
-Bromodichloromethane
-2-Nitropropane
-2-Chloroethylvinyl ether+
-cis-1,3-Dichloropropene+
-4-Methyl-2-Pentanone
-Toluene-d8+
-Ethyl Methacrylate+
-1,1,2-Trichloroethane+
-1,3-Dichloropropane+
-Dibromochloromethane
-2-Hexanone+
-Chlorobenzene-d5+
-1,1,1,2-Tetrachloroethane+
m,p-Xylenes+
o-Xylene+
-Bromoform+
-Isopropylbenzene
-4-Bromofluorobenzene+
-Bromobenzene
-1,1,2,2-Tetrachloroethane+
-alpha-Methylstyrene
1,3,5-Trimethylbenzene+
-tert-Butylbenzene+
-sec-Butylbenzene
-1,4-Dichlorobenzene-d4+
-Benzyl Chloride+
-n-Butylbenzene+
-Hexachloroethane
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene+
-Hexachlorobutadiene+
-1,2,3-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene
\\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101013.D
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101013.D
Date : 10-OCT-2017 17:23
Client ID: VSTD-ICV
Sample Info: VSTD-ICV;VSTD-ICV;2;;ICV
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17100970

Lab File ID: X102401 BFB Injection Date: 10/24/17

Instrument ID: VOA6 BFB Injection Time: 1135

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 | 24.0 |
| 75 | 30.0 - 60.0% of mass 95 | 51.8 |
| 95 | Base Peak, 100% relative abundance | 100.0 |
| 96 | 5.0 - 9.0% of mass 95 | 7.5 |
| 173 | Less than 2.0% of mass 174 | 0.4 ( 0.7)1 |
| 174 | Greater than 50.0% of mass 95 | 52.2 |
| 175 | 5.0 - 9.0% of mass 174 | 4.4 ( 8.5)1 |
| 176 | 95.0 - 101.0% of mass 174 | 51.7 ( 99.0)1 |
| 177 | 5.0 - 9.0% of mass 176 | 4.0 ( 7.7)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 | VSTD050 | VSTD050 | X102402 | 10/24/17 | 1200 |
| 02 | VLCSW-171024 | VLCSW-171024 | X102404 | 10/24/17 | 1250 |
| 03 | VBLKW-017102 | VBLKW-171024 | X102407 | 10/24/17 | 1404 |
| 04 | HS17100970-0 | HS17100970-02 | X102409 | 10/24/17 | 1454 |
| 05 | HS17100970-0 | HS17100970-01 | X102410 | 10/24/17 | 1519 |
| 06 | HS17100904-0 | HS17100904-07M | X102412 | 10/24/17 | 1609 |
| 07 | HS17100904-0 | HS17100904-07M | X102413 | 10/24/17 | 1634 |
| 08 | VSTD050-END | VSTD050-END | X102429 | 10/24/17 | 2311 |
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# FORM 7B
## VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17100970

Instrument ID: VOA6 Calibration Date: 10/24/17 Time: 1200

Lab File ID: X102402 Init. Calib. Date(s): 10/10/17 10/10/17

Init. Calib. Times: 1014 1447

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 |
|---|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | 0.9810000 | 1.0150559 | 1.0150559 | 0.1 | -3.47 | 20.00 | AVRG |
| 1,1,1,2-Tetrachloroethane | 0.3680000 | 0.3409660 | 0.3409660 | 0.1 | 7.35 | 20.00 | AVRG |
| tert-Butylbenzene | 1.5440000 | 1.3300941 | 1.3300941 | 0.1 | 13.85 | 20.00 | AVRG |
| Naphthalene | 51.921456 | 50.000000 | 1.2164038 | 0.2 | -3.84 | 20.00 | LINR |
| sec-Butylbenzene | 2.0660000 | 1.7952192 | 1.7952192 | 0.1 | 13.11 | 20.00 | AVRG |
| 1,1,2,2-Tetrachloroethane | 50.958642 | 50.000000 | 0.9020967 | 0.3 | -1.92 | 20.00 | LINR |
| 1,1,2-Trichloroethane | 0.3230000 | 0.3023960 | 0.3023960 | 0.1 | 6.38 | 20.00 | AVRG |
| 1,1-Dichloropropene | 0.5430000 | 0.5583644 | 0.5583644 | 0.1 | -2.83 | 20.00 | AVRG |
| 1,1-Dichloroethane | 1.3130000 | 1.4030112 | 1.4030112 | 0.2 | -6.86 | 20.00 | AVRG |
| 1,1-Dichloroethene | 0.5790000 | 0.6033450 | 0.6033450 | 0.1 | -4.20 | 20.00 | AVRG |
| 1,2,4-Trichlorobenzene | 0.4310000 | 0.4466202 | 0.4466202 | 0.2 | -3.62 | 20.00 | AVRG |
| 1,2-Dibromo-3-Chloropropane | 51.172584 | 50.000000 | 0.1126219 | 0.05 | -2.34 | 20.00 | LINR |
| 1,2-Dibromoethane | 0.3770000 | 0.3604267 | 0.3604267 | 0.1 | 4.40 | 20.00 | AVRG |
| 1,2-Dichlorobenzene | 1.2500000 | 1.1342794 | 1.1342794 | 0.4 | 9.26 | 20.00 | AVRG |
| 1,2-Dichloroethane | 0.5580000 | 0.5702381 | 0.5702381 | 0.1 | -2.19 | 20.00 | AVRG |
| 1,2-Dichloropropane | 0.4620000 | 0.4722401 | 0.4722401 | 0.1 | -2.22 | 20.00 | AVRG |
| 1,3-Dichlorobenzene | 1.2860000 | 1.1602228 | 1.1602228 | 0.6 | 9.78 | 20.00 | AVRG |
| 1,4-Dichlorobenzene | 1.3540000 | 1.2092902 | 1.2092902 | 0.4 | 10.69 | 20.00 | AVRG |
| 2-Butanone | 0.2960000 | 0.3256453 | 0.3256453 | 0.1 | -10.02 | 20.00 | AVRG |
| 2-Hexanone | 0.4090000 | 0.3786481 | 0.3786481 | 0.1 | 7.42 | 20.00 | AVRG |
| 4-Methyl-2-Pentanone | 0.4360000 | 0.4044689 | 0.4044689 | 0.1 | 7.23 | 20.00 | AVRG |
| Acetone | 113.06589 | 100.00000 | 0.1989715 | 0.1 | -13.06 | 20.00 | LINR |
| Benzene | 1.6390000 | 1.6876026 | 1.6876026 | 0.5 | -2.96 | 20.00 | AVRG |
| Bromodichloromethane | 0.5660000 | 0.5747829 | 0.5747829 | 0.2 | -1.55 | 20.00 | AVRG |
| Bromoform | 0.2780000 | 0.2595241 | 0.2595241 | 0.1 | 6.65 | 20.00 | AVRG |
| Bromomethane | 0.4850000 | 0.5018405 | 0.5018405 | 0.1 | -3.47 | 20.00 | AVRG |
| Carbon Disulfide | 1.8440000 | 1.9303641 | 1.9303641 | 0.1 | -4.68 | 20.00 | AVRG |
| Carbon Tetrachloride | 0.4570000 | 0.4597069 | 0.4597069 | 0.1 | -0.59 | 20.00 | AVRG |
| Chlorobenzene | 1.0140000 | 0.9494708 | 0.9494708 | 0.5 | 6.36 | 20.00 | AVRG |
| Chloroethane | 0.5190000 | 0.5100335 | 0.5100335 | 0.1 | 1.73 | 20.00 | AVRG |
| Chloroform | 1.2200000 | 1.2899681 | 1.2899681 | 0.2 | -5.74 | 20.00 | AVRG |
| Chloromethane | 51.997840 | 50.000000 | 1.0551974 | 0.1 | -4.00 | 20.00 | LINR |
| cis-1,2-Dichloroethene | 0.7500000 | 0.8010380 | 0.8010380 | 0.1 | -6.80 | 20.00 | AVRG |
| cis-1,3-Dichloropropene | 0.7240000 | 0.7324081 | 0.7324081 | 0.2 | -1.16 | 20.00 | AVRG |
| Dibromochloromethane | 0.4220000 | 0.4038897 | 0.4038897 | 0.1 | 4.29 | 20.00 | AVRG |
| Dichlorodifluoromethane | 0.6390000 | 0.5882472 | 0.5882472 | 0.1 | 7.94 | 20.00 | AVRG |
| Ethylbenzene | 0.5100000 | 0.4758309 | 0.4758309 | 0.1 | 6.70 | 20.00 | AVRG |
| Isopropylbenzene | 1.2280000 | 1.1275851 | 1.1275851 | 0.1 | 8.18 | 20.00 | AVRG |
| Methylene Chloride | 0.7690000 | 0.8031301 | 0.8031301 | 0.1 | -4.44 | 20.00 | AVRG |
| Tetrachloroethene | 0.2680000 | 0.2415334 | 0.2415334 | 0.2 | 9.88 | 20.00 | AVRG |
| Toluene | 1.6080000 | 1.5212752 | 1.5212752 | 0.4 | 5.39 | 20.00 | AVRG |
| trans-1,2-Dichloroethene | 0.6750000 | 0.7301789 | 0.7301789 | 0.1 | -8.17 | 20.00 | AVRG |

# FORM 7B
## VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1710097

Instrument ID: VOA6 Calibration Date: 10/24/17 Time: 1200

Lab File ID: X102402 Init. Calib. Date(s): 10/10/17 10/10/17

Init. Calib. Times: 1014 1447

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 |
|---|---|---|---|---|---|---|---|
| trans-1,3-Dichloropropene | 0.6190000 | 0.6219071 | 0.6219071 | 0.1 | -0.47 | 20.00 | AVRG |
| Trichloroethene | 0.4020000 | 0.3940308 | 0.3940308 | 0.2 | 1.98 | 20.00 | AVRG |
| Trichlorofluoromethane | 0.8380000 | 0.8259216 | 0.8259216 | 0.1 | 1.44 | 20.00 | AVRG |
| Vinyl Chloride | 0.8560000 | 0.8875018 | 0.8875018 | 0.1 | -3.68 | 20.00 | AVRG |
| m,p-Xylenes | 0.6100000 | 0.5669092 | 0.5669092 | 0.1 | 7.06 | 20.00 | AVRG |
| o-Xylene | 0.6180000 | 0.5671269 | 0.5671269 | 0.3 | 8.23 | 20.00 | AVRG |
| Xylenes (total) | 0.6170000 | 0.6117624 | 0.6117624 | 0.1 | 0.85 | 20.00 | AVRG |
| 1,2,3-Trichloropropane | 0.8750000 | 0.8675650 | 0.8675650 | 0.1 | 0.85 | 20.00 | AVRG |
| 1,2,3-Trichlorobenzene | 0.3110000 | 0.3354283 | 0.3354283 | 0.1 | -7.85 | 20.00 | AVRG |
| 1,2,4-Trimethylbenzene | 2.2080000 | 1.9981800 | 1.9981800 | 0.1 | 9.50 | 20.00 | AVRG |
| 1,3,5-Trimethylbenzene | 2.0660000 | 1.8656556 | 1.8656556 | 0.1 | 9.70 | 20.00 | AVRG |
| 2,2-Dichloropropane | 1.0230000 | 1.0923436 | 1.0923436 | 0.1 | -6.78 | 20.00 | AVRG |
| 1,3-Dichloropropane | 0.6850000 | 0.6437075 | 0.6437075 | 0.1 | 6.03 | 20.00 | AVRG |
| 2-Chlorotoluene | 2.0480000 | 1.8870287 | 1.8870287 | 0.1 | 7.86 | 20.00 | AVRG |
| 4-Chlorotoluene | 2.4000000 | 2.1950510 | 2.1950510 | 0.1 | 8.54 | 20.00 | AVRG |
| p-Isopropyltoluene | 1.7900000 | 1.5695772 | 1.5695772 | 0.1 | 12.31 | 20.00 | AVRG |
| Bromochloromethane | 0.3340000 | 0.3412786 | 0.3412786 | 0.1 | -2.18 | 20.00 | AVRG |
| Bromobenzene | 0.8510000 | 0.7847703 | 0.7847703 | 0.1 | 7.78 | 20.00 | AVRG |
| Dibromomethane | 0.2650000 | 0.2754574 | 0.2754574 | 0.1 | -3.95 | 20.00 | AVRG |
| Hexachlorobutadiene | 43.115222 | 50.000000 | 0.1521058 | 0.1 | 13.77 | 20.00 | LINR |
| n-Propylbenzene | 3.0790000 | 2.7936470 | 2.7936470 | 0.1 | 9.27 | 20.00 | AVRG |
| n-Butylbenzene | 1.4670000 | 1.3425986 | 1.3425986 | 0.5 | 8.48 | 20.00 | AVRG |
| Styrene | 1.1080000 | 1.0358917 | 1.0358917 | 0.3 | 6.51 | 20.00 | AVRG |
| 1,2-Dichloroethane-d4 | 51.287186 | 50.000000 | 0.9285273 | 0.1 | -2.57 | 20.00 | 2RDR |
| Dibromofluoromethane | 52.389260 | 50.000000 | 0.7549710 | 0.1 | -4.78 | 20.00 | 2RDR |
| Toluene-d8 | 48.165597 | 50.000000 | 1.4888506 | 0.1 | 3.67 | 20.00 | 2RDR |
| 4-Bromofluorobenzene | 48.072006 | 50.000000 | 0.5299450 | 0.1 | 3.86 | 20.00 | 2RDR |

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SDG No.: SDG No.: HS17100970

Instrument ID: VOA6 Calibration Date: 10/24/17 Time: 2311

Lab File ID: X102429 Init. Calib. Date(s): 10/10/17 10/10/2017

Init. Calib. Times: 1014 1447

GC Column: DB624 ID: 0.18

| COMPOUND | RRF or AMOUNT | RRF50.000 Or AMOUNT | CCAL RRF50.000 | MIN RRF | %D or %DRIFT | MAX %D or %DRIFT | CURV TYPE |
|---|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | 0.9810000 | 0.9930080 | 0.9930080 | 0.1 | -1.22 | 50.00 | AVRG |
| 1,1,1,2-Tetrachloroethane | 0.3680000 | 0.3300503 | 0.3300503 | 0.1 | 10.31 | 50.00 | AVRG |
| tert-Butylbenzene | 1.5440000 | 1.1789820 | 1.1789820 | 0.1 | 23.64 | 50.00 | AVRG |
| Naphthalene | 34.666424 | 50.000000 | 0.7875940 | 0.2 | 30.67 | 50.00 | LINR |
| sec-Butylbenzene | 2.0660000 | 1.5319288 | 1.5319288 | 0.1 | 25.85 | 50.00 | AVRG |
| 1,1,2,2-Tetrachloroethane | 47.229916 | 50.000000 | 0.8373358 | 0.3 | 5.54 | 50.00 | LINR |
| 1,1,2-Trichloroethane | 0.3230000 | 0.2966287 | 0.2966287 | 0.1 | 8.16 | 50.00 | AVRG |
| 1,1-Dichloropropene | 0.5430000 | 0.5100913 | 0.5100913 | 0.1 | 6.06 | 50.00 | AVRG |
| 1,1-Dichloroethane | 1.3130000 | 1.3751723 | 1.3751723 | 0.2 | -4.74 | 50.00 | AVRG |
| 1,1-Dichloroethene | 0.5790000 | 0.5926692 | 0.5926692 | 0.1 | -2.36 | 50.00 | AVRG |
| 1,2,4-Trichlorobenzene | 0.4310000 | 0.3322171 | 0.3322171 | 0.2 | 22.92 | 50.00 | AVRG |
| 1,2-Dibromo-3-Chloropropane_ | 40.789740 | 50.000000 | 8.97e-002 | 0.05 | 18.42 | 50.00 | LINR |
| 1,2-Dibromoethane | 0.3770000 | 0.3484138 | 0.3484138 | 0.1 | 7.58 | 50.00 | AVRG |
| 1,2-Dichlorobenzene | 1.2500000 | 1.0484596 | 1.0484596 | 0.4 | 16.12 | 50.00 | AVRG |
| 1,2-Dichloroethane | 0.5580000 | 0.5719718 | 0.5719718 | 0.1 | -2.5 | 50.00 | AVRG |
| 1,2-Dichloropropane | 0.4620000 | 0.4663772 | 0.4663772 | 0.1 | -0.95 | 50.00 | AVRG |
| 1,3-Dichlorobenzene | 1.2860000 | 1.0619264 | 1.0619264 | 0.6 | 17.42 | 50.00 | AVRG |
| 1,4-Dichlorobenzene | 1.3540000 | 1.1137228 | 1.1137228 | 0.4 | 17.74 | 50.00 | AVRG |
| 2-Butanone | 0.2960000 | 0.3135359 | 0.3135359 | 0.1 | -5.92 | 50.00 | AVRG |
| 2-Hexanone | 0.4090000 | 0.3667476 | 0.3667476 | 0.1 | 10.33 | 50.00 | AVRG |
| 4-Methyl-2-Pentanone | 0.4360000 | 0.3900060 | 0.3900060 | 0.1 | 10.55 | 50.00 | AVRG |
| Acetone | 107.27410 | 100.00000 | 0.1890546 | 0.1 | -7.27 | 50.00 | LINR |
| Benzene | 1.6390000 | 1.6421573 | 1.6421573 | 0.5 | -0.19 | 50.00 | AVRG |
| Bromodichloromethane | 0.5660000 | 0.5614988 | 0.5614988 | 0.2 | 0.8 | 50.00 | AVRG |
| Bromoform | 0.2780000 | 0.2452774 | 0.2452774 | 0.1 | 11.77 | 50.00 | AVRG |
| Bromomethane | 0.4850000 | 0.5236116 | 0.5236116 | 0.1 | -7.96 | 50.00 | AVRG |
| Carbon Disulfide | 1.8440000 | 1.8159682 | 1.8159682 | 0.1 | 1.52 | 50.00 | AVRG |
| Carbon Tetrachloride | 0.4570000 | 0.4247467 | 0.4247467 | 0.1 | 7.06 | 50.00 | AVRG |
| Chlorobenzene | 1.0140000 | 0.9229691 | 0.9229691 | 0.5 | 8.98 | 50.00 | AVRG |
| Chloroethane | 0.5190000 | 0.4909221 | 0.4909221 | 0.1 | 5.41 | 50.00 | AVRG |
| Chloroform | 1.2200000 | 1.2837042 | 1.2837042 | 0.2 | -5.22 | 50.00 | AVRG |
| Chloromethane | 50.504085 | 50.000000 | 1.0247298 | 0.1 | -1.01 | 50.00 | LINR |
| cis-1,2-Dichloroethene | 0.7500000 | 0.7882112 | 0.7882112 | 0.1 | -5.09 | 50.00 | AVRG |
| cis-1,3-Dichloropropene | 0.7240000 | 0.7040314 | 0.7040314 | 0.2 | 2.76 | 50.00 | AVRG |
| Dibromochloromethane | 0.4220000 | 0.3943008 | 0.3943008 | 0.1 | 6.56 | 50.00 | AVRG |
| Dichlorodifluoromethane | 0.6390000 | 0.5707858 | 0.5707858 | 0.1 | 10.68 | 50.00 | AVRG |
| Ethylbenzene | 0.5100000 | 0.4448738 | 0.4448738 | 0.1 | 12.77 | 50.00 | AVRG |
| Isopropylbenzene | 1.2280000 | 1.0489370 | 1.0489370 | 0.1 | 14.58 | 50.00 | AVRG |
| Methylene Chloride | 0.7690000 | 0.7933845 | 0.7933845 | 0.1 | -3.17 | 50.00 | AVRG |
| Tetrachloroethene | 0.2680000 | 0.2217784 | 0.2217784 | 0,2 | 17.25 | 50.00 | AVRG |
| Toluene | 1.6080000 | 1.4788835 | 1.4788835 | 0.4 | 8.03 | 50.00 | AVRG |
| trans-1,2-Dichloroethene | 0.6750000 | 0.6923642 | 0.6923642 | 0.1 | -2.57 | 50.00 | AVRG |



FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SDG No.: SDG No.: HS17100970

Instrument ID: VOA6 Calibration Date: 10/24/17 Time: 2311

Lab File ID: X102429 Init. Calib. Date(s): 10/10/17 10/10/2017

Init. Calib. Times: 1014 1447

| COMPOUND | RRF or AMOUNT | RRF50.000 Or AMOUNT | CCAL RRF50.000 | MIN RRF | %D or %DRIFT | MAX %D or %DRIFT | CURV TYPE |
|---|---|---|---|---|---|---|---|
| trans-1,3-Dichloropropene | 0.6190000 | 0.5910513 | 0.5910513 | 0.1 | 4.52 | 50.00 | AVRG |
| Trichloroethene | 0.4020000 | 0.3717343 | 0.3717343 | 0.2 | 7.53 | 50.00 | AVRG |
| Trichlorofluoromethane | 0.8380000 | 0.7768026 | 0.7768026 | 0.1 | 7.30 | 50.00 | AVRG |
| Vinyl Chloride | 0.8560000 | 0.8472006 | 0.8472006 | 0.1 | 1.03 | 50.00 | AVRG |
| m,p-Xylenes | 0.6100000 | 0.5376708 | 0.5376708 | 0.1 | 11.86 | 50.00 | AVRG |
| o-Xylene | 0.6180000 | 0.5480062 | 0.5480062 | 0.3 | 11.32 | 50.00 | AVRG |
| Xylenes (total) | 0.6170000 | 0.5761981 | 0.5761981 | 0.1 | 6.61 | 50.00 | AVRG |
| 1,2,3-Trichloropropane | 0.8750000 | 0.8100798 | 0.8100798 | 0.1 | 7.42 | 50.00 | AVRG |
| 1,2,3-Trichlorobenzene | 0.3110000 | 0.2232964 | 0.2232964 | 0.1 | 28.20 | 50.00 | AVRG |
| 1,2,4-Trimethylbenzene | 2.2080000 | 1.8402983 | 1.8402983 | 0.1 | 16.65 | 50.00 | AVRG |
| 1,3,5-Trimethylbenzene | 2.0660000 | 1.6884171 | 1.6884171 | 0.1 | 18.28 | 50.00 | AVRG |
| 2,2-Dichloropropane | 1.0230000 | 0.8982341 | 0.8982341 | 0.1 | 12.20 | 50.00 | AVRG |
| 1,3-Dichloropropane | 0.6850000 | 0.6372115 | 0.6372115 | 0.1 | 6.98 | 50.00 | AVRG |
| 2-Chlorotoluene | 2.0480000 | 1.7537081 | 1.7537081 | 0.1 | 14.37 | 50.00 | AVRG |
| 4-Chlorotoluene | 2.4000000 | 2.0556867 | 2.0556867 | 0.1 | 14.35 | 50.00 | AVRG |
| p- Isopropyltoluene | 1.7900000 | 1.3493074 | 1.3493074 | 0.1 | 24.62 | 50.00 | AVRG |
| Bromochloromethane | 0.3340000 | 0.3559283 | 0.3559283 | 0.1 | -6.56 | 50.00 | AVRG |
| Bromobenzene | 0.8510000 | 0.7521273 | 0.7521273 | 0.1 | 11.62 | 50.00 | AVRG |
| Dibromomethane | 0.2650000 | 0.2689720 | 0.2689720 | 0.1 | -1.50 | 50.00 | AVRG |
| Hexachlorobutadiene | 30.279820 | 50.000000 | 0.1061691 | 0.1 | 39.44 | 50.00 | LINR |
| n-Propylbenzene | 3.0790000 | 2.5037689 | 2.5037689 | 0.1 | 18.68 | 50.00 | AVRG |
| n-Butylbenzene | 1.4670000 | 1.1111784 | 1.1111784 | 0.5 | 24.26 | 50.00 | AVRG |
| Styrene | 1.1080000 | 1.0200509 | 1.0200509 | 0.3 | 7.94 | 50.00 | AVRG |
| 1,2-Dichloroethane-d4 | 51.499049 | 50.000000 | 0.9324335 | 0.1 | -3.00 | 50.00 | 2RDR |
| Dibromofluoromethane | 52.264253 | 50.000000 | 0.7531082 | 0.1 | -4.53 | 50.00 | 2RDR |
| Toluene-d8 | 48.829939 | 50.000000 | 1.5101245 | 0.1 | 2.34 | 50.00 | 2RDR |
| 4-Bromofluorobenzene | 48.790094 | 50.000000 | 0.5380659 | 0.1 | 2.42 | 50.00 | 2RDR |

page 2 of 2

FORM VII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17100970

Lab File ID (Standard): X102402 Date Analyzed: 10/24/17

Instrument ID: VOA6 Time Analyzed: 1200

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

| | | IS1 AREA # | IS1 RT # | IS2(DFB) AREA # | IS2(DFB) RT # | IS3(CBZ) AREA # | IS3(CBZ) RT # |
|---|---|---|---|---|---|---|---|
| | 12 HOUR STD | 262422 | 4.33 | 464050 | 5.09 | 500701 | 7.74 |
| | UPPER LIMIT | 524844 | 4.83 | 928100 | 5.59 | 1001402 | 8.24 |
| | LOWER LIMIT | 131211 | 3.83 | 232025 | 4.59 | 250351 | 7.24 |
| | CLIENT SAMPLE NO. | | | | | | |
| 01 | VLCSW-171024 | 265285 | 4.33 | 475422 | 5.09 | 503655 | 7.74 |
| 02 | VBLKW-0171024 | 273020 | 4.33 | 492070 | 5.09 | 525574 | 7.74 |
| 03 | HS17100970-02 | 267188 | 4.33 | 484234 | 5.09 | 520314 | 7.74 |
| 04 | HS17100970-01 | 268264 | 4.33 | 480806 | 5.09 | 516300 | 7.74 |
| 05 | HS17100904-07 | 259368 | 4.33 | 473037 | 5.09 | 506560 | 7.74 |
| 06 | HS17100904-07 | 258149 | 4.33 | 470270 | 5.09 | 497732 | 7.74 |
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| 16 | | | | | | | |
| 17 | | | | | | | |
| 18 | | | | | | | |
| 19 | | | | | | | |
| 20 | | | | | | | |

IS1 = Pentafluorobenzene
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

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

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



FORM VIII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17100970

Lab File ID (Standard): X102402 Date Analyzed: 10/24/17

Instrument ID: VOA6 Time Analyzed: 1200

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

| | | IS4 (DCB) AREA # | RT # | AREA # | RT # | AREA # | RT # |
|---|---|---|---|---|---|---|---|
| | 12 HOUR STD | 246151 | 9.73 | | | | |
| | UPPER LIMIT | 492302 | 10.23 | | | | |
| | LOWER LIMIT | 123076 | 9.23 | | | | |
| | CLIENT SAMPLE NO. | | | | | | |
| 01 | VLCSW-171024 | 253913 | 9.73 | | | | |
| 02 | VBLKW-0171024 | 248267 | 9.73 | | | | |
| 03 | HS17100970-02 | 252088 | 9.73 | | | | |
| 04 | HS17100970-01 | 251862 | 9.73 | | | | |
| 05 | HS17100904-07 | 250601 | 9.73 | | | | |
| 06 | HS17100904-07 | 249515 | 9.73 | | | | |
| 07 | | | | | | | |
| 08 | | | | | | | |
| 09 | | | | | | | |
| 10 | | | | | | | |
| 11 | | | | | | | |
| 12 | | | | | | | |
| 13 | | | | | | | |
| 14 | | | | | | | |
| 15 | | | | | | | |
| 16 | | | | | | | |
| 17 | | | | | | | |
| 18 | | | | | | | |
| 19 | | | | | | | |
| 20 | | | | | | | |

IS4 (DCB) = 1,4-Dichlorobenzene-d4

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

# MSVOA06 -Logbook

**Batch:** 29655
**Date:** 10-24-2017
**Method:** 8260
**Comments:**

**Analyst:** Presenta Cabascango
**Reviewer:**
**Laboratory:** Houston

| # | Samp ID | Type | Analyzed | DF | Init Wt/Vol | Final Vol | File ID | Matrix | Status | pH |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | BFB | TUNE | 08-24-2017 01:02 pm | 1.00 | 50 mL | 50 mL | X082401.D | Liquid | Y | na |
| 2 | *auto find/ purged* VSTD050 | CCV | 08-24-2017 01:27 pm | 1.00 | 50 mL | 50 mL | X082402.D | Liquid | Y | na |
| 3 | *10 uL cal std/50 mL DI* CCB | SAMP | 08-24-2017 01:51 pm | 1.00 | 50 mL | 50 mL | X082403.D | Liquid | Y | na |
| 4 | VLCSW-170824 | LCS | 08-24-2017 02:16 pm | 1.00 | 50 mL | 50 mL | X082404.D | Liquid | Y | na |
| 5 | *10 uL cal std/50 mL DI* BLKW | SAMP | 08-24-2017 02:41 pm | 1.00 | 50 mL | 50 mL | X082405.D | Liquid | Y | na |
| 6 | BLKW | SAMP | 08-24-2017 03:06 pm | 1.00 | 50 mL | 50 mL | X082406.D | Liquid | Y | na |
| 7 | VBLKW-170824 | MBLK | 08-24-2017 03:31 pm | 1.00 | 50 mL | 50 mL | X082407.D | Liquid | Y | na |
| 8 | HS17081221-01 | SAMP | 08-24-2017 03:56 pm | 100.0( | 500 µL | 50 mL | X082408.D | Liquid | Y | <2 |
| 9 | HS17081219-01 | SAMP | 08-24-2017 04:21 pm | 500.0( | 100 µL | 50 mL | X082409.D | Liquid | Y | <2 |
| 10 | HS17081152-08 | SAMP | 08-24-2017 04:46 pm | 1.00 | 50 mL | 50 mL | X082410.D | Liquid | Y | <2 |
| 11 | HS17081221-01MS | MS | 08-24-2017 05:11 pm | 100.0( | 500 µL | 50 mL | X082411.D | Liquid | Y | <2 |
| 12 | *5 uL cal std/25 mL sample* HS17081221-01MSD | MSD | 08-24-2017 05:36 pm | 100.0( | 500 µL | 50 mL | X082412.D | Liquid | Y | <2 |
| 13 | *5 uL cal std/25 mL sample* HS17081025-21 | SAMP | 08-24-2017 06:01 pm | 2500.0 | 20 µL | 50 mL | X082413.D | Liquid | Y | <2 |
| 14 | HS17081152-08 | SAMP | 08-24-2017 06:26 pm | 25.00 | 2 mL | 50 mL | X082414.D | Liquid | Y | <2 |
| 15 | HS17081087-23 | SAMP | 08-24-2017 06:51 pm | 1.00 | 50 mL | 50 mL | X082415.D | Liquid | Y | <2 |
| 16 | HS17081087-24 | SAMP | 08-24-2017 07:15 pm | 1.00 | 50 mL | 50 mL | X082416.D | Liquid | Y | <2 |
| 17 | HS17081087-25 | SAMP | 08-24-2017 07:40 pm | 1.00 | 50 mL | 50 mL | X082417.D | Liquid | Y | <2 |
| 18 | HS17081087-26 | SAMP | 08-24-2017 08:05 pm | 1.00 | 50 mL | 50 mL | X082418.D | Liquid | Y | <2 |
| 19 | HS17081087-27 | SAMP | 08-24-2017 08:30 pm | 1.00 | 50 mL | 50 mL | X082419.D | Liquid | Y | <2 |
| 20 | HS17081087-28 | SAMP | 08-24-2017 08:55 pm | 1.00 | 50 mL | 50 mL | X082420.D | Liquid | Y | <2 |
| 21 | HS17081152-02 | SAMP | 08-24-2017 09:20 pm | 1.00 | 50 mL | 50 mL | X082421.D | Liquid | Y | <2 |
| 22 | HS17081152-04 | SAMP | 08-24-2017 09:45 pm | 1.00 | 50 mL | 50 mL | X082422.D | Liquid | Y | <2 |
| 23 | HS17081152-05 | SAMP | 08-24-2017 10:10 pm | 1.00 | 50 mL | 50 mL | X082423.D | Liquid | Y | <2 |
| 24 | HS17081152-06 | SAMP | 08-24-2017 10:35 pm | 1.00 | 50 mL | 50 mL | X082424.D | Liquid | Y | <2 |
| 25 | HS17081152-07 | SAMP | 08-24-2017 11:00 pm | 1.00 | 50 mL | 50 mL | X082425.D | Liquid | Y | <2 |
| 26 | HS17081152-09 | SAMP | 08-24-2017 11:24 pm | 1.00 | 50 mL | 50 mL | X082426.D | Liquid | Y | <2 |
| 27 | HS17081152-18 | SAMP | 08-24-2017 11:49 pm | 1.00 | 50 mL | 50 mL | X082427.D | Liquid | Y | <2 |
| 28 | HS17081152-25 | SAMP | 08-25-2017 12:14 am | 1.00 | 50 mL | 50 mL | X082428.D | Liquid | Y | <2 |
| 29 | VSTD050-END | CCV | 08-25-2017 12:39 am | 1.00 | 50 mL | 50 mL | X082429.D | Liquid | Y | na |

| Chemical | Value |
|---|---|
| SURR SPK ID | 29810-98-03 |
| IS ID | 29810-98-04 |
| LCS/MS ID | 29810-99-01/02 |
| BFB ID | 29810-98-03 |
| pH Paper | 634-37-03 |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171024.b\X102401.D



Date : 24-OCT-2017 11:35

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

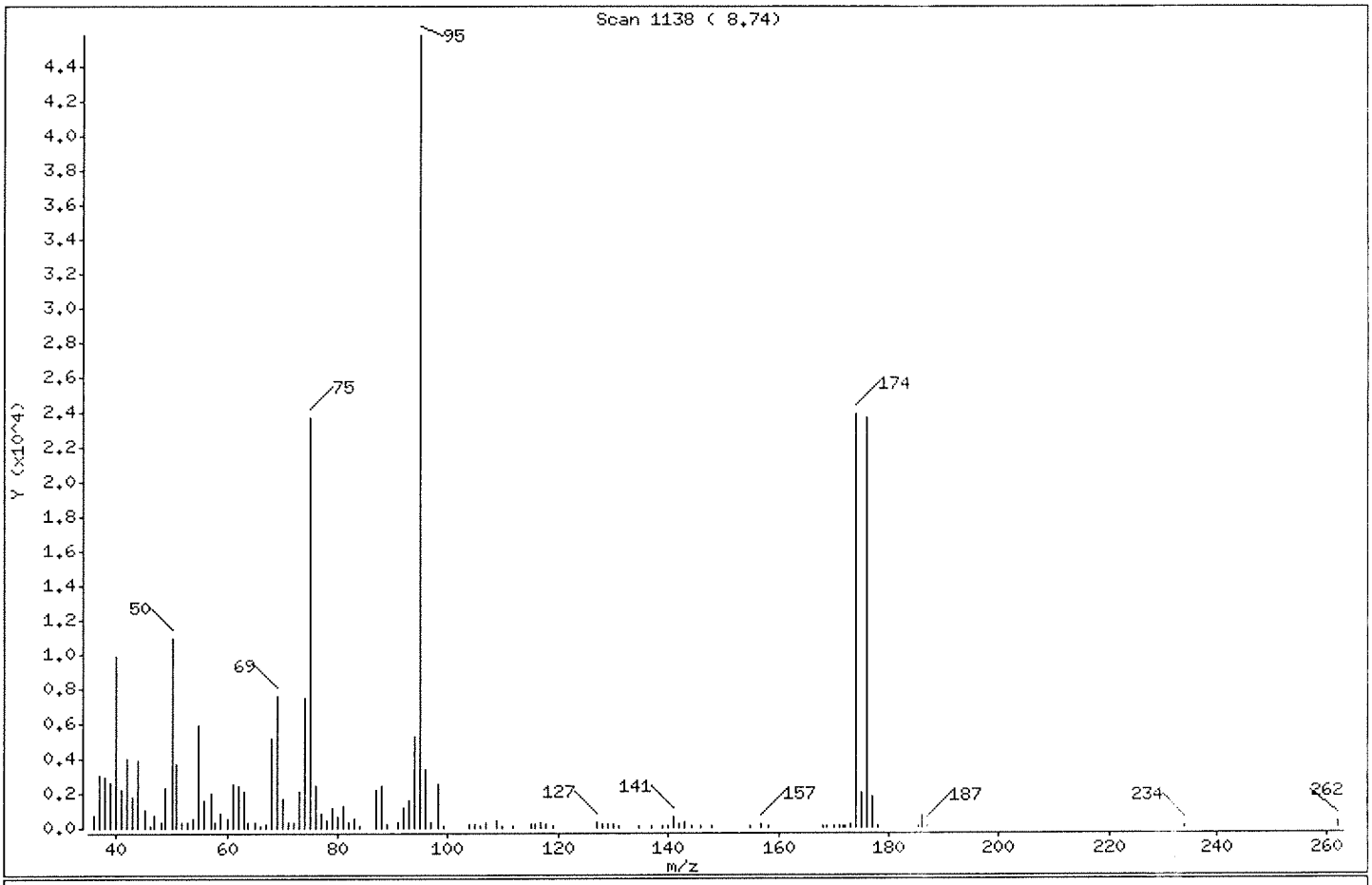
Volume Injected (uL): 2.0

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 | 23.97 |
| 75 | 30.00 - 60.00% of mass 95 | 51.81 |
| 96 | 5.00 - 9.00% of mass 95 | 7.47 |
| 173 | Less than 2.00% of mass 174 | 0.36 ( 0.70) |
| 174 | Greater than 50.00% of mass 95 | 52.16 |
| 175 | 5.00 - 9.00% of mass 174 | 4.43 ( 8.49) |
| 176 | 95.00 - 101.00% of mass 174 | 51.65 ( 99.03) |
| 177 | 5.00 - 9.00% of mass 176 | 3.97 ( 7.70) |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171024.b\X102401.D



Date : 24-OCT-2017 11:35

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: X102401.D
Spectrum: Scan 1138 ( 8.74)
Location of Maximum: 95.00
Number of points: 108

| m/z | Y | m/z | Y | m/z | Y | m/z | Y |
|---|---|---|---|---|---|---|---|
| 36.00 | 782 | 63.90 | 280 | 95.00 | 45736 | 142.90 | 278 |
| 37.10 | 3017 | 65.10 | 268 | 96.00 | 3416 | 144.10 | 70 |
| 38.10 | 2898 | 66.00 | 143 | 97.00 | 270 | 146.00 | 132 |
| 39.10 | 2671 | 67.10 | 182 | 98.10 | 2514 | 147.90 | 67 |
| 40.00 | 9879 | 68.00 | 5101 | 99.10 | 130 | 154.90 | 141 |
| 41.10 | 2236 | 69.10 | 7601 | 103.90 | 178 | 156.90 | 163 |
| 42.10 | 3987 | 70.00 | 1709 | 105.00 | 204 | 158.00 | 62 |
| 43.10 | 1739 | 71.10 | 275 | 106.00 | 145 | 168.00 | 66 |
| 44.00 | 3903 | 72.00 | 274 | 106.80 | 324 | 168.90 | 98 |
| 45.10 | 1085 | 73.00 | 2068 | 108.90 | 391 | 170.00 | 123 |
| 46.10 | 122 | 74.00 | 7418 | 109.80 | 88 | 170.90 | 70 |
| 47.00 | 780 | 75.10 | 23696 | 111.90 | 53 | 171.70 | 66 |
| 48.10 | 283 | 76.10 | 2370 | 115.00 | 247 | 172.10 | 67 |
| 49.00 | 2336 | 77.10 | 816 | 115.90 | 171 | 173.10 | 166 |
| 50.10 | 10962 | 78.10 | 460 | 116.90 | 277 | 173.90 | 23856 |
| 51.00 | 3693 | 78.90 | 1122 | 117.80 | 180 | 174.90 | 2026 |
| 52.00 | 332 | 80.00 | 587 | 119.00 | 143 | 175.90 | 23624 |
| 53.00 | 353 | 80.90 | 1307 | 126.90 | 328 | 176.30 | 1818 |
| 54.00 | 546 | 82.00 | 305 | 128.00 | 225 | 177.30 | 101 |
| 55.00 | 5900 | 82.90 | 547 | 129.00 | 228 | 185.20 | 65 |
| 56.00 | 1572 | 83.90 | 151 | 130.00 | 159 | 186.00 | 736 |
| 57.10 | 2024 | 86.90 | 2260 | 130.90 | 79 | 187.10 | 63 |
| 58.00 | 275 | 88.00 | 2385 | 134.70 | 86 | 233.90 | 54 |
| 58.90 | 816 | 88.80 | 177 | 137.00 | 64 | 262.10 | 274 |
| 60.00 | 529 | 90.90 | 293 | 138.90 | 79 | | |
| 61.00 | 2558 | 92.00 | 1178 | 140.00 | 62 | | |
| 62.00 | 2444 | 93.00 | 1541 | 141.00 | 581 | | |
| 63.10 | 2100 | 94.00 | 5242 | 141.90 | 243 | | |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171024.b\X102401.D



Date : 24-OCT-2017 11:35

Client ID: BFB

Instrument: voa6.i

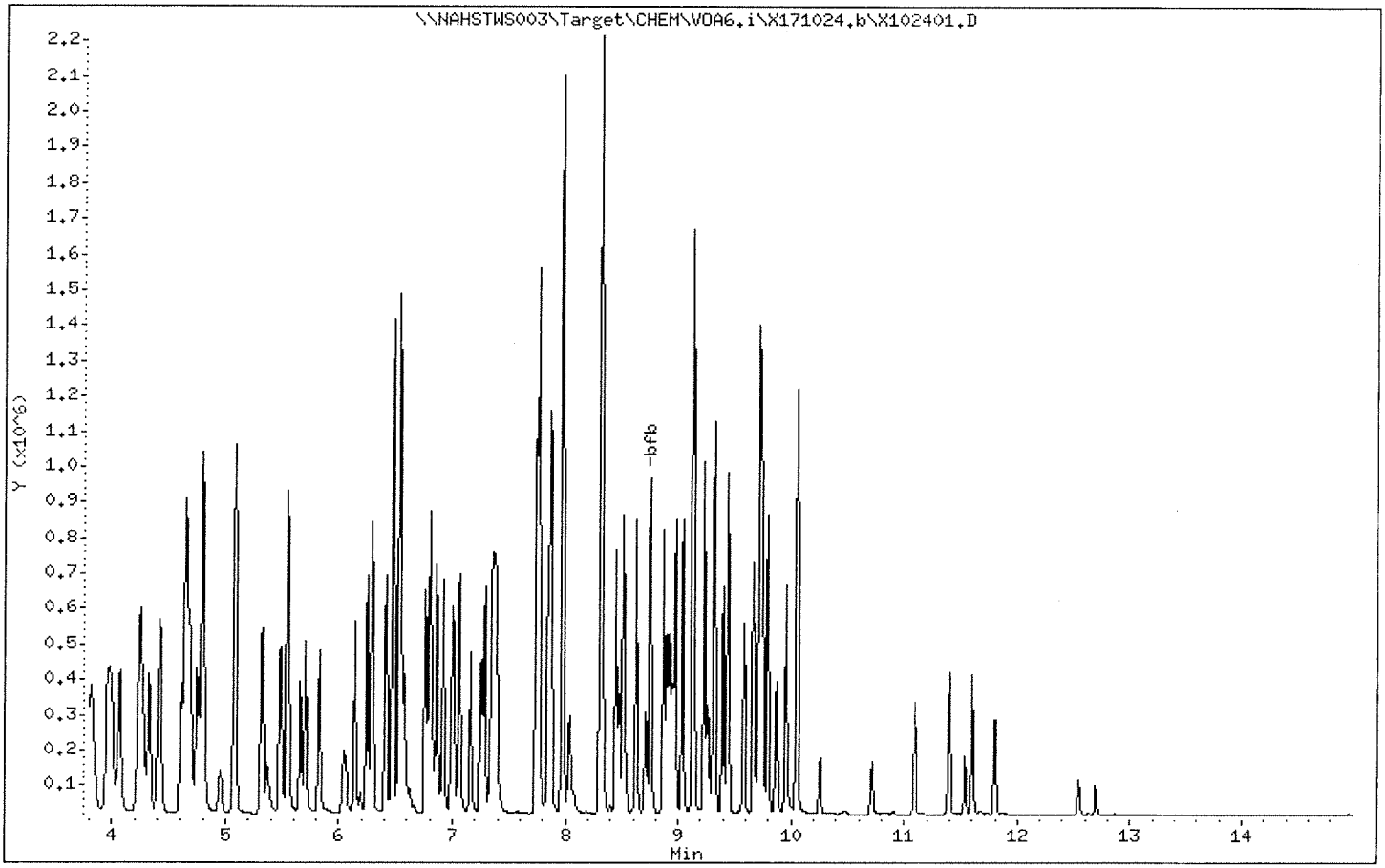
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171024.b\X102402.D Version 10
Report Date: 06-Feb-2018 16:38

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171024.b\X102402.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 24-OCT-2017 12:00
Operator : PC Inst ID: voa6.i
Smp Info : VSTD050;VSTD050;2;;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X171024.b\8260W.m
Meth Date : 06-Feb-2018 16:38 voa6.i Quant Type: ISTD
Cal Date : 10-OCT-2017 13:33 Cal File: X101008.D
Als bottle: 2 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.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) |
|---|---|---|---|---|---|---|---|---|
| | 31 1,1,1-Trichloroethane | 97 | 4.232 | 4.232 | (0.978) | 266373 | 50.0000 | 51.74 |
| * | 1 Pentafluorobenzene | 168 | 4.325 | 4.325 | (1.000) | 262422 | 50.0000 | |
| $ | 30 Dibromofluoromethane | 113 | 4.247 | 4.247 | (0.982) | 198121 | 50.0000 | 52.38 |
| * | 36 1,4-Difluorobenzene | 114 | 5.085 | 5.085 | (1.000) | 464050 | 50.0000 | |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 4.605 | 4.605 | (1.065) | 243666 | 50.0000 | 51.28 |
| * | 47 Chlorobenzene-d5 | 117 | 7.742 | 7.742 | (1.000) | 500701 | 50.0000 | |
| $ | 48 Toluene-d8 | 98 | 6.474 | 6.474 | (0.836) | 745469 | 50.0000 | 48.16 |
| $ | 69 4-Bromofluorobenzene | 95 | 8.752 | 8.752 | (1.130) | 265344 | 50.0000 | 48.07 |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 9.726 | 9.726 | (1.000) | 246151 | 50.0000 | |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 8.903 | 8.903 | (0.915) | 222052 | 50.0000 | 50.95 |
| | 53 1,1,2-Trichloroethane | 83 | 6.918 | 6.918 | (0.894) | 151410 | 50.0000 | 46.85 |
| | 32 1,1-Dichloropropene | 75 | 4.426 | 4.426 | (0.870) | 259109 | 50.0000 | 51.41 |
| | 22 1,1-Dichloroethane | 63 | 3.072 | 3.072 | (0.710) | 368181 | 50.0000 | 53.41 |
| | 11 1,1-Dichloroethene | 96 | 2.055 | 2.055 | (0.475) | 158331 | 50.0000 | 52.09 |
| | 90 1,2,4-Trichlorobenzene | 180 | 11.395 | 11.395 | (1.172) | 109936 | 50.0000 | 51.78 |
| | 89 1,2-Dibromo-3-Chloropropane | 155 | 10.715 | 10.715 | (1.102) | 27722 | 50.0000 | 51.17 |
| | 57 1,2-Dibromoethane | 107 | 7.334 | 7.334 | (0.947) | 180466 | 50.0000 | 47.81 |
| | 88 1,2-Dichlorobenzene | 146 | 10.056 | 10.056 | (1.034) | 279204 | 50.0000 | 45.37 |
| | 33 1,2-Dichloroethane | 62 | 4.691 | 4.691 | (0.923) | 264619 | 50.0000 | 51.07 |
| | 42 1,2-Dichloropropane | 63 | 5.543 | 5.543 | (1.090) | 219143 | 50.0000 | 51.07 |
| | 83 1,3-Dichlorobenzene | 146 | 9.669 | 9.669 | (0.994) | 285590 | 50.0000 | 45.10 |
| | 84 1,4-Dichlorobenzene | 146 | 9.741 | 9.741 | (1.001) | 297668 | 50.0000 | 44.63 |

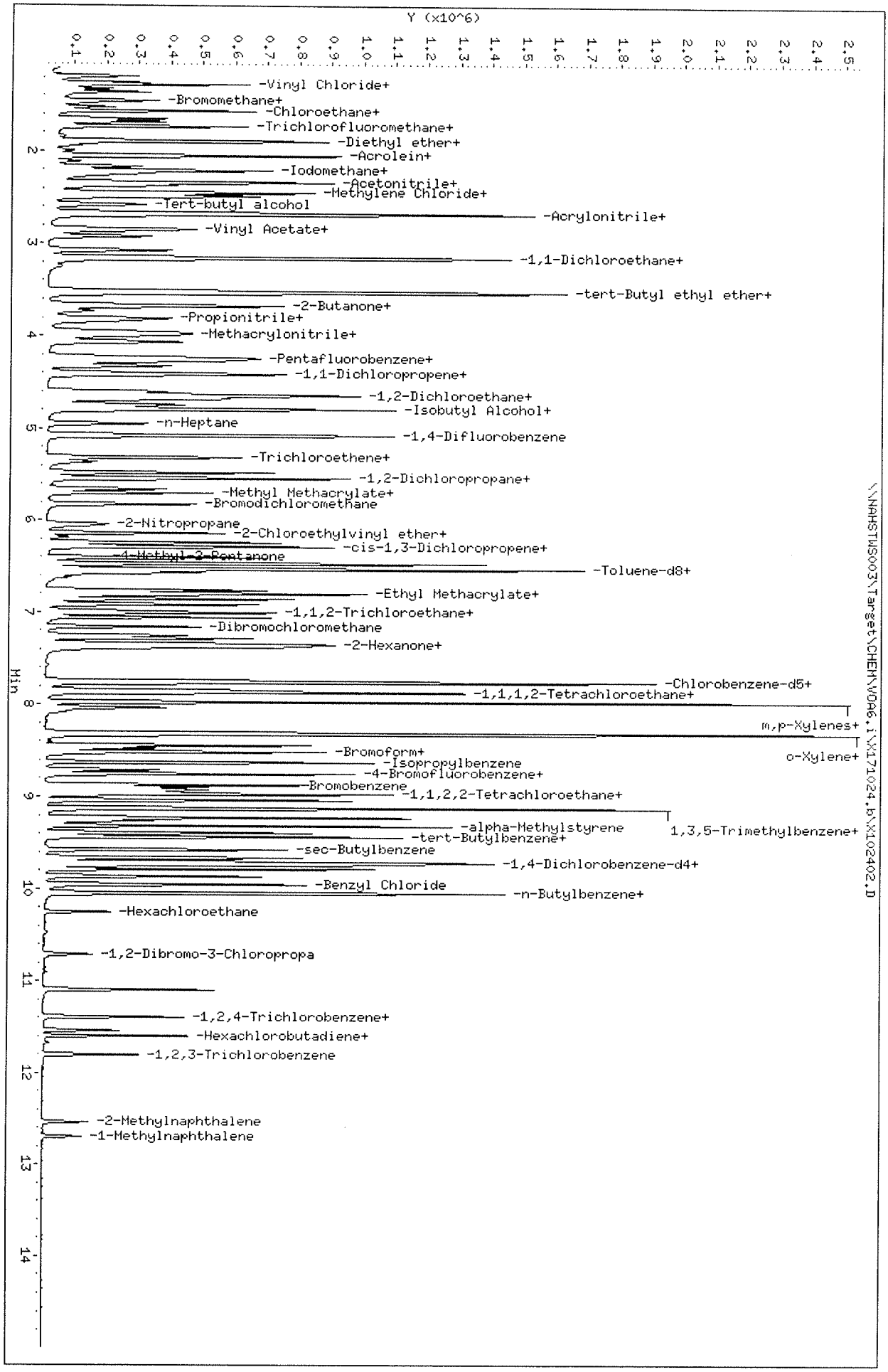
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171024.b\X102402.D Version 10
Report Date: 06-Feb-2018 16:38

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | ON-COL ( ug/l) | |
|---|---|---|---|---|---|---|---|---|---|
| 24 | 2-Butanone | 43 | 3.731 | 3.731 | (0.863) | 170913 | 100.000 | 110.15 | |
| 52 | 2-Hexanone | 43 | 7.284 | 7.284 | (0.941) | 379179 | 100.000 | 92.41 | |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.410 | 6.410 | (0.828) | 405036 | 100.000 | 92.85 | |
| 10 | Acetone | 43 | 2.112 | 2.112 | (0.488) | 104429 | 100.000 | 113.06 | |
| 37 | Benzene | 78 | 4.648 | 4.648 | (0.914) | 783132 | 50.0000 | 51.47 | |
| 39 | Bromodichloromethane | 83 | 5.822 | 5.822 | (1.145) | 266728 | 50.0000 | 50.72 | |
| 66 | Bromoform | 173 | 8.480 | 8.480 | (1.095) | 129944 | 50.0000 | 46.57 | |
| 6 | Bromomethane | 94 | 1.460 | 1.460 | (0.338) | 131694 | 50.0000 | 51.74 | |
| 19 | Carbon Disulfide | 76 | 2.212 | 2.212 | (0.512) | 1013140 | 100.000 | 104.68 | |
| 34 | Carbon Tetrachloride | 117 | 4.411 | 4.411 | (0.868) | 213327 | 50.0000 | 50.25 | |
| 59 | Chlorobenzene | 112 | 7.764 | 7.764 | (1.003) | 475401 | 50.0000 | 46.82 | |
| 7 | Chloroethane | 64 | 1.525 | 1.525 | (0.353) | 133844 | 50.0000 | 49.15 | |
| 28 | Chloroform | 83 | 4.067 | 4.067 | (0.940) | 338516 | 50.0000 | 52.84 | |
| 3 | Chloromethane | 50 | 1.188 | 1.188 | (0.275) | 276907 | 50.0000 | 51.99 | |
| 27 | cis-1,2-Dichloroethene | 96 | 3.681 | 3.681 | (0.851) | 210210 | 50.0000 | 53.41 | |
| 46 | cis-1,3-Dichloropropene | 75 | 6.245 | 6.245 | (1.228) | 339874 | 50.0000 | 50.60 | |
| 55 | Dibromochloromethane | 129 | 7.255 | 7.255 | (0.937) | 202228 | 50.0000 | 47.81 | |
| 2 | Dichlorodifluoromethane | 85 | 1.081 | 1.081 | (0.250) | 154369 | 50.0000 | 46.02 | |
| 61 | Ethylbenzene | 106 | 7.871 | 7.871 | (1.017) | 238249 | 50.0000 | 46.64 | |
| 67 | Isopropylbenzene | 105 | 8.623 | 8.623 | (1.114) | 564583 | 50.0000 | 45.89 | |
| 17 | Methylene Chloride | 84 | 2.449 | 2.449 | (0.566) | 210759 | 50.0000 | 52.18 | |
| 56 | Tetrachloroethene | 164 | 7.012 | 7.012 | (0.906) | 120936 | 50.0000 | 45.00 | |
| 50 | Toluene | 91 | 6.532 | 6.532 | (0.844) | 761704 | 50.0000 | 47.31 | |
| 20 | trans-1,2-Dichloroethene | 96 | 2.678 | 2.678 | (0.619) | 191615 | 50.0000 | 54.04 | |
| 51 | trans-1,3-Dichloropropene | 75 | 6.761 | 6.761 | (1.330) | 288596 | 50.0000 | 50.20 | |
| 38 | Trichloroethene | 130 | 5.321 | 5.321 | (1.046) | 182850 | 50.0000 | 48.96 | |
| 8 | Trichlorofluoromethane | 101 | 1.689 | 1.689 | (0.391) | 216740 | 50.0000 | 49.28 | |
| 5 | Vinyl Chloride | 62 | 1.260 | 1.260 | (0.291) | 232900 | 50.0000 | 51.82 | |
| 62 | m,p-Xylenes | 106 | 7.971 | 7.971 | (1.030) | 567704 | 100.000 | 92.96 | |
| 63 | o-Xylene | 106 | 8.308 | 8.308 | (1.073) | 283961 | 50.0000 | 45.91 | |
| M 95 | Xylenes (total) | 106 | | | | 851665 | 150.000 | | (a) |
| 71 | 1,2,3-Trichloropropane | 75 | 8.931 | 8.931 | (0.918) | 213552 | 50.0000 | 49.58 | (M) |
| 93 | 1,2,3-Trichlorobenzene | 180 | 11.804 | 11.804 | (1.214) | 82566 | 50.0000 | 53.98 | |
| 79 | 1,2,4-Trimethylbenzene | 105 | 9.440 | 9.440 | (0.971) | 491854 | 50.0000 | 45.23 | |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.125 | 9.125 | (0.938) | 459233 | 50.0000 | 45.15 | |
| 26 | 2,2-Dichloropropane | 77 | 3.666 | 3.666 | (0.848) | 286655 | 50.0000 | 53.38 | |
| 54 | 1,3-Dichloropropane | 76 | 7.062 | 7.062 | (0.912) | 322305 | 50.0000 | 47.00 | |
| 76 | 2-Chlorotoluene | 91 | 9.039 | 9.039 | (0.929) | 464494 | 50.0000 | 46.05 | |
| 77 | 4-Chlorotoluene | 91 | 9.132 | 9.132 | (0.939) | 540314 | 50.0000 | 45.72 | |
| 82 | p-Isopropyltoluene | 119 | 9.712 | 9.712 | (0.999) | 386353 | 50.0000 | 43.84 | |
| 29 | Bromochloromethane | 128 | 3.960 | 3.960 | (0.916) | 89559 | 50.0000 | 51.08 | |
| 74 | Bromobenzene | 156 | 8.874 | 8.874 | (0.912) | 193172 | 50.0000 | 46.10 | |
| 44 | Dibromomethane | 93 | 5.658 | 5.658 | (1.113) | 127826 | 50.0000 | 51.99 | |
| 91 | Hexachlorobutadiene | 225 | 11.539 | 11.539 | (1.186) | 37441 | 50.0000 | 43.11 | |
| 73 | n-Propylbenzene | 91 | 8.974 | 8.974 | (0.923) | 687659 | 50.0000 | 45.36 | |
| 87 | n-Butylbenzene | 91 | 10.056 | 10.056 | (1.034) | 330482 | 50.0000 | 45.74 | |
| 81 | sec-Butylbenzene | 105 | 9.583 | 9.583 | (0.985) | 441895 | 50.0000 | 43.44 | |
| 92 | Naphthalene | 128 | 11.603 | 11.603 | (1.193) | 299419 | 50.0000 | 51.92 | |
| 78 | tert-Butylbenzene | 119 | 9.397 | 9.397 | (0.966) | 327404 | 50.0000 | 43.06 | |
| 60 | 1,1,1,2-Tetrachloroethane | 131 | 7.842 | 7.842 | (1.013) | 170722 | 50.0000 | 46.25 | |
| 64 | Styrene | 104 | 8.322 | 8.322 | (1.075) | 518672 | 50.0000 | 46.72 | |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171024.b\X102402.D Version 10
Report Date: 06-Feb-2018 16:38

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.




Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171024.b\X102402.D
Date : 24-OCT-2017 12:00
Client ID: VSTD050
Sample Info: VSTD050;VSTD050;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171024.b\X102404.D  Version 9
Report Date: 06-Feb-2018 16:38

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171024.b\X102404.D
Lab Smp Id: VLCSW-171024  Client Smp ID: VLCSW-171024
Inj Date  : 24-OCT-2017 12:50
Operator  : PC  Inst ID: voa6.i
Smp Info  : VLCSW-171024;VLCSW-171024;3;;LCS
Misc Info : HS16030331;WATER;0;1;
Comment   :
Method    : \\nahstws003\Target\chem\voa6.i\X171024.b\8260W.m
Meth Date : 06-Feb-2018 16:38 voa6.i  Quant Type: ISTD
Cal Date  : 10-OCT-2017 13:33  Cal File: X101008.D
Als bottle: 4  QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE  Compound Sublist: dn_bhate.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) |
|---|---|---|---|---|---|---|---|---|
| | 31 1,1,1-Trichloroethane | 97 | 4.232 | 4.232 | (0.978) | 266896 | 51.2891 | 51.28 |
| * | 1 Pentafluorobenzene | 168 | 4.325 | 4.325 | (1.000) | 265285 | 50.0000 | |
| $ | 30 Dibromofluoromethane | 113 | 4.254 | 4.247 | (0.983) | 198589 | 51.9608 | 51.96 |
| * | 36 1,4-Difluorobenzene | 114 | 5.085 | 5.085 | (1.000) | 475422 | 50.0000 | |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 4.605 | 4.605 | (1.065) | 247255 | 51.4775 | 51.47 |
| * | 47 Chlorobenzene-d5 | 117 | 7.742 | 7.742 | (1.000) | 503655 | 50.0000 | |
| $ | 48 Toluene-d8 | 98 | 6.474 | 6.474 | (0.836) | 748607 | 48.0874 | 48.08 |
| $ | 69 4-Bromofluorobenzene | 95 | 8.752 | 8.752 | (1.130) | 269889 | 48.5952 | 48.59 |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 9.726 | 9.726 | (1.000) | 253913 | 50.0000 | |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 8.903 | 8.903 | (0.915) | 226027 | 50.2722 | 50.27 |
| | 53 1,1,2-Trichloroethane | 83 | 6.918 | 6.918 | (0.894) | 153426 | 47.1969 | 47.19 |
| | 32 1,1-Dichloropropene | 75 | 4.426 | 4.426 | (0.870) | 260292 | 50.4140 | 50.41 |
| | 22 1,1-Dichloroethane | 63 | 3.072 | 3.072 | (0.710) | 367710 | 52.7752 | 52.77 |
| | 11 1,1-Dichloroethene | 96 | 2.055 | 2.055 | (0.475) | 163211 | 53.1216 | 53.12 |
| | 90 1,2,4-Trichlorobenzene | 180 | 11.395 | 11.395 | (1.172) | 106886 | 48.8069 | 48.80 |
| | 89 1,2-Dibromo-3-Chloropropane | 155 | 10.715 | 10.715 | (1.102) | 27245 | 48.7588 | 48.75 |
| | 57 1,2-Dibromoethane | 107 | 7.341 | 7.334 | (0.948) | 179481 | 47.2780 | 47.27 |
| | 88 1,2-Dichlorobenzene | 146 | 10.056 | 10.056 | (1.034) | 275973 | 43.4765 | 43.47 |
| | 33 1,2-Dichloroethane | 62 | 4.691 | 4.691 | (0.923) | 265989 | 50.1150 | 50.11 |
| | 42 1,2-Dichloropropane | 63 | 5.543 | 5.543 | (1.090) | 220438 | 50.1463 | 50.14 |
| | 83 1,3-Dichlorobenzene | 146 | 9.669 | 9.669 | (0.994) | 283972 | 43.4775 | 43.47 |
| | 84 1,4-Dichlorobenzene | 146 | 9.748 | 9.741 | (1.002) | 296665 | 43.1270 | 43.12 |

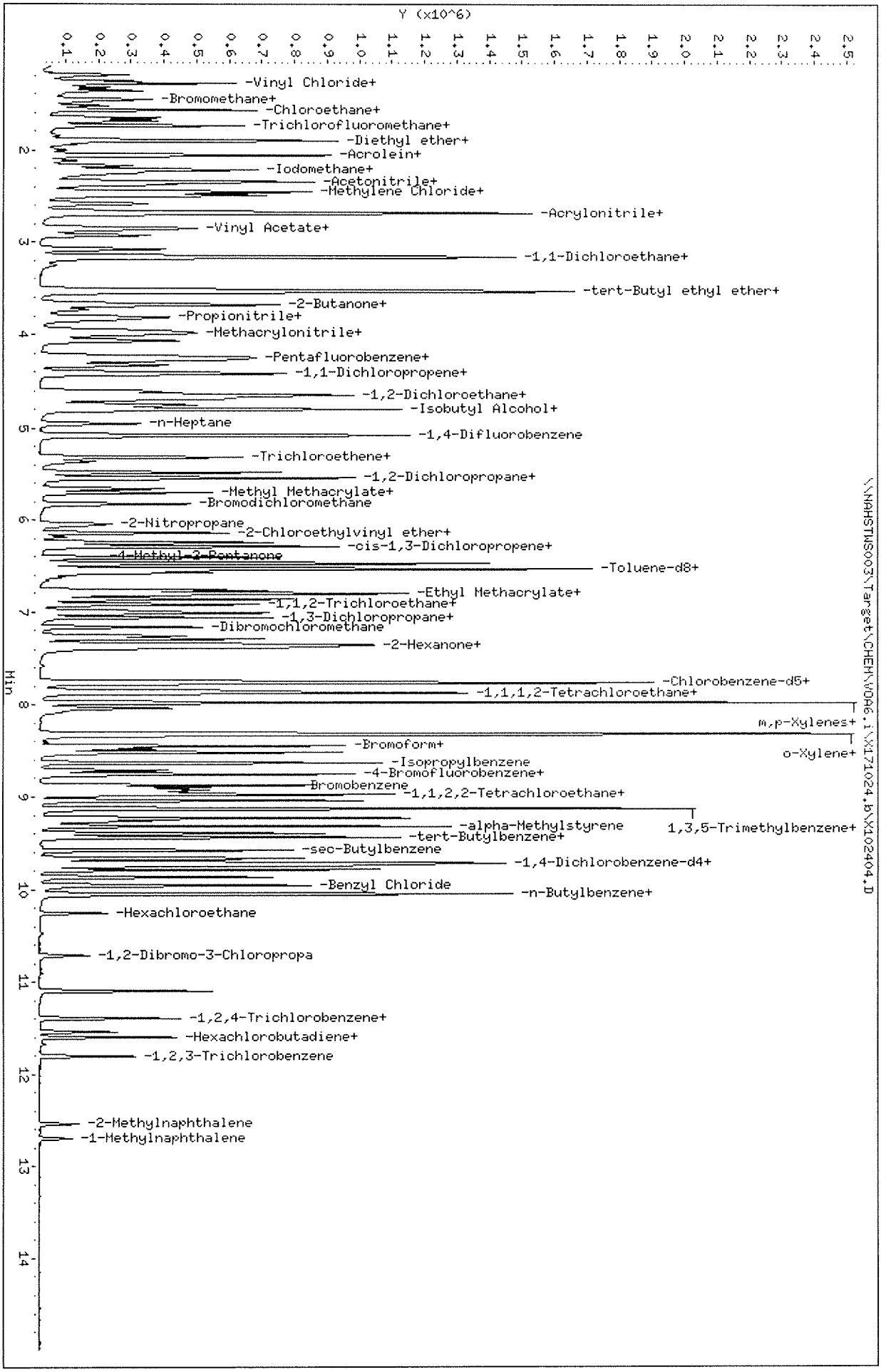
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171024.b\X102404.D Version 9
Report Date: 06-Feb-2018 16:38

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| | 24 2-Butanone | 43 | 3.731 | 3.731 | (0.863) | 185500 | 118.268 | 118.26 |
| | 52 2-Hexanone | 43 | 7.284 | 7.284 | (0.941) | 397764 | 96.3793 | 96.37 |
| | 45 4-Methyl-2-Pentanone | 43 | 6.410 | 6.410 | (0.828) | 426787 | 97.2647 | 97.26 |
| | 10 Acetone | 43 | 2.112 | 2.112 | (0.488) | 111372 | 119.454 | 119.45 |
| | 37 Benzene | 78 | 4.648 | 4.648 | (0.914) | 778987 | 49.9808 | 49.98 |
| | 39 Bromodichloromethane | 83 | 5.822 | 5.822 | (1.145) | 267511 | 49.6525 | 49.65 |
| | 66 Bromoform | 173 | 8.480 | 8.480 | (1.095) | 130670 | 46.5615 | 46.56 |
| | 6 Bromomethane | 94 | 1.460 | 1.460 | (0.338) | 132604 | 51.5362 | 51.53 |
| | 19 Carbon Disulfide | 76 | 2.212 | 2.212 | (0.512) | 1002404 | 102.460 | 102.45 |
| | 34 Carbon Tetrachloride | 117 | 4.411 | 4.411 | (0.868) | 212205 | 48.7989 | 48.79 |
| | 59 Chlorobenzene | 112 | 7.764 | 7.764 | (1.003) | 473620 | 46.3759 | 46.37 |
| | 7 Chloroethane | 64 | 1.525 | 1.525 | (0.353) | 134481 | 48.8563 | 48.85 |
| | 28 Chloroform | 83 | 4.067 | 4.067 | (0.940) | 337793 | 52.1651 | 52.16 |
| | 3 Chloromethane | 50 | 1.188 | 1.188 | (0.275) | 278531 | 51.7397 | 51.73 |
| | 27 cis-1,2-Dichloroethene | 96 | 3.681 | 3.681 | (0.851) | 210960 | 53.0226 | 53.02 |
| | 46 cis-1,3-Dichloropropene | 75 | 6.245 | 6.245 | (1.228) | 341168 | 49.5789 | 49.57 |
| | 55 Dibromochloromethane | 129 | 7.255 | 7.255 | (0.937) | 198007 | 46.5422 | 46.54 |
| | 2 Dichlorodifluoromethane | 85 | 1.081 | 1.081 | (0.250) | 162004 | 47.7815 | 47.78 |
| | 61 Ethylbenzene | 106 | 7.871 | 7.871 | (1.017) | 238506 | 46.4190 | 46.41 |
| | 67 Isopropylbenzene | 105 | 8.623 | 8.623 | (1.114) | 577144 | 46.6378 | 46.63 |
| | 17 Methylene Chloride | 84 | 2.449 | 2.449 | (0.566) | 209199 | 51.2399 | 51.23 |
| | 56 Tetrachloroethene | 164 | 7.012 | 7.012 | (0.906) | 122091 | 45.1642 | 45.16 |
| | 50 Toluene | 91 | 6.532 | 6.532 | (0.844) | 763917 | 47.1734 | 47.17 |
| | 20 trans-1,2-Dichloroethene | 96 | 2.678 | 2.678 | (0.619) | 189092 | 52.7604 | 52.76 |
| | 51 trans-1,3-Dichloropropene | 75 | 6.761 | 6.761 | (1.330) | 292852 | 49.7278 | 49.72 |
| | 38 Trichloroethene | 130 | 5.321 | 5.321 | (1.046) | 185506 | 48.4864 | 48.48 |
| | 8 Trichlorofluoromethane | 101 | 1.689 | 1.689 | (0.391) | 222043 | 49.9460 | 49.94 |
| | 5 Vinyl Chloride | 62 | 1.260 | 1.260 | (0.291) | 234914 | 51.7114 | 51.71 |
| | 62 m,p-Xylenes | 106 | 7.971 | 7.971 | (1.030) | 569680 | 92.7459 | 92.74 |
| | 63 o-Xylene | 106 | 8.308 | 8.308 | (1.073) | 285820 | 45.9446 | 45.94 |
| M | 95 Xylenes (total) | 106 | | | | 855500 | 138.690 | 138.69 |
| | 71 1,2,3-Trichloropropane | 75 | 8.931 | 8.931 | (0.918) | 217868 | 49.0448 | 49.04(M) |
| | 93 1,2,3-Trichlorobenzene | 180 | 11.804 | 11.804 | (1.214) | 79515 | 50.3988 | 50.39 |
| | 79 1,2,4-Trimethylbenzene | 105 | 9.440 | 9.440 | (0.971) | 493190 | 43.9732 | 43.97 |
| | 75 1,3,5-Trimethylbenzene | 105 | 9.132 | 9.125 | (0.939) | 460290 | 43.8770 | 43.87 |
| | 26 2,2-Dichloropropane | 77 | 3.666 | 3.666 | (0.848) | 286463 | 52.7778 | 52.77 |
| | 54 1,3-Dichloropropane | 76 | 7.062 | 7.062 | (0.912) | 323678 | 46.9323 | 46.93 |
| | 76 2-Chlorotoluene | 91 | 9.039 | 9.039 | (0.929) | 469480 | 45.1277 | 45.12 |
| | 77 4-Chlorotoluene | 91 | 9.132 | 9.132 | (0.939) | 542944 | 44.5476 | 44.54 |
| | 82 p-Isopropyltoluene | 119 | 9.712 | 9.712 | (0.999) | 389744 | 42.8766 | 42.87 |
| | 29 Bromochloromethane | 128 | 3.953 | 3.960 | (0.914) | 90320 | 50.9656 | 50.96 |
| | 74 Bromobenzene | 156 | 8.874 | 8.874 | (0.912) | 195602 | 45.2618 | 45.26 |
| | 44 Dibromomethane | 93 | 5.658 | 5.658 | (1.113) | 128810 | 51.1386 | 51.13 |
| | 91 Hexachlorobutadiene | 225 | 11.539 | 11.539 | (1.186) | 38484 | 42.9638 | 42.96 |
| | 73 n-Propylbenzene | 91 | 8.974 | 8.974 | (0.923) | 693395 | 44.3450 | 44.34 |
| | 87 n-Butylbenzene | 91 | 10.049 | 10.056 | (1.033) | 335398 | 45.0081 | 45.00 |
| | 81 sec-Butylbenzene | 105 | 9.583 | 9.583 | (0.985) | 445036 | 42.4128 | 42.41 |
| | 92 Naphthalene | 128 | 11.603 | 11.603 | (1.193) | 277301 | 46.9200 | 46.91 |
| | 78 tert-Butylbenzene | 119 | 9.397 | 9.397 | (0.966) | 331004 | 42.2063 | 42.20 |
| | 60 1,1,1,2-Tetrachloroethane | 131 | 7.842 | 7.842 | (1.013) | 167839 | 45.2076 | 45.20 |
| | 64 Styrene | 104 | 8.322 | 8.322 | (1.075) | 523176 | 46.8498 | 46.84 |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171024.b\X102404.D Version 9
Report Date: 06-Feb-2018 16:38

QC Flag Legend

M - Compound response manually integrated.




Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171024.b\X102404.D
Date : 24-OCT-2017 12:50
Client ID: VLCSW-171024
Sample Info: VLCSW-171024;VLCSW-171024;3;;LCS
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171024.b\X102407.D  Version 7
Report Date: 06-Feb-2018 16:38

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171024.b\X102407.D
Lab Smp Id: VBLKW-171024  Client Smp ID: VBLKW-0171024
Inj Date : 24-OCT-2017 14:04
Operator : PC  Inst ID: voa6.i
Smp Info : VBLKW-171024;VBLKW-0171024;3;;BLANK
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X171024.b\8260W.m
Meth Date : 06-Feb-2018 16:38 voa6.i  Quant Type: ISTD
Cal Date : 10-OCT-2017 13:33  Cal File: X101008.D
Als bottle: 7  QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE  Compound Sublist: dn_bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

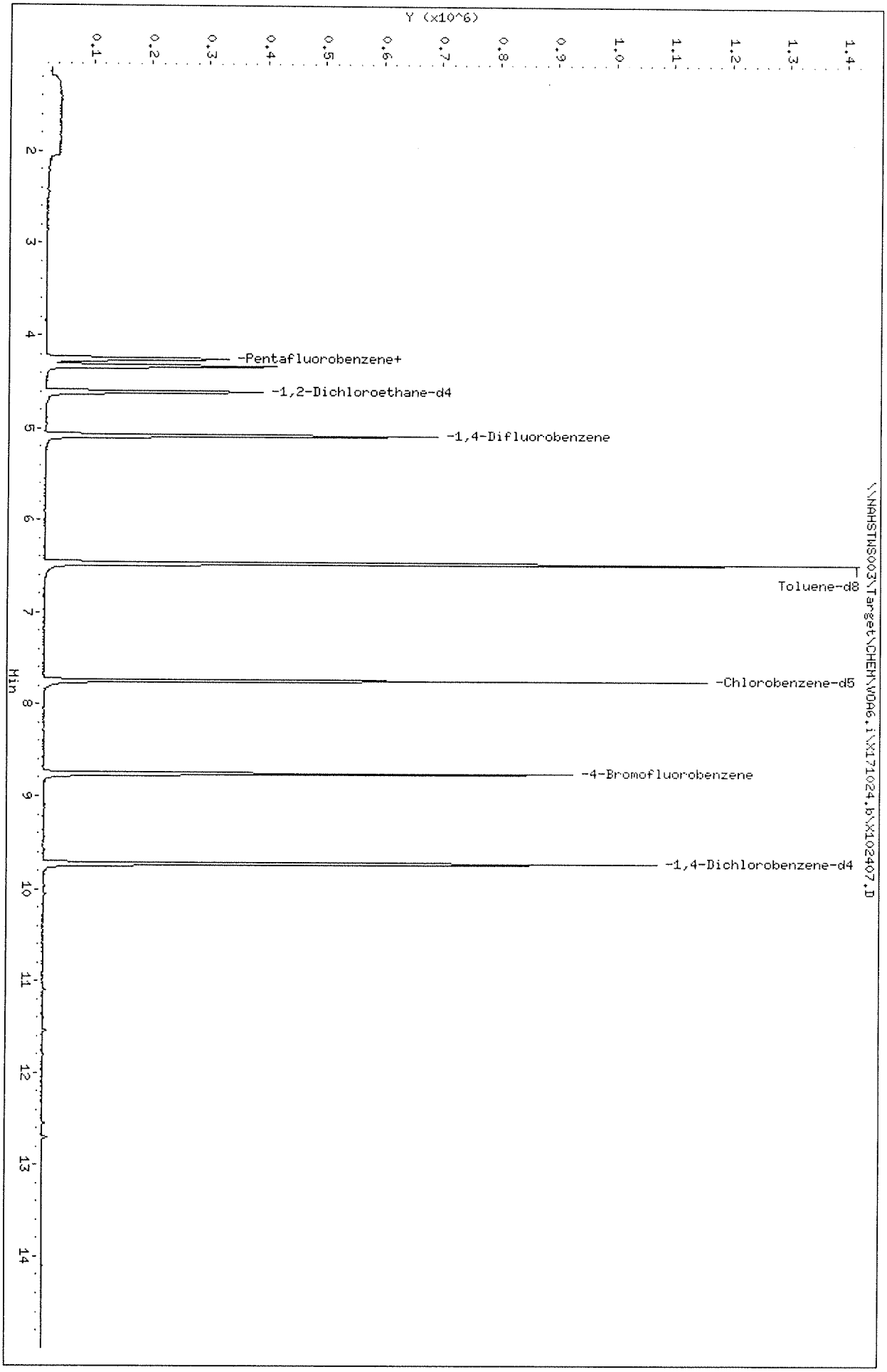
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| 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 | 4.326 | 4.325 | (1.000) | 273020 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.254 | 4.247 | (0.983) | 205580 | 52.2560 | 52.25 |
| * 36 1,4-Difluorobenzene | 114 | 5.085 | 5.085 | (1.000) | 492070 | 50.0000 | |
| $ 35 1,2-Dichloroethane-d4 | 65 | 4.605 | 4.605 | (1.065) | 257056 | 51.9922 | 51.99 |
| * 47 Chlorobenzene-d5 | 117 | 7.742 | 7.742 | (1.000) | 525574 | 50.0000 | |
| $ 48 Toluene-d8 | 98 | 6.474 | 6.474 | (0.836) | 771518 | 47.5123 | 47.51 |
| $ 69 4-Bromofluorobenzene | 95 | 8.752 | 8.752 | (1.130) | 276038 | 47.6532 | 47.65 |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 9.727 | 9.726 | (1.000) | 248267 | 50.0000 | |

Data File: \\NAHSTWS003\Target\CHEM\WOA6.i\X171024.b\X102407.D
Date : 24-OCT-2017 14:04
Client ID: VBLKW-0171024
Sample Info: VBLKW-171024;VBLKW-0171024;3;;BLANK
Purge Volume: 5.0
Column phase: DB624

Instrument: woa6.i
Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171024.b\X102409.D Version 7
Report Date: 06-Feb-2018 16:38

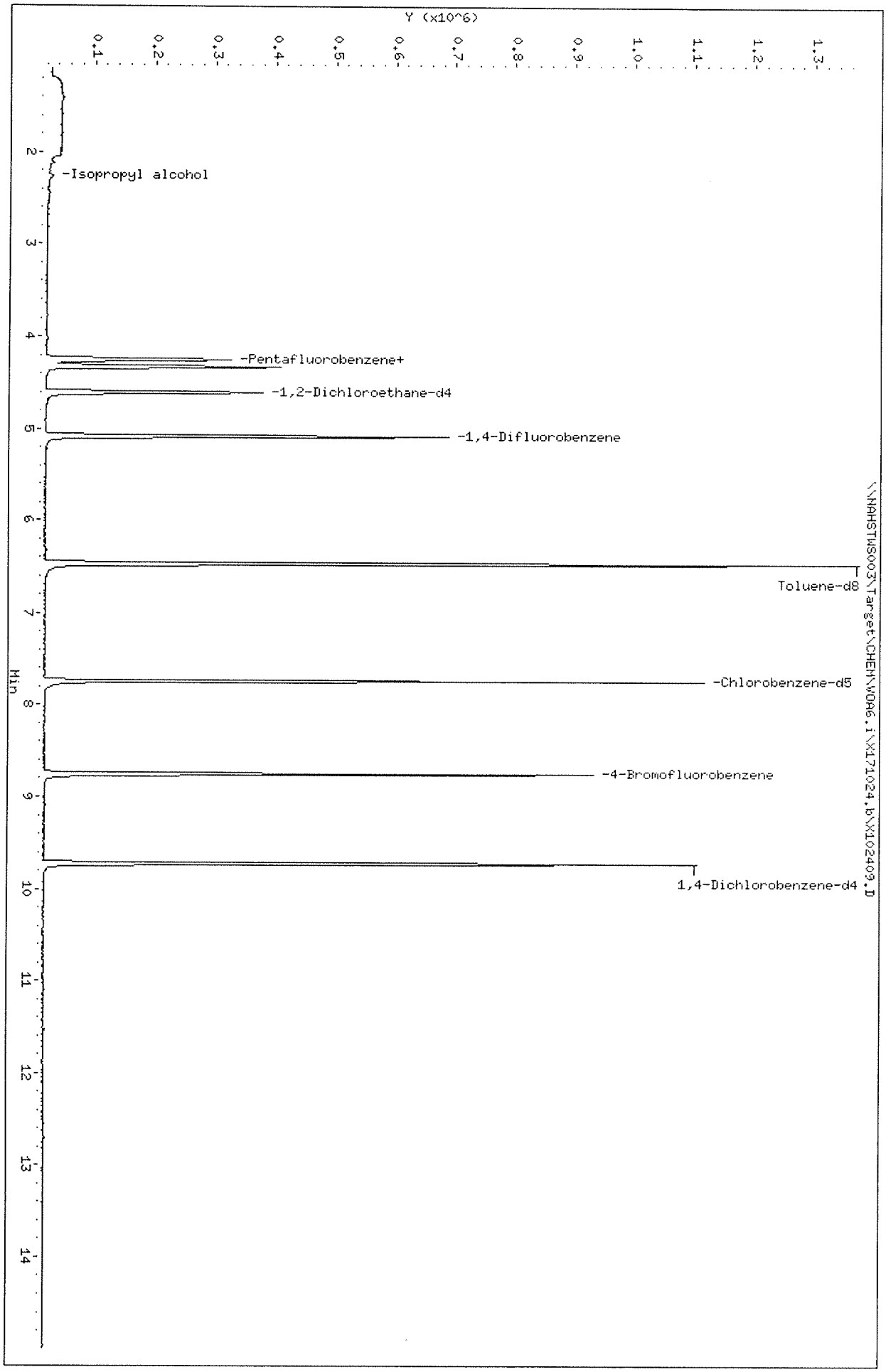
ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171024.b\X102409.D
Lab Smp Id: HS17100970-02 Client Smp ID: HS17100970-02
Inj Date : 24-OCT-2017 14:54
Operator : PC Inst ID: voa6.i
Smp Info : HS17100970-02;HS17100970-02;;;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X171024.b\8260W.m
Meth Date : 06-Feb-2018 16:38 voa6.i Quant Type: ISTD
Cal Date : 10-OCT-2017 13:33 Cal File: X101008.D
Als bottle: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.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 | 4.325 | 4.325 | (1.000) | 267188 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.254 | 4.247 | (0.983) | 198723 | 51.6364 | 51.63 |
| * 36 1,4-Difluorobenzene | 114 | 5.085 | 5.085 | (1.000) | 484234 | 50.0000 | |
| $ 35 1,2-Dichloroethane-d4 | 65 | 4.605 | 4.605 | (1.065) | 253011 | 52.2855 | 52.28 |
| * 47 Chlorobenzene-d5 | 117 | 7.742 | 7.742 | (1.000) | 520314 | 50.0000 | |
| $ 48 Toluene-d8 | 98 | 6.474 | 6.474 | (0.836) | 751358 | 46.7641 | 46.76 |
| $ 69 4-Bromofluorobenzene | 95 | 8.752 | 8.752 | (1.130) | 273300 | 47.6574 | 47.65 |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 9.726 | 9.726 | (1.000) | 252088 | 50.0000 | |




Data File: \\NAHSTWS003\Target\CHEM\WOA6.i\X171024.b\X102409.D
Date : 24-OCT-2017 14:54
Client ID: HS17100970-02
Sample Info: HS17100970-02;HS17100970-02;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: woa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171024.b\X102410.D Version 7
Report Date: 06-Feb-2018 16:38

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171024.b\X102410.D
Lab Smp Id: HS17100970-01 Client Smp ID: HS17100970-01
Inj Date : 24-OCT-2017 15:19
Operator : PC Inst ID: voa6.i
Smp Info : HS17100970-01;HS17100970-01;;;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X171024.b\8260W.m
Meth Date : 06-Feb-2018 16:38 voa6.i Quant Type: ISTD
Cal Date : 10-OCT-2017 13:33 Cal File: X101008.D
Als bottle: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

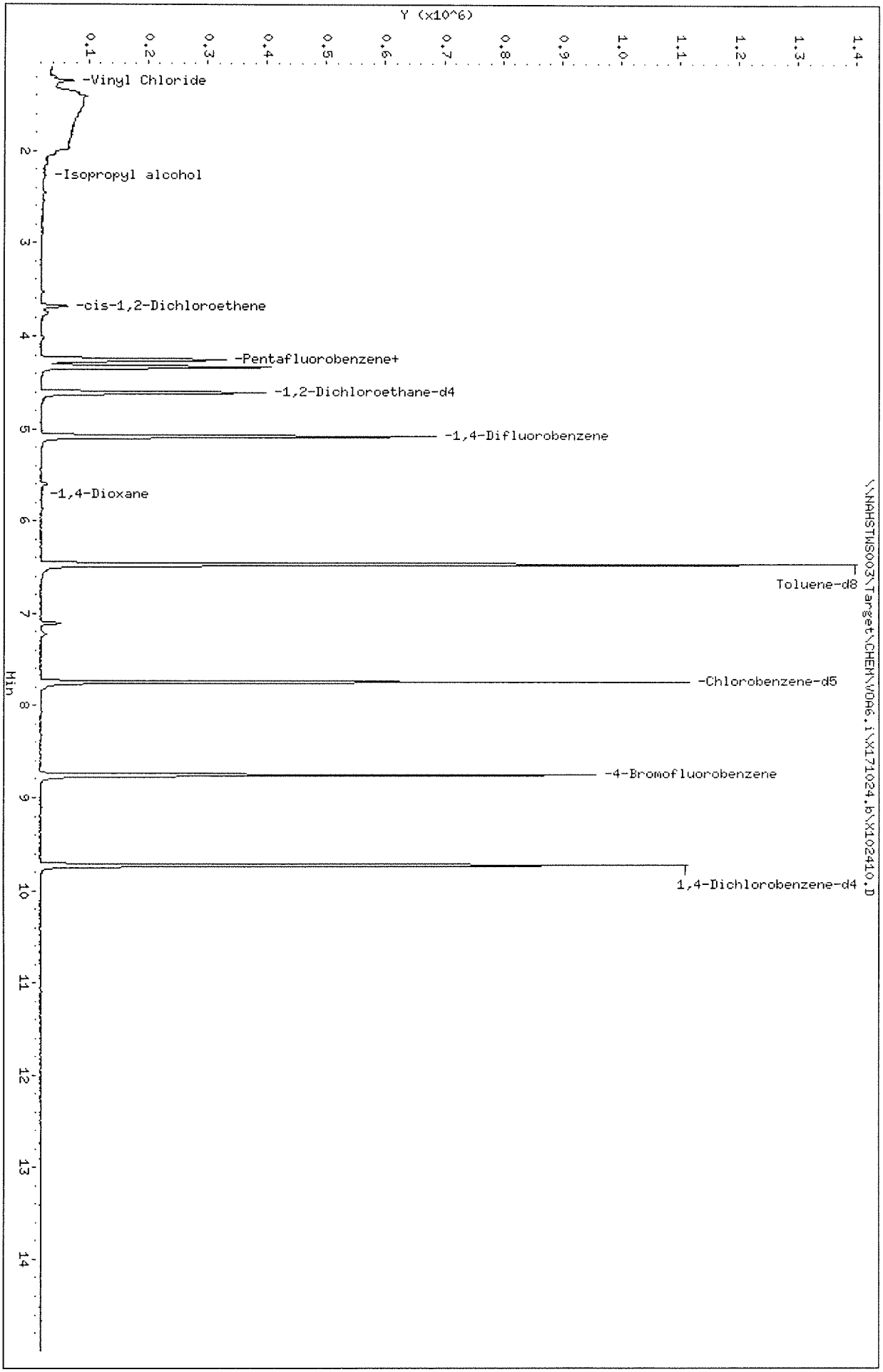
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| 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 | 4.325 | 4.325 | (1.000) | 268264 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.254 | 4.247 | (0.983) | 202081 | 52.2766 | 52.27 |
| * 36 1,4-Difluorobenzene | 114 | 5.085 | 5.085 | (1.000) | 480806 | 50.0000 | |
| $ 35 1,2-Dichloroethane-d4 | 65 | 4.612 | 4.605 | (1.066) | 257538 | 52.9941 | 52.99 |
| * 47 Chlorobenzene-d5 | 117 | 7.742 | 7.742 | (1.000) | 516300 | 50.0000 | |
| $ 48 Toluene-d8 | 98 | 6.474 | 6.474 | (0.836) | 758011 | 47.5188 | 47.51 |
| $ 69 4-Bromofluorobenzene | 95 | 8.752 | 8.752 | (1.130) | 276623 | 48.5880 | 48.58 |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 9.726 | 9.726 | (1.000) | 251862 | 50.0000 | |
| 27 cis-1,2-Dichloroethene | 96 | 3.688 | 3.681 | (0.853) | 21263 | 5.28489 | 5.28 |
| 5 Vinyl Chloride | 62 | 1.260 | 1.260 | (0.291) | 4112 | 0.89512 | 0.89(a) |

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).




Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171024.b\X102410.D
Date : 24-OCT-2017 15:19
Client ID: HS17100970-01
Sample Info: HS17100970-01;HS17100970-01;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171024.b\X102410.D



Date : 24-OCT-2017 15:19

Client ID: HS17100970-01

Instrument: voa6.i

Sample Info: HS17100970-01;HS17100970-01;;;

Purge Volume: 5.0

Operator: PC

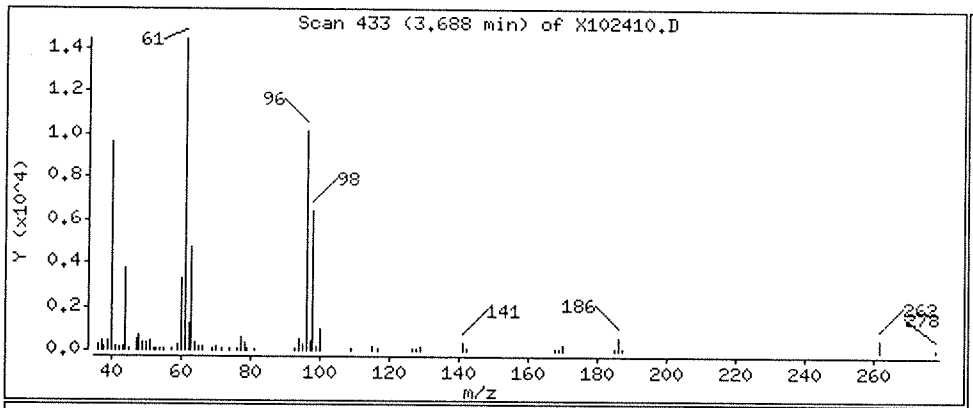
Column phase: DB624

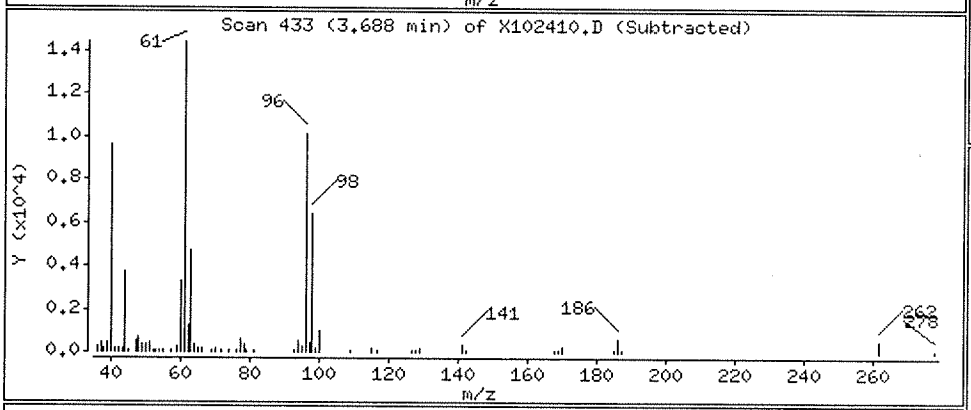
Column diameter: 0.18

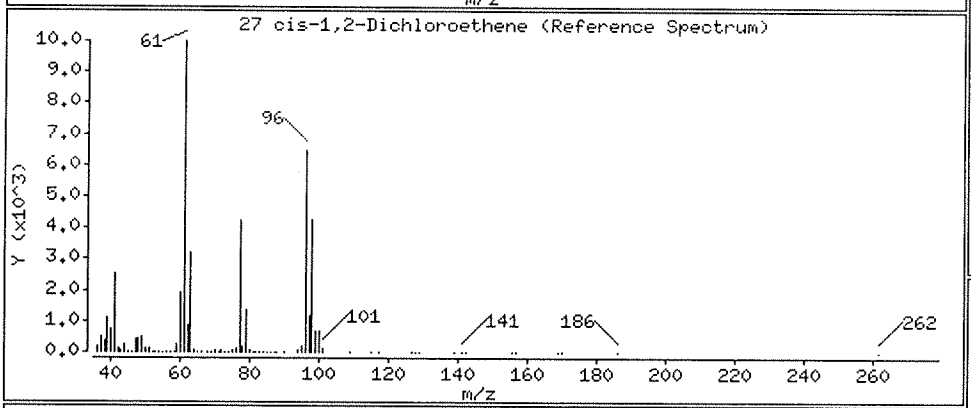
27 cis-1,2-Dichloroethene

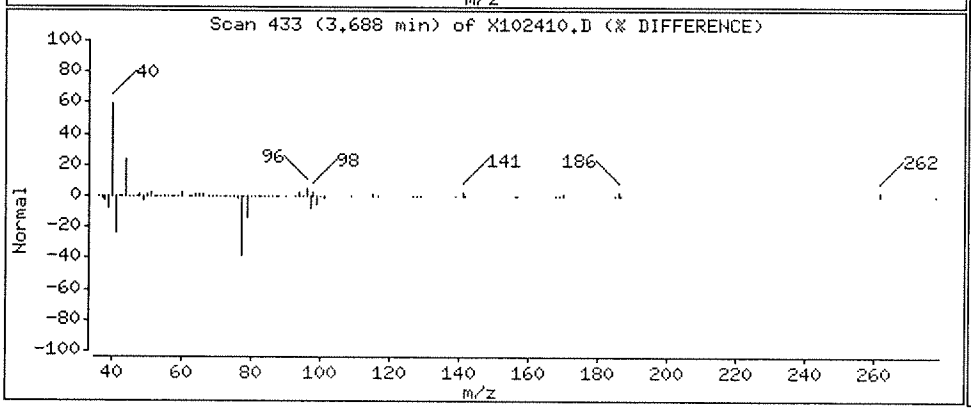
Concentration: 5.28 ug/l

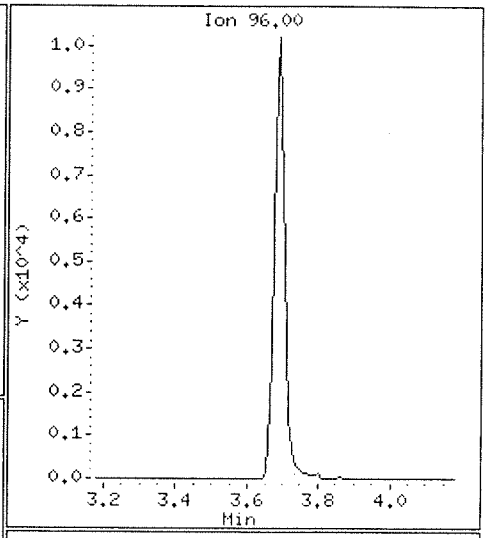
Review Code:

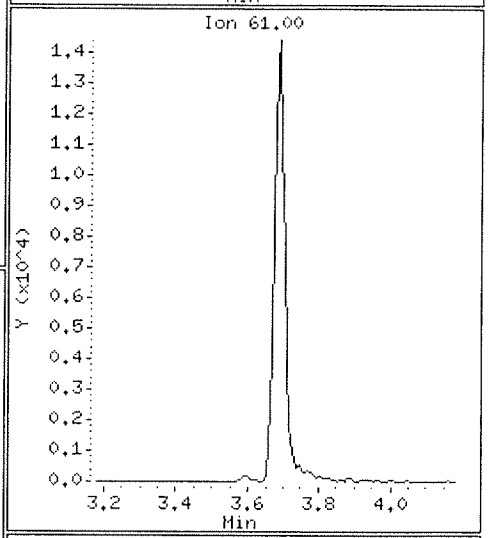


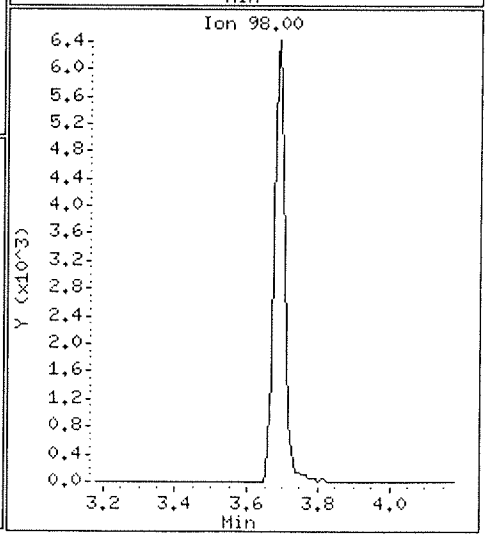



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171024.b\X102410.D



Date : 24-OCT-2017 15:19

Client ID: HS17100970-01

Instrument: voa6.i

Sample Info: HS17100970-01;HS17100970-01;;;

Purge Volume: 5.0

Operator: PC

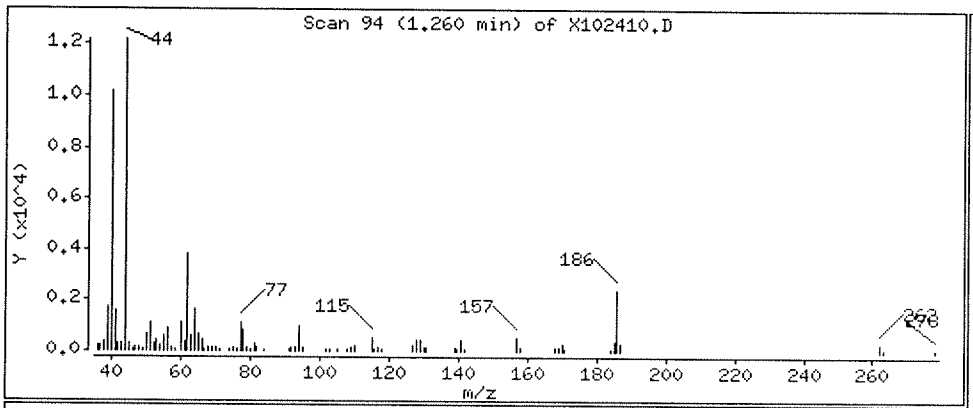
Column phase: DB624

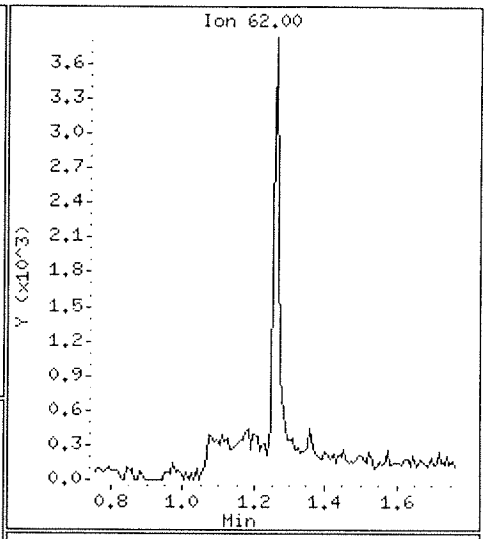
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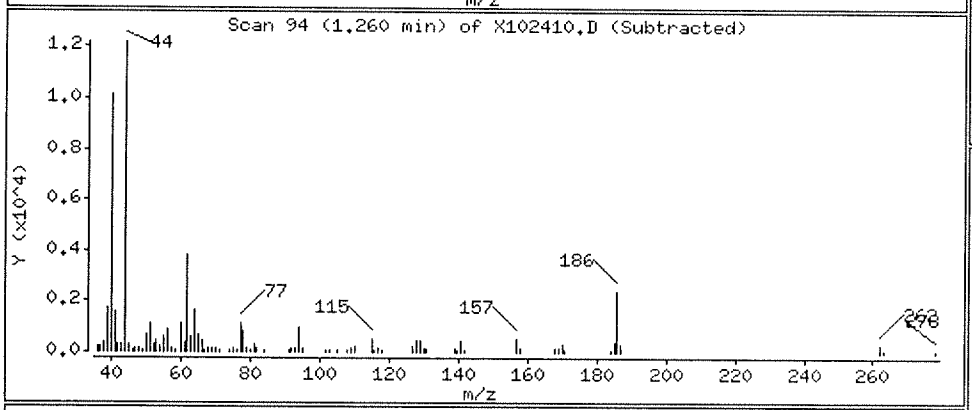
5 Vinyl Chloride

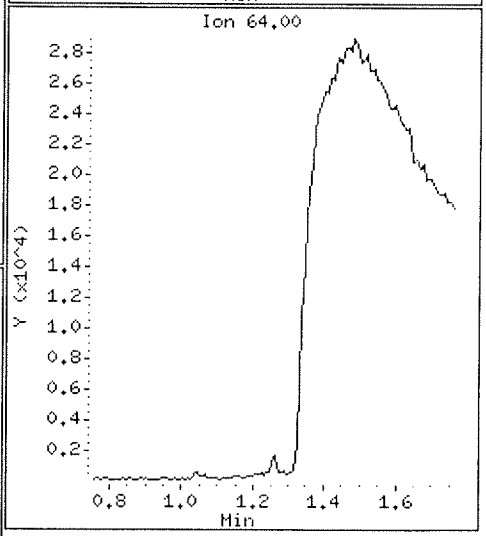
Concentration: 0.89 ug/l

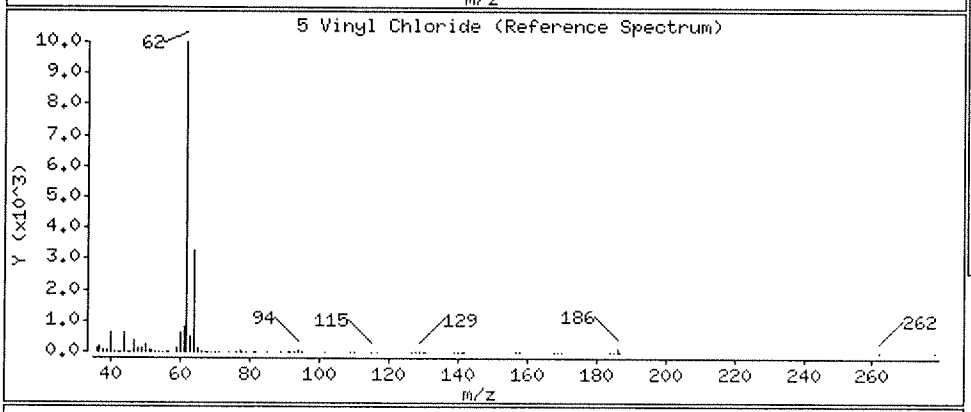
Review Code:

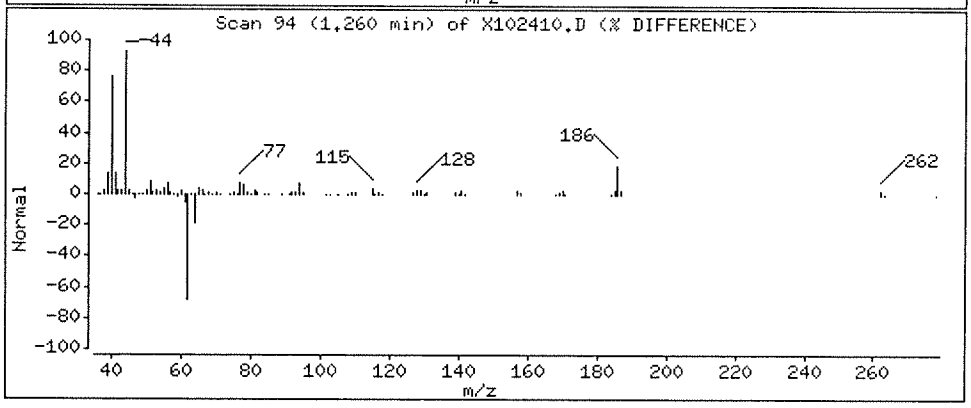


Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171024.b\X102412.D Version 10
Report Date: 06-Feb-2018 16:38

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171024.b\X102412.D
Lab Smp Id: HS17100904-07MS Client Smp ID: HS17100904-07MS
Inj Date : 24-OCT-2017 16:09
Operator : PC Inst ID: voa6.i
Smp Info : HS17100904-07MS;HS17100904-07MS;3;;MS
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X171024.b\8260W.m
Meth Date : 06-Feb-2018 16:38 voa6.i Quant Type: ISTD
Cal Date : 10-OCT-2017 13:33 Cal File: X101008.D
Als bottle: 12 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.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) |
|---|---|---|---|---|---|---|---|---|
| | 31 1,1,1-Trichloroethane | 97 | 4.232 | 4.232 | (0.978) | 246232 | 48.3976 | 48.39 |
| * | 1 Pentafluorobenzene | 168 | 4.325 | 4.325 | (1.000) | 259368 | 50.0000 | |
| $ | 30 Dibromofluoromethane | 113 | 4.254 | 4.247 | (0.983) | 193482 | 51.7854 | 51.78 |
| * | 36 1,4-Difluorobenzene | 114 | 5.085 | 5.085 | (1.000) | 473037 | 50.0000 | |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 4.605 | 4.605 | (1.065) | 249596 | 53.1190 | 53.11 |
| * | 47 Chlorobenzene-d5 | 117 | 7.742 | 7.742 | (1.000) | 506560 | 50.0000 | |
| $ | 48 Toluene-d8 | 98 | 6.474 | 6.474 | (0.836) | 748240 | 47.7983 | 47.79 |
| $ | 69 4-Bromofluorobenzene | 95 | 8.752 | 8.752 | (1.130) | 270105 | 48.3612 | 48.36 |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 9.726 | 9.726 | (1.000) | 250601 | 50.0000 | |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 8.903 | 8.903 | (0.915) | 232153 | 52.3571 | 52.35 |
| | 53 1,1,2-Trichloroethane | 83 | 6.919 | 6.918 | (0.894) | 153293 | 46.8855 | 46.88(M) |
| | 32 1,1-Dichloropropene | 75 | 4.426 | 4.426 | (0.870) | 232872 | 45.3307 | 45.33(H) |
| | 22 1,1-Dichloroethane | 63 | 3.072 | 3.072 | (0.710) | 345361 | 50.6984 | 50.69 |
| | 11 1,1-Dichloroethene | 96 | 2.055 | 2.055 | (0.475) | 145219 | 48.3439 | 48.34 |
| | 90 1,2,4-Trichlorobenzene | 180 | 11.395 | 11.395 | (1.172) | 100437 | 46.4682 | 46.46 |
| | 89 1,2-Dibromo-3-Chloropropane | 155 | 10.715 | 10.715 | (1.102) | 29521 | 53.5217 | 53.52 |
| | 57 1,2-Dibromoethane | 107 | 7.334 | 7.334 | (0.947) | 181128 | 47.4382 | 47.43 |
| | 88 1,2-Dichlorobenzene | 146 | 10.056 | 10.056 | (1.034) | 265389 | 42.3616 | 42.36 |
| | 33 1,2-Dichloroethane | 62 | 4.691 | 4.691 | (0.923) | 263592 | 49.9138 | 49.91 |
| | 42 1,2-Dichloropropane | 63 | 5.543 | 5.543 | (1.090) | 210786 | 48.1924 | 48.19 |
| | 83 1,3-Dichlorobenzene | 146 | 9.669 | 9.669 | (0.994) | 268812 | 41.7003 | 41.70 |
| | 84 1,4-Dichlorobenzene | 146 | 9.741 | 9.741 | (1.001) | 278892 | 41.0791 | 41.07 |

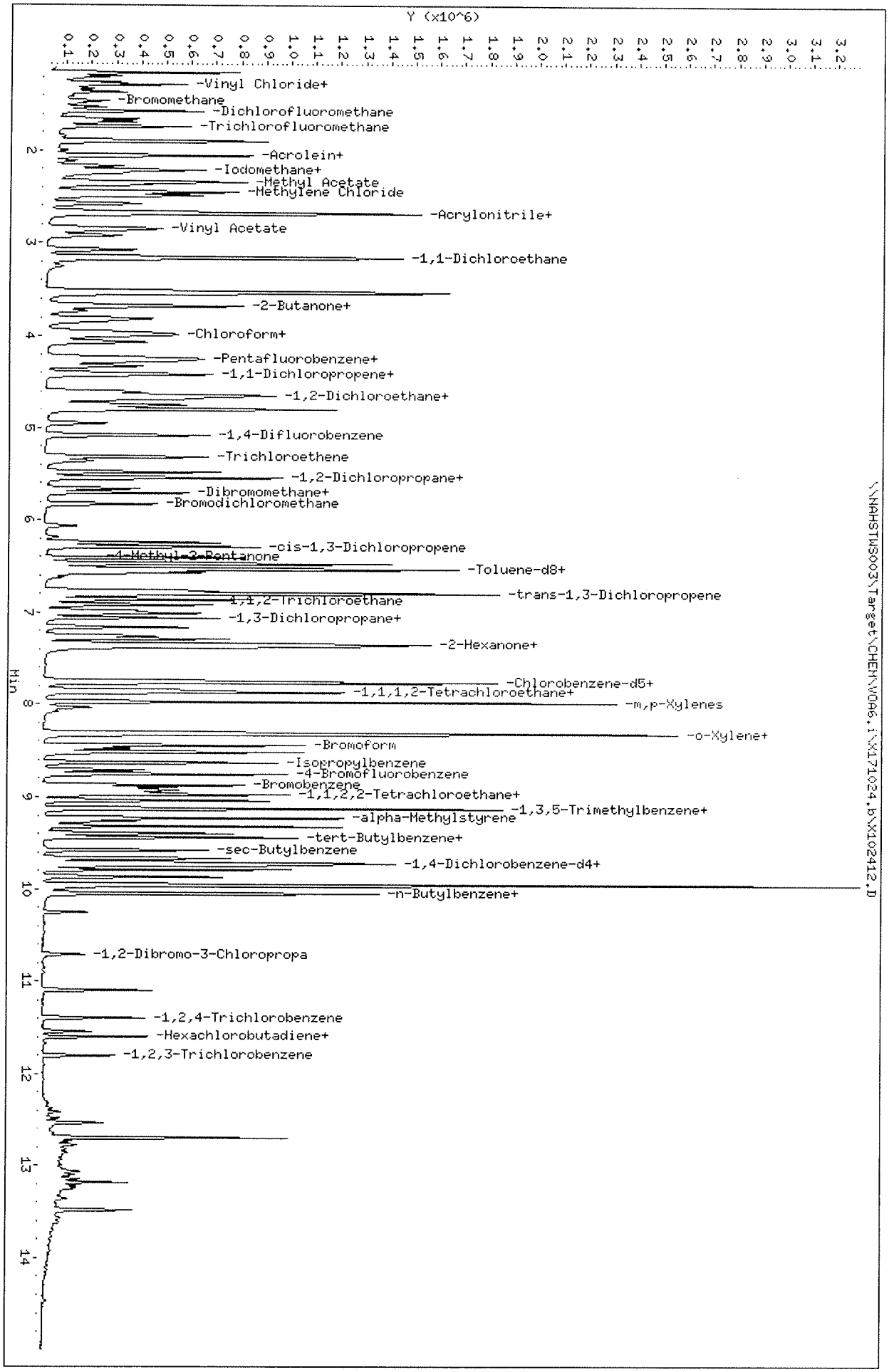
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171024.b\X102412.D Version 10
Report Date: 06-Feb-2018 16:38

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| | 24 2-Butanone | 43 | 3.731 | 3.731 | (0.863) | 198395 | 129.375 | 129.37 |
| | 52 2-Hexanone | 43 | 7.284 | 7.284 | (0.941) | 433634 | 104.468 | 104.46 |
| | 45 4-Methyl-2-Pentanone | 43 | 6.410 | 6.410 | (0.828) | 472908 | 107.158 | 107.15 |
| | 10 Acetone | 43 | 2.112 | 2.112 | (0.488) | 109600 | 120.256 | 120.25 |
| | 37 Benzene | 78 | 4.648 | 4.648 | (0.914) | 726404 | 46.8420 | 46.84 |
| | 39 Bromodichloromethane | 83 | 5.823 | 5.822 | (1.145) | 256408 | 47.8316 | 47.83 |
| | 66 Bromoform | 173 | 8.480 | 8.480 | (1.095) | 131913 | 46.7349 | 46.73 |
| | 6 Bromomethane | 94 | 1.460 | 1.460 | (0.338) | 87260 | 34.6870 | 34.68 |
| | 19 Carbon Disulfide | 76 | 2.212 | 2.212 | (0.512) | 928055 | 97.0244 | 97.02 |
| | 34 Carbon Tetrachloride | 117 | 4.411 | 4.411 | (0.868) | 187138 | 43.2514 | 43.25(H) |
| | 59 Chlorobenzene | 112 | 7.764 | 7.764 | (1.003) | 445778 | 43.3993 | 43.39 |
| | 7 Chloroethane | 64 | 1.260 | 1.525 | (0.291) | 185617 | 68.9721 | 68.97 |
| | 28 Chloroform | 83 | 4.068 | 4.067 | (0.940) | 324106 | 51.1933 | 51.19 |
| | 3 Chloromethane | 50 | 1.195 | 1.188 | (0.276) | 252666 | 48.0248 | 48.02 |
| | 27 cis-1,2-Dichloroethene | 96 | 3.681 | 3.681 | (0.851) | 243793 | 62.6728 | 62.67 |
| | 46 cis-1,3-Dichloropropene | 75 | 6.245 | 6.245 | (1.228) | 331182 | 48.3704 | 48.37 |
| | 55 Dibromochloromethane | 129 | 7.255 | 7.255 | (0.937) | 194948 | 45.5604 | 45.56 |
| | 2 Dichlorodifluoromethane | 85 | 1.081 | 1.081 | (0.250) | 150309 | 45.3435 | 45.34 |
| | 61 Ethylbenzene | 106 | 7.871 | 7.871 | (1.017) | 215913 | 41.7809 | 41.78 |
| | 67 Isopropylbenzene | 105 | 8.623 | 8.623 | (1.114) | 518180 | 41.6329 | 41.63 |
| | 17 Methylene Chloride | 84 | 2.449 | 2.449 | (0.566) | 201223 | 50.4107 | 50.41 |
| | 56 Tetrachloroethene | 164 | 7.012 | 7.012 | (0.906) | 110288 | 40.5640 | 40.56 |
| | 50 Toluene | 91 | 6.532 | 6.532 | (0.844) | 716141 | 43.9695 | 43.96 |
| | 20 trans-1,2-Dichloroethene | 96 | 2.678 | 2.678 | (0.619) | 176483 | 50.3656 | 50.36 |
| | 51 trans-1,3-Dichloropropene | 75 | 6.761 | 6.761 | (1.330) | 290560 | 49.5874 | 49.58 |
| | 38 Trichloroethene | 130 | 5.321 | 5.321 | (1.046) | 197592 | 51.9057 | 51.90 |
| | 8 Trichlorofluoromethane | 101 | 1.689 | 1.689 | (0.391) | 195217 | 44.9136 | 44.91 |
| | 5 Vinyl Chloride | 62 | 1.260 | 1.260 | (0.291) | 219882 | 49.5066 | 49.50 |
| | 62 m,p-Xylenes | 106 | 7.971 | 7.971 | (1.030) | 519960 | 84.1658 | 84.16 |
| | 63 o-Xylene | 106 | 8.308 | 8.308 | (1.073) | 265089 | 42.3678 | 42.36 |
| M | 95 Xylenes (total) | 106 | | | | 785049 | 126.534 | 126.53 |
| | 71 1,2,3-Trichloropropane | 75 | 8.924 | 8.931 | (0.918) | 229482 | 52.3420 | 52.34(M) |
| | 93 1,2,3-Trichlorobenzene | 180 | 11.797 | 11.804 | (1.213) | 77533 | 49.7921 | 49.79 |
| | 79 1,2,4-Trimethylbenzene | 105 | 9.440 | 9.440 | (0.971) | 447377 | 40.4157 | 40.41 |
| | 75 1,3,5-Trimethylbenzene | 105 | 9.125 | 9.125 | (0.938) | 417626 | 40.3362 | 40.33 |
| | 26 2,2-Dichloropropane | 77 | 3.666 | 3.666 | (0.848) | 260124 | 49.0184 | 49.01 |
| | 54 1,3-Dichloropropane | 76 | 7.062 | 7.062 | (0.912) | 321732 | 46.3826 | 46.38 |
| | 76 2-Chlorotoluene | 91 | 9.039 | 9.039 | (0.929) | 430381 | 41.9161 | 41.91 |
| | 77 4-Chlorotoluene | 91 | 9.132 | 9.132 | (0.939) | 505955 | 42.0614 | 42.06 |
| | 82 p-Isopropyltoluene | 119 | 9.712 | 9.712 | (0.999) | 340171 | 37.9176 | 37.91 |
| | 29 Bromochloromethane | 128 | 3.953 | 3.960 | (0.914) | 86507 | 49.9276 | 49.92 |
| | 74 Bromobenzene | 156 | 8.867 | 8.874 | (0.912) | 186592 | 43.7475 | 43.74 |
| | 44 Dibromomethane | 93 | 5.658 | 5.658 | (1.113) | 125833 | 50.2086 | 50.20 |
| | 91 Hexachlorobutadiene | 225 | 11.539 | 11.539 | (1.186) | 30564 | 34.6928 | 34.69 |
| | 73 n-Propylbenzene | 91 | 8.974 | 8.974 | (0.923) | 616123 | 39.9240 | 39.92 |
| | 87 n-Butylbenzene | 91 | 10.056 | 10.056 | (1.034) | 284193 | 38.6407 | 38.64 |
| | 81 sec-Butylbenzene | 105 | 9.583 | 9.583 | (0.985) | 387987 | 37.4646 | 37.46 |
| | 92 Naphthalene | 128 | 11.603 | 11.603 | (1.193) | 286616 | 48.9965 | 48.99 |
| | 78 tert-Butylbenzene | 119 | 9.397 | 9.397 | (0.966) | 296234 | 38.2720 | 38.27 |
| | 60 1,1,1,2-Tetrachloroethane | 131 | 7.843 | 7.842 | (1.013) | 162063 | 43.4015 | 43.40 |
| | 64 Styrene | 104 | 8.322 | 8.322 | (1.075) | 481560 | 42.8759 | 42.87 |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171024.b\X102412.D Version 10
Report Date: 06-Feb-2018 16:38

QC Flag Legend

M - Compound response manually integrated.
H - Operator selected an alternate compound hit.




Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171024.b\X102412.D
Date : 24-OCT-2017 16:09
Client ID: HS17100904-07MS
Sample Info: HS17100904-07MS;HS17100904-07MS;3;;MS
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171024.b\X102413.D Version 10
Report Date: 06-Feb-2018 16:38

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171024.b\X102413.D
Lab Smp Id: HS17100904-07MSD Client Smp ID: HS17100904-07MSD
Inj Date : 24-OCT-2017 16:34
Operator : PC Inst ID: voa6.i
Smp Info : HS17100904-07MSD;HS17100904-07MSD;3;;MSD
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X171024.b\8260W.m
Meth Date : 06-Feb-2018 16:38 voa6.i Quant Type: ISTD
Cal Date : 10-OCT-2017 13:33 Cal File: X101008.D
Als bottle: 13 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.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) |
|---|---|---|---|---|---|---|---|---|
| | 31 1,1,1-Trichloroethane | 97 | 4.232 | 4.232 | (0.978) | 257484 | 50.8482 | 50.84 |
| * | 1 Pentafluorobenzene | 168 | 4.325 | 4.325 | (1.000) | 258149 | 50.0000 | |
| $ | 30 Dibromofluoromethane | 113 | 4.254 | 4.247 | (0.983) | 196077 | 52.6964 | 52.69 |
| * | 36 1,4-Difluorobenzene | 114 | 5.085 | 5.085 | (1.000) | 470270 | 50.0000 | |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 4.605 | 4.605 | (1.065) | 246921 | 52.8039 | 52.80 |
| * | 47 Chlorobenzene-d5 | 117 | 7.742 | 7.742 | (1.000) | 497732 | 50.0000 | |
| $ | 48 Toluene-d8 | 98 | 6.474 | 6.474 | (0.836) | 744670 | 48.3929 | 48.39 |
| $ | 69 4-Bromofluorobenzene | 95 | 8.752 | 8.752 | (1.130) | 266414 | 48.5417 | 48.54 |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 9.726 | 9.726 | (1.000) | 249515 | 50.0000 | |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 8.903 | 8.903 | (0.915) | 243570 | 55.2238 | 55.22 |
| | 53 1,1,2-Trichloroethane | 83 | 6.918 | 6.918 | (0.894) | 155064 | 48.2684 | 48.26(M) |
| | 32 1,1-Dichloropropene | 75 | 4.426 | 4.426 | (0.870) | 246778 | 48.3202 | 48.32(H) |
| | 22 1,1-Dichloroethane | 63 | 3.072 | 3.072 | (0.710) | 356902 | 52.6400 | 52.64 |
| | 11 1,1-Dichloroethene | 96 | 2.055 | 2.055 | (0.475) | 157403 | 52.6474 | 52.64 |
| | 90 1,2,4-Trichlorobenzene | 180 | 11.395 | 11.395 | (1.172) | 117339 | 54.5244 | 54.52 |
| | 89 1,2-Dibromo-3-Chloropropane | 155 | 10.715 | 10.715 | (1.102) | 32690 | 59.5152 | 59.51 |
| | 57 1,2-Dibromoethane | 107 | 7.341 | 7.334 | (0.948) | 184328 | 49.1326 | 49.13 |
| | 88 1,2-Dichlorobenzene | 146 | 10.056 | 10.056 | (1.034) | 279260 | 44.7698 | 44.76 |
| | 33 1,2-Dichloroethane | 62 | 4.691 | 4.691 | (0.923) | 268863 | 51.2114 | 51.21 |
| | 42 1,2-Dichloropropane | 63 | 5.543 | 5.543 | (1.090) | 215963 | 49.6665 | 49.66 |
| | 83 1,3-Dichlorobenzene | 146 | 9.669 | 9.669 | (0.994) | 278896 | 43.4530 | 43.45 |
| | 84 1,4-Dichlorobenzene | 146 | 9.741 | 9.741 | (1.001) | 294448 | 43.5592 | 43.55 |

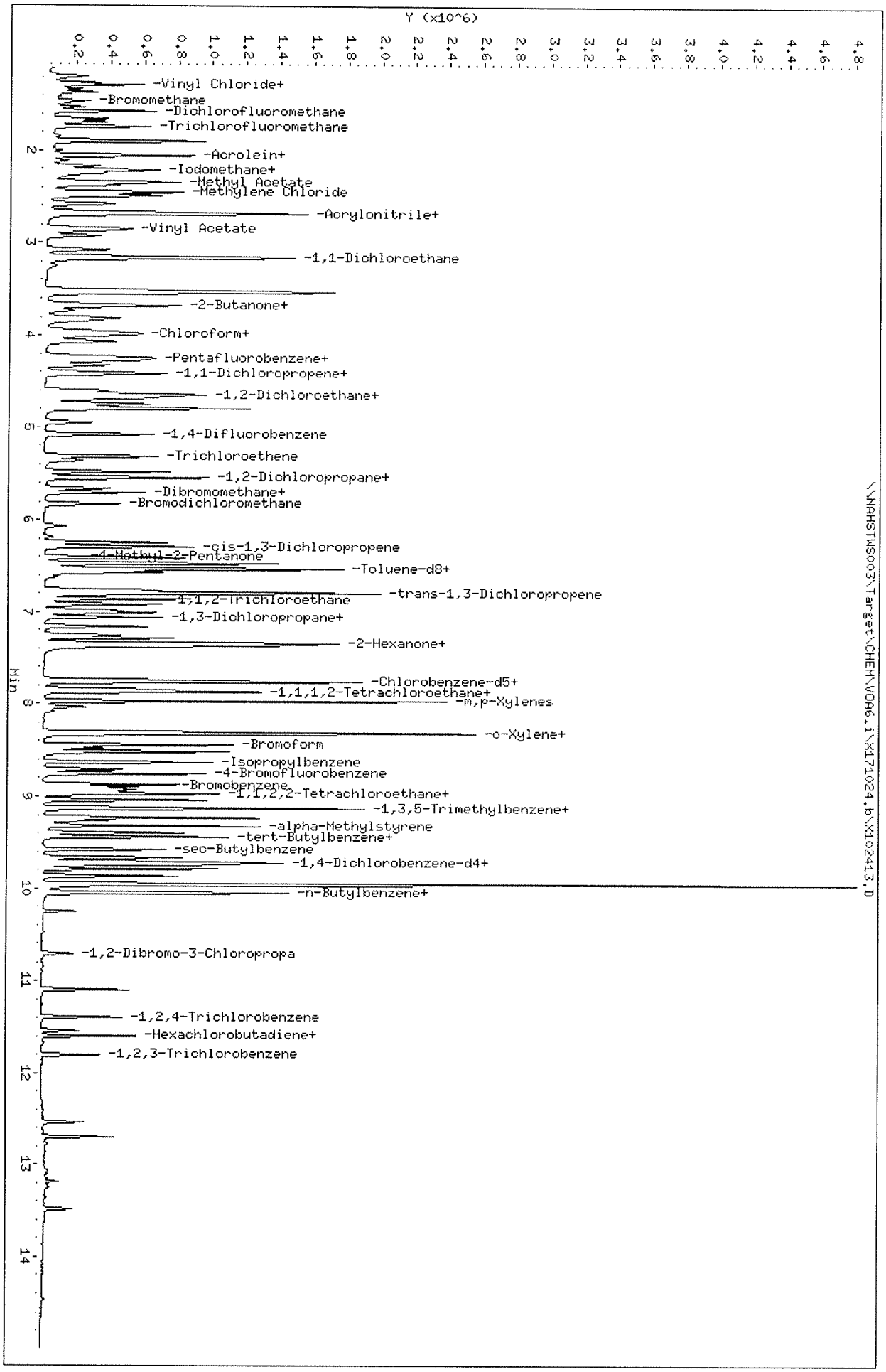
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171024.b\X102413.D Version 10
Report Date: 06-Feb-2018 16:38

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| | 24 2-Butanone | 43 | 3.731 | 3.731 | (0.863) | 202151 | 132.447 | 132.44 |
| | 52 2-Hexanone | 43 | 7.284 | 7.284 | (0.941) | 443692 | 108.787 | 108.78 |
| | 45 4-Methyl-2-Pentanone | 43 | 6.410 | 6.410 | (0.828) | 488697 | 112.699 | 112.69 |
| | 10 Acetone | 43 | 2.112 | 2.112 | (0.488) | 114627 | 126.525 | 126.52 |
| | 37 Benzene | 78 | 4.648 | 4.648 | (0.914) | 747747 | 48.5020 | 48.50 |
| | 39 Bromodichloromethane | 83 | 5.822 | 5.822 | (1.145) | 261418 | 49.0531 | 49.05 |
| | 66 Bromoform | 173 | 8.480 | 8.480 | (1.095) | 135367 | 48.8092 | 48.80 |
| | 6 Bromomethane | 94 | 1.460 | 1.460 | (0.338) | 106396 | 42.4936 | 42.49 |
| | 19 Carbon Disulfide | 76 | 2.212 | 2.212 | (0.512) | 979888 | 102.927 | 102.92 |
| | 34 Carbon Tetrachloride | 117 | 4.411 | 4.411 | (0.868) | 204635 | 47.5736 | 47.57(H) |
| | 59 Chlorobenzene | 112 | 7.764 | 7.764 | (1.003) | 464538 | 46.0279 | 46.02 |
| | 7 Chloroethane | 64 | 1.260 | 1.525 | (0.291) | 81786 | 30.5338 | 30.53 |
| | 28 Chloroform | 83 | 4.067 | 4.067 | (0.940) | 329643 | 52.3137 | 52.31 |
| | 3 Chloromethane | 50 | 1.195 | 1.188 | (0.276) | 256559 | 48.9897 | 48.98 |
| | 27 cis-1,2-Dichloroethene | 96 | 3.681 | 3.681 | (0.851) | 244831 | 63.2368 | 63.23 |
| | 46 cis-1,3-Dichloropropene | 75 | 6.245 | 6.245 | (1.228) | 333815 | 49.0418 | 49.04 |
| | 55 Dibromochloromethane | 129 | 7.255 | 7.255 | (0.937) | 198263 | 47.1569 | 47.15 |
| | 2 Dichlorodifluoromethane | 85 | 1.081 | 1.081 | (0.250) | 157189 | 47.6429 | 47.64 |
| | 61 Ethylbenzene | 106 | 7.871 | 7.871 | (1.017) | 226437 | 44.5945 | 44.59 |
| | 67 Isopropylbenzene | 105 | 8.623 | 8.623 | (1.114) | 545622 | 44.6152 | 44.61 |
| | 17 Methylene Chloride | 84 | 2.449 | 2.449 | (0.566) | 204919 | 51.5790 | 51.57 |
| | 56 Tetrachloroethene | 164 | 7.012 | 7.012 | (0.906) | 116737 | 43.6975 | 43.69 |
| | 50 Toluene | 91 | 6.532 | 6.532 | (0.844) | 738447 | 46.1432 | 46.14 |
| | 20 trans-1,2-Dichloroethene | 96 | 2.678 | 2.678 | (0.619) | 184569 | 52.9219 | 52.92 |
| | 51 trans-1,3-Dichloropropene | 75 | 6.761 | 6.761 | (1.330) | 291233 | 49.9947 | 49.99 |
| | 38 Trichloroethene | 130 | 5.321 | 5.321 | (1.046) | 201683 | 53.2921 | 53.29 |
| | 8 Trichlorofluoromethane | 101 | 1.689 | 1.689 | (0.391) | 210029 | 48.5496 | 48.54 |
| | 5 Vinyl Chloride | 62 | 1.260 | 1.260 | (0.291) | 233811 | 52.8913 | 52.89 |
| | 62 m,p-Xylenes | 106 | 7.971 | 7.971 | (1.030) | 544261 | 89.6620 | 89.66 |
| | 63 o-Xylene | 106 | 8.308 | 8.308 | (1.073) | 277042 | 45.0635 | 45.06 |
| M | 95 Xylenes (total) | 106 | | | | 821303 | 134.726 | 134.72 |
| | 71 1,2,3-Trichloropropane | 75 | 8.931 | 8.931 | (0.918) | 235917 | 54.0440 | 54.04(M) |
| | 93 1,2,3-Trichlorobenzene | 180 | 11.804 | 11.804 | (1.214) | 95927 | 61.8729 | 61.87 |
| | 79 1,2,4-Trimethylbenzene | 105 | 9.440 | 9.440 | (0.971) | 483609 | 43.8790 | 43.87 |
| | 75 1,3,5-Trimethylbenzene | 105 | 9.125 | 9.125 | (0.938) | 438727 | 42.5587 | 42.55 |
| | 26 2,2-Dichloropropane | 77 | 3.666 | 3.666 | (0.848) | 271390 | 51.3829 | 51.38 |
| | 54 1,3-Dichloropropane | 76 | 7.062 | 7.062 | (0.912) | 330773 | 48.5318 | 48.53 |
| | 76 2-Chlorotoluene | 91 | 9.039 | 9.039 | (0.929) | 452753 | 44.2869 | 44.28 |
| | 77 4-Chlorotoluene | 91 | 9.132 | 9.132 | (0.939) | 535230 | 44.6887 | 44.68 |
| | 82 p-Isopropyltoluene | 119 | 9.712 | 9.712 | (0.999) | 369517 | 41.3679 | 41.36 |
| | 29 Bromochloromethane | 128 | 3.953 | 3.960 | (0.914) | 86184 | 49.9761 | 49.97 |
| | 74 Bromobenzene | 156 | 8.874 | 8.874 | (0.912) | 189425 | 44.6050 | 44.60 |
| | 44 Dibromomethane | 93 | 5.658 | 5.658 | (1.113) | 129953 | 52.1576 | 52.15 |
| | 91 Hexachlorobutadiene | 225 | 11.539 | 11.539 | (1.186) | 34984 | 39.7908 | 39.79 |
| | 73 n-Propylbenzene | 91 | 8.974 | 8.974 | (0.923) | 662354 | 43.1065 | 43.10 |
| | 87 n-Butylbenzene | 91 | 10.056 | 10.056 | (1.034) | 312193 | 42.6325 | 42.63 |
| | 81 sec-Butylbenzene | 105 | 9.583 | 9.583 | (0.985) | 421121 | 40.8411 | 40.84 |
| | 92 Naphthalene | 128 | 11.603 | 11.603 | (1.193) | 372449 | 63.0391 | 63.03 |
| | 78 tert-Butylbenzene | 119 | 9.397 | 9.397 | (0.966) | 319107 | 41.4065 | 41.40 |
| | 60 1,1,1,2-Tetrachloroethane | 131 | 7.842 | 7.842 | (1.013) | 166610 | 45.4106 | 45.41 |
| | 64 Styrene | 104 | 8.322 | 8.322 | (1.075) | 507623 | 45.9980 | 45.99 |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171024.b\X102413.D Version 10
Report Date: 06-Feb-2018 16:38

QC Flag Legend

M - Compound response manually integrated.
H - Operator selected an alternate compound hit.




Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171024.b\X102413.D
Date : 24-OCT-2017 16:34
Client ID: HS171009O4-07MSD
Sample Info: HS171009O4-07MSD;HS171009O4-07MSD;3;;MSD
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171024.b\X102429.D Version 7
Report Date: 06-Feb-2018 16:38

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171024.b\X102429.D
Lab Smp Id: VSTD050-END Client Smp ID: VSTD050-END
Inj Date : 24-OCT-2017 23:11
Operator : PC Inst ID: voa6.i
Smp Info : VSTD050-END;VSTD050-END;2;;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X171024.b\8260W.m
Meth Date : 06-Feb-2018 16:38 voa6.i Quant Type: ISTD
Cal Date : 10-OCT-2017 13:33 Cal File: X101008.D
Als bottle: 29 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.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) |
|---|---|---|---|---|---|---|---|---|
| | 31 1,1,1-Trichloroethane | 97 | 4.232 | 4.232 | (0.978) | 263733 | 50.0000 | 50.62 |
| * | 1 Pentafluorobenzene | 168 | 4.325 | 4.325 | (1.000) | 265590 | 50.0000 | |
| $ | 30 Dibromofluoromethane | 113 | 4.247 | 4.247 | (0.982) | 200018 | 50.0000 | 52.26 |
| * | 36 1,4-Difluorobenzene | 114 | 5.085 | 5.085 | (1.000) | 474172 | 50.0000 | |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 4.605 | 4.605 | (1.065) | 247645 | 50.0000 | 51.49 |
| * | 47 Chlorobenzene-d5 | 117 | 7.742 | 7.742 | (1.000) | 504914 | 50.0000 | |
| $ | 48 Toluene-d8 | 98 | 6.474 | 6.474 | (0.836) | 762483 | 50.0000 | 48.82 |
| $ | 69 4-Bromofluorobenzene | 95 | 8.752 | 8.752 | (1.130) | 271677 | 50.0000 | 48.79 |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 9.726 | 9.726 | (1.000) | 251137 | 50.0000 | |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 8.903 | 8.903 | (0.915) | 210286 | 50.0000 | 47.22 |
| | 53 1,1,2-Trichloroethane | 83 | 6.918 | 6.918 | (0.894) | 149772 | 50.0000 | 45.95 |
| | 32 1,1-Dichloropropene | 75 | 4.426 | 4.426 | (0.870) | 241871 | 50.0000 | 46.96 |
| | 22 1,1-Dichloroethane | 63 | 3.072 | 3.072 | (0.710) | 365232 | 50.0000 | 52.35 |
| | 11 1,1-Dichloroethene | 96 | 2.055 | 2.055 | (0.475) | 157407 | 50.0000 | 51.17 |
| | 90 1,2,4-Trichlorobenzene | 180 | 11.395 | 11.395 | (1.172) | 83432 | 50.0000 | 38.51 |
| | 89 1,2-Dibromo-3-Chloropropane | 155 | 10.715 | 10.715 | (1.102) | 22535 | 50.0000 | 40.78 |
| | 57 1,2-Dibromoethane | 107 | 7.334 | 7.334 | (0.947) | 175919 | 50.0000 | 46.22 |
| | 88 1,2-Dichlorobenzene | 146 | 10.056 | 10.056 | (1.034) | 263307 | 50.0000 | 41.93 |
| | 33 1,2-Dichloroethane | 62 | 4.691 | 4.691 | (0.923) | 271213 | 50.0000 | 51.23 |
| | 42 1,2-Dichloropropane | 63 | 5.543 | 5.543 | (1.090) | 221143 | 50.0000 | 50.43 |
| | 83 1,3-Dichlorobenzene | 146 | 9.669 | 9.669 | (0.994) | 266689 | 50.0000 | 41.28 |
| | 84 1,4-Dichlorobenzene | 146 | 9.741 | 9.741 | (1.001) | 279697 | 50.0000 | 41.10 |

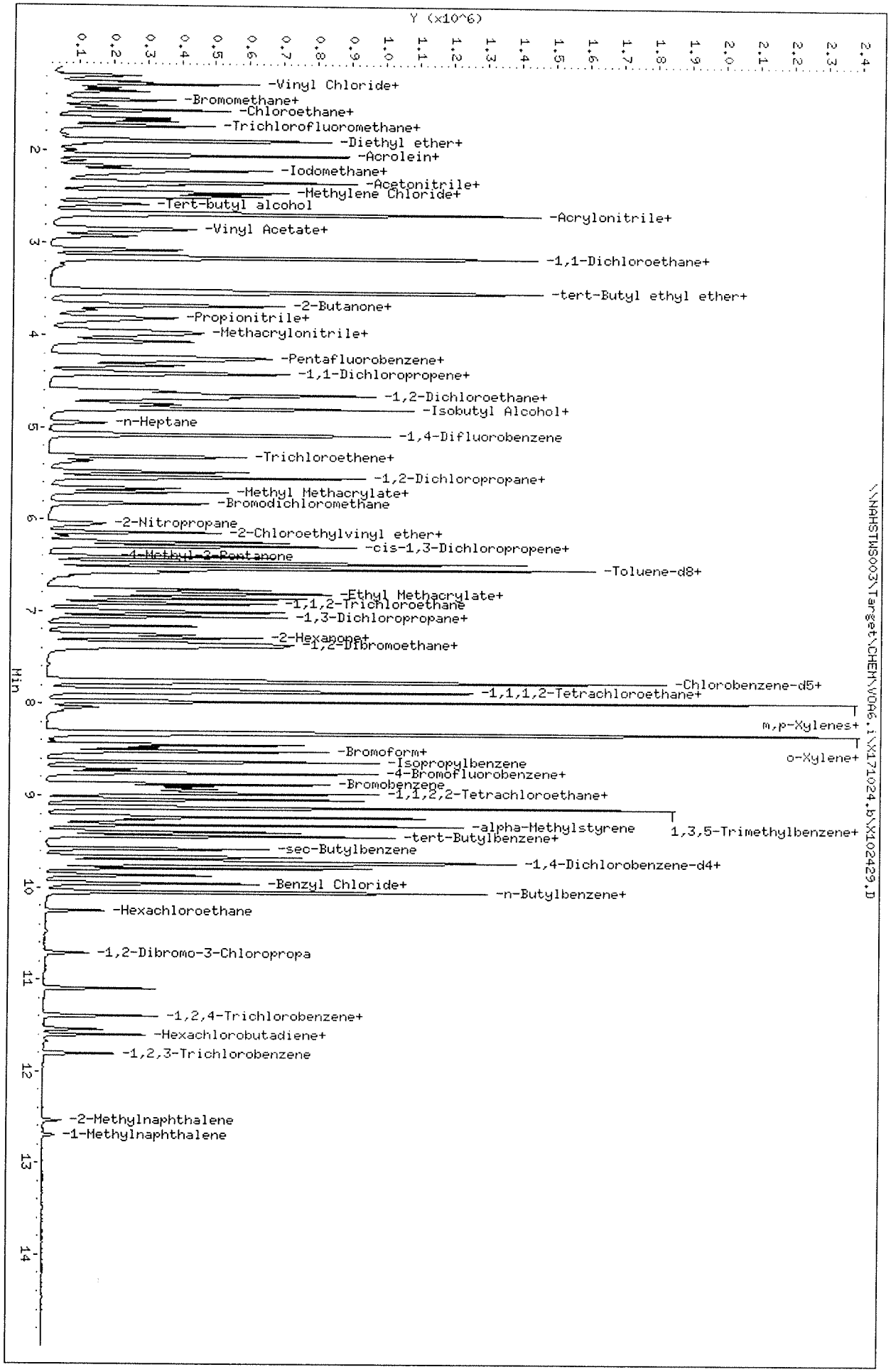
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171024.b\X102429.D  Version 7
Report Date: 06-Feb-2018 16:38

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| | 24 2-Butanone | 43 | 3.731 | 3.731 | (0.863) | 166544 | 100.000 | 106.06 |
| | 52 2-Hexanone | 43 | 7.284 | 7.284 | (0.941) | 370352 | 100.000 | 89.51 |
| | 45 4-Methyl-2-Pentanone | 43 | 6.410 | 6.410 | (0.828) | 393839 | 100.000 | 89.53 |
| | 10 Acetone | 43 | 2.112 | 2.112 | (0.488) | 100422 | 100.000 | 107.27 |
| | 37 Benzene | 78 | 4.648 | 4.648 | (0.914) | 778665 | 50.0000 | 50.09 |
| | 39 Bromodichloromethane | 83 | 5.822 | 5.822 | (1.145) | 266247 | 50.0000 | 49.54 |
| | 66 Bromoform | 173 | 8.480 | 8.480 | (1.095) | 123844 | 50.0000 | 44.01 |
| | 6 Bromomethane | 94 | 1.460 | 1.460 | (0.338) | 139066 | 50.0000 | 53.98 |
| | 19 Carbon Disulfide | 76 | 2.212 | 2.212 | (0.512) | 964606 | 100.000 | 98.48 |
| | 34 Carbon Tetrachloride | 117 | 4.411 | 4.411 | (0.868) | 201403 | 50.0000 | 46.43 |
| | 59 Chlorobenzene | 112 | 7.764 | 7.764 | (1.003) | 466020 | 50.0000 | 45.51 |
| | 7 Chloroethane | 64 | 1.525 | 1.525 | (0.353) | 130384 | 50.0000 | 47.31 |
| | 28 Chloroform | 83 | 4.067 | 4.067 | (0.940) | 340939 | 50.0000 | 52.59 |
| | 3 Chloromethane | 50 | 1.188 | 1.188 | (0.275) | 272158 | 50.0000 | 50.50 |
| | 27 cis-1,2-Dichloroethene | 96 | 3.681 | 3.681 | (0.851) | 209341 | 50.0000 | 52.55 |
| | 46 cis-1,3-Dichloropropene | 75 | 6.245 | 6.245 | (1.228) | 333832 | 50.0000 | 48.64 |
| | 55 Dibromochloromethane | 129 | 7.255 | 7.255 | (0.937) | 199088 | 50.0000 | 46.67 |
| | 2 Dichlorodifluoromethane | 85 | 1.080 | 1.080 | (0.250) | 151595 | 50.0000 | 44.66 |
| | 61 Ethylbenzene | 106 | 7.871 | 7.871 | (1.017) | 224623 | 50.0000 | 43.60 |
| | 67 Isopropylbenzene | 105 | 8.623 | 8.623 | (1.114) | 529623 | 50.0000 | 42.69 |
| | 17 Methylene Chloride | 84 | 2.449 | 2.449 | (0.566) | 210715 | 50.0000 | 51.55 |
| | 56 Tetrachloroethene | 164 | 7.004 | 7.004 | (0.905) | 111979 | 50.0000 | 41.32 |
| | 50 Toluene | 91 | 6.532 | 6.532 | (0.844) | 746709 | 50.0000 | 45.99 |
| | 20 trans-1,2-Dichloroethene | 96 | 2.678 | 2.678 | (0.619) | 183885 | 50.0000 | 51.24 |
| | 51 trans-1,3-Dichloropropene | 75 | 6.761 | 6.761 | (1.330) | 280260 | 50.0000 | 47.71 |
| | 38 Trichloroethene | 130 | 5.321 | 5.321 | (1.046) | 176266 | 50.0000 | 46.19 |
| | 8 Trichlorofluoromethane | 101 | 1.689 | 1.689 | (0.391) | 206311 | 50.0000 | 46.35 |
| | 5 Vinyl Chloride | 62 | 1.260 | 1.260 | (0.291) | 225008 | 50.0000 | 49.47 |
| | 62 m,p-Xylenes | 106 | 7.971 | 7.971 | (1.030) | 542955 | 100.000 | 88.17 |
| | 63 o-Xylene | 106 | 8.308 | 8.308 | (1.073) | 276696 | 50.0000 | 44.36 |
| M | 95 Xylenes (total) | 106 | | | | 819651 | 150.000 | (a) |
| | 71 1,2,3-Trichloropropane | 75 | 8.924 | 8.924 | (0.918) | 203441 | 50.0000 | 46.30(M) |
| | 93 1,2,3-Trichlorobenzene | 180 | 11.804 | 11.804 | (1.214) | 56078 | 50.0000 | 35.93 |
| | 79 1,2,4-Trimethylbenzene | 105 | 9.440 | 9.440 | (0.971) | 462167 | 50.0000 | 41.66 |
| | 75 1,3,5-Trimethylbenzene | 105 | 9.132 | 9.132 | (0.939) | 424024 | 50.0000 | 40.86 |
| | 26 2,2-Dichloropropane | 77 | 3.666 | 3.666 | (0.848) | 238562 | 50.0000 | 43.90 |
| | 54 1,3-Dichloropropane | 76 | 7.062 | 7.062 | (0.912) | 321737 | 50.0000 | 46.53 |
| | 76 2-Chlorotoluene | 91 | 9.039 | 9.039 | (0.929) | 440421 | 50.0000 | 42.80 |
| | 77 4-Chlorotoluene | 91 | 9.132 | 9.132 | (0.939) | 516259 | 50.0000 | 42.82 |
| | 82 p-Isopropyltoluene | 119 | 9.712 | 9.712 | (0.999) | 338861 | 50.0000 | 37.69 |
| | 29 Bromochloromethane | 128 | 3.953 | 3.953 | (0.914) | 94531 | 50.0000 | 53.28 |
| | 74 Bromobenzene | 156 | 8.867 | 8.867 | (0.912) | 188887 | 50.0000 | 44.19 |
| | 44 Dibromomethane | 93 | 5.658 | 5.658 | (1.113) | 127539 | 50.0000 | 50.76 |
| | 91 Hexachlorobutadiene | 225 | 11.539 | 11.539 | (1.186) | 26663 | 50.0000 | 30.27 |
| | 73 n-Propylbenzene | 91 | 8.974 | 8.974 | (0.923) | 628789 | 50.0000 | 40.65 |
| | 87 n-Butylbenzene | 91 | 10.056 | 10.056 | (1.034) | 279058 | 50.0000 | 37.86 |
| | 81 sec-Butylbenzene | 105 | 9.583 | 9.583 | (0.985) | 384724 | 50.0000 | 37.07 |
| | 92 Naphthalene | 128 | 11.603 | 11.603 | (1.193) | 197794 | 50.0000 | 34.66 |
| | 78 tert-Butylbenzene | 119 | 9.397 | 9.397 | (0.966) | 296086 | 50.0000 | 38.17 |
| | 60 1,1,1,2-Tetrachloroethane | 131 | 7.842 | 7.842 | (1.013) | 166647 | 50.0000 | 44.77 |
| | 64 Styrene | 104 | 8.322 | 8.322 | (1.075) | 515038 | 50.0000 | 46.00 |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171024.b\X102429.D Version 7
Report Date: 06-Feb-2018 16:38

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.




Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171024.b\X102429.D
Date : 24-OCT-2017 23:11
Client ID: VSTD050-END
Sample Info: VSTD050-END;VSTD050-END;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

# Wet Chemistry Raw Data

Bhate Environmental Associates, Inc.
Project: GROUNDWATER TREATMENT PLANT
WEEKLY SAMPLES
ALS WO# HS17100970

Sequence: 103017
Operator: alshs.nouser
HS17100970


Printed: 11/13/2017 2:51:04 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\09-2017
Timebase: ICS2100
#Samples: 34

Created: 10/30/2017 12:30:05 PM by alshs.nouser
Last Update: 10/30/2017 4:58:44 PM by alshs.nouser

| No. | Name | Comment | Type | Pos. | Dil. Factor | Inj. Vol. | *Initial_Vol_Wt | *Final_Volume | Method |
|---|---|---|---|---|---|---|---|---|---|
| 1 | STD1 | | Standard | 1 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 2 | STD2 | | Standard | 2 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 3 | STD3 | | Standard | 3 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 4 | STD4 | | Standard | 4 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 5 | STD5 | | Standard | 5 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 6 | STD6 | | Standard | 6 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 7 | ICV | | Unknown | 7 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 8 | ICB | | Unknown | 8 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 9 | CCV | | Unknown | 1 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 10 | CCB | | Unknown | 2 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 11 | WBLKW1-103017 | | Unknown | 5 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 12 | WLCSW1-103017 | | Unknown | 6 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 13 | WLCSDW1-103017 | | Unknown | 7 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 14 | HS17100819-01DF2000 | | Unknown | 8 | 2000.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 15 | HS17100819-02DF2000 | | Unknown | 9 | 2000.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 16 | HS17100819-03DF2000 | | Unknown | 10 | 2000.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 17 | HS17100819-04DF2000 | | Unknown | 11 | 2000.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 18 | DIH2O | | Unknown | 12 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 19 | CCV1 | | Unknown | 3 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 20 | CCB | | Unknown | 4 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 21 | HS17100970-01 | | Unknown | 13 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 22 | HS17100970-01MS | | Unknown | 14 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 23 | HS17100970-01MSD | | Unknown | 15 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 24 | HS17100970-01DF20 | | Unknown | 16 | 20.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 25 | HS17101563-01 | | Unknown | 17 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 26 | DIH2O | | Unknown | 18 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 27 | HS17101206-01DF10 | | Unknown | 19 | 10.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 28 | HS17101206-02 | | Unknown | 20 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 29 | HS17101206-03 | | Unknown | 21 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 30 | DIH2O | | Unknown | 22 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 31 | CCV | | Unknown | 1 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 32 | CCB | | Unknown | 2 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 33 | CCB | | Unknown | 2 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 34 | CCB | | Unknown | 2 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |

Chromeleon © Dionex Corporation, Version 6.80 SR8 Build 2623 (156243)

Sequence: 103017
Operator: alshs.nouser



Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\09-2017
Timebase: ICS2100
#Samples: 34

Created: 10/30/2017 12:30:05 PM by alshs.nouser
Last Update: 10/30/2017 4:58:44 PM by alshs.nouser

| No. | Name | Status | Inj. Date/Time | Program |
|---|---|---|---|---|
| 1 | STD1 | Finished | 9/11/2017 1:39:59 PM | Anions Gradient Program |
| 2 | STD2 | Finished | 9/11/2017 1:54:32 PM | Anions Gradient Program |
| 3 | STD3 | Finished | 9/11/2017 2:09:04 PM | Anions Gradient Program |
| 4 | STD4 | Finished | 9/11/2017 2:23:37 PM | Anions Gradient Program |
| 5 | STD5 | Finished | 9/11/2017 2:38:10 PM | Anions Gradient Program |
| 6 | STD6 | Finished | 9/11/2017 2:52:43 PM | Anions Gradient Program |
| 7 | ICV | Finished | 9/11/2017 3:07:16 PM | Anions Gradient Program |
| 8 | ICB | Finished | 9/11/2017 3:21:49 PM | Anions Gradient Program |
| 9 | CCV | Finished | 10/30/2017 12:35:30 PM | Anions Gradient Program |
| 10 | CCB | Finished | 10/30/2017 12:50:03 PM | Anions Gradient Program |
| 11 | WBLKW1-103017 | Finished | 10/30/2017 1:04:36 PM | Anions Gradient Program |
| 12 | WLCSW1-103017 | Finished | 10/30/2017 1:19:08 PM | Anions Gradient Program |
| 13 | WLCSDW1-103017 | Finished | 10/30/2017 1:33:40 PM | Anions Gradient Program |
| 14 | HS17100819-01DF2000 | Finished | 10/30/2017 2:07:37 PM | Anions Gradient Program |
| 15 | HS17100819-02DF2000 | Finished | 10/30/2017 2:22:10 PM | Anions Gradient Program |
| 16 | HS17100819-03DF2000 | Finished | 10/30/2017 2:36:43 PM | Anions Gradient Program |
| 17 | HS17100819-04DF2000 | Finished | 10/30/2017 2:51:16 PM | Anions Gradient Program |
| 18 | DIH2O | Finished | 10/30/2017 3:05:49 PM | Anions Gradient Program |
| 19 | CCV1 | Finished | 10/30/2017 3:26:01 PM | Anions Gradient Program |
| 20 | CCB | Finished | 10/30/2017 3:40:33 PM | Anions Gradient Program |
| 21 | HS17100970-01 | Finished | 10/30/2017 3:55:06 PM | Anions Gradient Program |
| 22 | HS17100970-01MS | Finished | 10/30/2017 4:09:39 PM | Anions Gradient Program |
| 23 | HS17100970-01MSD | Finished | 10/30/2017 4:24:12 PM | Anions Gradient Program |
| 24 | HS17100970-01DF20 | Finished | 10/30/2017 4:38:45 PM | Anions Gradient Program |
| 25 | HS17101563-01 | Finished | 10/30/2017 4:53:18 PM | Anions Gradient Program |
| 26 | DIH2O | Finished | 10/30/2017 5:07:50 PM | Anions Gradient Program |
| 27 | HS17101206-01DF10 | Finished | 10/30/2017 5:22:23 PM | Anions Gradient Program |
| 28 | HS17101206-02 | Finished | 10/30/2017 5:36:56 PM | Anions Gradient Program |
| 29 | HS17101206-03 | Finished | 10/30/2017 5:51:29 PM | Anions Gradient Program |
| 30 | DIH2O | Finished | 10/30/2017 6:06:01 PM | Anions Gradient Program |
| 31 | CCV | Finished | 10/30/2017 6:20:34 PM | Anions Gradient Program |
| 32 | CCB | Finished | 10/30/2017 6:35:07 PM | Anions Gradient Program |
| 33 | CCB | Finished | 10/30/2017 6:49:39 PM | Anions Gradient Program |
| 34 | CCB | Finished | 10/30/2017 7:04:12 PM | Shutdown |

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\09-2017
Timebase: ICS2100 Created: 10/30/2017 12:30:05 PM by alshs.nouser
#Samples: 34 Last Update: 10/30/2017 4:58:44 PM by alshs.nouser

| No. | Name | GUID |
|---|---|---|
| 1 | STD1 | ff1d63be-971f-11e7-b6d6-dc3e14f594d5 |
| 2 | STD2 | 846d1ada-9722-11e7-b6d6-dc3e14f594d5 |
| 3 | STD3 | 8c2e4184-9724-11e7-b6d6-dc3e14f594d5 |
| 4 | STD4 | 9479af70-9726-11e7-b6d6-dc3e14f594d5 |
| 5 | STD5 | 9cd5cdaf-9728-11e7-b6d6-dc3e14f594d5 |
| 6 | STD6 | a51c76f1-972a-11e7-b6d6-dc3e14f594d5 |
| 7 | ICV | ad54d235-972c-11e7-b6d6-dc3e14f594d5 |
| 8 | ICB | b59dddcc-972e-11e7-b6d6-dc3e14f594d5 |
| 9 | CCV | 1b4696a4-bd98-11e7-b6d8-a1ac6b506e3a |
| 10 | CCB | a0650634-bd9a-11e7-b6d8-a1ac6b506e3a |
| 11 | WBLKW1-103017 | a85acc1c-bd9c-11e7-b6d8-a1ac6b506e3a |
| 12 | WLCSW1-103017 | b07b7c34-bd9e-11e7-b6d8-a1ac6b506e3a |
| 13 | WLCSDW1-103017 | b87606cc-bda0-11e7-b6d8-a1ac6b506e3a |
| 14 | HS17100819-01DF2000 | f9d30d94-bda4-11e7-b6d8-a1ac6b506e3a |
| 15 | HS17100819-02DF2000 | 7eecb874-bda7-11e7-b6d8-a1ac6b506e3a |
| 16 | HS17100819-03DF2000 | 873d176c-bda9-11e7-b6d8-a1ac6b506e3a |
| 17 | HS17100819-04DF2000 | 8f8b140c-bdab-11e7-b6d8-a1ac6b506e3a |
| 18 | DIH2O | 97bc748c-bdad-11e7-b6d8-a1ac6b506e3a |
| 19 | CCV1 | ecd89214-bdaf-11e7-b6d8-a1ac6b506e3a |
| 20 | CCB | 71c4f06c-bdb2-11e7-b6d8-a1ac6b506e3a |
| 21 | HS17100970-01 | 7a1ed8c4-bdb4-11e7-b6d8-a1ac6b506e3a |
| 22 | HS17100970-01MS | 8265ae5c-bdb6-11e7-b6d8-a1ac6b506e3a |
| 23 | HS17100970-01MSD | 8abd345c-bdb8-11e7-b6d8-a1ac6b506e3a |
| 24 | HS17100970-01DF20 | 9308cea4-bdba-11e7-b6d8-a1ac6b506e3a |
| 25 | HS17101563-01 | 9b56cb44-bdbc-11e7-b6d8-a1ac6b506e3a |
| 26 | DIH2O | a3919e02-bdbe-11e7-b6d8-a1ac6b506e3a |
| 27 | HS17101206-01DF10 | ab754b26-bdc0-11e7-b6d8-a1ac6b506e3a |
| 28 | HS17101206-02 | b3c09364-bdc2-11e7-b6d8-a1ac6b506e3a |
| 29 | HS17101206-03 | bc1cde14-bdc4-11e7-b6d8-a1ac6b506e3a |
| 30 | DIH2O | c47928c4-bdc6-11e7-b6d8-a1ac6b506e3a |
| 31 | CCV | ccc4c30c-bdc8-11e7-b6d8-a1ac6b506e3a |
| 32 | CCB | d4bceb4c-bdca-11e7-b6d8-a1ac6b506e3a |
| 33 | CCB | dcb5138c-bdcc-11e7-b6d8-a1ac6b506e3a |
| 34 | CCB | e500add4-bdce-11e7-b6d8-a1ac6b506e3a |

| STD | Vendor | ID | Lot | Exp | Analyte | Con (PPM) |
|---|---|---|---|---|---|---|
| Primary IC STD | Inorganic Ventures | 2970204315 | M2-MEB659406 | 07/18/18 | Br, Fl, NO3, NO3, o-PO4 | 100 |
| | | | | | CL, SO4 | 500 |
| Secondary IC STD | Inorganic Ventures | 2970202501 | K2-MEB640014 | ~~11/01/17~~ | Br, Fl, NO2, NO3, o-PO4 | 100 |
| | | | | | Cl, SO4 | 500 |
| Eluent | ThermoScientific | 74532 | 1.70393E+11 | 03/31/19 | | |

Analyst: JBA Prep Date: 09/11/2017 Inst: ICS-2100

ICAL

| Cal Levels (PPM) | STD ID | STD Exp Date | STOCK NAME | STOCK ID | STOCK EXP DATE | Vol Add (mL) | Final Vol (mL) | Analytes | Con (PPM) | Analytes | Con (PPM) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Inst STD IC | Inst STD IC 091117 | ~~9/12/2017~~ | Primary IC STD | 2970204315 | 7/18/2018 | 20 | 100 | Br, Fl, NO3, NO3, o-PO4 | 20 | CL, SO4 | 100 |

| Cal Level | Vol Added(mL) | Final Vol (mL) | STD ID | Exp Date | STOCK Name | Stock Exp Date | Stock ID | Br, Fl, NO3, NO3, o-PO4 conc, PPM | CL, SO4 Conc, PPM |
|---|---|---|---|---|---|---|---|---|---|
| Cal 0.1/0.5 PPM | 0.5 | 100 | ICAL 0.1- 091117 | ~~9/12/2017~~ | Inst STD IC | 07/18/18 | Inst STD IC 091117 | 0.1 | 0.50 |
| Cal 0.4/2.0 ppm | 2 | 100 | ICAL 0.4- 091117 | ~~9/12/2017~~ | Inst STD IC | 07/18/18 | Inst STD IC 091117 | 0.4 | 2.00 |
| Cal 2.0/10 PPM | 10 | 100 | ICAL 2.0- 091117 | ~~9/12/2017~~ | Inst STD IC | 07/18/18 | Inst STD IC 091117 | 2.0 | 10.0 |
| Cal 4.0/20 PPM | 20 | 100 | ICAL 4.0- 091117 | ~~9/12/2017~~ | Inst STD IC | 07/18/18 | Inst STD IC 091117 | 4.0 | 20.0 |
| Cal 10/50 PPM | 50 | 100 | ICAL 10.0- 091117 | ~~9/12/2017~~ | Inst STD IC | 07/18/18 | Inst STD IC 091117 | 10 | 50.0 |
| Cal 20/100 PPM | 20 | 100 | ICAL 20.0- 091117 | ~~9/12/2017~~ | Primary IC STD | 07/18/18 | 2970204315 | 20 | 100 |
| ICV | 0.4 | 10 | ICV 091117 | ~~9/12/2017~~ | Secondary IC STD | 07/18/18 | 2970202501 | 4.0 | 20.0 |
| Eluent | | | 74532 | | Eluent | 03/31/19 | 74532 | | |



Analyst: JBA Prep Date: 10/30/2017 Inst: ICS-2100

CCV

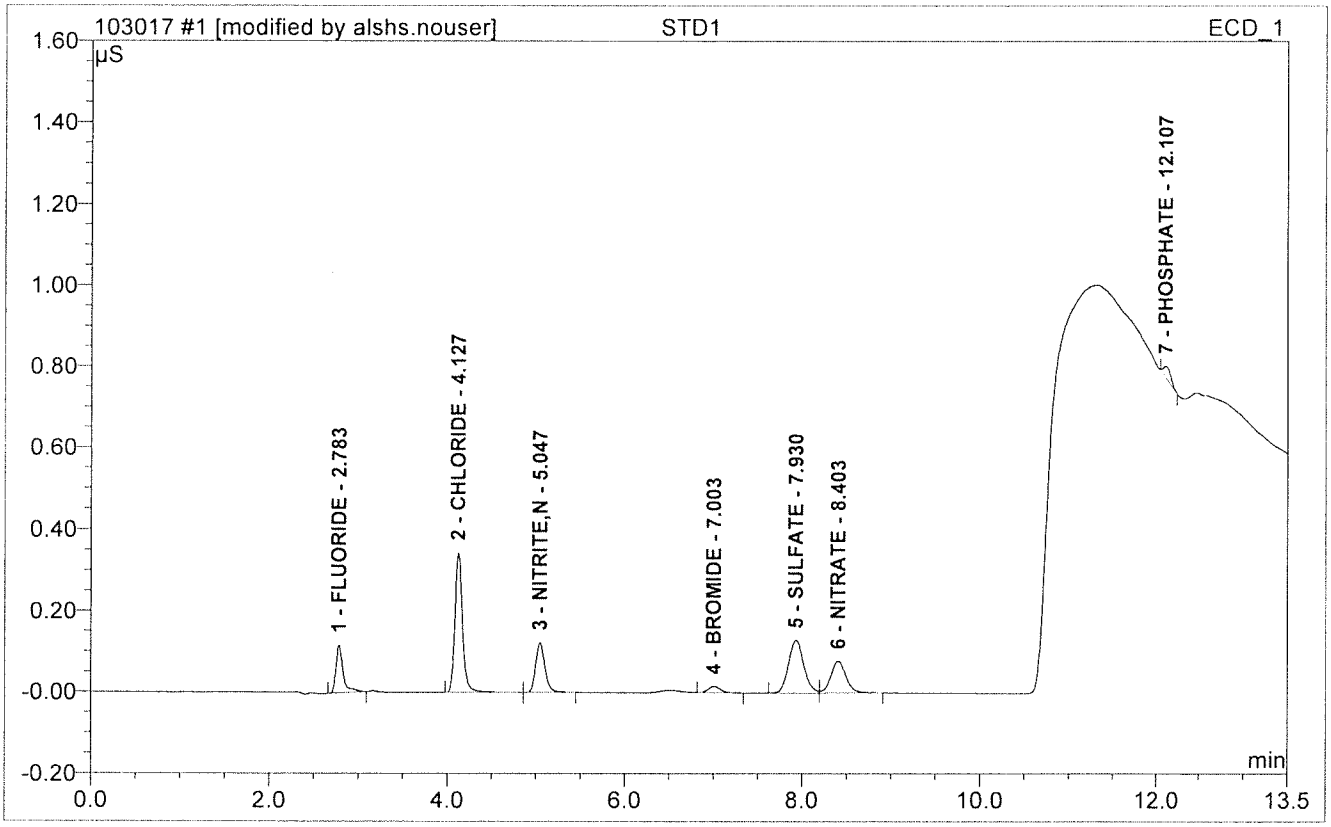
| Cal Level | Vol Added(mL) | Final Vol (mL) | STD ID | Exp Date | STOCK Name | Stock ID | Br, Fl, NO3, NO3, o-PO4 conc, PPM | CL, SO4 Conc, PPM |
|---|---|---|---|---|---|---|---|---|
| CCV/LCS/LCSD | 0.4 | 10 | CCV 103017 | ~~10/31/2017~~ | Primary IC STD | 2970204315 | 4.0 | 20.0 |
| MS/MSD | 0.2 | 10 | LCS 103017 | ~~10/31/2017~~ | Primary IC STD | 2970204315 | 2.0 | 10.0 |



00876226

# 1 STD1

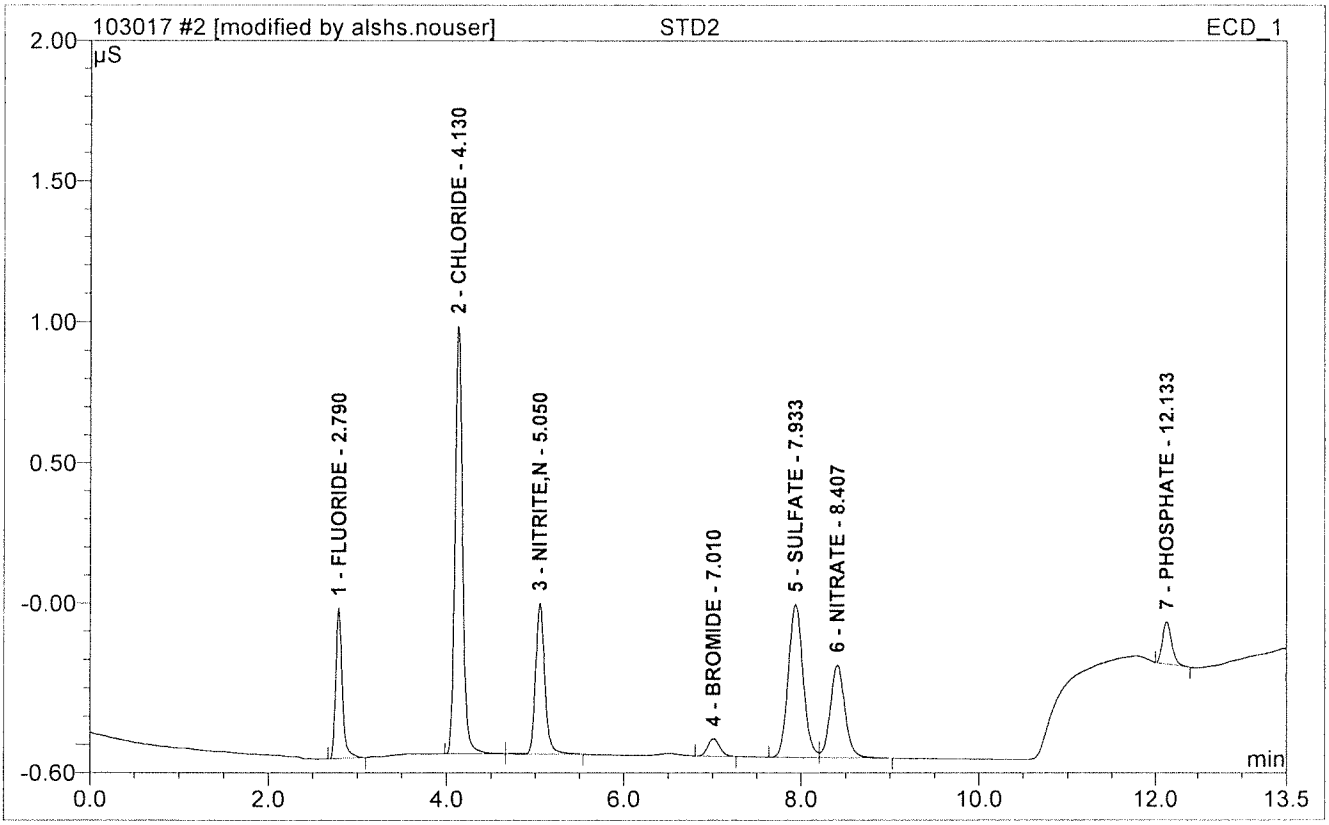
| | | | |
|---|---|---|---|
| *Sample Name:* | **STD1** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **1** | *Channel:* | **ECD_1** |
| *Sample Type:* | **standard** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **091117** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **9/11/2017 13:39** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.78 | FLUORIDE | 0.118 | 0.011 | 10.04 | 0.105 | 1. |
| 2 | 4.13 | CHLORIDE | 0.344 | 0.035 | 32.38 | 0.538 | 1. |
| 3 | 5.05 | NITRITE,N | 0.123 | 0.015 | 13.85 | 0.095 | 1. |
| 4 | 7.00 | BROMIDE | 0.016 | 0.002 | 2.28 | 0.131 | 1. |
| 5 | 7.93 | SULFATE | 0.131 | 0.026 | 24.31 | 0.559 | 1. |
| 6 | 8.40 | NITRATE | 0.079 | 0.015 | 14.45 | 0.119 | 1. |
| 7 | 12.11 | PHOSPHATE | 0.028 | 0.003 | 2.70 | 0.119 | 1. |
| **Total:** | | | 0.838 | 0.107 | 100.00 | 1.668 | |

# 2 STD2

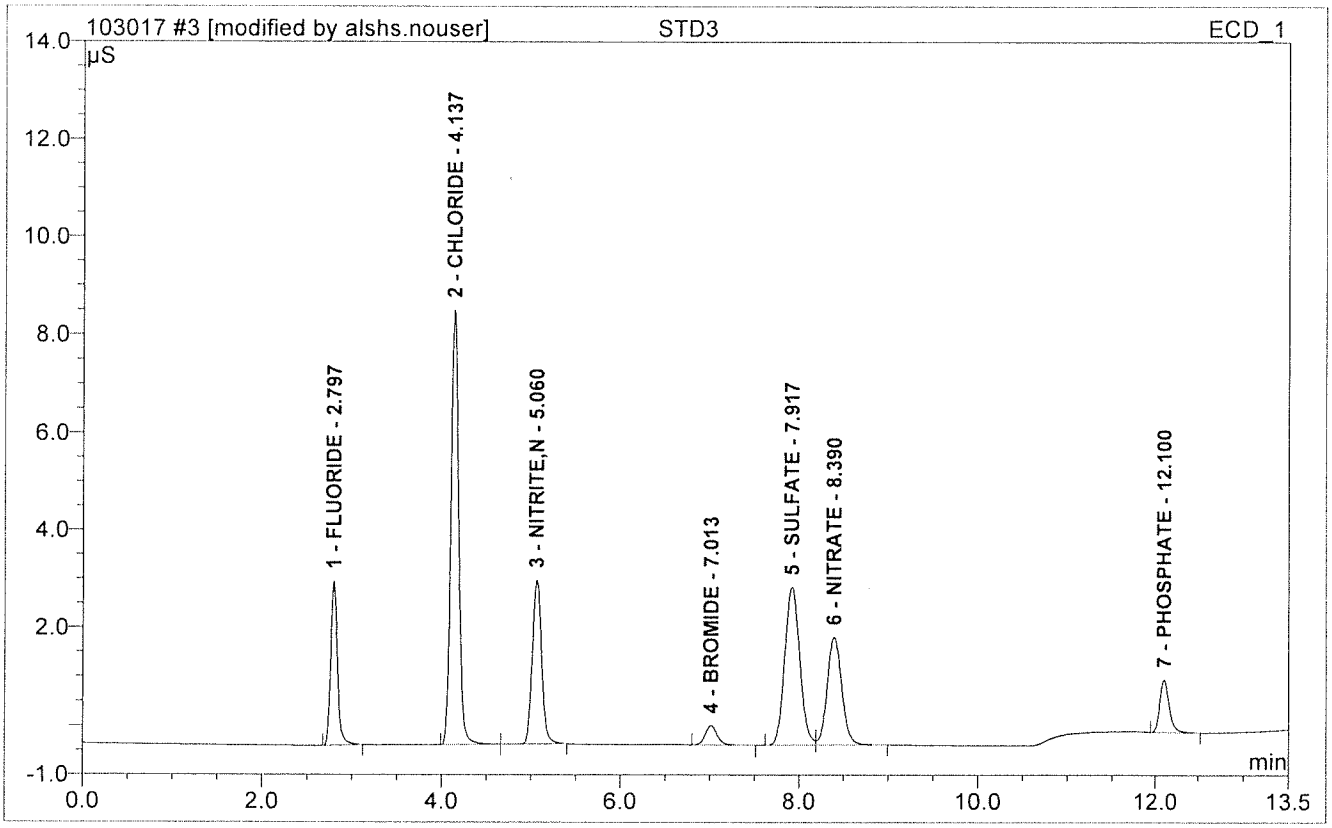
| | | | |
|---|---|---|---|
| *Sample Name:* | **STD2** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **2** | *Channel:* | **ECD_1** |
| *Sample Type:* | **standard** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **091117** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **9/11/2017 13:54** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.79 | FLUORIDE | 0.533 | 0.045 | 9.82 | 0.348 | 1. |
| 2 | 4.13 | CHLORIDE | 1.518 | 0.150 | 32.84 | 1.806 | 1. |
| 3 | 5.05 | NITRITE,N | 0.535 | 0.065 | 14.17 | 0.361 | 1. |
| 4 | 7.01 | BROMIDE | 0.063 | 0.010 | 2.13 | 0.329 | 1. |
| 5 | 7.93 | SULFATE | 0.542 | 0.106 | 23.09 | 1.776 | 1. |
| 6 | 8.41 | NITRATE | 0.329 | 0.063 | 13.84 | 0.332 | 1. |
| 7 | 12.13 | PHOSPHATE | 0.150 | 0.019 | 4.11 | 0.313 | 1. |
| **Total:** | | | 3.669 | 0.457 | 100.00 | 5.266 | |

# 3 STD3

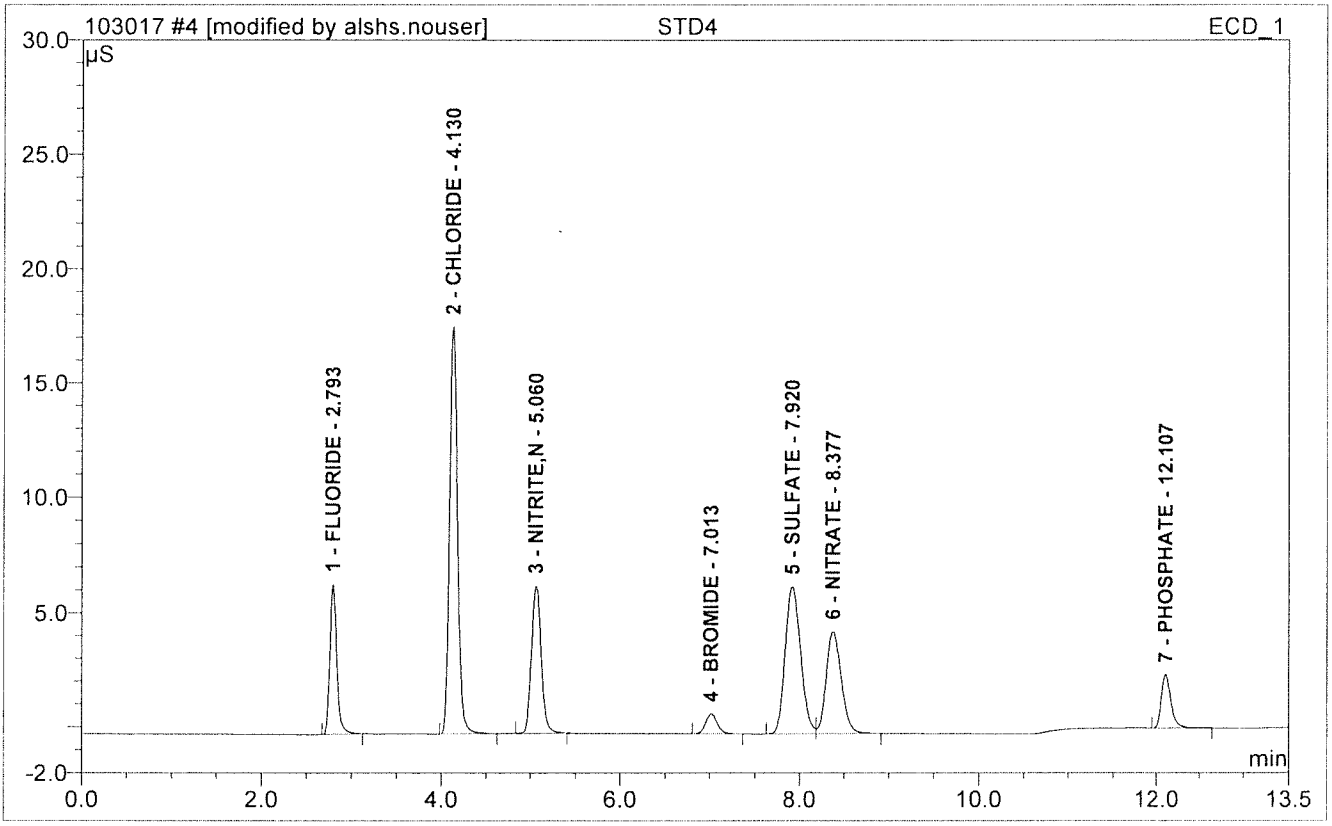
| | | | |
|---|---|---|---|
| *Sample Name:* | **STD3** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **3** | *Channel:* | **ECD_1** |
| *Sample Type:* | **standard** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **091117** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **9/11/2017 14:09** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.80 | FLUORIDE | 3.353 | 0.289 | 10.17 | 2.084 | 1. |
| 2 | 4.14 | CHLORIDE | 8.874 | 0.897 | 31.62 | 10.008 | 1. |
| 3 | 5.06 | NITRITE,N | 3.346 | 0.405 | 14.27 | 2.172 | 1. |
| 4 | 7.01 | BROMIDE | 0.398 | 0.062 | 2.17 | 1.740 | 1. |
| 5 | 7.92 | SULFATE | 3.221 | 0.631 | 22.23 | 9.819 | 1. |
| 6 | 8.39 | NITRATE | 2.198 | 0.417 | 14.71 | 1.910 | 1. |
| 7 | 12.10 | PHOSPHATE | 1.068 | 0.137 | 4.83 | 1.752 | 1. |
| **Total:** | | | 22.459 | 2.838 | 100.00 | 29.485 | |

# 4 STD4

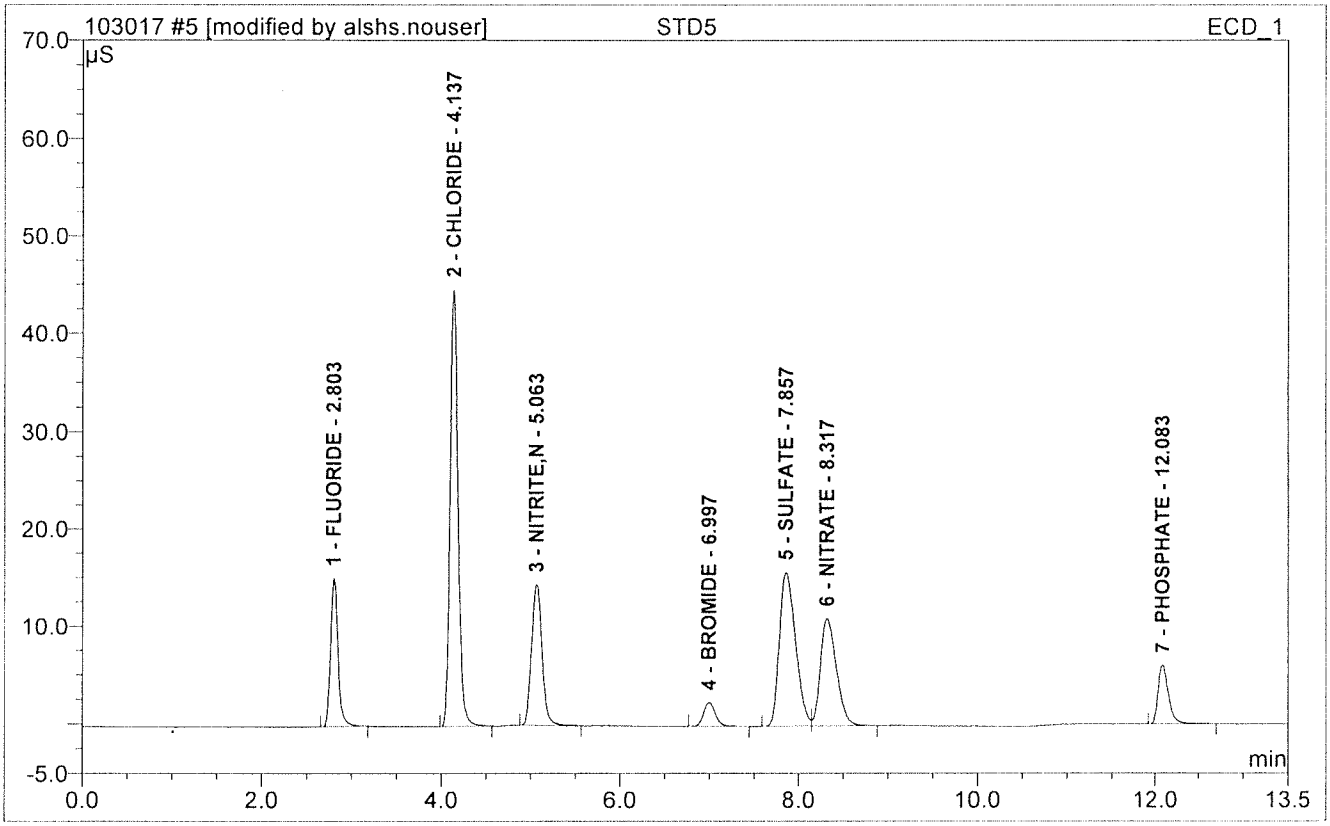
| | | | |
|---|---|---|---|
| *Sample Name:* | **STD4** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **4** | *Channel:* | **ECD_1** |
| *Sample Type:* | **standard** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **091117** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **9/11/2017 14:23** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.79 | FLUORIDE | 6.572 | 0.584 | 10.01 | 4.191 | 1. |
| 2 | 4.13 | CHLORIDE | 17.759 | 1.824 | 31.24 | 20.180 | 1. |
| 3 | 5.06 | NITRITE,N | 6.464 | 0.821 | 14.07 | 4.386 | 1. |
| 4 | 7.01 | BROMIDE | 0.876 | 0.132 | 2.27 | 3.659 | 1. |
| 5 | 7.92 | SULFATE | 6.451 | 1.295 | 22.20 | 19.997 | 1. |
| 6 | 8.38 | NITRATE | 4.490 | 0.876 | 15.00 | 3.951 | 1. |
| 7 | 12.11 | PHOSPHATE | 2.350 | 0.304 | 5.21 | 3.785 | 1. |
| **Total:** | | | 44.963 | 5.836 | 100.00 | 60.149 | |

# 5 STD5

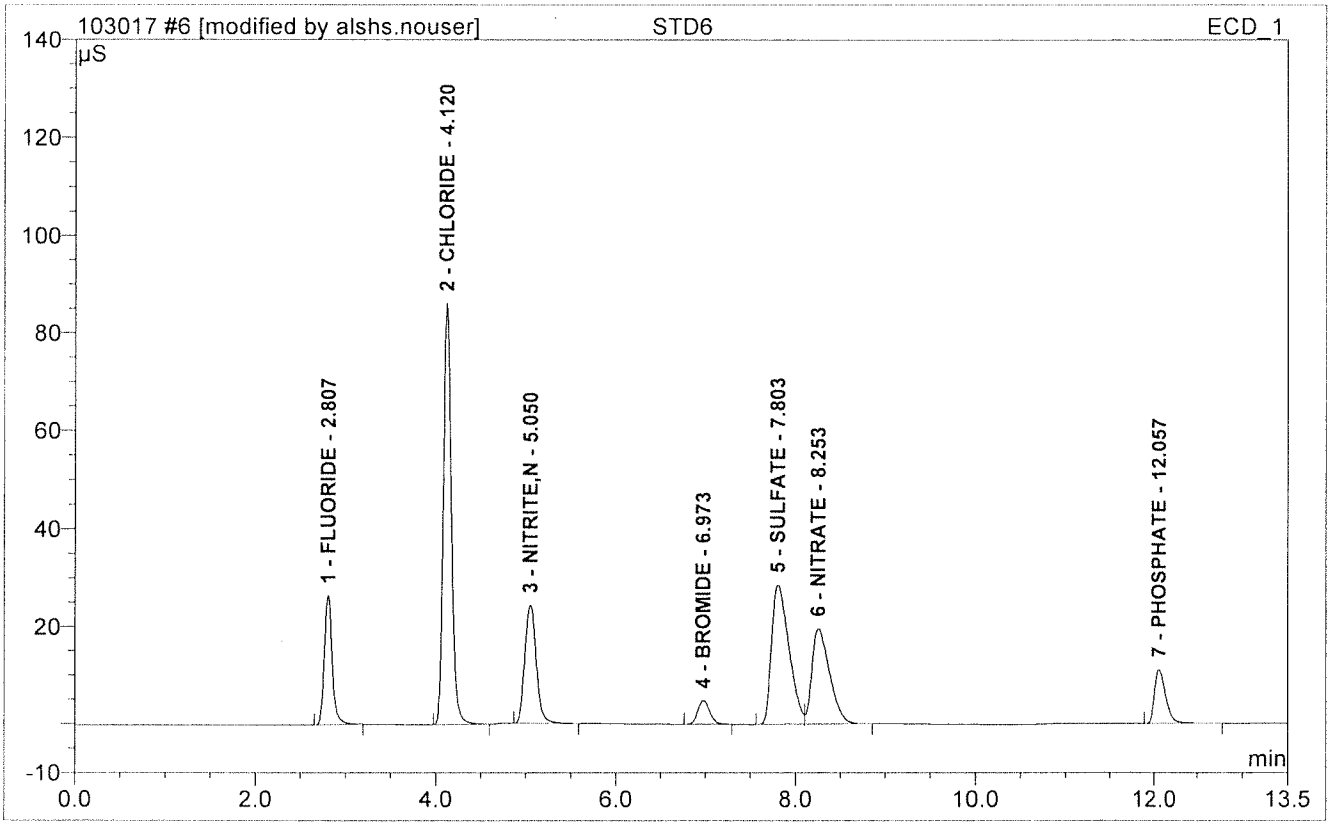
| | | | |
|---|---|---|---|
| *Sample Name:* | **STD5** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **5** | *Channel:* | **ECD_1** |
| *Sample Type:* | **standard** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **091117** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **9/11/2017 14:38** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.80 | FLUORIDE | 15.211 | 1.455 | 9.79 | 10.397 | 1. |
| 2 | 4.14 | CHLORIDE | 44.753 | 4.639 | 31.21 | 51.091 | 1. |
| 3 | 5.06 | NITRITE,N | 14.440 | 1.975 | 13.29 | 10.529 | 1. |
| 4 | 7.00 | BROMIDE | 2.444 | 0.371 | 2.50 | 10.147 | 1. |
| 5 | 7.86 | SULFATE | 15.763 | 3.315 | 22.31 | 50.927 | 1. |
| 6 | 8.32 | NITRATE | 11.013 | 2.275 | 15.31 | 10.183 | 1. |
| 7 | 12.08 | PHOSPHATE | 5.998 | 0.830 | 5.58 | 10.184 | 1. |
| **Total:** | | | 109.621 | 14.861 | 100.00 | 153.458 | |

# 6 STD6

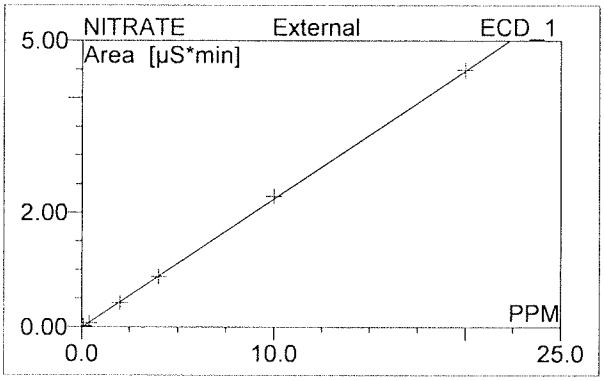
| | | | |
|---|---|---|---|
| *Sample Name:* | **STD6** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **6** | *Channel:* | **ECD_1** |
| *Sample Type:* | **standard** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **091117** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **9/11/2017 14:52** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |

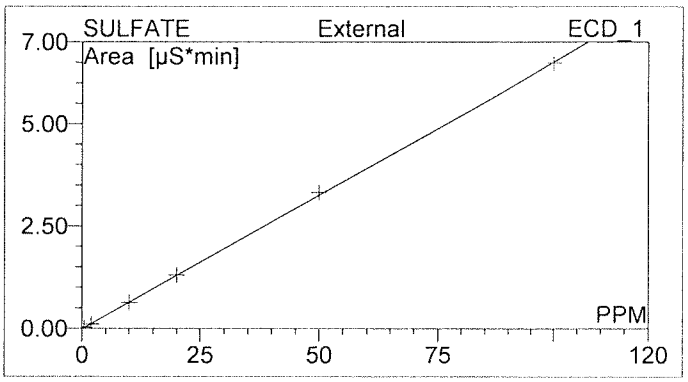


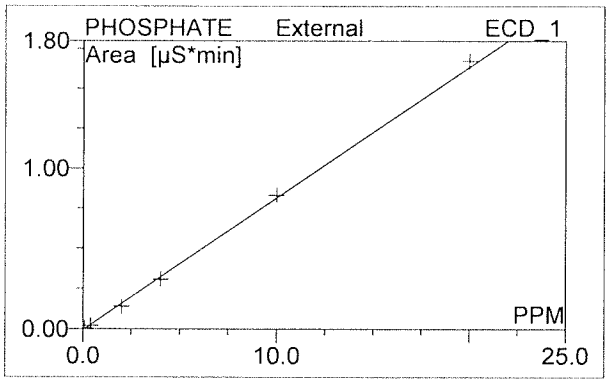

| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.81 | FLUORIDE | 26.654 | 2.723 | 9.49 | 19.427 | 1. |
| 2 | 4.12 | CHLORIDE | 86.222 | 8.991 | 31.33 | 98.877 | 1. |
| 3 | 5.05 | NITRITE,N | 24.345 | 3.582 | 12.48 | 19.080 | 1. |
| 4 | 6.97 | BROMIDE | 4.937 | 0.757 | 2.64 | 20.621 | 1. |
| 5 | 7.80 | SULFATE | 28.773 | 6.482 | 22.59 | 99.422 | 1. |
| 6 | 8.25 | NITRATE | 19.743 | 4.487 | 15.64 | 20.035 | 1. |
| 7 | 12.06 | PHOSPHATE | 11.105 | 1.673 | 5.83 | 20.454 | 1. |
| **Total:** | | | 201.778 | 28.695 | 100.00 | 297.916 | |

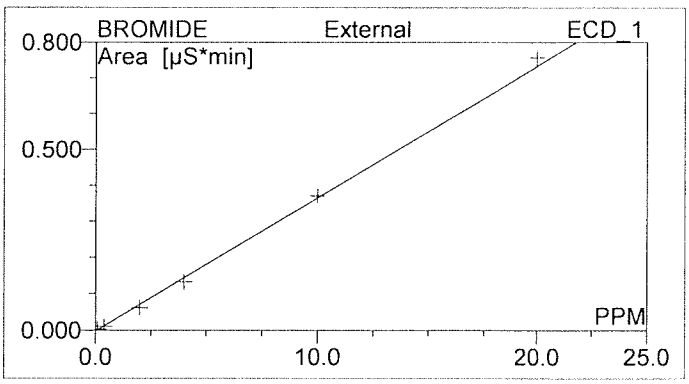
# 6 STD6

| | | | |
|---|---|---|---|
| *Sample Name:* | **STD6** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **6** | *Channel:* | **ECD_1** |
| *Sample Type:* | **standard** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **091117** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **9/11/2017 14:52** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |



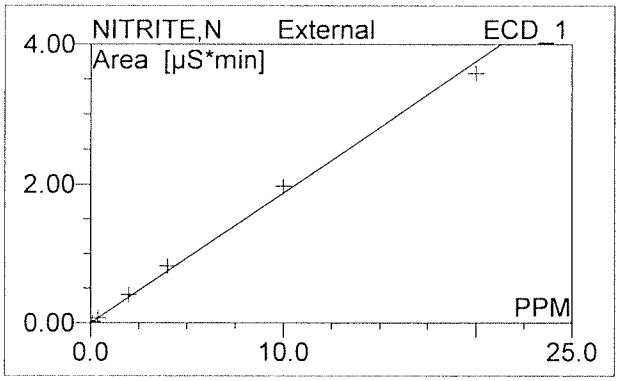



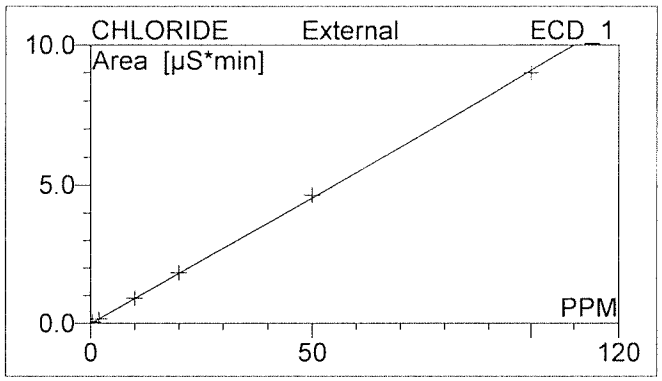

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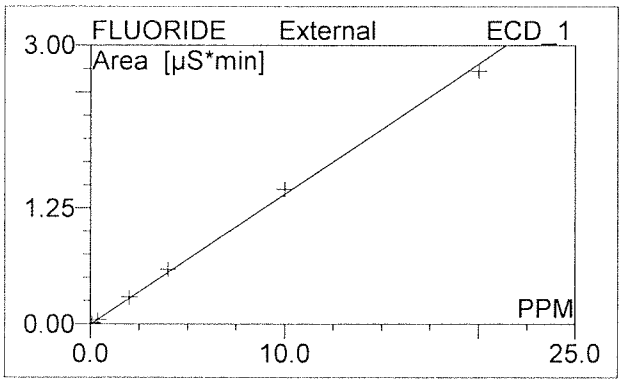
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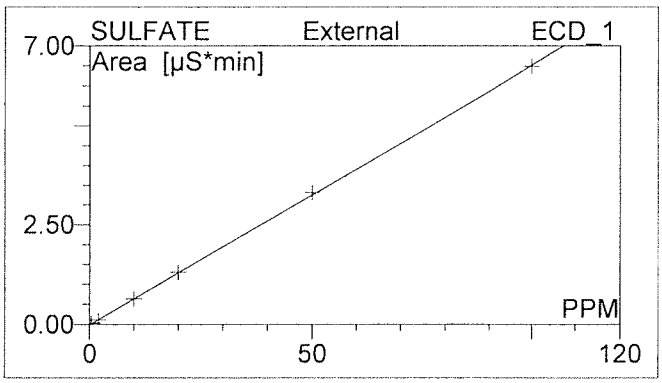
## 6 STD6

| | | | |
|---|---|---|---|
| *Sample Name:* | **STD6** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **6** | *Channel:* | **ECD_1** |
| *Sample Type:* | **standard** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **091117** | *Dilution Factor:* | **1.000** |
| *Recording Time:* | **9/11/2017 14:52** | *Sample Weight/Volume:* | **1.000** |
| *Run Time (min):* | **13.50** | *Final Volume:* | **1.000** |




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Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\09-2017\103017.SEQ\CD_1.CHL\6.acd".
The system cannot find the path specified.

Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\09-2017\103017.SEQ\CD_1.CHL\6.acd". The system cannot find the path specified.

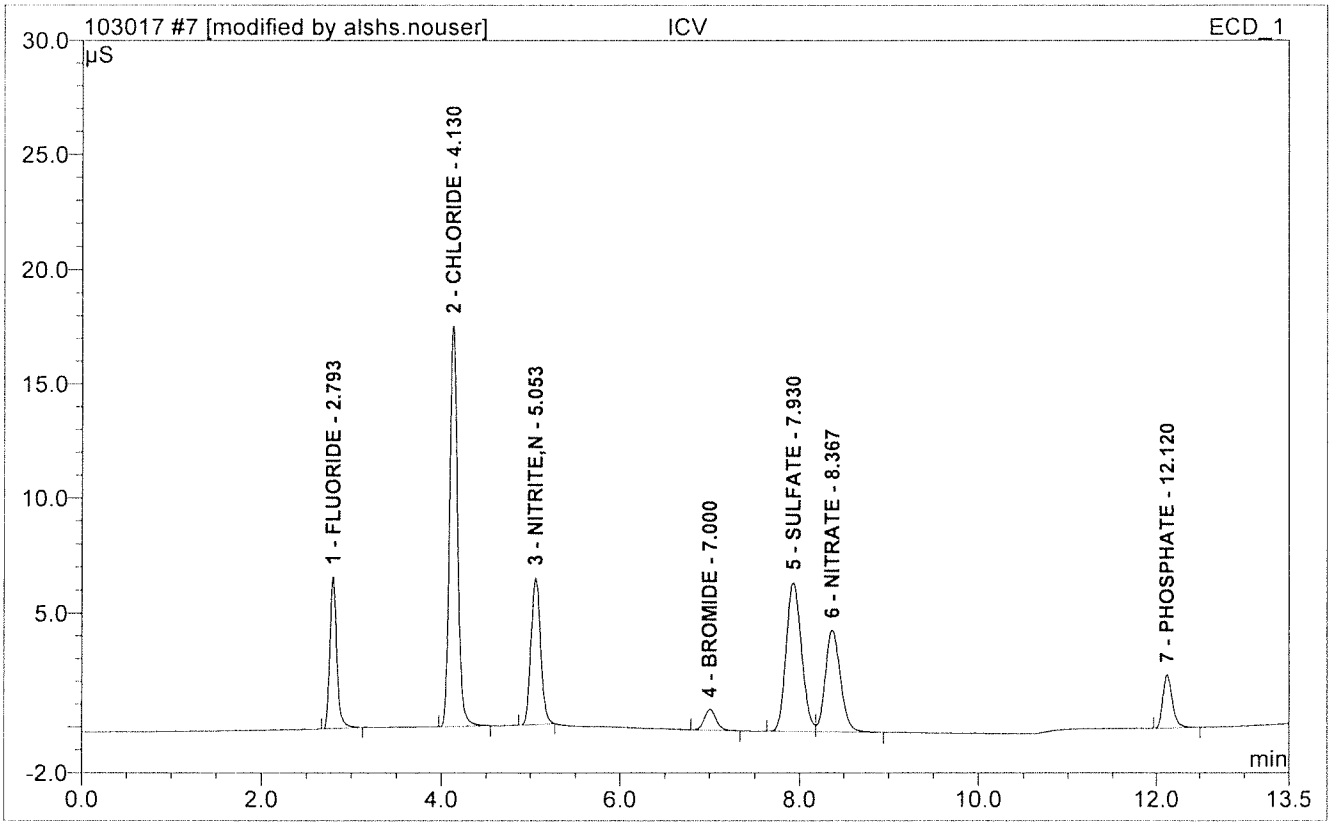
Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\09-2017\103017.SEQ\CD_1.CHL\6.acd". The system cannot find the path specified.

| No. | Ret.Time min | Peak Name | Cal.Type | Points | Coeff.Det. % | Offset | Slope | Curve |
|---|---|---|---|---|---|---|---|---|
| 1 | 2.81 | FLUORIDE | YLOff | 6 | 99.8453 | -0.0040 | 0.1404 | 0.000 |
| 2 | 4.12 | CHLORIDE | XLOff | 6 | 99.9646 | -0.0143 | 0.0911 | 0.000 |
| 3 | 5.05 | NITRITE,N | YLOff | 6 | 99.6406 | -0.0031 | 0.1879 | 0.000 |
| 4 | 6.97 | BROMIDE | YLOff | 6 | 99.6305 | -0.0024 | 0.0368 | 0.000 |
| 5 | 7.80 | SULFATE | XLOff | 6 | 99.9670 | -0.0104 | 0.0653 | 0.000 |
| 6 | 8.25 | NITRATE | YLOff | 6 | 99.9123 | -0.0113 | 0.2245 | 0.000 |
| 7 | 12.06 | PHOSPHATE | YLOff | 6 | 99.6957 | -0.0069 | 0.0822 | 0.000 |
| Average: | | | | | 99.8080 | -0.0075 | 0.1183 | 0.000 |

| No. | Ret.Time min | Peak Name | Cal.Type | Points | Corr.Coeff. % | RF-Value | Std.Dev. | RSD % |
|---|---|---|---|---|---|---|---|---|
| 1 | 2.81 | FLUORIDE | YLOff | 6 | 99.923 | 7.124 | 0.010 | 19.409 |
| 2 | 4.12 | CHLORIDE | XLOff | 6 | 99.982 | 10.980 | 0.017 | 8.793 |
| 3 | 5.05 | NITRITE,N | YLOff | 6 | 99.820 | 5.322 | 0.020 | 29.041 |
| 4 | 6.97 | BROMIDE | YLOff | 6 | 99.815 | 27.159 | 0.004 | 32.461 |
| 5 | 7.80 | SULFATE | XLOff | 6 | 99.984 | 15.313 | 0.012 | 8.499 |
| 6 | 8.25 | NITRATE | YLOff | 6 | 99.956 | 4.454 | 0.011 | 15.438 |
| 7 | 12.06 | PHOSPHATE | YLOff | 6 | 99.848 | 12.172 | 0.006 | 38.765 |
| Average: | | | | | 99.9039 | 11.789 | 0.011 | 21.772 |

# 7 ICV

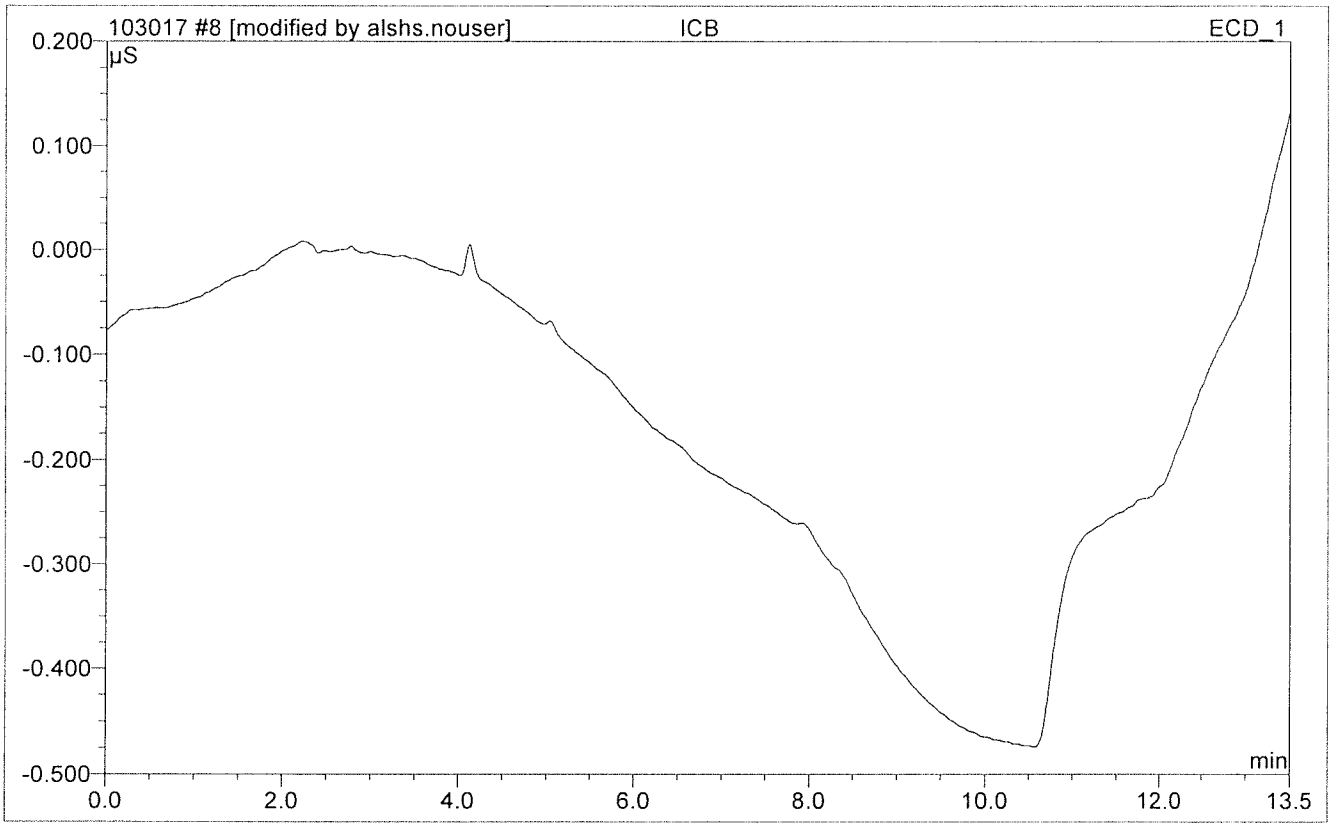
| | | | |
|---|---|---|---|
| *Sample Name:* | **ICV** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **7** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **091117** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **9/11/2017 15:07** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.79 | FLUORIDE | 6.648 | 0.598 | 10.20 | 4.289 | 1. |
| 2 | 4.13 | CHLORIDE | 17.521 | 1.811 | 30.87 | 20.037 | 1. |
| 3 | 5.05 | NITRITE,N | 6.425 | 0.810 | 13.81 | 4.326 | 1. |
| 4 | 7.00 | BROMIDE | 0.916 | 0.140 | 2.39 | 3.868 | 1. |
| 5 | 7.93 | SULFATE | 6.535 | 1.315 | 22.42 | 20.290 | 1. |
| 6 | 8.37 | NITRATE | 4.485 | 0.887 | 15.12 | 3.999 | 1. |
| 7 | 12.12 | PHOSPHATE | 2.362 | 0.305 | 5.20 | 3.797 | 1. |
| **Total:** | | | 44.893 | 5.865 | 100.00 | 60.607 | |

## 8 ICB

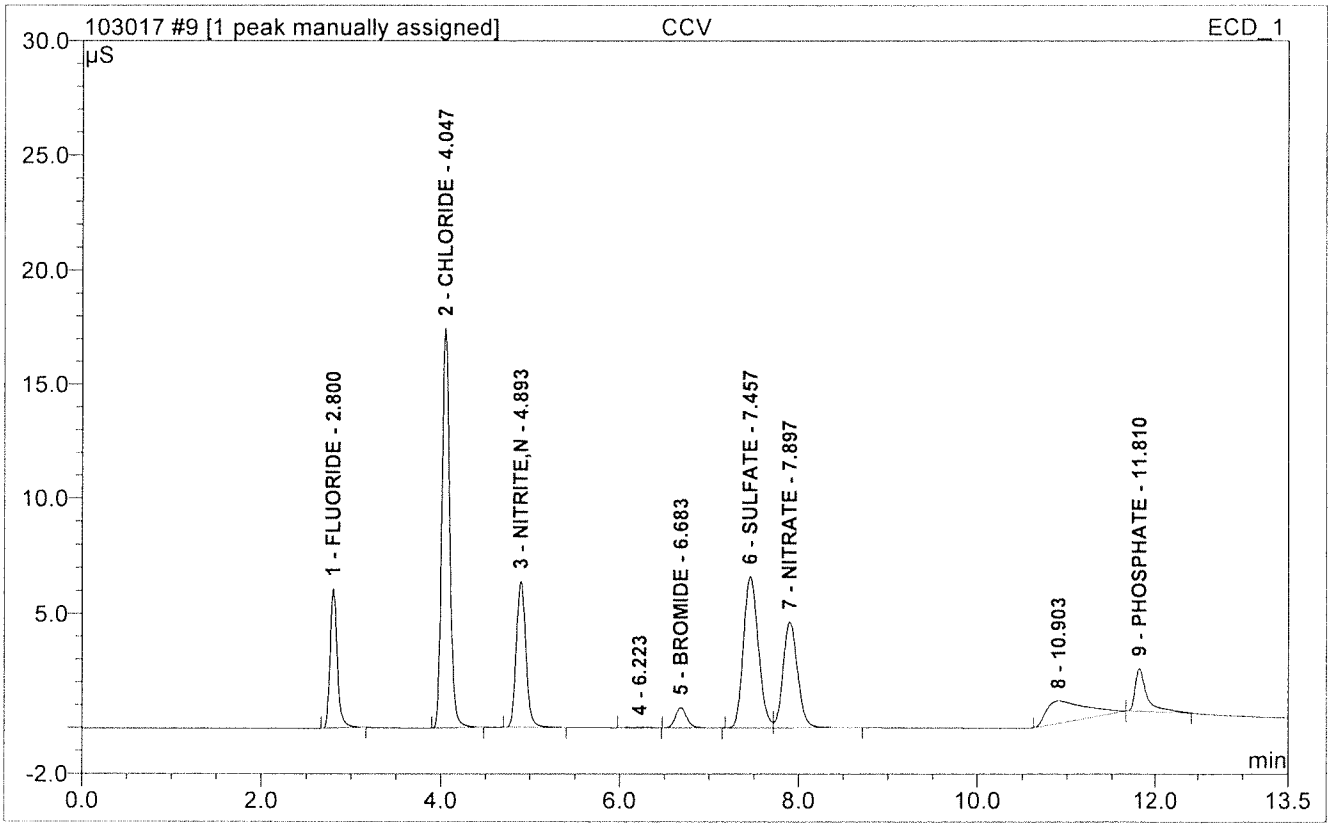
| | | | |
|---|---|---|---|
| *Sample Name:* | **ICB** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **8** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **091117** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **9/11/2017 15:21** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| Total: | | | 0.000 | 0.000 | 0.00 | 0.000 | |

# 9 CCV

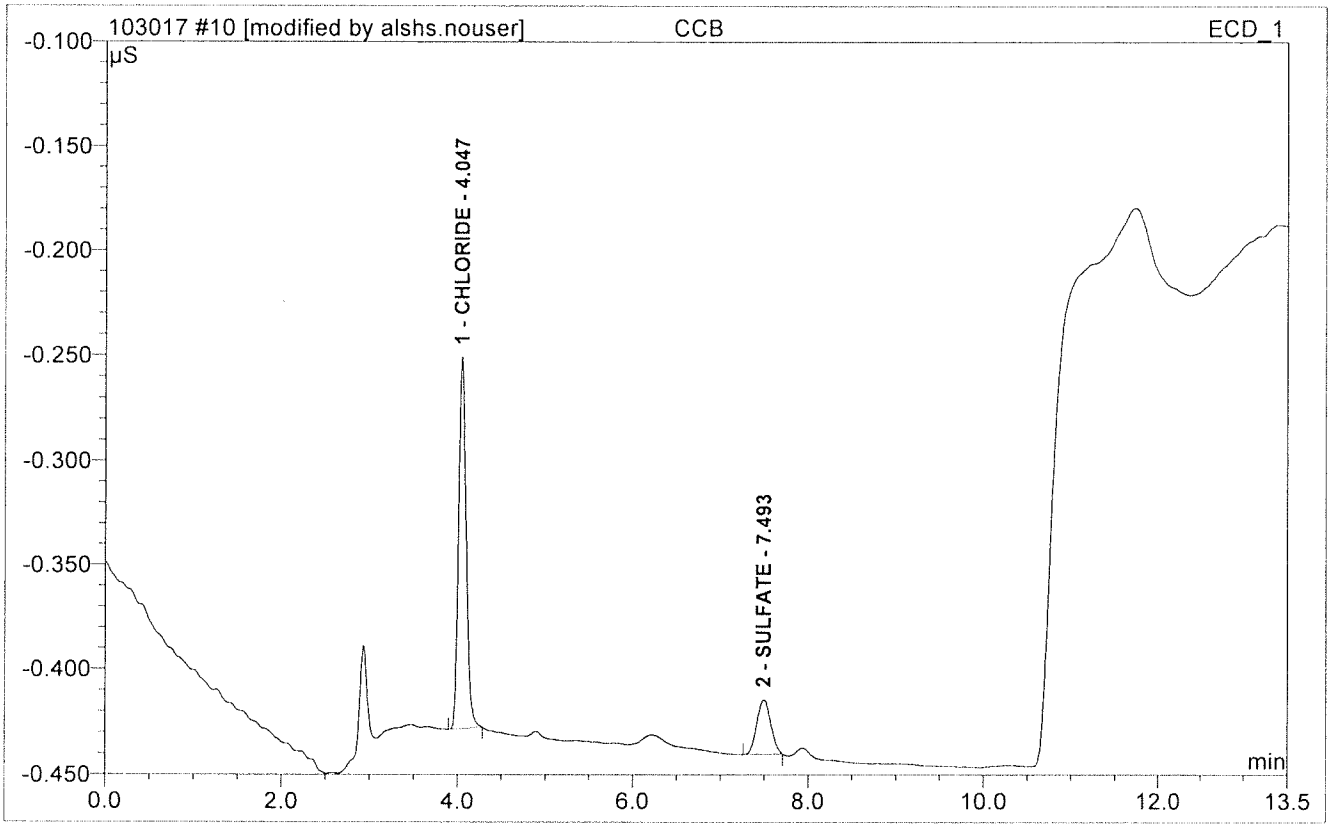
| | | | |
|---|---|---|---|
| *Sample Name:* | **CCV** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **1** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **091117** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **10/30/2017 12:35** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.80 | FLUORIDE | 6.102 | 0.564 | 9.04 | 4.045 | 1. |
| 2 | 4.05 | CHLORIDE | 17.457 | 1.787 | 28.67 | 19.781 | 1. |
| 3 | 4.89 | NITRITE,N | 6.396 | 0.802 | 12.87 | 4.286 | 1. |
| 5 | 6.68 | BROMIDE | 0.894 | 0.132 | 2.11 | 3.642 | 1. |
| 6 | 7.46 | SULFATE | 6.626 | 1.282 | 20.56 | 19.788 | 1. |
| 7 | 7.90 | NITRATE | 4.663 | 0.873 | 14.01 | 3.941 | 1. |
| 9 | 11.81 | PHOSPHATE | 1.888 | 0.299 | 4.80 | 3.727 | 1. |
| **Total:** | | | 44.026 | 5.740 | 92.06 | 59.211 | |

# 10 CCB

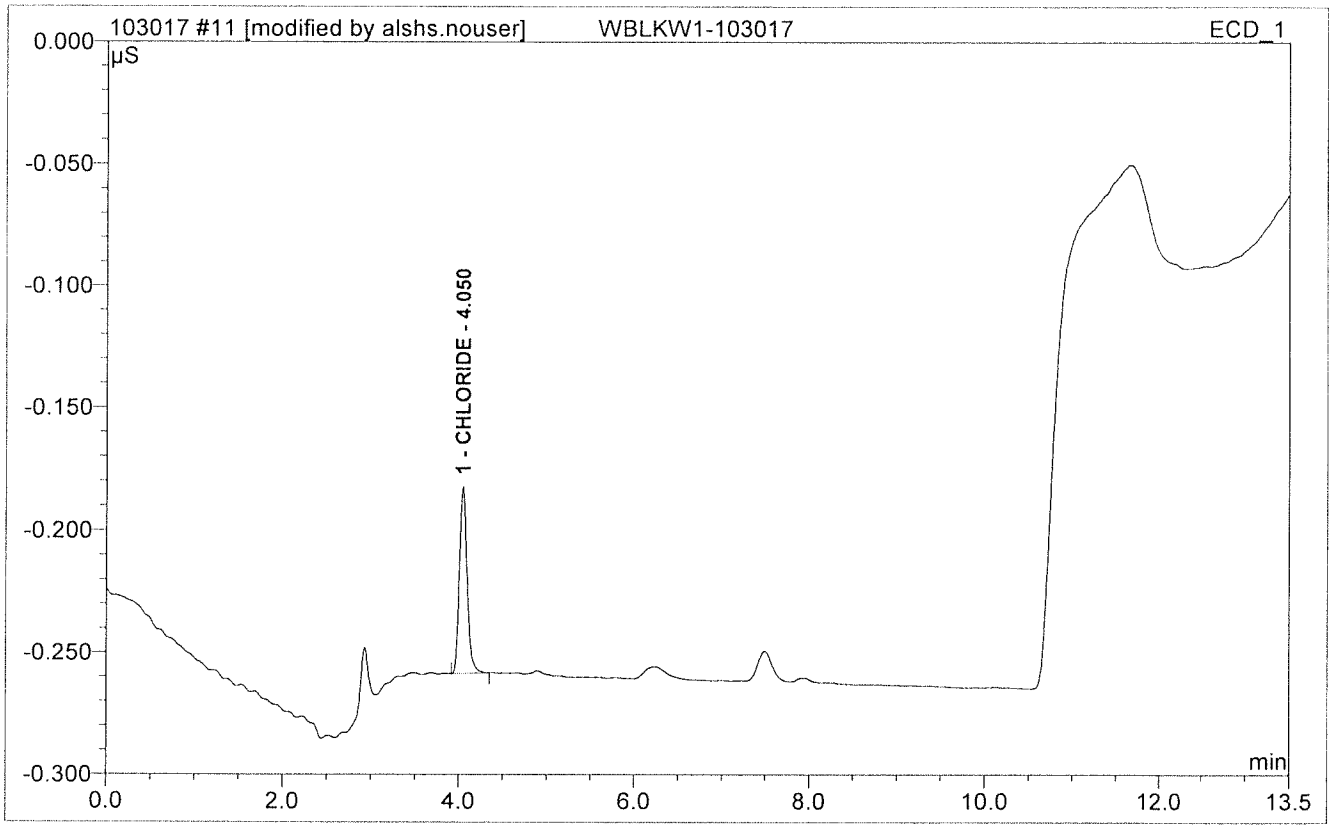
| | | | |
|---|---|---|---|
| *Sample Name:* | **CCB** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **2** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **091117** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **10/30/2017 12:50** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 4.05 | CHLORIDE | 0.177 | 0.018 | 78.81 | 0.353 | 1. |
| 2 | 7.49 | SULFATE | 0.026 | 0.005 | 21.19 | 0.233 | 1. |
| **Total:** | | | 0.203 | 0.023 | 100.00 | 0.585 | |

## 11 WBLKW1-103017

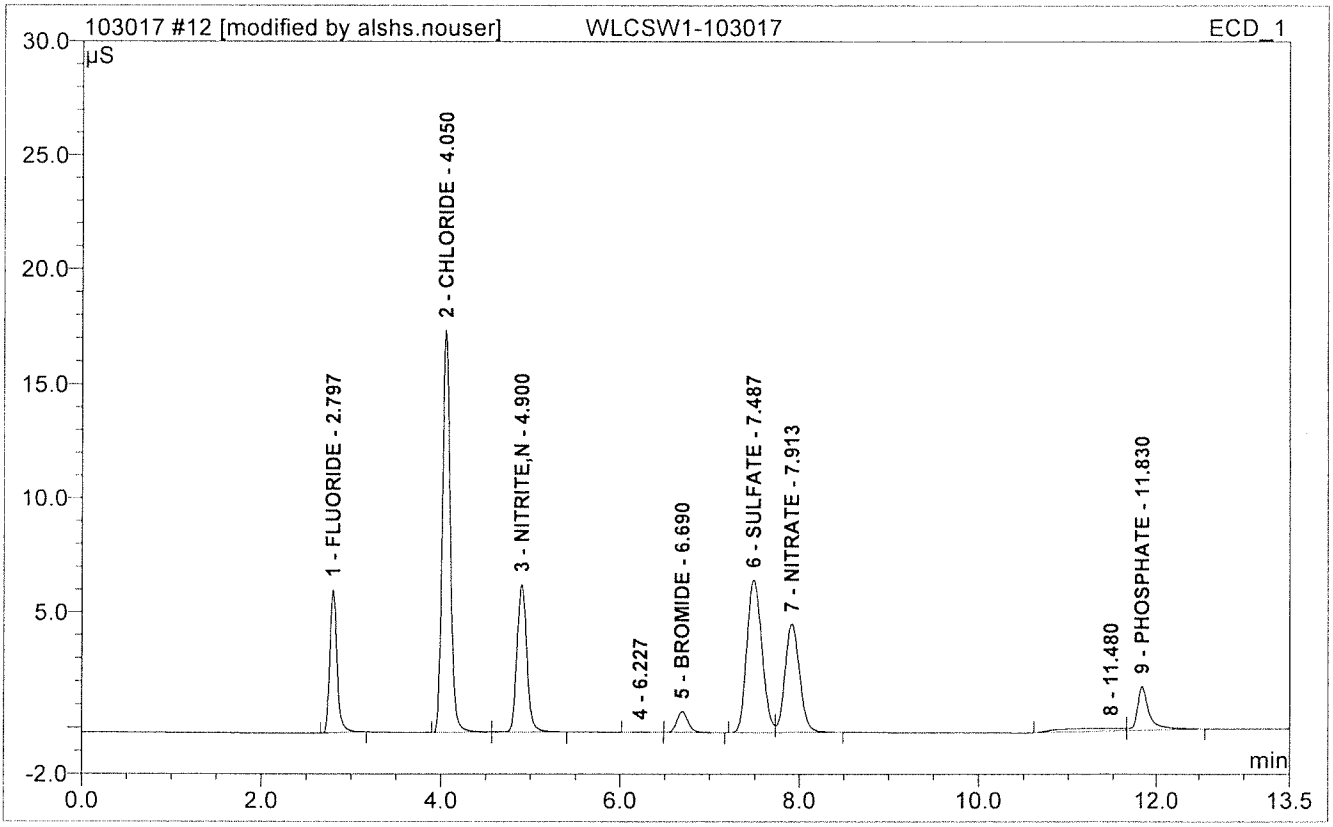
| | | | |
|---|---|---|---|
| *Sample Name:* | **WBLKW1-103017** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **5** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **091117** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **10/30/2017 13:04** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 4.05 | CHLORIDE | 0.076 | 0.008 | 100.00 | 0.243 | 1. |
| **Total:** | | | 0.076 | 0.008 | 100.00 | 0.243 | |

# 12 WLCSW1-103017

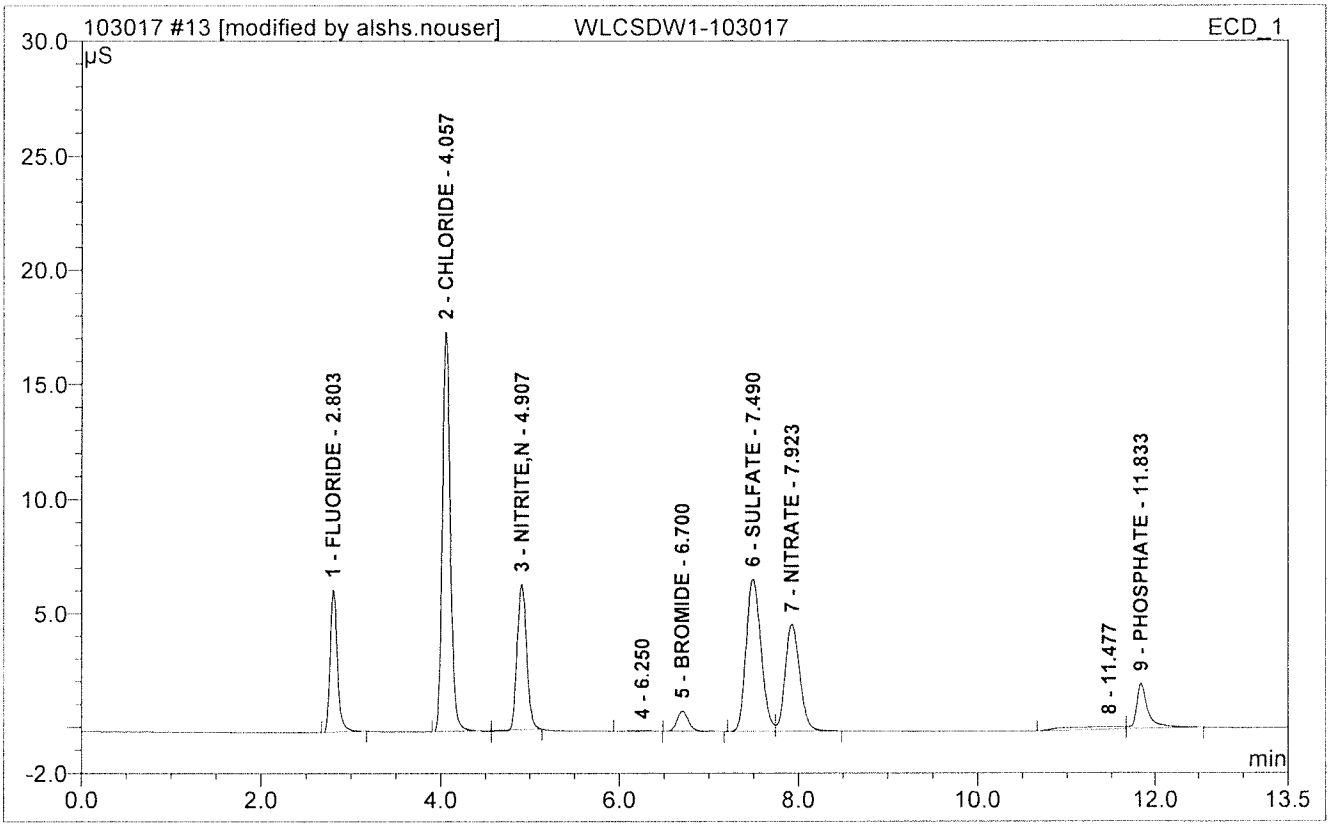
| | | | |
|---|---|---|---|
| *Sample Name:* | **WLCSW1-103017** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **6** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **091117** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **10/30/2017 13:19** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.80 | FLUORIDE | 6.218 | 0.578 | 9.75 | 4.149 | 1. |
| 2 | 4.05 | CHLORIDE | 17.541 | 1.812 | 30.53 | 20.050 | 1. |
| 3 | 4.90 | NITRITE,N | 6.414 | 0.818 | 13.79 | 4.371 | 1. |
| 5 | 6.69 | BROMIDE | 0.900 | 0.133 | 2.24 | 3.668 | 1. |
| 6 | 7.49 | SULFATE | 6.621 | 1.291 | 21.76 | 19.929 | 1. |
| 7 | 7.91 | NITRATE | 4.692 | 0.884 | 14.90 | 3.989 | 1. |
| 9 | 11.83 | PHOSPHATE | 1.881 | 0.304 | 5.12 | 3.779 | 1. |
| **Total:** | | | 44.267 | 5.820 | 98.08 | 59.935 | |

# 13 WLCSDW1-103017

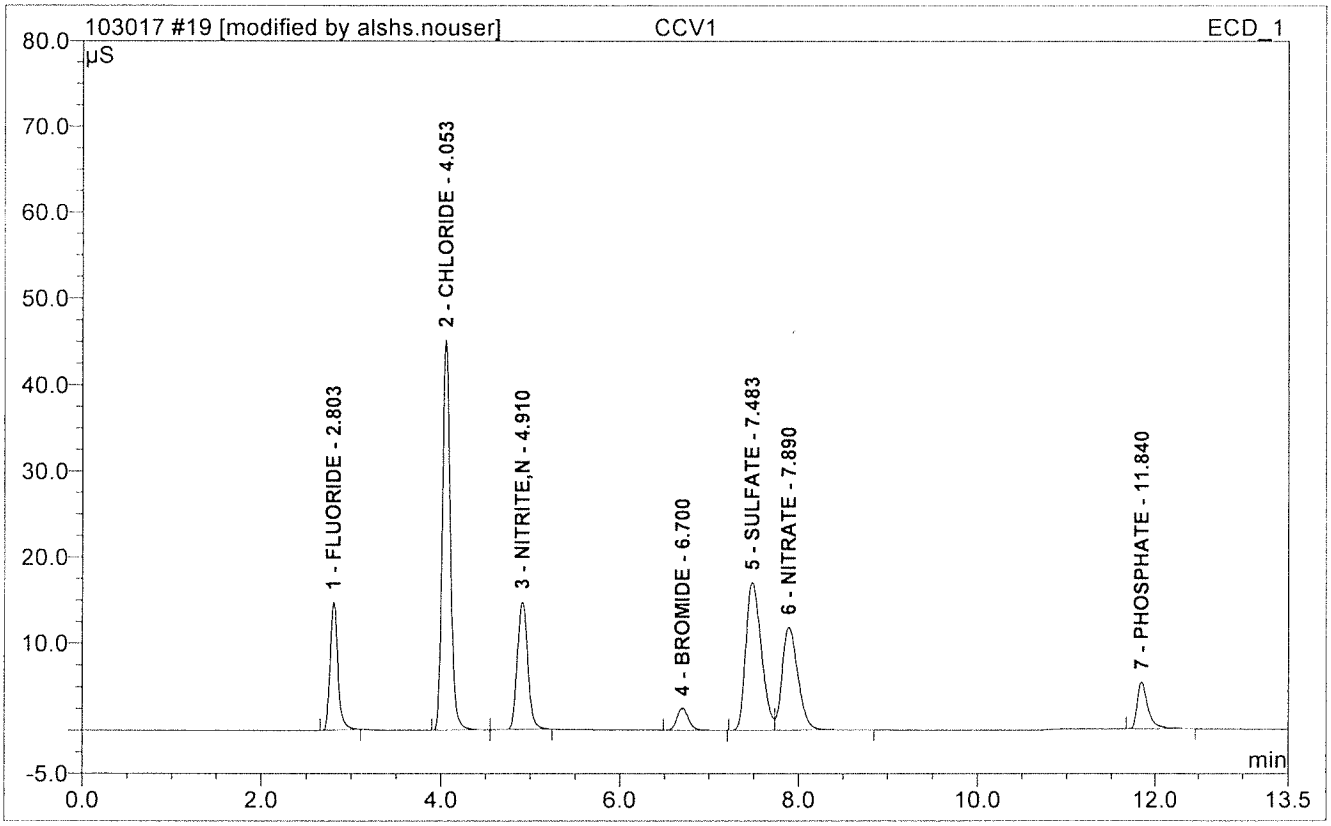
| | | | |
|---|---|---|---|
| *Sample Name:* | **WLCSDW1-103017** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **7** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **091117** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **10/30/2017 13:33** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.80 | FLUORIDE | 6.260 | 0.583 | 9.90 | 4.182 | 1. |
| 2 | 4.06 | CHLORIDE | 17.478 | 1.798 | 30.52 | 19.895 | 1. |
| 3 | 4.91 | NITRITE,N | 6.398 | 0.784 | 13.31 | 4.188 | 1. |
| 5 | 6.70 | BROMIDE | 0.901 | 0.134 | 2.27 | 3.699 | 1. |
| 6 | 7.49 | SULFATE | 6.701 | 1.302 | 22.10 | 20.092 | 1. |
| 7 | 7.92 | NITRATE | 4.689 | 0.885 | 15.03 | 3.994 | 1. |
| 9 | 11.83 | PHOSPHATE | 1.972 | 0.304 | 5.16 | 3.781 | 1. |
| **Total:** | | | 44.397 | 5.789 | 98.27 | 59.832 | |

# 19 CCV1

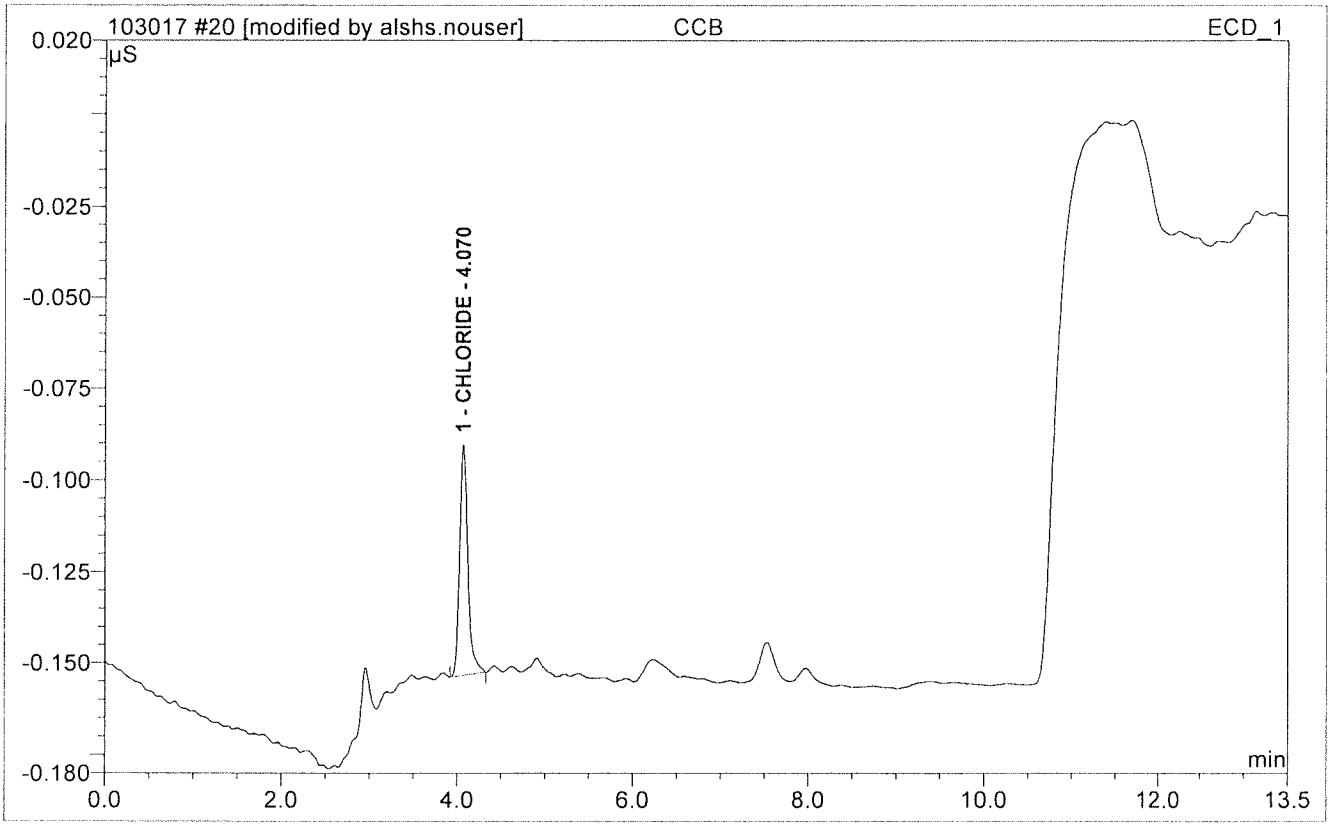
| | | | |
|---|---|---|---|
| *Sample Name:* | **CCV1** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **3** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **091117** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **10/30/2017 15:26** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.80 | FLUORIDE | 14.731 | 1.465 | 9.64 | 10.464 | 1. |
| 2 | 4.05 | CHLORIDE | 45.193 | 4.707 | 30.97 | 51.846 | 1. |
| 3 | 4.91 | NITRITE,N | 14.724 | 1.994 | 13.12 | 10.627 | 1. |
| 4 | 6.70 | BROMIDE | 2.565 | 0.382 | 2.51 | 10.443 | 1. |
| 5 | 7.48 | SULFATE | 17.044 | 3.448 | 22.69 | 52.957 | 1. |
| 6 | 7.89 | NITRATE | 11.861 | 2.427 | 15.97 | 10.862 | 1. |
| 7 | 11.84 | PHOSPHATE | 5.394 | 0.774 | 5.09 | 9.507 | 1. |
| **Total:** | | | 111.512 | 15.198 | 100.00 | 156.707 | |

## 20 CCB

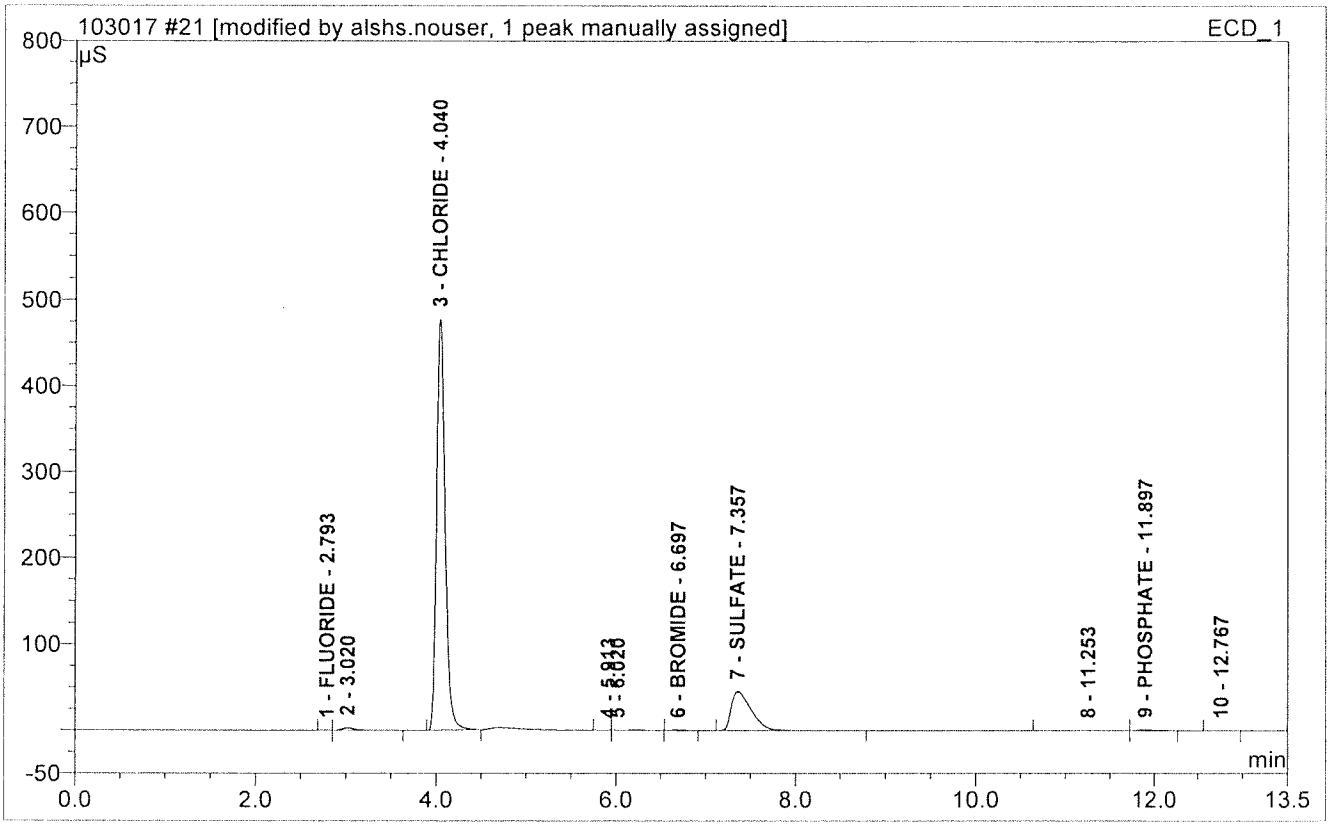
| | | | |
|---|---|---|---|
| *Sample Name:* | **CCB** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **4** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **091117** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **10/30/2017 15:40** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 4.07 | CHLORIDE | 0.063 | 0.007 | 100.00 | 0.232 | 1. |
| **Total:** | | | 0.063 | 0.007 | 100.00 | 0.232 | |

# 21 HS17100970-01

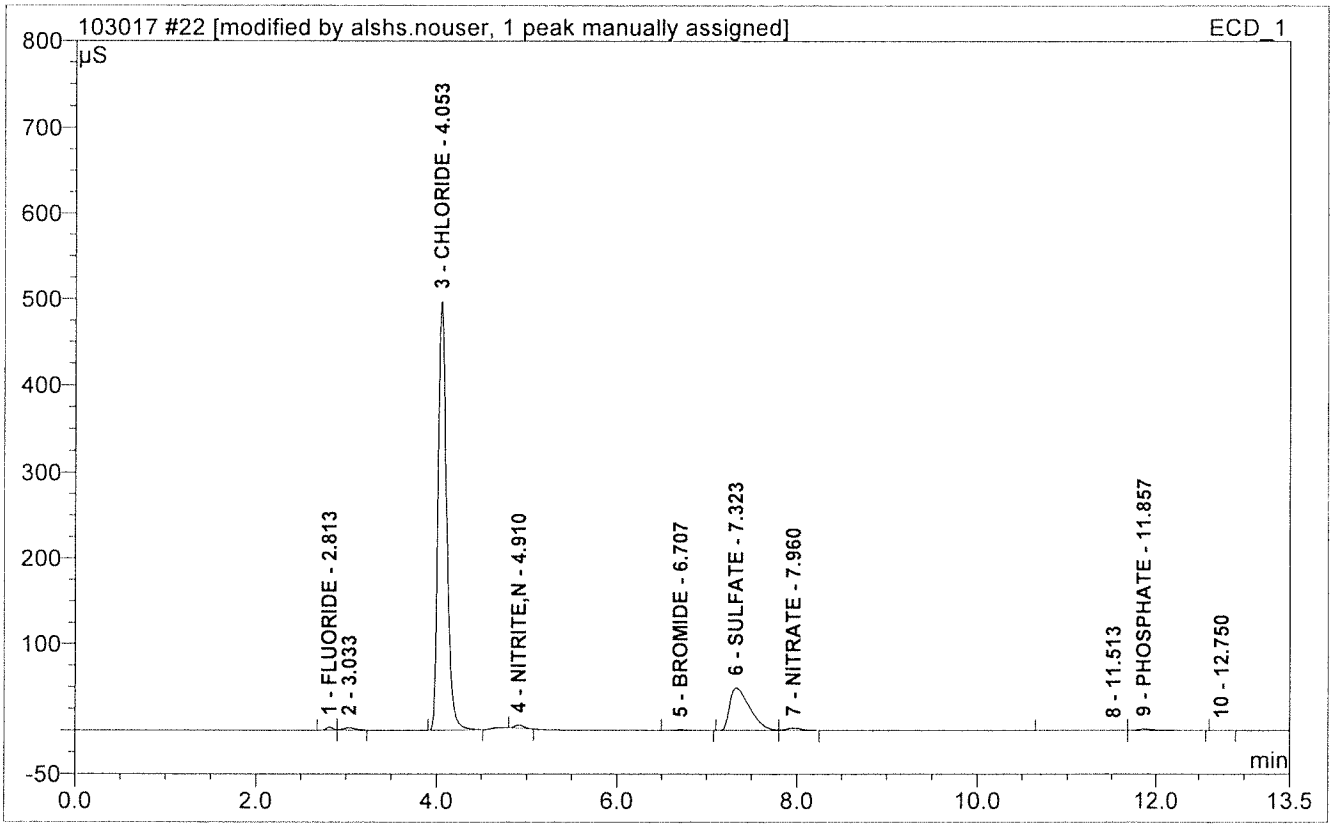
| | | | |
|---|---|---|---|
| *Sample Name:* | **HS17100970-01** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **13** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **091117** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **10/30/2017 15:55** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.79 | FLUORIDE | 0.116 | 0.009 | 0.01 | 0.095 | 1. |
| 3 | 4.04 | CHLORIDE | 477.176 | 52.411 | 80.90 | 575.647 | 1. |
| 6 | 6.70 | BROMIDE | 0.327 | 0.046 | 0.07 | 1.320 | 1. |
| 7 | 7.36 | SULFATE | 45.541 | 11.580 | 17.87 | 177.484 | 1. |
| 9 | 11.90 | PHOSPHATE | 0.736 | 0.131 | 0.20 | 1.676 | 1. |
| **Total:** | | | 523.897 | 64.177 | 99.06 | 756.221 | |

## 22 HS17100970-01MS

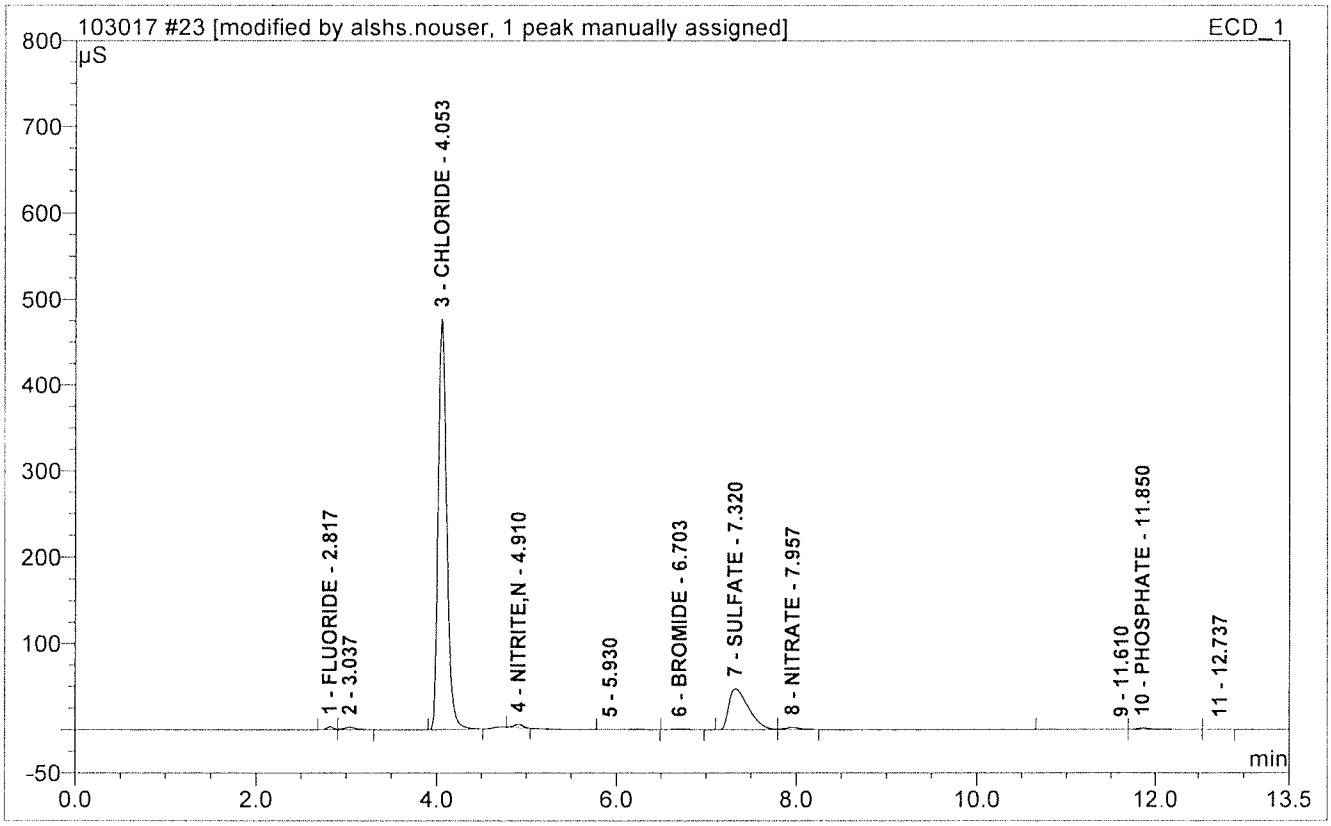
| | | | |
|---|---|---|---|
| *Sample Name:* | **HS17100970-01MS** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **14** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **091117** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **10/30/2017 16:09** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.81 | FLUORIDE | 3.560 | 0.307 | 0.44 | 2.219 | 1. |
| 3 | 4.05 | CHLORIDE | 497.390 | 54.781 | 78.76 | 601.670 | 1. |
| 4 | 4.91 | NITRITE,N | 3.813 | 0.425 | 0.61 | 2.276 | 1. |
| 5 | 6.71 | BROMIDE | 0.896 | 0.130 | 0.19 | 3.592 | 1. |
| 6 | 7.32 | SULFATE | 49.533 | 12.600 | 18.12 | 193.109 | 1. |
| 7 | 7.96 | NITRATE | 2.679 | 0.512 | 0.74 | 2.333 | 1. |
| 9 | 11.86 | PHOSPHATE | 1.822 | 0.308 | 0.44 | 3.834 | 1. |
| **Total:** | | | 559.693 | 69.063 | 99.30 | 809.033 | |

# 23 HS17100970-01MSD

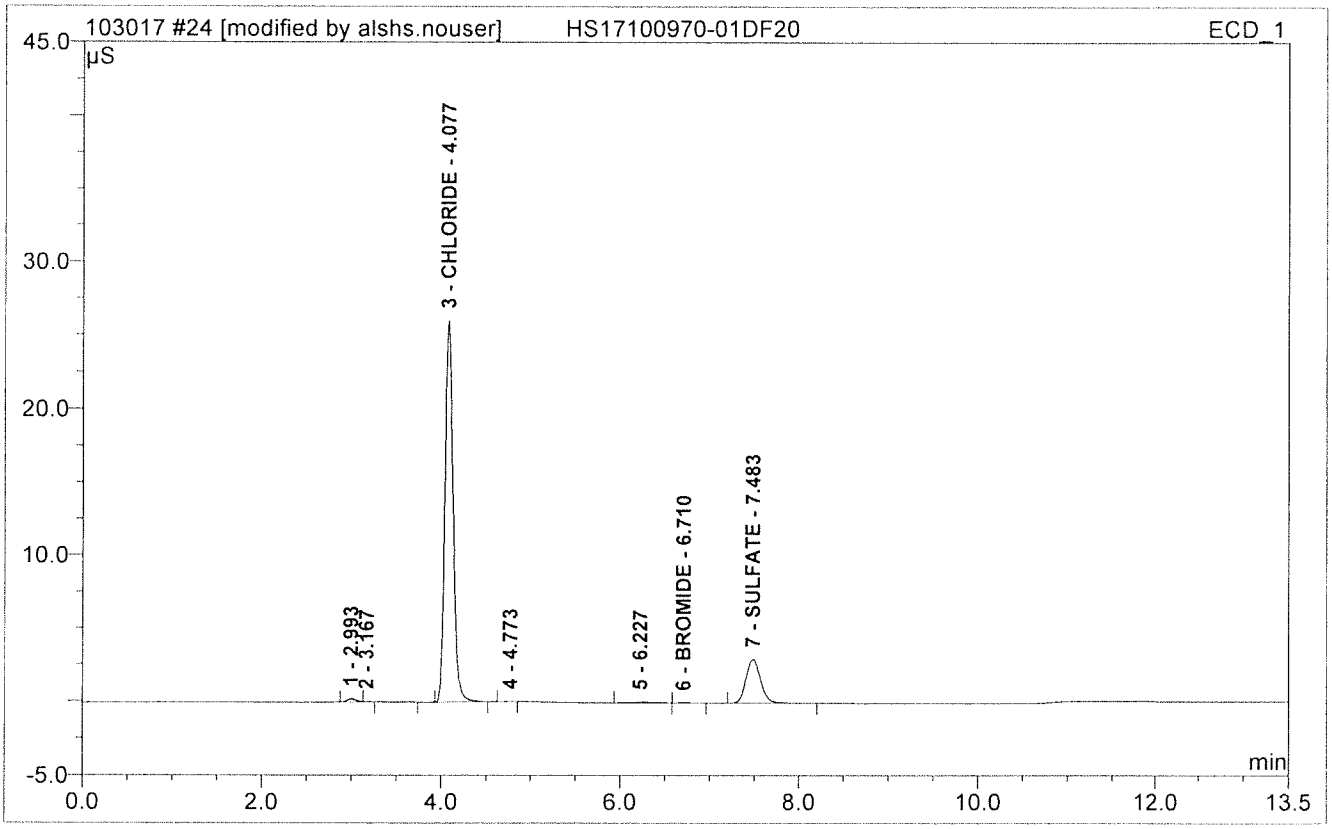
| | | | |
|---|---|---|---|
| *Sample Name:* | **HS17100970-01MSD** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **15** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **091117** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **10/30/2017 16:24** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.82 | FLUORIDE | 3.516 | 0.312 | 0.47 | 2.248 | 1. |
| 3 | 4.05 | CHLORIDE | 476.712 | 52.385 | 78.65 | 575.362 | 1. |
| 4 | 4.91 | NITRITE,N | 3.826 | 0.444 | 0.67 | 2.382 | 1. |
| 6 | 6.70 | BROMIDE | 0.858 | 0.122 | 0.18 | 3.379 | 1. |
| 7 | 7.32 | SULFATE | 47.933 | 12.003 | 18.02 | 183.958 | 1. |
| 8 | 7.96 | NITRATE | 2.560 | 0.492 | 0.74 | 2.241 | 1. |
| 10 | 11.85 | PHOSPHATE | 1.746 | 0.289 | 0.43 | 3.605 | 1. |
| **Total:** | | | 537.150 | 66.047 | 99.17 | 773.175 | |

## 24 HS17100970-01DF20

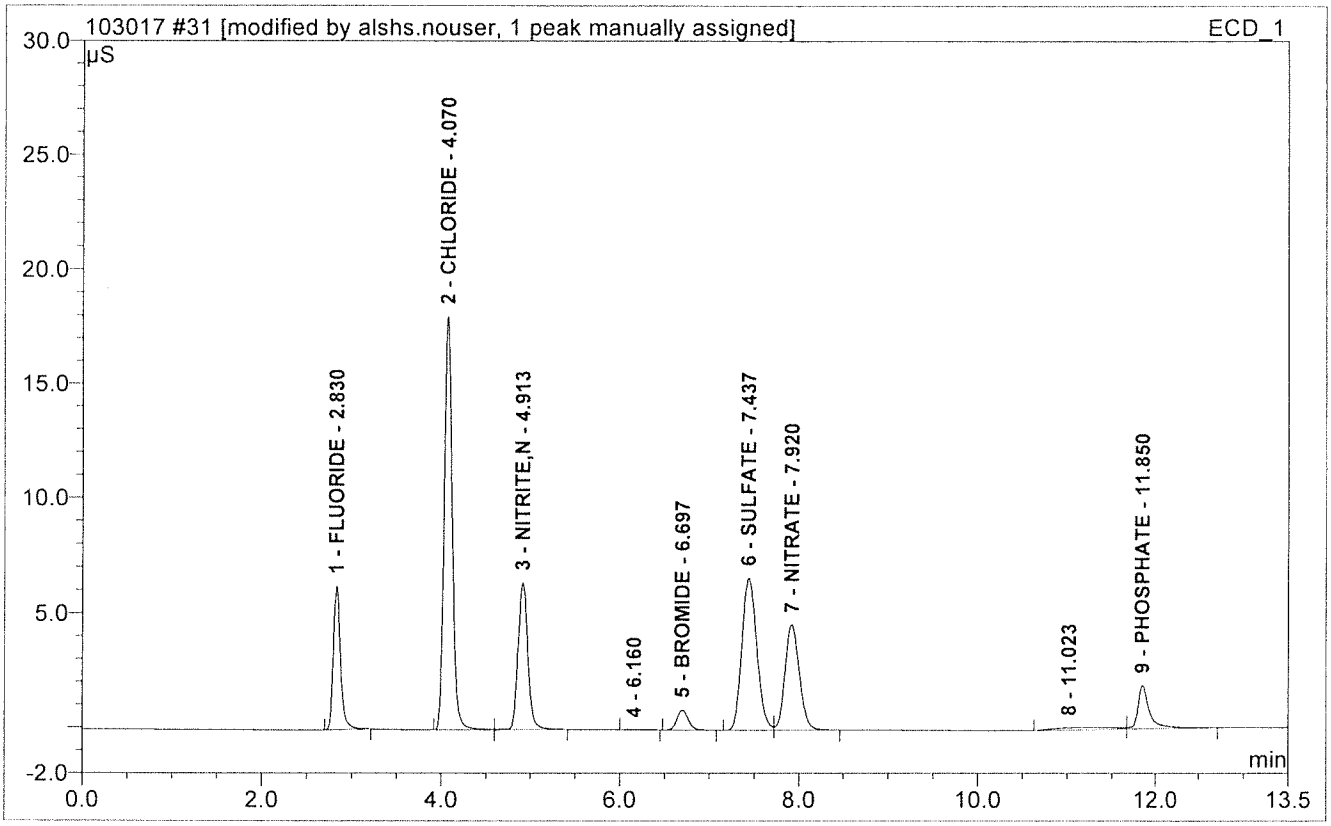
| | | | |
|---|---|---|---|
| *Sample Name:* | **HS17100970-01DF20** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **16** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **091117** | *Dilution Factor:* | **20.** |
| *Recording Time:* | **10/30/2017 16:38** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 3 | 4.08 | CHLORIDE | 26.033 | 2.720 | 81.41 | 600.585 | 20. |
| 6 | 6.71 | BROMIDE | 0.013 | 0.002 | 0.06 | 2.422 | 20. |
| 7 | 7.48 | SULFATE | 2.989 | 0.570 | 17.06 | 177.786 | 20. |
| **Total:** | | | 29.035 | 3.293 | 98.53 | 780.794 | |

# 31 CCV

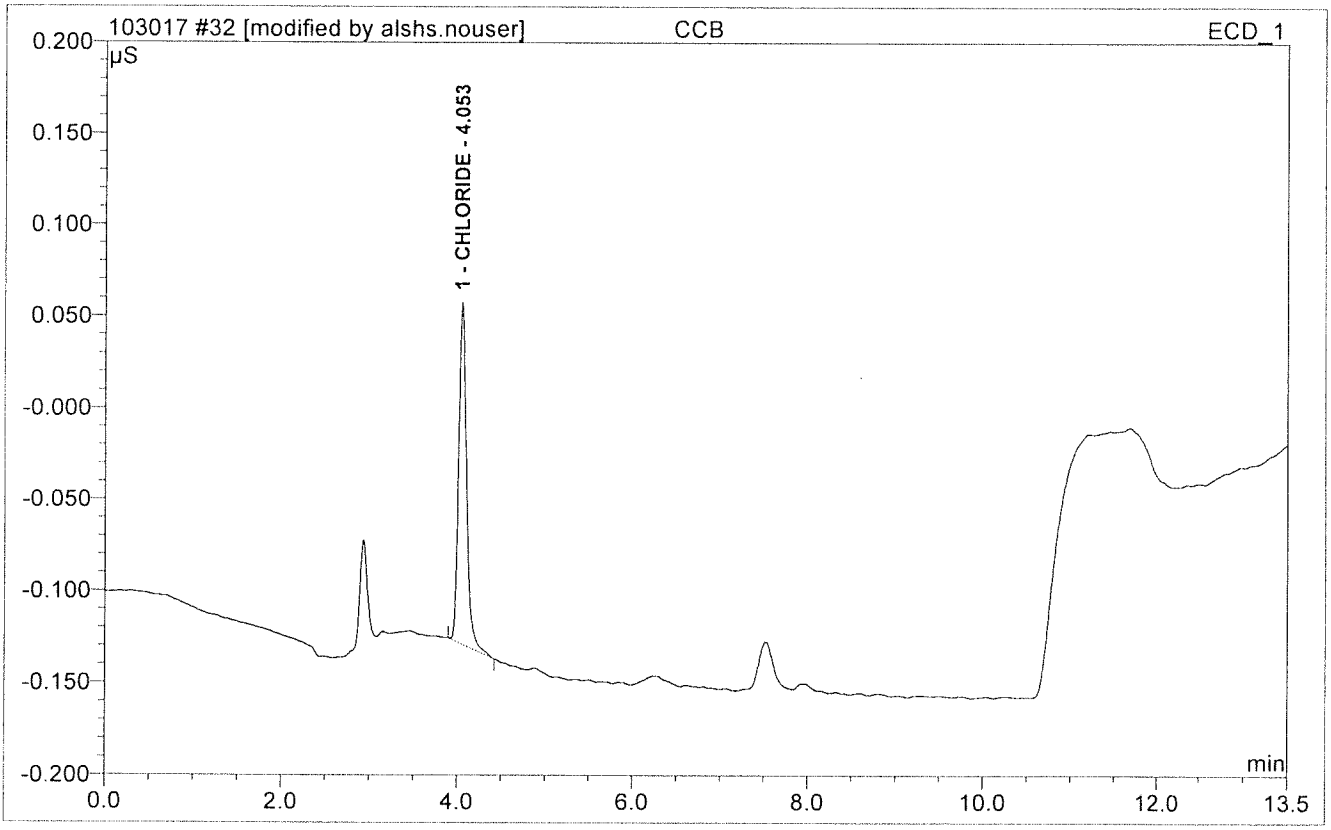
| | | | |
|---|---|---|---|
| *Sample Name:* | **CCV** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **1** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **091117** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **10/30/2017 18:20** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.83 | FLUORIDE | 6.262 | 0.586 | 9.81 | 4.202 | 1. |
| 2 | 4.07 | CHLORIDE | 18.056 | 1.878 | 31.45 | 20.780 | 1. |
| 3 | 4.91 | NITRITE,N | 6.409 | 0.820 | 13.73 | 4.380 | 1. |
| 5 | 6.70 | BROMIDE | 0.891 | 0.132 | 2.21 | 3.649 | 1. |
| 6 | 7.44 | SULFATE | 6.644 | 1.301 | 21.79 | 20.083 | 1. |
| 7 | 7.92 | NITRATE | 4.625 | 0.865 | 14.48 | 3.902 | 1. |
| 9 | 11.85 | PHOSPHATE | 1.910 | 0.301 | 5.03 | 3.743 | 1. |
| **Total:** | | | 44.797 | 5.882 | 98.51 | 60.740 | |

# 32 CCB

| | | | |
|---|---|---|---|
| *Sample Name:* | **CCB** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **2** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **091117** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **10/30/2017 18:35** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 4.05 | CHLORIDE | 0.187 | 0.020 | 100.00 | 0.373 | 1. |
| **Total:** | | | 0.187 | 0.020 | 100.00 | 0.373 | |

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

# WorkOrder: HS17101366

## Groundwater Treatment Plant Weekly Samples

## Bhate Environmental Associates, Inc.

Marcia Olive
445 Union Blvd Ste 129
Lakewood CO 80228

**17-Nov-2017**

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

November 13, 2017

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd Ste 129
Lakewood, CO 80228

Work Order: **HS17101366**

Laboratory Results for: **Groundwater Treatment Plant Weekly Samples**

Dear Marcia,

ALS Environmental received 1 sample(s) on Oct 26, 2017 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,

Sonia West

**Generated By: Jumoke.Lawal**
Sonia West
Project Manager

**ALS Group USA, Corp** Date: 13-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Weekly Samples
**Work Order:** HS17101366

## SAMPLE SUMMARY

| Lab Samp ID | Client Sample ID | Matrix | TagNo | Collection Date | Date Received | Hold |
|---|---|---|---|---|---|---|
| HS17101366-01 | LH18/24-SP650-102517 | Water | | 25-Oct-2017 14:00 | 26-Oct-2017 08:50 | ☐ |

**ALS Group USA, Corp** Date: 13-Nov-17

**Client:** Bhate Environmental Associates, Inc. **CASE NARRATIVE**
**Project:** Groundwater Treatment Plant Weekly Samples
**Work Order:** HS17101366

## Work Order Comments

- The analysis for Perchlorate was subcontracted to ALS Environmental in Salt Lake City UT Final report attached.

## WetChemistry by Method E415.1

### Batch ID: R304763

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

## WetChemistry by Method E350.3

### Batch ID: R304507

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

## WetChemistry by Method E365.3

### Batch ID: R304352

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

**ALS Group USA, Corp** Date: 13-Nov-17

Client: Bhate Environmental Associates, Inc.
**ANALYTICAL REPORT**
Project: Groundwater Treatment Plant Weekly Samples
WorkOrder:HS17101366
Sample ID: LH18/24-SP650-102517
Lab ID:HS17101366-01
Collection Date: 25-Oct-2017 14:00
Matrix:Water

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **AMMONIA AS N BY E350.3(ISE)** | | **Method:E350.3** | | | | | | Analyst: KMU |
| **Nitrogen, Ammonia (As N)** | **20** | | **1.0** | **1.0** | **1.0** | **mg/L** | 5 | 31-Oct-2017 11:45 |
| **ORTHO PHOSPHATE (PO4) AS P BY E365.3** | | **Method:E365.3** | | | | | | Analyst: JHD |
| **Phosphorus, Total Orthophosphate (As P)** | **2.18** | | **0.0500** | **0.0625** | **0.125** | **mg/L** | 5 | 26-Oct-2017 17:38 |
| **TOTAL ORGANIC CARBON BY E415.1** | | **Method:E415.1** | | | | | | Analyst: KMU |
| **Organic Carbon, Total** | **62.0** | | **2.50** | **2.50** | **5.00** | **mg/L** | 5 | 02-Nov-2017 20:39 |
| **SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)** | | **Method:NA** | | | | | | Analyst: SUB |
| Subcontract Analysis | See Attached | | 0 | 0 | | | 1 | 13-Nov-2017 09:46 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 13-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Weekly Samples
**WorkOrder:** HS17101366

**DATES REPORT**

| Sample ID | Client Samp ID | Collection Date | TCLP Date | Prep Date | Analysis Date | DF |
|---|---|---|---|---|---|---|
| **Batch ID** R304352 | **Test Name :** ORTHO PHOSPHATE (PO4) AS P BY E365.3 | | | **Matrix:** Water | | |
| HS17101366-01 | LH18/24-SP650-102517 | 25 Oct 2017 14:00 | | | 26 Oct 2017 17:38 | 5 |
| **Batch ID** R304507 | **Test Name :** AMMONIA AS N BY E350.3(ISE) | | | **Matrix:** Water | | |
| HS17101366-01 | LH18/24-SP650-102517 | 25 Oct 2017 14:00 | | | 31 Oct 2017 11:45 | 5 |
| **Batch ID** R304763 | **Test Name :** TOTAL ORGANIC CARBON BY E415.1 | | | **Matrix:** Water | | |
| HS17101366-01 | LH18/24-SP650-102517 | 25 Oct 2017 14:00 | | | 02 Nov 2017 20:39 | 5 |
| **Batch ID** R305286 | **Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850) | | | **Matrix:** Water | | |
| HS17101366-01 | LH18/24-SP650-102517 | 25 Oct 2017 14:00 | | | 13 Nov 2017 09:46 | 1 |

**ALS Group USA, Corp** Date: 13-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Weekly Samples
**WorkOrder:** HS17101366

**QC BATCH REPORT**

**Batch ID: R304352** **Instrument: UV-2450** **Method: E365.3**

**MBLK** Sample ID: **MBLK-304352** Units: **mg/L** Analysis Date: **26-Oct-2017 17:38**
Client ID: Run ID: **UV-2450_304352** SeqNo: **4284447** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Phosphorus, Total Orthophosphate (As P) | 0.0125 | 0.0250 | | | | | | | | U |

**LCS** Sample ID: **LCS-304352** Units: **mg/L** Analysis Date: **26-Oct-2017 17:38**
Client ID: Run ID: **UV-2450_304352** SeqNo: **4284448** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Phosphorus, Total Orthophosphate (As P) | 0.235 | 0.0250 | 0.25 | 0 | 94.0 | 80 - 120 | | | | |

**LCSD** Sample ID: **LCSD-304352** Units: **mg/L** Analysis Date: **26-Oct-2017 17:38**
Client ID: Run ID: **UV-2450_304352** SeqNo: **4284449** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Phosphorus, Total Orthophosphate (As P) | 0.239 | 0.0250 | 0.25 | 0 | 95.6 | 80 - 120 | 0.235 | 1.69 | 20 | |

**MS** Sample ID: **HS17101366-01MS** Units: **mg/L** Analysis Date: **26-Oct-2017 17:38**
Client ID: **LH18/24-SP650-102517** Run ID: **UV-2450_304352** SeqNo: **4284451** PrepDate: DF: **5**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Phosphorus, Total Orthophosphate (As P) | 3.45 | 0.125 | 1.25 | 2.18 | 102 | 80 - 120 | | | | |

**MSD** Sample ID: **HS17101366-01MSD** Units: **mg/L** Analysis Date: **26-Oct-2017 17:38**
Client ID: **LH18/24-SP650-102517** Run ID: **UV-2450_304352** SeqNo: **4284452** PrepDate: DF: **5**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Phosphorus, Total Orthophosphate (As P) | 3.46 | 0.125 | 1.25 | 2.18 | 102 | 80 - 120 | 3.45 | 0.289 | 20 | |

**The following samples were analyzed in this batch:** HS17101366-01

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 13-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Weekly Samples
**WorkOrder:** HS17101366

**QC BATCH REPORT**

**Batch ID: R304507** **Instrument: WetChem_HS** **Method: E350.3**

**MBLK** Sample ID: **MBLK-R304507** Units: **mg/L** Analysis Date: **31-Oct-2017 11:45**
Client ID: Run ID: **WetChem_HS_304507** SeqNo: **4287937** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, Ammonia (As N) | 0.20 | 0.20 | | | | | | | | U |

**LCS** Sample ID: **LCS-R304507** Units: **mg/L** Analysis Date: **31-Oct-2017 11:45**
Client ID: Run ID: **WetChem_HS_304507** SeqNo: **4287936** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, Ammonia (As N) | 10.14 | 0.20 | 10 | 0 | 101 | 80 - 120 | | | | |

**MS** Sample ID: **HS17101070-01MS** Units: **mg/L** Analysis Date: **31-Oct-2017 11:45**
Client ID: Run ID: **WetChem_HS_304507** SeqNo: **4287939** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, Ammonia (As N) | 10.06 | 0.20 | 10 | 0.04312 | 100 | 80 - 120 | | | | |

**MSD** Sample ID: **HS17101070-01MSD** Units: **mg/L** Analysis Date: **31-Oct-2017 11:45**
Client ID: Run ID: **WetChem_HS_304507** SeqNo: **4287938** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, Ammonia (As N) | 10.03 | 0.20 | 10 | 0.04312 | 99.9 | 80 - 120 | 10.06 | 0.299 | 20 | |

**The following samples were analyzed in this batch:** HS17101366-01

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 13-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Weekly Samples
**WorkOrder:** HS17101366

**QC BATCH REPORT**

**Batch ID: R304763** **Instrument: TOC_02** **Method: E415.1**

**MBLK** Sample ID: **WBLKW1-110217** Units: **mg/L** Analysis Date: **02-Nov-2017 19:55**
Client ID: Run ID: **TOC_02_304763** SeqNo: **4293502** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Organic Carbon, Total | 0.500 | 1.00 | | | | | | | | U |

**LCS** Sample ID: **WLCSW1-110217** Units: **mg/L** Analysis Date: **02-Nov-2017 20:10**
Client ID: Run ID: **TOC_02_304763** SeqNo: **4293503** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Organic Carbon, Total | 9.696 | 1.00 | 10 | 0 | 97.0 | 80 - 120 | | | | |

**LCSD** Sample ID: **WLCSDW1-110217** Units: **mg/L** Analysis Date: **02-Nov-2017 20:23**
Client ID: Run ID: **TOC_02_304763** SeqNo: **4293504** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Organic Carbon, Total | 9.731 | 1.00 | 10 | 0 | 97.3 | 80 - 120 | 9.696 | 0.36 | 20 | |

**MS** Sample ID: **HS17101655-01MS** Units: **mg/L** Analysis Date: **02-Nov-2017 21:22**
Client ID: Run ID: **TOC_02_304763** SeqNo: **4293508** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Organic Carbon, Total | 20.11 | 1.00 | 10 | 10.71 | 94.0 | 80 - 120 | | | | |

**The following samples were analyzed in this batch:** HS17101366-01

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 13-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Weekly Samples
**WorkOrder:** **HS17101366**

**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 |

## CERTIFICATIONS,ACCREDITATIONS & LICENSES

| Agency | Number | Expire Date |
|---|---|---|
| Arkansas | 17-027-0 | 27-Mar-2018 |
| California | 2919 2016-2018 | 31-Jul-2018 |
| Illinois | 004112 | 09-May-2018 |
| Kentucky | 123043 | 30-Apr-2018 |
| Louisiana | 03087 2017-2017 | 30-Jun-2018 |
| North Carolina | 624-2017 | 31-Dec-2017 |
| North Dakota | R193 2017-2017 | 30-Apr-2018 |
| Oklahoma | 2017-088 | 31-Aug-2018 |
| Texas | T104704231-17-19 | 30-Apr-2018 |

**ALS Group USA, Corp** Date: 13-Nov-17

## Sample Receipt Checklist

Client Name: Bhate Environmental
Work Order: HS17101366
Date/Time Received: **26-Oct-2017 08:50**
Received by: **JRM**

Checklist completed by: *Jared R. Makan* 26-Oct-2017
eSignature | Date

Reviewed by: _____
eSignature | Date

Matrices: **Water**
Carrier name: **ALS Courier**

| | | | |
|---|---|---|---|
| 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 ☑ |
| Chain of custody present? | Yes ☑ | No ☐ | |
| Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | |
| Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | |
| Samples in proper container/bottle? | Yes ☑ | No ☐ | |
| Sample containers intact? | Yes ☑ | No ☐ | |
| TX1005 solids received in hermetically sealed vials? | Yes ☐ | No ☐ | N/A ☑ |
| 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): | 2.5c/2.2c UC/C | IR30 | |
| Cooler(s)/Kit(s): | Blue | | |
| Date/Time sample(s) sent to storage: | 10/26/2017 10:20 | | |
| 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:

# CHAIN OF CUSTODY

Name Of Lab Shipping To: ALS 10450 Stancliff Rd. Suite 210 Houston, TX. 77099 (281) 530-5656 ATTN: SONIA WEST



**Project:** BHATE
LONGHORN ARMY AMMN. PLANT (LHAAP)
GROUNDWATER TREATMENT PLANT (GWTP)
KARNACK, TEXAS

**Project No.** NWO1312.0150.0 16.0001

**Job:** GROUNDWATER TREATMENT PLANT WEEKLY SAMPLES

**Prepared By:** Scott Beesinger

**P.O. Number**

| Field Sample I.D. | Sample Matrix | Date / Time | MS / MSD | No. OF CONTAINERS | AMMONIA-N | TOTAL ORGANIC CARBON | ORTHO-PHOSPHATE | PERCHLORATE | | | | | | | Remarks (Preservatives, etc.) | Lab I.D.# |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Analyses | | | | | | | | | | | |
| LH18/24-SP650_102517 | Water | 10/25/17 / 14:00 | | 2 | X | X | | | | | | | | | H2SO4 | |
| LH18/24-SP650_102517 | Water | 10/25/17 / 14:00 | | 2 | | | X | X | | | | | | | NONE | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |

Additional Remarks: **Standard TAT on all parameters**

| Relinquished By: | Date | Time | Received By: | Date | Time | Relinquished By: | Date | Time | Received By: | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Scott Beesinger | 10/25/17 | 14:30 | Jm | 10/26/17 | 08:50 | | | | | | |

**For Lab Use Only**

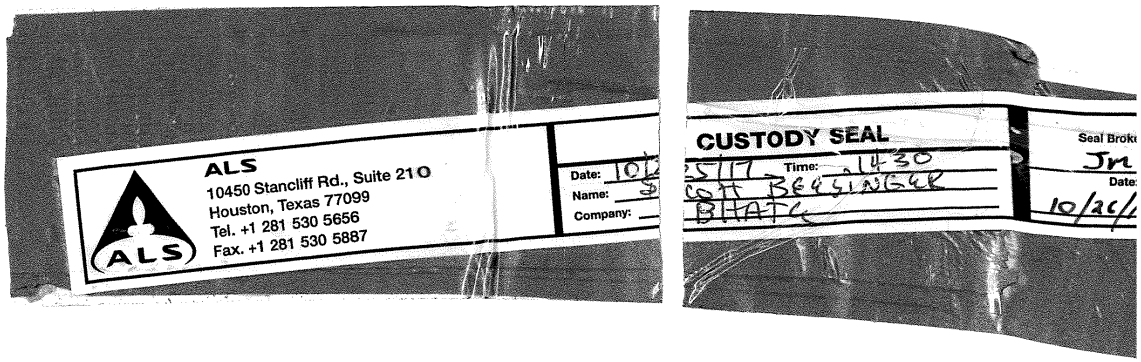
| Received At Lab By: | Date | Time | Airbill No. | Opened By: | Date | Time | Temp of Container | Seal No. | Condition |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |

Remarks: Cooler 43221 1430
Temp 2.5 CF-0.3

**HS17101366**

Bhate Environmental Associates, Inc.
Longhorn GW Treatment Plant

(Word) S:\1-ces\Forms\Chain of Custody - BiWeekly


ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887
Date:
Name:
Company:
CUSTODY SEAL
Time:
Date:


TRK# 0221 7376 9749 3221
RETURNS MON-SAT
PRIORITY OVERNIGHT
FedEx
TRK# 0221 7376 9749 3221
THU - 26 OCT 10:30A
PRIORITY OVERNIGHT
77099
TX-US
AB SGRA
IAH
FID 162705 250CT17 GGGA 546C4/94FC/0C8A

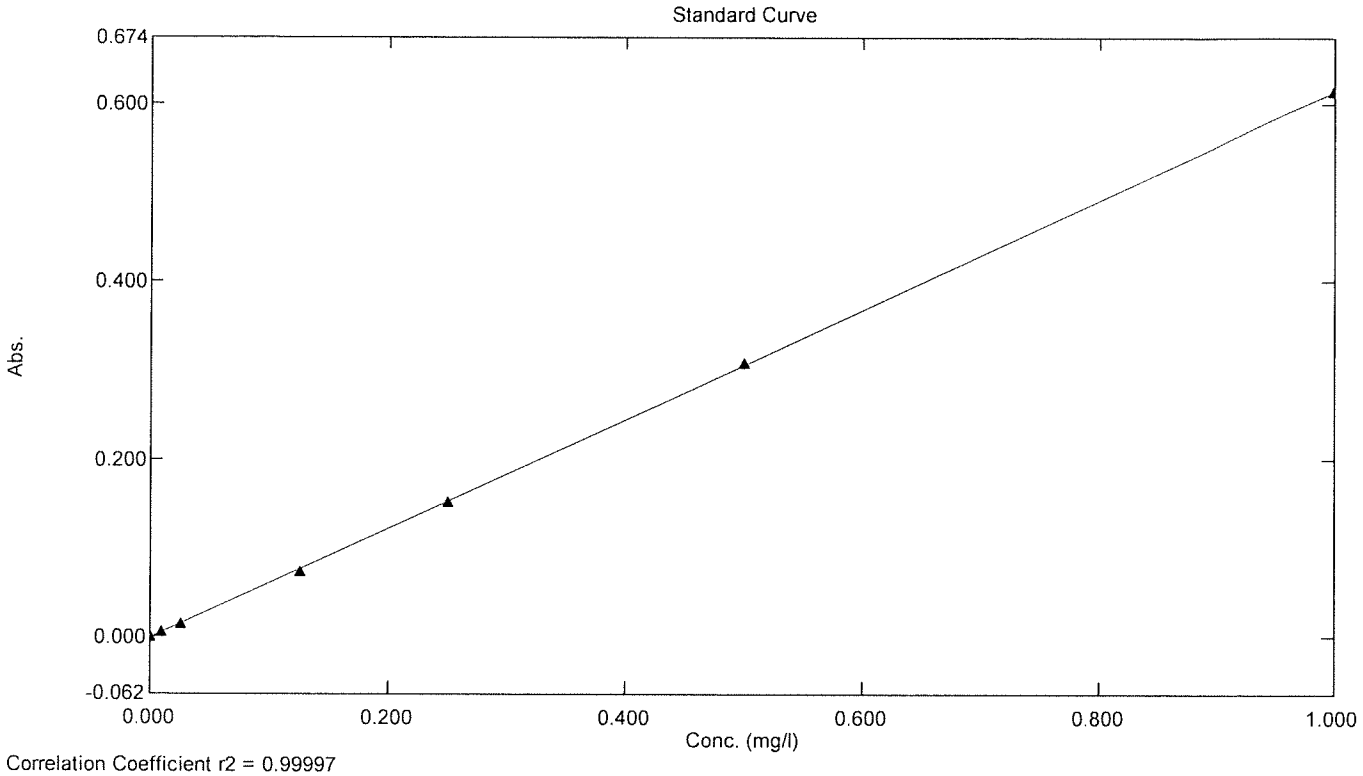
# Wet Chemistry Raw Data

Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Weekly Samples
ALS WO# HS17101366

# Standard Table Report

11/16/2017 05:20:17 PM

File Name: Q:\UVProbe\O_PO4_UNKNOWN\171026_P_ORTHO_W.pho




Correlation Coefficient r2 = 0.99997

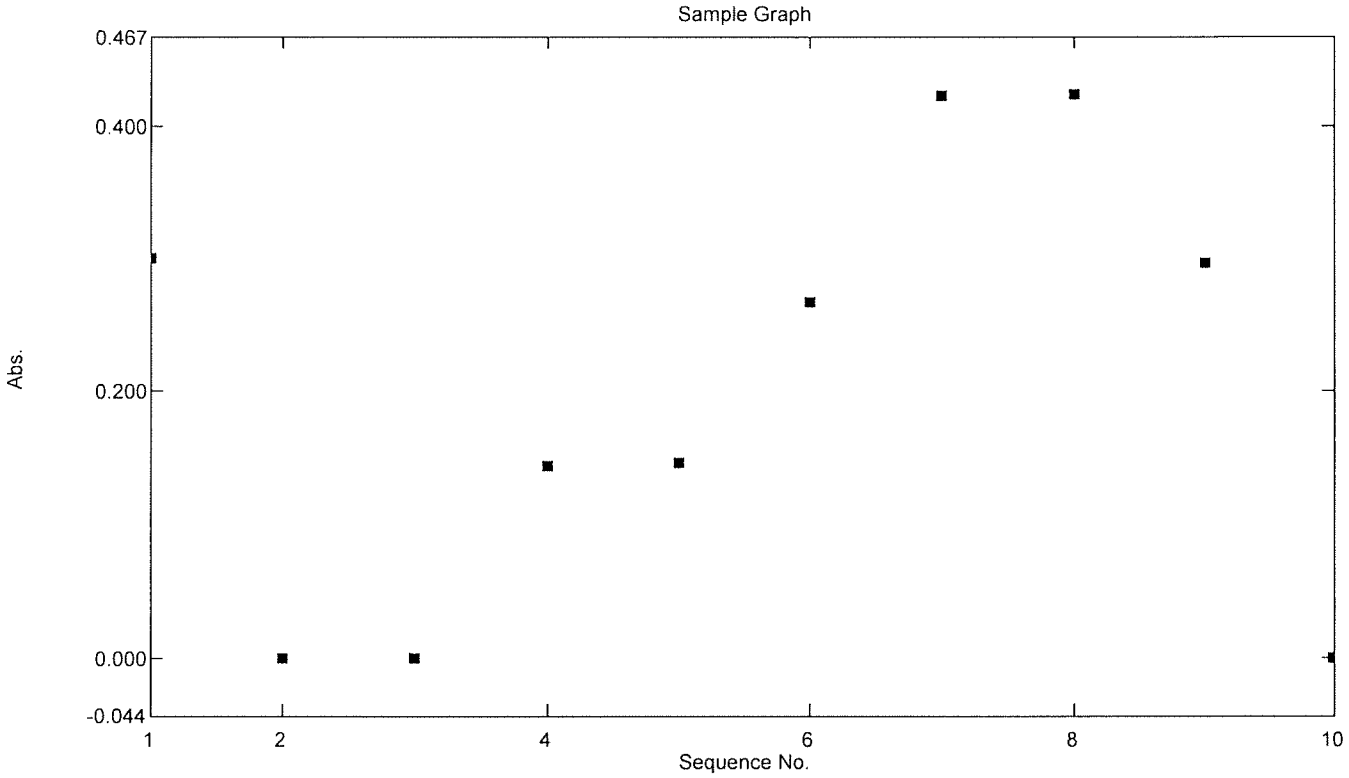
Standard Table

| | Sample ID | Type | Ex | Conc | WL880.0 | Wgt.Facto | Comments |
|---|---|---|---|---|---|---|---|
| 1 | STD1 | Standard | | 0.000 | 0.000 | 1.000 | |
| 2 | STD2 | Standard | | 0.010 | 0.006 | 1.000 | |
| 3 | STD3 | Standard | | 0.025 | 0.015 | 1.000 | |
| 4 | STD4 | Standard | | 0.125 | 0.074 | 1.000 | |
| 5 | STD5 | Standard | | 0.250 | 0.152 | 1.000 | |
| 6 | STD6 | Standard | | 0.500 | 0.308 | 1.000 | |
| 7 | STD7 | Standard | | 1.000 | 0.613 | 1.000 | |
| 8 | | | | | | | |

# Sample Table Report

11/16/2017 05:20:19 PM

File Name: Q:\UVProbe\O_PO4_UNKNOWN\171026_P_ORTHO_W.pho




Sample Table

| | Sample ID | Type | Ex | Conc | WL880.0 | Comments |
|---|---|---|---|---|---|---|
| 1 | CCV | Unknown | | 0.492 | 0.301 | |
| 2 | CCB2 | Unknown | | -0.001 | -0.001 | CCB |
| 3 | MBLK | Unknown | | 0.000 | -0.000 | |
| 4 | LCS | Unknown | | 0.235 | 0.144 | |
| 5 | LCSD | Unknown | | 0.239 | 0.147 | |
| 6 | 17101366.01 | Unknown | | 0.436 | 0.267 | |
| 7 | 17101366.01MS | Unknown | | 0.690 | 0.423 | |
| 8 | 17101366.01MSD | Unknown | | 0.692 | 0.425 | |
| 9 | CCV2 | Unknown | | 0.484 | 0.297 | |
| 10 | CCB3 | Unknown | | -0.000 | -0.001 | CCB2 |
| 11 | | | | | | |

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

HS17101366

# Ion Selective Electrode Logbook

Analyst: KMU

Date: 10/31/17 @ 11:45am

Method: SM4500NH3-D or SM4500 F⁻ C or SW9214 F⁻ or 351.3/4500NH3

SOP: WC-027 or WC-004 or WC-007 or WC-033

Probe Calibration: prep'd: 10/25/17 ID#s: 304-147 (801-806)

Cal Std ID:

Probe ID: SR1-15910

| Std Level | | mV | Conc., mg/L: |
|---|---|---|---|
| STD 1 (mg/L): | 0.2 | 111.1 | 0.2003 |
| STD 2 (mg/L): | 1.0 | 72.1 | 1.000 |
| STD 3 (mg/L): | 5.0 | 35.4 | 5.008 |

Matrix: Water / Soil (1: 10 -- soil -gm : DI Water -ml)

| Std Level | mV | Conc., mg/L: |
|---|---|---|
| STD 4 (mg/L): 10 | 18.9 | 10.02 |
| STD 5 (mg/L): 50 | -20.1 | 50.00 |

LSC / MS Spike ID: 297-020-4006

Ical Slope: 93.9 / -55.4 mV

Ical Date: 10/31/17 KMU 10/31/17 10/31/17

| WO # / SX # | Bottle # | Initial g or ml | Final Vol. ml | Dilution Factor | Initial Conc. mg/L | Final Conc. mg/L | Comments |
|---|---|---|---|---|---|---|---|
| CCV-1/#CV | | 50 | 50 | 1 | 9.908 | | |
| CCB-1/#CB | | | | 1 | 0.03149 | | |
| WBLKW1-103117 | | | | 1 | 0.03164 | | |
| WLCSW1-103117 | | | | 1 | 10.14 | | |
| HS17101366-01 | | 10mL | | 5 | 4.010 | | NH4-Amm-W-E350.3=ISE odor |
| 1510-01 | | 10mL | | 5 | 3.097 | | +Cl2 ✓ DF due to Cl2-treated ✓ |
| 1511-01 | | 5mL | | 10 | 3.441 | | +Cl2 ✓ |
| 1511-02 | | 10mL | | 5 | 0.03125 | | +Cl2 ✓ RL01 |
| 1070-01 | | 50 | | 1 | 0.04312 | | NH4-Amm-W-ISE |
| 1070-01MS | | | | | 10.06 | | |
| 1070-01MSD | | | | | 10.03 | | |
| 1220-01 | | | | | 0.2525 | | |
| CCV-2 | | | | | 9.902 | | |
| CCB-2 | | | | | 0.03539 | | |
| HS17101302-02 | | | | | 0.06476 | | |
| 1304-02 | | | | | 0.09076 | | |
| 1210-01 | | | | | 0.2491 | | |
| 1210-02 | | | | | 0.2718 | | |
| 1222-01 | | | | | 0.04735 | | |
| 1178-01 | | 10mL | | 5 | 34.13 | | |
| 1344-01 | | 10mL | | 5 | 5.553 | | +Cl2 ✓ DF due to high Cl2-treated |
| 1345-01 | | 10mL | | 5 | 1.426 | | +Cl2 ✓ |
| 1346-01 | | 10mL | | 5 | 1.078 | | +Cl2 ✓ |
| CCV-3 | | 50 | | 1 | 10.27 | | |
| CCB-3 | | 50 | | 1 | 0.03472 | | |

Batch ID: 350.3 ISE R# 304507 / NH4-Amm-W-ISE R# 304511

Reported By: KMU

Reviewed By: 10/31/17


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HS17101366



| | Analysis | Sample Name | Sample ID | Origin | Result | Status | Date / Time | Vial |
|---|---|---|---|---|---|---|---|---|
| 1 | NPOC | CCV | 304.147.903 | 10-16-2 | NPOC:25.52mg/L | Completed | 11/2/2017 7:32:56 PM | 1 |
| 2 | NPOC | CCB | Untitled | 10-16-2 | NPOC:0.2900mg/L | Completed | 11/2/2017 7:46:09 PM | 2 |
| 3 | NPOC | WBLKW1-110217 | TOC_W | 10-16-2 | NPOC:0.2427mg/L | Completed | 11/2/2017 8:01:27 PM | 3 |
| 4 | NPOC | WLCSW1-110217 | 297.020.4418 | 10-16-2 | NPOC:9.696mg/L | Completed | 11/2/2017 8:14:50 PM | 4 |
| 5 | NPOC | WLCSDW1-110217 | Untitled | 10-16-2 | NPOC:9.731mg/L | Completed | 11/2/2017 8:30:18 PM | 5 |
| 6 | NPOC | HS17101366-01DF5 | 1/1 ODOR | 10-16-2 | NPOC:12.40mg/L | Completed | 11/2/2017 8:45:31 PM | 6 |
| 7 | NPOC | HS17110082-01DF5 | 1/1 ODOR | 10-16-2 | NPOC:4.962mg/L | Completed | 11/2/2017 9:00:44 PM | 7 |
| 8 | NPOC | HS17101655-01 | 1/2 | 10-16-2 | NPOC:10.71mg/L | Completed | 11/2/2017 9:13:52 PM | 8 |
| 9 | NPOC | HS17101655-01MS | 1/2 | 10-16-2 | NPOC:20.11mg/L | Completed | 11/2/2017 9:29:10 PM | 9 |
| 10 | NPOC | HS17101621-01 | 5310B 1/2 | 10-16-2 | NPOC:0.2976mg/L | Completed | 11/2/2017 9:44:23 PM | 10 |
| 11 | NPOC | HS17101622-01 | 5310B 1/2 | 10-16-2 | NPOC:0.2492mg/L | Completed | 11/2/2017 9:59:36 PM | 11 |
| 12 | NPOC | HS17101624-01 | 5310B 1/1 | 10-16-2 | NPOC:0.2610mg/L | Completed | 11/2/2017 10:12:44 PM | 12 |
| 13 | NPOC | CCV | Untitled | 10-16-2 | NPOC:24.42mg/L | Completed | 11/2/2017 10:26:08 PM | 13 |
| 14 | NPOC | CCB | Untitled | 10-16-2 | NPOC:0.2918mg/L | Completed | 11/2/2017 10:41:26 PM | 14 |

Instr.Information

| | |
|---|---|
| System | TOC csh with asi |
| Instrument Options | TOC/ASI/IC Unit/ |
| Catalyst | Regular Sensitivity |

Cal. Curve

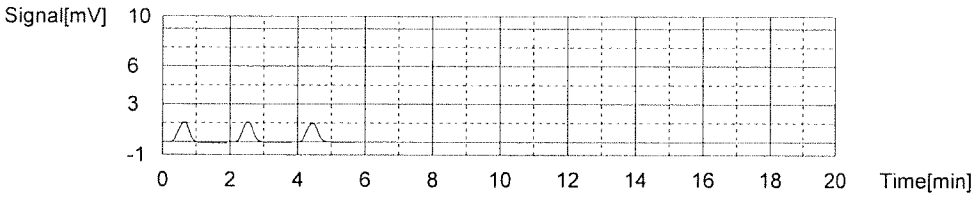
| | |
|---|---|
| Sample Name: | CAL |
| Sample ID: | 304146903 |
| Cal. Curve: | 10-16-2017_W.2017_10_16_17_39_41.cal |
| Status | Completed |

| Type | Anal. |
|---|---|
| Standard | NPOC |

Conc: 1.000mg/L

| No. | Area | Inj. Vol. | Aut. Dil. | Rem. | Ex. | Date / Time |
|---|---|---|---|---|---|---|
| 1 | 3.430 | 50uL | 1 | ******** | | 10/16/2017 5:48:58 PM |
| 2 | 3.301 | 50uL | 1 | ******** | | 10/16/2017 5:51:03 PM |
| 3 | 3.288 | 50uL | 1 | ******** | | 10/16/2017 5:53:08 PM |

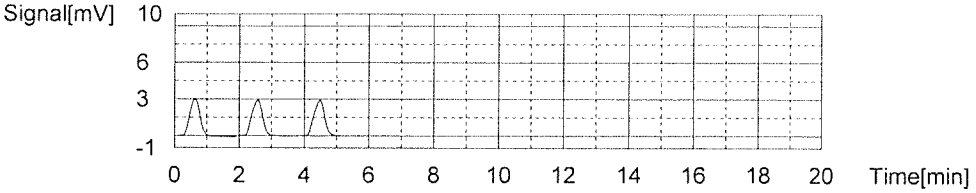
Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 3.340




Conc: 2.000mg/L

| No. | Area | Inj. Vol. | Aut. Dil. | Rem. | Ex. | Date / Time |
|---|---|---|---|---|---|---|
| 1 | 6.550 | 50uL | 1 | ******** | | 10/16/2017 6:02:20 PM |
| 2 | 6.642 | 50uL | 1 | ******** | | 10/16/2017 6:04:25 PM |
| 3 | 6.460 | 50uL | 1 | ******** | | 10/16/2017 6:06:30 PM |

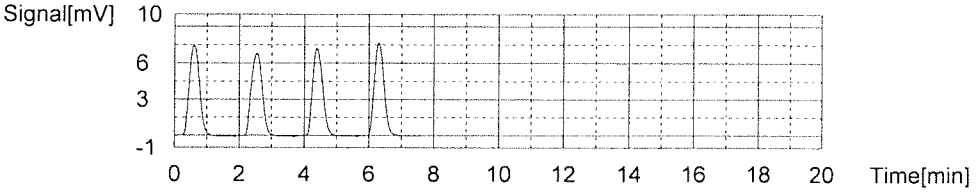
Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 6.551




Conc: 5.000mg/L

| No. | Area | Inj. Vol. | Aut. Dil. | Rem. | Ex. | Date / Time |
|---|---|---|---|---|---|---|
| 1 | 16.40 | 50uL | 1 | ******** | E | 10/16/2017 6:15:42 PM |
| 2 | 16.13 | 50uL | 1 | ******** | | 10/16/2017 6:17:47 PM |
| 3 | 15.62 | 50uL | 1 | ******** | | 10/16/2017 6:19:52 PM |
| 4 | 15.82 | 50uL | 1 | ******** | | 10/16/2017 6:21:57 PM |

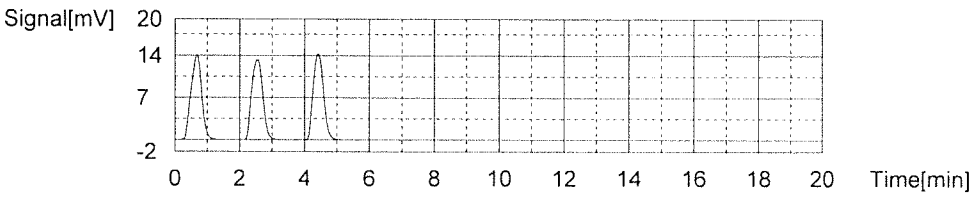
Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 15.86




Conc: 10.00mg/L

| No. | Area | Inj. Vol. | Aut. Dil. | Rem. | Ex. | Date / Time |
|---|---|---|---|---|---|---|
| 1 | 31.78 | 50uL | 1 | ******** | | 10/16/2017 6:30:55 PM |
| 2 | 31.39 | 50uL | 1 | ******** | | 10/16/2017 6:33:00 PM |
| 3 | 31.59 | 50uL | 1 | ******** | | 10/16/2017 6:35:05 PM |

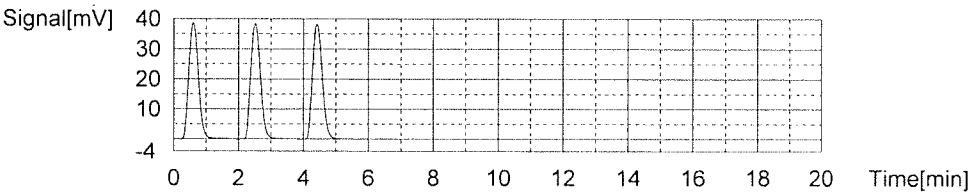
Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 31.59




Conc: 25.00mg/L

| No. | Area | Inj. Vol. | Aut. Dil. | Rem. | Ex. | Date / Time |
|---|---|---|---|---|---|---|
| 1 | 78.26 | 50uL | 1 | ******** | | 10/16/2017 6:44:18 PM |
| 2 | 78.67 | 50uL | 1 | ******** | | 10/16/2017 6:46:23 PM |
| 3 | 79.38 | 50uL | 1 | ******** | | 10/16/2017 6:48:28 PM |

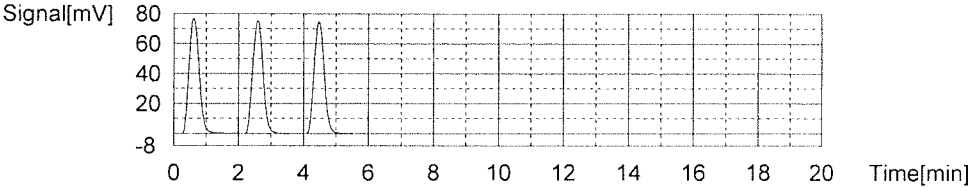
Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 78.77



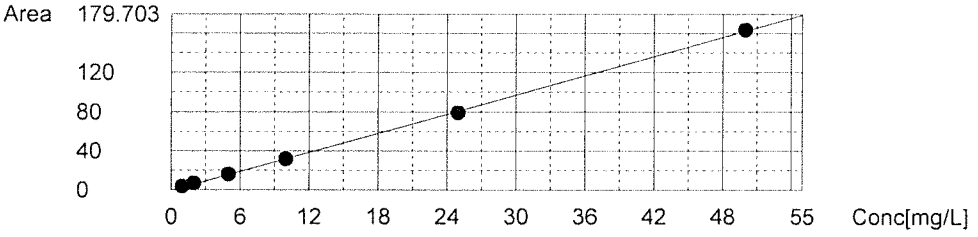

Conc: 50.00mg/L

| No. | Area | Inj. Vol. | Aut. Dil. | Rem. | Ex. | Date / Time |
|---|---|---|---|---|---|---|
| 1 | 164.9 | 50uL | 1 | ******** | | 10/16/2017 6:57:42 PM |
| 2 | 164.9 | 50uL | 1 | ******** | | 10/16/2017 6:59:47 PM |
| 3 | 160.3 | 50uL | 1 | ******** | | 10/16/2017 7:01:52 PM |

Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 163.4




Slope: 3.257
Intercept -0.5787
r^2 0.9997
r 0.9998
Zero Shift No




Sample

Sample Name: ICV
Sample ID: 304147002
Origin: 10-16-2017_W.cal
Status Completed
Chk. Result

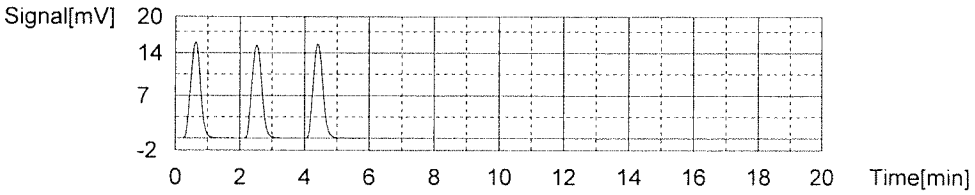
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:10.16mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 32.84 | 10.26mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 10/16/2017 7:58:36 PM |
| 2 | 32.50 | 10.15mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 10/16/2017 8:00:41 PM |
| 3 | 32.24 | 10.07mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 10/16/2017 8:02:46 PM |

Mean Area 32.53
Mean Conc. 10.16mg/L




Sample

Sample Name: ICB
Sample ID: Untitled
Origin: 10-16-2017_W.cal
Status Completed
Chk. Result

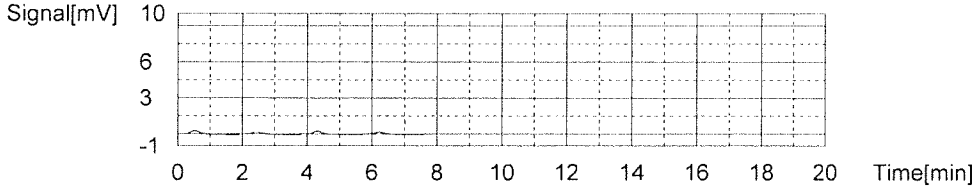
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:0.2618mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 0.4693 | 0.3217mg/L | 50uL | 1 | E | 10-16-2017_W.2017_10_16_17_39_41.cal | 10/16/2017 8:11:49 PM |
| 2 | 0.2438 | 0.2525mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 10/16/2017 8:13:54 PM |
| 3 | 0.3477 | 0.2844mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 10/16/2017 8:15:59 PM |
| 4 | 0.2307 | 0.2485mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 10/16/2017 8:18:04 PM |

Mean Area 0.2741
Mean Conc. 0.2618mg/L



Instr.Information

| | |
|---|---|
| System | TOC csh with asi |
| Instrument Options | TOC/ASI/IC Unit/ |
| Catalyst | Regular Sensitivity |

Sample

| | |
|---|---|
| Sample Name: | CCV |
| Sample ID: | 304.147.903 |
| Origin: | 10-16-2017_W.cal |
| Status | Completed |
| Chk. Result | |

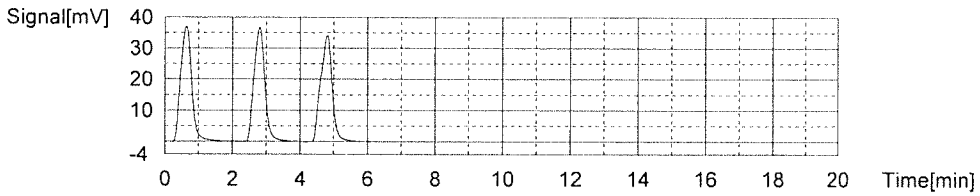
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:25.52mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 84.05 | 25.98mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 7:28:37 PM |
| 2 | 82.32 | 25.45mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 7:30:45 PM |
| 3 | 81.26 | 25.12mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 7:32:56 PM |

Mean Area 82.54
Mean Conc. 25.52mg/L




Sample

| | |
|---|---|
| Sample Name: | CCB |
| Sample ID: | Untitled |
| Origin: | 10-16-2017_W.cal |
| Status | Completed |
| Chk. Result | |

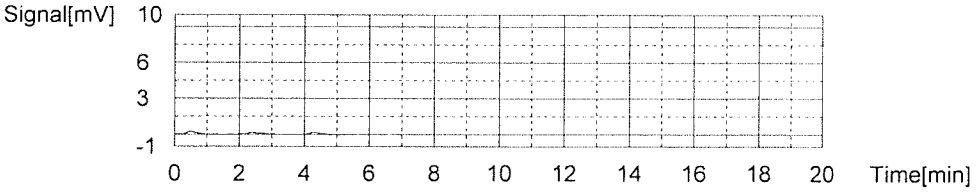
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:0.2900mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 0.4588 | 0.3185mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 7:41:59 PM |
| 2 | 0.3349 | 0.2805mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 7:44:04 PM |
| 3 | 0.3045 | 0.2711mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 7:46:09 PM |

Mean Area 0.3661
Mean Conc. 0.2900mg/L



Sample

Sample Name: WBLKW1-110217
Sample ID: TOC_W
Origin: 10-16-2017_W.cal
Status Completed
Chk. Result

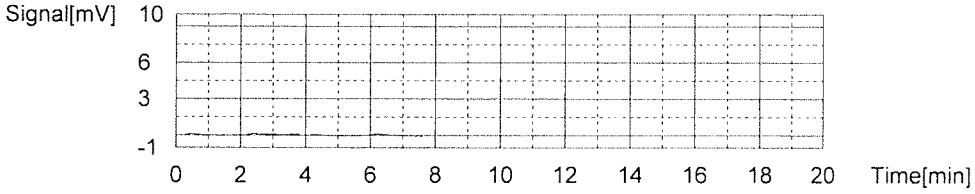
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:0.2427mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 0.2048 | 0.2405mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 7:55:12 PM |
| 2 | 0.2833 | 0.2646mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 7:57:17 PM |
| 3 | 0.000 | 0.1777mg/L | 50uL | 1 | E | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 7:59:22 PM |
| 4 | 0.1479 | 0.2231mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 8:01:27 PM |

Mean Area 0.2120
Mean Conc. 0.2427mg/L




Sample

Sample Name: WLCSW1-110217
Sample ID: 297.020.4418
Origin: 10-16-2017_W.cal
Status Completed
Chk. Result

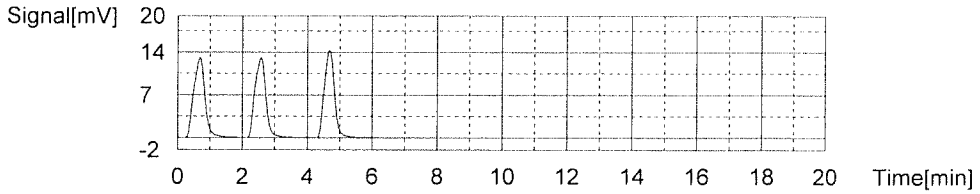
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:9.696mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 31.24 | 9.768mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 8:10:25 PM |
| 2 | 30.79 | 9.630mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 8:12:45 PM |
| 3 | 30.99 | 9.691mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 8:14:50 PM |

Mean Area 31.01
Mean Conc. 9.696mg/L



Sample

Sample Name: WLCSDW1-110217
Sample ID: Untitled
Origin: 10-16-2017_W.cal
Status Completed
Chk. Result

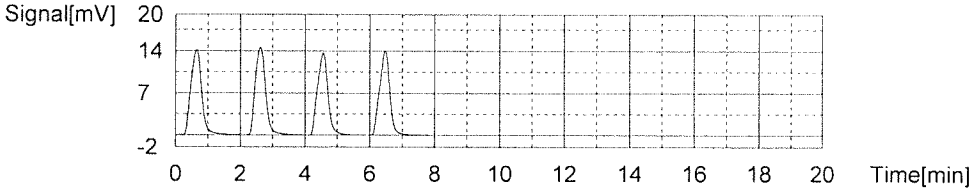
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:9.731mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 32.41 | 10.13mg/L | 50uL | 1 | E | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 8:23:59 PM |
| 2 | 31.99 | 9.998mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 8:26:04 PM |
| 3 | 30.89 | 9.661mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 8:28:09 PM |
| 4 | 30.48 | 9.535mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 8:30:18 PM |

Mean Area 31.12
Mean Conc. 9.731mg/L




Sample

Sample Name: HS17101366-01DF5
Sample ID: 1/1 ODOR
Origin: 10-16-2017_W.cal
Status Completed
Chk. Result

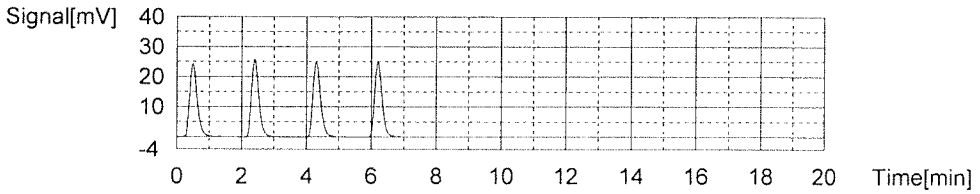
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:12.40mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 39.30 | 12.24mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 8:39:16 PM |
| 2 | 40.88 | 12.73mg/L | 50uL | 1 | E | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 8:41:21 PM |
| 3 | 40.73 | 12.68mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 8:43:26 PM |
| 4 | 39.43 | 12.28mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 8:45:31 PM |

Mean Area 39.82
Mean Conc. 12.40mg/L




Sample

Sample Name: HS17101655-01
Sample ID: 1/2
Origin: 10-16-2017_W.cal
Status Completed
Chk. Result

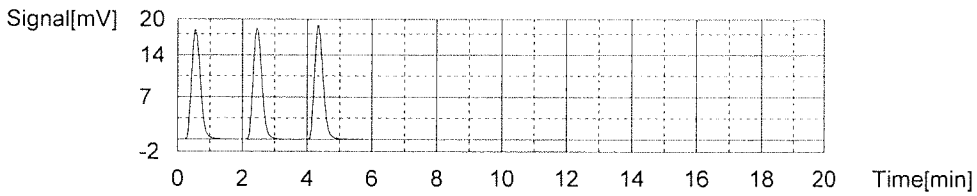
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:10.71mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 34.38 | 10.73mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 9:09:42 PM |
| 2 | 34.35 | 10.72mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 9:11:47 PM |
| 3 | 34.21 | 10.68mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 9:13:52 PM |

Mean Area 34.31
Mean Conc. 10.71mg/L




Sample

Sample Name: HS17101655-01MS
Sample ID: 1/2
Origin: 10-16-2017_W.cal
Status Completed
Chk. Result

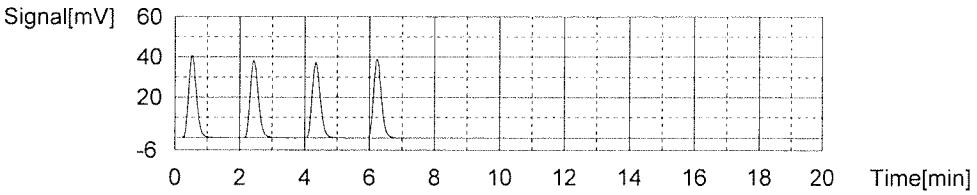
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:20.11mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 68.19 | 21.11mg/L | 50uL | 1 | E | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 9:22:55 PM |
| 2 | 66.24 | 20.51mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 9:25:00 PM |
| 3 | 64.47 | 19.97mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 9:27:05 PM |
| 4 | 64.12 | 19.86mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 9:29:10 PM |

Mean Area 64.94
Mean Conc. 20.11mg/L




Sample

Sample Name: CCV
Sample ID: Untitled
Origin: 10-16-2017_W.cal
Status Completed
Chk. Result

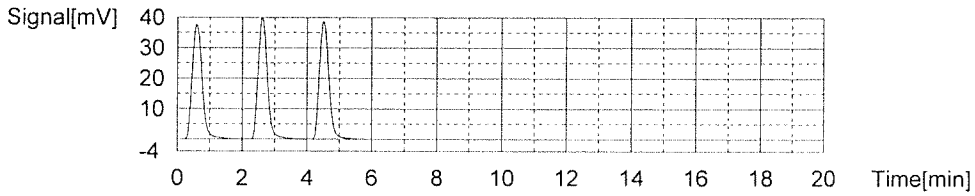
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:24.42mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 79.92 | 24.71mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 10:21:55 PM |
| 2 | 78.58 | 24.30mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 10:24:00 PM |
| 3 | 78.42 | 24.25mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 10:26:08 PM |

Mean Area 78.97
Mean Conc. 24.42mg/L




Sample

Sample Name: CCB
Sample ID: Untitled
Origin: 10-16-2017_W.cal
Status Completed
Chk. Result

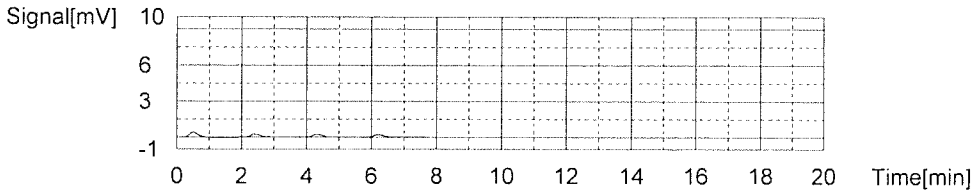
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:0.2918mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 0.7350 | 0.4033mg/L | 50uL | 1 | E | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 10:35:11 PM |
| 2 | 0.3840 | 0.2956mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 10:37:16 PM |
| 3 | 0.4117 | 0.3041mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 10:39:21 PM |
| 4 | 0.3193 | 0.2757mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 10:41:26 PM |

Mean Area 0.3717
Mean Conc. 0.2918mg/L



# Sub Contract Data

Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Weekly Samples
ALS WO# HS17101366

# Case Narrative

**Method:** 6850
**Analysis:** Perchlorate
**Analysis SOP:** LC-MS-CLO4
**ALS WO ID(s):** 1730040; 1730755

**Client:** ALS Laboratories (Houston, TX)
**Matrix:** Water
**ELMS Batch (HBN):** 1990 (202348)

**General Set Information:** There were two 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 573327) was less than 1/2 the CRDL. The recovery for the LCS (573328) was within acceptable parameters.

**MS/MSD Analysis:** The matrix spike and matrix spike duplicate (MS/MSD) was performed on sample 1730040001 (Client ID: LH18/24-SP650-102517). 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):** None were required for this set.

**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 5.0. Manual Integrations were performed for the Initial Calibration analyses (datafiles: 07SEPP01-10) along with datafiles 08NOVP01-11.

Thomas Bosch November 10, 2017
Date

# ANALYTICAL REPORT

Report Date: November 10, 2017

Sonia West
ALS Environmental
10450 Stancliff Rd.
Suite 210
Houston, TX 77099

Phone: (281) 530-5656

E-mail: Sonia.West@alsglobal.com

Workorder: **34-1730040**
Project ID: HS17101366
Purchase Order: HS17101366
Project Manager Kevin W. Griffiths

| Client Sample ID | Lab ID | Collect Date | Receive Date | Sampling Site |
|---|---|---|---|---|
| LH18/24-SP650-102517 | 1730040001 | 10/25/17 | 10/27/17 | |

# ANALYTICAL REPORT

**Workorder:** 34-1730040
**Client:** ALS Environmental (Houston)
**Project Manager:** Kevin W. Griffiths

## Analytical Results

| | | |
|---|---|---|
| Sample ID: **LH18/24-SP650-102517** | Sampling Site: NA | Collected: 10/25/2017 |
| Lab ID: 1730040001 | Media: 250 mL Nalgene | Received: 10/27/2017 |
| Matrix: Water | Sampling Parameter: NA | |

**Analysis Method - EPA 6850, DoD QSM**

| | | |
|---|---|---|
| **Preparation:** Not Applicable | **Analysis:** EPA 6850, DoD QSM Water | **Instrument ID:** LCMS03 |
| | **Batch:** ELMS/1990 (HBN: 202348) | **Percent Solid:** NA |
| | **Analyzed:** 11/08/2017 13:24 | **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 |

## 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>11/10/2017 12:19 | /S/ Stephen Brose<br>11/10/2017 14:43 |

## 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

# ANALYTICAL REPORT

**Workorder:** 34-1730040
**Client:** ALS Environmental (Houston)
**Project Manager:** Kevin W. Griffiths

## 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 (Standard) | Certificate Number | Website |
|---|---|---|---|
| Environmental | ANAB (DoD ELAP) | ADE-1420 | http://www.anab.org/accredited-organizations/ |
| | Utah (NELAC) | DATA1 | http://health.utah.gov/lab/labimp/ |
| | Nevada | UT00009 | http://ndep.nv.gov/bsdw/labservice.htm |
| | Oklahoma | UT00009 | http://www.deq.state.ok.us/CSDnew/ |
| | Iowa | IA# 376 | http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx |
| | Texas (TNI) | T104704456-11-1 | http://www.tceq.texas.gov/field/qa/lab_accred_certif.html |
| | Washington | C596-16 | http://www.ecy.wa.gov/programs/eap/labs/index.html |
| | Kansas | E-10416 | http://www.kdheks.gov/lipo/index.html |
| Industrial Hygiene | AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP) | 101574 | http://www.aihaaccreditedlabs.org |
| | Washington | C596-16 | http://www.ecy.wa.gov/programs/eap/labs/index.html |
| Lead Testing: | | | |
| CPSC | ANAB (ISO 17025, CPSC) | ADE-1420 | http://www.anab.org/accredited-organizations/ |
| Soil, Dust, Paint ,Air | AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP) | 101574 | http://www.aihaaccreditedlabs.org |
| Dietary Supplements | ACLASS (ISO 17025) | ADE-1420 | http://www.aclasscorp.com |

# ANALYTICAL REPORT

**Workorder:** 34-1730040
**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:** 1730040

| | | | | | |
|---|---|---|---|---|---|
| **Limits:** | Client SOW/Contract Specified | **Preparation:** | NA | **Analysis:** | EPA 6850 |
| **Basis:** | DoD QSM | **Batch:** | NA | **Batch:** | ELMS/1990 (HBN: 202348) |
| | | **Prepared By:** | NA | **Analyzed By:** | Thomas Bosch |

### Blank

**LMB:** 573327
**Analyzed:** 11/08/2017 12:57
**Units:** ug/L

| Analyte | Result | MDL | RL |
|---|---|---|---|
| Perchlorate | ND | 1 | 2.00 |

### Laboratory Control Sample

**LCS:** 573328
**Analyzed:** 11/08/2017 13:10
**Dilution:** 1
**Units:** ug/L

| Analyte | Result | Target | % Rec | QC Limits | |
|---|---|---|---|---|---|
| Perchlorate | 5.05 | 5.00 | 101 | 78.8 | 123.8 |

### Matrix Spike - Matrix Spike Duplicate

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sample:** | 1730040001 | **MS:** | 573329 | | | | **MSD:** | 573330 | | | |
| **Analyzed:** | 11/08/2017 13:24 | **Analyzed:** | 11/08/2017 13:38 | | | | **Analyzed:** | 11/08/2017 13:51 | | | |
| **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 | 4.47 | 5 | 89.4 | 78.8 | 123.8 | 4.35 | 87.1 | 2.67 | 0.0 | 20.0 |

### Continuing Calibration Verification

| | | | | | | |
|---|---|---|---|---|---|---|
| **CCV:** | 573324 | | | **CCV:** | 573331 | |
| **Analyzed:** | 11/08/2017 12:16 | | | **Analyzed:** | 11/08/2017 14:18 | |
| **Units:** | ug/L | | | **Units:** | ug/L | |
| **Criteria:** | ± 15% | | | **Criteria:** | ± 15% | |

| Analyte | Result | Target | % Rec. | Result | Target | % Rec. |
|---|---|---|---|---|---|---|
| Perchlorate | 26.9 | 25.0 | 108 | 26.9 | 25.0 | 107 |

### Interference Check Sample

**ICSA:** 573326
**Analyzed:** 11/08/2017 12:43
**Units:** ug/L
**Criteria:** ± 30%

| Analyte | Result | Target | % Rec. |
|---|---|---|---|
| Perchlorate | 1.09 | 1.00 | 109 |

### Limit of Detection Verification

| | | | | | | |
|---|---|---|---|---|---|---|
| **LODV:** | 573325 | | | **LODV:** | 573332 | |
| **Analyzed:** | 11/08/2017 12:30 | | | **Analyzed:** | 11/08/2017 14:32 | |
| **Units:** | ug/L | | | **Units:** | ug/L | |
| **Criteria:** | ± 50% | | | **Criteria:** | ± 50% | |

| Analyte | Result | Target | % Rec. | Result | Target | % Rec. |
|---|---|---|---|---|---|---|
| Perchlorate | 1.02 | 1.00 | 102 | 1.15 | 1.00 | 115 |

# Quality Control Sample
# Batch Report

## Analysis Information

**Workorder:** **1730040**

| | | | | | |
|---|---|---|---|---|---|
| **Limits:** | Client SOW/Contract Specified | **Preparation:** | NA | **Analysis:** | EPA 6850 |
| **Basis:** | DoD QSM | **Batch:** | NA | **Batch:** | ELMS/1990 (HBN: 202348) |
| | | **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 |
| 11/10/2017 12:19 | 11/10/2017 14:43 |

## 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

00876287

# ALS Environmental

## CHAIN-OF-CUSTODY

| Project / Job / Task: HS17101366 | Split: | Workorder ID: 1730040 | Level: ENV_LVL4 |
|---|---|---|---|
| Client: ALS Environmental (Houston) | | Account: 8101 | Type: 250Poly |
| Comments: | | | Preservatives: COOL |

| Item | Collect Date/Time | Sample ID | Lab ID | QC | Matrix | Containers ID(s) | Containers Count | Requested Analysis: EPA 6850, DoD QSM |
|---|---|---|---|---|---|---|---|---|
| 1 | 10/25/2017 14:00 | LH18/24-SP650-102517 | 1730040001 | | ~~Soil/Solid/Sediment~~ | A | 1 | A |
| 2 | | | | | WATER | | | |
| 3 | | | | | TB 11.10.17 | | | |
| 4 | | | | | | | | |
| 5 | | | | | | | | |
| 6 | | | | | | | | |
| 7 | | | | | | | | |
| 8 | | | | | | | | |
| 9 | | | | | | | | |
| 10 | | | | | | | | |

37 of 133

### ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

| Relinquished By: (Signature) | Date / Time | Received By: (Signature) | Reason for Transfer / Storage Location |
|---|---|---|---|
| Edwards, Meredith D. | 10/27/2017 08:40 | ALS Sample Receiving | Sample Login |
| R.33.1 | 11.07.17/16:50 | T.Bond | 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 |
|---|---|---|---|
| | | | |

W 1730040

18698/#2

1730040

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: 7921**

**SUBCONTRACT TO:**

ALS Laboratory Group
960 LeVoy Dr
Salt Lake City, UT 84123

**Phone:** +1 801 266 7700

**CUSTOMER INFORMATION:**

| | |
|---|---|
| **Company:** | ALS Houston |
| **Contact:** | Sonia West |
| **Address:** | 10450 Stancliff Rd, Ste 210 |
| **Phone:** | +1 281 530 5656 |
| **Email:** | Sonia.West@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:** | HS17101366 |
| **TSR:** | Danielle Winnings |

| | LAB SAMPLE ID | CLIENT SAMPLE ID | MATRIX | COLLECT DATE |
|---|---|---|---|---|
| | ANALYSIS REQUESTED | | | DUE DATE |
| **1.** | **HS17101366-01** | **LH18/24-SP650-102517** | **Water** | **25 Oct 2017 14:00** |
| | SUB_Perch-6850 | | | 09 Nov 2017 |

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

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

Relinquished By: J. Hamman Date/Time: 10/26/17 18:00

Received By: Desmett Date/Time: 10/27/17 8:40

Cooler ID(s): Temperature(s):

173090

# ALS - SALT LAKE CITY-RELATED INFORMATION REPORT (CRIR)

## COOLER OR CONTAINER INFORMATION CHECKLIST (Fill In or Circle)

Client Name: ALS Houston

Project/Task/Site: 7921/HS1710136e6

Date/Time of Receipt: 10/27/17 8:40

Number of Coolers Received: 1

| | | | |
|---|---|---|---|
| Condition of Coolers: | Acceptable/Unacceptable | Temperature Control: | Present/Not Included |
| Cooler Custody Seals: | Present/Absent/NA | Location Temp Taken: | Control/Between Samples |
| | Intact/Broken/NA | Are all temperatures within project specific guidelines? | Yes/No/NA |
| Container Custody Seals: | Present/Absent/NA | VOA Headspace Present? | Yes/No/NA |
| | Intact/Broken/NA | | |
| Ice Present: | Yes/No/NA | | |
| | Frozen/Melted/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 | TOC Preserved | Yes/No/NA |

| Cooler Received | ALS Cooler No. | Temp. | Cooler Received | ALS Cooler No. | Temp. | Cooler Received | ALSL Cooler No. | Temp. |
|---|---|---|---|---|---|---|---|---|
| 1 | C17- 7941 | 3 °C | 4 | C17- | °C | 7 | C17- | °C |
| 2 | C17- | °C | 5 | C17- | °C | 8 | C17- | °C |
| 3 | C17- | °C | 6 | C17- | °C | 9 | C17- | °C |

Taken By: Desiree Hill (Signature) Desiree Hill (Printed Name) 10/27/17 (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:

Sample arrived in good condition

E-mailed to Client? YES ☐ No ☐

**Response Required Within 24 Hours**

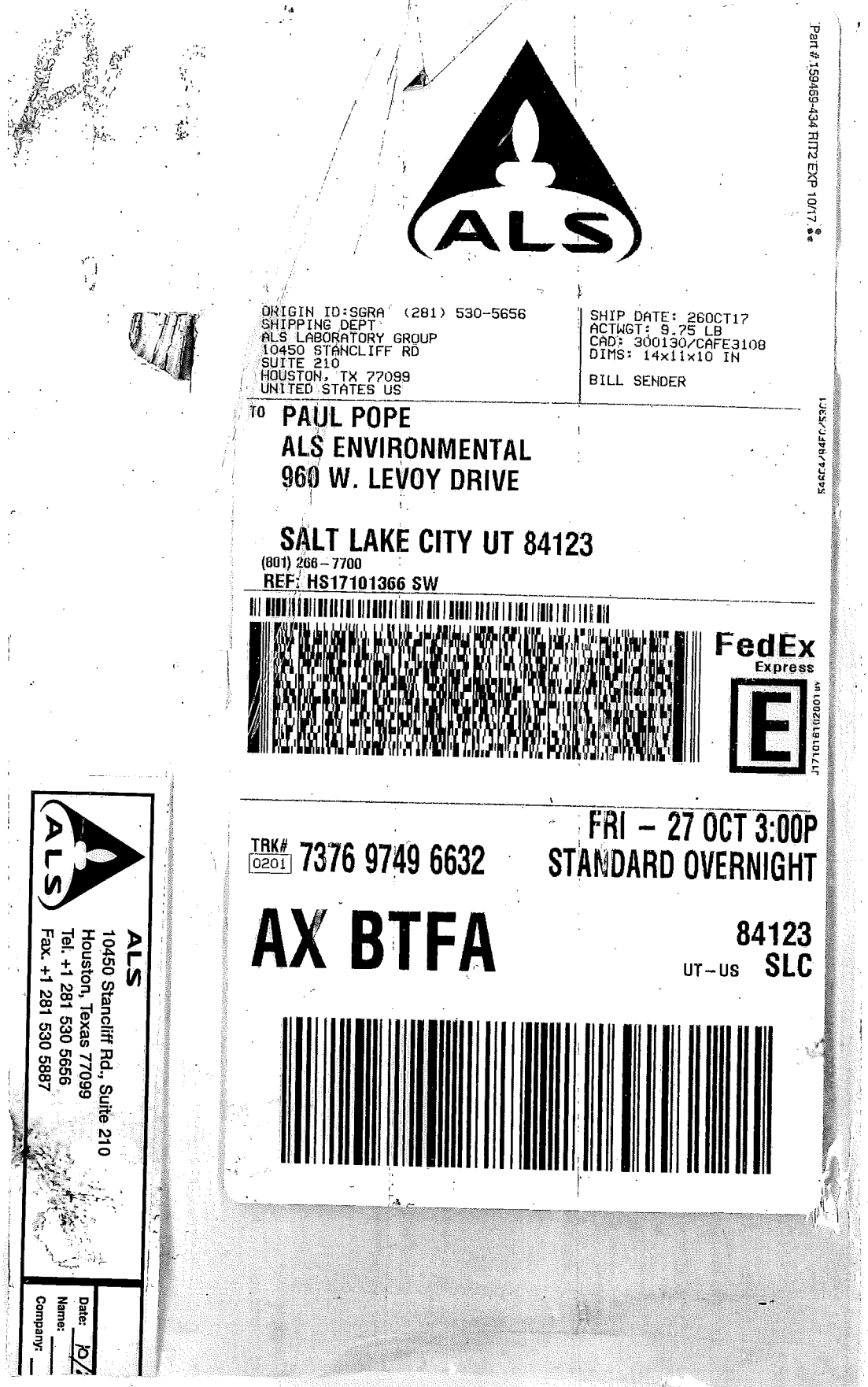
## PROJECT MANAGEMENT

PROJECT MANAGER COMMENTS:

ALS Project Manager: _____ (Printed Name) Returned to Sample Receipt by: _____ (Signature) Date: _____

CRIR.dot

Revised 1/1/15



Part # 159469-434 RIT2 EXP 10/17

ORIGIN ID:SGRA (281) 530-5656
SHIPPING DEPT
ALS LABORATORY GROUP
10450 STANCLIFF RD
SUITE 210
HOUSTON, TX 77099
UNITED STATES US

SHIP DATE: 26OCT17
ACTWGT: 9.75 LB
CAD: 300130/CAFE3108
DIMS: 14x11x10 IN

BILL SENDER

TO PAUL POPE
ALS ENVIRONMENTAL
960 W. LEVOY DRIVE

SALT LAKE CITY UT 84123
(801) 266-7700
REF: HS17101366 SW

FedEx Express

TRK# 0201 7376 9749 6632

FRI - 27 OCT 3:00P
STANDARD OVERNIGHT

AX BTFA

84123
UT-US SLC

ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

Date: 10/
Name:
Company:

# ch Worklist

**Batch:** ELMS/ 1990 **Created:** 11/8/2017 08:24 **Instrument:** HBN: 202348

**Rule:** EPA 6850, DoD QSM Water **Analyst:** T. Bosch **Status:** WP

**Workorder:** 1730040 [ENV_LVL4]

**Workorder:** 1730755 [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 | 573324 | CCV for HBN 202348 [ELMS/1990] | | | | CCV | 3 | | E685041C3Q | 5311 | | 11/10/2017 | |
| 2 | 573325 | LODV for HBN 202348 [ELMS/1990 | | | | LODV | 3 | | E6850..D3Q | 5311 | | 11/10/2017 | |
| 3 | 573326 | ICS for HBN 202348 [ELMS/1990] | | | | ICS | 3 | | E6850..D3Q | 5311 | | 11/10/2017 | |
| 4 | 573327 | LMB for HBN 202348 [ELMS/1990] | | | | LMB | 3 | | E6850Q413Q | 5311 | | 11/10/2017 | |
| 5 | 573328 | LCS for HBN 202348 [ELMS/1990] | | | | LCS | 3 | | E6850Q413Q | 5311 | | 11/10/2017 | |
| 6 | 1730040001 | LH18/24-SP650-102517 | | | | SAMPLE | 3 | 1730040001-A | E6850Q41.3 | 5480 | 11/22/2017 | 11/10/2017 | |
| 7 | 573329 | LH18/24-SP650...(1730040001MS) | | | | MS | 3 | | E6850Q413Q | 5311 | | 11/10/2017 | |
| 8 | 573330 | LH18/24-SP65...(1730040001MSD) | | | | MSD | 3 | | E6850Q413Q | 5311 | | 11/10/2017 | |
| 9 | 1730755001 | LH18/24-SP650-110117 | | | | SAMPLE | 3 | 1730755001-A | E6850Q41.3 | 5480 | 11/29/2017 | 11/17/2017 | |
| 10 | 573331 | CCV for HBN 202348 [ELMS/1990] | | | | CCV | 3 | | E685041C3Q | 5311 | | 11/10/2017 | |
| 11 | 573332 | LODV for HBN 202348 [ELMS/1990 | | | | LODV | 3 | | E6850..D3Q | 5311 | | 11/10/2017 | |



00876291

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

# Analytical Documentation

ALS Work Order #'s & Sample #( )'s: 1730040 (001); 1730755 (001)
ELMS Batch/HBN ID: 1990 (202348)
Prep Date: 11/08/2017 Analysis Date: 11/08/2017 Analyst: T. Bosch
Analyte: **Perchlorate** Matrix: **Water** Method: **6850**
Sequence:\\HPCHEM\1\SEQUENCE\CLO4\2017\NOV\08NOV17-CLO4-WTR.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 DI735)/0.1% glacial acetic acid.
Eluent B1: 95% ACN (B&J Lot DI735)/ 5% ASTM Type II water (ALS)/0.1% glacial acetic acid.

**STANDARDS:** Internal Standard Spiking Solution Horizon# 36732. Dilutions of Working Standard Solution ID 32373 used for CCV's, LODV's, RLVS and IPC.

**CALIBRATION CURVE:** Used curve from 09/07/2017, sequence 07SEP17-CLO4.s Offline Quantitation Method: CLO4-090717-PR.M

**INSTRUMENT CONDITIONS:** Samples were analyzed with an Agilent 1100 LC/MSD system, in negative SIM mode, monitoring m/z 83.0, 85.0, and 89.0
**Instrument ID: LCMS03** Online Acquisition Method: CLO4_AQN2.M Fragmentor: 250 Output Gain: 10 Injection Volume: 35µL
Column: KP-RPPX; 5µm, 4.6 *150mm (SN: RPX250 02040) Mobile Phase: Eluent A1 – 40%; Eluent B1 – 60% Run Time: 11.0min

**FLOW GRADIENT:**

| Time (min.) | Flow (mL/min) |
|---|---|
| 0 | 0.30 |
| 5.1 | 0.30 |
| 5.2 | 0.20 |
| 8.0 | 0.20 |
| 8.1 | 0.30 |

**QC DATA:** 5.0µL of QC Solution Horizon ID 36749 was used for LCS 573328; Target = 5.0µg/L. ASTM type II water was used for LMB 573327.

**MS/MSD:** MS/MSD was performed on sample 1730040001 (Client ID: LH18/24-SP650-102517). 5.0µl of Working Standard Solution Horizon ID 36735 was added to 10.0mL of sample preparation. Spike target = 5.0µg/L.

**COMMENTS:**
1) Results reported in µg/L.
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\LCMS03\2017\NOV\HBN# or through NuGenesis\Tree\PrintData\LCMS\DefaultView.
4) Due to limitations of the Chemstation Software, many of the chromatographic peaks require manual integration. Manual Integrations were performed for all of the Initial Calibration analyses (datafiles: 07SEPP01-10) along with datafiles 08NOVP01-11.
5) Notebook: \\alsltws013\ORGANIC\BOSCH\LCMS\Perchlorates\Waters\2017\CLO4-202348-DOD-LCMS3-HSTN or through \\ALSLTWS013\DATAREVIEW\HBN#

# STANDARD REPORT

## Working Standard - CLO4 WRK

**CLO4 WRK** — **Description - 6850 WKG Std 100.ug/L**

Standard: 36735
MFG: ALS/SLC
MFG Lot: TNB: 05/10/17
Part ID:

Created By: T. Bosch
Create Date: 05/10/2017
Lab Lot: CLO4 WRK

Amount: 10 mL
Expires: 05/10/2018
Usable: Yes

| 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 |
| 36734 | CLO4 INT | 6850 Intermdt AccStd 10.ug/mL | CLO4 INT | 0.1 mL | 05/10/2018 |

# STANDARD REPORT

## Constituent

## Stock Standard - CLO4 STOCK

**CLO4 STOCK** — Description - 6850 Stock AccStd 1,000ug/mL

Standard: 36733
MFG: AccuStandard
MFG Lot: 216095148
Part ID: IC-PER-10X-1

Created By: T. Bosch
Create Date: 5/10/2017
Lab Lot: CLO4 STOCK

Amount: 100 mL
Expires: 10/4/2018
Usable: Yes

| Pos. | Analyte | Name | Concentration |
|---|---|---|---|
| 1 | 14797-73-0 | Perchlorate | 1000 ug/mL |

# 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: 10/6/2005 | Expires: 11/7/2025 |
| MFG Lot: | Lab Lot: LAB 109 | Usable: Yes |
| Part ID: | | |

| Pos. | Analyte | Name | Concentration |
|---|---|---|---|
| Solvent - Analyte(s) not applicable | | | |

# STANDARD REPORT

## Constituent

## Working Standard - CLO4 INT

**CLO4 INT** — Description - 6850 Intermdt AccStd 10.ug/mL

Standard: 36734
MFG: ALS/SLC
MFG Lot: TNB: 05/10/17
Part ID:

Created By: T. Bosch
Create Date: 05/10/2017
Lab Lot: CLO4 INT

Amount: 10 mL
Expires: 05/10/2018
Usable: Yes

| 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 |
| 36733 | CLO4 STOCK | 6850 Stock AccStd 1,000ug/mL | CLO4 STOCK | 0.1 mL | 10/04/2018 |

# STANDARD REPORT

## Working Standard - CLO4 QC WRK

**CLO4 QC WRK** — Description - 6850 QC WKG STD 100ug/L

Standard: 36750
MFG: ALS/SLC
MFG Lot: TNB: 05/11/17
Part ID:

Created By: T. Bosch
Create Date: 05/11/2017
Lab Lot: CLO4 QC WRK 100.ug/L

Amount: 10 mL
Expires: 05/11/2018
Usable: Yes

| 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 |
| 36749 | CLO4 QC INT | 6850 QC Intrmdt Std-QC 10ug/mL | CLO4 QC INT 10.ug/mL | 0.1 mL | 05/11/2018 |

# STANDARD REPORT

## Constituent

## Working Standard - CLO4 QC INT

**CLO4 QC INT** — Description - 6850 QC Intrmdt Std-QC 10ug/mL

Standard: 36749
MFG: ALS/SLC
MFG Lot: TNB: 05/11/2017
Part ID:

Created By: T. Bosch
Create Date: 05/11/2017
Lab Lot: CLO4 QC INT 10.ug/mL

Amount: 10 mL
Expires: 05/11/2018
Usable: Yes

| 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 |

# 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: 10/6/2005 | Expires: 11/7/2025 |
| MFG Lot: | Lab Lot: LAB 109 | Usable: Yes |
| Part ID: | | |

| Pos. | Analyte | Name | Concentration |
|---|---|---|---|
| Solvent - Analyte(s) not applicable | | | |

# STANDARD REPORT

## Constituent

## Stock Standard - CLO4 QCSTOCK

| CLO4 QCSTOCK | Description - 6850 QC Stock STD 1,000ug/mL |
|---|---|

| | | | |
|---|---|---|---|
| Standard: 36748 | Created By: T. Bosch | Amount: 100 mL |
| MFG: Ultra Scientific | Create Date: 5/11/2017 | Expires: 3/31/2020 |
| MFG Lot: CP-0860 | Lab Lot: CLO4 QC STOCK | Usable: Yes |
| Part ID: ICC-013 | | |

| Pos. | Analyte | Name | Concentration |
|---|---|---|---|
| 1 | 14797-73-0 | Perchlorate | 1000 ug/mL |

# STANDARD REPORT

## Working Standard - CLO4ISTDWRK

**CLO4ISTDWRK** — **Description - Perchlorate ISTD Wrk 1,000ug/L**

| | | | | | |
|---|---|---|---|---|---|
| Standard: | **38780** | Created By: | Thomas Bosch | Amount: | 10 mL |
| MFG: | ALS/SLC | Create Date: | 10/09/2017 01:10PM | Expires: | 10/09/2018 |
| MFG Lot: | TNB: 10/09/17 | 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 |
|---|---|---|---|---|---|
| 23118 | CLO4ISTDSTK | Perchlorate ISTD Stock | CLO4ISTDSTK | 0.1 mL | 02/27/2024 |

# STANDARD REPORT

## Constituent

## Stock Standard - CLO4ISTDSTK

| CLO4ISTDSTK | | Description - Perchlorate ISTD Stock |
|---|---|---|
| Standard: 23118 | Created By: Thomas Bosch | Amount: 1 mL |
| MFG: Cambridge Isotope | Create Date: 04/04/2014 03:04PM | Expires: 02/27/2024 |
| MFG Lot: SDDG-013 | Verified By: Thomas Bosch | Usable: Yes |
| Part ID: OLM-7310-S | Verify Date: 02/05/2009 12:02AM | 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

TRIPLE ISO CERTIFICATION ISO 9001 ISO GUIDE 34 ISO 17025 ULTRA

## 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.

ANAB ACCREDITED ISO GUIDE 34 REFERENCE MATERIAL PRODUCER
ANAB ACCREDITED ACCREDITED TESTING LABORATORY



ALS

ULTRA SCIENTIFIC
Analytical Solutions

# Certificate of Analysis

TRIPLE ISO CERTIFICATION ULTRA ISO GUIDE 34 • ISO/IEC 17025 • ISO 9001

## ISO Guide 34 Reference Material

Product Number: ICC-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

125 Market Street
New Haven, CT 06513
USA

AccuStandard® Inc.

Tel (203)786-5290
Fax (203)786-5287
www.AccuStandard.com

# CERTIFICATE OF ANALYSIS

## AccuTrace™ Reference Standard

Catalog No: IC-PER-10X-1
Description: Perchlorate Standard
Element: Perchlorate ($ClO_4$)
SRM: Ind. Std.
Lot: 216095148
Matrix: Water
Hazards: *Refer to SDS for complete safety information*

Signal Word: Warning

Date Certified: Oct 4, 2016
Expiration: Oct 4, 2018
Sample Size: 100 mL
Components: 1
Storage Condition: Ambient (>5 °C)
Included on ISO/IEC 17025 Scope of Accreditation: Yes
Included on ISO Guide 34 Scope of Accreditation: Yes

| Component | | SRM # | Prepared Concentration (µg/mL) |
|---|---|---|---|
| $ClO_4$ | Perchlorate | Ind. Std. | 1000 |

The gravimetric uncertainty for this product is ±0.2%. See reverse side for details.
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 Guide 34, ISO/IEC 17025 and certified to ISO 9001

Cambridge Isotope Laboratories, Inc.

# Certificate of Analysis

Quality Standards:
ISO Guide 34 • ISO/IEC 17025 • ISO 13485 • cGMP

23118

| | |
|---|---|
| **Product Name:** (Isotopic Label & Enrichment Specification) | PERCHLORIC ACID, SODIUM SALT (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% |
| LC/MS for Concentration | 109.4 ± 2.8 µg/mL (k=2) |

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

# Raw Data

Batch Review Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M

['#' ==> Run has not been reprocessed with Batch Review Method
'*' ==> Run has been saved with batch file]

| # | Sample | Location | Inj | SampleType | Run | Perchlor RT | Perchlorate Area | Perchlorate Amount |
|---|---|---|---|---|---|---|---|---|
| * | 573324 CCV@25 | Vial 71 | 1 | Control | 1 | 7.437 | 5.92047e5 | 26.87701 |
| * | 573325 LODV@1. | Vial 72 | 1 | Control | 2 | 7.584 | 3.29226e4 | 1.01962 |
| * | 573326 ICS@1.0 | Vial 73 | 1 | Control | 3 | 7.449 | 2.23668e4 | 1.08851 |
| * | 573327 LMB | Vial 74 | 1 | Control | 4 | 0.000 | 0.00000 | 0.00000 |
| * | 573328 QC@5.0 | Vial 75 | 1 | Control | 5 | 7.751 | 1.28117e5 | 5.04695 |
| * | 1730040001 | Vial 76 | 1 | Sample | 6 | 6.792 | 6319.27686 | 2.69831e-1 <RL |
| * | 573329 300401MS | Vial 77 | 1 | Sample | 7 | 6.793 | 1.05321e5 | 4.47106 |
| * | 573330 300401MSD | Vial 78 | 1 | Sample | 8 | 6.819 | 1.11878e5 | 4.35302 |
| * | 1730755001 | Vial 79 | 1 | Sample | 9 | 0.000 | 0.00000 | 0.00000 |
| * | 573331 CCV@25 | Vial 71 | 1 | Control | 10 | 7.781 | 5.67576e5 | 26.86707 |
| * | 573332 LODV@1. | Vial 72 | 1 | Control | 11 | 7.873 | 3.51155e4 | 1.14534 |

| # | Sample | Location | Inj | SampleType | Run | CLO4-85 RT | CLO4-85 Area | CLO4-85 Amount |
|---|---|---|---|---|---|---|---|---|
| * | 573324 CCV@25 | Vial 71 | 1 | Control | 1 | 7.442 | 1.97909e5 | 26.81384 |
| * | 573325 LODV@1. | Vial 72 | 1 | Control | 2 | 7.592 | 1.19757e4 | 1.23788 |
| * | 573326 ICS@1.0 | Vial 73 | 1 | Control | 3 | 7.454 | 7844.05029 | 1.27010 |
| * | 573327 LMB | Vial 74 | 1 | Control | 4 | 0.000 | 0.00000 | 0.00000 |
| * | 573328 QC@5.0 | Vial 75 | 1 | Control | 5 | 7.759 | 4.37057e4 | 5.24885 |
| * | 1730040001 | Vial 76 | 1 | Sample | 6 | 6.808 | 2310.43066 | 4.29542e-1 |
| * | 573329 300401MS | Vial 77 | 1 | Sample | 7 | 6.801 | 3.42747e4 | 4.45695 |
| * | 573330 300401MSD | Vial 78 | 1 | Sample | 8 | 6.824 | 3.74515e4 | 4.46341 |
| * | 1730755001 | Vial 79 | 1 | Sample | 9 | 0.000 | 0.00000 | 0.00000 |
| * | 573331 CCV@25 | Vial 71 | 1 | Control | 10 | 7.786 | 1.90260e5 | 26.87866 |
| * | 573332 LODV@1. | Vial 72 | 1 | Control | 11 | 7.881 | 1.26877e4 | 1.36537 |

| # | Sample | Location | Inj | SampleType | Run | CLO4-89- RT | CLO4-89-ISTD Area | CLO4-89-ISTD Amount |
|---|---|---|---|---|---|---|---|---|
| * | 573324 CCV@25 | Vial 71 | 1 | Control | 1 | 7.447 | 9.77903e4 | 5.00000 |
| * | 573325 LODV@1. | Vial 72 | 1 | Control | 2 | 7.596 | 1.43343e5 | 5.00000 |
| * | 573326 ICS@1.0 | Vial 73 | 1 | Control | 3 | 7.455 | 9.12206e4 | 5.00000 |
| * | 573327 LMB | Vial 74 | 1 | Control | 4 | 7.653 | 1.49738e5 | 5.00000 |
| * | 573328 QC@5.0 | Vial 75 | 1 | Control | 5 | 7.759 | 1.12694e5 | 5.00000 |
| * | 1730040001 | Vial 76 | 1 | Sample | 6 | 6.810 | 1.03967e5 | 5.00000 |
| * | 573329 300401MS | Vial 77 | 1 | Sample | 7 | 6.797 | 1.04575e5 | 5.00000 |
| * | 573330 300401MSD | Vial 78 | 1 | Sample | 8 | 6.834 | 1.14097e5 | 5.00000 |
| * | 1730755001 | Vial 79 | 1 | Sample | 9 | 6.559 | 1.07588e5 | 5.00000 |
| * | 573331 CCV@25 | Vial 71 | 1 | Control | 10 | 7.782 | 9.37831e4 | 5.00000 |
| * | 573332 LODV@1. | Vial 72 | 1 | Control | 11 | 7.886 | 1.36109e5 | 5.00000 |

*** End of Report ***

Sequence: C:\CHEM32\1\SEQUENCE\CLO4\2017\NOV\08NOV17-CLO4-WTR.S

Sequence Table:

Method and Injection Info Part:

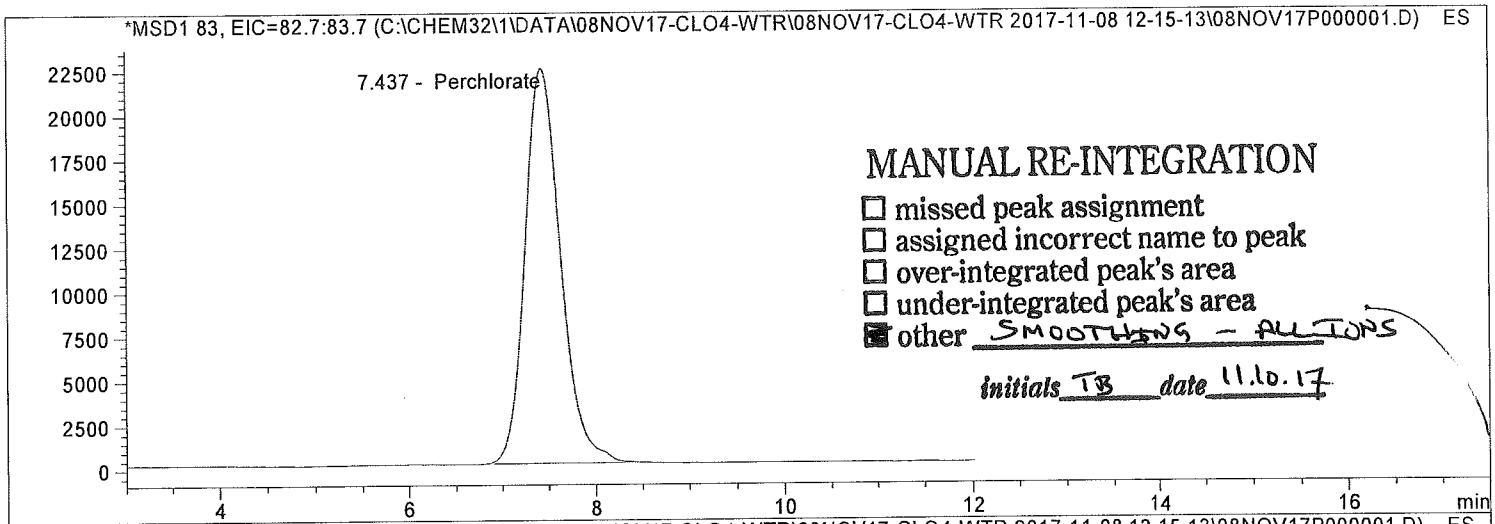
| Line | Location | SampleName<br>DataFile | | Method<br>AutoBalance | Inj<br>LimsID | SampleType | InjVolume |
|---|---|---|---|---|---|---|---|
| 1 | Vial 71 | 573324 | CCV@25 | CLO4_AQN2 | 1 | Ctrl Samp | |
| 2 | Vial 72 | 573325 | LODV@1. | CLO4_AQN2 | 1 | Ctrl Samp | |
| 3 | Vial 73 | 573326 | ICS@1.0 | CLO4_AQN2 | 1 | Ctrl Samp | |
| 4 | Vial 74 | 573327 | LMB | CLO4_AQN2 | 1 | Ctrl Samp | |
| 5 | Vial 75 | 573328 | QC@5.0 | CLO4_AQN2 | 1 | Ctrl Samp | |
| 6 | Vial 76 | 1730040001 | | CLO4_AQN2 | 1 | Sample | |
| 7 | Vial 77 | 573329 | 300401MS | CLO4_AQN2 | 1 | Sample | |
| 8 | Vial 78 | 573330 | 300401MSD | CLO4_AQN2 | 1 | Sample | |
| 9 | Vial 79 | 1730755001 | | CLO4_AQN2 | 1 | Sample | |
| 10 | Vial 71 | 573331 | CCV@25 | CLO4_AQN2 | 1 | Ctrl Samp | |
| 11 | Vial 72 | 573332 | LODV@1. | CLO4_AQN2 | 1 | Ctrl Samp | |

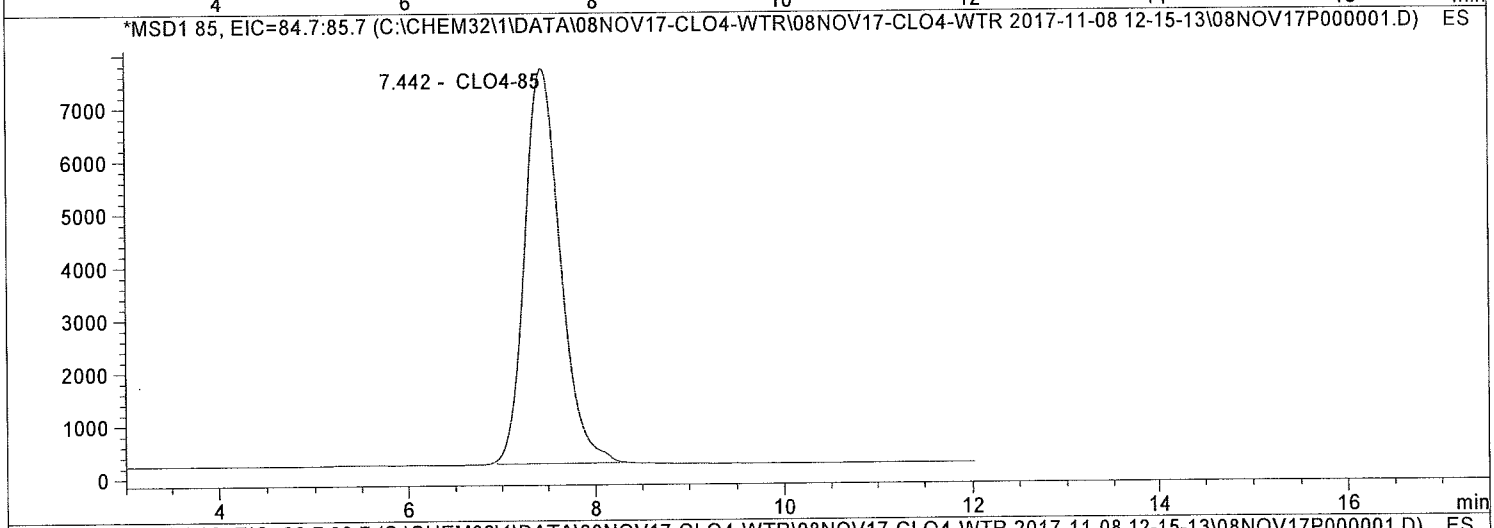
Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573324 CCV@25

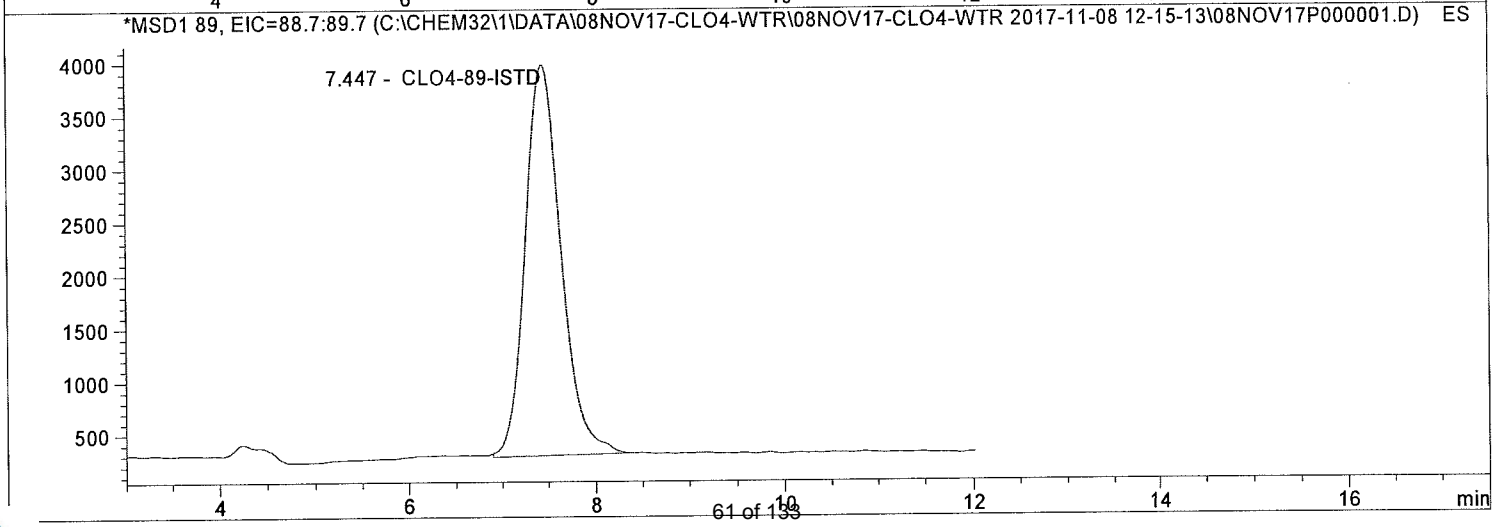
| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 12:15:37 | Seq Line: | 1 |
| Sample Name: | 573324 CCV@25 | Location: | Vial 71 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate



Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573324 CCV@25

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 12:15:37 | Seq Line: | 1 |
| Sample Name: | 573324 CCV@25 | Location: | Vial 71 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 25.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.437 | BB | 592046.9 | 26.8770 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.442 | BB | 197908.5 | 26.8138 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.447 | BB | 97790.3 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***

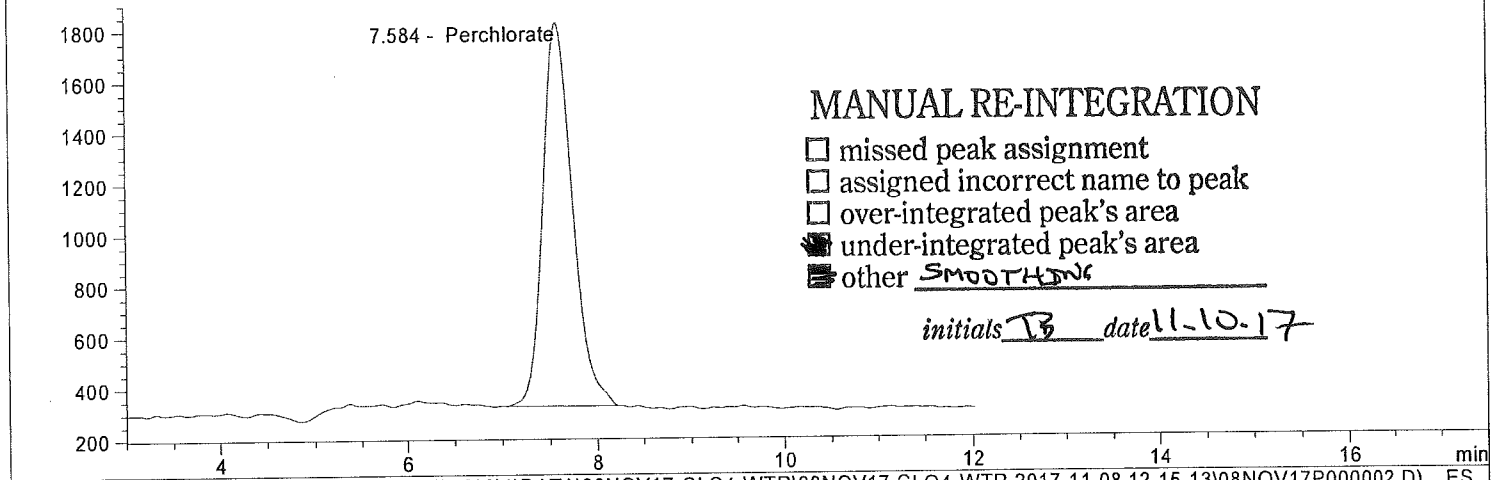
Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573325 LODV@1.

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 12:29:08 | Seq Line: | 2 |
| Sample Name: | 573325 LODV@1. | Location: | Vial 72 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

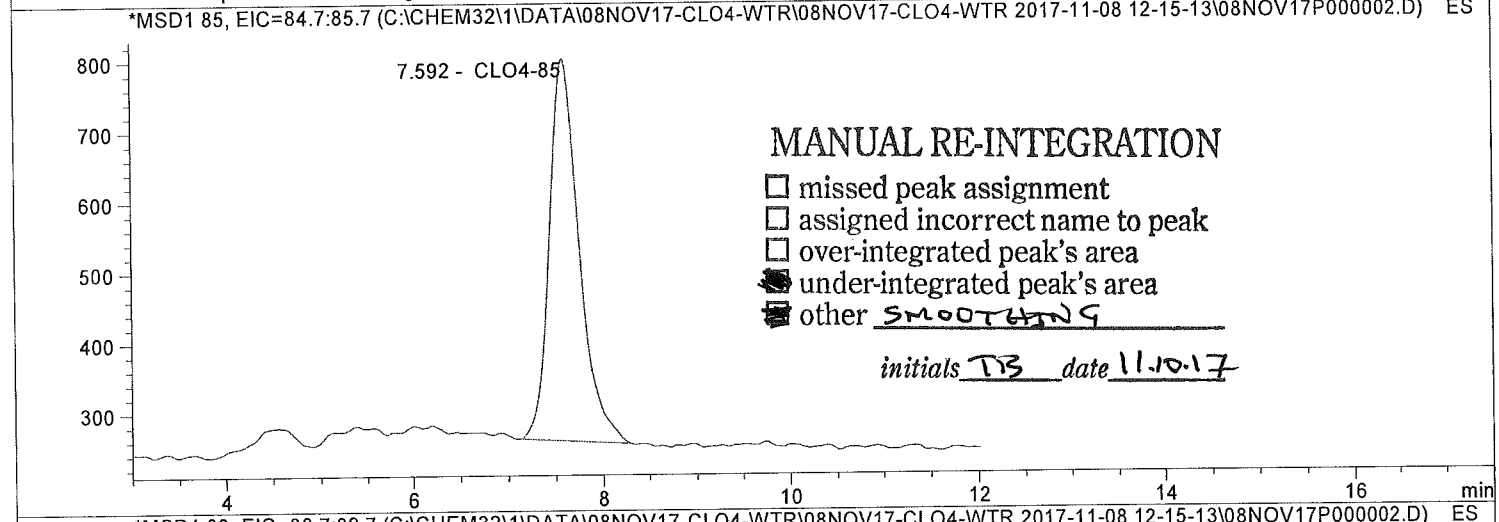
Perchlorate

*MSD1 83, EIC=82.7:83.7 (C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR 2017-11-08 12-15-13\08NOV17P000002.D) ES



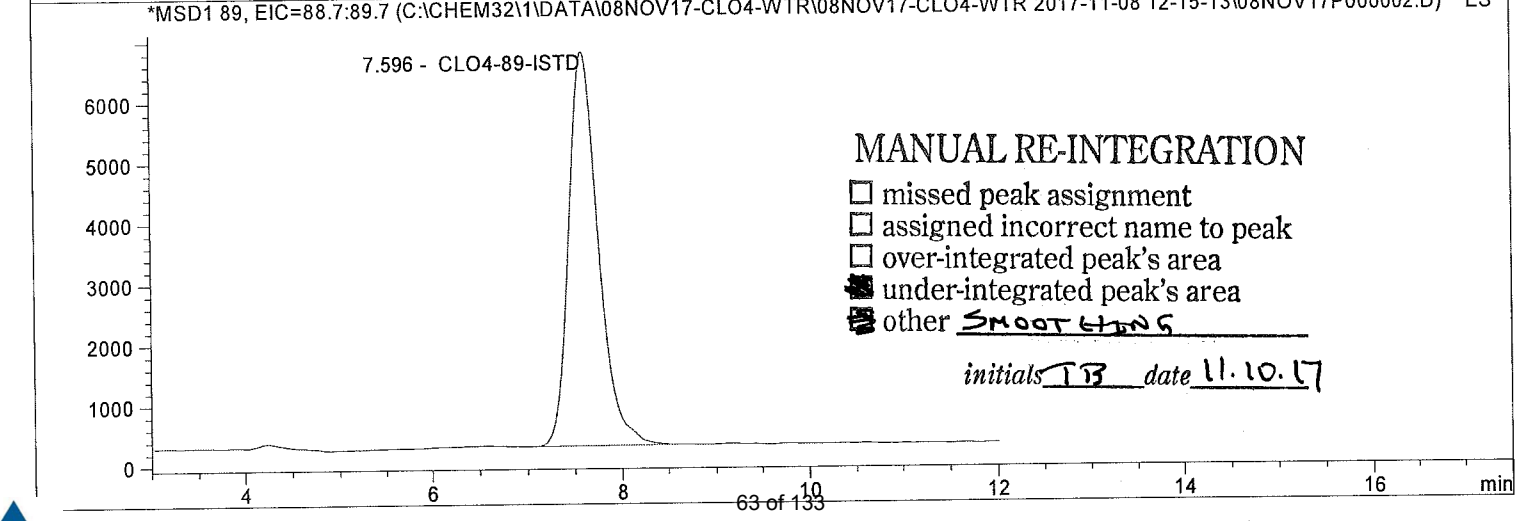

MANUAL RE-INTEGRATION
☐ missed peak assignment
☐ assigned incorrect name to peak
☐ over-integrated peak's area
■ under-integrated peak's area
■ other SMOOTHING
initials TB date 11.10.17

*MSD1 85, EIC=84.7:85.7 (C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR 2017-11-08 12-15-13\08NOV17P000002.D) ES




MANUAL RE-INTEGRATION
☐ missed peak assignment
☐ assigned incorrect name to peak
☐ over-integrated peak's area
■ under-integrated peak's area
■ other SMOOTHING
initials TB date 11.10.17

*MSD1 89, EIC=88.7:89.7 (C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR 2017-11-08 12-15-13\08NOV17P000002.D) ES




MANUAL RE-INTEGRATION
☐ missed peak assignment
☐ assigned incorrect name to peak
☐ over-integrated peak's area
■ under-integrated peak's area
■ other SMOOTHING
initials TB date 11.10.17

Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573325 LODV@1.

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 12:29:08 | Seq Line: | 2 |
| Sample Name: | 573325 LODV@1. | Location: | Vial 72 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 1.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.584 | MM | 32922.6 | 1.0196 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.592 | MM | 11975.7 | 1.2379 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.596 | MM | 143343.2 | 5.0000 | CLO4-89-ISTD |

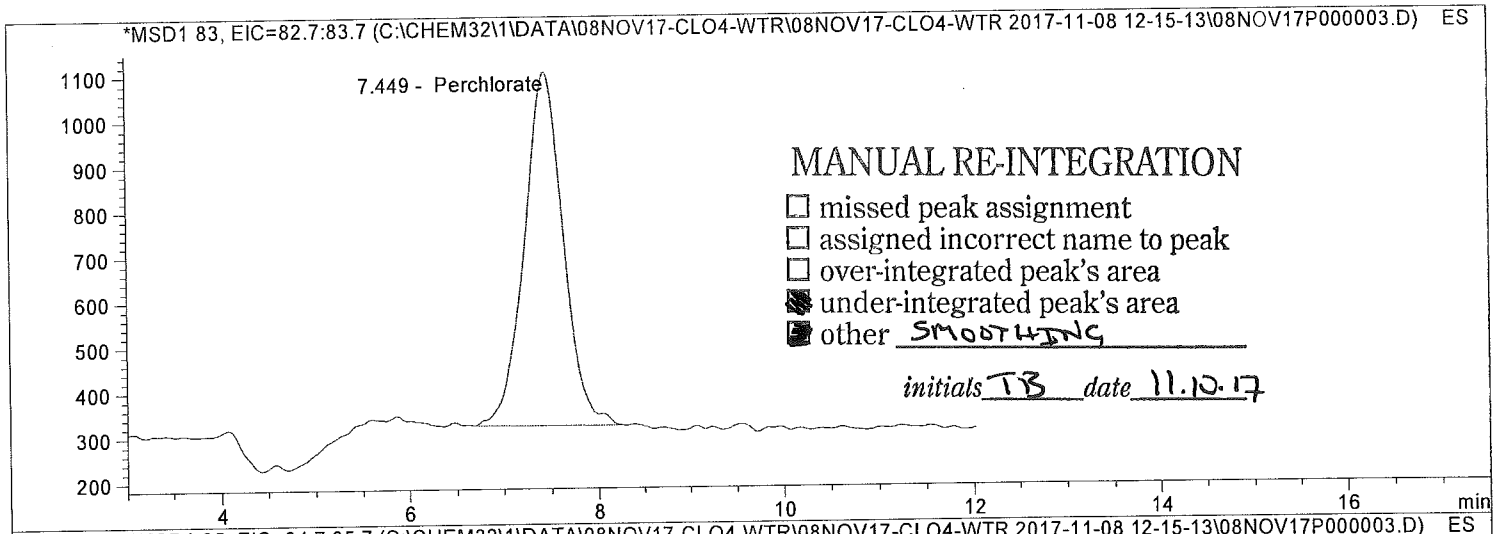
*** End of Report ***

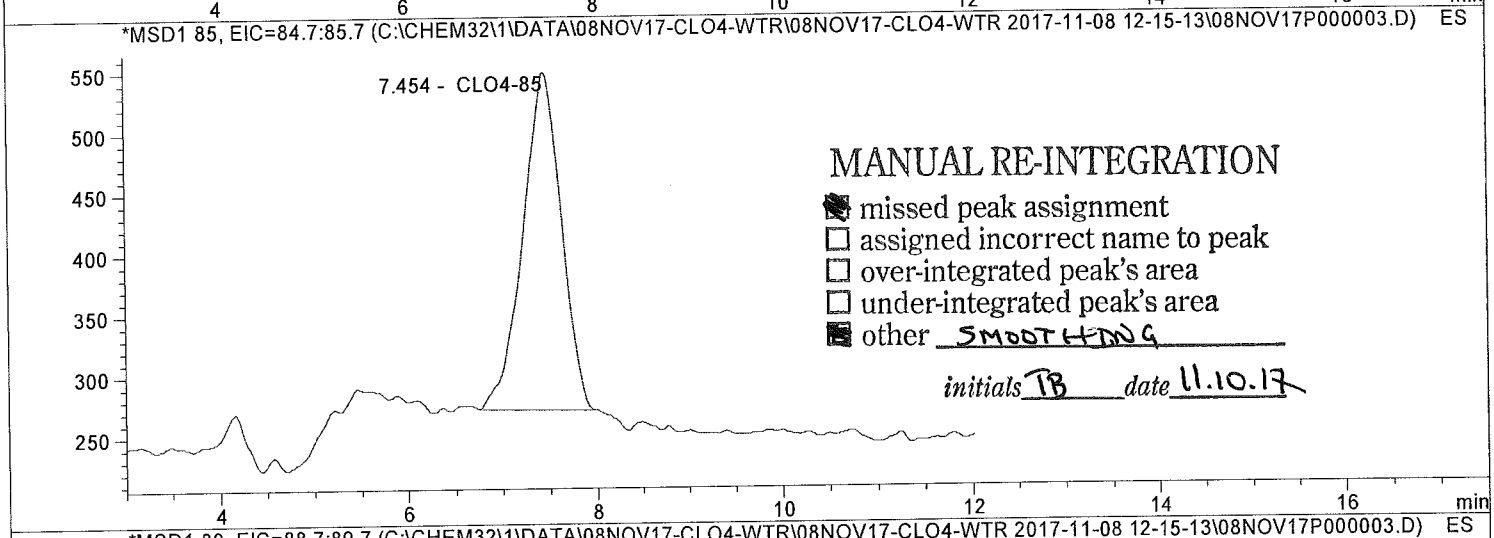
Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573326 ICS@1.0

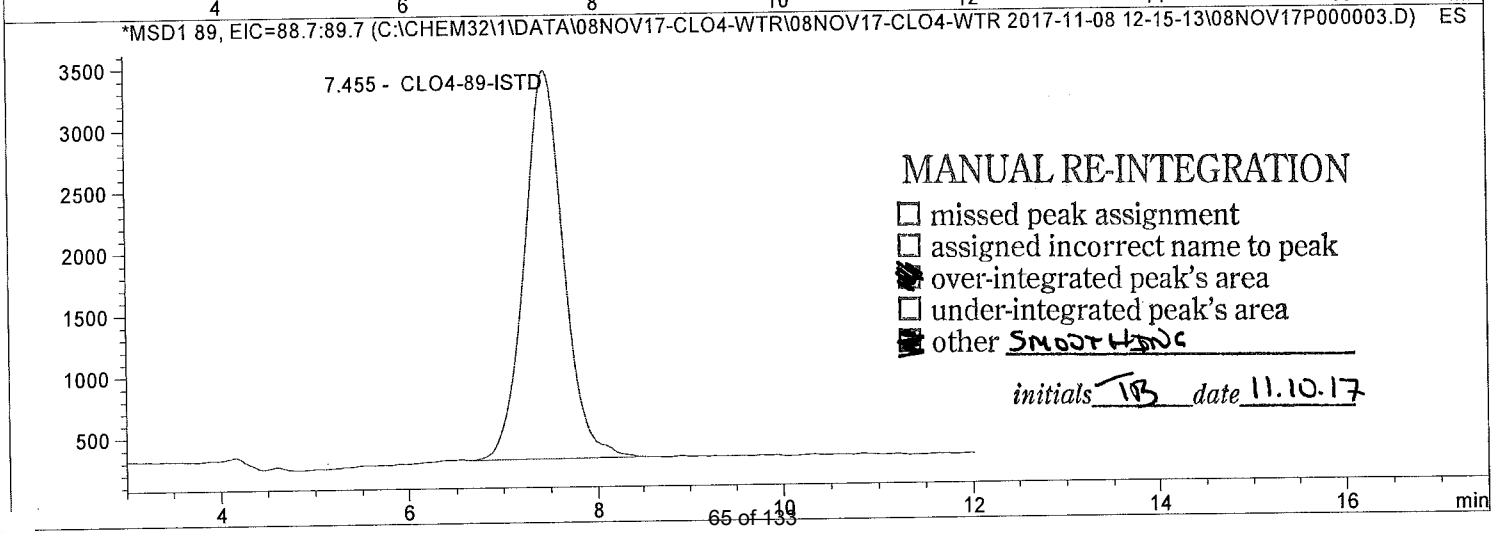
| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 12:42:38 | Seq Line: | 3 |
| Sample Name: | 573326 ICS@1.0 | Location: | Vial 73 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate



Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573326 ICS@1.0

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 12:42:38 | Seq Line: | 3 |
| Sample Name: | 573326 ICS@1.0 | Location: | Vial 73 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 1.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.449 | MM | 22366.8 | 1.0885 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.454 | MM | 7844.1 | 1.2701 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.455 | MM | 91220.6 | 5.0000 | CLO4-89-ISTD |

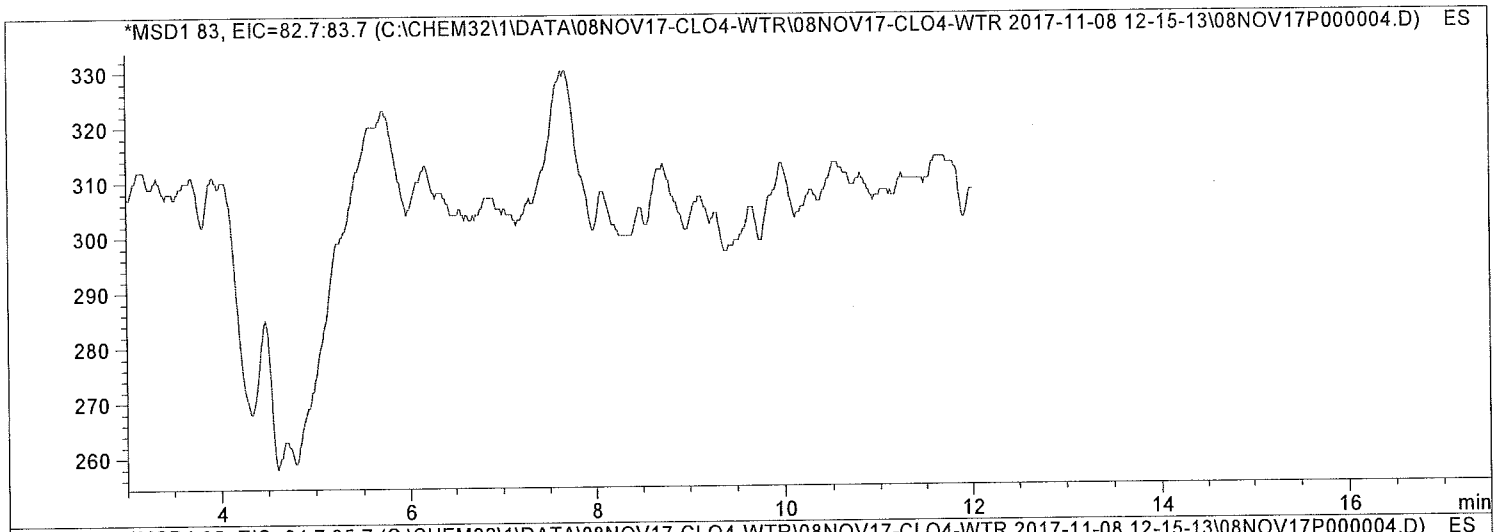
*** End of Report ***

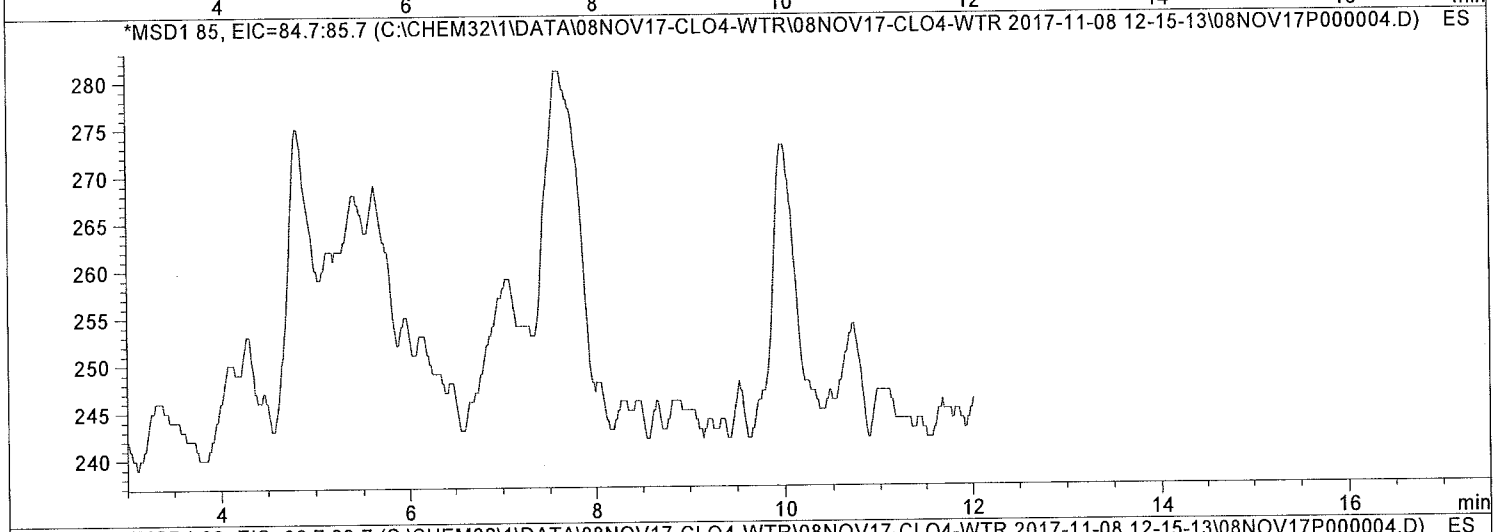
Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573327 LMB

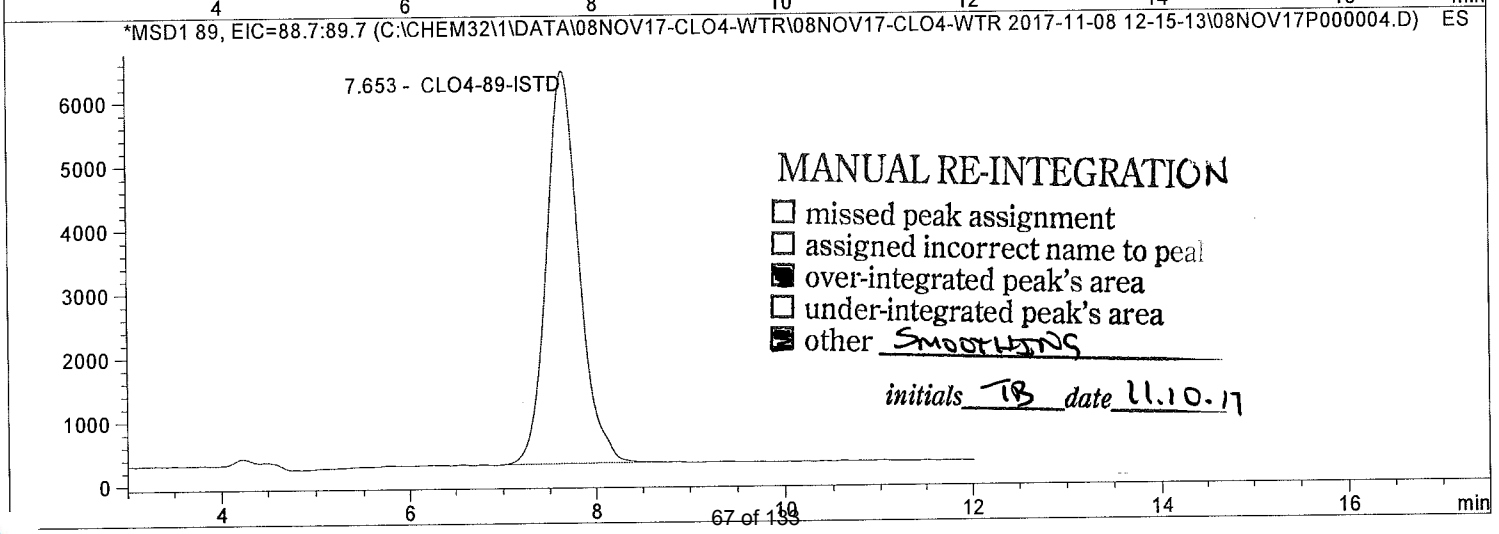
| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 12:56:08 | Seq Line: | 4 |
| Sample Name: | 573327 LMB | Location: | Vial 74 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate




MANUAL RE-INTEGRATION
- ☐ missed peak assignment
- ☐ assigned incorrect name to peal
- ■ over-integrated peak's area
- ☐ under-integrated peak's area
- ■ other SMOOTHING

*initials* TB *date* 11.10.17

Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573327 LMB

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 12:56:08 | Seq Line: | 4 |
| Sample Name: | 573327 LMB | Location: | Vial 74 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.000 ug/L |

## 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 |
|---|---|---|---|---|
| 7.653 | BB | 149738.4 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***

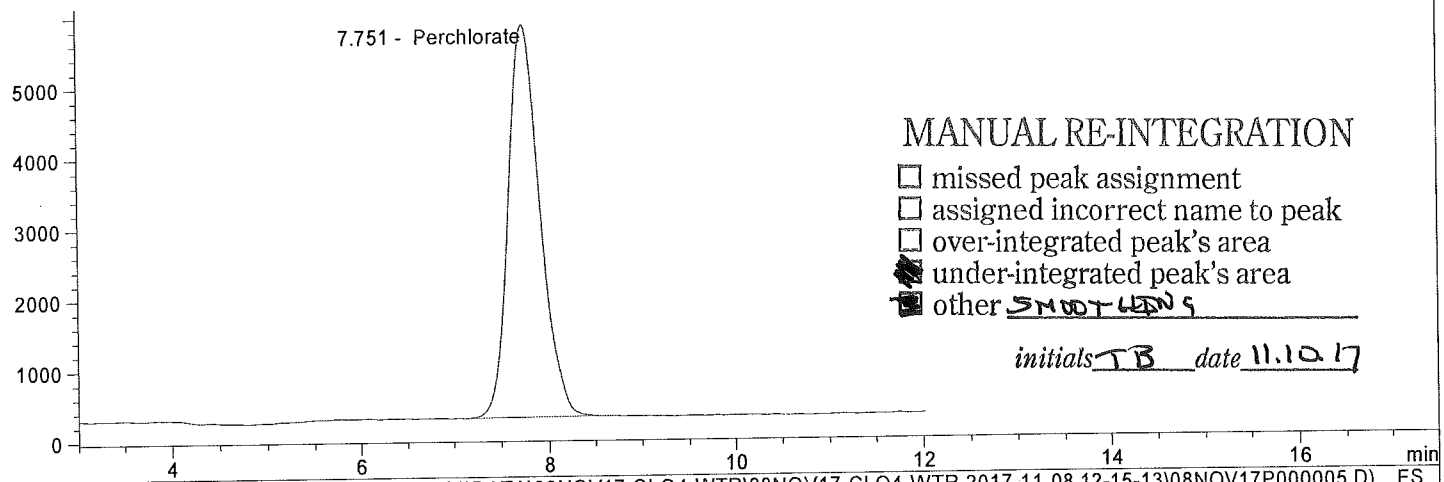
Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573328 QC@5.0

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 13:09:44 | Seq Line: | 5 |
| Sample Name: | 573328 QC@5.0 | Location: | Vial 75 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

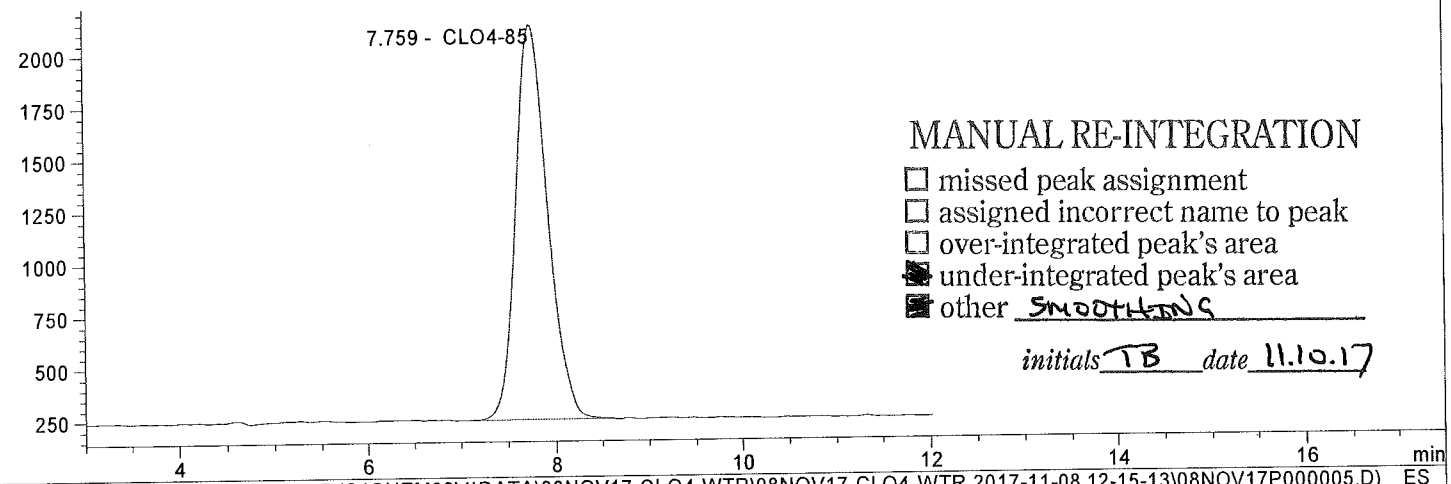
*MSD1 83, EIC=82.7:83.7 (C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR 2017-11-08 12-15-13\08NOV17P000005.D) ES




MANUAL RE-INTEGRATION
- ☐ missed peak assignment
- ☐ assigned incorrect name to peak
- ☐ over-integrated peak's area
- ■ under-integrated peak's area
- ■ other SMOOTHING

*initials* TB *date* 11.10.17

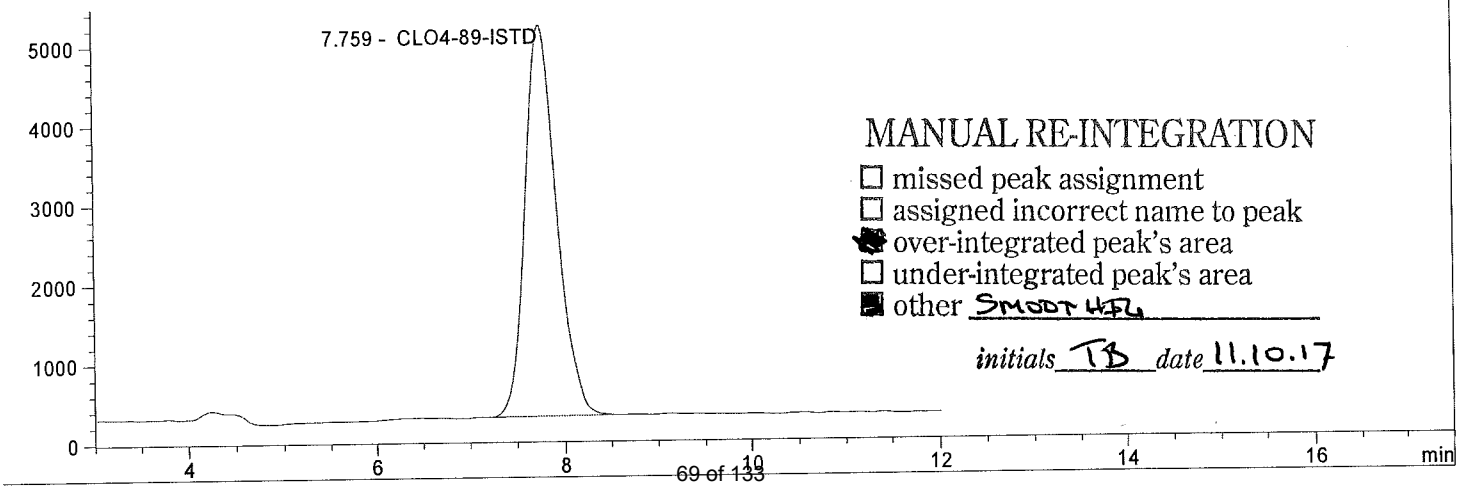
*MSD1 85, EIC=84.7:85.7 (C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR 2017-11-08 12-15-13\08NOV17P000005.D) ES




MANUAL RE-INTEGRATION
- ☐ missed peak assignment
- ☐ assigned incorrect name to peak
- ☐ over-integrated peak's area
- ■ under-integrated peak's area
- ■ other SMOOTHING

*initials* TB *date* 11.10.17

*MSD1 89, EIC=88.7:89.7 (C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR 2017-11-08 12-15-13\08NOV17P000005.D) ES




MANUAL RE-INTEGRATION
- ☐ missed peak assignment
- ☐ assigned incorrect name to peak
- ■ over-integrated peak's area
- ☐ under-integrated peak's area
- ■ other SMOOTHED

*initials* TB *date* 11.10.17

Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573328 QC@5.0

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 13:09:44 | Seq Line: | 5 |
| Sample Name: | 573328 QC@5.0 | Location: | Vial 75 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 5.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.751 | MM | 128117.2 | 5.0469 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.759 | MM | 43705.7 | 5.2488 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.759 | MM | 112693.7 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***

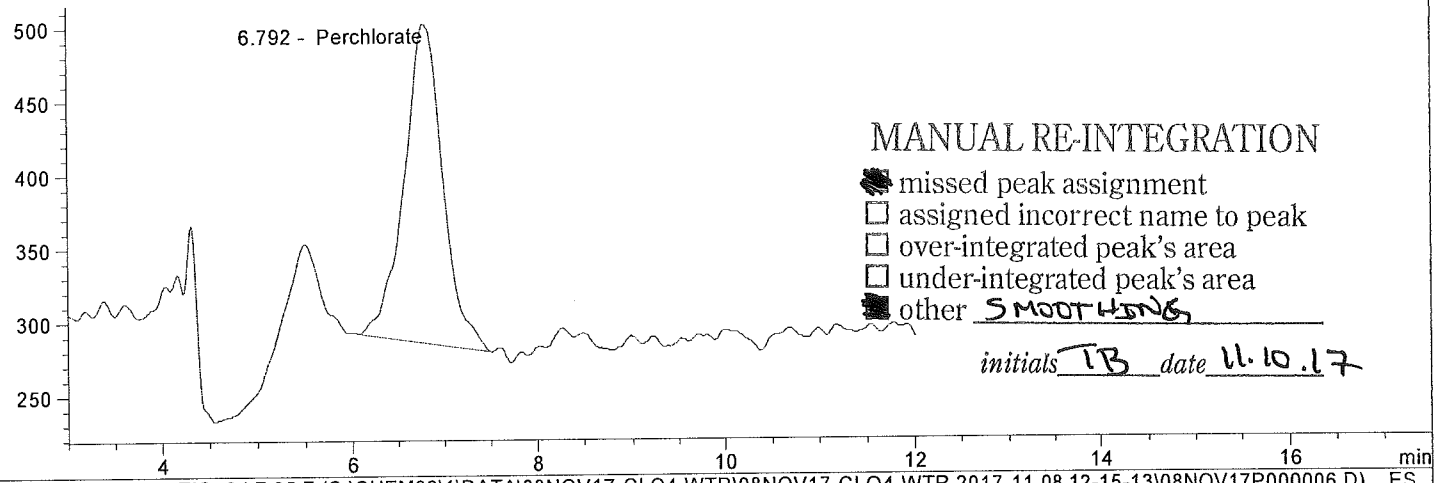
Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 1730040001

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 13:23:17 | Seq Line: | 6 |
| Sample Name: | 1730040001 | Location: | Vial 76 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

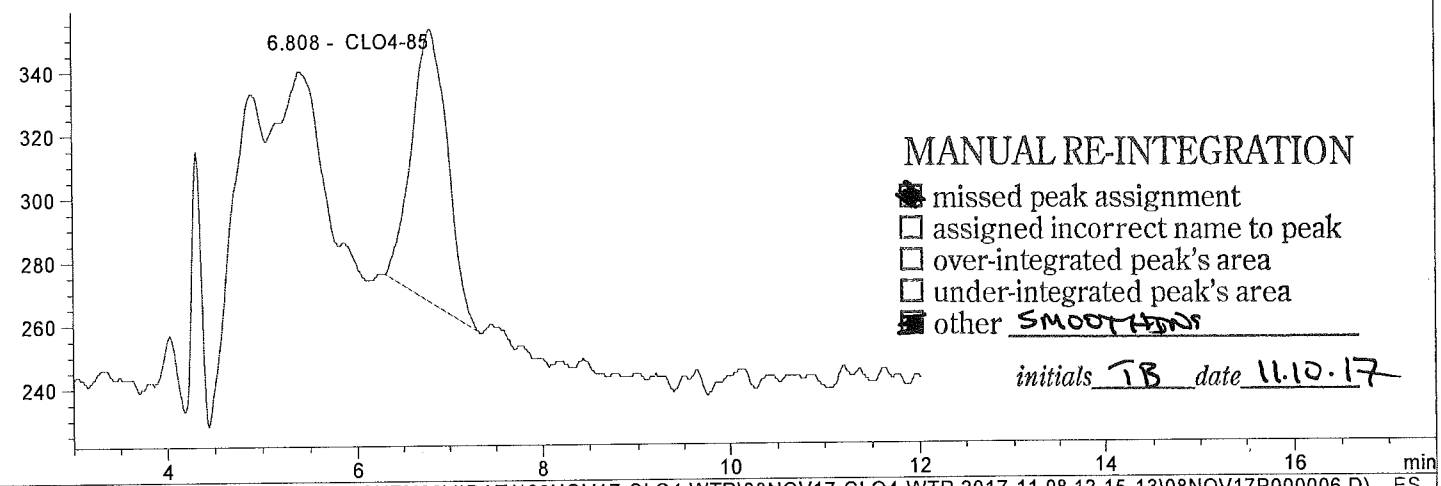
*MSD1 83, EIC=82.7:83.7 (C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR 2017-11-08 12-15-13\08NOV17P000006.D) ES




MANUAL RE-INTEGRATION
- [x] missed peak assignment
- [ ] assigned incorrect name to peak
- [ ] over-integrated peak's area
- [ ] under-integrated peak's area
- [x] other SMOOTHING

initials TB date 11.10.17

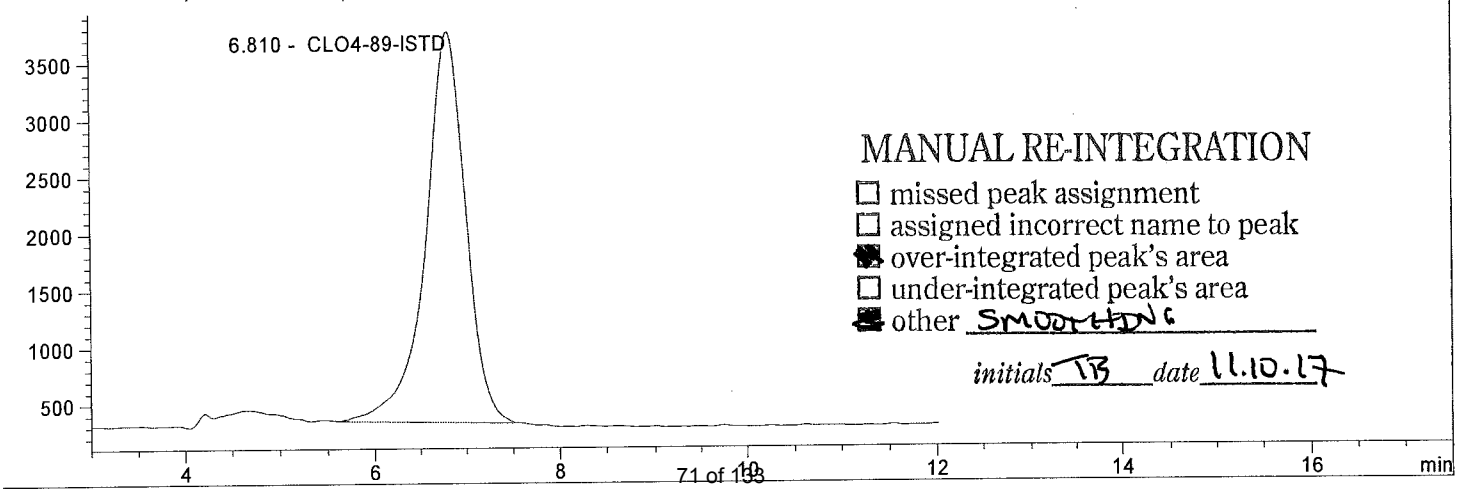
*MSD1 85, EIC=84.7:85.7 (C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR 2017-11-08 12-15-13\08NOV17P000006.D) ES




MANUAL RE-INTEGRATION
- [x] missed peak assignment
- [ ] assigned incorrect name to peak
- [ ] over-integrated peak's area
- [ ] under-integrated peak's area
- [x] other SMOOTHING

initials TB date 11.10.17

*MSD1 89, EIC=88.7:89.7 (C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR 2017-11-08 12-15-13\08NOV17P000006.D) ES




MANUAL RE-INTEGRATION
- [ ] missed peak assignment
- [ ] assigned incorrect name to peak
- [x] over-integrated peak's area
- [ ] under-integrated peak's area
- [x] other SMOOTHING

initials TB date 11.10.17

Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 1730040001

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 13:23:17 | Seq Line: | 6 |
| Sample Name: | 1730040001 | Location: | Vial 76 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.792 | MM | 6319.3 | 0.2698 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.808 | MM | 2310.4 | 0.4295 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.810 | MM | 103967.1 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***

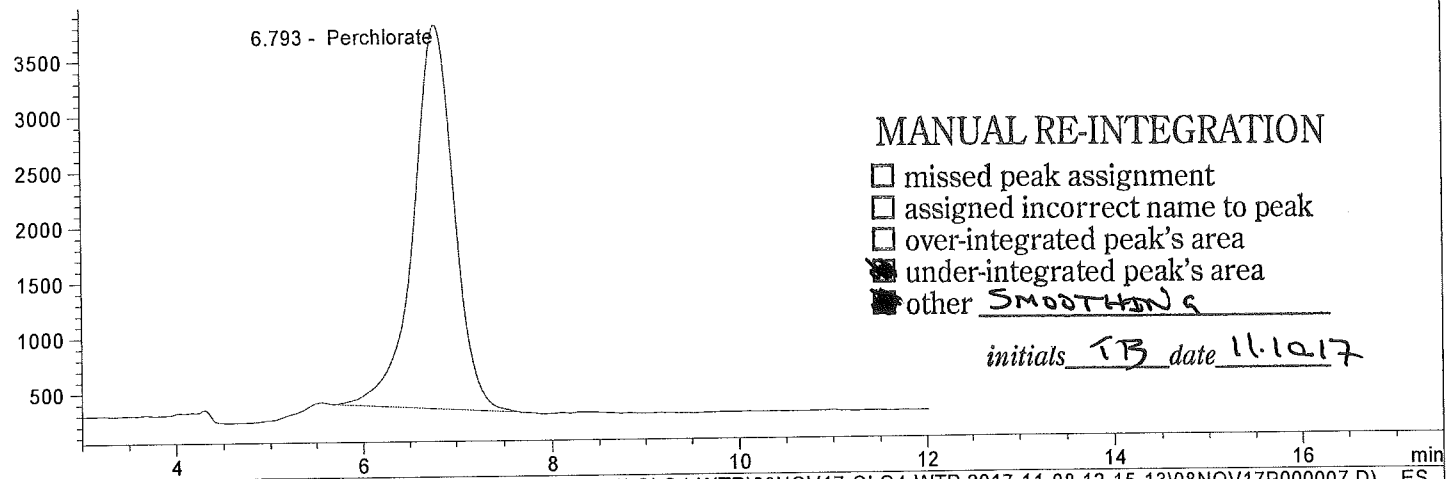
Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573329 300401MS

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 13:36:49 | Seq Line: | 7 |
| Sample Name: | 573329 300401MS | Location: | Vial 77 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

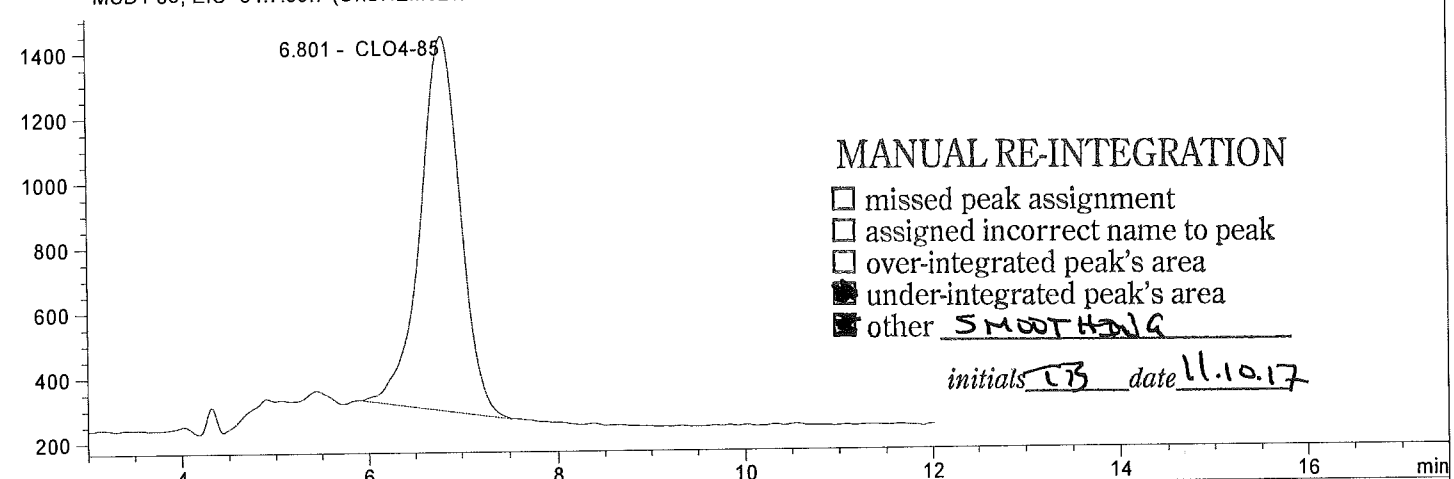
Perchlorate

*MSD1 83, EIC=82.7:83.7 (C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR 2017-11-08 12-15-13\08NOV17P000007.D) ES



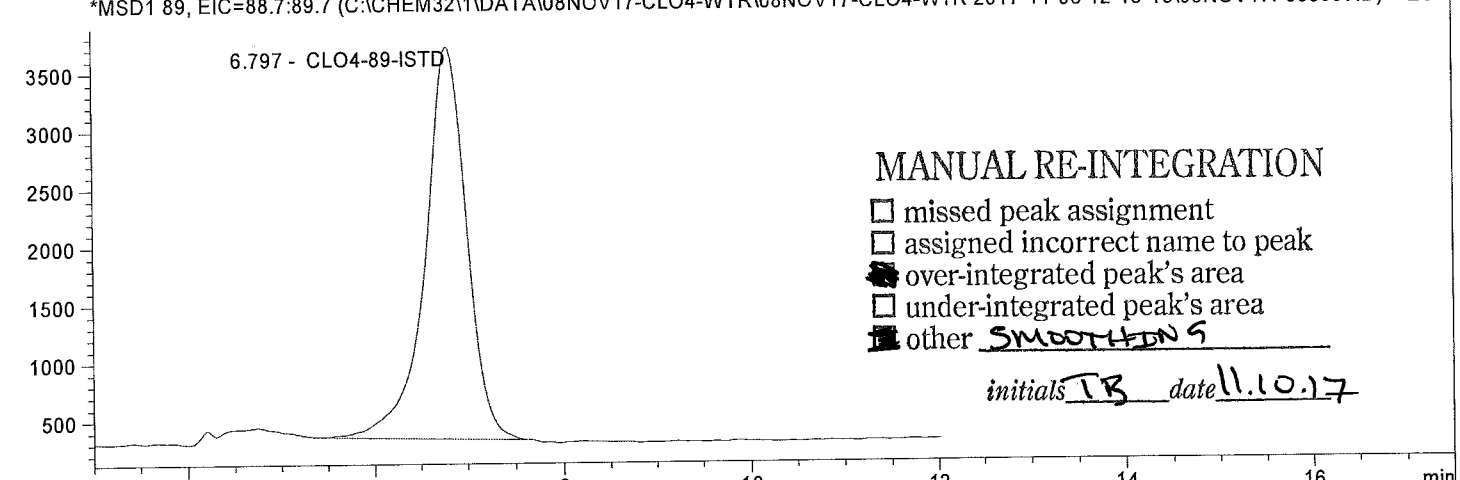

MANUAL RE-INTEGRATION
☐ missed peak assignment
☐ assigned incorrect name to peak
☐ over-integrated peak's area
■ under-integrated peak's area
■ other SMOOTHING
initials TB date 11.10.17

*MSD1 85, EIC=84.7:85.7 (C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR 2017-11-08 12-15-13\08NOV17P000007.D) ES




MANUAL RE-INTEGRATION
☐ missed peak assignment
☐ assigned incorrect name to peak
☐ over-integrated peak's area
■ under-integrated peak's area
■ other SMOOTHING
initials TB date 11.10.17

*MSD1 89, EIC=88.7:89.7 (C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR 2017-11-08 12-15-13\08NOV17P000007.D) ES




MANUAL RE-INTEGRATION
☐ missed peak assignment
☐ assigned incorrect name to peak
■ over-integrated peak's area
☐ under-integrated peak's area
■ other SMOOTHING
initials TB date 11.10.17

Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573329 300401MS

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 13:36:49 | Seq Line: | 7 |
| Sample Name: | 573329 300401MS | Location: | Vial 77 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.793 | MM | 105321.5 | 4.4711 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.801 | MM | 34274.7 | 4.4570 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.797 | MM | 104574.9 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***

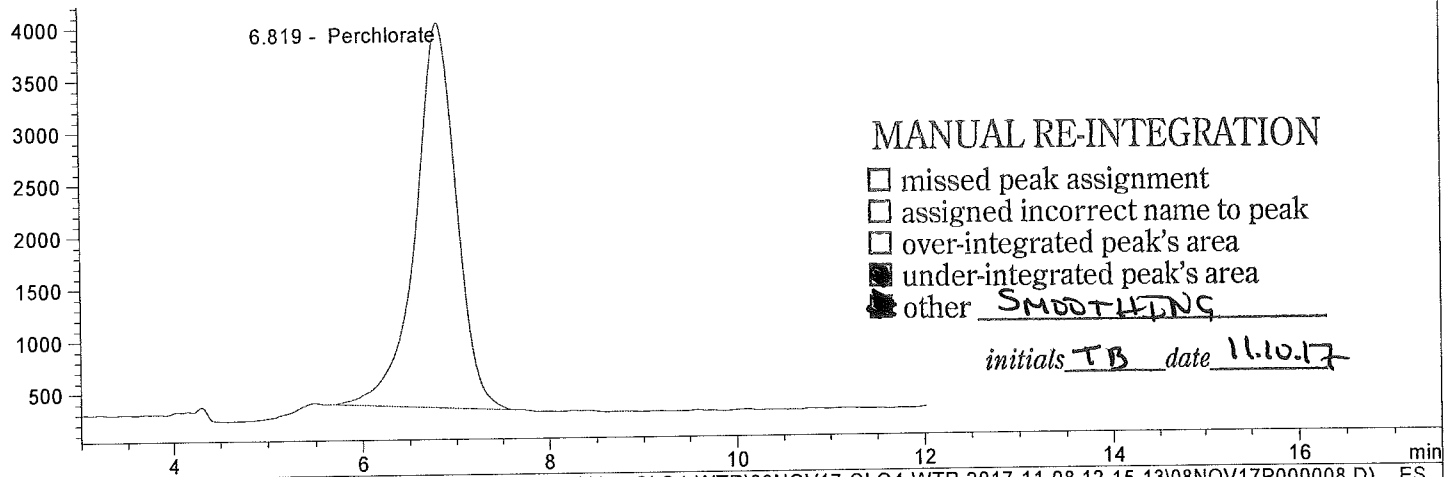
Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573330 300401MSD

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 13:50:22 | Seq Line: | 8 |
| Sample Name: | 573330 300401MSD | Location: | Vial 78 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

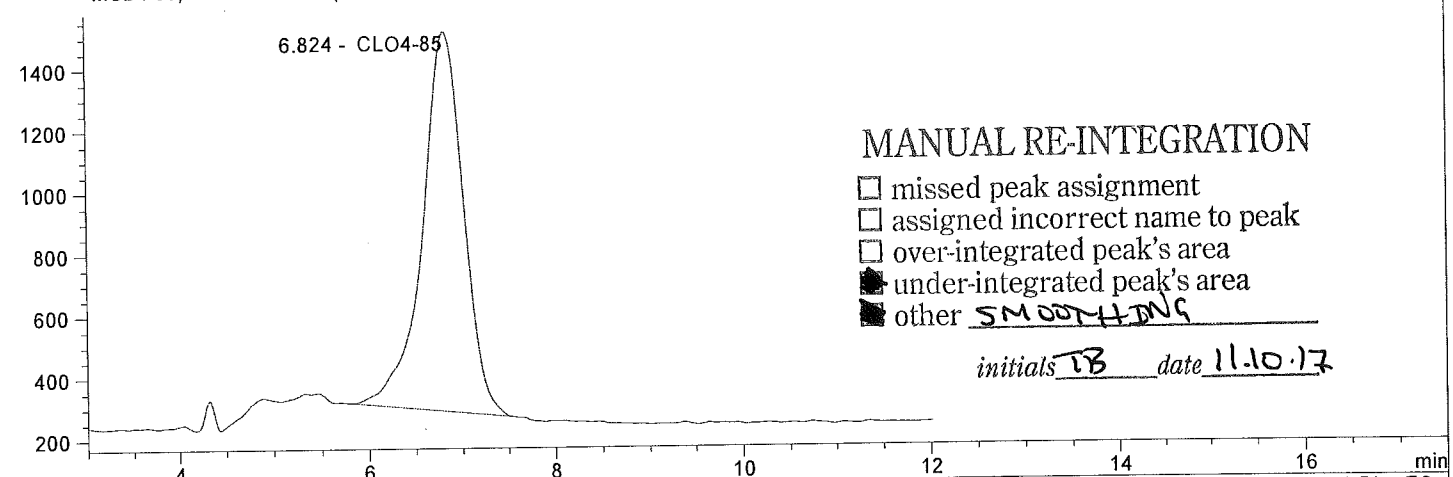
Perchlorate

*MSD1 83, EIC=82.7:83.7 (C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR 2017-11-08 12-15-13\08NOV17P000008.D) ES



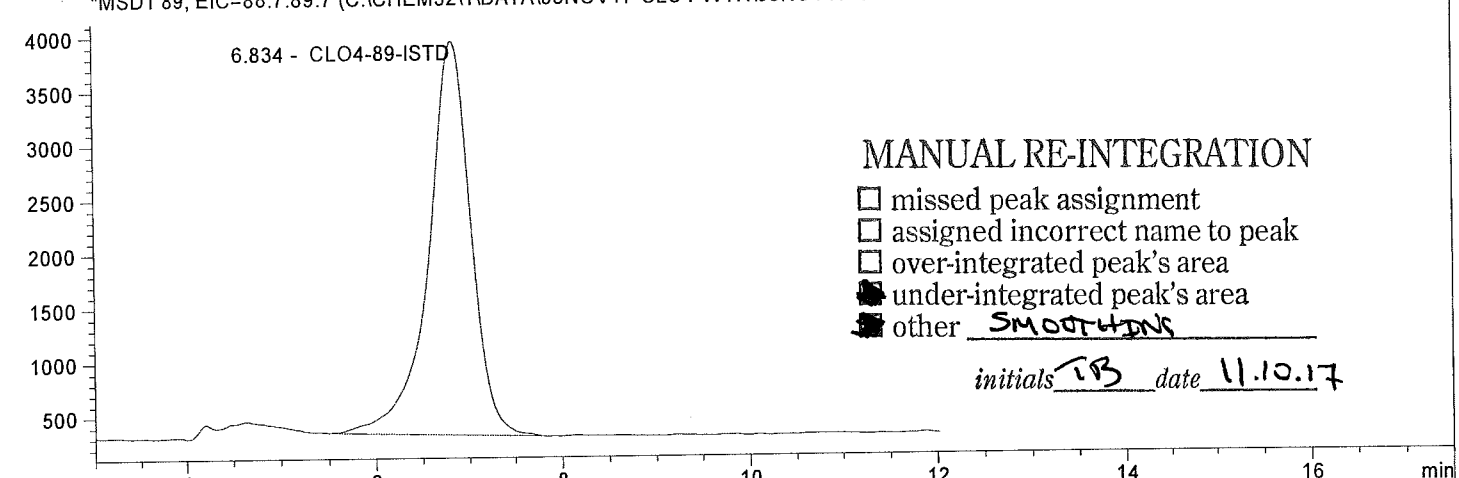

MANUAL RE-INTEGRATION
☐ missed peak assignment
☐ assigned incorrect name to peak
☐ over-integrated peak's area
■ under-integrated peak's area
■ other SMOOTHING
*initials* TB *date* 11.10.17

*MSD1 85, EIC=84.7:85.7 (C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR 2017-11-08 12-15-13\08NOV17P000008.D) ES




MANUAL RE-INTEGRATION
☐ missed peak assignment
☐ assigned incorrect name to peak
☐ over-integrated peak's area
■ under-integrated peak's area
■ other SMOOTHING
*initials* TB *date* 11.10.17

*MSD1 89, EIC=88.7:89.7 (C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR 2017-11-08 12-15-13\08NOV17P000008.D) ES




MANUAL RE-INTEGRATION
☐ missed peak assignment
☐ assigned incorrect name to peak
☐ over-integrated peak's area
■ under-integrated peak's area
■ other SMOOTHING
*initials* TB *date* 11.10.17

Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573330 300401MSD

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 13:50:22 | Seq Line: | 8 |
| Sample Name: | 573330 300401MSD | Location: | Vial 78 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.819 | MM | 111878.0 | 4.3530 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.824 | MM | 37451.5 | 4.4634 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.834 | MM | 114097.0 | 5.0000 | CLO4-89-ISTD |

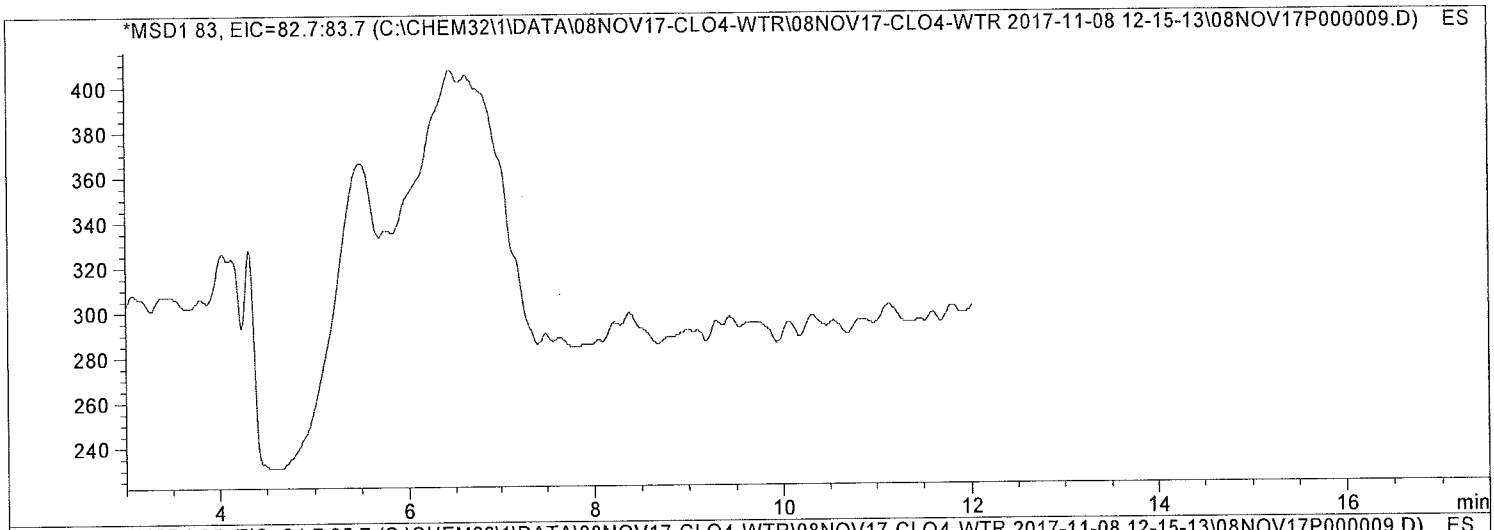
*** End of Report ***

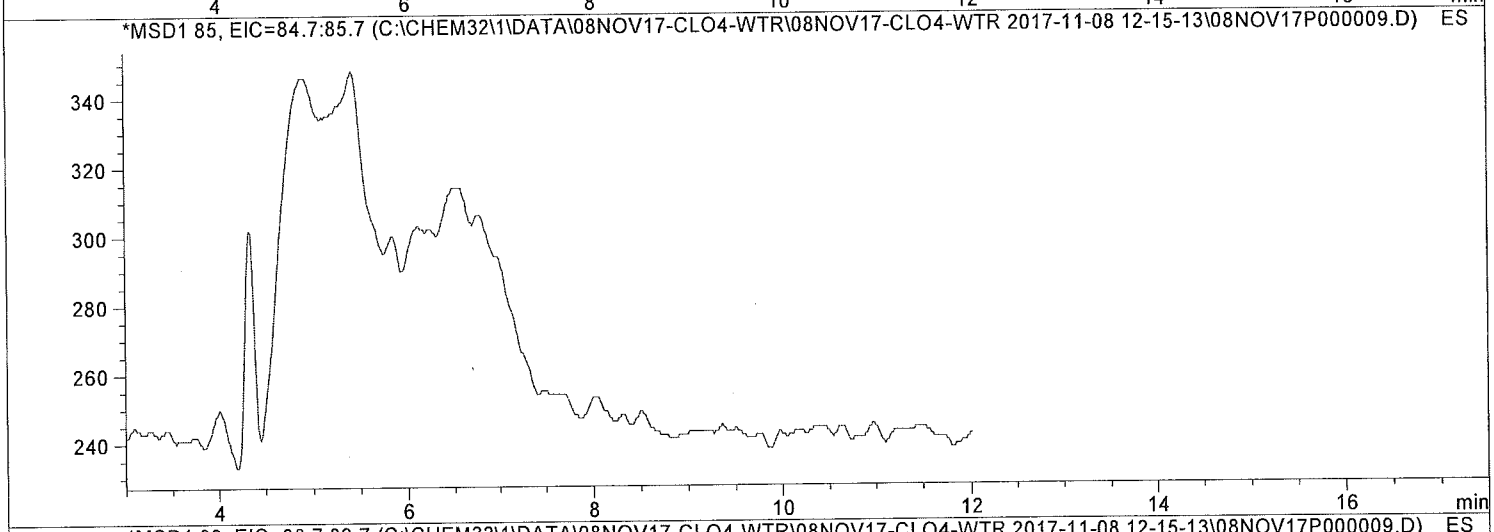
Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 1730755001

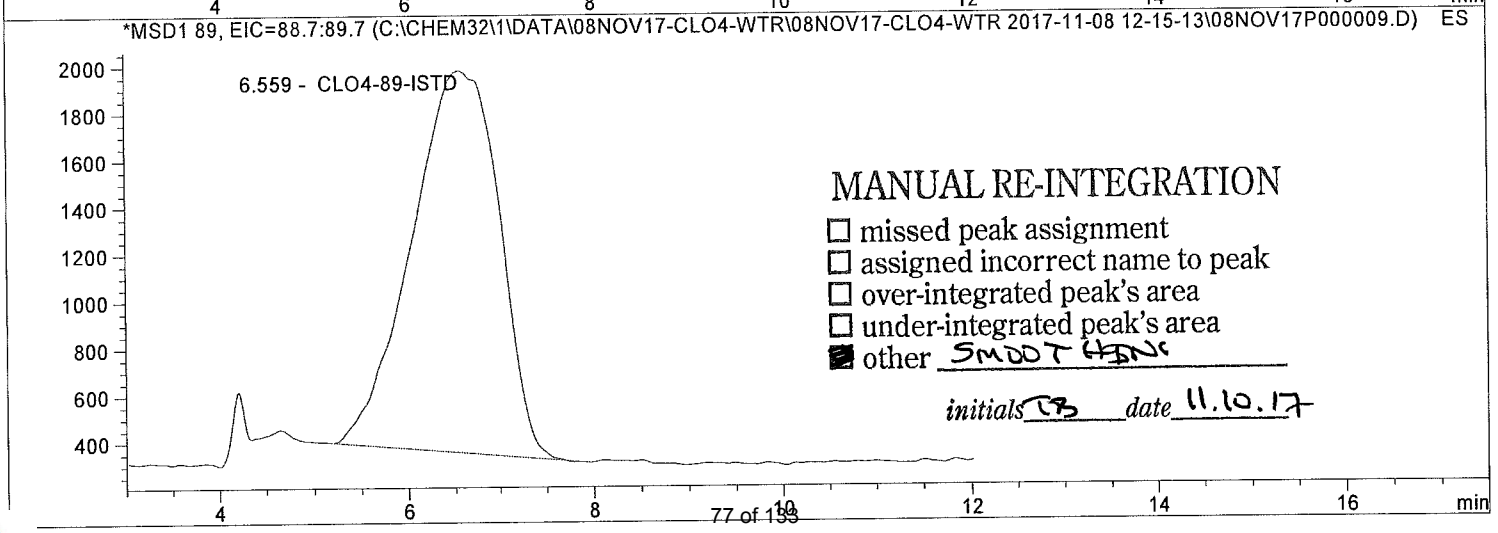
| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 14:03:58 | Seq Line: | 9 |
| Sample Name: | 1730755001 | Location: | Vial 79 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate




MANUAL RE-INTEGRATION

- ☐ missed peak assignment
- ☐ assigned incorrect name to peak
- ☐ over-integrated peak's area
- ☐ under-integrated peak's area
- ☑ other SMOOTHING

*initials* CB *date* 11.10.17

Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 1730755001

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 14:03:58 | Seq Line: | 9 |
| Sample Name: | 1730755001 | Location: | Vial 79 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.000 ug/L |

## 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 |
|---|---|---|---|---|
| 6.559 | BB | 107588.5 | 5.0000 | CLO4-89-ISTD |

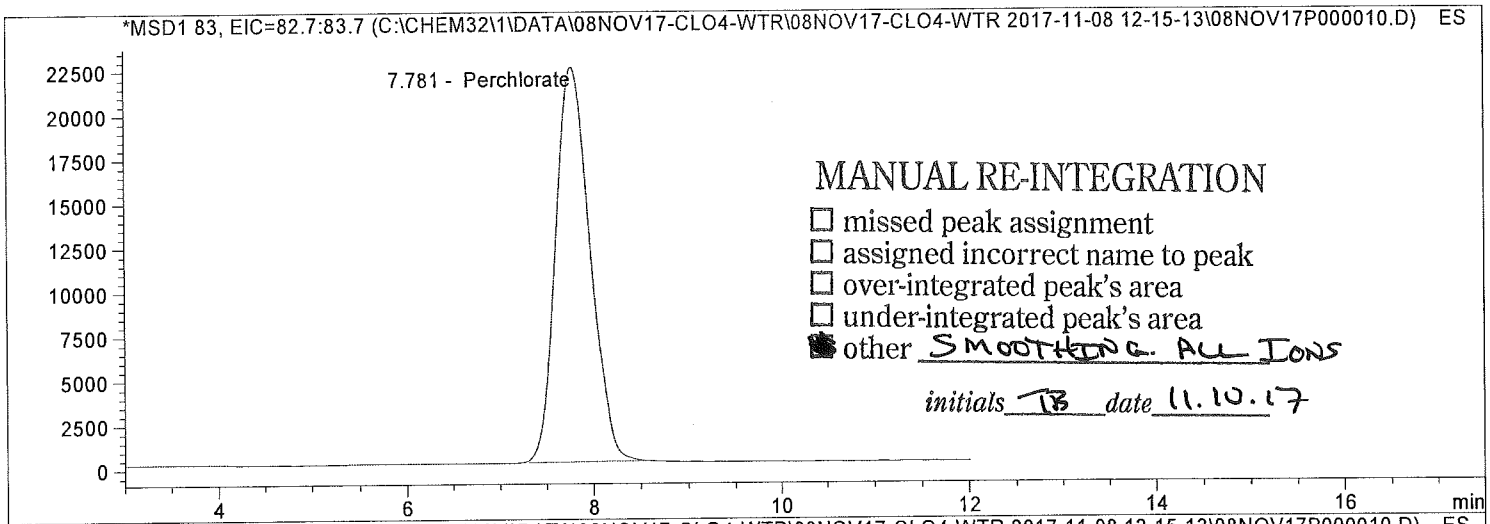
*** End of Report ***

Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573331 CCV@25

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 14:17:30 | Seq Line: | 10 |
| Sample Name: | 573331 CCV@25 | Location: | Vial 71 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

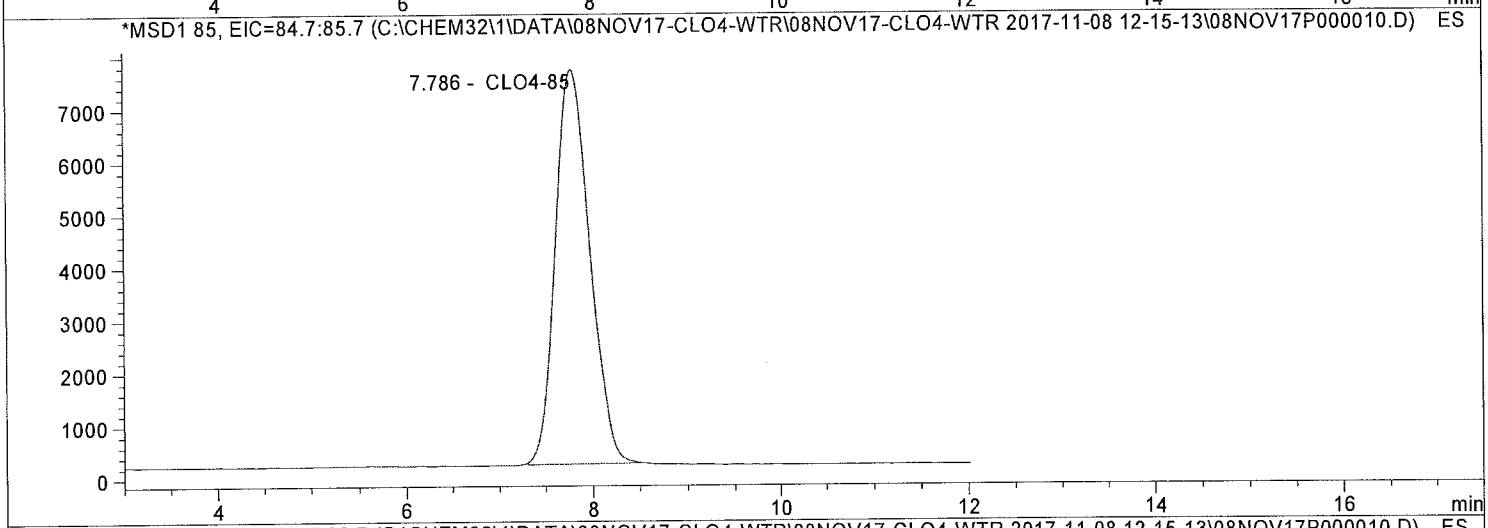
Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

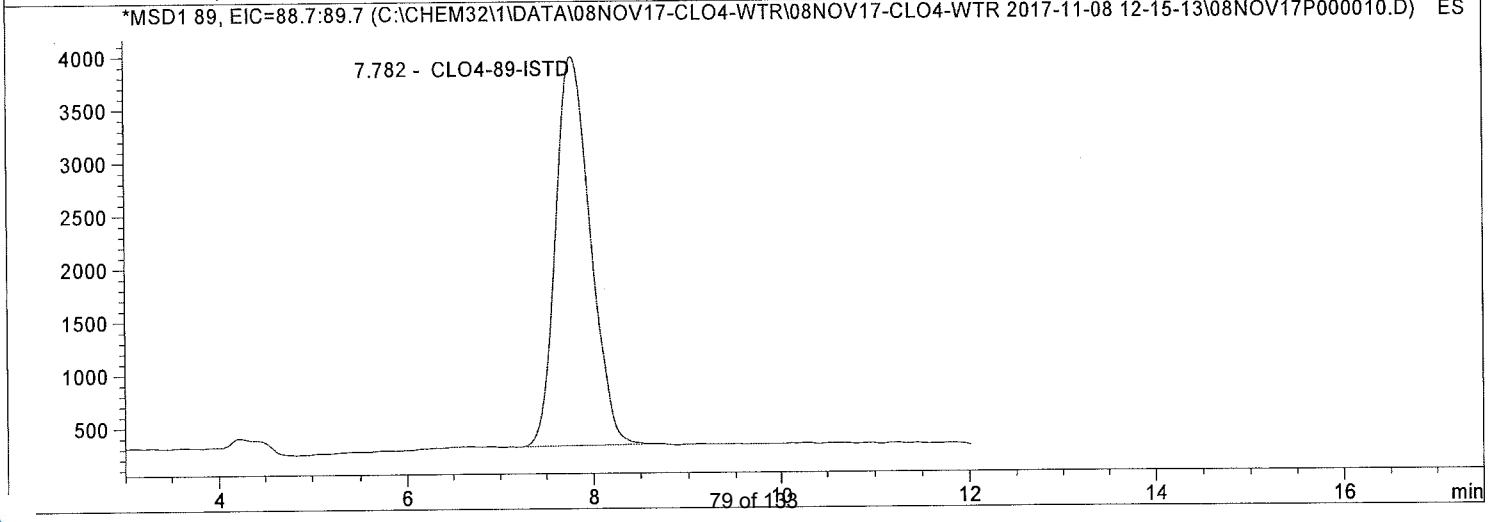
Perchlorate




MANUAL RE-INTEGRATION
- ☐ missed peak assignment
- ☐ assigned incorrect name to peak
- ☐ over-integrated peak's area
- ☐ under-integrated peak's area
- ☒ other SMOOTHING ALL IONS

*initials* TB *date* 11.10.17



Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573331 CCV@25

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 14:17:30 | Seq Line: | 10 |
| Sample Name: | 573331 CCV@25 | Location: | Vial 71 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 25.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.781 | BB | 567576.2 | 26.8671 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.786 | BB | 190259.9 | 26.8787 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.782 | BB | 93783.1 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***

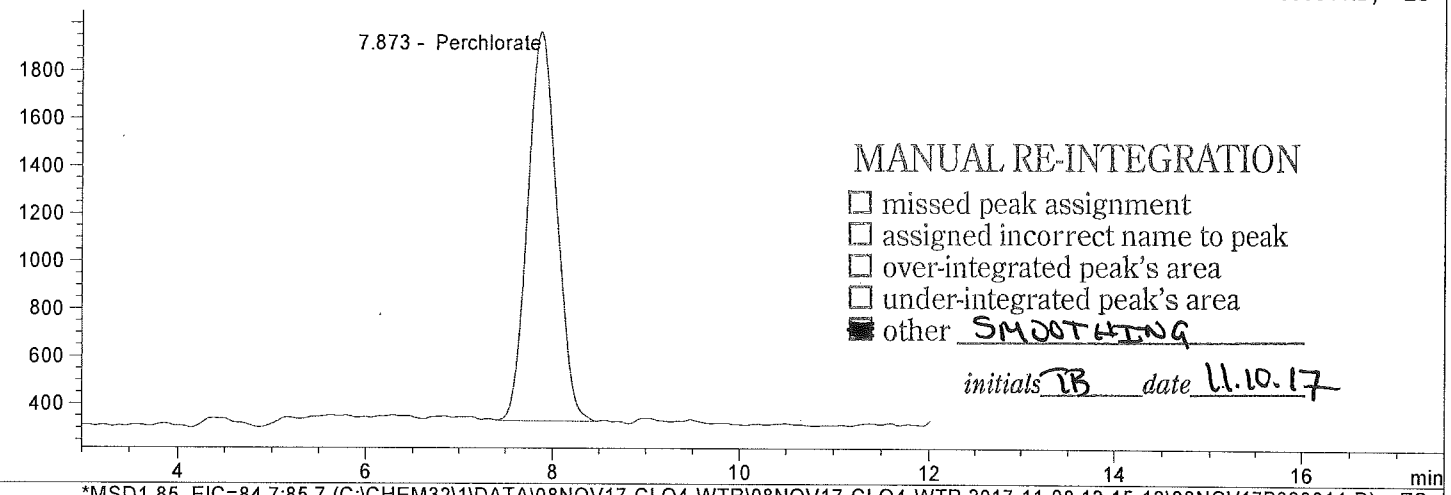
Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573332 LODV@1.

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 14:31:03 | Seq Line: | 11 |
| Sample Name: | 573332 LODV@1. | Location: | Vial 72 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

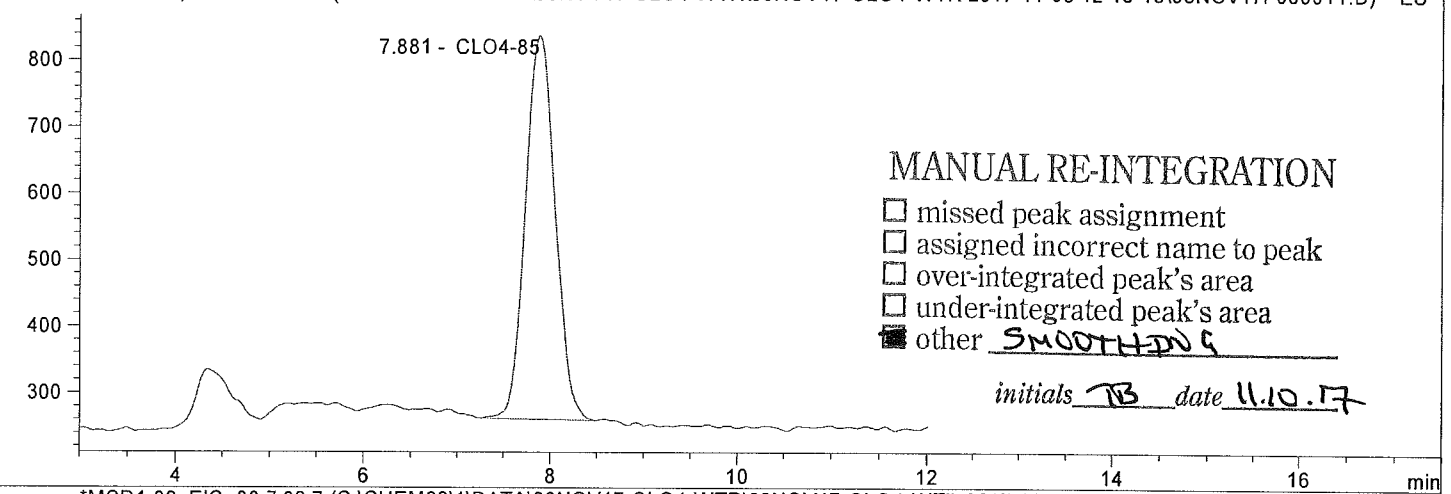
Perchlorate

*MSD1 83, EIC=82.7:83.7 (C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR 2017-11-08 12-15-13\08NOV17P000011.D) ES



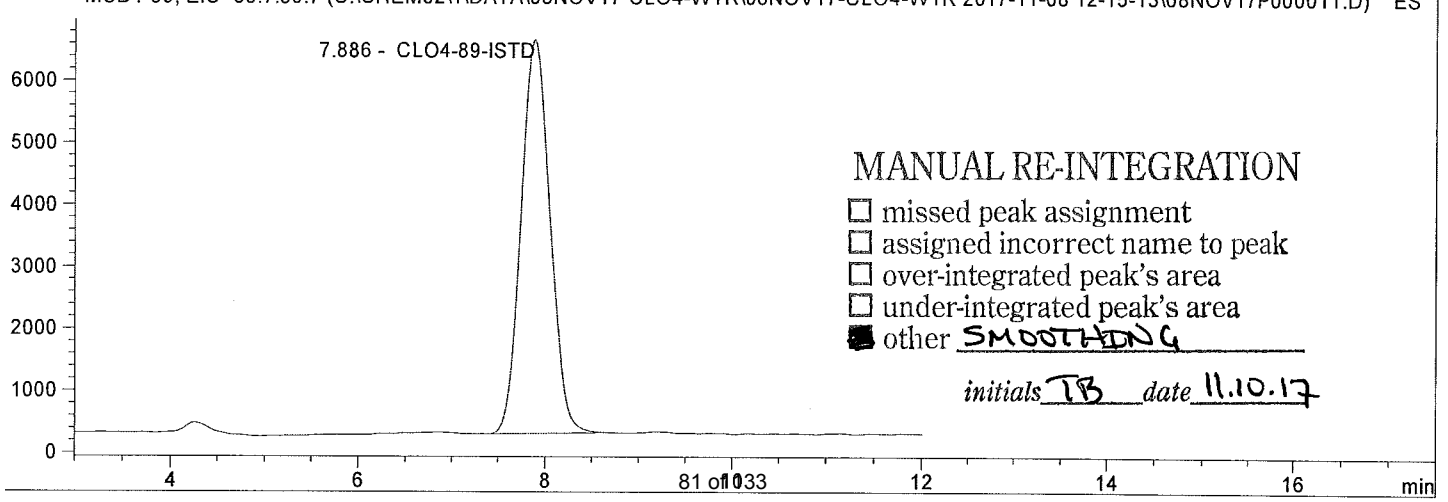

MANUAL RE-INTEGRATION
☐ missed peak assignment
☐ assigned incorrect name to peak
☐ over-integrated peak's area
☐ under-integrated peak's area
■ other SMOOTHING
*initials* TB *date* 11.10.17

*MSD1 85, EIC=84.7:85.7 (C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR 2017-11-08 12-15-13\08NOV17P000011.D) ES




MANUAL RE-INTEGRATION
☐ missed peak assignment
☐ assigned incorrect name to peak
☐ over-integrated peak's area
☐ under-integrated peak's area
■ other SMOOTHING
*initials* TB *date* 11.10.17

*MSD1 89, EIC=88.7:89.7 (C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR 2017-11-08 12-15-13\08NOV17P000011.D) ES




MANUAL RE-INTEGRATION
☐ missed peak assignment
☐ assigned incorrect name to peak
☐ over-integrated peak's area
☐ under-integrated peak's area
■ other SMOOTHING
*initials* TB *date* 11.10.17

Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573332 LODV@1.

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 14:31:03 | Seq Line: | 11 |
| Sample Name: | 573332 LODV@1. | Location: | Vial 72 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 1.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.873 | MM | 35115.5 | 1.1453 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.881 | MM | 12687.7 | 1.3654 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.886 | MM | 136108.7 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

# Raw Data

## Initial Calibration

ethod C:\CHEM32\1\METHODS\CLO4-090717-PR2.M

## Calibration Table

Perchlorate

Calib. Data Modified : 11/8/2017 12:01:35 PM

Calculate : Internal Standard
Based on : Peak Area

Rel. Reference Window : 10.000 %
Abs. Reference Window : 0.000 min
Rel. Non-ref. Window : 10.000 %
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 [ug/L] | 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 [ug/L] | Area | Amt/Area | Ref | Grp | Name |
|---|---|---|---|---|---|---|---|---|
| 7.600 | 1 | 4 | 1.00000 | 6.30618e4 | 1.58575e-5 | 1 | | Perchlorate |
| | | 5 | 5.00000 | 2.92905e5 | 1.70704e-5 | | | |
| | | 6 | 10.00000 | 5.54517e5 | 1.80337e-5 | | | |
| | | 7 | 25.00000 | 1.24481e6 | 2.00834e-5 | | | |
| | | 8 | 50.00000 | 2.13797e6 | 2.33867e-5 | | | |
| 7.630 | 2 | 4 | 1.00000 | 2.14332e4 | 4.66567e-5 | 1 | | CLO4-85 |
| | | 5 | 5.00000 | 9.84017e4 | 5.08121e-5 | | | |
| | | 6 | 10.00000 | 1.86452e5 | 5.36331e-5 | | | |
| | | 7 | 25.00000 | 4.11175e5 | 6.08013e-5 | | | |
| | | 8 | 50.00000 | 7.17406e5 | 6.96955e-5 | | | |
| 7.700 | 3 | 4 | 5.00000 | 3.08061e5 | 1.62306e-5 | I1 | | CLO4-89-ISTD |
| | | 5 | 5.00000 | 2.74022e5 | 1.82467e-5 | | | |
| | | 6 | 5.00000 | 2.56127e5 | 1.95216e-5 | | | |

thod C:\CHEM32\1\METHODS\CLO4-090717-PR2.M

| RetTime [min] | Sig | Lvl | Amount [ug/L] | Area | Amt/Area | Ref | Grp | Name |
|---|---|---|---|---|---|---|---|---|
| | | 7 | 5.00000 | 2.21499e5 | 2.25734e-5 | | | |
| | | 8 | 5.00000 | 1.86887e5 | 2.67541e-5 | | | |

More compound-specific settings:

Compound: Perchlorate
- Time Window : From 5.860 min To 9.320 min
- Curve Type : Linear
- Origin : Forced
- Calibration Level Weights:/
  - Level 4 : 1
  - Level 5 : 0.2
  - Level 6 : 0.1
  - Level 7 : 0.04
  - Level 8 : 0.02

Compound: CLO4-85
- Time Window : From 5.870 min To 9.340 min
- Curve Type : Linear
- Origin : Ignored
- Calibration Level Weights:/
  - Level 4 : 1
  - Level 5 : 0.2
  - Level 6 : 0.1
  - Level 7 : 0.04
  - Level 8 : 0.02

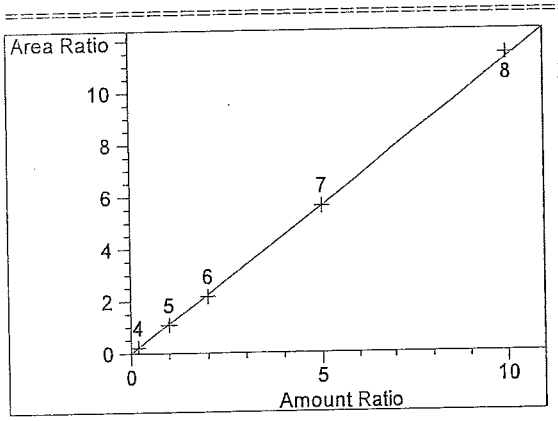
Compound: CLO4-89-ISTD
- Time Window : From 5.920 min To 9.400 min
- Curve Type : Linear
- Origin : Included
- Calibration Level Weights:/
  - Level 4 : 1
  - Level 5 : 1
  - Level 6 : 1
  - Level 7 : 1
  - Level 8 : 1

Peak Sum Table

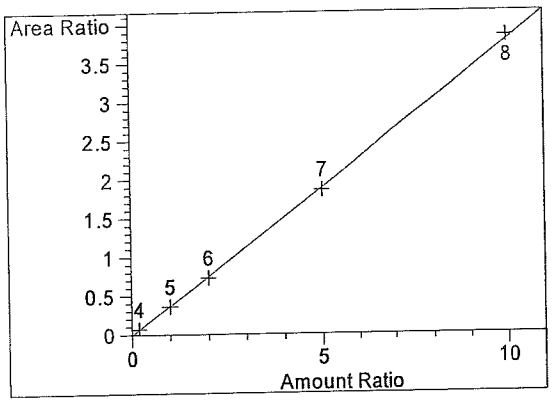
***No Entries in table***

thod C:\CHEM32\1\METHODS\CLO4-090717-PR2.M

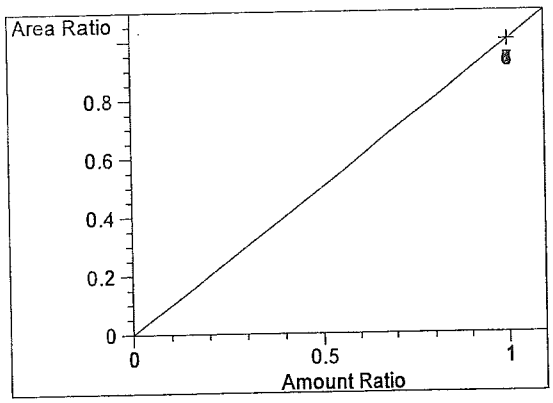
## Calibration Curves




Perchlorate at exp. RT: 7.600
MSD1 83, EIC=82.7:83.7
Correlation: 0.99973
Residual Std. Dev.: 0.10350
Formula: y = mx
m: 1.12629
x: Amount
y: Area
Calibration Level Weights:
Level 4 : 1
Level 5 : 0.2
Level 6 : 0.1
Level 7 : 0.04
Level 8 : 0.02




CLO4-85 at exp. RT: 7.630
MSD1 85, EIC=84.7:85.7
Correlation: 0.99979
Residual Std. Dev.: 0.03893
Formula: y = mx + b
m: 3.79313e-1
b: -1.03635e-2
x: Amount
y: Area
Calibration Level Weights:
Level 4 : 1
Level 5 : 0.2
Level 6 : 0.1
Level 7 : 0.04
Level 8 : 0.02



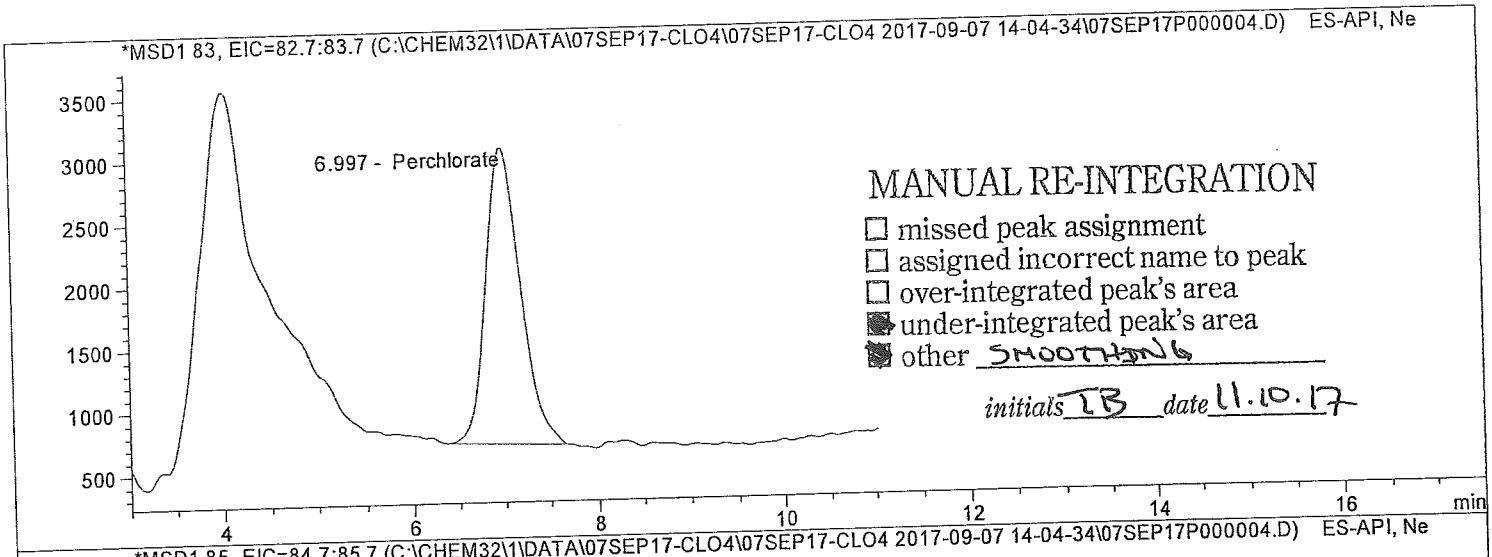

CLO4-89-ISTD at exp. RT: 7.700
MSD1 89, EIC=88.7:89.7
Correlation: 1.00000
Residual Std. Dev.: 0.00000
Formula: y = mx + b
m: 1.00000
b: 0.00000
x: Amount
y: Area
Calibration Level Weights:
Level 4 : 1
Level 5 : 1
Level 6 : 1
Level 7 : 1
Level 8 : 1

Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICL4@1.ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 14:46:29 | Seq Line: | 4 |
| Sample Name: | CLO4 ICL4@1.ug/L | Location: | Vial 64 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

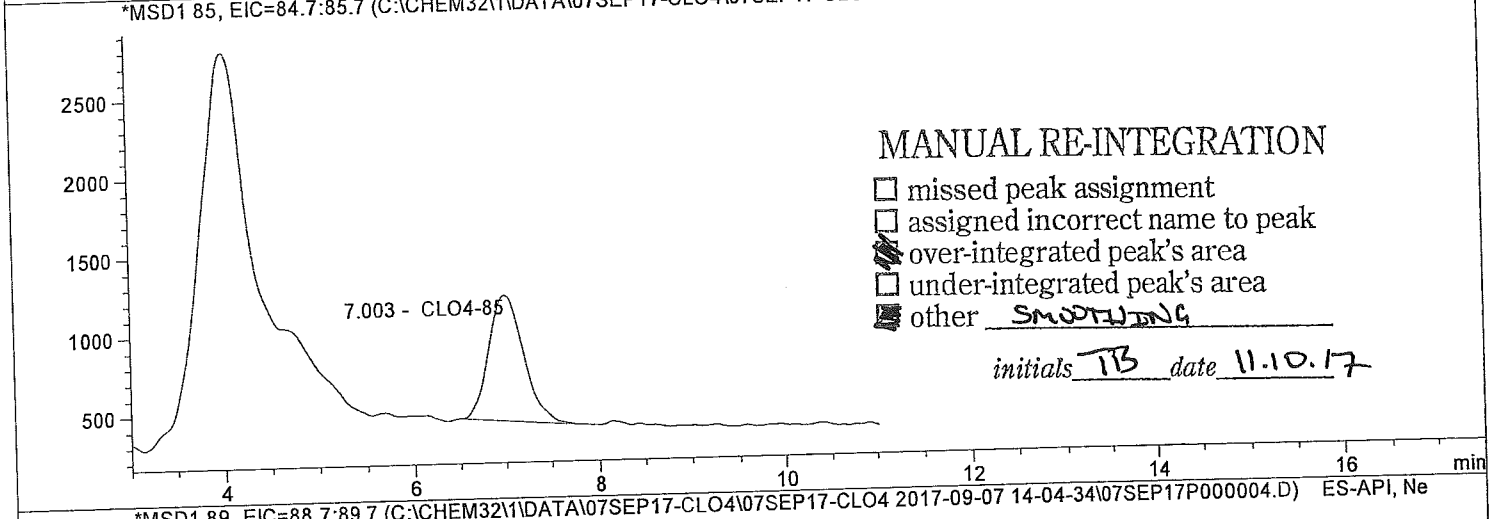
Acq. Method: C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate



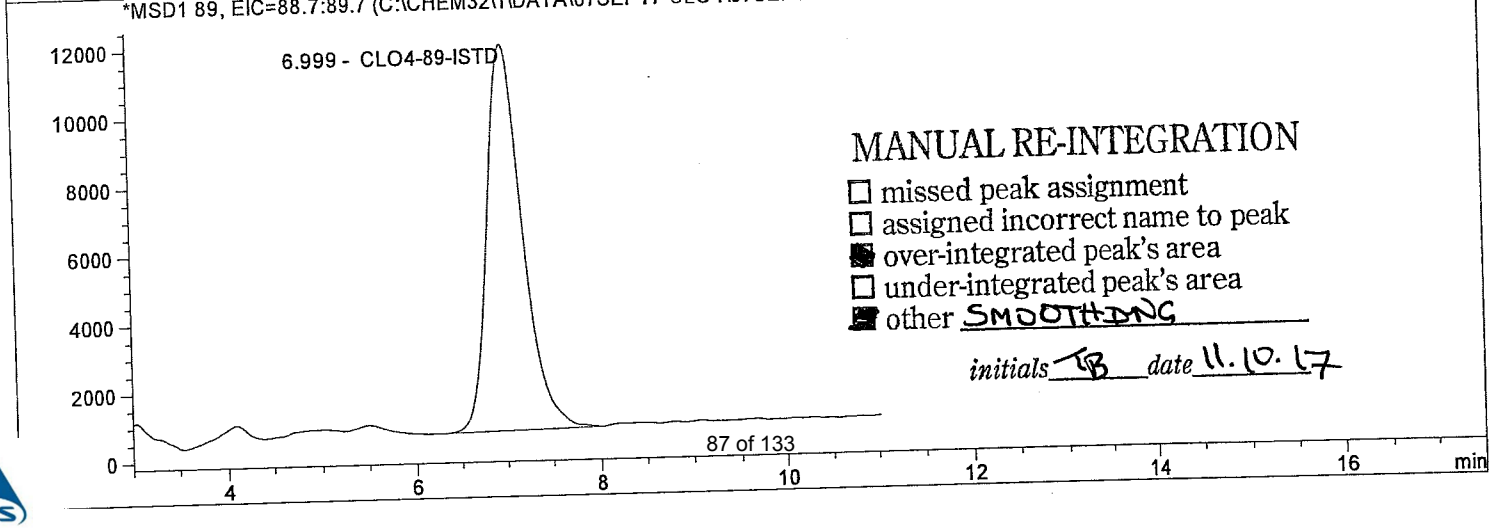

MANUAL RE-INTEGRATION
- ☐ missed peak assignment
- ☐ assigned incorrect name to peak
- ☐ over-integrated peak's area
- ■ under-integrated peak's area
- ■ other SMOOTHING

*initials* TB *date* 11.10.17




MANUAL RE-INTEGRATION
- ☐ missed peak assignment
- ☐ assigned incorrect name to peak
- ■ over-integrated peak's area
- ☐ under-integrated peak's area
- ■ other SMOOTHING

*initials* TB *date* 11.10.17




MANUAL RE-INTEGRATION
- ☐ missed peak assignment
- ☐ assigned incorrect name to peak
- ■ over-integrated peak's area
- ☐ under-integrated peak's area
- ■ other SMOOTHING

*initials* TB *date* 11.10.17

Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICL4@1.ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 14:46:29 | Seq Line: | 4 |
| Sample Name: | CLO4 ICL4@1.ug/L | Location: | Vial 64 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 1.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.997 | MM | 63061.8 | 0.9088 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.003 | MM | 21433.2 | 1.0537 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.999 | MM | 308061.0 | 5.0000 | CLO4-89-ISTD |

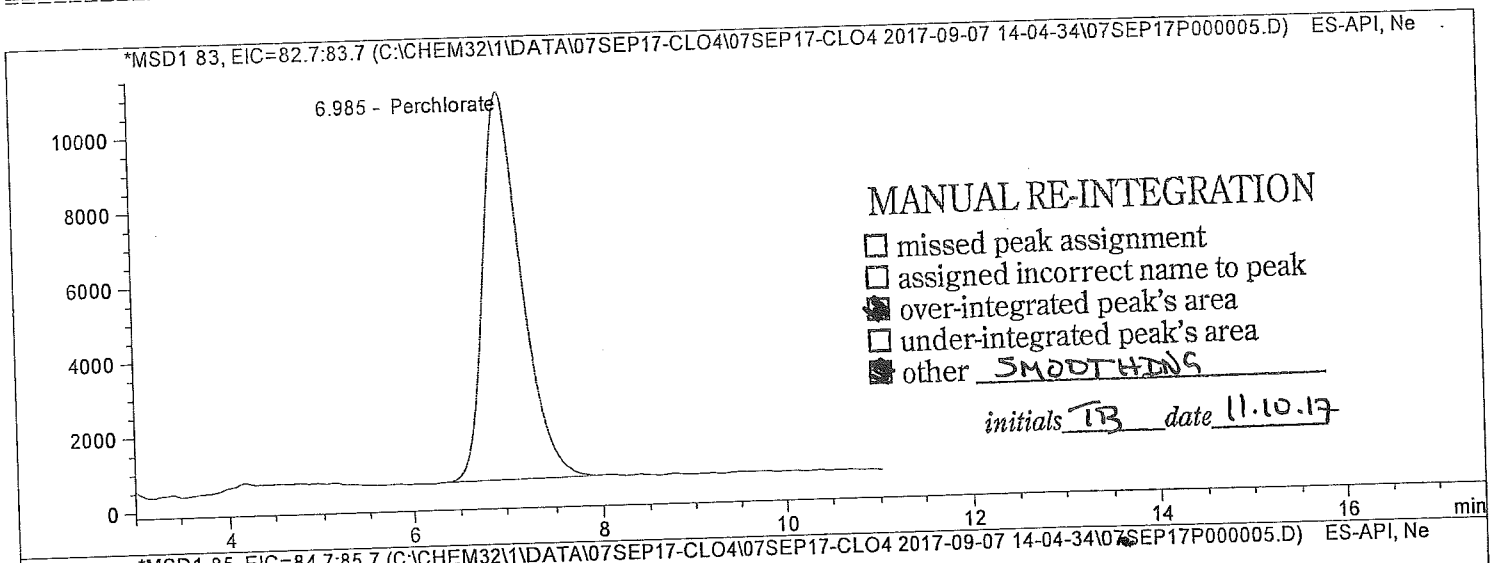
*** End of Report ***

Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICL5@5.ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 14:59:04 | Seq Line: | 5 |
| Sample Name: | CLO4 ICL5@5.ug/L | Location: | Vial 65 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

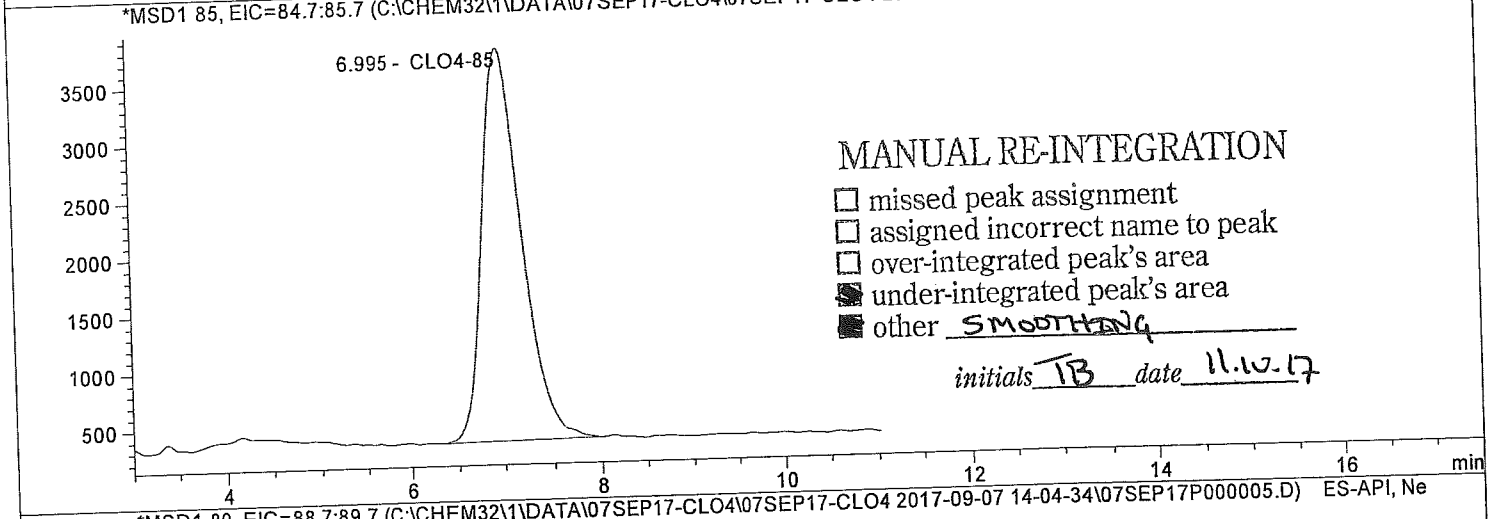
Acq. Method: C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate



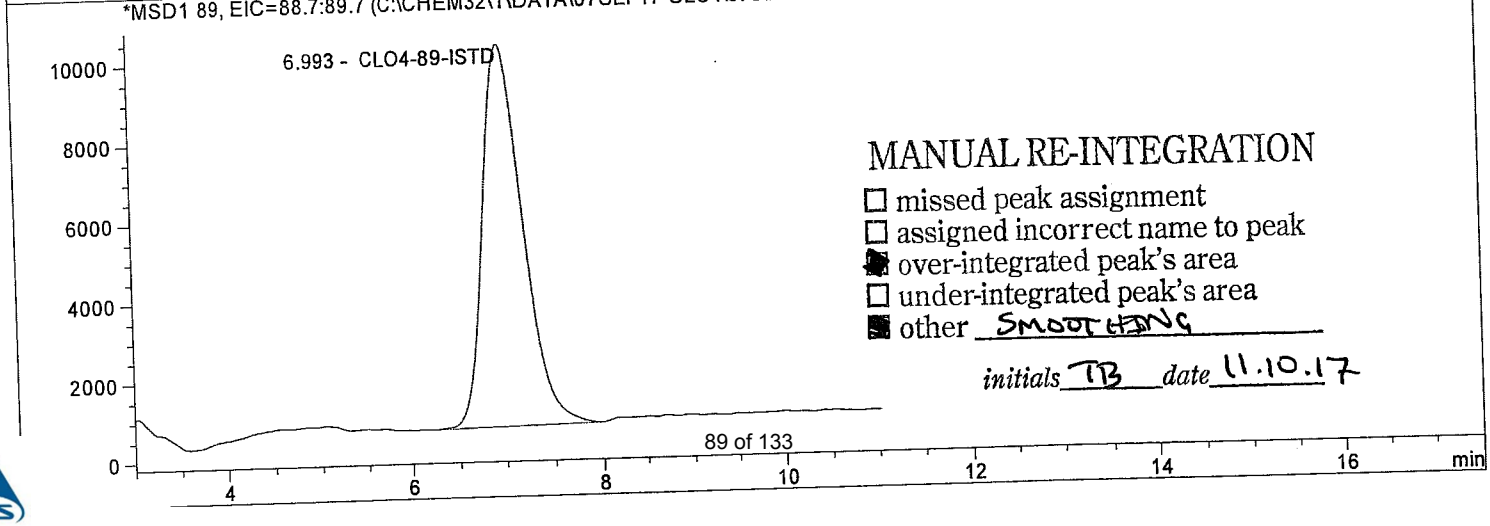

MANUAL RE-INTEGRATION
- ☐ missed peak assignment
- ☐ assigned incorrect name to peak
- ☒ over-integrated peak's area
- ☐ under-integrated peak's area
- ☒ other SMOOTHING

*initials* TB *date* 11.10.17




MANUAL RE-INTEGRATION
- ☐ missed peak assignment
- ☐ assigned incorrect name to peak
- ☐ over-integrated peak's area
- ☒ under-integrated peak's area
- ☒ other SMOOTHING

*initials* TB *date* 11.10.17




MANUAL RE-INTEGRATION
- ☐ missed peak assignment
- ☐ assigned incorrect name to peak
- ☒ over-integrated peak's area
- ☐ under-integrated peak's area
- ☒ other SMOOTHING

*initials* TB *date* 11.10.17

Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICL5@5.ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 14:59:04 | Seq Line: | 5 |
| Sample Name: | CLO4 ICL5@5.ug/L | Location: | Vial 65 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 5.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.985 | MM | 292904.5 | 4.7453 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.995 | MM | 98401.7 | 4.8702 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.993 | MM | 274022.0 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***

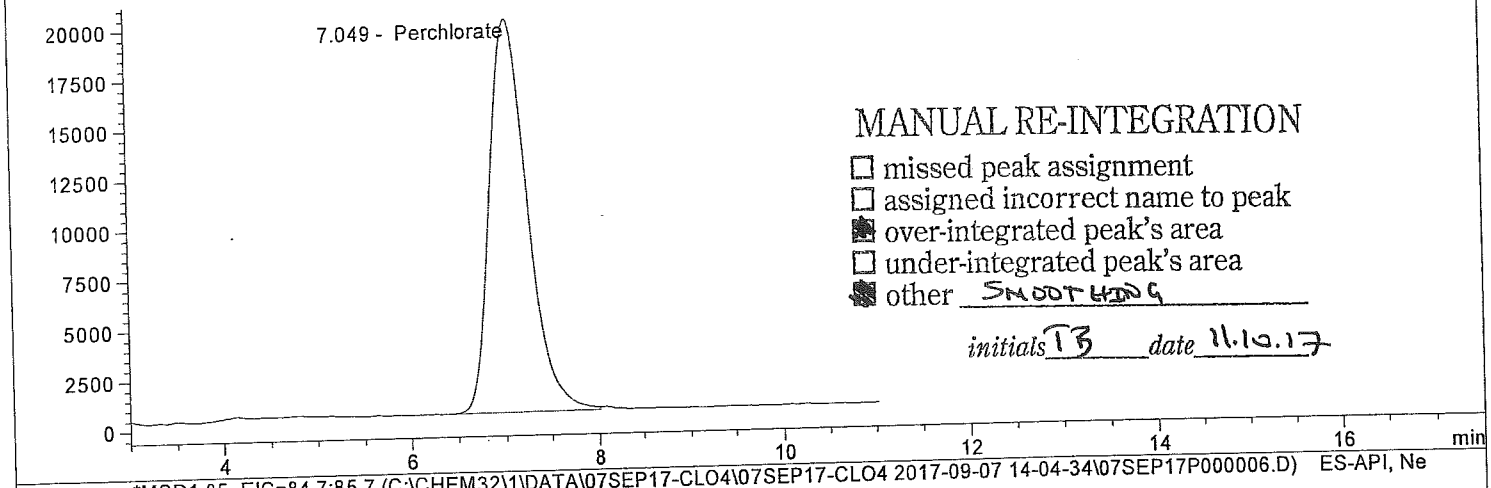
Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICL6@10ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 15:11:37 | Seq Line: | 6 |
| Sample Name: | CLO4 ICL6@10ug/L | Location: | Vial 66 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

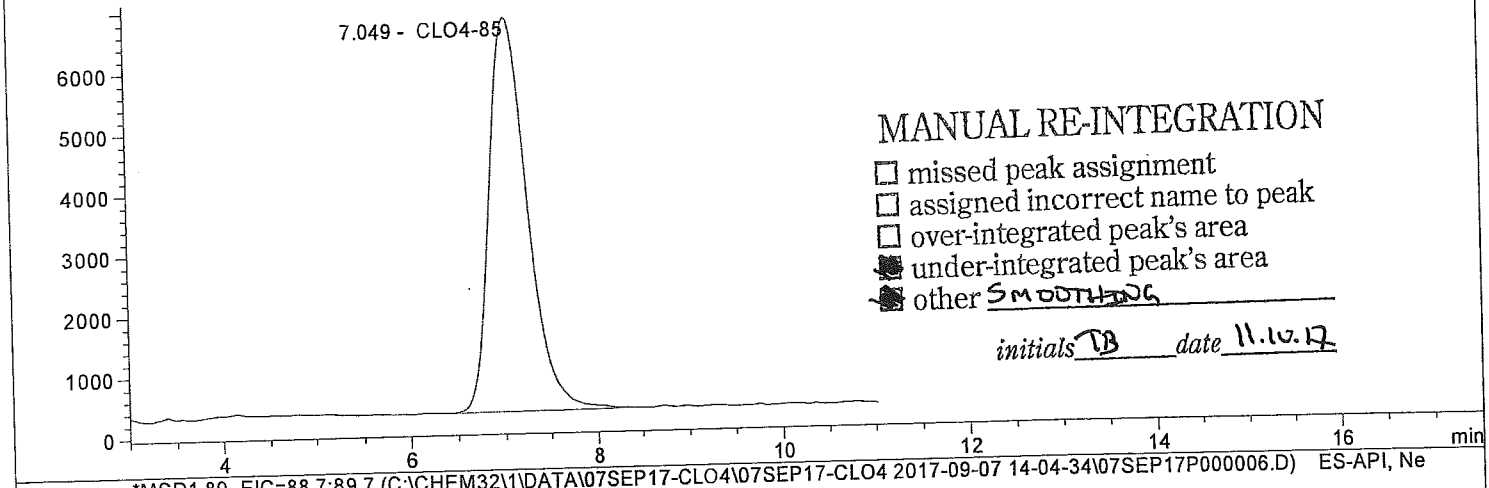
*MSD1 83, EIC=82.7:83.7 (C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-07 14-04-34\07SEP17P000006.D) ES-API, Ne




MANUAL RE-INTEGRATION
- ☐ missed peak assignment
- ☐ assigned incorrect name to peak
- ☒ over-integrated peak's area
- ☐ under-integrated peak's area
- ☒ other SMOOTHING

*initials* TB *date* 11.10.17

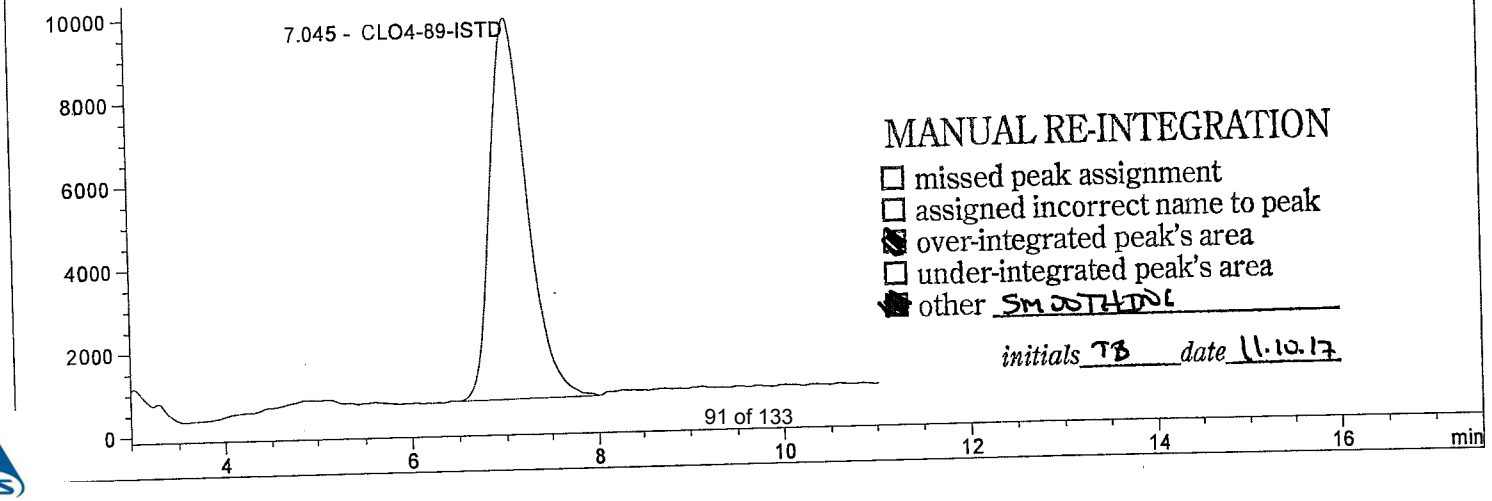
*MSD1 85, EIC=84.7:85.7 (C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-07 14-04-34\07SEP17P000006.D) ES-API, Ne




MANUAL RE-INTEGRATION
- ☐ missed peak assignment
- ☐ assigned incorrect name to peak
- ☐ over-integrated peak's area
- ☒ under-integrated peak's area
- ☒ other SMOOTHING

*initials* TB *date* 11.10.17

*MSD1 89, EIC=88.7:89.7 (C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-07 14-04-34\07SEP17P000006.D) ES-API, Ne




MANUAL RE-INTEGRATION
- ☐ missed peak assignment
- ☐ assigned incorrect name to peak
- ☒ over-integrated peak's area
- ☐ under-integrated peak's area
- ☒ other SMOOTHING

*initials* TB *date* 11.10.17

Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICL6@10ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 15:11:37 | Seq Line: | 6 |
| Sample Name: | CLO4 ICL6@10ug/L | Location: | Vial 66 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

| | |
|---|---|
| Acq. Method: | C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09--> |
| Analysis Method: | C:\CHEM32\1\METHODS\CLO4-090717-PR2.M |
| Last Changed: | 11/8/2017 16:48:07 |

Perchlorate

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 10.000 ug/L |

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.049 | MF | 554516.7 | 9.6113 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.049 | MM | 186452.0 | 9.7325 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.045 | MM | 256126.6 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***

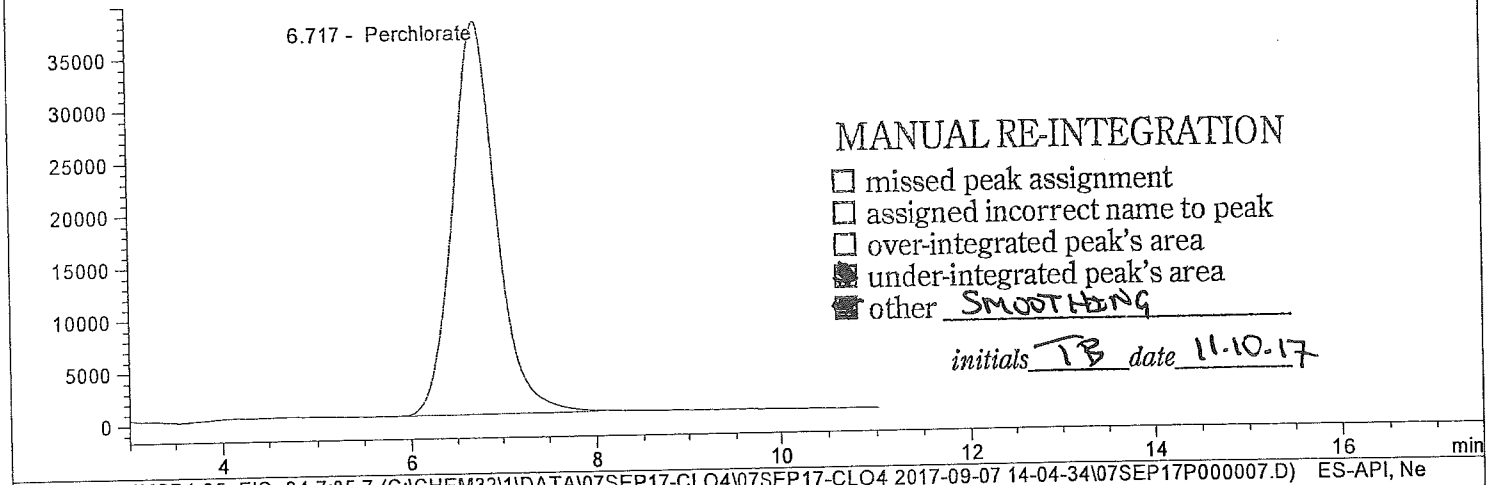
Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICL7@25ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 15:24:10 | Seq Line: | 7 |
| Sample Name: | CLO4 ICL7@25ug/L | Location: | Vial 67 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

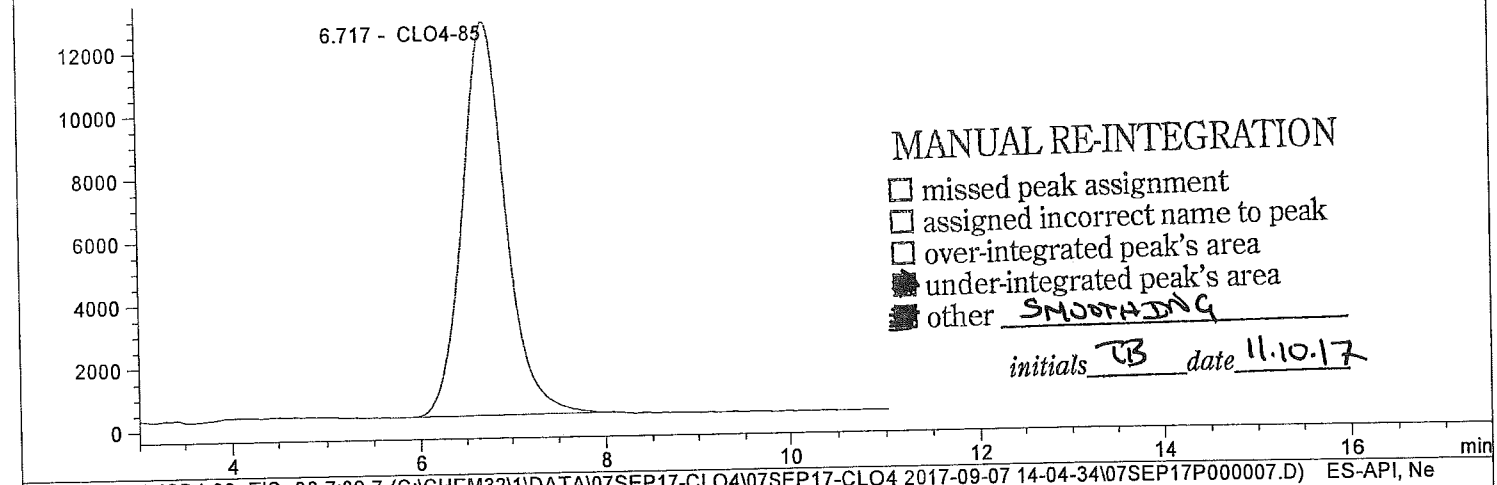
*MSD1 83, EIC=82.7:83.7 (C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-07 14-04-34\07SEP17P000007.D) ES-API, Ne




MANUAL RE-INTEGRATION
- ☐ missed peak assignment
- ☐ assigned incorrect name to peak
- ☐ over-integrated peak's area
- ■ under-integrated peak's area
- ■ other SMOOTHING

*initials* TB *date* 11.10.17

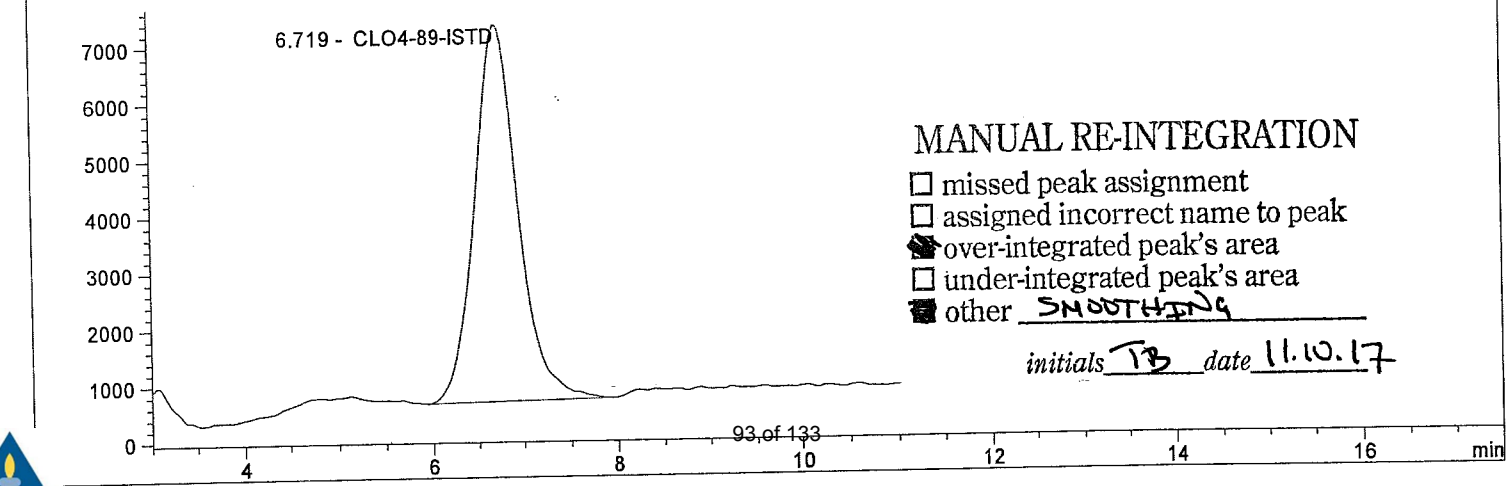
*MSD1 85, EIC=84.7:85.7 (C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-07 14-04-34\07SEP17P000007.D) ES-API, Ne




MANUAL RE-INTEGRATION
- ☐ missed peak assignment
- ☐ assigned incorrect name to peak
- ☐ over-integrated peak's area
- ■ under-integrated peak's area
- ■ other SMOOTHING

*initials* TB *date* 11.10.17

*MSD1 89, EIC=88.7:89.7 (C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-07 14-04-34\07SEP17P000007.D) ES-API, Ne




MANUAL RE-INTEGRATION
- ☐ missed peak assignment
- ☐ assigned incorrect name to peak
- ■ over-integrated peak's area
- ☐ under-integrated peak's area
- ■ other SMOOTHING

*initials* TB *date* 11.10.17

Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICL7@25ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 15:24:10 | Seq Line: | 7 |
| Sample Name: | CLO4 ICL7@25ug/L | Location: | Vial 67 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

| | |
|---|---|
| Acq. Method: | C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09--> |
| Analysis Method: | C:\CHEM32\1\METHODS\CLO4-090717-PR2.M |
| Last Changed: | 11/8/2017 16:48:07 |

Perchlorate

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 25.000 ug/L |

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.717 | MF | 1244808.4 | 24.9489 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.717 | MM | 411175.3 | 24.6062 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.719 | MM | 221499.4 | 5.0000 | CLO4-89-ISTD |

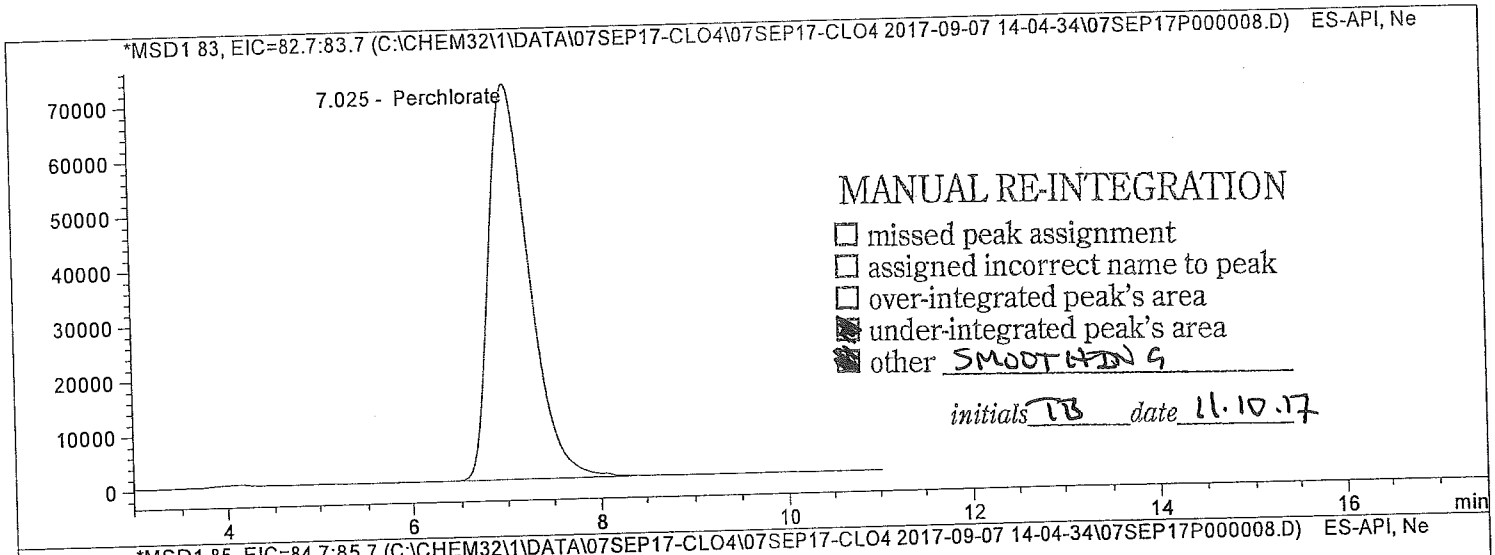
*** End of Report ***

Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICL8@50ug/L

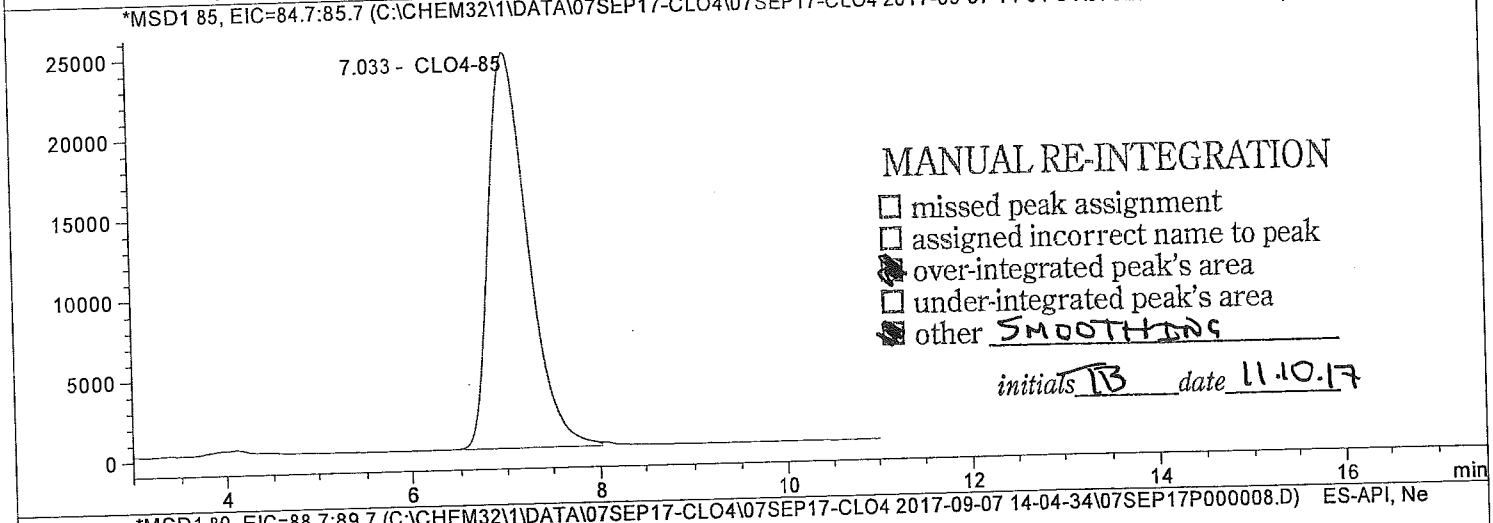
| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 15:36:44 | Seq Line: | 8 |
| Sample Name: | CLO4 ICL8@50ug/L | Location: | Vial 68 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

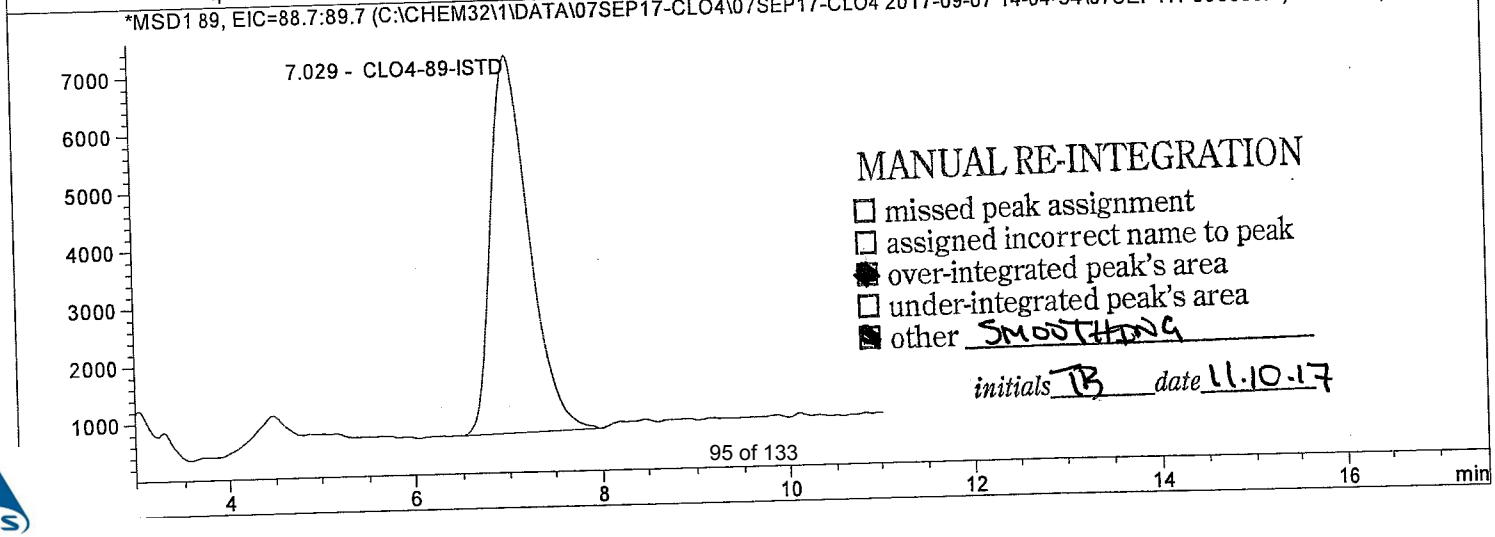
Perchlorate




MANUAL RE-INTEGRATION
☐ missed peak assignment
☐ assigned incorrect name to peak
☐ over-integrated peak's area
☒ under-integrated peak's area
☒ other SMOOTHING
*initials* TB *date* 11.10.17




MANUAL RE-INTEGRATION
☐ missed peak assignment
☐ assigned incorrect name to peak
☒ over-integrated peak's area
☐ under-integrated peak's area
☒ other SMOOTHING
*initials* TB *date* 11.10.17




MANUAL RE-INTEGRATION
☐ missed peak assignment
☐ assigned incorrect name to peak
☒ over-integrated peak's area
☐ under-integrated peak's area
☒ other SMOOTHING
*initials* TB *date* 11.10.17

Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICL8@50ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 15:36:44 | Seq Line: | 8 |
| Sample Name: | CLO4 ICL8@50ug/L | Location: | Vial 68 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

| | |
|---|---|
| Acq. Method: | C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09--> |
| Analysis Method: | C:\CHEM32\1\METHODS\CLO4-090717-PR2.M |
| Last Changed: | 11/8/2017 16:48:07 |

Perchlorate

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 50.000 ug/L |

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.025 | MF | 2137969.0 | 50.7858 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.033 | MF | 717406.0 | 50.7374 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.029 | MM | 186887.2 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***

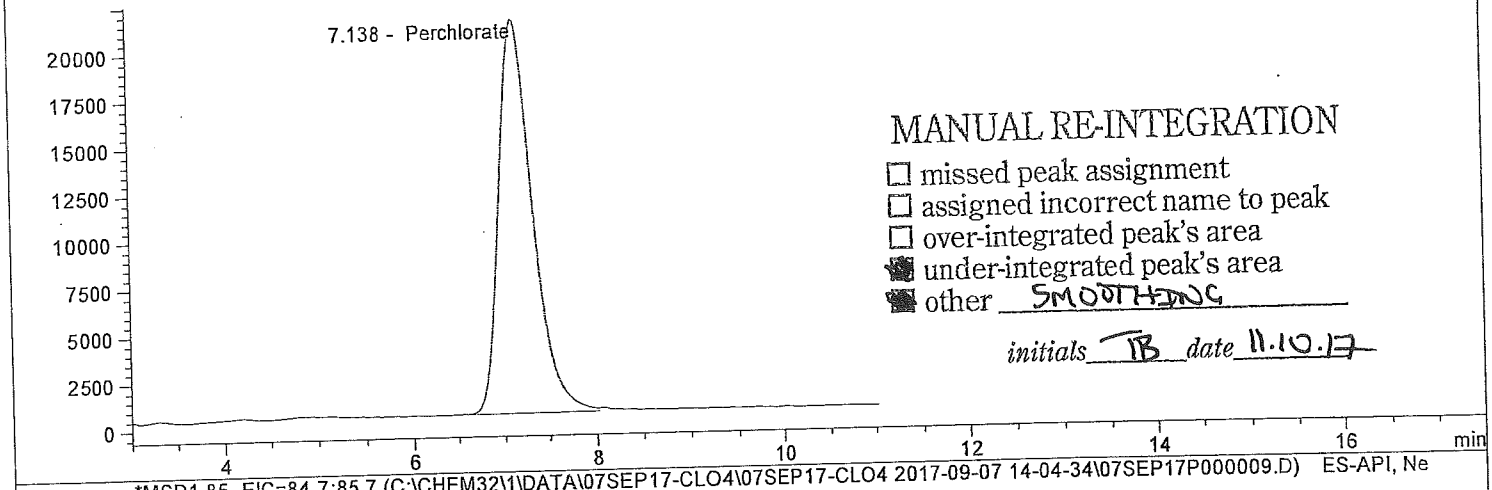
Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICV@10ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 15:49:16 | Seq Line: | 9 |
| Sample Name: | CLO4 ICV@10ug/L | Location: | Vial 69 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

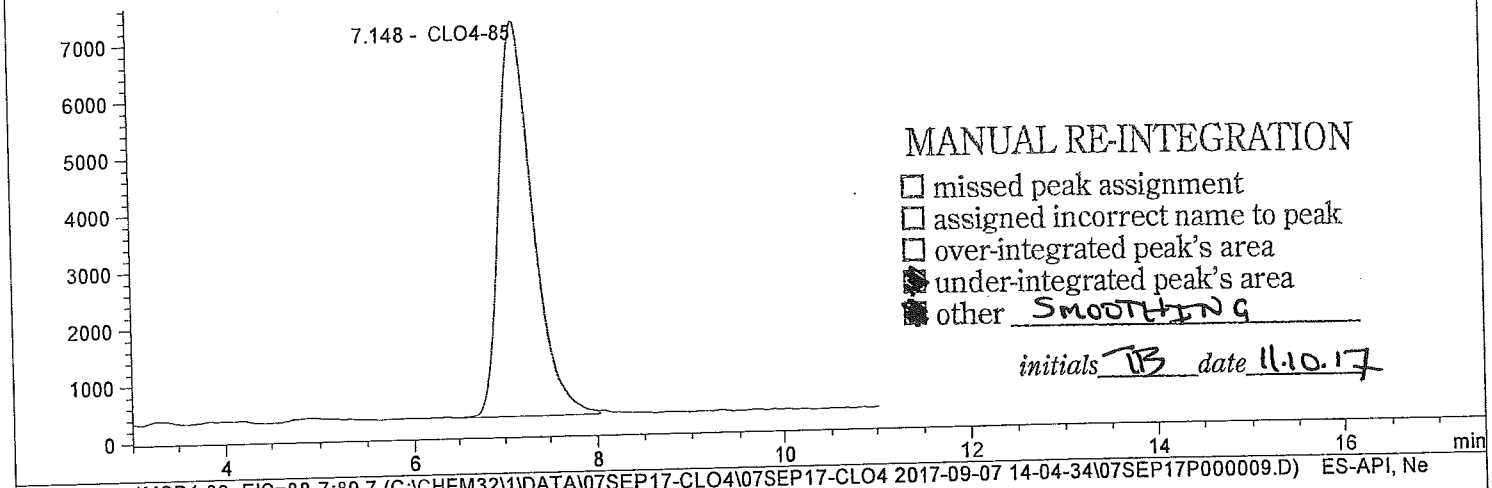
Perchlorate

*MSD1 83, EIC=82.7:83.7 (C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-07 14-04-34\07SEP17P000009.D) ES-API, Ne



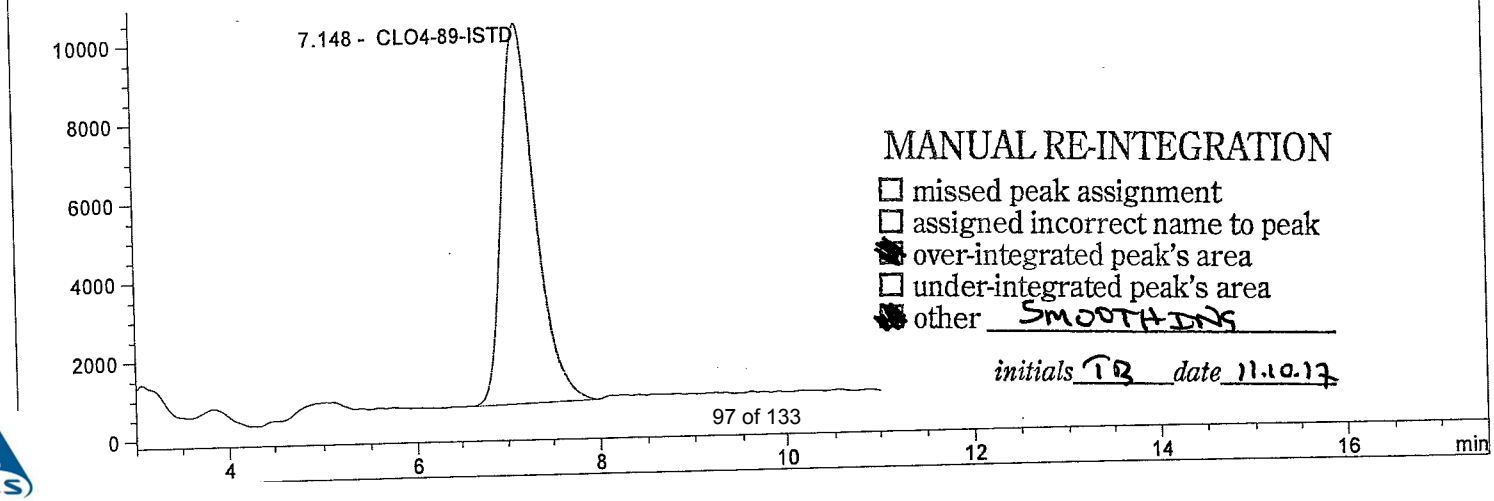

MANUAL RE-INTEGRATION
☐ missed peak assignment
☐ assigned incorrect name to peak
☐ over-integrated peak's area
☒ under-integrated peak's area
☒ other SMOOTHING
*initials* TB *date* 11.10.17

*MSD1 85, EIC=84.7:85.7 (C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-07 14-04-34\07SEP17P000009.D) ES-API, Ne




MANUAL RE-INTEGRATION
☐ missed peak assignment
☐ assigned incorrect name to peak
☐ over-integrated peak's area
☒ under-integrated peak's area
☒ other SMOOTHING
*initials* TB *date* 11.10.17

*MSD1 89, EIC=88.7:89.7 (C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-07 14-04-34\07SEP17P000009.D) ES-API, Ne




MANUAL RE-INTEGRATION
☐ missed peak assignment
☐ assigned incorrect name to peak
☒ over-integrated peak's area
☐ under-integrated peak's area
☒ other SMOOTHING
*initials* TB *date* 11.10.17

Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICV@10ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 15:49:16 | Seq Line: | 9 |
| Sample Name: | CLO4 ICV@10ug/L | Location: | Vial 69 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 10.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.138 | MF | 548799.1 | 9.7284 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.148 | MF | 182852.1 | 9.7611 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.148 | MM | 250434.1 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

# Raw Data

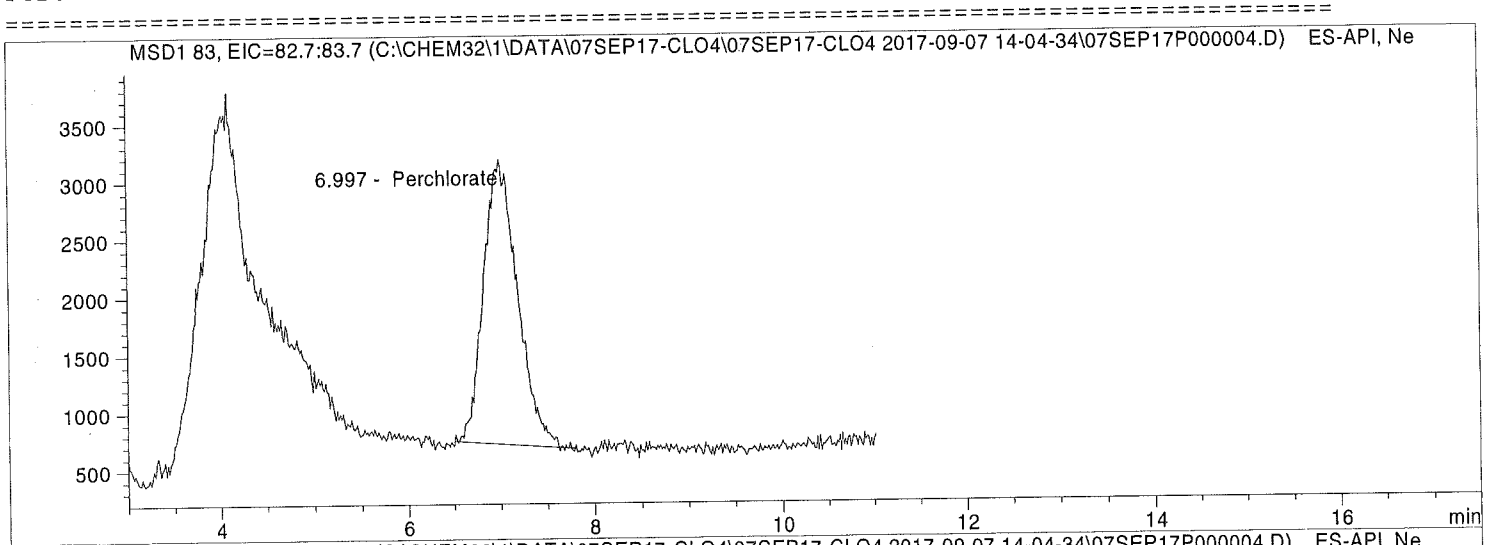
## Unmodified

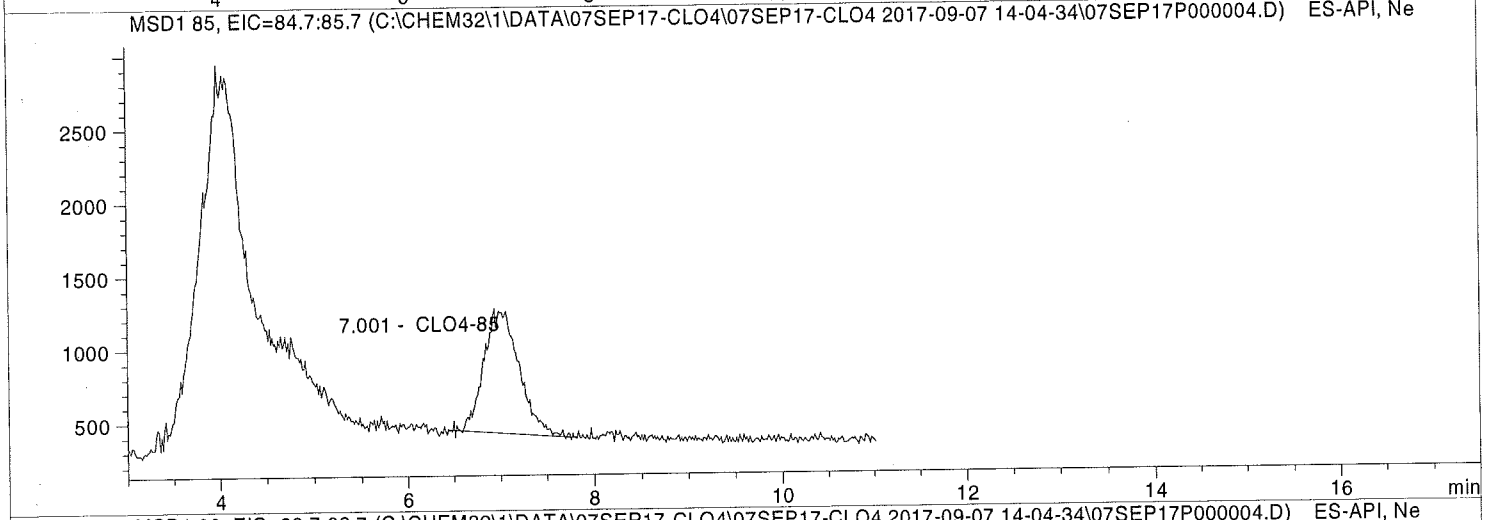
Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICL4@1.ug/L

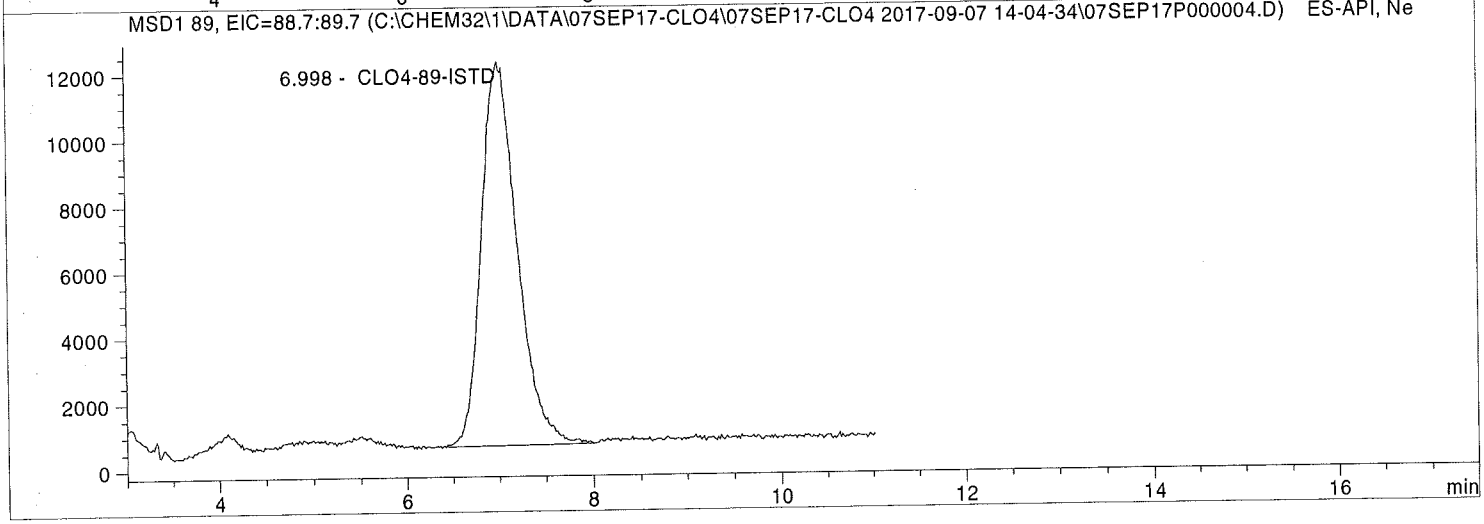
| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 14:46:29 | Seq Line: | 4 |
| Sample Name: | CLO4 ICL4@1.ug/L | Location: | Vial 64 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate



Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICL4@1.ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 14:46:29 | Seq Line: | 4 |
| Sample Name: | CLO4 ICL4@1.ug/L | Location: | Vial 64 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 1.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.997 | BB | 61864.7 | 0.8857 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.001 | BB | 21906.9 | 1.0679 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.998 | BB | 310065.4 | 5.0000 | CLO4-89-ISTD |

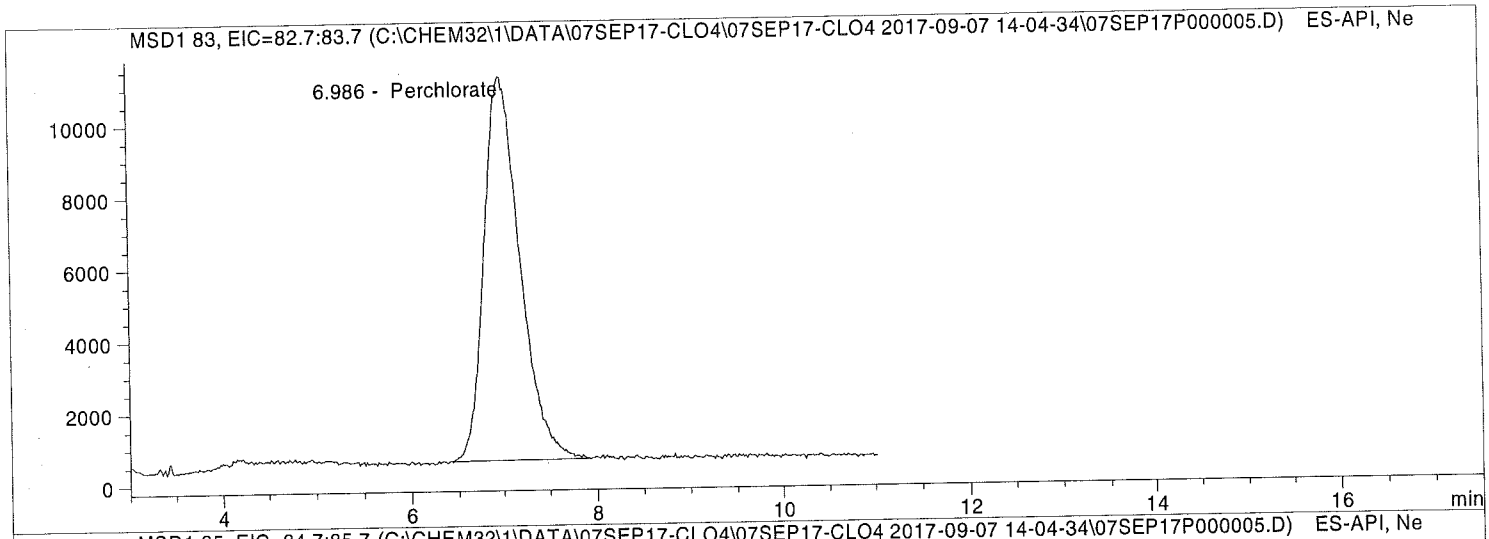
*** End of Report ***

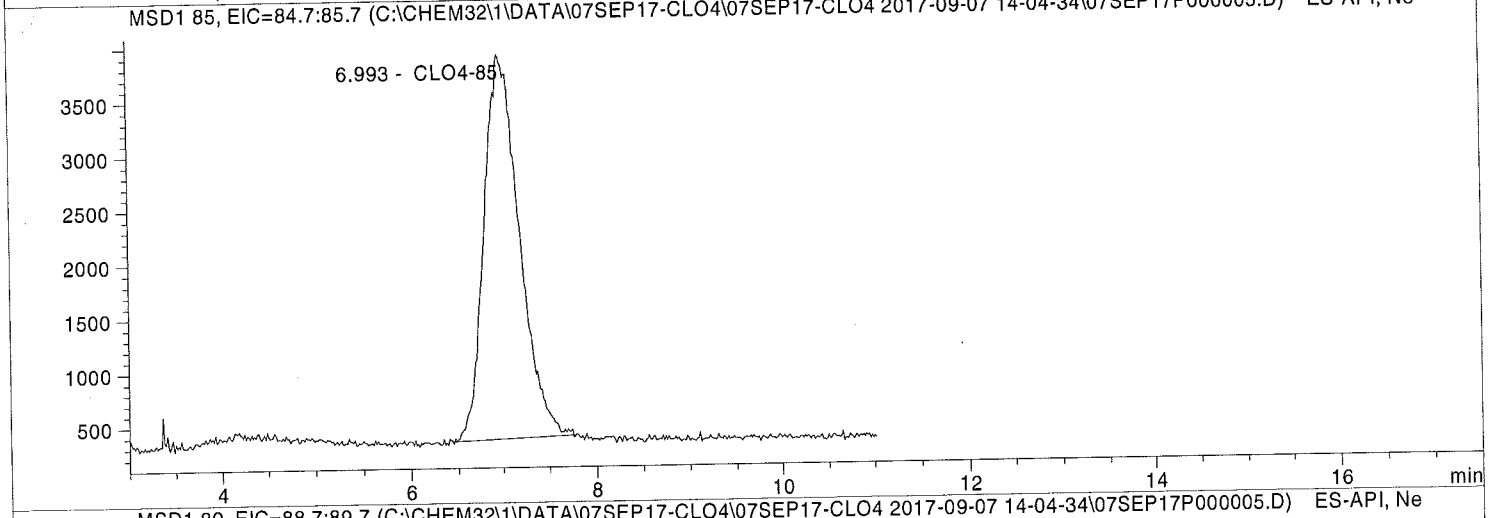
Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICL5@5.ug/L

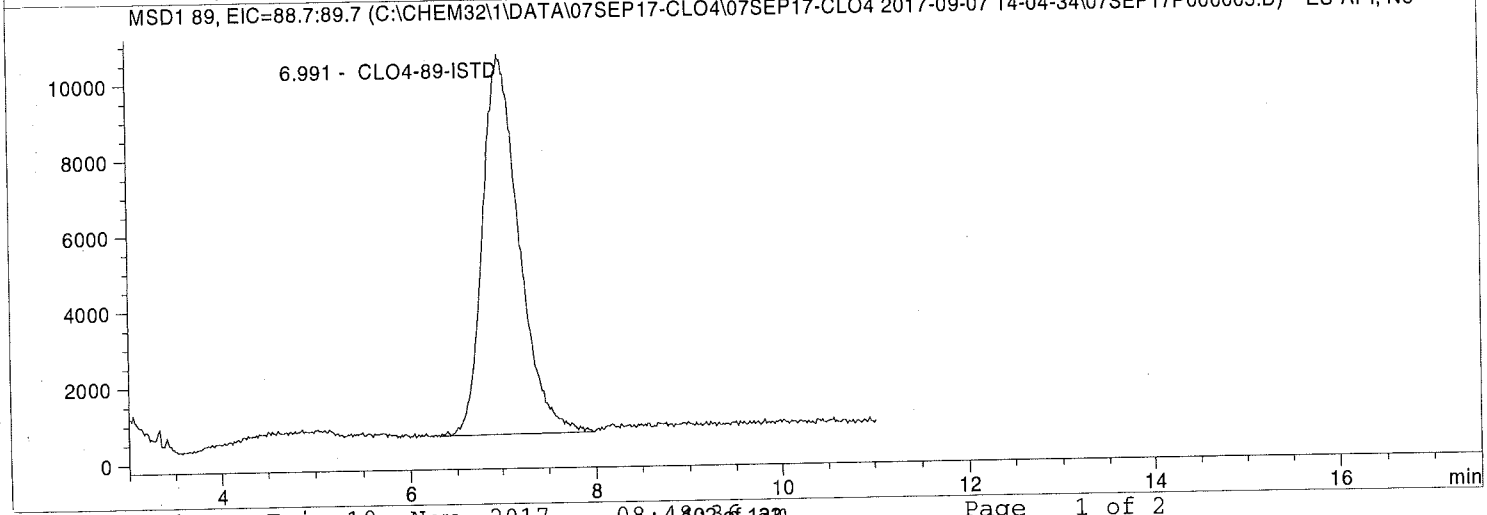
| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 14:59:04 | Seq Line: | 5 |
| Sample Name: | CLO4 ICL5@5.ug/L | Location: | Vial 65 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate



Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICL5@5.ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 14:59:04 | Seq Line: | 5 |
| Sample Name: | CLO4 ICL5@5.ug/L | Location: | Vial 65 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

| | |
|---|---|
| Acq. Method: | C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09--> |
| Analysis Method: | C:\CHEM32\1\METHODS\CLO4-090717-PR2.M |
| Last Changed: | 11/8/2017 16:48:07 |

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 5.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.986 | BB | 293168.7 | 4.7074 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.993 | BB | 95992.6 | 4.7133 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.991 | BB | 276477.1 | 5.0000 | CLO4-89-ISTD |

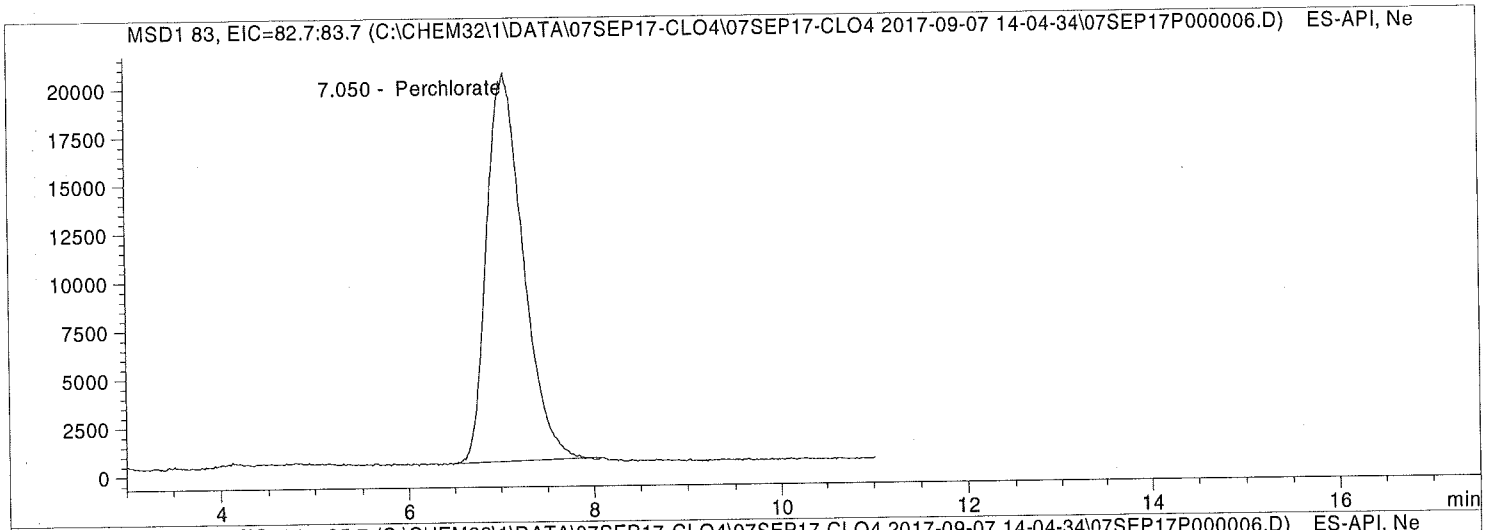
*** End of Report ***

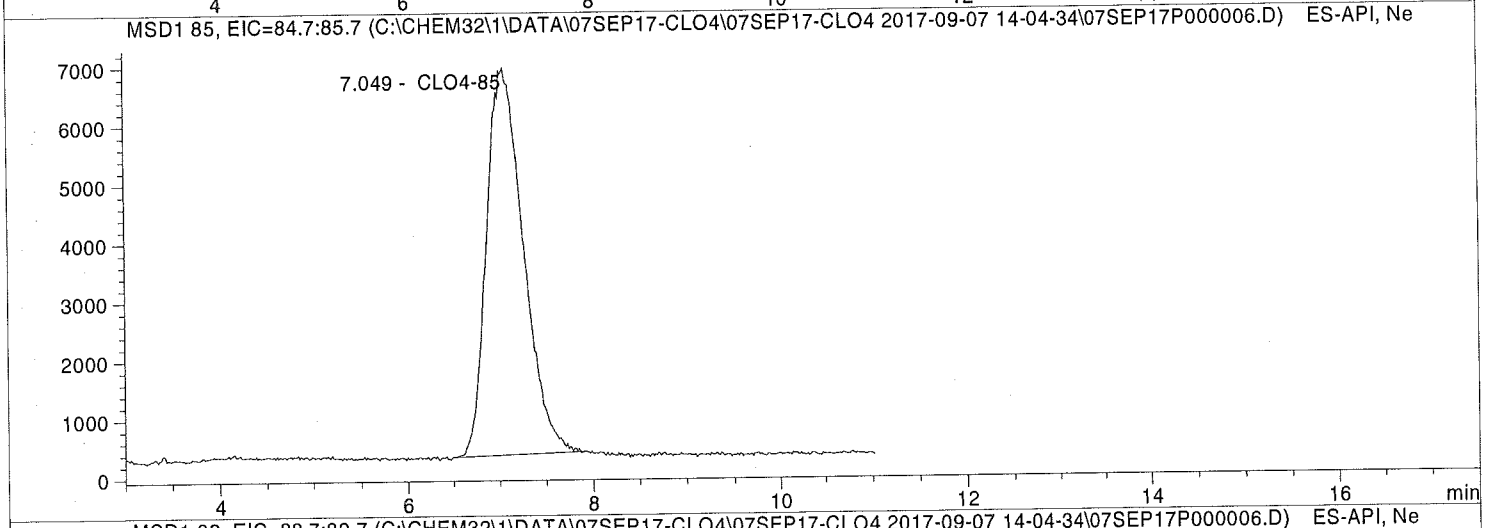
Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICL6@10ug/L

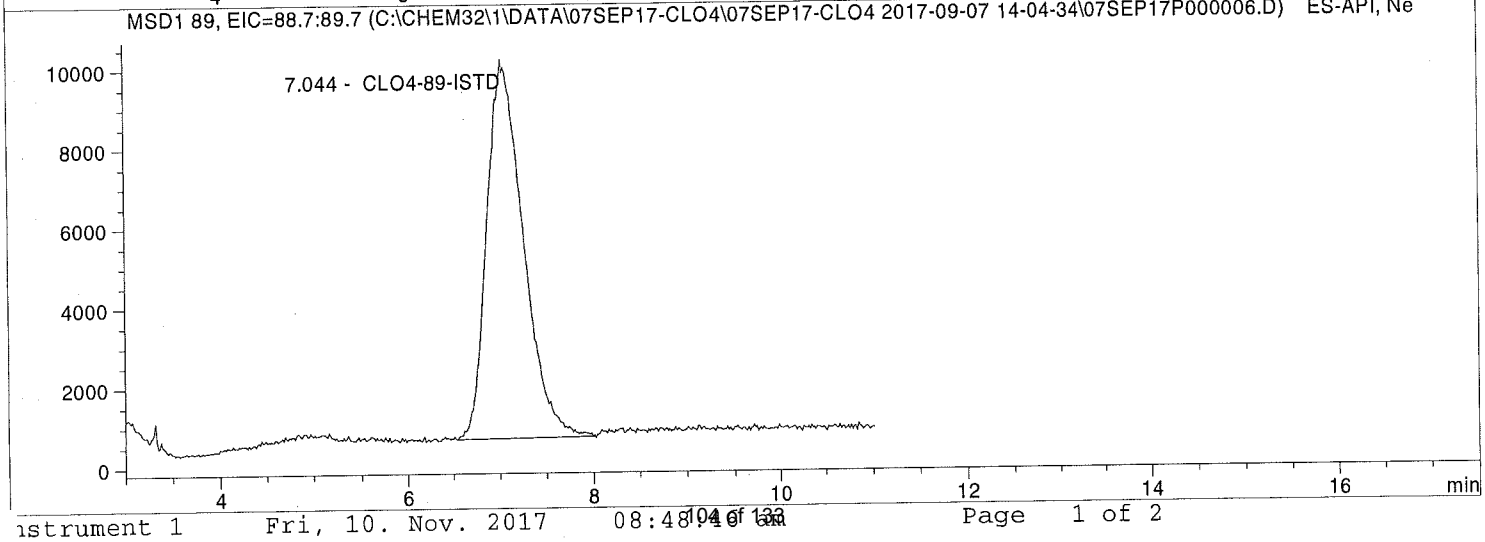
| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 15:11:37 | Seq Line: | 6 |
| Sample Name: | CLO4 ICL6@10ug/L | Location: | Vial 66 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate



Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICL6@10ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 15:11:37 | Seq Line: | 6 |
| Sample Name: | CLO4 ICL6@10ug/L | Location: | Vial 66 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 10.000 ug/L |

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.050 | BB | 544568.7 | 9.3543 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.049 | BB | 181130.7 | 9.3751 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.044 | BB | 258442.5 | 5.0000 | CLO4-89-ISTD |

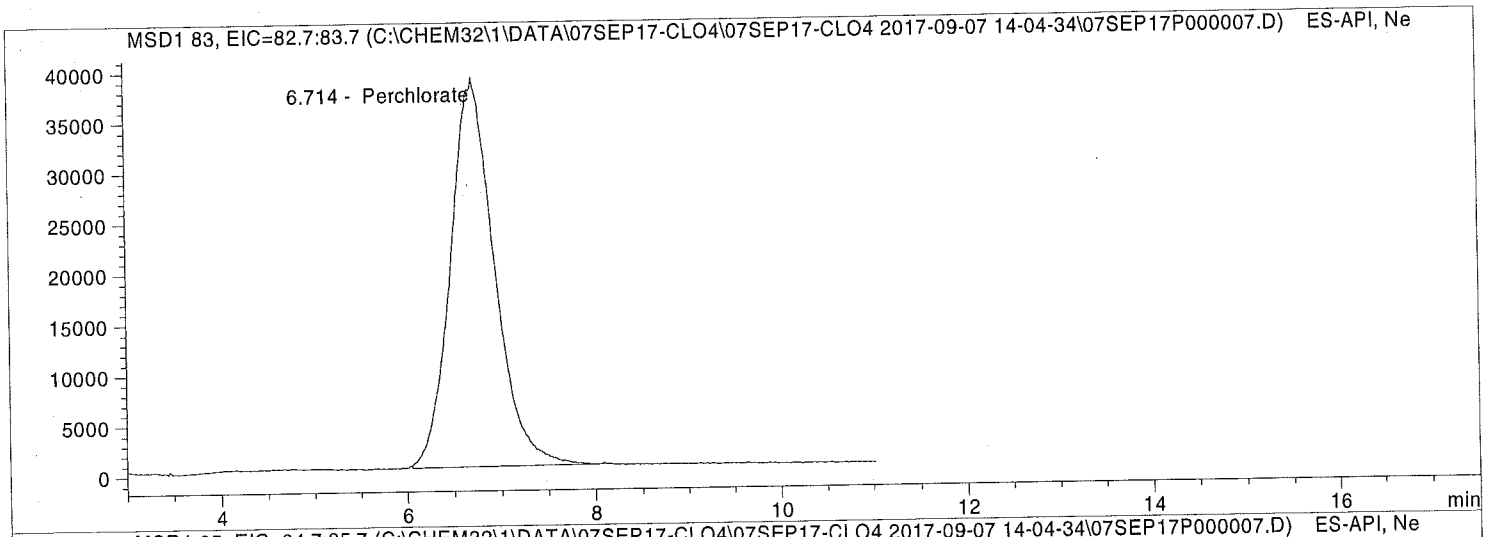
*** End of Report ***

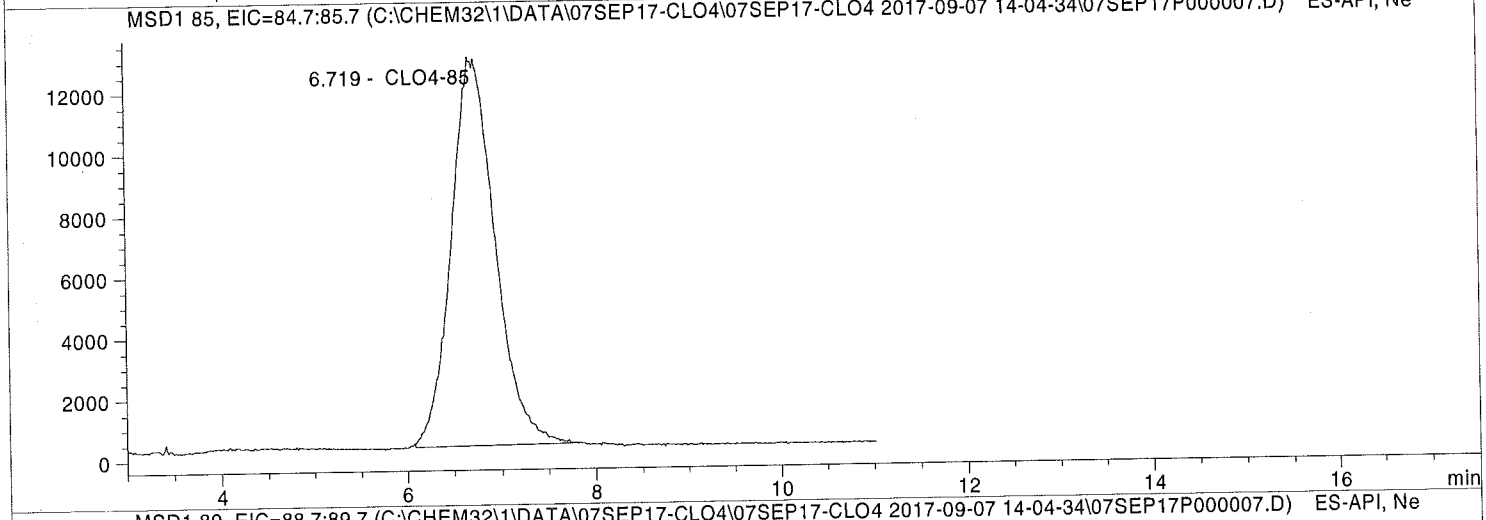
Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICL7@25ug/L

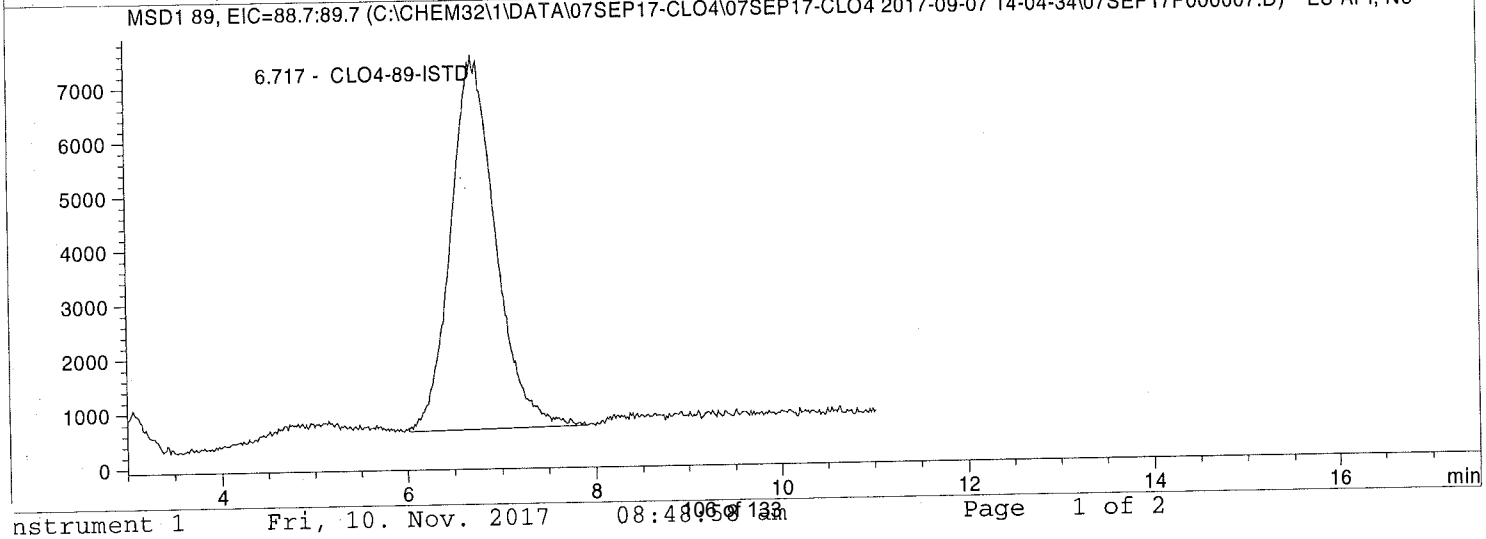
| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 15:24:10 | Seq Line: | 7 |
| Sample Name: | CLO4 ICL7@25ug/L | Location: | Vial 67 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate



Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICL7@25ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 15:24:10 | Seq Line: | 7 |
| Sample Name: | CLO4 ICL7@25ug/L | Location: | Vial 67 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 25.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.714 | BB | 1237741.4 | 24.5508 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.719 | BB | 406716.0 | 24.0907 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.717 | BB | 223812.6 | 5.0000 | CLO4-89-ISTD |

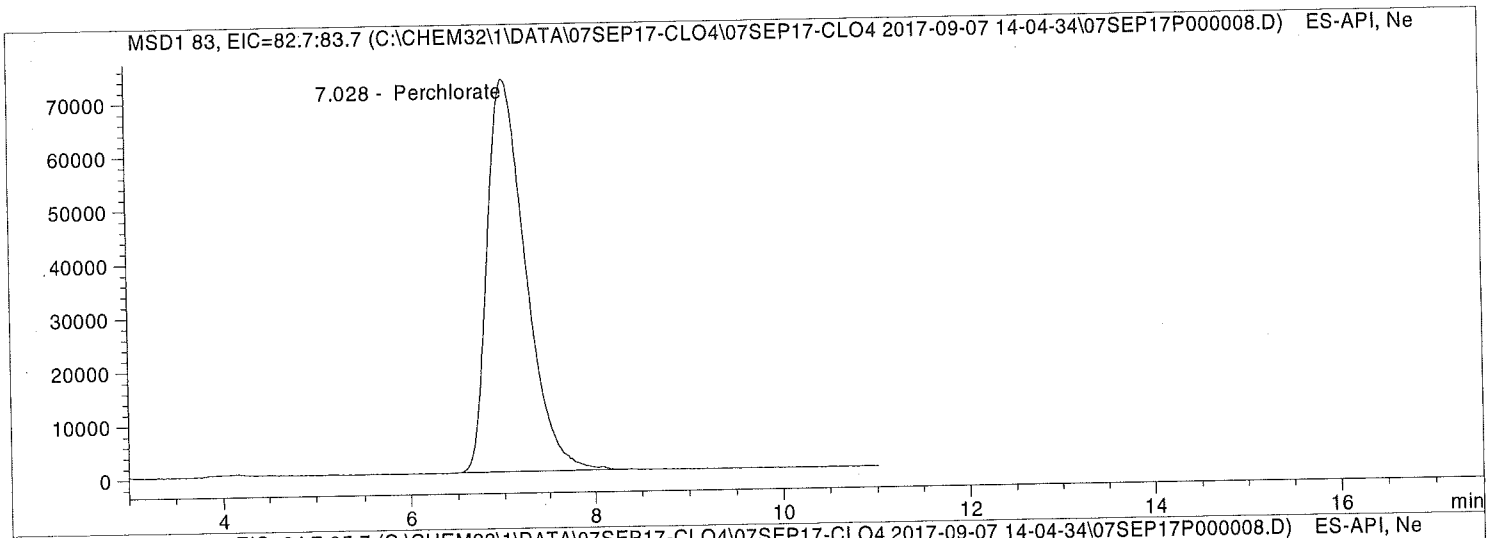
*** End of Report ***

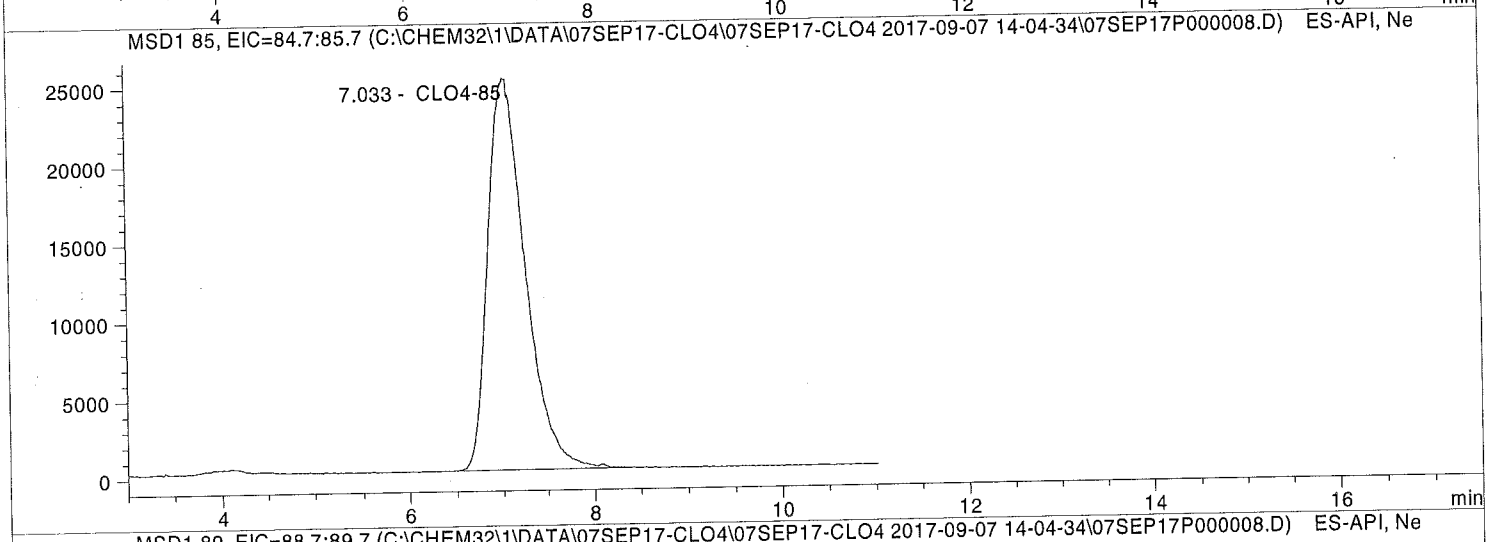
Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICL8@50ug/L

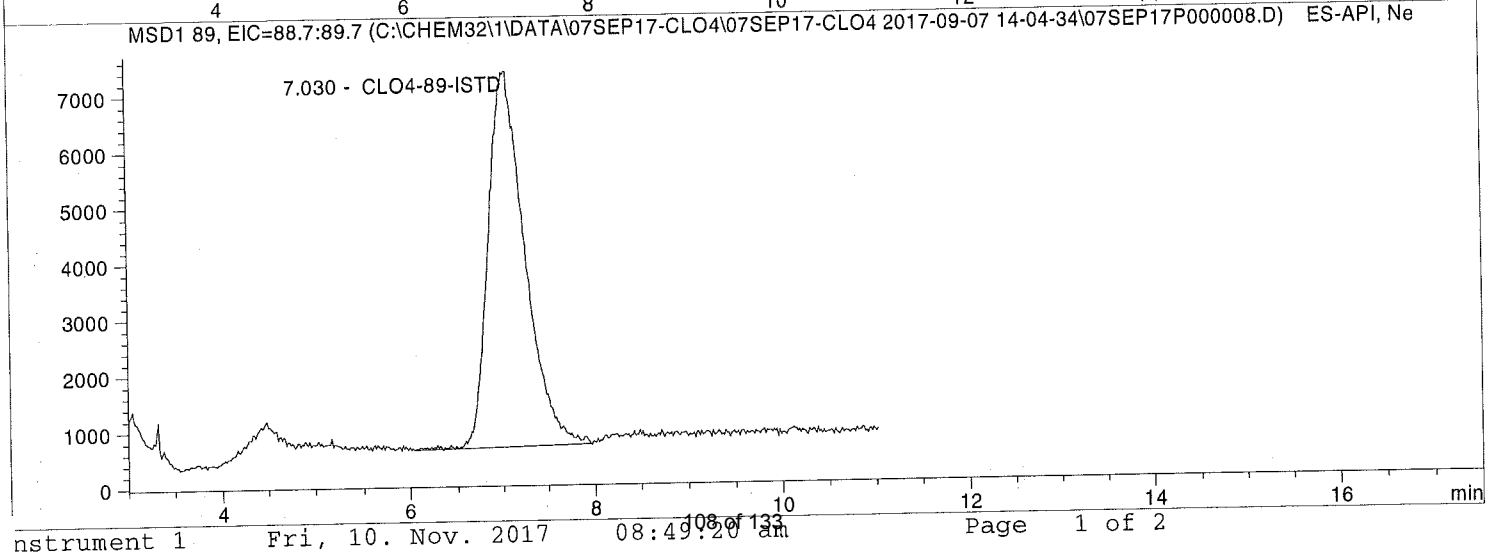
| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 15:36:44 | Seq Line: | 8 |
| Sample Name: | CLO4 ICL8@50ug/L | Location: | Vial 68 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate



Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICL8@50ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 15:36:44 | Seq Line: | 8 |
| Sample Name: | CLO4 ICL8@50ug/L | Location: | Vial 68 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 50.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.028 | BB | 2127413.5 | 49.7272 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.033 | BB | 717685.7 | 49.9479 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.030 | BB | 189923.4 | 5.0000 | CLO4-89-ISTD |

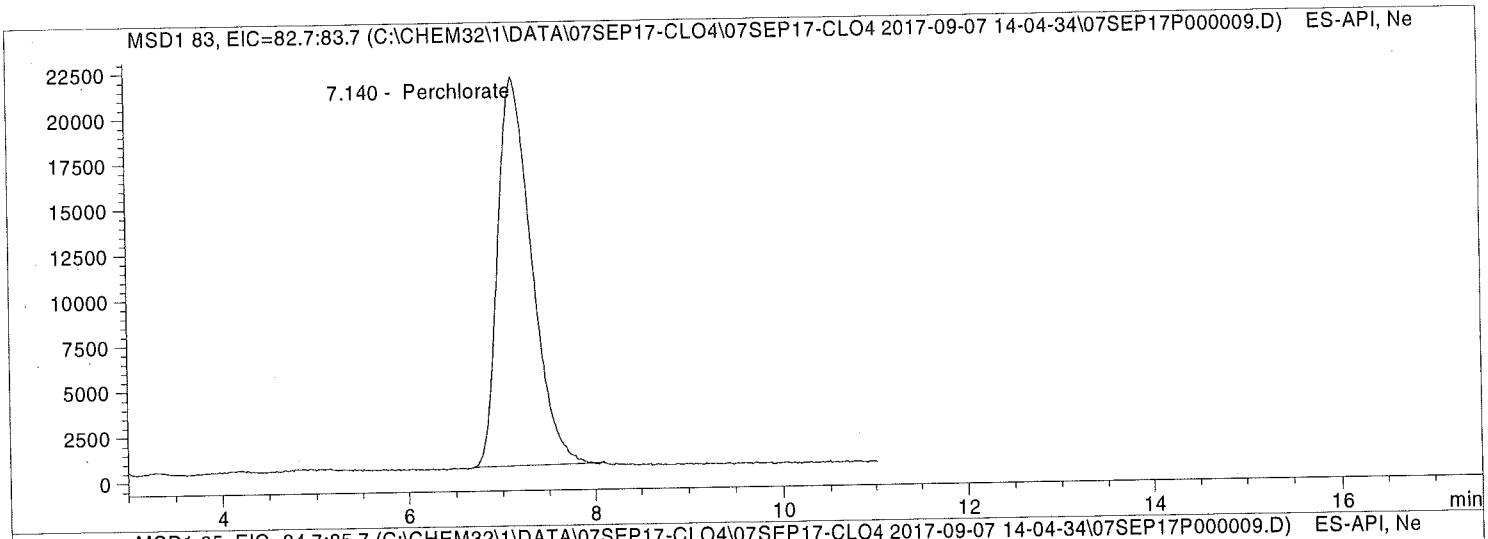
*** End of Report ***

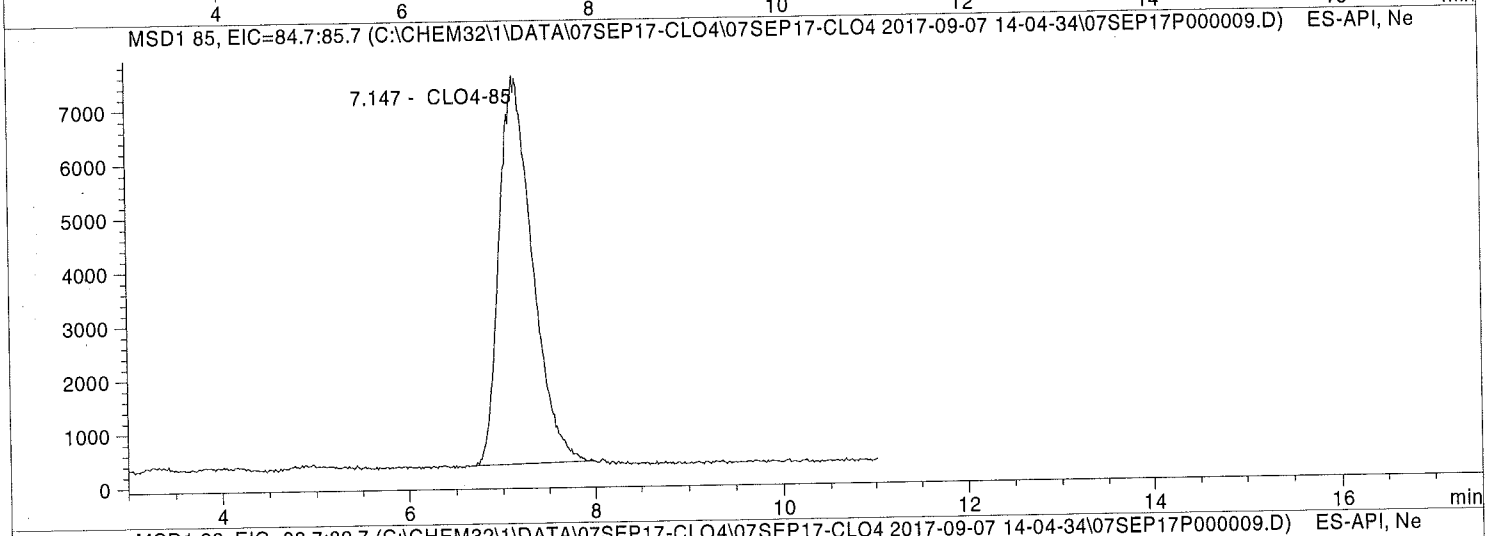
Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICV@10ug/L

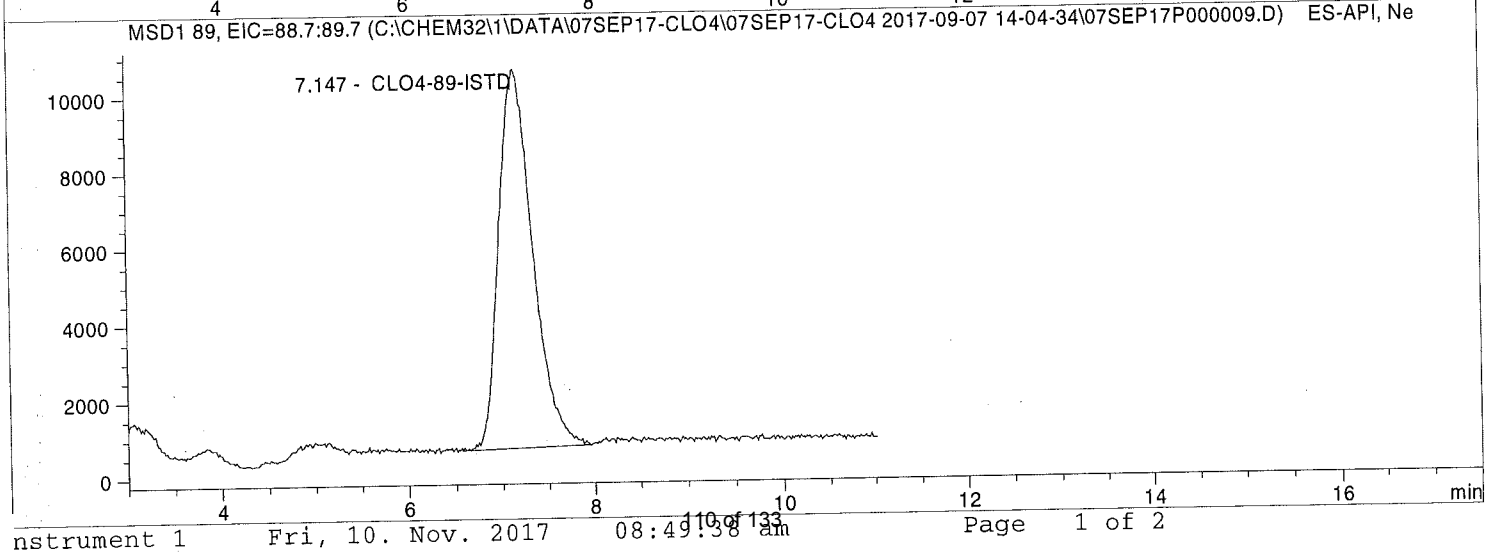
| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 15:49:16 | Seq Line: | 9 |
| Sample Name: | CLO4 ICV@10ug/L | Location: | Vial 69 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate



Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICV@10ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 15:49:16 | Seq Line: | 9 |
| Sample Name: | CLO4 ICV@10ug/L | Location: | Vial 69 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 10.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.140 | BB | 540254.9 | 9.4943 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.147 | BB | 179189.6 | 9.4870 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.147 | BB | 252613.8 | 5.0000 | CLO4-89-ISTD |

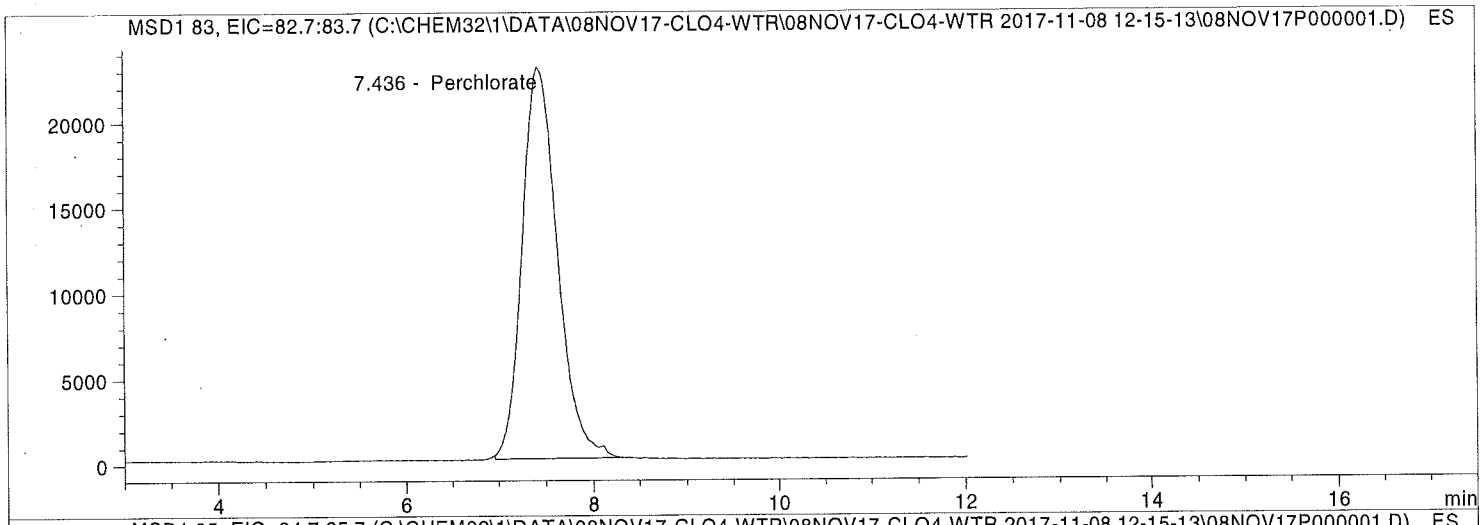
*** End of Report ***

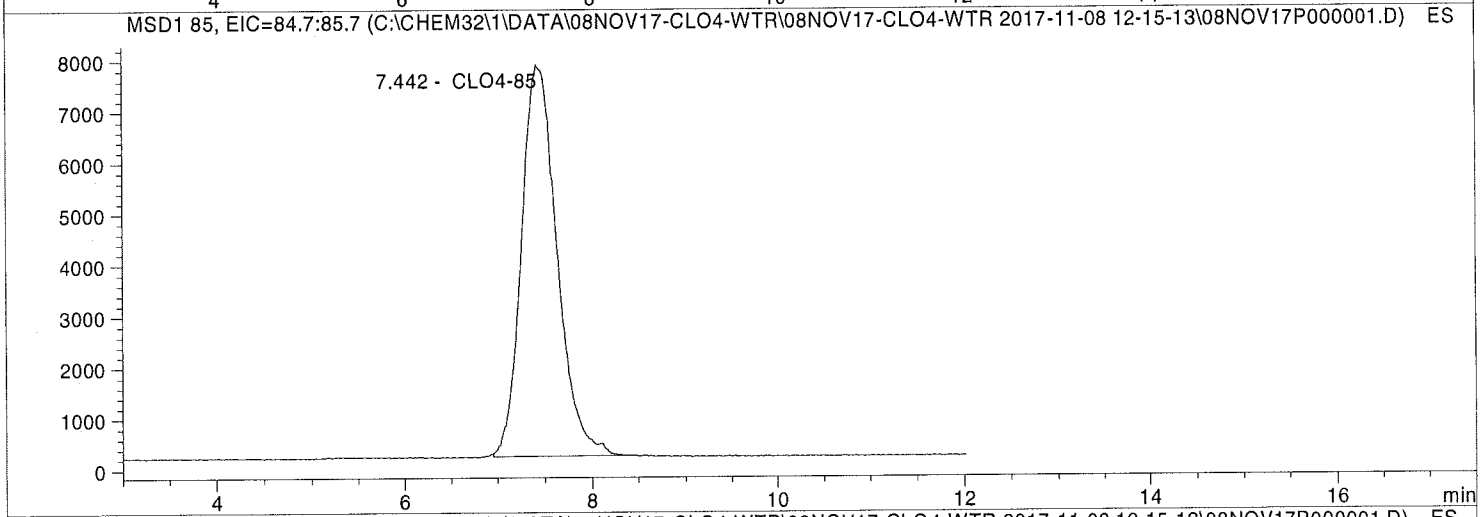
Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573324 CCV@25

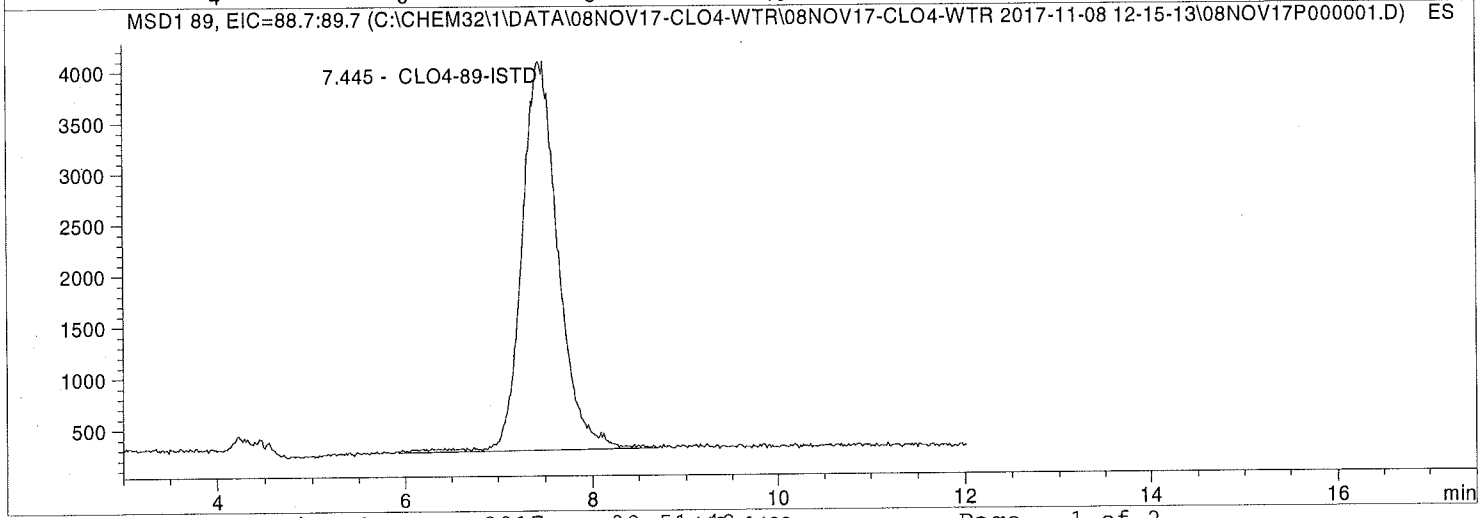
| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 12:15:37 | Seq Line: | 1 |
| Sample Name: | 573324 CCV@25 | Location: | Vial 71 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate



Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573324 CCV@25

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 12:15:37 | Seq Line: | 1 |
| Sample Name: | 573324 CCV@25 | Location: | Vial 71 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 25.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.436 | BB | 590307.4 | 26.0255 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.442 | BB | 198194.5 | 26.0822 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.445 | BB | 100693.2 | 5.0000 | CLO4-89-ISTD |

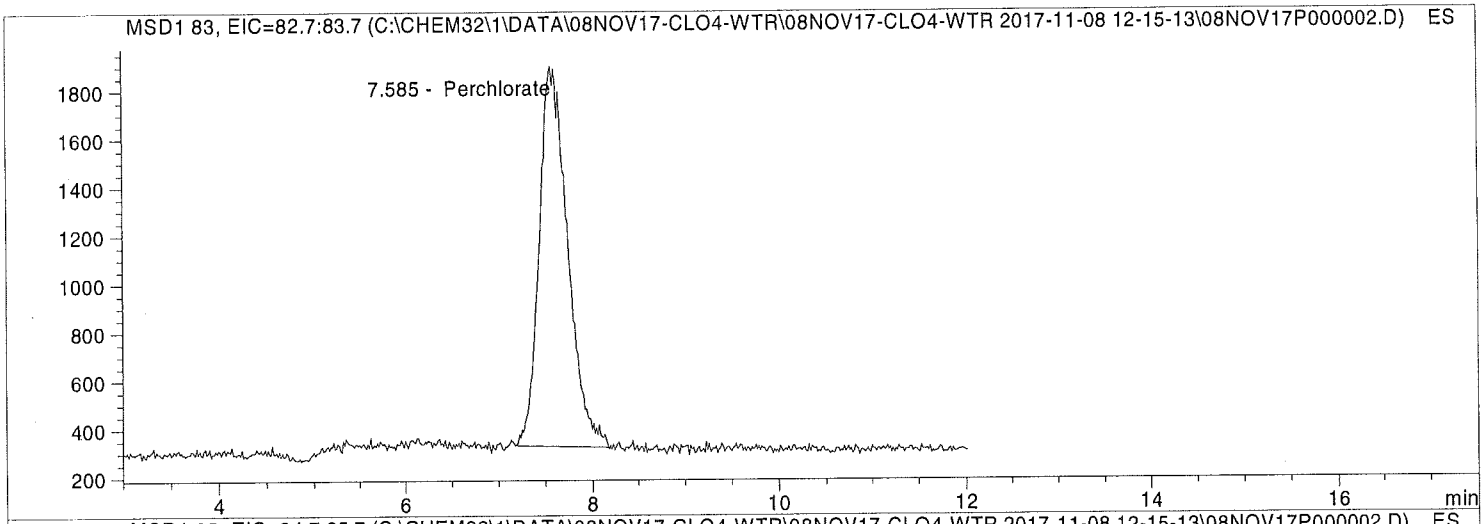
*** End of Report ***

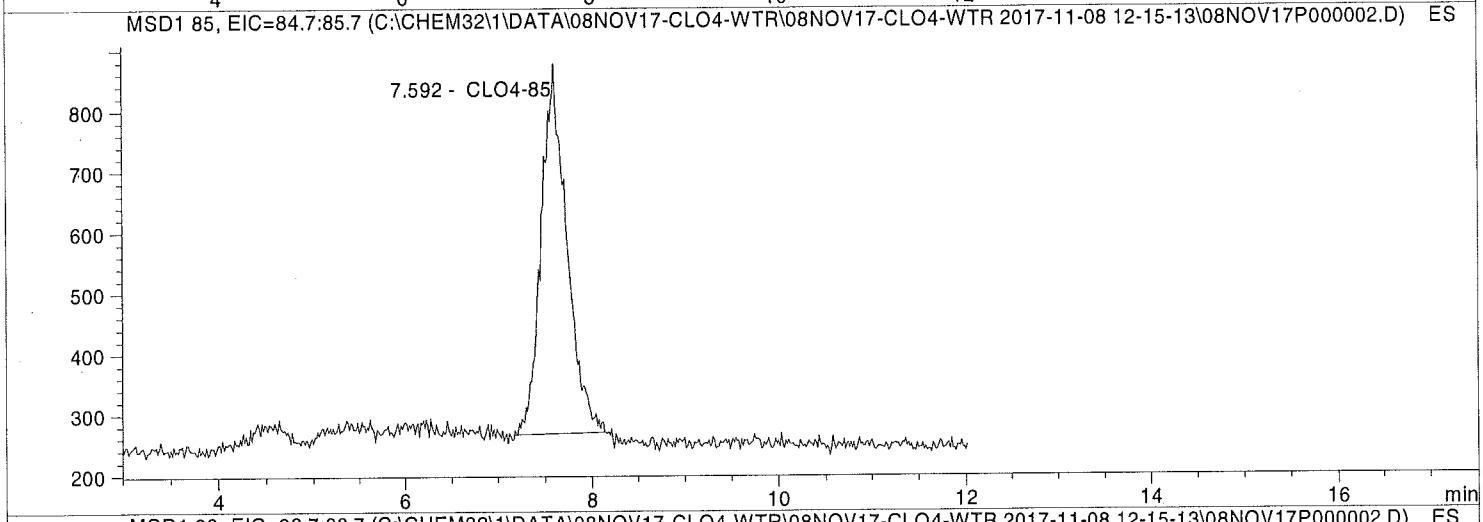
Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573325 LODV@1.

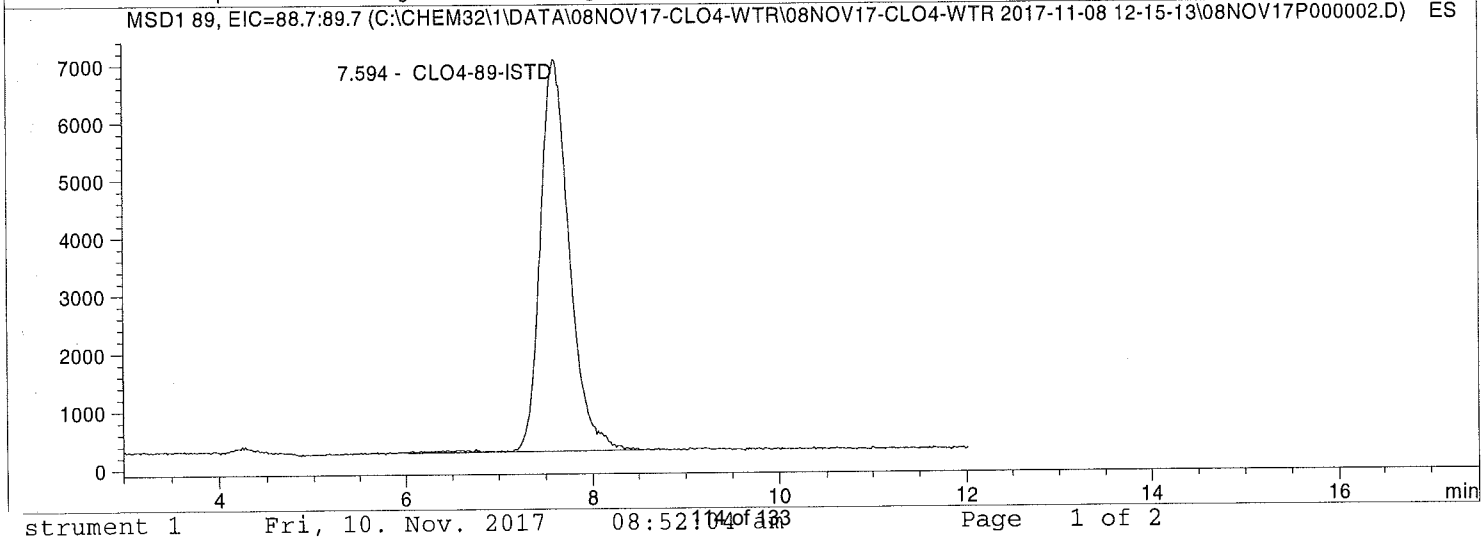
| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 12:29:08 | Seq Line: | 2 |
| Sample Name: | 573325 LODV@1. | Location: | Vial 72 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate



Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573325 LODV@1.

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 12:29:08 | Seq Line: | 2 |
| Sample Name: | 573325 LODV@1. | Location: | Vial 72 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 1.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.585 | BB | 32865.5 | 1.0026 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.592 | BB | 11391.3 | 1.1685 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.594 | BB | 145516.9 | 5.0000 | CLO4-89-ISTD |

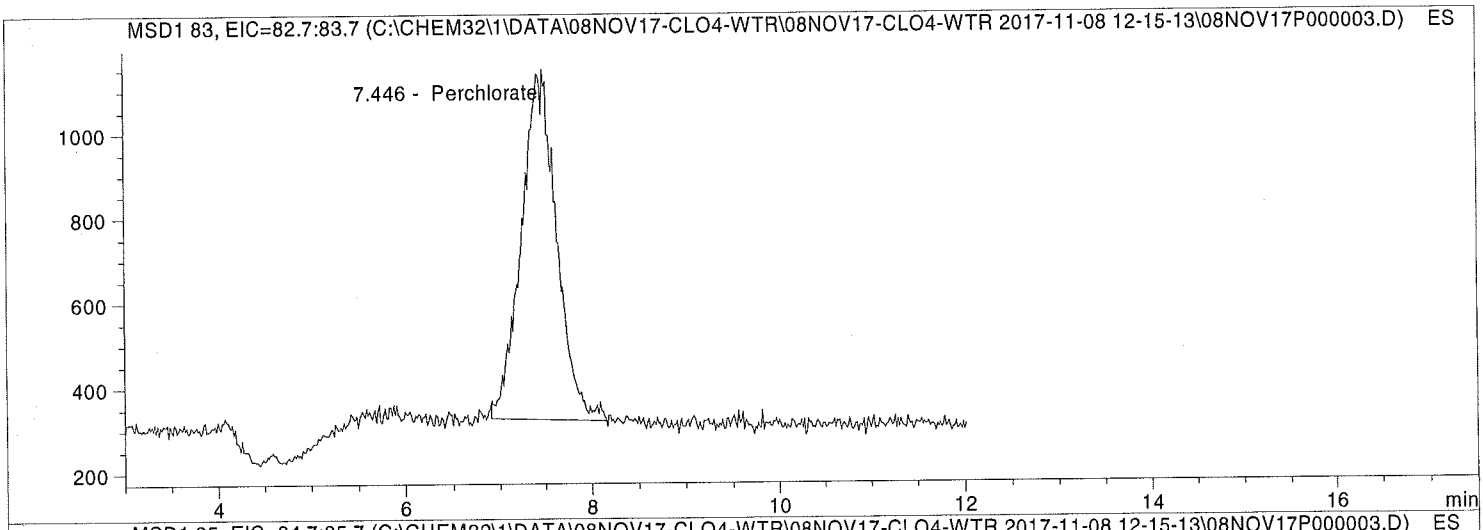
*** End of Report ***

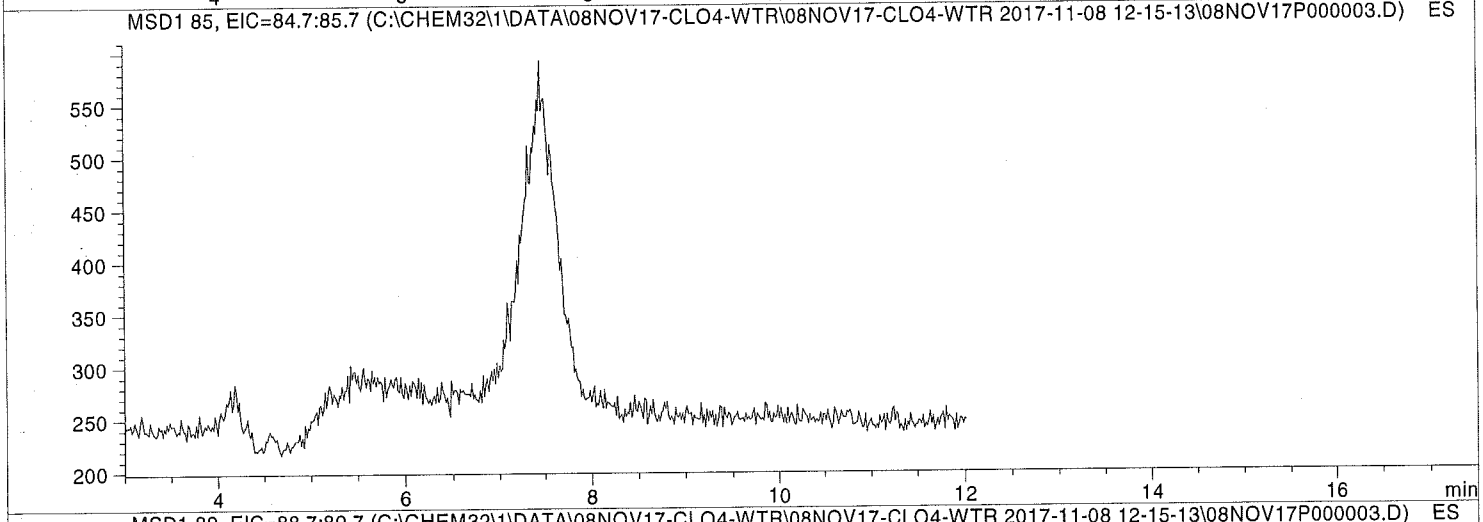
Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573326 ICS@1.0

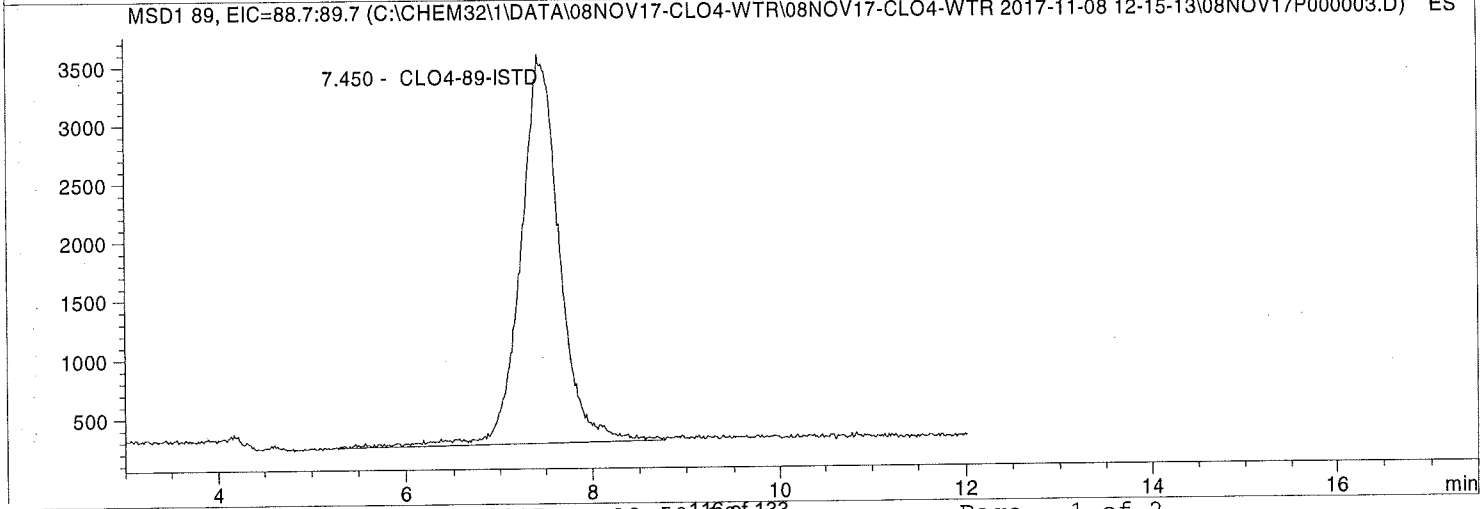
| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 12:42:38 | Seq Line: | 3 |
| Sample Name: | 573326 ICS@1.0 | Location: | Vial 73 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate



Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573326 ICS@1.0

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 12:42:38 | Seq Line: | 3 |
| Sample Name: | 573326 ICS@1.0 | Location: | Vial 73 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 1.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.446 | BB | 22017.6 | 1.0080 | 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 |
|---|---|---|---|---|
| 7.450 | BB | 96968.0 | 5.0000 | CLO4-89-ISTD |

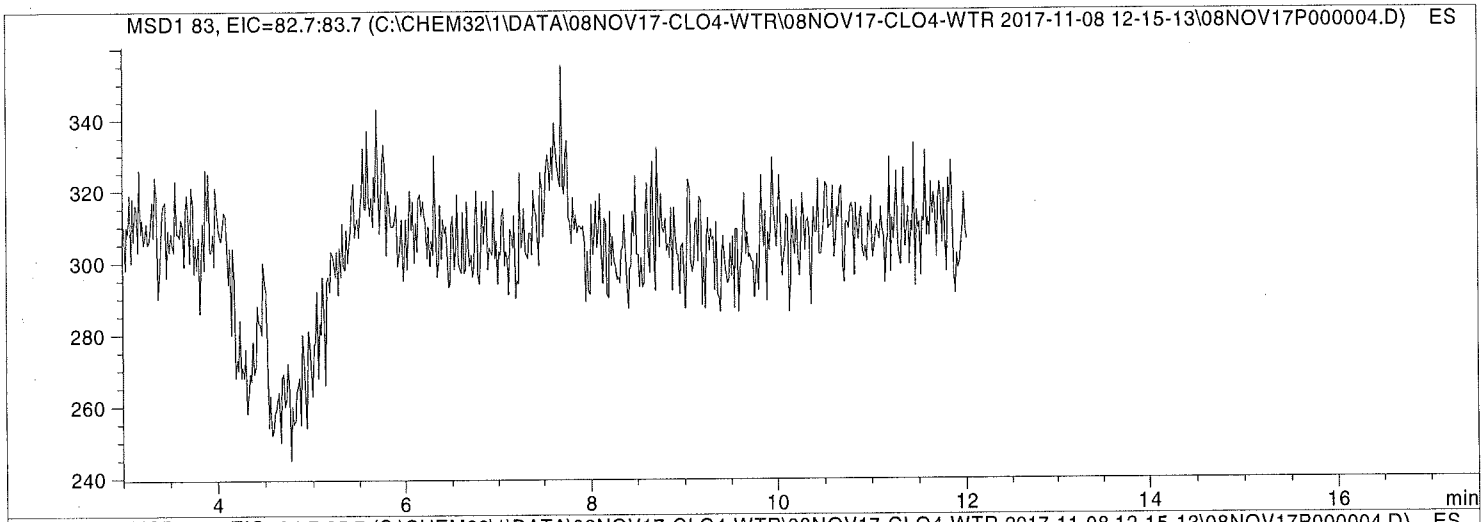
*** End of Report ***

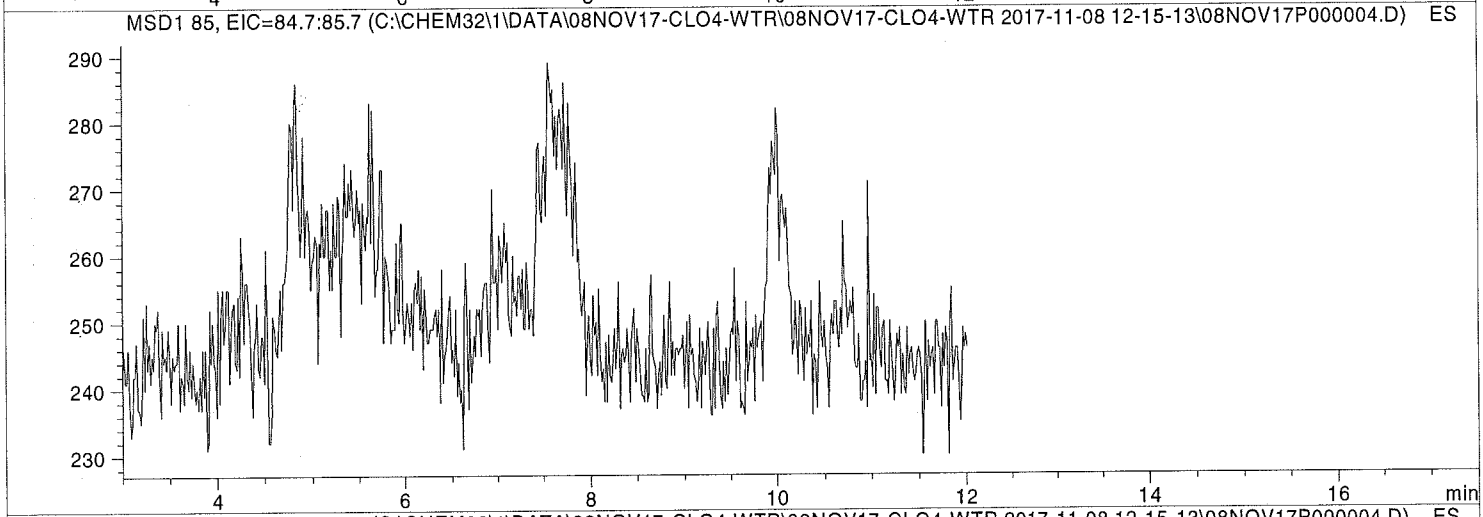
Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573327 LMB

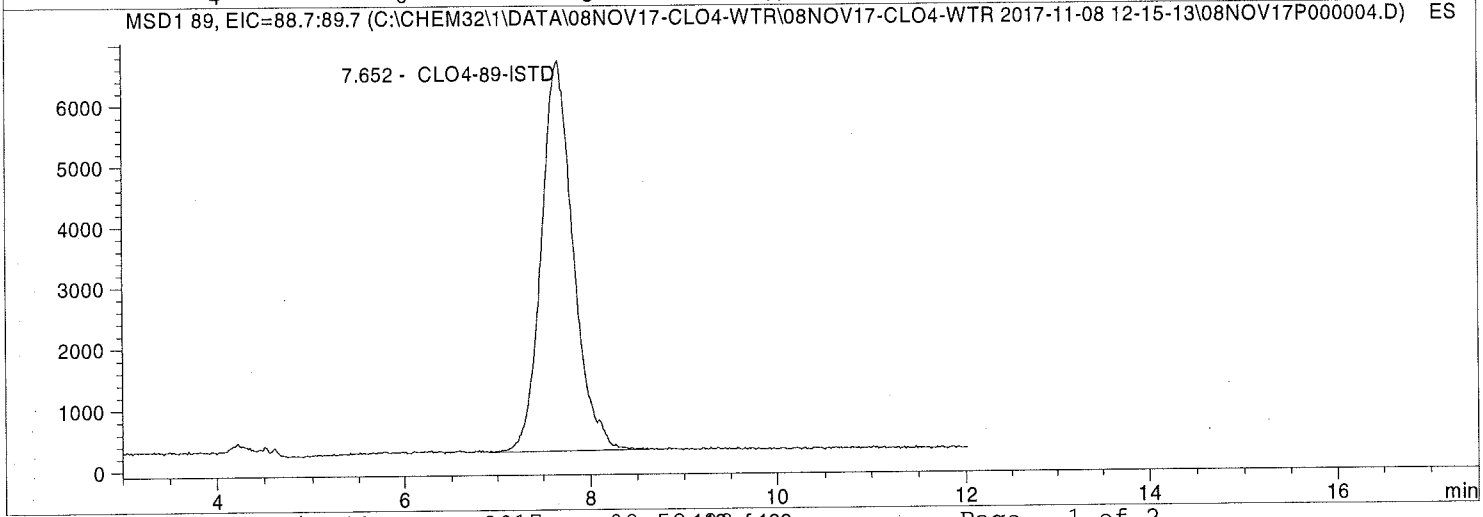
| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 12:56:08 | Seq Line: | 4 |
| Sample Name: | 573327 LMB | Location: | Vial 74 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate



Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573327 LMB

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 12:56:08 | Seq Line: | 4 |
| Sample Name: | 573327 LMB | Location: | Vial 74 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.000 ug/L |

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 |
|---|---|---|---|---|
| 7.652 | BB | 151053.9 | 5.0000 | CLO4-89-ISTD |

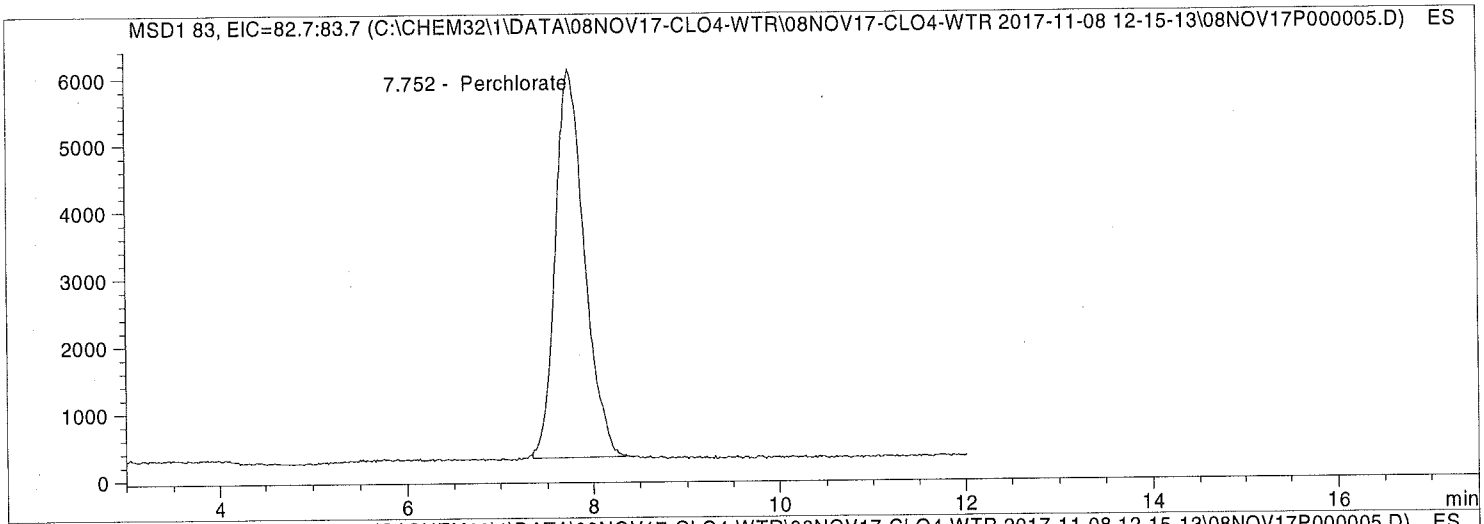
*** End of Report ***

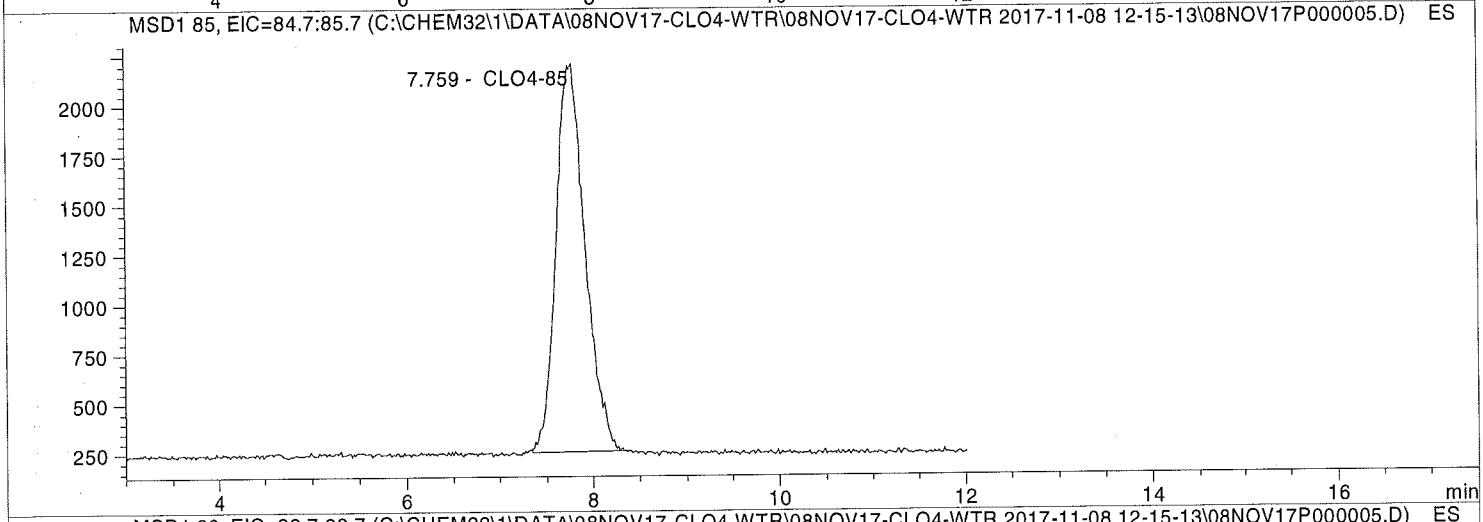
Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573328 QC@5.0

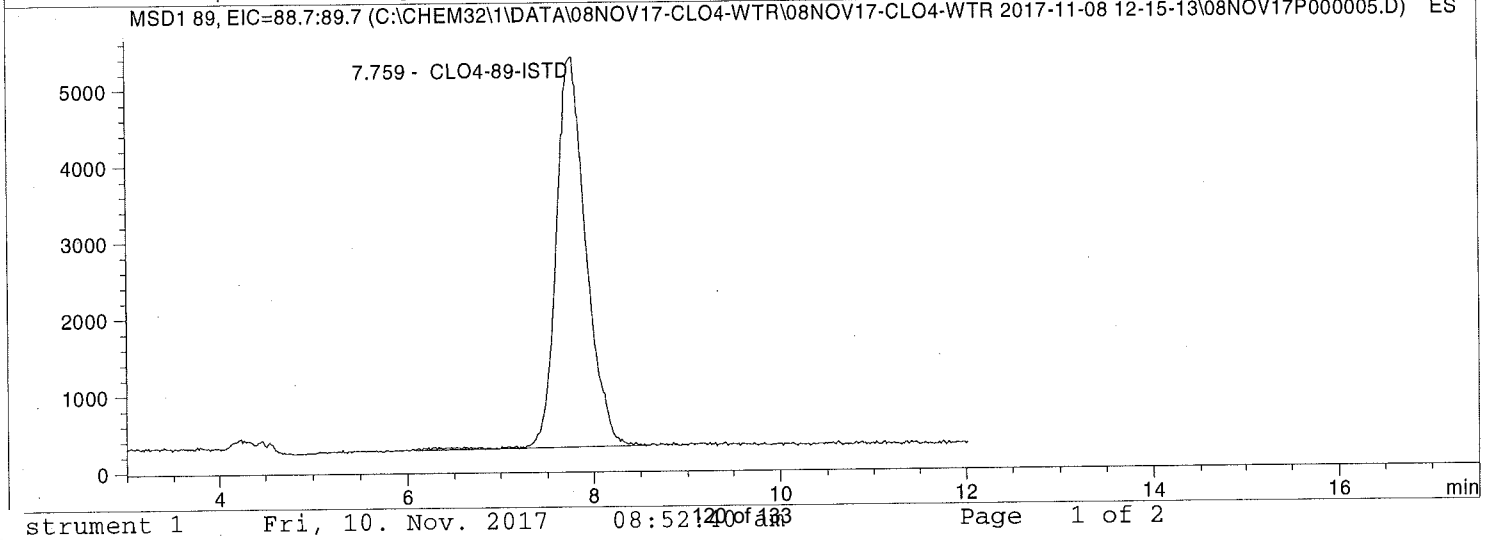
| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 13:09:44 | Seq Line: | 5 |
| Sample Name: | 573328 QC@5.0 | Location: | Vial 75 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate



Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573328 QC@5.0

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 13:09:44 | Seq Line: | 5 |
| Sample Name: | 573328 QC@5.0 | Location: | Vial 75 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 5.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.752 | BB | 127003.5 | 4.9213 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.759 | BB | 43088.4 | 5.0943 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.759 | BB | 114566.0 | 5.0000 | CLO4-89-ISTD |

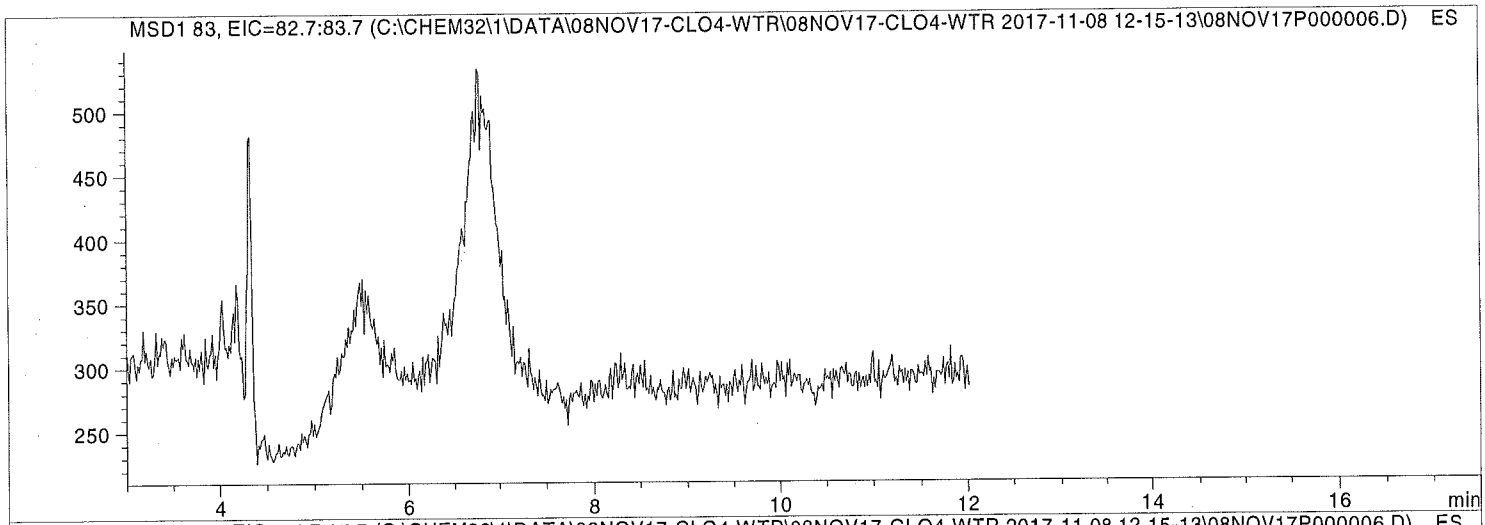
*** End of Report ***

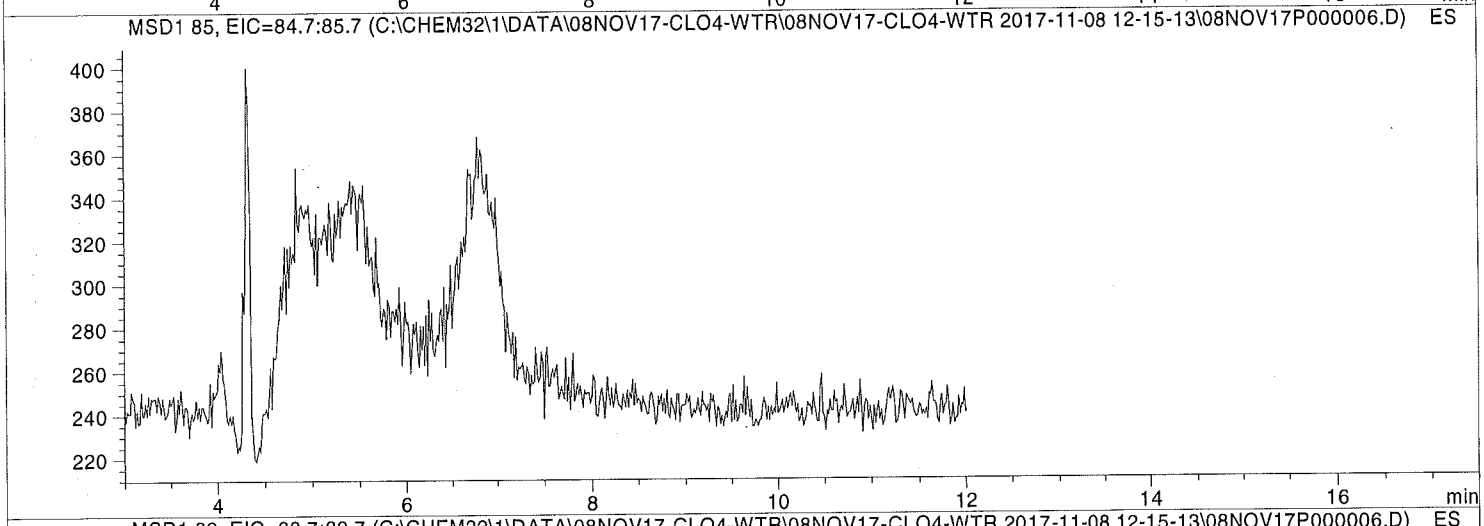
Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 1730040001

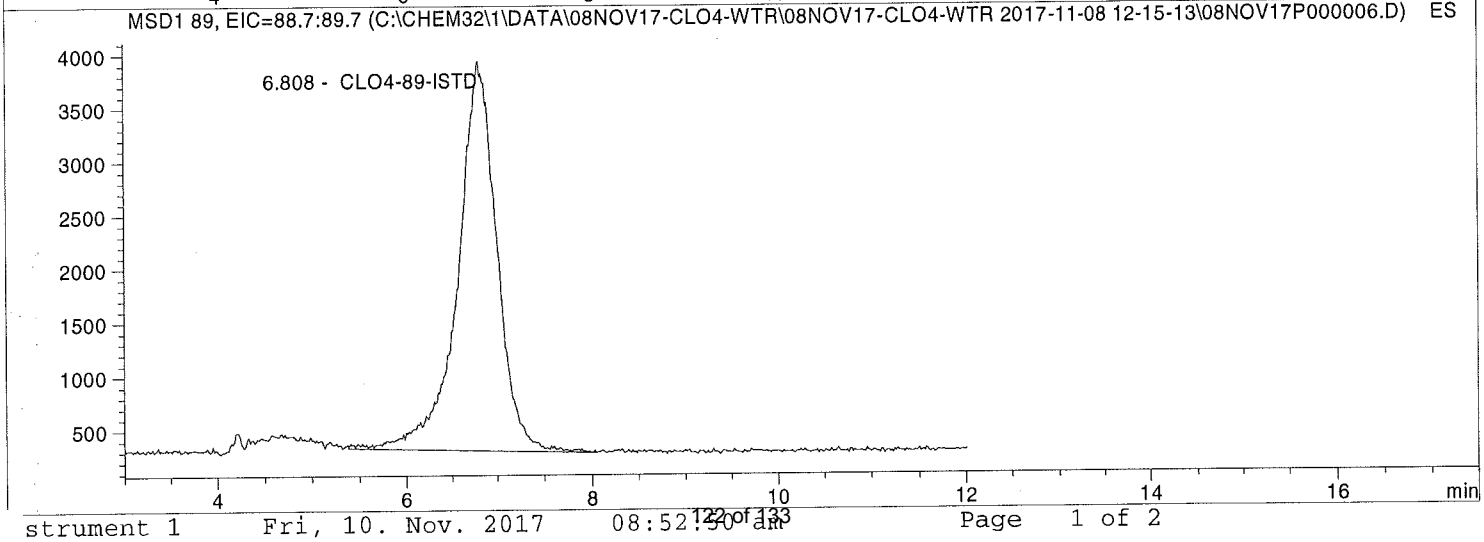
| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 13:23:17 | Seq Line: | 6 |
| Sample Name: | 1730040001 | Location: | Vial 76 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate



Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 1730040001

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 13:23:17 | Seq Line: | 6 |
| Sample Name: | 1730040001 | Location: | Vial 76 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.000 ug/L |

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 |
|---|---|---|---|---|
| 6.808 | BB | 108232.1 | 5.0000 | CLO4-89-ISTD |

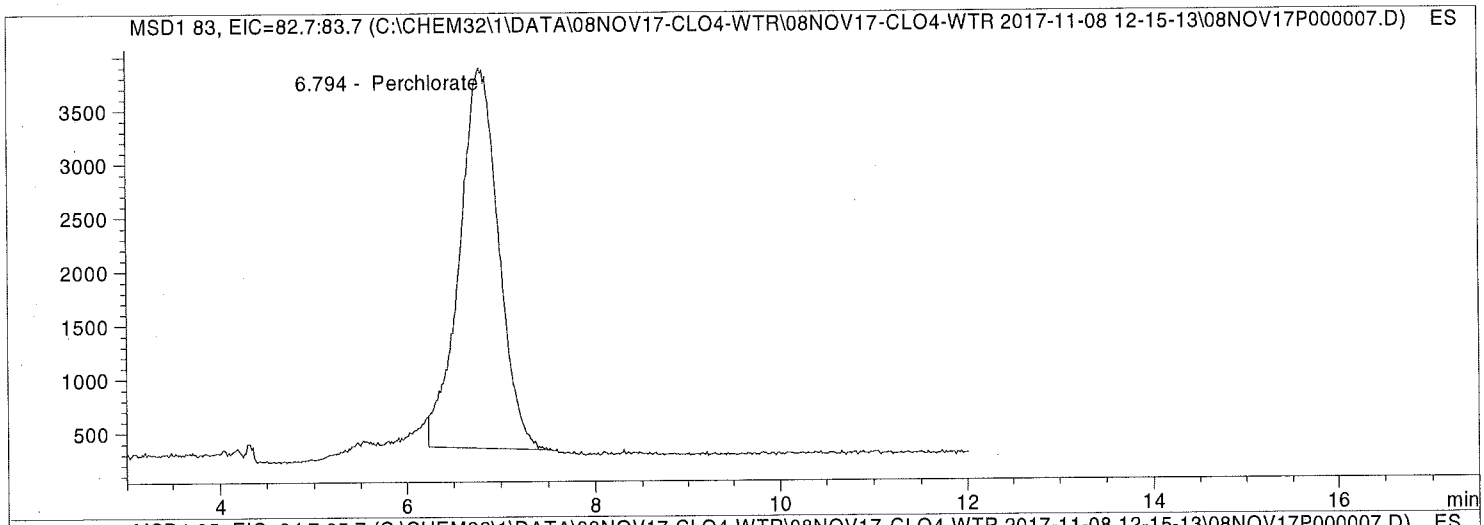
*** End of Report ***

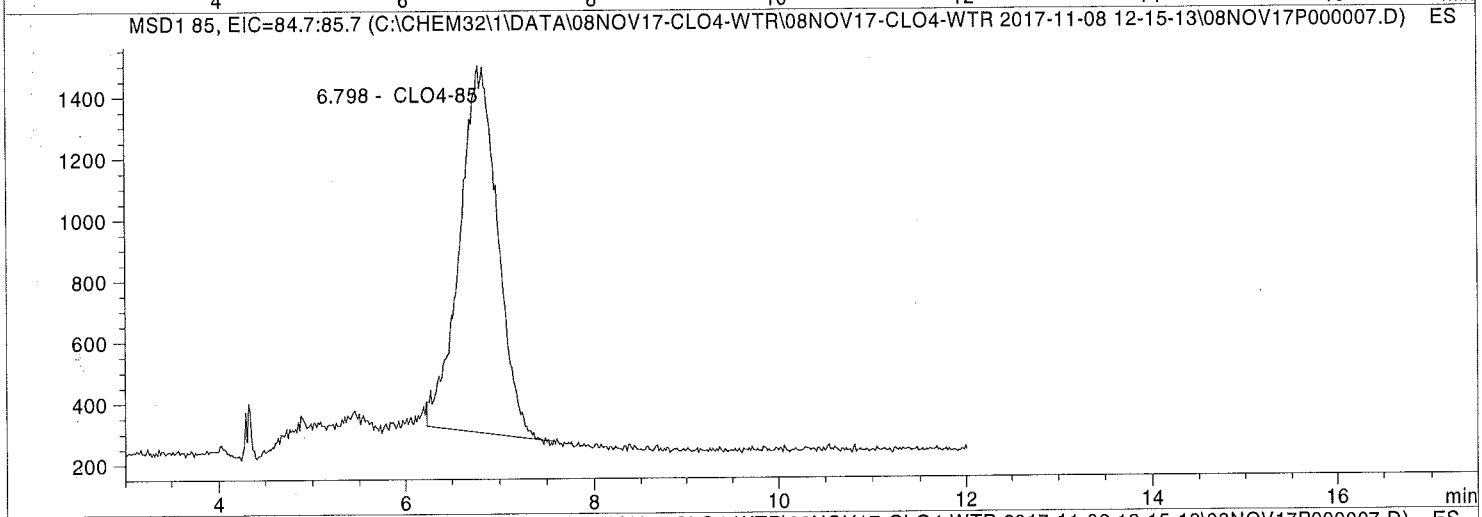
Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573329 300401MS

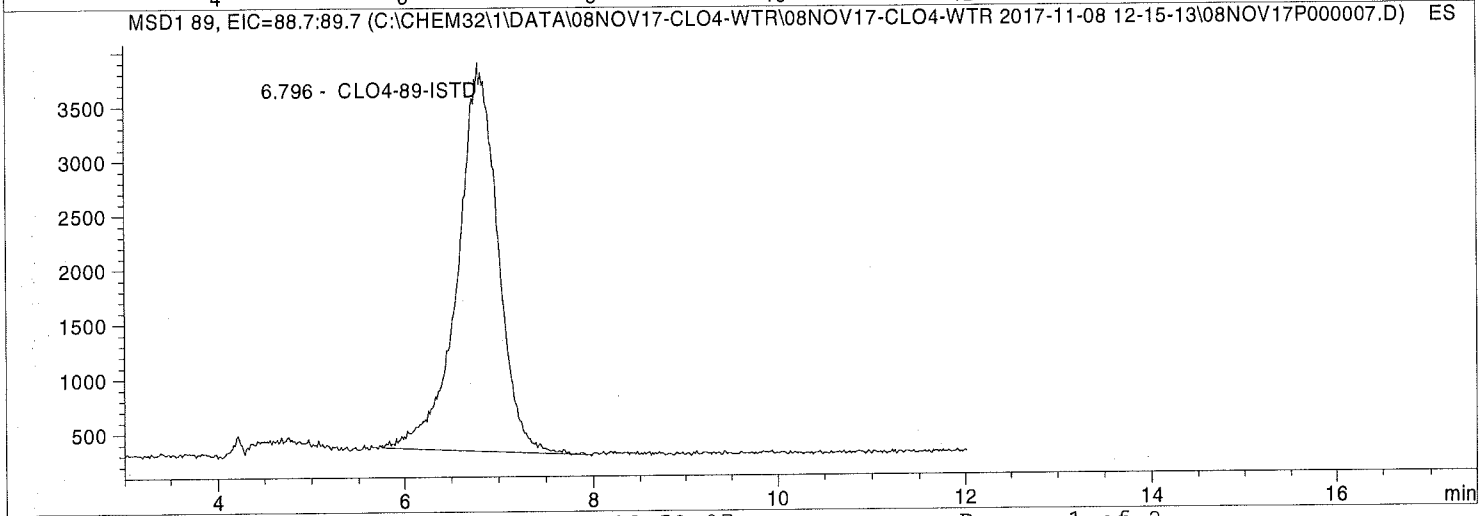
| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 13:36:49 | Seq Line: | 7 |
| Sample Name: | 573329 300401MS | Location: | Vial 77 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate



Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573329 300401MS

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 13:36:49 | Seq Line: | 7 |
| Sample Name: | 573329 300401MS | Location: | Vial 77 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.794 | BB | 101567.5 | 4.3014 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.798 | BB | 33269.3 | 4.3202 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.796 | BB | 104824.2 | 5.0000 | CLO4-89-ISTD |

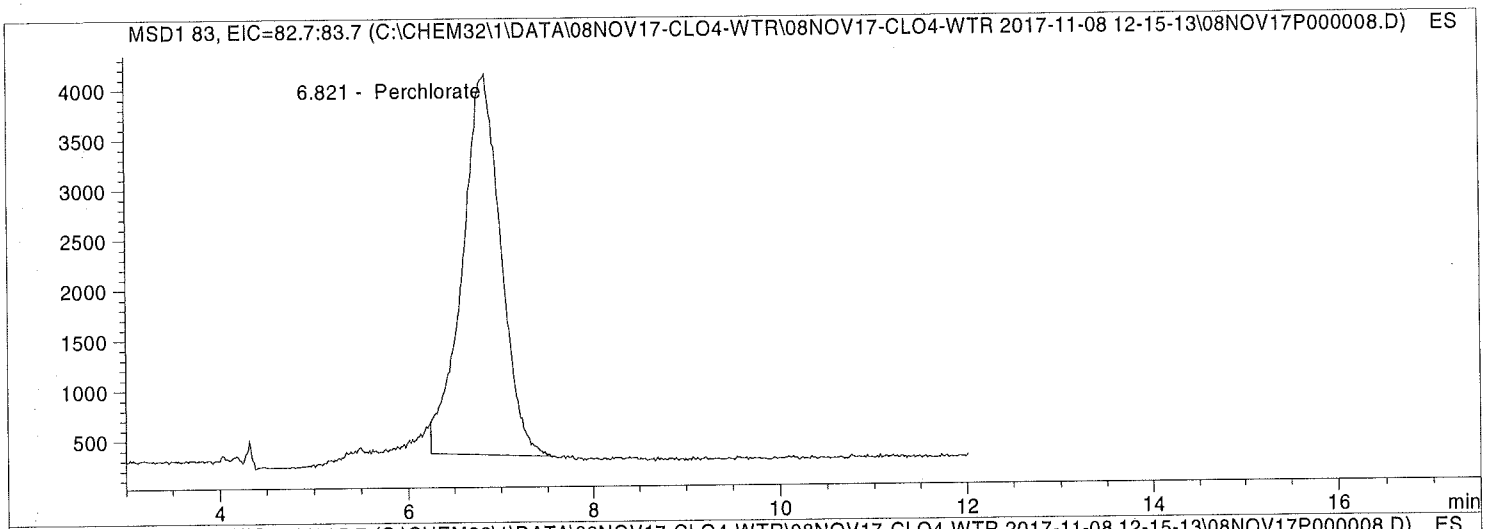
*** End of Report ***

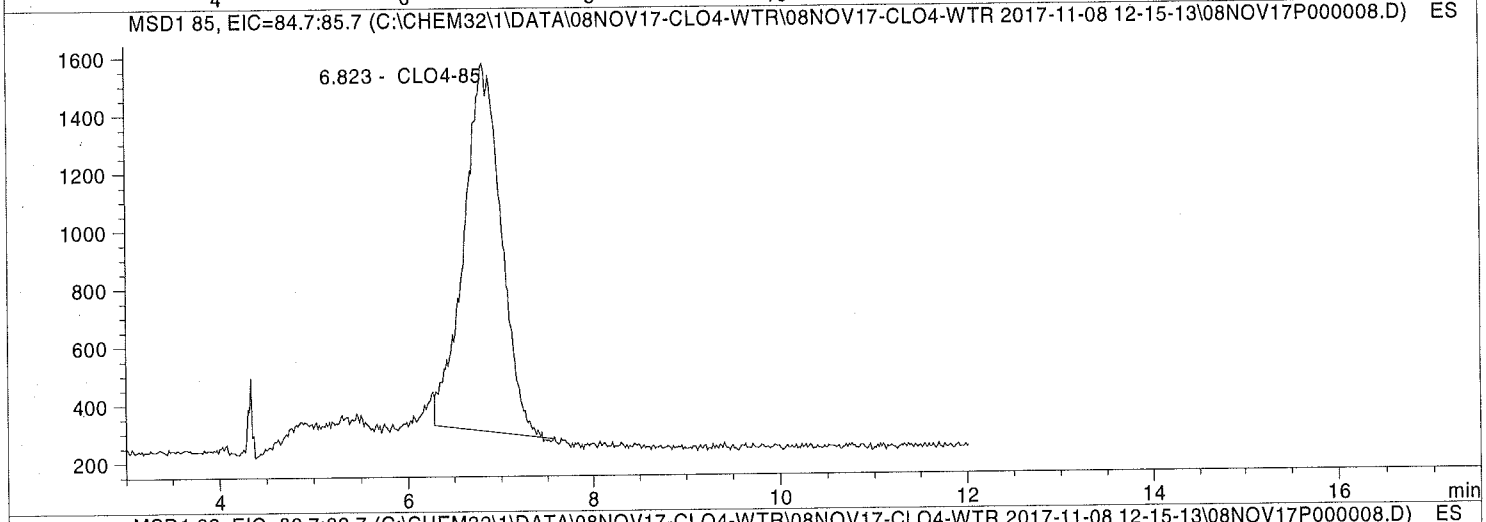
Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573330 300401MSD

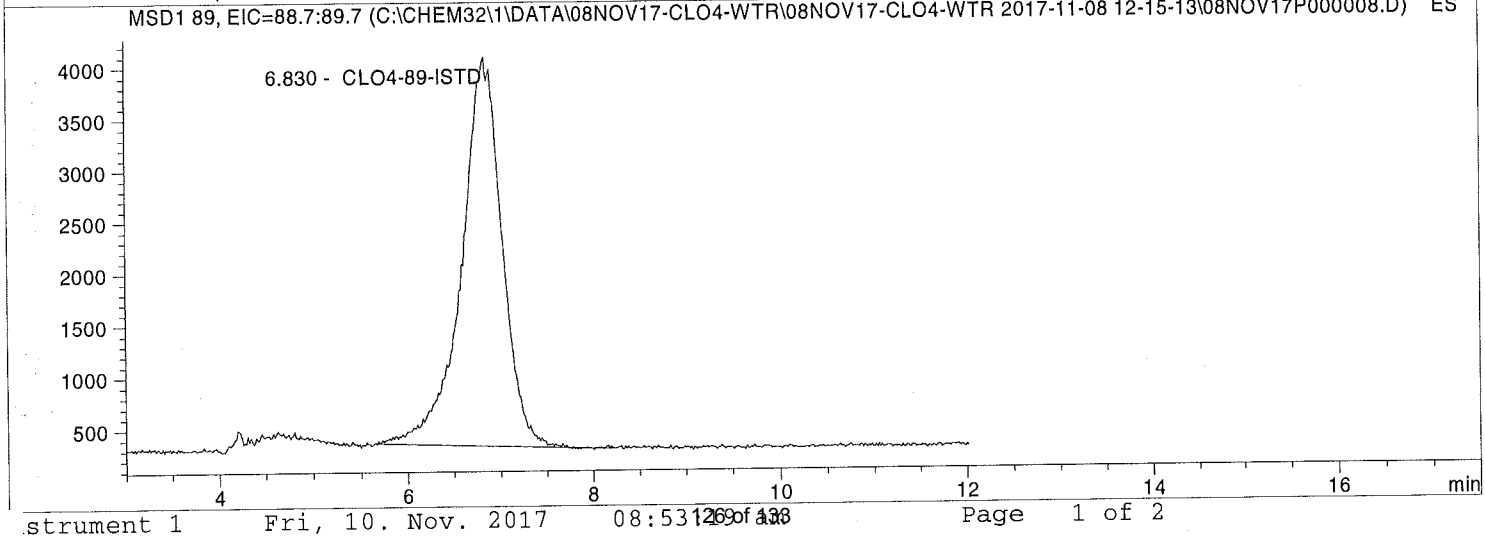
| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 13:50:22 | Seq Line: | 8 |
| Sample Name: | 573330 300401MSD | Location: | Vial 78 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate



Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573330 300401MSD

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 13:50:22 | Seq Line: | 8 |
| Sample Name: | 573330 300401MSD | Location: | Vial 78 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.821 | BB | 108402.3 | 4.2657 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.823 | BB | 35099.2 | 4.2377 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.830 | BB | 112815.7 | 5.0000 | CLO4-89-ISTD |

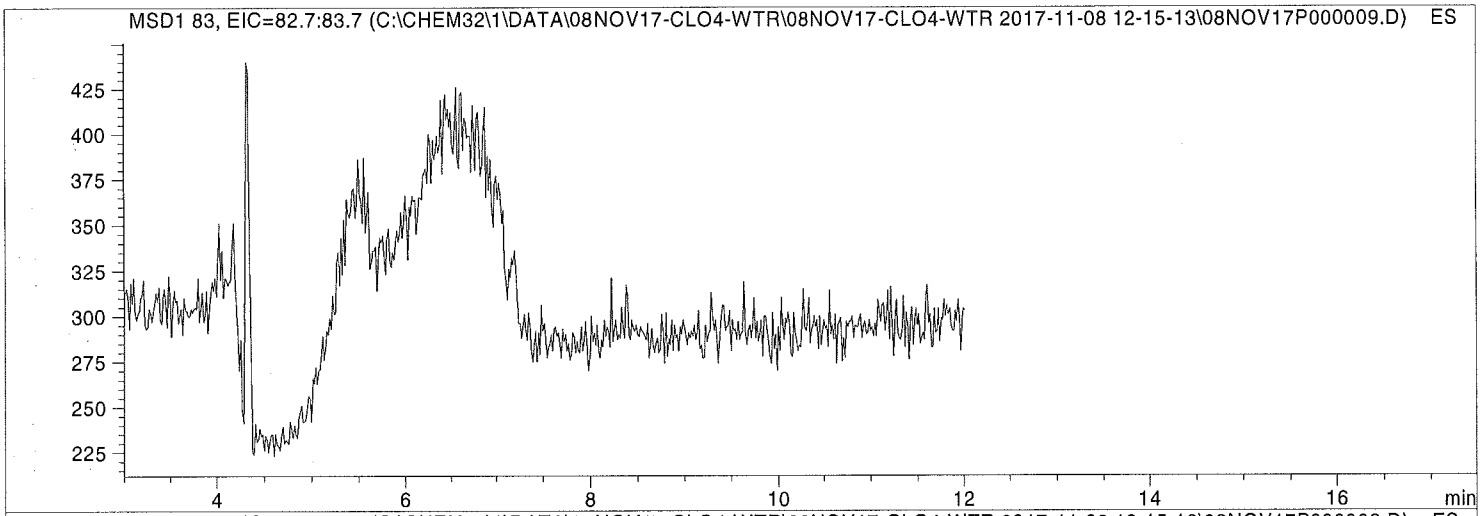
*** End of Report ***

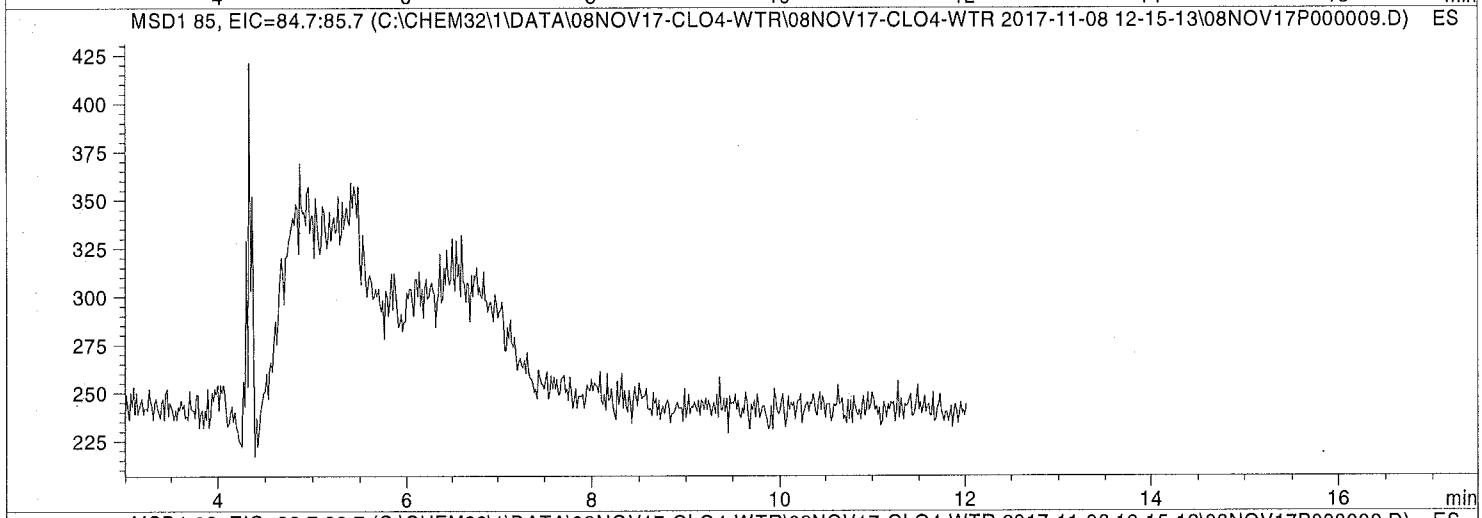
Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 1730755001

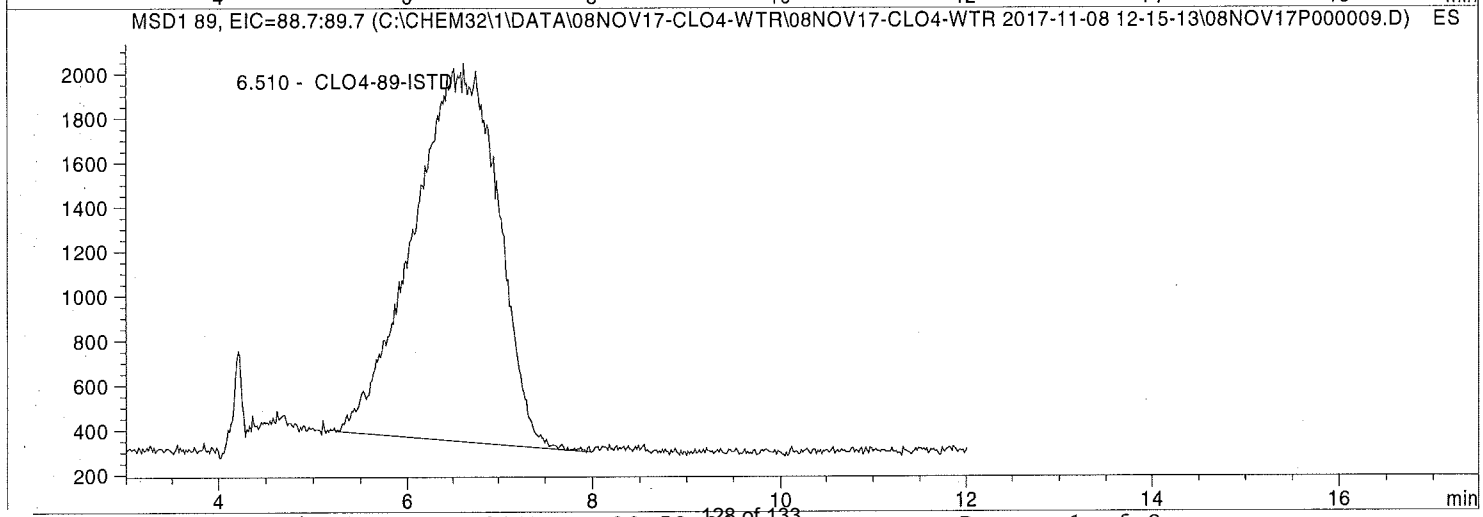
| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 14:03:58 | Seq Line: | 9 |
| Sample Name: | 1730755001 | Location: | Vial 79 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate



Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 1730755001

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 14:03:58 | Seq Line: | 9 |
| Sample Name: | 1730755001 | Location: | Vial 79 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.000 ug/L |

## 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 |
|---|---|---|---|---|
| 6.510 | BB | 108552.3 | 5.0000 | CLO4-89-ISTD |

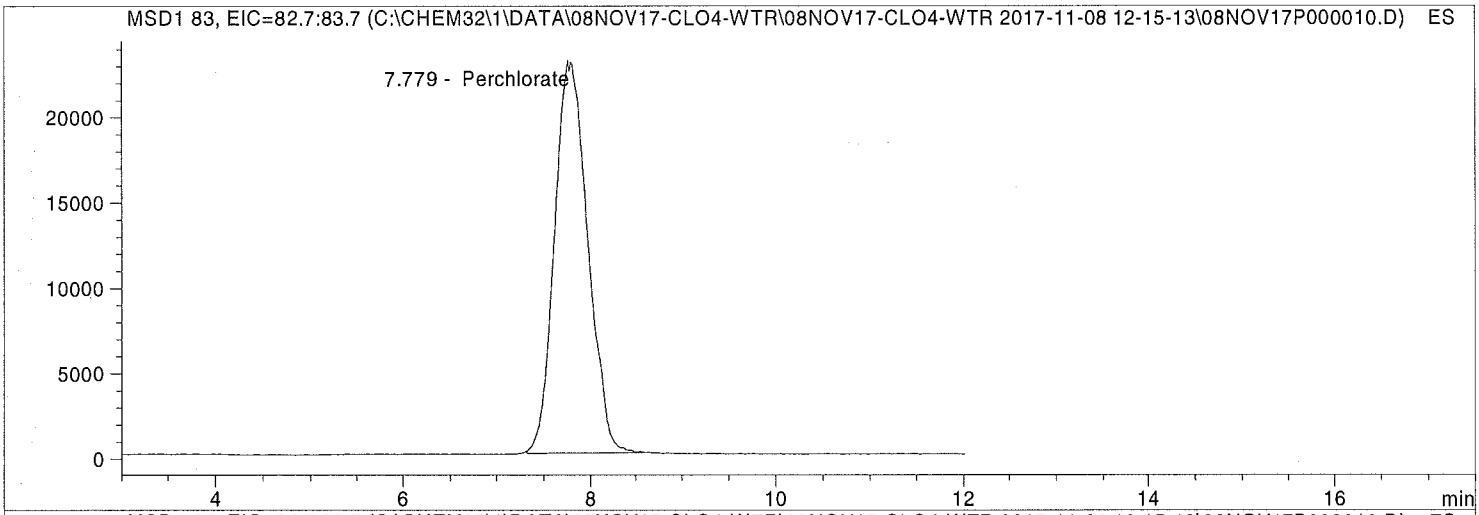
*** End of Report ***

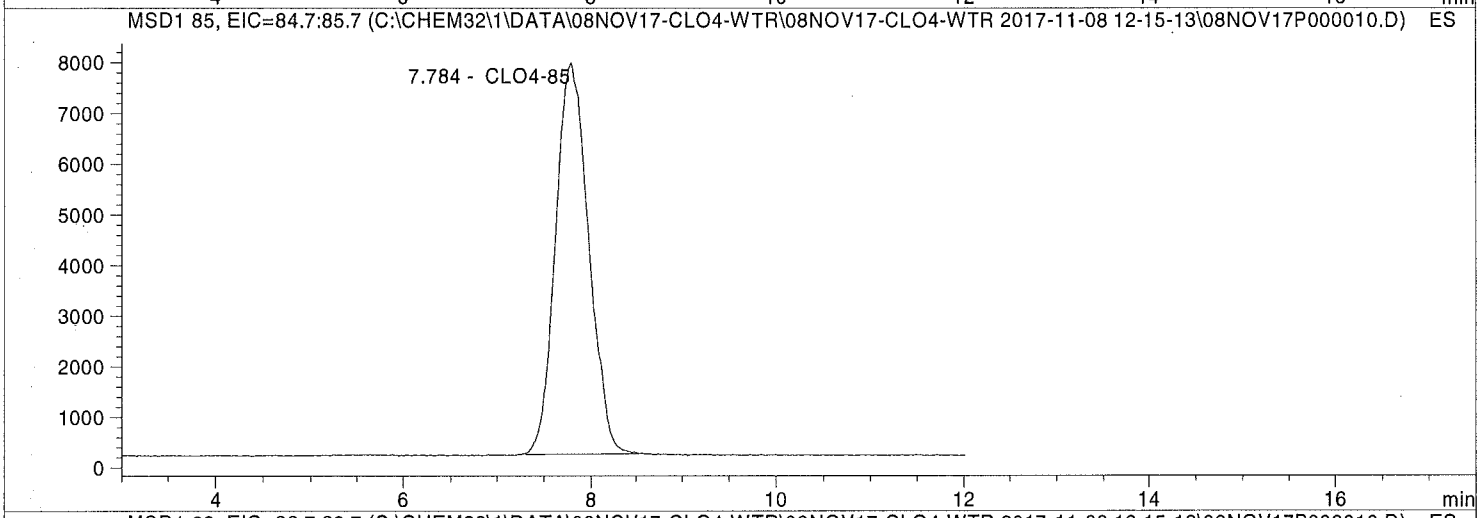
Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573331 CCV@25

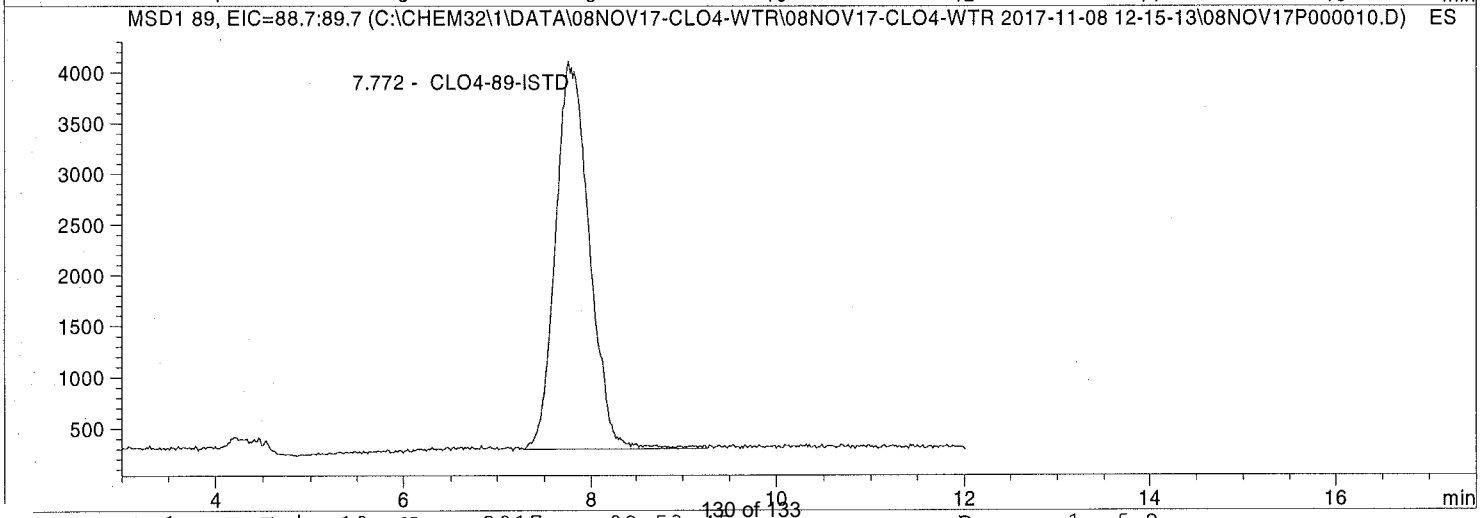
| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 14:17:30 | Seq Line: | 10 |
| Sample Name: | 573331 CCV@25 | Location: | Vial 71 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate



Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573331 CCV@25

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 14:17:30 | Seq Line: | 10 |
| Sample Name: | 573331 CCV@25 | Location: | Vial 71 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 25.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.779 | BB | 568034.8 | 26.2593 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.784 | BB | 190716.4 | 26.3153 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.772 | BB | 96031.1 | 5.0000 | CLO4-89-ISTD |

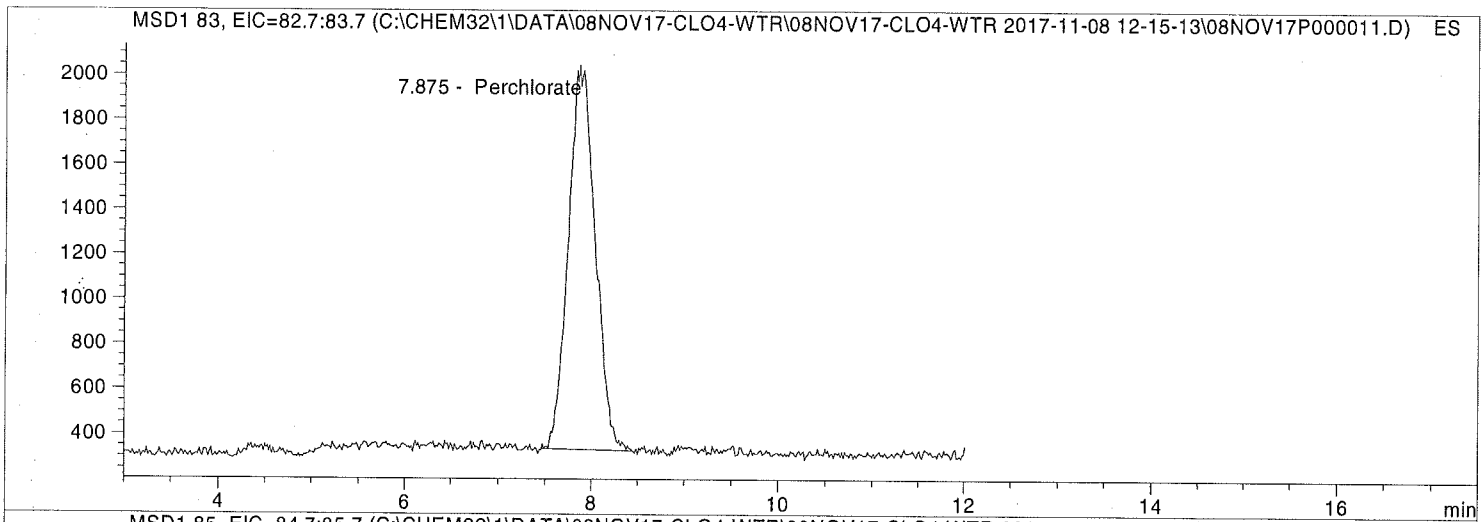
*** End of Report ***

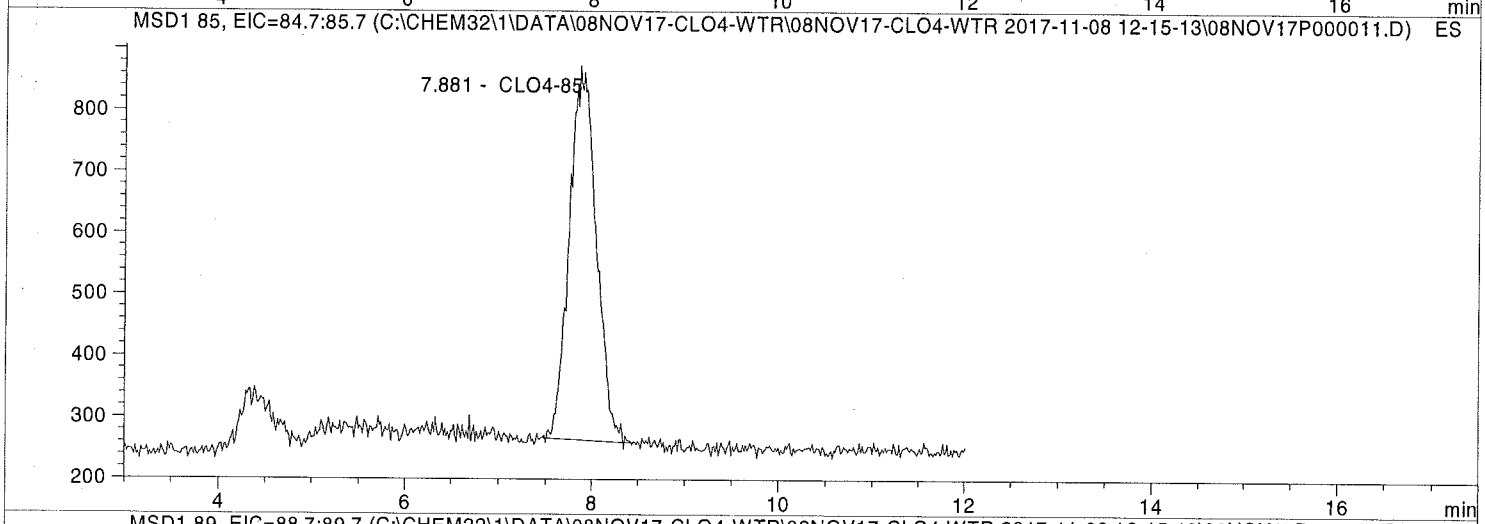
Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573332 LODV@1.

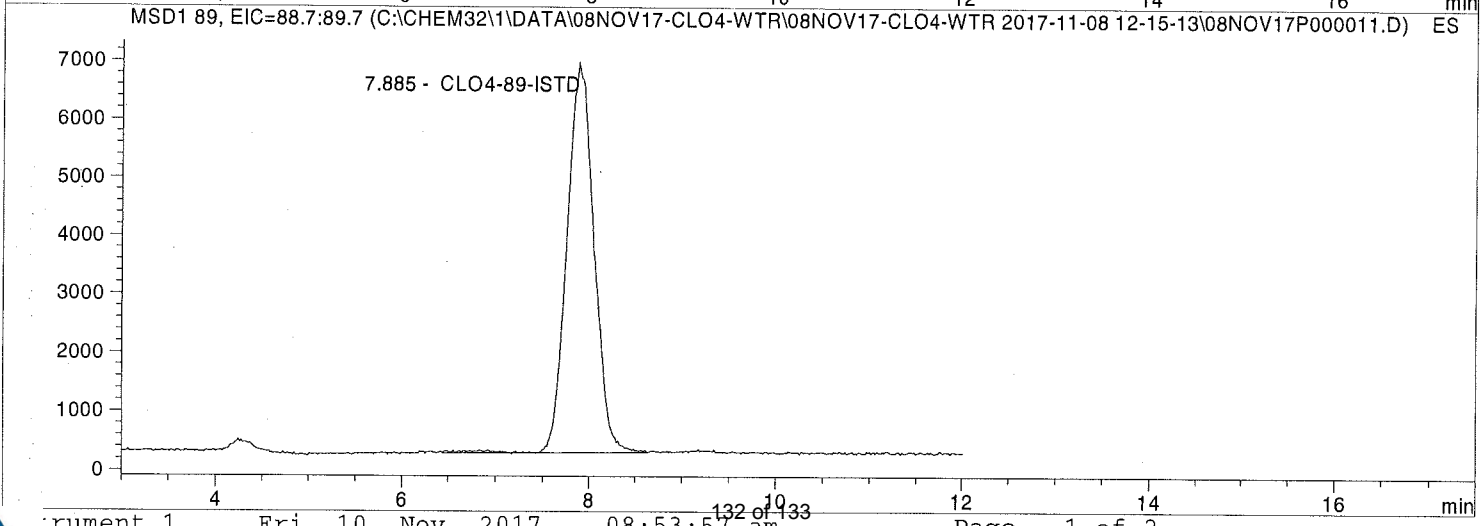
| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 14:31:03 | Seq Line: | 11 |
| Sample Name: | 573332 LODV@1. | Location: | Vial 72 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate



Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573332 LODV@1.

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 14:31:03 | Seq Line: | 11 |
| Sample Name: | 573332 LODV@1. | Location: | Vial 72 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 1.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.875 | BB | 34969.9 | 1.1246 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.881 | BB | 12500.0 | 1.3303 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.885 | BB | 138040.0 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***

GCAL ANALYTICAL LABORATORIES, LLC

***NELAP CERTIFICATE NUMBER: 01955***
***DOD ELAP CERTIFICATE NUMBER: L14-243***

# ANALYTICAL RESULTS

**PERFORMED BY**

**GCAL, LLC**
**7979 Innovation Park Dr.**
**Baton Rouge, LA 70820**

**Report Date** 11/07/2017

**GCAL Report** 217100620

***Project*** LHAAP GWTP Weekly

| ***Deliver To*** | ***Additional Recipients*** |
|---|---|
| Marcia Olive<br>Bhate Environmental Associates<br>445 Union Blvd<br>Suite 129<br>Denver, CO 80228<br>303-597-2450 | NONE |

PJLA Testing DoD ELAP

ISO 17025

NELAP ACCREDITED TNI LABORATORY

# Laboratory Endorsement

Sample analysis was performed in accordance with approved methodologies provided by the Environmental Protection Agency or other recognized agencies. The samples and their corresponding extracts will be maintained for a period of 30 days unless otherwise arranged. Following this retention period the samples will be disposed in accordance with GCAL's Standard Operating Procedures.

**Common Abbreviations that may be Utilized in this Report**

| | |
|---|---|
| **ND** | Indicates the result was Not Detected at the specified reporting limit |
| **NO** | Indicates the sample did not ignite when preliminary test performed for EPA Method 1030 |
| **DO** | Indicates the result was Diluted Out |
| **MI** | Indicates the result was subject to Matrix Interference |
| **TNTC** | Indicates the result was Too Numerous To Count |
| **SUBC** | Indicates the analysis was Sub-Contracted |
| **FLD** | Indicates the analysis was performed in the Field |
| **DL** | Detection Limit |
| **LOD** | Limit of Detection |
| **LOQ** | Limit of Quantitation |
| **RE** | Re-analysis |
| **CF** | HPLC or GC Confirmation |
| **00:01** | Reported as a time equivalent to 12:00 AM |

**Reporting Flags that may be Utilized in this Report**

| | |
|---|---|
| **J or I** | Indicates the result is between the MDL and LOQ |
| **J** | DOD flag on analyte in the parent sample for MS/MSD outside acceptance criteria |
| **U** | Indicates the compound was analyzed for but not detected |
| **B or V** | Indicates the analyte was detected in the associated Method Blank |
| **Q** | Indicates a non-compliant QC Result (See Q Flag Application Report) |
| ***** | Indicates a non-compliant or not applicable QC recovery or RPD – see narrative |
| **E** | Organics - The result is estimated because it exceeded the instrument calibration range |
| **E** | Metals - % diference for the serial dilution is > 10% |
| **L** | Reporting Limits adjusted to meet risk-based limit. |
| **P** | RPD between primary and confirmation result is greater than 40 |
| **DL** | Diluted analysis – when appended to Client Sample ID |

Sample receipt at GCAL is documented through the attached chain of custody. In accordance with NELAC, this report shall be reproduced only in full and with the written permission of GCAL. The results contained within this report relate only to the samples reported. The documented results are presented within this report.

This report pertains only to the samples listed in the Report Sample Summary and should be retained as a permanent record thereof. The results contained within this report are intended for the use of the client. Any unauthorized use of the information contained in this report is prohibited.

I certify that this data package is in compliance with The NELAC Institute (TNI) Standard 2009 and terms and conditions of the contract and Statement of Work both technically and for completeness, for other than the conditions in the case narrative. Release of the data contained in this hardcopy data package and in the computer readable data submitted has been authorized by the Quality Assurance Manager or his/her designee, as verified by the following signature.

Estimated uncertainty of measurement is available upon request. This report is in compliance with the DOD QSM as specified in the contract if applicable.

_____
Authorized Signature
GCAL Report 217100620

# Certifications

| Certification | Certification Number |
|---|---|
| DOD ELAP | L14-243 |
| Alabama | 01955 |
| Arkansas | 12-060-0 |
| Colorado | 01955 |
| Delaware | 01955 |
| Florida | E87854 |
| Georgia | 01955 |
| Hawaii | 01955 |
| Idaho | 01955 |
| Illinois | 200048 |
| Indiana | 01955 |
| Kansas | E-10354 |
| Kentucky | 95 |
| Louisiana | 01955 |
| Maryland | 01955 |
| Massachusetts | 01955 |
| Michigan | 01955 |
| Mississippi | 01955 |
| Missouri | 01955 |
| Montana | N/A |
| Nebraska | 01955 |
| New Mexico | 01955 |
| North Carolina | 618 |
| North Dakota | R-195 |
| Oklahoma | 9403 |
| South Carolina | 73006001 |
| South Dakota | 01955 |
| Tennessee | 01955 |
| Texas | T104704178 |
| Vermont | 01955 |
| Virginia | 460215 |
| USDA Soil Permit | P330-10-00117 |

# Case Narrative

**Client:** Bhate Environmental Associates, Inc. **Report:** 217100620

Gulf Coast Analytical Laboratories received and analyzed the sample(s) listed on the Report Sample Summary page of this report. Receipt of the sample(s) is documented by the attached chain of custody. This applies only to the sample(s) listed in this report. No sample integrity or quality control exceptions were identified unless noted below.

**GENERAL CHEMISTRY**

In the SM 4500-NH3 D 2011 analysis, sample 21710062001 (LH18/24-SP650_1017W) had to be diluted in order to bracket the concentration within the calibration range of the instrument.

In the SM 4500-P E-2011 analysis, sample 21710062001 (LH18/24-SP650_1017W) had to be diluted in order to bracket the concentration within the calibration range of the instrument.

In the SM 5310 B-2011 analysis, sample 21710062001 (LH18/24-SP650_1017W) had to be diluted in order to bracket the Total Carbon and/or Total Inorganic Carbon concentrations within the calibration range of the instrument. The Total Organic Carbon is based on the difference between the Total Carbon and the Inorganic Carbon. The dilution is reflected in the elevated reporting limit.

In the SM 4500-P E-2011 analysis for analytical batch 619798, the MS and/or MSD recovery is outside control limits for Ortho Phosphate - P. The LCS recovery is acceptable. This indicates the analysis is in control and the sample is affected by a matrix interference.

**MISCELLANEOUS**

See subcontract laboratory report case narrative.

This report was completed in accordance with DOD QSM 5.1 as specified in the contract.

Sample 21710062001 (LH18/24-SP650_1017W) was submitted to the laboratory in a container that is not in compliance with the method. The sample was analyzed at the clients request.

## Q Flag Summary

NO Q FLAGS FOR THIS WORKORDER

# Sample Summary

| GCAL ID | Client ID | Matrix | Collect Date/Time | Receive Date/Time |
|---|---|---|---|---|
| 21710062001 | LH18/24-SP650_1017W | Water | 10/05/2017 14:00 | 10/06/2017 11:30 |

# Test Summary

| GCAL ID | Client ID | Matrix | Procedure |
|---|---|---|---|
| 21710062001 | LH18/24-SP650_1017W | W | SM 4500 P E Orthophosphate Water |
| 21710062001 | LH18/24-SP650_1017W | W | SM 4500 NH3 B/D Ammonia Water |
| 21710062001 | LH18/24-SP650_1017W | W | SM 5310 B-2011 |
| 21710062001 | LH18/24-SP650_1017W | W | Ship to Sub Lab |
| 21710062001 | LH18/24-SP650_1017W | W | Subcontract General |

# Manual Integrations

Manual Integrations for HPLC and IC (if performed) are documented in the raw data.
No other manual integrations were performed by GCAL.

# Summary of Compounds Detected

| LH18/24-SP650_1017W | | | | |
|---|---|---|---|---|
| | **Collect Date** | 10/05/2017 14:00 | **GCAL ID** | 21710062001 |
| | **Receive Date** | 10/06/2017 11:30 | **Matrix** | Water |

## SM 4500-NH3 D 2011

| CAS# | Parameter | Result | DL | LOD | LOQ | Units |
|---|---|---|---|---|---|---|
| 7664-41-7 | Ammonia | 37.3 | 0.29 | 0.25 | 0.50 | mg/L-N |

## SM 4500-P E-2011

| CAS# | Parameter | Result | DL | LOD | LOQ | Units |
|---|---|---|---|---|---|---|
| 14265-44-2 | Ortho Phosphate - P | 2.84 | 0.050 | 0.200 | 0.250 | mg/L-P |

## SM 5310 B-2011

| CAS# | Parameter | Result | DL | LOD | LOQ | Units |
|---|---|---|---|---|---|---|
| C-012 | Total Organic Carbon | 116 | 1.5 | 10.0 | 10.0 | mg/L |

# General Chemistry

| LH18/24-SP650_1017W | | | | |
|---|---|---|---|---|
| | **Collect Date** | 10/05/2017 14:00 | **GCAL ID** | 21710062001 |
| | **Receive Date** | 10/06/2017 11:30 | **Matrix** | Water |

## SM 4500-NH3 D 2011

| Prep Date | Prep Batch | Prep Method | Dilution | Analysis Date | By | Analytical Batch |
|---|---|---|---|---|---|---|
| NA | NA | NA | 5 | 10/11/2017 10:00 | RYC | 620017 |

| CAS# | Parameter | Result | DL | LOD | LOQ | Units |
|---|---|---|---|---|---|---|
| 7664-41-7 | Ammonia | 37.3 | 0.29 | 0.25 | 0.50 | mg/L-N |

## SM 4500-P E-2011

| Prep Date | Prep Batch | Prep Method | Dilution | Analysis Date | By | Analytical Batch |
|---|---|---|---|---|---|---|
| NA | NA | NA | 5 | 10/07/2017 12:42 | DMT | 619798 |

| CAS# | Parameter | Result | DL | LOD | LOQ | Units |
|---|---|---|---|---|---|---|
| 14265-44-2 | Ortho Phosphate - P | 2.84 | 0.050 | 0.200 | 0.250 | mg/L-P |

## SM 5310 B-2011

| Prep Date | Prep Batch | Prep Method | Dilution | Analysis Date | By | Analytical Batch |
|---|---|---|---|---|---|---|
| NA | NA | NA | 5 | 10/13/2017 10:39 | JEM | 620228 |

| CAS# | Parameter | Result | DL | LOD | LOQ | Units |
|---|---|---|---|---|---|---|
| C-012 | Total Organic Carbon | 116 | 1.5 | 10.0 | 10.0 | mg/L |

# General Chemistry QC Summary

| Analytical Batch | Client ID | MB619798 | LCS619798 |
|---|---|---|---|
| 619798 | GCAL ID | 1728852 | 1728853 |
| | Sample Type | MB | LCS |
| | Prep Date | NA | NA |
| | Analysis Date | 10/07/2017 12:41 | 10/07/2017 12:38 |
| | Matrix | Water | Water |

| SM 4500-P E-2011 | | Units Result | mg/L-P LOD | Spike Added | Result | %R | Control Limits%R |
|---|---|---|---|---|---|---|---|
| Ortho Phosphate - P | 14265-44-2 | 0.040U | 0.040 | 0.500 | 0.492 | 98 | 90 - 110 |

| Analytical Batch | Client ID | LH18/24-SP650_1017W | 1728583MS | 1728583MSD |
|---|---|---|---|---|
| 619798 | GCAL ID | 21710062001 | 1728854 | 1728855 |
| | Sample Type | SAMPLE | MS | MSD |
| | Prep Date | NA | NA | NA |
| | Analysis Date | 10/07/2017 12:42 | 10/07/2017 12:43 | 10/07/2017 12:44 |
| | Matrix | Water | Water | Water |

| SM 4500-P E-2011 | | Units Result | mg/L-P LOD | Spike Added | Result | %R | Control Limits%R | Spike Added | Result | %R | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ortho Phosphate - P | 14265-44-2 | 2.84 | 0.200 | 2.50 | 4.17 | 53* | 90 - 110 | 2.50 | 4.02 | 47* | 4 | 20 |

| Analytical Batch | Client ID | MB620017 |
|---|---|---|
| 620017 | GCAL ID | 1729764 |
| | Sample Type | MB |
| | Prep Date | NA |
| | Analysis Date | 10/11/2017 10:00 |
| | Matrix | Water |

| SM 4500-NH3 D 2011 | | Units Result | mg/L-N LOD |
|---|---|---|---|
| Ammonia | 7664-41-7 | 0.05U | 0.05 |

| Analytical Batch | Client ID | LCS620017 | LCSD620017 |
|---|---|---|---|
| 620017 | GCAL ID | 1729765 | 1729892 |
| | Sample Type | LCS | LCSD |
| | Prep Date | NA | NA |
| | Analysis Date | 10/11/2017 10:00 | 10/11/2017 10:00 |
| | Matrix | Water | Water |

| SM 4500-NH3 D 2011 | | Spike Added | Result | %R | Control Limits%R | Spike Added | Result | %R | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia | 7664-41-7 | 1.0 | 0.94 | 94 | 80 - 120 | 1.0 | 0.96 | 96 | 2 | 20 |

| Analytical Batch | Client ID | SARA Separator Effluent | 1729207MS | 1729207MSD |
|---|---|---|---|---|
| 620017 | GCAL ID | 21710091001 | 1729893 | 1729894 |
| | Sample Type | SAMPLE | MS | MSD |
| | Prep Date | NA | NA | NA |
| | Analysis Date | 10/11/2017 10:00 | 10/11/2017 10:00 | 10/11/2017 10:00 |
| | Matrix | Water | Water | Water |

| SM 4500-NH3 D 2011 | | Units Result | mg/L-N LOD | Spike Added | Result | %R | Control Limits%R | Spike Added | Result | %R | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia | 7664-41-7 | 9.9 | 1.3 | 5.0 | 14.9 | 101 | 80 - 120 | 5.0 | 15.0 | 103 | 1 | 20 |

| Analytical Batch | Client ID | MB620228 | LCS620228 | LCSD620228 |
|---|---|---|---|---|
| 620228 | GCAL ID | 1730924 | 1730925 | 1730926 |
| | Sample Type | MB | LCS | LCSD |
| | Prep Date | NA | NA | NA |
| | Analysis Date | 10/13/2017 10:19 | 10/13/2017 09:32 | 10/13/2017 12:56 |
| | Matrix | Water | Water | Water |

| SM 5310 B-2011 | | Units Result | mg/L LOD | Spike Added | Result | %R | Control Limits%R | Spike Added | Result | %R | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Organic Carbon | C-012 | 2.0U | 2.0 | 50.0 | 48.7 | 97 | 90 - 110 | 50.0 | 49.9 | 100 | 2 | 20 |

# General Chemistry QC Summary

| **Analytical Batch** 620228 | Client ID | LH18/24-SP650_1017W | | 1728583MS | | | | 1728583MSD | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | GCAL ID | 21710062001 | | 1730927 | | | | 1730928 | | | | |
| | Sample Type | SAMPLE | | MS | | | | MSD | | | | |
| | Prep Date | NA | | NA | | | | NA | | | | |
| | Analysis Date | 10/13/2017 10:39 | | 10/13/2017 11:02 | | | | 10/13/2017 11:22 | | | | |
| | Matrix | Water | | Water | | | | Water | | | | |
| **SM 5310 B-2011** | | Units Result | mg/L LOD | Spike Added | Result | %R | Control Limits%R | Spike Added | Result | %R | RPD | RPD Limit |
| Total Organic Carbon | C-012 | 116 | 10.0 | 250 | 373 | 103 | 80 - 120 | 250 | 377 | 104 | 1 | 20 |

GCAL ANALYTICAL LABORATORIES, LLC

7979 Innovation Park Drive | Baton Rouge, LA 70820-7402

225.769.4900 | www.gcal.com

# CHAIN OF CUSTODY RECO

Client ID: 4760 - Bhate Environmental Associates, Inc.

SDG: 217100620

PM: EPM

| Report To: | | Bill To: | |
|---|---|---|---|
| Client: | Bhate Associates | Client: | Bhate Associates |
| Address: | 445 Union Blvd Ste. 129 Lakewood, CO 80228 | Address: | 1608 13th Avenue South Ste 300 Birmingham, AL 35205 |
| Contact: | Marcia Olive | Contact: | Accounts Receivable |
| Phone: | 205-918-4000 | Phone: | 205 918 4000 |
| Email: | molive@bhate.com | Email: | |

P.O. Number

Project Name/Number: LHAAP GWTP Weekly

Sampled By:

Custody Seal: Used: ☐ Yes ☐ No Intact: ☐ Yes ☐ No

Temperature: 1.6 E29 CPM-NA

☐ Dissolved Analysis Requested ☐ Field Filtered ☐ Lab Filtered

| Matrix[1] | Date | Time (2400) | Comp | Grab | Sample Description | No. of Containers | Perchlorate (6850) | TOC (415.1) | Ammonia as N (350.1) | o-phosphate (365.3) | ← Preservative / Notes ↓ | GCAL ID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W | 10/05/17 | 1400 | | | LH18/24-SP650_1017W | 4 | x | x | x | x | | -1 |

Airbill Number: 4052 3022 7746

Turn Around Time(Business Days): ☐ RUSH* ____ Days ☐ Standard (per contract/quote)

| Relinquished by: (Signature) | Date/Time: | Received by: (Signature) | Date/Time: |
|---|---|---|---|
| Relinquished by: (Signature) FedEx | Date/Time: 10.6.17 1730 | Received by: (Signature) | Date/Time: 10.6.17 |
| Relinquished by: (Signature) | Date/Time: | Received by: (Signature) | Date/Time: |

Notes: **Ship Samples to: GCAL c/o Liz Martin 10781 Coursey Blvd Baton Rouge, LA. 70816**

[1]Matrix: W = Water, S=Solid, L=Liquid, T=Tissue.

*- Requires prior approval, Rush charges may apply.

We cannot accept verbal changes. Please email written changes to your GCAL Project Manage

GCAL ANALYTICAL LABORATORIES, LLC

# SAMPLE RECEIVING CHECKLIST

*217100620*

| SAMPLE DELIVERY GROUP 217100620 | |
|---|---|
| **Client** **PM** EPM<br>4760 - Bhate Environmental Associates, Inc. | **Transport Method**<br>FEDEX |
| **Profile Number**<br>274245 | **Received By**<br>Reese, Sean M |
| **Line Item(s)**<br>2 - GWTP Weekly | **Receive Date(s)**<br>10/06/17 |

| CHECKLIST | YES | NO |
|---|---|---|
| Samples received with proper thermal preservation? | ☑ | ☐ |
| Radioactivity is <1600 cpm? If no, record cpm value in notes section. | ☑ | ☐ |
| COC relinquished and complete (including sampleIDs, collect times, and sampler)? | ☑ | ☐ |
| All containers received in good condition and within hold time? | ☑ | ☐ |
| All sample labels and containers received match the chain of custody? | ☑ | ☐ |
| Preservative added to any containers? | ☐ | ☑ |
| If received, was headspace for VOC water containers < 6mm? | ☑ | ☐ |
| Samples collected in containers provided by GCAL? | ☐ | ☑ |

## COOLERS

| Airbill | Thermometer ID: E29 | Temp °C |
|---|---|---|
| | | 1.6 |

## DISCREPANCIES

**21710062001** - LH18/24-SP650_1017W:
Improper Container

## LAB PRESERVATIONS

None

## NOTES

TOC ANALYSIS WAS RECEIVED IN IMPROPER CONTAINER

Revision 1.6

Page 1 of 1

GCAL ANALYTICAL LABORATORIES, LLC

# TOTAL ORGANIC CARBON
BY METHODS 5310B/SW9060A
WATERS

Date: 10-13-14
Analysis: JEm

Instrument ID: TOC6
HBN: 620238 (DMT 10/16/17) / 620263
Batch: 6989 / 6990

**TC**
Calibration Standard Lot #: 2124777
Calibration Std. Exp: 12-7-17
Calibration ID: 1105-29-7
Calibration Date: 9-7-17
Calibration Exp: 12-7-17

**TC**
TC CCV/LCS Lot #: 1105-94-2
TC CCV/LCS Expiration Date: 11-13-17

**IC**
Calibration Standard Lot #: 2124776
Calibration Std. Exp: 2-3-18
Calibration ID: 1105-30-1
Calibration Date: 9-7-17
Calibration Exp: 2-3-18

**IC**
IC CCV/LCS Lot #: 1105-94-3
IC CCV/LCS Expiration Date: 11-13-17

Note: Calibration expires 1year from calibration date or on the calibration standard expiration date, whichever is sooner.

Revision 005: 1/14/2014

Reviewer/Date: DMT 10/16/17

C:\TOC3201\Data\2017_10_13_001.t32

| | Sample Name | Sample ID | Manual | Result | Date / Time | Vial | |
|---|---|---|---|---|---|---|---|
| 1 | 1730925/CCV TC | 6989,JEM,TOC6 | 1.000 | TOC:48.29mg/L TC:48.66mg/L IC:0.3689mg/L | 10/13/2017 9:47:03 AM | 61 | 97% |
| 2 | LCS/CCV IC | 6989,JEM,TOC6 | 1.000 | TOC:-0.7750mg/L TC:49.75mg/L IC:50.52mg/L | 10/13/2017 10:14:12 AM | 62 | 101% |
| 3 | 1730924 MB | 6989,JEM,TOC6 | 1.000 | TOC:0.1834mg/L TC:0.4772mg/L IC:0.2938mg/L | 10/13/2017 10:33:10 AM | 63 | |
| 4 | 21710062001 ✓ | 6989,JEM,TOC6 | 5.000 | TOC:116.3mg/L TC:153.1mg/L IC:36.81mg/L | 10/13/2017 10:56:11 AM | 1 | |
| 5 | 1730927 MS | 6989,JEM,TOC6 | 5.000 | TOC:373.2mg/L TC:407.9mg/L IC:34.70mg/L | 10/13/2017 11:19:40 AM | 2 | 103% |
| 6 | 1730928 MSD | 6989,JEM,TOC6 | 5.000 | TOC:376.9mg/L TC:404.6mg/L IC:27.70mg/L | 10/13/2017 11:40:15 AM | 2 | 104% |
| 7 | 21710106601 | 6989,JEM,TOC6 | 1.000 | TOC:40.62mg/L TC:48.72mg/L IC:8.101mg/L | 10/13/2017 12:03:15 PM | 3 | |
| 8 | 21710110301 | 6989,JEM,TOC6 | 1.000 | TOC:-3.596mg/L TC:89.89mg/L IC:93.49mg/L | 10/13/2017 12:27:34 PM | 4 | |
| 9 | 21710132002 | 6989,JEM,TOC6 | 1.000 | TOC:9.252mg/L TC:30.68mg/L IC:21.43mg/L | 10/13/2017 12:50:48 PM | 22 | |
| 10 | 1730926 LCSD | 6989,JEM,TOC6 | 1.000 | TOC:49.16mg/L TC:49.86mg/L IC:0.6945mg/L | 10/13/2017 1:13:48 PM | 61 | 100% |
| 11 | LCS/CCV IC | 6989,JEM,TOC6 | 1.000 | TOC:-0.7312mg/L TC:50.92mg/L IC:51.65mg/L | 10/13/2017 1:37:31 PM | 62 | 103% |
| 12 | CCB | 6989,JEM,TOC6 | 1.000 | TOC:0.1918mg/L TC:0.5677mg/L IC:0.3758mg/L | 10/13/2017 1:58:41 PM | 63 | |
| 13 | 21710110302 | 6989,JEM,TOC6 | 1.000 | TOC:5.891mg/L TC:97.49mg/L IC:91.60mg/L | 10/13/2017 2:22:55 PM | 5 | |
| 14 | 21710110303 | RERUN | 1.000 | TOC:2.294mg/L TC:107.0mg/L IC:104.7mg/L | 10/13/2017 2:47:08 PM | 6 | |
| 15 | 21710110304 | 6989,JEM,TOC6 | 1.000 | TOC:2.601mg/L TC:89.64mg/L IC:87.04mg/L | 10/13/2017 3:10:57 PM | 7 | |
| 16 | 21710110305 | 6989,JEM,TOC6 | 1.000 | TOC:6.960mg/L TC:32.51mg/L IC:25.55mg/L | 10/13/2017 3:52:03 PM | 8 | |
| 17 | 21710113205 | 6989,JEM,TOC6 | 1.000 | TOC:6.091mg/L TC:25.27mg/L IC:19.18mg/L | 10/13/2017 4:10:15 PM | 9 | |
| 18 | 21710113301 | 6989,JEM,TOC6 | 1.000 | TOC:3.497mg/L TC:56.48mg/L IC:52.98mg/L | 10/13/2017 4:33:33 PM | 10 | |
| 19 | 21710113302 | 6989,JEM,TOC6 | 1.000 | TOC:0.5742mg/L TC:39.89mg/L IC:39.32mg/L | 10/13/2017 4:54:08 PM | 11 | |
| 20 | 21710113902 | RERUN | 1.000 | TOC:225.0mg/L TC:358.6mg/L IC:133.6mg/L | 10/13/2017 5:23:07 PM | 12 | |
| 21 | 21710113905 | 6989,JEM,TOC6 | 1.000 | TOC:25.42mg/L TC:97.01mg/L IC:71.59mg/L | 10/13/2017 5:47:49 PM | 13 | |
| 22 | 21710113908 | 6989,JEM,TOC6 | 1.000 | TOC:2.946mg/L TC:70.64mg/L IC:67.69mg/L | 10/13/2017 6:14:31 PM | 14 | |
| 23 | LCS/CCV TC | 6989,JEM,TOC6 | 1.000 | TOC:48.62mg/L TC:49.80mg/L IC:1.180mg/L | 10/13/2017 6:40:01 PM | 64 | 100% |
| 24 | LCS/CCV IC | 6989,JEM,TOC6 | 1.000 | TOC:-0.2689mg/L TC:50.34mg/L IC:50.61mg/L | 10/13/2017 7:03:58 PM | 65 | 101% |
| 25 | CCB | 6989,JEM,TOC6 | 1.000 | TOC:0.1637mg/L TC:0.5270mg/L IC:0.3633mg/L | 10/13/2017 7:22:49 PM | 66 | |
| 26 | 21710113909 | 6989,JEM,TOC6 | 1.000 | TOC:11.47mg/L TC:65.18mg/L IC:53.70mg/L | 10/13/2017 7:46:39 PM | 15 | |
| 27 | 21710113915 | RERUN | 1.000 | TOC:39.03mg/L TC:119.9mg/L IC:80.85mg/L | 10/13/2017 8:10:56 PM | 16 | |
| 28 | 21710113921 | 6989,JEM,TOC6 | 1.000 | TOC:0.7335mg/L TC:60.24mg/L IC:59.51mg/L | 10/13/2017 8:34:36 PM | 17 | |
| 29 | 21710113922 | 6989,JEM,TOC6 | 1.000 | TOC:1.519mg/L TC:50.82mg/L IC:49.30mg/L | 10/13/2017 8:58:07 PM | 18 | |
| 30 | 21710113923 | 6989,JEM,TOC6 | 1.000 | TOC:11.66mg/L TC:54.91mg/L IC:43.25mg/L | 10/13/2017 9:24:52 PM | 19 | |
| 31 | 21710113924 | 6989,JEM,TOC6 | 1.000 | TOC:4.064mg/L TC:72.62mg/L IC:68.55mg/L | 10/13/2017 9:48:42 PM | 20 | |
| 32 | 1730929 MS | 6989,JEM,TOC6 | 1.000 | TOC:48.92mg/L TC:115.1mg/L IC:66.15mg/L | 10/13/2017 10:15:14 PM | 21 | 90% |
| 33 | 1730930 MSD | 6989,JEM,TOC6 | 1.000 | TOC:55.78mg/L TC:101.3mg/L IC:45.56mg/L | 10/13/2017 10:35:53 PM | 21 | 103% |
| 34 | 21710113925 | 6990,JEM,TOC6 | 1.000 | TOC:1.031mg/L TC:37.27mg/L IC:36.24mg/L | 10/13/2017 10:56:52 PM | 23 | |
| 35 | 1731139 MS | 6990,JEM,TOC6 | 1.000 | TOC:49.14mg/L TC:82.42mg/L IC:33.28mg/L | 10/13/2017 11:20:30 PM | 24 | 96% |
| 36 | 1731137 LCS | 6990,JEM,TOC6 | 1.000 | TOC:49.02mg/L TC:49.78mg/L IC:0.7579mg/L | 10/13/2017 11:43:22 PM | 51 | 100% |
| 37 | LCS/CCV IC | 6990,JEM,TOC6 | 1.000 | TOC:-0.4425mg/L TC:49.98mg/L IC:50.43mg/L | 10/14/2017 12:07:00 AM | 52 | 101% |
| 38 | 1731136 MB | 6990,JEM,TOC6 | 1.000 | TOC:0.2374mg/L TC:0.5574mg/L IC:0.3200mg/L | 10/14/2017 12:27:57 AM | 53 | |
| 39 | 1731140 MSD | 6990,JEM,TOC6 | 1.000 | TOC:54.05mg/L TC:74.58mg/L IC:20.54mg/L | 10/14/2017 12:56:13 AM | 24 | 106% |
| 40 | 21710113926 | 6990,JEM,TOC6 | 1.000 | TOC:-0.1672mg/L TC:33.21mg/L IC:33.37mg/L | 10/14/2017 1:17:06 AM | 25 | |
| 41 | 21710113927 | 6990,JEM,TOC6 | 1.000 | TOC:0.5747mg/L TC:35.92mg/L IC:35.35mg/L | 10/14/2017 1:40:05 AM | 26 | |
| 42 | 21710113928 | 6990,JEM,TOC6 | 1.000 | TOC:1.142mg/L TC:56.57mg/L IC:55.43mg/L | 10/14/2017 2:01:30 AM | 27 | |
| 43 | 21710113930 | 6990,JEM,TOC6 | 1.000 | TOC:-0.06308mg/L TC:51.75mg/L IC:51.82mg/L | 10/14/2017 2:24:50 AM | 28 | |
| 44 | 21710113931 | 6990,JEM,TOC6 | 1.000 | TOC:-0.2690mg/L TC:67.08mg/L IC:67.35mg/L | 10/14/2017 2:48:23 AM | 29 | |
| 45 | 21710113932 | 6990,JEM,TOC6 | 1.000 | TOC:1.138mg/L TC:44.23mg/L IC:43.09mg/L | 10/14/2017 3:11:31 AM | 30 | |
| 46 | 21710113933 | 6990,JEM,TOC6 | 1.000 | TOC:2.424mg/L TC:37.36mg/L IC:34.93mg/L | 10/14/2017 3:34:34 AM | 31 | |
| 47 | 21710113934 | 6990,JEM,TOC6 | 1.000 | TOC:-0.01151mg/L TC:59.02mg/L IC:59.03mg/L | 10/14/2017 3:57:56 AM | 32 | |
| 48 | 21710113936 | 6990,JEM,TOC6 | 1.000 | TOC:9.749mg/L TC:23.07mg/L IC:13.32mg/L | 10/14/2017 4:20:44 AM | 33 | |
| 49 | 1731138 LCSD | 6990,JEM,TOC6 | 1.000 | TOC:48.83mg/L TC:49.42mg/L IC:0.5913mg/L | 10/14/2017 4:43:41 AM | 54 | 99% |
| 50 | LCS/CCV IC | 6990,JEM,TOC6 | 1.000 | TOC:-0.4456mg/L TC:49.88mg/L IC:50.33mg/L | 10/14/2017 5:07:21 AM | 55 | 101% |
| 51 | CCB | 6990,JEM,TOC6 | 1.000 | TOC:0.1811mg/L TC:0.5004mg/L IC:0.3193mg/L | 10/14/2017 5:28:12 AM | 56 | |
| 52 | 21710113937 | 6990,JEM,TOC6 | 1.000 | TOC:0.6484mg/L TC:48.96mg/L IC:48.31mg/L | 10/14/2017 5:51:46 AM | 34 | |

Sample

Sample Name: 1730925/CCV TC LCS
Sample ID: 6989,JEM,TOC6
Origin: TOC 3.met
Status Completed
Chk. Result

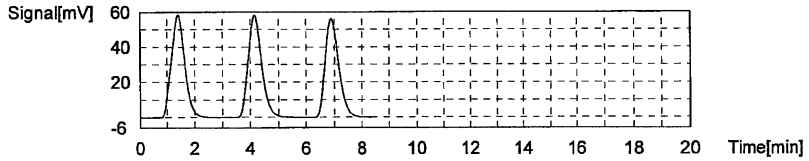
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | TOC | 1.000 | TOC:48.29mg/L TC:48.66mg/L IC:0.3689mg/L |

1. Det

Anal.: TC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 196.0 | 49.65mg/L | 50uL | 1 | | TC ICAL.2017_09_07_10_23_03.cal | 10/13/2017 9:32:21 AM |
| 2 | 191.4 | 48.49mg/L | 50uL | 1 | | TC ICAL.2017_09_07_10_23_03.cal | 10/13/2017 9:35:18 AM |
| 3 | 188.8 | 47.84mg/L | 50uL | 1 | | TC ICAL.2017_09_07_10_23_03.cal | 10/13/2017 9:38:17 AM |

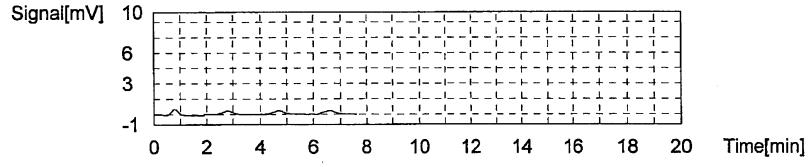
Mean Area 192.1
Mean Conc. 48.66mg/L




Anal.: IC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 0.9457 | 0.4238mg/L | 50uL | 1 | E | IC ICAL.2017_09_06_17_57_01.cal | 10/13/2017 9:40:48 AM |
| 2 | 0.7157 | 0.3677mg/L | 50uL | 1 | | IC ICAL.2017_09_06_17_57_01.cal | 10/13/2017 9:42:53 AM |
| 3 | 0.7018 | 0.3643mg/L | 50uL | 1 | | IC ICAL.2017_09_06_17_57_01.cal | 10/13/2017 9:44:58 AM |
| 4 | 0.7444 | 0.3747mg/L | 50uL | 1 | | IC ICAL.2017_09_06_17_57_01.cal | 10/13/2017 9:47:03 AM |

Mean Area 0.7206
Mean Conc. 0.3689mg/L



Sample

Sample Name: LCS/CCV IC
Sample ID: 6989,JEM,TOC6
Origin: TOC 3.met
Status Completed
Chk. Result

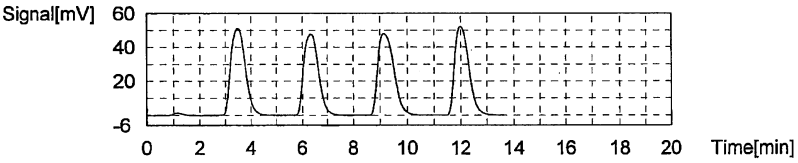
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | TOC | 1.000 | TOC:-0.7750mg/L TC:49.75mg/L IC:50.52mg/L |

1. Det

Anal.: TC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 3.669 | 1.244mg/L | 50uL | 1 | E | TC ICAL.2017_09_07_10_23_03.cal | 10/13/2017 9:52:45 AM |
| 2 | 202.7 | 51.33mg/L | 50uL | 1 | E | TC ICAL.2017_09_07_10_23_03.cal | 10/13/2017 9:55:47 AM |
| 3 | 194.0 | 49.15mg/L | 50uL | 1 | | TC ICAL.2017_09_07_10_23_03.cal | 10/13/2017 9:58:51 AM |
| 4 | 196.9 | 49.88mg/L | 50uL | 1 | | TC ICAL.2017_09_07_10_23_03.cal | 10/13/2017 10:01:53 AM |
| 5 | 198.3 | 50.23mg/L | 50uL | 1 | | TC ICAL.2017_09_07_10_23_03.cal | 10/13/2017 10:04:56 AM |

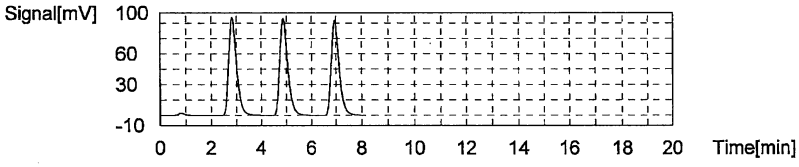
Mean Area 196.4
Mean Conc. 49.75mg/L




Anal.: IC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 3.725 | 1.102mg/L | 50uL | 1 | E | IC ICAL.2017_09_06_17_57_01.cal | 10/13/2017 10:07:25 AM |
| 2 | 207.5 | 50.82mg/L | 50uL | 1 | | IC ICAL.2017_09_06_17_57_01.cal | 10/13/2017 10:09:39 AM |
| 3 | 206.5 | 50.57mg/L | 50uL | 1 | | IC ICAL.2017_09_06_17_57_01.cal | 10/13/2017 10:11:54 AM |
| 4 | 204.9 | 50.18mg/L | 50uL | 1 | | IC ICAL.2017_09_06_17_57_01.cal | 10/13/2017 10:14:12 AM |

Mean Area 206.3
Mean Conc. 50.52mg/L



Sample

Sample Name: 1730924 MB ICCB
Sample ID: 6989,JEM,TOC6
Origin: TOC 3.met
Status Completed
Chk. Result

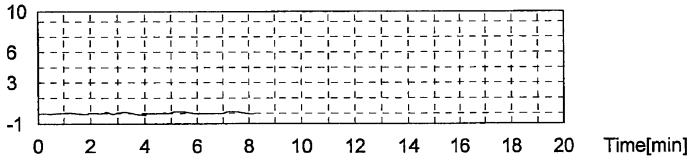
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | TOC | 1.000 | TOC:0.1834mg/L TC:0.4772mg/L IC:0.2938mg/L |

1. Det

Anal.: TC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 0.5607 | 0.4617mg/L | 50uL | 1 | | TC ICAL.2017_09_07_10_23_03.cal | 10/13/2017 10:19:41 AM |
| 2 | 0.9045 | 0.5482mg/L | 50uL | 1 | E | TC ICAL.2017_09_07_10_23_03.cal | 10/13/2017 10:22:00 AM |
| 3 | 0.6428 | 0.4823mg/L | 50uL | 1 | | TC ICAL.2017_09_07_10_23_03.cal | 10/13/2017 10:24:14 AM |
| 4 | 0.6631 | 0.4875mg/L | 50uL | 1 | | TC ICAL.2017_09_07_10_23_03.cal | 10/13/2017 10:26:30 AM |

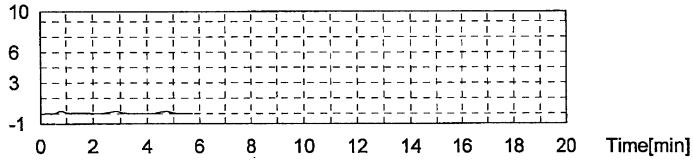
Mean Area 0.6222
Mean Conc. 0.4772mg/L




Anal.: IC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 0.3555 | 0.2798mg/L | 50uL | 1 | | IC ICAL.2017_09_06_17_57_01.cal | 10/13/2017 10:29:00 AM |
| 2 | 0.4070 | 0.2924mg/L | 50uL | 1 | | IC ICAL.2017_09_06_17_57_01.cal | 10/13/2017 10:31:05 AM |
| 3 | 0.4757 | 0.3092mg/L | 50uL | 1 | | IC ICAL.2017_09_06_17_57_01.cal | 10/13/2017 10:33:10 AM |

Mean Area 0.4127
Mean Conc. 0.2938mg/L



Sample

Sample Name: 21710062001
Sample ID: 6989,JEM,TOC6
Origin: TOC 3.met
Status Completed
Chk. Result

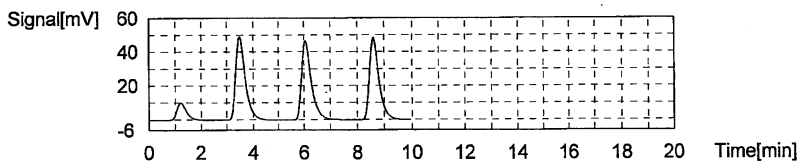
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | TOC | 5.000 | TOC:116.3mg/L TC:153.1mg/L IC:36.81mg/L |

1. Det

Anal.: TC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 25.61 | 33.83mg/L | 50uL | 1 | E | TC ICAL.2017_09_07_10_23_03.cal | 10/13/2017 10:39:18 AM |
| 2 | 122.5 | 155.8mg/L | 50uL | 1 | | TC ICAL.2017_09_07_10_23_03.cal | 10/13/2017 10:42:03 AM |
| 3 | 119.5 | 152.0mg/L | 50uL | 1 | | TC ICAL.2017_09_07_10_23_03.cal | 10/13/2017 10:44:46 AM |
| 4 | 119.2 | 151.6mg/L | 50uL | 1 | | TC ICAL.2017_09_07_10_23_03.cal | 10/13/2017 10:47:26 AM |

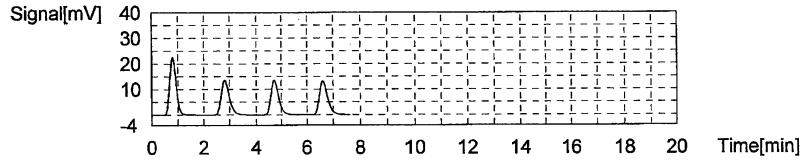
Mean Area 120.4
Mean Conc. 153.1mg/L




Anal.: IC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 38.20 | 47.56mg/L | 50uL | 1 | E | IC ICAL.2017_09_06_17_57_01.cal | 10/13/2017 10:49:56 AM |
| 2 | 29.68 | 37.17mg/L | 50uL | 1 | | IC ICAL.2017_09_06_17_57_01.cal | 10/13/2017 10:52:01 AM |
| 3 | 29.50 | 36.95mg/L | 50uL | 1 | | IC ICAL.2017_09_06_17_57_01.cal | 10/13/2017 10:54:06 AM |
| 4 | 28.97 | 36.30mg/L | 50uL | 1 | | IC ICAL.2017_09_06_17_57_01.cal | 10/13/2017 10:56:11 AM |

Mean Area 29.38
Mean Conc. 36.81mg/L



Sample

Sample Name: 1730927 MS
Sample ID: 6989,JEM,TOC6
Origin: TOC 3.met
Status Completed
Chk. Result

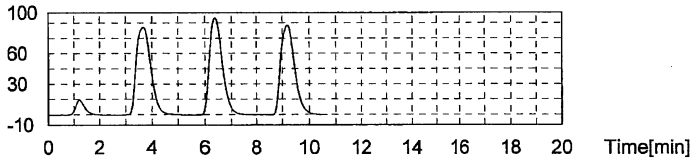
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | TOC | 5.000 | TOC:373.2mg/L TC:407.9mg/L IC:34.70mg/L |

1. Det

Anal.: TC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 35.90 | 46.78mg/L | 50uL | 1 | E | TC ICAL.2017_09_07_10_23_03.cal | 10/13/2017 11:02:04 AM |
| 2 | 328.0 | 414.3mg/L | 50uL | 1 | | TC ICAL.2017_09_07_10_23_03.cal | 10/13/2017 11:05:01 AM |
| 3 | 321.1 | 405.7mg/L | 50uL | 1 | | TC ICAL.2017_09_07_10_23_03.cal | 10/13/2017 11:07:58 AM |
| 4 | 319.5 | 403.7mg/L | 50uL | 1 | | TC ICAL.2017_09_07_10_23_03.cal | 10/13/2017 11:10:55 AM |

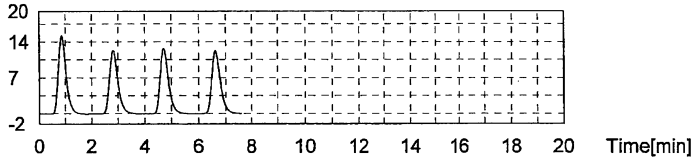
Mean Area 322.9
Mean Conc. 407.9mg/L




Anal.: IC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 31.51 | 39.40mg/L | 50uL | 1 | E | IC ICAL.2017_09_06_17_57_01.cal | 10/13/2017 11:13:25 AM |
| 2 | 27.50 | 34.51mg/L | 50uL | 1 | | IC ICAL.2017_09_06_17_57_01.cal | 10/13/2017 11:15:30 AM |
| 3 | 28.05 | 35.18mg/L | 50uL | 1 | | IC ICAL.2017_09_06_17_57_01.cal | 10/13/2017 11:17:35 AM |
| 4 | 27.41 | 34.40mg/L | 50uL | 1 | | IC ICAL.2017_09_06_17_57_01.cal | 10/13/2017 11:19:40 AM |

Mean Area 27.65
Mean Conc. 34.70mg/L



Sample

Sample Name: 1730928 MSD
Sample ID: 6989,JEM,TOC6
Origin: TOC 3.met
Status Completed
Chk. Result

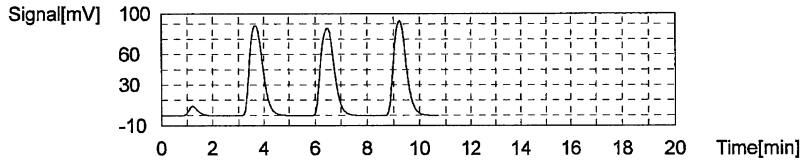
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | TOC | 5.000 | TOC:376.9mg/L TC:404.6mg/L IC:27.70mg/L |

1. Det

Anal.: TC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 23.84 | 31.60mg/L | 50uL | 1 | E | TC ICAL.2017_09_07_10_23_03.cal | 10/13/2017 11:22:38 AM |
| 2 | 324.9 | 410.4mg/L | 50uL | 1 | | TC ICAL.2017_09_07_10_23_03.cal | 10/13/2017 11:25:35 AM |
| 3 | 316.1 | 399.4mg/L | 50uL | 1 | | TC ICAL.2017_09_07_10_23_03.cal | 10/13/2017 11:28:34 AM |
| 4 | 319.7 | 403.9mg/L | 50uL | 1 | | TC ICAL.2017_09_07_10_23_03.cal | 10/13/2017 11:31:30 AM |

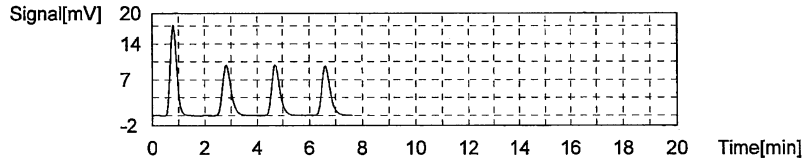
Mean Area 320.2
Mean Conc. 404.6mg/L




Anal.: IC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 30.07 | 37.65mg/L | 50uL | 1 | E | IC ICAL.2017_09_06_17_57_01.cal | 10/13/2017 11:34:00 AM |
| 2 | 22.13 | 27.96mg/L | 50uL | 1 | | IC ICAL.2017_09_06_17_57_01.cal | 10/13/2017 11:36:05 AM |
| 3 | 22.11 | 27.94mg/L | 50uL | 1 | | IC ICAL.2017_09_06_17_57_01.cal | 10/13/2017 11:38:10 AM |
| 4 | 21.51 | 27.20mg/L | 50uL | 1 | | IC ICAL.2017_09_06_17_57_01.cal | 10/13/2017 11:40:15 AM |

Mean Area 21.92
Mean Conc. 27.70mg/L



Sample

Sample Name: 1730926 LCSD ICCV
Sample ID: 6989,JEM,TOC6
Origin: TOC 3.met
Status Completed
Chk. Result

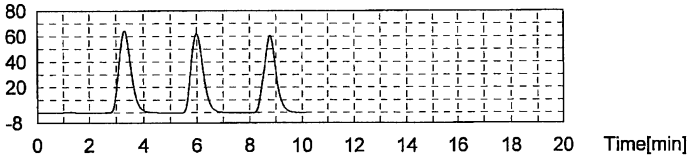
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | TOC | 1.000 | TOC:49.16mg/L TC:49.86mg/L IC:0.6945mg/L |

1. Det

Anal.: TC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 1.693 | 0.7467mg/L | 50uL | 1 | E | TC ICAL.2017_09_07_10_23_03.cal | 10/13/2017 12:56:22 PM |
| 2 | 199.1 | 50.43mg/L | 50uL | 1 | | TC ICAL.2017_09_07_10_23_03.cal | 10/13/2017 12:59:15 PM |
| 3 | 196.2 | 49.70mg/L | 50uL | 1 | | TC ICAL.2017_09_07_10_23_03.cal | 10/13/2017 1:02:08 PM |
| 4 | 195.2 | 49.45mg/L | 50uL | 1 | | TC ICAL.2017_09_07_10_23_03.cal | 10/13/2017 1:05:03 PM |

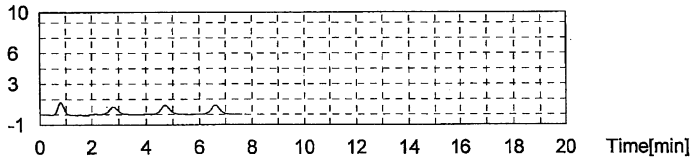
Mean Area 196.8
Mean Conc. 49.86mg/L




Anal.: IC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 2.047 | 0.6925mg/L | 50uL | 1 | | IC ICAL.2017_09_06_17_57_01.cal | 10/13/2017 1:07:33 PM |
| 2 | 1.607 | 0.5852mg/L | 50uL | 1 | E | IC ICAL.2017_09_06_17_57_01.cal | 10/13/2017 1:09:38 PM |
| 3 | 2.018 | 0.6854mg/L | 50uL | 1 | | IC ICAL.2017_09_06_17_57_01.cal | 10/13/2017 1:11:43 PM |
| 4 | 2.100 | 0.7054mg/L | 50uL | 1 | | IC ICAL.2017_09_06_17_57_01.cal | 10/13/2017 1:13:48 PM |

Mean Area 2.055
Mean Conc. 0.6945mg/L



Sample

Sample Name: LCS/CCV IC
Sample ID: 6989,JEM,TOC6
Origin: TOC 3.met
Status Completed
Chk. Result

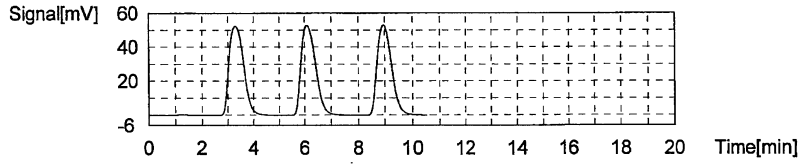
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | TOC | 1.000 | TOC:-0.7312mg/L TC:50.92mg/L IC:51.65mg/L |

1. Det

Anal.: TC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 1.304 | 0.6488mg/L | 50uL | 1 | E | TC ICAL.2017_09_07_10_23_03.cal | 10/13/2017 1:19:21 PM |
| 2 | 205.1 | 51.94mg/L | 50uL | 1 | | TC ICAL.2017_09_07_10_23_03.cal | 10/13/2017 1:22:21 PM |
| 3 | 200.6 | 50.81mg/L | 50uL | 1 | | TC ICAL.2017_09_07_10_23_03.cal | 10/13/2017 1:25:22 PM |
| 4 | 197.4 | 50.00mg/L | 50uL | 1 | | TC ICAL.2017_09_07_10_23_03.cal | 10/13/2017 1:28:25 PM |

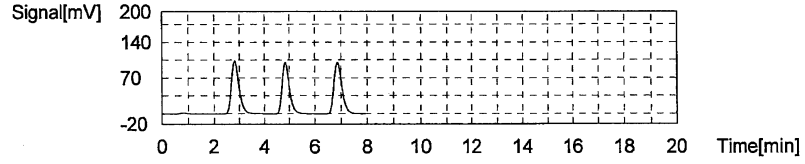
Mean Area 201.0
Mean Conc. 50.92mg/L




Anal.: IC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 2.888 | 0.8977mg/L | 50uL | 1 | E | IC ICAL.2017_09_06_17_57_01.cal | 10/13/2017 1:30:55 PM |
| 2 | 214.9 | 52.62mg/L | 50uL | 1 | | IC ICAL.2017_09_06_17_57_01.cal | 10/13/2017 1:33:07 PM |
| 3 | 209.4 | 51.28mg/L | 50uL | 1 | | IC ICAL.2017_09_06_17_57_01.cal | 10/13/2017 1:35:20 PM |
| 4 | 208.4 | 51.04mg/L | 50uL | 1 | | IC ICAL.2017_09_06_17_57_01.cal | 10/13/2017 1:37:31 PM |

Mean Area 210.9
Mean Conc. 51.65mg/L



Sample

Sample Name: CCB
Sample ID: 6989,JEM,TOC6
Origin: TOC 3.met
Status Completed
Chk. Result

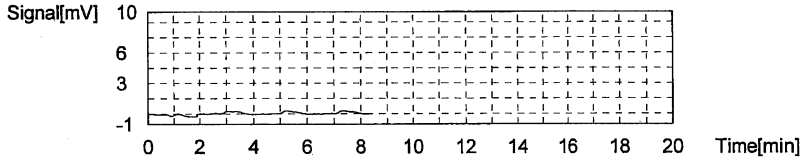
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | TOC | 1.000 | TOC:0.1918mg/L TC:0.5677mg/L IC:0.3758mg/L |

1. Det

Anal.: TC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 0.4284 | 0.4284mg/L | 50uL | 1 | E | TC ICAL.2017_09_07_10_23_03.cal | 10/13/2017 1:43:00 PM |
| 2 | 1.006 | 0.5738mg/L | 50uL | 1 | | TC ICAL.2017_09_07_10_23_03.cal | 10/13/2017 1:45:22 PM |
| 3 | 0.9336 | 0.5555mg/L | 50uL | 1 | | TC ICAL.2017_09_07_10_23_03.cal | 10/13/2017 1:47:39 PM |
| 4 | 1.006 | 0.5738mg/L | 50uL | 1 | | TC ICAL.2017_09_07_10_23_03.cal | 10/13/2017 1:49:56 PM |

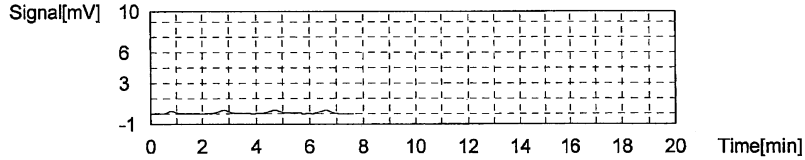
Mean Area 0.9819
Mean Conc. 0.5677mg/L




Anal.: IC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 0.3850 | 0.2870mg/L | 50uL | 1 | E | IC ICAL.2017_09_06_17_57_01.cal | 10/13/2017 1:52:26 PM |
| 2 | 0.7351 | 0.3724mg/L | 50uL | 1 | | IC ICAL.2017_09_06_17_57_01.cal | 10/13/2017 1:54:31 PM |
| 3 | 0.7020 | 0.3644mg/L | 50uL | 1 | | IC ICAL.2017_09_06_17_57_01.cal | 10/13/2017 1:56:36 PM |
| 4 | 0.8101 | 0.3907mg/L | 50uL | 1 | | IC ICAL.2017_09_06_17_57_01.cal | 10/13/2017 1:58:41 PM |

Mean Area 0.7491
Mean Conc. 0.3758mg/L



GCAL ANALYTICAL LABORATORIES, LLC

# TOTAL ORGANIC CARBON
BY METHODS 5310B/SW9060A
WATERS

Date: 9-7-17
Analysis: JEm

Instrument ID: TOC6
HBN: ICAL
Batch:

**TC**
Calibration Standard Lot #: 2124777
Calibration Std. Exp: 12-7-17
Calibration ID: 1105-29-7
Calibration Date: 9-7-17
Calibration Exp: 12-7-17

**TC**
TC CCV/LCS Lot #: NA
TC CCV/LCS Expiration Date: ↓

**IC**
Calibration Standard Lot #: 2124776
Calibration Std. Exp: 2-3-18
Calibration ID: 1105-30-1
Calibration Date: 9-7-17
Calibration Exp: 2-3-18

**IC**
IC CCV/LCS Lot #: NA
IC CCV/LCS Expiration Date: ↓

Note: Calibration expires 1year from calibration date or on the calibration standard expiration date, whichever is sooner.

Revision 005: 1/14/2014

Reviewer/Date: DMT 9/8/17

C:\TOC3201\Data\2017_09_05_001.t32

| | Sample Name | Sample ID | Manual | Result | Date / Time | Vial | |
|---|---|---|---|---|---|---|---|
| 1 | IC ICAL | 2124776 TOC6 | 1.000 | | 9/6/2017 7:36:32 PM | 8, 9, | |
| 2 | TC ICAL | 2124777 TOC6 | 1.000 | | 9/7/2017 12:20:21 PM | 1, 2, | |
| 3 | ICB | JEM | 1.000 | TOC:-0.01026mg/L TC:0.4666mg/L IC:0.4768mg/L | 9/7/2017 1:44:13 PM | 15 | |
| 4 | ICV TC 2.0 | JEM | 1.000 | TOC:1.873mg/L TC:2.294mg/L IC:0.4207mg/L | 9/7/2017 2:09:22 PM | 16 | 115% |
| 5 | ICV TC 25.0 | JEM | 1.000 | TOC:23.39mg/L TC:23.85mg/L IC:0.4520mg/L | 9/7/2017 2:36:08 PM | 17 | 95% |
| 6 | ICV TC 75.0 | JEM | 1.000 | TOC:72.73mg/L TC:73.17mg/L IC:0.4396mg/L | 9/7/2017 3:03:12 PM | 18 | 98% |
| 7 | ICV iC 2.0 | JEM | 1.000 | TOC:0.1215mg/L TC:2.818mg/L IC:2.696mg/L | 9/7/2017 3:30:20 PM | 19 | 134% |
| 8 | ICV IC 25.0 | JEM | 1.000 | TOC:-1.109mg/L TC:23.84mg/L IC:24.95mg/L | 9/7/2017 4:00:59 PM | 20 | 100% |
| 9 | ICV IC 75.0 | JEM | 1.000 | TOC:-4.277mg/L TC:71.83mg/L IC:76.10mg/L | 9/7/2017 4:35:12 PM | 21 | 101% |

Cal. Curve

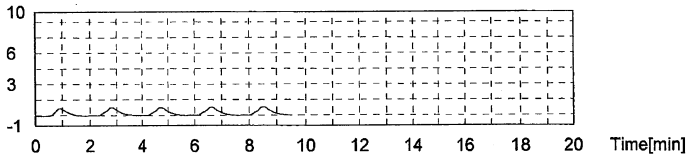
Sample Name: IC ICAL
Sample ID: 2124776 TOC6
Cal. Curve: IC ICAL.2017_09_06_17_57_01.cal
Status Completed

| Type | Anal. |
|---|---|
| Standard | IC |

Conc: 0.000mg/L

| No. | Area | Inj. Vol. | Aut. Dil. | Rem. | Ex. | Date / Time |
|---|---|---|---|---|---|---|
| 1 | 1.770 | 50uL | 1 | ******* | E | 9/6/2017 6:02:11 PM |
| 2 | 2.130 | 50uL | 1 | ******* | | 9/6/2017 6:04:16 PM |
| 3 | 2.075 | 50uL | 1 | ******* | | 9/6/2017 6:06:21 PM |
| 4 | 2.204 | 50uL | 1 | ******* | | 9/6/2017 6:08:26 PM |
| 5 | 2.252 | 50uL | 1 | ******* | | 9/6/2017 6:10:31 PM |

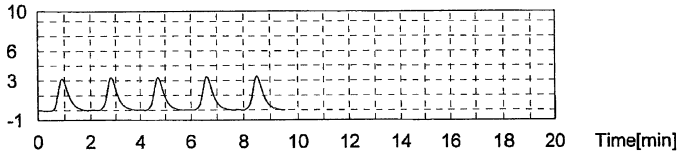
Acid Add. 0.000%
Mean Area 2.165




Conc: 2.000mg/L

| No. | Area | Inj. Vol. | Aut. Dil. | Rem. | Ex. | Date / Time |
|---|---|---|---|---|---|---|
| 1 | 8.513 | 50uL | 1 | ******* | E | 9/6/2017 6:16:00 PM |
| 2 | 8.831 | 50uL | 1 | ******* | | 9/6/2017 6:18:05 PM |
| 3 | 9.027 | 50uL | 1 | ******* | | 9/6/2017 6:20:10 PM |
| 4 | 8.903 | 50uL | 1 | ******* | | 9/6/2017 6:22:15 PM |
| 5 | 9.206 | 50uL | 1 | ******* | | 9/6/2017 6:24:20 PM |

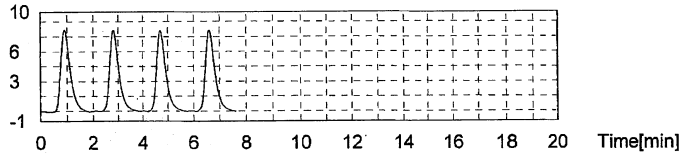
Acid Add. 0.000%
Mean Area 8.992




Conc: 5.000mg/L

| No. | Area | Inj. Vol. | Aut. Dil. | Rem. | Ex. | Date / Time |
|---|---|---|---|---|---|---|
| 1 | 20.42 | 50uL | 1 | ******* | | 9/6/2017 6:29:49 PM |
| 2 | 20.52 | 50uL | 1 | ******* | | 9/6/2017 6:31:54 PM |
| 3 | 20.38 | 50uL | 1 | ******* | | 9/6/2017 6:33:59 PM |
| 4 | 20.25 | 50uL | 1 | ******* | | 9/6/2017 6:36:04 PM |

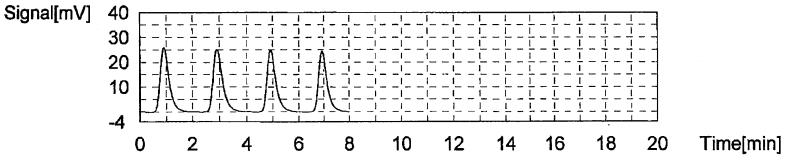
Acid Add. 0.000%
Mean Area 20.39




Conc: 15.00mg/L

| No. | Area | Inj. Vol. | Aut. Dil. | Rem. | Ex. | Date / Time |
|---|---|---|---|---|---|---|
| 1 | 61.50 | 50uL | 1 | ******** | | 9/6/2017 6:41:41 PM |
| 2 | 60.63 | 50uL | 1 | ******** | | 9/6/2017 6:43:53 PM |
| 3 | 59.58 | 50uL | 1 | ******** | | 9/6/2017 6:46:04 PM |
| 4 | 58.85 | 50uL | 1 | ******** | | 9/6/2017 6:48:14 PM |

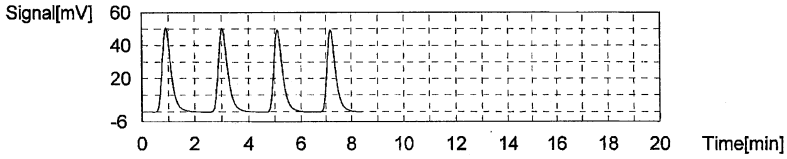
Acid Add. 0.000%
Mean Area 60.14




Conc: 30.00mg/L

| No. | Area | Inj. Vol. | Aut. Dil. | Rem. | Ex. | Date / Time |
|---|---|---|---|---|---|---|
| 1 | 119.1 | 50uL | 1 | ******** | | 9/6/2017 6:53:58 PM |
| 2 | 118.5 | 50uL | 1 | ******** | | 9/6/2017 6:56:14 PM |
| 3 | 115.5 | 50uL | 1 | ******** | | 9/6/2017 6:58:30 PM |
| 4 | 115.7 | 50uL | 1 | ******** | | 9/6/2017 7:00:47 PM |

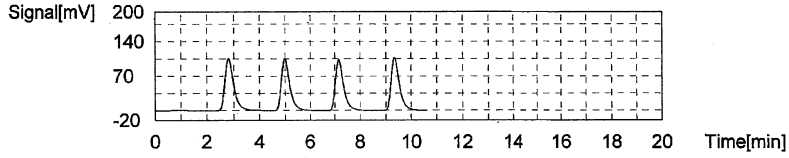
Acid Add. 0.000%
Mean Area 117.2




Conc: 60.00mg/L

| No. | Area | Inj. Vol. | Aut. Dil. | Rem. | Ex. | Date / Time |
|---|---|---|---|---|---|---|
| 1 | 2.641 | 50uL | 1 | ******** | E | 9/6/2017 7:06:18 PM |
| 2 | 242.6 | 50uL | 1 | ******** | | 9/6/2017 7:08:40 PM |
| 3 | 241.8 | 50uL | 1 | ******** | | 9/6/2017 7:11:01 PM |
| 4 | 238.1 | 50uL | 1 | ******** | | 9/6/2017 7:13:23 PM |
| 5 | 245.9 | 50uL | 1 | ******** | | 9/6/2017 7:15:45 PM |

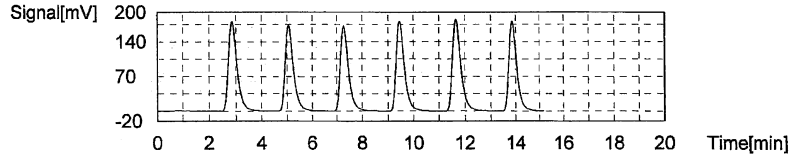
Acid Add. 0.000%
Mean Area 242.1




Conc: 100.0mg/L

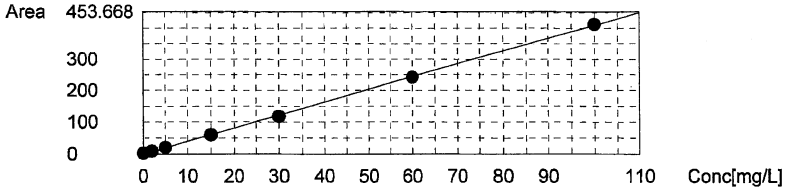
| No. | Area | Inj. Vol. | Aut. Dil. | Rem. | Ex. | Date / Time |
|---|---|---|---|---|---|---|
| 1 | 2.954 | 50uL | 1 | ******** | E | 9/6/2017 7:21:17 PM |
| 2 | 412.8 | 50uL | 1 | ******** | | 9/6/2017 7:23:40 PM |
| 3 | 393.1 | 50uL | 1 | ******** | E | 9/6/2017 7:26:23 PM |
| 4 | 390.7 | 50uL | 1 | ******** | E | 9/6/2017 7:29:03 PM |
| 5 | 410.1 | 50uL | 1 | ******** | | 9/6/2017 7:31:26 PM |
| 6 | 419.4 | 50uL | 1 | ******** | | 9/6/2017 7:33:50 PM |
| 7 | 407.4 | 50uL | 1 | ******** | | 9/6/2017 7:36:32 PM |

Acid Add. 0.000%
Mean Area 412.4



9/7/2017 5:47:38 PM 2017_09_05_001.t32

| | |
|---|---|
| Slope: | 4.099 |
| Intercept | -0.7915 |
| r^2 | 0.9996 |
| r | 0.9998 |
| Zero Shift | No |




4/14

Cal. Curve

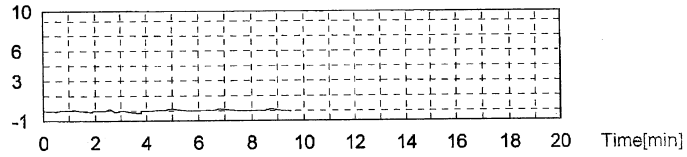
Sample Name: TC ICAL
Sample ID: 2124777 TOC6
Cal. Curve: TC ICAL.2017_09_07_10_23_03.cal
Status Completed

| Type | Anal. |
|---|---|
| Standard | TC |

Conc: 0.000mg/L

| No. | Area | Inj. Vol. | Aut. Dil. | Rem. | Ex. | Date / Time |
|---|---|---|---|---|---|---|
| 1 | 0.6497 | 50uL | 1 | ******* | E | 9/7/2017 10:28:07 AM |
| 2 | 0.3573 | 50uL | 1 | ******* | | 9/7/2017 10:30:12 AM |
| 3 | 0.4994 | 50uL | 1 | ******* | | 9/7/2017 10:32:17 AM |
| 4 | 0.4123 | 50uL | 1 | ******* | | 9/7/2017 10:34:22 AM |
| 5 | 0.4078 | 50uL | 1 | ******* | | 9/7/2017 10:36:27 AM |

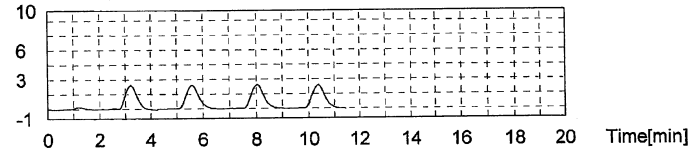
Acid Add. 0.000%
Mean Area 0.4192




Conc: 2.000mg/L

| No. | Area | Inj. Vol. | Aut. Dil. | Rem. | Ex. | Date / Time |
|---|---|---|---|---|---|---|
| 1 | 0.4290 | 50uL | 1 | ******* | E | 9/7/2017 10:41:50 AM |
| 2 | 7.912 | 50uL | 1 | ******* | | 9/7/2017 10:44:23 AM |
| 3 | 7.823 | 50uL | 1 | ******* | | 9/7/2017 10:47:01 AM |
| 4 | 7.819 | 50uL | 1 | ******* | | 9/7/2017 10:49:31 AM |
| 5 | 7.993 | 50uL | 1 | ******* | | 9/7/2017 10:52:06 AM |

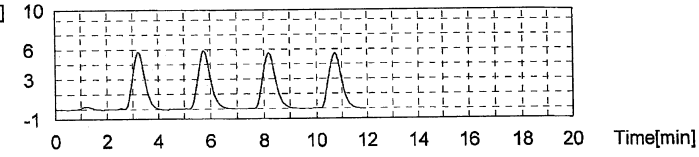
Acid Add. 0.000%
Mean Area 7.887




Conc: 5.000mg/L

| No. | Area | Inj. Vol. | Aut. Dil. | Rem. | Ex. | Date / Time |
|---|---|---|---|---|---|---|
| 1 | 0.7410 | 50uL | 1 | ******* | E | 9/7/2017 10:57:29 AM |
| 2 | 19.07 | 50uL | 1 | ******* | | 9/7/2017 11:00:10 AM |
| 3 | 18.92 | 50uL | 1 | ******* | | 9/7/2017 11:02:49 AM |
| 4 | 18.93 | 50uL | 1 | ******* | | 9/7/2017 11:05:30 AM |
| 5 | 19.29 | 50uL | 1 | ******* | | 9/7/2017 11:08:14 AM |

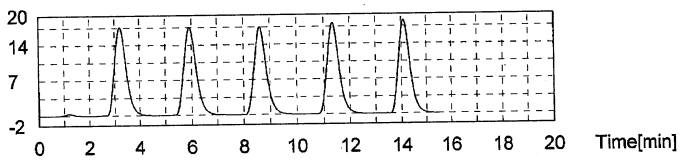
Acid Add. 0.000%
Mean Area 19.05




Conc: 15.00mg/L

| No. | Area | Inj. Vol. | Aut. Dil. | Rem. | Ex. | Date / Time |
|---|---|---|---|---|---|---|
| 1 | 1.004 | 50uL | 1 | ******* | E | 9/7/2017 11:13:37 AM |
| 2 | 57.73 | 50uL | 1 | ******* | | 9/7/2017 11:16:30 AM |
| 3 | 57.10 | 50uL | 1 | ******* | | 9/7/2017 11:19:22 AM |
| 4 | 55.39 | 50uL | 1 | ******* | E | 9/7/2017 11:22:18 AM |
| 5 | 57.95 | 50uL | 1 | ******* | | 9/7/2017 11:25:14 AM |
| 6 | 59.06 | 50uL | 1 | ******* | | 9/7/2017 11:28:09 AM |

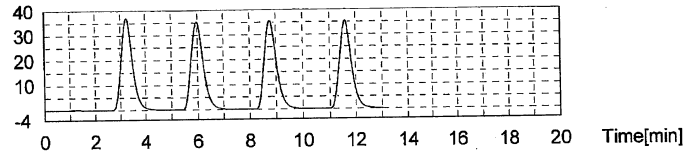
Acid Add. 0.000%
Mean Area 57.96




Conc: 30.00mg/L

| No. | Area | Inj. Vol. | Aut. Dil. | Rem. | Ex. | Date / Time |
|---|---|---|---|---|---|---|
| 1 | 0.6268 | 50uL | 1 | ******* | E | 9/7/2017 11:33:29 AM |
| 2 | 116.9 | 50uL | 1 | ******* | | 9/7/2017 11:36:23 AM |
| 3 | 114.7 | 50uL | 1 | ******* | | 9/7/2017 11:39:23 AM |
| 4 | 113.6 | 50uL | 1 | ******* | | 9/7/2017 11:42:21 AM |
| 5 | 115.0 | 50uL | 1 | ******* | | 9/7/2017 11:45:18 AM |

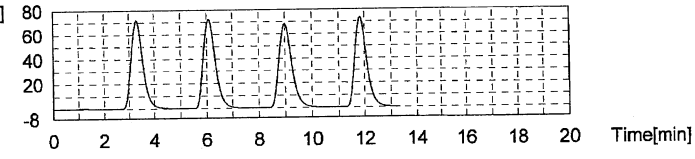
Acid Add. 0.000%
Mean Area 115.1




Conc: 60.00mg/L

| No. | Area | Inj. Vol. | Aut. Dil. | Rem. | Ex. | Date / Time |
|---|---|---|---|---|---|---|
| 1 | 1.471 | 50uL | 1 | ******* | E | 9/7/2017 11:50:46 AM |
| 2 | 236.4 | 50uL | 1 | ******* | | 9/7/2017 11:53:46 AM |
| 3 | 235.0 | 50uL | 1 | ******* | | 9/7/2017 11:56:49 AM |
| 4 | 230.6 | 50uL | 1 | ******* | | 9/7/2017 11:59:52 AM |
| 5 | 236.6 | 50uL | 1 | ******* | | 9/7/2017 12:02:50 PM |

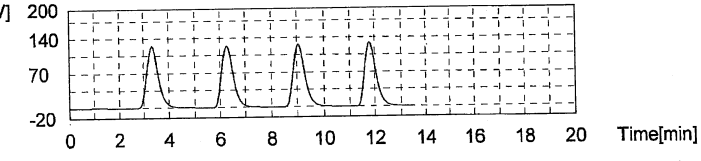
Acid Add. 0.000%
Mean Area 234.7




Conc: 100.0mg/L

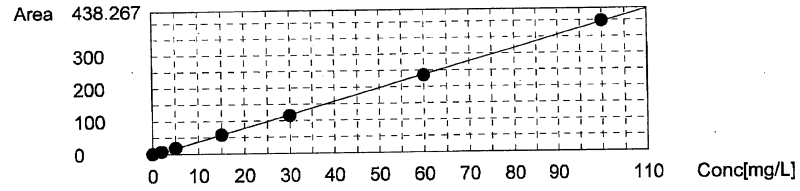
| No. | Area | Inj. Vol. | Aut. Dil. | Rem. | Ex. | Date / Time |
|---|---|---|---|---|---|---|
| 1 | 2.935 | 50uL | 1 | ******* | E | 9/7/2017 12:08:21 PM |
| 2 | 402.5 | 50uL | 1 | ******* | | 9/7/2017 12:11:30 PM |
| 3 | 397.9 | 50uL | 1 | ******* | | 9/7/2017 12:14:27 PM |
| 4 | 393.6 | 50uL | 1 | ******* | | 9/7/2017 12:17:25 PM |
| 5 | 399.7 | 50uL | 1 | ******* | | 9/7/2017 12:20:21 PM |

Acid Add. 0.000%
Mean Area 398.4



9/7/2017 5:47:38 PM 2017_09_05_001.t32

| | |
|---|---|
| Slope: | 3.973 |
| Intercept | -1.274 |
| r^2 | 0.9998 |
| r | 0.9999 |
| Zero Shift | No |



GCAL ANALYTICAL LABORATORIES, LLC

# HACH DR2800 STANDARD IDs (1)

Date: 10/7/17
Analyst: Dmt
HBN: 613798
Batch: 15394

Test: Orthophosphate
Calibration Standard Lot: 2126256
Calibration Std. Exp: 4/30/18
Calibration ID: 1105-12-4
Calibration Date: 8/23/17
Calibration Exp: 4/30/18

Secondary Reviewer/Date: JCm 10-18-17

Note: Calibration expires 1 year from calibration date or on the calibration standard expiration date, whichever is sooner.

**SURFACTANTS - SM 5540 C-2011**
CCV Standard ID (made daily) _____
ICV Standard ID (made daily) _____
Prep Batch HBN _____

**COLOR - NCASI Tech. Bulletin 253**
CCV (LCS) Standard ID (made daily) _____
ICV Standard ID (made daily) _____
pH meter _____
0.45 um Filter Lot # _____

**SILICA - SM 4500-$SiO_2$ C-2011**
CCV (LCS) Standard ID (made daily) _____
ICV Standard ID (made daily) _____
Molybdate Powder Pillow Lot #/Exp. Date _____
Citric Acid Powder Pillow Lot #/Exp. Date _____
Acid Reagent Powder Pillow Lot #/Exp. Date _____

**ORTHOPHOSPHATE - SM 4500-P E-2011**
CCV (LCS) Standard ID (made daily) 1105-81-5
ICV Standard ID (made daily) NA
PhosVer3 Powder Pillow Lot #/Exp. Date 2125476/7-31-20

**HEXAVALENT CHROMIUM - EPA 7196A / SM 3500-Cr B-2011**
CCV Standard ID (made daily) _____
ICV Standard ID (made daily) _____
ChromaVer3 Powder Pillow Lot #/Exp. Date _____
pH meter _____
0.45 um Filter Lot # _____
Prep Batch HBN _____

**SULFATE - EPA 9038 / SM 4500-$SO_4$ E-2011**
CCV (LCS) Standard ID (made daily) _____
ICV Standard ID (made daily) _____
Conditioning Reagent Lot #/Exp. Date _____
Barium Chloride Lot #/Exp. Date _____

Revision 008: 05/04/17

| Date | Result | Value | Unit | Sample | Number | Instrument | Serial | Operator | Program | Dilution factor | Abs | %T | Error |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10/07/2017 12:38 | OPO4 | 0.492 | mg/L | 1728853 | 15394 | HACH04 | 1199649 | DMT | ORTHOPHOSPHATE8/23/17 | 1 | 0.891 | 12.9 | |
| 10/07/2017 12:41 | OPO4 | -0.001 | mg/L | 1728852 | 15394 | HACH04 | 1199649 | DMT | ORTHOPHOSPHATE8/23/17 | 1 | -0.001 | 100.2 | |
| 10/07/2017 12:42 | OPO4 | 2.84 | mg/L | 21710062001 | 15394 | HACH04 | 1199649 | DMT | ORTHOPHOSPHATE8/23/17 | 5 | 1.028 | 9.4 | |
| 10/07/2017 12:43 | OPO4 | 4.165 | mg/L | 1728854 | 15394 | HACH04 | 1199649 | DMT | ORTHOPHOSPHATE8/23/17 | 5 | 1.51 | 3.1 | |
| 10/07/2017 12:44 | OPO4 | 4.02 | mg/L | 1728855 | 15394 | HACH04 | 1199649 | DMT | ORTHOPHOSPHATE8/23/17 | 5 | 1.457 | 3.5 | |
| 10/07/2017 12:44 | OPO4 | 0.485 | mg/L | CCV | 15394 | HACH04 | 1199649 | DMT | ORTHOPHOSPHATE8/23/17 | 1 | 0.879 | 13.2 | |
| 10/07/2017 12:45 | OPO4 | 0.018 | mg/L | CCB | 15394 | HACH04 | 1199649 | DMT | ORTHOPHOSPHATE8/23/17 | 1 | 0.033 | 92.7 | |

GCAL ANALYTICAL LABORATORIES, LLC

## HACH DR2800 STANDARD IDs (1)

Date: 8-23-17
Analyst: RMC
HBN:
Batch: Calibration

Test: Orthophosphate
Calibration Standard Lot: 2126256
Calibration Std. Exp: 4-30-18
Calibration ID: 1105-12-4
Calibration Date: 8-23-17
Calibration Exp: 4-30-18

Secondary Reviewer/Date: DMT 8/23/17

Note: Calibration expires 1 year from calibration date or on the calibration standard expiration date, whichever is sooner.

**SURFACTANTS - SM 5540 C-2011**
CCV Standard ID (made daily) _____
ICV Standard ID (made daily) _____
Prep Batch HBN _____

**COLOR - NCASI Tech. Bulletin 253**
CCV (LCS) Standard ID (made daily) _____
ICV Standard ID (made daily) _____
pH meter _____
0.45 um Filter Lot # _____

**SILICA - SM 4500-$SiO_2$ C-2011**
CCV (LCS) Standard ID (made daily) _____
ICV Standard ID (made daily) _____
Molybdate Powder Pillow Lot #/Exp. Date _____
Citric Acid Powder Pillow Lot #/Exp. Date _____
Acid Reagent Powder Pillow Lot #/Exp. Date _____

**ORTHOPHOSPHATE - SM 4500-P E-2011**
CCV (LCS) Standard ID (made daily) NA
ICV Standard ID (made daily) 1105-13-1
PhosVer3 Powder Pillow Lot #/Exp. Date 2125589 1-1-20

**HEXAVALENT CHROMIUM - EPA 7196A / SM 3500-Cr B-2011**
CCV Standard ID (made daily) _____
ICV Standard ID (made daily) _____
ChromaVer3 Powder Pillow Lot #/Exp. Date _____
pH meter _____
0.45 um Filter Lot # _____
Prep Batch HBN _____

**SULFATE - EPA 9038 / SM 4500-$SO_4$ E-2011**
CCV (LCS) Standard ID (made daily) _____
ICV Standard ID (made daily) _____
Conditioning Reagent Lot #/Exp. Date _____
Barium Chloride Lot #/Exp. Date _____

Revision 008: 05/04/17

GCAL ANALYTICAL LABORATORIES, LLC

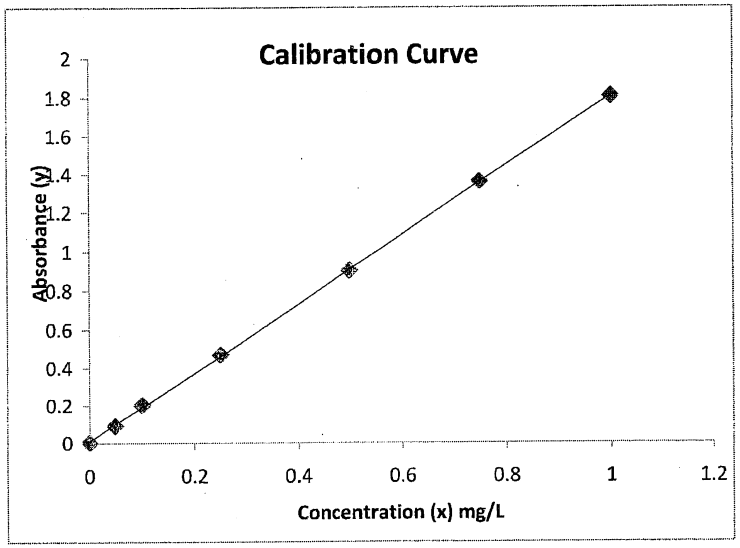
# HACH Initial Calibration

Method: Orthophosphate
Instrument: HACH 4
Analyst: RYC
Date: 08/23/2017
Expiration: 04/30/2018
Secondary Review:

Curve Type: Linear Least Square Regression
Origin: Not Forced
Weighting: None
Formula: y = mx + b

| Data | | |
|---|---|---|
| True Concentration (x) | Absorbance (y) | %Recovery |
| 0 | 0.003 | NA |
| 0.05 | 0.091 | 90 |
| 0.1 | 0.203 | 107 |
| 0.25 | 0.47 | 102 |
| 0.5 | 0.903 | 99 |
| 0.75 | 1.36 | 100 |
| 1 | 1.806 | 100 |
| | | #DIV/0! |
| | | #DIV/0! |

* Denotes outside of control limits




| Statistics | |
|---|---|
| Slope - m | 1.797 |
| Intercept - b | 0.011 |
| Correlation - r | 1.000 |

| Control Limits |
|---|
| Recovery - Lowest Non-Zero Pt 50-150% |
| Correlation Coefficient - r ≥ 0.995 |

Revision 1; 11/18/13

| Date | Result | Value | Unit | Sample | | Number | Instrument | Serial | Operator | Program | lution fact | Abs | %T | Error |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 08/23/2017 17:27 | OPO4 | 0.003 | mg/L | ICB | | ICAL | HACH4 | 1199649 | RYC | ORTHOPHOSPHATE8/23/17 | 1 | 0.005 | 98.9 | |
| 08/23/2017 17:27 | OPO4 | 0.054 | mg/L | LLC 0.05 | 108% | ICAL | HACH4 | 1199649 | RYC | ORTHOPHOSPHATE8/23/17 | 1 | 0.098 | 79.8 | |
| 08/23/2017 17:28 | OPO4 | 0.513 | mg/L | ICV 0.5 | 103% | ICAL | HACH4 | 1199649 | RYC | ORTHOPHOSPHATE8/23/17 | 1 | 0.929 | 11.8 | |

GCAL ANALYTICAL LABORATORIES, LLC

# NITROGEN AMMONIA - ELECTRODE
## METHODS 4500-NH3 BD

Date: 10-11-17
Time: 10:00
Analyst: RMC

HBN: 620017 / 7158

Instrument ID: pH04

| SAMPLE IDENTIFICATION | INST. READING (mg/L) | DILUTION FACTOR | CONC | UNITS | COMMENTS |
|---|---|---|---|---|---|
| QC | 1.02 | NA | 1.02 | mg/L | 102% |
| Method Blank 1729764 | 0 | | 0 | | |
| Low Level Check | 0.0912 | | 0.0912 | | 91% |
| LCS 1729765 | 0.939 | | 0.939 | | 94% |
| 1729892 LCSD | 0.959 | | 0.959 | | |
| 2171009 0301 MDLs | 0.0643 | | 0.0643 | | |
| 2171009 0302 | 0.0563 | | 0.0563 | | |
| 2171009 0308 MB | 0 | | 0 | | |
| 2171009 0309 MB | 0 | | 0 | | |
| 2171005 6701 | 0 | | 0 | | |
| 2171005 6702 | 0 | | 0 | | |
| 2171005 1001 | 4.57 | 5X | 22.85 | | |
| 2171009 1001 | 1.97 | 5X | 9.85 | | |
| 1729893 MS | 2.98 | | 14.9 | | |
| 1729894 MSD | 3.00 | | 15.0 | | |
| CCV | 1.06 | NA | 1.06 | | |
| CCB | 0 | | 0 | | |
| 2171009 1002 | 0.0322 | | 0.0322 | | |
| 2171009 1003 | 1.43 | 5X | 7.15 | | |
| 2171006 2001 ✓ | 7.46 | 5X | 37.3 | | |
| 2171006 1702 | 0.300 | NA | 0.300 | | |
| 2171010 2901 | 1.71 | | 1.71 | | |
| 2171010 2902 | 1.73 | | 1.73 | | |
| 2171010 2903 | 2.53 | | 2.53 | | |

Lot # - Sodium Hydroxide 10N: 1105-45-3

LCS Lot #: 1105-85-3

Calibration Standards Lot #: 1105-85-2

Slope: -59.4

Secondary Review: DMT 10/17/17

Revision 006: 09/20/2017

GCAL ANALYTICAL LABORATORIES, LLC

# NITROGEN AMMONIA - ELECTRODE
## METHODS 4500-NH3 BD

Date: 10-11-17
Time: 10:00 AM
Analyst: RLC

HBN: 620017 / 7158
Instrument ID: pH04

| SAMPLE IDENTIFICATION | INST. READING (mg/L) | DILUTION FACTOR | CONC | UNITS | COMMENTS |
|---|---|---|---|---|---|
| QC | | | | | |
| Method Blank | | | | | |
| Low Level Check | | | | | |
| LCS | | | | | |
| 2171012904 | 1.15 | NA | 1.15 | mg/L | |
| 2171007 0503 | 0.0213 | | 0.0213 | | |
| 2171007 0504 | 0.0166 | | 0.0166 | | |
| CCV | 1.04 | | 1.04 | | |
| CCB | 0 | | 0 | | |
| 2171007 0505 | 1.08 | | 1.08 | | |
| 2171009 1501 | 0.632 | | 0.632 | | |
| CCV | 0.913 | | | | |
| CCB | 0 | | | | |

Lot # - Sodium Hydroxide 10N: 1105-45-3
LCS Lot #: 1105-85-3
Calibration Standards Lot #: 1105-85-2
Slope: -59.4

Secondary Review: DMT 10/17/17

Revision 006: 09/20/2017

24

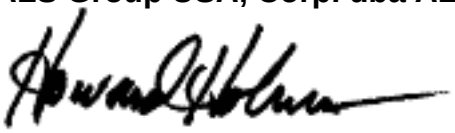
T :
F :
www.alsglobal.com

**Analytical Report for Service Request No:**

**RE: 217100620**

**K1710875.**

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



T :
F :
www.alsglobal.com

# Table of Contents

Acronyms
Qualifiers
State Certifications, Accreditations, And Licenses
Chain of Custody
Subcontract Lab Results

## 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 |
| Florida DOH | http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm | E87412 |
| Hawaii DOH | http://health.hawaii.gov/ | - |
| 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.

# 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

K1710876430

# CHAIN OF CUSTODY RECORD

**GCAL USE ONLY**

GCAL ANALYTICAL LABORATORIES LLC
7979 Innovation Park Drive | Baton Rouge, LA 70820-7402
225.769.4900 | www.gcal.com

| Submitted To: | | Report/Bill To: | |
|---|---|---|---|
| Client: | ALS-Kelso | Client: | GCAL Analytical Laboratories |
| Address: | 1317 South 13th Ave. | Address: | 7979 Innovation Park Dr. |
| | Kelso, WA 98626 | | Baton Rouge, LA 70820 |
| Contact: | Howard Holmes | Contact: | Liz Martin |
| Phone: | 360 501 3364 | Phone: | 2252147068 |
| Email: | howard.holmes@alsglobal.com | Email: | subcontract-data@gcal.com |

**Analytical Requests & Method**

**Custody Seal:**
**Used:** ☐ Yes ☐ No
**Intact:** ☐ Yes ☐ No

Temperature: _____

| P.O. Number | Project Name/Number |
|---|---|
| 217100620 | **217100620** |

Sampled By:

☐ Dissolved Analysis Requested
☐ Field Filtered
☐ Lab Filtered

| Matrix[1] | Date | Time (2400) | Comp | Grab | Sample Description | No. of Containers | Perchlorate (6850) None | ← Preservative / Notes ↓ | GCAL ID |
|---|---|---|---|---|---|---|---|---|---|
| W | 10/05/17 | 14:00 | | | LH18/24-SP650_1017W | 1 | X | | |
| | | | | | | | | | |
| | | | | | | | | | |
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**Airbill Number:**

**Turn Around Time(Business Days):** ☐ 24 hr* ☐ 48 hr* ☐ 3 days* ☐ 5 days* ☑ Standard (per contract/quote)

| Relinquished by: (Signature) | Date/Time: | Received by: (Signature) | Date/Time: |
|---|---|---|---|
| [signature] | 10/7 1540 | fed EX | |
| Relinquished by: (Signature) | Date/Time: | Received by: (Signature) | Date/Time: |
| | | [signature] | 10/7/17 1011 |
| Relinquished by: (Signature) | Date/Time: | Received by: (Signature) | Date/Time: |
| | | | |

Notes:

**15 Bus. Day TAT; DOD QSM 5.1; LVL IV report; SEDD2A EDD file**

[1]Matrix: W = Water, S=Solid, L=Liquid, T=Tissue. *- Requires prior approval, Rush charges may apply. We cannot accept verbal changes. Please email written changes to your GCAL Project Manager.

00876431

PC HH

# Cooler Receipt and Preservation Form

Client CEAL Service Request K17 10875

Received: 10/7/17 Opened: 10/7/17 By: CG Unloaded: 10/7/17 By: CG

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? 1 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 NA | Tracking Number NA | Filed |
|---|---|---|---|---|---|---|---|---|
| -0.1 | -0.1 | / | / | 0.0 | 380 | | 4052 3022 8146 | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
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| | | | | | | | | | | |

***Notes, Discrepancies, & Resolutions:*** _____

# Subcontract Lab Results

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

# Case Narrative

**Method:** 6850
**Analysis:** Perchlorate
**Analysis SOP:** LC-MS-CLO4
**ALS WO ID(s):** 1729821

**Client:** ALS Laboratories (Kelso, WA)
**Matrix:** Water
**ELMS Batch (HBN):** 1985 (201123)

**General Set Information:** There was one field sample in this Work Order. The sample was 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 571097) was less than 1/2 the CRDL. The recovery for the LCS (571098) was within acceptable parameters.

**MS/MSD Analysis:** The matrix spike and matrix spike duplicate (MS/MSD) was performed on sample 1728943001 of Work Order 1728943. 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):** None were required for this set.

**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 5.0. Manual Integrations were performed for some of the Initial Calibration analyses (datafiles: 21AUGP01-03) along with datafiles 25OCTP02/03/07/08/11.

Thomas Bosch October 27, 2017
Date

# ANALYTICAL REPORT

Report Date: October 27, 2017

Howard Holmes
ALS Environmental-Kelso
1317 South 13 Avenue
Kelso, WA 98626

Phone: (360) 577-7222
Fax: (360) 636-1068
E-mail: howard.holmes@alsglobal.com

Workorder: **34-1729821**
Project ID: K1710875 100517
Purchase Order: 51K1710875
Project Manager Kevin W. Griffiths

| Client Sample ID | Lab ID | Collect Date | Receive Date | Sampling Site |
|---|---|---|---|---|
| LH18/24-SP650_1017W | 1729821001 | 10/05/17 | 10/25/17 | |

# ANALYTICAL REPORT

**Workorder:** 34-1729821
**Client:** ALS Environmental (Kelso WA)
**Project Manager:** Kevin W. Griffiths

## Analytical Results

| | | |
|---|---|---|
| Sample ID: **LH18/24-SP650_1017W** | Sampling Site: NA | Collected: 10/05/2017 |
| Lab ID: 1729821001 | Media: 250 mL Nalgene | Received: 10/25/2017 |
| 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/1985 (HBN: 201123) | **Percent Solid:** NA |
| | **Analyzed:** 10/25/2017 13:21 | **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 |

## 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>10/26/2017 14:50 | /S/ Stephen Brose<br>10/27/2017 10:17 |

## 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

# ANALYTICAL REPORT

**Workorder:** 34-1729821
**Client:** ALS Environmental (Kelso WA)
**Project Manager:** Kevin W. Griffiths

## 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 (Standard) | Certificate Number | Website |
|---|---|---|---|
| Environmental | ANAB (DoD ELAP) | ADE-1420 | http://www.anab.org/accredited-organizations/ |
| | Utah (NELAC) | DATA1 | http://health.utah.gov/lab/labimp/ |
| | Nevada | UT00009 | http://ndep.nv.gov/bsdw/labservice.htm |
| | Oklahoma | UT00009 | http://www.deq.state.ok.us/CSDnew/ |
| | Iowa | IA# 376 | http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx |
| | Texas (TNI) | T104704456-11-1 | http://www.tceq.texas.gov/field/qa/lab_accred_certif.html |
| | Washington | C596-16 | http://www.ecy.wa.gov/programs/eap/labs/index.html |
| | Kansas | E-10416 | http://www.kdheks.gov/lipo/index.html |
| Industrial Hygiene | AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP) | 101574 | http://www.aihaaccreditedlabs.org |
| | Washington | C596-16 | http://www.ecy.wa.gov/programs/eap/labs/index.html |
| Lead Testing: | | | |
| CPSC | ANAB (ISO 17025, CPSC) | ADE-1420 | http://www.anab.org/accredited-organizations/ |
| Soil, Dust, Paint ,Air | AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP) | 101574 | http://www.aihaaccreditedlabs.org |
| Dietary Supplements | ACLASS (ISO 17025) | ADE-1420 | http://www.aclasscorp.com |

# ANALYTICAL REPORT

**Workorder:** 34-1729821
**Client:** ALS Environmental (Kelso WA)
**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:** 1729821

| | | | |
|---|---|---|---|
| **Limits:** | Client SOW/Contract Specified | **Preparation:** | NA |
| **Basis:** | DoD QSM | **Batch:** | NA |
| | | **Prepared By:** | NA |
| **Analysis:** | EPA 6850 | | |
| **Batch:** | ELMS/1985 (HBN: 201123) | | |
| **Analyzed By:** | Thomas Bosch | | |

### Blank

**LMB:** 571097
**Analyzed:** 10/25/2017 10:02
**Units:** ug/L

| Analyte | Result | MDL | RL |
|---|---|---|---|
| Perchlorate | ND | 1 | 2.00 |

### Laboratory Control Sample

**LCS:** 571098
**Analyzed:** 10/25/2017 10:22
**Dilution:** 1
**Units:** ug/L

| Analyte | Result | Target | % Rec | QC Limits | |
|---|---|---|---|---|---|
| Perchlorate | 5.29 | 5.00 | 106 | 78.8 | 123.8 |

### Matrix Spike - Matrix Spike Duplicate

| | | |
|---|---|---|
| **Sample:** 1728943001 | **MS:** 571099 | **MSD:** 571100 |
| **Analyzed:** 10/25/2017 10:44 | **Analyzed:** 10/25/2017 11:03 | **Analyzed:** 10/25/2017 11:23 |
| **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 | 4.48 | 5 | 89.6 | 78.8 | 123.8 | 4.52 | 90.4 | 0.9 | 0.0 | 20.0 |

### Continuing Calibration Verification

| | |
|---|---|
| **CCV:** 571094 | **CCV:** 571101 |
| **Analyzed:** 10/25/2017 09:02 | **Analyzed:** 10/25/2017 14:46 |
| **Units:** ug/L | **Units:** ug/L |
| **Criteria:** ± 15% | **Criteria:** ± 15% |

| Analyte | Result | Target | % Rec. | Result | Target | % Rec. |
|---|---|---|---|---|---|---|
| Perchlorate | 26.4 | 25.0 | 106 | 23.8 | 25.0 | 95.3 |

### Interference Check Sample

**ICSA:** 571096
**Analyzed:** 10/25/2017 09:43
**Units:** ug/L
**Criteria:** ± 30%

| Analyte | Result | Target | % Rec. |
|---|---|---|---|
| Perchlorate | 1.15 | 1.00 | 115 |

### Limit of Detection Verification

| | |
|---|---|
| **LODV:** 571095 | **LODV:** 571102 |
| **Analyzed:** 10/25/2017 09:24 | **Analyzed:** 10/25/2017 15:06 |
| **Units:** ug/L | **Units:** ug/L |
| **Criteria:** ± 50% | **Criteria:** ± 50% |

| Analyte | Result | Target | % Rec. | Result | Target | % Rec. |
|---|---|---|---|---|---|---|
| Perchlorate | 0.839 | 1.00 | 83.9 | 0.968 | 1.00 | 96.8 |

# Quality Control Sample
# Batch Report

## Analysis Information

**Workorder:** **1729821**

| | | | | | |
|---|---|---|---|---|---|
| **Limits:** | Client SOW/Contract Specified | **Preparation:** | NA | **Analysis:** | EPA 6850 |
| **Basis:** | DoD QSM | **Batch:** | NA | **Batch:** | ELMS/1985 (HBN: 201123) |
| | | **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 |
| 10/26/2017 14:50 | 10/27/2017 10:17 |

## 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

00876441

# ALS Environmental Chain of Custody

1317 South 13th Avenue • Kelso, WA 98626 • 1-360-577-7222 • FAX 1-360-636-1068

ALS Contact: Howard Holmes

**Project Number:** K1710875
**Project Manager:** Howard Holmes
**QAP:** DOD QSM v5.1 Kelso

W 1729821

18760/#7

1729821

| Lab Code | Sample ID | # of Cont. | Matrix | Sample Date | Sample Time | Lab ID | ClO4 6850 |
|---|---|---|---|---|---|---|---|
| K1710875-001 | LH18/24-SP650_1017W | 1 | Water | 10/5/17 | 1400 | Salt Lake City ALS | X |

**Folder Comments:**
DOD 5.1,LOQ/LOD/MDL



**Special Instructions/Comments**
Please provide the electronic (PDF and EDD) report to the following e-mail address: ALKLS.Data@alsglobal.com.

Howard Holmes

H - Test is On Hold P - Test is Authorized for Prep Only

**Turnaround Requirements**
_____**RUSH** (Surcharges Apply)
**PLEASE CIRCLE WORK DAYS**
1 2 3 4 5
____ **STANDARD**
Requested FAX Date: _____
Requested Report Date: 10/24/17

**Report Requirements**
____ I. Results Only
____ II. Results + QC Summaries
____ III. Results + QC and Calibration Summaries
__X__ IV. Data Validation Report with Raw Data
PQL/MDL/J Y
EDD Y SEDD 2A

**Invoice Information**
PO# 51K1710875
Bill to

Relinquished By: 10/24/17

Received By: 10/25/17 10:05

Airbill Number: _____

00876442

**K1710875**

✓ **Ship To: Salt Lake City ALS**
ALS Laboratory Group
960 W. LeVoy Drive
Salt Lake City, UT 84123

PC _____ Date 10/23/17

SMO _____ Date 10/24/17

**Instructions:**

Ice ✓

Dry Ice _____

No Ice _____

**Shipping:**

Overnight ✓

2nd Day _____

Ground _____

Bill to Client Account _____



Comments:

# ALS - SALT LAKE CITY-RELATED INFORMATION REPORT (CRIR)

## COOLER OR CONTAINER INFORMATION CHECKLIST (Fill In or Circle)

Client Name: ALS Kelso

Project/Task/Site: K1710875 172982

Date/Time of Receipt: 10/25/17 10:05

Number of Coolers Received: 1

| | |
|---|---|
| Condition of Coolers: | Acceptable/Unacceptable |
| Cooler Custody Seals: | Present/Absent/NA |
| | Intact/Broken/NA |
| Container Custody Seals: | Present/Absent/NA |
| | Intact/Broken/NA |
| Ice Present: | Yes/No/NA |
| | Frozen/Melted/NA |
| Temperature Control: | Present/Not Included |
| Location Temp Taken: | Control/Between Samples |
| Are all temperatures within project specific guidelines? | Yes/No/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 | TOC Preserved | Yes/No/NA |

| Cooler Received | ALS Cooler No. | Temp. | Cooler Received | ALS Cooler No. | Temp. | Cooler Received | ALSL Cooler No. | Temp. |
|---|---|---|---|---|---|---|---|---|
| 1 | C17- 7936 | 3 °C | 4 | C17- | °C | 7 | C17- | °C |
| 2 | C17- | °C | 5 | C17- | °C | 8 | C17- | °C |
| 3 | C17- | °C | 6 | C17- | °C | 9 | C17- | °C |

Taken By: Desiree Hill (Signature) Desiree Hill (Printed Name) 10/25/17 (Date)

## CLIENT-RELATED INFORMATION

- ☐ Missing Cooler
- ☐ Cooler Conditions
- ☐ Missing Paperwork
- ☐ Missing/Incorrect Bottle Labels
- ☐ Missing Samples/Bottles
- ☐ Broken/Leaking Samples
- ☐ Incorrect Bottle Type
- ☐ Cooler Temperatures Out of Range
- ☐ Incorrect Preservation
- ☐ pH Criteria Not Met
- ☐ Residual Chlorine Present
- ☐ Head Space in Bottles
- ☐ Insufficient Sample Volume
- ☐ Chain of Custody Problems
- ☐ Other:

BRIEFLY DESCRIBE THE PROBLEM AND THE ACTION TAKEN:

Sample arrived in good condition

E-mailed to Client? 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.dot

Revised 1/1/15

**Do Not Lift Using This Tag**

ORIGIN ID:LOGA (360) 501-3298
SAMPLE RECEIVING
ALS ENVIRONMENTAL
1317 S 13TH AVE

KELSO, WA 98626
UNITED STATES US

SHIP DATE: 24OCT17
ACTWGT: 6.80 LB
CAD: 102641/CAFE3108
DIMS: 10x8x7 IN

BILL SENDER

0 **SAMPLE RECEIVING**
**ALS LABORATORY GROUP**
**960 WEST LEVOY DRIVE**

**SALT LAKE CITY UT 84123**
(801) 266-7700 REF: SAMPLE K1710875
PO: HH

546C4/94FC/53C1

FedEx Express

J171016102001uv

TRK# 0201 **7227 2436 1700**

**WED - 25 OCT 10:30A**
**PRIORITY OVERNIGHT**

**WL BTFA**

**84123**
UT-US **SLC**

00876445

# ALS Environmental

## CHAIN-OF-CUSTODY

| Project / Job / Task: 51K1710875 | Split: | Workorder ID: 1729821 | Level: ENV_LVL4 | Requested Analysis |
|---|---|---|---|---|
| Client: ALS Environmental (Kelso WA) | | Account: 8001 | Type: 250Poly | |
| Comments: | | | Preservatives: COOL | EPA 6850, DoD QSM |

| Item | Collect Date/Time | Sample ID | Lab ID | QC | Matrix | Containers ID(s) | Containers Count | EPA 6850, DoD QSM |
|---|---|---|---|---|---|---|---|---|
| 1 | 10/05/2017 14:00 | LH18/24-SP650_1017W | 1729821001 | | Water | A | 1 | A |
| 2 | | | | | | | | |
| 3 | | | | | | | | |
| 4 | | | | | | | | |
| 5 | | | | | | | | |
| 6 | | | | | | | | |
| 7 | | | | | | | | |
| 8 | | | | | | | | |
| 9 | | | | | | | | |
| 10 | | | | | | | | |

## ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

| Relinquished By: (Signature) | Date / Time | Received By: (Signature) | Reason for Transfer / Storage Location |
|---|---|---|---|
| Warath, Julie | 10/25/2017 10:05 | ALS Sample Receiving | Sample Login |
| Julie Warath 10/25/17 1125 | | 13B | Storage |
| R.33.1 10.25.17/12:10 | | T. Beard | 6850 |
| | | | |
| | | | |
| | | | |
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| | | | |
| | | | |

## 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 |
|---|---|---|---|
| | | | |
| | | | |
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| | | | |

# Batch Worklist

**Batch:** ELMS/ 1985 **Created:** 10/20/2017 11:25 **Instrument:** **HBN:** 201123

**Rule:** EPA 6850, DoD QSM Water **Analyst:** T. Bosch **Status:** WP

**Workorder: 1728943 [ENV_LVL4]**
**Workorder: 1728945 [ENV_LVL4]**
**Workorder: 1728946 [ENV_LVL4]**
**Workorder: 1729349 [ENV_LVL4]**
**Workorder: 1729821 [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 | 571094 | CCV for HBN 201123 [ELMS/1985] | | | | CCV | 3 | | E685041C3Q | 5311 | | 10/27/2017 | |
| 2 | 571095 | LODV for HBN 201123 [ELMS/1985 | | | | LODV | 3 | | E6850..D3Q | 5311 | | 10/27/2017 | |
| 3 | 571096 | ICS for HBN 201123 [ELMS/1985] | | | | ICS | 3 | | E6850..D3Q | 5311 | | 10/27/2017 | |
| 4 | 571097 | LMB for HBN 201123 [ELMS/1985] | | | | LMB | 3 | | E6850Q413Q | 5311 | | 10/27/2017 | |
| 5 | 571098 | LCS for HBN 201123 [ELMS/1985] | | | | LCS | 3 | | E6850Q413Q | 5311 | | 10/27/2017 | |
| 6 | 1728943001 | LH18/24-SP650_101217 | | | | SAMPLE | 3 | 1728943001-A | E6850Q41.3 | 5480 | 11/9/2017 | 11/4/2017 | |
| 7 | 571099 | LH18/24-SP650...(1728943001MS) | | | | MS | 3 | | E6850Q413Q | 5311 | | 10/27/2017 | |
| 8 | 571100 | LH18/24-SP65...(1728943001MSD) | | | | MSD | 3 | | E6850Q413Q | 5311 | | 10/27/2017 | |
| 9 | 1728945001 | LH18/24-SP650_101217 | | | | SAMPLE | 3 | 1728945001-A | E6850Q41.3 | 5480 | 11/9/2017 | 11/4/2017 | |
| 10 | 1728946001 | LH18/24-SP140_101217 | | | | SAMPLE | 3 | 1728946001-A | E6850Q41.3 | 5480 | 11/9/2017 | 11/4/2017 | |
| 11 | 1729349001 | LH18/24-SP650_101817 | | | | SAMPLE | 3 | 1729349001-A | E6850Q41.3 | 5480 | 11/15/2017 | 11/10/2017 | |
| 12 | 1729821001 | LH18/24-SP650_1017W | | | | SAMPLE | 3 | 1729821001-A | E6850Q41.3 | 5480 | 11/2/2017 | 10/27/2017 | |
| 13 | 571101 | CCV for HBN 201123 [ELMS/1985] | | | | CCV | 3 | | E685041C3Q | 5311 | | 10/27/2017 | |
| 14 | 571102 | LODV for HBN 201123 [ELMS/1985 | | | | LODV | 3 | | E6850..D3Q | 5311 | | 10/27/2017 | |





00876446




ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

# Analytical Documentation

ALS Work Order #'s & Sample #( )'s: 1728943 (001); 1728945 (001); 1728946 (001); 1729349 (001); 1729821 (001)
ELMS Batch/HBN ID: 1985 (201123)
Prep Date: 10/25/2017 Analysis Date: 10/25/2017 Analyst: T. Bosch
Analyte: **Perchlorate** Matrix: **Water** Method: **6850**
Sequence:\\HPCHEM\1\SEQUENCE\CLO4\2017\OCT\25OCT17P.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 DI735)/0.1% glacial acetic acid (JT-Baker Lot 04802).
Eluent B1: 95% ACN (B&J Lot DI735)/ 5% ASTM Type II water (ALS)/0.1% glacial acetic acid (JT-Baker Lot 04802).

**STANDARDS:** Internal Standard Spiking Solution Horizon# 38780. Dilutions of Working Standard Solution ID 32373 used for CCV's, LODV's, RLVS and IPC.

**CALIBRATION CURVE:** Used curve from 08/21/2017, sequence 21AUG17P.s Offline Quantitation Method: CLO4-PR3.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: 6 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 | 0.60 |
| 4.0 | 0.60 |
| 5.0 | 0.25 |
| 14.5 | 0.25 |
| 15.0 | 0.60 |
| 17.5 | 0.60 |

**QC DATA:** 5.0µL of QC Solution Horizon ID 36749 was used for LCS 570667; Target = 5.0µg/L. ASTM type II water was used for LMB 570666.

**MS/MSD:** MS/MSD was performed on sample 1728943001 (Client ID: LH18/24-SP650_101217). 5.0µl of Working Standard Solution Horizon ID 36735 was added to 10.0mL of sample preparation. Spike target = 5.0µg/L.

**COMMENTS:**

1) Results reported in µg/L. Sample 1728946001 was re-analyzed and reported at a 1 in 1,000 dilution. The reporting limits have been adjusted accordingly.
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\2017\OCT\HBN# or through NuGenesis\Tree\PrintData\LCMS\DefaultView.
4) Due to limitations of the Chemstation Software, many of the chromatographic peaks require manual integration. Manual Integrations were performed for some of the Initial Calibration analyses (datafiles: 21AUGP01-03) along with datafiles 25OCTP02/03/07/08/11.
5) Notebook: \\alsltws013\ORGANIC\BOSCH\LCMS\Perchlorates\Waters\2017\CLO4-201123-L-ALS-HSTN-KLSO or through \\ALSLTWS013\DATAREVIEW\HBN#

# STANDARD REPORT

## Working Standard - CLO4 WRK

**CLO4 WRK** — **Description - 6850 WKG Std 100.ug/L**

**Standard:** 36735
**MFG:** ALS/SLC
**MFG Lot:** TNB: 05/10/17
**Part ID:**

**Created By:** T. Bosch
**Create Date:** 05/10/2017
**Lab Lot:** CLO4 WRK

**Amount:** 10 mL
**Expires:** 05/10/2018
**Usable:** Yes

| 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 |
| 36734 | CLO4 INT | 6850 Intermdt AccStd 10.ug/mL | CLO4 INT | 0.1 mL | 05/10/2018 |

# STANDARD REPORT

## Constituent

## Stock Standard - CLO4 STOCK

**CLO4 STOCK** — **Description - 6850 Stock AccStd 1,000ug/mL**

Standard: 36733
MFG: AccuStandard
MFG Lot: 216095148
Part ID: IC-PER-10X-1

Created By: T. Bosch
Create Date: 5/10/2017
Lab Lot: CLO4 STOCK

Amount: 100 mL
Expires: 10/4/2018
Usable: Yes

| Pos. | Analyte | Name | Concentration |
|---|---|---|---|
| 1 | 14797-73-0 | Perchlorate | 1000 ug/mL |

# 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: 10/6/2005 | Expires: 11/7/2025 |
| MFG Lot: | Lab Lot: LAB 109 | Usable: Yes |
| Part ID: | | |

| Pos. | Analyte | Name | Concentration |
|---|---|---|---|
| Solvent - Analyte(s) not applicable | | | |

# STANDARD REPORT

## Constituent

## Working Standard - CLO4 INT

**CLO4 INT** — Description - 6850 Intermdt AccStd 10.ug/mL

Standard: 36734
MFG: ALS/SLC
MFG Lot: TNB: 05/10/17
Part ID:

Created By: T. Bosch
Create Date: 05/10/2017
Lab Lot: CLO4 INT

Amount: 10 mL
Expires: 05/10/2018
Usable: Yes

| 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 |
| 36733 | CLO4 STOCK | 6850 Stock AccStd 1,000ug/mL | CLO4 STOCK | 0.1 mL | 10/04/2018 |

STANDARD REPORT

## Working Standard - CLO4 QC WRK

**CLO4 QC WRK** — Description - 6850 QC WKG STD 100ug/L

Standard: 36750
MFG: ALS/SLC
MFG Lot: TNB: 05/11/17
Part ID:

Created By: T. Bosch
Create Date: 05/11/2017
Lab Lot: CLO4 QC WRK 100.ug/L

Amount: 10 mL
Expires: 05/11/2018
Usable: Yes

| 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 |
| 36749 | CLO4 QC INT | 6850 QC Intrmdt Std-QC 10ug/mL | CLO4 QC INT 10.ug/mL | 0.1 mL | 05/11/2018 |

# STANDARD REPORT

## Constituent

## Working Standard - CLO4 QC INT

**CLO4 QC INT** — Description - 6850 QC Intrmdt Std-QC 10ug/mL

Standard: 36749
MFG: ALS/SLC
MFG Lot: TNB: 05/11/2017
Part ID:

Created By: T. Bosch
Create Date: 05/11/2017
Lab Lot: CLO4 QC INT 10.ug/mL

Amount: 10 mL
Expires: 05/11/2018
Usable: Yes

| 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 |

# 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: 10/6/2005 | Expires: 11/7/2025 |
| MFG Lot: | Lab Lot: LAB 109 | Usable: Yes |
| Part ID: | | |

| Pos. | Analyte | Name | Concentration |
|---|---|---|---|
| Solvent - Analyte(s) not applicable | | | |

# STANDARD REPORT

## Constituent

## Stock Standard - CLO4 QCSTOCK

| CLO4 QCSTOCK | | Description - 6850 QC Stock STD 1,000ug/mL |
|---|---|---|
| Standard: 36748 | Created By: T. Bosch | Amount: 100 mL |
| MFG: Ultra Scientific | Create Date: 5/11/2017 | Expires: 3/31/2020 |
| MFG Lot: CP-0860 | Lab Lot: CLO4 QC STOCK | Usable: Yes |
| Part ID: ICC-013 | | |

| Pos. | Analyte | Name | Concentration |
|---|---|---|---|
| 1 | 14797-73-0 | Perchlorate | 1000 ug/mL |

# STANDARD REPORT

## Working Standard - CLO4ISTDWRK

**CLO4ISTDWRK** — **Description - Perchlorate ISTD Wrk 1,000ug/L**

| | | | |
|---|---|---|---|
| Standard: **38780** | Created By: Thomas Bosch | Amount: 10 mL |
| MFG: ALS/SLC | Create Date: 10/09/2017 01:10PM | Expires: 10/09/2018 |
| MFG Lot: TNB: 10/09/17 | 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 |
|---|---|---|---|---|---|
| 23118 | CLO4ISTDSTK | Perchlorate ISTD Stock | CLO4ISTDSTK | 0.1 mL | 02/27/2024 |

# STANDARD REPORT

## Constituent

## Stock Standard - CLO4ISTDSTK

**CLO4ISTDSTK** — **Description - Perchlorate ISTD Stock**

| | | | | | |
|---|---|---|---|---|---|
| **Standard:** | 23118 | **Created By:** | Thomas Bosch | **Amount:** | 1 mL |
| **MFG:** | Cambridge Isotope | **Create Date:** | 04/04/2014 03:04PM | **Expires:** | 02/27/2024 |
| **MFG Lot:** | SDDG-013 | **Verified By:** | Thomas Bosch | **Usable:** | Yes |
| **Part ID:** | OLM-7310-S | **Verify Date:** | 02/05/2009 12:02AM | **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

TRIPLE ISO CERTIFICATION ISO 9001 • ISO 17025 • ISO GUIDE 34 ULTRA

## 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

TRIPLE ISO CERTIFICATION ULTRA ISO 17025 ISO GUIDE 34 ISO 9001

## ISO Guide 34 Reference Material

Product Number: ICC-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

125 Market Street
New Haven, CT 06513
USA

AccuStandard® Inc.

Tel (203)786-5290
Fax (203)786-5287
www.AccuStandard.com

# CERTIFICATE OF ANALYSIS

## AccuTrace™ Reference Standard

Catalog No: IC-PER-10X-1
Description: Perchlorate Standard
Element: Perchlorate ($ClO_4$)
SRM: Ind. Std.
Lot: 216095148
Matrix: Water
Hazards: *Refer to SDS for complete safety information*




Signal Word: Warning

Date Certified: Oct 4, 2016
Expiration: Oct 4, 2018
Sample Size: 100 mL
Components: 1
Storage Condition: Ambient (>5 °C)
Included on ISO/IEC 17025 Scope of Accreditation: Yes
Included on ISO Guide 34 Scope of Accreditation: Yes

| Component | | SRM # | Prepared Concentration (µg/mL) |
|---|---|---|---|
| $ClO_4$ | Perchlorate | Ind. Std. | 1000 |

The gravimetric uncertainty for this product is ±0.2%. See reverse side for details.
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.*

Cambridge Isotope Laboratories, Inc.

# Certificate of Analysis

Quality Standards:
ISO Guide 34 • ISO/IEC 17025 • ISO 13485 • cGMP

23118

| | |
|---|---|
| **Product Name:** (Isotopic Label & Enrichment Specification) | PERCHLORIC ACID, SODIUM SALT (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% |
| LC/MS for Concentration | 109.4 ± 2.8 µg/mL (k=2) |

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

# Raw Data

Batch Report: C:\HPCHEM\1\DATA\25OCT17P\25OCT17P.B

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-PR3.M

['#' ==> Run has not been reprocessed with Batch Review Method
'*' ==> Run has been saved with batch file]

| #* | Sample | Location | Inj | SampleType | Run | CLO4-89-ISTD Area | CLO4-89-ISTD RT | CLO4-89-ISTD Amount |
|---|---|---|---|---|---|---|---|---|
| * | 571094 CCV@25 | Vial 81 | 1 | Control | 1 | 5.07839e5 | 12.477 | 5.00000 |
| * | 571095 LODV@1. | Vial 82 | 1 | Control | 2 | 5.87535e5 | 12.518 | 5.00000 |
| * | 571096 ICS@1. | Vial 83 | 1 | Control | 3 | 3.96155e5 | 12.246 | 5.00000 |
| * | 571097 LMB | Vial 84 | 1 | Control | 4 | 6.68336e5 | 12.435 | 5.00000 |
| * | 571098 LCS@5. | Vial 85 | 1 | Control | 5 | 6.65647e5 | 12.053 | 5.00000 |
| * | 1728943001 | Vial 86 | 1 | Sample | 6 | 4.70592e5 | 12.157 | 5.00000 |
| * | 571099 289431S | Vial 87 | 1 | Sample | 7 | 4.66918e5 | 12.127 | 5.00000 |
| * | 571100 289431D | Vial 88 | 1 | Sample | 8 | 5.24243e5 | 12.117 | 5.00000 |
| * | 1728945001 | Vial 89 | 1 | Sample | 9 | 4.60455e5 | 12.109 | 5.00000 |
| * | 1728946001 | Vial 90 | 1 | Sample | 10 | 2.94801e5 | 10.198 | 5.00000 |
| * | 1729349001 | Vial 91 | 1 | Sample | 11 | 4.46975e5 | 11.983 | 5.00000 |
| * | 1728946001 1K | Vial 71 | 1 | Sample | 12 | 5.98771e5 | 12.478 | 5000.00000 |
| * | Rinse | Vial 72 | 1 | Sample | 13 | 0.00000 | 0.000 | 0.00000 |
| * | 1729821001 | Vial 92 | 1 | Sample | 14 | 3.92983e5 | 12.135 | 5.00000 |
| * | 571101 CCV@25 | Vial 81 | 1 | Control | 15 | 5.86465e5 | 12.119 | 5.00000 |
| * | 571102 LODV@1. | Vial 82 | 1 | Control | 16 | 6.36963e5 | 12.465 | 5.00000 |

| #* | Sample | Location | Inj | SampleType | Run | Perchlorate Area | Perchlorate RT | Perchlorate Amount |
|---|---|---|---|---|---|---|---|---|
| * | 571094 CCV@25 | Vial 81 | 1 | Control | 1 | 3.48090e6 | 12.453 | 26.43897 |
| * | 571095 LODV@1. | Vial 82 | 1 | Control | 2 | 1.05939e5 | 12.486 | 8.38965e-1 |
| * | 571096 ICS@1. | Vial 83 | 1 | Control | 3 | 9.86085e4 | 12.204 | 1.15261 |
| * | 571097 LMB | Vial 84 | 1 | Control | 4 | 0.00000 | 0.000 | 0.00000 |
| * | 571098 LCS@5. | Vial 85 | 1 | Control | 5 | 7.88523e5 | 12.038 | 5.29061 |
| * | 1728943001 | Vial 86 | 1 | Sample | 6 | 0.00000 | 0.000 | 0.00000 |
| * | 571099 289431S | Vial 87 | 1 | Sample | 7 | 4.65291e5 | 12.108 | 4.47866 |
| * | 571100 289431D | Vial 88 | 1 | Sample | 8 | 5.27314e5 | 12.088 | 4.51921 |
| * | 1728945001 | Vial 89 | 1 | Sample | 9 | 0.00000 | 0.000 | 0.00000 |
| * | 1728946001 | Vial 90 | 1 | Sample | 10 | 5.98622e8 | 10.207 | 1043.03365 |
| * | 1729349001 | Vial 91 | 1 | Sample | 11 | 4.79980e4 | 11.934 | 5.03905e-1 |
| * | 1728946001 1K | Vial 71 | 1 | Sample | 12 | 6.41886e5 | 12.455 | 4805.68409 |
| * | Rinse | Vial 72 | 1 | Sample | 13 | 0.00000 | 0.000 | 0.00000 |
| * | 1729821001 | Vial 92 | 1 | Sample | 14 | 0.00000 | 0.000 | 0.00000 |
| * | 571101 CCV@25 | Vial 81 | 1 | Control | 15 | 3.56041e6 | 12.091 | 23.81767 |
| * | 571102 LODV@1. | Vial 82 | 1 | Control | 16 | 1.32751e5 | 12.440 | 9.67623e-1 |

| #* | Sample | Location | Inj | SampleType | Run | CLO4-85 Area | CLO4-85 RT | CLO4-85 Amount |
|---|---|---|---|---|---|---|---|---|
| * | 571094 CCV@25 | Vial 81 | 1 | Control | 1 | 1.10813e6 | 12.467 | 27.31669 |
| * | 571095 LODV@1. | Vial 82 | 1 | Control | 2 | 4.28376e4 | 12.497 | 1.02423 |
| * | 571096 ICS@1. | Vial 83 | 1 | Control | 3 | 3.22687e4 | 12.206 | 1.14363 |
| * | 571097 LMB | Vial 84 | 1 | Control | 4 | 0.00000 | 0.000 | 0.00000 |
| * | 571098 LCS@5. | Vial 85 | 1 | Control | 5 | 2.47122e5 | 12.042 | 5.11794 |
| * | 1728943001 | Vial 86 | 1 | Sample | 6 | 0.00000 | 0.000 | 0.00000 |
| * | 571099 289431S | Vial 87 | 1 | Sample | 7 | 1.48406e5 | 12.125 | 4.39612 |
| * | 571100 289431D | Vial 88 | 1 | Sample | 8 | 1.66736e5 | 12.107 | 4.39896 |
| * | 1728945001 | Vial 89 | 1 | Sample | 9 | 0.00000 | 0.000 | 0.00000 |
| * | 1728946001 | Vial 90 | 1 | Sample | 10 | 2.21716e8 | 10.218 | 1404.77710 |
| * | 1729349001 | Vial 91 | 1 | Sample | 11 | 1.42527e4 | 11.985 | 4.49144e-1 |
| * | 1728946001 1K | Vial 71 | 1 | Sample | 12 | 2.07773e5 | 12.473 | 4790.74371 |
| * | Rinse | Vial 72 | 1 | Sample | 13 | 0.00000 | 0.000 | 0.00000 |
| * | 1729821001 | Vial 92 | 1 | Sample | 14 | 0.00000 | 0.000 | 0.00000 |
| * | 571101 CCV@25 | Vial 81 | 1 | Control | 15 | 1.09294e6 | 12.102 | 23.68621 |
| * | 571102 LODV@1. | Vial 82 | 1 | Control | 16 | 5.13231e4 | 12.438 | 1.13133 |

*** End of Report ***

Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2017\OCT\25OCT17P.S

Sequence Table:

Method and Injection Info Part:

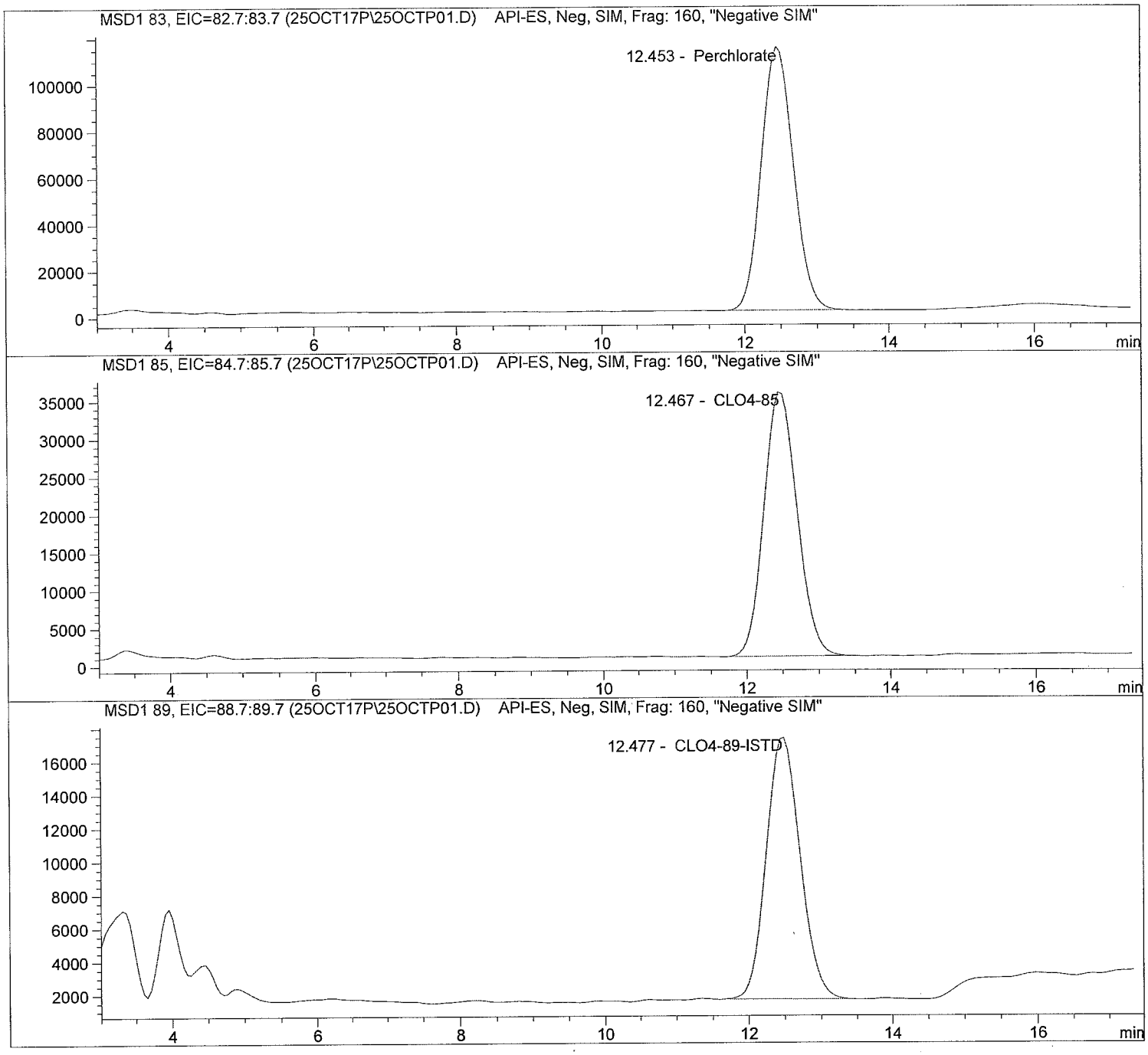
| Line | Location | SampleName | Method | Inj | SampleType | InjVolume | DataFile |
|---|---|---|---|---|---|---|---|
| 1 | Vial 81 | 571094 CCV@25 | CLO4-AQN | 1 | Ctrl Samp | | |
| 2 | Vial 82 | 571095 LODV@1. | CLO4-AQN | 1 | Ctrl Samp | | |
| 3 | Vial 83 | 571096 ICS@1. | CLO4-AQN | 1 | Ctrl Samp | | |
| 4 | Vial 84 | 571097 LMB | CLO4-AQN | 1 | Ctrl Samp | | |
| 5 | Vial 85 | 571098 LCS@5. | CLO4-AQN | 1 | Ctrl Samp | | |
| 6 | Vial 86 | 1728943001 | CLO4-AQN | 1 | Sample | | |
| 7 | Vial 87 | 571099 289431S | CLO4-AQN | 1 | Sample | | |
| 8 | Vial 88 | 571100 289431D | CLO4-AQN | 1 | Sample | | |
| 9 | Vial 89 | 1728945001 | CLO4-AQN | 1 | Sample | | |
| 10 | Vial 90 | 1728946001 | CLO4-AQN | 1 | Sample | | |
| 11 | Vial 91 | 1729349001 | CLO4-AQN | 1 | Sample | | |
| 12 | Vial 71 | 1728946001 1K | CLO4-AQN | 1 | Sample | | |
| 13 | Vial 72 | Rinse | CLO4-AQN | 1 | Sample | | |
| 14 | Vial 92 | 1729821001 | CLO4-AQN | 1 | Sample | | |
| 15 | Vial 81 | 571101 CCV@25 | CLO4-AQN | 1 | Ctrl Samp | | |
| 16 | Vial 82 | 571102 LODV@1. | CLO4-AQN | 1 | Ctrl Samp | | |

Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP01.D  Sample Name: 571094  CCV@25

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 09:02:43 | Seq Line: | 1 |
| Sample Name: | 571094 CCV@25 | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP01.D  Sample Name: 571094  CCV@25

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 09:02:43 | Seq Line: | 1 |
| Sample Name: | 571094 CCV@25 | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 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 |
|---|---|---|---|---|
| 12.453 | PBA | 3480904.8 | 26.4390 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.467 | PBA | 1108132.5 | 27.3167 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.477 | BBA | 507839.4 | 5.0000 | CLO4-89-ISTD |

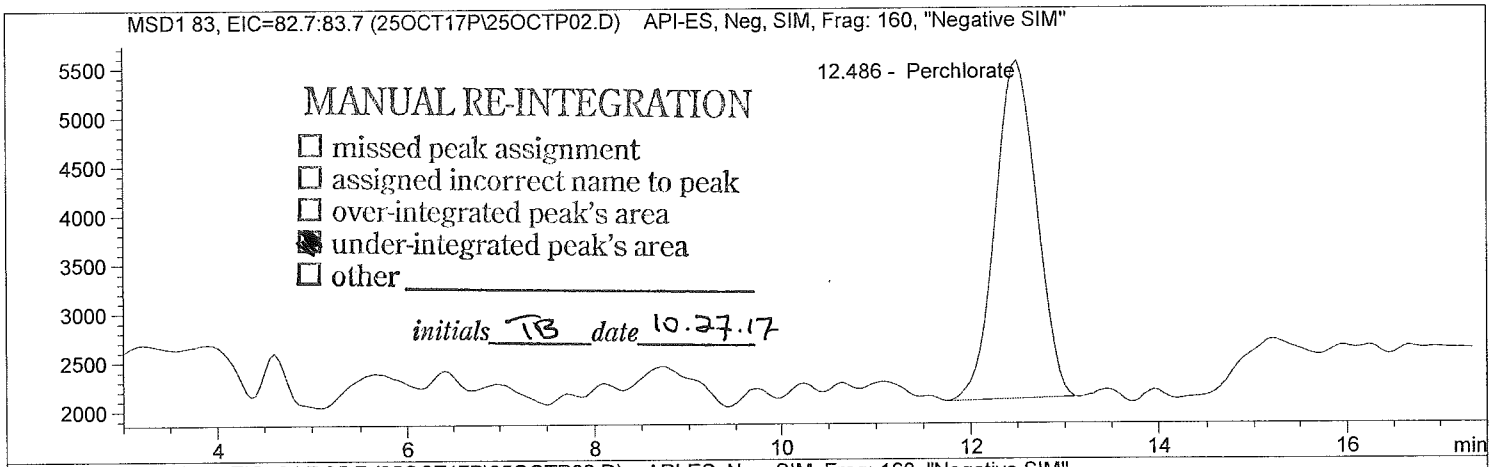
*** End of Report ***

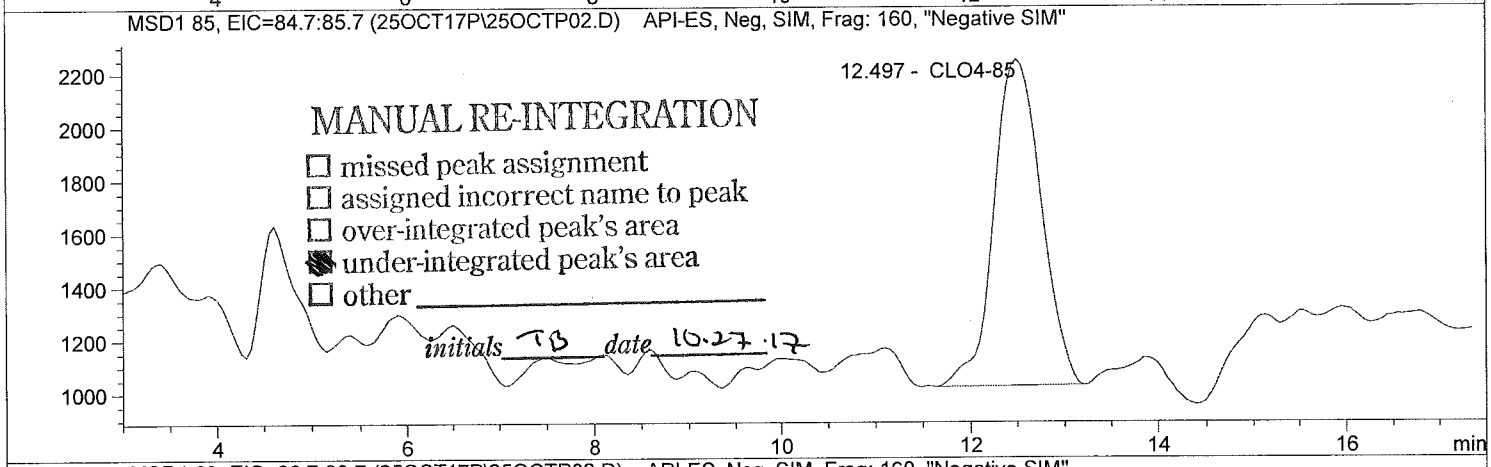
Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP02.D  Sample Name: 571095  LODV@1.

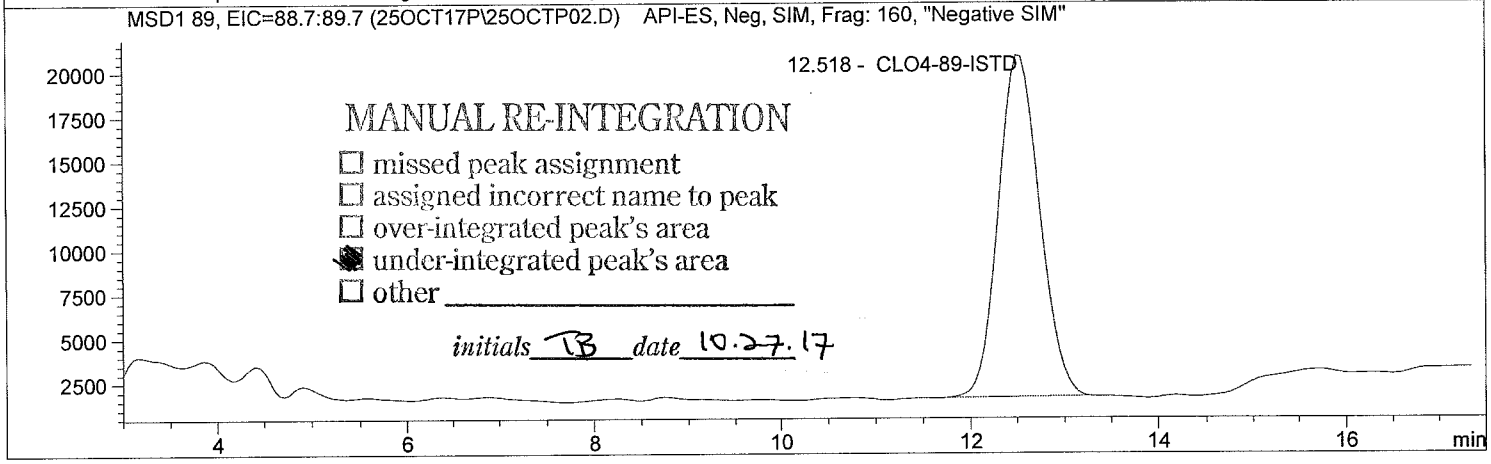
| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 09:24:24 | Seq Line: | 2 |
| Sample Name: | 571095 LODV@1. | Location: | Vial 82 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP02.D Sample Name: 571095 LODV@1.

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 09:24:24 | Seq Line: | 2 |
| Sample Name: | 571095 LODV@1. | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 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 |
|---|---|---|---|---|
| 12.486 | MM | 105938.9 | 0.8390 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.497 | MM | 42837.6 | 1.0242 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.518 | MM | 587535.4 | 5.0000 | CLO4-89-ISTD |

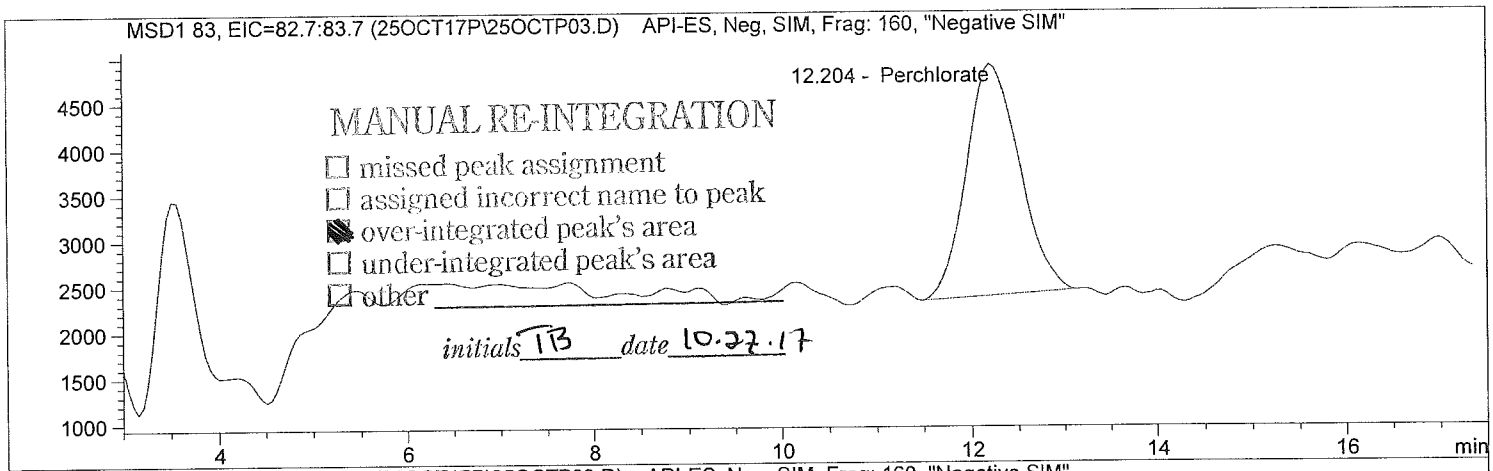
*** End of Report ***

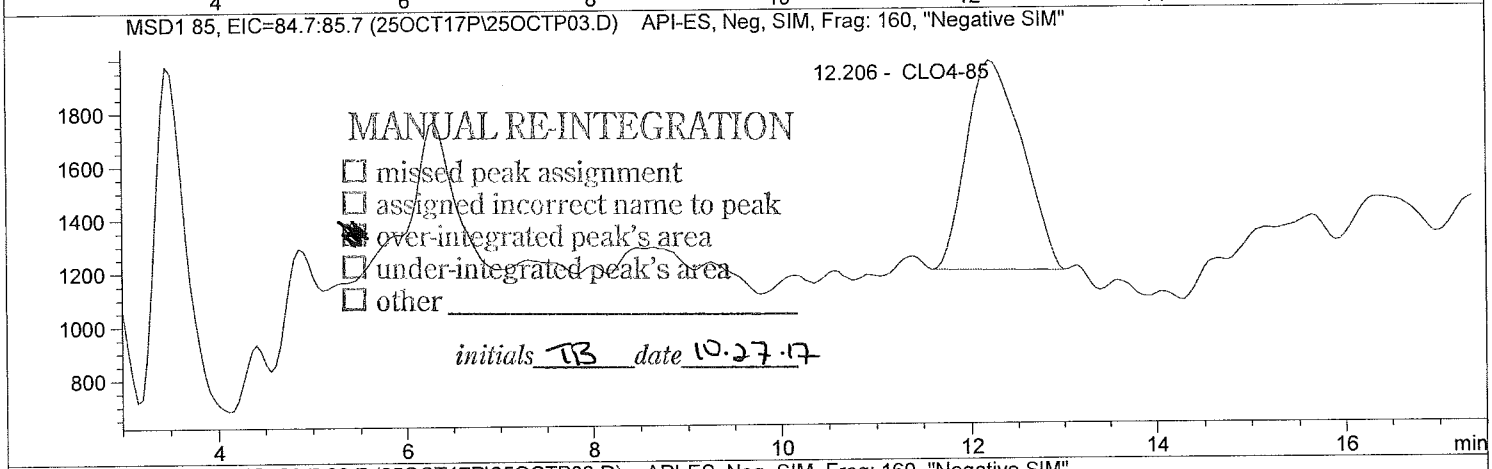
Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP03.D Sample Name: 571096 ICS@1.

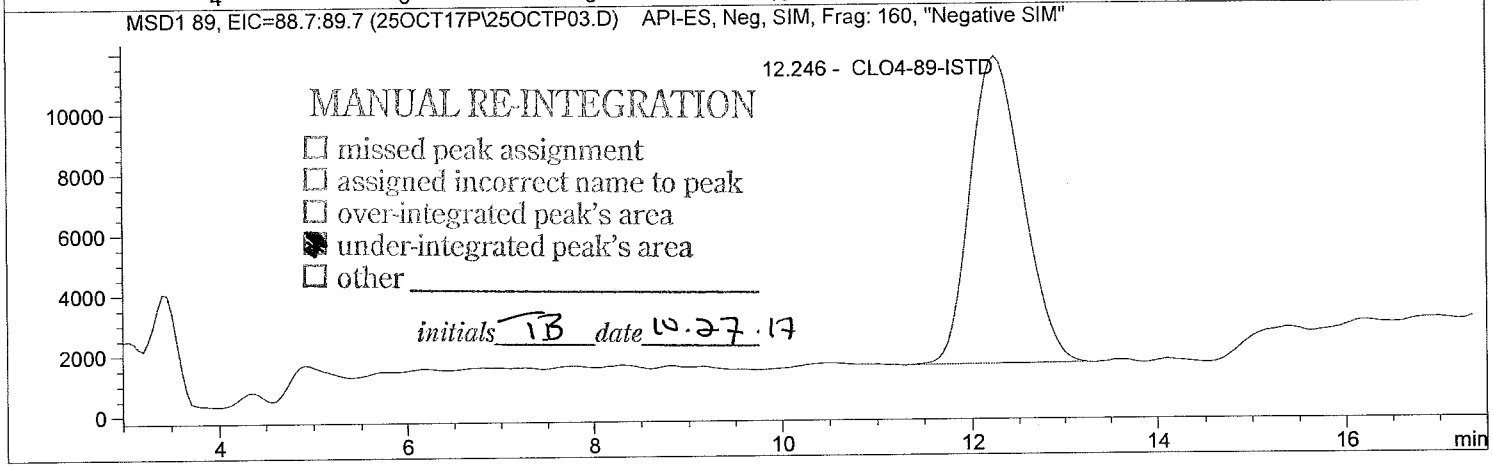
| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 09:43:38 | Seq Line: | 3 |
| Sample Name: | 571096 ICS@1. | Location: | Vial 83 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP03.D  Sample Name: 571096  ICS@1.

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 09:43:38 | Seq Line: | 3 |
| Sample Name: | 571096 ICS@1. | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 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 |
|---|---|---|---|---|
| 12.204 | MM | 98608.5 | 1.1526 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.206 | MM | 32268.7 | 1.1436 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.246 | MM | 396154.9 | 5.0000 | CLO4-89-ISTD |

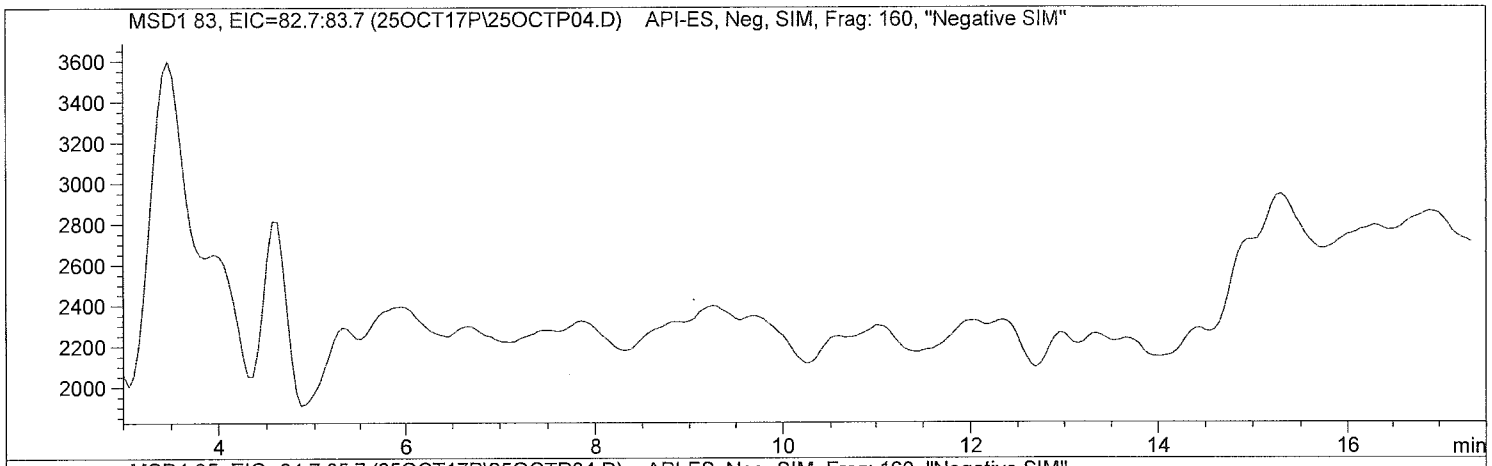
*** End of Report ***

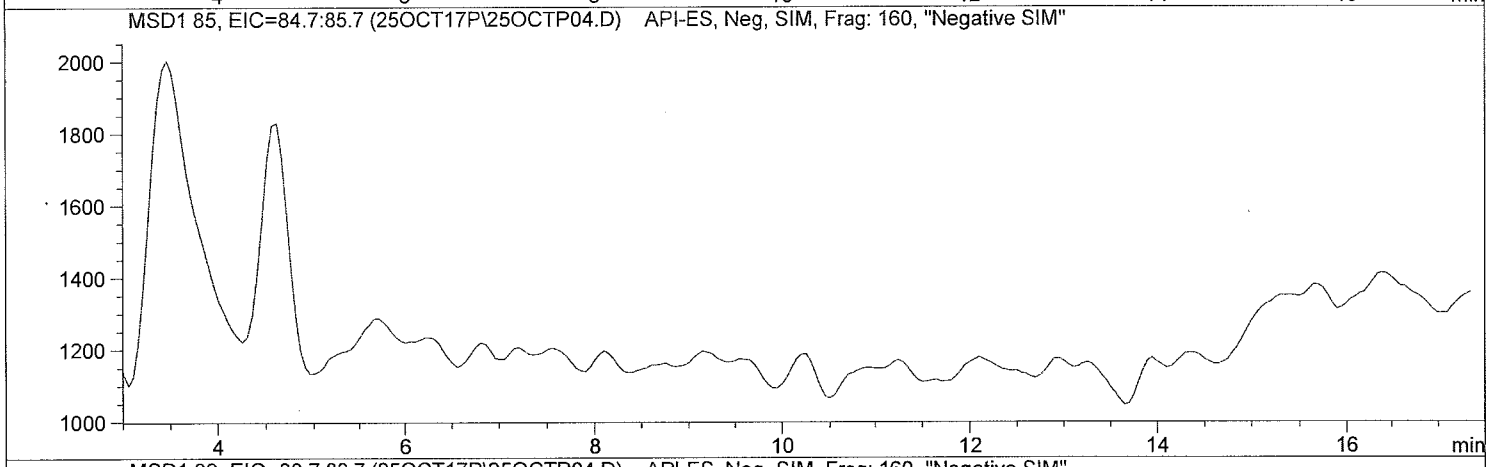
Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP04.D  Sample Name: 571097  LMB

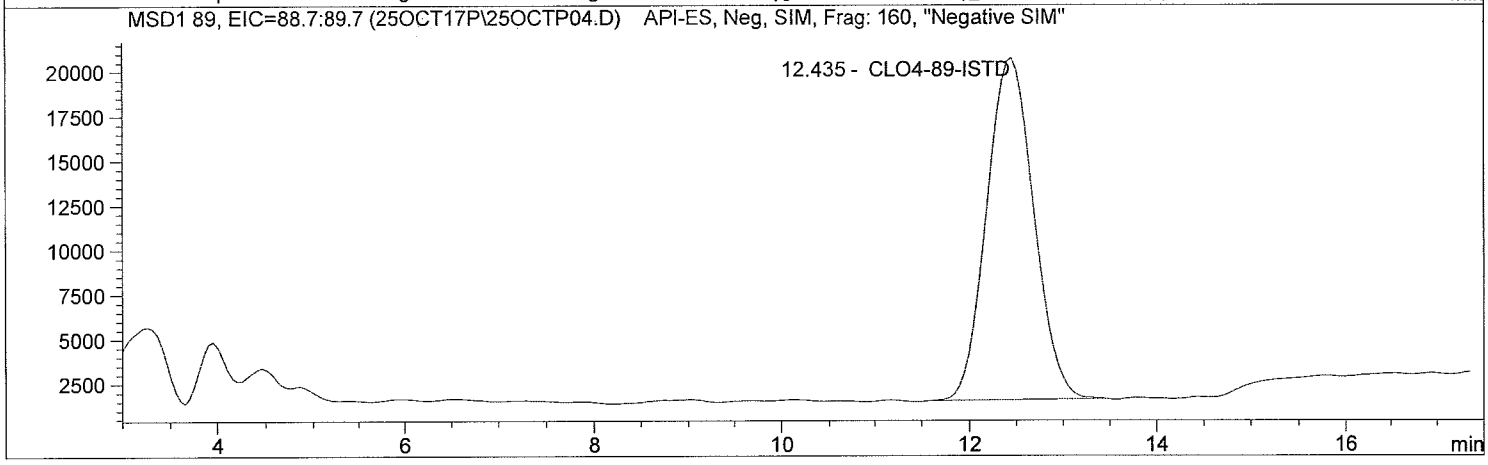
| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 10:02:51 | Seq Line: | 4 |
| Sample Name: | 571097 LMB | Location: | Vial 84 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP04.D  Sample Name: 571097  LMB

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 10:02:51 | Seq Line: | 4 |
| Sample Name: | 571097 LMB | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 12.435 | PBA | 668336.3 | 5.0000 | CLO4-89-ISTD |

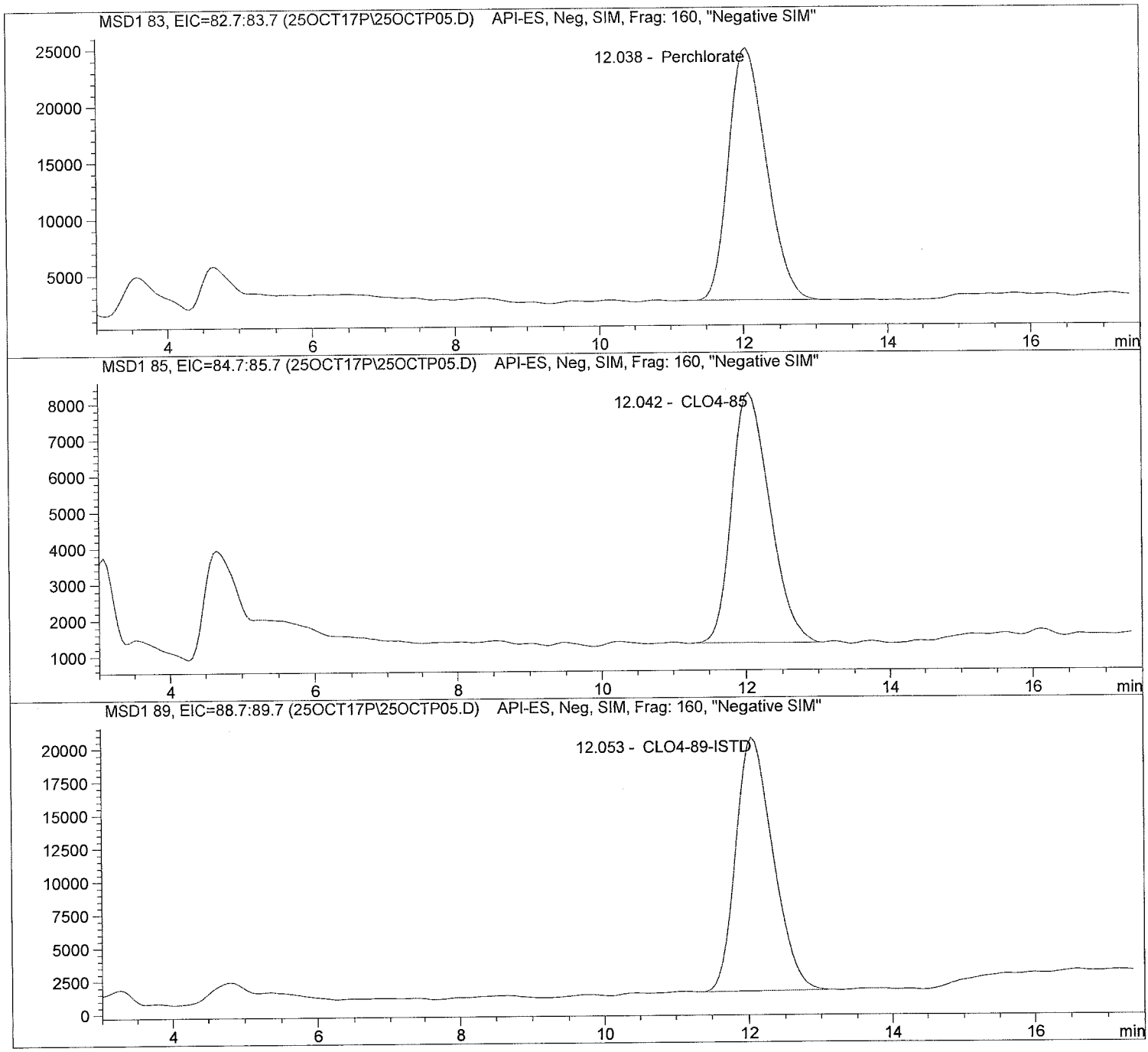
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP05.D  Sample Name: 571098  LCS@5.

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 10:22:05 | Seq Line: | 5 |
| Sample Name: | 571098 LCS@5. | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP05.D  Sample Name: 571098  LCS@5.

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 10:22:05 | Seq Line: | 5 |
| Sample Name: | 571098 LCS@5. | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 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 |
|---|---|---|---|---|
| 12.038 | BBA | 788522.6 | 5.2906 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.042 | PBA | 247122.1 | 5.1179 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.053 | PBA | 665647.0 | 5.0000 | CLO4-89-ISTD |

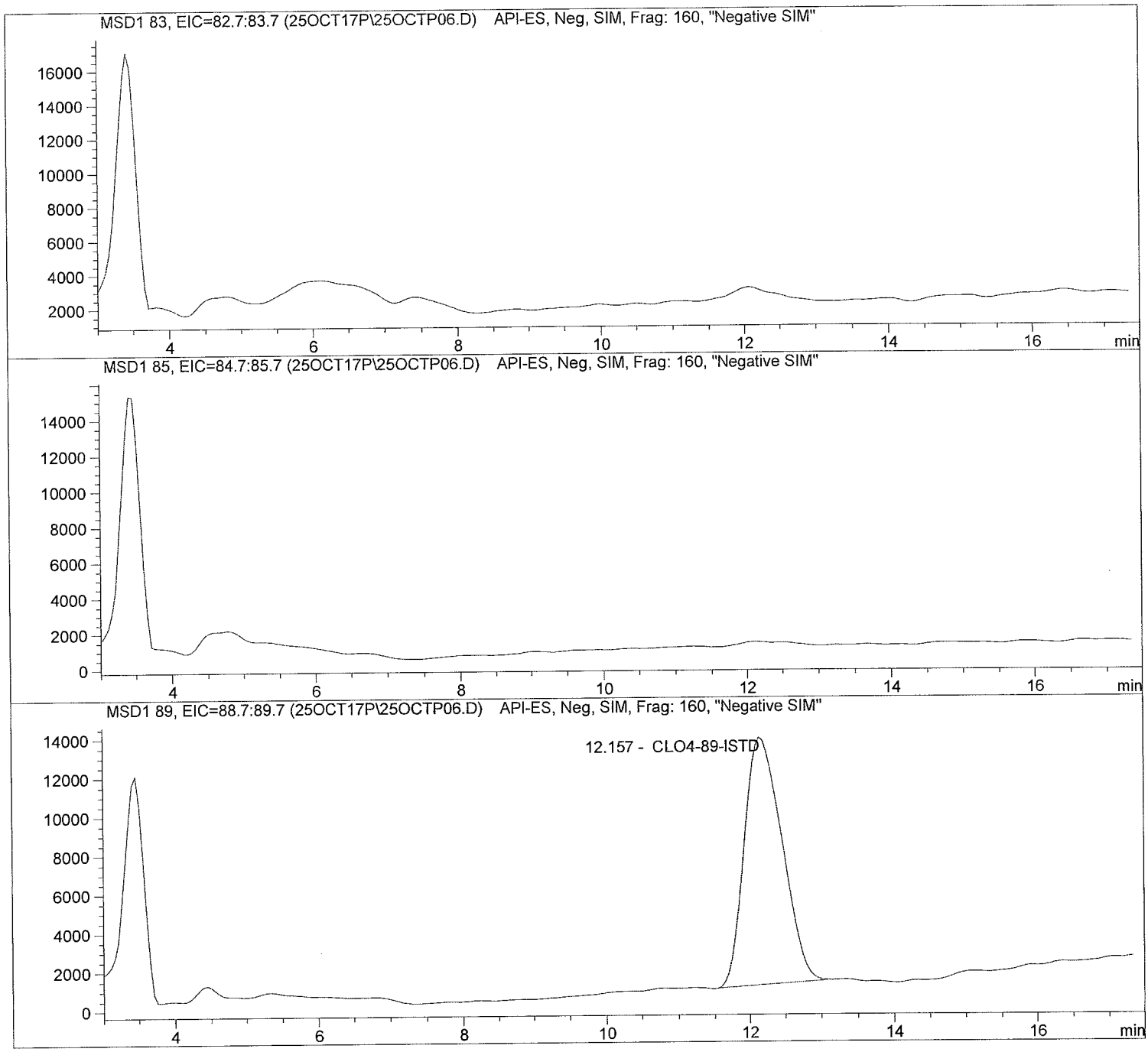
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP06.D  Sample Name: 1728943001

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 10:44:39 | Seq Line: | 6 |
| Sample Name: | 1728943001 | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP06.D Sample Name: 1728943001

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 10:44:39 | Seq Line: | 6 |
| Sample Name: | 1728943001 | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 12.157 | PBA | 470591.7 | 5.0000 | CLO4-89-ISTD |

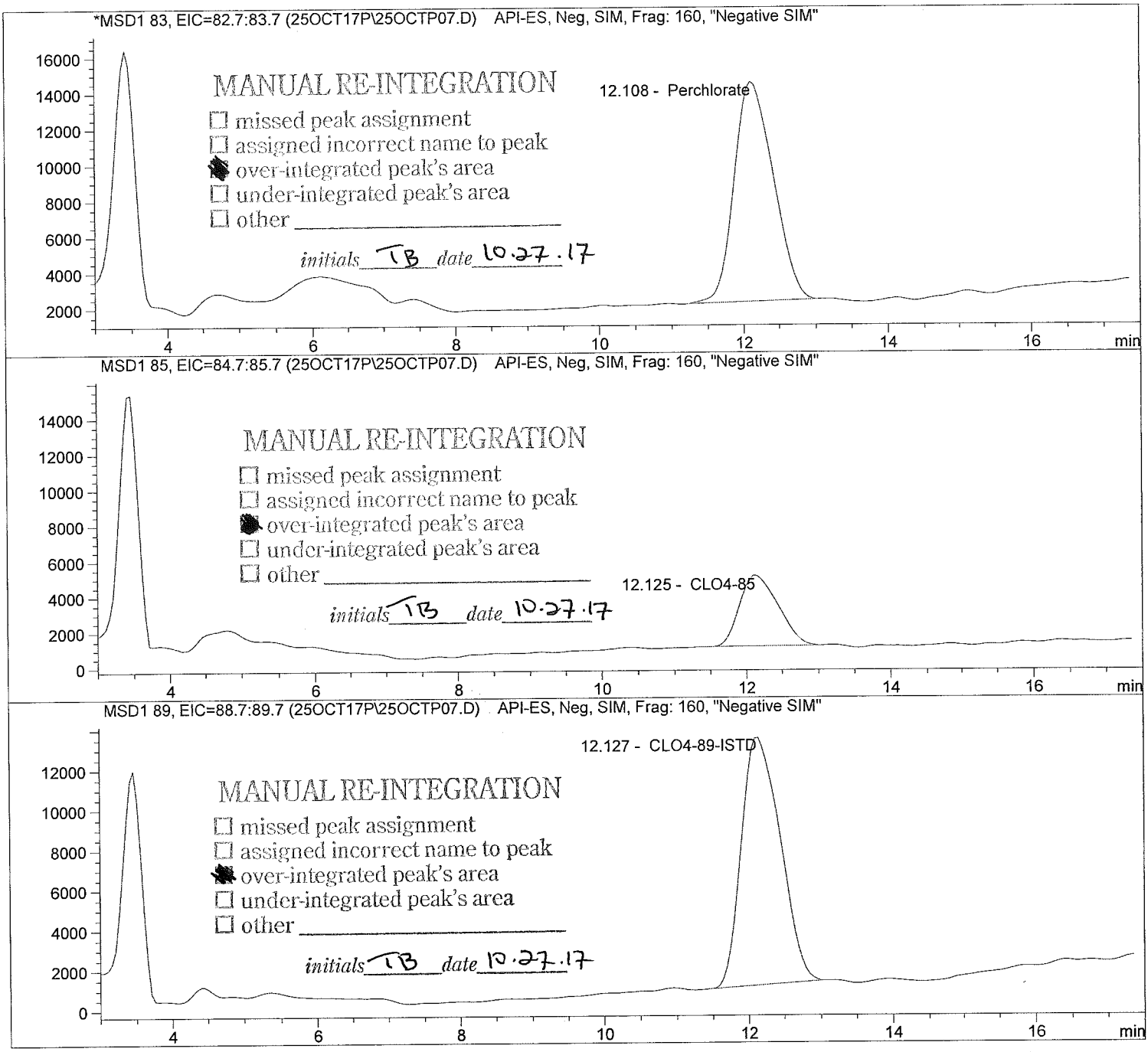
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP07.D Sample Name: 571099 289431S

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 11:03:53 | Seq Line: | 7 |
| Sample Name: | 571099 289431S | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP07.D Sample Name: 571099 289431S

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 11:03:53 | Seq Line: | 7 |
| Sample Name: | 571099 289431S | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 12.108 | MM | 465290.7 | 4.4787 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.125 | MM | 148406.0 | 4.3961 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.127 | MM | 466917.6 | 5.0000 | CLO4-89-ISTD |

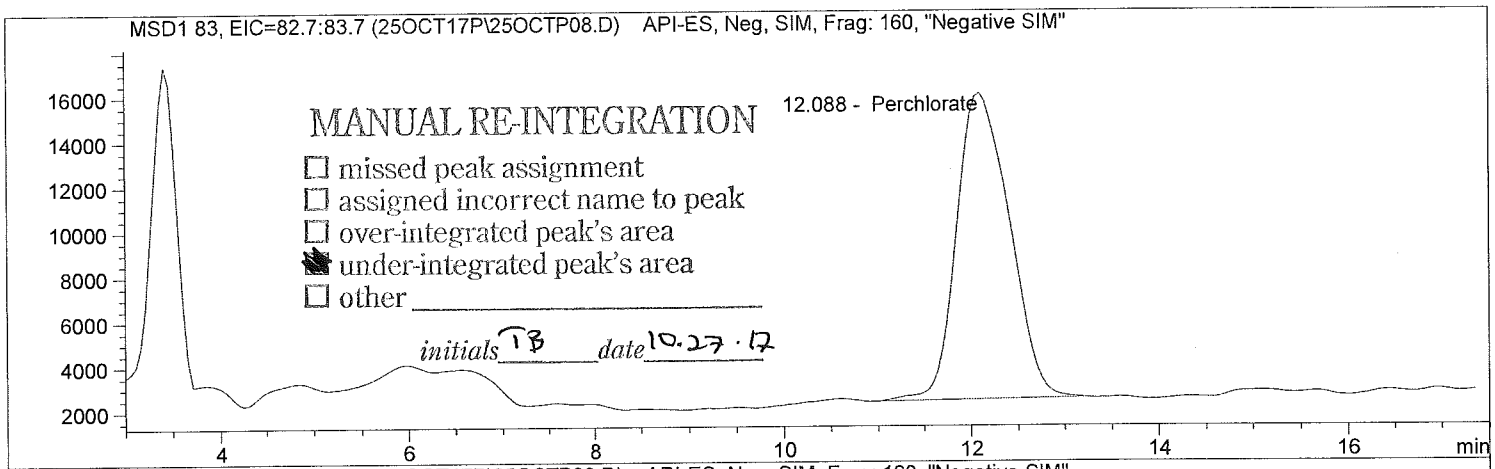
*** End of Report ***

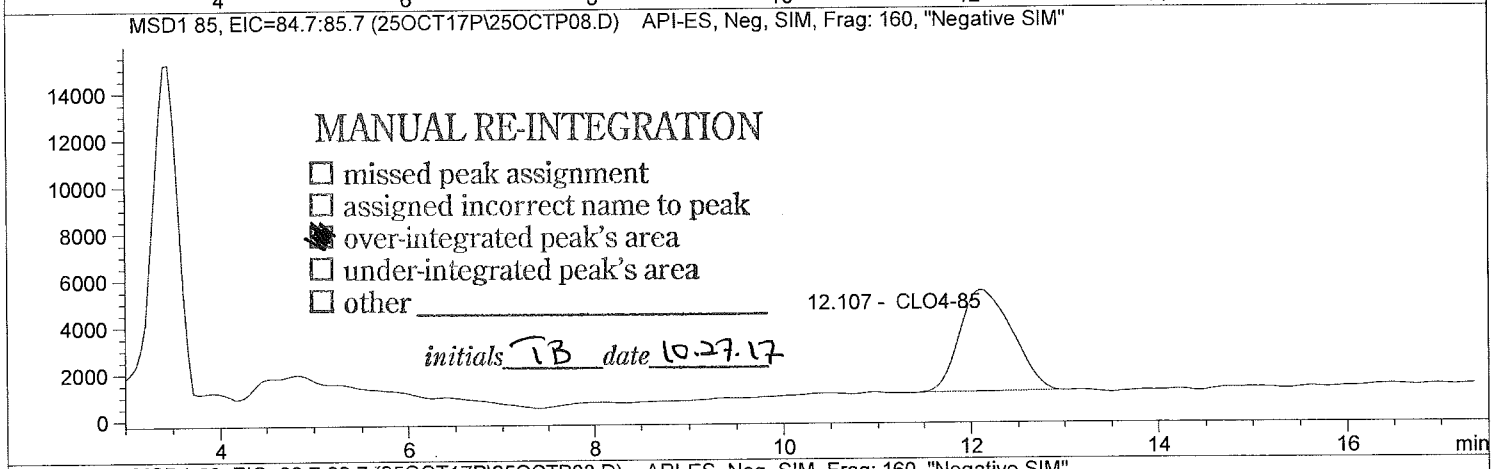
Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP08.D Sample Name: 571100 289431D

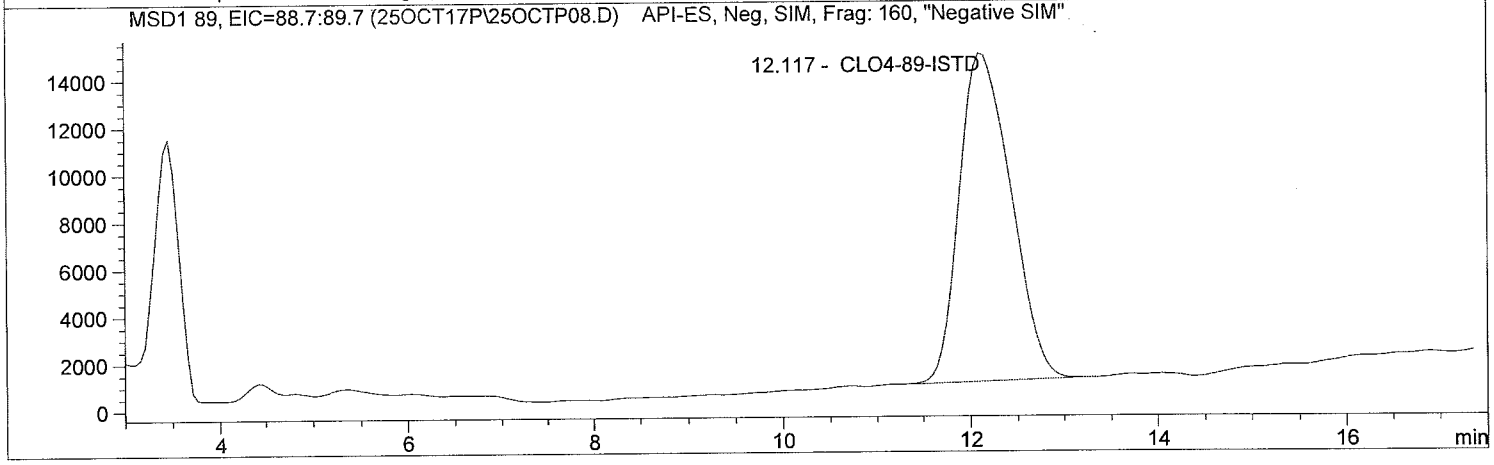
| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 11:23:08 | Seq Line: | 8 |
| Sample Name: | 571100 289431D | Location: | Vial 88 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP08.D  Sample Name: 571100  289431D

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 11:23:08 | Seq Line: | 8 |
| Sample Name: | 571100 289431D | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 12.088 | MM | 527314.1 | 4.5192 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.107 | MM | 166736.0 | 4.3990 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.117 | BBA | 524243.2 | 5.0000 | CLO4-89-ISTD |

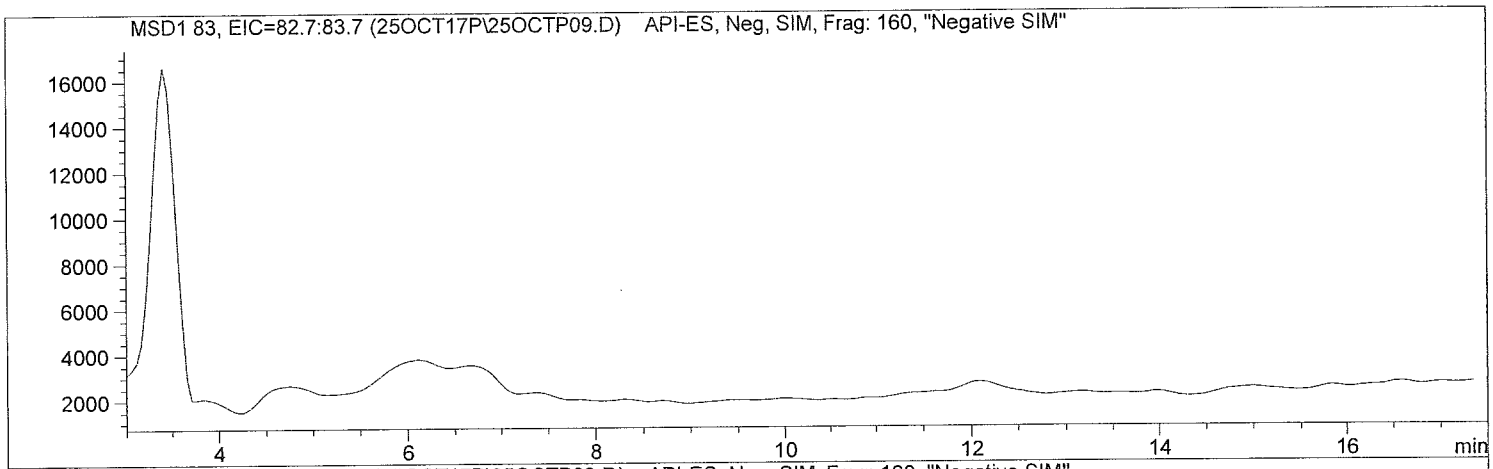
*** End of Report ***

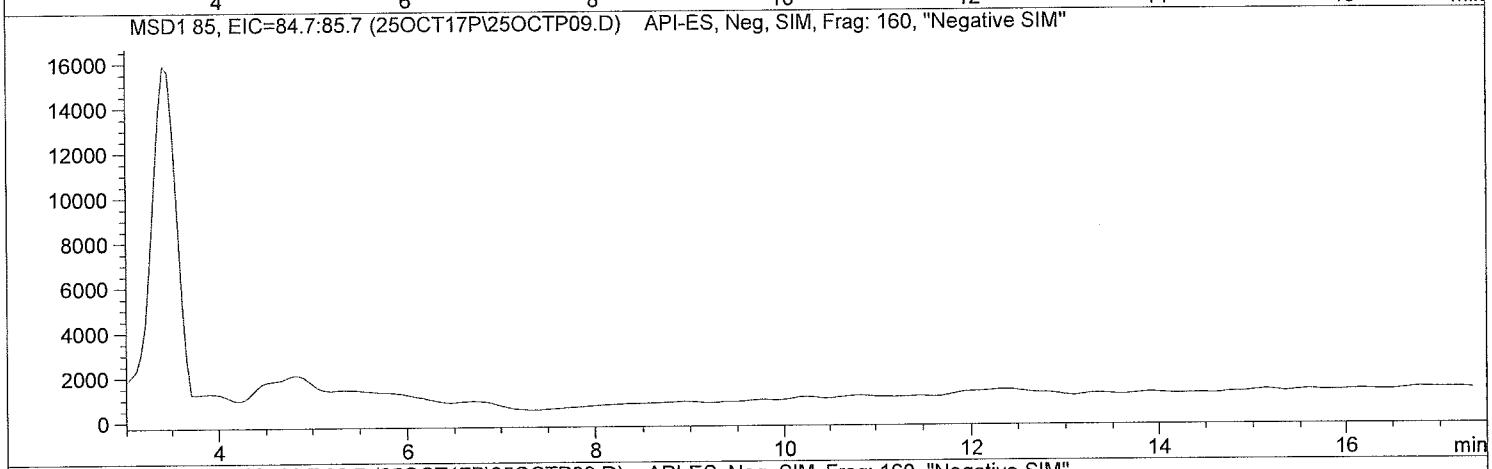
Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP09.D  Sample Name: 1728945001

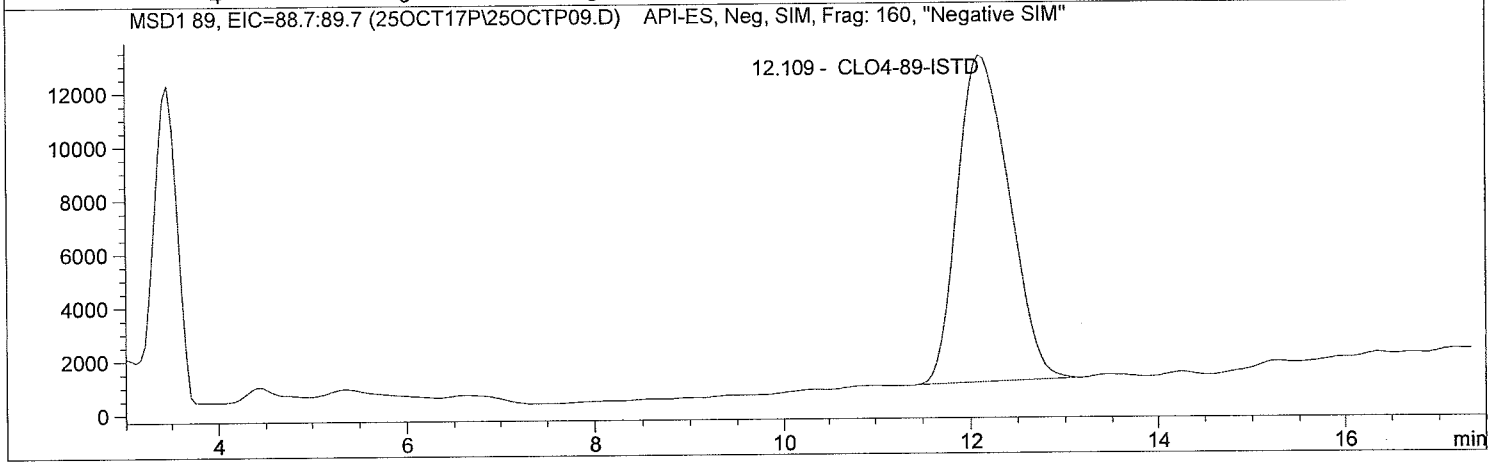
| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 11:43:34 | Seq Line: | 9 |
| Sample Name: | 1728945001 | Location: | Vial 89 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP09.D Sample Name: 1728945001

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 11:43:34 | Seq Line: | 9 |
| Sample Name: | 1728945001 | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 12.109 | PBA | 460454.9 | 5.0000 | CLO4-89-ISTD |

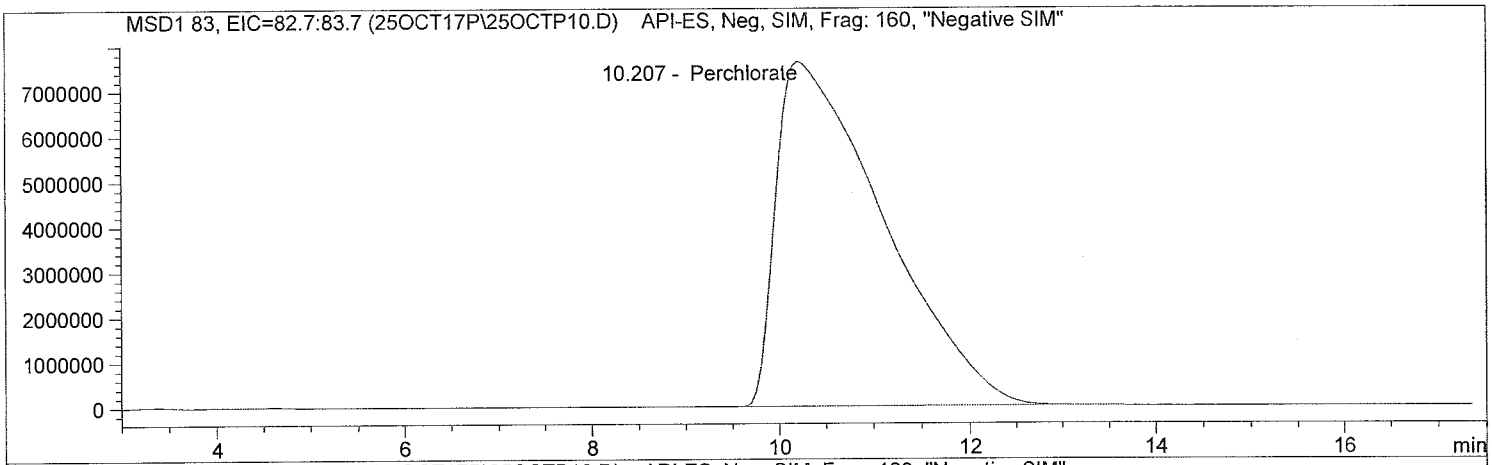
*** End of Report ***

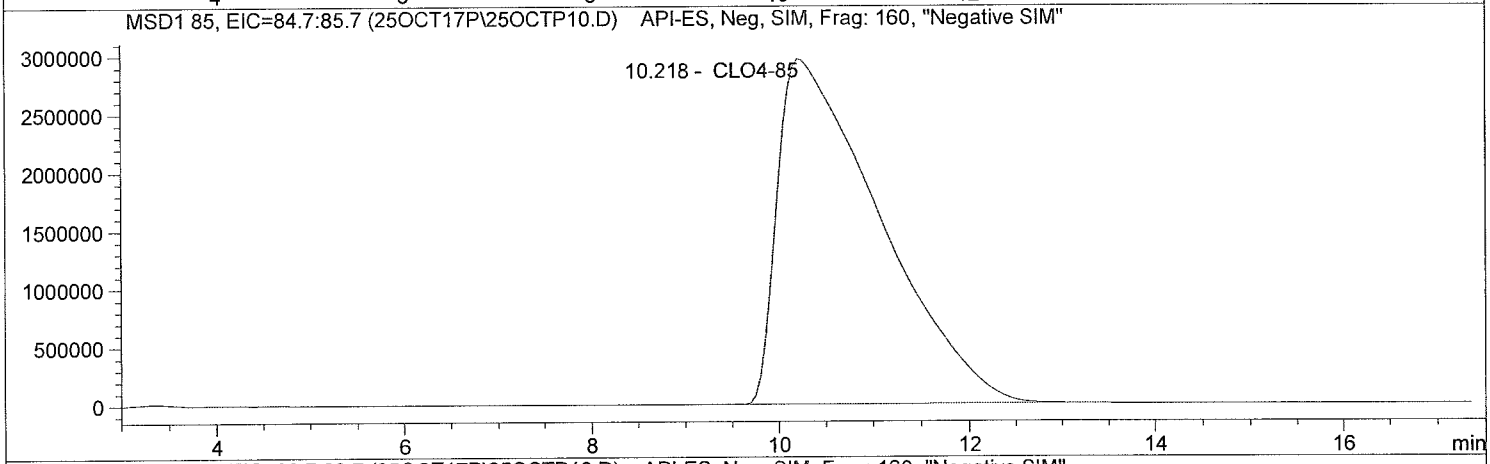
Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP10.D Sample Name: 1728946001

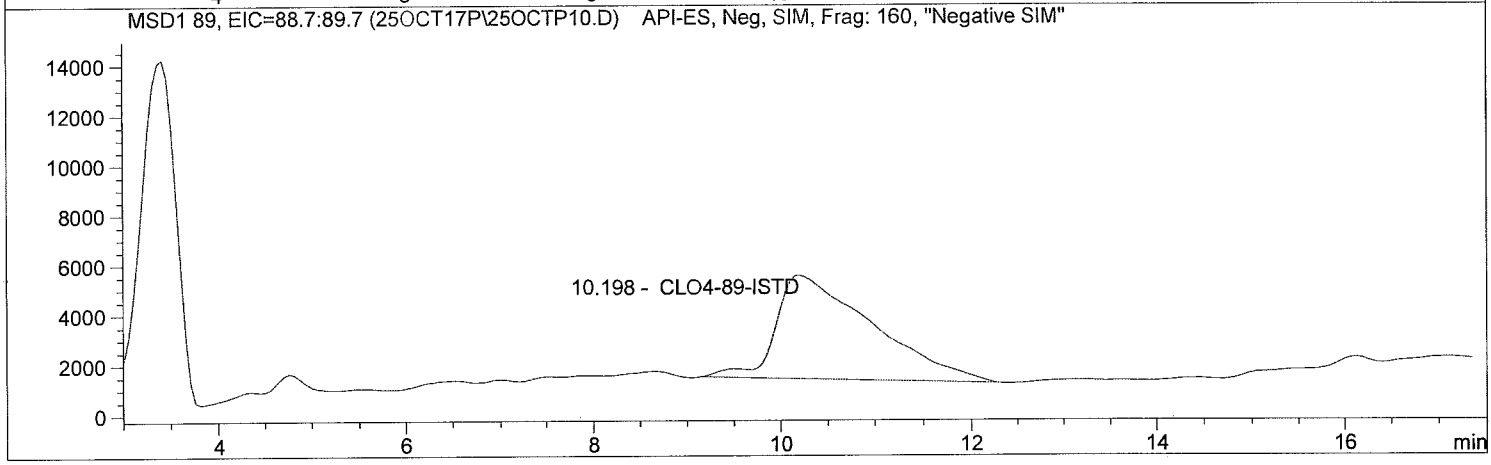
| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 12:02:51 | Seq Line: | 10 |
| Sample Name: | 1728946001 | Location: | Vial 90 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP10.D Sample Name: 1728946001

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 12:02:51 | Seq Line: | 10 |
| Sample Name: | 1728946001 | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 10.207 | PBA | 598622272.0 | 1043.0336 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 10.218 | PBA | 221715600.0 | 1404.7771 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 10.198 | PBA | 294801.1 | 5.0000 | CLO4-89-ISTD |

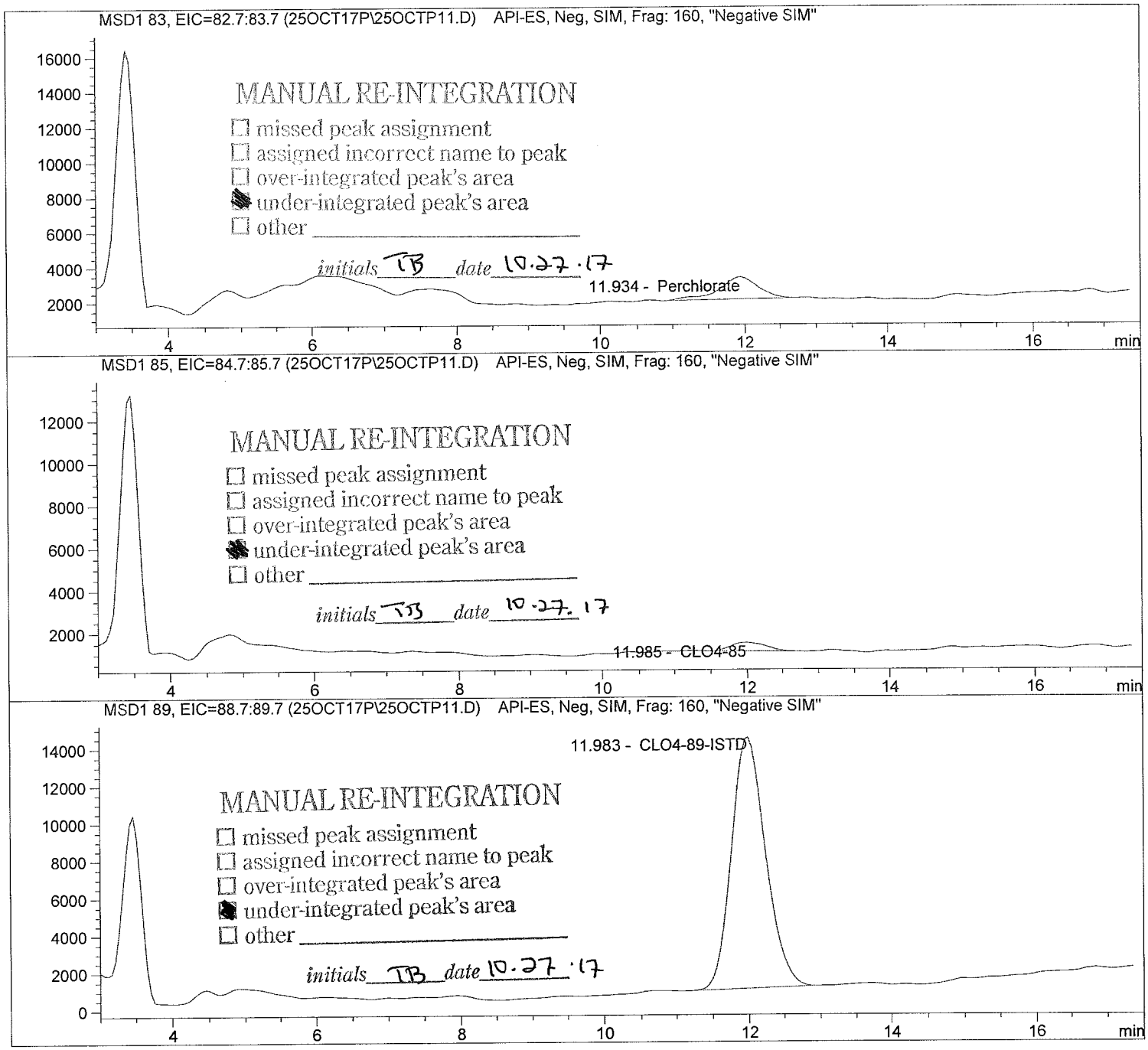
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP11.D  Sample Name: 1729349001

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 12:22:07 | Seq Line: | 11 |
| Sample Name: | 1729349001 | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP11.D  Sample Name: 1729349001

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 12:22:07 | Seq Line: | 11 |
| Sample Name: | 1729349001 | 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-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 11.934 | MM | 47998.0 | 0.5039 | Perchlorate |

< RL/MDL

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.985 | MM | 14252.7 | 0.4491 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.983 | MM | 446974.5 | 5.0000 | CLO4-89-ISTD |

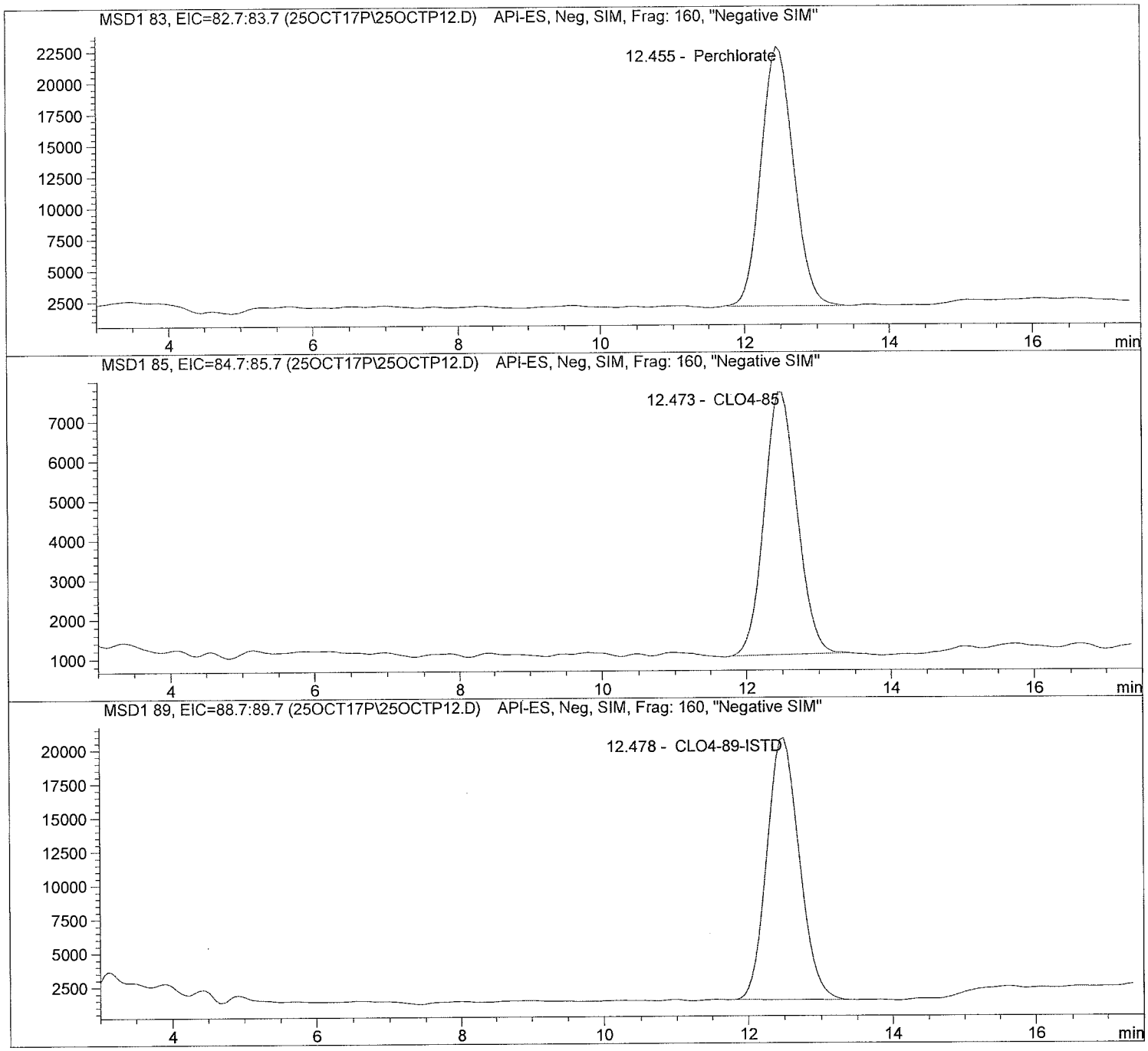
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP12.D Sample Name: 1728946001 1K

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 12:42:54 | Seq Line: | 12 |
| Sample Name: | 1728946001 1K | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP12.D Sample Name: 1728946001 1K

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 12:42:54 | Seq Line: | 12 |
| Sample Name: | 1728946001 1K | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 12.455 | BBA | 641885.6 | 4805.6841 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.473 | PBA | 207772.7 | 4790.7437 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.478 | BBA | 598771.3 | 5000.0000 | CLO4-89-ISTD |

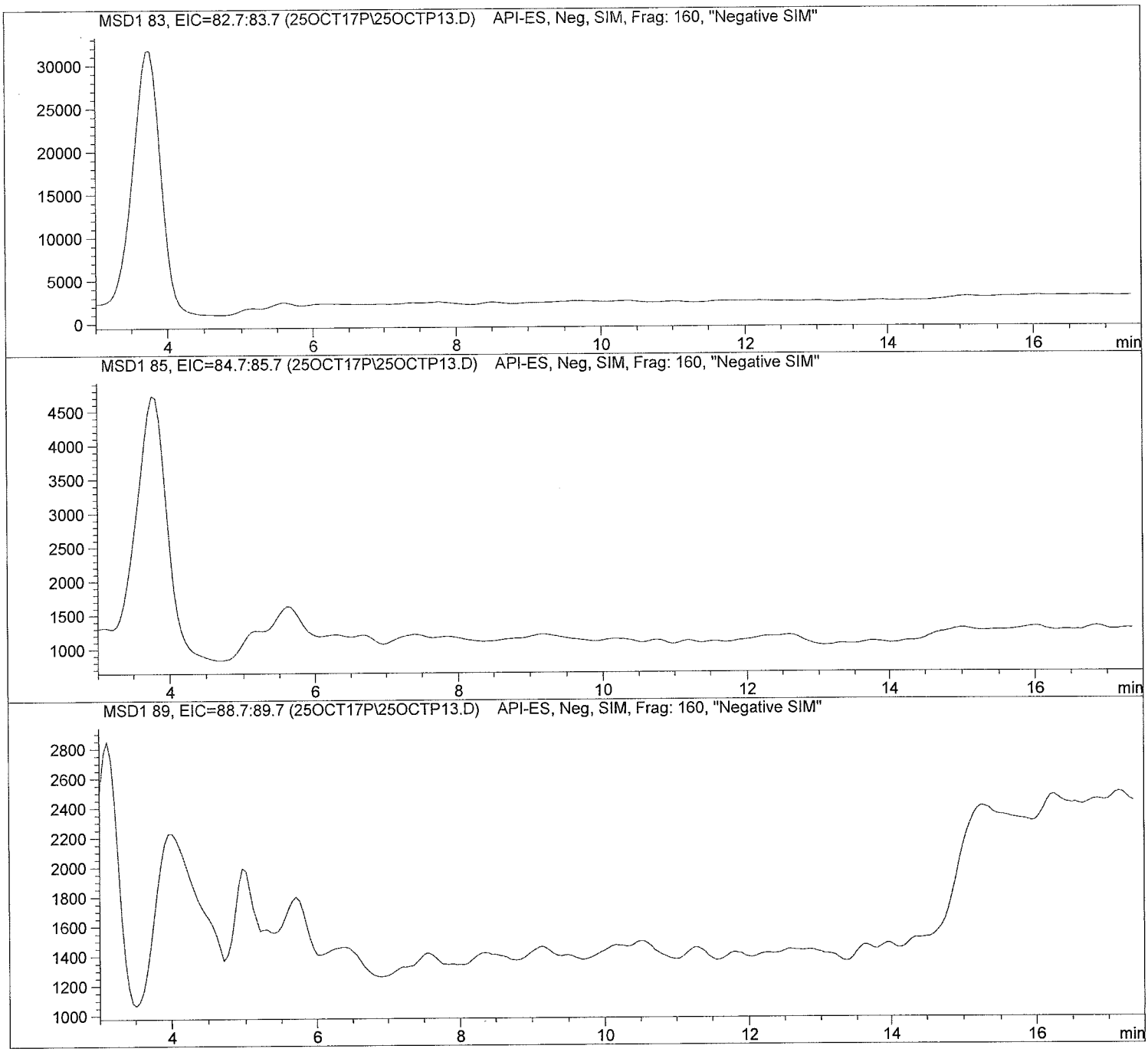
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP13.D  Sample Name: Rinse

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 13:02:08 | Seq Line: | 13 |
| Sample Name: | Rinse | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP13.D Sample Name: Rinse

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 13:02:08 | Seq Line: | 13 |
| Sample Name: | Rinse | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.000 |

## LCMS Results

Signal1: MSDl 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 |
|---|---|---|---|---|
| 0.000 | | 0.0 | 0.0000 | CLO4-89-ISTD |

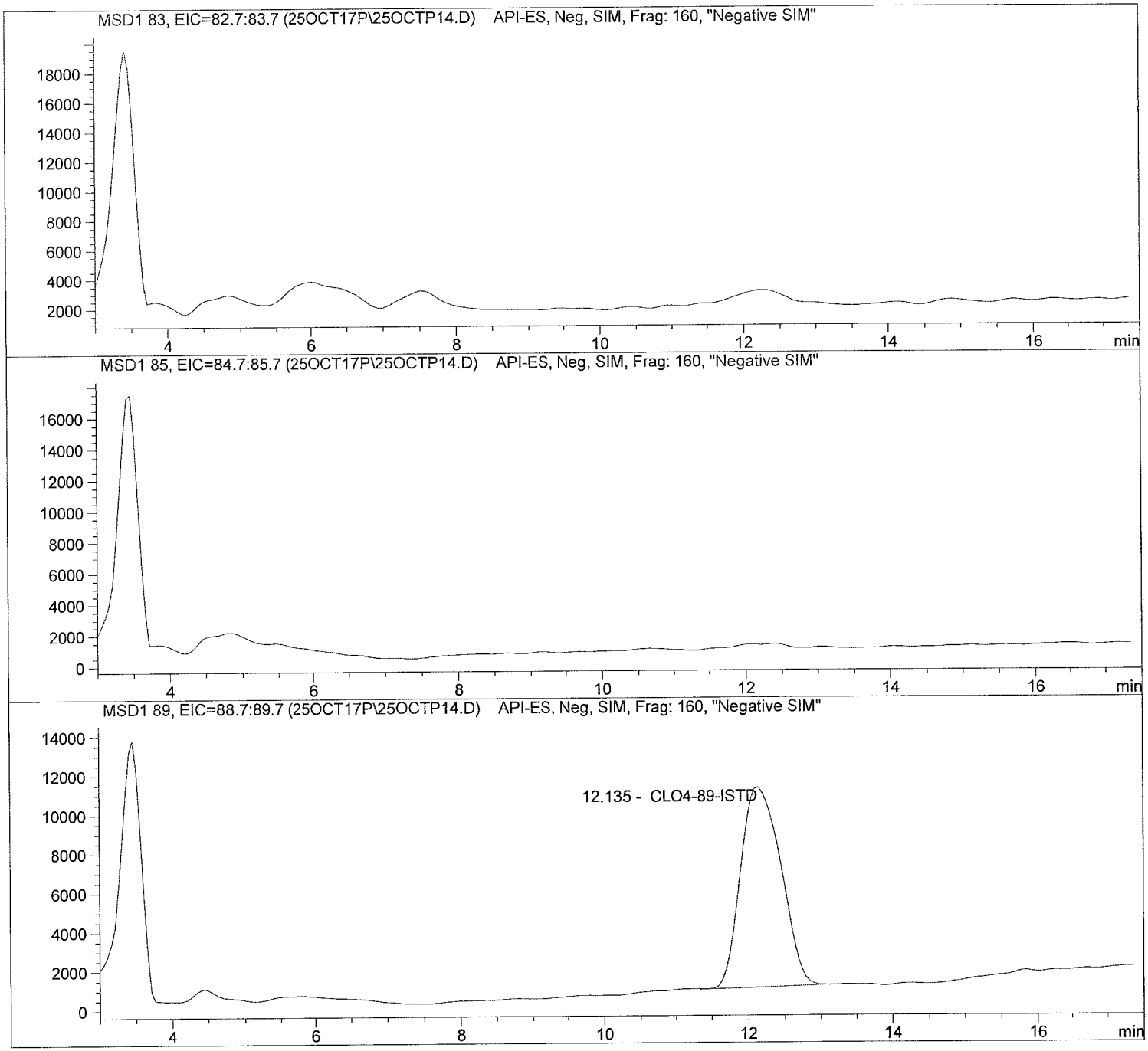
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP14.D Sample Name: 1729821001

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 13:21:24 | Seq Line: | 14 |
| Sample Name: | 1729821001 | Location: | Vial 92 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP14.D  Sample Name: 1729821001

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 13:21:24 | Seq Line: | 14 |
| Sample Name: | 1729821001 | Location: | Vial 92 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 12.135 | BBA | 392983.3 | 5.0000 | CLO4-89-ISTD |

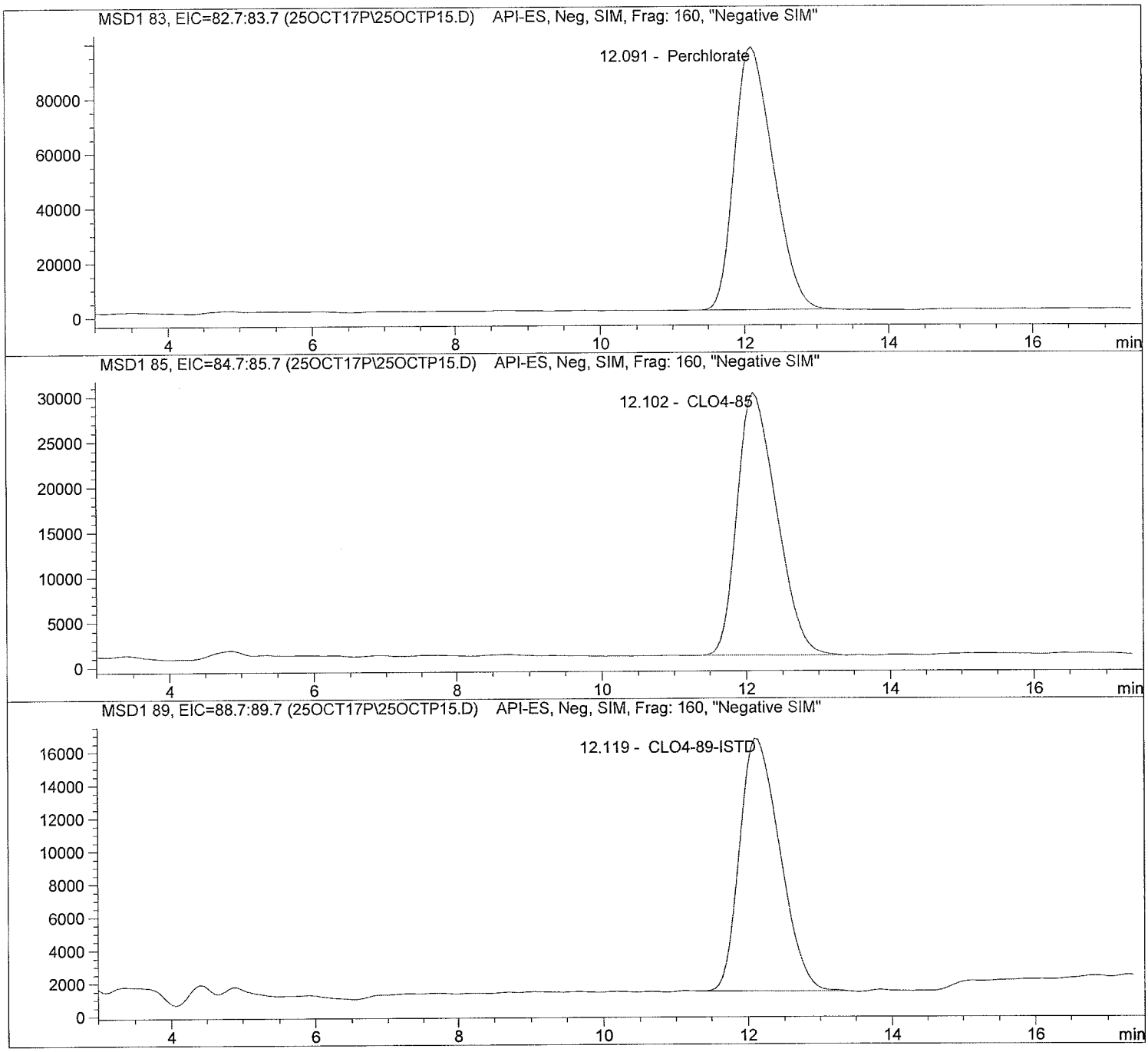
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP15.D  Sample Name: 571101  CCV@25

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 14:46:57 | Seq Line: | 15 |
| Sample Name: | 571101 CCV@25 | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP15.D  Sample Name: 571101  CCV@25

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 14:46:57 | Seq Line: | 15 |
| Sample Name: | 571101 CCV@25 | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 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 |
|---|---|---|---|---|
| 12.091 | BBA | 3560409.2 | 23.8177 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.102 | PBA | 1092944.3 | 23.6862 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.119 | BBA | 586464.6 | 5.0000 | CLO4-89-ISTD |

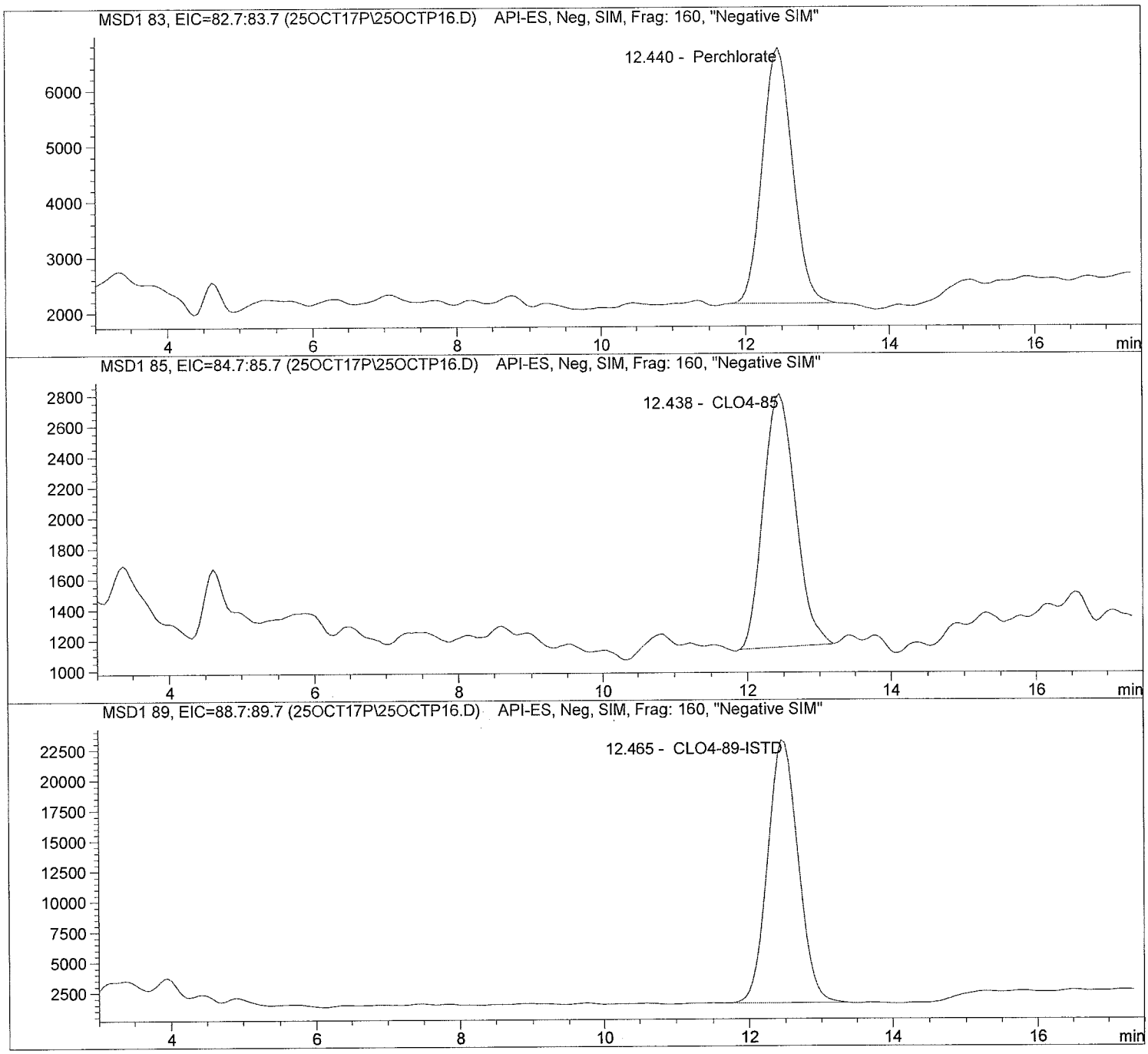
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP16.D Sample Name: 571102 LODV@1.

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 15:06:11 | Seq Line: | 16 |
| Sample Name: | 571102 LODV@1. | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP16.D Sample Name: 571102 LODV@1.

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 15:06:11 | Seq Line: | 16 |
| Sample Name: | 571102 LODV@1. | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 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 |
|---|---|---|---|---|
| 12.440 | PBA | 132751.2 | 0.9676 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.438 | PBA | 51323.1 | 1.1313 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.465 | BBA | 636963.2 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

# Raw Data

## Initial Calibration

Batch Report: C:\HPCHEM\1\DATA\21AUG17P\21AUG17P.B

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-PR3.M

['#' ==> Run has not been reprocessed with Batch Review Method
'*' ==> Run has been saved with batch file]

| #* | Sample Location | Inj | SampleType | Run | CLO4-85 Area | CLO4-85 RT | CLO4-85 Amount |
|---|---|---|---|---|---|---|---|
| * | ICAL1@ .05ug/L Vial 71 | 1 | Control | 1 | 4365.90820 | 12.226 | 9.14000e-2 |
| * | ICAL2@ .10ug/L Vial 72 | 1 | Control | 2 | 9514.03027 | 12.210 | 2.01141e-1 |
| * | ICAL3@ .20ug/L Vial 73 | 1 | Control | 3 | 1.35331e4 | 12.236 | 2.88584e-1 |
| * | ICAL4@ 0.5ug/L Vial 74 | 1 | Control | 4 | 2.76171e4 | 12.161 | 5.95393e-1 |
| * | ICAL5@ 1.0ug/L Vial 75 | 1 | Control | 5 | 4.75097e4 | 12.226 | 1.01731 |
| * | ICAL6@ 5.0ug/L Vial 76 | 1 | Control | 6 | 2.30426e5 | 12.209 | 5.01082 |
| * | ICAL7@ 10.ug/L Vial 77 | 1 | Control | 7 | 4.46570e5 | 12.212 | 9.64041 |
| * | ICAL8@ 25.ug/L Vial 78 | 1 | Control | 8 | 1.19993e6 | 12.134 | 25.19412 |
| * | ICAL9@ 50.ug/L Vial 79 | 1 | Control | 9 | 2.60933e6 | 12.150 | 49.96977 |
| * | ICAL Verf@10ug/L Vial 80 | 1 | Control | 10 | 4.49703e5 | 12.232 | 9.41499 |

| #* | Sample Location | Inj | SampleType | Run | Perchlorate Area | Perchlorate RT | Perchlorate Amount |
|---|---|---|---|---|---|---|---|
| * | ICAL1@ .05ug/L Vial 71 | 1 | Control | 1 | 8930.38184 | 12.237 | 6.88583e-2 |
| * | ICAL2@ .10ug/L Vial 72 | 1 | Control | 2 | 1.15052e4 | 12.248 | 8.73938e-2 |
| * | ICAL3@ .20ug/L Vial 73 | 1 | Control | 3 | 2.62111e4 | 12.238 | 1.91166e-1 |
| * | ICAL4@ 0.5ug/L Vial 74 | 1 | Control | 4 | 6.28912e4 | 12.159 | 4.52946e-1 |
| * | ICAL5@ 1.0ug/L Vial 75 | 1 | Control | 5 | 1.30706e5 | 12.231 | 9.25591e-1 |
| * | ICAL6@ 5.0ug/L Vial 76 | 1 | Control | 6 | 6.80205e5 | 12.200 | 4.80762 |
| * | ICAL7@ 10.ug/L Vial 77 | 1 | Control | 7 | 1.41057e6 | 12.196 | 9.74126 |
| * | ICAL8@ 25.ug/L Vial 78 | 1 | Control | 8 | 4.00474e6 | 12.118 | 25.78802 |
| * | ICAL9@ 50.ug/L Vial 79 | 1 | Control | 9 | 8.85683e6 | 12.137 | 49.73658 |
| * | ICAL Verf@10ug/L Vial 80 | 1 | Control | 10 | 1.36065e6 | 12.218 | 9.14332 |

| #* | Sample Location | Inj | SampleType | Run | CLO4-89-ISTD Area | CLO4-89-ISTD RT | CLO4-89-ISTD Amount |
|---|---|---|---|---|---|---|---|
| * | ICAL1@ .05ug/L Vial 71 | 1 | Control | 1 | 6.73943e5 | 12.272 | 5.00000 |
| * | ICAL2@ .10ug/L Vial 72 | 1 | Control | 2 | 6.67016e5 | 12.250 | 5.00000 |
| * | ICAL3@ .20ug/L Vial 73 | 1 | Control | 3 | 6.61031e5 | 12.267 | 5.00000 |
| * | ICAL4@ 0.5ug/L Vial 74 | 1 | Control | 4 | 6.52904e5 | 12.190 | 5.00000 |
| * | ICAL5@ 1.0ug/L Vial 75 | 1 | Control | 5 | 6.56071e5 | 12.242 | 5.00000 |
| * | ICAL6@ 5.0ug/L Vial 76 | 1 | Control | 6 | 6.34251e5 | 12.221 | 5.00000 |
| * | ICAL7@ 10.ug/L Vial 77 | 1 | Control | 7 | 6.25689e5 | 12.216 | 5.00000 |
| * | ICAL8@ 25.ug/L Vial 78 | 1 | Control | 8 | 6.01523e5 | 12.141 | 5.00000 |
| * | ICAL9@ 50.ug/L Vial 79 | 1 | Control | 9 | 5.97661e5 | 12.156 | 5.00000 |
| * | ICAL Verf@10ug/L Vial 80 | 1 | Control | 10 | 6.45815e5 | 12.234 | 5.00000 |

*** End of Report ***

Method C:\HPCHEM\1\METHODS\CLO4-PR3.M

## Calibration Table

Perchlorate

Calib. Data Modified : 8/21/2017 2:55:52 PM

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 |
|---|---|---|---|---|---|---|---|---|
| 12.226 | 2 | 1 | 5.00000e-2 | 4365.90820 | 1.14524e-5 | | 1 | CLO4-85 |
| | | 2 | 1.00000e-1 | 9514.03027 | 1.05108e-5 | | | |
| | | 3 | 2.00000e-1 | 1.35331e4 | 1.47786e-5 | | | |
| | | 4 | 5.00000e-1 | 2.76171e4 | 1.81047e-5 | | | |
| | | 5 | 1.00000 | 4.75097e4 | 2.10483e-5 | | | |
| | | 6 | 5.00000 | 2.30426e5 | 2.16990e-5 | | | |
| | | 7 | 10.00000 | 4.46570e5 | 2.23929e-5 | | | |
| | | 8 | 25.00000 | 1.19993e6 | 2.08345e-5 | | | |
| | | 9 | 50.00000 | 2.60933e6 | 1.91620e-5 | | | |
| 12.237 | 1 | 1 | 5.00000e-2 | 8930.38184 | 5.59886e-6 | | 1 | Perchlorate |
| | | 2 | 1.00000e-1 | 1.15052e4 | 8.69173e-6 | | | |
| | | 3 | 2.00000e-1 | 2.62111e4 | 7.63037e-6 | | | |
| | | 4 | 5.00000e-1 | 6.28912e4 | 7.95024e-6 | | | |
| | | 5 | 1.00000 | 1.30706e5 | 7.65074e-6 | | | |
| | | 6 | 5.00000 | 6.80205e5 | 7.35073e-6 | | | |
| | | 7 | 10.00000 | 1.41057e6 | 7.08933e-6 | | | |
| | | 8 | 25.00000 | 4.00474e6 | 6.24259e-6 | | | |
| | | 9 | 50.00000 | 8.85683e6 | 5.64536e-6 | | | |
| 12.272 | 3 | 1 | 5.00000 | 6.73943e5 | 7.41903e-6 | +I1 | | CLO4-89-ISTD |
| | | 2 | 5.00000 | 6.67016e5 | 7.49607e-6 | | | |

Method C:\HPCHEM\1\METHODS\CLO4-PR3.M

| RetTime [min] | Sig | Lvl | Amount | Area | Amt/Area | Ref | Grp | Name |
|---|---|---|---|---|---|---|---|---|
| | | 3 | 5.00000 | 6.61031e5 | 7.56394e-6 | | | |
| | | 4 | 5.00000 | 6.52904e5 | 7.65809e-6 | | | |
| | | 5 | 5.00000 | 6.56071e5 | 7.62113e-6 | | | |
| | | 6 | 5.00000 | 6.34251e5 | 7.88331e-6 | | | |
| | | 7 | 5.00000 | 6.25689e5 | 7.99119e-6 | | | |
| | | 8 | 5.00000 | 6.01523e5 | 8.31223e-6 | | | |
| | | 9 | 5.00000 | 5.97661e5 | 8.36594e-6 | | | |

More compound-specific settings:

Compound: CLO4-85
- Time Window : From 10.676 min To 13.166 min
- Curve Type : Quadratic
- Origin : Forced
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 1
  - Level 3 : 1
  - Level 4 : 1
  - Level 5 : 1
  - Level 6 : 1
  - Level 7 : 1
  - Level 8 : 1
  - Level 9 : 1

Compound: Perchlorate
- Time Window : From 10.737 min To 13.198 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 0.5
  - Level 3 : 0.25
  - Level 4 : 0.1
  - Level 5 : 0.05
  - Level 6 : 0.01
  - Level 7 : 0.005
  - Level 8 : 0.002
  - Level 9 : 0.001

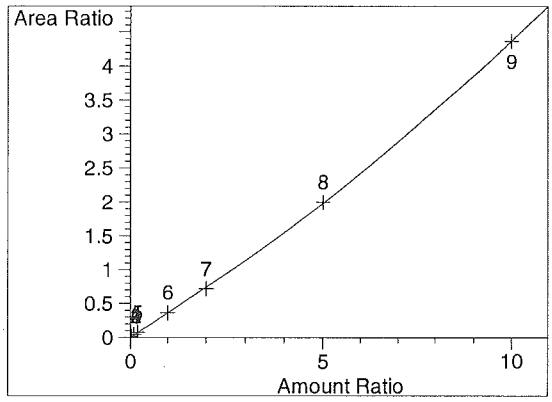
Compound: CLO4-89-ISTD
- Time Window : From 10.704 min To 13.272 min
- Curve Type : Linear
- Origin : Included
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 1
  - Level 3 : 1
  - Level 4 : 1
  - Level 5 : 1
  - Level 6 : 1
  - Level 7 : 1
  - Level 8 : 1
  - Level 9 : 1

Peak Sum Table

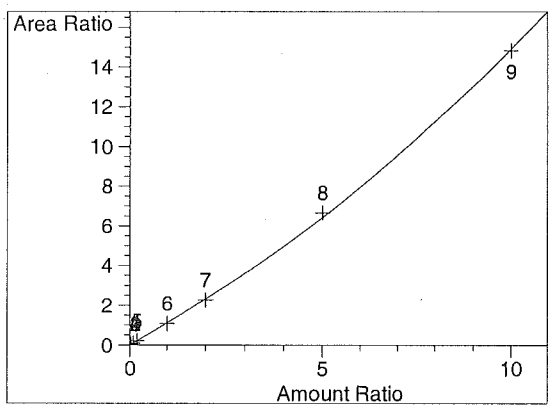
***No Entries in table***

Method C:\HPCHEM\1\METHODS\CLO4-PR3.M

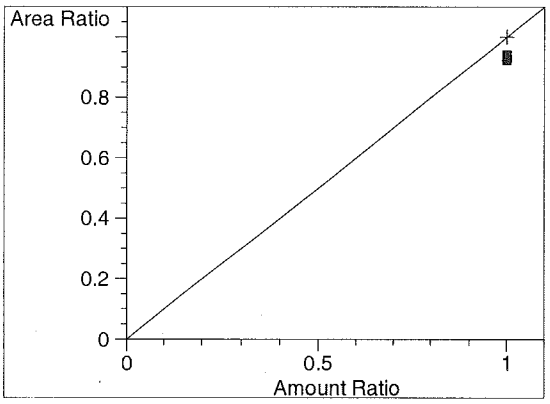
## Calibration Curves




CLO4-85 at exp. RT: 12.226
MSD1 85, EIC=84.7:85.7
Correlation: 0.99997
Residual Std. Dev.: 0.01235
Formula: $y = ax^2 + bx$
a: 8.26698e-3
b: 3.54234e-1
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
Level 8 : 1
Level 9 : 1




Perchlorate at exp. RT: 12.237
MSD1 83, EIC=82.7:83.7
Correlation: 0.99970
Residual Std. Dev.: 0.10168
Formula: $y = ax^2 + bx + c$
a: 4.14991e-2
b: 1.07712
c: -1.59065e-3
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.5
Level 3 : 0.25
Level 4 : 0.1
Level 5 : 0.05
Level 6 : 0.01
Level 7 : 0.005
Level 8 : 0.002
Level 9 : 0.001




CLO4-89-ISTD at exp. RT: 12.272
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
Level 8 : 1
Level 9 : 1

Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2017\AUG\21AUG17P.S

Sequence Table:

Method and Injection Info Part:

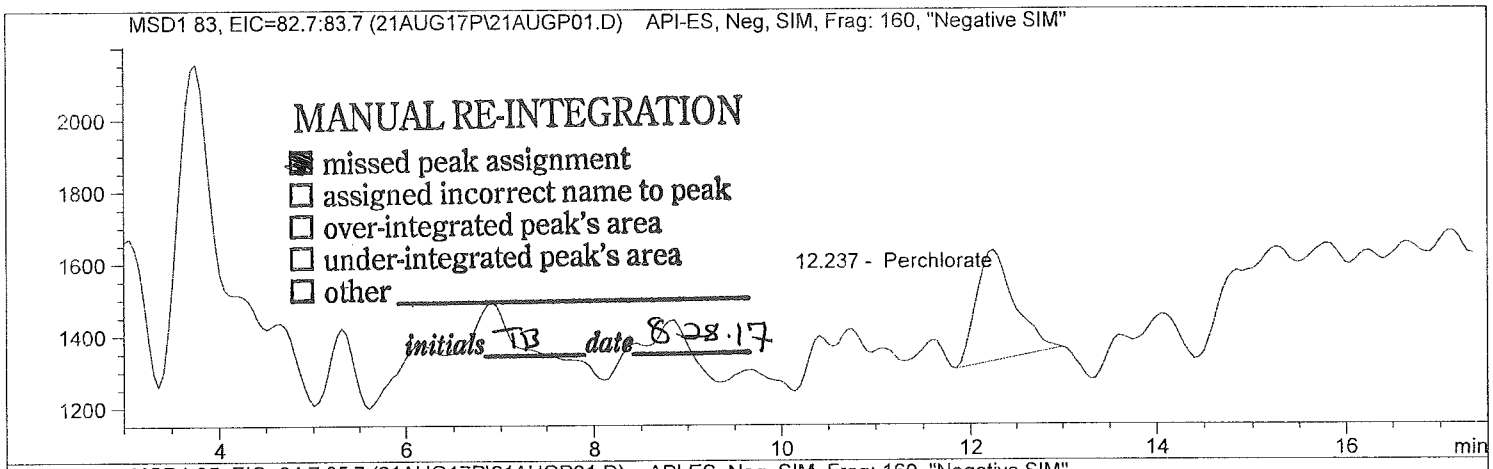
| Line | Location | SampleName | Method | Inj | SampleType | InjVolume | DataFile |
|---|---|---|---|---|---|---|---|
| 1 | Vial 71 | ICAL1@ .05ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 2 | Vial 72 | ICAL2@ .10ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 3 | Vial 73 | ICAL3@ .20ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 4 | Vial 74 | ICAL4@ 0.5ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 5 | Vial 75 | ICAL5@ 1.0ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 6 | Vial 76 | ICAL6@ 5.0ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 7 | Vial 77 | ICAL7@ 10.ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 8 | Vial 78 | ICAL8@ 25.ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 9 | Vial 79 | ICAL9@ 50.ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 10 | Vial 80 | ICAL Verf@10ug/L | CLO4-AQN | 1 | Ctrl Samp | | |

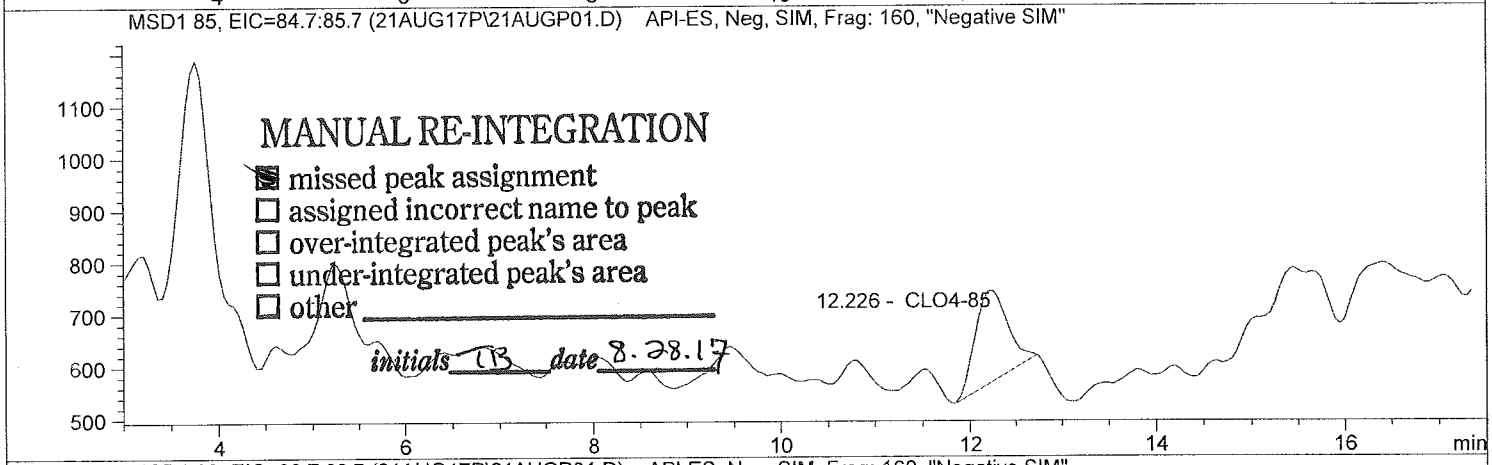
Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP01.D  Sample Name: ICAL1@ .05ug/L

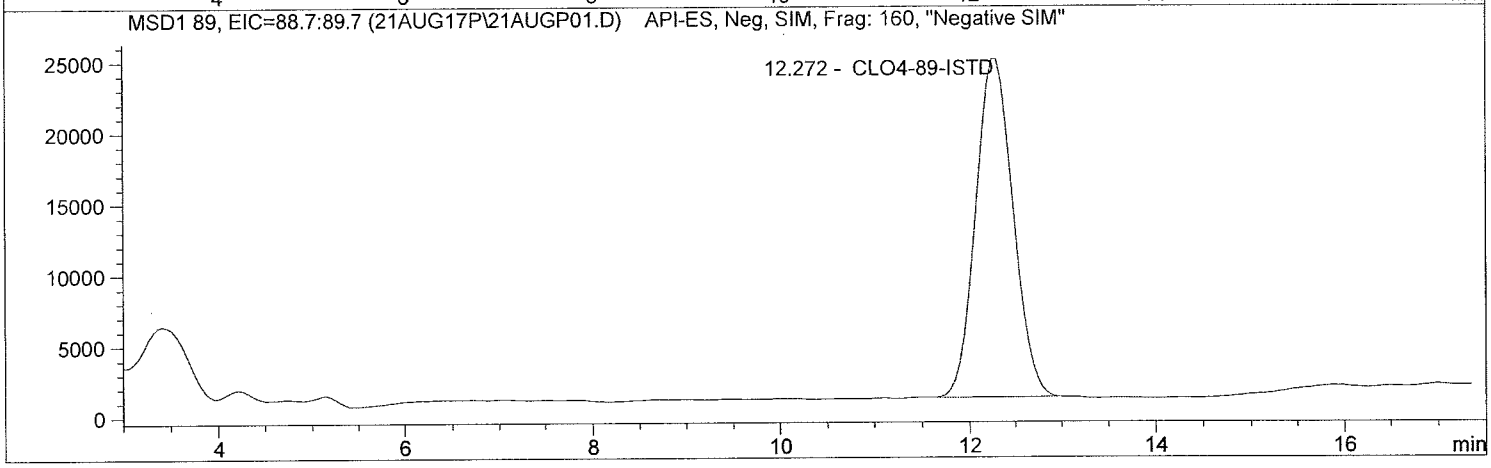
| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 09:42:32 | Seq Line: | 1 |
| Sample Name: | ICAL1@ .05ug/L | Location: | Vial 71 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP01.D  Sample Name: ICAL1@ .05ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 09:42:32 | Seq Line: | 1 |
| Sample Name: | ICAL1@ .05ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.050 |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.237 | MM | 8930.4 | 0.0689 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.226 | MM | 4365.9 | 0.0914 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.272 | BBA | 673942.9 | 5.0000 | CLO4-89-ISTD |

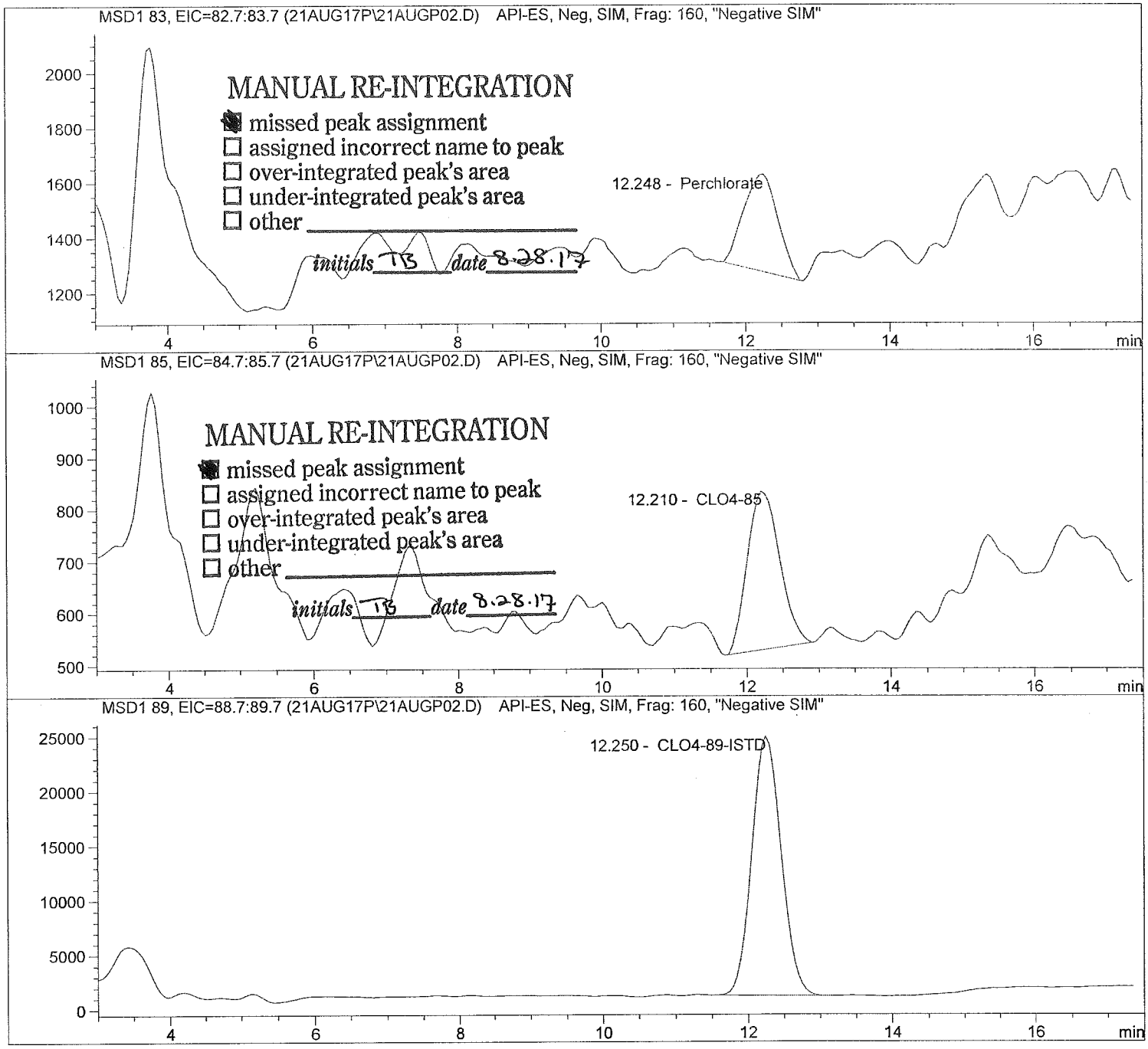
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP02.D  Sample Name: ICAL2@ .10ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:01:47 | Seq Line: | 2 |
| Sample Name: | ICAL2@ .10ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP02.D  Sample Name: ICAL2@ .10ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:01:47 | Seq Line: | 2 |
| Sample Name: | ICAL2@ .10ug/L | 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-PR3.M |
| Last Changed: | 8/21/2017 14:55:53 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.100 |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.248 | MM | 11505.2 | 0.0874 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.210 | MM | 9514.0 | 0.2011 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.250 | BBA | 667016.3 | 5.0000 | CLO4-89-ISTD |

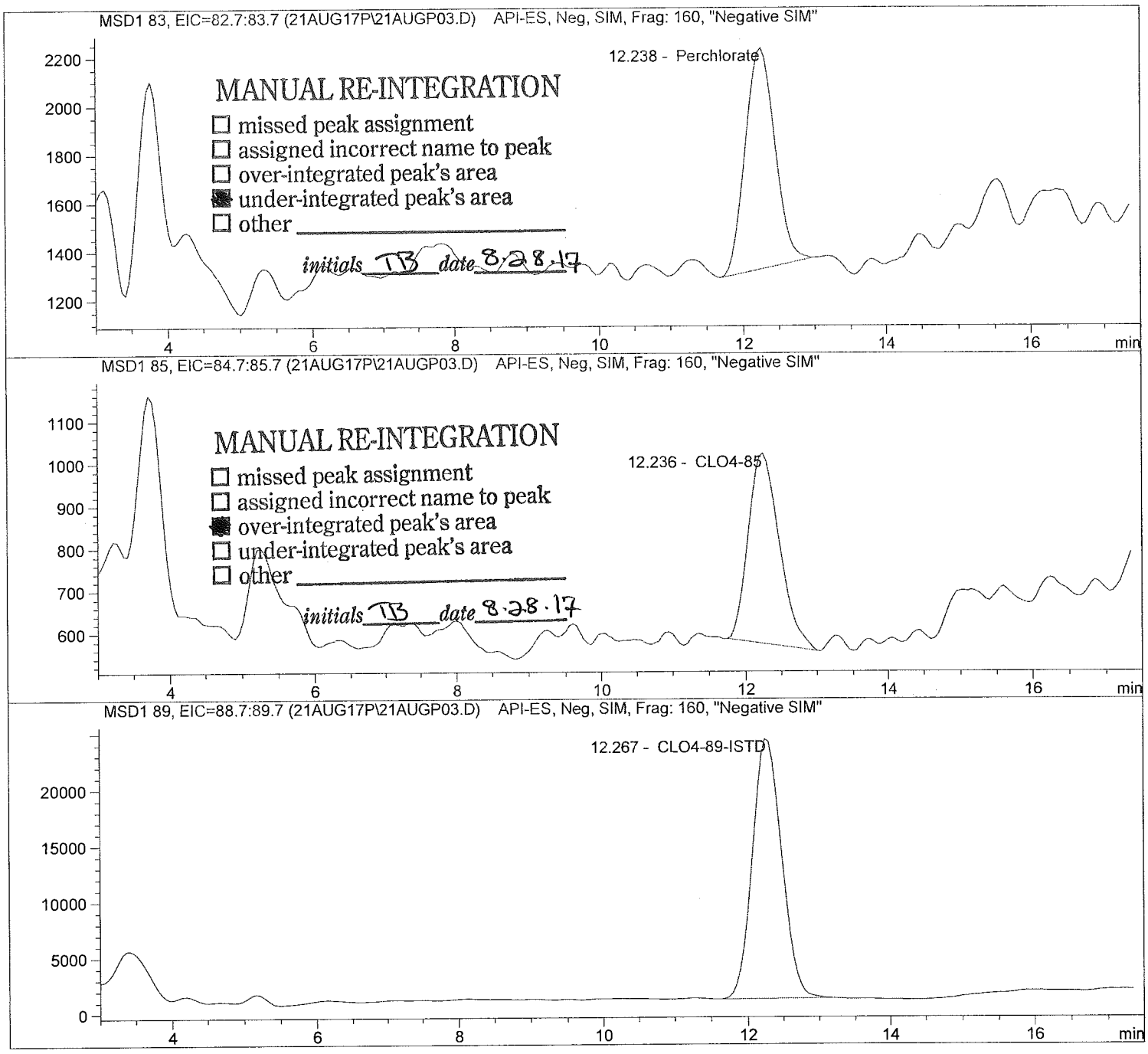
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP03.D  Sample Name: ICAL3@ .20ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:21:02 | Seq Line: | 3 |
| Sample Name: | ICAL3@ .20ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP03.D  Sample Name: ICAL3@ .20ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:21:02 | Seq Line: | 3 |
| Sample Name: | ICAL3@ .20ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.200 |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.238 | MM | 26211.1 | 0.1912 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.236 | MM | 13533.1 | 0.2886 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.267 | PBA | 661030.8 | 5.0000 | CLO4-89-ISTD |

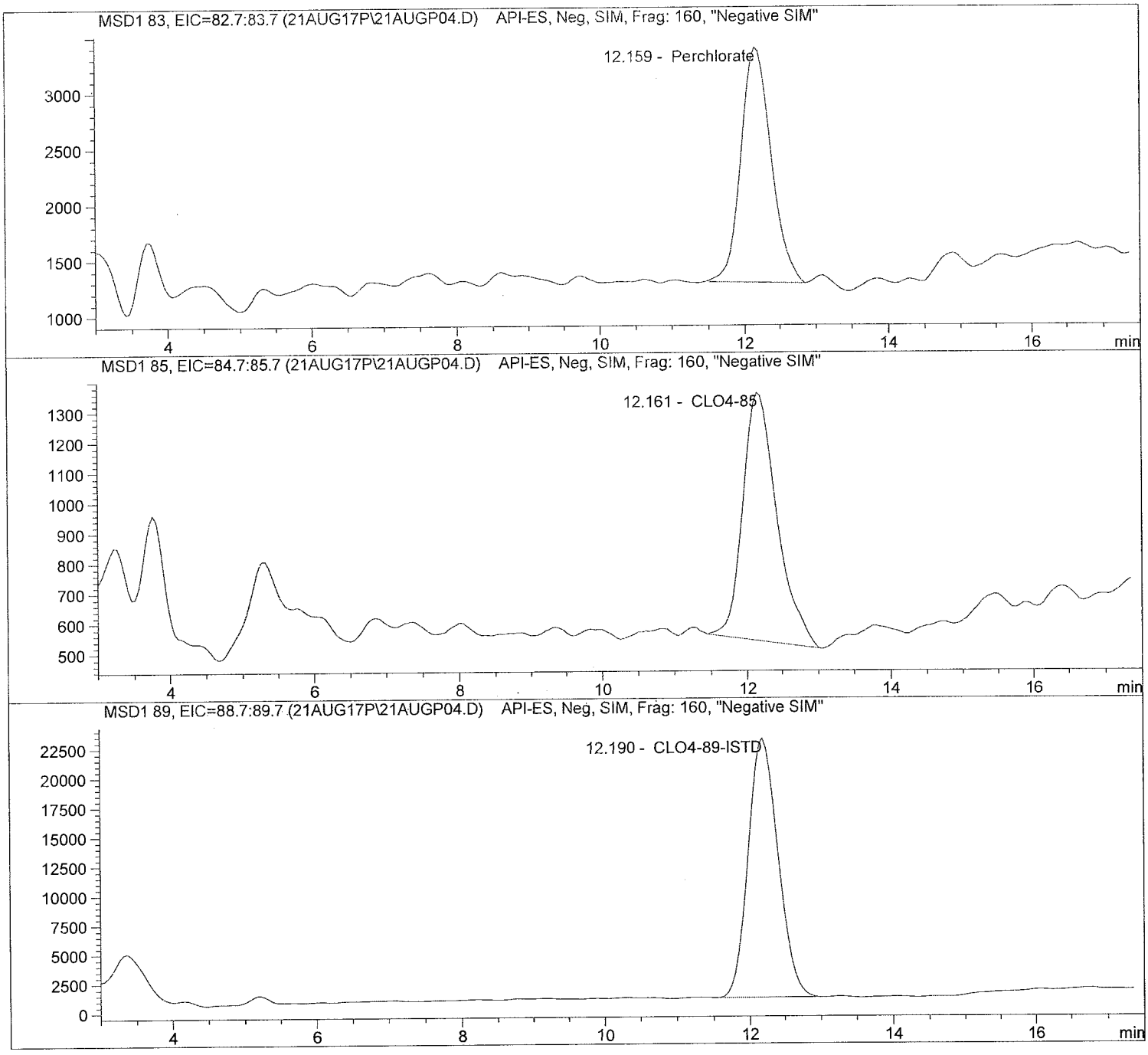
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP04.D Sample Name: ICAL4@ 0.5ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:40:22 | Seq Line: | 4 |
| Sample Name: | ICAL4@ 0.5ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP04.D Sample Name: ICAL4@ 0.5ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:40:22 | Seq Line: | 4 |
| Sample Name: | ICAL4@ 0.5ug/L | 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-PR3.M |
| Last Changed: | 8/21/2017 14:55:53 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.500 |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.159 | BBA | 62891.2 | 0.4529 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.161 | PBA | 27617.1 | 0.5954 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.190 | PBA | 652904.1 | 5.0000 | CLO4-89-ISTD |

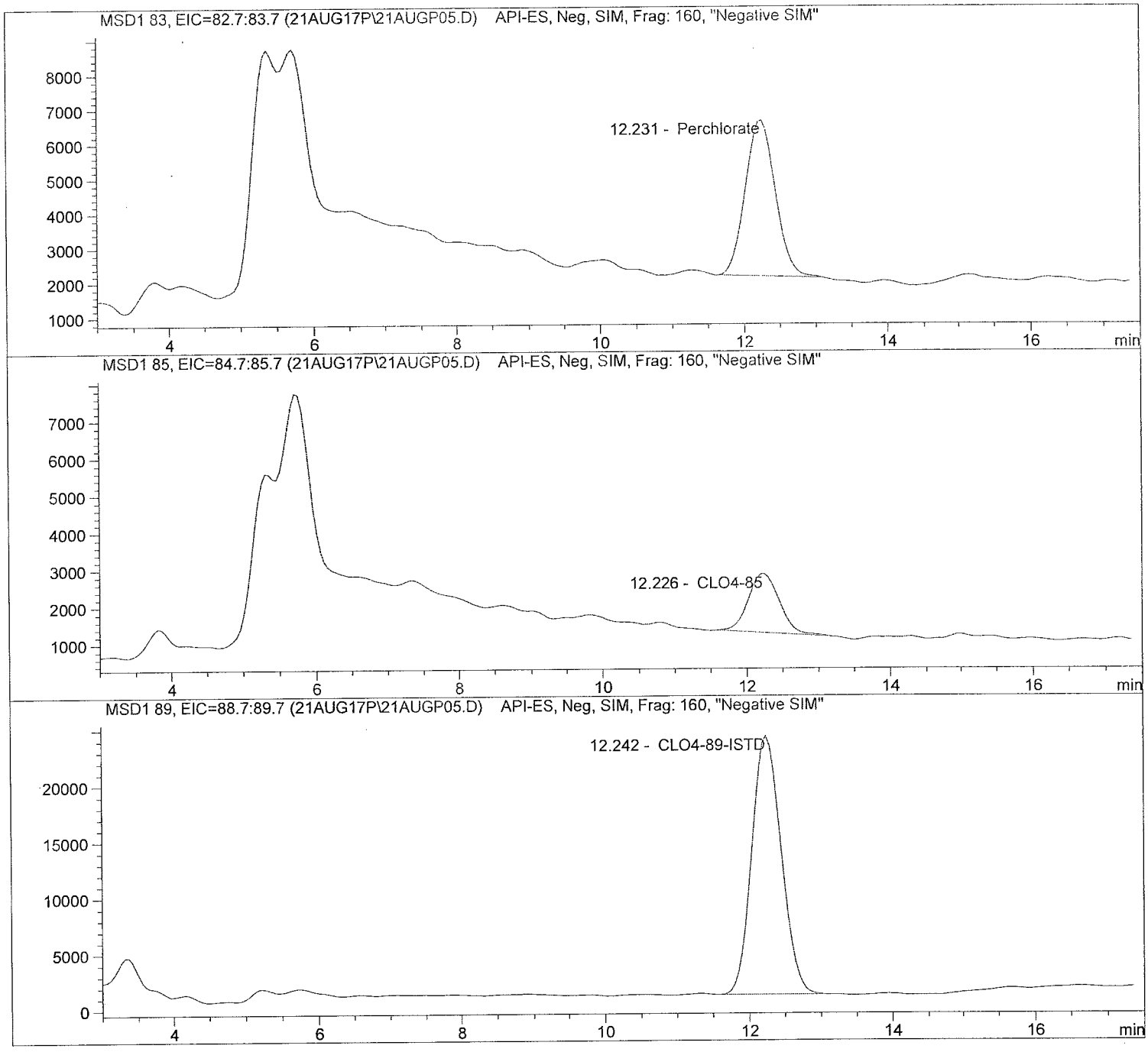
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP05.D Sample Name: ICAL5@ 1.0ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:59:36 | Seq Line: | 5 |
| Sample Name: | ICAL5@ 1.0ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP05.D  Sample Name: ICAL5@ 1.0ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:59:36 | Seq Line: | 5 |
| Sample Name: | ICAL5@ 1.0ug/L | 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-PR3.M |
| Last Changed: | 8/21/2017 14:55:53 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| 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 |
|---|---|---|---|---|
| 12.231 | PBA | 130706.3 | 0.9256 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.226 | PBA | 47509.7 | 1.0173 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.242 | PBA | 656070.7 | 5.0000 | CLO4-89-ISTD |

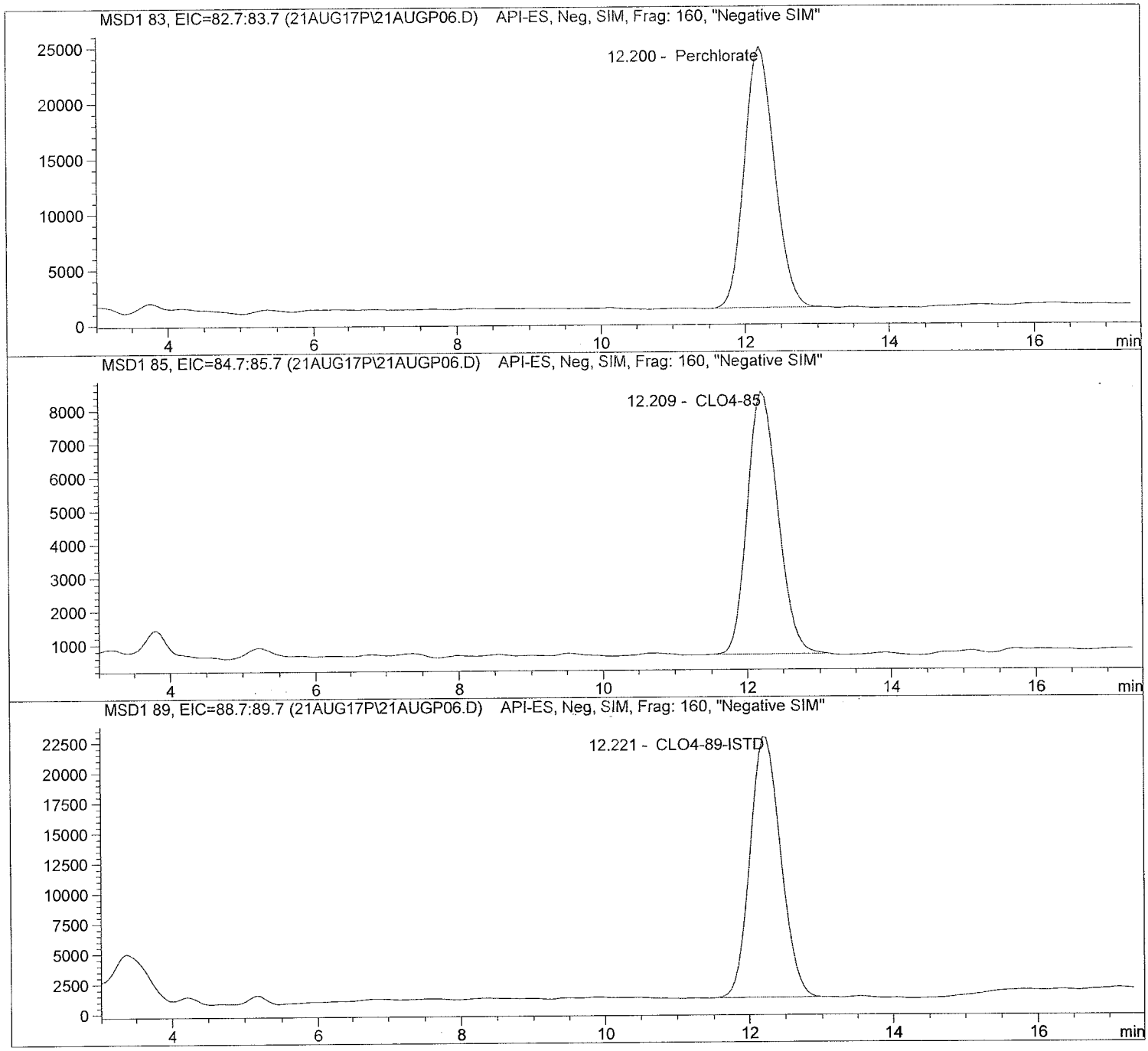
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP06.D  Sample Name: ICAL6@ 5.0ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 11:18:53 | Seq Line: | 6 |
| Sample Name: | ICAL6@ 5.0ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP06.D  Sample Name: ICAL6@ 5.0ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 11:18:53 | Seq Line: | 6 |
| Sample Name: | ICAL6@ 5.0ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| 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 |
|---|---|---|---|---|
| 12.200 | PBA | 680204.6 | 4.8076 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.209 | BBA | 230425.8 | 5.0108 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.221 | BBA | 634251.4 | 5.0000 | CLO4-89-ISTD |

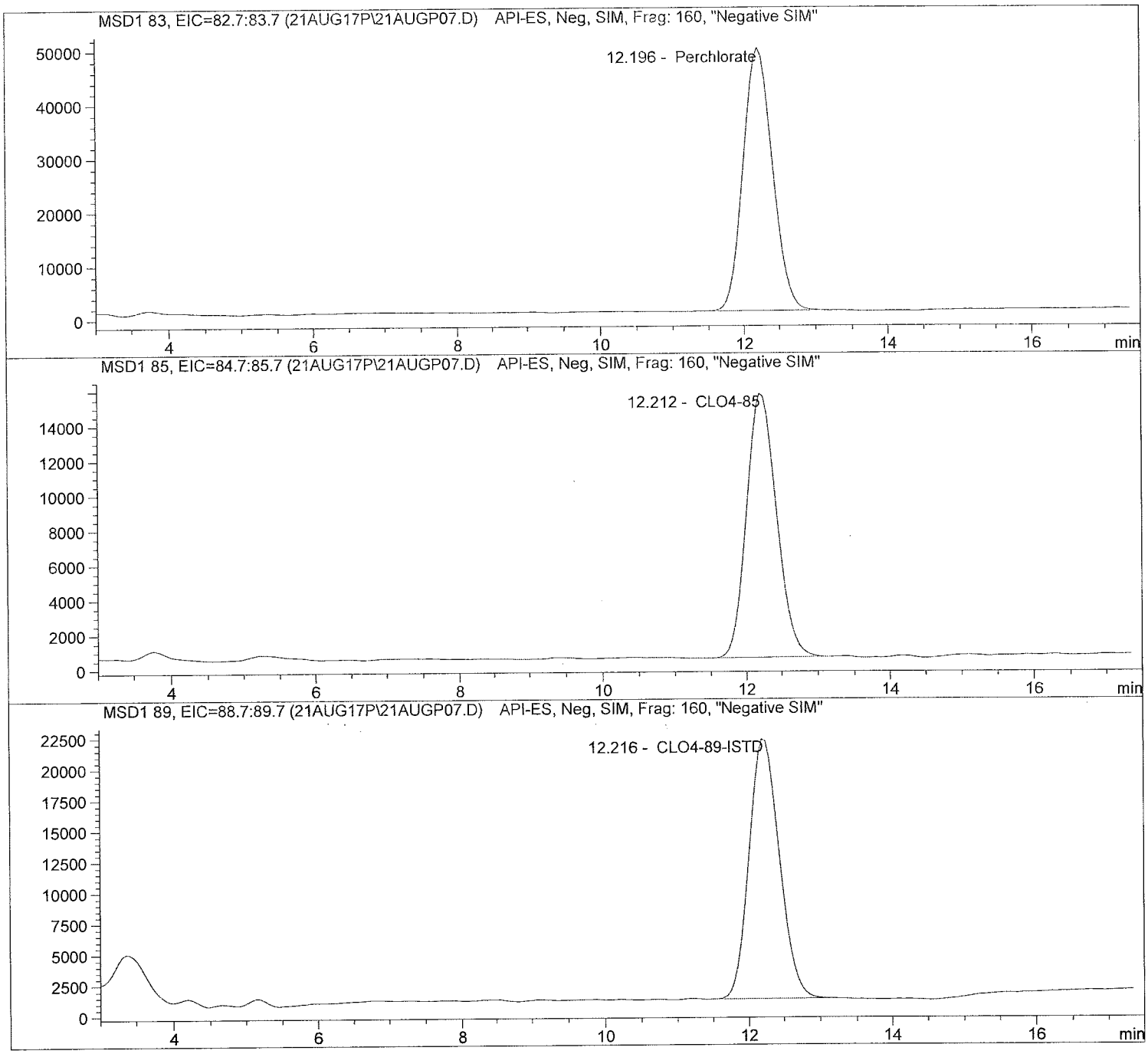
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP07.D Sample Name: ICAL7@ 10.ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 11:38:12 | Seq Line: | 7 |
| Sample Name: | ICAL7@ 10.ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP07.D  Sample Name: ICAL7@ 10.ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 11:38:12 | Seq Line: | 7 |
| Sample Name: | ICAL7@ 10.ug/L | 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-PR3.M |
| Last Changed: | 8/21/2017 14:55:53 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| 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 |
|---|---|---|---|---|
| 12.196 | BBA | 1410569.9 | 9.7413 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.212 | PBA | 446569.7 | 9.6404 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.216 | PBA | 625689.1 | 5.0000 | CLO4-89-ISTD |

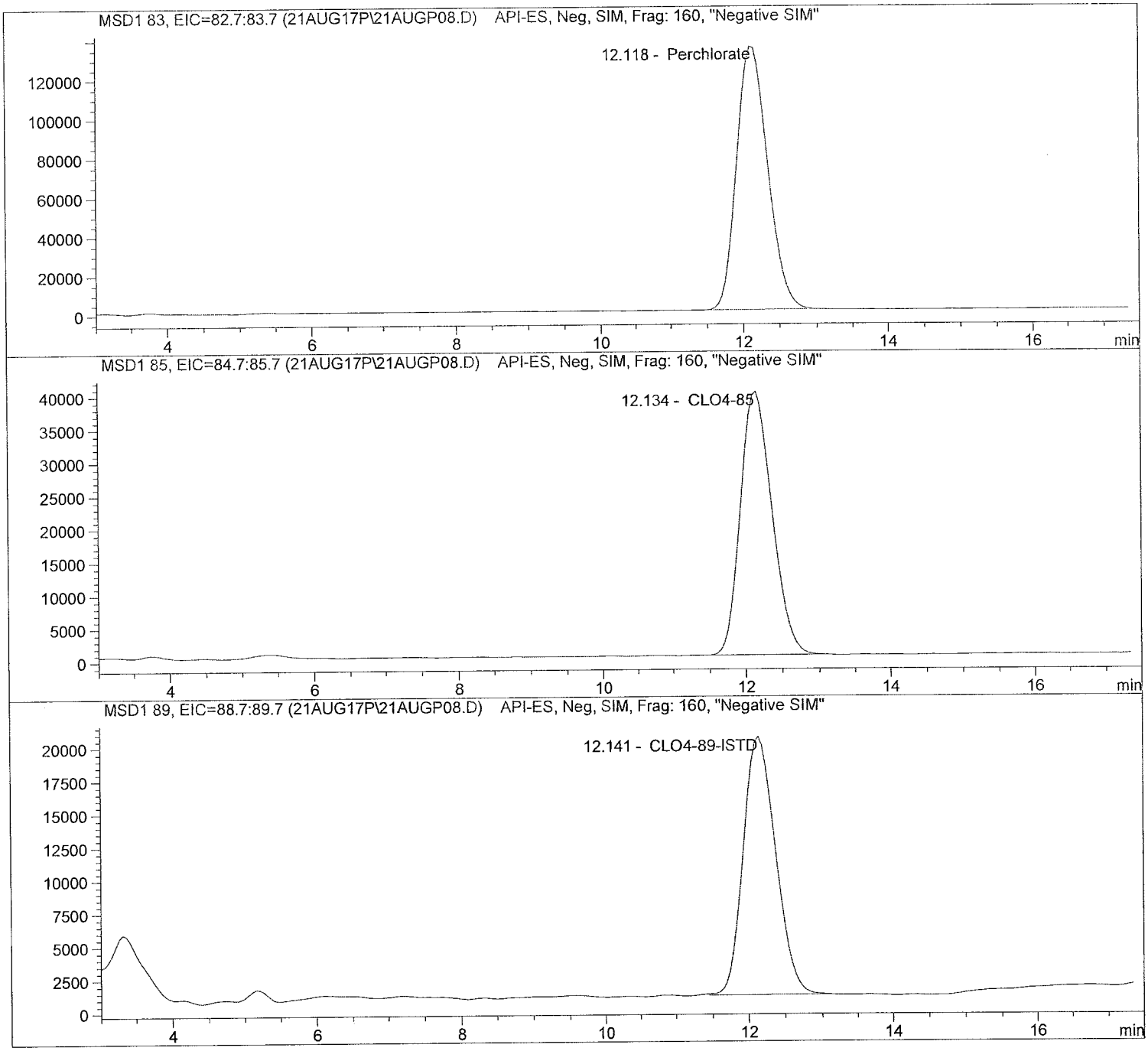
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP08.D  Sample Name: ICAL8@ 25.ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 13:12:50 | Seq Line: | 8 |
| Sample Name: | ICAL8@ 25.ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP08.D  Sample Name: ICAL8@ 25.ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 13:12:50 | Seq Line: | 8 |
| Sample Name: | ICAL8@ 25.ug/L | 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-PR3.M |
| Last Changed: | 8/21/2017 14:55:53 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 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 |
|---|---|---|---|---|
| 12.118 | BBA | 4004745.0 | 25.7880 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.134 | BBA | 1199930.0 | 25.1941 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.141 | BBA | 601523.1 | 5.0000 | CLO4-89-ISTD |

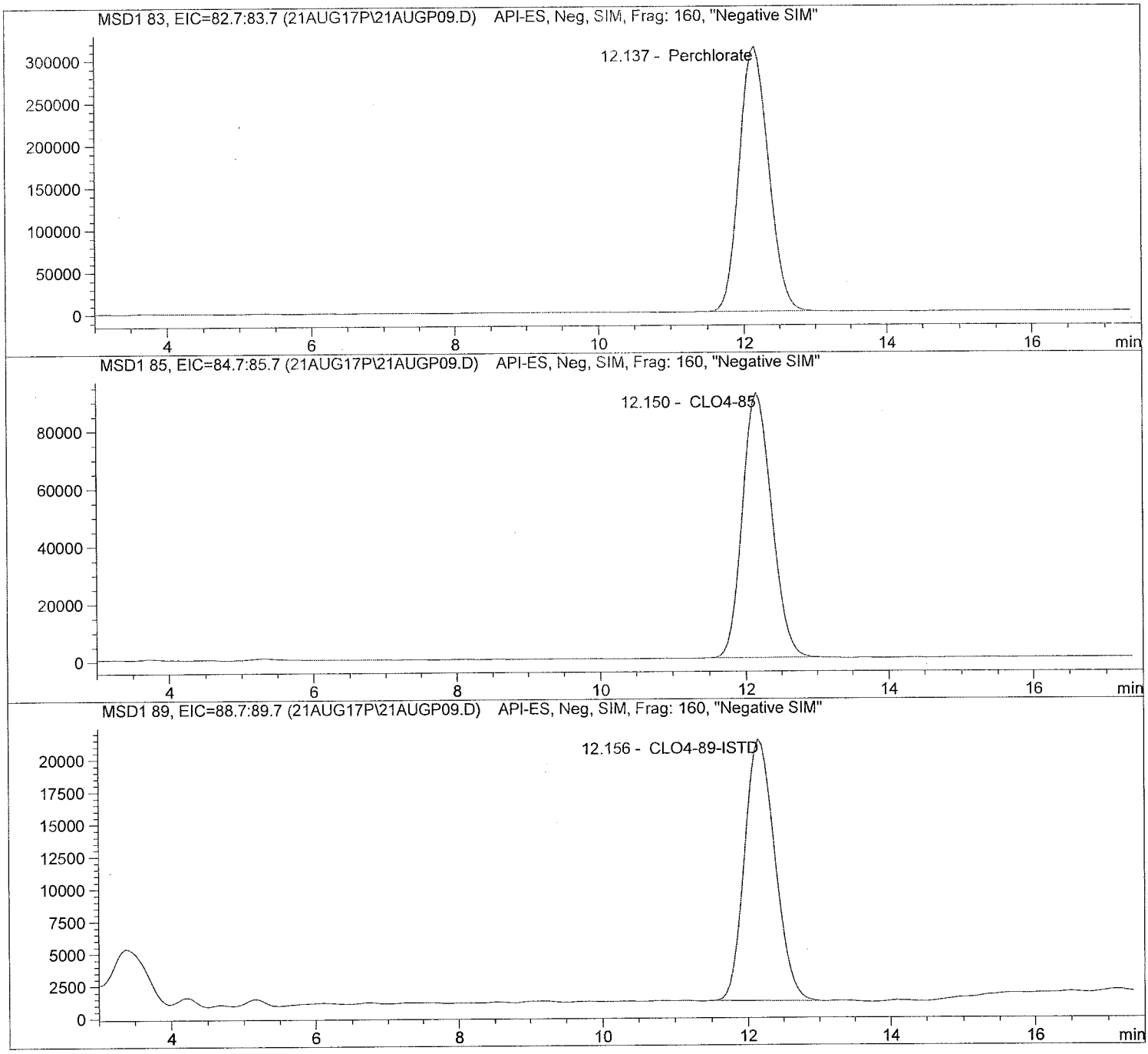
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP09.D  Sample Name: ICAL9@ 50.ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 13:32:10 | Seq Line: | 9 |
| Sample Name: | ICAL9@ 50.ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP09.D  Sample Name: ICAL9@ 50.ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 13:32:10 | Seq Line: | 9 |
| Sample Name: | ICAL9@ 50.ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| 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 |
|---|---|---|---|---|
| 12.137 | PBA | 8856831.0 | 49.7366 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.150 | BBA | 2609327.3 | 49.9698 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.156 | BBA | 597661.2 | 5.0000 | CLO4-89-ISTD |

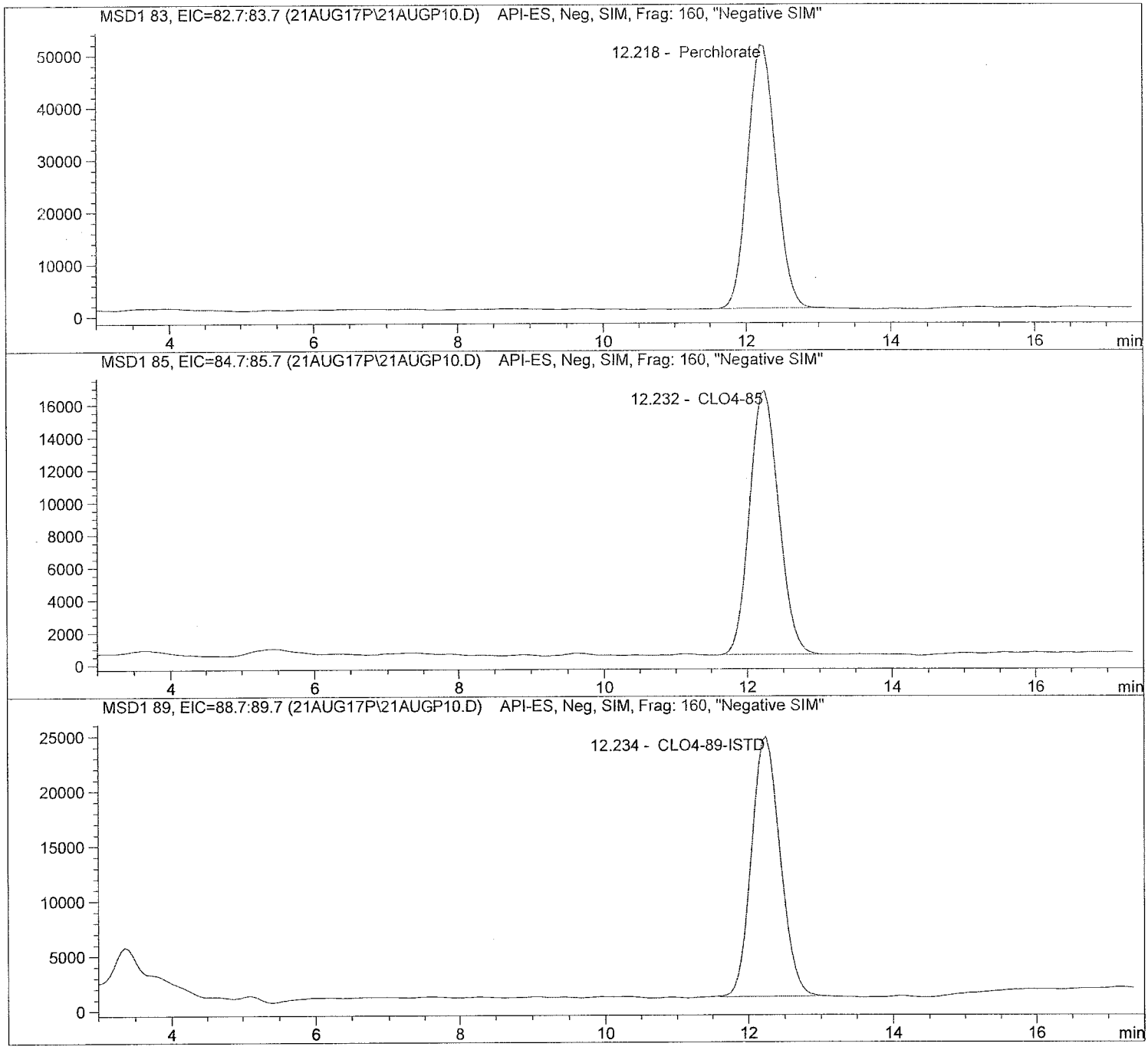
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP10.D  Sample Name: ICAL Verf@10ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 13:51:27 | Seq Line: | 10 |
| Sample Name: | ICAL Verf@10ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP10.D Sample Name: ICAL Verf@10ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 13:51:27 | Seq Line: | 10 |
| Sample Name: | ICAL Verf@10ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| 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 |
|---|---|---|---|---|
| 12.218 | BBA | 1360649.7 | 9.1433 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.232 | PBA | 449703.0 | 9.4150 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.234 | BBA | 645815.0 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

# Raw Data

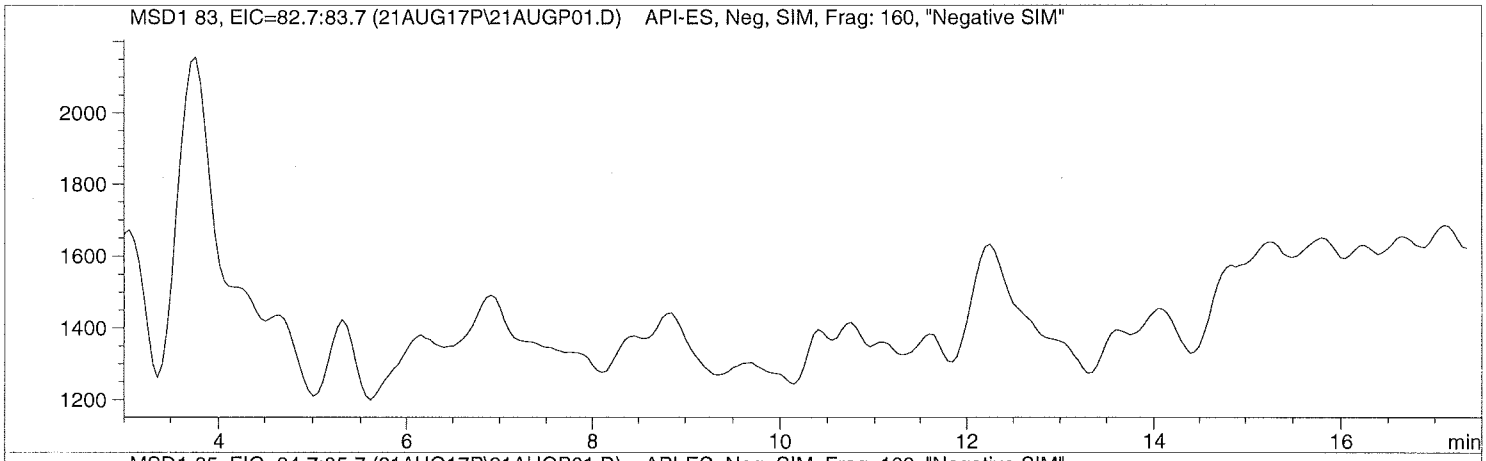
## Unmodified

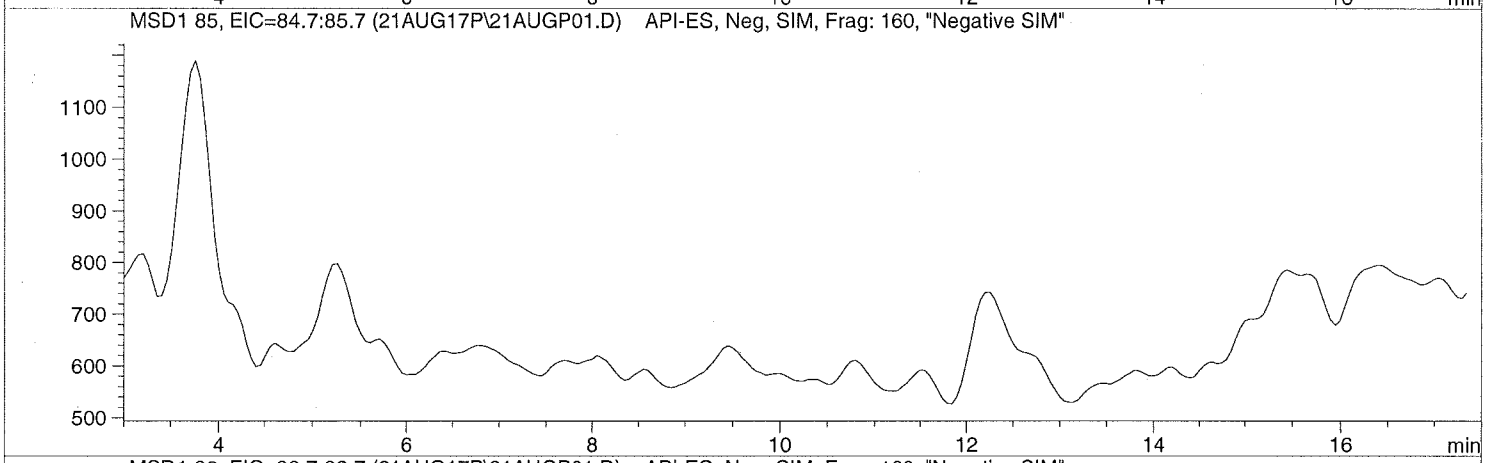
Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP01.D  Sample Name: ICAL1@ .05ug/L

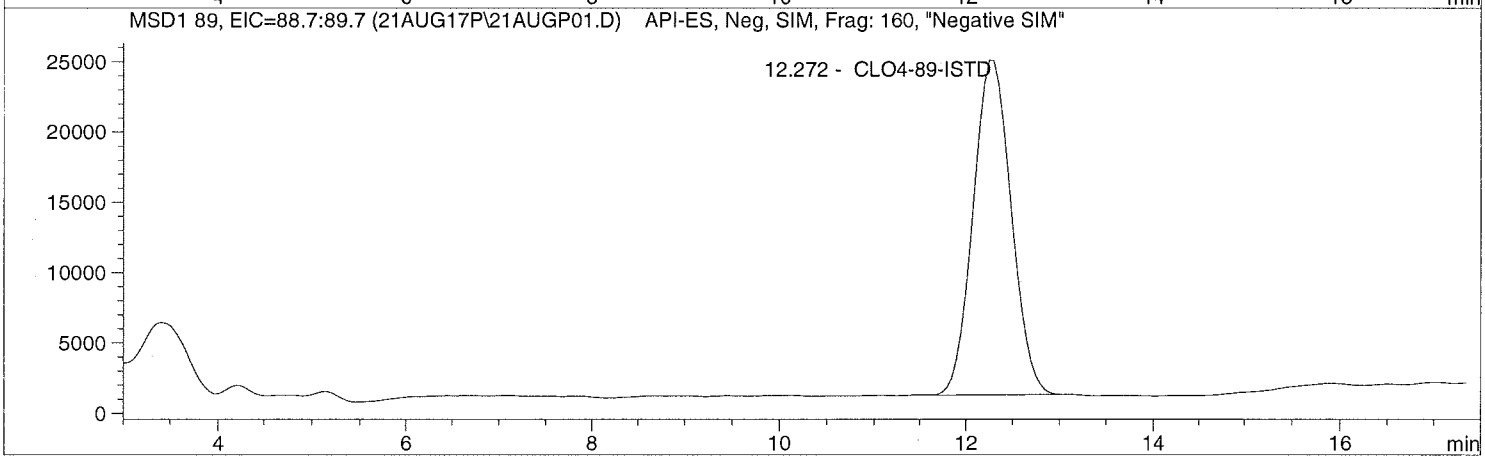
| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 09:42:32 | Seq Line: | 1 |
| Sample Name: | ICAL1@ .05ug/L | Location: | Vial 71 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP01.D  Sample Name: ICAL1@ .05ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 09:42:32 | Seq Line: | 1 |
| Sample Name: | ICAL1@ .05ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis

## Sample Information

Sorted By: Signal
Calib. Data Modified: Mon, 21. Aug. 2017,02:55:52 pm
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.050

## 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 |
|---|---|---|---|---|
| 12.272 | BBA | 673942.9 | 5.0000 | CLO4-89-ISTD |

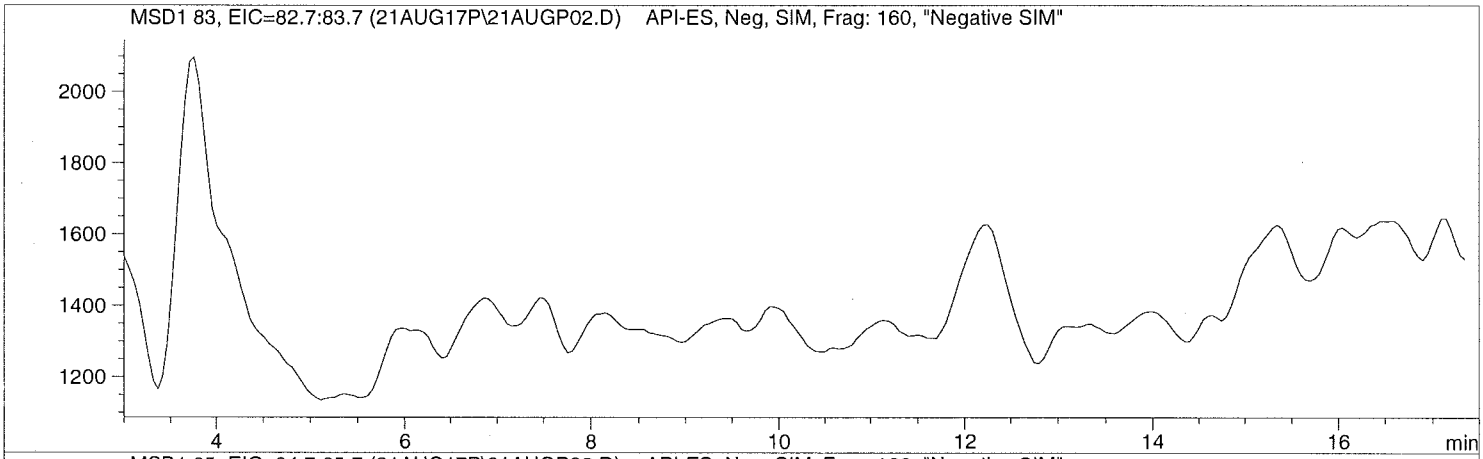
*** End of Report ***

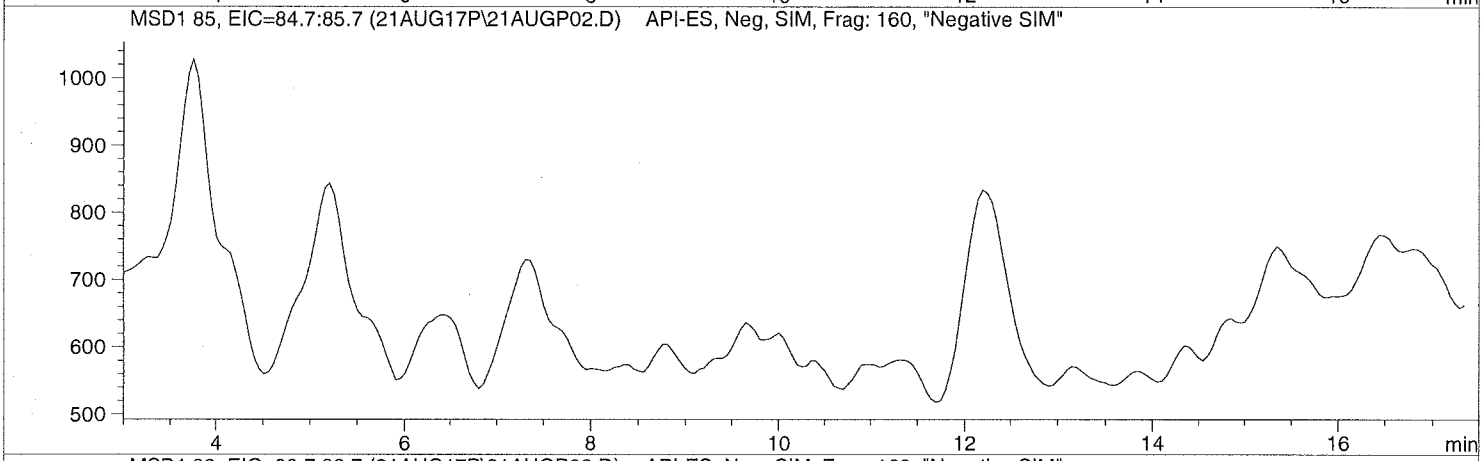
Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP02.D  Sample Name: ICAL2@ .10ug/L

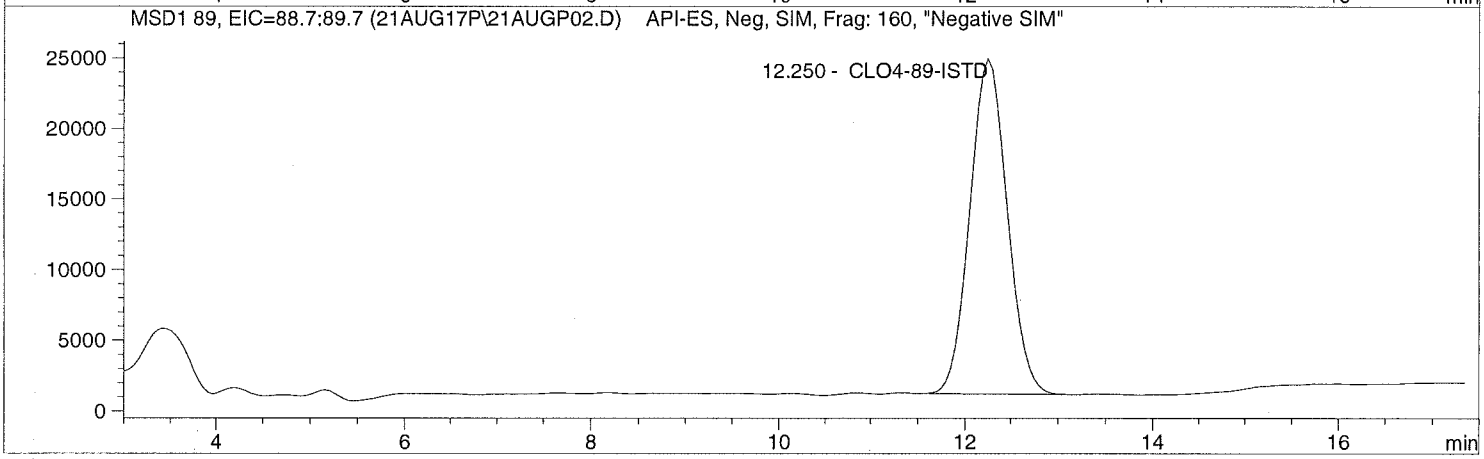
| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:01:47 | Seq Line: | 2 |
| Sample Name: | ICAL2@ .10ug/L | Location: | Vial 72 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP02.D  Sample Name: ICAL2@ .10ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:01:47 | Seq Line: | 2 |
| Sample Name: | ICAL2@ .10ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis

## Sample Information

Sorted By: Signal
Calib. Data Modified: Mon, 21. Aug. 2017,02:55:52 pm
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.100

## 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 |
|---|---|---|---|---|
| 12.250 | BBA | 667016.3 | 5.0000 | CLO4-89-ISTD |

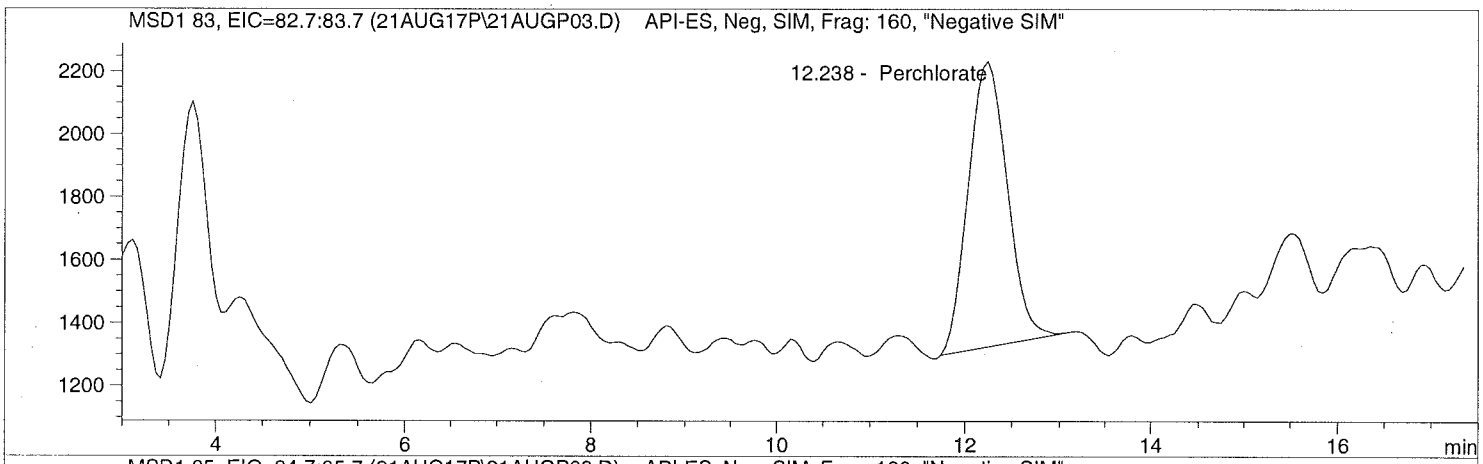
*** End of Report ***

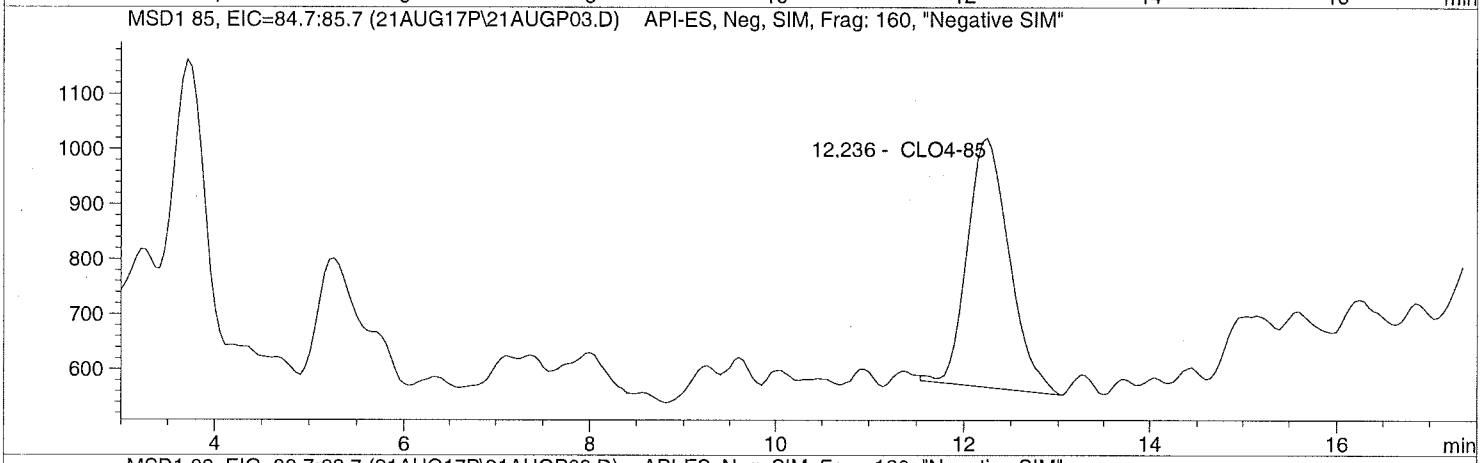
Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP03.D Sample Name: ICAL3@ .20ug/L

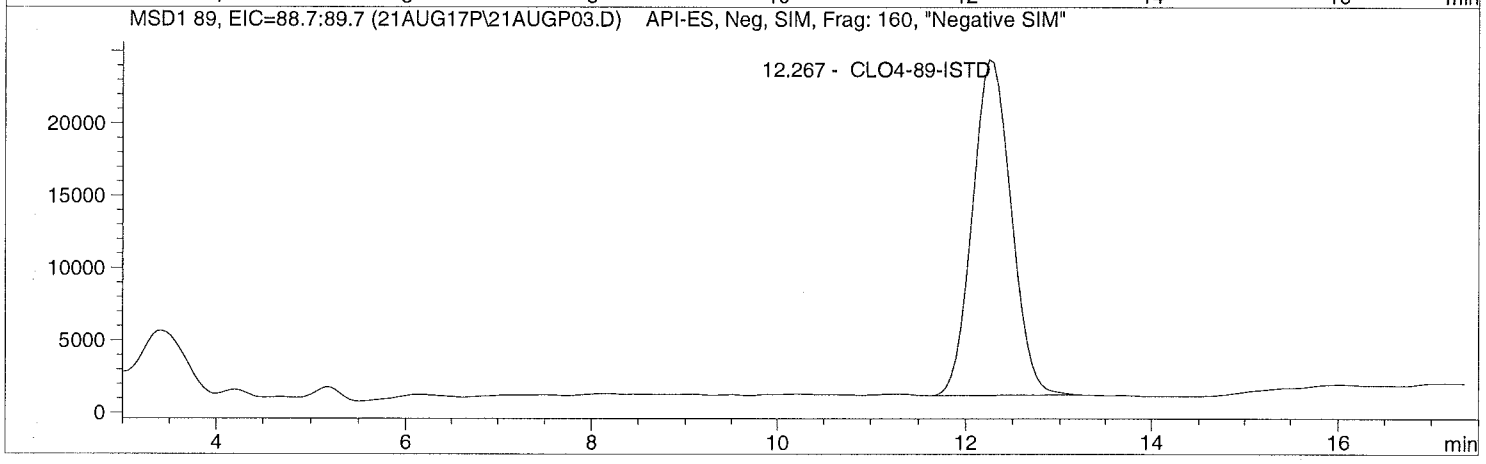
| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:21:02 | Seq Line: | 3 |
| Sample Name: | ICAL3@ .20ug/L | Location: | Vial 73 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP03.D Sample Name: ICAL3@ .20ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:21:02 | Seq Line: | 3 |
| Sample Name: | ICAL3@ .20ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.200 |

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.238 | PBA | 26023.7 | 0.1899 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.236 | BBA | 13974.8 | 0.2980 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.267 | PBA | 661030.8 | 5.0000 | CLO4-89-ISTD |

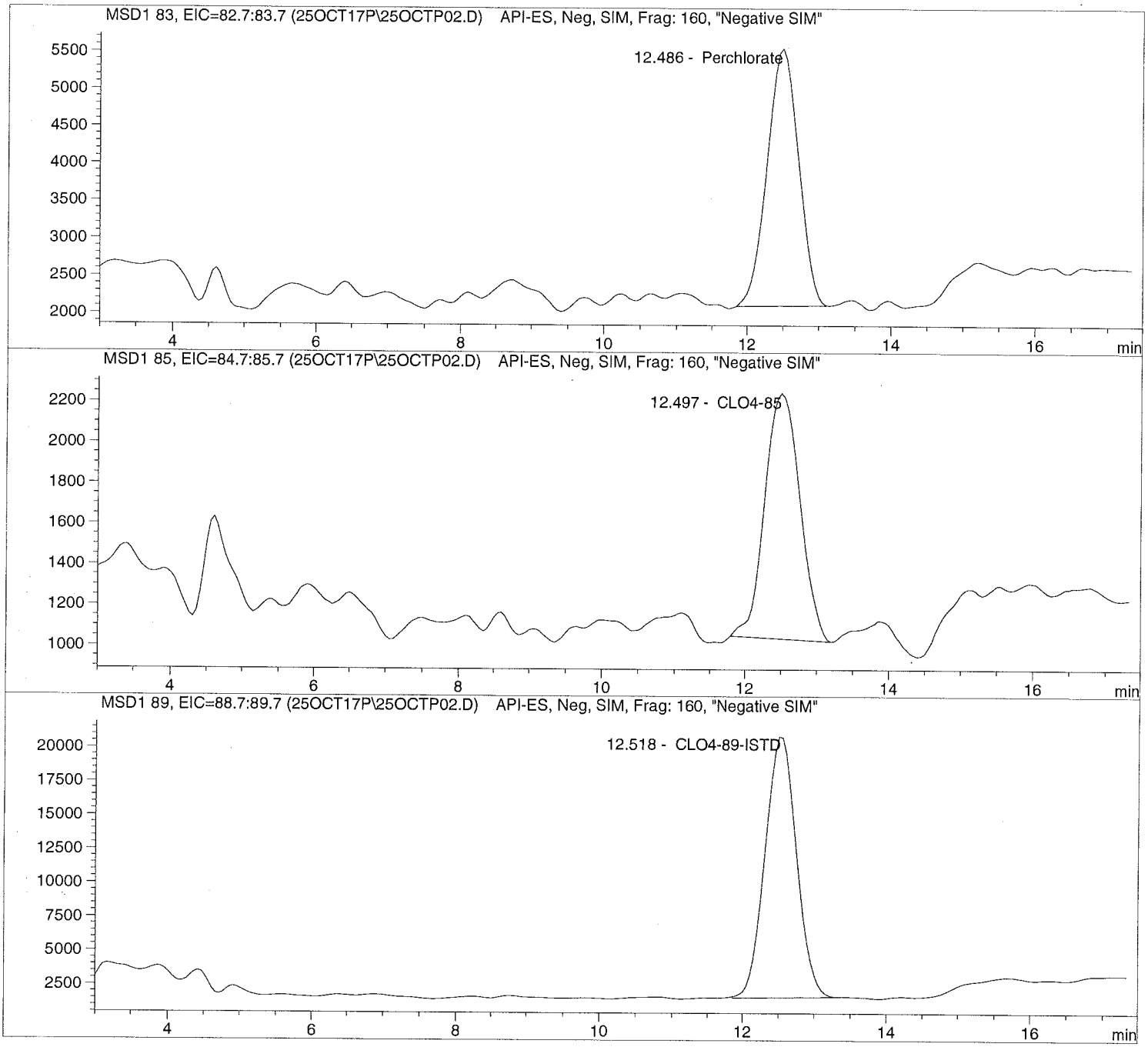
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP02.D Sample Name: 571095 LODV@1.

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 09:24:24 | Seq Line: | 2 |
| Sample Name: | 571095 LODV@1. | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP02.D Sample Name: 571095 LODV@1.

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 09:24:24 | Seq Line: | 2 |
| Sample Name: | 571095 LODV@1. | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 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 |
|---|---|---|---|---|
| 12.486 | PBA | 104727.6 | 0.8301 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.497 | PBA | 41351.7 | 0.9895 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.518 | BBA | 587146.0 | 5.0000 | CLO4-89-ISTD |

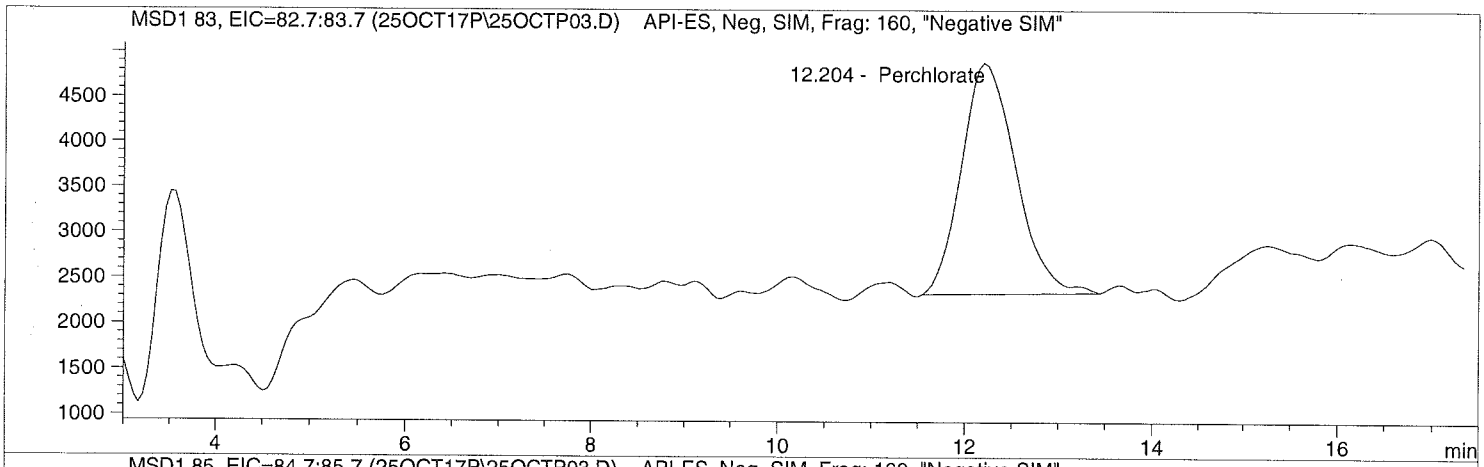
*** End of Report ***

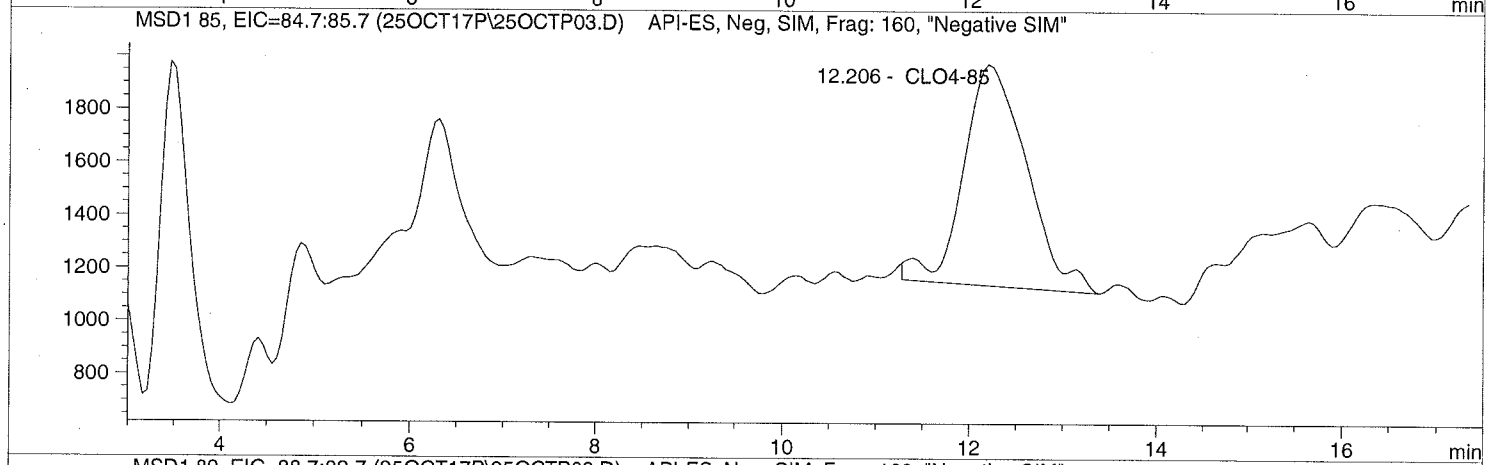
Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP03.D Sample Name: 571096 ICS@1.

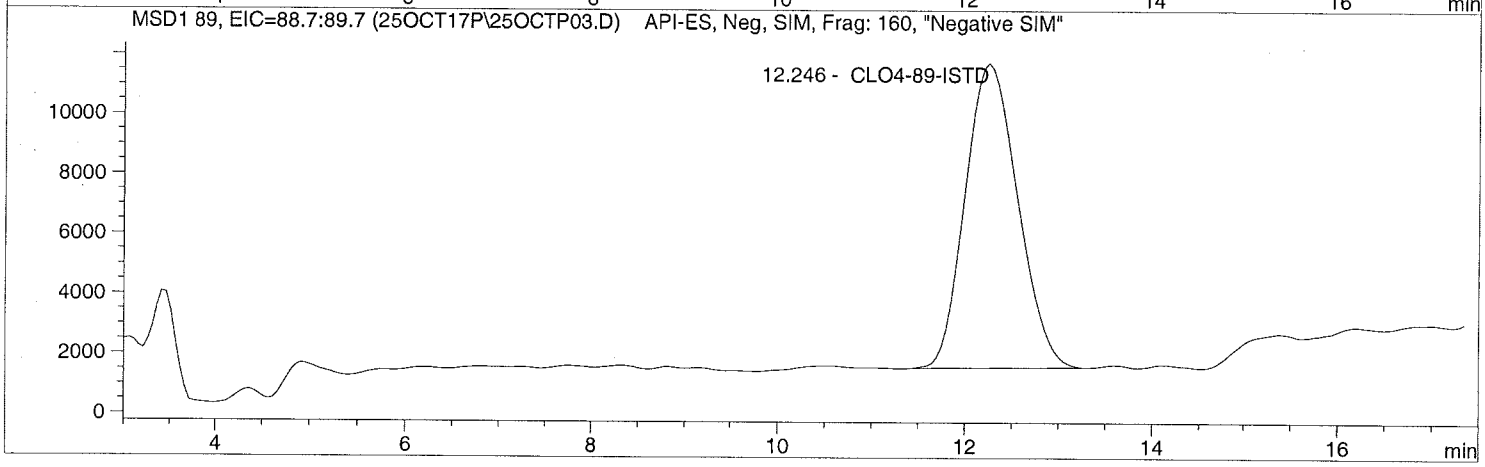
| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 09:43:38 | Seq Line: | 3 |
| Sample Name: | 571096 ICS@1. | Location: | Vial 83 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP03.D Sample Name: 571096 ICS@1.

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 09:43:38 | Seq Line: | 3 |
| Sample Name: | 571096 ICS@1. | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 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 |
|---|---|---|---|---|
| 12.204 | PBA | 102130.1 | 1.1974 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.206 | BBA | 39099.6 | 1.3892 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.246 | PBA | 394708.7 | 5.0000 | CLO4-89-ISTD |

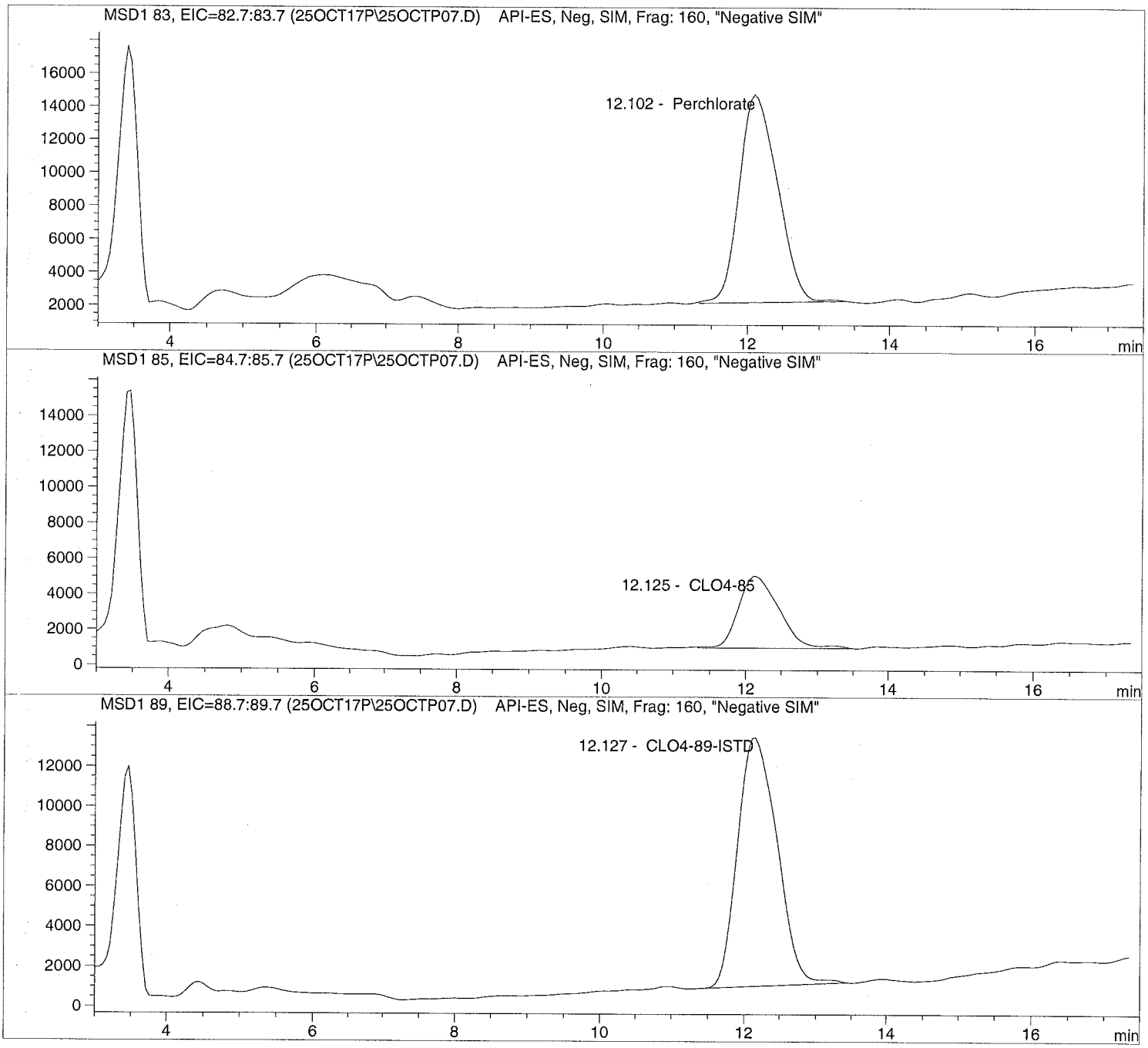
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP07.D Sample Name: 571099 289431S

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 11:03:53 | Seq Line: | 7 |
| Sample Name: | 571099 289431S | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP07.D Sample Name: 571099 289431S

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 11:03:53 | Seq Line: | 7 |
| Sample Name: | 571099 289431S | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 12.102 | BBA | 470901.2 | 4.4182 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.125 | BBA | 160251.8 | 4.6202 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.127 | PBA | 479241.3 | 5.0000 | CLO4-89-ISTD |

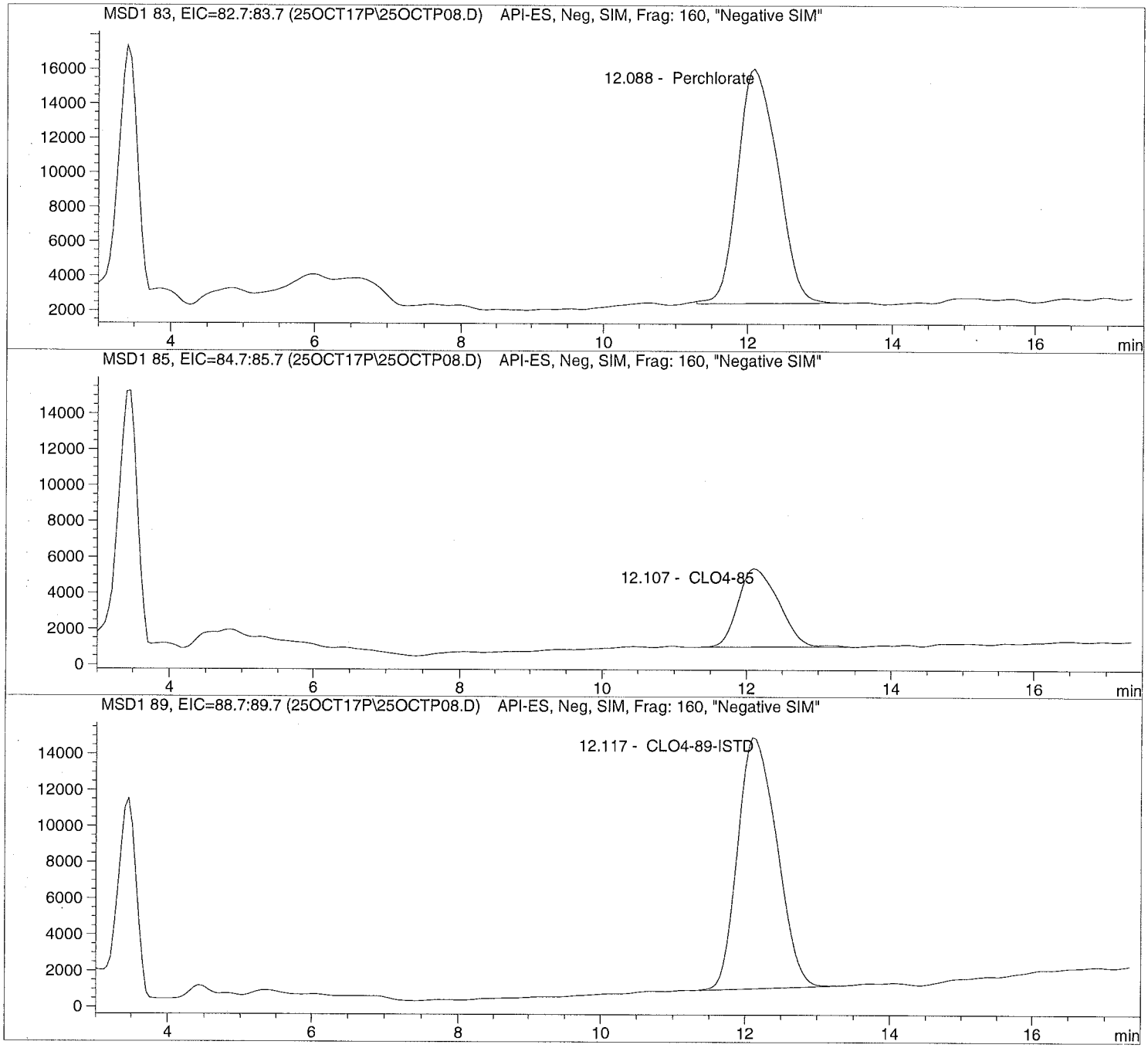
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP08.D  Sample Name: 571100  289431D

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 11:23:08 | Seq Line: | 8 |
| Sample Name: | 571100 289431D | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP08.D Sample Name: 571100 289431D

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 11:23:08 | Seq Line: | 8 |
| Sample Name: | 571100 289431D | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 12.088 | BBA | 523181.5 | 4.4850 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.107 | PBA | 171769.7 | 4.5291 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.117 | BBA | 524243.2 | 5.0000 | CLO4-89-ISTD |

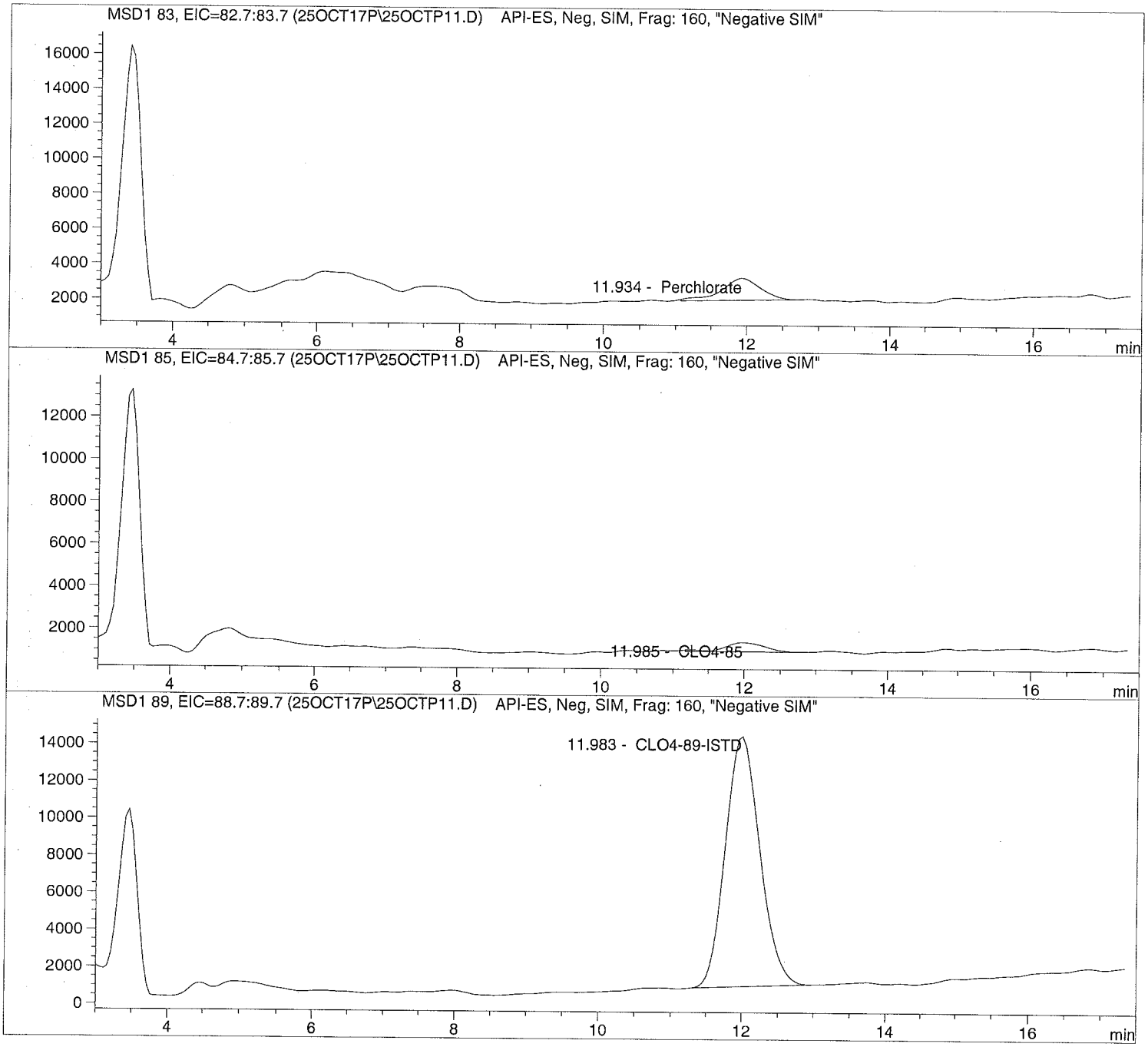
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP11.D  Sample Name: 1729349001

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 12:22:07 | Seq Line: | 11 |
| Sample Name: | 1729349001 | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\25OCT17P\25OCTP11.D Sample Name: 1729349001

| | | | |
|---|---|---|---|
| Injection Date: | 10/25/2017 12:22:07 | Seq Line: | 11 |
| Sample Name: | 1729349001 | 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-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 11.934 | BBA | 46725.3 | 0.4923 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.985 | BBA | 16396.4 | 0.5182 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.983 | PBA | 445548.6 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***

GCAL ANALYTICAL LABORATORIES, LLC

***NELAP CERTIFICATE NUMBER: 01955***
***DOD ELAP CERTIFICATE NUMBER: L14-243***

# ANALYTICAL RESULTS

**PERFORMED BY**

**GCAL, LLC**
**7979 Innovation Park Dr.**
**Baton Rouge, LA 70820**

**Report Date** 10/16/2017

**GCAL Report** 217100631

***Project*** LHAAP GWTP Bi-Weekly

| ***Deliver To*** | ***Additional Recipients*** |
|---|---|
| Marcia Olive<br>Bhate Environmental Associates<br>445 Union Blvd<br>Suite 129<br>Denver, CO 80228<br>303-597-2450 | NONE |

PJLA Testing DoD ELAP

ISO 17025

NELAP ACCREDITED TNI LABORATORY

# Laboratory Endorsement

Sample analysis was performed in accordance with approved methodologies provided by the Environmental Protection Agency or other recognized agencies. The samples and their corresponding extracts will be maintained for a period of 30 days unless otherwise arranged. Following this retention period the samples will be disposed in accordance with GCAL's Standard Operating Procedures.

**Common Abbreviations that may be Utilized in this Report**

| | |
|---|---|
| **ND** | Indicates the result was Not Detected at the specified reporting limit |
| **NO** | Indicates the sample did not ignite when preliminary test performed for EPA Method 1030 |
| **DO** | Indicates the result was Diluted Out |
| **MI** | Indicates the result was subject to Matrix Interference |
| **TNTC** | Indicates the result was Too Numerous To Count |
| **SUBC** | Indicates the analysis was Sub-Contracted |
| **FLD** | Indicates the analysis was performed in the Field |
| **DL** | Detection Limit |
| **LOD** | Limit of Detection |
| **LOQ** | Limit of Quantitation |
| **RE** | Re-analysis |
| **CF** | HPLC or GC Confirmation |
| **00:01** | Reported as a time equivalent to 12:00 AM |

**Reporting Flags that may be Utilized in this Report**

| | |
|---|---|
| **J or I** | Indicates the result is between the MDL and LOQ |
| **J** | DOD flag on analyte in the parent sample for MS/MSD outside acceptance criteria |
| **U** | Indicates the compound was analyzed for but not detected |
| **B or V** | Indicates the analyte was detected in the associated Method Blank |
| **Q** | Indicates a non-compliant QC Result (See Q Flag Application Report) |
| ***** | Indicates a non-compliant or not applicable QC recovery or RPD – see narrative |
| **E** | Organics - The result is estimated because it exceeded the instrument calibration range |
| **E** | Metals - % diference for the serial dilution is > 10% |
| **L** | Reporting Limits adjusted to meet risk-based limit. |
| **P** | RPD between primary and confirmation result is greater than 40 |
| **DL** | Diluted analysis – when appended to Client Sample ID |

Sample receipt at GCAL is documented through the attached chain of custody. In accordance with NELAC, this report shall be reproduced only in full and with the written permission of GCAL. The results contained within this report relate only to the samples reported. The documented results are presented within this report.

This report pertains only to the samples listed in the Report Sample Summary and should be retained as a permanent record thereof. The results contained within this report are intended for the use of the client. Any unauthorized use of the information contained in this report is prohibited.

I certify that this data package is in compliance with The NELAC Institute (TNI) Standard 2009 and terms and conditions of the contract and Statement of Work both technically and for completeness, for other than the conditions in the case narrative. Release of the data contained in this hardcopy data package and in the computer readable data submitted has been authorized by the Quality Assurance Manager or his/her designee, as verified by the following signature.

Estimated uncertainty of measurement is available upon request. This report is in compliance with the DOD QSM as specified in the contract if applicable.

_____
Authorized Signature
GCAL Report 217100631

# Certifications

| Certification | Certification Number |
|---|---|
| DOD ELAP | L14-243 |
| Alabama | 01955 |
| Arkansas | 12-060-0 |
| Colorado | 01955 |
| Delaware | 01955 |
| Florida | E87854 |
| Georgia | 01955 |
| Hawaii | 01955 |
| Idaho | 01955 |
| Illinois | 200048 |
| Indiana | 01955 |
| Kansas | E-10354 |
| Kentucky | 95 |
| Louisiana | 01955 |
| Maryland | 01955 |
| Massachusetts | 01955 |
| Michigan | 01955 |
| Mississippi | 01955 |
| Missouri | 01955 |
| Montana | N/A |
| Nebraska | 01955 |
| New Mexico | 01955 |
| North Carolina | 618 |
| North Dakota | R-195 |
| Oklahoma | 9403 |
| South Carolina | 73006001 |
| South Dakota | 01955 |
| Tennessee | 01955 |
| Texas | T104704178 |
| Vermont | 01955 |
| Virginia | 460215 |
| USDA Soil Permit | P330-10-00117 |

# Case Narrative

**Client:** Bhate Environmental Associates, Inc. **Report:** 217100631

Gulf Coast Analytical Laboratories received and analyzed the sample(s) listed on the Report Sample Summary page of this report. Receipt of the sample(s) is documented by the attached chain of custody. This applies only to the sample(s) listed in this report. No sample integrity or quality control exceptions were identified unless noted below.

**GENERAL CHEMISTRY**

In the EPA 9056A analysis, sample 217100631 (LH18/24-SP650_1017B) had to be diluted in order to bracket the concentration of target analyte(s) within the calibration range of the instrument.

**MISCELLANEOUS**

This report was completed in accordance with DOD QSM 5.1 as specified in the contract.

## Q Flag Summary

NO Q FLAGS FOR THIS WORKORDER

# Sample Summary

| GCAL ID | Client ID | Matrix | Collect Date/Time | Receive Date/Time |
|---|---|---|---|---|
| 21710063101 | LH18/24-SP650_1017B | Water | 10/05/2017 14:00 | 10/06/2017 11:30 |

# Test Summary

| GCAL ID | Client ID | Matrix | Procedure |
|---|---|---|---|
| 21710063101 | LH18/24-SP650_1017B | W | EPA 8260C DOD |
| 21710063101 | LH18/24-SP650_1017B | W | EPA 9056A Inorganic Anions Water |

# Manual Integrations

| GCAL ID | Client ID | Procedure | CAS | Analyte |
|---|---|---|---|---|
| 21710063101 | LH18/24-SP650_1017B | EPA 8260C | 75-01-4 | Vinyl chloride |

# Summary of Compounds Detected

| LH18/24-SP650_1017B | | | | |
|---|---|---|---|---|
| | **Collect Date** | 10/05/2017 14:00 | **GCAL ID** | 21710063101 |
| | **Receive Date** | 10/06/2017 11:30 | **Matrix** | Water |

## EPA 8260C

| CAS# | Parameter | Result | DL | LOD | LOQ | Units |
|---|---|---|---|---|---|---|
| 67-64-1 | Acetone | 9.16 | 0.500 | 1.00 | 5.00 | ug/L |
| 156-59-2 | cis-1,2-Dichloroethene | 6.53 | 0.200 | 0.500 | 1.00 | ug/L |
| 75-01-4 | Vinyl chloride | 1.58 | 0.200 | 0.500 | 1.00 | ug/L |

## EPA 9056A

| CAS# | Parameter | Result | DL | LOD | LOQ | Units |
|---|---|---|---|---|---|---|
| 16887-00-6 | Chloride | 654 | 10.0 | 20.0 | 40.0 | mg/L |
| 14808-79-8 | Sulfate | 212 | 20.0 | 40.0 | 40.0 | mg/L |

# General Chemistry

| LH18/24-SP650_1017B | | | | |
|---|---|---|---|---|
| | **Collect Date** | 10/05/2017 14:00 | **GCAL ID** | 21710063101 |
| | **Receive Date** | 10/06/2017 11:30 | **Matrix** | Water |

## EPA 9056A

| Prep Date | Prep Batch | Prep Method | Dilution | Analysis Date | By | Analytical Batch |
|---|---|---|---|---|---|---|
| NA | NA | NA | 200 | 10/14/2017 14:07 | BSV | 620328 |

| CAS# | Parameter | Result | DL | LOD | LOQ | Units |
|---|---|---|---|---|---|---|
| 16887-00-6 | Chloride | 654 | 10.0 | 20.0 | 40.0 | mg/L |
| 14808-79-8 | Sulfate | 212 | 20.0 | 40.0 | 40.0 | mg/L |

# General Chemistry QC Summary

| **Analytical Batch** | Client ID | MW-8 | | MW-8 MS | | | | MW-8 MSD | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 620328 | GCAL ID | 21710100301 | | 21710100302 | | | | 21710100303 | | | | |
| | Sample Type | SAMPLE | | MS | | | | MSD | | | | |
| | Prep Date | NA | | NA | | | | NA | | | | |
| | Analysis Date | 10/14/2017 14:24 | | 10/14/2017 14:41 | | | | 10/14/2017 14:59 | | | | |
| | Matrix | Water | | Water | | | | Water | | | | |
| **EPA 9056A** | | Units Result | mg/L LOD | Spike Added | Result | %R | Control Limits%R | Spike Added | Result | %R | RPD | RPD Limit |
| Chloride | 16887-00-6 | 1000 | 200 | 5000 | 5690 | 94 | 87 - 111 | 5000 | 5630 | 93 | 1 | 15 |
| Sulfate | 14808-79-8 | 4590 | 400 | 5000 | 9440 | 97 | 87 - 112 | 5000 | 9390 | 96 | 1 | 15 |

| **Analytical Batch** | Client ID | MB620328 | | LCS620328 | | | |
|---|---|---|---|---|---|---|---|
| 620328 | GCAL ID | 1731653 | | 1731654 | | | |
| | Sample Type | MB | | LCS | | | |
| | Prep Date | NA | | NA | | | |
| | Analysis Date | 10/14/2017 12:40 | | 10/14/2017 12:23 | | | |
| | Matrix | Water | | Water | | | |
| **EPA 9056A** | | Units Result | mg/L LOD | Spike Added | Result | %R | Control Limits%R |
| Chloride | 16887-00-6 | 0.071J | 0.100 | 2.50 | 2.46 | 98 | 87 - 111 |
| Sulfate | 14808-79-8 | 0.200U | 0.200 | 2.50 | 2.45 | 98 | 87 - 112 |

# Form 1A

# Results

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

| | | | | | |
|---|---|---|---|---|---|
| Report No: | 217100631 | | | Client Sample ID: | LH18/24-SP650_1017B |
| Collect Date: | 10/05/17 | Time: | 1400 | GCAL Sample ID: | 21710063101 |
| Matrix: | Water | % Moisture: | NA | Instrument ID: | MSV13 |
| Sample Amt: | 5 mL | | | Lab File ID: | 2171010/d9836 |
| Injection Vol.: | 1.0 ( µL ) | | | GC Column: | RTX-VMS-30 ID .25 (mm) |
| Dilution Factor: | 1 | Analyst: | JCK | Analytical Batch: | 620002 |
| Analysis Date: | 10/10/17 | Time: | 1838 | Analytical Method: | EPA 8260C |

*CONCENTRATION UNITS: ug/L*

| CAS | ANALYTE | RESULT | Q | DL | LOD | LOQ |
|---|---|---|---|---|---|---|
| 71-55-6 | 1,1,1-Trichloroethane | 0.500 | U | 0.200 | 0.500 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | 0.500 | U | 0.200 | 0.500 | 1.00 |
| 75-34-3 | 1,1-Dichloroethane | 0.500 | U | 0.200 | 0.500 | 1.00 |
| 75-35-4 | 1,1-Dichloroethene | 0.500 | U | 0.200 | 0.500 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | 0.500 | U | 0.200 | 0.500 | 1.00 |
| 67-64-1 | Acetone | 9.16 | | 0.500 | 1.00 | 5.00 |
| 71-43-2 | Benzene | 0.500 | U | 0.200 | 0.500 | 1.00 |
| 56-23-5 | Carbon tetrachloride | 0.500 | U | 0.250 | 0.500 | 1.00 |
| 108-90-7 | Chlorobenzene | 0.500 | U | 0.200 | 0.500 | 1.00 |
| 67-66-3 | Chloroform | 0.500 | U | 0.200 | 0.500 | 1.00 |
| 156-59-2 | cis-1,2-Dichloroethene | 6.53 | | 0.200 | 0.500 | 1.00 |
| 100-41-4 | Ethylbenzene | 0.500 | U | 0.200 | 0.500 | 1.00 |
| 136777-61-2 | m,p-Xylene | 0.500 | U | 0.200 | 0.500 | 2.00 |
| 75-09-2 | Methylene chloride | 0.500 | U | 0.200 | 0.500 | 5.00 |
| 95-47-6 | o-Xylene | 0.500 | U | 0.200 | 0.500 | 1.00 |
| 100-42-5 | Styrene | 0.500 | U | 0.200 | 0.500 | 1.00 |
| 127-18-4 | Tetrachloroethene | 0.500 | U | 0.200 | 0.500 | 1.00 |
| 108-88-3 | Toluene | 0.500 | U | 0.200 | 0.500 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethene | 0.500 | U | 0.200 | 0.500 | 1.00 |
| 79-01-6 | Trichloroethene | 0.500 | U | 0.200 | 0.500 | 1.00 |
| 75-01-4 | Vinyl chloride | 1.58 | | 0.200 | 0.500 | 1.00 |

FORM I VOA

Data File: /var/chem/msv13.i/2171010.s.b/d9836.d Page 1
Report Date: 11-Oct-2017 17:22

GCAL, Inc.

Data file : /var/chem/msv13.i/2171010.s.b/d9836.d
Lab Smp Id: 21710063101
Inj Date : 10-OCT-2017 18:38
Operator : JCK Inst ID: msv13.i
Smp Info : 21710063101*
Misc Info : MSV~39299~*1*JCK
Comment :
Method : /var/chem/msv13.i/2171010.s.b/8260cdodw13.m
Meth Date : 11-Oct-2017 17:21 jck2 Quant Type: ISTD
Cal Date : 10-OCT-2017 14:26 Cal File: d9826cD.d
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 8260b+AppIX1.sub
Target Version: 3.50
Processing Host: org.gcal.com

Concentration Formula: Amt * DF * Uf/Vo * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.00000 | Dilution Factor |
| Uf | 5.00000 | ng unit correction factor |
| Vo | 5.00000 | Sample Volume purged (mL) |
| DF | 1.00000 | |

Cpnd Variable Local Compound Variable

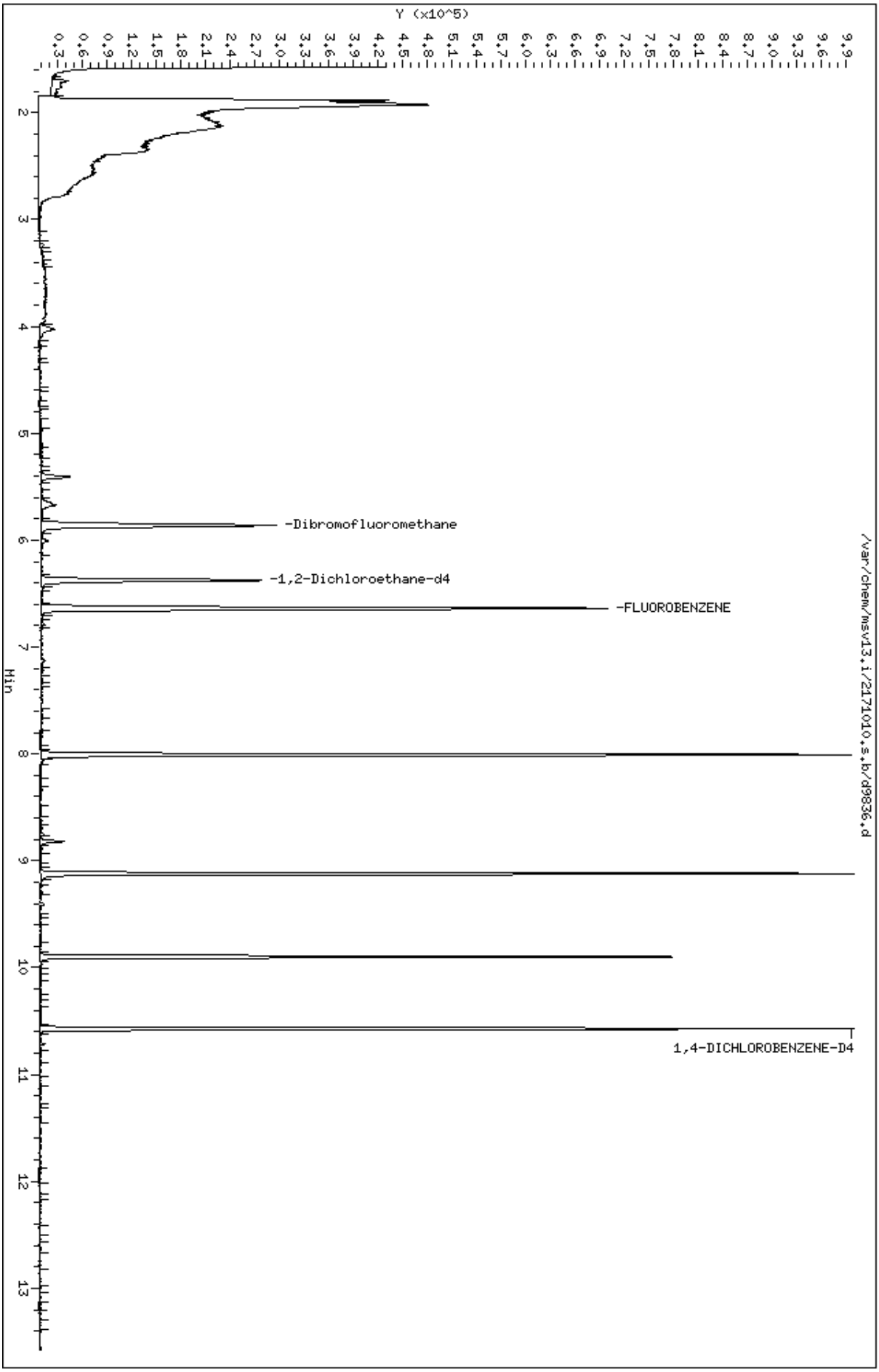
| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ppb) | FINAL ( ug/L) | SIMILARITY |
|---|---|---|---|---|---|---|---|---|---|
| | 3 Vinyl Chloride + | 62 | 2.001 | 2.001 | (0.301) | 4130 | 1.58452 | 1.58 | (M1) |
| | 11 Carbon Disulfide | 76 | 3.250 | 3.235 | (0.490) | 8010 | 1.23718 | 1.24 | (M2) |
| | 17 Acetone | 43 | 4.029 | 4.025 | (0.607) | 18077 | 9.16443 | 9.16 | |
| | 29 cis-1,2-Dichloroethene | 61 | 5.409 | 5.409 | (0.815) | 21768 | 6.52591 | 6.53 | |
| M | 75 Total 1,2-Dichloroethene | 61 | | | | 21768 | 6.52591 | 6.53 | |
| $ | 40 Dibromofluoromethane | 111 | 5.862 | 5.866 | (0.883) | 131119 | 52.3449 | 52.3 | 6305 |
| | 44 2-Butanone | 43 | 6.009 | 6.005 | (0.905) | 8708 | 4.10110 | 4.10 | |
| $ | 50 1,2-Dichloroethane-d4 | 67 | 6.376 | 6.376 | (0.960) | 94314 | 53.0514 | 53.1 | |
| * | 53 FLUOROBENZENE | 96 | 6.638 | 6.638 | (1.000) | 523537 | 50.0000 | | |
| $ | 68 Toluene-d8 | 98 | 8.010 | 8.007 | (0.878) | 492642 | 50.7833 | 50.8 | |
| * | 84 CHLOROBENZENE-d5 | 82 | 9.120 | 9.120 | (1.000) | 217139 | 50.0000 | | |
| $ | 95 Bromofluorobenzene | 174 | 9.900 | 9.900 | (1.085) | 155720 | 47.8032 | 47.8 | |
| * | 114 1,4-DICHLOROBENZENE-D4 | 152 | 10.571 | 10.574 | (1.000) | 177371 | 50.0000 | | |

QC Flag Legend

M1- Compound response manually integrated because
Target system did not integrate.
M2- Compound response manually integrated because
Target system integrated incorrectly.

Data File: /var/chem/msv13.i/2171010.s.b/d9836.d
Date : 10-OCT-2017 18:38
Client ID:
Sample Info: 2171006310i*
Purge Volume: 5.0
Column phase: RTX-VMS-30M

Instrument: msv13.i
Operator: JCK
Column diameter: 0.25



Data File: /var/chem/msv13.i/2171010.s.b/d9836.d



Date : 10-OCT-2017 18:38

Client ID:

Instrument: msv13.i

Sample Info: 21710063101*

Purge Volume: 5.0

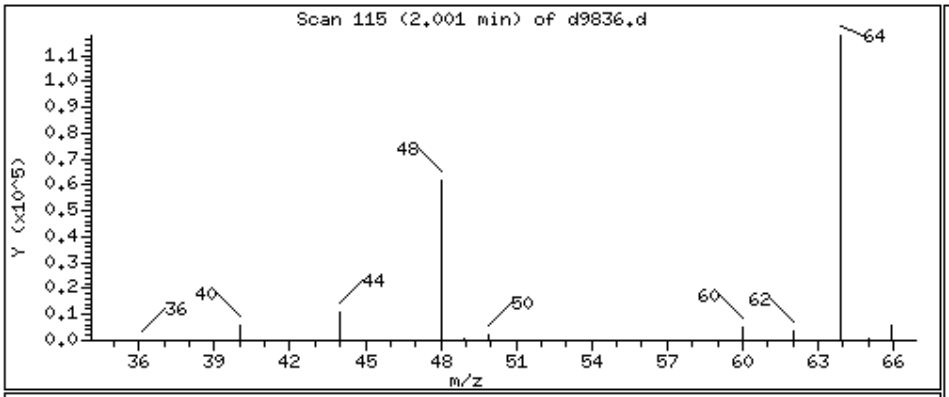
Operator: JCK

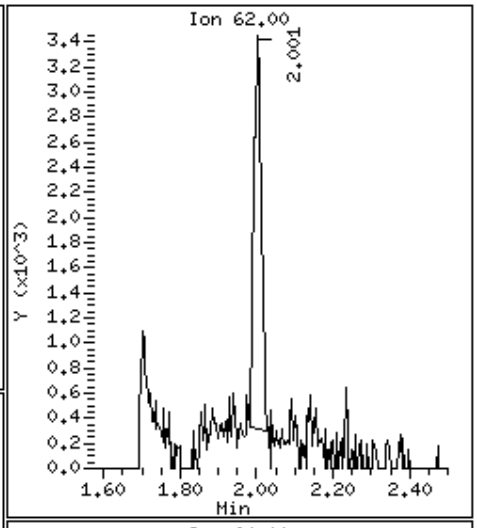
Column phase: RTX-VMS-30M

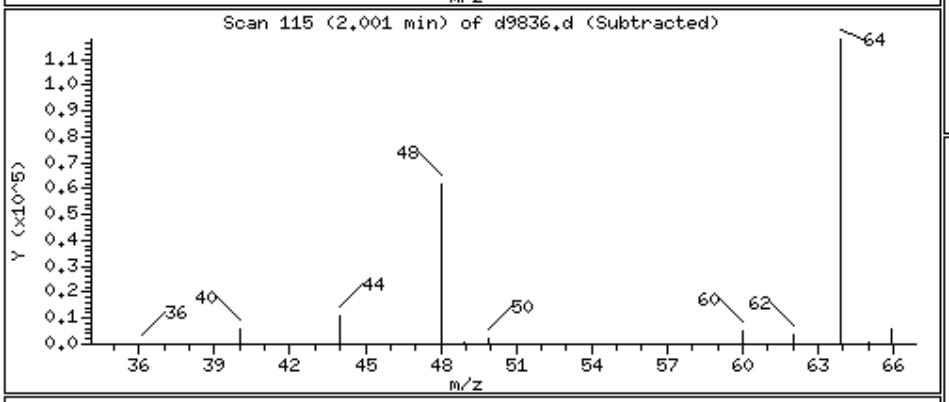
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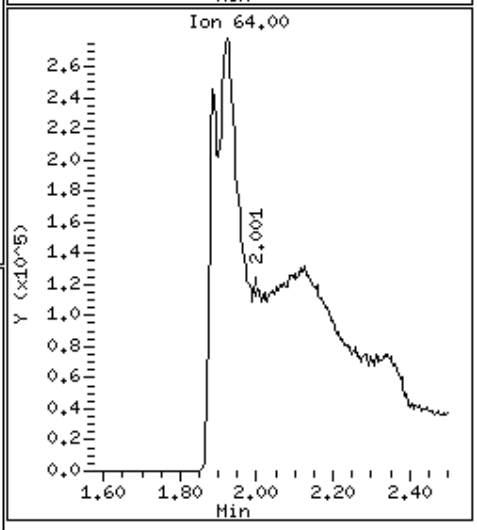
3 Vinyl Chloride +

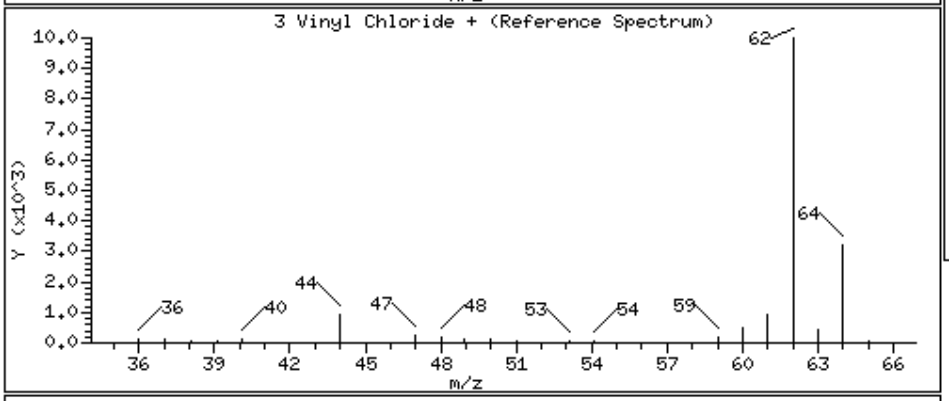
Concentration: 1.58 ug/L

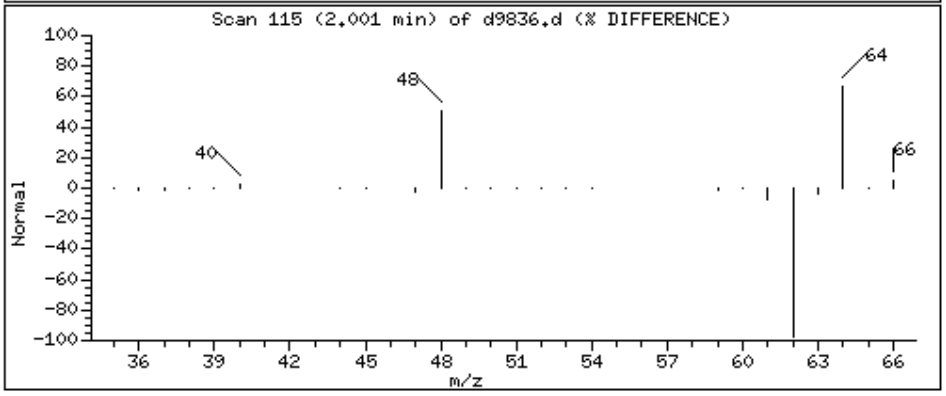


Data File: /var/chem/msv13.i/2171010.s.b/d9836.d



Date : 10-OCT-2017 18:38

Client ID:

Instrument: msv13.i

Sample Info: 21710063101*

Purge Volume: 5.0

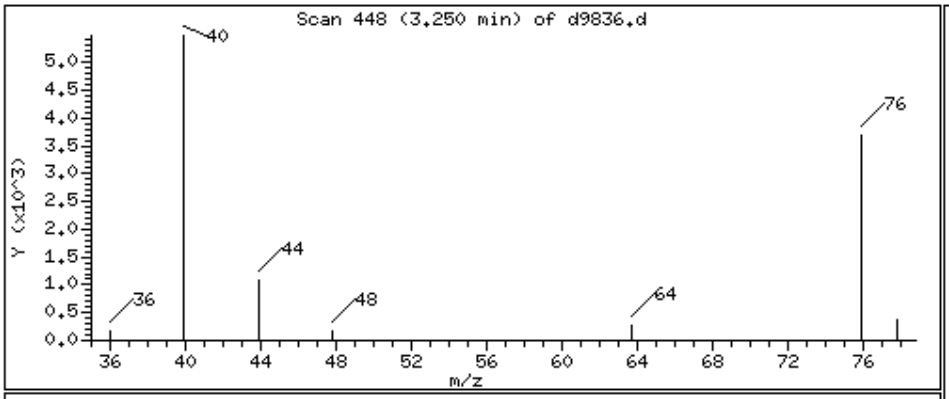
Operator: JCK

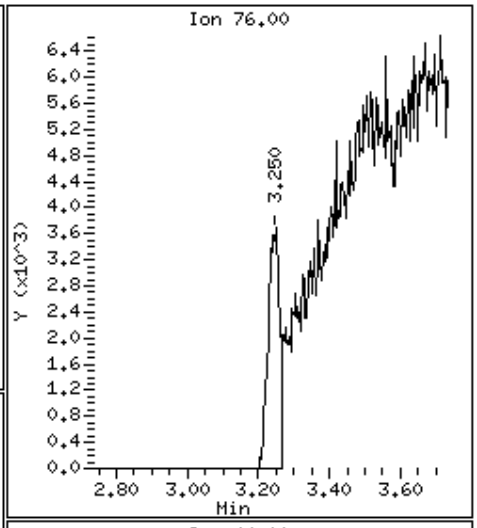
Column phase: RTX-VMS-30M

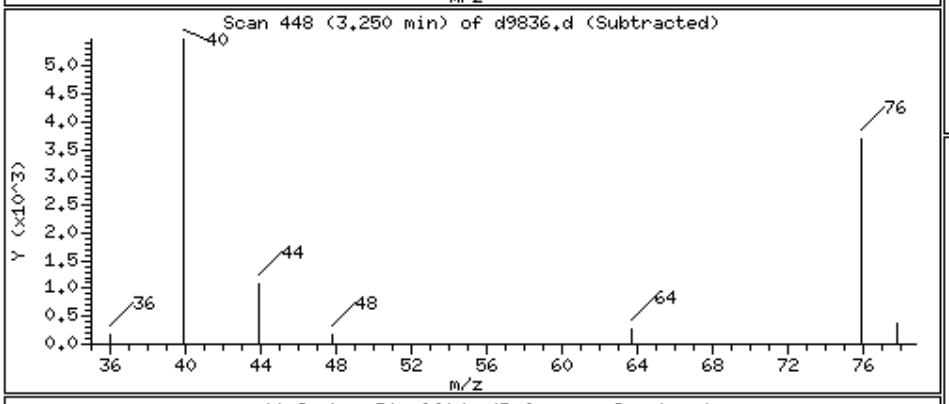
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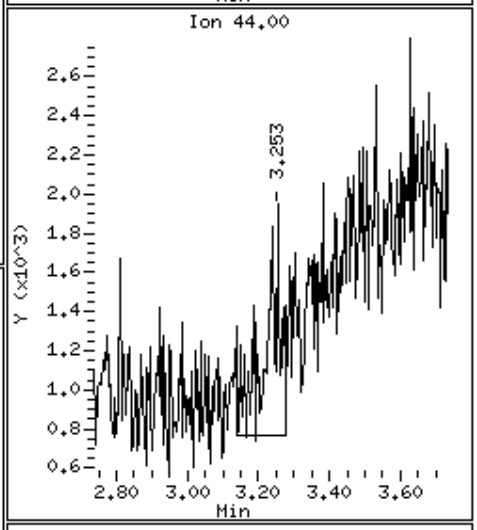
11 Carbon Disulfide

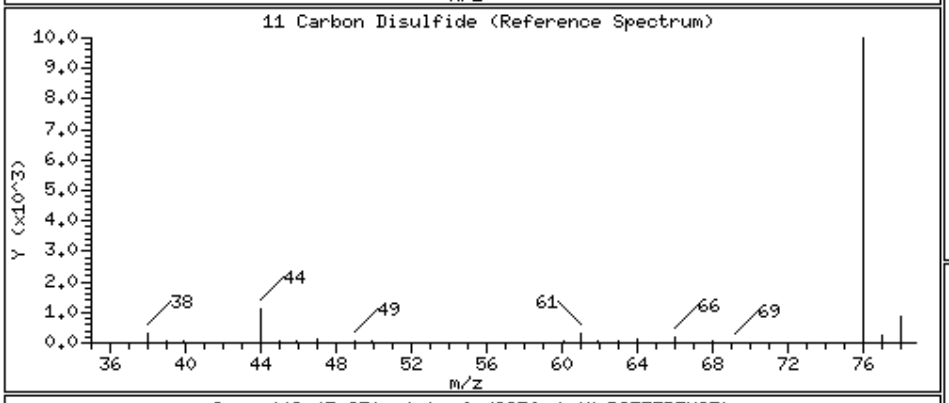
Concentration: 1.24 ug/L

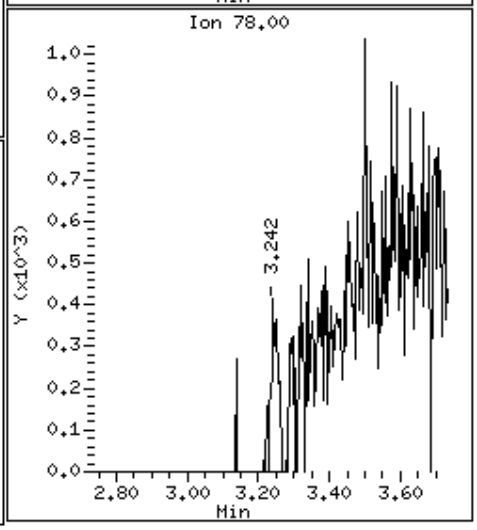


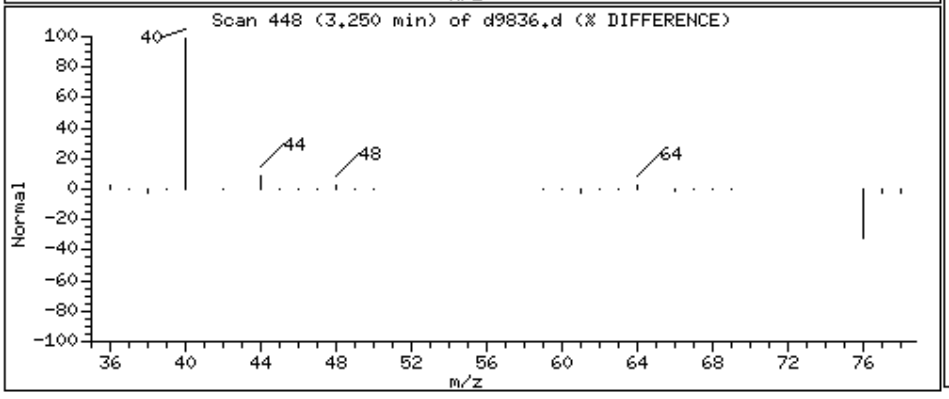



Data File: /var/chem/msv13.i/2171010.s.b/d9836.d



Date : 10-OCT-2017 18:38

Client ID:

Instrument: msv13.i

Sample Info: 21710063101*

Purge Volume: 5.0

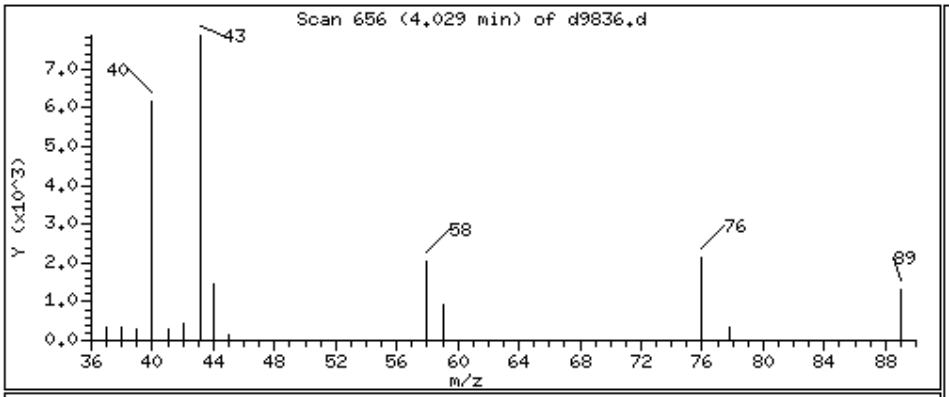
Operator: JCK

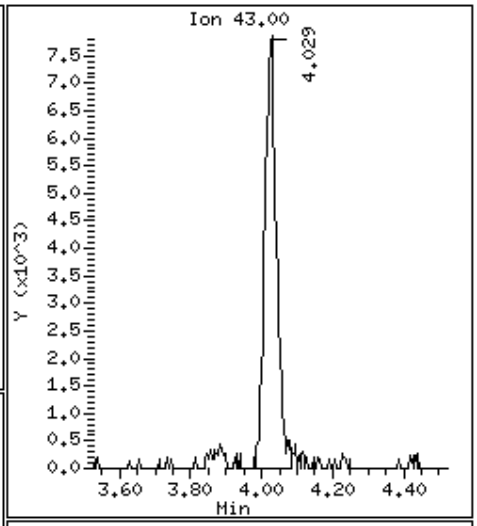
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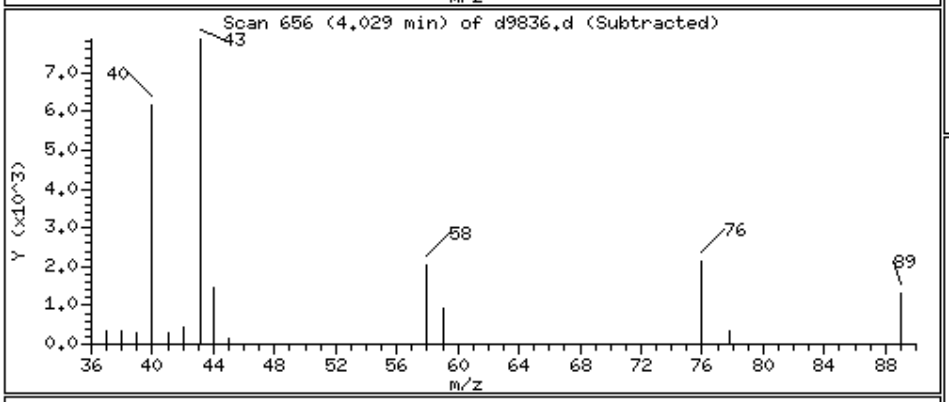
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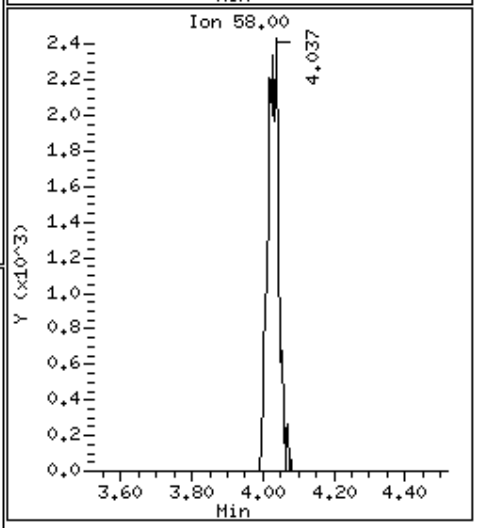
17 Acetone

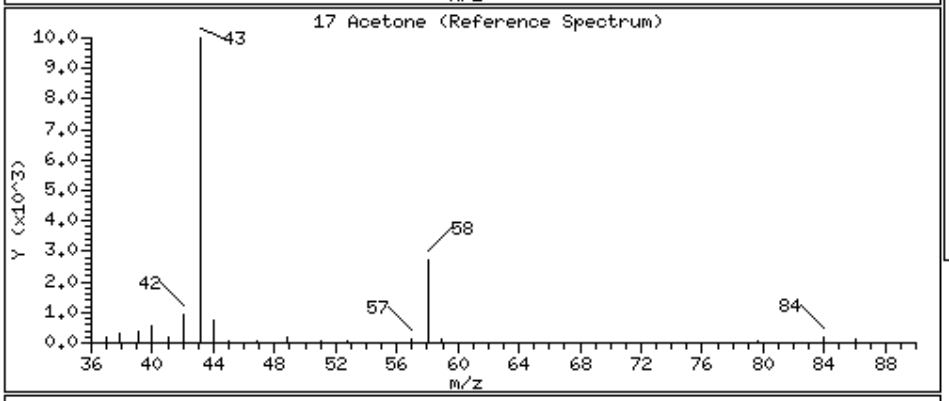
Concentration: 9.16 ug/L

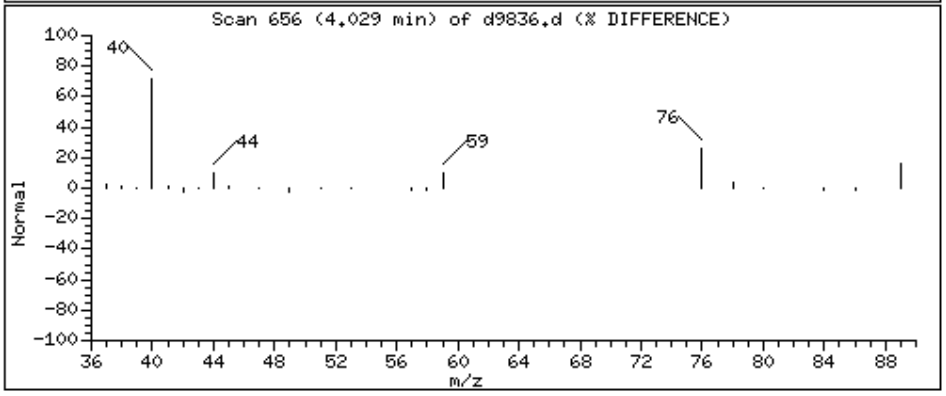


Data File: /var/chem/msv13.i/2171010.s.b/d9836.d



Date : 10-OCT-2017 18:38

Client ID:

Instrument: msv13.i

Sample Info: 21710063101*

Purge Volume: 5.0

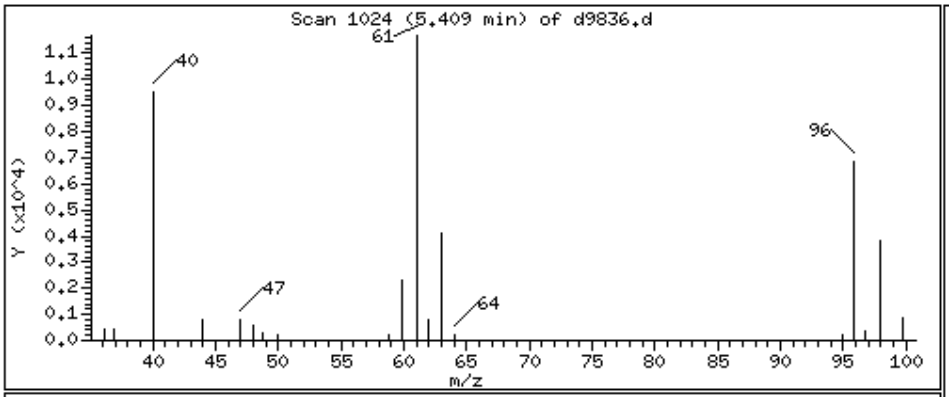
Operator: JCK

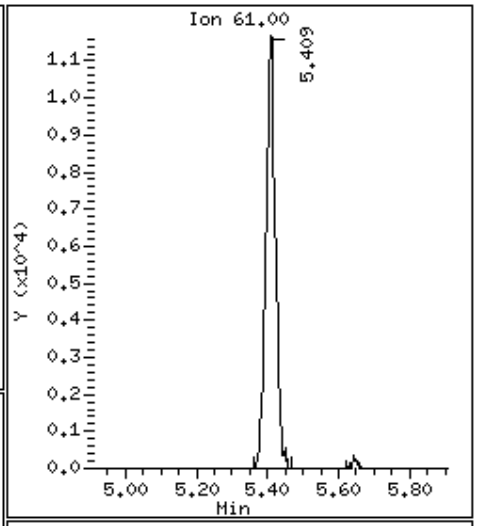
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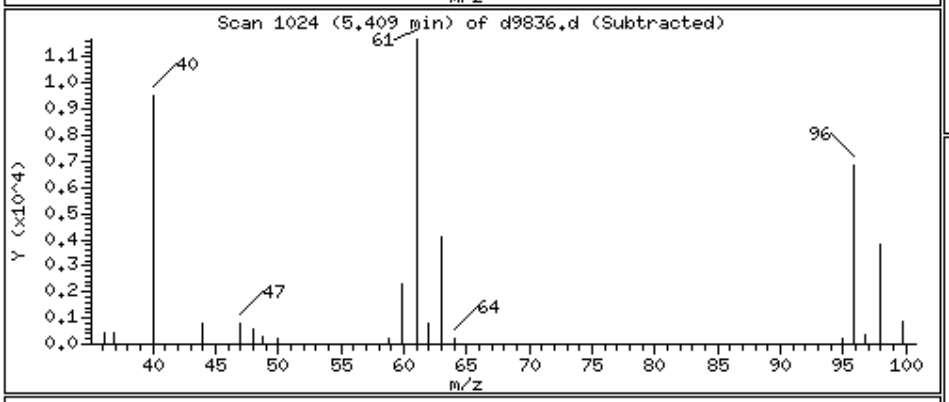
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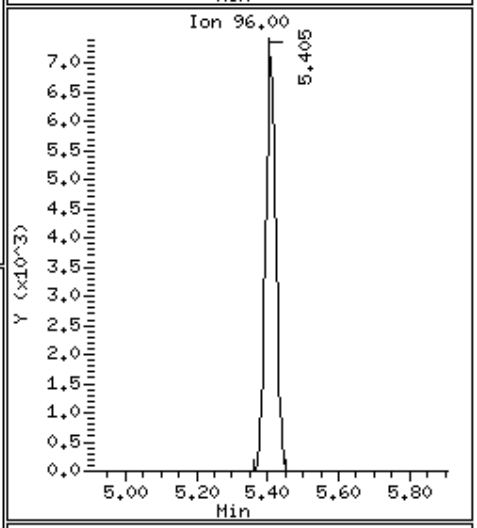
29 cis-1,2-Dichloroethene

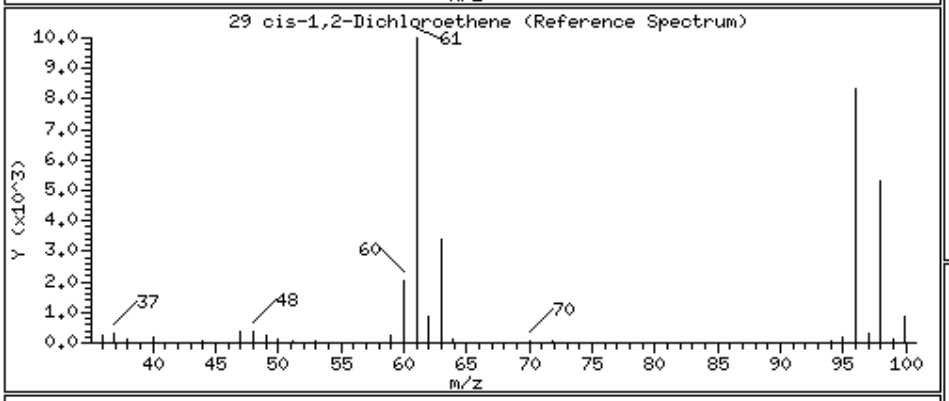
Concentration: 6.53 ug/L

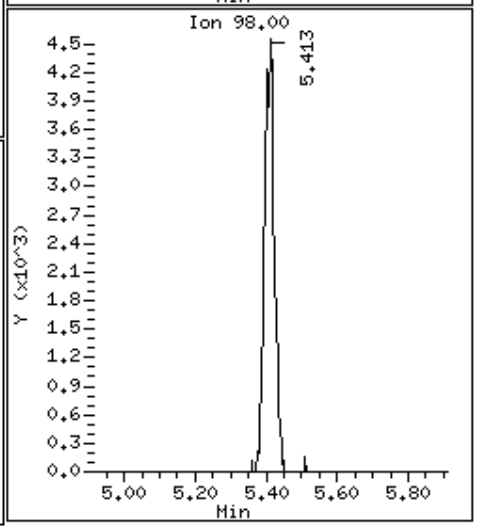


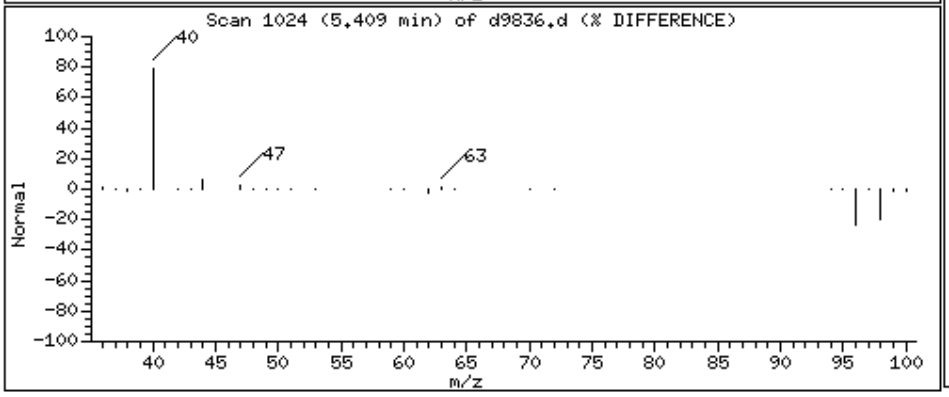



Data File: /var/chem/msv13.i/2171010.s.b/d9836.d



Date : 10-OCT-2017 18:38

Client ID:

Instrument: msv13.i

Sample Info: 21710063101*

Purge Volume: 5.0

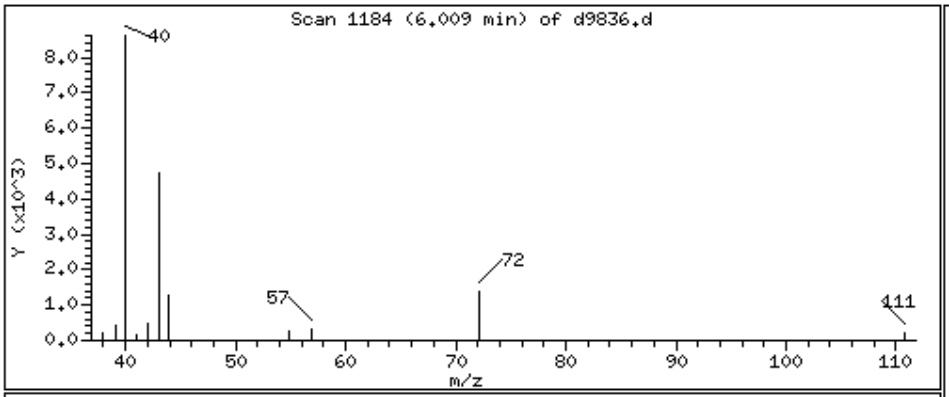
Operator: JCK

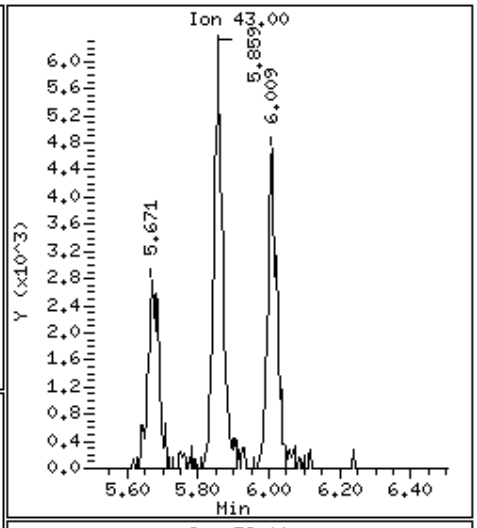
Column phase: RTX-VMS-30M

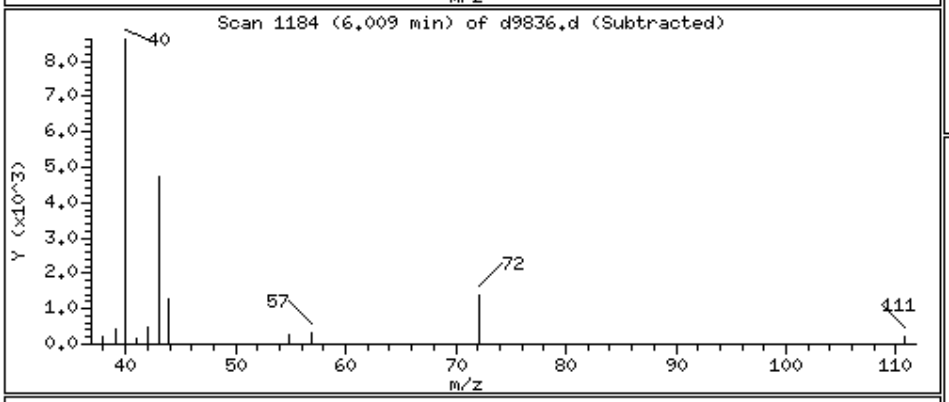
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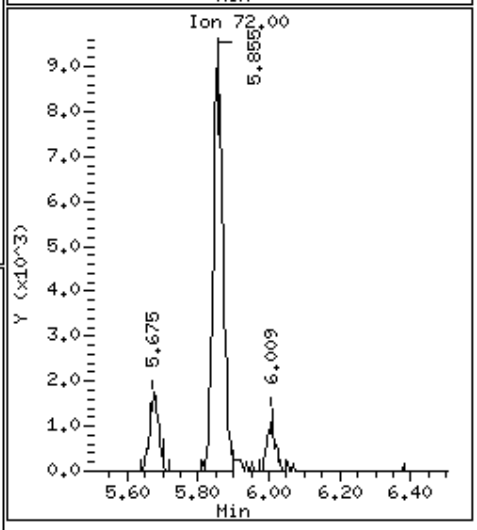
44 2-Butanone

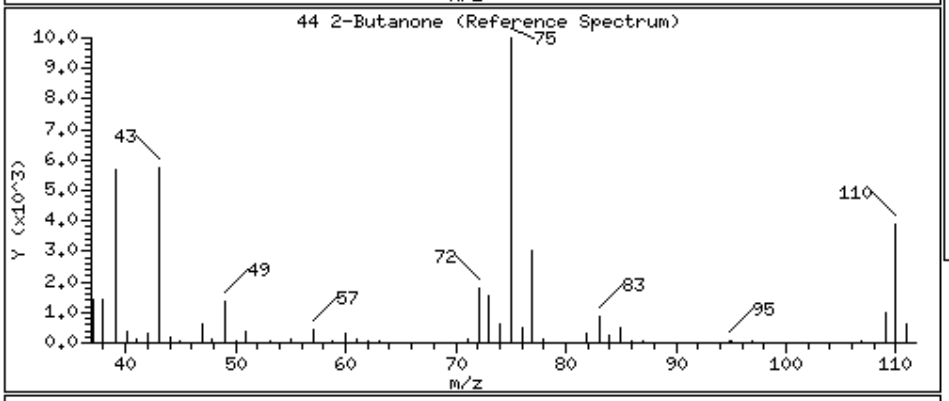
Concentration: 4.10 ug/L

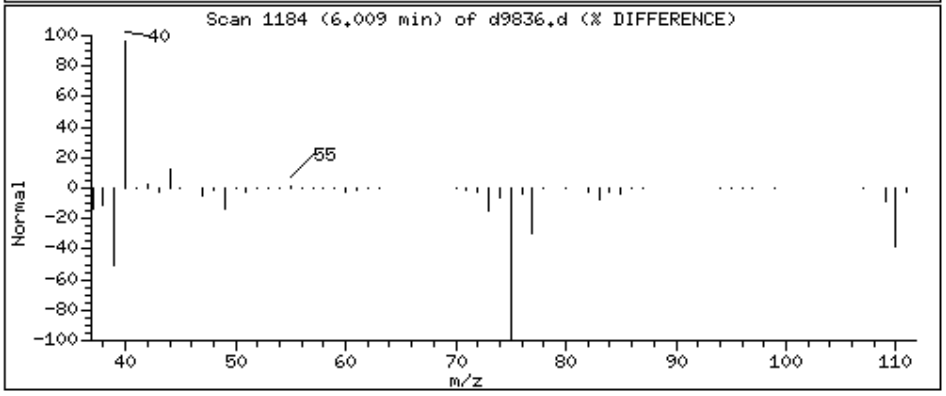


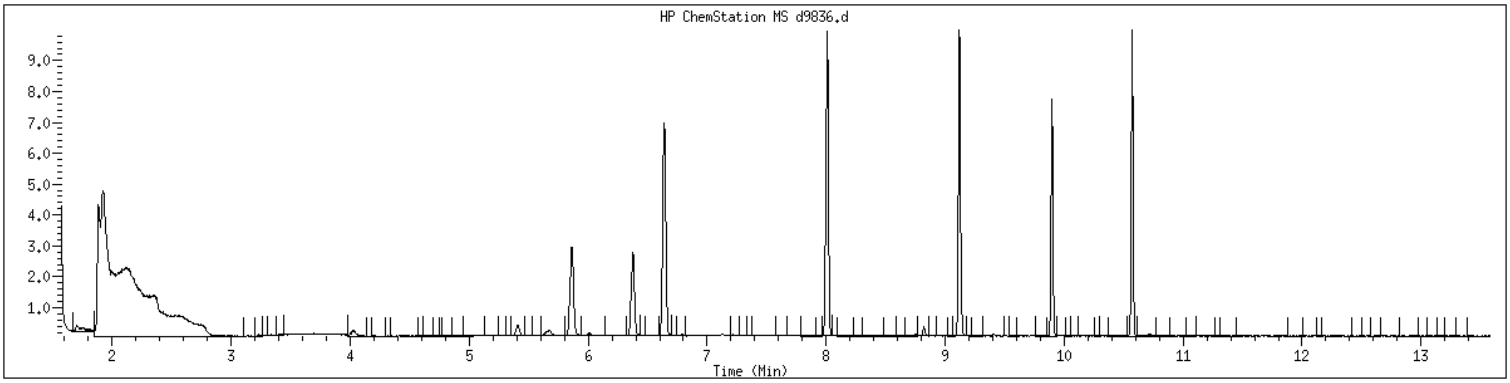



Data file : /var/chem/msv13.i/2171010.s.b/d9836.d Page: 1
Report Date: 10/11/2017 17:22

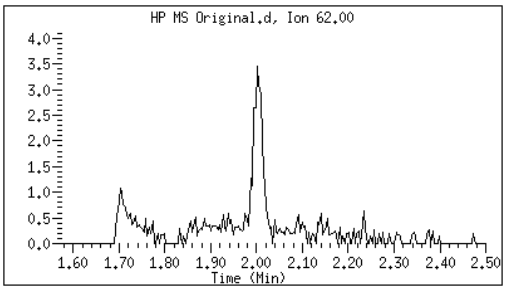
MANUAL INTEGRATION GRAPHIC REPORT

Lab ID : 21710063101 SampleType : SAMPLE
Injection Date: 10/10/2017 18:38 Instrument : msv13.i
Operator : JCK
Sample Info : 21710063101*
Misc Info : MSV~39299~*1*JCK
Method : /var/chem/msv13.i/2171010.s.b/8260cdodw13.m
Dilution : 1.00
Matrix : WATER
Integrator : HP RTE Compound Sublist: 8260b+AppIX1



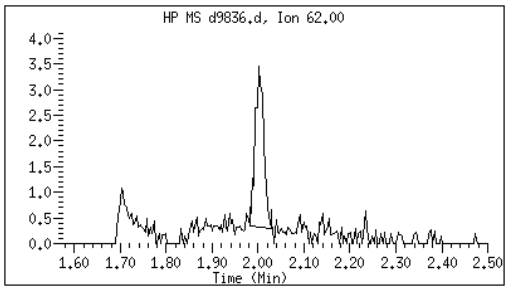

Original Final

3 Vinyl Chloride + CAS#: 75-01-4 Reason: M1

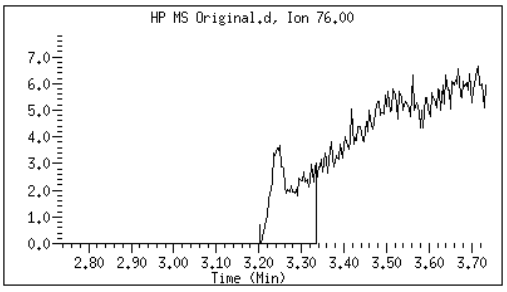



Electronic Signature Applied

User: jck2
Date: 10/10/2017 18:58

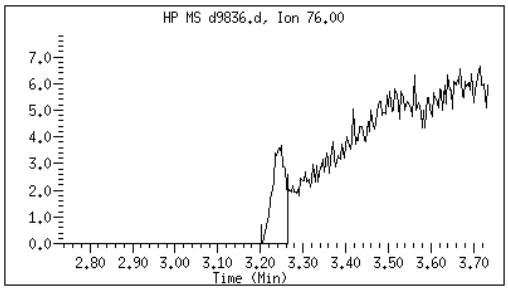



11 Carbon Disulfide CAS#: 75-15-0 Reason: M2




Electronic Signature Applied

User: jck2
Date: 10/10/2017 18:58



Data file : /var/chem/msv13.i/2171010.s.b/d9836.d Page: 2
Report Date: 10/11/2017 17:22

M1 - Target system did not integrate
M2 - Target system integrated incorrectly

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

| | | | | | |
|---|---|---|---|---|---|
| Report No: | 217100631 | | | Client Sample ID: | MB1729632 |
| Collect Date: | NA | Time: | NA | GCAL Sample ID: | 1729632 |
| Matrix: | Water | % Moisture: | NA | Instrument ID: | MSV13 |
| Sample Amt: | 5 mL | | | Lab File ID: | 2171010/d9833 |
| Injection Vol.: | 1.0 ( µL ) | | | GC Column: | RTX-VMS-30 ID .25 (mm) |
| Dilution Factor: | 1 | Analyst: | JCK | Analytical Batch: | 620002 |
| Analysis Date: | 10/10/17 | Time: | 1729 | Analytical Method: | EPA 8260C |

*CONCENTRATION UNITS: ug/L*

| CAS | ANALYTE | RESULT | Q | DL | LOD | LOQ |
|---|---|---|---|---|---|---|
| 71-55-6 | 1,1,1-Trichloroethane | 0.500 | U | 0.200 | 0.500 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | 0.500 | U | 0.200 | 0.500 | 1.00 |
| 75-34-3 | 1,1-Dichloroethane | 0.500 | U | 0.200 | 0.500 | 1.00 |
| 75-35-4 | 1,1-Dichloroethene | 0.500 | U | 0.200 | 0.500 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | 0.500 | U | 0.200 | 0.500 | 1.00 |
| 67-64-1 | Acetone | 1.00 | U | 0.500 | 1.00 | 5.00 |
| 71-43-2 | Benzene | 0.500 | U | 0.200 | 0.500 | 1.00 |
| 56-23-5 | Carbon tetrachloride | 0.500 | U | 0.250 | 0.500 | 1.00 |
| 108-90-7 | Chlorobenzene | 0.500 | U | 0.200 | 0.500 | 1.00 |
| 67-66-3 | Chloroform | 0.500 | U | 0.200 | 0.500 | 1.00 |
| 156-59-2 | cis-1,2-Dichloroethene | 0.500 | U | 0.200 | 0.500 | 1.00 |
| 100-41-4 | Ethylbenzene | 0.500 | U | 0.200 | 0.500 | 1.00 |
| 136777-61-2 | m,p-Xylene | 0.500 | U | 0.200 | 0.500 | 2.00 |
| 75-09-2 | Methylene chloride | 0.500 | U | 0.200 | 0.500 | 5.00 |
| 95-47-6 | o-Xylene | 0.500 | U | 0.200 | 0.500 | 1.00 |
| 100-42-5 | Styrene | 0.500 | U | 0.200 | 0.500 | 1.00 |
| 127-18-4 | Tetrachloroethene | 0.500 | U | 0.200 | 0.500 | 1.00 |
| 108-88-3 | Toluene | 0.500 | U | 0.200 | 0.500 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethene | 0.500 | U | 0.200 | 0.500 | 1.00 |
| 79-01-6 | Trichloroethene | 0.500 | U | 0.200 | 0.500 | 1.00 |
| 75-01-4 | Vinyl chloride | 0.500 | U | 0.200 | 0.500 | 1.00 |

FORM I VOA

GCAL, Inc.

Data file : /var/chem/msv13.i/2171010.s.b/d9833.d
Lab Smp Id: 1729632 Client Smp ID: MB
Inj Date : 10-OCT-2017 17:29
Operator : JCK Inst ID: msv13.i
Smp Info : 1729632*MB
Misc Info : MSV~39299~*1*JCK
Comment :
Method : /var/chem/msv13.i/2171010.s.b/8260cdodw13.m
Meth Date : 11-Oct-2017 17:21 jck2 Quant Type: ISTD
Cal Date : 10-OCT-2017 14:26 Cal File: d9826cD.d
Als bottle: 1 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 8260b+AppIX1.sub
Target Version: 3.50
Processing Host: org.gcal.com

Concentration Formula: Amt * DF * Uf/Vo * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.00000 | Dilution Factor |
| Uf | 5.00000 | ng unit correction factor |
| Vo | 5.00000 | Sample Volume purged (mL) |
| DF | 1.00000 | |

Cpnd Variable Local Compound Variable

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ppb) | FINAL ( ug/L) | SIMILARITY |
|---|---|---|---|---|---|---|---|---|
| $ 40 Dibromofluoromethane | 111 | 5.862 | 5.866 | (0.883) | 132842 | 49.9541 | 50.0 | 6305 |
| $ 50 1,2-Dichloroethane-d4 | 67 | 6.376 | 6.376 | (0.960) | 96758 | 51.2667 | 51.3 | |
| * 53 FLUOROBENZENE | 96 | 6.638 | 6.638 | (1.000) | 555802 | 50.0000 | | |
| $ 68 Toluene-d8 | 98 | 8.007 | 8.007 | (0.878) | 521789 | 52.2150 | 52.2 | |
| * 84 CHLOROBENZENE-d5 | 82 | 9.120 | 9.120 | (1.000) | 223680 | 50.0000 | | |
| $ 95 Bromofluorobenzene | 174 | 9.900 | 9.900 | (1.085) | 159187 | 47.4384 | 47.4 | |
| * 114 1,4-DICHLOROBENZENE-D4 | 152 | 10.571 | 10.574 | (1.000) | 172196 | 50.0000 | | |

Data File: /var/chem/msv13.i/2171010.s.b/d9833.d

Page 1

Date : 10-OCT-2017 17:29

Client ID: MB

Instrument: msv13.i

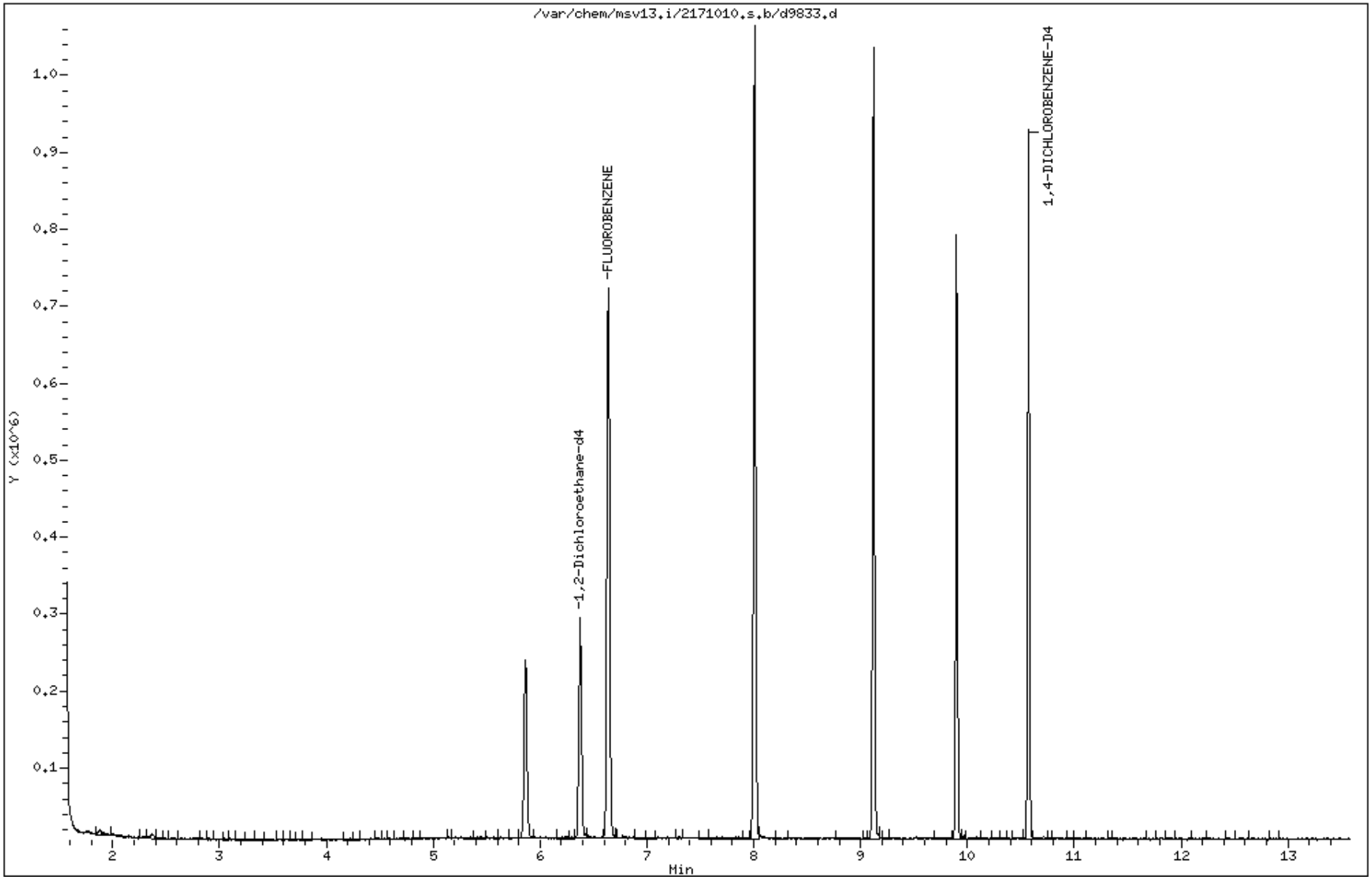
Sample Info: 1729632*MB

Purge Volume: 5.0

Operator: JCK

Column phase: RTX-VMS-30M

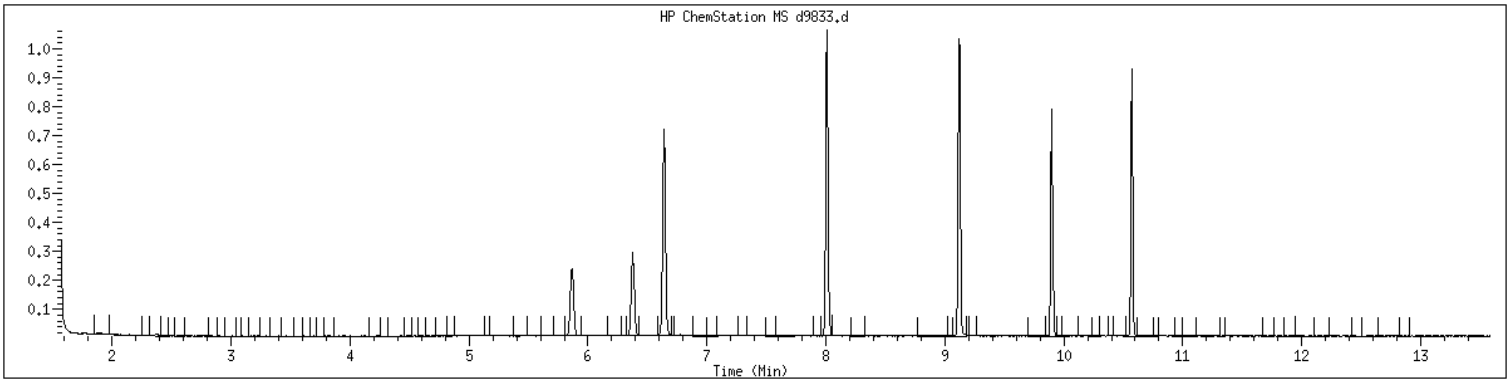
Column diameter: 0.25



Data file : /var/chem/msv13.i/2171010.s.b/d9833.d Page: 1
Report Date: 10/11/2017 17:22

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID : 1729632 SampleType : BLANK
Injection Date: 10/10/2017 17:29 Instrument : msv13.i
Operator : JCK
Sample Info : 1729632*MB
Misc Info : MSV~39299~*1*JCK
Method : /var/chem/msv13.i/2171010.s.b/8260cdodw13.m
Dilution : 1.00
Matrix : WATER
Integrator : HP RTE Compound Sublist: 8260b+AppIX1




NO MANUAL INTEGRATIONS

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

| | | | | | |
|---|---|---|---|---|---|
| Report No: | 217100631 | | | Client Sample ID: | LCS1729633 |
| Collect Date: | NA | Time: | NA | GCAL Sample ID: | 1729633 |
| Matrix: | Water | % Moisture: | NA | Instrument ID: | MSV13 |
| Sample Amt: | 5 mL | | | Lab File ID: | 2171010/d9829 |
| Injection Vol.: | 1.0 ( µL ) | | | GC Column: | RTX-VMS-30 ID .25 (mm) |
| Dilution Factor: | 1 | Analyst: | JCK | Analytical Batch: | 620002 |
| Analysis Date: | 10/10/17 | Time: | 1559 | Analytical Method: | EPA 8260C |

*CONCENTRATION UNITS: ug/L*

| CAS | ANALYTE | RESULT | Q | DL | LOD | LOQ |
|---|---|---|---|---|---|---|
| 71-55-6 | 1,1,1-Trichloroethane | 49.9 | | 0.200 | 0.500 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | 49.2 | | 0.200 | 0.500 | 1.00 |
| 75-34-3 | 1,1-Dichloroethane | 51.4 | | 0.200 | 0.500 | 1.00 |
| 75-35-4 | 1,1-Dichloroethene | 48.9 | | 0.200 | 0.500 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | 48.4 | | 0.200 | 0.500 | 1.00 |
| 67-64-1 | Acetone | 47.4 | | 0.500 | 1.00 | 5.00 |
| 71-43-2 | Benzene | 52.2 | | 0.200 | 0.500 | 1.00 |
| 56-23-5 | Carbon tetrachloride | 51.2 | | 0.250 | 0.500 | 1.00 |
| 108-90-7 | Chlorobenzene | 50.3 | | 0.200 | 0.500 | 1.00 |
| 67-66-3 | Chloroform | 49.5 | | 0.200 | 0.500 | 1.00 |
| 156-59-2 | cis-1,2-Dichloroethene | 53.0 | | 0.200 | 0.500 | 1.00 |
| 100-41-4 | Ethylbenzene | 51.9 | | 0.200 | 0.500 | 1.00 |
| 136777-61-2 | m,p-Xylene | 110 | | 0.200 | 0.500 | 2.00 |
| 75-09-2 | Methylene chloride | 50.2 | | 0.200 | 0.500 | 5.00 |
| 95-47-6 | o-Xylene | 55.6 | | 0.200 | 0.500 | 1.00 |
| 100-42-5 | Styrene | 57.1 | | 0.200 | 0.500 | 1.00 |
| 127-18-4 | Tetrachloroethene | 50.5 | | 0.200 | 0.500 | 1.00 |
| 108-88-3 | Toluene | 50.5 | | 0.200 | 0.500 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethene | 52.1 | | 0.200 | 0.500 | 1.00 |
| 79-01-6 | Trichloroethene | 47.1 | | 0.200 | 0.500 | 1.00 |
| 75-01-4 | Vinyl chloride | 55.3 | | 0.200 | 0.500 | 1.00 |

FORM I VOA

Data File: /var/chem/msv13.i/2171010.s.b/d9829.d Page 1
Report Date: 11-Oct-2017 17:21

GCAL, Inc.

Data file : /var/chem/msv13.i/2171010.s.b/d9829.d
Lab Smp Id: 1729633 Client Smp ID: LCS
Inj Date : 10-OCT-2017 15:59
Operator : JCK Inst ID: msv13.i
Smp Info : 1729633*LCS
Misc Info : MSV~39299~*1*JCK
Comment :
Method : /var/chem/msv13.i/2171010.s.b/8260cdodw13.m
Meth Date : 11-Oct-2017 17:21 jck2 Quant Type: ISTD
Cal Date : 10-OCT-2017 14:26 Cal File: d9826cD.d
Als bottle: 1 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 8260b+AppIX1.sub
Target Version: 3.50
Processing Host: org.gcal.com

Concentration Formula: Amt * DF * Uf/Vo * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.00000 | Dilution Factor |
| Uf | 5.00000 | ng unit correction factor |
| Vo | 5.00000 | Sample Volume purged (mL) |
| DF | 1.00000 | |

Cpnd Variable Local Compound Variable

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ppb) | FINAL ( ug/L) | SIMILARITY |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Dichlorodifluoromethane | 85 | 1.720 | 1.716 | (0.259) | 125537 | 53.4234 | 53.4 | |
| 2 | Chloromethane ++ | 50 | 1.915 | 1.915 | (0.288) | 158801 | 54.6051 | 54.6 | |
| 3 | Vinyl Chloride + | 62 | 2.005 | 2.001 | (0.302) | 170542 | 55.2897 | 55.3 | |
| 6 | Bromomethane | 94 | 2.335 | 2.331 | (0.352) | 83175 | 52.0369 | 52.0 | |
| 7 | Chloroethane | 64 | 2.466 | 2.440 | (0.371) | 74328 | 49.3896 | 49.4 | |
| 8 | Trichlorofluoromethane | 101 | 2.624 | 2.616 | (0.395) | 176739 | 49.0958 | 49.1 | |
| 10 | 1,1-Dichloroethene + | 96 | 3.212 | 3.208 | (0.484) | 101408 | 48.9264 | 48.9 | |
| 11 | Carbon Disulfide | 76 | 3.238 | 3.235 | (0.488) | 390469 | 50.9624 | 51.0 | |
| 12 | 1,1,2Trichlotrifluoroethane | 101 | 3.265 | 3.261 | (0.492) | 101963 | 49.2465 | 49.2 | |
| 13 | Methyl Iodide | 142 | 3.377 | 3.377 | (0.509) | 56300 | 50.2021 | 50.2 | |
| 14 | Acrolein | 56 | 3.647 | 3.647 | (0.549) | 41017 | 229.495 | 229 | |
| 16 | Methylene Chloride | 49 | 3.943 | 3.939 | (0.594) | 170012 | 50.1810 | 50.2 | |
| 17 | Acetone | 43 | 4.022 | 4.025 | (0.606) | 110584 | 47.3735 | 47.4 | |
| 18 | trans-1,2-Dichloroethene | 61 | 4.131 | 4.127 | (0.622) | 180225 | 52.0766 | 52.1 | |

Data File: /var/chem/msv13.i/2171010.s.b/d9829.d Page 2
Report Date: 11-Oct-2017 17:21

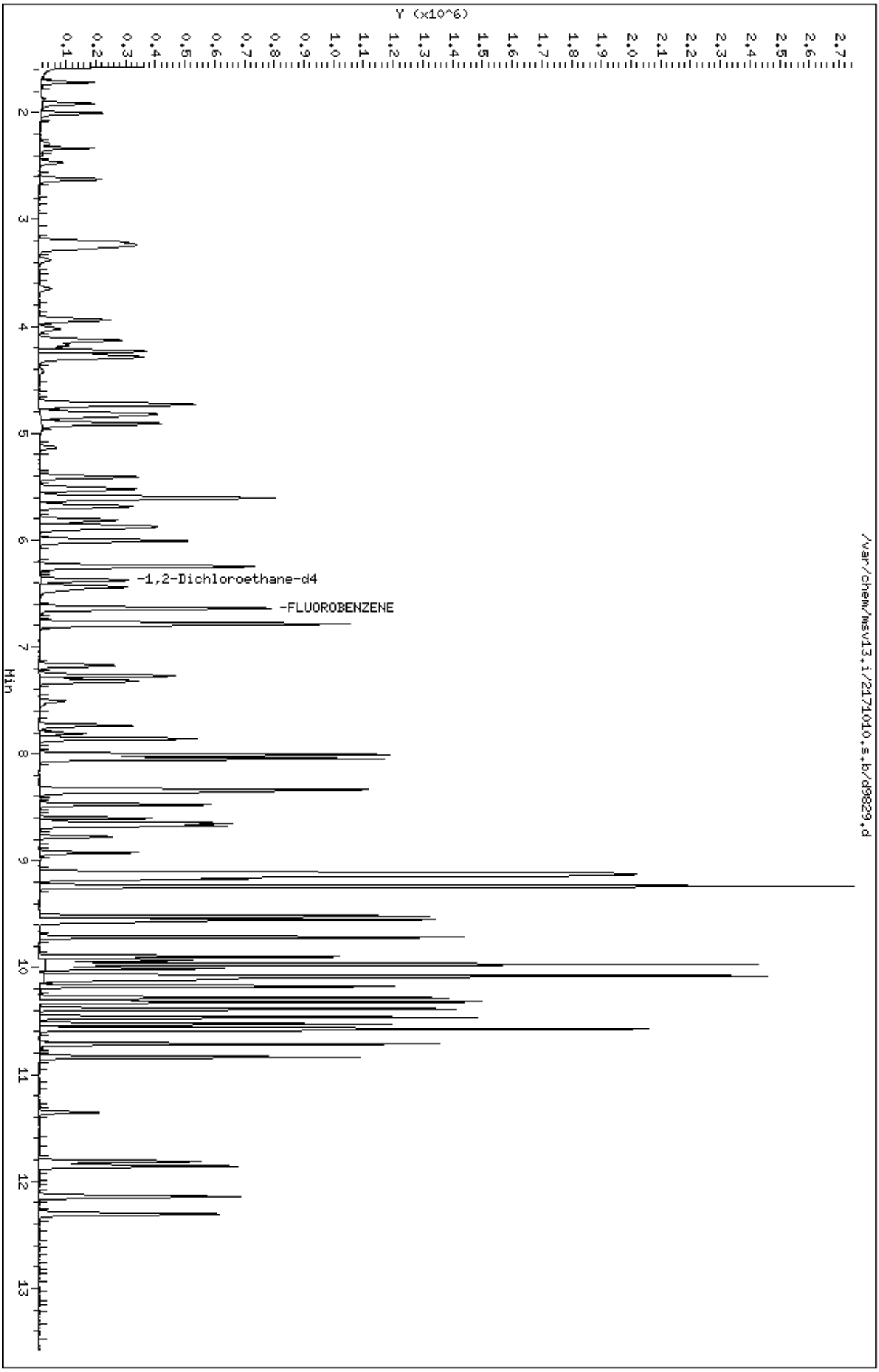
| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ppb) | FINAL ( ug/L) | SIMILARITY |
|---|---|---|---|---|---|---|---|---|---|
| | 19 Methyl Acetate | 43 | 4.179 | 4.179 | (0.630) | 143604 | 50.8921 | 50.9 | 9291 |
| | 20 Hexane | 57 | 4.232 | 4.235 | (0.637) | 198876 | 60.8325 | 60.8 | 9518 |
| | 21 MTBE | 73 | 4.284 | 4.288 | (0.645) | 396511 | 54.4641 | 54.5 | 9442 |
| | 26 1,1-Dichloroethane ++ | 63 | 4.843 | 4.843 | (0.730) | 283110 | 51.3526 | 51.4 | |
| | 27 Acrylonitrile | 53 | 4.910 | 4.914 | (0.740) | 354425 | 253.214 | 253 | |
| | 28 Vinyl Acetate | 43 | 5.131 | 5.135 | (0.773) | 87445 | 61.0579 | 61.1 | |
| | 29 cis-1,2-Dichloroethene | 61 | 5.409 | 5.409 | (0.815) | 209070 | 52.9638 | 53.0 | |
| M | 75 Total 1,2-Dichloroethene | 61 | | | | 389295 | 105.040 | 105 | |
| | 30 2,2-Dichloropropane | 77 | 5.525 | 5.521 | (0.832) | 200078 | 55.3424 | 55.3 | |
| | 32 Cyclohexane | 56 | 5.604 | 5.604 | (0.844) | 266158 | 59.0159 | 59.0 | 9543 |
| | 34 Bromochloromethane | 128 | 5.608 | 5.607 | (0.845) | 68916 | 48.5599 | 48.6 | |
| | 35 Chloroform + | 83 | 5.686 | 5.686 | (0.857) | 247876 | 49.5288 | 49.5 | |
| | 36 Carbon Tetrachloride | 117 | 5.814 | 5.814 | (0.876) | 170274 | 51.1811 | 51.2 | |
| $ | 40 Dibromofluoromethane | 111 | 5.866 | 5.866 | (0.884) | 146367 | 49.3761 | 49.4 | 9301 |
| | 41 1,1,1-Trichloroethane | 97 | 5.889 | 5.889 | (0.887) | 203441 | 49.8726 | 49.9 | |
| | 44 2-Butanone | 43 | 6.009 | 6.005 | (0.905) | 133039 | 52.9451 | 52.9 | |
| | 43 1,1-Dichloropropene | 75 | 6.009 | 6.005 | (0.905) | 186172 | 54.6883 | 54.7 | |
| | 46 Benzene | 78 | 6.245 | 6.248 | (0.941) | 592859 | 52.1777 | 52.2 | |
| $ | 50 1,2-Dichloroethane-d4 | 67 | 6.376 | 6.376 | (0.960) | 103746 | 49.3125 | 49.3 | |
| | 51 1,2-Dichloroethane | 62 | 6.440 | 6.440 | (0.970) | 229775 | 48.4491 | 48.4 | |
| * | 53 FLUOROBENZENE | 96 | 6.638 | 6.638 | (1.000) | 619559 | 50.0000 | | |
| | 55 Methyl Cyclohexane | 83 | 6.781 | 6.781 | (1.021) | 238422 | 55.8707 | 55.9 | 9219 |
| | 56 Trichloroethene | 130 | 6.788 | 6.788 | (1.023) | 142272 | 47.0515 | 47.1 | |
| | 57 Dibromomethane | 93 | 7.171 | 7.174 | (1.080) | 86607 | 49.7989 | 49.8 | |
| | 59 1,2-Dichloropropane + | 63 | 7.272 | 7.272 | (1.095) | 160946 | 50.7963 | 50.8 | |
| | 60 Bromodichloromethane | 83 | 7.321 | 7.321 | (1.103) | 204177 | 51.4380 | 51.4 | |
| | 65 1-Bromo-2-chloroethane | 63 | 7.733 | 7.733 | (1.165) | 240713 | 51.7730 | 51.8 | 9711 |
| | 64 2-Chloroethyl vinyl ether | 63 | 7.812 | 7.812 | (1.177) | 55207 | 60.2077 | 60.2 | |
| | 67 cis-1,3-Dichloropropene | 75 | 7.857 | 7.860 | (1.184) | 240899 | 55.7715 | 55.8 | |
| $ | 68 Toluene-d8 | 98 | 8.007 | 8.007 | (0.878) | 607616 | 50.0846 | 50.1 | |
| | 69 Toluene + | 91 | 8.048 | 8.048 | (0.882) | 650593 | 50.5231 | 50.5 | |
| | 71 Tetrachloroethene | 164 | 8.337 | 8.336 | (0.914) | 133216 | 50.5393 | 50.5 | |
| | 73 4-methyl-2-pentanone | 43 | 8.337 | 8.336 | (0.914) | 227278 | 56.0848 | 56.1 | |
| | 74 trans-1,3-Dichloropropene | 75 | 8.355 | 8.359 | (1.259) | 225908 | 54.7869 | 54.8 | |
| M | 82 1-3 Dichloropropene total | 100 | | | | 466807 | 110.558 | 111 | 0 |
| | 76 1,1,2-Trichloroethane | 97 | 8.475 | 8.475 | (0.929) | 135073 | 49.1883 | 49.2 | |
| | 78 Dibromochloromethane | 129 | 8.603 | 8.603 | (0.943) | 150583 | 48.4240 | 48.4 | |
| | 79 1,3-Dichloropropane | 76 | 8.674 | 8.674 | (0.951) | 262432 | 51.2222 | 51.2 | |
| | 80 1,2-Dibromoethane(EDB) | 107 | 8.775 | 8.779 | (0.962) | 131177 | 50.3223 | 50.3 | |
| | 83 2-Hexanone | 43 | 8.921 | 8.925 | (0.978) | 179138 | 50.5906 | 50.6 | |
| | 86 1-Chlorohexane | 91 | 9.109 | 9.109 | (0.999) | 188873 | 55.8879 | 55.9 | 9369 |
| * | 84 CHLOROBENZENE-d5 | 82 | 9.120 | 9.120 | (1.000) | 271552 | 50.0000 | | |
| | 85 Chlorobenzene ++ | 112 | 9.131 | 9.135 | (1.001) | 424501 | 50.2839 | 50.3 | |
| | 87 Ethylbenzene + | 106 | 9.146 | 9.146 | (1.003) | 219454 | 51.8624 | 51.9 | |
| | 88 1,1,1,2-Tetrachloroethane | 133 | 9.172 | 9.172 | (1.006) | 139459 | 48.9905 | 49.0 | |
| | 89 p,m-Xylene | 106 | 9.240 | 9.240 | (1.013) | 534422 | 110.077 | 110 | |
| | 90 o-Xylene | 106 | 9.521 | 9.521 | (1.044) | 248814 | 55.5771 | 55.6 | |

Data File: /var/chem/msv13.i/2171010.s.b/d9829.d Page 3
Report Date: 11-Oct-2017 17:21

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ppb) | FINAL ( ug/L) | SIMILARITY |
|---|---|---|---|---|---|---|---|---|---|
| M | 121 TOTAL XYLENE | 106 | | | | 783236 | 165.654 | 166 | |
| | 91 Styrene | 104 | 9.551 | 9.555 | (1.047) | 439208 | 57.0969 | 57.1 | |
| | 92 Bromoform ++ | 173 | 9.574 | 9.577 | (1.050) | 132261 | 51.0614 | 51.1 | |
| | 93 Isopropylbenzene | 105 | 9.716 | 9.716 | (1.065) | 660665 | 57.1270 | 57.1 | |
| $ | 95 Bromofluorobenzene | 174 | 9.900 | 9.900 | (1.085) | 204653 | 50.2360 | 50.2 | |
| | 96 Bromobenzene | 77 | 9.967 | 9.967 | (0.943) | 339492 | 51.1284 | 51.1 | |
| | 97 n-Propylbenzene | 91 | 9.971 | 9.971 | (0.943) | 808697 | 52.2958 | 52.3 | |
| | 98 1,1,2,2-Tetrachloroethane++ | 83 | 10.008 | 10.012 | (0.947) | 224377 | 49.1860 | 49.2 | |
| | 99 2-Chlorotoluene | 91 | 10.076 | 10.076 | (0.953) | 533004 | 52.3197 | 52.3 | |
| | 102 1,3,5-Trimethylbenzene | 105 | 10.083 | 10.083 | (0.954) | 553843 | 54.0636 | 54.1 | |
| | 100 1,2,3-Trichloropropane | 75 | 10.102 | 10.102 | (0.956) | 286320 | 50.3716 | 50.4 | |
| | 101 trans-1,4-Dichloro-2-Butene | 53 | 10.121 | 10.121 | (0.957) | 77272 | 56.0226 | 56.0 | |
| | 104 4-Chlorotoluene | 91 | 10.173 | 10.177 | (0.962) | 476042 | 53.2643 | 53.3 | |
| | 105 tert-butylbenzene | 91 | 10.282 | 10.282 | (0.973) | 294278 | 53.7796 | 53.8 | |
| | 107 1,2,4-Trimethylbenzene | 105 | 10.320 | 10.319 | (0.976) | 556925 | 55.0095 | 55.0 | |
| | 108 sec-Butylbenzene | 105 | 10.387 | 10.387 | (0.983) | 668784 | 55.1161 | 55.1 | |
| | 110 p-Isopropyltoluene | 119 | 10.466 | 10.466 | (0.990) | 572783 | 56.7110 | 56.7 | |
| | 113 1,3-Dichlorobenzene | 146 | 10.529 | 10.529 | (0.996) | 333941 | 52.6412 | 52.6 | |
| * | 114 1,4-DICHLOROBENZENE-D4 | 152 | 10.571 | 10.574 | (1.000) | 244103 | 50.0000 | | |
| | 115 1,4-Dichlorobenzene | 146 | 10.582 | 10.582 | (1.001) | 337425 | 50.5976 | 50.6 | |
| | 117 n-Butylbenzene | 91 | 10.713 | 10.717 | (1.013) | 523560 | 57.9307 | 57.9 | |
| | 118 1,2-Dichlorobenzene | 146 | 10.837 | 10.837 | (1.025) | 324541 | 51.9687 | 52.0 | |
| | 119 1,2-Dibromo-3-Chloropropane | 157 | 11.358 | 11.358 | (1.074) | 45545 | 51.8156 | 51.8 | |
| | 120 Hexachlorobutadiene | 225 | 11.815 | 11.815 | (1.118) | 103995 | 54.5056 | 54.5 | |
| | 122 1,2,4-Trichlorobenzene | 180 | 11.857 | 11.856 | (1.122) | 204744 | 51.3934 | 51.4 | |
| | 124 Naphthalene | 128 | 12.141 | 12.141 | (1.149) | 485502 | 48.1543 | 48.2 | |
| | 125 1,2,3-Trichlorobenzene | 180 | 12.306 | 12.306 | (1.164) | 207465 | 52.1333 | 52.1 | |
| | 22 tert-Butyl Alcohol | 59 | 4.427 | 4.427 | (0.667) | 16889 | 54.6424 | 54.6 | 6912 |
| | 24 Isopropyl Ether | 45 | 4.730 | 4.730 | (0.713) | 524803 | 61.2145 | 61.2 | 9519 |
| | 25 Chloroprene | 53 | 4.817 | 4.816 | (0.726) | 214732 | 56.8993 | 56.9 | 8845 |
| | 52 Isobutyl Alcohol | 43 | 6.470 | 6.473 | (0.975) | 48818 | 257.249 | 257 | 8983 |
| | 62 1,4- Dioxane | 58 | 7.504 | 7.508 | (1.130) | 41357 | 1451.93 | 1450 | 8745 |
| | 170 3,4-dichloro-1-butene | 75 | 8.648 | 8.651 | (0.948) | 189443 | 56.1720 | 56.2 | 9554 |
| | 169 cis-1,4-dichloro-2-butene | 53 | 9.930 | 9.930 | (0.939) | 89178 | 52.4567 | 52.5 | 9595 |

Data File: /var/chem/msv13.i/2171010.s.b/d9829.d
Date : 10-OCT-2017 15:59
Client ID: LCS
Sample Info: 1729633*LCS
Purge Volume: 5.0
Column phase: RTX-VMS-30M

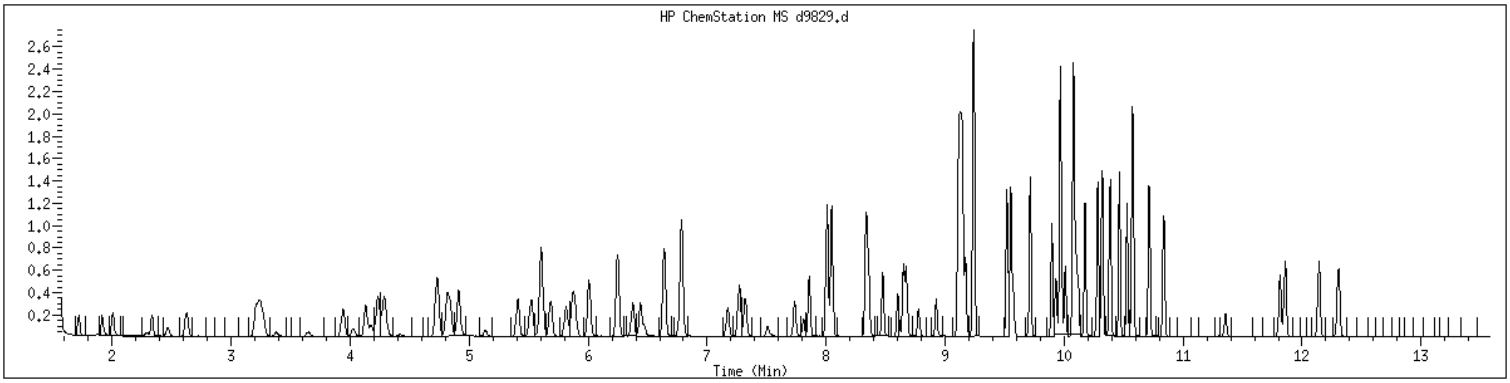
Instrument: msv13.i
Operator: JCK
Column diameter: 0.25



Data file : /var/chem/msv13.i/2171010.s.b/d9829.d Page: 1
Report Date: 10/11/2017 17:21

MANUAL INTEGRATION GRAPHIC REPORT

| | | | |
|---|---|---|---|
| Lab ID | : 1729633 | SampleType | : LCS |
| Injection Date | : 10/10/2017 15:59 | Instrument | : msv13.i |
| Operator | : JCK | | |
| Sample Info | : 1729633*LCS | | |
| Misc Info | : MSV~39299~*1*JCK | | |
| Method | : /var/chem/msv13.i/2171010.s.b/8260cdodw13.m | | |
| Dilution | : 1.00 | | |
| Matrix | : WATER | | |
| Integrator | : HP RTE | Compound Sublist | : 8260b+AppIX1 |




NO MANUAL INTEGRATIONS

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

| | | | | | |
|---|---|---|---|---|---|
| Report No: | 217100631 | | | Client Sample ID: | LCSD1729634 |
| Collect Date: | NA | Time: | NA | GCAL Sample ID: | 1729634 |
| Matrix: | Water | % Moisture: | NA | Instrument ID: | MSV13 |
| Sample Amt: | 5 mL | | | Lab File ID: | 2171010/d9830 |
| Injection Vol.: | 1.0 ( µL ) | | | GC Column: | RTX-VMS-30 ID .25 (mm) |
| Dilution Factor: | 1 | Analyst: | JCK | Analytical Batch: | 620002 |
| Analysis Date: | 10/10/17 | Time: | 1621 | Analytical Method: | EPA 8260C |

*CONCENTRATION UNITS: ug/L*

| CAS | ANALYTE | RESULT | Q | DL | LOD | LOQ |
|---|---|---|---|---|---|---|
| 71-55-6 | 1,1,1-Trichloroethane | 49.5 | | 0.200 | 0.500 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | 48.8 | | 0.200 | 0.500 | 1.00 |
| 75-34-3 | 1,1-Dichloroethane | 49.6 | | 0.200 | 0.500 | 1.00 |
| 75-35-4 | 1,1-Dichloroethene | 47.5 | | 0.200 | 0.500 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | 47.4 | | 0.200 | 0.500 | 1.00 |
| 67-64-1 | Acetone | 48.2 | | 0.500 | 1.00 | 5.00 |
| 71-43-2 | Benzene | 51.1 | | 0.200 | 0.500 | 1.00 |
| 56-23-5 | Carbon tetrachloride | 49.5 | | 0.250 | 0.500 | 1.00 |
| 108-90-7 | Chlorobenzene | 49.0 | | 0.200 | 0.500 | 1.00 |
| 67-66-3 | Chloroform | 48.1 | | 0.200 | 0.500 | 1.00 |
| 156-59-2 | cis-1,2-Dichloroethene | 50.9 | | 0.200 | 0.500 | 1.00 |
| 100-41-4 | Ethylbenzene | 50.0 | | 0.200 | 0.500 | 1.00 |
| 136777-61-2 | m,p-Xylene | 106 | | 0.200 | 0.500 | 2.00 |
| 75-09-2 | Methylene chloride | 47.7 | | 0.200 | 0.500 | 5.00 |
| 95-47-6 | o-Xylene | 54.0 | | 0.200 | 0.500 | 1.00 |
| 100-42-5 | Styrene | 54.9 | | 0.200 | 0.500 | 1.00 |
| 127-18-4 | Tetrachloroethene | 48.5 | | 0.200 | 0.500 | 1.00 |
| 108-88-3 | Toluene | 48.8 | | 0.200 | 0.500 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethene | 48.2 | | 0.200 | 0.500 | 1.00 |
| 79-01-6 | Trichloroethene | 45.8 | | 0.200 | 0.500 | 1.00 |
| 75-01-4 | Vinyl chloride | 51.4 | | 0.200 | 0.500 | 1.00 |

FORM I VOA

Data File: /var/chem/msv13.i/2171010.s.b/d9830.d Page 1
Report Date: 11-Oct-2017 17:21

GCAL, Inc.

Data file : /var/chem/msv13.i/2171010.s.b/d9830.d
Lab Smp Id: 1729634 Client Smp ID: LCSD
Inj Date : 10-OCT-2017 16:21
Operator : JCK Inst ID: msv13.i
Smp Info : 1729634*LCSD
Misc Info : MSV~39299~*1*JCK
Comment :
Method : /var/chem/msv13.i/2171010.s.b/8260cdodw13.m
Meth Date : 11-Oct-2017 17:21 jck2 Quant Type: ISTD
Cal Date : 10-OCT-2017 14:26 Cal File: d9826cD.d
Als bottle: 1 QC Sample: LCSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 8260b+AppIX1.sub
Target Version: 3.50
Processing Host: org.gcal.com

Concentration Formula: Amt * DF * Uf/Vo * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.00000 | Dilution Factor |
| Uf | 5.00000 | ng unit correction factor |
| Vo | 5.00000 | Sample Volume purged (mL) |
| DF | 1.00000 | |

Cpnd Variable Local Compound Variable

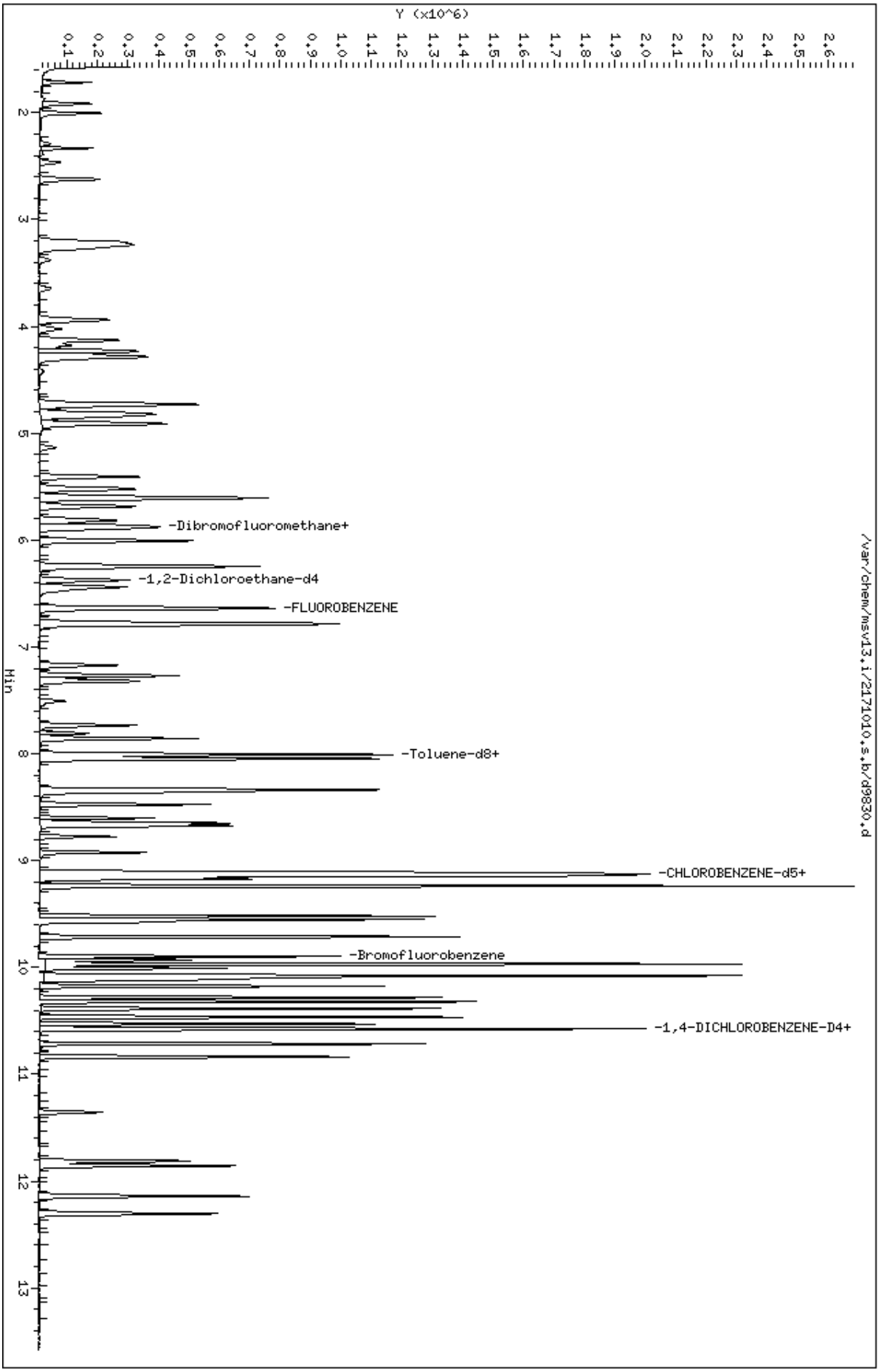
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ppb) | FINAL ( ug/L) | SIMILARITY |
|---|---|---|---|---|---|---|---|---|
| 1 Dichlorodifluoromethane | 85 | 1.716 | 1.716 | (0.259) | 113799 | 47.7071 | 47.7 | |
| 2 Chloromethane ++ | 50 | 1.915 | 1.915 | (0.288) | 153598 | 52.0296 | 52.0 | |
| 3 Vinyl Chloride + | 62 | 2.005 | 2.001 | (0.302) | 160886 | 51.3826 | 51.4 | |
| 6 Bromomethane | 94 | 2.335 | 2.331 | (0.352) | 79071 | 48.7327 | 48.7 | |
| 7 Chloroethane | 64 | 2.462 | 2.440 | (0.371) | 69704 | 44.5718 | 44.6 | |
| 8 Trichlorofluoromethane | 101 | 2.623 | 2.616 | (0.395) | 169348 | 46.3422 | 46.3 | |
| 10 1,1-Dichloroethene + | 96 | 3.208 | 3.208 | (0.483) | 99897 | 47.4797 | 47.5 | |
| 11 Carbon Disulfide | 76 | 3.238 | 3.235 | (0.488) | 359442 | 46.2144 | 46.2 | |
| 12 1,1,2Trichlotrifluoroethane | 101 | 3.264 | 3.261 | (0.492) | 98906 | 47.0588 | 47.1 | |
| 13 Methyl Iodide | 142 | 3.381 | 3.377 | (0.509) | 53906 | 47.7291 | 47.7 | |
| 14 Acrolein | 56 | 3.647 | 3.647 | (0.549) | 41207 | 227.125 | 227 | |
| 16 Methylene Chloride | 49 | 3.943 | 3.939 | (0.594) | 164007 | 47.6878 | 47.7 | |
| 17 Acetone | 43 | 4.022 | 4.025 | (0.606) | 114138 | 48.1680 | 48.2 | |
| 18 trans-1,2-Dichloroethene | 61 | 4.130 | 4.127 | (0.622) | 169301 | 48.1917 | 48.2 | |

Data File: /var/chem/msv13.i/2171010.s.b/d9830.d Page 2
Report Date: 11-Oct-2017 17:21

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ppb) | FINAL ( ug/L) | SIMILARITY |
|---|---|---|---|---|---|---|---|---|---|
| | 19 Methyl Acetate | 43 | 4.179 | 4.179 | (0.630) | 147603 | 51.5305 | 51.5 | 9353 |
| | 20 Hexane | 57 | 4.232 | 4.235 | (0.637) | 179467 | 54.0783 | 54.1 | 9585 |
| | 21 MTBE | 73 | 4.284 | 4.288 | (0.645) | 401662 | 54.3501 | 54.4 | 9524 |
| | 26 1,1-Dichloroethane ++ | 63 | 4.843 | 4.843 | (0.730) | 277329 | 49.5550 | 49.6 | |
| | 27 Acrylonitrile | 53 | 4.910 | 4.914 | (0.740) | 361918 | 254.718 | 255 | |
| | 28 Vinyl Acetate | 43 | 5.135 | 5.135 | (0.774) | 84007 | 57.7840 | 57.8 | |
| | 29 cis-1,2-Dichloroethene | 61 | 5.409 | 5.409 | (0.815) | 203807 | 50.8618 | 50.9 | |
| M | 75 Total 1,2-Dichloroethene | 61 | | | | 373108 | 99.0535 | 99.1 | |
| | 30 2,2-Dichloropropane | 77 | 5.525 | 5.521 | (0.832) | 194131 | 52.8979 | 52.9 | |
| | 32 Cyclohexane | 56 | 5.604 | 5.604 | (0.844) | 256832 | 56.1001 | 56.1 | 9548 |
| | 34 Bromochloromethane | 128 | 5.611 | 5.607 | (0.845) | 67789 | 47.0546 | 47.1 | |
| | 35 Chloroform + | 83 | 5.686 | 5.686 | (0.857) | 244266 | 48.0807 | 48.1 | |
| | 36 Carbon Tetrachloride | 117 | 5.814 | 5.814 | (0.876) | 167063 | 49.4682 | 49.5 | |
| $ | 40 Dibromofluoromethane | 111 | 5.862 | 5.866 | (0.883) | 146472 | 48.6758 | 48.7 | 9596 |
| | 41 1,1,1-Trichloroethane | 97 | 5.885 | 5.889 | (0.886) | 205119 | 49.5353 | 49.5 | |
| | 44 2-Butanone | 43 | 6.005 | 6.005 | (0.905) | 139580 | 54.7211 | 54.7 | |
| | 43 1,1-Dichloropropene | 75 | 6.008 | 6.005 | (0.905) | 179082 | 51.8224 | 51.8 | |
| | 46 Benzene | 78 | 6.248 | 6.248 | (0.941) | 589399 | 51.1009 | 51.1 | |
| $ | 50 1,2-Dichloroethane-d4 | 67 | 6.372 | 6.376 | (0.960) | 106027 | 49.6464 | 49.6 | |
| | 51 1,2-Dichloroethane | 62 | 6.443 | 6.440 | (0.971) | 228109 | 47.3817 | 47.4 | |
| * | 53 FLUOROBENZENE | 96 | 6.638 | 6.638 | (1.000) | 628923 | 50.0000 | | |
| | 55 Methyl Cyclohexane | 83 | 6.781 | 6.781 | (1.021) | 221313 | 51.0893 | 51.1 | 9152 |
| | 56 Trichloroethene | 130 | 6.788 | 6.788 | (1.023) | 140711 | 45.8424 | 45.8 | |
| | 57 Dibromomethane | 93 | 7.171 | 7.174 | (1.080) | 86948 | 49.2506 | 49.3 | |
| | 59 1,2-Dichloropropane + | 63 | 7.268 | 7.272 | (1.095) | 160954 | 50.0425 | 50.0 | |
| | 60 Bromodichloromethane | 83 | 7.320 | 7.321 | (1.103) | 202046 | 50.1433 | 50.1 | |
| | 65 1-Bromo-2-chloroethane | 63 | 7.737 | 7.733 | (1.165) | 245207 | 51.9543 | 52.0 | 9703 |
| | 64 2-Chloroethyl vinyl ether | 63 | 7.812 | 7.812 | (1.177) | 57119 | 61.3509 | 61.4 | |
| | 67 cis-1,3-Dichloropropene | 75 | 7.857 | 7.860 | (1.184) | 239034 | 54.5158 | 54.5 | |
| $ | 68 Toluene-d8 | 98 | 8.006 | 8.007 | (0.878) | 606945 | 49.9050 | 49.9 | |
| | 69 Toluene + | 91 | 8.048 | 8.048 | (0.882) | 630024 | 48.8043 | 48.8 | |
| | 71 Tetrachloroethene | 164 | 8.336 | 8.336 | (0.914) | 128245 | 48.5326 | 48.5 | |
| | 73 4-methyl-2-pentanone | 43 | 8.336 | 8.336 | (0.914) | 239387 | 58.9262 | 58.9 | |
| | 74 trans-1,3-Dichloropropene | 75 | 8.359 | 8.359 | (1.259) | 225501 | 53.8739 | 53.9 | |
| M | 82 1-3 Dichloropropene total | 100 | | | | 464535 | 108.390 | 108 | 0 |
| | 76 1,1,2-Trichloroethane | 97 | 8.475 | 8.475 | (0.929) | 134432 | 48.8333 | 48.8 | |
| | 78 Dibromochloromethane | 129 | 8.603 | 8.603 | (0.943) | 150808 | 48.3760 | 48.4 | |
| | 79 1,3-Dichloropropane | 76 | 8.674 | 8.674 | (0.951) | 265103 | 51.6150 | 51.6 | |
| | 80 1,2-Dibromoethane(EDB) | 107 | 8.775 | 8.779 | (0.962) | 131123 | 50.1767 | 50.2 | |
| | 83 2-Hexanone | 43 | 8.925 | 8.925 | (0.979) | 184336 | 51.9092 | 51.9 | |
| | 86 1-Chlorohexane | 91 | 9.109 | 9.109 | (0.999) | 175735 | 51.8713 | 51.9 | 9468 |
| * | 84 CHLOROBENZENE-d5 | 82 | 9.120 | 9.120 | (1.000) | 272228 | 50.0000 | | |
| | 85 Chlorobenzene ++ | 112 | 9.131 | 9.135 | (1.001) | 414637 | 48.9935 | 49.0 | |
| | 87 Ethylbenzene + | 106 | 9.146 | 9.146 | (1.003) | 212266 | 50.0391 | 50.0 | |
| | 88 1,1,1,2-Tetrachloroethane | 133 | 9.172 | 9.172 | (1.006) | 141266 | 49.5020 | 49.5 | |
| | 89 p,m-Xylene | 106 | 9.240 | 9.240 | (1.013) | 513557 | 105.517 | 106 | |
| | 90 o-Xylene | 106 | 9.521 | 9.521 | (1.044) | 242428 | 54.0162 | 54.0 | |

Data File: /var/chem/msv13.i/2171010.s.b/d9830.d Page 3
Report Date: 11-Oct-2017 17:21

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ppb) | FINAL ( ug/L) | SIMILARITY |
|---|---|---|---|---|---|---|---|---|---|
| M | 121 TOTAL XYLENE | 106 | | | | 755985 | 159.533 | 160 | |
| | 91 Styrene | 104 | 9.551 | 9.555 | (1.047) | 423234 | 54.8836 | 54.9 | |
| | 92 Bromoform ++ | 173 | 9.573 | 9.577 | (1.050) | 128235 | 49.3841 | 49.4 | |
| | 93 Isopropylbenzene | 105 | 9.716 | 9.716 | (1.065) | 633458 | 54.6384 | 54.6 | |
| $ | 95 Bromofluorobenzene | 174 | 9.896 | 9.900 | (1.085) | 203535 | 49.8375 | 49.8 | |
| | 96 Bromobenzene | 77 | 9.967 | 9.967 | (0.943) | 328820 | 50.5624 | 50.6 | |
| | 97 n-Propylbenzene | 91 | 9.971 | 9.971 | (0.943) | 766577 | 50.6143 | 50.6 | |
| | 98 1,1,2,2-Tetrachloroethane++ | 83 | 10.008 | 10.012 | (0.947) | 221394 | 49.5526 | 49.6 | |
| | 99 2-Chlorotoluene | 91 | 10.076 | 10.076 | (0.953) | 510578 | 51.1722 | 51.2 | |
| | 102 1,3,5-Trimethylbenzene | 105 | 10.083 | 10.083 | (0.954) | 525850 | 52.4104 | 52.4 | |
| | 100 1,2,3-Trichloropropane | 75 | 10.102 | 10.102 | (0.956) | 291756 | 52.4072 | 52.4 | |
| | 101 trans-1,4-Dichloro-2-Butene | 53 | 10.121 | 10.121 | (0.957) | 77173 | 57.1273 | 57.1 | |
| | 104 4-Chlorotoluene | 91 | 10.173 | 10.177 | (0.962) | 450749 | 51.4948 | 51.5 | |
| | 105 tert-butylbenzene | 91 | 10.282 | 10.282 | (0.973) | 277080 | 51.7014 | 51.7 | |
| | 107 1,2,4-Trimethylbenzene | 105 | 10.319 | 10.319 | (0.976) | 537261 | 54.1831 | 54.2 | |
| | 108 sec-Butylbenzene | 105 | 10.387 | 10.387 | (0.983) | 626401 | 52.7086 | 52.7 | |
| | 110 p-Isopropyltoluene | 119 | 10.466 | 10.466 | (0.990) | 537868 | 54.3738 | 54.4 | |
| | 113 1,3-Dichlorobenzene | 146 | 10.529 | 10.529 | (0.996) | 317084 | 51.0349 | 51.0 | |
| * | 114 1,4-DICHLOROBENZENE-D4 | 152 | 10.571 | 10.574 | (1.000) | 239076 | 50.0000 | | |
| | 115 1,4-Dichlorobenzene | 146 | 10.582 | 10.582 | (1.001) | 322818 | 49.4251 | 49.4 | |
| | 117 n-Butylbenzene | 91 | 10.713 | 10.717 | (1.013) | 490116 | 55.3705 | 55.4 | |
| | 118 1,2-Dichlorobenzene | 146 | 10.837 | 10.837 | (1.025) | 311586 | 50.9434 | 50.9 | |
| | 119 1,2-Dibromo-3-Chloropropane | 157 | 11.354 | 11.358 | (1.074) | 46378 | 53.8727 | 53.9 | |
| | 120 Hexachlorobutadiene | 225 | 11.811 | 11.815 | (1.117) | 93857 | 50.2265 | 50.2 | |
| | 122 1,2,4-Trichlorobenzene | 180 | 11.856 | 11.856 | (1.122) | 191759 | 49.1847 | 49.2 | |
| | 124 Naphthalene | 128 | 12.141 | 12.141 | (1.149) | 485082 | 49.0376 | 49.0 | |
| | 125 1,2,3-Trichlorobenzene | 180 | 12.306 | 12.306 | (1.164) | 196018 | 50.3190 | 50.3 | |
| | 22 tert-Butyl Alcohol | 59 | 4.423 | 4.427 | (0.666) | 17736 | 56.5284 | 56.5 | 7119 |
| | 24 Isopropyl Ether | 45 | 4.730 | 4.730 | (0.713) | 516052 | 59.2976 | 59.3 | 9511 |
| | 25 Chloroprene | 53 | 4.813 | 4.816 | (0.725) | 211052 | 55.0916 | 55.1 | 9294 |
| | 52 Isobutyl Alcohol | 43 | 6.470 | 6.473 | (0.975) | 52167 | 270.803 | 271 | 9088 |
| | 62 1,4- Dioxane | 58 | 7.508 | 7.508 | (1.131) | 40446 | 1398.80 | 1400 | 8687 |
| | 170 3,4-dichloro-1-butene | 75 | 8.648 | 8.651 | (0.948) | 187765 | 55.5362 | 55.5 | 9436 |
| | 169 cis-1,4-dichloro-2-butene | 53 | 9.933 | 9.930 | (0.940) | 88956 | 53.4264 | 53.4 | 9592 |




Data File: /var/chem/msv13.i/2171010.s.b/d9830.d
Date : 10-OCT-2017 16:21
Client ID: LCSD
Sample Info: 1729634*LCSD
Purge Volume: 5.0
Column phase: RTX-VMS-30M

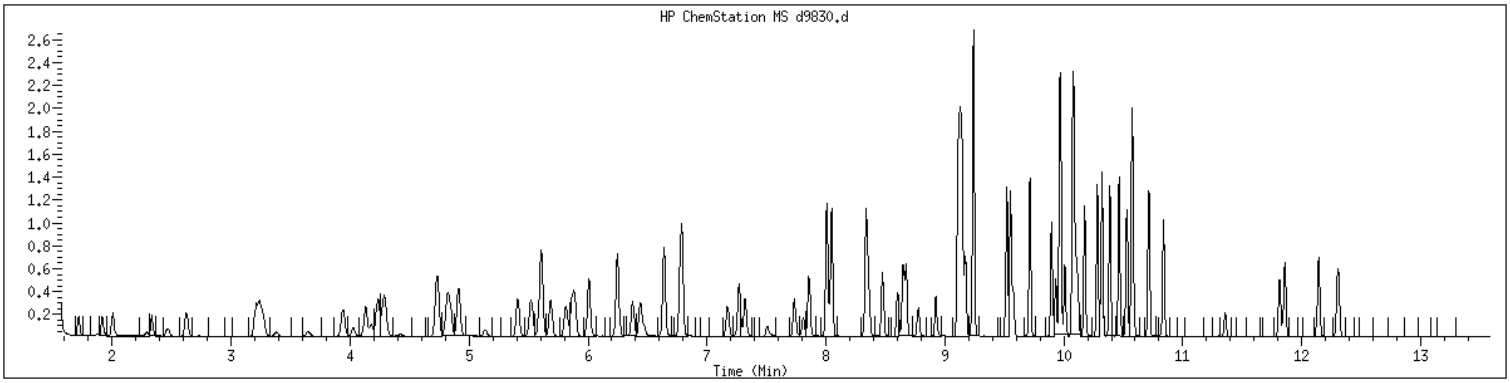
Instrument: msv13.i
Operator: JCK
Column diameter: 0.25

Page 1

Data file : /var/chem/msv13.i/2171010.s.b/d9830.d Page: 1
Report Date: 10/11/2017 17:21

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID : 1729634 SampleType : LCSD
Injection Date: 10/10/2017 16:21 Instrument : msv13.i
Operator : JCK
Sample Info : 1729634*LCSD
Misc Info : MSV~39299~*1*JCK
Method : /var/chem/msv13.i/2171010.s.b/8260cdodw13.m
Dilution : 1.00
Matrix : WATER
Integrator : HP RTE Compound Sublist: 8260b+AppIX1




NO MANUAL INTEGRATIONS

# Form 2A

# Surrogates

# Water

2A

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Report No: 217100631 Analytical Method: EPA 8260C

| | Client Sample ID | GCALSample ID | SMC1 | # | SMC2 | # | SMC3 | # | SMC4 | # | TOT OUT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. | LH18/24-SP650_1017B | 21710063101 | 106 | | 96 | | 105 | | 102 | | 0 |
| 2. | MB1729632 | 1729632 | 103 | | 95 | | 100 | | 104 | | 0 |
| 3. | LCS1729633 | 1729633 | 99 | | 100 | | 99 | | 100 | | 0 |
| 4. | LCSD1729634 | 1729634 | 99 | | 100 | | 97 | | 100 | | 0 |

| | | QC LIMITS | |
|---|---|---|---|
| SMC 1 | 1,2-Dichloroethane-d4 | 81 - 118 | # Column to be used to flag recovery values |
| SMC 2 | 4-Bromofluorobenzene | 85 - 114 | * Values outside of QC limits |
| SMC 3 | Dibromofluoromethane | 80 - 119 | |
| SMC 4 | Toluene-d8 | 89 - 112 | |

FORM II VOA-1

# Form 3A

# Spikes

# Water

3A

WATER VOLATILE LCS/LCSD RECOVERY

Report No: 217100631

Analytical Method: EPA 8260C

Analytical Batch: 620002

***GCAL QC ID: 1729633***

| *ANALYTE* | *UNITS* | *SPIKE ADDED* | *SAMPLE RESULT* | *LCS RESULT* | *LCS % REC* | *#* | *QC LIMITS* |
|---|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | ug/L | 50 | 0 | 49.9 | 100 | | 74 - 131 |
| 1,1,2-Trichloroethane | ug/L | 50 | 0 | 49.2 | 98 | | 80 - 119 |
| 1,1-Dichloroethane | ug/L | 50 | 0 | 51.4 | 103 | | 77 - 125 |
| 1,1-Dichloroethene | ug/L | 50 | 0 | 48.9 | 98 | | 71 - 131 |
| 1,2-Dichloroethane | ug/L | 50 | 0 | 48.4 | 97 | | 73 - 128 |
| Acetone | ug/L | 50 | 0 | 47.4 | 95 | | 39 - 160 |
| Benzene | ug/L | 50 | 0 | 52.2 | 104 | | 79 - 120 |
| Carbon tetrachloride | ug/L | 50 | 0 | 51.2 | 102 | | 72 - 136 |
| Chlorobenzene | ug/L | 50 | 0 | 50.3 | 101 | | 82 - 118 |
| Chloroform | ug/L | 50 | 0 | 49.5 | 99 | | 79 - 124 |
| Ethylbenzene | ug/L | 50 | 0 | 51.9 | 104 | | 79 - 121 |
| Methylene chloride | ug/L | 50 | 0 | 50.2 | 100 | | 74 - 124 |
| Styrene | ug/L | 50 | 0 | 57.1 | 114 | | 78 - 123 |
| Tetrachloroethene | ug/L | 50 | 0 | 50.5 | 101 | | 74 - 129 |
| Toluene | ug/L | 50 | 0 | 50.5 | 101 | | 80 - 121 |
| Trichloroethene | ug/L | 50 | 0 | 47.1 | 94 | | 79 - 123 |
| Vinyl chloride | ug/L | 50 | 0 | 55.3 | 111 | | 58 - 137 |
| cis-1,2-Dichloroethene | ug/L | 50 | 0 | 53 | 106 | | 78 - 123 |
| m,p-Xylene | ug/L | 100 | 0 | 110 | 110 | | 80 - 121 |
| o-Xylene | ug/L | 50 | 0 | 55.6 | 111 | | 78 - 122 |
| trans-1,2-Dichloroethene | ug/L | 50 | 0 | 52.1 | 104 | | 75 - 124 |

RPD : 0 out of 21 outside limits

Spike Recovery: 0 out of 42 outside limits

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

* Values outside of QC limits

FORM III VOA-1

3A

WATER VOLATILE LCS/LCSD RECOVERY

Report No: 217100631

Analytical Method: EPA 8260C

Analytical Batch: 620002

***GCAL QC ID: 1729634***

| *ANALYTE* | *UNITS* | *SPIKE ADDED* | *LCSD RESULT* | *LCSD % REC* | *#* | *% RPD* | *#* | *QC LIMITS REC* | *QC LIMITS RPD* |
|---|---|---|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | ug/L | 50 | 49.5 | 99 | | .8 | | 74 - 131 | 0 - 20 |
| 1,1,2-Trichloroethane | ug/L | 50 | 48.8 | 98 | | .8 | | 80 - 119 | 0 - 20 |
| 1,1-Dichloroethane | ug/L | 50 | 49.6 | 99 | | 4 | | 77 - 125 | 0 - 20 |
| 1,1-Dichloroethene | ug/L | 50 | 47.5 | 95 | | 3 | | 71 - 131 | 0 - 20 |
| 1,2-Dichloroethane | ug/L | 50 | 47.4 | 95 | | 2 | | 73 - 128 | 0 - 20 |
| Acetone | ug/L | 50 | 48.2 | 96 | | 2 | | 39 - 160 | 0 - 20 |
| Benzene | ug/L | 50 | 51.1 | 102 | | 2 | | 79 - 120 | 0 - 20 |
| Carbon tetrachloride | ug/L | 50 | 49.5 | 99 | | 3 | | 72 - 136 | 0 - 20 |
| Chlorobenzene | ug/L | 50 | 49 | 98 | | 3 | | 82 - 118 | 0 - 20 |
| Chloroform | ug/L | 50 | 48.1 | 96 | | 3 | | 79 - 124 | 0 - 20 |
| Ethylbenzene | ug/L | 50 | 50 | 100 | | 4 | | 79 - 121 | 0 - 20 |
| Methylene chloride | ug/L | 50 | 47.7 | 95 | | 5 | | 74 - 124 | 0 - 20 |
| Styrene | ug/L | 50 | 54.9 | 110 | | 4 | | 78 - 123 | 0 - 20 |
| Tetrachloroethene | ug/L | 50 | 48.5 | 97 | | 4 | | 74 - 129 | 0 - 20 |
| Toluene | ug/L | 50 | 48.8 | 98 | | 3 | | 80 - 121 | 0 - 20 |
| Trichloroethene | ug/L | 50 | 45.8 | 92 | | 3 | | 79 - 123 | 0 - 20 |
| Vinyl chloride | ug/L | 50 | 51.4 | 103 | | 7 | | 58 - 137 | 0 - 20 |
| cis-1,2-Dichloroethene | ug/L | 50 | 50.9 | 102 | | 4 | | 78 - 123 | 0 - 20 |
| m,p-Xylene | ug/L | 100 | 106 | 106 | | 4 | | 80 - 121 | 0 - 20 |
| o-Xylene | ug/L | 50 | 54 | 108 | | 3 | | 78 - 122 | 0 - 20 |
| trans-1,2-Dichloroethene | ug/L | 50 | 48.2 | 96 | | 8 | | 75 - 124 | 0 - 20 |

RPD : 0 out of 21 outside limits

Spike Recovery: 0 out of 42 outside limits

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

* Values outside of QC limits

FORM III VOA-1

# Form 4A

# Method Blanks

4A

VOLATILE METHOD BLANK SUMMARY

| | | | |
|---|---|---|---|
| Report No: | 217100631 | Method Blank ID: | 1729632 |
| Matrix: | Water | Instrument ID: | MSV13 |
| Sample Amt: | 5 mL | Lab File ID: | 2171010/d9833 |
| Injection Vol.: | 1.0 ( µL ) | GC Column: | RTX-VMS-30 ID .25 (mm) |
| Dilution Factor: | 1 Analyst: JCK | Analytical Batch: | 620002 |
| Analysis Date: | 10/10/17 Time: 1729 | Analytical Method: | EPA 8260C |

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

| | CLIENT SAMPLE ID | GCAL SAMPLE ID | LAB FILE ID | DATE ANALYZED | TIME ANALYZED |
|---|---|---|---|---|---|
| 1 . | LCS1729633 | 1729633 | 2171010/d9829 | 10/10/17 | 1559 |
| 2 . | LCSD1729634 | 1729634 | 2171010/d9830 | 10/10/17 | 1621 |
| 3 . | LH18/24-SP650_1017B | 21710063101 | 2171010/d9836 | 10/10/17 | 1838 |

FORM IV VOA

# Form 5A

# Tunes

5A

VOLATILE ORGANICS INSTRUMENT PERFORMANCE CHECK

BROMOFLUOROBENZENE ( BFB )

| | | | |
|---|---|---|---|
| Report No: | 217100631 | Tune ID: | 1000 |
| GC Column: | RTX-VMS-30 ID .25 (mm) | Instrument ID: | MSV13 |
| Injection Vol.: | 1.0 ( µL ) | Lab File ID: | 2171010/d9817bfbcD |
| Analyst: | JCK | Analytical Batch: | 620002 |
| Analysis Date: | 10/10/17 Time: 1057 | Analytical Method: | EPA 8260C |

| *m / e* | *ION ABUNDANCE CRITERIA* | *% Relative Abundance* | | | |
|---|---|---|---|---|---|
| 50 | 15.0 - 40.0% of mass 95 | 21.95 | ( | ) | |
| 75 | 30.0 - 60.0% of mass 95 | 51 | ( | ) | |
| 95 | Base Peak, 100% relative abundance | 100 | ( | ) | |
| 96 | 5.0 -9.0% of mass 95 | 6.15 | ( | ) | |
| 173 | Less than 2.0% of mass 174 | 1.23 | ( 1.27 | ) | 1 |
| 174 | 50.0 - 120.0% of mass 95 | 97.24 | ( | ) | |
| 175 | 5.0 - 9.0% of mass 174 | 7.39 | ( 7.6 | ) | 1 |
| 176 | 95.0 - 101.0% of mass 174 | 94.61 | ( 97.3 | ) | 1 |
| 177 | 5.0 - 9.0% of mass 176 | 6.11 | ( 6.46 | ) | 2 |

1- Value is % mass 174

2- Value is % mass 176

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

| | *CLIENT SAMPLE ID* | *GCAL SAMPLE ID* | *LAB FILE ID* | *DATE ANALYZED* | *TIME ANALYZED* |
|---|---|---|---|---|---|
| 1 . | V13STD001 | 1203 | 2171010/d9819cD | 10/10/17 | 1150 |
| 2 . | V13STD005 | 1204 | 2171010/d9821cD | 10/10/17 | 1234 |
| 3 . | V13STD010 | 1205 | 2171010/d9822cD | 10/10/17 | 1257 |
| 4 . | V13STD020 | 1206 | 2171010/d9823cD | 10/10/17 | 1319 |
| 5 . | V13STD050 | 1207 | 2171010/d9824cD | 10/10/17 | 1342 |
| 6 . | V13STD100 | 1208 | 2171010/d9825cD | 10/10/17 | 1404 |
| 7 . | V13STD200 | 1209 | 2171010/d9826cD | 10/10/17 | 1426 |
| 8 . | ICV050 | 1600 | 2171010/d9828cD | 10/10/17 | 1511 |
| 9 . | LCS1729633 | 1729633 | 2171010/d9829 | 10/10/17 | 1559 |
| 10 . | LCSD1729634 | 1729634 | 2171010/d9830 | 10/10/17 | 1621 |
| 11 . | MB1729632 | 1729632 | 2171010/d9833 | 10/10/17 | 1729 |
| 12 . | LH18/24-SP650_1017B | 21710063101 | 2171010/d9836 | 10/10/17 | 1838 |
| 13 . | V13STD050 | 1440 | 2171010/d9846 | 10/10/17 | 2221 |

FORM V VOA

Data File: /var/chem/msv13.i/2171010.s.b/d9817bfbcD.d

Page 1

Date : 10-OCT-2017 10:57

Client ID: V13BFB

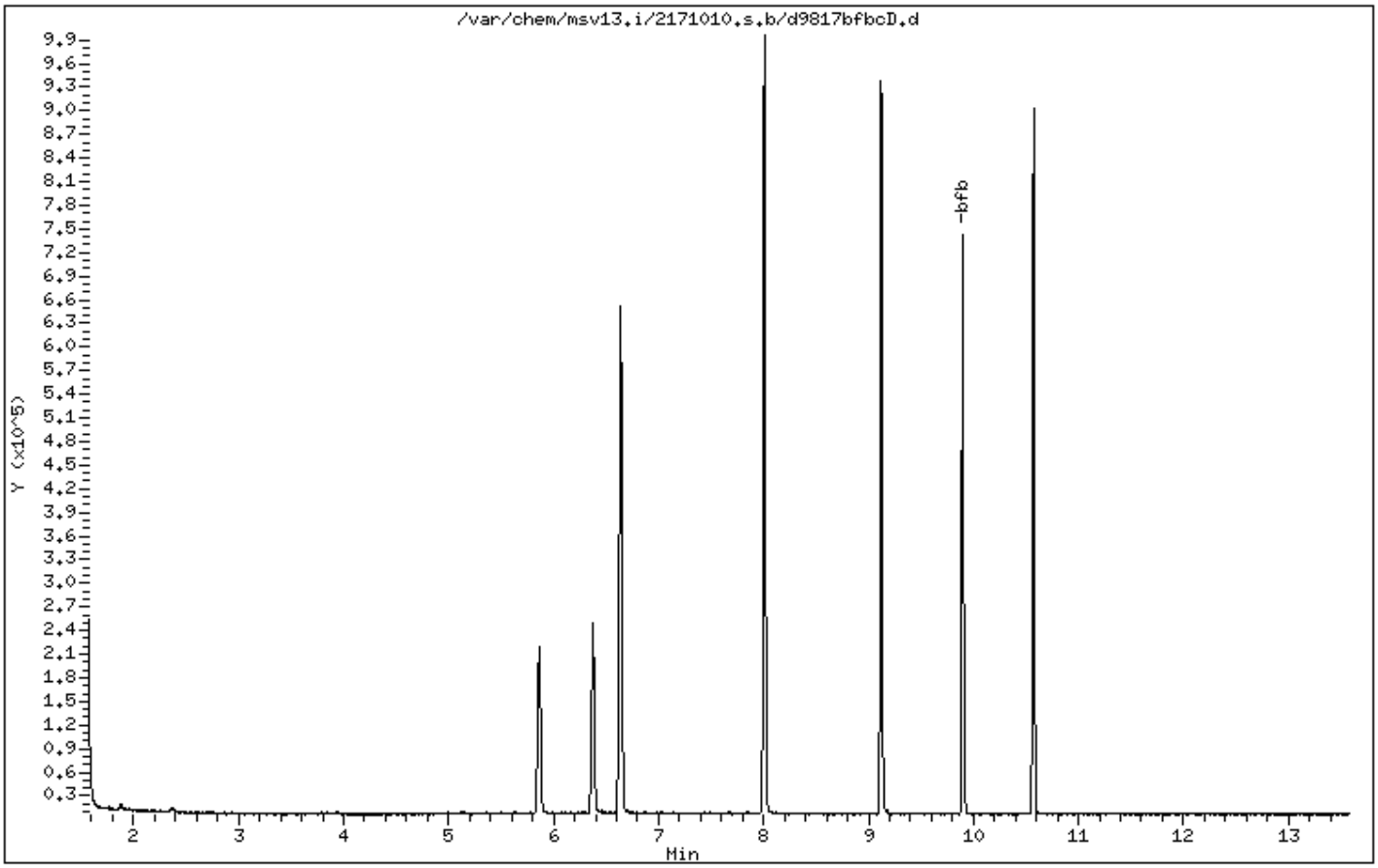
Instrument: msv13.i

Sample Info: 1000*V13BFB

Operator: JCK

Column phase: RTX-VMS-30M

Column diameter: 0.25



Data File: /var/chem/msv13.i/2171010.s.b/d9817bfbcD.d



Date : 10-OCT-2017 10:57

Client ID: V13BFB

Instrument: msv13.i

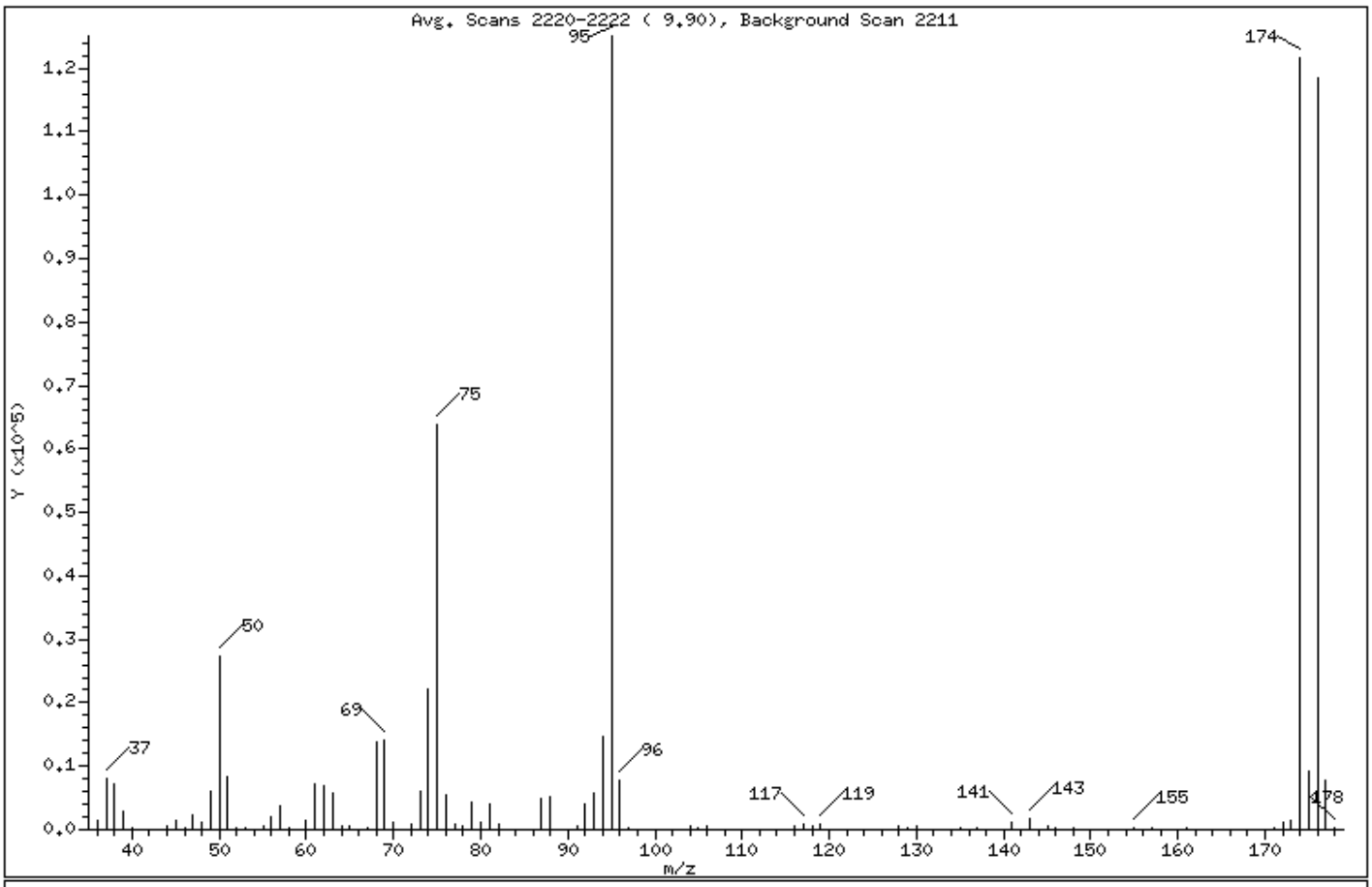
Sample Info: 1000*V13BFB

Operator: JCK

Column phase: RTX-VMS-30M

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 | 21.95 |
| 75 | 30.00 - 60.00% of mass 95 | 51.00 |
| 96 | 5.00 - 9.00% of mass 95 | 6.15 |
| 173 | Less than 2.00% of mass 174 | 1.23 ( 1.27) |
| 174 | 50.00 - 120.00% of mass 95 | 97.24 |
| 175 | 5.00 - 9.00% of mass 174 | 7.39 ( 7.60) |
| 176 | 95.00 - 101.00% of mass 174 | 94.61 ( 97.30) |
| 177 | 5.00 - 9.00% of mass 176 | 6.11 ( 6.46) |

Data File: /var/chem/msv13.i/2171010.s.b/d9817bfbcD.d Page 3

Date : 10-OCT-2017 10:57

Client ID: V13BFB Instrument: msv13.i

Sample Info: 1000*V13BFB

Operator: JCK

Column phase: RTX-VMS-30M Column diameter: 0.25

Data File: d9817bfbcD.d
Spectrum: Avg. Scans 2220-2222 ( 9.90), Background Scan 2211
Location of Maximum: 95.00
Number of points: 90

| m/z | Y | m/z | Y | m/z | Y | m/z | Y |
|---|---|---|---|---|---|---|---|
| 36.00 | 1302 | 63.00 | 5718 | 93.00 | 5672 | 141.00 | 1190 |
| 37.00 | 7916 | 64.00 | 627 | 94.00 | 14632 | 142.00 | 140 |
| 38.00 | 7091 | 65.00 | 646 | 95.00 | 125080 | 143.00 | 1758 |
| 39.00 | 2733 | 67.00 | 367 | 96.00 | 7688 | 144.00 | 86 |
| 40.00 | 277 | 68.00 | 13682 | 97.00 | 145 | 145.00 | 560 |
| 43.00 | 79 | 69.00 | 14200 | 104.00 | 584 | 146.00 | 288 |
| 44.00 | 703 | 70.00 | 1164 | 105.00 | 185 | 148.00 | 195 |
| 45.00 | 1363 | 72.00 | 859 | 106.00 | 609 | 152.00 | 75 |
| 46.00 | 229 | 73.00 | 5930 | 107.00 | 89 | 154.00 | 102 |
| 47.00 | 2305 | 74.00 | 22280 | 110.00 | 85 | 155.00 | 311 |
| 48.00 | 1116 | 75.00 | 63784 | 111.00 | 111 | 157.00 | 251 |
| 49.00 | 6118 | 76.00 | 5569 | 116.00 | 446 | 161.00 | 164 |
| 50.00 | 27456 | 77.00 | 797 | 117.00 | 787 | 170.00 | 126 |
| 51.00 | 8257 | 78.00 | 572 | 118.00 | 574 | 171.00 | 249 |
| 52.00 | 429 | 79.00 | 4207 | 119.00 | 775 | 172.00 | 1235 |
| 53.00 | 185 | 80.00 | 1256 | 124.00 | 52 | 173.00 | 1539 |
| 55.00 | 535 | 81.00 | 4095 | 128.00 | 454 | 174.00 | 121624 |
| 56.00 | 1914 | 82.00 | 818 | 129.00 | 190 | 175.00 | 9242 |
| 57.00 | 3740 | 86.00 | 117 | 130.00 | 440 | 176.00 | 118336 |
| 58.00 | 247 | 87.00 | 4934 | 131.00 | 57 | 177.00 | 7641 |
| 60.00 | 1577 | 88.00 | 5248 | 135.00 | 144 | 178.00 | 189 |
| 61.00 | 7183 | 91.00 | 545 | 137.00 | 210 | | |
| 62.00 | 6895 | 92.00 | 4004 | 140.00 | 53 | | |

# Form 6A

# Calibrations

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | **GCALID - FileID - Conc** | 1203 ~ 2171010/d9819cD ~ 1 | |
| Report No: | 217100631 | | Instrument ID: | MSV13 | | 1204 ~ 2171010/d9821cD ~ 5 | 1205 ~ 2171010/d9822cD ~ 10 | |
| GC Column: | RTX-VMS-30 | ID .25 (mm) | Analyst: | JCK | | 1206 ~ 2171010/d9823cD ~ 20 | 1207 ~ 2171010/d9824cD ~ 50 | |
| Calib. Date 1: | 10/10/17 | Time 1: 1150 | Analytical Batch: | 620002 | | 1208 ~ 2171010/d9825cD ~ 100 | 1209 ~ 2171010/d9826cD ~ 200 | |
| Calib. Date 2: | 10/10/17 | Time 2: 1426 | Analytical Method: | EPA 8260C | | | | |

| *ANALYTE* | *1201* | *1202* | *1203* | *1204* | *1205* | *1206* | *1207* | *1208* | *1209* | *$\overline{RF}$ / b / A* | *m / B* | *C* | *FIT* | *TYPE* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | | | 0.530 | 0.567 | 0.516 | 0.513 | 0.535 | 0.521 | 0.488 | 0.524 | | | 4.635 | A |
| 1,1,1-Trichloroethane | | | 0.361 | 0.343 | 0.315 | 0.305 | 0.334 | 0.326 | 0.320 | 0.329 | | | 5.757 | A |
| 1,1,2,2-Tetrachloroethane | | | 1.115 | 1.001 | 0.887 | 0.867 | 0.897 | 0.892 | 0.882 | 0.934 | | | 9.775 | A |
| 1,1,2-Trichloroethane | | | 0.571 | 0.542 | 0.488 | 0.469 | 0.495 | 0.497 | 0.477 | 0.506 | | | 7.305 | A |
| 1,1-Dichloroethane | | | 0.483 | 0.449 | 0.414 | 0.425 | 0.456 | 0.450 | 0.438 | 0.445 | | | 5.071 | A |
| 1,1-Dichloroethene | | | 0.184 | 0.183 | 0.164 | 0.154 | 0.166 | 0.163 | 0.157 | 0.167 | | | 7.141 | A |
| 1,1-Dichloropropene | | | 0.258 | 0.268 | 0.239 | 0.250 | 0.293 | 0.307 | 0.308 | 0.275 | | | 10.24 | A |
| 1,2,3-Trichlorobenzene (RSP) | | | 1707 | 11646 | 25385 | 60649 | 191552 | 412674 | 820732 | 0.827 | 0.015 | | 0.998 | W |
| 1,2,3-Trichlorobenzene | | | 0.481 | 0.612 | 0.638 | 0.713 | 0.825 | 0.834 | 0.827 | | | | | |
| 1,2,3-Trichloropropane | | | 1.159 | 1.168 | 1.084 | 1.110 | 1.183 | 1.206 | 1.240 | 1.164 | | | 4.606 | A |
| 1,2,4-Trichlorobenzene (RSP) | | | 1520 | 11788 | 23708 | 57023 | 187654 | 414205 | 830314 | 0.830 | 0.018 | | 0.996 | W |
| 1,2,4-Trichlorobenzene | | | 0.428 | 0.619 | 0.596 | 0.670 | 0.809 | 0.837 | 0.837 | | | | | |
| 1,2,4-Trimethylbenzene | | | 1.701 | 2.021 | 1.987 | 2.128 | 2.257 | 2.224 | 2.198 | 2.074 | | | 9.316 | A |
| 1,2-Dibromo-3-chloropropane | | | 0.149 | 0.190 | 0.174 | 0.176 | 0.192 | 0.190 | 0.189 | 0.180 | | | 8.553 | A |
| 1,2-Dibromoethane | | | 0.513 | 0.488 | 0.464 | 0.454 | 0.486 | 0.491 | 0.465 | 0.480 | | | 4.268 | A |
| 1,2-Dichlorobenzene | | | 1.294 | 1.267 | 1.231 | 1.274 | 1.333 | 1.300 | 1.254 | 1.279 | | | 2.585 | A |
| 1,2-Dichloroethane | | | 0.464 | 0.406 | 0.354 | 0.355 | 0.375 | 0.369 | 0.357 | 0.383 | | | 10.52 | A |
| 1,2-Dichloroethane-d4 | | | 0.170 | 0.170 | 0.173 | 0.170 | 0.167 | 0.169 | 0.170 | 0.170 | | | 1.081 | A |
| 1,2-Dichloroethene (total) | | | 0.323 | 0.299 | 0.281 | 0.274 | 0.306 | 0.304 | 0.305 | 0.299 | | | 5.511 | A |
| 1,2-Dichloropropane | | | 0.257 | 0.259 | 0.238 | 0.238 | 0.264 | 0.266 | 0.268 | 0.256 | | | 4.918 | A |
| 1,3,5-Trimethylbenzene | | | 1.942 | 2.024 | 1.961 | 2.102 | 2.209 | 2.213 | 2.237 | 2.098 | | | 5.941 | A |
| 1,3-Dichlorobenzene | | | 1.211 | 1.358 | 1.268 | 1.265 | 1.356 | 1.339 | 1.299 | 1.299 | | | 4.233 | A |
| 1,3-Dichloropropane | | | 0.986 | 0.939 | 0.866 | 0.899 | 0.983 | 0.975 | 0.956 | 0.943 | | | 4.839 | A |
| 1,3-Dichloropropylene | | | 0.285 | 0.318 | 0.291 | 0.326 | 0.372 | 0.390 | 0.402 | 0.341 | | | 13.94 | A |
| 1,4 Dioxane | | | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | | | 10.86 | A |

FIT = %RSD For Average Curve And Calibration Coefficent For Linear And Quadratic

Curve Types: A - Averged, L - Linear Regression, W - Weighted Linear, Q - Quadratic

For curve types L and Q, the RRF and RSP (Response) are shown on separate lines to allow for evaluation against minimum RRF

$\overline{RF}$ = Mean Response Factor For Average Curve

m,b = Slope and Intercept For Linear Curve

A,B,C = Coefficents For Quadratic Curve

FORM V I VOA

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | **GCALID - FileID - Conc** | 1203 ~ 2171010/d9819cD ~ 1 | |
| Report No: | 217100631 | Instrument ID: | MSV13 | 1204 ~ 2171010/d9821cD ~ 5 | 1205 ~ 2171010/d9822cD ~ 10 | |
| GC Column: | RTX-VMS-30 ID .25 (mm) | Analyst: | JCK | 1206 ~ 2171010/d9823cD ~ 20 | 1207 ~ 2171010/d9824cD ~ 50 | |
| Calib. Date 1: | 10/10/17 Time 1: 1150 | Analytical Batch: | 620002 | 1208 ~ 2171010/d9825cD ~ 100 | 1209 ~ 2171010/d9826cD ~ 200 | |
| Calib. Date 2: | 10/10/17 Time 2: 1426 | Analytical Method: | EPA 8260C | | | |

| *ANALYTE* | *1201* | *1202* | *1203* | *1204* | *1205* | *1206* | *1207* | *1208* | *1209* | *$\overline{RF}$ / b / A* | *m / B* | *C* | *FIT* | *TYPE* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,4-Dichlorobenzene | | | 1.589 | 1.373 | 1.302 | 1.293 | 1.358 | 1.346 | 1.301 | 1.366 | | | 7.549 | A |
| 1-Bromo-2-Chloroethane | | | 0.363 | 0.375 | 0.347 | 0.353 | 0.393 | 0.399 | 0.397 | 0.375 | | | 5.794 | A |
| 1-Chlorohexane | | | 0.607 | 0.534 | 0.535 | 0.590 | 0.679 | 0.722 | 0.690 | 0.622 | | | 12.17 | A |
| 2,2-Dichloropropane | | | 0.284 | 0.287 | 0.272 | 0.277 | 0.308 | 0.307 | 0.308 | 0.292 | | | 5.301 | A |
| 2-Butanone | | | 0.203 | 0.201 | 0.185 | 0.185 | 0.210 | 0.216 | 0.219 | 0.203 | | | 6.751 | A |
| 2-Chloroethylvinyl ether (RSP) | | | 521 | 2782 | 5840 | 13563 | 43453 | 94161 | 197925 | 0.075 | 0.015 | | 0.996 | W |
| 2-Chloroethylvinyl ether | | | 0.052 | 0.053 | 0.055 | 0.060 | 0.074 | 0.076 | 0.075 | | | | | |
| 2-Chlorotoluene | | | 1.982 | 2.142 | 1.955 | 2.020 | 2.145 | 2.165 | 2.198 | 2.087 | | | 4.698 | A |
| 2-Hexanone (RSP) | | | 1869 | 11368 | 22191 | 48854 | 167155 | 371564 | 804922 | 0.662 | 0.015 | | 0.995 | W |
| 2-Hexanone | | | 0.452 | 0.514 | 0.480 | 0.502 | 0.646 | 0.677 | 0.665 | | | | | |
| 4-Bromofluorobenzene | | | 0.766 | 0.766 | 0.754 | 0.756 | 0.762 | 0.757 | 0.689 | 0.750 | | | 3.654 | A |
| 4-Chlorotoluene | | | 1.772 | 1.782 | 1.690 | 1.811 | 1.909 | 1.919 | 1.933 | 1.831 | | | 5.002 | A |
| 4-Isopropyltoluene | | | 1.689 | 1.957 | 1.930 | 2.062 | 2.267 | 2.306 | 2.271 | 2.069 | | | 11.03 | A |
| 4-Methyl-2-pentanone | | | 0.587 | 0.703 | 0.679 | 0.693 | 0.837 | 0.864 | 0.861 | 0.746 | | | 14.48 | A |
| Acetone | | | 0.229 | 0.222 | 0.189 | 0.174 | 0.171 | 0.167 | 0.167 | 0.188 | | | 13.97 | A |
| Acrolein | | | | 0.015 | 0.015 | 0.014 | 0.014 | 0.014 | 0.015 | 0.014 | | | 3.501 | A |
| Acrylonitrile | | | 0.097 | 0.111 | 0.120 | 0.117 | 0.115 | 0.111 | 0.119 | 0.113 | | | 6.914 | A |
| Benzene | | | 0.915 | 0.879 | 0.845 | 0.875 | 0.965 | 0.970 | 0.969 | 0.917 | | | 5.651 | A |
| Bromobenzene | | | 1.418 | 1.393 | 1.271 | 1.290 | 1.370 | 1.372 | 1.407 | 1.360 | | | 4.217 | A |
| Bromochloromethane | | | 0.122 | 0.131 | 0.121 | 0.110 | 0.112 | 0.106 | 0.099 | 0.115 | | | 9.703 | A |
| Bromodichloromethane | | | 0.343 | 0.320 | 0.295 | 0.305 | 0.332 | 0.327 | 0.320 | 0.320 | | | 5.060 | A |
| Bromoform | | | 0.453 | 0.533 | 0.463 | 0.474 | 0.492 | 0.480 | 0.444 | 0.477 | | | 6.187 | A |
| Bromomethane | | | 0.141 | 0.134 | 0.120 | 0.117 | 0.129 | 0.129 | 0.134 | 0.129 | | | 6.449 | A |
| Carbon disulfide | | | 0.760 | 0.656 | 0.589 | 0.577 | 0.604 | 0.582 | 0.559 | 0.618 | | | 11.27 | A |
| Carbon tetrachloride | | | 0.272 | 0.273 | 0.255 | 0.249 | 0.278 | 0.280 | 0.274 | 0.268 | | | 4.454 | A |

FIT = %RSD For Average Curve And Calibration Coefficent For Linear And Quadratic

Curve Types: A - Averged, L - Linear Regression, W - Weighted Linear, Q - Quadratic

For curve types L and Q, the RRF and RSP (Response) are shown on separate lines to allow for evaluation against minimum RRF

$\overline{RF}$ = Mean Response Factor For Average Curve

m,b = Slope and Intercept For Linear Curve

A,B,C = Coefficents For Quadratic Curve

FORM V I VOA

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | **GCALID - FileID - Conc** | 1203 ~ 2171010/d9819cD ~ 1 | |
| Report No: | 217100631 | Instrument ID: | MSV13 | 1204 ~ 2171010/d9821cD ~ 5 | 1205 ~ 2171010/d9822cD ~ 10 | |
| GC Column: | RTX-VMS-30 ID .25 (mm) | Analyst: | JCK | 1206 ~ 2171010/d9823cD ~ 20 | 1207 ~ 2171010/d9824cD ~ 50 | |
| Calib. Date 1: | 10/10/17 Time 1: 1150 | Analytical Batch: | 620002 | 1208 ~ 2171010/d9825cD ~ 100 | 1209 ~ 2171010/d9826cD ~ 200 | |
| Calib. Date 2: | 10/10/17 Time 2: 1426 | Analytical Method: | EPA 8260C | | | |

| *ANALYTE* | *1201* | *1202* | *1203* | *1204* | *1205* | *1206* | *1207* | *1208* | *1209* | *$\overline{RF}$ / b / A* | *m / B* | *C* | *FIT* | *TYPE* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chlorobenzene | | | 1.744 | 1.628 | 1.468 | 1.495 | 1.560 | 1.535 | 1.450 | 1.554 | | | 6.627 | A |
| Chloroethane (RSP) | | | 2843 | 9473 | 16380 | 28740 | 73280 | 123700 | 211700 | 5.723 | 0.000 | 20.9 | 0.999 | Q |
| Chloroethane | | | 0.282 | 0.181 | 0.155 | 0.128 | 0.126 | 0.100 | 0.080 | | | | | |
| Chloroform | | | 0.448 | 0.433 | 0.389 | 0.379 | 0.405 | 0.391 | 0.382 | 0.404 | | | 6.635 | A |
| Chloromethane | | | 0.293 | 0.251 | 0.220 | 0.213 | 0.221 | 0.223 | 0.221 | 0.235 | | | 12.06 | A |
| Chloroprene | | | | 0.254 | 0.260 | 0.287 | 0.336 | 0.345 | 0.345 | 0.305 | | | 13.99 | A |
| Cyclohexane | | | 0.301 | 0.331 | 0.322 | 0.339 | 0.413 | 0.424 | 0.419 | 0.364 | | | 14.42 | A |
| Dibromochloromethane | | | 0.635 | 0.612 | 0.536 | 0.541 | 0.573 | 0.566 | 0.545 | 0.573 | | | 6.604 | A |
| Dibromofluoromethane | | | 0.243 | 0.243 | 0.243 | 0.235 | 0.237 | 0.237 | 0.237 | 0.239 | | | 1.457 | A |
| Dibromomethane | | | 0.147 | 0.151 | 0.132 | 0.134 | 0.142 | 0.139 | 0.138 | 0.140 | | | 4.912 | A |
| Dichlorodifluoromethane | | | 0.224 | 0.198 | 0.184 | 0.176 | 0.187 | 0.180 | 0.179 | 0.190 | | | 8.898 | A |
| Ethylbenzene | | | 0.819 | 0.784 | 0.746 | 0.743 | 0.800 | 0.800 | 0.764 | 0.779 | | | 3.748 | A |
| Hexachlorobutadiene | | | 0.363 | 0.417 | 0.397 | 0.388 | 0.403 | 0.391 | 0.376 | 0.391 | | | 4.563 | A |
| Isobutyl alcohol | | | 0.018 | 0.015 | 0.014 | 0.015 | 0.015 | 0.016 | 0.016 | 0.015 | | | 7.996 | A |
| Isopropylbenzene (Cumene) | | | 1.819 | 1.926 | 1.964 | 2.113 | 2.369 | 2.423 | 2.292 | 2.129 | | | 11.11 | A |
| Methyl Acetate | | | 0.283 | 0.247 | 0.194 | 0.199 | 0.226 | 0.227 | 0.218 | 0.228 | | | 13.22 | A |
| Methyl iodide (RSP) | | | 259 | 2187 | 5106 | 12610 | 51180 | 128400 | 357000 | 10.7 | 0.082 | -6.478 | 0.998 | Q |
| Methyl iodide | | | 0.026 | 0.042 | 0.048 | 0.056 | 0.088 | 0.104 | 0.136 | | | | | |
| Methylcyclohexane | | | 0.335 | 0.330 | 0.301 | 0.324 | 0.368 | 0.377 | 0.377 | 0.344 | | | 8.609 | A |
| Methylene chloride | | | | 0.318 | 0.273 | 0.268 | 0.272 | 0.261 | 0.249 | 0.273 | | | 8.608 | A |
| Naphthalene (RSP) | | | | 17352 | 43822 | 118148 | 470926 | 1072226 | 2234551 | 2.268 | 0.086 | | 0.996 | W |
| Naphthalene | | | | 0.912 | 1.101 | 1.389 | 2.029 | 2.168 | 2.253 | | | | | |
| Styrene | | | 1.134 | 1.246 | 1.308 | 1.452 | 1.616 | 1.630 | 1.529 | 1.416 | | | 13.51 | A |
| Tetrachloroethene | | | 0.535 | 0.530 | 0.463 | 0.453 | 0.485 | 0.481 | 0.451 | 0.485 | | | 7.128 | A |
| Toluene | | | 2.707 | 2.497 | 2.266 | 2.265 | 2.332 | 2.324 | 2.206 | 2.371 | | | 7.350 | A |

FIT = %RSD For Average Curve And Calibration Coefficent For Linear And Quadratic

Curve Types: A - Averged, L - Linear Regression, W - Weighted Linear, Q - Quadratic

For curve types L and Q, the RRF and RSP (Response) are shown on separate lines to allow for evaluation against minimum RRF

$\overline{RF}$ = Mean Response Factor For Average Curve

m,b = Slope and Intercept For Linear Curve

A,B,C = Coefficents For Quadratic Curve

FORM V I VOA

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | **GCALID - FileID - Conc** | 1203 ~ 2171010/d9819cD ~ 1 | |
| Report No: | 217100631 | Instrument ID: | MSV13 | 1204 ~ 2171010/d9821cD ~ 5 | 1205 ~ 2171010/d9822cD ~ 10 | |
| GC Column: | RTX-VMS-30 ID .25 (mm) | Analyst: | JCK | 1206 ~ 2171010/d9823cD ~ 20 | 1207 ~ 2171010/d9824cD ~ 50 | |
| Calib. Date 1: | 10/10/17 Time 1: 1150 | Analytical Batch: | 620002 | 1208 ~ 2171010/d9825cD ~ 100 | 1209 ~ 2171010/d9826cD ~ 200 | |
| Calib. Date 2: | 10/10/17 Time 2: 1426 | Analytical Method: | EPA 8260C | | | |

| *ANALYTE* | *1201* | *1202* | *1203* | *1204* | *1205* | *1206* | *1207* | *1208* | *1209* | *$\overline{RF}$ / b / A* | *m / B* | *C* | *FIT* | *TYPE* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Toluene-d8 | | | 2.362 | 2.311 | 2.251 | 2.250 | 2.193 | 2.176 | 2.092 | 2.234 | | | 3.998 | A |
| Trichloroethene | | | 0.284 | 0.249 | 0.221 | 0.228 | 0.245 | 0.241 | 0.241 | 0.244 | | | 8.312 | A |
| Trichlorofluoromethane | | | 0.323 | 0.322 | 0.285 | 0.282 | 0.294 | 0.275 | 0.253 | 0.291 | | | 8.646 | A |
| Trichlorotrifluoroethane | | | 0.197 | 0.186 | 0.162 | 0.155 | 0.161 | 0.157 | 0.151 | 0.167 | | | 10.49 | A |
| Vinyl acetate | | | 0.103 | 0.105 | 0.107 | 0.111 | 0.114 | 0.131 | 0.139 | 0.116 | | | 12.07 | A |
| Vinyl chloride | | | 0.262 | 0.252 | 0.234 | 0.228 | 0.255 | 0.256 | 0.255 | 0.249 | | | 5.127 | A |
| Xylene (total) | | | 0.813 | 0.834 | 0.794 | 0.849 | 0.941 | 0.952 | 0.912 | 0.871 | | | 7.297 | A |
| cis-1,2-Dichloroethene | | | 0.329 | 0.309 | 0.292 | 0.292 | 0.333 | 0.339 | 0.337 | 0.319 | | | 6.466 | A |
| cis-1,3-Dichloropropene | | | 0.283 | 0.325 | 0.297 | 0.334 | 0.384 | 0.405 | 0.412 | 0.349 | | | 14.91 | A |
| diisopropyl Ether (DIPE) | | | 0.592 | 0.585 | 0.613 | 0.667 | 0.763 | 0.806 | 0.817 | 0.692 | | | 14.68 | A |
| m,p-Xylene | | | 0.806 | 0.856 | 0.846 | 0.883 | 0.963 | 0.970 | 0.934 | 0.894 | | | 7.023 | A |
| n-Butylbenzene | | | 1.592 | 1.699 | 1.671 | 1.870 | 2.040 | 2.057 | 2.028 | 1.851 | | | 10.63 | A |
| n-Hexane | | | 0.270 | 0.247 | 0.228 | 0.275 | 0.270 | 0.268 | 0.290 | 0.264 | | | 7.724 | A |
| n-Propylbenzene | | | 3.194 | 3.131 | 2.919 | 3.030 | 3.201 | 3.281 | 3.417 | 3.168 | | | 5.134 | A |
| o-Xylene | | | 0.828 | 0.789 | 0.690 | 0.782 | 0.898 | 0.917 | 0.867 | 0.824 | | | 9.510 | A |
| sec-Butylbenzene | | | 2.155 | 2.429 | 2.355 | 2.520 | 2.630 | 2.665 | 2.644 | 2.485 | | | 7.506 | A |
| t-Butanol (TBA) | | | 0.018 | 0.026 | 0.026 | 0.028 | 0.025 | 0.026 | 0.026 | 0.025 | | | 12.94 | A |
| tert-Butyl methyl ether (MTBE) | | | 0.541 | 0.584 | 0.537 | 0.548 | 0.634 | 0.634 | 0.635 | 0.588 | | | 7.870 | A |
| tert-Butylbenzene | | | 0.962 | 1.094 | 1.072 | 1.124 | 1.189 | 1.212 | 1.193 | 1.121 | | | 7.861 | A |
| trans-1,2-Dichloroethene | | | 0.317 | 0.289 | 0.270 | 0.256 | 0.280 | 0.270 | 0.274 | 0.279 | | | 6.890 | A |
| trans-1,3-Dichloropropene | | | 0.286 | 0.311 | 0.286 | 0.318 | 0.360 | 0.376 | 0.392 | 0.333 | | | 12.98 | A |
| trans-1,4-Dichloro-2-butene | | | 0.236 | 0.272 | 0.262 | 0.277 | 0.301 | 0.316 | 0.313 | 0.283 | | | 10.31 | A |

FIT = %RSD For Average Curve And Calibration Coefficent For Linear And Quadratic

Curve Types: A - Averged, L - Linear Regression, W - Weighted Linear, Q - Quadratic

For curve types L and Q, the RRF and RSP (Response) are shown on separate lines to allow for evaluation against minimum RRF

$\overline{RF}$ = Mean Response Factor For Average Curve

m,b = Slope and Intercept For Linear Curve

A,B,C = Coefficents For Quadratic Curve

FORM V I VOA

GCAL, Inc.

Data file : /var/chem/msv13.i/2171010.s.b/d9819cD.d
Lab Smp Id: 1203 Client Smp ID: V13STD001
Inj Date : 10-OCT-2017 11:50
Operator : JCK Inst ID: msv13.i
Smp Info : 1203*V13STD001
Misc Info : MSV~39299~*1*JCK
Comment :
Method : /var/chem/msv13.i/2171010.s.b/8260cdodw13.m
Meth Date : 11-Oct-2017 17:21 jck2 Quant Type: ISTD
Cal Date : 10-OCT-2017 11:50 Cal File: d9819cD.d
Als bottle: 1 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 8260b+AppIX1.sub
Target Version: 3.50
Processing Host: org.gcal.com

Concentration Formula: Amt * DF * Uf/Vo * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.00000 | Dilution Factor |
| Uf | 5.00000 | ng unit correction factor |
| Vo | 5.00000 | Sample Volume purged (mL) |
| DF | 1.00000 | |

Cpnd Variable Local Compound Variable

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ppb) | AMOUNTS ON-COL ( ppb) | SIMILARITY |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Dichlorodifluoromethane | 85 | 1.713 | 1.713 | (0.258) | 2256 | 1.00000 | 1.18 | |
| 2 | Chloromethane ++ | 50 | 1.915 | 1.915 | (0.288) | 2947 | 1.00000 | 1.25 | |
| 3 | Vinyl Chloride + | 62 | 2.005 | 2.005 | (0.302) | 2642 | 1.00000 | 1.05 | |
| 6 | Bromomethane | 94 | 2.339 | 2.339 | (0.352) | 1416 | 1.00000 | 1.09 | |
| 7 | Chloroethane | 64 | 2.477 | 2.477 | (0.373) | 2843 | 1.00000 | 1.68 | |
| 8 | Trichlorofluoromethane | 101 | 2.627 | 2.627 | (0.396) | 3253 | 1.00000 | 1.11 | |
| 10 | 1,1-Dichloroethene + | 96 | 3.212 | 3.212 | (0.484) | 1855 | 1.00000 | 1.10 | |
| 11 | Carbon Disulfide | 76 | 3.235 | 3.235 | (0.487) | 7656 | 1.00000 | 1.23 | |
| 12 | 1,1,2Trichlotrifluoroethane | 101 | 3.261 | 3.261 | (0.491) | 1985 | 1.00000 | 1.18 | |
| 13 | Methyl Iodide | 142 | 3.381 | 3.381 | (0.509) | 259 | 1.00000 | 4.40 | |
| 14 | Acrolein | 56 | 3.636 | 3.636 | (0.548) | 399 | 5.00000 | 2.75 | (M2) |
| 16 | Methylene Chloride | 49 | 3.932 | 3.932 | (0.592) | 4315 | 1.00000 | 1.57 | |
| 17 | Acetone | 43 | 4.029 | 4.029 | (0.607) | 2305 | 1.00000 | 1.22 | |
| 18 | trans-1,2-Dichloroethene | 61 | 4.131 | 4.131 | (0.622) | 3188 | 1.00000 | 1.13 | |

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ppb) | ON-COL ( ppb) | SIMILARITY |
|---|---|---|---|---|---|---|---|---|---|
| | 19 Methyl Acetate | 43 | 4.179 | 4.179 | (0.630) | 2845 | 1.00000 | 1.24 | 2389 |
| | 20 Hexane | 57 | 4.232 | 4.232 | (0.637) | 2715 | 1.00000 | 1.02 | 4670 |
| | 21 MTBE | 73 | 4.288 | 4.288 | (0.646) | 5446 | 1.00000 | 0.921 | 4741 |
| | 26 1,1-Dichloroethane ++ | 63 | 4.835 | 4.835 | (0.728) | 4866 | 1.00000 | 1.09 | |
| | 27 Acrylonitrile | 53 | 4.914 | 4.914 | (0.740) | 4888 | 5.00000 | 4.30 | |
| | 28 Vinyl Acetate | 43 | 5.143 | 5.143 | (0.775) | 1033 | 1.00000 | 0.888 | (M1) |
| | 29 cis-1,2-Dichloroethene | 61 | 5.409 | 5.409 | (0.815) | 3310 | 1.00000 | 1.03 | |
| M | 75 Total 1,2-Dichloroethene | 61 | | | | 6498 | 2.00000 | 2.17 | |
| | 30 2,2-Dichloropropane | 77 | 5.525 | 5.525 | (0.832) | 2860 | 1.00000 | 0.974 | |
| | 32 Cyclohexane | 56 | 5.604 | 5.604 | (0.844) | 3028 | 1.00000 | 0.826 | 5880 |
| | 34 Bromochloromethane | 128 | 5.611 | 5.611 | (0.845) | 1233 | 1.00000 | 1.07 | |
| | 35 Chloroform + | 83 | 5.686 | 5.686 | (0.857) | 4511 | 1.00000 | 1.11 | |
| | 36 Carbon Tetrachloride | 117 | 5.817 | 5.817 | (0.876) | 2736 | 1.00000 | 1.01 | |
| $ | 40 Dibromofluoromethane | 111 | 5.866 | 5.866 | (0.884) | 122349 | 50.0000 | 50.8 | 7860 |
| | 41 1,1,1-Trichloroethane | 97 | 5.892 | 5.892 | (0.888) | 3639 | 1.00000 | 1.10 | |
| | 44 2-Butanone | 43 | 6.012 | 6.012 | (0.906) | 2043 | 1.00000 | 1.00 | |
| | 43 1,1-Dichloropropene | 75 | 6.009 | 6.009 | (0.905) | 2602 | 1.00000 | 0.941 | |
| | 46 Benzene | 78 | 6.249 | 6.249 | (0.941) | 9218 | 1.00000 | 0.998 | |
| $ | 50 1,2-Dichloroethane-d4 | 67 | 6.376 | 6.376 | (0.960) | 85563 | 50.0000 | 50.0 | |
| | 51 1,2-Dichloroethane | 62 | 6.440 | 6.440 | (0.970) | 4676 | 1.00000 | 1.21 | |
| * | 53 FLUOROBENZENE | 96 | 6.638 | 6.638 | (1.000) | 503453 | 50.0000 | | |
| | 55 Methyl Cyclohexane | 83 | 6.785 | 6.785 | (1.022) | 3369 | 1.00000 | 0.972 | 7926 |
| | 56 Trichloroethene | 130 | 6.788 | 6.788 | (1.023) | 2862 | 1.00000 | 1.16 | |
| | 57 Dibromomethane | 93 | 7.178 | 7.178 | (1.081) | 1479 | 1.00000 | 1.05 | |
| | 59 1,2-Dichloropropane + | 63 | 7.264 | 7.264 | (1.094) | 2592 | 1.00000 | 1.01 | |
| | 60 Bromodichloromethane | 83 | 7.321 | 7.321 | (1.103) | 3456 | 1.00000 | 1.07 | |
| | 65 1-Bromo-2-chloroethane | 63 | 7.733 | 7.733 | (1.165) | 3659 | 1.00000 | 0.968 | 7315 |
| | 64 2-Chloroethyl vinyl ether | 63 | 7.808 | 7.808 | (1.176) | 521 | 1.00000 | 1.44 | (M1) |
| | 67 cis-1,3-Dichloropropene | 75 | 7.853 | 7.853 | (1.183) | 2854 | 1.00000 | 0.813 | |
| $ | 68 Toluene-d8 | 98 | 8.007 | 8.007 | (0.878) | 488198 | 50.0000 | 52.9 | |
| | 69 Toluene + | 91 | 8.048 | 8.048 | (0.882) | 11193 | 1.00000 | 1.14 | |
| | 71 Tetrachloroethene | 164 | 8.340 | 8.340 | (0.914) | 2211 | 1.00000 | 1.10 | |
| | 73 4-methyl-2-pentanone | 43 | 8.337 | 8.337 | (0.914) | 2426 | 1.00000 | 0.786 | |
| | 74 trans-1,3-Dichloropropene | 75 | 8.355 | 8.355 | (1.259) | 2884 | 1.00000 | 0.861 | |
| M | 82 1-3 Dichloropropene total | 100 | | | | 5738 | 2.00000 | 1.67 | 0 |
| | 76 1,1,2-Trichloroethane | 97 | 8.475 | 8.475 | (0.929) | 2360 | 1.00000 | 1.13 | |
| | 78 Dibromochloromethane | 129 | 8.606 | 8.606 | (0.944) | 2626 | 1.00000 | 1.11 | |
| | 79 1,3-Dichloropropane | 76 | 8.670 | 8.670 | (0.951) | 4075 | 1.00000 | 1.04 | |
| | 80 1,2-Dibromoethane(EDB) | 107 | 8.779 | 8.779 | (0.963) | 2122 | 1.00000 | 1.07 | |
| | 83 2-Hexanone | 43 | 8.925 | 8.925 | (0.979) | 1869 | 1.00000 | 1.44 | (M3) |
| | 86 1-Chlorohexane | 91 | 9.109 | 9.109 | (0.999) | 2508 | 1.00000 | 0.975 | 4279(M2) |
| * | 84 CHLOROBENZENE-d5 | 82 | 9.120 | 9.120 | (1.000) | 206721 | 50.0000 | | |
| | 85 Chlorobenzene ++ | 112 | 9.131 | 9.131 | (1.001) | 7211 | 1.00000 | 1.12 | |
| | 87 Ethylbenzene + | 106 | 9.146 | 9.146 | (1.003) | 3385 | 1.00000 | 1.05 | |
| | 88 1,1,1,2-Tetrachloroethane | 133 | 9.176 | 9.176 | (1.006) | 2192 | 1.00000 | 1.01 | |
| | 89 p,m-Xylene | 106 | 9.240 | 9.240 | (1.013) | 6664 | 2.00000 | 1.80 | |
| | 90 o-Xylene | 106 | 9.517 | 9.517 | (1.044) | 3425 | 1.00000 | 1.00 | |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ppb) | ON-COL ( ppb) | SIMILARITY |
|---|---|---|---|---|---|---|---|---|
| M 121 TOTAL XYLENE | 106 | | | | 10089 | 3.00000 | 2.81 | |
| 91 Styrene | 104 | 9.555 | 9.555 | (1.048) | 4690 | 1.00000 | 0.801 | |
| 92 Bromoform ++ | 173 | 9.577 | 9.577 | (1.050) | 1872 | 1.00000 | 0.949 | |
| 93 Isopropylbenzene | 105 | 9.716 | 9.716 | (1.065) | 7520 | 1.00000 | 0.854 | |
| $ 95 Bromofluorobenzene | 174 | 9.900 | 9.900 | (1.085) | 158451 | 50.0000 | 51.1 | |
| 96 Bromobenzene | 77 | 9.967 | 9.967 | (0.943) | 5031 | 1.00000 | 1.04 | |
| 97 n-Propylbenzene | 91 | 9.971 | 9.971 | (0.943) | 11329 | 1.00000 | 1.01 | |
| 98 1,1,2,2-Tetrachloroethane++ | 83 | 10.008 | 10.008 | (0.946) | 3957 | 1.00000 | 1.19 | |
| 99 2-Chlorotoluene | 91 | 10.076 | 10.076 | (0.953) | 7031 | 1.00000 | 0.950 | |
| 102 1,3,5-Trimethylbenzene | 105 | 10.083 | 10.083 | (0.954) | 6889 | 1.00000 | 0.925 | |
| 100 1,2,3-Trichloropropane | 75 | 10.102 | 10.102 | (0.955) | 4110 | 1.00000 | 0.995 | |
| 101 trans-1,4-Dichloro-2-Butene | 53 | 10.121 | 10.121 | (0.957) | 838 | 1.00000 | 0.836 | |
| 104 4-Chlorotoluene | 91 | 10.177 | 10.177 | (0.962) | 6287 | 1.00000 | 0.968 | |
| 105 tert-butylbenzene | 91 | 10.278 | 10.278 | (0.972) | 3411 | 1.00000 | 0.858 | |
| 107 1,2,4-Trimethylbenzene | 105 | 10.323 | 10.323 | (0.976) | 6034 | 1.00000 | 0.820 | |
| 108 sec-Butylbenzene | 105 | 10.387 | 10.387 | (0.982) | 7645 | 1.00000 | 0.867 | |
| 110 p-Isopropyltoluene | 119 | 10.466 | 10.466 | (0.990) | 5991 | 1.00000 | 0.816 | |
| 113 1,3-Dichlorobenzene | 146 | 10.533 | 10.533 | (0.996) | 4296 | 1.00000 | 0.932 | |
| * 114 1,4-DICHLOROBENZENE-D4 | 152 | 10.575 | 10.575 | (1.000) | 177367 | 50.0000 | | |
| 115 1,4-Dichlorobenzene | 146 | 10.582 | 10.582 | (1.001) | 5636 | 1.00000 | 1.16 | |
| 117 n-Butylbenzene | 91 | 10.713 | 10.713 | (1.013) | 5646 | 1.00000 | 0.860 | |
| 118 1,2-Dichlorobenzene | 146 | 10.841 | 10.841 | (1.025) | 4591 | 1.00000 | 1.01 | |
| 119 1,2-Dibromo-3-Chloropropane | 157 | 11.358 | 11.358 | (1.074) | 530 | 1.00000 | 0.830 | (M2) |
| 120 Hexachlorobutadiene | 225 | 11.812 | 11.812 | (1.117) | 1286 | 1.00000 | 0.928 | (M2) |
| 122 1,2,4-Trichlorobenzene | 180 | 11.860 | 11.860 | (1.122) | 1520 | 1.00000 | 1.40 | |
| 124 Naphthalene | 128 | 12.145 | 12.145 | (1.149) | 2309 | 1.00000 | 4.59 | |
| 125 1,2,3-Trichlorobenzene | 180 | 12.303 | 12.303 | (1.163) | 1707 | 1.00000 | 1.33 | |
| 22 tert-Butyl Alcohol | 59 | 4.423 | 4.423 | (0.666) | 180 | 1.00000 | 0.717 | 0(M1) |
| 24 Isopropyl Ether | 45 | 4.745 | 4.745 | (0.715) | 5964 | 1.00000 | 0.856 | 4654 |
| 25 Chloroprene | 53 | 4.817 | 4.817 | (0.726) | 2343 | 1.00000 | 0.764 | 7466 |
| 52 Isobutyl Alcohol | 43 | 6.473 | 6.473 | (0.975) | 886 | 5.00000 | 5.75 | 1894(M2H) |
| 62 1,4- Dioxane | 58 | 7.516 | 7.516 | (1.132) | 611 | 25.0000 | 26.4 | 1769 |
| 170 3,4-dichloro-1-butene | 75 | 8.651 | 8.651 | (0.949) | 2883 | 1.00000 | 1.12 | 8324(a) |
| 169 cis-1,4-dichloro-2-butene | 53 | 9.933 | 9.933 | (0.939) | 1587 | 1.00000 | 1.28 | 8408(a) |

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M1- Compound response manually integrated because
Target system did not integrate.
M2- Compound response manually integrated because
Target system integrated incorrectly.
M3- Compound response manually integrated because
Target system integrated incorrect peak.
H - Operator selected an alternate compound hit.

Data File: /var/chem/msv13.i/2171010.s.b/d9819cD.d

Page 1

Date : 10-OCT-2017 11:50

Client ID: V13STD001

Instrument: msv13.i

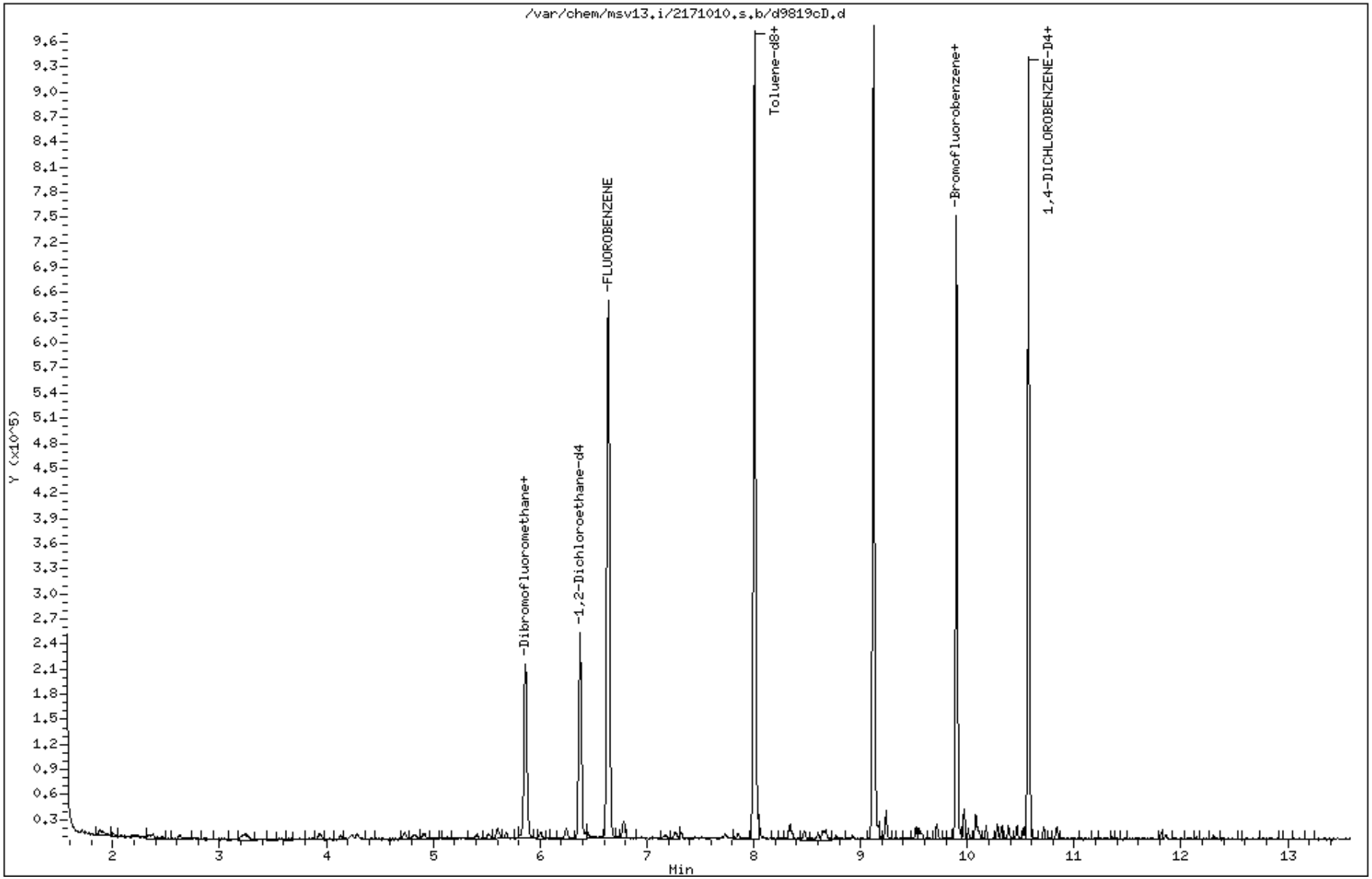
Sample Info: 1203*V13STD001

Purge Volume: 5.0

Operator: JCK

Column phase: RTX-VMS-30M

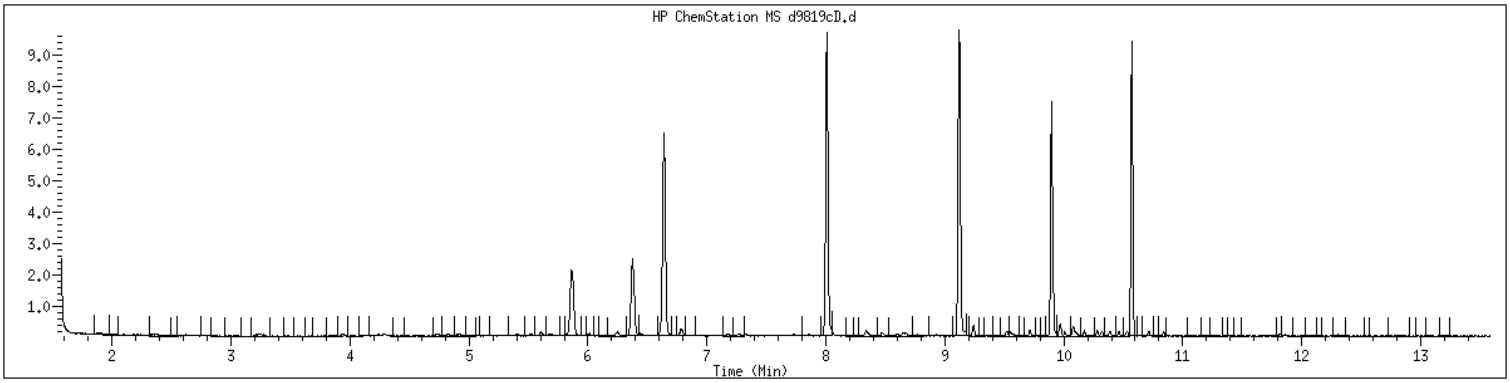
Column diameter: 0.25



Data file : /var/chem/msv13.i/2171010.s.b/d9819cD.d Page: 1
Report Date: 10/11/2017 17:21

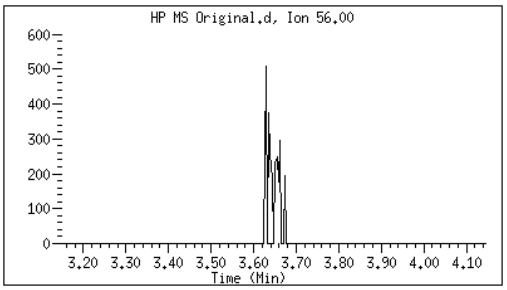
MANUAL INTEGRATION GRAPHIC REPORT

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Injection Date: 10/10/2017 11:50 Instrument : msv13.i
Operator : JCK
Sample Info : 1203*V13STD001
Misc Info : MSV~39299~*1*JCK
Method : /var/chem/msv13.i/2171010.s.b/8260cdodw13.m
Dilution : 1.00
Matrix : WATER
Integrator : HP RTE Compound Sublist: 8260b+AppIX1



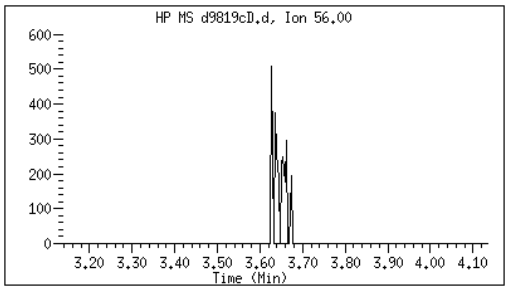

Original Final

14 Acrolein CAS#: 107-02-8 Reason: M2

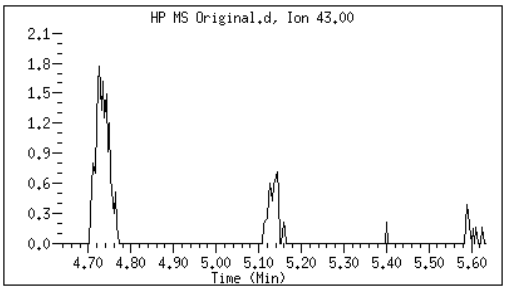



Electronic Signature Applied

User: jck2
Date: 10/10/2017 12:09

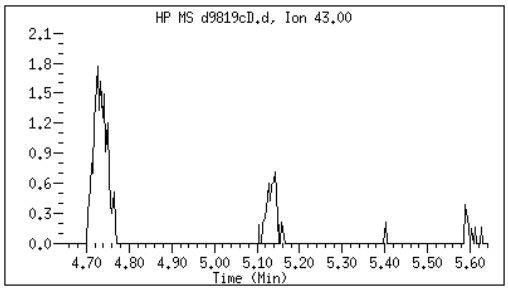



28 Vinyl Acetate CAS#: 108-05-4 Reason: M1




Electronic Signature Applied

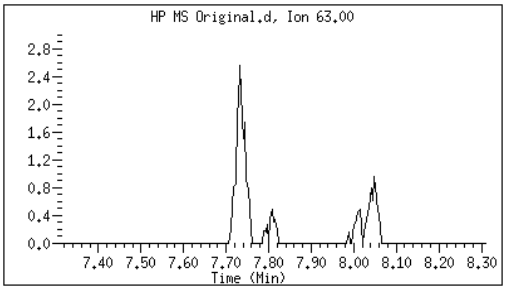
User: jck2
Date: 10/10/2017 12:09



Data file : /var/chem/msv13.i/2171010.s.b/d9819cD.d Page: 2
Report Date: 10/11/2017 17:21

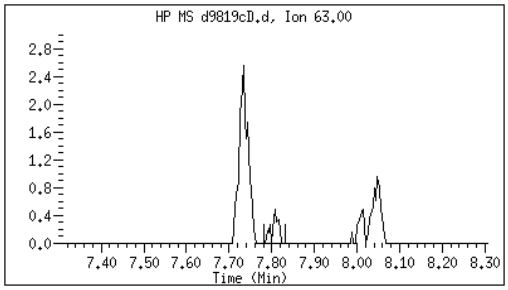
Original Final

64 2-Chloroethyl vinyl ether CAS#: 110-75-8 Reason: M1



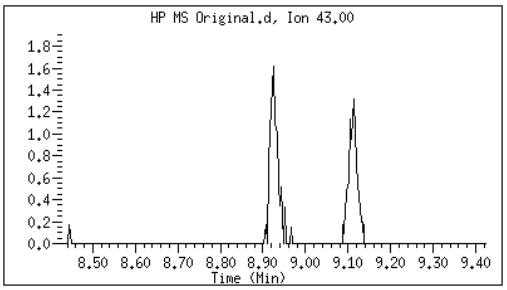

Electronic Signature Applied

User: jck2
Date: 10/10/2017 12:10



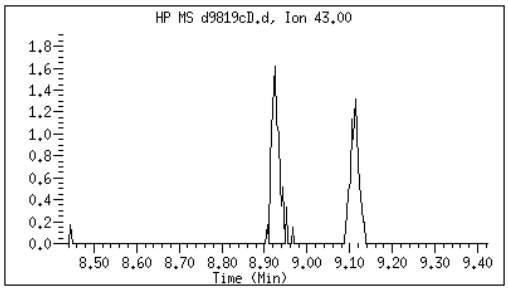

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83 2-Hexanone CAS#: 591-78-6 Reason: M3



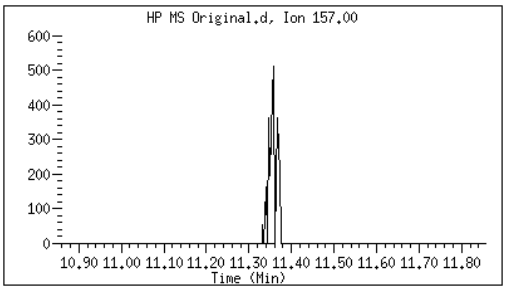

Electronic Signature Applied

User: jck2
Date: 10/10/2017 12:10



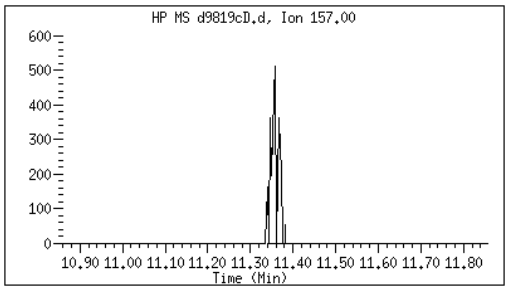

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119 1,2-Dibromo-3-Chloropropane CAS#: 96-12-8 Reason: M2



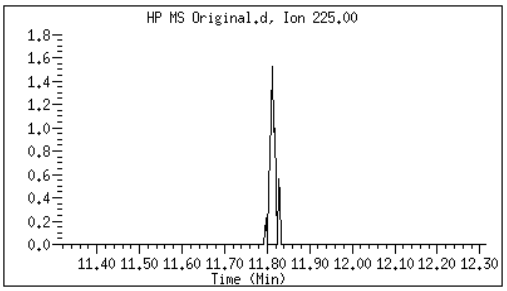

Electronic Signature Applied

User: jck2
Date: 10/10/2017 12:10



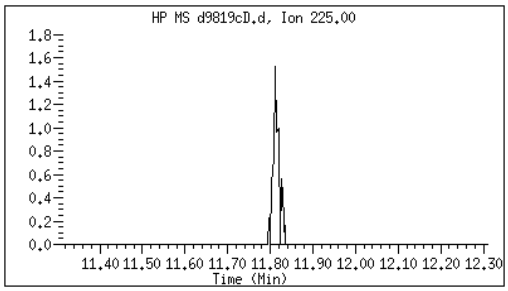

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120 Hexachlorobutadiene CAS#: 87-68-3 Reason: M2




Electronic Signature Applied

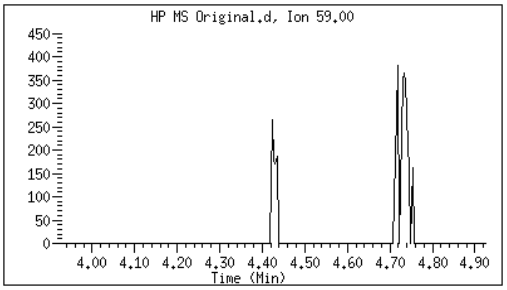
User: jck2
Date: 10/10/2017 12:10




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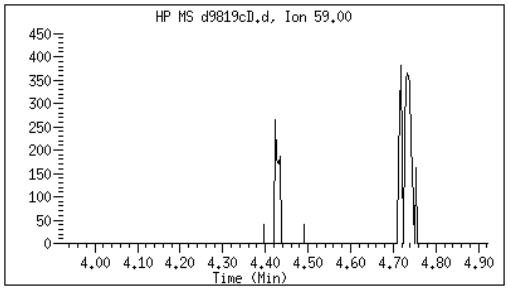
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Report Date: 10/11/2017 17:21

| Original | | Final |
|---|---|---|
| 22 tert-Butyl Alcohol | CAS#: 75-65-0 | Reason: M1 |



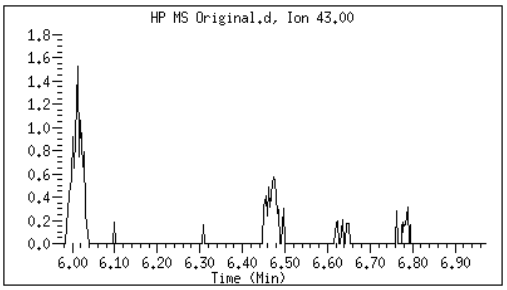

Electronic Signature Applied

User: jck2
Date: 10/10/2017 12:10



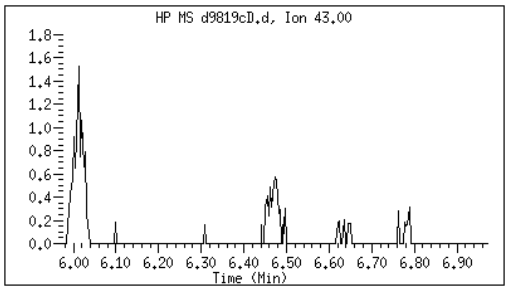

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| | | |
|---|---|---|
| 52 Isobutyl Alcohol | CAS#: 78-83-1 | Reason: M2 |



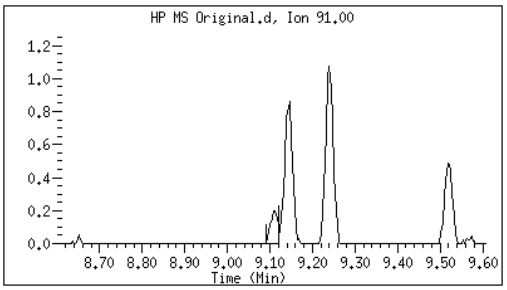

Electronic Signature Applied

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Date: 10/10/2017 12:10



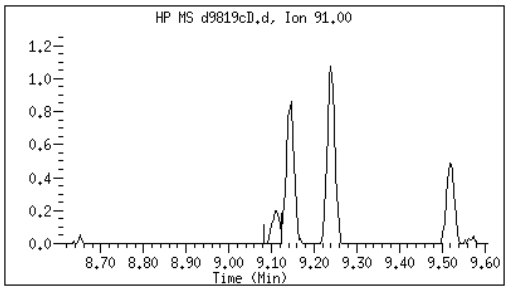

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| | | |
|---|---|---|
| 86 1-Chlorohexane | CAS#: 544-10-5 | Reason: M2 |




Electronic Signature Applied

User: jck2
Date: 10/10/2017 14:54




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M1 - Target system did not integrate
M2 - Target system integrated incorrectly
M3 - Target system integrated incorrect peak

Data File: /var/chem/msv13.i/2171010.s.b/d9821cD.d Page 1
Report Date: 11-Oct-2017 17:21

GCAL, Inc.

Data file : /var/chem/msv13.i/2171010.s.b/d9821cD.d
Lab Smp Id: 1204 Client Smp ID: V13STD005
Inj Date : 10-OCT-2017 12:34
Operator : JCK Inst ID: msv13.i
Smp Info : 1204*V13STD005
Misc Info : MSV~39299~*1*JCK
Comment :
Method : /var/chem/msv13.i/2171010.s.b/8260cdodw13.m
Meth Date : 11-Oct-2017 17:21 jck2 Quant Type: ISTD
Cal Date : 10-OCT-2017 12:34 Cal File: d9821cD.d
Als bottle: 1 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 8260b+AppIX1.sub
Target Version: 3.50
Processing Host: org.gcal.com

Concentration Formula: Amt * DF * Uf/Vo * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.00000 | Dilution Factor |
| Uf | 5.00000 | ng unit correction factor |
| Vo | 5.00000 | Sample Volume purged (mL) |
| DF | 1.00000 | |

Cpnd Variable Local Compound Variable

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ppb) | ON-COL ( ppb) | SIMILARITY |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Dichlorodifluoromethane | 85 | 1.716 | 1.716 | (0.259) | 10374 | 5.00000 | 5.23 | |
| 2 | Chloromethane ++ | 50 | 1.915 | 1.915 | (0.288) | 13141 | 5.00000 | 5.35 | |
| 3 | Vinyl Chloride + | 62 | 2.005 | 2.005 | (0.302) | 13171 | 5.00000 | 5.06 | |
| 6 | Bromomethane | 94 | 2.335 | 2.335 | (0.352) | 6997 | 5.00000 | 5.18 | |
| 7 | Chloroethane | 64 | 2.477 | 2.477 | (0.373) | 9473 | 5.00000 | 5.55 | |
| 8 | Trichlorofluoromethane | 101 | 2.627 | 2.627 | (0.396) | 16839 | 5.00000 | 5.54 | |
| 10 | 1,1-Dichloroethene + | 96 | 3.204 | 3.204 | (0.483) | 9583 | 5.00000 | 5.47 | |
| 11 | Carbon Disulfide | 76 | 3.238 | 3.238 | (0.488) | 34340 | 5.00000 | 5.31 | |
| 12 | 1,1,2Trichlotrifluoroethane | 101 | 3.257 | 3.257 | (0.491) | 9751 | 5.00000 | 5.58 | |
| 13 | Methyl Iodide | 142 | 3.377 | 3.377 | (0.509) | 2187 | 5.00000 | 6.36 | |
| 14 | Acrolein | 56 | 3.647 | 3.647 | (0.549) | 3889 | 25.0000 | 25.8 | |
| 16 | Methylene Chloride | 49 | 3.943 | 3.943 | (0.594) | 16640 | 5.00000 | 5.82 | |
| 17 | Acetone | 43 | 4.025 | 4.025 | (0.606) | 11599 | 5.00000 | 5.88 | |
| 18 | trans-1,2-Dichloroethene | 61 | 4.127 | 4.127 | (0.622) | 15103 | 5.00000 | 5.17 | |

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ppb) | ON-COL ( ppb) | SIMILARITY |
|---|---|---|---|---|---|---|---|---|---|
| | 19 Methyl Acetate | 43 | 4.175 | 4.175 | (0.629) | 12936 | 5.00000 | 5.43 | 5907 |
| | 20 Hexane | 57 | 4.228 | 4.228 | (0.637) | 12921 | 5.00000 | 4.68 | 7841 |
| | 21 MTBE | 73 | 4.284 | 4.284 | (0.645) | 30574 | 5.00000 | 4.97 | 8048 |
| | 26 1,1-Dichloroethane ++ | 63 | 4.843 | 4.843 | (0.730) | 23495 | 5.00000 | 5.05 | |
| | 27 Acrylonitrile | 53 | 4.918 | 4.918 | (0.741) | 29100 | 25.0000 | 24.6 | |
| | 28 Vinyl Acetate | 43 | 5.139 | 5.139 | (0.774) | 5481 | 5.00000 | 4.53 | |
| | 29 cis-1,2-Dichloroethene | 61 | 5.409 | 5.409 | (0.815) | 16168 | 5.00000 | 4.85 | |
| M | 75 Total 1,2-Dichloroethene | 61 | | | | 31271 | 10.0000 | 10.0 | |
| | 30 2,2-Dichloropropane | 77 | 5.521 | 5.521 | (0.832) | 15000 | 5.00000 | 4.91 | |
| | 32 Cyclohexane | 56 | 5.604 | 5.604 | (0.844) | 17299 | 5.00000 | 4.54 | 8338 |
| | 34 Bromochloromethane | 128 | 5.600 | 5.600 | (0.844) | 6873 | 5.00000 | 5.73 | |
| | 35 Chloroform + | 83 | 5.690 | 5.690 | (0.857) | 22671 | 5.00000 | 5.36 | |
| | 36 Carbon Tetrachloride | 117 | 5.814 | 5.814 | (0.876) | 14258 | 5.00000 | 5.07 | |
| $ | 40 Dibromofluoromethane | 111 | 5.866 | 5.866 | (0.884) | 126911 | 50.0000 | 50.7 | 8177 |
| | 41 1,1,1-Trichloroethane | 97 | 5.885 | 5.885 | (0.886) | 17947 | 5.00000 | 5.21 | |
| | 44 2-Butanone | 43 | 6.005 | 6.005 | (0.905) | 10528 | 5.00000 | 4.96 | |
| | 43 1,1-Dichloropropene | 75 | 6.008 | 6.008 | (0.905) | 14005 | 5.00000 | 4.87 | |
| | 46 Benzene | 78 | 6.248 | 6.248 | (0.941) | 46007 | 5.00000 | 4.79 | |
| $ | 50 1,2-Dichloroethane-d4 | 67 | 6.372 | 6.372 | (0.960) | 89145 | 50.0000 | 50.2 | |
| | 51 1,2-Dichloroethane | 62 | 6.436 | 6.436 | (0.970) | 21226 | 5.00000 | 5.30 | |
| * | 53 FLUOROBENZENE | 96 | 6.638 | 6.638 | (1.000) | 523213 | 50.0000 | | |
| | 55 Methyl Cyclohexane | 83 | 6.781 | 6.781 | (1.021) | 17291 | 5.00000 | 4.80 | 8827 |
| | 56 Trichloroethene | 130 | 6.792 | 6.792 | (1.023) | 13036 | 5.00000 | 5.11 | |
| | 57 Dibromomethane | 93 | 7.178 | 7.178 | (1.081) | 7918 | 5.00000 | 5.39 | |
| | 59 1,2-Dichloropropane + | 63 | 7.275 | 7.275 | (1.096) | 13573 | 5.00000 | 5.07 | |
| | 60 Bromodichloromethane | 83 | 7.317 | 7.317 | (1.102) | 16748 | 5.00000 | 5.00 | |
| | 65 1-Bromo-2-chloroethane | 63 | 7.737 | 7.737 | (1.165) | 19596 | 5.00000 | 4.99 | 9477 |
| | 64 2-Chloroethyl vinyl ether | 63 | 7.808 | 7.808 | (1.176) | 2782 | 5.00000 | 4.30 | |
| | 67 cis-1,3-Dichloropropene | 75 | 7.857 | 7.857 | (1.184) | 16998 | 5.00000 | 4.66 | |
| $ | 68 Toluene-d8 | 98 | 8.006 | 8.006 | (0.878) | 511381 | 50.0000 | 51.7 | |
| | 69 Toluene + | 91 | 8.048 | 8.048 | (0.882) | 55251 | 5.00000 | 5.27 | |
| | 71 Tetrachloroethene | 164 | 8.340 | 8.340 | (0.914) | 11726 | 5.00000 | 5.46 | |
| | 73 4-methyl-2-pentanone | 43 | 8.340 | 8.340 | (0.914) | 15554 | 5.00000 | 4.71 | |
| | 74 trans-1,3-Dichloropropene | 75 | 8.363 | 8.363 | (1.260) | 16269 | 5.00000 | 4.67 | |
| M | 82 1-3 Dichloropropene total | 100 | | | | 33267 | 10.0000 | 9.33 | 0 |
| | 76 1,1,2-Trichloroethane | 97 | 8.471 | 8.471 | (0.929) | 11987 | 5.00000 | 5.36 | |
| | 78 Dibromochloromethane | 129 | 8.599 | 8.599 | (0.943) | 13530 | 5.00000 | 5.34 | |
| | 79 1,3-Dichloropropane | 76 | 8.674 | 8.674 | (0.951) | 20779 | 5.00000 | 4.98 | |
| | 80 1,2-Dibromoethane(EDB) | 107 | 8.779 | 8.779 | (0.963) | 10792 | 5.00000 | 5.08 | |
| | 83 2-Hexanone | 43 | 8.925 | 8.925 | (0.979) | 11368 | 5.00000 | 4.64 | |
| | 86 1-Chlorohexane | 91 | 9.109 | 9.109 | (0.999) | 11812 | 5.00000 | 4.29 | 5551(M2) |
| * | 84 CHLOROBENZENE-d5 | 82 | 9.120 | 9.120 | (1.000) | 221254 | 50.0000 | | |
| | 85 Chlorobenzene ++ | 112 | 9.131 | 9.131 | (1.001) | 36028 | 5.00000 | 5.24 | |
| | 87 Ethylbenzene + | 106 | 9.142 | 9.142 | (1.002) | 17336 | 5.00000 | 5.03 | |
| | 88 1,1,1,2-Tetrachloroethane | 133 | 9.172 | 9.172 | (1.006) | 12549 | 5.00000 | 5.41 | |
| | 89 p,m-Xylene | 106 | 9.240 | 9.240 | (1.013) | 37889 | 10.0000 | 9.58 | |
| | 90 o-Xylene | 106 | 9.521 | 9.521 | (1.044) | 17449 | 5.00000 | 4.78 | |

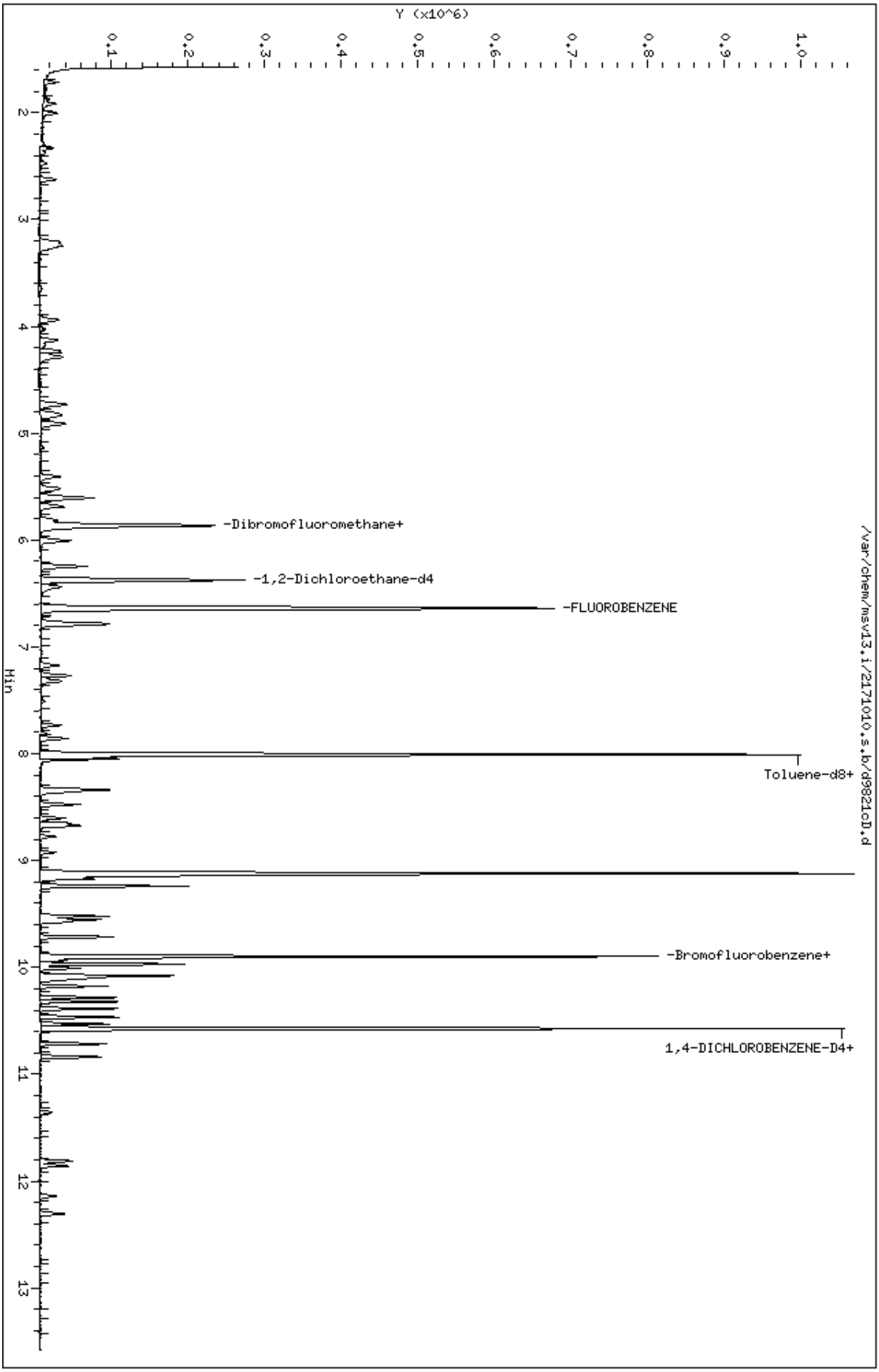
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ppb) | ON-COL ( ppb) | SIMILARITY |
|---|---|---|---|---|---|---|---|---|
| M 121 TOTAL XYLENE | 106 | | | | 55338 | 15.0000 | 14.4 | |
| 91 Styrene | 104 | 9.551 | 9.551 | (1.047) | 27567 | 5.00000 | 4.40 | |
| 92 Bromoform ++ | 173 | 9.573 | 9.573 | (1.050) | 11787 | 5.00000 | 5.59 | |
| 93 Isopropylbenzene | 105 | 9.716 | 9.716 | (1.065) | 42614 | 5.00000 | 4.52 | |
| $ 95 Bromofluorobenzene | 174 | 9.900 | 9.900 | (1.085) | 169492 | 50.0000 | 51.1 | |
| 96 Bromobenzene | 77 | 9.971 | 9.971 | (0.943) | 26501 | 5.00000 | 5.12 | |
| 97 n-Propylbenzene | 91 | 9.971 | 9.971 | (0.943) | 59580 | 5.00000 | 4.94 | |
| 98 1,1,2,2-Tetrachloroethane++ | 83 | 10.012 | 10.012 | (0.947) | 19050 | 5.00000 | 5.36 | |
| 99 2-Chlorotoluene | 91 | 10.076 | 10.076 | (0.953) | 40765 | 5.00000 | 5.13 | |
| 102 1,3,5-Trimethylbenzene | 105 | 10.083 | 10.083 | (0.954) | 38518 | 5.00000 | 4.82 | |
| 100 1,2,3-Trichloropropane | 75 | 10.102 | 10.102 | (0.955) | 22224 | 5.00000 | 5.02 | |
| 101 trans-1,4-Dichloro-2-Butene | 53 | 10.121 | 10.121 | (0.957) | 5177 | 5.00000 | 4.81 | |
| 104 4-Chlorotoluene | 91 | 10.177 | 10.177 | (0.962) | 33908 | 5.00000 | 4.87 | |
| 105 tert-butylbenzene | 91 | 10.282 | 10.282 | (0.972) | 20813 | 5.00000 | 4.88 | |
| 107 1,2,4-Trimethylbenzene | 105 | 10.319 | 10.319 | (0.976) | 38458 | 5.00000 | 4.87 | |
| 108 sec-Butylbenzene | 105 | 10.387 | 10.387 | (0.982) | 46224 | 5.00000 | 4.89 | |
| 110 p-Isopropyltoluene | 119 | 10.466 | 10.466 | (0.990) | 37241 | 5.00000 | 4.73 | |
| 113 1,3-Dichlorobenzene | 146 | 10.529 | 10.529 | (0.996) | 25835 | 5.00000 | 5.22 | |
| * 114 1,4-DICHLOROBENZENE-D4 | 152 | 10.574 | 10.574 | (1.000) | 190298 | 50.0000 | | |
| 115 1,4-Dichlorobenzene | 146 | 10.582 | 10.582 | (1.001) | 26123 | 5.00000 | 5.02 | |
| 117 n-Butylbenzene | 91 | 10.717 | 10.717 | (1.013) | 32339 | 5.00000 | 4.59 | |
| 118 1,2-Dichlorobenzene | 146 | 10.840 | 10.840 | (1.025) | 24118 | 5.00000 | 4.95 | |
| 119 1,2-Dibromo-3-Chloropropane | 157 | 11.354 | 11.354 | (1.074) | 3620 | 5.00000 | 5.28 | |
| 120 Hexachlorobutadiene | 225 | 11.815 | 11.815 | (1.117) | 7942 | 5.00000 | 5.34 | |
| 122 1,2,4-Trichlorobenzene | 180 | 11.856 | 11.856 | (1.121) | 11788 | 5.00000 | 4.61 | |
| 124 Naphthalene | 128 | 12.141 | 12.141 | (1.148) | 17352 | 5.00000 | 6.31 | |
| 125 1,2,3-Trichlorobenzene | 180 | 12.306 | 12.306 | (1.164) | 11646 | 5.00000 | 4.45 | |
| 22 tert-Butyl Alcohol | 59 | 4.427 | 4.427 | (0.667) | 1340 | 5.00000 | 5.13 | 4391(M3) |
| 24 Isopropyl Ether | 45 | 4.734 | 4.734 | (0.713) | 30589 | 5.00000 | 4.23 | 7842 |
| 25 Chloroprene | 53 | 4.813 | 4.813 | (0.725) | 13285 | 5.00000 | 4.17 | 8525 |
| 52 Isobutyl Alcohol | 43 | 6.473 | 6.473 | (0.975) | 3797 | 25.0000 | 23.7 | 4792 |
| 62 1,4- Dioxane | 58 | 7.512 | 7.512 | (1.132) | 2338 | 125.000 | 97.2 | 4610 |
| 170 3,4-dichloro-1-butene | 75 | 8.647 | 8.647 | (0.948) | 12004 | 5.00000 | 4.37 | 9090(a) |
| 169 cis-1,4-dichloro-2-butene | 53 | 9.933 | 9.933 | (0.939) | 5900 | 5.00000 | 4.45 | 9004(a) |

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M2- Compound response manually integrated because
Target system integrated incorrectly.
M3- Compound response manually integrated because
Target system integrated incorrect peak.

Data File: /var/chem/msv13.i/217101O.s.b/d9821cD.d
Date : 10-OCT-2017 12:34
Client ID: V13STD005
Sample Info: 1204*V13STD005
Purge Volume: 5.0
Column phase: RTX-VMS-30M

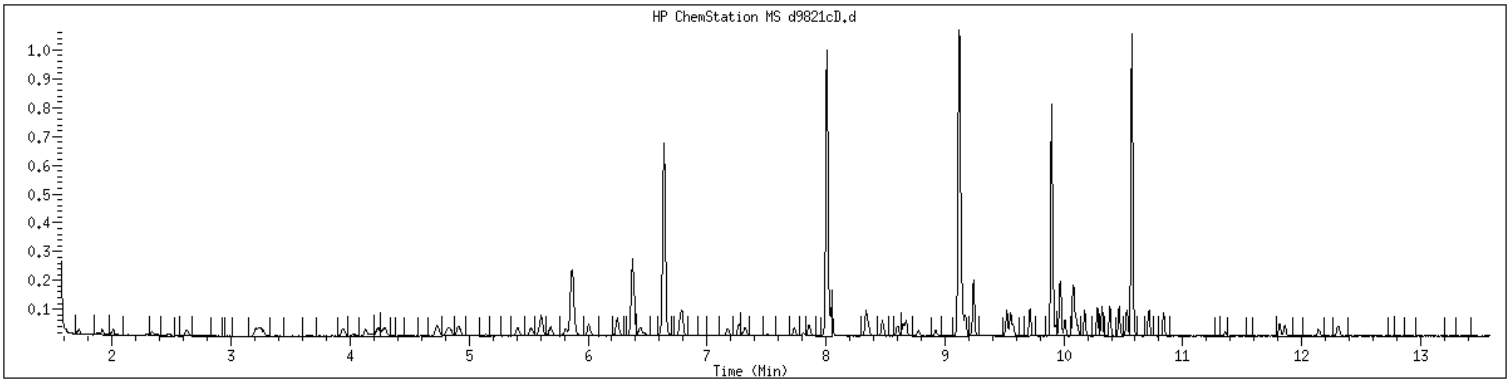
Instrument: msv13.i
Operator: JCK
Column diameter: 0.25



Data file : /var/chem/msv13.i/2171010.s.b/d9821cD.d Page: 1
Report Date: 10/11/2017 17:21

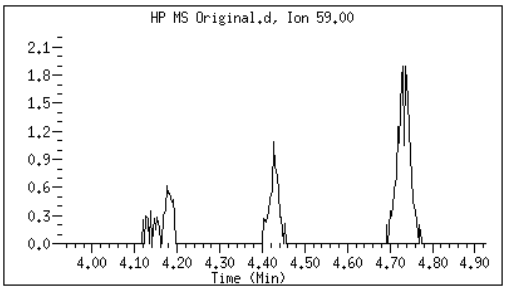
MANUAL INTEGRATION GRAPHIC REPORT

Lab ID : 1204 SampleType : CALIB_4
Injection Date: 10/10/2017 12:34 Instrument : msv13.i
Operator : JCK
Sample Info : 1204*V13STD005
Misc Info : MSV~39299~*1*JCK
Method : /var/chem/msv13.i/2171010.s.b/8260cdodw13.m
Dilution : 1.00
Matrix : WATER
Integrator : HP RTE Compound Sublist: 8260b+AppIX1



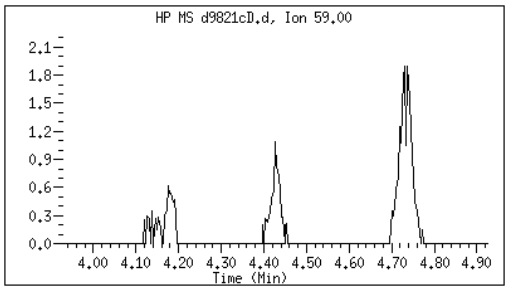

Original Final

22 tert-Butyl Alcohol CAS#: 75-65-0 Reason: M3

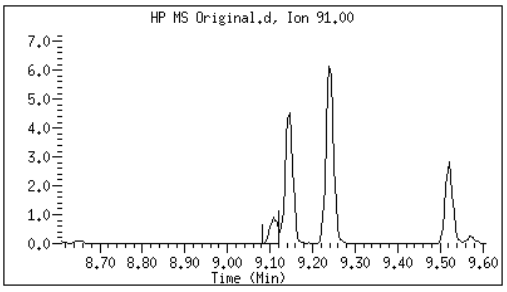



Electronic Signature Applied

User: jck2
Date: 10/10/2017 13:31

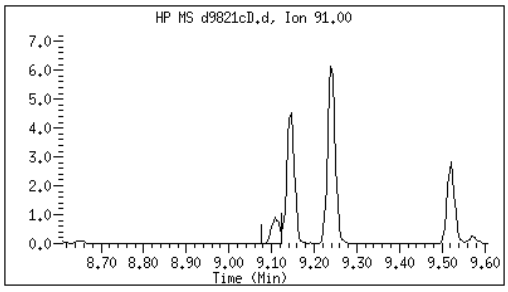



86 1-Chlorohexane CAS#: 544-10-5 Reason: M2




Electronic Signature Applied

User: jck2
Date: 10/10/2017 14:54



Data file : /var/chem/msv13.i/2171010.s.b/d9821cD.d Page: 2
Report Date: 10/11/2017 17:21

M2 - Target system integrated incorrectly
M3 - Target system integrated incorrect peak

Data File: /var/chem/msv13.i/2171010.s.b/d9822cD.d Page 1
Report Date: 11-Oct-2017 17:21

GCAL, Inc.

Data file : /var/chem/msv13.i/2171010.s.b/d9822cD.d
Lab Smp Id: 1205 Client Smp ID: V13STD010
Inj Date : 10-OCT-2017 12:57
Operator : JCK Inst ID: msv13.i
Smp Info : 1205*V13STD010
Misc Info : MSV~39299~*1*JCK
Comment :
Method : /var/chem/msv13.i/2171010.s.b/8260cdodw13.m
Meth Date : 11-Oct-2017 17:21 jck2 Quant Type: ISTD
Cal Date : 10-OCT-2017 12:57 Cal File: d9822cD.d
Als bottle: 1 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 8260b+AppIX1.sub
Target Version: 3.50
Processing Host: org.gcal.com

Concentration Formula: Amt * DF * Uf/Vo * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.00000 | Dilution Factor |
| Uf | 5.00000 | ng unit correction factor |
| Vo | 5.00000 | Sample Volume purged (mL) |
| DF | 1.00000 | |

Cpnd Variable Local Compound Variable

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ppb) | ON-COL ( ppb) | SIMILARITY |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Dichlorodifluoromethane | 85 | 1.720 | 1.720 | (0.259) | 19385 | 10.0000 | 9.68 | |
| 2 | Chloromethane ++ | 50 | 1.915 | 1.915 | (0.288) | 23270 | 10.0000 | 9.39 | |
| 3 | Vinyl Chloride + | 62 | 2.005 | 2.005 | (0.302) | 24686 | 10.0000 | 9.39 | |
| 6 | Bromomethane | 94 | 2.335 | 2.335 | (0.352) | 12682 | 10.0000 | 9.31 | |
| 7 | Chloroethane | 64 | 2.477 | 2.477 | (0.373) | 16379 | 10.0000 | 9.91 | |
| 8 | Trichlorofluoromethane | 101 | 2.627 | 2.627 | (0.396) | 30082 | 10.0000 | 9.81 | |
| 10 | 1,1-Dichloroethene + | 96 | 3.208 | 3.208 | (0.483) | 17341 | 10.0000 | 9.82 | |
| 11 | Carbon Disulfide | 76 | 3.238 | 3.238 | (0.488) | 62201 | 10.0000 | 9.53 | |
| 12 | 1,1,2Trichlotrifluoroethane | 101 | 3.268 | 3.268 | (0.492) | 17118 | 10.0000 | 9.70 | |
| 13 | Methyl Iodide | 142 | 3.381 | 3.381 | (0.509) | 5106 | 10.0000 | 9.28 | |
| 14 | Acrolein | 56 | 3.647 | 3.647 | (0.549) | 7823 | 50.0000 | 51.4 | |
| 16 | Methylene Chloride | 49 | 3.947 | 3.947 | (0.595) | 28799 | 10.0000 | 9.98 | |
| 17 | Acetone | 43 | 4.029 | 4.029 | (0.607) | 19921 | 10.0000 | 10.0 | |
| 18 | trans-1,2-Dichloroethene | 61 | 4.131 | 4.131 | (0.622) | 28483 | 10.0000 | 9.66 | |

Data File: /var/chem/msv13.i/2171010.s.b/d9822cD.d Page 2
Report Date: 11-Oct-2017 17:21

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ppb) | ON-COL ( ppb) | SIMILARITY |
|---|---|---|---|---|---|---|---|---|---|
| | 19 Methyl Acetate | 43 | 4.176 | 4.176 | (0.629) | 20531 | 10.0000 | 8.54 | 6931 |
| | 20 Hexane | 57 | 4.232 | 4.232 | (0.637) | 24043 | 10.0000 | 8.63 | 8651 |
| | 21 MTBE | 73 | 4.288 | 4.288 | (0.646) | 56651 | 10.0000 | 9.13 | 8993 |
| | 26 1,1-Dichloroethane ++ | 63 | 4.835 | 4.835 | (0.728) | 43722 | 10.0000 | 9.31 | |
| | 27 Acrylonitrile | 53 | 4.914 | 4.914 | (0.740) | 63529 | 50.0000 | 53.3 | |
| | 28 Vinyl Acetate | 43 | 5.135 | 5.135 | (0.774) | 11302 | 10.0000 | 9.26 | |
| | 29 cis-1,2-Dichloroethene | 61 | 5.409 | 5.409 | (0.815) | 30811 | 10.0000 | 9.16 | |
| M | 75 Total 1,2-Dichloroethene | 61 | | | | 59294 | 20.0000 | 18.8 | |
| | 30 2,2-Dichloropropane | 77 | 5.521 | 5.521 | (0.832) | 28687 | 10.0000 | 9.31 | |
| | 32 Cyclohexane | 56 | 5.608 | 5.608 | (0.845) | 33956 | 10.0000 | 8.84 | 8651 |
| | 34 Bromochloromethane | 128 | 5.604 | 5.604 | (0.844) | 12769 | 10.0000 | 10.6 | |
| | 35 Chloroform + | 83 | 5.686 | 5.686 | (0.857) | 41046 | 10.0000 | 9.63 | |
| | 36 Carbon Tetrachloride | 117 | 5.817 | 5.817 | (0.876) | 26877 | 10.0000 | 9.48 | |
| $ | 40 Dibromofluoromethane | 111 | 5.866 | 5.866 | (0.884) | 128211 | 50.0000 | 50.8 | 8510 |
| | 41 1,1,1-Trichloroethane | 97 | 5.892 | 5.892 | (0.888) | 33263 | 10.0000 | 9.57 | |
| | 44 2-Butanone | 43 | 6.009 | 6.009 | (0.905) | 19532 | 10.0000 | 9.12 | |
| | 43 1,1-Dichloropropene | 75 | 6.009 | 6.009 | (0.905) | 25183 | 10.0000 | 8.68 | |
| | 46 Benzene | 78 | 6.249 | 6.249 | (0.941) | 89263 | 10.0000 | 9.22 | |
| $ | 50 1,2-Dichloroethane-d4 | 67 | 6.380 | 6.380 | (0.961) | 91239 | 50.0000 | 50.9 | |
| | 51 1,2-Dichloroethane | 62 | 6.440 | 6.440 | (0.970) | 37361 | 10.0000 | 9.25 | |
| * | 53 FLUOROBENZENE | 96 | 6.638 | 6.638 | (1.000) | 527898 | 50.0000 | | |
| | 55 Methyl Cyclohexane | 83 | 6.781 | 6.781 | (1.021) | 31729 | 10.0000 | 8.73 | 8928 |
| | 56 Trichloroethene | 130 | 6.788 | 6.788 | (1.023) | 23316 | 10.0000 | 9.05 | |
| | 57 Dibromomethane | 93 | 7.178 | 7.178 | (1.081) | 13925 | 10.0000 | 9.40 | |
| | 59 1,2-Dichloropropane + | 63 | 7.272 | 7.272 | (1.095) | 25115 | 10.0000 | 9.30 | |
| | 60 Bromodichloromethane | 83 | 7.321 | 7.321 | (1.103) | 31139 | 10.0000 | 9.21 | |
| | 65 1-Bromo-2-chloroethane | 63 | 7.733 | 7.733 | (1.165) | 36607 | 10.0000 | 9.24 | 9400 |
| | 64 2-Chloroethyl vinyl ether | 63 | 7.808 | 7.808 | (1.176) | 5840 | 10.0000 | 8.13 | |
| | 67 cis-1,3-Dichloropropene | 75 | 7.860 | 7.860 | (1.184) | 31323 | 10.0000 | 8.51 | |
| $ | 68 Toluene-d8 | 98 | 8.007 | 8.007 | (0.878) | 520071 | 50.0000 | 50.4 | |
| | 69 Toluene + | 91 | 8.048 | 8.048 | (0.882) | 104683 | 10.0000 | 9.56 | |
| | 71 Tetrachloroethene | 164 | 8.337 | 8.337 | (0.914) | 21413 | 10.0000 | 9.55 | |
| | 73 4-methyl-2-pentanone | 43 | 8.337 | 8.337 | (0.914) | 31357 | 10.0000 | 9.10 | |
| | 74 trans-1,3-Dichloropropene | 75 | 8.355 | 8.355 | (1.259) | 30194 | 10.0000 | 8.59 | |
| M | 82 1-3 Dichloropropene total | 100 | | | | 61517 | 20.0000 | 17.1 | 0 |
| | 76 1,1,2-Trichloroethane | 97 | 8.475 | 8.475 | (0.929) | 22565 | 10.0000 | 9.66 | |
| | 78 Dibromochloromethane | 129 | 8.603 | 8.603 | (0.943) | 24748 | 10.0000 | 9.36 | |
| | 79 1,3-Dichloropropane | 76 | 8.674 | 8.674 | (0.951) | 40008 | 10.0000 | 9.18 | |
| | 80 1,2-Dibromoethane(EDB) | 107 | 8.775 | 8.775 | (0.962) | 21422 | 10.0000 | 9.66 | |
| | 83 2-Hexanone | 43 | 8.921 | 8.921 | (0.978) | 22191 | 10.0000 | 8.02 | |
| | 86 1-Chlorohexane | 91 | 9.113 | 9.113 | (0.999) | 24698 | 10.0000 | 8.59 | 5446(M2) |
| * | 84 CHLOROBENZENE-d5 | 82 | 9.120 | 9.120 | (1.000) | 231002 | 50.0000 | | |
| | 85 Chlorobenzene ++ | 112 | 9.131 | 9.131 | (1.001) | 67818 | 10.0000 | 9.44 | |
| | 87 Ethylbenzene + | 106 | 9.143 | 9.143 | (1.002) | 34443 | 10.0000 | 9.57 | |
| | 88 1,1,1,2-Tetrachloroethane | 133 | 9.169 | 9.169 | (1.005) | 23827 | 10.0000 | 9.84 | |
| | 89 p,m-Xylene | 106 | 9.240 | 9.240 | (1.013) | 78174 | 20.0000 | 18.9 | |
| | 90 o-Xylene | 106 | 9.521 | 9.521 | (1.044) | 31885 | 10.0000 | 8.37 | |

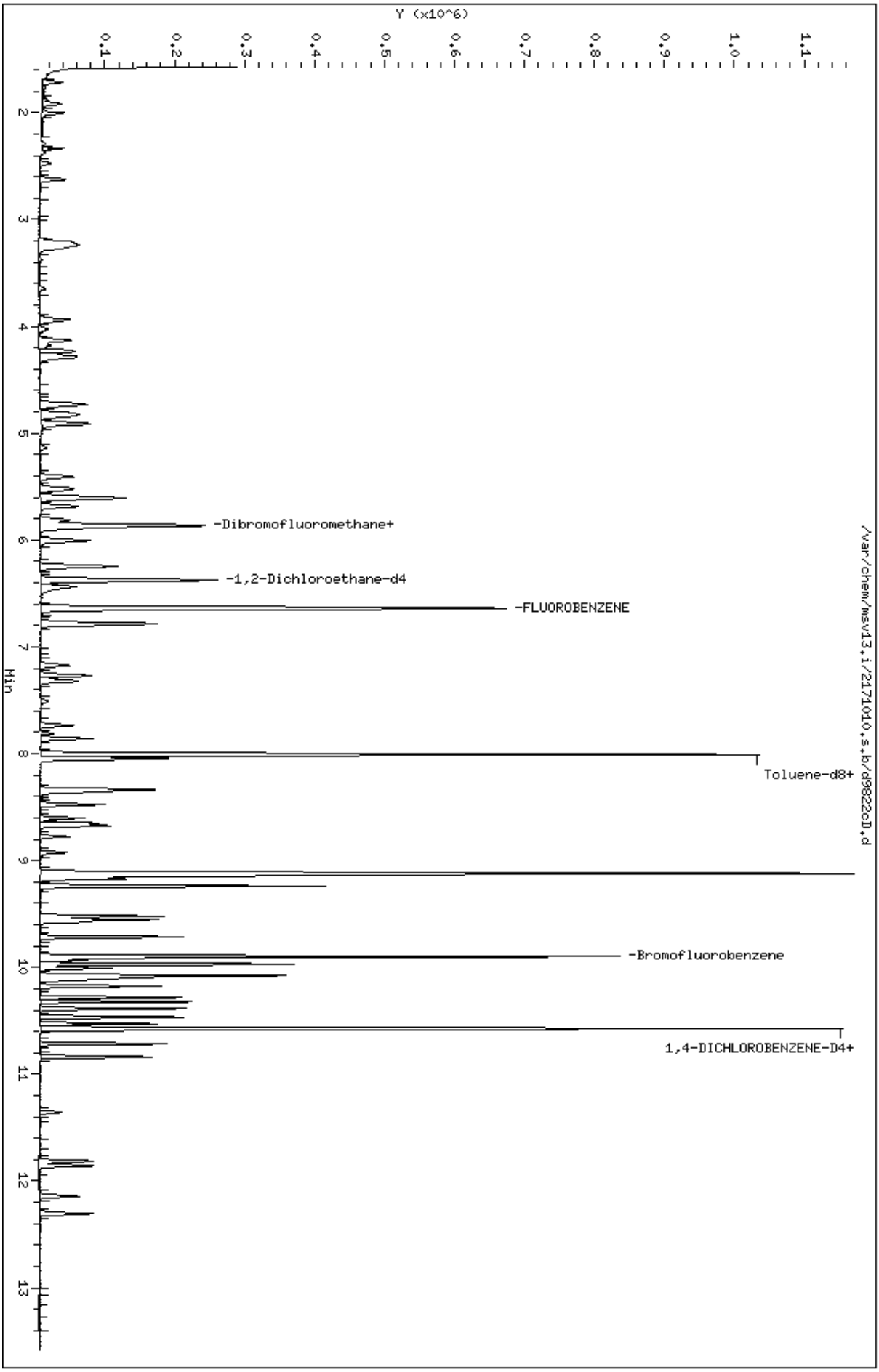
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ppb) | ON-COL ( ppb) | SIMILARITY |
|---|---|---|---|---|---|---|---|---|
| M 121 TOTAL XYLENE | 106 | | | | 110059 | 30.0000 | 27.3 | |
| 91 Styrene | 104 | 9.555 | 9.555 | (1.048) | 60421 | 10.0000 | 9.23 | |
| 92 Bromoform ++ | 173 | 9.574 | 9.574 | (1.050) | 21376 | 10.0000 | 9.70 | |
| 93 Isopropylbenzene | 105 | 9.716 | 9.716 | (1.065) | 90716 | 10.0000 | 9.22 | |
| $ 95 Bromofluorobenzene | 174 | 9.900 | 9.900 | (1.085) | 174241 | 50.0000 | 50.3 | |
| 96 Bromobenzene | 77 | 9.967 | 9.967 | (0.943) | 50600 | 10.0000 | 9.35 | |
| 97 n-Propylbenzene | 91 | 9.971 | 9.971 | (0.943) | 116199 | 10.0000 | 9.22 | |
| 98 1,1,2,2-Tetrachloroethane++ | 83 | 10.008 | 10.008 | (0.947) | 35302 | 10.0000 | 9.49 | |
| 99 2-Chlorotoluene | 91 | 10.076 | 10.076 | (0.953) | 77819 | 10.0000 | 9.37 | |
| 102 1,3,5-Trimethylbenzene | 105 | 10.083 | 10.083 | (0.954) | 78076 | 10.0000 | 9.35 | |
| 100 1,2,3-Trichloropropane | 75 | 10.106 | 10.106 | (0.956) | 43162 | 10.0000 | 9.31 | |
| 101 trans-1,4-Dichloro-2-Butene | 53 | 10.117 | 10.117 | (0.957) | 10430 | 10.0000 | 9.27 | |
| 104 4-Chlorotoluene | 91 | 10.177 | 10.177 | (0.963) | 67260 | 10.0000 | 9.23 | |
| 105 tert-butylbenzene | 91 | 10.282 | 10.282 | (0.973) | 42687 | 10.0000 | 9.57 | |
| 107 1,2,4-Trimethylbenzene | 105 | 10.323 | 10.323 | (0.977) | 79078 | 10.0000 | 9.58 | |
| 108 sec-Butylbenzene | 105 | 10.387 | 10.387 | (0.983) | 93739 | 10.0000 | 9.47 | |
| 110 p-Isopropyltoluene | 119 | 10.466 | 10.466 | (0.990) | 76824 | 10.0000 | 9.33 | |
| 113 1,3-Dichlorobenzene | 146 | 10.530 | 10.530 | (0.996) | 50475 | 10.0000 | 9.76 | |
| * 114 1,4-DICHLOROBENZENE-D4 | 152 | 10.571 | 10.571 | (1.000) | 199035 | 50.0000 | | |
| 115 1,4-Dichlorobenzene | 146 | 10.582 | 10.582 | (1.001) | 51817 | 10.0000 | 9.53 | |
| 117 n-Butylbenzene | 91 | 10.717 | 10.717 | (1.014) | 66530 | 10.0000 | 9.03 | |
| 118 1,2-Dichlorobenzene | 146 | 10.837 | 10.837 | (1.025) | 49017 | 10.0000 | 9.63 | |
| 119 1,2-Dibromo-3-Chloropropane | 157 | 11.354 | 11.354 | (1.074) | 6920 | 10.0000 | 9.66 | |
| 120 Hexachlorobutadiene | 225 | 11.815 | 11.815 | (1.118) | 15789 | 10.0000 | 10.1 | |
| 122 1,2,4-Trichlorobenzene | 180 | 11.857 | 11.857 | (1.122) | 23708 | 10.0000 | 8.06 | |
| 124 Naphthalene | 128 | 12.141 | 12.141 | (1.149) | 43822 | 10.0000 | 9.16 | |
| 125 1,2,3-Trichlorobenzene | 180 | 12.306 | 12.306 | (1.164) | 25385 | 10.0000 | 8.46 | |
| 22 tert-Butyl Alcohol | 59 | 4.415 | 4.415 | (0.665) | 2731 | 10.0000 | 10.4 | 4302(M3) |
| 24 Isopropyl Ether | 45 | 4.730 | 4.730 | (0.713) | 64764 | 10.0000 | 8.87 | 8658 |
| 25 Chloroprene | 53 | 4.813 | 4.813 | (0.725) | 27471 | 10.0000 | 8.54 | 8781 |
| 52 Isobutyl Alcohol | 43 | 6.470 | 6.470 | (0.975) | 7240 | 50.0000 | 44.8 | 5719 |
| 62 1,4- Dioxane | 58 | 7.512 | 7.512 | (1.132) | 5704 | 250.000 | 235 | 5734 |
| 170 3,4-dichloro-1-butene | 75 | 8.648 | 8.648 | (0.948) | 24134 | 10.0000 | 8.41 | 9180 |
| 169 cis-1,4-dichloro-2-butene | 53 | 9.933 | 9.933 | (0.940) | 12450 | 10.0000 | 8.98 | 9311 |

QC Flag Legend

M2- Compound response manually integrated because
Target system integrated incorrectly.
M3- Compound response manually integrated because
Target system integrated incorrect peak.

Data File: /var/chem/msv13.i/2171010.s.b/d9822cD.d
Date : 10-OCT-2017 12:57
Client ID: V13STD010
Sample Info: 1205wV13STD010
Purge Volume: 5.0
Column phase: RTX-VMS-30M

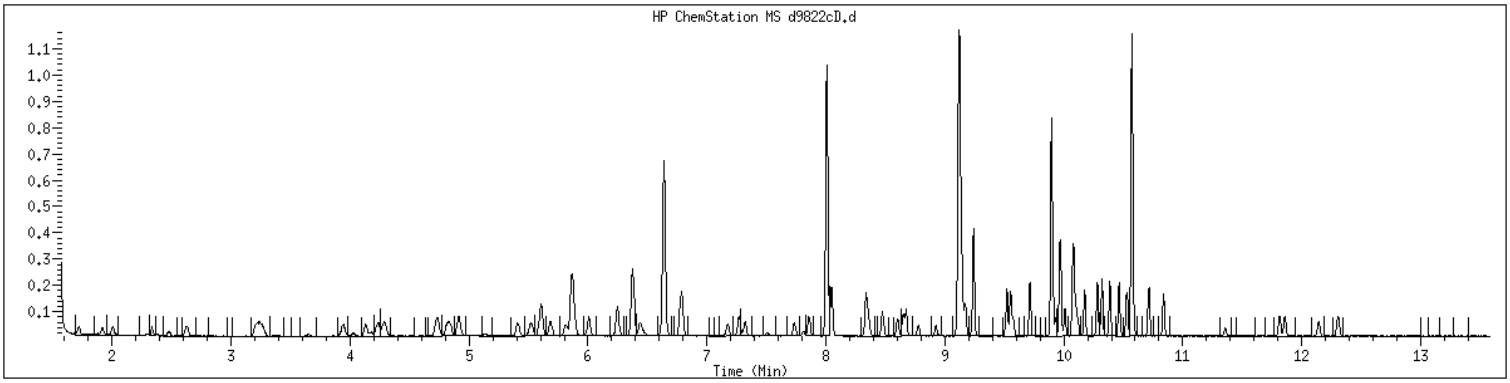
Instrument: msv13.i
Operator: JCK
Column diameter: 0.25



Data file : /var/chem/msv13.i/2171010.s.b/d9822cD.d Page: 1
Report Date: 10/11/2017 17:21

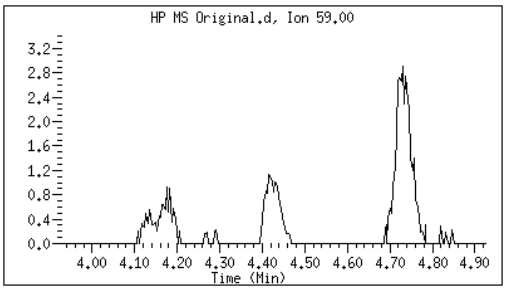
MANUAL INTEGRATION GRAPHIC REPORT

Lab ID : 1205 SampleType : CALIB_5
Injection Date: 10/10/2017 12:57 Instrument : msv13.i
Operator : JCK
Sample Info : 1205*V13STD010
Misc Info : MSV~39299~*1*JCK
Method : /var/chem/msv13.i/2171010.s.b/8260cdodw13.m
Dilution : 1.00
Matrix : WATER
Integrator : HP RTE Compound Sublist: 8260b+AppIX1



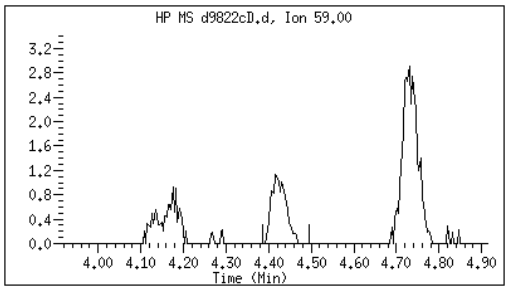

Original Final

22 tert-Butyl Alcohol CAS#: 75-65-0 Reason: M3



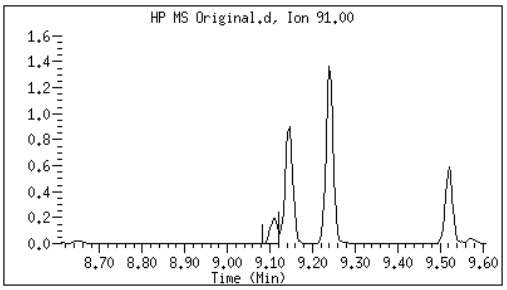

Electronic Signature Applied

User: jck2
Date: 10/10/2017 13:32



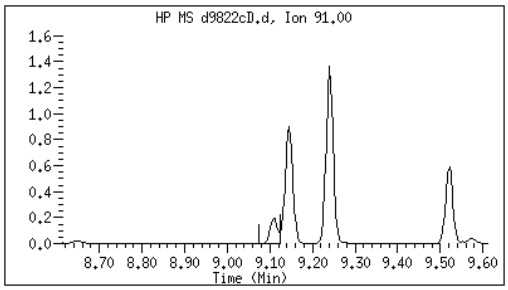

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86 1-Chlorohexane CAS#: 544-10-5 Reason: M2




Electronic Signature Applied

User: jck2
Date: 10/10/2017 14:54




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Data file : /var/chem/msv13.i/2171010.s.b/d9822cD.d Page: 2
Report Date: 10/11/2017 17:21

M2 - Target system integrated incorrectly
M3 - Target system integrated incorrect peak

GCAL, Inc.

Data file : /var/chem/msv13.i/2171010.s.b/d9823cD.d
Lab Smp Id: 1206 Client Smp ID: V13STD020
Inj Date : 10-OCT-2017 13:19
Operator : JCK Inst ID: msv13.i
Smp Info : 1206*V13STD020
Misc Info : MSV~39299~*1*JCK
Comment :
Method : /var/chem/msv13.i/2171010.s.b/8260cdodw13.m
Meth Date : 11-Oct-2017 17:21 jck2 Quant Type: ISTD
Cal Date : 10-OCT-2017 13:19 Cal File: d9823cD.d
Als bottle: 1 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 8260b+AppIX1.sub
Target Version: 3.50
Processing Host: org.gcal.com

Concentration Formula: Amt * DF * Uf/Vo * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.00000 | Dilution Factor |
| Uf | 5.00000 | ng unit correction factor |
| Vo | 5.00000 | Sample Volume purged (mL) |
| DF | 1.00000 | |

Cpnd Variable Local Compound Variable

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ppb) | AMOUNTS ON-COL ( ppb) | SIMILARITY |
|---|---|---|---|---|---|---|---|---|
| 1 Dichlorodifluoromethane | 85 | 1.716 | 1.716 | (0.259) | 39381 | 20.0000 | 18.5 | |
| 2 Chloromethane ++ | 50 | 1.915 | 1.915 | (0.288) | 47713 | 20.0000 | 18.1 | |
| 3 Vinyl Chloride + | 62 | 2.005 | 2.005 | (0.302) | 51181 | 20.0000 | 18.3 | |
| 6 Bromomethane | 94 | 2.335 | 2.335 | (0.352) | 26146 | 20.0000 | 18.1 | |
| 7 Chloroethane | 64 | 2.477 | 2.477 | (0.373) | 28739 | 20.0000 | 17.4 | |
| 8 Trichlorofluoromethane | 101 | 2.623 | 2.623 | (0.395) | 63234 | 20.0000 | 19.4 | |
| 10 1,1-Dichloroethene + | 96 | 3.208 | 3.208 | (0.483) | 34556 | 20.0000 | 18.4 | |
| 11 Carbon Disulfide | 76 | 3.238 | 3.238 | (0.488) | 129534 | 20.0000 | 18.7 | |
| 12 1,1,2Trichlotrifluoroethane | 101 | 3.268 | 3.268 | (0.492) | 34839 | 20.0000 | 18.6 | |
| 13 Methyl Iodide | 142 | 3.381 | 3.381 | (0.509) | 12607 | 20.0000 | 16.0 | |
| 14 Acrolein | 56 | 3.643 | 3.643 | (0.549) | 16014 | 100.000 | 99.0 | |
| 16 Methylene Chloride | 49 | 3.943 | 3.943 | (0.594) | 60105 | 20.0000 | 19.6 | |
| 17 Acetone | 43 | 4.025 | 4.025 | (0.606) | 38979 | 20.0000 | 18.4 | |
| 18 trans-1,2-Dichloroethene | 61 | 4.130 | 4.130 | (0.622) | 57481 | 20.0000 | 18.4 | |

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ppb) | ON-COL ( ppb) | SIMILARITY |
|---|---|---|---|---|---|---|---|---|---|
| | 19 Methyl Acetate | 43 | 4.179 | 4.179 | (0.630) | 44536 | 20.0000 | 17.4 | 8274 |
| | 20 Hexane | 57 | 4.235 | 4.235 | (0.638) | 61602 | 20.0000 | 20.8 | 9164 |
| | 21 MTBE | 73 | 4.292 | 4.292 | (0.646) | 123033 | 20.0000 | 18.7 | 9149 |
| | 26 1,1-Dichloroethane ++ | 63 | 4.839 | 4.839 | (0.729) | 95232 | 20.0000 | 19.1 | |
| | 27 Acrylonitrile | 53 | 4.910 | 4.910 | (0.740) | 130952 | 100.000 | 103 | |
| | 28 Vinyl Acetate | 43 | 5.135 | 5.135 | (0.774) | 24832 | 20.0000 | 19.2 | |
| | 29 cis-1,2-Dichloroethene | 61 | 5.409 | 5.409 | (0.815) | 65536 | 20.0000 | 18.3 | |
| M | 75 Total 1,2-Dichloroethene | 61 | | | | 123017 | 40.0000 | 36.7 | |
| | 30 2,2-Dichloropropane | 77 | 5.521 | 5.521 | (0.832) | 62229 | 20.0000 | 19.0 | |
| | 32 Cyclohexane | 56 | 5.604 | 5.604 | (0.844) | 76048 | 20.0000 | 18.6 | 9183 |
| | 34 Bromochloromethane | 128 | 5.607 | 5.607 | (0.845) | 24758 | 20.0000 | 19.3 | |
| | 35 Chloroform + | 83 | 5.686 | 5.686 | (0.857) | 84975 | 20.0000 | 18.8 | |
| | 36 Carbon Tetrachloride | 117 | 5.814 | 5.814 | (0.876) | 55825 | 20.0000 | 18.5 | |
| $ | 40 Dibromofluoromethane | 111 | 5.866 | 5.866 | (0.884) | 131554 | 50.0000 | 49.0 | 9061 |
| | 41 1,1,1-Trichloroethane | 97 | 5.885 | 5.885 | (0.886) | 68333 | 20.0000 | 18.5 | |
| | 44 2-Butanone | 43 | 6.008 | 6.008 | (0.905) | 41526 | 20.0000 | 18.3 | |
| | 43 1,1-Dichloropropene | 75 | 6.008 | 6.008 | (0.905) | 56066 | 20.0000 | 18.2 | |
| | 46 Benzene | 78 | 6.248 | 6.248 | (0.941) | 196223 | 20.0000 | 19.1 | |
| $ | 50 1,2-Dichloroethane-d4 | 67 | 6.376 | 6.376 | (0.960) | 95189 | 50.0000 | 50.0 | |
| | 51 1,2-Dichloroethane | 62 | 6.436 | 6.436 | (0.970) | 79688 | 20.0000 | 18.6 | |
| * | 53 FLUOROBENZENE | 96 | 6.638 | 6.638 | (1.000) | 560782 | 50.0000 | | |
| | 55 Methyl Cyclohexane | 83 | 6.781 | 6.781 | (1.021) | 72641 | 20.0000 | 18.8 | 9039 |
| | 56 Trichloroethene | 130 | 6.792 | 6.792 | (1.023) | 51065 | 20.0000 | 18.7 | |
| | 57 Dibromomethane | 93 | 7.174 | 7.174 | (1.081) | 30063 | 20.0000 | 19.1 | |
| | 59 1,2-Dichloropropane + | 63 | 7.272 | 7.272 | (1.095) | 53416 | 20.0000 | 18.6 | |
| | 60 Bromodichloromethane | 83 | 7.321 | 7.321 | (1.103) | 68429 | 20.0000 | 19.0 | |
| | 65 1-Bromo-2-chloroethane | 63 | 7.733 | 7.733 | (1.165) | 79095 | 20.0000 | 18.8 | 9647 |
| | 64 2-Chloroethyl vinyl ether | 63 | 7.812 | 7.812 | (1.177) | 13563 | 20.0000 | 16.9 | |
| | 67 cis-1,3-Dichloropropene | 75 | 7.860 | 7.860 | (1.184) | 74852 | 20.0000 | 19.1 | |
| $ | 68 Toluene-d8 | 98 | 8.007 | 8.007 | (0.878) | 547033 | 50.0000 | 50.4 | |
| | 69 Toluene + | 91 | 8.048 | 8.048 | (0.882) | 220286 | 20.0000 | 19.1 | |
| | 71 Tetrachloroethene | 164 | 8.333 | 8.333 | (0.914) | 44068 | 20.0000 | 18.7 | |
| | 73 4-methyl-2-pentanone | 43 | 8.336 | 8.336 | (0.914) | 67346 | 20.0000 | 18.6 | |
| | 74 trans-1,3-Dichloropropene | 75 | 8.359 | 8.359 | (1.259) | 71225 | 20.0000 | 19.1 | |
| M | 82 1-3 Dichloropropene total | 100 | | | | 146077 | 40.0000 | 38.2 | 0 |
| | 76 1,1,2-Trichloroethane | 97 | 8.475 | 8.475 | (0.929) | 45629 | 20.0000 | 18.6 | |
| | 78 Dibromochloromethane | 129 | 8.603 | 8.603 | (0.943) | 52617 | 20.0000 | 18.9 | |
| | 79 1,3-Dichloropropane | 76 | 8.674 | 8.674 | (0.951) | 87412 | 20.0000 | 19.1 | |
| | 80 1,2-Dibromoethane(EDB) | 107 | 8.775 | 8.775 | (0.962) | 44108 | 20.0000 | 18.9 | |
| | 83 2-Hexanone | 43 | 8.925 | 8.925 | (0.979) | 48854 | 20.0000 | 15.9 | |
| | 86 1-Chlorohexane | 91 | 9.109 | 9.109 | (0.999) | 57408 | 20.0000 | 19.0 | 7943(M2) |
| * | 84 CHLOROBENZENE-d5 | 82 | 9.120 | 9.120 | (1.000) | 243099 | 50.0000 | | |
| | 85 Chlorobenzene ++ | 112 | 9.131 | 9.131 | (1.001) | 145373 | 20.0000 | 19.2 | |
| | 87 Ethylbenzene + | 106 | 9.142 | 9.142 | (1.002) | 72230 | 20.0000 | 19.1 | |
| | 88 1,1,1,2-Tetrachloroethane | 133 | 9.169 | 9.169 | (1.005) | 49863 | 20.0000 | 19.6 | |
| | 89 p,m-Xylene | 106 | 9.240 | 9.240 | (1.013) | 171744 | 40.0000 | 39.5 | |
| | 90 o-Xylene | 106 | 9.521 | 9.521 | (1.044) | 75998 | 20.0000 | 19.0 | |

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ppb) | ON-COL ( ppb) | SIMILARITY |
|---|---|---|---|---|---|---|---|---|---|
| M | 121 TOTAL XYLENE | 106 | | | | 247742 | 60.0000 | 58.5 | |
| | 91 Styrene | 104 | 9.555 | 9.555 | (1.048) | 141146 | 20.0000 | 20.5 | |
| | 92 Bromoform ++ | 173 | 9.573 | 9.573 | (1.050) | 46115 | 20.0000 | 19.9 | |
| | 93 Isopropylbenzene | 105 | 9.716 | 9.716 | (1.065) | 205423 | 20.0000 | 19.8 | |
| $ | 95 Bromofluorobenzene | 174 | 9.900 | 9.900 | (1.085) | 183832 | 50.0000 | 50.4 | |
| | 96 Bromobenzene | 77 | 9.967 | 9.967 | (0.943) | 109705 | 20.0000 | 19.0 | |
| | 97 n-Propylbenzene | 91 | 9.971 | 9.971 | (0.943) | 257745 | 20.0000 | 19.1 | |
| | 98 1,1,2,2-Tetrachloroethane++ | 83 | 10.008 | 10.008 | (0.947) | 73715 | 20.0000 | 18.5 | |
| | 99 2-Chlorotoluene | 91 | 10.076 | 10.076 | (0.953) | 171840 | 20.0000 | 19.4 | |
| | 102 1,3,5-Trimethylbenzene | 105 | 10.083 | 10.083 | (0.954) | 178823 | 20.0000 | 20.0 | |
| | 100 1,2,3-Trichloropropane | 75 | 10.102 | 10.102 | (0.956) | 94405 | 20.0000 | 19.1 | |
| | 101 trans-1,4-Dichloro-2-Butene | 53 | 10.121 | 10.121 | (0.957) | 23586 | 20.0000 | 19.6 | |
| | 104 4-Chlorotoluene | 91 | 10.177 | 10.177 | (0.963) | 154012 | 20.0000 | 19.8 | |
| | 105 tert-butylbenzene | 91 | 10.282 | 10.282 | (0.973) | 95647 | 20.0000 | 20.1 | |
| | 107 1,2,4-Trimethylbenzene | 105 | 10.319 | 10.319 | (0.976) | 181051 | 20.0000 | 20.5 | |
| | 108 sec-Butylbenzene | 105 | 10.387 | 10.387 | (0.983) | 214354 | 20.0000 | 20.3 | |
| | 110 p-Isopropyltoluene | 119 | 10.466 | 10.466 | (0.990) | 175412 | 20.0000 | 19.9 | |
| | 113 1,3-Dichlorobenzene | 146 | 10.529 | 10.529 | (0.996) | 107606 | 20.0000 | 19.5 | |
| * | 114 1,4-DICHLOROBENZENE-D4 | 152 | 10.571 | 10.571 | (1.000) | 212651 | 50.0000 | | |
| | 115 1,4-Dichlorobenzene | 146 | 10.582 | 10.582 | (1.001) | 109981 | 20.0000 | 18.9 | |
| | 117 n-Butylbenzene | 91 | 10.717 | 10.717 | (1.014) | 159092 | 20.0000 | 20.2 | |
| | 118 1,2-Dichlorobenzene | 146 | 10.840 | 10.840 | (1.026) | 108406 | 20.0000 | 19.9 | |
| | 119 1,2-Dibromo-3-Chloropropane | 157 | 11.358 | 11.358 | (1.074) | 14950 | 20.0000 | 19.5 | |
| | 120 Hexachlorobutadiene | 225 | 11.811 | 11.811 | (1.117) | 33043 | 20.0000 | 19.9 | |
| | 122 1,2,4-Trichlorobenzene | 180 | 11.856 | 11.856 | (1.122) | 57023 | 20.0000 | 17.0 | |
| | 124 Naphthalene | 128 | 12.145 | 12.145 | (1.149) | 118148 | 20.0000 | 16.6 | |
| | 125 1,2,3-Trichlorobenzene | 180 | 12.310 | 12.310 | (1.165) | 60649 | 20.0000 | 18.0 | |
| | 22 tert-Butyl Alcohol | 59 | 4.423 | 4.423 | (0.666) | 6259 | 20.0000 | 22.4 | 4703 |
| | 24 Isopropyl Ether | 45 | 4.734 | 4.734 | (0.713) | 149617 | 20.0000 | 19.3 | 9095 |
| | 25 Chloroprene | 53 | 4.816 | 4.816 | (0.726) | 64465 | 20.0000 | 18.9 | 8822 |
| | 52 Isobutyl Alcohol | 43 | 6.470 | 6.470 | (0.975) | 17084 | 100.000 | 99.5 | 7807 |
| | 62 1,4- Dioxane | 58 | 7.508 | 7.508 | (1.131) | 13415 | 500.000 | 520 | 7586 |
| | 170 3,4-dichloro-1-butene | 75 | 8.651 | 8.651 | (0.949) | 57237 | 20.0000 | 19.0 | 9393 |
| | 169 cis-1,4-dichloro-2-butene | 53 | 9.930 | 9.930 | (0.939) | 28587 | 20.0000 | 19.3 | 9306 |

QC Flag Legend

M2- Compound response manually integrated because
Target system integrated incorrectly.

Data File: /var/chem/msv13.i/2171010.s.b/d9823cD.d

Page 1

Date : 10-OCT-2017 13:19

Client ID: V13STD020

Instrument: msv13.i

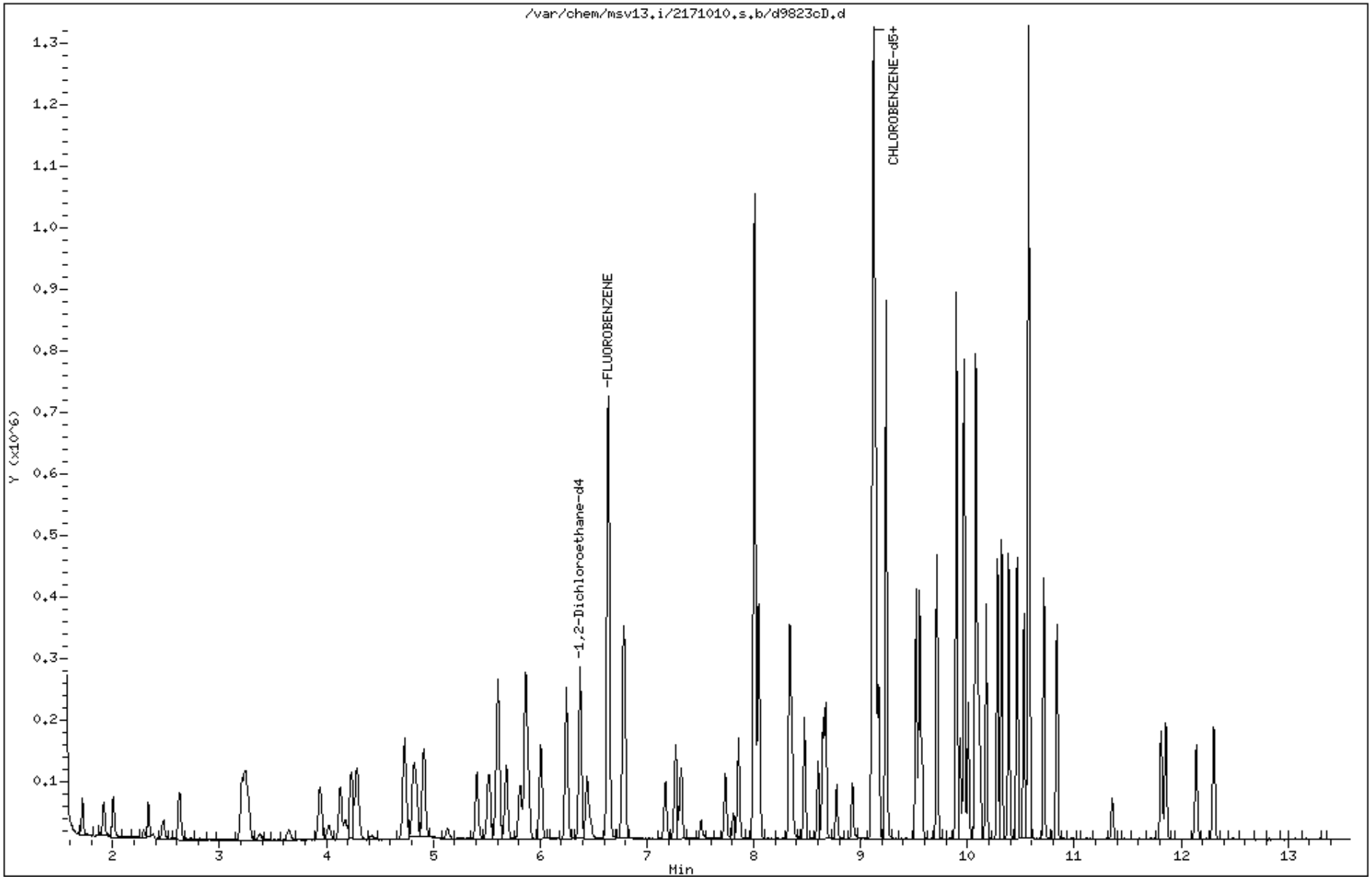
Sample Info: 1206*V13STD020

Purge Volume: 5.0

Operator: JCK

Column phase: RTX-VMS-30M

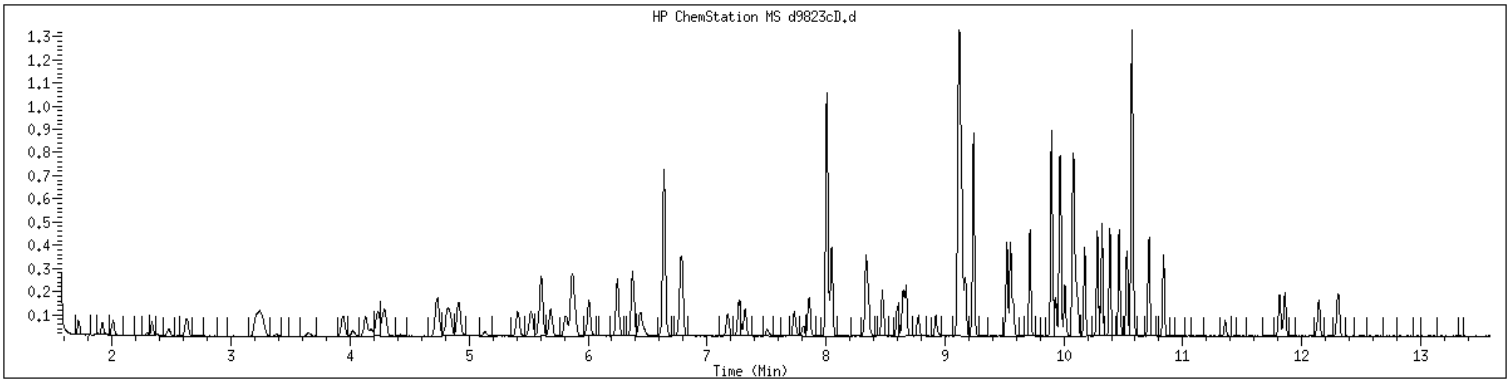
Column diameter: 0.25



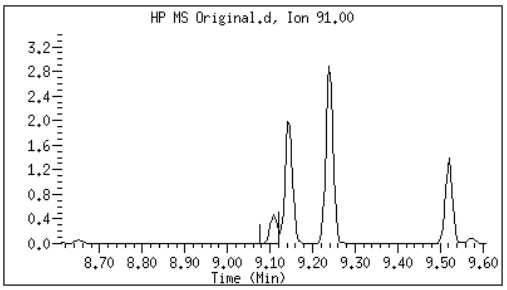
Data file : /var/chem/msv13.i/2171010.s.b/d9823cD.d Page: 1
Report Date: 10/11/2017 17:21

MANUAL INTEGRATION GRAPHIC REPORT

| | | | |
|---|---|---|---|
| Lab ID | : 1206 | SampleType | : CALIB_6 |
| Injection Date | : 10/10/2017 13:19 | Instrument | : msv13.i |
| Operator | : JCK | | |
| Sample Info | : 1206*V13STD020 | | |
| Misc Info | : MSV~39299~*1*JCK | | |
| Method | : /var/chem/msv13.i/2171010.s.b/8260cdodw13.m | | |
| Dilution | : 1.00 | | |
| Matrix | : WATER | | |
| Integrator | : HP RTE | Compound Sublist | : 8260b+AppIX1 |

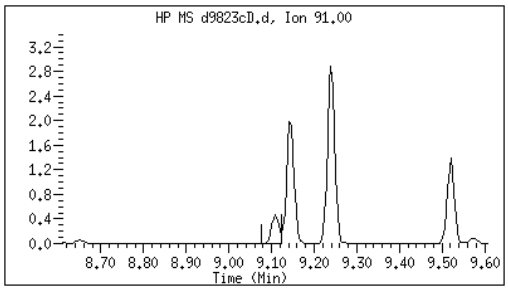



| Original | | Final |
|---|---|---|
| 86 1-Chlorohexane | CAS#: 544-10-5 | Reason: M2 |




Electronic Signature Applied

User: jck2
Date: 10/10/2017 14:53




M2 - Target system integrated incorrectly

Data File: /var/chem/msv13.i/2171010.s.b/d9824cD.d Page 1
Report Date: 11-Oct-2017 17:21

GCAL, Inc.

Data file : /var/chem/msv13.i/2171010.s.b/d9824cD.d
Lab Smp Id: 1207 Client Smp ID: V13STD050
Inj Date : 10-OCT-2017 13:42
Operator : JCK Inst ID: msv13.i
Smp Info : 1207*V13STD050
Misc Info : MSV~39299~*1*JCK
Comment :
Method : /var/chem/msv13.i/2171010.s.b/8260cdodw13.m
Meth Date : 11-Oct-2017 17:21 jck2 Quant Type: ISTD
Cal Date : 10-OCT-2017 13:42 Cal File: d9824cD.d
Als bottle: 1 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 8260b+AppIX1.sub
Target Version: 3.50
Processing Host: org.gcal.com

Concentration Formula: Amt * DF * Uf/Vo * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.00000 | Dilution Factor |
| Uf | 5.00000 | ng unit correction factor |
| Vo | 5.00000 | Sample Volume purged (mL) |
| DF | 1.00000 | |

Cpnd Variable Local Compound Variable

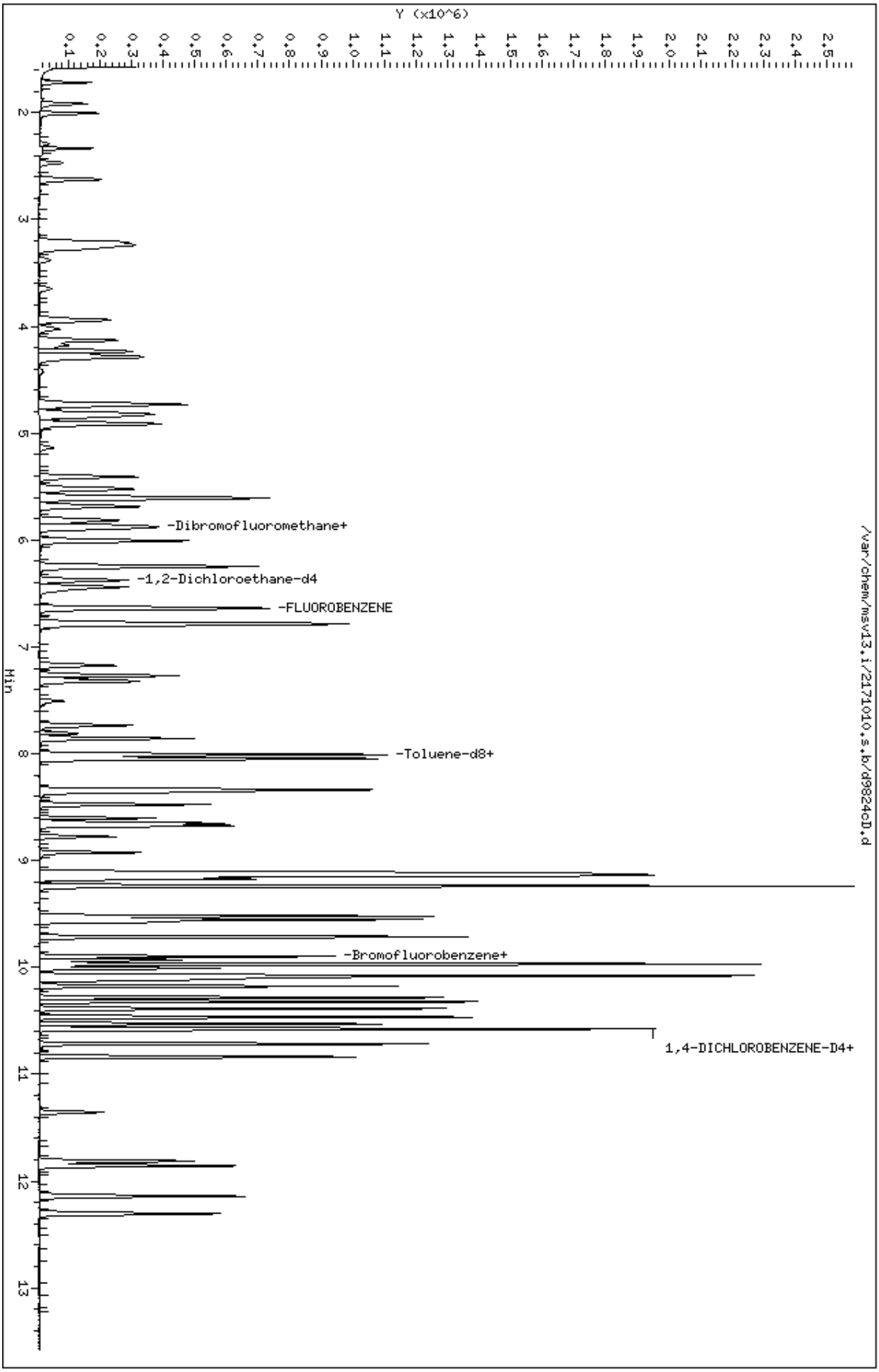
| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ppb) | AMOUNTS ON-COL ( ppb) | SIMILARITY |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Dichlorodifluoromethane | 85 | 1.720 | 1.720 | (0.259) | 109151 | 50.0000 | 49.3 | |
| 2 | Chloromethane ++ | 50 | 1.915 | 1.915 | (0.288) | 129034 | 50.0000 | 47.1 | |
| 3 | Vinyl Chloride + | 62 | 2.005 | 2.005 | (0.302) | 149098 | 50.0000 | 51.3 | |
| 6 | Bromomethane | 94 | 2.335 | 2.335 | (0.352) | 75169 | 50.0000 | 49.9 | |
| 7 | Chloroethane | 64 | 2.474 | 2.474 | (0.373) | 73284 | 50.0000 | 52.4 | |
| 8 | Trichlorofluoromethane | 101 | 2.627 | 2.627 | (0.396) | 171446 | 50.0000 | 50.6 | |
| 10 | 1,1-Dichloroethene + | 96 | 3.208 | 3.208 | (0.483) | 96697 | 50.0000 | 49.5 | |
| 11 | Carbon Disulfide | 76 | 3.238 | 3.238 | (0.488) | 352571 | 50.0000 | 48.8 | |
| 12 | 1,1,2Trichlotrifluoroethane | 101 | 3.264 | 3.264 | (0.492) | 93871 | 50.0000 | 48.1 | |
| 13 | Methyl Iodide | 142 | 3.381 | 3.381 | (0.509) | 51182 | 50.0000 | 48.7 | |
| 14 | Acrolein | 56 | 3.647 | 3.647 | (0.549) | 40986 | 250.000 | 243 | |
| 16 | Methylene Chloride | 49 | 3.943 | 3.943 | (0.594) | 158621 | 50.0000 | 49.7 | |
| 17 | Acetone | 43 | 4.025 | 4.025 | (0.606) | 99967 | 50.0000 | 45.5 | |
| 18 | trans-1,2-Dichloroethene | 61 | 4.130 | 4.130 | (0.622) | 163426 | 50.0000 | 50.1 | |

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ppb) | ON-COL ( ppb) | SIMILARITY |
|---|---|---|---|---|---|---|---|---|---|
| | 19 Methyl Acetate | 43 | 4.179 | 4.179 | (0.630) | 132066 | 50.0000 | 49.7 | 9346 |
| | 20 Hexane | 57 | 4.232 | 4.232 | (0.637) | 157356 | 50.0000 | 51.1 | 9620 |
| | 21 MTBE | 73 | 4.288 | 4.288 | (0.646) | 370068 | 50.0000 | 54.0 | 9539 |
| | 26 1,1-Dichloroethane ++ | 63 | 4.839 | 4.839 | (0.729) | 266285 | 50.0000 | 51.3 | |
| | 27 Acrylonitrile | 53 | 4.914 | 4.914 | (0.740) | 335399 | 250.000 | 254 | |
| | 28 Vinyl Acetate | 43 | 5.131 | 5.131 | (0.773) | 66525 | 50.0000 | 49.3 | |
| | 29 cis-1,2-Dichloroethene | 61 | 5.409 | 5.409 | (0.815) | 194163 | 50.0000 | 52.2 | |
| M | 75 Total 1,2-Dichloroethene | 61 | | | | 357589 | 100.000 | 102 | |
| | 30 2,2-Dichloropropane | 77 | 5.525 | 5.525 | (0.832) | 179501 | 50.0000 | 52.7 | |
| | 32 Cyclohexane | 56 | 5.604 | 5.604 | (0.844) | 241177 | 50.0000 | 56.8 | 9505 |
| | 34 Bromochloromethane | 128 | 5.607 | 5.607 | (0.845) | 65569 | 50.0000 | 49.0 | |
| | 35 Chloroform + | 83 | 5.686 | 5.686 | (0.857) | 236438 | 50.0000 | 50.1 | |
| | 36 Carbon Tetrachloride | 117 | 5.814 | 5.814 | (0.876) | 162351 | 50.0000 | 51.8 | |
| $ | 40 Dibromofluoromethane | 111 | 5.866 | 5.866 | (0.884) | 138499 | 50.0000 | 49.6 | 9484 |
| | 41 1,1,1-Trichloroethane | 97 | 5.889 | 5.889 | (0.887) | 195169 | 50.0000 | 50.8 | |
| | 44 2-Butanone | 43 | 6.008 | 6.008 | (0.905) | 122678 | 50.0000 | 51.8 | |
| | 43 1,1-Dichloropropene | 75 | 6.005 | 6.005 | (0.905) | 171218 | 50.0000 | 53.4 | |
| | 46 Benzene | 78 | 6.248 | 6.248 | (0.941) | 563222 | 50.0000 | 52.6 | |
| $ | 50 1,2-Dichloroethane-d4 | 67 | 6.376 | 6.376 | (0.960) | 97320 | 50.0000 | 49.1 | |
| | 51 1,2-Dichloroethane | 62 | 6.440 | 6.440 | (0.970) | 218784 | 50.0000 | 49.0 | |
| * | 53 FLUOROBENZENE | 96 | 6.638 | 6.638 | (1.000) | 583670 | 50.0000 | | |
| | 55 Methyl Cyclohexane | 83 | 6.784 | 6.784 | (1.022) | 214784 | 50.0000 | 53.4 | 8668 |
| | 56 Trichloroethene | 130 | 6.792 | 6.792 | (1.023) | 142719 | 50.0000 | 50.1 | |
| | 57 Dibromomethane | 93 | 7.174 | 7.174 | (1.081) | 82628 | 50.0000 | 50.4 | |
| | 59 1,2-Dichloropropane + | 63 | 7.272 | 7.272 | (1.095) | 154067 | 50.0000 | 51.6 | |
| | 60 Bromodichloromethane | 83 | 7.321 | 7.321 | (1.103) | 193658 | 50.0000 | 51.8 | |
| | 65 1-Bromo-2-chloroethane | 63 | 7.737 | 7.737 | (1.165) | 229187 | 50.0000 | 52.3 | 9812 |
| | 64 2-Chloroethyl vinyl ether | 63 | 7.812 | 7.812 | (1.177) | 43453 | 50.0000 | 50.4 | |
| | 67 cis-1,3-Dichloropropene | 75 | 7.860 | 7.860 | (1.184) | 224347 | 50.0000 | 55.1 | |
| $ | 68 Toluene-d8 | 98 | 8.010 | 8.010 | (0.878) | 567528 | 50.0000 | 49.1 | |
| | 69 Toluene + | 91 | 8.048 | 8.048 | (0.882) | 603409 | 50.0000 | 49.2 | |
| | 71 Tetrachloroethene | 164 | 8.336 | 8.336 | (0.914) | 125374 | 50.0000 | 49.9 | |
| | 73 4-methyl-2-pentanone | 43 | 8.336 | 8.336 | (0.914) | 216464 | 50.0000 | 56.1 | |
| | 74 trans-1,3-Dichloropropene | 75 | 8.359 | 8.359 | (1.259) | 210363 | 50.0000 | 54.2 | |
| M | 82 1-3 Dichloropropene total | 100 | | | | 434710 | 100.000 | 109 | 0 |
| | 76 1,1,2-Trichloroethane | 97 | 8.475 | 8.475 | (0.929) | 128163 | 50.0000 | 49.0 | |
| | 78 Dibromochloromethane | 129 | 8.603 | 8.603 | (0.943) | 148284 | 50.0000 | 50.0 | |
| | 79 1,3-Dichloropropane | 76 | 8.674 | 8.674 | (0.951) | 254461 | 50.0000 | 52.1 | |
| | 80 1,2-Dibromoethane(EDB) | 107 | 8.779 | 8.779 | (0.963) | 125768 | 50.0000 | 50.6 | |
| | 83 2-Hexanone | 43 | 8.925 | 8.925 | (0.979) | 167155 | 50.0000 | 49.6 | |
| | 86 1-Chlorohexane | 91 | 9.109 | 9.109 | (0.999) | 175667 | 50.0000 | 54.6 | 9236(M2) |
| * | 84 CHLOROBENZENE-d5 | 82 | 9.120 | 9.120 | (1.000) | 258743 | 50.0000 | | |
| | 85 Chlorobenzene ++ | 112 | 9.135 | 9.135 | (1.002) | 403635 | 50.0000 | 50.2 | |
| | 87 Ethylbenzene + | 106 | 9.146 | 9.146 | (1.003) | 206906 | 50.0000 | 51.3 | |
| | 88 1,1,1,2-Tetrachloroethane | 133 | 9.172 | 9.172 | (1.006) | 138318 | 50.0000 | 51.0 | |
| | 89 p,m-Xylene | 106 | 9.240 | 9.240 | (1.013) | 498102 | 100.000 | 108 | |
| | 90 o-Xylene | 106 | 9.521 | 9.521 | (1.044) | 232329 | 50.0000 | 54.5 | |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ppb) | ON-COL ( ppb) | SIMILARITY |
|---|---|---|---|---|---|---|---|---|
| M 121 TOTAL XYLENE | 106 | | | | 730431 | 150.000 | 162 | |
| 91 Styrene | 104 | 9.551 | 9.551 | (1.047) | 418042 | 50.0000 | 57.0 | |
| 92 Bromoform ++ | 173 | 9.573 | 9.573 | (1.050) | 127227 | 50.0000 | 51.5 | |
| 93 Isopropylbenzene | 105 | 9.716 | 9.716 | (1.065) | 613069 | 50.0000 | 55.6 | |
| $ 95 Bromofluorobenzene | 174 | 9.900 | 9.900 | (1.085) | 197209 | 50.0000 | 50.8 | |
| 96 Bromobenzene | 77 | 9.967 | 9.967 | (0.943) | 317980 | 50.0000 | 50.4 | |
| 97 n-Propylbenzene | 91 | 9.971 | 9.971 | (0.943) | 742904 | 50.0000 | 50.5 | |
| 98 1,1,2,2-Tetrachloroethane++ | 83 | 10.012 | 10.012 | (0.947) | 208261 | 50.0000 | 48.0 | |
| 99 2-Chlorotoluene | 91 | 10.076 | 10.076 | (0.953) | 497742 | 50.0000 | 51.4 | |
| 102 1,3,5-Trimethylbenzene | 105 | 10.083 | 10.083 | (0.954) | 512730 | 50.0000 | 52.6 | |
| 100 1,2,3-Trichloropropane | 75 | 10.102 | 10.102 | (0.956) | 274634 | 50.0000 | 50.8 | |
| 101 trans-1,4-Dichloro-2-Butene | 53 | 10.121 | 10.121 | (0.957) | 69924 | 50.0000 | 53.3 | |
| 104 4-Chlorotoluene | 91 | 10.177 | 10.177 | (0.963) | 443053 | 50.0000 | 52.1 | |
| 105 tert-butylbenzene | 91 | 10.282 | 10.282 | (0.973) | 276008 | 50.0000 | 53.1 | |
| 107 1,2,4-Trimethylbenzene | 105 | 10.319 | 10.319 | (0.976) | 523731 | 50.0000 | 54.4 | |
| 108 sec-Butylbenzene | 105 | 10.387 | 10.387 | (0.983) | 610398 | 50.0000 | 52.9 | |
| 110 p-Isopropyltoluene | 119 | 10.466 | 10.466 | (0.990) | 526033 | 50.0000 | 54.8 | |
| 113 1,3-Dichlorobenzene | 146 | 10.529 | 10.529 | (0.996) | 314711 | 50.0000 | 52.2 | |
| * 114 1,4-DICHLOROBENZENE-D4 | 152 | 10.571 | 10.571 | (1.000) | 232089 | 50.0000 | | |
| 115 1,4-Dichlorobenzene | 146 | 10.582 | 10.582 | (1.001) | 315278 | 50.0000 | 49.7 | |
| 117 n-Butylbenzene | 91 | 10.717 | 10.717 | (1.014) | 473478 | 50.0000 | 55.1 | |
| 118 1,2-Dichlorobenzene | 146 | 10.837 | 10.837 | (1.025) | 309290 | 50.0000 | 52.1 | |
| 119 1,2-Dibromo-3-Chloropropane | 157 | 11.354 | 11.354 | (1.074) | 44568 | 50.0000 | 53.3 | |
| 120 Hexachlorobutadiene | 225 | 11.815 | 11.815 | (1.118) | 93615 | 50.0000 | 51.6 | |
| 122 1,2,4-Trichlorobenzene | 180 | 11.856 | 11.856 | (1.122) | 187654 | 50.0000 | 49.6 | |
| 124 Naphthalene | 128 | 12.141 | 12.141 | (1.149) | 470926 | 50.0000 | 49.0 | |
| 125 1,2,3-Trichlorobenzene | 180 | 12.306 | 12.306 | (1.164) | 191552 | 50.0000 | 50.6 | |
| 22 tert-Butyl Alcohol | 59 | 4.427 | 4.427 | (0.667) | 14744 | 50.0000 | 50.6 | 6667 |
| 24 Isopropyl Ether | 45 | 4.734 | 4.734 | (0.713) | 445215 | 50.0000 | 55.1 | 9411 |
| 25 Chloroprene | 53 | 4.816 | 4.816 | (0.726) | 196057 | 50.0000 | 55.1 | 8894 |
| 52 Isobutyl Alcohol | 43 | 6.470 | 6.470 | (0.975) | 43140 | 250.000 | 241 | 8907 |
| 62 1,4- Dioxane | 58 | 7.508 | 7.508 | (1.131) | 36303 | 1250.00 | 1350 | 8636 |
| 170 3,4-dichloro-1-butene | 75 | 8.651 | 8.651 | (0.949) | 167977 | 50.0000 | 52.3 | 9424 |
| 169 cis-1,4-dichloro-2-butene | 53 | 9.930 | 9.930 | (0.939) | 77811 | 50.0000 | 48.1 | 9476 |

QC Flag Legend

M2- Compound response manually integrated because
Target system integrated incorrectly.



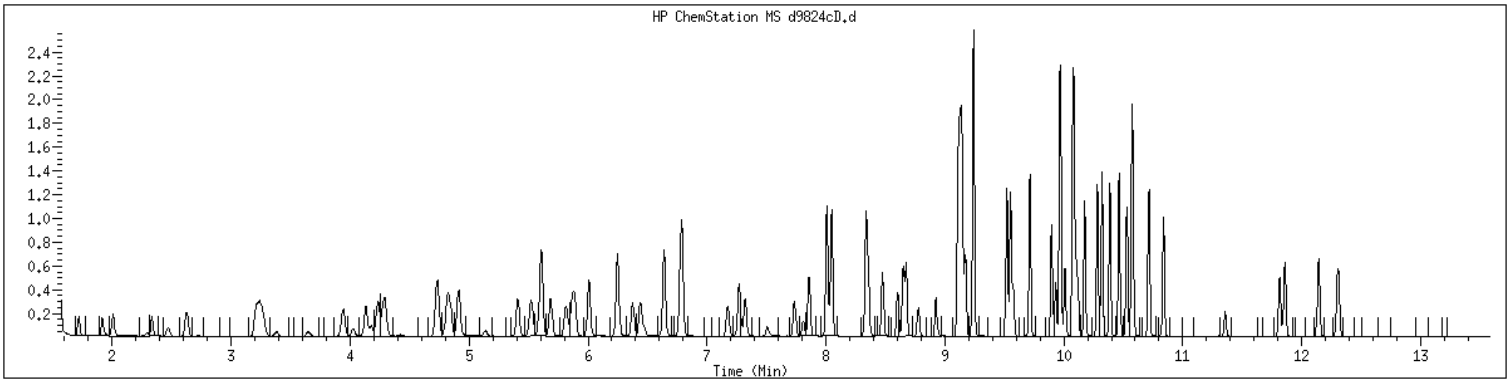

Data File: /var/chem/msv13.i/2171010.s.b/d9824cD.d
Date : 10-OCT-2017 13:42
Client ID: V13STD050
Sample Info: 1207*V13STD050
Purge Volume: 5.0
Column phase: RTX-VMS-30M

Instrument: msv13.i
Operator: JCK
Column diameter: 0.25

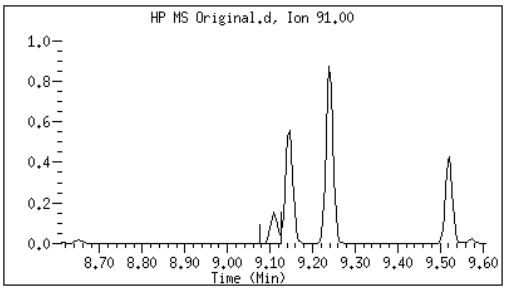
Data file : /var/chem/msv13.i/2171010.s.b/d9824cD.d Page: 1
Report Date: 10/11/2017 17:21

MANUAL INTEGRATION GRAPHIC REPORT

| | | | |
|---|---|---|---|
| Lab ID | : 1207 | SampleType | : CALIB_7 |
| Injection Date | : 10/10/2017 13:42 | Instrument | : msv13.i |
| Operator | : JCK | | |
| Sample Info | : 1207*V13STD050 | | |
| Misc Info | : MSV~39299~*1*JCK | | |
| Method | : /var/chem/msv13.i/2171010.s.b/8260cdodw13.m | | |
| Dilution | : 1.00 | | |
| Matrix | : WATER | | |
| Integrator | : HP RTE | Compound Sublist | : 8260b+AppIX1 |

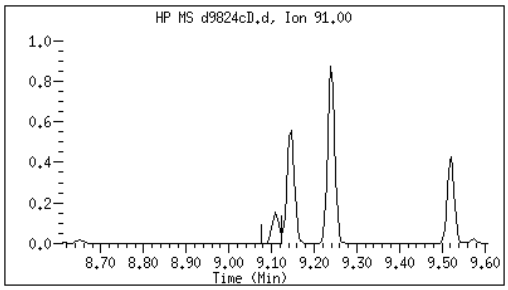



| Original | | Final |
|---|---|---|
| 86 1-Chlorohexane | CAS#: 544-10-5 | Reason: M2 |




Electronic Signature Applied

User: jck2
Date: 10/10/2017 14:53




M2 - Target system integrated incorrectly

GCAL, Inc.

Data file : /var/chem/msv13.i/2171010.s.b/d9825cD.d
Lab Smp Id: 1208 Client Smp ID: V13STD100
Inj Date : 10-OCT-2017 14:04
Operator : JCK Inst ID: msv13.i
Smp Info : 1208*V13STD100
Misc Info : MSV~39299~*1*JCK
Comment :
Method : /var/chem/msv13.i/2171010.s.b/8260cdodw13.m
Meth Date : 11-Oct-2017 17:21 jck2 Quant Type: ISTD
Cal Date : 10-OCT-2017 14:04 Cal File: d9825cD.d
Als bottle: 1 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 8260b+AppIX1.sub
Target Version: 3.50
Processing Host: org.gcal.com

Concentration Formula: Amt * DF * Uf/Vo * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.00000 | Dilution Factor |
| Uf | 5.00000 | ng unit correction factor |
| Vo | 5.00000 | Sample Volume purged (mL) |
| DF | 1.00000 | |

Cpnd Variable Local Compound Variable

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ppb) | AMOUNTS ON-COL ( ppb) | SIMILARITY |
|---|---|---|---|---|---|---|---|---|
| 1 Dichlorodifluoromethane | 85 | 1.716 | 1.716 | (0.259) | 223484 | 100.000 | 95.2 | |
| 2 Chloromethane ++ | 50 | 1.915 | 1.915 | (0.288) | 276726 | 100.000 | 95.2 | |
| 3 Vinyl Chloride + | 62 | 2.005 | 2.005 | (0.302) | 317104 | 100.000 | 103 | |
| 6 Bromomethane | 94 | 2.335 | 2.335 | (0.352) | 160064 | 100.000 | 100 | |
| 7 Chloroethane | 64 | 2.462 | 2.462 | (0.371) | 123702 | 100.000 | 98.9 | |
| 8 Trichlorofluoromethane | 101 | 2.620 | 2.620 | (0.395) | 340409 | 100.000 | 94.6 | |
| 10 1,1-Dichloroethene + | 96 | 3.208 | 3.208 | (0.483) | 201497 | 100.000 | 97.3 | |
| 11 Carbon Disulfide | 76 | 3.238 | 3.238 | (0.488) | 720346 | 100.000 | 94.1 | |
| 12 1,1,2Trichlotrifluoroethane | 101 | 3.261 | 3.261 | (0.491) | 194666 | 100.000 | 94.1 | |
| 13 Methyl Iodide | 142 | 3.377 | 3.377 | (0.509) | 128369 | 100.000 | 101 | |
| 14 Acrolein | 56 | 3.651 | 3.651 | (0.550) | 84661 | 500.000 | 474 | |
| 16 Methylene Chloride | 49 | 3.939 | 3.939 | (0.593) | 322990 | 100.000 | 95.4 | |
| 17 Acetone | 43 | 4.022 | 4.022 | (0.606) | 207356 | 100.000 | 88.9 | |
| 18 trans-1,2-Dichloroethene | 61 | 4.130 | 4.130 | (0.622) | 333957 | 100.000 | 96.5 | |

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ppb) | ON-COL ( ppb) | SIMILARITY |
|---|---|---|---|---|---|---|---|---|---|
| | 19 Methyl Acetate | 43 | 4.179 | 4.179 | (0.630) | 280815 | 100.000 | 99.6 | 9599 |
| | 20 Hexane | 57 | 4.235 | 4.235 | (0.638) | 331874 | 100.000 | 102 | 9549(M2) |
| | 21 MTBE | 73 | 4.288 | 4.288 | (0.646) | 784832 | 100.000 | 108 | 9488 |
| | 26 1,1-Dichloroethane ++ | 63 | 4.839 | 4.839 | (0.729) | 556877 | 100.000 | 101 | |
| | 27 Acrylonitrile | 53 | 4.914 | 4.914 | (0.740) | 689855 | 500.000 | 493 | |
| | 28 Vinyl Acetate | 43 | 5.135 | 5.135 | (0.774) | 162392 | 100.000 | 113 | |
| | 29 cis-1,2-Dichloroethene | 61 | 5.409 | 5.409 | (0.815) | 419683 | 100.000 | 106 | |
| M | 75 Total 1,2-Dichloroethene | 61 | | | | 753640 | 200.000 | 203 | |
| | 30 2,2-Dichloropropane | 77 | 5.517 | 5.517 | (0.831) | 380746 | 100.000 | 105 | |
| | 32 Cyclohexane | 56 | 5.604 | 5.604 | (0.844) | 525039 | 100.000 | 116 | 9622 |
| | 34 Bromochloromethane | 128 | 5.607 | 5.607 | (0.845) | 130795 | 100.000 | 92.2 | |
| | 35 Chloroform + | 83 | 5.686 | 5.686 | (0.857) | 484572 | 100.000 | 96.9 | |
| | 36 Carbon Tetrachloride | 117 | 5.817 | 5.817 | (0.876) | 346858 | 100.000 | 104 | |
| $ | 40 Dibromofluoromethane | 111 | 5.862 | 5.862 | (0.883) | 147022 | 50.0000 | 49.6 | 8864 |
| | 41 1,1,1-Trichloroethane | 97 | 5.885 | 5.885 | (0.886) | 403856 | 100.000 | 99.1 | |
| | 44 2-Butanone | 43 | 6.005 | 6.005 | (0.905) | 267759 | 100.000 | 107 | |
| | 43 1,1-Dichloropropene | 75 | 6.009 | 6.009 | (0.905) | 380478 | 100.000 | 112 | |
| | 46 Benzene | 78 | 6.248 | 6.248 | (0.941) | 1200817 | 100.000 | 106 | |
| $ | 50 1,2-Dichloroethane-d4 | 67 | 6.376 | 6.376 | (0.960) | 104478 | 50.0000 | 49.7 | |
| | 51 1,2-Dichloroethane | 62 | 6.440 | 6.440 | (0.970) | 456450 | 100.000 | 96.3 | |
| * | 53 FLUOROBENZENE | 96 | 6.638 | 6.638 | (1.000) | 619236 | 50.0000 | | |
| | 55 Methyl Cyclohexane | 83 | 6.781 | 6.781 | (1.021) | 466415 | 100.000 | 109 | 9237 |
| | 56 Trichloroethene | 130 | 6.788 | 6.788 | (1.023) | 298256 | 100.000 | 98.7 | |
| | 57 Dibromomethane | 93 | 7.174 | 7.174 | (1.081) | 172291 | 100.000 | 99.1 | |
| | 59 1,2-Dichloropropane + | 63 | 7.272 | 7.272 | (1.095) | 328818 | 100.000 | 104 | |
| | 60 Bromodichloromethane | 83 | 7.321 | 7.321 | (1.103) | 404837 | 100.000 | 102 | |
| | 65 1-Bromo-2-chloroethane | 63 | 7.737 | 7.737 | (1.165) | 494704 | 100.000 | 106 | 9717 |
| | 64 2-Chloroethyl vinyl ether | 63 | 7.812 | 7.812 | (1.177) | 94161 | 100.000 | 102 | |
| | 67 cis-1,3-Dichloropropene | 75 | 7.860 | 7.860 | (1.184) | 501248 | 100.000 | 116 | |
| $ | 68 Toluene-d8 | 98 | 8.007 | 8.007 | (0.878) | 597025 | 50.0000 | 48.7 | |
| | 69 Toluene + | 91 | 8.048 | 8.048 | (0.882) | 1274933 | 100.000 | 98.0 | |
| | 71 Tetrachloroethene | 164 | 8.336 | 8.336 | (0.914) | 263850 | 100.000 | 99.1 | |
| | 73 4-methyl-2-pentanone | 43 | 8.336 | 8.336 | (0.914) | 474195 | 100.000 | 116 | |
| | 74 trans-1,3-Dichloropropene | 75 | 8.359 | 8.359 | (1.259) | 465840 | 100.000 | 113 | |
| M | 82 1-3 Dichloropropene total | 100 | | | | 967088 | 200.000 | 229 | 0 |
| | 76 1,1,2-Trichloroethane | 97 | 8.475 | 8.475 | (0.929) | 272646 | 100.000 | 98.3 | |
| | 78 Dibromochloromethane | 129 | 8.603 | 8.603 | (0.943) | 310804 | 100.000 | 98.9 | |
| | 79 1,3-Dichloropropane | 76 | 8.674 | 8.674 | (0.951) | 534765 | 100.000 | 103 | |
| | 80 1,2-Dibromoethane(EDB) | 107 | 8.779 | 8.779 | (0.963) | 269288 | 100.000 | 102 | |
| | 83 2-Hexanone | 43 | 8.925 | 8.925 | (0.979) | 371564 | 100.000 | 103 | |
| | 86 1-Chlorohexane | 91 | 9.109 | 9.109 | (0.999) | 396049 | 100.000 | 116 | 8225(M2) |
| * | 84 CHLOROBENZENE-d5 | 82 | 9.120 | 9.120 | (1.000) | 274349 | 50.0000 | | |
| | 85 Chlorobenzene ++ | 112 | 9.131 | 9.131 | (1.001) | 842268 | 100.000 | 98.8 | |
| | 87 Ethylbenzene + | 106 | 9.146 | 9.146 | (1.003) | 438831 | 100.000 | 103 | |
| | 88 1,1,1,2-Tetrachloroethane | 133 | 9.172 | 9.172 | (1.006) | 285846 | 100.000 | 99.4 | |
| | 89 p,m-Xylene | 106 | 9.240 | 9.240 | (1.013) | 1064378 | 200.000 | 217 | |
| | 90 o-Xylene | 106 | 9.521 | 9.521 | (1.044) | 502960 | 100.000 | 111 | |

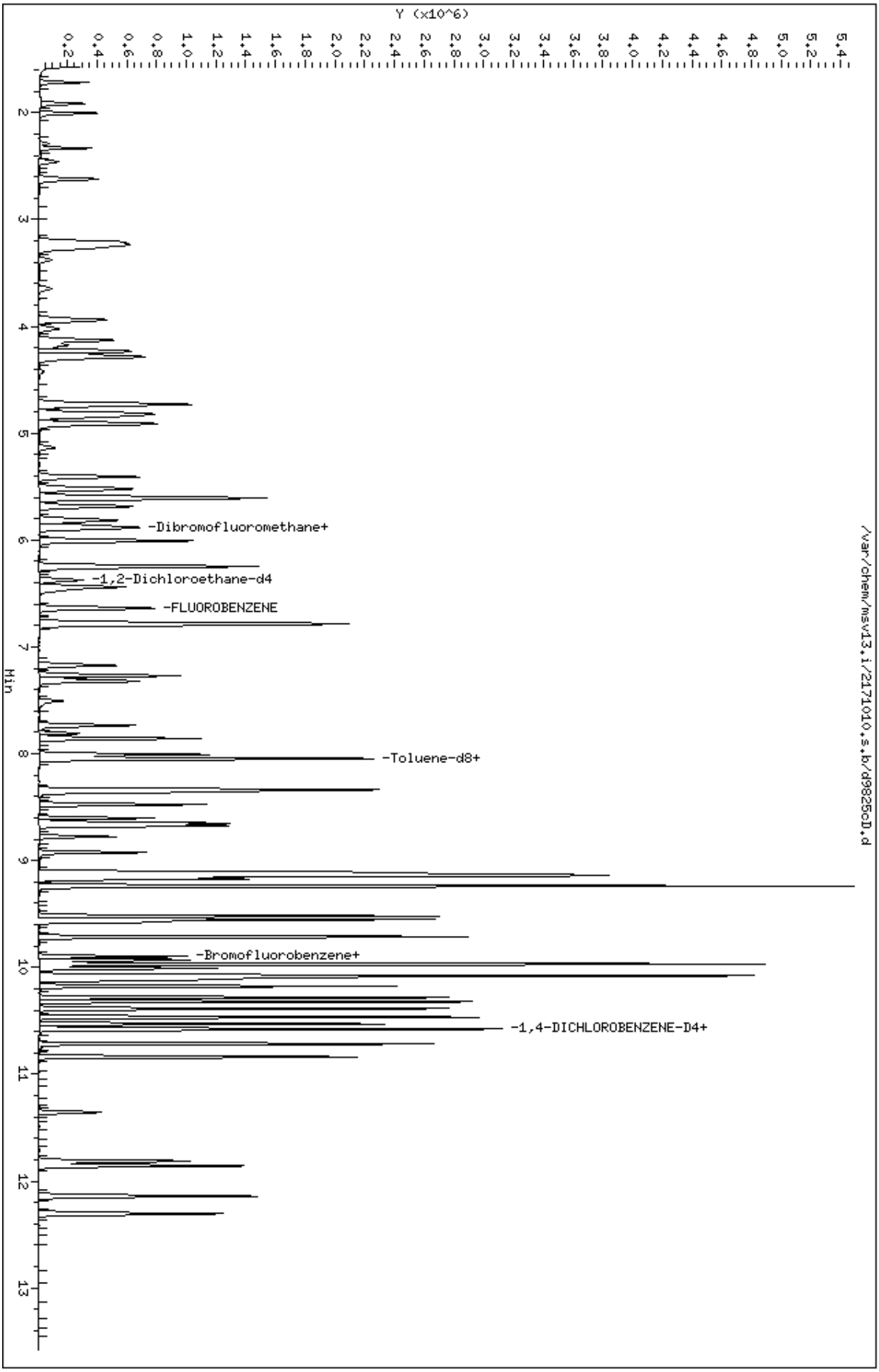
| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ppb) | ON-COL ( ppb) | SIMILARITY |
|---|---|---|---|---|---|---|---|---|---|
| M | 121 TOTAL XYLENE | 106 | | | | 1567338 | 300.000 | 328 | |
| | 91 Styrene | 104 | 9.551 | 9.551 | (1.047) | 894432 | 100.000 | 115 | |
| | 92 Bromoform ++ | 173 | 9.573 | 9.573 | (1.050) | 263595 | 100.000 | 101 | |
| | 93 Isopropylbenzene | 105 | 9.716 | 9.716 | (1.065) | 1329634 | 100.000 | 114 | |
| $ | 95 Bromofluorobenzene | 174 | 9.900 | 9.900 | (1.085) | 207567 | 50.0000 | 50.4 | |
| | 96 Bromobenzene | 77 | 9.967 | 9.967 | (0.943) | 678556 | 100.000 | 101 | |
| | 97 n-Propylbenzene | 91 | 9.971 | 9.971 | (0.943) | 1623064 | 100.000 | 104 | |
| | 98 1,1,2,2-Tetrachloroethane++ | 83 | 10.012 | 10.012 | (0.947) | 441092 | 100.000 | 95.4 | |
| | 99 2-Chlorotoluene | 91 | 10.076 | 10.076 | (0.953) | 1071069 | 100.000 | 104 | |
| | 102 1,3,5-Trimethylbenzene | 105 | 10.083 | 10.083 | (0.954) | 1094547 | 100.000 | 105 | |
| | 100 1,2,3-Trichloropropane | 75 | 10.102 | 10.102 | (0.956) | 596558 | 100.000 | 104 | |
| | 101 trans-1,4-Dichloro-2-Butene | 53 | 10.121 | 10.121 | (0.957) | 156416 | 100.000 | 112 | |
| | 104 4-Chlorotoluene | 91 | 10.177 | 10.177 | (0.963) | 948987 | 100.000 | 105 | |
| | 105 tert-butylbenzene | 91 | 10.282 | 10.282 | (0.973) | 599449 | 100.000 | 108 | |
| | 107 1,2,4-Trimethylbenzene | 105 | 10.319 | 10.319 | (0.976) | 1100283 | 100.000 | 107 | |
| | 108 sec-Butylbenzene | 105 | 10.387 | 10.387 | (0.983) | 1318179 | 100.000 | 107 | |
| | 110 p-Isopropyltoluene | 119 | 10.466 | 10.466 | (0.990) | 1140563 | 100.000 | 111 | |
| | 113 1,3-Dichlorobenzene | 146 | 10.529 | 10.529 | (0.996) | 662499 | 100.000 | 103 | |
| * | 114 1,4-DICHLOROBENZENE-D4 | 152 | 10.571 | 10.571 | (1.000) | 247324 | 50.0000 | | |
| | 115 1,4-Dichlorobenzene | 146 | 10.582 | 10.582 | (1.001) | 665769 | 100.000 | 98.5 | |
| | 117 n-Butylbenzene | 91 | 10.713 | 10.713 | (1.013) | 1017595 | 100.000 | 111 | |
| | 118 1,2-Dichlorobenzene | 146 | 10.837 | 10.837 | (1.025) | 642862 | 100.000 | 102 | |
| | 119 1,2-Dibromo-3-Chloropropane | 157 | 11.358 | 11.358 | (1.074) | 93952 | 100.000 | 105 | |
| | 120 Hexachlorobutadiene | 225 | 11.815 | 11.815 | (1.118) | 193375 | 100.000 | 100 | |
| | 122 1,2,4-Trichlorobenzene | 180 | 11.856 | 11.856 | (1.122) | 414205 | 100.000 | 102 | |
| | 124 Naphthalene | 128 | 12.141 | 12.141 | (1.149) | 1072226 | 100.000 | 99.9 | |
| | 125 1,2,3-Trichlorobenzene | 180 | 12.306 | 12.306 | (1.164) | 412674 | 100.000 | 102 | |
| | 22 tert-Butyl Alcohol | 59 | 4.423 | 4.423 | (0.666) | 32206 | 100.000 | 104 | 7774 |
| | 24 Isopropyl Ether | 45 | 4.730 | 4.730 | (0.713) | 998253 | 100.000 | 116 | 9547 |
| | 25 Chloroprene | 53 | 4.816 | 4.816 | (0.726) | 427470 | 100.000 | 113 | 8903 |
| | 52 Isobutyl Alcohol | 43 | 6.470 | 6.470 | (0.975) | 97774 | 500.000 | 515 | 9355 |
| | 62 1,4- Dioxane | 58 | 7.508 | 7.508 | (1.131) | 76311 | 2500.00 | 2680 | 8918 |
| | 170 3,4-dichloro-1-butene | 75 | 8.651 | 8.651 | (0.949) | 372230 | 100.000 | 109 | 9489 |
| | 169 cis-1,4-dichloro-2-butene | 53 | 9.930 | 9.930 | (0.939) | 173580 | 100.000 | 101 | 9608 |

QC Flag Legend

M2- Compound response manually integrated because
Target system integrated incorrectly.

Data File: /var/chem/msv13.i/217l010.s.b/d9825cD.d
Date : 10-OCT-2017 14:04
Client ID: V13STD100
Sample Info: 1208wV13STD100
Purge Volume: 5.0
Column phase: RTX-VMS-30M

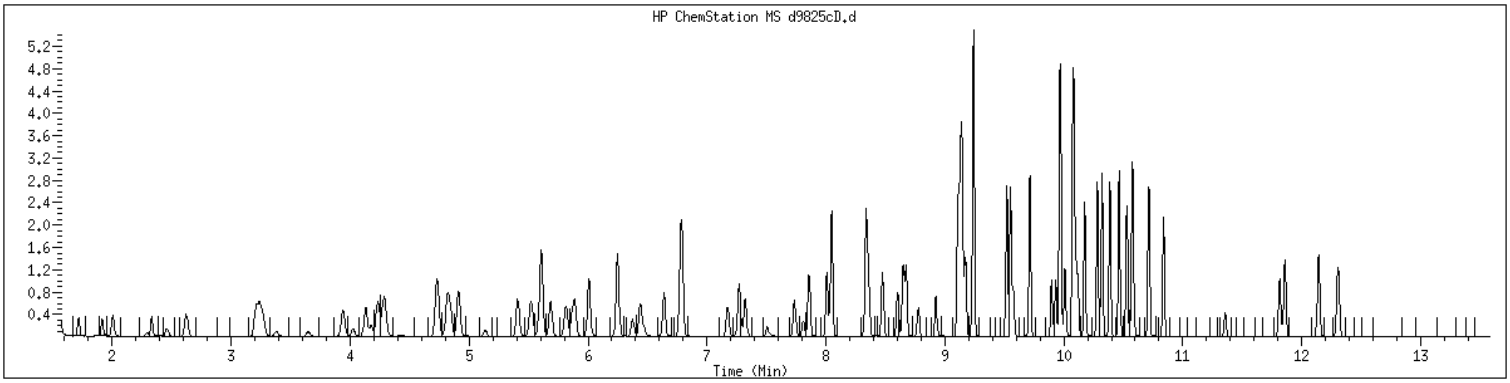
Instrument: msv13.i
Operator: JCK
Column diameter: 0.25



Data file : /var/chem/msv13.i/2171010.s.b/d9825cD.d Page: 1
Report Date: 10/11/2017 17:21

MANUAL INTEGRATION GRAPHIC REPORT

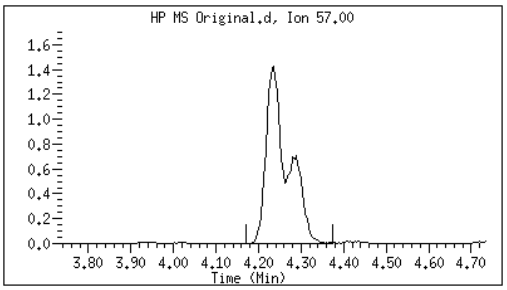
Lab ID : 1208 SampleType : CALIB_8
Injection Date: 10/10/2017 14:04 Instrument : msv13.i
Operator : JCK
Sample Info : 1208*V13STD100
Misc Info : MSV~39299~*1*JCK
Method : /var/chem/msv13.i/2171010.s.b/8260cdodw13.m
Dilution : 1.00
Matrix : WATER
Integrator : HP RTE Compound Sublist: 8260b+AppIX1




Original Final

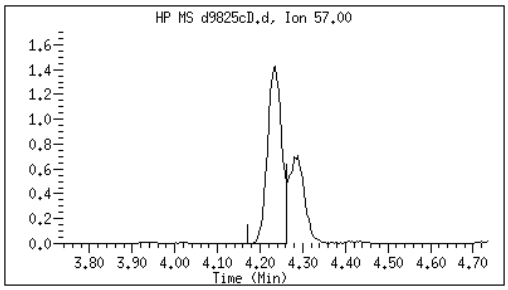
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20 Hexane CAS#: 110-54-3 Reason: M2



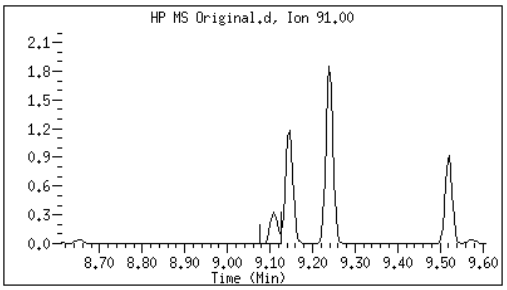

Electronic Signature Applied

User: jck2
Date: 10/10/2017 14:53



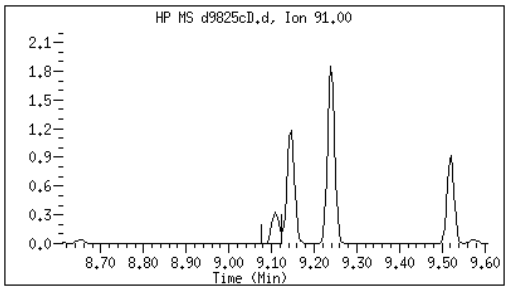

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86 1-Chlorohexane CAS#: 544-10-5 Reason: M2




Electronic Signature Applied

User: jck2
Date: 10/10/2017 14:53




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Data file : /var/chem/msv13.i/2171010.s.b/d9825cD.d Page: 2
Report Date: 10/11/2017 17:21

M2 - Target system integrated incorrectly

Data File: /var/chem/msv13.i/2171010.s.b/d9826cD.d Page 1
Report Date: 11-Oct-2017 17:21

GCAL, Inc.

Data file : /var/chem/msv13.i/2171010.s.b/d9826cD.d
Lab Smp Id: 1209 Client Smp ID: V13STD200
Inj Date : 10-OCT-2017 14:26
Operator : JCK Inst ID: msv13.i
Smp Info : 1209*V13STD200
Misc Info : MSV~39299~*1*JCK
Comment :
Method : /var/chem/msv13.i/2171010.s.b/8260cdodw13.m
Meth Date : 11-Oct-2017 17:21 jck2 Quant Type: ISTD
Cal Date : 10-OCT-2017 14:26 Cal File: d9826cD.d
Als bottle: 1 Calibration Sample, Level: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 8260b+AppIX1.sub
Target Version: 3.50
Processing Host: org.gcal.com

Concentration Formula: Amt * DF * Uf/Vo * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.00000 | Dilution Factor |
| Uf | 5.00000 | ng unit correction factor |
| Vo | 5.00000 | Sample Volume purged (mL) |
| DF | 1.00000 | |

Cpnd Variable Local Compound Variable

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ppb) | AMOUNTS ON-COL ( ppb) | SIMILARITY |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Dichlorodifluoromethane | 85 | 1.716 | 1.716 | (0.259) | 469978 | 200.000 | 188 | |
| 2 | Chloromethane ++ | 50 | 1.915 | 1.915 | (0.288) | 582914 | 200.000 | 189 | |
| 3 | Vinyl Chloride + | 62 | 2.001 | 2.001 | (0.301) | 671074 | 200.000 | 205 | (A) |
| 6 | Bromomethane | 94 | 2.331 | 2.331 | (0.351) | 352483 | 200.000 | 208 | (A) |
| 7 | Chloroethane | 64 | 2.440 | 2.440 | (0.368) | 211709 | 200.000 | 200 | (A) |
| 8 | Trichlorofluoromethane | 101 | 2.616 | 2.616 | (0.394) | 666873 | 200.000 | 174 | |
| 10 | 1,1-Dichloroethene + | 96 | 3.208 | 3.208 | (0.483) | 412892 | 200.000 | 188 | |
| 11 | Carbon Disulfide | 76 | 3.235 | 3.235 | (0.487) | 1472599 | 200.000 | 181 | |
| 12 | 1,1,2Trichlotrifluoroethane | 101 | 3.261 | 3.261 | (0.491) | 396677 | 200.000 | 180 | |
| 13 | Methyl Iodide | 142 | 3.377 | 3.377 | (0.509) | 357005 | 200.000 | 200 | (M1) |
| 14 | Acrolein | 56 | 3.647 | 3.647 | (0.549) | 195648 | 1000.00 | 1030 | (A) |
| 16 | Methylene Chloride | 49 | 3.939 | 3.939 | (0.593) | 656038 | 200.000 | 182 | |
| 17 | Acetone | 43 | 4.025 | 4.025 | (0.606) | 439457 | 200.000 | 177 | |
| 18 | trans-1,2-Dichloroethene | 61 | 4.127 | 4.127 | (0.622) | 721605 | 200.000 | 196 | |

Data File: /var/chem/msv13.i/2171010.s.b/d9826cD.d Page 2
Report Date: 11-Oct-2017 17:21

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ppb) | ON-COL ( ppb) | SIMILARITY |
|---|---|---|---|---|---|---|---|---|---|
| | 19 Methyl Acetate | 43 | 4.179 | 4.179 | (0.630) | 574560 | 200.000 | 192 | 9505 |
| | 20 Hexane | 57 | 4.235 | 4.235 | (0.638) | 764372 | 200.000 | 220 | 9538(A) |
| | 21 MTBE | 73 | 4.288 | 4.288 | (0.646) | 1670981 | 200.000 | 216 | 9348(A) |
| | 26 1,1-Dichloroethane ++ | 63 | 4.843 | 4.843 | (0.730) | 1151982 | 200.000 | 197 | |
| | 27 Acrylonitrile | 53 | 4.914 | 4.914 | (0.740) | 1565892 | 1000.00 | 1050 | (A) |
| | 28 Vinyl Acetate | 43 | 5.135 | 5.135 | (0.774) | 365566 | 200.000 | 240 | (A) |
| | 29 cis-1,2-Dichloroethene | 61 | 5.409 | 5.409 | (0.815) | 886419 | 200.000 | 211 | (A) |
| M | 75 Total 1,2-Dichloroethene | 61 | | | | 1608024 | 400.000 | 408 | |
| | 30 2,2-Dichloropropane | 77 | 5.521 | 5.521 | (0.832) | 809556 | 200.000 | 211 | (A) |
| | 32 Cyclohexane | 56 | 5.604 | 5.604 | (0.844) | 1102032 | 200.000 | 230 | 9654(A) |
| | 34 Bromochloromethane | 128 | 5.607 | 5.607 | (0.845) | 259711 | 200.000 | 172 | |
| | 35 Chloroform + | 83 | 5.686 | 5.686 | (0.857) | 1005629 | 200.000 | 189 | |
| | 36 Carbon Tetrachloride | 117 | 5.814 | 5.814 | (0.876) | 720107 | 200.000 | 204 | (A) |
| $ | 40 Dibromofluoromethane | 111 | 5.866 | 5.866 | (0.884) | 155884 | 50.0000 | 49.5 | 6188 |
| | 41 1,1,1-Trichloroethane | 97 | 5.889 | 5.889 | (0.887) | 842033 | 200.000 | 194 | |
| | 44 2-Butanone | 43 | 6.005 | 6.005 | (0.905) | 576251 | 200.000 | 216 | (A) |
| | 43 1,1-Dichloropropene | 75 | 6.005 | 6.005 | (0.905) | 810847 | 200.000 | 224 | (A) |
| | 46 Benzene | 78 | 6.248 | 6.248 | (0.941) | 2551526 | 200.000 | 211 | (A) |
| $ | 50 1,2-Dichloroethane-d4 | 67 | 6.376 | 6.376 | (0.960) | 111975 | 50.0000 | 50.1 | |
| | 51 1,2-Dichloroethane | 62 | 6.440 | 6.440 | (0.970) | 938771 | 200.000 | 186 | |
| * | 53 FLUOROBENZENE | 96 | 6.638 | 6.638 | (1.000) | 658165 | 50.0000 | | |
| | 55 Methyl Cyclohexane | 83 | 6.781 | 6.781 | (1.021) | 991728 | 200.000 | 219 | 9200(A) |
| | 56 Trichloroethene | 130 | 6.788 | 6.788 | (1.023) | 634329 | 200.000 | 197 | |
| | 57 Dibromomethane | 93 | 7.174 | 7.174 | (1.081) | 362391 | 200.000 | 196 | |
| | 59 1,2-Dichloropropane + | 63 | 7.272 | 7.272 | (1.095) | 704515 | 200.000 | 209 | (A) |
| | 60 Bromodichloromethane | 83 | 7.321 | 7.321 | (1.103) | 843433 | 200.000 | 200 | (A) |
| | 65 1-Bromo-2-chloroethane | 63 | 7.733 | 7.733 | (1.165) | 1045577 | 200.000 | 212 | 9664(A) |
| | 64 2-Chloroethyl vinyl ether | 63 | 7.812 | 7.812 | (1.177) | 197925 | 200.000 | 201 | (A) |
| | 67 cis-1,3-Dichloropropene | 75 | 7.860 | 7.860 | (1.184) | 1085464 | 200.000 | 237 | (A) |
| $ | 68 Toluene-d8 | 98 | 8.007 | 8.007 | (0.878) | 632882 | 50.0000 | 46.8 | |
| | 69 Toluene + | 91 | 8.048 | 8.048 | (0.882) | 2668726 | 200.000 | 186 | |
| | 71 Tetrachloroethene | 164 | 8.336 | 8.336 | (0.914) | 545060 | 200.000 | 186 | |
| | 73 4-methyl-2-pentanone | 43 | 8.336 | 8.336 | (0.914) | 1041923 | 200.000 | 231 | (A) |
| | 74 trans-1,3-Dichloropropene | 75 | 8.359 | 8.359 | (1.259) | 1031871 | 200.000 | 236 | (A) |
| M | 82 1-3 Dichloropropene total | 100 | | | | 2117335 | 400.000 | 472 | 0 |
| | 76 1,1,2-Trichloroethane | 97 | 8.475 | 8.475 | (0.929) | 576924 | 200.000 | 189 | |
| | 78 Dibromochloromethane | 129 | 8.603 | 8.603 | (0.943) | 659419 | 200.000 | 190 | |
| | 79 1,3-Dichloropropane | 76 | 8.674 | 8.674 | (0.951) | 1156320 | 200.000 | 203 | (A) |
| | 80 1,2-Dibromoethane(EDB) | 107 | 8.779 | 8.779 | (0.963) | 562149 | 200.000 | 194 | |
| | 83 2-Hexanone | 43 | 8.925 | 8.925 | (0.979) | 804922 | 200.000 | 202 | (A) |
| | 86 1-Chlorohexane | 91 | 9.109 | 9.109 | (0.999) | 834338 | 200.000 | 222 | 7416(AM2) |
| * | 84 CHLOROBENZENE-d5 | 82 | 9.120 | 9.120 | (1.000) | 302461 | 50.0000 | | |
| | 85 Chlorobenzene ++ | 112 | 9.135 | 9.135 | (1.002) | 1754869 | 200.000 | 187 | |
| | 87 Ethylbenzene + | 106 | 9.146 | 9.146 | (1.003) | 924170 | 200.000 | 196 | |
| | 88 1,1,1,2-Tetrachloroethane | 133 | 9.172 | 9.172 | (1.006) | 589935 | 200.000 | 186 | |
| | 89 p,m-Xylene | 106 | 9.240 | 9.240 | (1.013) | 2259513 | 400.000 | 418 | (A) |
| | 90 o-Xylene | 106 | 9.521 | 9.521 | (1.044) | 1048849 | 200.000 | 210 | (A) |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ppb) | ON-COL ( ppb) | SIMILARITY |
|---|---|---|---|---|---|---|---|---|
| M 121 TOTAL XYLENE | 106 | | | | 3308362 | 600.000 | 628 | |
| 91 Styrene | 104 | 9.555 | 9.555 | (1.048) | 1850009 | 200.000 | 216 | (A) |
| 92 Bromoform ++ | 173 | 9.577 | 9.577 | (1.050) | 537134 | 200.000 | 186 | |
| 93 Isopropylbenzene | 105 | 9.716 | 9.716 | (1.065) | 2773150 | 200.000 | 215 | (A) |
| $ 95 Bromofluorobenzene | 174 | 9.900 | 9.900 | (1.085) | 208370 | 50.0000 | 45.9 | |
| 96 Bromobenzene | 77 | 9.967 | 9.967 | (0.943) | 1395615 | 200.000 | 207 | (A) |
| 97 n-Propylbenzene | 91 | 9.971 | 9.971 | (0.943) | 3388985 | 200.000 | 216 | (A) |
| 98 1,1,2,2-Tetrachloroethane++ | 83 | 10.012 | 10.012 | (0.947) | 874638 | 200.000 | 189 | |
| 99 2-Chlorotoluene | 91 | 10.076 | 10.076 | (0.953) | 2179979 | 200.000 | 211 | (A) |
| 102 1,3,5-Trimethylbenzene | 105 | 10.083 | 10.083 | (0.954) | 2218664 | 200.000 | 213 | (A) |
| 100 1,2,3-Trichloropropane | 75 | 10.102 | 10.102 | (0.955) | 1230108 | 200.000 | 213 | (A) |
| 101 trans-1,4-Dichloro-2-Butene | 53 | 10.121 | 10.121 | (0.957) | 310070 | 200.000 | 221 | (A) |
| 104 4-Chlorotoluene | 91 | 10.177 | 10.177 | (0.962) | 1917055 | 200.000 | 211 | (A) |
| 105 tert-butylbenzene | 91 | 10.282 | 10.282 | (0.972) | 1182954 | 200.000 | 213 | (A) |
| 107 1,2,4-Trimethylbenzene | 105 | 10.319 | 10.319 | (0.976) | 2180556 | 200.000 | 212 | (A) |
| 108 sec-Butylbenzene | 105 | 10.387 | 10.387 | (0.982) | 2622873 | 200.000 | 213 | (A) |
| 110 p-Isopropyltoluene | 119 | 10.466 | 10.466 | (0.990) | 2253027 | 200.000 | 220 | (A) |
| 113 1,3-Dichlorobenzene | 146 | 10.529 | 10.529 | (0.996) | 1288258 | 200.000 | 200 | |
| * 114 1,4-DICHLOROBENZENE-D4 | 152 | 10.574 | 10.574 | (1.000) | 247983 | 50.0000 | | |
| 115 1,4-Dichlorobenzene | 146 | 10.582 | 10.582 | (1.001) | 1290768 | 200.000 | 191 | |
| 117 n-Butylbenzene | 91 | 10.717 | 10.717 | (1.013) | 2012138 | 200.000 | 219 | (A) |
| 118 1,2-Dichlorobenzene | 146 | 10.837 | 10.837 | (1.025) | 1244302 | 200.000 | 196 | |
| 119 1,2-Dibromo-3-Chloropropane | 157 | 11.358 | 11.358 | (1.074) | 187580 | 200.000 | 210 | (A) |
| 120 Hexachlorobutadiene | 225 | 11.815 | 11.815 | (1.117) | 373380 | 200.000 | 193 | |
| 122 1,2,4-Trichlorobenzene | 180 | 11.856 | 11.856 | (1.121) | 830314 | 200.000 | 203 | (A) |
| 124 Naphthalene | 128 | 12.141 | 12.141 | (1.148) | 2234551 | 200.000 | 203 | (A) |
| 125 1,2,3-Trichlorobenzene | 180 | 12.306 | 12.306 | (1.164) | 820732 | 200.000 | 201 | (A) |
| 22 tert-Butyl Alcohol | 59 | 4.427 | 4.427 | (0.667) | 68669 | 200.000 | 209 | 8344(A) |
| 24 Isopropyl Ether | 45 | 4.730 | 4.730 | (0.713) | 2150767 | 200.000 | 236 | 9561(A) |
| 25 Chloroprene | 53 | 4.816 | 4.816 | (0.726) | 907797 | 200.000 | 226 | 8882(A) |
| 52 Isobutyl Alcohol | 43 | 6.473 | 6.473 | (0.975) | 204990 | 1000.00 | 1020 | 9589(A) |
| 62 1,4- Dioxane | 58 | 7.508 | 7.508 | (1.131) | 156037 | 5000.00 | 5160 | 9121(A) |
| 170 3,4-dichloro-1-butene | 75 | 8.651 | 8.651 | (0.949) | 808648 | 200.000 | 215 | 9523(A) |
| 169 cis-1,4-dichloro-2-butene | 53 | 9.930 | 9.930 | (0.939) | 342318 | 200.000 | 198 | 9636 |

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M1- Compound response manually integrated because Target system did not integrate.
M2- Compound response manually integrated because Target system integrated incorrectly.

Data File: /var/chem/msv13.i/2171010.s.b/d9826cD.d

Page 1

Date : 10-OCT-2017 14:26

Client ID: V13STD200

Instrument: msv13.i

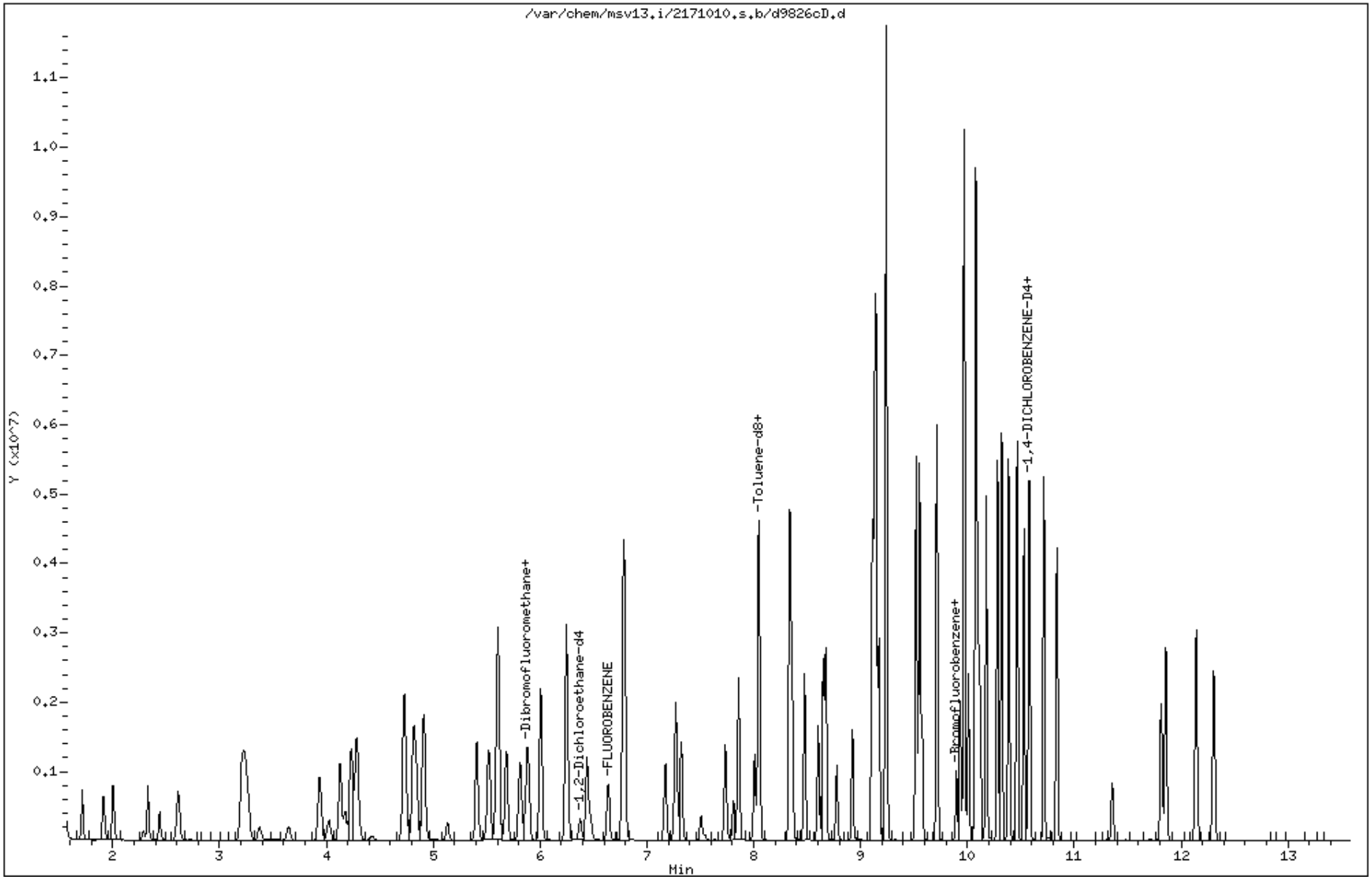
Sample Info: 1209*V13STD200

Purge Volume: 5.0

Operator: JCK

Column phase: RTX-VMS-30M

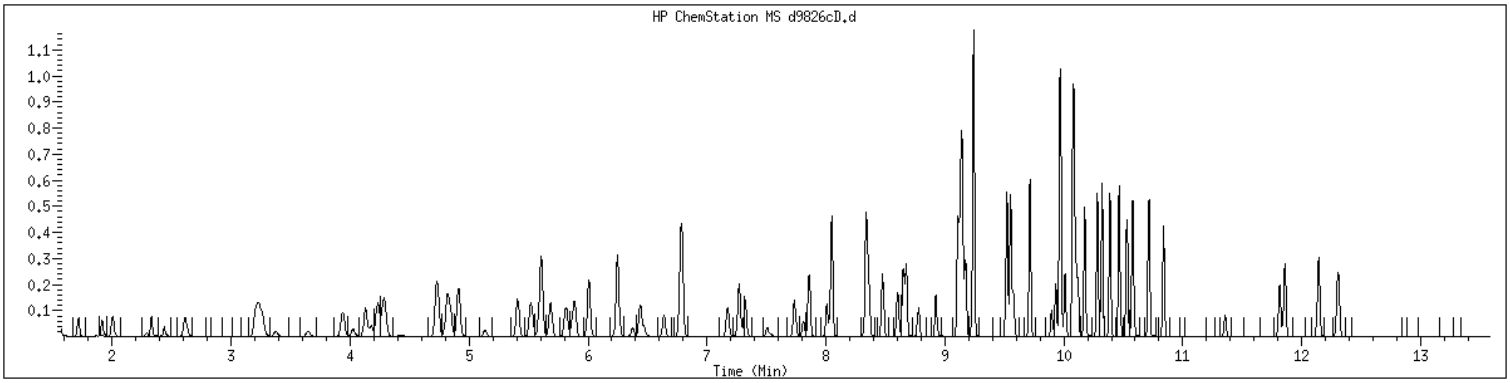
Column diameter: 0.25



Data file : /var/chem/msv13.i/2171010.s.b/d9826cD.d Page: 1
Report Date: 10/11/2017 17:21

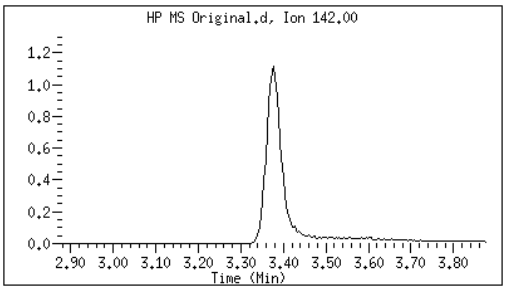
MANUAL INTEGRATION GRAPHIC REPORT

Lab ID : 1209 SampleType : CALIB_9
Injection Date: 10/10/2017 14:26 Instrument : msv13.i
Operator : JCK
Sample Info : 1209*V13STD200
Misc Info : MSV~39299~*1*JCK
Method : /var/chem/msv13.i/2171010.s.b/8260cdodw13.m
Dilution : 1.00
Matrix : WATER
Integrator : HP RTE Compound Sublist: 8260b+AppIX1



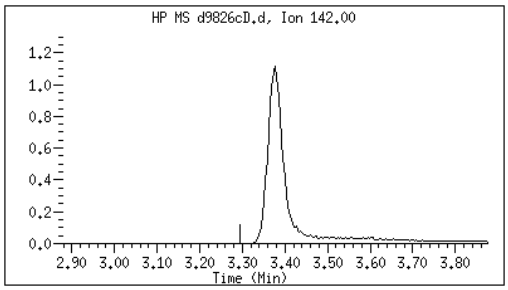

Original Final

13 Methyl Iodide CAS#: 74-88-4 Reason: M1



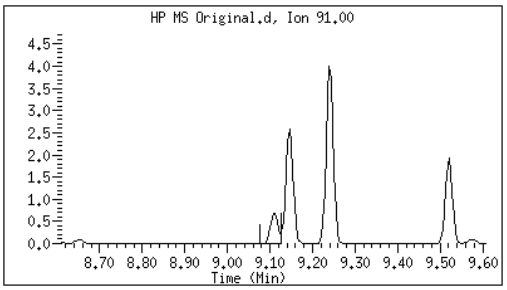

Electronic Signature Applied

User: jck2
Date: 10/10/2017 14:45



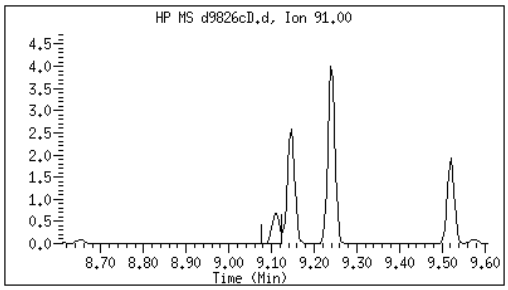

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86 1-Chlorohexane CAS#: 544-10-5 Reason: M2




Electronic Signature Applied

User: jck2
Date: 10/10/2017 14:53




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Data file : /var/chem/msv13.i/2171010.s.b/d9826cD.d Page: 2
Report Date: 10/11/2017 17:21

M1 - Target system did not integrate
M2 - Target system integrated incorrectly

# Form 6I

# ICAL Verifications

6I
ORGANICS INITIAL CALIBRATION VERIFICATION

| | | | |
|---|---|---|---|
| Report No: | 217100631 | Instrument ID: | MSV13 |
| Analysis Date: | 10/10/17 1511 | Lab File ID: | 2171010/d9828cD |
| Analysis Method: | EPA 8260C | Analytical Batch: | 620002 |

| *ANALYTE* | *UNITS* | *TRUE* | *FOUND* | *% REC* | *LCL* | *UCL* | *Q* |
|---|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | ug/L | 50.0 | 50.6 | 101 | 80 | 120 | |
| 1,1,2-Trichloroethane | ug/L | 50.0 | 50.2 | 100 | 80 | 120 | |
| 1,1-Dichloroethane | ug/L | 50.0 | 51.9 | 104 | 80 | 120 | |
| 1,1-Dichloroethene | ug/L | 50.0 | 49.1 | 98 | 80 | 120 | |
| 1,2-Dichloroethane | ug/L | 50.0 | 48.3 | 97 | 80 | 120 | |
| Acetone | ug/L | 50.0 | 47.5 | 95 | 80 | 120 | |
| Benzene | ug/L | 50.0 | 52.8 | 106 | 80 | 120 | |
| Carbon tetrachloride | ug/L | 50.0 | 51.8 | 104 | 80 | 120 | |
| Chlorobenzene | ug/L | 50.0 | 49.4 | 99 | 80 | 120 | |
| Chloroform | ug/L | 50.0 | 49.6 | 99 | 80 | 120 | |
| cis-1,2-Dichloroethene | ug/L | 50.0 | 52.8 | 106 | 80 | 120 | |
| Ethylbenzene | ug/L | 50.0 | 51.0 | 102 | 80 | 120 | |
| m,p-Xylene | ug/L | 100 | 106 | 106 | 80 | 120 | |
| Methylene chloride | ug/L | 50.0 | 51.3 | 103 | 80 | 120 | |
| o-Xylene | ug/L | 50.0 | 54.2 | 108 | 80 | 120 | |
| Styrene | ug/L | 50.0 | 56.2 | 112 | 80 | 120 | |
| Tetrachloroethene | ug/L | 50.0 | 49.8 | 100 | 80 | 120 | |
| Toluene | ug/L | 50.0 | 49.9 | 100 | 80 | 120 | |
| trans-1,2-Dichloroethene | ug/L | 50.0 | 51.7 | 103 | 80 | 120 | |
| Trichloroethene | ug/L | 50.0 | 48.2 | 96 | 80 | 120 | |
| Vinyl chloride | ug/L | 50.0 | 50.6 | 101 | 80 | 120 | |

GCAL, Inc.

Data file : /var/chem/msv13.i/2171010.s.b/d9828cD.d
Lab Smp Id: 1600 Client Smp ID: ICV050
Inj Date : 10-OCT-2017 15:11
Operator : JCK Inst ID: msv13.i
Smp Info : 1600*ICV050
Misc Info : MSV~39299~*1*JCK
Comment :
Method : /var/chem/msv13.i/2171010.s.b/8260cdodw13.m
Meth Date : 11-Oct-2017 17:21 jck2 Quant Type: ISTD
Cal Date : 10-OCT-2017 14:26 Cal File: d9826cD.d
Als bottle: 1 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 8260b+AppIX1.sub
Target Version: 3.50
Processing Host: org.gcal.com

Concentration Formula: Amt * DF * Uf/Vo * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.00000 | Dilution Factor |
| Uf | 5.00000 | ng unit correction factor |
| Vo | 5.00000 | Sample Volume purged (mL) |
| DF | 1.00000 | |

Cpnd Variable Local Compound Variable

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ppb) | FINAL ( ug/L) | SIMILARITY |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Dichlorodifluoromethane | 85 | 1.716 | 1.716 | (0.259) | 115367 | 48.7994 | 48.8 | |
| 2 | Chloromethane ++ | 50 | 1.915 | 1.915 | (0.288) | 150218 | 51.3423 | 51.3 | |
| 3 | Vinyl Chloride + | 62 | 2.005 | 2.001 | (0.302) | 157103 | 50.6257 | 50.6 | |
| 6 | Bromomethane | 94 | 2.335 | 2.331 | (0.352) | 81782 | 50.8569 | 50.9 | |
| 7 | Chloroethane | 64 | 2.470 | 2.440 | (0.372) | 74720 | 49.3389 | 49.3 | |
| 8 | Trichlorofluoromethane | 101 | 2.623 | 2.616 | (0.395) | 178308 | 49.2330 | 49.2 | |
| 10 | 1,1-Dichloroethene + | 96 | 3.212 | 3.208 | (0.484) | 102319 | 49.0683 | 49.1 | |
| 11 | Carbon Disulfide | 76 | 3.238 | 3.235 | (0.488) | 367231 | 47.6405 | 47.6 | |
| 12 | 1,1,2Trichlotrifluoroethane | 101 | 3.264 | 3.261 | (0.492) | 100790 | 48.3865 | 48.4 | |
| 13 | Methyl Iodide | 142 | 3.381 | 3.377 | (0.509) | 50366 | 45.3604 | 45.4 | |
| 14 | Acrolein | 56 | 3.647 | 3.647 | (0.549) | 40852 | 227.194 | 227 | |
| 16 | Methylene Chloride | 49 | 3.943 | 3.939 | (0.594) | 174920 | 51.3183 | 51.3 | |
| 17 | Acetone | 43 | 4.022 | 4.025 | (0.606) | 111656 | 47.5444 | 47.5 | |
| 18 | trans-1,2-Dichloroethene | 61 | 4.130 | 4.127 | (0.622) | 179995 | 51.6965 | 51.7 | |

Data File: /var/chem/msv13.i/2171010.s.b/d9828cD.d Page 2
Report Date: 11-Oct-2017 17:21

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ppb) | FINAL ( ug/L) | SIMILARITY |
|---|---|---|---|---|---|---|---|---|---|
| | 19 Methyl Acetate | 43 | 4.179 | 4.179 | (0.630) | 142175 | 50.0819 | 50.1 | 9297 |
| | 20 Hexane | 57 | 4.235 | 4.235 | (0.638) | 180104 | 54.7583 | 54.8 | 9493 |
| | 21 MTBE | 73 | 4.288 | 4.288 | (0.646) | 396107 | 54.0805 | 54.1 | 9584 |
| | 26 1,1-Dichloroethane ++ | 63 | 4.839 | 4.843 | (0.729) | 287648 | 51.8612 | 51.9 | |
| | 27 Acrylonitrile | 53 | 4.910 | 4.914 | (0.740) | 354785 | 251.943 | 252 | |
| | 28 Vinyl Acetate | 43 | 5.135 | 5.135 | (0.774) | 71218 | 49.4277 | 49.4 | |
| | 29 cis-1,2-Dichloroethene | 61 | 5.409 | 5.409 | (0.815) | 209820 | 52.8333 | 52.8 | |
| M | 75 Total 1,2-Dichloroethene | 61 | | | | 389815 | 104.530 | 105 | |
| | 30 2,2-Dichloropropane | 77 | 5.521 | 5.521 | (0.832) | 192968 | 53.0539 | 53.1 | |
| | 32 Cyclohexane | 56 | 5.604 | 5.604 | (0.844) | 260259 | 57.3600 | 57.4 | 9491 |
| | 34 Bromochloromethane | 128 | 5.607 | 5.607 | (0.845) | 68986 | 48.3162 | 48.3 | |
| | 35 Chloroform + | 83 | 5.686 | 5.686 | (0.857) | 249524 | 49.5575 | 49.6 | |
| | 36 Carbon Tetrachloride | 117 | 5.817 | 5.814 | (0.876) | 173470 | 51.8274 | 51.8 | |
| $ | 40 Dibromofluoromethane | 111 | 5.866 | 5.866 | (0.884) | 145673 | 48.8457 | 48.8 | 9468 |
| | 41 1,1,1-Trichloroethane | 97 | 5.888 | 5.889 | (0.887) | 207474 | 50.5547 | 50.6 | |
| | 44 2-Butanone | 43 | 6.008 | 6.005 | (0.905) | 136840 | 54.1294 | 54.1 | |
| | 43 1,1-Dichloropropene | 75 | 6.008 | 6.005 | (0.905) | 184534 | 53.8804 | 53.9 | |
| | 46 Benzene | 78 | 6.248 | 6.248 | (0.941) | 604134 | 52.8495 | 52.8 | |
| $ | 50 1,2-Dichloroethane-d4 | 67 | 6.380 | 6.376 | (0.961) | 104570 | 49.4045 | 49.4 | |
| | 51 1,2-Dichloroethane | 62 | 6.440 | 6.440 | (0.970) | 230432 | 48.2947 | 48.3 | |
| * | 53 FLUOROBENZENE | 96 | 6.638 | 6.638 | (1.000) | 623317 | 50.0000 | | |
| | 55 Methyl Cyclohexane | 83 | 6.784 | 6.781 | (1.022) | 229215 | 53.3894 | 53.4 | 8697 |
| | 56 Trichloroethene | 130 | 6.788 | 6.788 | (1.023) | 146490 | 48.1544 | 48.2 | |
| | 57 Dibromomethane | 93 | 7.174 | 7.174 | (1.081) | 87285 | 49.8862 | 49.9 | |
| | 59 1,2-Dichloropropane + | 63 | 7.272 | 7.272 | (1.095) | 162923 | 51.1103 | 51.1 | |
| | 60 Bromodichloromethane | 83 | 7.320 | 7.321 | (1.103) | 203250 | 50.8958 | 50.9 | |
| | 65 1-Bromo-2-chloroethane | 63 | 7.737 | 7.733 | (1.165) | 248998 | 53.2321 | 53.2 | 9749 |
| | 64 2-Chloroethyl vinyl ether | 63 | 7.812 | 7.812 | (1.177) | 48162 | 52.3080 | 52.3 | |
| | 67 cis-1,3-Dichloropropene | 75 | 7.856 | 7.860 | (1.184) | 243496 | 56.0329 | 56.0 | |
| $ | 68 Toluene-d8 | 98 | 8.006 | 8.007 | (0.878) | 596609 | 49.0606 | 49.1 | |
| | 69 Toluene + | 91 | 8.048 | 8.048 | (0.882) | 644222 | 49.9097 | 49.9 | |
| | 71 Tetrachloroethene | 164 | 8.336 | 8.336 | (0.914) | 131616 | 49.8138 | 49.8 | |
| | 73 4-methyl-2-pentanone | 43 | 8.336 | 8.336 | (0.914) | 233910 | 57.5843 | 57.6 | |
| | 74 trans-1,3-Dichloropropene | 75 | 8.359 | 8.359 | (1.259) | 229142 | 55.2362 | 55.2 | |
| M | 82 1-3 Dichloropropene total | 100 | | | | 472638 | 111.269 | 111 | 0 |
| | 76 1,1,2-Trichloroethane | 97 | 8.475 | 8.475 | (0.929) | 138167 | 50.1956 | 50.2 | |
| | 78 Dibromochloromethane | 129 | 8.602 | 8.603 | (0.943) | 154178 | 49.4624 | 49.5 | |
| | 79 1,3-Dichloropropane | 76 | 8.674 | 8.674 | (0.951) | 267322 | 52.0528 | 52.1 | |
| | 80 1,2-Dibromoethane(EDB) | 107 | 8.775 | 8.779 | (0.962) | 132596 | 50.7460 | 50.7 | |
| | 83 2-Hexanone | 43 | 8.925 | 8.925 | (0.979) | 181181 | 51.0393 | 51.0 | |
| | 86 1-Chlorohexane | 91 | 9.109 | 9.109 | (0.999) | 200233 | 59.1088 | 59.1 | 9296 |
| * | 84 CHLOROBENZENE-d5 | 82 | 9.120 | 9.120 | (1.000) | 272198 | 50.0000 | | |
| | 85 Chlorobenzene ++ | 112 | 9.131 | 9.135 | (1.001) | 417783 | 49.3706 | 49.4 | |
| | 87 Ethylbenzene + | 106 | 9.146 | 9.146 | (1.003) | 216388 | 51.0164 | 51.0 | |
| | 88 1,1,1,2-Tetrachloroethane | 133 | 9.172 | 9.172 | (1.006) | 144136 | 50.5133 | 50.5 | |
| | 89 p,m-Xylene | 106 | 9.240 | 9.240 | (1.013) | 515106 | 105.846 | 106 | |
| | 90 o-Xylene | 106 | 9.521 | 9.521 | (1.044) | 243064 | 54.1639 | 54.2 | |

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ppb) | FINAL ( ug/L) | SIMILARITY |
|---|---|---|---|---|---|---|---|---|---|
| M | 121 TOTAL XYLENE | 106 | | | | 758170 | 160.010 | 160 | |
| | 91 Styrene | 104 | 9.551 | 9.555 | (1.047) | 433645 | 56.2399 | 56.2 | |
| | 92 Bromoform ++ | 173 | 9.577 | 9.577 | (1.050) | 131009 | 50.4580 | 50.5 | |
| | 93 Isopropylbenzene | 105 | 9.716 | 9.716 | (1.065) | 644244 | 55.5749 | 55.6 | |
| $ | 95 Bromofluorobenzene | 174 | 9.900 | 9.900 | (1.085) | 201103 | 49.2474 | 49.2 | |
| | 96 Bromobenzene | 77 | 9.967 | 9.967 | (0.943) | 327704 | 50.0492 | 50.0 | |
| | 97 n-Propylbenzene | 91 | 9.971 | 9.971 | (0.943) | 786033 | 51.5471 | 51.5 | |
| | 98 1,1,2,2-Tetrachloroethane++ | 83 | 10.012 | 10.012 | (0.947) | 218166 | 48.4991 | 48.5 | |
| | 99 2-Chlorotoluene | 91 | 10.076 | 10.076 | (0.953) | 518226 | 51.5865 | 51.6 | |
| | 102 1,3,5-Trimethylbenzene | 105 | 10.083 | 10.083 | (0.954) | 536429 | 53.1023 | 53.1 | |
| | 100 1,2,3-Trichloropropane | 75 | 10.102 | 10.102 | (0.956) | 287925 | 51.3684 | 51.4 | |
| | 101 trans-1,4-Dichloro-2-Butene | 53 | 10.121 | 10.121 | (0.957) | 71870 | 52.8410 | 52.8 | |
| | 104 4-Chlorotoluene | 91 | 10.177 | 10.177 | (0.963) | 462396 | 52.4672 | 52.5 | |
| | 105 tert-butylbenzene | 91 | 10.282 | 10.282 | (0.973) | 292401 | 54.1903 | 54.2 | |
| | 107 1,2,4-Trimethylbenzene | 105 | 10.319 | 10.319 | (0.976) | 549774 | 55.0691 | 55.1 | |
| | 108 sec-Butylbenzene | 105 | 10.387 | 10.387 | (0.983) | 638496 | 53.3621 | 53.4 | |
| | 110 p-Isopropyltoluene | 119 | 10.466 | 10.466 | (0.990) | 552465 | 55.4708 | 55.5 | |
| | 113 1,3-Dichlorobenzene | 146 | 10.529 | 10.529 | (0.996) | 321575 | 51.4068 | 51.4 | |
| * | 114 1,4-DICHLOROBENZENE-D4 | 152 | 10.571 | 10.574 | (1.000) | 240708 | 50.0000 | | |
| | 115 1,4-Dichlorobenzene | 146 | 10.582 | 10.582 | (1.001) | 328609 | 49.9706 | 50.0 | |
| | 117 n-Butylbenzene | 91 | 10.717 | 10.717 | (1.014) | 494941 | 55.5365 | 55.5 | |
| | 118 1,2-Dichlorobenzene | 146 | 10.837 | 10.837 | (1.025) | 315797 | 51.2818 | 51.3 | |
| | 119 1,2-Dibromo-3-Chloropropane | 157 | 11.358 | 11.358 | (1.074) | 45504 | 52.4991 | 52.5 | |
| | 120 Hexachlorobutadiene | 225 | 11.815 | 11.815 | (1.118) | 95436 | 50.7252 | 50.7 | |
| | 122 1,2,4-Trichlorobenzene | 180 | 11.860 | 11.856 | (1.122) | 197265 | 50.2347 | 50.2 | |
| | 124 Naphthalene | 128 | 12.141 | 12.141 | (1.149) | 488885 | 49.0827 | 49.1 | |
| | 125 1,2,3-Trichlorobenzene | 180 | 12.306 | 12.306 | (1.164) | 201010 | 51.2368 | 51.2 | |
| | 22 tert-Butyl Alcohol | 59 | 4.423 | 4.427 | (0.666) | 17594 | 56.5801 | 56.6 | 7009 |
| | 24 Isopropyl Ether | 45 | 4.730 | 4.730 | (0.713) | 494688 | 57.3540 | 57.4 | 9522 |
| | 25 Chloroprene | 53 | 4.816 | 4.816 | (0.726) | 208252 | 54.8496 | 54.8 | 8934 |
| | 52 Isobutyl Alcohol | 43 | 6.473 | 6.473 | (0.975) | 50238 | 263.135 | 263 | 9042 |
| | 62 1,4- Dioxane | 58 | 7.508 | 7.508 | (1.131) | 40351 | 1408.07 | 1410 | 8610 |
| | 170 3,4-dichloro-1-butene | 75 | 8.651 | 8.651 | (0.949) | 181373 | 53.6516 | 53.7 | 9416 |
| | 169 cis-1,4-dichloro-2-butene | 53 | 9.930 | 9.930 | (0.939) | 84342 | 50.3118 | 50.3 | 9532 |

Data File: /var/chem/msv13.i/2171010.s.b/d9828cD.d

Page 1

Date : 10-OCT-2017 15:11

Client ID: ICV050

Instrument: msv13.i

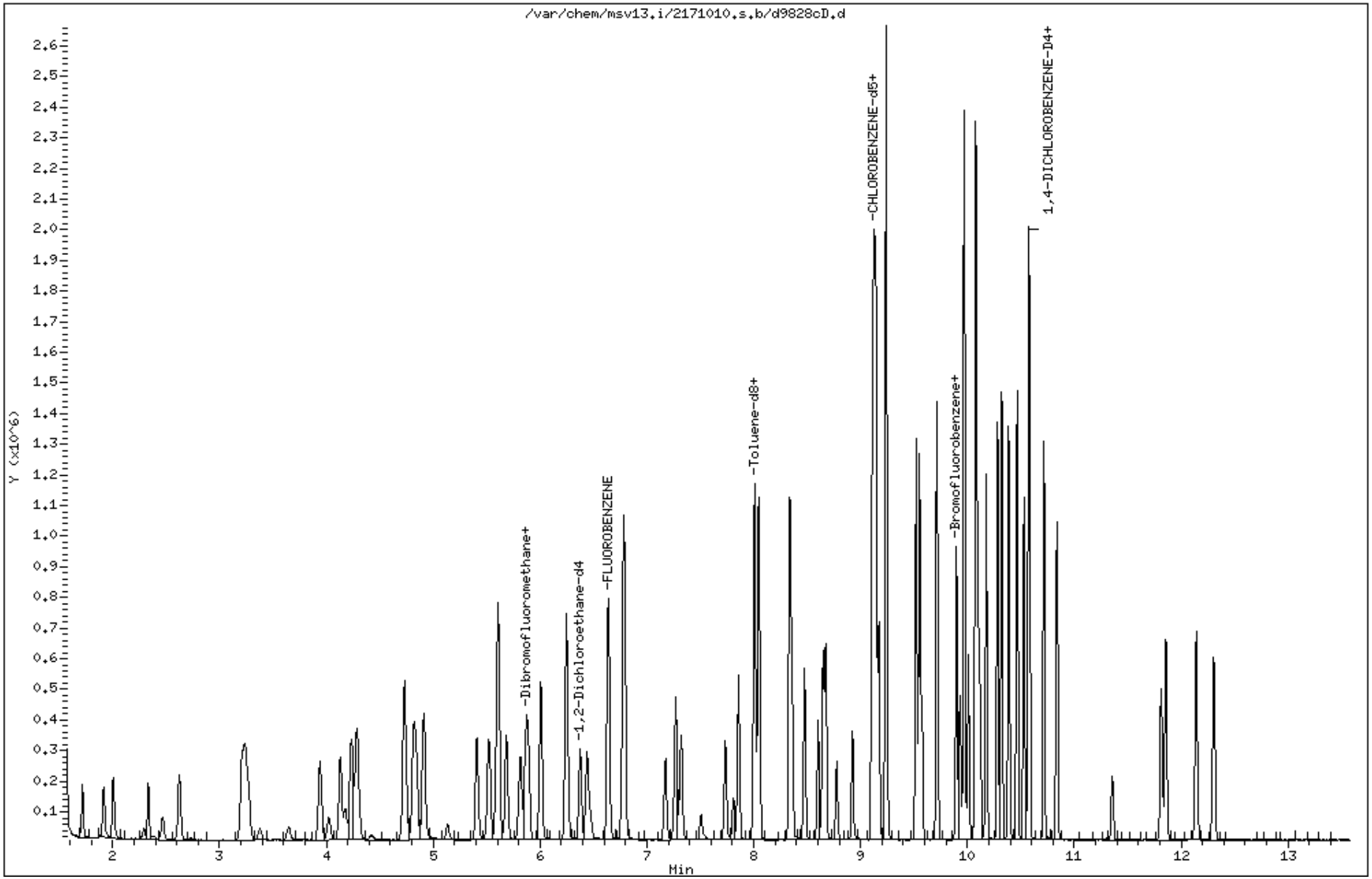
Sample Info: 1600*ICV050

Purge Volume: 5.0

Operator: JCK

Column phase: RTX-VMS-30M

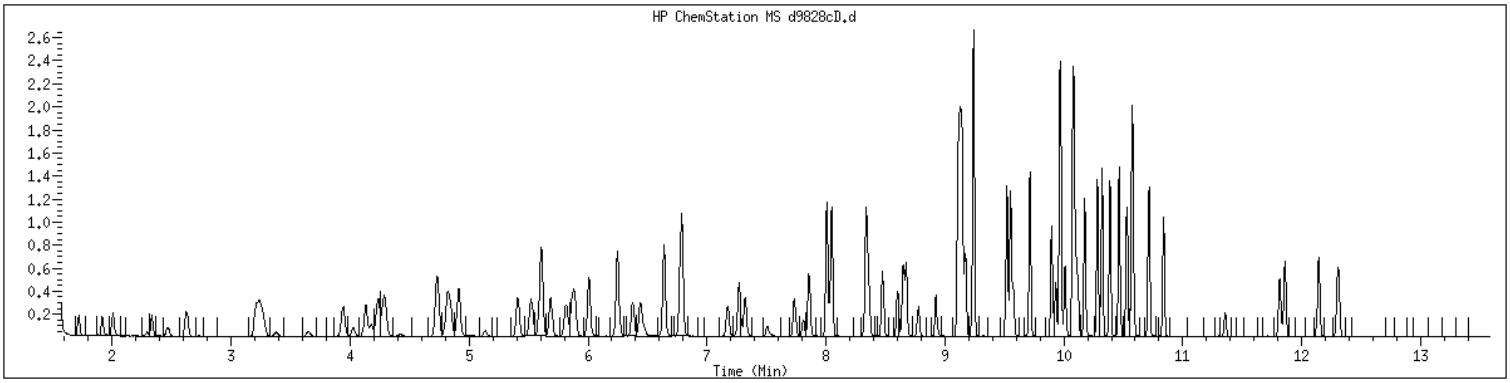
Column diameter: 0.25



Data file : /var/chem/msv13.i/2171010.s.b/d9828cD.d Page: 1
Report Date: 10/11/2017 17:21

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID : 1600 SampleType : LCS
Injection Date: 10/10/2017 15:11 Instrument : msv13.i
Operator : JCK
Sample Info : 1600*ICV050
Misc Info : MSV~39299~*1*JCK
Method : /var/chem/msv13.i/2171010.s.b/8260cdodw13.m
Dilution : 1.00
Matrix : WATER
Integrator : HP RTE Compound Sublist: 8260b+AppIX1




NO MANUAL INTEGRATIONS

# Form 7A

# CCAL Verifications

7A
VOLATILE CLOSING CALIBRATION CHECK

| | | | |
|---|---|---|---|
| Report No: | 217100631 | CCAL ID: | 1440 |
| GC Column: | RTX-VMS-30 ID .25 (mm) | Instrument ID: | MSV13 |
| Injection Vol.: | 1.0 ( µL ) | Lab File ID: | 2171010/d9846 |
| Init. Calib. Date 1: | 10/10/17 Time 1: 1150 | Analyst: | JCK |
| Init. Calib. Date 2: | 10/10/17 Time 2: 1426 | Analytical Batch: | 620002 |
| Analysis Date: | 10/10/17 Time: 2221 | Analytical Method: | EPA 8260C |

| *ANALYTE* | *$\overline{RRF}$* | *RRF CCV* | *Min RRF* | *%D/%Drift* | *Max %D/ %Drift* | *TYPE* | *Q* |
|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 0.524 | 0.501 | .1 | -4.48 | 50 | A | |
| 1,1,1-Trichloroethane | 0.329 | 0.330 | .1 | .27 | 50 | A | |
| 1,1,2,2-Tetrachloroethane | 0.934 | 0.844 | .3 | -9.63 | 50 | A | |
| 1,1,2-Trichloroethane | 0.506 | 0.480 | .1 | -4.98 | 50 | A | |
| 1,1-Dichloroethane | 0.445 | 0.455 | .2 | 2.22 | 50 | A | |
| 1,1-Dichloroethene | 0.167 | 0.152 | .1 | -9.38 | 50 | A | |
| 1,1-Dichloropropene | 0.275 | 0.284 | .1 | 3.37 | 50 | A | |
| 1,2,3-Trichlorobenzene | 0.827 | 0.798 | .1 | -2 | 50 | W | |
| 1,2,3-Trichloropropane | 1.164 | 1.163 | .1 | -.15 | 50 | A | |
| 1,2,4-Trichlorobenzene | 0.830 | 0.779 | .2 | -4.4 | 50 | W | |
| 1,2,4-Trimethylbenzene | 2.074 | 2.234 | .1 | 7.75 | 50 | A | |
| 1,2-Dibromo-3-chloropropane | 0.180 | 0.183 | .05 | 1.48 | 50 | A | |
| 1,2-Dibromoethane | 0.480 | 0.467 | .1 | -2.76 | 50 | A | |
| 1,2-Dichlorobenzene | 1.279 | 1.292 | .4 | .98 | 50 | A | |
| 1,2-Dichloroethane | 0.383 | 0.379 | .1 | -.92 | 50 | A | |
| 1,2-Dichloroethane-d4 | 0.170 | 0.172 | .1 | 1.48 | 50 | A | |
| 1,2-Dichloroethene (total) | 0.299 | 0.296 | .1 | -1.03 | 50 | A | |
| 1,2-Dichloropropane | 0.256 | 0.262 | .1 | 2.57 | 50 | A | |
| 1,3,5-Trimethylbenzene | 2.098 | 2.194 | .1 | 4.54 | 50 | A | |
| 1,3-Dichlorobenzene | 1.299 | 1.315 | .6 | 1.17 | 50 | A | |
| 1,3-Dichloropropane | 0.943 | 0.942 | .1 | -.19 | 50 | A | |
| 1,3-Dichloropropylene | 0.341 | 0.369 | .1 | 8.29 | 50 | A | |
| 1,4 Dioxane | 0.002 | 0.002 | .001 | 7.16 | 50 | A | |
| 1,4-Dichlorobenzene | 1.366 | 1.342 | .5 | -1.75 | 50 | A | |
| 1-Bromo-2-Chloroethane | 0.375 | 0.396 | .001 | 5.57 | 50 | A | |
| 1-Chlorohexane | 0.622 | 0.621 | .001 | -.21 | 50 | A | |
| 2,2-Dichloropropane | 0.292 | 0.285 | .1 | -2.17 | 50 | A | |
| 2-Butanone | 0.203 | 0.213 | .1 | 4.97 | 50 | A | |
| 2-Chloroethylvinyl ether | 0.075 | 0.127 | .1 | 70.6 | 50 | W | * |
| 2-Chlorotoluene | 2.087 | 2.135 | .1 | 2.31 | 50 | A | |
| 2-Hexanone | 0.662 | 0.635 | .1 | -2.6 | 50 | W | |
| 4-Bromofluorobenzene | 0.750 | 0.723 | .1 | -3.6 | 50 | A | |
| 4-Chlorotoluene | 1.831 | 1.901 | .1 | 3.84 | 50 | A | |
| 4-Isopropyltoluene | 2.069 | 2.221 | .1 | 7.36 | 50 | A | |
| 4-Methyl-2-pentanone | 0.746 | 0.810 | .1 | 8.59 | 50 | A | |
| Acetone | 0.188 | 0.171 | .1 | -9.42 | 50 | A | |
| Acrolein | 0.014 | 0.010 | .01 | -29.7 | 50 | A | |
| Acrylonitrile | 0.113 | 0.117 | .01 | 3.76 | 50 | A | |
| Benzene | 0.917 | 0.951 | .5 | 3.7 | 50 | A | |

FORM V II VOA

7A
VOLATILE CLOSING CALIBRATION CHECK

| | | | |
|---|---|---|---|
| Report No: | 217100631 | CCAL ID: | 1440 |
| GC Column: | RTX-VMS-30 ID .25 (mm) | Instrument ID: | MSV13 |
| Injection Vol.: | 1.0 ( µL ) | Lab File ID: | 2171010/d9846 |
| Init. Calib. Date 1: | 10/10/17 Time 1: 1150 | Analyst: | JCK |
| Init. Calib. Date 2: | 10/10/17 Time 2: 1426 | Analytical Batch: | 620002 |
| Analysis Date: | 10/10/17 Time: 2221 | Analytical Method: | EPA 8260C |

| *ANALYTE* | *$\overline{RRF}$* | *RRF CCV* | *Min RRF* | *%D/%Drift* | *Max %D/ %Drift* | *TYPE* | *Q* |
|---|---|---|---|---|---|---|---|
| Bromobenzene | 1.360 | 1.406 | .1 | 3.38 | 50 | A | |
| Bromochloromethane | 0.115 | 0.110 | .1 | -4.34 | 50 | A | |
| Bromodichloromethane | 0.320 | 0.332 | .2 | 3.74 | 50 | A | |
| Bromoform | 0.477 | 0.456 | .1 | -4.37 | 50 | A | |
| Bromomethane | 0.129 | 0.080 | .1 | -37.8 | 50 | A | * |
| Carbon disulfide | 0.618 | 0.568 | .1 | -8.19 | 50 | A | |
| Carbon tetrachloride | 0.268 | 0.271 | .1 | .8 | 50 | A | |
| Chlorobenzene | 1.554 | 1.496 | .5 | -3.74 | 50 | A | |
| Chloroethane | 5.723 | 0.121 | .1 | -.6 | 50 | Q | |
| Chloroform | 0.404 | 0.398 | .2 | -1.42 | 50 | A | |
| Chloromethane | 0.235 | 0.191 | .1 | -18.6 | 50 | A | |
| Chloroprene | 0.305 | 0.333 | .1 | 9.28 | 50 | A | |
| Cyclohexane | 0.364 | 0.406 | .1 | 11.5 | 50 | A | |
| Dibromochloromethane | 0.573 | 0.539 | .1 | -5.93 | 50 | A | |
| Dibromofluoromethane | 0.239 | 0.240 | .1 | .13 | 50 | A | |
| Dibromomethane | 0.140 | 0.139 | .1 | -1.05 | 50 | A | |
| Dichlorodifluoromethane | 0.190 | 0.183 | .1 | -3.41 | 50 | A | |
| Ethylbenzene | 0.779 | 0.778 | .1 | -.08 | 50 | A | |
| Hexachlorobutadiene | 0.391 | 0.378 | .1 | -3.17 | 50 | A | |
| Isobutyl alcohol | 0.015 | 0.016 | .001 | 1.81 | 50 | A | |
| Isopropylbenzene (Cumene) | 2.129 | 2.277 | .1 | 6.95 | 50 | A | |
| Methyl Acetate | 0.228 | 0.214 | .05 | -6.02 | 50 | A | |
| Methyl iodide | 10.7 | 0.044 | .05 | -45.4 | 50 | Q | * |
| Methylcyclohexane | 0.344 | 0.353 | .1 | 2.36 | 50 | A | |
| Methylene chloride | 0.273 | 0.264 | .1 | -3.53 | 50 | A | |
| Naphthalene | 2.268 | 1.983 | .1 | -4 | 50 | W | |
| Styrene | 1.416 | 1.562 | .3 | 10.2 | 50 | A | |
| Tetrachloroethene | 0.485 | 0.444 | .2 | -8.47 | 50 | A | |
| Toluene | 2.371 | 2.289 | .4 | -3.47 | 50 | A | |
| Toluene-d8 | 2.234 | 2.199 | .1 | -1.54 | 50 | A | |
| Trichloroethene | 0.244 | 0.249 | .2 | 2.22 | 50 | A | |
| Trichlorofluoromethane | 0.291 | 0.275 | .1 | -5.25 | 50 | A | |
| Trichlorotrifluoroethane | 0.167 | 0.153 | .1 | -8.46 | 50 | A | |
| Vinyl acetate | 0.116 | 0.091 | .001 | -21.4 | 50 | A | |
| Vinyl chloride | 0.249 | 0.242 | .1 | -2.96 | 50 | A | |
| Xylene (total) | 0.871 | 0.914 | .1 | 4.95 | 50 | A | |
| cis-1,2-Dichloroethene | 0.319 | 0.326 | .1 | 2.29 | 50 | A | |
| cis-1,3-Dichloropropene | 0.349 | 0.382 | .2 | 9.46 | 50 | A | |
| diisopropyl Ether (DIPE) | 0.692 | 0.775 | .1 | 12 | 50 | A | |

FORM V II VOA

7A
VOLATILE CLOSING CALIBRATION CHECK

| | | | |
|---|---|---|---|
| Report No: | 217100631 | CCAL ID: | 1440 |
| GC Column: | RTX-VMS-30 ID .25 (mm) | Instrument ID: | MSV13 |
| Injection Vol.: | 1.0 ( µL ) | Lab File ID: | 2171010/d9846 |
| Init. Calib. Date 1: | 10/10/17 Time 1: 1150 | Analyst: | JCK |
| Init. Calib. Date 2: | 10/10/17 Time 2: 1426 | Analytical Batch: | 620002 |
| Analysis Date: | 10/10/17 Time: 2221 | Analytical Method: | EPA 8260C |

| *ANALYTE* | *$\overline{RRF}$* | *RRF CCV* | *Min RRF* | *%D/%Drift* | *Max %D/ %Drift* | *TYPE* | *Q* |
|---|---|---|---|---|---|---|---|
| m,p-Xylene | 0.894 | 0.934 | .1 | 4.53 | 50 | A | |
| n-Butylbenzene | 1.851 | 2.001 | .1 | 8.1 | 50 | A | |
| n-Hexane | 0.264 | 0.245 | .1 | -7.25 | 50 | A | |
| n-Propylbenzene | 3.168 | 3.232 | .1 | 2.05 | 50 | A | |
| o-Xylene | 0.824 | 0.873 | .3 | 5.88 | 50 | A | |
| sec-Butylbenzene | 2.485 | 2.602 | .1 | 4.7 | 50 | A | |
| t-Butanol (TBA) | 0.025 | 0.024 | .001 | -3.75 | 50 | A | |
| tert-Butyl methyl ether (MTBE) | 0.588 | 0.606 | .1 | 3.08 | 50 | A | |
| tert-Butylbenzene | 1.121 | 1.170 | .1 | 4.41 | 50 | A | |
| trans-1,2-Dichloroethene | 0.279 | 0.266 | .1 | -4.82 | 50 | A | |
| trans-1,3-Dichloropropene | 0.333 | 0.356 | .1 | 7.07 | 50 | A | |
| trans-1,4-Dichloro-2-butene | 0.283 | 0.306 | .1 | 8.24 | 50 | A | |

FORM V II VOA

GCAL, Inc.

Data file : /var/chem/msv13.i/2171010.s.b/d9846.d
Lab Smp Id: 1440 Client Smp ID: V13STD050
Inj Date : 10-OCT-2017 22:21
Operator : JCK Inst ID: msv13.i
Smp Info : 1440*V13STD050
Misc Info : MSV~39299~*1*JCK
Comment :
Method : /var/chem/msv13.i/2171010.s.b/8260cdod5w13.m
Meth Date : 11-Oct-2017 17:18 jck2 Quant Type: ISTD
Cal Date : 10-OCT-2017 14:26 Cal File: d9826cD.d
Als bottle: 1 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 8260b+AppIX1.sub
Target Version: 3.50
Processing Host: org.gcal.com

Concentration Formula: Amt * DF * Uf/Vo * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.00000 | Dilution Factor |
| Uf | 5.00000 | ng unit correction factor |
| Vo | 5.00000 | Sample Volume purged (mL) |
| DF | 1.00000 | |

Cpnd Variable Local Compound Variable

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ppb) | ON-COL ( ppb) | SIMILARITY |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Dichlorodifluoromethane | 85 | 1.716 | 1.716 | (0.259) | 107033 | 50.0000 | 48.3 | |
| 2 | Chloromethane ++ | 50 | 1.915 | 1.915 | (0.288) | 111582 | 50.0000 | 40.7 | |
| 3 | Vinyl Chloride + | 62 | 2.005 | 2.005 | (0.302) | 141146 | 50.0000 | 48.5 | |
| 6 | Bromomethane | 94 | 2.335 | 2.335 | (0.352) | 46811 | 50.0000 | 31.1 | |
| 7 | Chloroethane | 64 | 2.466 | 2.466 | (0.371) | 70430 | 50.0000 | 49.7 | |
| 8 | Trichlorofluoromethane | 101 | 2.627 | 2.627 | (0.396) | 160837 | 50.0000 | 47.4 | |
| 10 | 1,1-Dichloroethene + | 96 | 3.212 | 3.212 | (0.484) | 88573 | 50.0000 | 45.3 | |
| 11 | Carbon Disulfide | 76 | 3.238 | 3.238 | (0.488) | 331697 | 50.0000 | 45.9 | |
| 12 | 1,1,2Trichlotrifluoroethane | 101 | 3.264 | 3.264 | (0.492) | 89375 | 50.0000 | 45.8 | |
| 13 | Methyl Iodide | 142 | 3.381 | 3.381 | (0.509) | 25958 | 50.0000 | 27.3 | |
| 14 | Acrolein | 56 | 3.651 | 3.651 | (0.550) | 29603 | 250.000 | 176 | |
| 16 | Methylene Chloride | 49 | 3.943 | 3.943 | (0.594) | 154121 | 50.0000 | 48.2 | |
| 17 | Acetone | 43 | 4.025 | 4.025 | (0.606) | 99707 | 50.0000 | 45.3 | |
| 18 | trans-1,2-Dichloroethene | 61 | 4.134 | 4.134 | (0.623) | 155327 | 50.0000 | 47.6 | |

Data File: /var/chem/msv13.i/2171010.s.b/d9846.d Page 2
Report Date: 11-Oct-2017 17:18

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ppb) | ON-COL ( ppb) | SIMILARITY |
|---|---|---|---|---|---|---|---|---|---|
| | 19 Methyl Acetate | 43 | 4.175 | 4.175 | (0.629) | 125055 | 50.0000 | 47.0 | 9258 |
| | 20 Hexane | 57 | 4.235 | 4.235 | (0.638) | 142981 | 50.0000 | 46.4 | 9484 |
| | 21 MTBE | 73 | 4.288 | 4.288 | (0.646) | 353867 | 50.0000 | 51.5 | 9521 |
| | 26 1,1-Dichloroethane ++ | 63 | 4.839 | 4.839 | (0.729) | 265744 | 50.0000 | 51.1 | |
| | 27 Acrylonitrile | 53 | 4.910 | 4.910 | (0.740) | 342410 | 250.000 | 259 | |
| | 28 Vinyl Acetate | 43 | 5.131 | 5.131 | (0.773) | 53026 | 50.0000 | 39.3 | |
| | 29 cis-1,2-Dichloroethene | 61 | 5.409 | 5.409 | (0.815) | 190402 | 50.0000 | 51.1 | |
| M | 75 Total 1,2-Dichloroethene | 61 | | | | 345729 | 100.000 | 98.7 | |
| | 30 2,2-Dichloropropane | 77 | 5.525 | 5.525 | (0.832) | 166782 | 50.0000 | 48.9 | |
| | 32 Cyclohexane | 56 | 5.604 | 5.604 | (0.844) | 237037 | 50.0000 | 55.7 | 9480 |
| | 34 Bromochloromethane | 128 | 5.611 | 5.611 | (0.845) | 64015 | 50.0000 | 47.8 | |
| | 35 Chloroform + | 83 | 5.682 | 5.682 | (0.856) | 232639 | 50.0000 | 49.3 | |
| | 36 Carbon Tetrachloride | 117 | 5.810 | 5.810 | (0.875) | 158142 | 50.0000 | 50.4 | |
| $ | 40 Dibromofluoromethane | 111 | 5.862 | 5.862 | (0.883) | 139972 | 50.0000 | 50.1 | 9611 |
| | 41 1,1,1-Trichloroethane | 97 | 5.885 | 5.885 | (0.886) | 192881 | 50.0000 | 50.1 | |
| | 44 2-Butanone | 43 | 6.008 | 6.008 | (0.905) | 124382 | 50.0000 | 52.5 | |
| | 43 1,1-Dichloropropene | 75 | 6.008 | 6.008 | (0.905) | 165930 | 50.0000 | 51.7 | |
| | 46 Benzene | 78 | 6.248 | 6.248 | (0.941) | 555607 | 50.0000 | 51.8 | |
| $ | 50 1,2-Dichloroethane-d4 | 67 | 6.376 | 6.376 | (0.960) | 100671 | 50.0000 | 50.7 | |
| | 51 1,2-Dichloroethane | 62 | 6.440 | 6.440 | (0.970) | 221576 | 50.0000 | 49.5 | |
| * | 53 FLUOROBENZENE | 96 | 6.638 | 6.638 | (1.000) | 584310 | 50.0000 | | |
| | 55 Methyl Cyclohexane | 83 | 6.781 | 6.781 | (1.021) | 205985 | 50.0000 | 51.2 | 9098 |
| | 56 Trichloroethene | 130 | 6.788 | 6.788 | (1.023) | 145745 | 50.0000 | 51.1 | |
| | 57 Dibromomethane | 93 | 7.174 | 7.174 | (1.081) | 81150 | 50.0000 | 49.5 | |
| | 59 1,2-Dichloropropane + | 63 | 7.268 | 7.268 | (1.095) | 153245 | 50.0000 | 51.3 | |
| | 60 Bromodichloromethane | 83 | 7.320 | 7.320 | (1.103) | 194170 | 50.0000 | 51.9 | |
| | 65 1-Bromo-2-chloroethane | 63 | 7.733 | 7.733 | (1.165) | 231445 | 50.0000 | 52.8 | 9782 |
| | 64 2-Chloroethyl vinyl ether | 63 | 7.812 | 7.812 | (1.177) | 74022 | 50.0000 | 85.3 | |
| | 67 cis-1,3-Dichloropropene | 75 | 7.857 | 7.857 | (1.184) | 222948 | 50.0000 | 54.7 | |
| $ | 68 Toluene-d8 | 98 | 8.006 | 8.006 | (0.878) | 583647 | 50.0000 | 49.2 | |
| | 69 Toluene + | 91 | 8.048 | 8.048 | (0.882) | 607376 | 50.0000 | 48.3 | |
| | 71 Tetrachloroethene | 164 | 8.336 | 8.336 | (0.914) | 117884 | 50.0000 | 45.8 | |
| | 73 4-methyl-2-pentanone | 43 | 8.336 | 8.336 | (0.914) | 215022 | 50.0000 | 54.3 | |
| | 74 trans-1,3-Dichloropropene | 75 | 8.359 | 8.359 | (1.259) | 208196 | 50.0000 | 53.5 | |
| M | 82 1-3 Dichloropropene total | 100 | | | | 431144 | 100.000 | 108 | 0 |
| | 76 1,1,2-Trichloroethane | 97 | 8.475 | 8.475 | (0.929) | 127499 | 50.0000 | 47.5 | |
| | 78 Dibromochloromethane | 129 | 8.603 | 8.603 | (0.943) | 142937 | 50.0000 | 47.0 | |
| | 79 1,3-Dichloropropane | 76 | 8.674 | 8.674 | (0.951) | 249865 | 50.0000 | 49.9 | |
| | 80 1,2-Dibromoethane(EDB) | 107 | 8.775 | 8.775 | (0.962) | 123861 | 50.0000 | 48.6 | |
| | 83 2-Hexanone | 43 | 8.925 | 8.925 | (0.979) | 168453 | 50.0000 | 48.7 | |
| | 86 1-Chlorohexane | 91 | 9.109 | 9.109 | (0.999) | 164778 | 50.0000 | 49.9 | 9526 |
| * | 84 CHLOROBENZENE-d5 | 82 | 9.120 | 9.120 | (1.000) | 265375 | 50.0000 | | |
| | 85 Chlorobenzene ++ | 112 | 9.131 | 9.131 | (1.001) | 397079 | 50.0000 | 48.1 | |
| | 87 Ethylbenzene + | 106 | 9.146 | 9.146 | (1.003) | 206590 | 50.0000 | 50.0 | |
| | 88 1,1,1,2-Tetrachloroethane | 133 | 9.172 | 9.172 | (1.006) | 132867 | 50.0000 | 47.8 | |
| | 89 p,m-Xylene | 106 | 9.240 | 9.240 | (1.013) | 495934 | 100.000 | 105 | |
| | 90 o-Xylene | 106 | 9.521 | 9.521 | (1.044) | 231613 | 50.0000 | 52.9 | |

Data File: /var/chem/msv13.i/2171010.s.b/d9846.d Page 3
Report Date: 11-Oct-2017 17:18

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ppb) | ON-COL ( ppb) | SIMILARITY |
|---|---|---|---|---|---|---|---|---|---|
| M | 121 TOTAL XYLENE | 106 | | | | 727547 | 150.000 | 157 | |
| | 91 Styrene | 104 | 9.551 | 9.551 | (1.047) | 414382 | 50.0000 | 55.1 | |
| | 92 Bromoform ++ | 173 | 9.577 | 9.577 | (1.050) | 121031 | 50.0000 | 47.8 | |
| | 93 Isopropylbenzene | 105 | 9.716 | 9.716 | (1.065) | 604350 | 50.0000 | 53.5 | |
| $ | 95 Bromofluorobenzene | 174 | 9.900 | 9.900 | (1.085) | 191888 | 50.0000 | 48.2 | |
| | 96 Bromobenzene | 77 | 9.967 | 9.967 | (0.943) | 327493 | 50.0000 | 51.7 | |
| | 97 n-Propylbenzene | 91 | 9.971 | 9.971 | (0.943) | 752869 | 50.0000 | 51.0 | |
| | 98 1,1,2,2-Tetrachloroethane++ | 83 | 10.008 | 10.008 | (0.947) | 196675 | 50.0000 | 45.2 | |
| | 99 2-Chlorotoluene | 91 | 10.076 | 10.076 | (0.953) | 497256 | 50.0000 | 51.2 | |
| | 102 1,3,5-Trimethylbenzene | 105 | 10.083 | 10.083 | (0.954) | 510956 | 50.0000 | 52.3 | |
| | 100 1,2,3-Trichloropropane | 75 | 10.102 | 10.102 | (0.956) | 270791 | 50.0000 | 49.9 | |
| | 101 trans-1,4-Dichloro-2-Butene | 53 | 10.121 | 10.121 | (0.957) | 71226 | 50.0000 | 54.1 | |
| | 104 4-Chlorotoluene | 91 | 10.173 | 10.173 | (0.962) | 442768 | 50.0000 | 51.9 | |
| | 105 tert-butylbenzene | 91 | 10.282 | 10.282 | (0.973) | 272581 | 50.0000 | 52.2 | |
| | 107 1,2,4-Trimethylbenzene | 105 | 10.319 | 10.319 | (0.976) | 520440 | 50.0000 | 53.9 | |
| | 108 sec-Butylbenzene | 105 | 10.387 | 10.387 | (0.983) | 606123 | 50.0000 | 52.4 | |
| | 110 p-Isopropyltoluene | 119 | 10.466 | 10.466 | (0.990) | 517317 | 50.0000 | 53.7 | |
| | 113 1,3-Dichlorobenzene | 146 | 10.529 | 10.529 | (0.996) | 306183 | 50.0000 | 50.6 | |
| * | 114 1,4-DICHLOROBENZENE-D4 | 152 | 10.571 | 10.571 | (1.000) | 232921 | 50.0000 | | |
| | 115 1,4-Dichlorobenzene | 146 | 10.582 | 10.582 | (1.001) | 312611 | 50.0000 | 49.1 | |
| | 117 n-Butylbenzene | 91 | 10.717 | 10.717 | (1.014) | 466104 | 50.0000 | 54.0 | |
| | 118 1,2-Dichlorobenzene | 146 | 10.837 | 10.837 | (1.025) | 300867 | 50.0000 | 50.5 | |
| | 119 1,2-Dibromo-3-Chloropropane | 157 | 11.358 | 11.358 | (1.074) | 42558 | 50.0000 | 50.7 | |
| | 120 Hexachlorobutadiene | 225 | 11.815 | 11.815 | (1.118) | 88139 | 50.0000 | 48.4 | |
| | 122 1,2,4-Trichlorobenzene | 180 | 11.856 | 11.856 | (1.122) | 181349 | 50.0000 | 47.8 | |
| | 124 Naphthalene | 128 | 12.141 | 12.141 | (1.149) | 461835 | 50.0000 | 48.0 | |
| | 125 1,2,3-Trichlorobenzene | 180 | 12.306 | 12.306 | (1.164) | 185969 | 50.0000 | 49.0 | |
| | 22 tert-Butyl Alcohol | 59 | 4.427 | 4.427 | (0.667) | 14029 | 50.0000 | 48.1 | 6540 |
| | 24 Isopropyl Ether | 45 | 4.730 | 4.730 | (0.713) | 452988 | 50.0000 | 56.0 | 9344 |
| | 25 Chloroprene | 53 | 4.816 | 4.816 | (0.726) | 194475 | 50.0000 | 54.6 | 8770 |
| | 52 Isobutyl Alcohol | 43 | 6.470 | 6.470 | (0.975) | 45553 | 250.000 | 255 | 8851 |
| | 62 1,4- Dioxane | 58 | 7.508 | 7.508 | (1.131) | 35985 | 1250.00 | 1340 | 8656 |
| | 170 3,4-dichloro-1-butene | 75 | 8.648 | 8.648 | (0.948) | 164567 | 50.0000 | 49.9 | 9328 |
| | 169 cis-1,4-dichloro-2-butene | 53 | 9.930 | 9.930 | (0.939) | 79057 | 50.0000 | 48.7 | 9506 |

Data File: /var/chem/msv13.i/2171010.s.b/d9846.d



Date : 10-OCT-2017 22:21

Client ID: V13STD050

Instrument: msv13.i

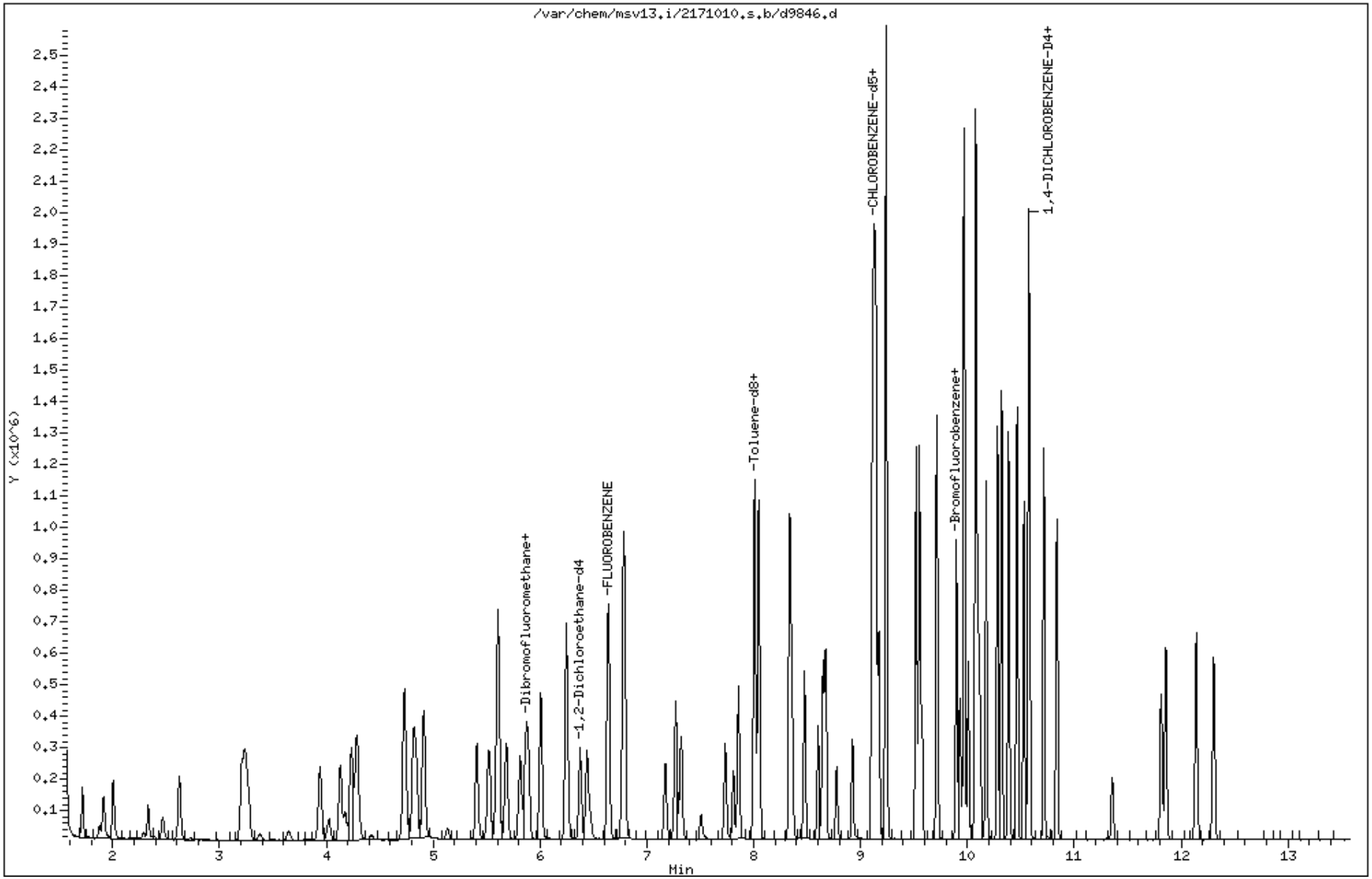
Sample Info: 1440*V13STD050

Purge Volume: 5.0

Operator: JCK

Column phase: RTX-VMS-30M

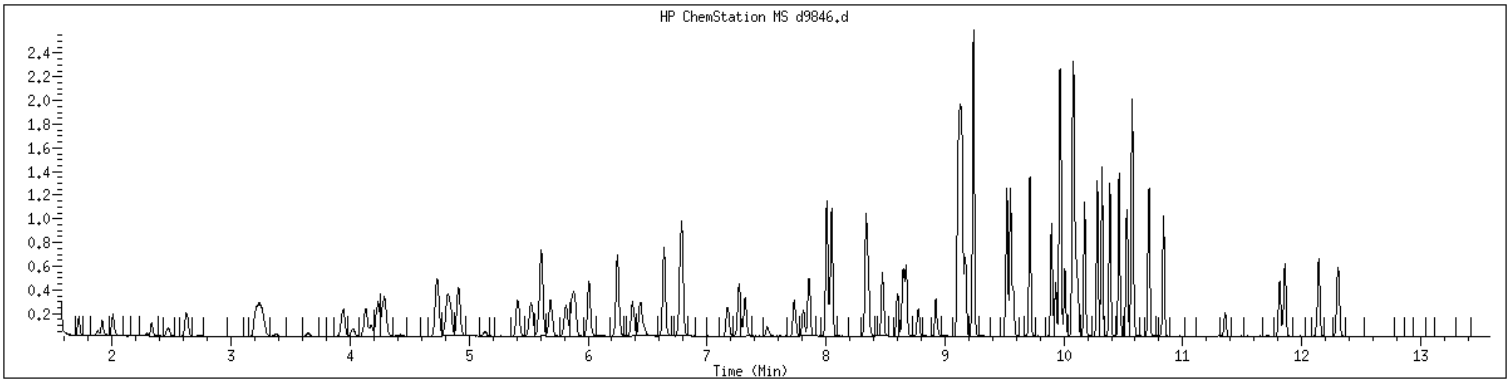
Column diameter: 0.25



Data file : /var/chem/msv13.i/2171010.s.b/d9846.d Page: 1
Report Date: 10/11/2017 17:18

MANUAL INTEGRATION GRAPHIC REPORT

| | | | |
|---|---|---|---|
| Lab ID | : 1440 | SampleType | : CCALIB_7 |
| Injection Date | : 10/10/2017 22:21 | Instrument | : msv13.i |
| Operator | : JCK | | |
| Sample Info | : 1440*V13STD050 | | |
| Misc Info | : MSV~39299~*1*JCK | | |
| Method | : /var/chem/msv13.i/2171010.s.b/8260cdod5w13.m | | |
| Dilution | : 1.00 | | |
| Matrix | : WATER | | |
| Integrator | : HP RTE | Compound Sublist | : 8260b+AppIX1 |




NO MANUAL INTEGRATIONS

# Form 8A

# Internal Standards

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

| | | | |
|---|---|---|---|
| Report No: | 217100631 | Standard ID: | 1207 |
| GC Column: | RTX-VMS-30 ID .25 (mm) | Instrument ID: | MSV13 |
| Injection Vol.: | 1.0 ( µL ) | Lab File ID: | 2171010/d9824cD |
| Analyst: | JCK | Analytical Batch: | 620002 |
| Analysis Date: | 10/10/17 Time: 1342 | Analytical Method: | EPA 8260C |

| | IS 1 | | IS 2 | | IS 3 | |
|---|---|---|---|---|---|---|
| | Area | RT | Area | RT | Area | RT |
| STANDARD | 258743 | 9.12 | 232089 | 10.57 | 583670 | 6.64 |

| *CLIENT SAMPLE ID* | *GCAL SAMP ID* | | # | | # | | # | | # | | # | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS1729633 | 1729633 | 271552 | | 9.12 | | 244103 | | 10.57 | | 619559 | | 6.64 | |
| LCSD1729634 | 1729634 | 272228 | | 9.12 | | 239076 | | 10.57 | | 628923 | | 6.64 | |
| MB1729632 | 1729632 | 223680 | | 9.12 | | 172196 | | 10.57 | | 555802 | | 6.64 | |
| LH18/24-SP650_1017B | 21710063101 | 217139 | | 9.12 | | 177371 | | 10.57 | | 523537 | | 6.64 | |

IS 1 ID : Chlorobenzene-d5
IS 2 ID : 1,4-Dichlorobenzene-d4
IS 3 ID : Fluorobenzene

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

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -70% of internal standard area

RT UPPER LIMIT = +0.17 minutes of internal standard RT
RT LOWER LIMIT = -0.17 minutes of internal standard RT

FORM V III VOA

# RunLog

LABORATORY CHRONICLE:  MSV DEPARTMENT

Date: 10-OCT-2017
Instrument: msv13.i
Analyst(s): JCK

| | Standard | Conc | ID | EXP |
|---|---|---|---|---|
| | 8260 IS/SS | 50 | 126-81-4 | 03/11/18 |
| 1000 (BFB) | BFB IS/SS | 50 | 126-81-4 | 03/11/18 |
| 1203-1209 (ICAL) | 8260 | 250 | 126-82-9 | 10/23/17 |
| | Ac/Ac/VA | MC | 126-82-7 | 11/30/17 |
| | 2-CVE | 250 | 126-82-10 | 12/31/17 |
| | APP9-1 | 250 | 126-82-2 | 03/23/18 |
| 1600 (ICV) | 8260 | 250 | 126-80-7 | 10/31/17 |
| | Ac/Ac/VA | MC | 126-82-8 | 11/30/17 |
| | 2-CVE | 250 | 126-74-8 | 11/05/17 |
| | APP9-1 | 250 | 126-82-3 | 03/23/18 |

| Sample ID | Comments | DataFile | Wgt/Vol | Injection Time | Dil | Anal | ALS |
|---|---|---|---|---|---|---|---|
| 1000 | | d9816.d | 0.00 ml | 10-OCT-2017 10:35 | 1.0 | JCK | 2 |
| 1000 | | d9817bfbcD.d | 0.00 ml | 10-OCT-2017 10:57 | 1.0 | JCK | 2 |
| 1000 | | d9817bfb.d | 0.00 ml | 10-OCT-2017 10:57 | 1.0 | JCK | 2 |
| 1000 | | d9817bfbD.d | 0.00 ml | 10-OCT-2017 10:57 | 1.0 | JCK | 2 |
| 1202 | | d9818.d | 5.00 ml | 10-OCT-2017 11:27 | 1.0 | JCK | 1 |
| 1203 | | d9819cD.d | 5.00 ml | 10-OCT-2017 11:50 | 1.0 | JCK | 1 |
| 1203 | | d9819.d | 5.00 ml | 10-OCT-2017 11:50 | 1.0 | JCK | 1 |
| 1203 | | d9819D.d | 5.00 ml | 10-OCT-2017 11:50 | 1.0 | JCK | 1 |
| 1PPB | | d9819LOQ.d | 5.00 ml | 10-OCT-2017 11:50 | 1.0 | JCK | 1 |
| 2PPB | | d9820LOD.d | 5.00 ml | 10-OCT-2017 12:12 | 1.0 | JCK | 1 |
| 1204 | | d9821cD.d | 5.00 ml | 10-OCT-2017 12:34 | 1.0 | JCK | 1 |
| 1204 | | d9821.d | 5.00 ml | 10-OCT-2017 12:34 | 1.0 | JCK | 1 |
| 1204 | | d9821D.d | 5.00 ml | 10-OCT-2017 12:34 | 1.0 | JCK | 1 |
| 5PPB | | d9821LOQ.d | 5.00 ml | 10-OCT-2017 12:34 | 1.0 | JCK | 1 |
| 1205 | | d9822cD.d | 5.00 ml | 10-OCT-2017 12:57 | 1.0 | JCK | 1 |
| 1205 | | d9822.d | 5.00 ml | 10-OCT-2017 12:57 | 1.0 | JCK | 1 |
| 1205 | | d9822D.d | 5.00 ml | 10-OCT-2017 12:57 | 1.0 | JCK | 1 |
| 1206 | | d9823cD.d | 5.00 ml | 10-OCT-2017 13:19 | 1.0 | JCK | 1 |
| 1206 | | d9823.d | 5.00 ml | 10-OCT-2017 13:19 | 1.0 | JCK | 1 |
| 1206 | | d9823D.d | 5.00 ml | 10-OCT-2017 13:19 | 1.0 | JCK | 1 |
| 1207 | | d9824cD.d | 5.00 ml | 10-OCT-2017 13:42 | 1.0 | JCK | 1 |
| 1207 | | d9824.d | 5.00 ml | 10-OCT-2017 13:42 | 1.0 | JCK | 1 |
| 1207 | | d9824D.d | 5.00 ml | 10-OCT-2017 13:42 | 1.0 | JCK | 1 |
| 1208 | | d9825cD.d | 5.00 ml | 10-OCT-2017 14:04 | 1.0 | JCK | 1 |
| 1208 | | d9825.d | 5.00 ml | 10-OCT-2017 14:04 | 1.0 | JCK | 1 |
| 1208 | | d9825D.d | 5.00 ml | 10-OCT-2017 14:04 | 1.0 | JCK | 1 |
| 1209 | | d9826cD.d | 5.00 ml | 10-OCT-2017 14:26 | 1.0 | JCK | 1 |
| 1209 | | d9826.d | 5.00 ml | 10-OCT-2017 14:26 | 1.0 | JCK | 1 |
| 1209 | | d9826D.d | 5.00 ml | 10-OCT-2017 14:26 | 1.0 | JCK | 1 |
| BLANK | | d9827.d | 5.00 ml | 10-OCT-2017 14:48 | 1.0 | JCK | 1 |
| 1600 | | d9828cD.d | 5.00 ml | 10-OCT-2017 15:11 | 1.0 | JCK | 1 |
| 1600 | | d9828.d | 5.00 ml | 10-OCT-2017 15:11 | 1.0 | JCK | 1 |
| 1600 | | d9828D.d | 5.00 ml | 10-OCT-2017 15:11 | 1.0 | JCK | 1 |
| 1729633 | | d9829.d | 5.00 ml | 10-OCT-2017 15:59 | 1.0 | JCK | 1 |
| 1729634 | | d9830.d | 5.00 ml | 10-OCT-2017 16:21 | 1.0 | JCK | 1 |
| MB | | d9831.d | 5.00 ml | 10-OCT-2017 16:44 | 1.0 | JCK | 1 |

LABORATORY CHRONICLE:  MSV DEPARTMENT

Date: 10-OCT-2017
Instrument: msv13.i
Analyst(s): JCK

| | Standard | Conc | ID | EXP |
|---|---|---|---|---|
| | 8260 IS/SS | 50 | | |
| 1000 (BFB) | BFB IS/SS | 50 | | |
| 1400 (CCV) | 8260 | 250 | | |
| | Ac/Ac/VA | MC | | |
| | CVE | 250 | | |

| Sample ID | Comments | DataFile | Wgt/Vol | Injection Time | Dil | Anal | ALS |
|---|---|---|---|---|---|---|---|
| MB | | d9832.d | 5.00 ml | 10-OCT-2017 17:06 | 1.0 | JCK | 1 |
| 1729632 pH | | d9833.d | 5.00 ml | 10-OCT-2017 17:29 | 1.0 | JCK | 1 |
| 21710063101 1 | RR 1X | d9834.d | 5.00 ml | 10-OCT-2017 17:54 | 10.0 | JCK | 1 |
| 21710031004 1 | | d9835.d | 5.00 ml | 10-OCT-2017 18:16 | 1.0 | JCK | 1 |
| 21710063101 1 | | d9836.d | 5.00 ml | 10-OCT-2017 18:38 | 1.0 | JCK | 1 |
| 21710031005 1 | | d9837.d | 5.00 ml | 10-OCT-2017 19:00 | 1.0 | JCK | 1 |
| 21710051603 1 | | d9838.d | 5.00 ml | 10-OCT-2017 19:23 | 1.0 | JCK | 1 |
| 21710054109 1 | | d9839.d | 5.00 ml | 10-OCT-2017 19:45 | 1.0 | JCK | 1 |
| 21710054110 1 | | d9840.d | 5.00 ml | 10-OCT-2017 20:07 | 1.0 | JCK | 1 |
| 21710054111 1 | | d9841.d | 5.00 ml | 10-OCT-2017 20:30 | 1.0 | JCK | 1 |
| 21710054112 1 | | d9842.d | 5.00 ml | 10-OCT-2017 20:52 | 1.0 | JCK | 1 |
| 21710054113 1 | | d9843.d | 5.00 ml | 10-OCT-2017 21:14 | 1.0 | JCK | 1 |
| 21710054114 1 | | d9844.d | 5.00 ml | 10-OCT-2017 21:37 | 1.0 | JCK | 1 |
| 21710054115 1 | | d9845.d | 5.00 ml | 10-OCT-2017 21:59 | 1.0 | JCK | 1 |
| 1440 | | d9846.d | 5.00 ml | 10-OCT-2017 22:21 | 1.0 | JCK | 1 |

REVISED 1-28-15  Supervisor Review: JCK  TUNE TIME: 22:57

GCAL ANALYTICAL LABORATORIES, LLC

7979 Innovation Park Drive | Baton Rouge, LA 70820-7402

225.769.4900 | www.gcal.com

# CHAIN OF CUSTODY RECOR

Client ID: 4760 - Bhate Environmental Associates, Inc.

SDG: 217100631

PM: EPM

| Report To: | | Bill To: | |
|---|---|---|---|
| Client: | Bhate Associates | Client: | Bhate Associates |
| Address: | 445 Union Blvd Ste. 129 Lakewood, CO 80228 | Address: | 1608 13th Avenue South Ste 300 Birmingham, AL 35205 |
| Contact: | Marcia Olive | Contact: | Accounts Receivable |
| Phone: | 205-918-4000 | Phone: | 205 918 4000 |
| Email: | molive@bhate.com | Email: | |

P.O. Number

Project Name/Number: LHAAP GWTP Bi-Weekly

Sampled By:

Custody Seal: Used: ☒ Yes ☐ No  Intact: ☐ Yes ☐ No

Temperature: 1.6 E29 CPM-N/A

☐ Dissolved Analysis Requested ☐ Field Filtered ☐ Lab Filtered

| Matrix[1] | Date | Time (2400) | Comp | Grab | Sample Description | No. of Containers | VOCs (8260) | Cl, SO4 (9056) | ← Preservative / Notes ↓ | GCAL ID |
|---|---|---|---|---|---|---|---|---|---|---|
| W | 10/05/17 | 1400 | | | LH18/24-SP650_1017B | 3 | X | X | | -1 |

Airbill Number: 4052 3022 7746

Turn Around Time(Business Days): ☐ RUSH* ____ Days ☐ Standard (per contract/quote)

| Relinquished by: (Signature) | Date/Time: | Received by: (Signature) | Date/Time: |
|---|---|---|---|
| | | | |
| FedEx | 10-6-17 1120 | | 10.6.17 1130 |
| | | | |

Notes:

**Ship Samples to:**
**GCAL**
**c/o Liz Martin**
**10781 Coursey Blvd**
**Baton Rouge, LA. 70816**

[1]Matrix: W = Water, S=Solid, L=Liquid, T=Tissue.

*- Requires prior approval, Rush charges may apply.

We cannot accept verbal changes. Please email written changes to your GCAL Project Manager.

# SAMPLE RECEIVING CHECKLIST

*217100631*

| SAMPLE DELIVERY GROUP 217100631 | |
|---|---|
| **Client** **PM** EPM<br>4760 - Bhate Environmental Associates, Inc. | **Transport Method**<br>FEDEX |
| **Profile Number**<br>274245 | **Received By**<br>Reese, Sean M |
| **Line Item(s)**<br>1 - GWTP Bi-Weekly | **Receive Date(s)**<br>10/06/17 |

| CHECKLIST | YES | NO |
|---|---|---|
| Samples received with proper thermal preservation? | ☑ | ☐ |
| Radioactivity is <1600 cpm? If no, record cpm value in notes section. | ☑ | ☐ |
| COC relinquished and complete (including sampleIDs, collect times, and sampler)? | ☐ | ☑ |
| All containers received in good condition and within hold time? | ☑ | ☐ |
| All sample labels and containers received match the chain of custody? | ☑ | ☐ |
| Preservative added to any containers? | ☐ | ☑ |
| If received, was headspace for VOC water containers < 6mm? | ☑ | ☐ |
| Samples collected in containers provided by GCAL? | ☐ | ☑ |

**COOLERS**

| Airbill | Thermometer ID: E29 | Temp °C |
|---|---|---|
| 4052 3022 7746 | | 1.6 |

**DISCREPANCIES**

None

**LAB PRESERVATIONS**

None

**NOTES**

SAMPLER NOT LISTED ON CHAIN OF CUSTODY

Revision 1.6

GCAL ANALYTICAL LABORATORIES, LLC

## IC STANDARD IDs

Date: 10/15/17
Analyst: BSV
HBN: 602328
Batch: 5896

Instrument ID: IC4

Secondary Reviewer/Date: DMT 10/16/17

### ANIONS – EPA 300.0 / EPA 9056A

Calibration Standard (F, Cl, Br, $SO_4$) Lot #: 2126052 Expiration Date: 5/30/18
Calibration Standard ($NO_2$) Lot #: 2126300 Expiration Date: 12/30/17
Calibration Standard ($NO_3$) Lot #: 2125843 Expiration Date: 12/5/18
Calibration ID 1105-78-1
Calibration Date 10/4/17
Calibration Expiration 12/30/17 (6 months from calibration date or on the earliest expiration date of each calibration standard, whichever is sooner)
CCV/LCS (F, Cl, Br, $SO_4$, $NO_2$, $NO_3$) Working Standard ID 1105-94-1
ICV (F, Cl, Br, $SO_4$, $NO_2$, $NO_3$) Working Standard ID 1105-79-1
Eluent Lot #: 1105-55-6 Expiration Date: 3/22/18

### VOLATILE FATTY ACIDS – GCAL SOP WL-070

Calibration Standard (Acetic Acid) Lot #: _____ Expiration Date: _____
Calibration Standard (Butyric Acid) Lot #: _____ Expiration Date: _____
Calibration Standard (Formic Acid) Lot #: _____ Expiration Date: _____
Calibration Standard (Lactic Acid) Lot #: _____ Expiration Date: _____
Calibration Standard (Propionic Acid) Lot #: _____ Expiration Date: _____
Calibration Standard (Pyruvic Acid) Lot #: _____ Expiration Date: _____
Calibration ID _____
Calibration Date _____
Calibration Expiration _____ (1 year from calibration date or on the earliest expiration date of each calibration standard, whichever is sooner)
CCV/LCS Working Standard ID _____
ICV Working Standard ID _____
Eluent Lot #: _____ Expiration Date: _____

### PERCHLORATE – EPA 314.0

Calibration Standard Lot #: _____ Expiration Date: _____
Calibration ID _____
Calibration Date _____
Calibration Expiration _____ (6 months from calibration date or on the earliest expiration date of each calibration standard, whichever is sooner)
CCV/LCS Working Standard ID _____
ICV Working Standard ID _____
Eluent Lot #: _____ Expiration Date: _____

Revision 01: 09/08/17

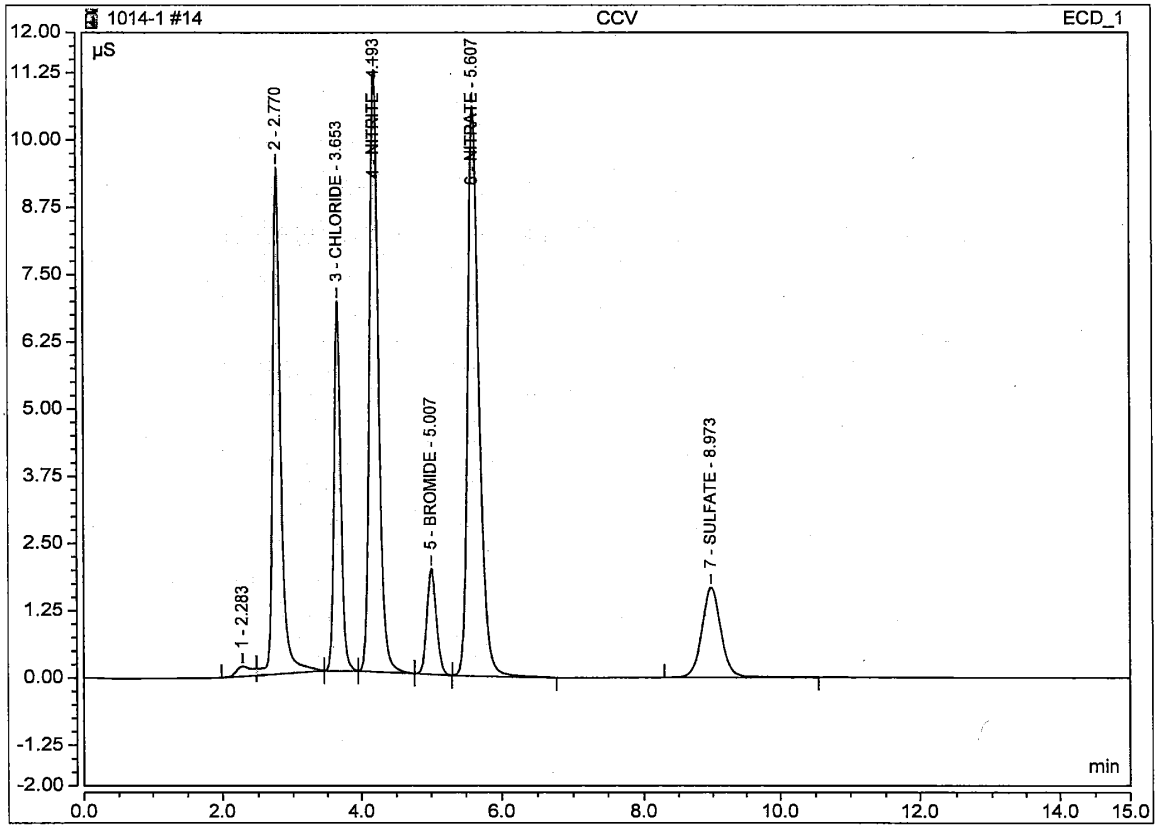
Logged on User: wet
Instrument: IC4
Sequence: 1014-1



## Peak Integration Report

| | | | |
|---|---|---|---|
| *Sample Name:* | CCV /LCS 173654 | *Inj. Vol.:* | 50.00 |
| *Injection Type:* | Check Standard | *Dilution Factor:* | 1.0000 |
| *Instrument Method:* | RunMethod3 | *Operator:* | wet |
| *Inj. Date / Time:* | 14-Oct-2017 / 12:23 | *Run Time:* | 15.00 |

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount |
|---|---|---|---|---|---|---|
| 3 | 3.65 | CHLORIDE | BMB | 0.797 | 6.875 | 2.46059 98 |
| 4 | 4.19 | NITRITE | BMB | 1.649 | 11.190 | 2.33989 94 |
| 5 | 5.01 | BROMIDE | BMB | 0.308 | 1.961 | 2.4116 |
| 6 | 5.61 | NITRATE | BMB | 1.935 | 10.598 | 2.3852 95 |
| 7 | 8.97 | SULFATE | BMB | 0.558 | 1.677 | 2.4465 98 |
| TOTAL: | | | | 5.25 | 32.30 | 12.04 |






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Version 7.2.4.8179

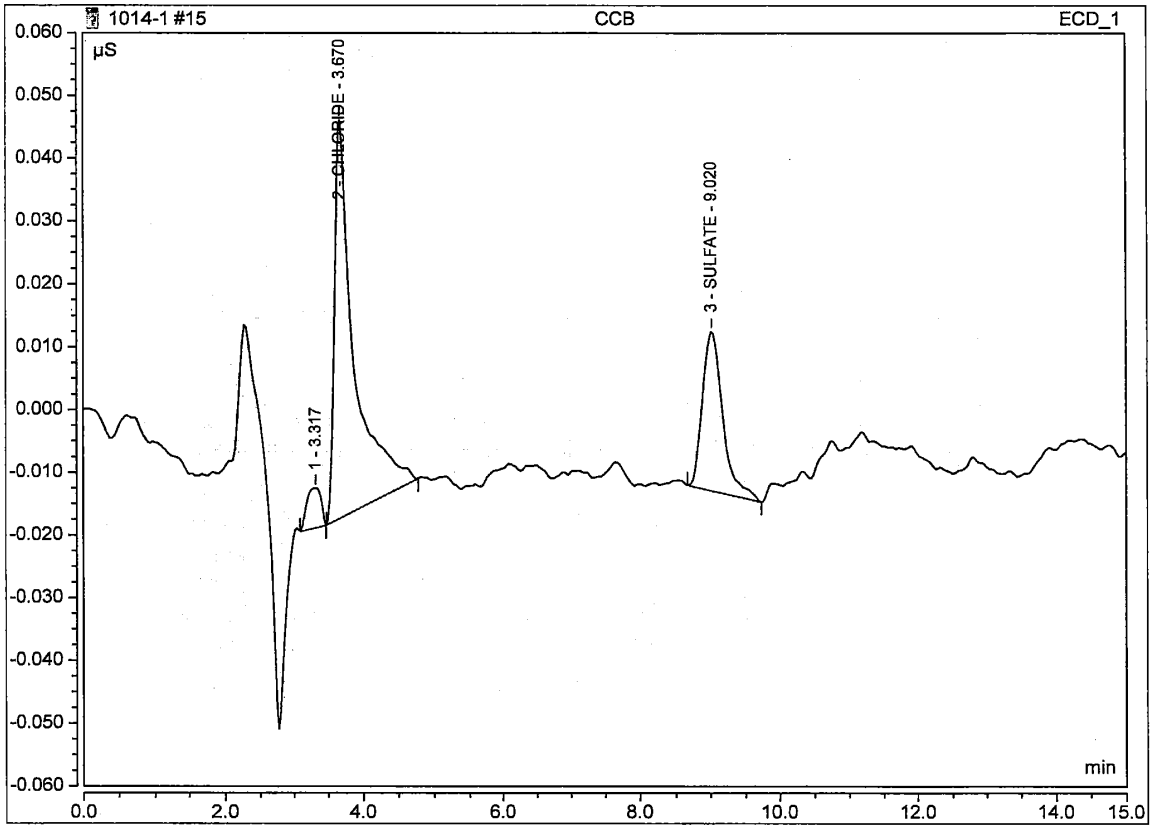
Logged on User: wet
Instrument: IC4
Sequence: 1014-1



## Peak Integration Report

| | | | |
|---|---|---|---|
| *Sample Name:* | CCB / MB 1731653 | *Inj. Vol.:* | 50.00 |
| *Injection Type:* | Unknown | *Dilution Factor:* | 1.0000 |
| *Instrument Method:* | RunMethod3 | *Operator:* | wet |
| *Inj. Date / Time:* | 14-Oct-2017 / 12:40 | *Run Time:* | 15.00 |

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount |
|---|---|---|---|---|---|---|
| 2 | 3.67 | CHLORIDE | BMB | 0.021 | 0.063 | 0.0714 |
| 3 | 9.02 | SULFATE | BMB | 0.009 | 0.025 | 0.0560 |
| TOTAL: | | | | 0.03 | 0.09 | 0.13 |




Anion/Integration

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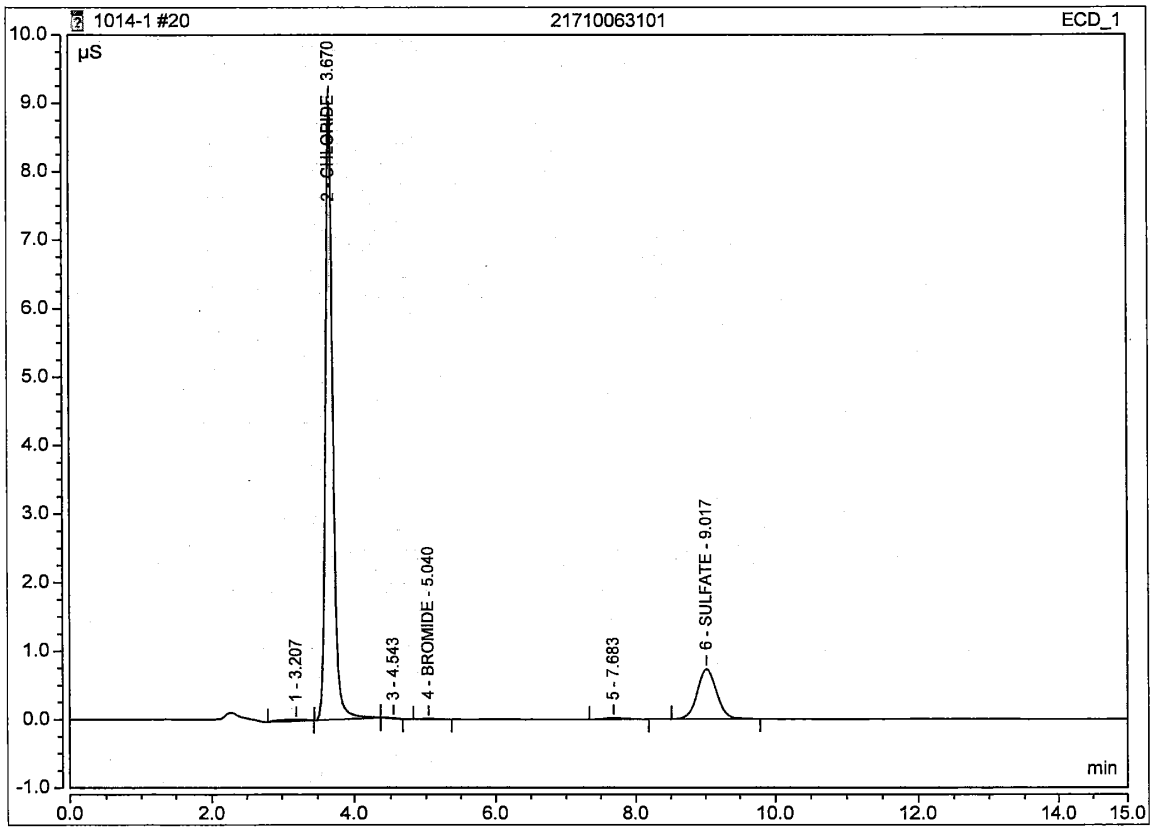
Logged on User: wet
Instrument: IC4
Sequence: 1014-1



## Peak Integration Report

| | | | |
|---|---|---|---|
| *Sample Name:* | **21710063101** | *Inj. Vol.:* | **50.00** |
| *Injection Type:* | **Unknown** | *Dilution Factor:* | **200.0000** |
| *Instrument Method:* | **RunMethod3** | *Operator:* | **wet** |
| *Inj. Date / Time:* | **14-Oct-2017 / 14:07** | *Run Time:* | **15.00** |

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount |
|---|---|---|---|---|---|---|
| 2 | 3.67 | CHLORIDE | BMB | 1.060 | 9.029 | 654.1557 ✓ |
| 4 | 5.04 | BROMIDE | BMB | 0.002 | 0.009 | 21.3413 |
| 6 | 9.02 | SULFATE | BMB | 0.240 | 0.734 | 211.9783 ✓ |
| TOTAL: | | | | 1.30 | 9.77 | 887.48 |




Cl, SO4

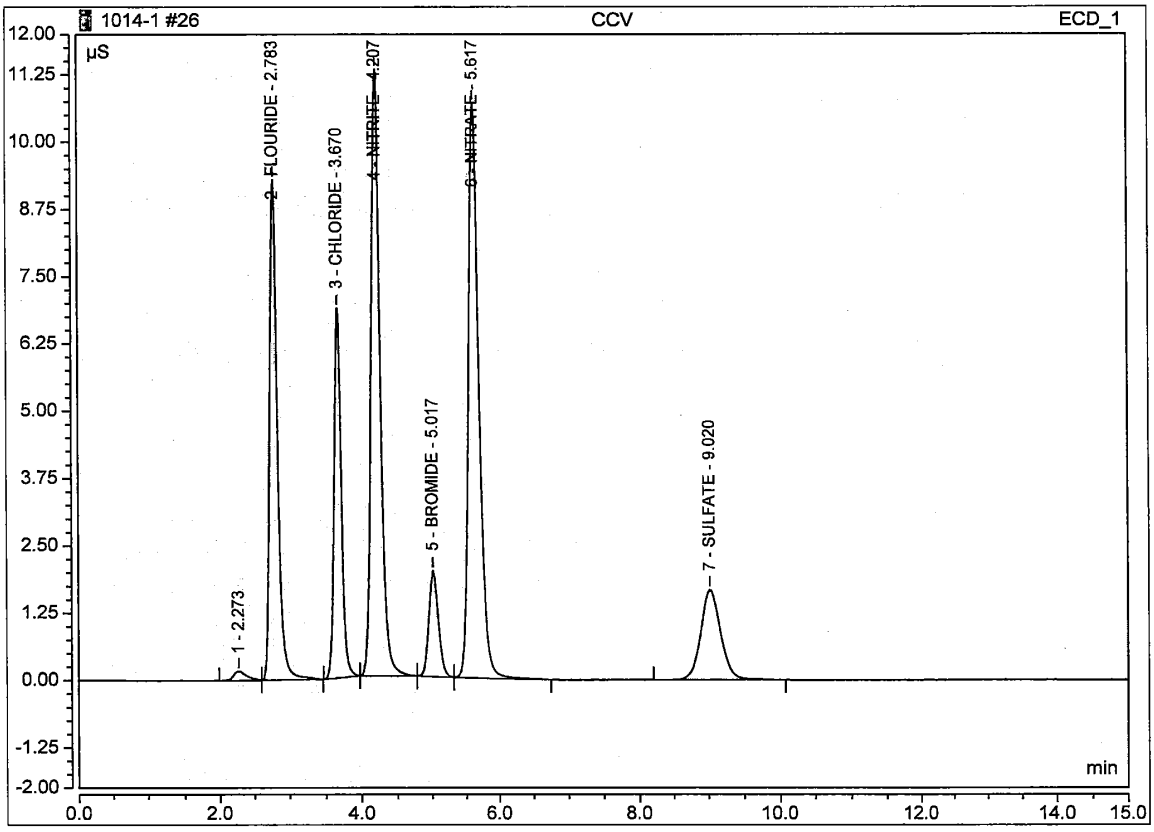
Anion/Integration

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## Peak Integration Report

| | | | |
|---|---|---|---|
| *Sample Name:* | **CCV** | *Inj. Vol.:* | **50.00** |
| *Injection Type:* | **Check Standard** | *Dilution Factor:* | **1.0000** |
| *Instrument Method:* | **RunMethod3** | *Operator:* | **wet** |
| *Inj. Date / Time:* | **14-Oct-2017 / 15:51** | *Run Time:* | **15.00** |

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount |
|---|---|---|---|---|---|---|
| 2 | 2.78 | FLOURIDE | MB | 1.176 | 9.295 | 2.5320 |
| 3 | 3.67 | CHLORIDE | BMB | 0.795 | 6.868 | 2.4545 98 |
| 4 | 4.21 | NITRITE | BMB | 1.655 | 11.272 | 2.3490 94 |
| 5 | 5.02 | BROMIDE | BMB | 0.308 | 1.973 | 2.4136 |
| 6 | 5.62 | NITRATE | BMB | 1.931 | 10.674 | 2.3803 95 |
| 7 | 9.02 | SULFATE | BMB | 0.553 | 1.675 | 2.4228 97 |
| | | TOTAL: | | 6.42 | 41.76 | 14.55 |




✓

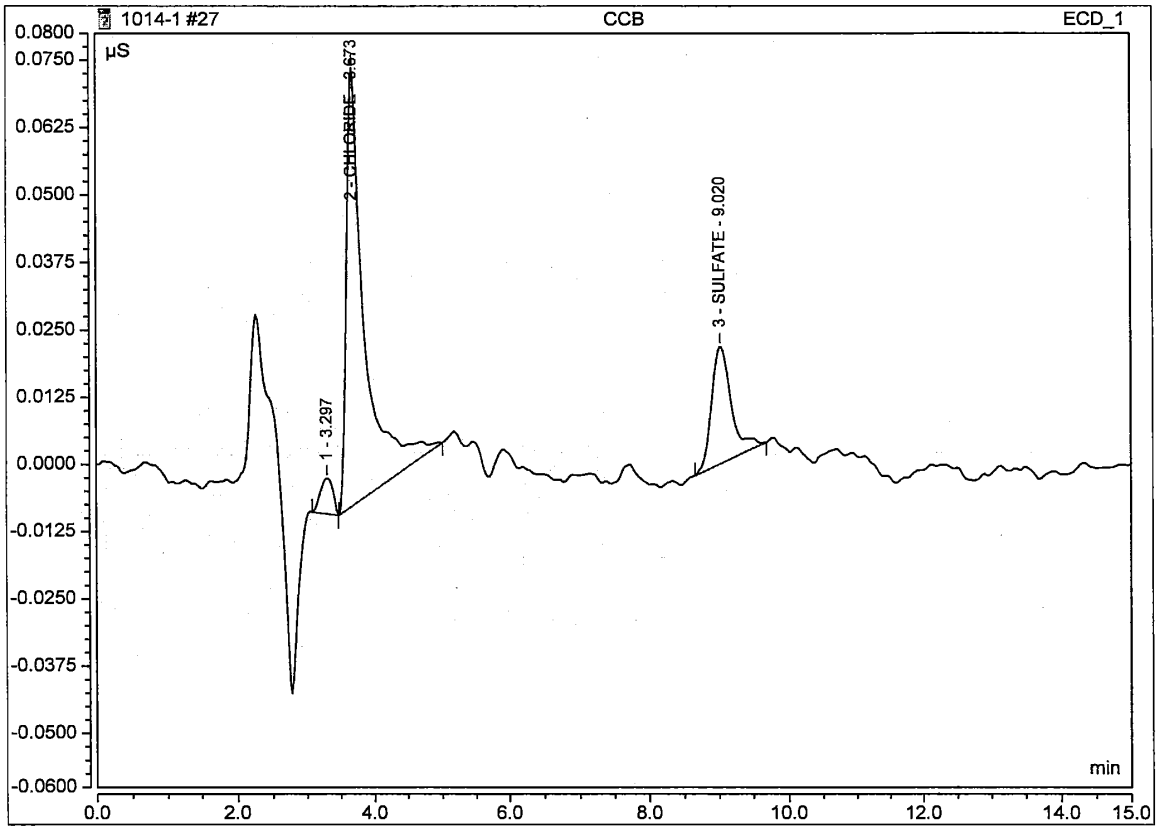


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## Peak Integration Report

| | | | |
|---|---|---|---|
| *Sample Name:* | **CCB** | *Inj. Vol.:* | **50.00** |
| *Injection Type:* | **Unknown** | *Dilution Factor:* | **1.0000** |
| *Instrument Method:* | **RunMethod3** | *Operator:* | **wet** |
| *Inj. Date / Time:* | **14-Oct-2017 / 16:08** | *Run Time:* | **15.00** |

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount |
|---|---|---|---|---|---|---|
| 2 | 3.67 | CHLORIDE | BMB | 0.025 | 0.081 | 0.0856 |
| 3 | 9.02 | SULFATE | BMB | 0.007 | 0.022 | 0.0505 |
| TOTAL: | | | | 0.03 | 0.10 | 0.14 |



GCAL ANALYTICAL LABORATORIES, LLC

## IC STANDARD IDs

Date: 10/5/17
Analyst: BW
HBN:
Batch: ICAL

Instrument ID: IC4

Secondary Reviewer/Date: DMT 10/5/17

### ANIONS – EPA 300.0 / EPA 9056A

Calibration Standard (F, Cl, Br, $SO_4$) Lot #: 2126052 Expiration Date: 5/30/18
Calibration Standard ($NO_2$) Lot #: 2126300 Expiration Date: 12/30/17
Calibration Standard ($NO_3$) Lot #: 2125843 Expiration Date: 12/5/18
Calibration ID 1105-78-1
Calibration Date 10/4/17
Calibration Expiration 12/30/17 (6 months from calibration date or on the earliest expiration date of each calibration standard, whichever is sooner)
CCV/LCS (F, Cl, Br, $SO_4$, $NO_2$, $NO_3$) Working Standard ID NA
ICV (F, Cl, Br, $SO_4$, $NO_2$, $NO_3$) Working Standard ID 1105-79-1
Eluent Lot #: 1105-55-6 Expiration Date: 3/22/18

### VOLATILE FATTY ACIDS – GCAL SOP WL-070

Calibration Standard (Acetic Acid) Lot #: _____ Expiration Date: _____
Calibration Standard (Butyric Acid) Lot #: _____ Expiration Date: _____
Calibration Standard (Formic Acid) Lot #: _____ Expiration Date: _____
Calibration Standard (Lactic Acid) Lot #: _____ Expiration Date: _____
Calibration Standard (Propionic Acid) Lot #: _____ Expiration Date: _____
Calibration Standard (Pyruvic Acid) Lot #: _____ Expiration Date: _____
Calibration ID _____
Calibration Date _____
Calibration Expiration _____ (1 year from calibration date or on the earliest expiration date of each calibration standard, whichever is sooner)
CCV/LCS Working Standard ID _____
ICV Working Standard ID _____
Eluent Lot #: _____ Expiration Date: _____

### PERCHLORATE – EPA 314.0

Calibration Standard Lot #: _____ Expiration Date: _____
Calibration ID _____
Calibration Date _____
Calibration Expiration _____ (6 months from calibration date or on the earliest expiration date of each calibration standard, whichever is sooner)
CCV/LCS Working Standard ID _____
ICV Working Standard ID _____
Eluent Lot #: _____ Expiration Date: _____

Revision 01: 09/08/17

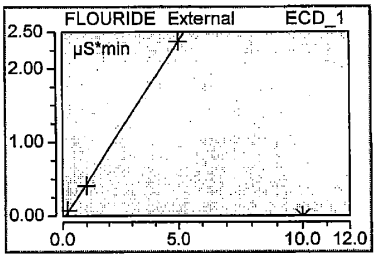
## Calibration Batch Report

| | | | |
|---|---|---|---|
| *Sequence:* | 1004-1ICAL | *Injection Volume:* | 50.00 |
| *Instrument Method:* | RunMethod3 | *Operator:* | wet |
| *Inj. Date / Time:* | 04-Oct-2017 / 13:02 | *Run Time:* | 15 |

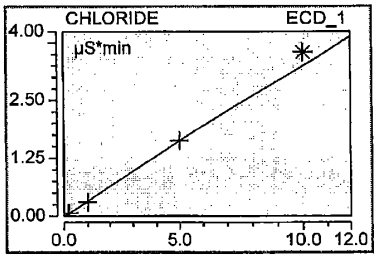
**Calibration Summary**

| Peak Name | Eval.Type | Cal.Type | Points | Offset (C0) | Slope (C1) | Curve (C2) | Coeff.Det. % |
|---|---|---|---|---|---|---|---|
| FLOURIDE | Area | in, WithOffse | 3.000 | -0.046 | 0.482 | 0.000 | 99.9698 |
| CHLORIDE | Area | in, WithOffse | 4.000 | -0.003 | 0.325 | 0.000 | 99.9636 |
| NITRITE | Area | in, WithOffse | 3.000 | -0.049 | 0.726 | 0.000 | 99.9757 |
| BROMIDE | Area | in, WithOffse | 4.000 | -0.012 | 0.133 | 0.000 | 99.9383 |
| NITRATE | Area | in, WithOffse | 3.000 | -0.084 | 0.846 | 0.000 | 99.9425 |
| SULFATE | Area | in, WithOffse | 5.000 | -0.004 | 0.230 | 0.000 | 99.9595 |
| | | **AVERAGE:** | | -0.0330 | 0.4571 | 0.0000 | 99.9582 |

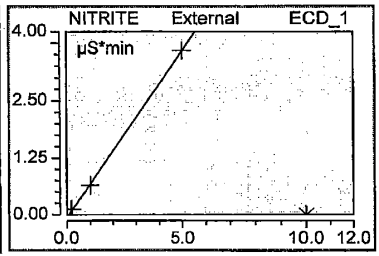
| Injection Name | Ret.Time min ECD_1 | Area µS*min ECD_1 | Height µS ECD_1 | Amount ECD_1 |
|---|---|---|---|---|
| | FLOURIDE | FLOURIDE | FLOURIDE | FLOURIDE |
| STD 1 | n.a. | n.a. | n.a. | n.a. |
| STD 2 | 2.793 | 0.0703 | 0.613 | 0.241 |
| STD 3 | 2.797 | 0.4331 | 3.587 | 0.993 |
| STD 4 | 2.813 | 2.5541 | 20.110 | 5.389 |
| STD 5 | 2.830 | 5.3475 | 39.998 | 11.180 |
| **Average** | 2.808 | | | |
| **Rel. Std. Dev.** | 0.601 % | | | |




| Injection Name | Ret.Time min ECD_1 | Area µS*min ECD_1 | Height µS ECD_1 | Amount ECD_1 |
|---|---|---|---|---|
| | CHLORIDE | CHLORIDE | CHLORIDE | CHLORIDE |
| STD 1 | 3.700 | 0.0161 | 0.070 | 0.057 |
| STD 2 | 3.693 | 0.0708 | 0.537 | 0.226 |
| STD 3 | 3.697 | 0.3147 | 2.574 | 0.976 |
| STD 4 | 3.700 | 1.6766 | 14.058 | 5.167 |
| STD 5 | 3.710 | 3.6767 | 30.043 | 11.322 |
| **Average** | 3.700 | | | |
| **Rel. Std. Dev.** | 0.169 % | | | |




| Injection Name | Ret.Time min ECD_1 | Area µS*min ECD_1 | Height µS ECD_1 | Amount ECD_1 |
|---|---|---|---|---|
| | NITRITE | NITRITE | NITRITE | NITRITE |
| STD 1 | n.a. | n.a. | n.a. | n.a. |
| STD 2 | 4.250 | 0.1222 | 0.812 | 0.236 |
| STD 3 | 4.257 | 0.6615 | 4.403 | 0.980 |
| STD 4 | 4.280 | 3.6641 | 23.635 | 5.116 |
| STD 5 | 4.307 | 7.6369 | 45.856 | 10.590 |
| **Average** | 4.273 | | | |
| **Rel. Std. Dev.** | 0.601 % | | | |



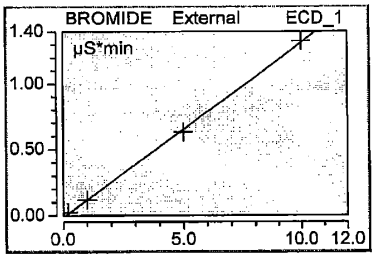



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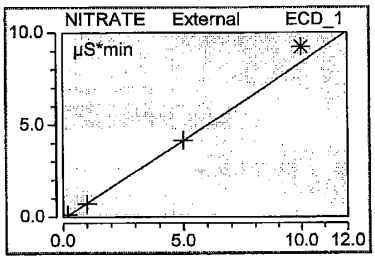
Logged on User: wet
Instrument: IC4
Sequence: 1004-1ICAL



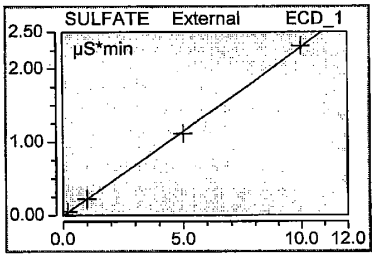
| Injection Name | Ret.Time min ECD_1 | Area µS*min ECD_1 | Height µS ECD_1 | Amount ECD_1 |
|---|---|---|---|---|
| | BROMIDE | BROMIDE | BROMIDE | BROMIDE |
| STD 1 | n.a. | n.a. | n.a. | n.a. |
| STD 2 | 5.110 | 0.0246 | 0.149 | 0.278 |
| STD 3 | 5.110 | 0.1250 | 0.775 | 1.033 |
| STD 4 | 5.103 | 0.6485 | 4.123 | 4.975 |
| STD 5 | 5.100 | 1.3669 | 8.912 | 10.383 |
| **Average** | 5.106 | | | |
| **Rel. Std. Dev.** | 0.098 % | | | |




| Injection Name | Ret.Time min ECD_1 | Area µS*min ECD_1 | Height µS ECD_1 | Amount ECD_1 |
|---|---|---|---|---|
| | NITRATE | NITRATE | NITRATE | NITRATE |
| STD 1 | n.a. | n.a. | n.a. | n.a. |
| STD 2 | 5.757 | 0.1367 | 0.705 | 0.260 |
| STD 3 | 5.747 | 0.7348 | 3.903 | 0.967 |
| STD 4 | 5.710 | 4.3069 | 23.593 | 5.187 |
| STD 5 | 5.683 | 9.5663 | 52.558 | 11.401 |
| **Average** | 5.724 | | | |
| **Rel. Std. Dev.** | 0.591 % | | | |




| Injection Name | Ret.Time min ECD_1 | Area µS*min ECD_1 | Height µS ECD_1 | Amount ECD_1 |
|---|---|---|---|---|
| | SULFATE | SULFATE | SULFATE | SULFATE |
| STD 1 | 9.250 | 0.0077 | 0.024 | 0.052 |
| STD 2 | 9.270 | 0.0496 | 0.151 | 0.234 |
| STD 3 | 9.277 | 0.2376 | 0.698 | 1.051 |
| STD 4 | 9.270 | 1.1463 | 3.508 | 5.002 |
| STD 5 | 9.260 | 2.3735 | 7.384 | 10.337 |
| **Average** | 9.265 | | | |
| **Rel. Std. Dev.** | 0.113 % | | | |






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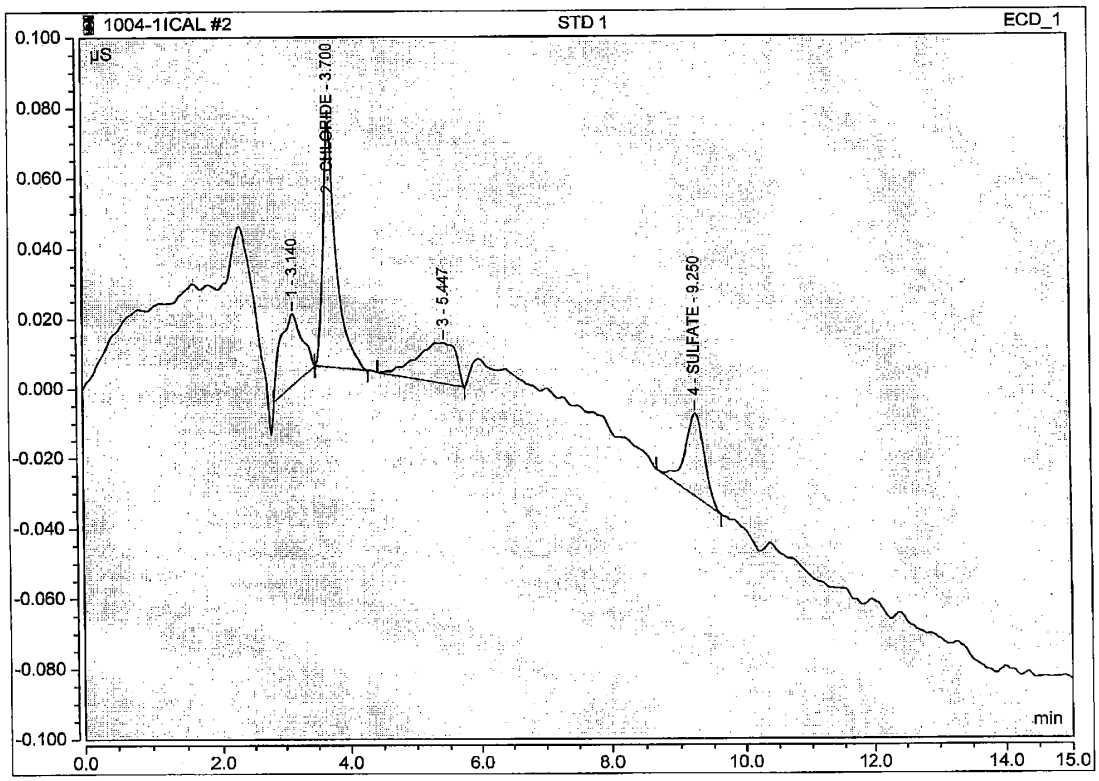
ICAL 10/4/17

| Peak No. ECD_1 | Peak Name ECD_1 | Ret.Time min ECD_1 | Cal.Type ECD_1 | Eval.Type ECD_1 | Number of Points ECD_1 | Rel.Std.Dev % ECD_1 | Coeff.of Determina ECD_1 | C0 (Offset) ECD_1 |
|---|---|---|---|---|---|---|---|---|
| 1 | FLOURIDE | 2.793 | Lin, WithOf | Area | 3 | 3.2068 | 0.9997 | -0.0459 |
| 2 | CHLORIDE | 3.693 | Lin, WithOf | Area | 4 | 3.5473 | 0.99964 | -0.0025 |
| 3 | NITRITE | 4.25 | Lin, WithOf | Area | 3 | 2.8397 | 0.99976 | -0.0495 |
| 4 | BROMIDE | 5.11 | Lin, WithOf | Area | 4 | 3.4498 | 0.99938 | -0.0122 |
| 5 | NITRATE | 5.757 | Lin, WithOf | Area | 3 | 4.4334 | 0.99943 | -0.0838 |
| 6 | SULFATE | 9.27 | Lin, WithOf | Area | 5 | 3.0925 | 0.9996 | -0.0043 |
| Maximum | | | | | | 4.4334 | 0.99976 | |
| Minimum | | | | | | 2.8397 | 0.99938 | |

## Peak Integration Report

| | | | |
|---|---|---|---|
| *Sample Name:* | STD 1 | *Inj. Vol.:* | 50.00 |
| *Injection Type:* | Calibration Standard | *Dilution Factor:* | 1.0000 |
| *Instrument Method:* | RunMethod3 | *Operator:* | wet |
| *Inj. Date / Time:* | 04-Oct-2017 / 11:53 | *Run Time:* | 15.00 |

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount |
|---|---|---|---|---|---|---|
| 2 | 3.70 | CHLORIDE | BMB | 0.016 | 0.070 | 0.0572 |
| 4 | 9.25 | SULFATE | BMB | 0.008 | 0.024 | 0.0523 |
| TOTAL: | | | | 0.02 | 0.09 | 0.11 |






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Version 7.2.4.8179

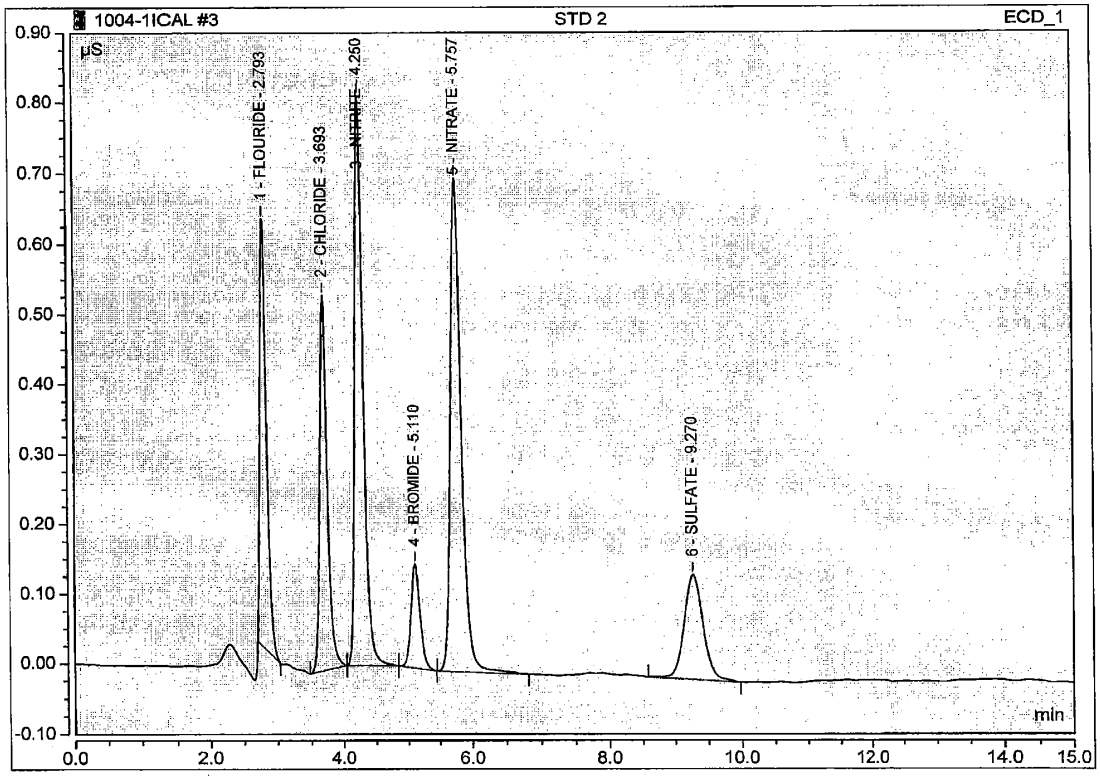
Logged on User: wet
Instrument: IC4
Sequence: 1004-1ICAL



## Peak Integration Report

| | | | |
|---|---|---|---|
| *Sample Name:* | STD 2 | *Inj. Vol.:* | 50.00 |
| *Injection Type:* | Calibration Standard | *Dilution Factor:* | 1.0000 |
| *Instrument Method:* | RunMethod3 | *Operator:* | wet |
| *Inj. Date / Time:* | 04-Oct-2017 / 12:10 | *Run Time:* | 15.00 |

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount |
|---|---|---|---|---|---|---|
| 1 | 2.79 | FLOURIDE | BMB | 0.070 | 0.613 | 0.2408 |
| 2 | 3.69 | CHLORIDE | BMB | 0.071 | 0.537 | 0.2257 |
| 3 | 4.25 | NITRITE | BMB | 0.122 | 0.812 | 0.2365 |
| 4 | 5.11 | BROMIDE | BMB | 0.025 | 0.149 | 0.2776 |
| 5 | 5.76 | NITRATE | BMB | 0.137 | 0.705 | 0.2605 |
| 6 | 9.27 | SULFATE | BMB | 0.050 | 0.151 | 0.2345 |
| TOTAL: | | | | 0.47 | 2.97 | 1.48 |



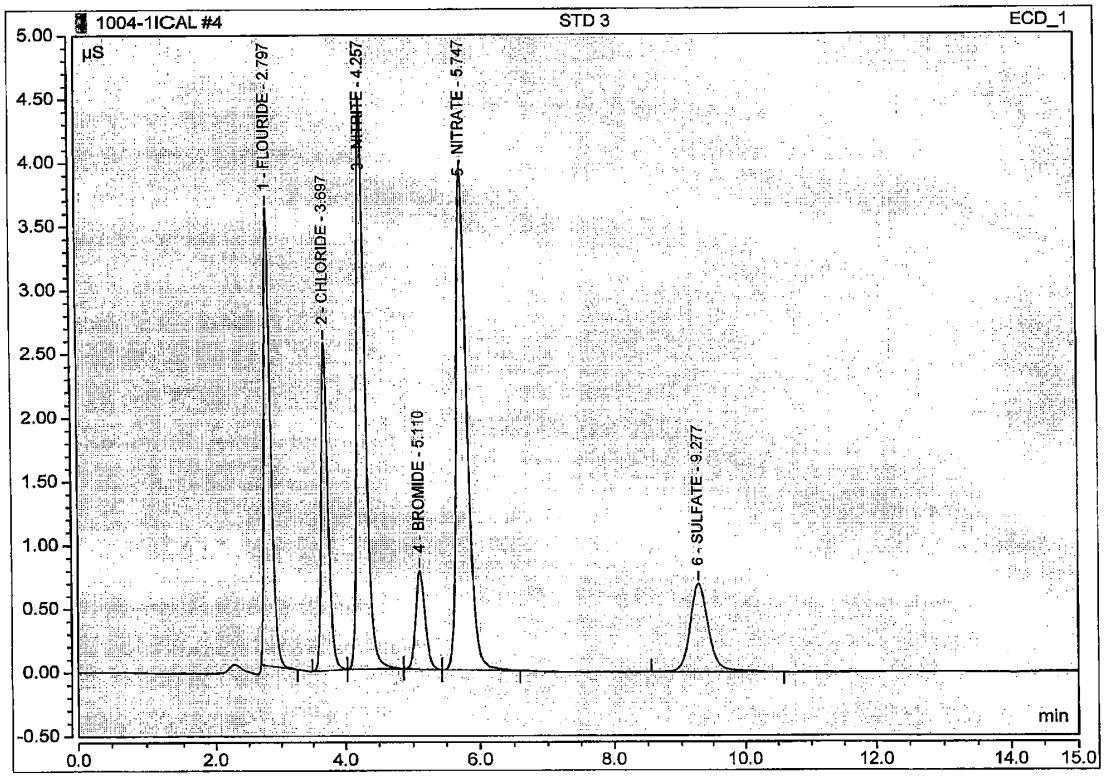



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Version 7.2.4.8179

## Peak Integration Report

| | | | |
|---|---|---|---|
| *Sample Name:* | STD 3 | *Inj. Vol.:* | 50.00 |
| *Injection Type:* | Calibration Standard | *Dilution Factor:* | 1.0000 |
| *Instrument Method:* | RunMethod3 | *Operator:* | wet |
| *Inj. Date / Time:* | 04-Oct-2017 / 12:28 | *Run Time:* | 15.00 |

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount |
|---|---|---|---|---|---|---|
| 1 | 2.80 | FLOURIDE | BMB | 0.433 | 3.587 | 0.9930 |
| 2 | 3.70 | CHLORIDE | BMB | 0.315 | 2.574 | 0.9762 |
| 3 | 4.26 | NITRITE | BMB | 0.662 | 4.403 | 0.9796 |
| 4 | 5.11 | BROMIDE | BMB | 0.125 | 0.775 | 1.0332 |
| 5 | 5.75 | NITRATE | BMB | 0.735 | 3.903 | 0.9672 |
| 6 | 9.28 | SULFATE | BMB | 0.238 | 0.698 | 1.0514 |
| TOTAL: | | | | 2.51 | 15.94 | 6.00 |



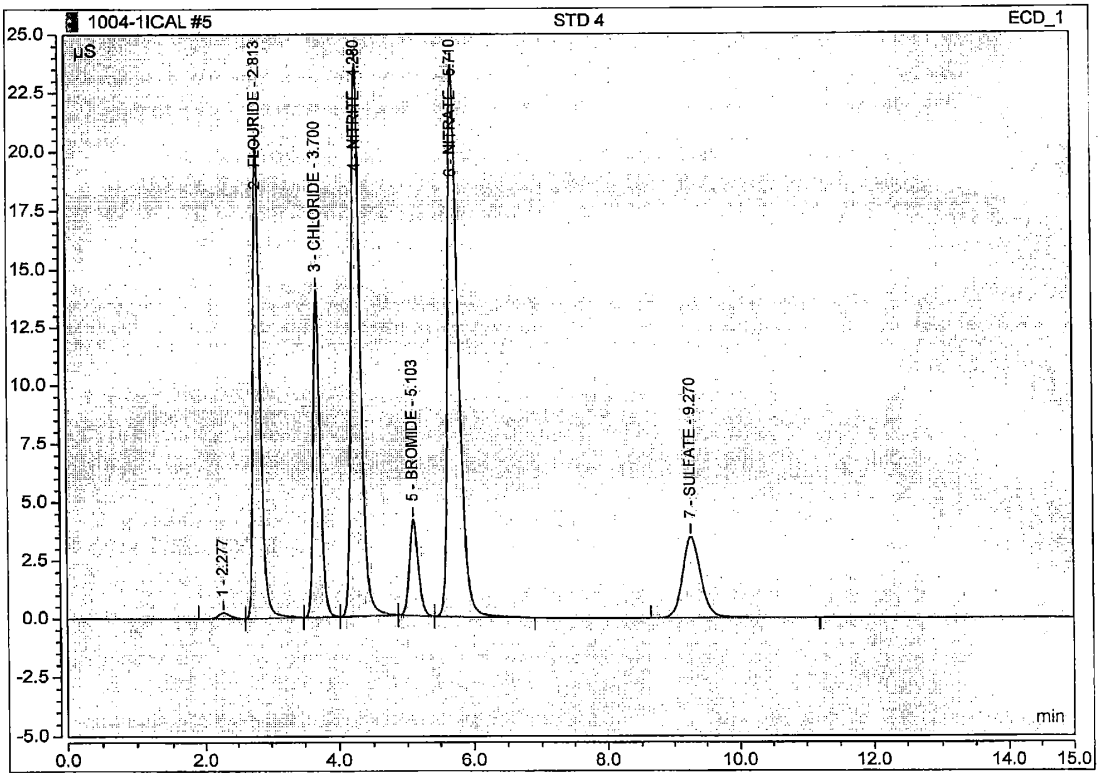



Chromeleon (c) Dionex 1996-2009
Version 7.2.4.8179

## Peak Integration Report

| | | | |
|---|---|---|---|
| *Sample Name:* | STD 4 | *Inj. Vol.:* | 50.00 |
| *Injection Type:* | Calibration Standard | *Dilution Factor:* | 1.0000 |
| *Instrument Method:* | RunMethod3 | *Operator:* | wet |
| *Inj. Date / Time:* | 04-Oct-2017 / 12:45 | *Run Time:* | 15.00 |

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount |
|---|---|---|---|---|---|---|
| 2 | 2.81 | FLOURIDE | BMB | 2.554 | 20.110 | 5.3893 |
| 3 | 3.70 | CHLORIDE | BMB | 1.677 | 14.058 | 5.1671 |
| 4 | 4.28 | NITRITE | BMB | 3.664 | 23.635 | 5.1164 |
| 5 | 5.10 | BROMIDE | BMB | 0.649 | 4.123 | 4.9747 |
| 6 | 5.71 | NITRATE | BMB | 4.307 | 23.593 | 5.1873 |
| 7 | 9.27 | SULFATE | BMB | 1.146 | 3.508 | 5.0019 |
| TOTAL: | | | | 14.00 | 89.03 | 30.84 |



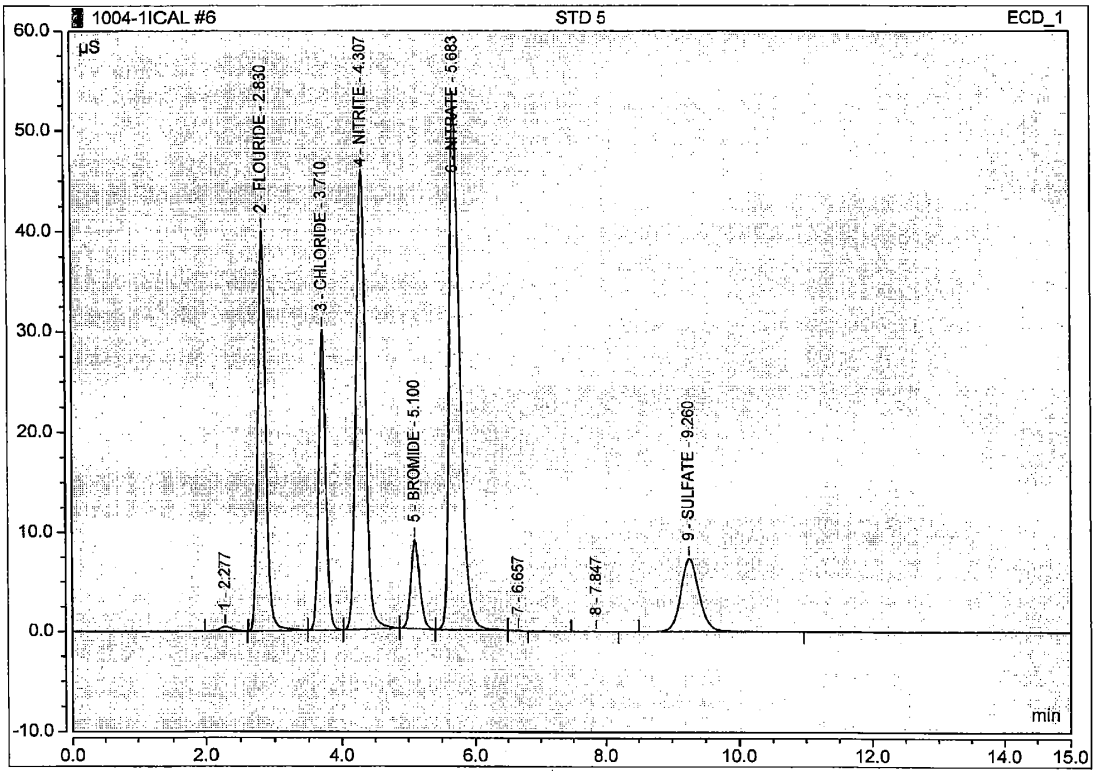



Chromeleon (c) Dionex 1996-2009
Version 7.2.4.8179

## Peak Integration Report

| | | | |
|---|---|---|---|
| *Sample Name:* | STD 5 | *Inj. Vol.:* | 50.00 |
| *Injection Type:* | Calibration Standard | *Dilution Factor:* | 1.0000 |
| *Instrument Method:* | RunMethod3 | *Operator:* | wet |
| *Inj. Date / Time:* | 04-Oct-2017 / 13:02 | *Run Time:* | 15.00 |

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount |
|---|---|---|---|---|---|---|
| 2 | 2.83 | FLOURIDE | BMB | 5.347 | 39.998 | 11.1796 |
| 3 | 3.71 | CHLORIDE | BMB | 3.677 | 30.043 | 11.3220 |
| 4 | 4.31 | NITRITE | BMB | 7.637 | 45.856 | 10.5900 |
| 5 | 5.10 | BROMIDE | BMB | 1.367 | 8.912 | 10.3829 |
| 6 | 5.68 | NITRATE | BMB | 9.566 | 52.558 | 11.4011 |
| 9 | 9.26 | SULFATE | BMB | 2.373 | 7.384 | 10.3368 |
| TOTAL: | | | | 29.97 | 184.75 | 65.21 |



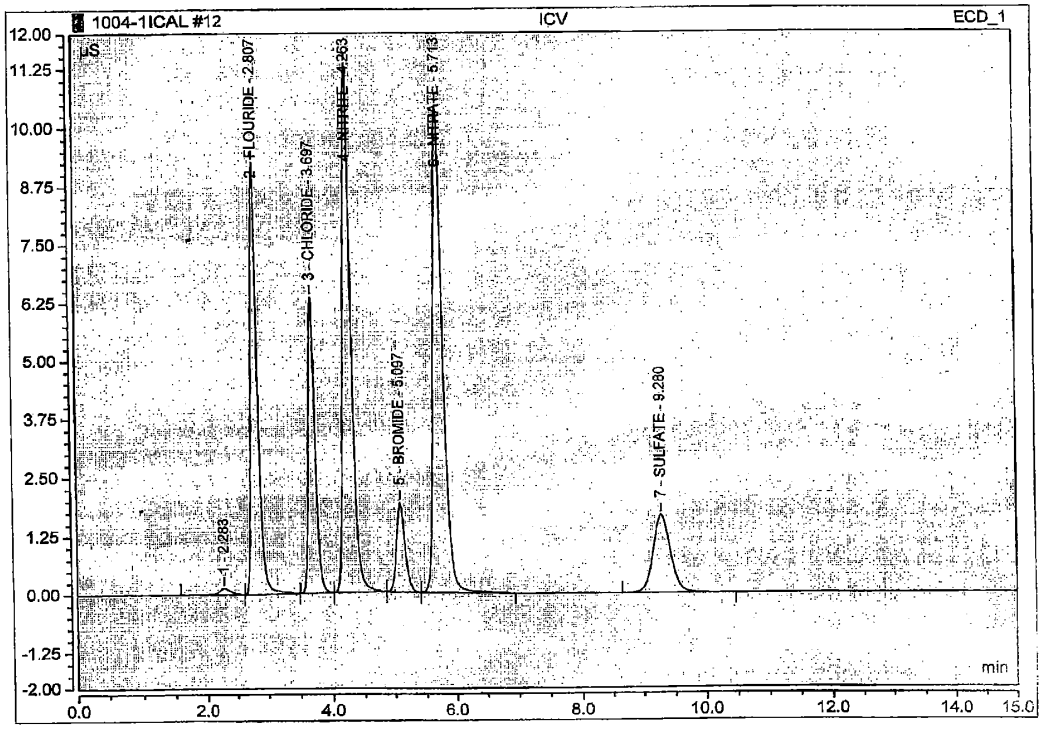
Logged on User: wet
Instrument: IC4
Sequence: 1004-1ICAL



## Peak Integration Report

| | | | |
|---|---|---|---|
| Sample Name: | ICV | Inj. Vol.: | 50.00 |
| Injection Type: | Check Standard | Dilution Factor: | 1.0000 |
| Instrument Method: | RunMethod3 | Operator: | wet |
| Inj. Date / Time: | 04-Oct-2017 14:56 | Run Time: | 15.00 |

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount | % |
|---|---|---|---|---|---|---|---|
| 2 | 2.81 | FLOURIDE | BMB | 1.167 | 9.269 | 2.5150 | 101 |
| 3 | 3.70 | CHLORIDE | BMB | 0.760 | 6.339 | 2.3451 | 94 |
| 4 | 4.26 | NITRITE | BMB | 1.696 | 11.303 | 2.4045 | 96 |
| 5 | 5.10 | BROMIDE | BMB | 0.304 | 1.913 | 2.3820 | 95 |
| 6 | 5.71 | NITRATE | BMB | 1.926 | 10.417 | 2.3746 | 95 |
| 7 | 9.28 | SULFATE | BMB | 0.542 | 1.662 | 2.3741 | 95 |
| TOTAL: | | | | 6.39 | 40.90 | 14.40 | |




Anion/Integration

Chromeleon (c) Dionex 1996-2009
Version 7.2.4.8179

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

# WorkOrder: HS17110082

## Groundwater Treatment Plant Weekly Samples

## Bhate Environmental Associates, Inc.

Marcia Olive
445 Union Blvd Ste 129
Lakewood CO 80228

**28-Nov-2017**

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

November 13, 2017

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd Ste 129
Lakewood, CO 80228

Work Order: **HS17110082**

Laboratory Results for: **Groundwater Treatment Plant Weekly Samples**

Dear Marcia,

ALS Environmental received 1 sample(s) on Nov 02, 2017 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,

Sonia West

**Generated By: Jumoke.Lawal**
Sonia West
Project Manager

**ALS Group USA, Corp** Date: 13-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Weekly Samples
**Work Order:** HS17110082

**SAMPLE SUMMARY**

| Lab Samp ID | Client Sample ID | Matrix | TagNo | Collection Date | Date Received | Hold |
|---|---|---|---|---|---|---|
| HS17110082-01 | LH18/24-SP650-110117 | Water | | 01-Nov-2017 14:00 | 02-Nov-2017 08:32 | ☐ |

**ALS Group USA, Corp** Date: 13-Nov-17

**Client:** Bhate Environmental Associates, Inc. **CASE NARRATIVE**
**Project:** Groundwater Treatment Plant Weekly Samples
**Work Order:** HS17110082

## Work Order Comments

- The analysis for Perchlorate was subcontracted to ALS Environmental in Salt Lake City UT Final report attached.

## WetChemistry by Method E350.3

### Batch ID: R304823

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

## WetChemistry by Method E365.3

### Batch ID: R304767

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

## WetChemistry by Method E415.1

### Batch ID: R304763

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

**ALS Group USA, Corp** Date: 13-Nov-17

Client: Bhate Environmental Associates, Inc.
**ANALYTICAL REPORT**
Project: Groundwater Treatment Plant Weekly Samples
WorkOrder:HS17110082
Sample ID: LH18/24-SP650-110117
Lab ID:HS17110082-01
Collection Date: 01-Nov-2017 14:00
Matrix:Water

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **AMMONIA AS N BY E350.3(ISE)** | | **Method:E350.3** | | | | | | Analyst: KMU |
| **Nitrogen, Ammonia (As N)** | **9.4** | | **0.20** | **0.20** | **0.20** | **mg/L** | 1 | 03-Nov-2017 15:50 |
| **ORTHO PHOSPHATE (PO4) AS P BY E365.3** | | **Method:E365.3** | | | | | | Analyst: JHD |
| **Phosphorus, Total Orthophosphate (As P)** | **2.56** | | **0.0500** | **0.0625** | **0.125** | **mg/L** | 5 | 02-Nov-2017 17:24 |
| **TOTAL ORGANIC CARBON BY E415.1** | | **Method:E415.1** | | | | | | Analyst: KMU |
| **Organic Carbon, Total** | **24.8** | | **2.50** | **2.50** | **5.00** | **mg/L** | 5 | 02-Nov-2017 20:54 |
| **SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)** | | **Method:NA** | | | | | | Analyst: SUB |
| Subcontract Analysis | See Attached | | 0 | 0 | | | 1 | 13-Nov-2017 09:46 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 13-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Weekly Samples
**WorkOrder:** HS17110082

## DATES REPORT

| Sample ID | Client Samp ID | Collection Date | TCLP Date | Prep Date | Analysis Date | DF |
|---|---|---|---|---|---|---|
| **Batch ID** R304763 | **Test Name :** TOTAL ORGANIC CARBON BY E415.1 | | | **Matrix:** Water | | |
| HS17110082-01 | LH18/24-SP650-110117 | 01 Nov 2017 14:00 | | | 02 Nov 2017 20:54 | 5 |
| **Batch ID** R304767 | **Test Name :** ORTHO PHOSPHATE (PO4) AS P BY E365.3 | | | **Matrix:** Water | | |
| HS17110082-01 | LH18/24-SP650-110117 | 01 Nov 2017 14:00 | | | 02 Nov 2017 17:24 | 5 |
| **Batch ID** R304823 | **Test Name :** AMMONIA AS N BY E350.3(ISE) | | | **Matrix:** Water | | |
| HS17110082-01 | LH18/24-SP650-110117 | 01 Nov 2017 14:00 | | | 03 Nov 2017 15:50 | 1 |
| **Batch ID** R305286 | **Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850) | | | **Matrix:** Water | | |
| HS17110082-01 | LH18/24-SP650-110117 | 01 Nov 2017 14:00 | | | 13 Nov 2017 09:46 | 1 |

**ALS Group USA, Corp** Date: 13-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Weekly Samples
**WorkOrder:** HS17110082

**QC BATCH REPORT**

**Batch ID: R304763** **Instrument: TOC_02** **Method: E415.1**

**MBLK** Sample ID: **WBLKW1-110217** Units: **mg/L** Analysis Date: **02-Nov-2017 19:55**
Client ID: Run ID: **TOC_02_304763** SeqNo: **4293502** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Organic Carbon, Total | 0.500 | 1.00 | | | | | | | | U |

**LCS** Sample ID: **WLCSW1-110217** Units: **mg/L** Analysis Date: **02-Nov-2017 20:10**
Client ID: Run ID: **TOC_02_304763** SeqNo: **4293503** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Organic Carbon, Total | 9.696 | 1.00 | 10 | 0 | 97.0 | 80 - 120 | | | | |

**LCSD** Sample ID: **WLCSDW1-110217** Units: **mg/L** Analysis Date: **02-Nov-2017 20:23**
Client ID: Run ID: **TOC_02_304763** SeqNo: **4293504** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Organic Carbon, Total | 9.731 | 1.00 | 10 | 0 | 97.3 | 80 - 120 | 9.696 | 0.36 | 20 | |

**MS** Sample ID: **HS17101655-01MS** Units: **mg/L** Analysis Date: **02-Nov-2017 21:22**
Client ID: Run ID: **TOC_02_304763** SeqNo: **4293508** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Organic Carbon, Total | 20.11 | 1.00 | 10 | 10.71 | 94.0 | 80 - 120 | | | | |

**The following samples were analyzed in this batch:** HS17110082-01

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 13-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Weekly Samples
**WorkOrder:** HS17110082

**QC BATCH REPORT**

**Batch ID: R304767** **Instrument: UV-2450** **Method: E365.3**

**MBLK** Sample ID: **MBLK-304767** Units: **mg/L** Analysis Date: **02-Nov-2017 17:24**
Client ID: Run ID: **UV-2450_304767** SeqNo: **4293575** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Phosphorus, Total Orthophosphate (As P) | 0.0125 | 0.0250 | | | | | | | | U |

**LCS** Sample ID: **LCS-304767** Units: **mg/L** Analysis Date: **02-Nov-2017 17:24**
Client ID: Run ID: **UV-2450_304767** SeqNo: **4293576** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Phosphorus, Total Orthophosphate (As P) | 0.233 | 0.0250 | 0.25 | 0 | 93.2 | 80 - 120 | | | | |

**LCSD** Sample ID: **LCSD-304767** Units: **mg/L** Analysis Date: **02-Nov-2017 17:24**
Client ID: Run ID: **UV-2450_304767** SeqNo: **4293577** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Phosphorus, Total Orthophosphate (As P) | 0.246 | 0.0250 | 0.25 | 0 | 98.4 | 80 - 120 | 0.233 | 5.43 | 20 | |

**MS** Sample ID: **HS17110082-01MS** Units: **mg/L** Analysis Date: **02-Nov-2017 17:24**
Client ID: **LH18/24-SP650-110117** Run ID: **UV-2450_304767** SeqNo: **4293579** PrepDate: DF: **5**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Phosphorus, Total Orthophosphate (As P) | 3.74 | 0.125 | 1.25 | 2.56 | 94.4 | 80 - 120 | | | | |

**MSD** Sample ID: **HS17110082-01MSD** Units: **mg/L** Analysis Date: **02-Nov-2017 17:24**
Client ID: **LH18/24-SP650-110117** Run ID: **UV-2450_304767** SeqNo: **4293580** PrepDate: DF: **5**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Phosphorus, Total Orthophosphate (As P) | 3.73 | 0.125 | 1.25 | 2.56 | 93.6 | 80 - 120 | 3.74 | 0.268 | 20 | |

**The following samples were analyzed in this batch:** HS17110082-01

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 13-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Weekly Samples
**WorkOrder:** HS17110082

**QC BATCH REPORT**

**Batch ID: R304823** **Instrument: WetChem_HS** **Method: E350.3**

**MBLK** Sample ID: **MBLK-R304823** Units: **mg/L** Analysis Date: **03-Nov-2017 15:50**
Client ID: Run ID: **WetChem_HS_304823** SeqNo: **4294888** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, Ammonia (As N) | 0.20 | 0.20 | | | | | | | | U |

**LCS** Sample ID: **LCS-R304823** Units: **mg/L** Analysis Date: **03-Nov-2017 15:50**
Client ID: Run ID: **WetChem_HS_304823** SeqNo: **4294887** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, Ammonia (As N) | 10.75 | 0.20 | 10 | 0 | 108 | 80 - 120 | | | | |

**MS** Sample ID: **HS17101636-01MS** Units: **mg/L** Analysis Date: **03-Nov-2017 15:50**
Client ID: Run ID: **WetChem_HS_304823** SeqNo: **4294890** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, Ammonia (As N) | 10.47 | 0.20 | 10 | 0.03929 | 104 | 80 - 120 | | | | |

**MSD** Sample ID: **HS17101636-01MSD** Units: **mg/L** Analysis Date: **03-Nov-2017 15:50**
Client ID: Run ID: **WetChem_HS_304823** SeqNo: **4294889** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, Ammonia (As N) | 10.66 | 0.20 | 10 | 0.03929 | 106 | 80 - 120 | 10.47 | 1.8 | 20 | |

**The following samples were analyzed in this batch:** HS17110082-01

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 13-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Weekly Samples
**WorkOrder:** **HS17110082**

**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 |

## CERTIFICATIONS,ACCREDITATIONS & LICENSES

| Agency | Number | Expire Date |
|---|---|---|
| Arkansas | 17-027-0 | 27-Mar-2018 |
| California | 2919 2016-2018 | 31-Jul-2018 |
| Illinois | 004112 | 09-May-2018 |
| Kentucky | 123043 | 30-Apr-2018 |
| Louisiana | 03087 2017-2017 | 30-Jun-2018 |
| North Carolina | 624-2017 | 31-Dec-2017 |
| North Dakota | R193 2017-2017 | 30-Apr-2018 |
| Oklahoma | 2017-088 | 31-Aug-2018 |
| Texas | T104704231-17-19 | 30-Apr-2018 |

**ALS Group USA, Corp** Date: 13-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Weekly Samples
**Work Order:** HS17110082

**SAMPLE TRACKING**

| Lab Samp ID | Client Sample ID | Action | Date | Person | New Location |
|---|---|---|---|---|---|
| HS17110082-01 | LH18/24-SP650-110117 | Login | 11/2/2017 10:06:35 AM | CL | WET001 |
| HS17110082-01 | LH18/24-SP650-110117 | Login | 11/2/2017 10:06:35 AM | CL | WET001 |
| HS17110082-01 | LH18/24-SP650-110117 | Login | 11/2/2017 10:06:35 AM | CL | WET001 |
| HS17110082-01 | LH18/24-SP650-110117 | Login | 11/2/2017 10:06:35 AM | CL | Sub |

**ALS Group USA, Corp** Date: 13-Nov-17

## Sample Receipt Checklist

Client Name: Bhate Environmental
Work Order: HS17110082
Date/Time Received: **02-Nov-2017 08:32**
Received by: **CL**

Checklist completed by: *Cesar A. Lira* 2-Nov-2017
eSignature | Date

Reviewed by: _____
eSignature | Date

Matrices: **Water**
Carrier name: **ALS Courier**

| | | | |
|---|---|---|---|
| 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 ☑ |
| Chain of custody present? | Yes ☑ | No ☐ | |
| Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | |
| Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | |
| Samples in proper container/bottle? | Yes ☑ | No ☐ | |
| Sample containers intact? | Yes ☑ | No ☐ | |
| TX1005 solids received in hermetically sealed vials? | Yes ☐ | No ☐ | N/A ☑ |
| 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): | 1.8c/2.1c uc/c | IR25 | |
| Cooler(s)/Kit(s): | 43239 | | |
| Date/Time sample(s) sent to storage: | 11/2/2017 10:20 | | |
| 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:

# CHAIN OF CUSTODY

Name Of Lab Shipping To: ALS 10450 Stancliff Rd. Suite 210 Houston, TX. 77099 (281) 530-5656 ATTN: SONIA WEST



**Project:** BHATE
LONGHORN ARMY AMMN. PLANT (LHAAP)
GROUNDWATER TREATMENT PLANT (GWTP)
KARNACK, TEXAS

**Project No.** NWO1312.0150.0 16.0001

**Job:** GROUNDWATER TREATMENT PLANT WEEKLY SAMPLES

**Prepared By:** Scott Beesinger

**P.O. Number**

**HS17110082**

Bhate Environmental Associates, Inc.
Groundwater Treatment Plant Weekly Samples

| Field Sample I.D. | Sample Matrix | Date / Time | MS / MSD | No. OF CONTAINERS | Analyses: AMMONIA-N | TOTAL ORGANIC CARBON | ORTHO-PHOSPHATE | PERCHLORATE | | | | | | | Remarks (Preservatives, etc.) | Lab I.D.# |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LH18/24-SP650_110117 | Water | 11/01/17 / 14:00 | | 2 | X | X | | | | | | | | | H2SO4 | |
| LH18/24-SP650_110117 | Water | 11/01/17 / 14:00 | | 2 | | | X | X | | | | | | | NONE | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |

Additional Remarks: **Standard TAT on all parameters**

| Relinquished By: | Date | Time | Received By: | Date | Time | Relinquished By: | Date | Time | Received By: | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Scott Beesinger | 11/01/17 | 14:30 | [signature] | 11.2.17 | 0832 | | | | | | |

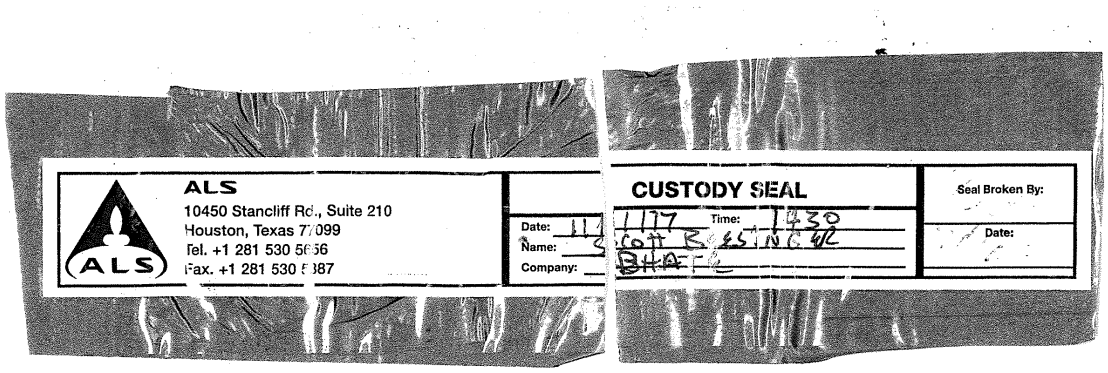
**For Lab Use Only**

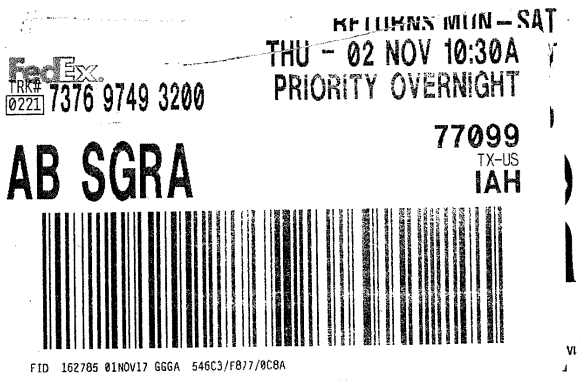
| Received At Lab By: | Date | Time | Airbill No. | Opened By: | Date | Time | Temp of Container | Seal No. | Condition |
|---|---|---|---|---|---|---|---|---|---|
| [signature] | 11.2.17 | 0832 | | | | | 1.8c | | 43239 |

Remarks:

Inv 25
08:40.3c

(Word) S:\1-ces\Forms\Chain of Custody - BiWeekly


ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887
Date:
Name:
Company:
CUSTODY SEAL
Time:
Seal Broken By:
Date:


RETURNS MON – SAT
FedEx
TRK# 0221 7376 9749 3200
THU - 02 NOV 10:30A
PRIORITY OVERNIGHT
77099
TX-US
IAH
AB SGRA
FID 162705 01NOV17 GGGA 546C3/F877/0C8A

# Wet Chemistry Raw Data

Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Weekly Samples
ALS WO# HS17110082

HS17110082



| | Analysis | Sample Name | Sample ID | Origin | Result | Status | Date / Time | Vial |
|---|---|---|---|---|---|---|---|---|
| 1 | NPOC | CCV | 304.147.903 | 10-16-2017 | NPOC:25.52mg/L | Completed | 11/2/2017 7:32:56 PM | 1 |
| 2 | NPOC | CCB | Untitled | 10-16-2017 | NPOC:0.2900mg/L | Completed | 11/2/2017 7:46:09 PM | 2 |
| 3 | NPOC | WBLKW1-110217 | TOC_W | 10-16-2017 | NPOC:0.2427mg/L | Completed | 11/2/2017 8:01:27 PM | 3 |
| 4 | NPOC | WLCSW1-110217 | 297.020.4418 | 10-16-2017 | NPOC:9.696mg/L | Completed | 11/2/2017 8:14:50 PM | 4 |
| 5 | NPOC | WLCSDW1-110217 | Untitled | 10-16-2017 | NPOC:9.731mg/L | Completed | 11/2/2017 8:30:18 PM | 5 |
| 6 | NPOC | HS17101366-01DF5 | 1/1 ODOR | 10-16-2017 | NPOC:12.40mg/L | Completed | 11/2/2017 8:45:31 PM | 6 |
| 7 | NPOC | HS17110082-01DF5 | 1/1 ODOR | 10-16-2017 | NPOC:4.962mg/L | Completed | 11/2/2017 9:00:44 PM | 7 |
| 8 | NPOC | HS17101655-01 | 1/2 | 10-16-2017 | NPOC:10.71mg/L | Completed | 11/2/2017 9:13:52 PM | 8 |
| 9 | NPOC | HS17101655-01MS | 1/2 | 10-16-2017 | NPOC:20.11mg/L | Completed | 11/2/2017 9:29:10 PM | 9 |
| 10 | NPOC | HS17101621-01 | 5310B 1/2 | 10-16-2017 | NPOC:0.2976mg/L | Completed | 11/2/2017 9:44:23 PM | 10 |
| 11 | NPOC | HS17101622-01 | 5310B 1/2 | 10-16-2017 | NPOC:0.2492mg/L | Completed | 11/2/2017 9:59:36 PM | 11 |
| 12 | NPOC | HS17101624-01 | 5310B 1/1 | 10-16-2017 | NPOC:0.2610mg/L | Completed | 11/2/2017 10:12:44 PM | 12 |
| 13 | NPOC | CCV | Untitled | 10-16-2017 | NPOC:24.42mg/L | Completed | 11/2/2017 10:26:08 PM | 13 |
| 14 | NPOC | CCB | Untitled | 10-16-2017 | NPOC:0.2918mg/L | Completed | 11/2/2017 10:41:26 PM | 14 |

Instr.Information

| | |
|---|---|
| System | TOC csh with asi |
| Instrument Options | TOC/ASI/IC Unit/ |
| Catalyst | Regular Sensitivity |

Cal. Curve

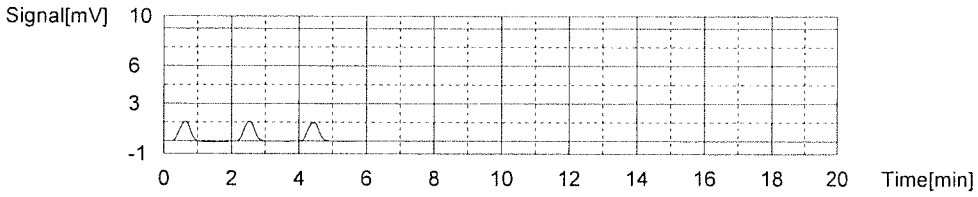
| | |
|---|---|
| Sample Name: | CAL |
| Sample ID: | 304146903 |
| Cal. Curve: | 10-16-2017_W.2017_10_16_17_39_41.cal |
| Status | Completed |

| Type | Anal. |
|---|---|
| Standard | NPOC |

Conc: 1.000mg/L

| No. | Area | Inj. Vol. | Aut. Dil. | Rem. | Ex. | Date / Time |
|---|---|---|---|---|---|---|
| 1 | 3.430 | 50uL | 1 | ******* | | 10/16/2017 5:48:58 PM |
| 2 | 3.301 | 50uL | 1 | ******* | | 10/16/2017 5:51:03 PM |
| 3 | 3.288 | 50uL | 1 | ******* | | 10/16/2017 5:53:08 PM |

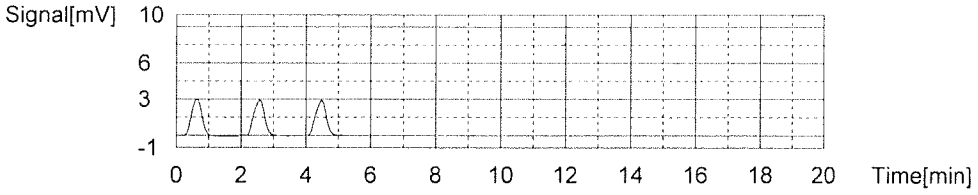
Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 3.340




Conc: 2.000mg/L

| No. | Area | Inj. Vol. | Aut. Dil. | Rem. | Ex. | Date / Time |
|---|---|---|---|---|---|---|
| 1 | 6.550 | 50uL | 1 | ******* | | 10/16/2017 6:02:20 PM |
| 2 | 6.642 | 50uL | 1 | ******* | | 10/16/2017 6:04:25 PM |
| 3 | 6.460 | 50uL | 1 | ******* | | 10/16/2017 6:06:30 PM |

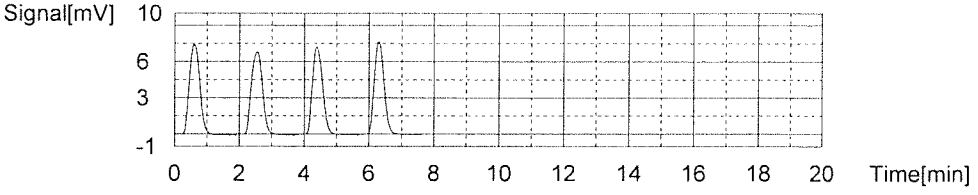
Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 6.551




Conc: 5.000mg/L

| No. | Area | Inj. Vol. | Aut. Dil. | Rem. | Ex. | Date / Time |
|---|---|---|---|---|---|---|
| 1 | 16.40 | 50uL | 1 | ******* | E | 10/16/2017 6:15:42 PM |
| 2 | 16.13 | 50uL | 1 | ******* | | 10/16/2017 6:17:47 PM |
| 3 | 15.62 | 50uL | 1 | ******* | | 10/16/2017 6:19:52 PM |
| 4 | 15.82 | 50uL | 1 | ******* | | 10/16/2017 6:21:57 PM |

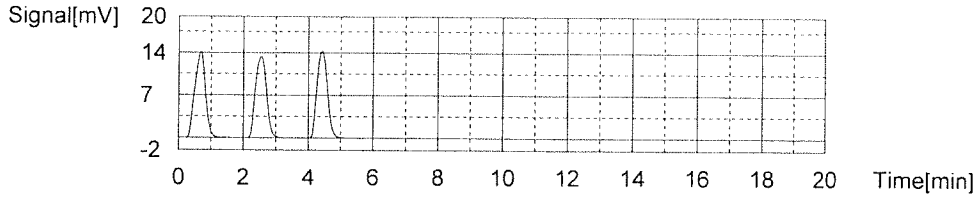
Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 15.86




Conc: 10.00mg/L

| No. | Area | Inj. Vol. | Aut. Dil. | Rem. | Ex. | Date / Time |
|---|---|---|---|---|---|---|
| 1 | 31.78 | 50uL | 1 | ******* | | 10/16/2017 6:30:55 PM |
| 2 | 31.39 | 50uL | 1 | ******* | | 10/16/2017 6:33:00 PM |
| 3 | 31.59 | 50uL | 1 | ******* | | 10/16/2017 6:35:05 PM |

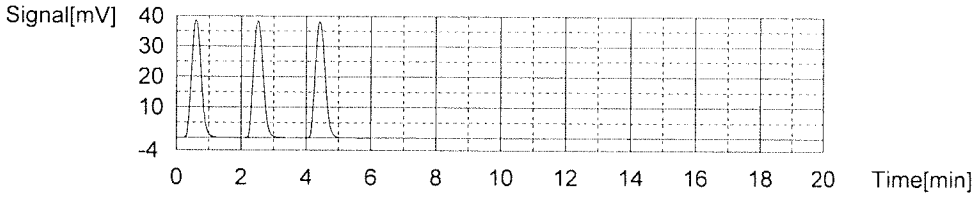
Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 31.59




Conc: 25.00mg/L

| No. | Area | Inj. Vol. | Aut. Dil. | Rem. | Ex. | Date / Time |
|---|---|---|---|---|---|---|
| 1 | 78.26 | 50uL | 1 | ******* | | 10/16/2017 6:44:18 PM |
| 2 | 78.67 | 50uL | 1 | ******* | | 10/16/2017 6:46:23 PM |
| 3 | 79.38 | 50uL | 1 | ******* | | 10/16/2017 6:48:28 PM |

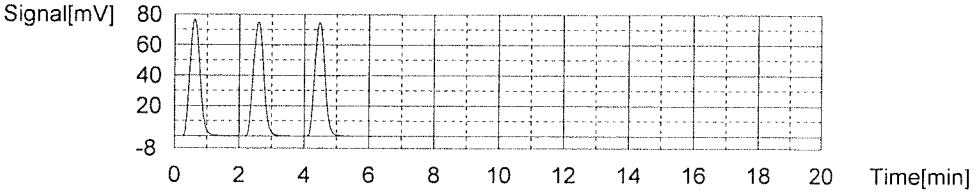
Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 78.77



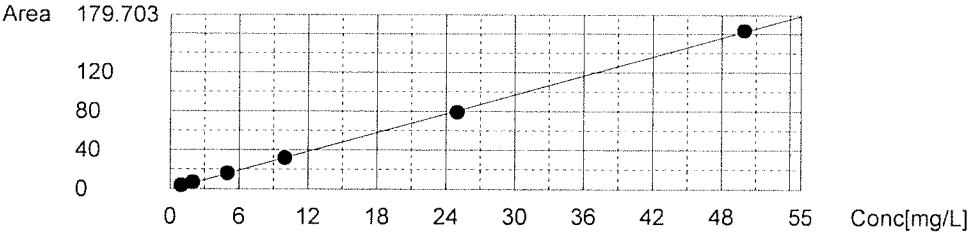

Conc: 50.00mg/L

| No. | Area | Inj. Vol. | Aut. Dil. | Rem. | Ex. | Date / Time |
|---|---|---|---|---|---|---|
| 1 | 164.9 | 50uL | 1 | ******* | | 10/16/2017 6:57:42 PM |
| 2 | 164.9 | 50uL | 1 | ******* | | 10/16/2017 6:59:47 PM |
| 3 | 160.3 | 50uL | 1 | ******* | | 10/16/2017 7:01:52 PM |

Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 163.4




Slope: 3.257
Intercept -0.5787
r^2 0.9997
r 0.9998
Zero Shift No




Sample

Sample Name: ICV
Sample ID: 304147002
Origin: 10-16-2017_W.cal
Status Completed
Chk. Result

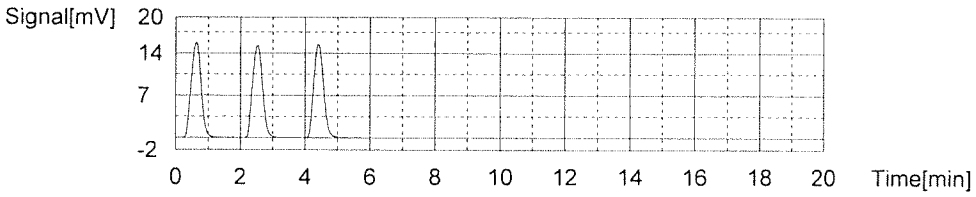
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:10.16mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 32.84 | 10.26mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 10/16/2017 7:58:36 PM |
| 2 | 32.50 | 10.15mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 10/16/2017 8:00:41 PM |
| 3 | 32.24 | 10.07mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 10/16/2017 8:02:46 PM |

Mean Area 32.53
Mean Conc. 10.16mg/L




Sample

Sample Name: ICB
Sample ID: Untitled
Origin: 10-16-2017_W.cal
Status Completed
Chk. Result

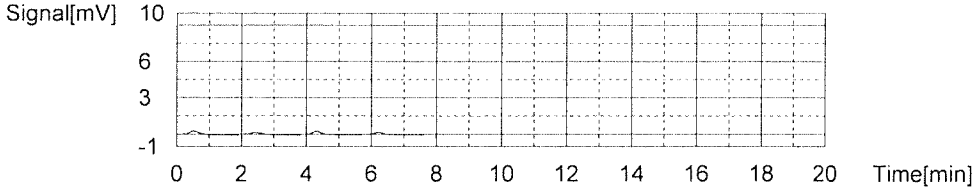
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:0.2618mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 0.4693 | 0.3217mg/L | 50uL | 1 | E | 10-16-2017_W.2017_10_16_17_39_41.cal | 10/16/2017 8:11:49 PM |
| 2 | 0.2438 | 0.2525mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 10/16/2017 8:13:54 PM |
| 3 | 0.3477 | 0.2844mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 10/16/2017 8:15:59 PM |
| 4 | 0.2307 | 0.2485mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 10/16/2017 8:18:04 PM |

Mean Area 0.2741
Mean Conc. 0.2618mg/L



Instr.Information

| | |
|---|---|
| System | TOC csh with asi |
| Instrument Options | TOC/ASI/IC Unit/ |
| Catalyst | Regular Sensitivity |

Sample

| | |
|---|---|
| Sample Name: | CCV |
| Sample ID: | 304.147.903 |
| Origin: | 10-16-2017_W.cal |
| Status | Completed |
| Chk. Result | |

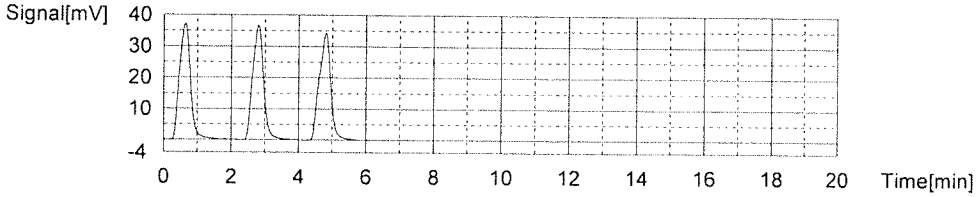
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:25.52mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 84.05 | 25.98mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 7:28:37 PM |
| 2 | 82.32 | 25.45mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 7:30:45 PM |
| 3 | 81.26 | 25.12mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 7:32:56 PM |

| | |
|---|---|
| Mean Area | 82.54 |
| Mean Conc. | 25.52mg/L |




Sample

| | |
|---|---|
| Sample Name: | CCB |
| Sample ID: | Untitled |
| Origin: | 10-16-2017_W.cal |
| Status | Completed |
| Chk. Result | |

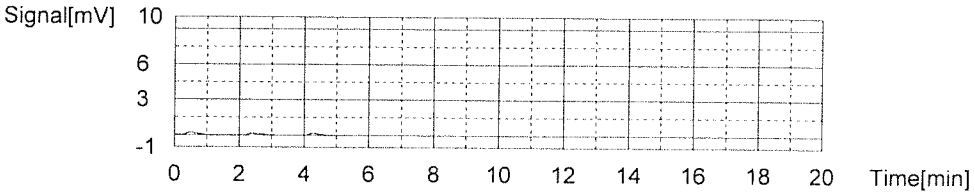
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:0.2900mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 0.4588 | 0.3185mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 7:41:59 PM |
| 2 | 0.3349 | 0.2805mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 7:44:04 PM |
| 3 | 0.3045 | 0.2711mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 7:46:09 PM |

| | |
|---|---|
| Mean Area | 0.3661 |
| Mean Conc. | 0.2900mg/L |



Sample

Sample Name: WBLKW1-110217
Sample ID: TOC_W
Origin: 10-16-2017_W.cal
Status Completed
Chk. Result

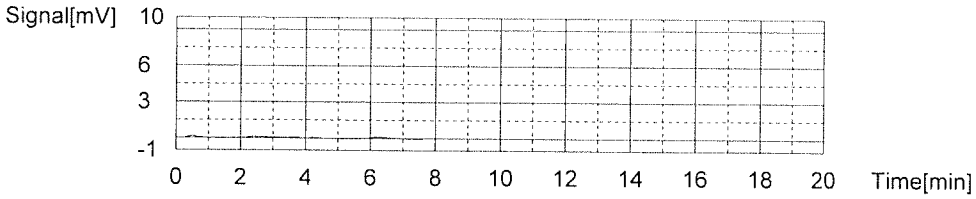
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:0.2427mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 0.2048 | 0.2405mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 7:55:12 PM |
| 2 | 0.2833 | 0.2646mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 7:57:17 PM |
| 3 | 0.000 | 0.1777mg/L | 50uL | 1 | E | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 7:59:22 PM |
| 4 | 0.1479 | 0.2231mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 8:01:27 PM |

Mean Area 0.2120
Mean Conc. 0.2427mg/L




Sample

Sample Name: WLCSW1-110217
Sample ID: 297.020.4418
Origin: 10-16-2017_W.cal
Status Completed
Chk. Result

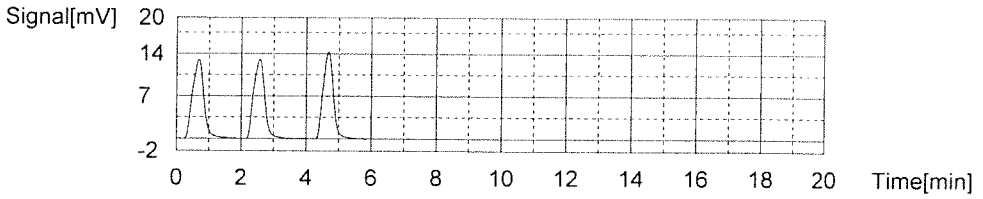
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:9.696mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 31.24 | 9.768mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 8:10:25 PM |
| 2 | 30.79 | 9.630mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 8:12:45 PM |
| 3 | 30.99 | 9.691mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 8:14:50 PM |

Mean Area 31.01
Mean Conc. 9.696mg/L



Sample

Sample Name: WLCSDW1-110217
Sample ID: Untitled
Origin: 10-16-2017_W.cal
Status Completed
Chk. Result

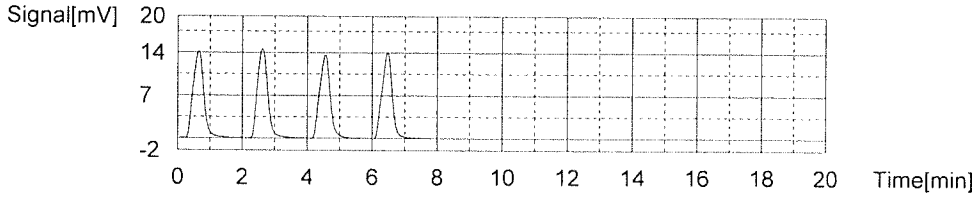
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:9.731mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 32.41 | 10.13mg/L | 50uL | 1 | E | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 8:23:59 PM |
| 2 | 31.99 | 9.998mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 8:26:04 PM |
| 3 | 30.89 | 9.661mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 8:28:09 PM |
| 4 | 30.48 | 9.535mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 8:30:18 PM |

Mean Area 31.12
Mean Conc. 9.731mg/L




Sample

Sample Name: HS17110082-01DF5
Sample ID: 1/1 ODOR
Origin: 10-16-2017_W.cal
Status Completed
Chk. Result

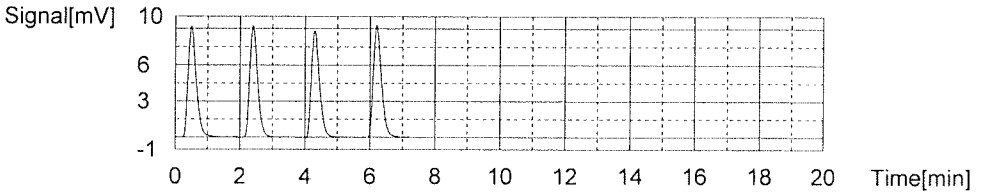
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:4.962mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 16.04 | 5.102mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 8:54:29 PM |
| 2 | 15.38 | 4.899mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 8:56:34 PM |
| 3 | 15.33 | 4.884mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 8:58:39 PM |
| 4 | 16.18 | 5.145mg/L | 50uL | 1 | E | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 9:00:44 PM |

Mean Area 15.58
Mean Conc. 4.962mg/L




Sample

Sample Name: HS17101655-01
Sample ID: 1/2
Origin: 10-16-2017_W.cal
Status Completed
Chk. Result

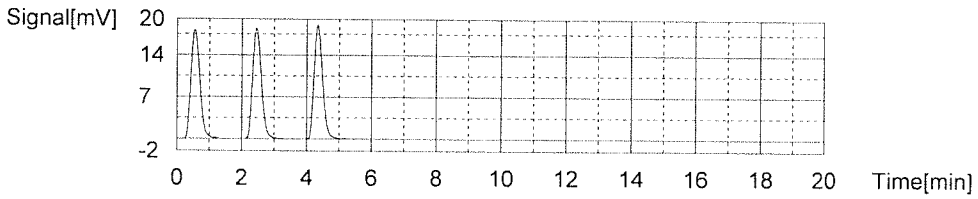
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:10.71mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 34.38 | 10.73mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 9:09:42 PM |
| 2 | 34.35 | 10.72mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 9:11:47 PM |
| 3 | 34.21 | 10.68mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 9:13:52 PM |

Mean Area 34.31
Mean Conc. 10.71mg/L




Sample

Sample Name: HS17101655-01MS
Sample ID: 1/2
Origin: 10-16-2017_W.cal
Status Completed
Chk. Result

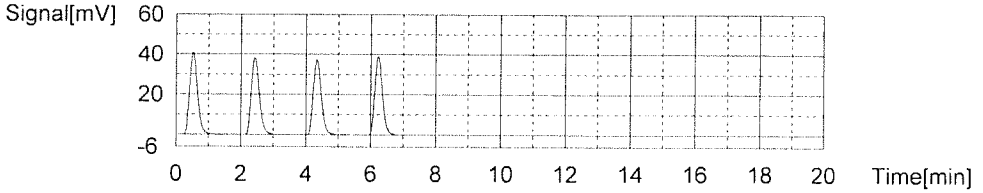
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:20.11mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 68.19 | 21.11mg/L | 50uL | 1 | E | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 9:22:55 PM |
| 2 | 66.24 | 20.51mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 9:25:00 PM |
| 3 | 64.47 | 19.97mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 9:27:05 PM |
| 4 | 64.12 | 19.86mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 9:29:10 PM |

Mean Area 64.94
Mean Conc. 20.11mg/L




Sample

Sample Name: CCV
Sample ID: Untitled
Origin: 10-16-2017_W.cal
Status Completed
Chk. Result

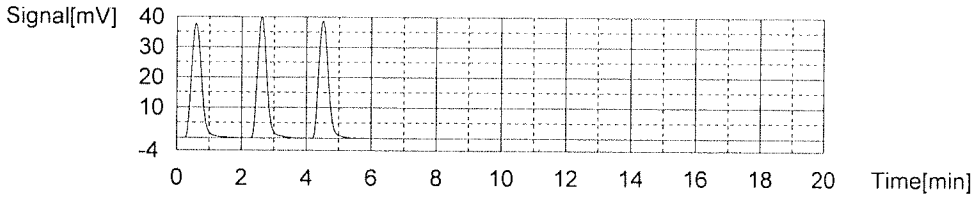
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:24.42mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 79.92 | 24.71mg/L | 50ul | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 10:21:55 PM |
| 2 | 78.58 | 24.30mg/L | 50ul | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 10:24:00 PM |
| 3 | 78.42 | 24.25mg/L | 50ul | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 10:26:08 PM |

Mean Area 78.97
Mean Conc. 24.42mg/L




Sample

Sample Name: CCB
Sample ID: Untitled
Origin: 10-16-2017_W.cal
Status Completed
Chk. Result

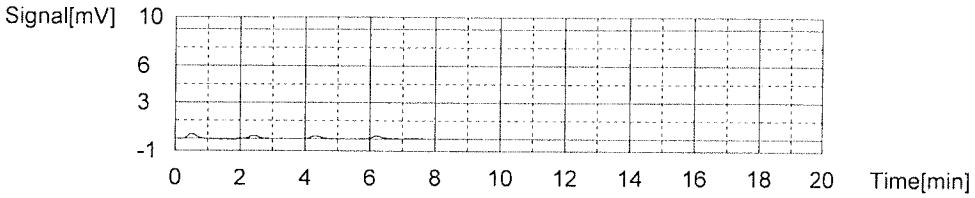
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:0.2918mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 0.7350 | 0.4033mg/L | 50ul | 1 | E | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 10:35:11 PM |
| 2 | 0.3840 | 0.2956mg/L | 50ul | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 10:37:16 PM |
| 3 | 0.4117 | 0.3041mg/L | 50ul | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 10:39:21 PM |
| 4 | 0.3193 | 0.2757mg/L | 50ul | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/2/2017 10:41:26 PM |

Mean Area 0.3717
Mean Conc. 0.2918mg/L

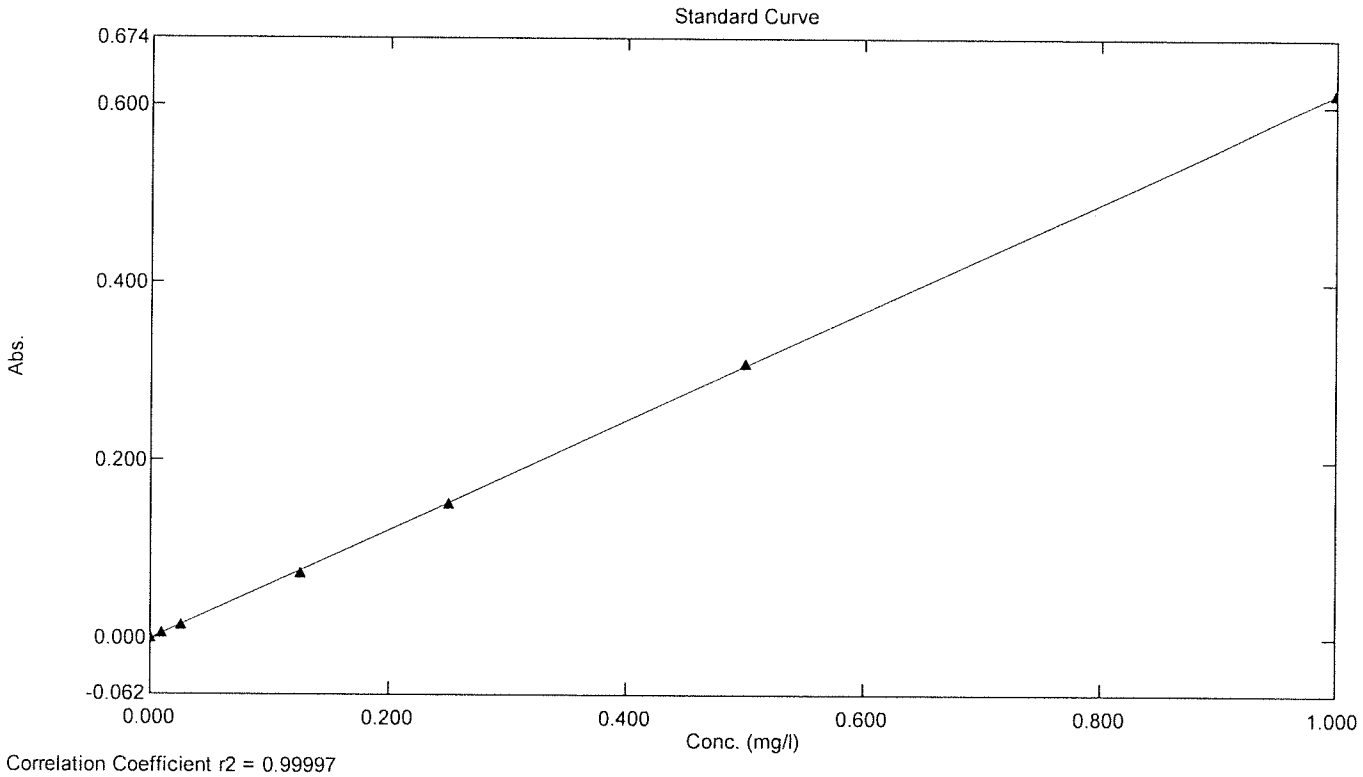


HS171110082

# Standard Table Report

11/21/2017 05:27:40 PM

File Name: Q:\UVProbe\O_PO4_UNKNOWN\171102_P_ORTHO_W.pho




Correlation Coefficient r2 = 0.99997

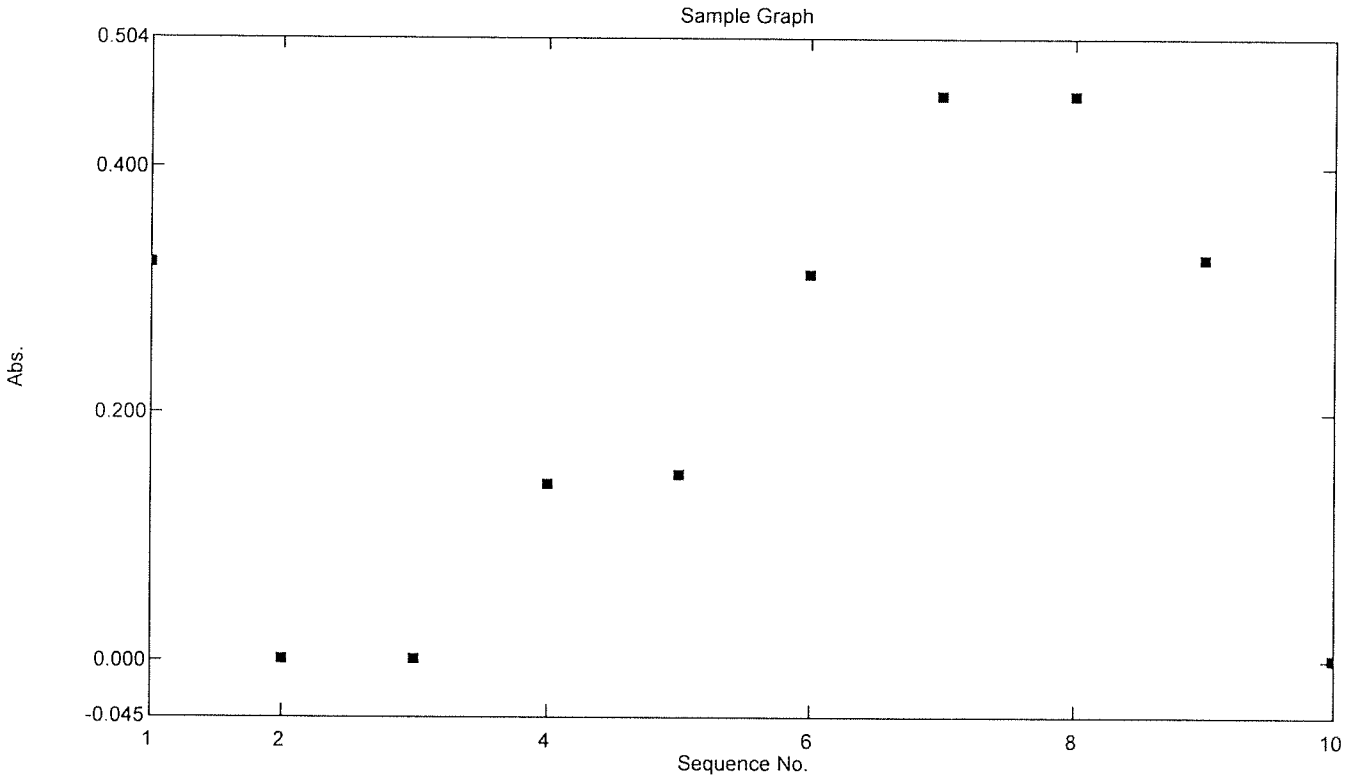
Standard Table

| | Sample ID | Type | Ex | Conc | WL880.0 | Wgt.Facto | Comments |
|---|---|---|---|---|---|---|---|
| 1 | STD1 | Standard | | 0.000 | 0.000 | 1.000 | |
| 2 | STD2 | Standard | | 0.010 | 0.006 | 1.000 | |
| 3 | STD3 | Standard | | 0.025 | 0.015 | 1.000 | |
| 4 | STD4 | Standard | | 0.125 | 0.074 | 1.000 | |
| 5 | STD5 | Standard | | 0.250 | 0.152 | 1.000 | |
| 6 | STD6 | Standard | | 0.500 | 0.308 | 1.000 | |
| 7 | STD7 | Standard | | 1.000 | 0.613 | 1.000 | |
| 8 | | | | | | | |

# Sample Table Report

11/21/2017 05:27:42 PM

File Name: Q:\UVProbe\O_PO4_UNKNOWN\171102_P_ORTHO_W.pho




Sample Table

| | Sample ID | Type | Ex | Conc | WL880.0 | Comments |
|---|---|---|---|---|---|---|
| 1 | CCV | Unknown | | 0.526 | 0.322 | |
| 2 | CCB | Unknown | | 0.002 | 0.001 | |
| 3 | MBLK | Unknown | | 0.002 | 0.001 | |
| 4 | LCS | Unknown | | 0.233 | 0.143 | |
| 5 | LCSD | Unknown | | 0.246 | 0.151 | |
| 6 | 17110082.01 | Unknown | | 0.512 | 0.314 | PF-5X,05:25PM |
| 7 | 171110082.01MS | Unknown | | 0.748 | 0.458 | PF-5X |
| 8 | 17110082.01MSD | Unknown | | 0.746 | 0.458 | PF-5X |
| 9 | CCV2 | Unknown | | 0.533 | 0.326 | |
| 10 | CCB2 | Unknown | | 0.002 | 0.001 | |
| 11 | | | | | | |

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

HS1711 0082

# Ion Selective Electrode Logbook

Analyst: KMV

Date: 11/03/17 @ 3:50 pm

Method: SM4500NH3-D or SM4500 F⁻ C or SW9214 F⁻ or 351.3/4500NH3

SOP: WC-027 or WC-004 or WC-007 or WC-033

Probe Calibration prep'd: 11/03/17

Start @ ID: 304 148 (501-505)

Probe ID: SRI-15910

| Std Level | | mV | Conc., mg/L: |
|---|---|---|---|
| STD 1 (mg/L): | 0.2 | 111.2 | 0.200 |
| STD 2 (mg/L): | 1.0 | 74.4 | 1.003 |
| STD 3 (mg/L): | 5.0 | 34.2 | 5.000 |

Matrix: Water / Soil (1: 10 -- soil -gm : DI Water -ml)

| Std Level | mV | Conc., mg/L: |
|---|---|---|
| STD 4 (mg/L): 10 | 17.8 -21.7 | 10.00 |
| STD 5 (mg/L): 50 | | 50.08 |

LSC / MS Spike ID: 297.020.4006

Ical Slope: 93.87 / -56.5 mV

Ical Date: 11/03/17

| WO # / SX # | Bottle # | Initial g or ml | Final Vol. ml | Dilution Factor | Initial Conc. mg/L | Final Conc. mg/L | Comments |
|---|---|---|---|---|---|---|---|
| *CCV-1 | | 50 | 50 | 1 | 10.47 | | |
| CCB-1 | | | | | 0.02157 | | |
| WBLK[W] | | | | | 0.02116 | | |
| WLCS[W] | | | | | 10.75 | | |
| HS1710005-01 | | 10mL | | 5 | 1.025 | | +Cl2 - treated Nit-Amm_W-E350.3-ISE -DF→Cl2 |
| 0005-02 | | 10mL | | 5 | 0.9649 | | +Cl2-treated -DF→Cl2 |
| 0082-01 | | 10mL | | 5 | 1.805 | | odor (OFF) - DF not Needed |
| 0082-01 | | 50mL | | 1 | 9.363 | | odor |
| HS1710627-01 | | 50 | | 1 | 0.1437 | | Nit Amm_W_ISE |
| 1636-01 | | 50 | | 1 | 0.03929 | | |
| 1636-01MS | | 50 | | | 10.47 | | |
| 1636-01MSD | | 50 | | | 10.66 | | |
| CCV-2 | | 50 | | | 10.13 | | |
| CCB-2 | | 50 | | | 0.03395 | | |
| HS1710016-02 | | | | | 0.1077 | | |
| 17-02 | | | | | 0.0885 | | |
| 43-01 | | 10 | | 5 | 1.064 | | +Cl2 - treated - DF due to Cl2 |
| 44-01 | | 10 | | 5 | 3.051 | | +Cl2 - treated - DF due to Cl2 |
| 45-01 | | 10 | | 5 | 8.207 | | +Cl2 - treated - DF due to Cl2 |
| HS1710630-02 | | 1mL | | 50 | 16.23 | | X Sump water |
| 1642-02 | | 1mL | | 50 | ~~17.660~~ 6.730 | | X Sump water KMV 11/03/17 |
| CCV-3 | | 50 | | 1 | 9.917 | | |
| CCB-3 | | 50 | | 1 | 0.03449 | | |
| | | | | | | | |
| | | | | | | | |

Batch ID: 350.3 R# 304823 / Nit_Amm_W_ISE R# 304824

Reported By

Reviewed By: JW


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# Sub Contract Raw Data

Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Weekly Samples
ALS WO# HS17110082

# Case Narrative

**Method:** 6850
**Analysis:** Perchlorate
**Analysis SOP:** LC-MS-CLO4
**ALS WO ID(s):** 1730040; 1730755

**Client:** ALS Laboratories (Houston, TX)
**Matrix:** Water
**ELMS Batch (HBN):** 1990 (202348)

**General Set Information:** There were two 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 573327) was less than 1/2 the CRDL. The recovery for the LCS (573328) was within acceptable parameters.

**MS/MSD Analysis:** The matrix spike and matrix spike duplicate (MS/MSD) was performed on sample 1730040001 (Client ID: LH18/24-SP650-102517). 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):** None were required for this set.

**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 5.0. Manual Integrations were performed for the Initial Calibration analyses (datafiles: 07SEPP01-10) along with datafiles 08NOVP01-11.

Thomas Bosch November 10, 2017
Date

# ANALYTICAL REPORT

Report Date: November 10, 2017

Sonia West
ALS Environmental
10450 Stancliff Rd.
Suite 210
Houston, TX 77099

Phone: (281) 530-5656

E-mail: Sonia.West@alsglobal.com

Workorder: **34-1730755**
Project ID: HS17110082
Purchase Order: HS17110082
Project Manager Kevin W. Griffiths

| Client Sample ID | Lab ID | Collect Date | Receive Date | Sampling Site |
|---|---|---|---|---|
| LH18/24-SP650-110117 | 1730755001 | 11/01/17 | 11/03/17 | |

# ANALYTICAL REPORT

**Workorder:** 34-1730755
**Client:** ALS Environmental (Houston)
**Project Manager:** Kevin W. Griffiths

## Analytical Results

| | | |
|---|---|---|
| Sample ID: **LH18/24-SP650-110117** | Sampling Site: NA | Collected: 11/01/2017 |
| Lab ID: 1730755001 | Media: 500 mL Nalgene | Received: 11/03/2017 |
| Matrix: Water | Sampling Parameter: NA | |

**Analysis Method - EPA 6850, DoD QSM**

| | | |
|---|---|---|
| **Preparation:** Not Applicable | **Analysis:** EPA 6850, DoD QSM Water | **Instrument ID:** LCMS03 |
| | **Batch:** ELMS/1990 (HBN: 202348) | **Percent Solid:** NA |
| | **Analyzed:** 11/08/2017 14:05 | **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 |

## 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>11/10/2017 12:19 | /S/ Stephen Brose<br>11/10/2017 14:43 |

## 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

# ANALYTICAL REPORT

**Workorder:** 34-1730755
**Client:** ALS Environmental (Houston)
**Project Manager:** Kevin W. Griffiths

## 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 (Standard) | Certificate Number | Website |
|---|---|---|---|
| Environmental | ANAB (DoD ELAP) | ADE-1420 | http://www.anab.org/accredited-organizations/ |
| | Utah (NELAC) | DATA1 | http://health.utah.gov/lab/labimp/ |
| | Nevada | UT00009 | http://ndep.nv.gov/bsdw/labservice.htm |
| | Oklahoma | UT00009 | http://www.deq.state.ok.us/CSDnew/ |
| | Iowa | IA# 376 | http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx |
| | Texas (TNI) | T104704456-11-1 | http://www.tceq.texas.gov/field/qa/lab_accred_certif.html |
| | Washington | C596-16 | http://www.ecy.wa.gov/programs/eap/labs/index.html |
| | Kansas | E-10416 | http://www.kdheks.gov/lipo/index.html |
| Industrial Hygiene | AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP) | 101574 | http://www.aihaaccreditedlabs.org |
| | Washington | C596-16 | http://www.ecy.wa.gov/programs/eap/labs/index.html |
| Lead Testing: | | | |
| CPSC | ANAB (ISO 17025, CPSC) | ADE-1420 | http://www.anab.org/accredited-organizations/ |
| Soil, Dust, Paint ,Air | AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP) | 101574 | http://www.aihaaccreditedlabs.org |
| Dietary Supplements | ACLASS (ISO 17025) | ADE-1420 | http://www.aclasscorp.com |

# ANALYTICAL REPORT

**Workorder:** 34-1730755
**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:** 1730755

| | | | | | |
|---|---|---|---|---|---|
| **Limits:** | Client SOW/Contract Specified | **Preparation:** | NA | **Analysis:** | EPA 6850 |
| **Basis:** | DoD QSM | **Batch:** | NA | **Batch:** | ELMS/1990 (HBN: 202348) |
| | | **Prepared By:** | NA | **Analyzed By:** | Thomas Bosch |

### Blank

**LMB:** 573327
**Analyzed:** 11/08/2017 12:57
**Units:** ug/L

| Analyte | Result | MDL | RL |
|---|---|---|---|
| Perchlorate | ND | 1 | 2.00 |

### Laboratory Control Sample

**LCS:** 573328
**Analyzed:** 11/08/2017 13:10
**Dilution:** 1
**Units:** ug/L

| Analyte | Result | Target | % Rec | QC Limits | |
|---|---|---|---|---|---|
| Perchlorate | 5.05 | 5.00 | 101 | 78.8 | 123.8 |

### Matrix Spike - Matrix Spike Duplicate

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sample:** | 1730040001 | **MS:** | 573329 | | | | **MSD:** | 573330 | | | |
| **Analyzed:** | 11/08/2017 13:24 | **Analyzed:** | 11/08/2017 13:38 | | | | **Analyzed:** | 11/08/2017 13:51 | | | |
| **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 | 4.47 | 5 | 89.4 | 78.8 | 123.8 | 4.35 | 87.1 | 2.67 | 0.0 | 20.0 |

### Continuing Calibration Verification

| | | | | | | |
|---|---|---|---|---|---|---|
| **CCV:** | 573324 | | | **CCV:** | 573331 | |
| **Analyzed:** | 11/08/2017 12:16 | | | **Analyzed:** | 11/08/2017 14:18 | |
| **Units:** | ug/L | | | **Units:** | ug/L | |
| **Criteria:** | ± 15% | | | **Criteria:** | ± 15% | |

| Analyte | Result | Target | % Rec. | Result | Target | % Rec. |
|---|---|---|---|---|---|---|
| Perchlorate | 26.9 | 25.0 | 108 | 26.9 | 25.0 | 107 |

### Interference Check Sample

**ICSA:** 573326
**Analyzed:** 11/08/2017 12:43
**Units:** ug/L
**Criteria:** ± 30%

| Analyte | Result | Target | % Rec. |
|---|---|---|---|
| Perchlorate | 1.09 | 1.00 | 109 |

### Limit of Detection Verification

| | | | | | | |
|---|---|---|---|---|---|---|
| **LODV:** | 573325 | | | **LODV:** | 573332 | |
| **Analyzed:** | 11/08/2017 12:30 | | | **Analyzed:** | 11/08/2017 14:32 | |
| **Units:** | ug/L | | | **Units:** | ug/L | |
| **Criteria:** | ± 50% | | | **Criteria:** | ± 50% | |

| Analyte | Result | Target | % Rec. | Result | Target | % Rec. |
|---|---|---|---|---|---|---|
| Perchlorate | 1.02 | 1.00 | 102 | 1.15 | 1.00 | 115 |

# Quality Control Sample
# Batch Report

## Analysis Information

**Workorder:** **1730755**

| | | | | | |
|---|---|---|---|---|---|
| **Limits:** | Client SOW/Contract Specified | **Preparation:** | NA | **Analysis:** | EPA 6850 |
| **Basis:** | DoD QSM | **Batch:** | NA | **Batch:** | ELMS/1990 (HBN: 202348) |
| | | **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 |
| 11/10/2017 12:19 | 11/10/2017 14:43 |

## 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

W 1730755

18698/#2

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: 7972**

1730755

**SUBCONTRACT TO:**

ALS Laboratory Group
960 LeVoy Dr
Salt Lake City, UT 84123

**Phone:** +1 801 266 7700

**CUSTOMER INFORMATION:**

| | |
|---|---|
| **Company:** | ALS Houston |
| **Contact:** | Sonia West |
| **Address:** | 10450 Stancliff Rd, Ste 210 |
| **Phone:** | +1 281 530 5656 |
| **Email:** | Sonia.West@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:** | HS17110082 |
| **TSR:** | Danielle Winnings |

| | LAB SAMPLE ID | CLIENT SAMPLE ID | MATRIX | COLLECT DATE |
|---|---|---|---|---|
| | ANALYSIS REQUESTED | | | DUE DATE |
| **1.** | **HS17110082-01** | **LH18/24-SP650-110117** | **Water** | **01 Nov 2017 14:00** |
| | SUB_Perch-6850 | | | 10 Nov 2017 |

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

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

Relinquished By: [signature] Date/Time: Nov 2, 2017 1500

Received By: [signature] Date/Time: 11/3/17 0949

Cooler ID(s): 7969 Temperature(s): 11°C

PRINT SOLUTIONS | RIGHT PARTNER

# ALS - Salt Lake City-Related Information Report (CRIR)

## Cooler or Container Information Checklist (Fill In or Circle)

1730755

Client Name: ALS Houston

Project/Task/Site:

Date/Time of Receipt: 11/3/17 0949

Number of Coolers Received: 1

| | | | |
|---|---|---|---|
| Condition of Coolers: | Acceptable/Unacceptable | Temperature Control: | Present/Not Included |
| Cooler Custody Seals: | Present/Absent/NA | Location Temp Taken: | Control/Between Samples |
| | Intact/Broken/NA | Are all temperatures within | |
| Container Custody Seals: | Present/Absent/NA | project specific guidelines? | Yes/No/NA |
| | Intact/Broken/NA | VOA Headspace Present? | Yes/No/NA |
| Ice Present: | Yes/No/NA | | |
| | Frozen/Melted/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 | TOC Preserved | Yes/No/NA |

| Cooler Received | ALS Cooler No. | Temp. | Cooler Received | ALS Cooler No. | Temp. | Cooler Received | ALSL Cooler No. | Temp. |
|---|---|---|---|---|---|---|---|---|
| 1 | C17-7969 | 11 °C | 4 | C17- | °C | 7 | C17- | °C |
| 2 | C17- | °C | 5 | C17- | °C | 8 | C17- | °C |
| 3 | C17- | °C | 6 | C17- | °C | 9 | C17- | °C |

Taken By: Julie Wraith (Signature) Julie Wraith (Printed Name) 11/3/17 (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:

E-mailed to Client? Yes ☐ No ☐

**Response Required Within 24 Hours**

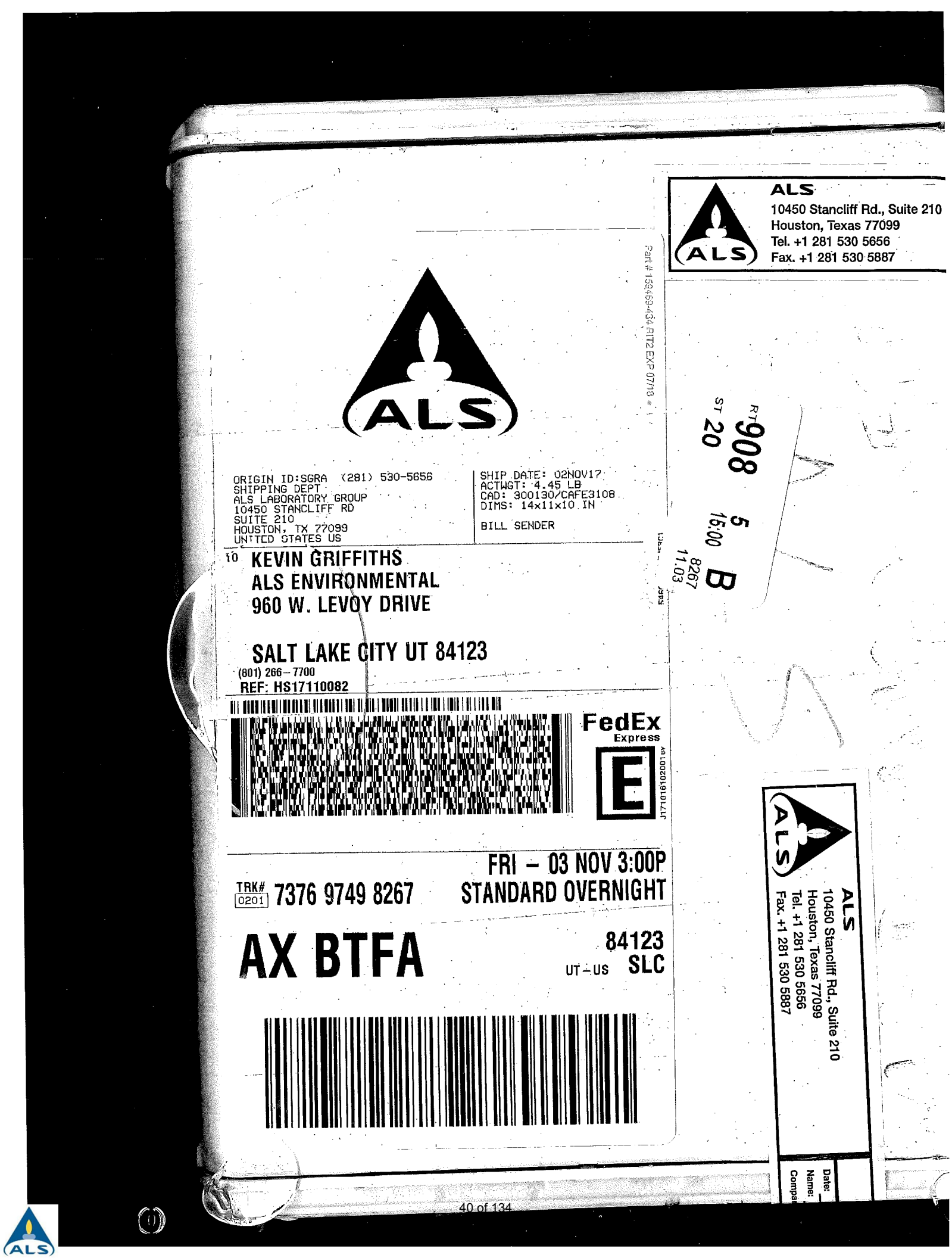
## Project Management

Project Manager Comments:

ALS Project Manager: _____ (Printed Name) Returned to Sample Receipt by: _____ (Signature) Date: _____

CRIR.dot

Revised 1/1/15


ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887
Part # 158468-494 RIT2 EXP 07/18
ORIGIN ID:SGRA (281) 530-5656
SHIPPING DEPT
ALS LABORATORY GROUP
10450 STANCLIFF RD
SUITE 210
HOUSTON, TX 77099
UNITED STATES US
SHIP DATE: 02NOV17
ACTWGT: 4.45 LB
CAD: 300130/CAFE3108
DIMS: 14x11x10 IN
BILL SENDER
TO KEVIN GRIFFITHS
ALS ENVIRONMENTAL
960 W. LEVOY DRIVE
SALT LAKE CITY UT 84123
(801) 266-7700
REF: HS17110082
FedEx Express
J17101610201uv
FRI - 03 NOV 3:00P
STANDARD OVERNIGHT
TRK# 0201 7376 9749 8267
AX BTFA
84123
UT-US SLC
RT 908
ST 20
5
16.00
B
8267
11.03
ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887
Date:
Name:
Compa

00876717

# ALS Environmental

## CHAIN-OF-CUSTODY

| | | | |
|---|---|---|---|
| Project / Job / Task: HS17110082 | Split: | Workorder ID: 1730755 | Level: ENV_LVL4 |
| Client: ALS Environmental (Houston) | | Account: 8101 | Type: 500Poly |
| Comments: | | | Preservatives: COOL |

Requested Analysis: EPA 6850, DoD QSM

| Item | Collect Date/Time | Sample ID | Lab ID | QC | Matrix | Containers ID(s) | Containers Count | Requested Analysis |
|---|---|---|---|---|---|---|---|---|
| 1 | 11/01/2017 14:00 | LH18/24-SP650-110117 | 1730755001 | | Water | A | 1 | A |
| 2 | | | | | | | | |
| 3 | | | | | | | | |
| 4 | | | | | | | | |
| 5 | | | | | | | | |
| 6 | | | | | | | | |
| 7 | | | | | | | | |
| 8 | | | | | | | | |
| 9 | | | | | | | | |
| 10 | | | | | | | | |

41 of 134

### ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

| Relinquished By: (Signature) | Date / Time | Received By: (Signature) | Reason for Transfer / Storage Location |
|---|---|---|---|
| Warath, Julie | 11/03/2017 09:49 | ALS Sample Receiving | Sample Login |
| [signature] | 11/3/17 1145 | BC | Storage |
| IB R.33.1 | 11.07.17/16:50 | T.Bond | 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 |
|---|---|---|---|
| | | | |
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| | | | |

# ch Worklist

**Batch:** ELMS/ 1990 **Created:** 11/8/2017 08:24 **Instrument:** HBN: 202348

**Rule:** EPA 6850, DoD QSM Water **Analyst:** T. Bosch **Status:** WP

**Workorder:** 1730040 [ENV_LVL4]

**Workorder:** 1730755 [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 | 573324 | CCV for HBN 202348 [ELMS/1990] | | | | CCV | 3 | | E685041C3Q | 5311 | | 11/10/2017 | |
| 2 | 573325 | LODV for HBN 202348 [ELMS/1990 | | | | LODV | 3 | | E6850..D3Q | 5311 | | 11/10/2017 | |
| 3 | 573326 | ICS for HBN 202348 [ELMS/1990] | | | | ICS | 3 | | E6850..D3Q | 5311 | | 11/10/2017 | |
| 4 | 573327 | LMB for HBN 202348 [ELMS/1990] | | | | LMB | 3 | | E6850Q413Q | 5311 | | 11/10/2017 | |
| 5 | 573328 | LCS for HBN 202348 [ELMS/1990] | | | | LCS | 3 | | E6850Q413Q | 5311 | | 11/10/2017 | |
| 6 | 1730040001 | LH18/24-SP650-102517 | | | | SAMPLE | 3 | 1730040001-A | E6850Q41.3 | 5480 | 11/22/2017 | 11/10/2017 | |
| 7 | 573329 | LH18/24-SP650...(1730040001MS) | | | | MS | 3 | | E6850Q413Q | 5311 | | 11/10/2017 | |
| 8 | 573330 | LH18/24-SP65...(1730040001MSD) | | | | MSD | 3 | | E6850Q413Q | 5311 | | 11/10/2017 | |
| 9 | 1730755001 | LH18/24-SP650-110117 | | | | SAMPLE | 3 | 1730755001-A | E6850Q41.3 | 5480 | 11/29/2017 | 11/17/2017 | |
| 10 | 573331 | CCV for HBN 202348 [ELMS/1990] | | | | CCV | 3 | | E685041C3Q | 5311 | | 11/10/2017 | |
| 11 | 573332 | LODV for HBN 202348 [ELMS/1990 | | | | LODV | 3 | | E6850..D3Q | 5311 | | 11/10/2017 | |

42 of 134



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ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

# Analytical Documentation

ALS Work Order #'s & Sample #( )'s: 1730040 (001); 1730755 (001)
ELMS Batch/HBN ID: 1990 (202348)
Prep Date: 11/08/2017 Analysis Date: 11/08/2017 Analyst: T. Bosch
Analyte: **Perchlorate** Matrix: **Water** Method: **6850**
Sequence:\\HPCHEM\1\SEQUENCE\CLO4\2017\NOV\08NOV17-CLO4-WTR.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 DI735)/0.1% glacial acetic acid.
Eluent B1: 95% ACN (B&J Lot DI735)/ 5% ASTM Type II water (ALS)/0.1% glacial acetic acid.

**STANDARDS:** Internal Standard Spiking Solution Horizon# 36732. Dilutions of Working Standard Solution ID 32373 used for CCV's, LODV's, RLVS and IPC.

**CALIBRATION CURVE:** Used curve from 09/07/2017, sequence 07SEP17-CLO4.s Offline Quantitation Method: CLO4-090717-PR.M

**INSTRUMENT CONDITIONS:** Samples were analyzed with an Agilent 1100 LC/MSD system, in negative SIM mode, monitoring m/z 83.0, 85.0, and 89.0
**Instrument ID: LCMS03** Online Acquisition Method: CLO4_AQN2.M Fragmentor: 250 Output Gain: 10 Injection Volume: 35µL
Column: KP-RPPX; 5µm, 4.6 *150mm (SN: RPX250 02040) Mobile Phase: Eluent A1 – 40%; Eluent B1 – 60% Run Time: 11.0min

**FLOW GRADIENT:**

| Time (min.) | Flow (mL/min) |
|---|---|
| 0 | 0.30 |
| 5.1 | 0.30 |
| 5.2 | 0.20 |
| 8.0 | 0.20 |
| 8.1 | 0.30 |

**QC DATA:** 5.0µL of QC Solution Horizon ID 36749 was used for LCS 573328; Target = 5.0µg/L. ASTM type II water was used for LMB 573327.

**MS/MSD:** MS/MSD was performed on sample 1730040001 (Client ID: LH18/24-SP650-102517). 5.0µl of Working Standard Solution Horizon ID 36735 was added to 10.0mL of sample preparation. Spike target = 5.0µg/L.

**COMMENTS:**
1) Results reported in µg/L.
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\LCMS03\2017\NOV\HBN# or through NuGenesis\Tree\PrintData\LCMS\DefaultView.
4) Due to limitations of the Chemstation Software, many of the chromatographic peaks require manual integration. Manual Integrations were performed for all of the Initial Calibration analyses (datafiles: 07SEPP01-10) along with datafiles 08NOVP01-11.
5) Notebook: \\alsltws013\ORGANIC\BOSCH\LCMS\Perchlorates\Waters\2017\CLO4-202348-DOD-LCMS3-HSTN or through \\ALSLTWS013\DATAREVIEW\HBN#

# STANDARD REPORT

## Working Standard - CLO4 WRK

**CLO4 WRK** — **Description - 6850 WKG Std 100.ug/L**

Standard: 36735
MFG: ALS/SLC
MFG Lot: TNB: 05/10/17
Part ID:

Created By: T. Bosch
Create Date: 05/10/2017
Lab Lot: CLO4 WRK

Amount: 10 mL
Expires: 05/10/2018
Usable: Yes

| 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 |
| 36734 | CLO4 INT | 6850 Intermdt AccStd 10.ug/mL | CLO4 INT | 0.1 mL | 05/10/2018 |

# STANDARD REPORT

## Constituent

## Stock Standard - CLO4 STOCK

**CLO4 STOCK** — Description - 6850 Stock AccStd 1,000ug/mL

Standard: 36733
MFG: AccuStandard
MFG Lot: 216095148
Part ID: IC-PER-10X-1

Created By: T. Bosch
Create Date: 5/10/2017
Lab Lot: CLO4 STOCK

Amount: 100 mL
Expires: 10/4/2018
Usable: Yes

| Pos. | Analyte | Name | Concentration |
|---|---|---|---|
| 1 | 14797-73-0 | Perchlorate | 1000 ug/mL |

# 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: 10/6/2005 | Expires: 11/7/2025 |
| MFG Lot: | Lab Lot: LAB 109 | Usable: Yes |
| Part ID: | | |

| Pos. | Analyte | Name | Concentration |
|---|---|---|---|
| Solvent - Analyte(s) not applicable | | | |

# STANDARD REPORT

## Constituent

## Working Standard - CLO4 INT

**CLO4 INT** — Description - 6850 Intermdt AccStd 10.ug/mL

Standard: 36734
MFG: ALS/SLC
MFG Lot: TNB: 05/10/17
Part ID:

Created By: T. Bosch
Create Date: 05/10/2017
Lab Lot: CLO4 INT

Amount: 10 mL
Expires: 05/10/2018
Usable: Yes

| 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 |
| 36733 | CLO4 STOCK | 6850 Stock AccStd 1,000ug/mL | CLO4 STOCK | 0.1 mL | 10/04/2018 |

# STANDARD REPORT

## Working Standard - CLO4 QC WRK

**CLO4 QC WRK** — Description - 6850 QC WKG STD 100ug/L

Standard: 36750
MFG: ALS/SLC
MFG Lot: TNB: 05/11/17
Part ID:

Created By: T. Bosch
Create Date: 05/11/2017
Lab Lot: CLO4 QC WRK 100.ug/L

Amount: 10 mL
Expires: 05/11/2018
Usable: Yes

| 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 |
| 36749 | CLO4 QC INT | 6850 QC Intrmdt Std-QC 10ug/mL | CLO4 QC INT 10.ug/mL | 0.1 mL | 05/11/2018 |

# STANDARD REPORT

## Constituent

## Working Standard - CLO4 QC INT

**CLO4 QC INT** — Description - 6850 QC Intrmdt Std-QC 10ug/mL

Standard: 36749
MFG: ALS/SLC
MFG Lot: TNB: 05/11/2017
Part ID:

Created By: T. Bosch
Create Date: 05/11/2017
Lab Lot: CLO4 QC INT 10.ug/mL

Amount: 10 mL
Expires: 05/11/2018
Usable: Yes

| 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 |

# 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: 10/6/2005 | Expires: 11/7/2025 |
| MFG Lot: | Lab Lot: LAB 109 | Usable: Yes |
| Part ID: | | |

| Pos. | Analyte | Name | Concentration |
|---|---|---|---|
| Solvent - Analyte(s) not applicable | | | |

# STANDARD REPORT

## Constituent

## Stock Standard - CLO4 QCSTOCK

| CLO4 QCSTOCK | Description - 6850 QC Stock STD 1,000ug/mL |
|---|---|

| | | | |
|---|---|---|---|
| Standard: 36748 | Created By: T. Bosch | Amount: 100 mL |
| MFG: Ultra Scientific | Create Date: 5/11/2017 | Expires: 3/31/2020 |
| MFG Lot: CP-0860 | Lab Lot: CLO4 QC STOCK | Usable: Yes |
| Part ID: ICC-013 | | |

| Pos. | Analyte | Name | Concentration |
|---|---|---|---|
| 1 | 14797-73-0 | Perchlorate | 1000 ug/mL |

# STANDARD REPORT

## Working Standard - CLO4ISTDWRK

| CLO4ISTDWRK | | Description - Perchlorate ISTD Wrk 1,000ug/L |
|---|---|---|
| Standard: 38780 | Created By: Thomas Bosch | Amount: 10 mL |
| MFG: ALS/SLC | Create Date: 10/09/2017 01:10PM | Expires: 10/09/2018 |
| MFG Lot: TNB: 10/09/17 | 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 |
|---|---|---|---|---|---|
| 23118 | CLO4ISTDSTK | Perchlorate ISTD Stock | CLO4ISTDSTK | 0.1 mL | 02/27/2024 |

# STANDARD REPORT

## Constituent

## Stock Standard - CLO4ISTDSTK

| CLO4ISTDSTK | | Description - Perchlorate ISTD Stock |
|---|---|---|
| Standard: 23118 | Created By: Thomas Bosch | Amount: 1 mL |
| MFG: Cambridge Isotope | Create Date: 04/04/2014 03:04PM | Expires: 02/27/2024 |
| MFG Lot: SDDG-013 | Verified By: Thomas Bosch | Usable: Yes |
| Part ID: OLM-7310-S | Verify Date: 02/05/2009 12:02AM | 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

TRIPLE ISO CERTIFICATION ISO 9001 ISO GUIDE 34 ISO 17025 ULTRA

## 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.

ANAB ACCREDITED ISO GUIDE 34 REFERENCE MATERIAL PRODUCER
ANAB ACCREDITED ACCREDITED TESTING LABORATORY



ALS

ULTRA SCIENTIFIC
Analytical Solutions

# Certificate of Analysis

TRIPLE ISO CERTIFICATION ULTRA ISO/IEC 17025 • ISO GUIDE 34 • ISO/IEC 17043

## ISO Guide 34 Reference Material

Product Number: ICC-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

125 Market Street
New Haven, CT 06513
USA

AccuStandard® Inc.

Tel (203)786-5290
Fax (203)786-5287
www.AccuStandard.com

# CERTIFICATE OF ANALYSIS

## AccuTrace™ Reference Standard

Catalog No: IC-PER-10X-1
Description: Perchlorate Standard
Element: Perchlorate ($ClO_4$)
SRM: Ind. Std.
Lot: 216095148
Matrix: Water
Hazards: *Refer to SDS for complete safety information*

Signal Word: Warning

Date Certified: Oct 4, 2016
Expiration: Oct 4, 2018
Sample Size: 100 mL
Components: 1
Storage Condition: Ambient (>5 °C)

Included on ISO/IEC 17025 Scope of Accreditation: Yes

Included on ISO Guide 34 Scope of Accreditation: Yes

| Component | | SRM # | Prepared Concentration (µg/mL) |
|---|---|---|---|
| $ClO_4$ | Perchlorate | Ind. Std. | 1000 |

The gravimetric uncertainty for this product is ±0.2%. See reverse side for details.

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

*Page 1 of 1*

*For use in routine laboratory analysis.*



AccuStandard is accredited to ISO Guide 34, ISO/IEC 17025 and certified to ISO 9001

Cambridge Isotope Laboratories, Inc.

# Certificate of Analysis

Quality Standards:
ISO Guide 34 • ISO/IEC 17025 • ISO 13485 • cGMP

23118

| | |
|---|---|
| **Product Name:** (Isotopic Label & Enrichment Specification) | PERCHLORIC ACID, SODIUM SALT (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% |
| LC/MS for Concentration | 109.4 ± 2.8 µg/mL (k=2) |

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

# Raw Data

Batch Review Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M

['#' ==> Run has not been reprocessed with Batch Review Method
'*' ==> Run has been saved with batch file]

| # | Sample | Location | Inj | SampleType | Run | Perchlor RT | Perchlorate Area | Perchlorate Amount |
|---|---|---|---|---|---|---|---|---|
| * | 573324 CCV@25 | Vial 71 | 1 | Control | 1 | 7.437 | 5.92047e5 | 26.87701 |
| * | 573325 LODV@1. | Vial 72 | 1 | Control | 2 | 7.584 | 3.29226e4 | 1.01962 |
| * | 573326 ICS@1.0 | Vial 73 | 1 | Control | 3 | 7.449 | 2.23668e4 | 1.08851 |
| * | 573327 LMB | Vial 74 | 1 | Control | 4 | 0.000 | 0.00000 | 0.00000 |
| * | 573328 QC@5.0 | Vial 75 | 1 | Control | 5 | 7.751 | 1.28117e5 | 5.04695 |
| * | 1730040001 | Vial 76 | 1 | Sample | 6 | 6.792 | 6319.27686 | 2.69831e-1 <RL |
| * | 573329 300401MS | Vial 77 | 1 | Sample | 7 | 6.793 | 1.05321e5 | 4.47106 |
| * | 573330 300401MSD | Vial 78 | 1 | Sample | 8 | 6.819 | 1.11878e5 | 4.35302 |
| * | 1730755001 | Vial 79 | 1 | Sample | 9 | 0.000 | 0.00000 | 0.00000 |
| * | 573331 CCV@25 | Vial 71 | 1 | Control | 10 | 7.781 | 5.67576e5 | 26.86707 |
| * | 573332 LODV@1. | Vial 72 | 1 | Control | 11 | 7.873 | 3.51155e4 | 1.14534 |

| # | Sample | Location | Inj | SampleType | Run | CLO4-85 RT | CLO4-85 Area | CLO4-85 Amount |
|---|---|---|---|---|---|---|---|---|
| * | 573324 CCV@25 | Vial 71 | 1 | Control | 1 | 7.442 | 1.97909e5 | 26.81384 |
| * | 573325 LODV@1. | Vial 72 | 1 | Control | 2 | 7.592 | 1.19757e4 | 1.23788 |
| * | 573326 ICS@1.0 | Vial 73 | 1 | Control | 3 | 7.454 | 7844.05029 | 1.27010 |
| * | 573327 LMB | Vial 74 | 1 | Control | 4 | 0.000 | 0.00000 | 0.00000 |
| * | 573328 QC@5.0 | Vial 75 | 1 | Control | 5 | 7.759 | 4.37057e4 | 5.24885 |
| * | 1730040001 | Vial 76 | 1 | Sample | 6 | 6.808 | 2310.43066 | 4.29542e-1 |
| * | 573329 300401MS | Vial 77 | 1 | Sample | 7 | 6.801 | 3.42747e4 | 4.45695 |
| * | 573330 300401MSD | Vial 78 | 1 | Sample | 8 | 6.824 | 3.74515e4 | 4.46341 |
| * | 1730755001 | Vial 79 | 1 | Sample | 9 | 0.000 | 0.00000 | 0.00000 |
| * | 573331 CCV@25 | Vial 71 | 1 | Control | 10 | 7.786 | 1.90260e5 | 26.87866 |
| * | 573332 LODV@1. | Vial 72 | 1 | Control | 11 | 7.881 | 1.26877e4 | 1.36537 |

| # | Sample | Location | Inj | SampleType | Run | CLO4-89-ISTD RT | CLO4-89-ISTD Area | CLO4-89-ISTD Amount |
|---|---|---|---|---|---|---|---|---|
| * | 573324 CCV@25 | Vial 71 | 1 | Control | 1 | 7.447 | 9.77903e4 | 5.00000 |
| * | 573325 LODV@1. | Vial 72 | 1 | Control | 2 | 7.596 | 1.43343e5 | 5.00000 |
| * | 573326 ICS@1.0 | Vial 73 | 1 | Control | 3 | 7.455 | 9.12206e4 | 5.00000 |
| * | 573327 LMB | Vial 74 | 1 | Control | 4 | 7.653 | 1.49738e5 | 5.00000 |
| * | 573328 QC@5.0 | Vial 75 | 1 | Control | 5 | 7.759 | 1.12694e5 | 5.00000 |
| * | 1730040001 | Vial 76 | 1 | Sample | 6 | 6.810 | 1.03967e5 | 5.00000 |
| * | 573329 300401MS | Vial 77 | 1 | Sample | 7 | 6.797 | 1.04575e5 | 5.00000 |
| * | 573330 300401MSD | Vial 78 | 1 | Sample | 8 | 6.834 | 1.14097e5 | 5.00000 |
| * | 1730755001 | Vial 79 | 1 | Sample | 9 | 6.559 | 1.07588e5 | 5.00000 |
| * | 573331 CCV@25 | Vial 71 | 1 | Control | 10 | 7.782 | 9.37831e4 | 5.00000 |
| * | 573332 LODV@1. | Vial 72 | 1 | Control | 11 | 7.886 | 1.36109e5 | 5.00000 |

*** End of Report ***

Sequence: C:\CHEM32\1\SEQUENCE\CLO4\2017\NOV\08NOV17-CLO4-WTR.S

Sequence Table:

Method and Injection Info Part:

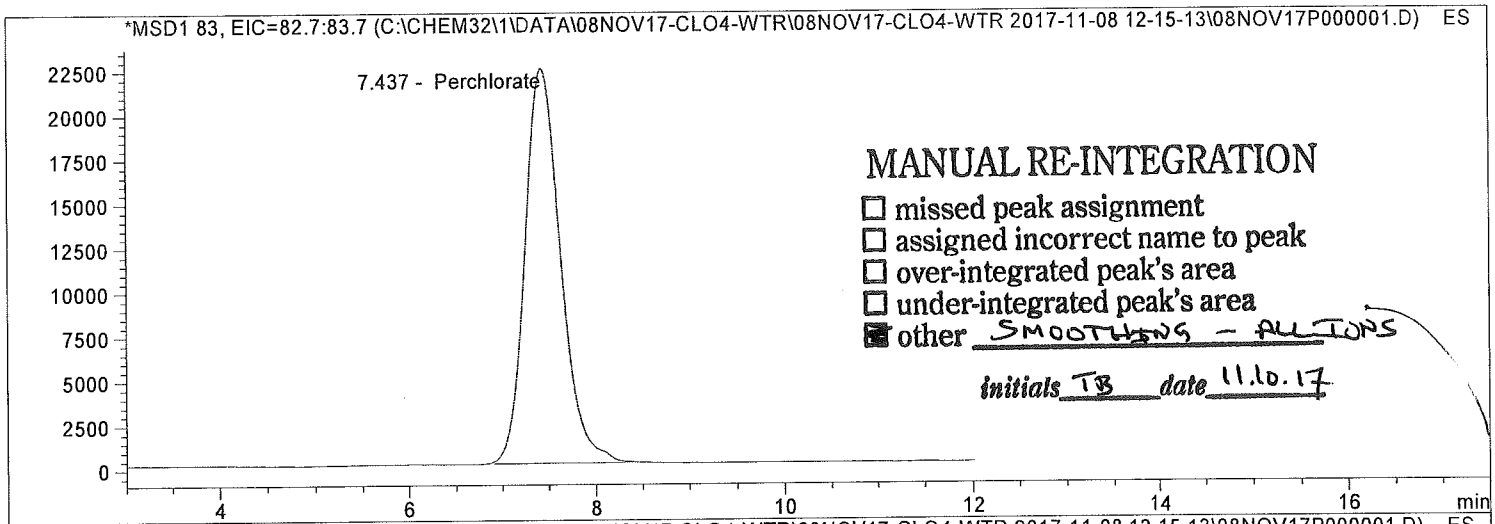
| Line | Location | SampleName<br>DataFile | | Method<br>AutoBalance | Inj<br>LimsID | SampleType | InjVolume |
|---|---|---|---|---|---|---|---|
| 1 | Vial 71 | 573324 | CCV@25 | CLO4_AQN2 | 1 | Ctrl Samp | |
| 2 | Vial 72 | 573325 | LODV@1. | CLO4_AQN2 | 1 | Ctrl Samp | |
| 3 | Vial 73 | 573326 | ICS@1.0 | CLO4_AQN2 | 1 | Ctrl Samp | |
| 4 | Vial 74 | 573327 | LMB | CLO4_AQN2 | 1 | Ctrl Samp | |
| 5 | Vial 75 | 573328 | QC@5.0 | CLO4_AQN2 | 1 | Ctrl Samp | |
| 6 | Vial 76 | 1730040001 | | CLO4_AQN2 | 1 | Sample | |
| 7 | Vial 77 | 573329 | 300401MS | CLO4_AQN2 | 1 | Sample | |
| 8 | Vial 78 | 573330 | 300401MSD | CLO4_AQN2 | 1 | Sample | |
| 9 | Vial 79 | 1730755001 | | CLO4_AQN2 | 1 | Sample | |
| 10 | Vial 71 | 573331 | CCV@25 | CLO4_AQN2 | 1 | Ctrl Samp | |
| 11 | Vial 72 | 573332 | LODV@1. | CLO4_AQN2 | 1 | Ctrl Samp | |

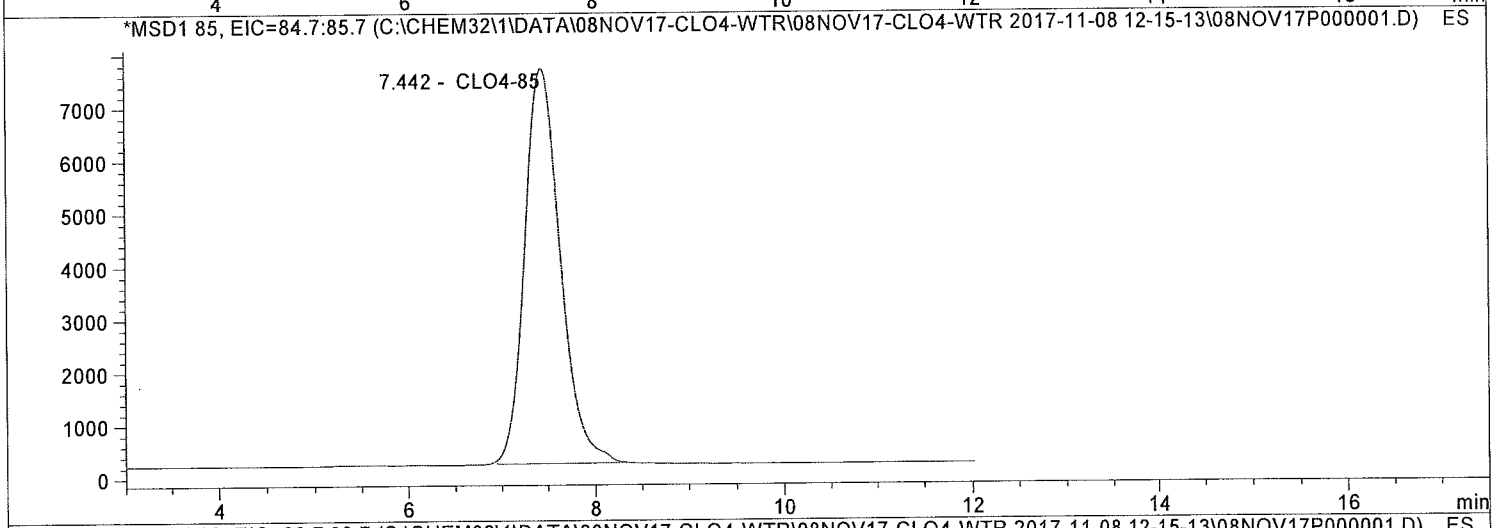
Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573324 CCV@25

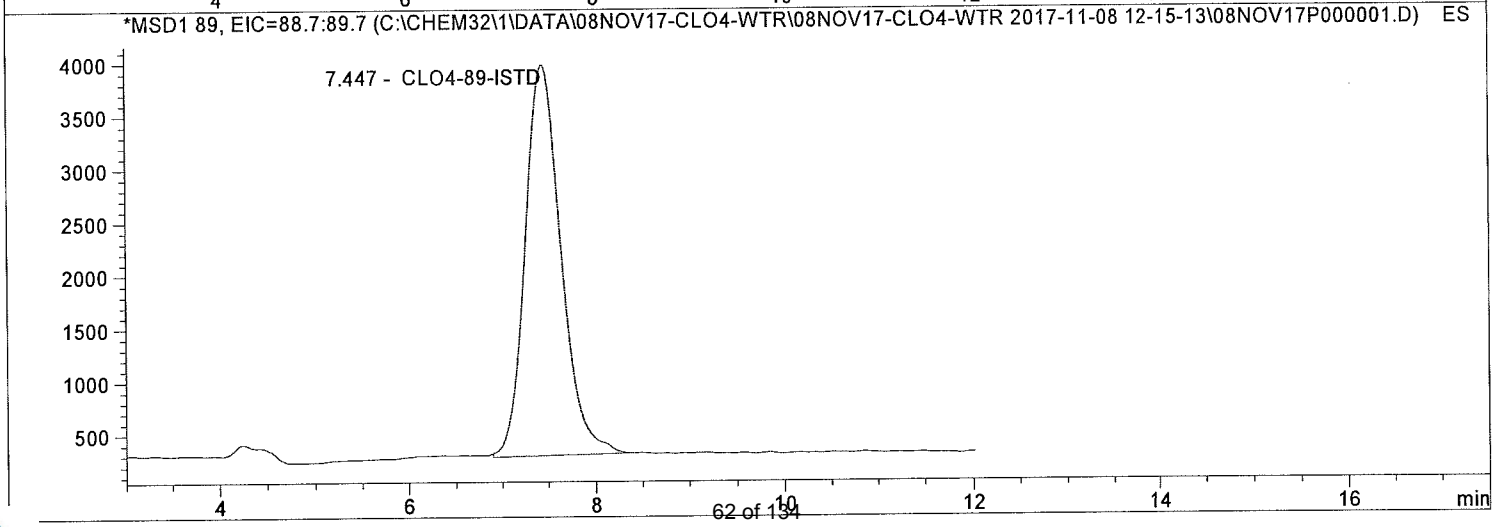
| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 12:15:37 | Seq Line: | 1 |
| Sample Name: | 573324 CCV@25 | Location: | Vial 71 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate



Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573324 CCV@25

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 12:15:37 | Seq Line: | 1 |
| Sample Name: | 573324 CCV@25 | Location: | Vial 71 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 25.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.437 | BB | 592046.9 | 26.8770 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.442 | BB | 197908.5 | 26.8138 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.447 | BB | 97790.3 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***

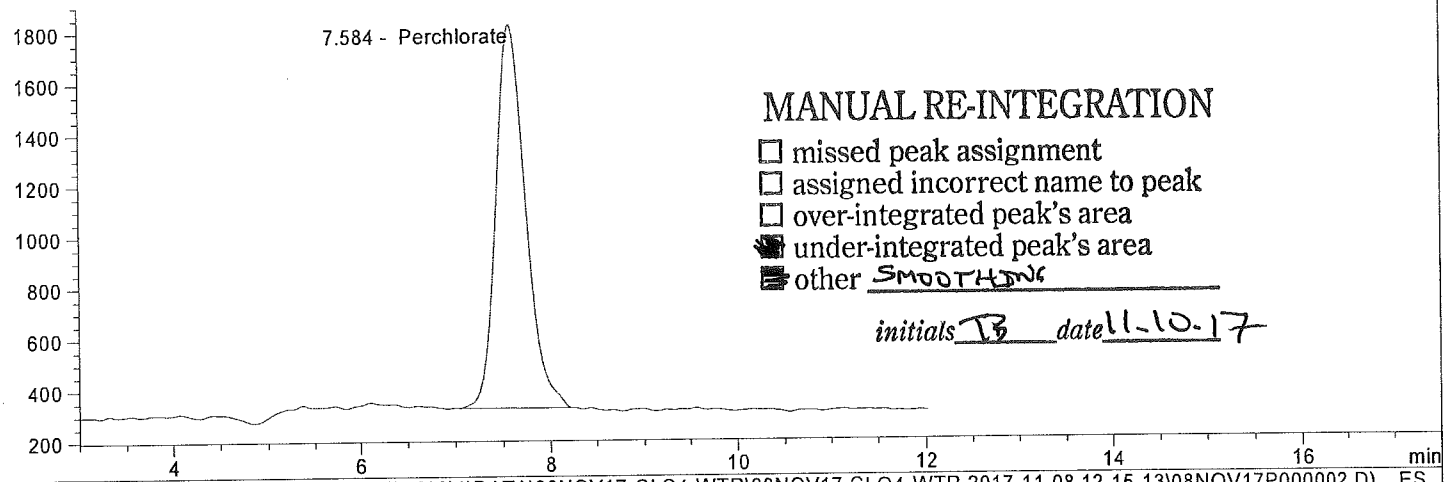
Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573325 LODV@1.

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 12:29:08 | Seq Line: | 2 |
| Sample Name: | 573325 LODV@1. | Location: | Vial 72 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

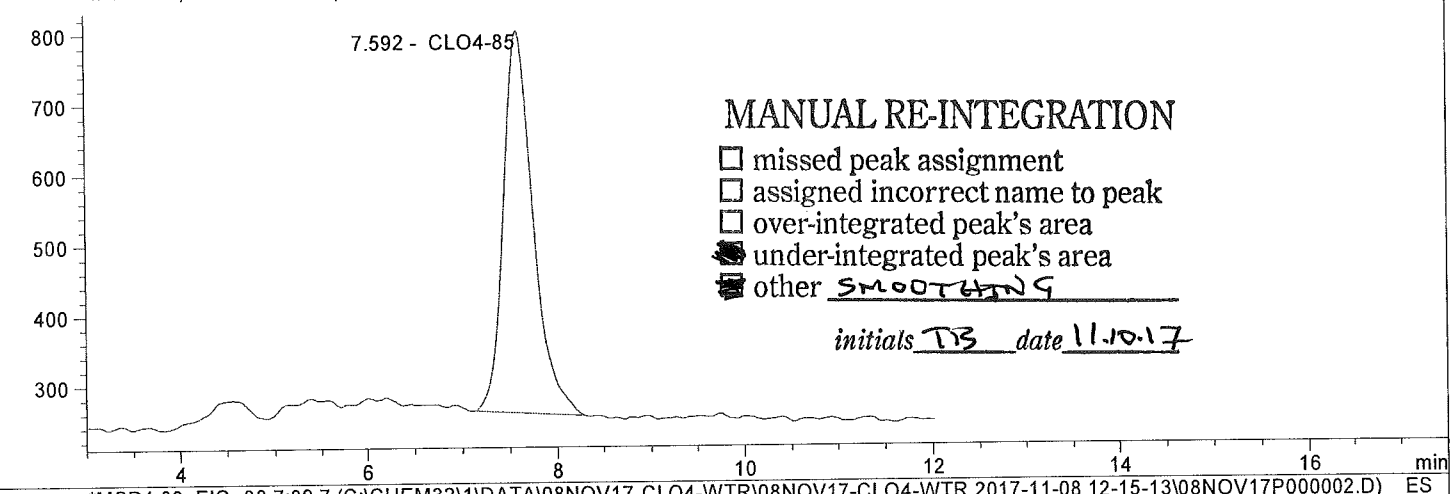
Perchlorate

*MSD1 83, EIC=82.7:83.7 (C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR 2017-11-08 12-15-13\08NOV17P000002.D) ES



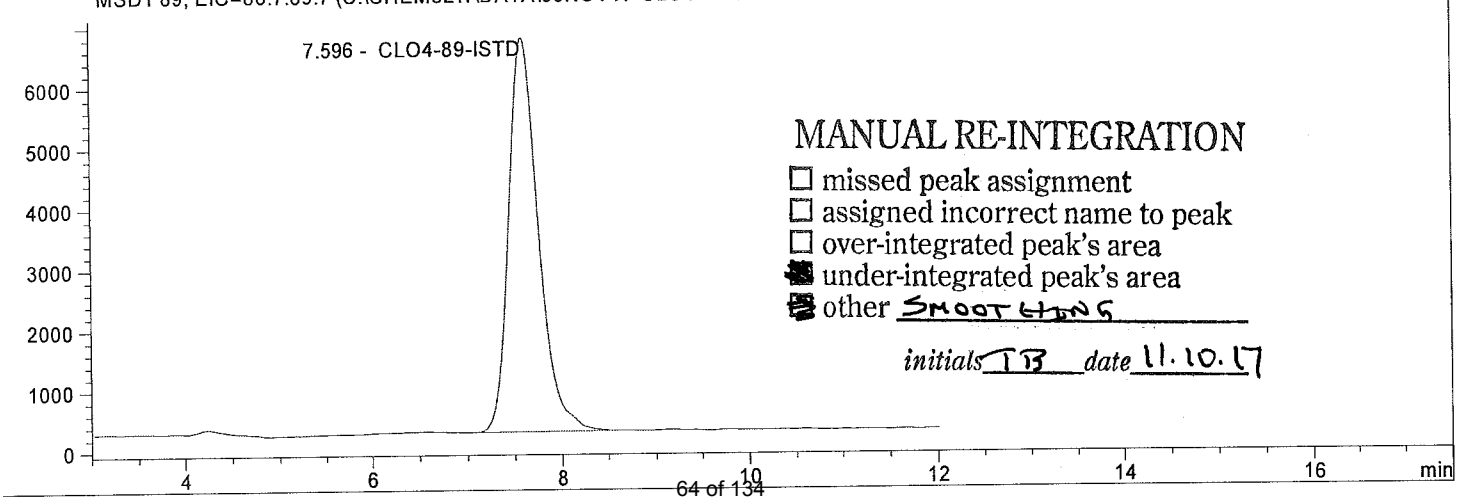

MANUAL RE-INTEGRATION
☐ missed peak assignment
☐ assigned incorrect name to peak
☐ over-integrated peak's area
■ under-integrated peak's area
■ other SMOOTHING
initials TB date 11.10.17

*MSD1 85, EIC=84.7:85.7 (C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR 2017-11-08 12-15-13\08NOV17P000002.D) ES




MANUAL RE-INTEGRATION
☐ missed peak assignment
☐ assigned incorrect name to peak
☐ over-integrated peak's area
■ under-integrated peak's area
■ other SMOOTHING
initials TB date 11.10.17

*MSD1 89, EIC=88.7:89.7 (C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR 2017-11-08 12-15-13\08NOV17P000002.D) ES




MANUAL RE-INTEGRATION
☐ missed peak assignment
☐ assigned incorrect name to peak
☐ over-integrated peak's area
■ under-integrated peak's area
■ other SMOOTHING
initials TB date 11.10.17

Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573325 LODV@1.

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 12:29:08 | Seq Line: | 2 |
| Sample Name: | 573325 LODV@1. | Location: | Vial 72 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 1.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.584 | MM | 32922.6 | 1.0196 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.592 | MM | 11975.7 | 1.2379 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.596 | MM | 143343.2 | 5.0000 | CLO4-89-ISTD |

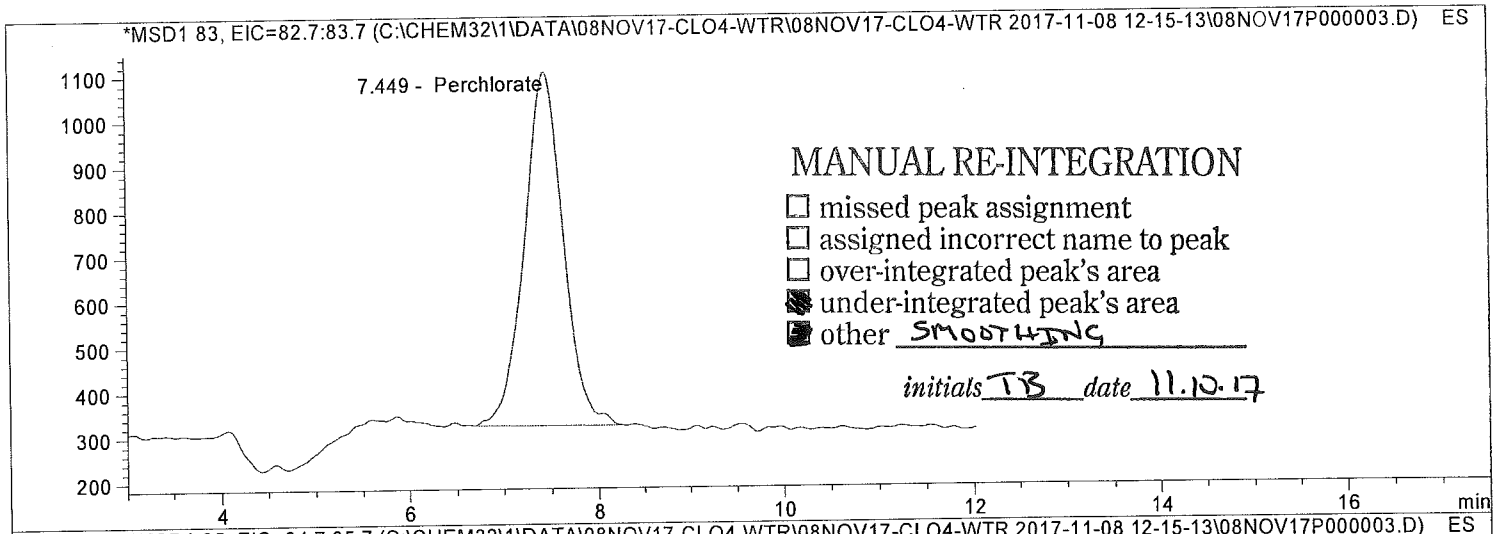
*** End of Report ***

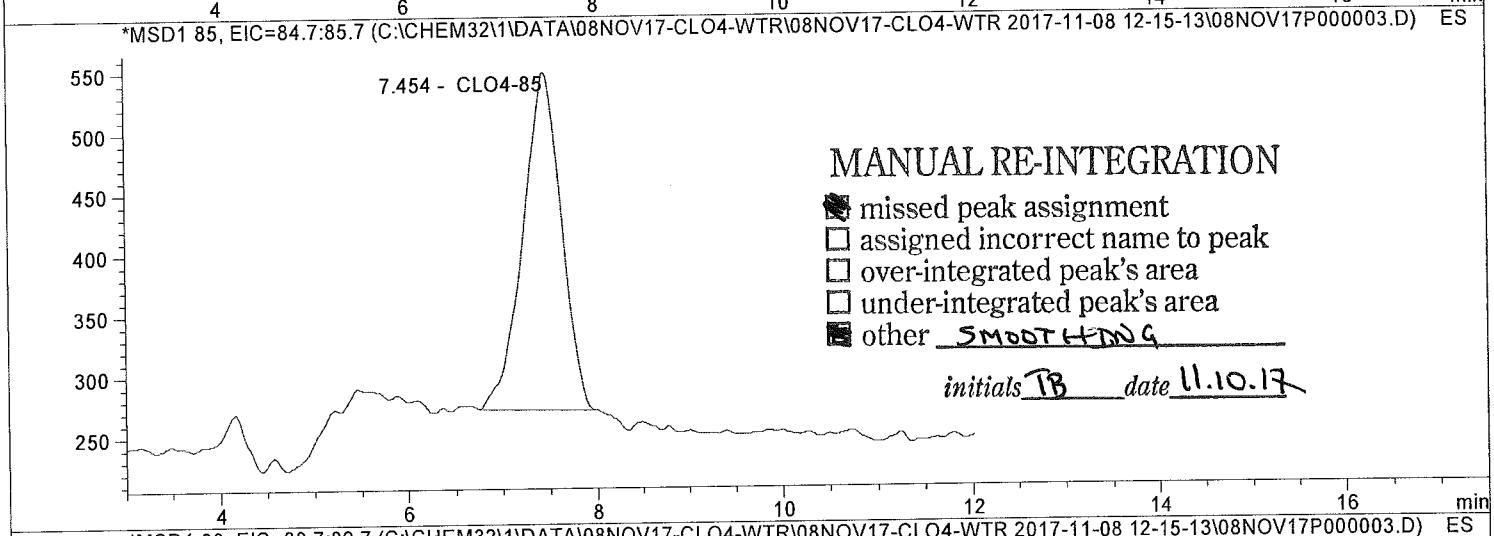
Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573326 ICS@1.0

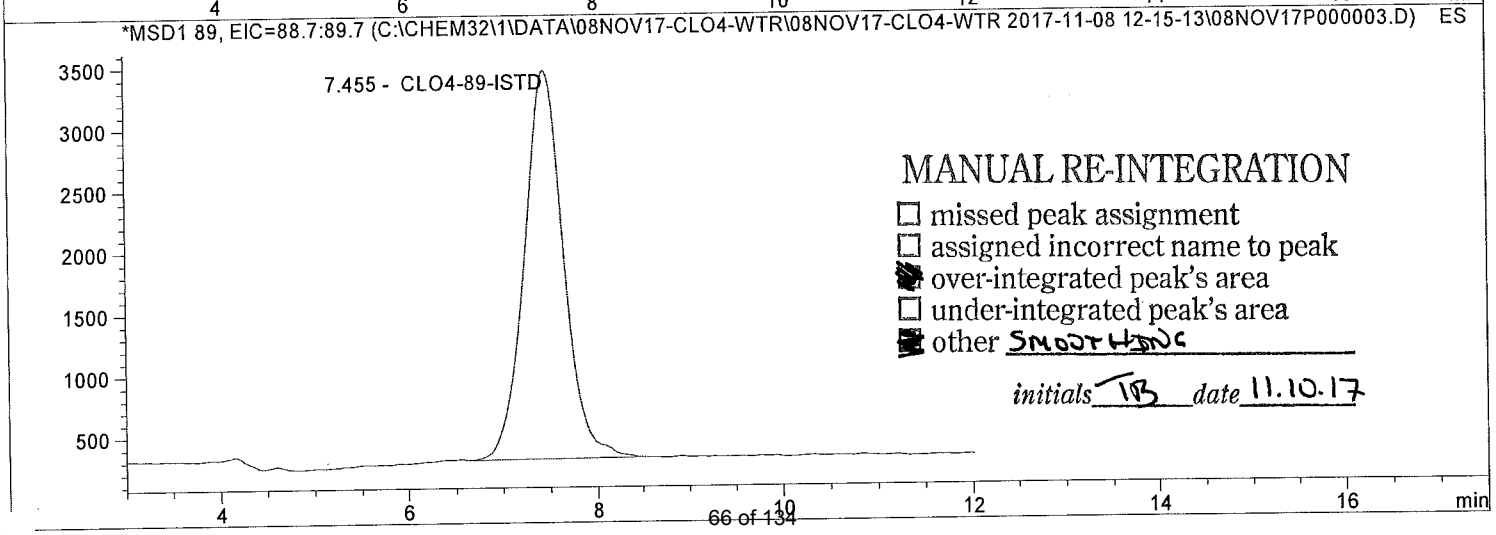
| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 12:42:38 | Seq Line: | 3 |
| Sample Name: | 573326 ICS@1.0 | Location: | Vial 73 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate



Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573326 ICS@1.0

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 12:42:38 | Seq Line: | 3 |
| Sample Name: | 573326 ICS@1.0 | Location: | Vial 73 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 1.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.449 | MM | 22366.8 | 1.0885 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.454 | MM | 7844.1 | 1.2701 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.455 | MM | 91220.6 | 5.0000 | CLO4-89-ISTD |

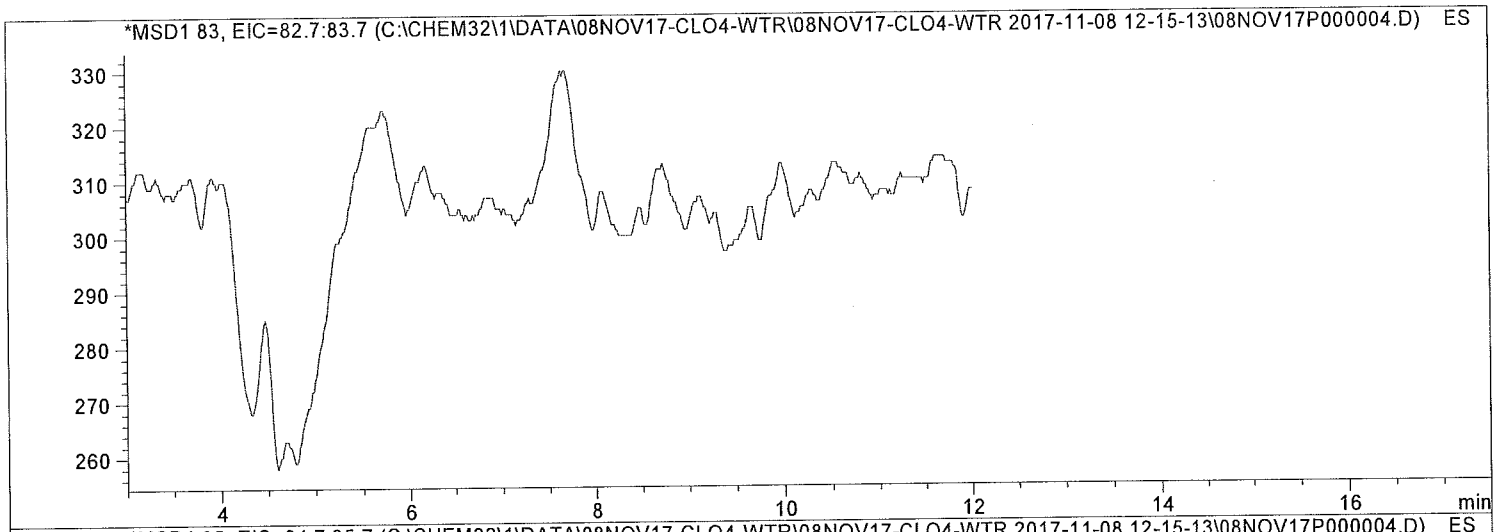
*** End of Report ***

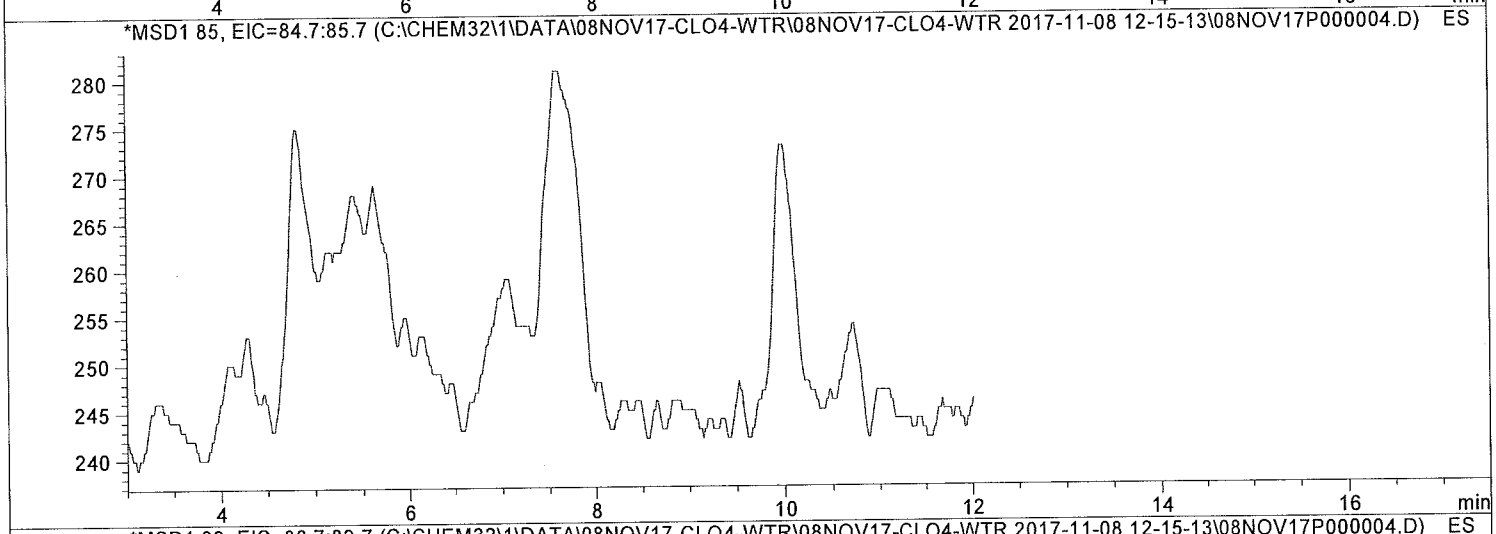
Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573327 LMB

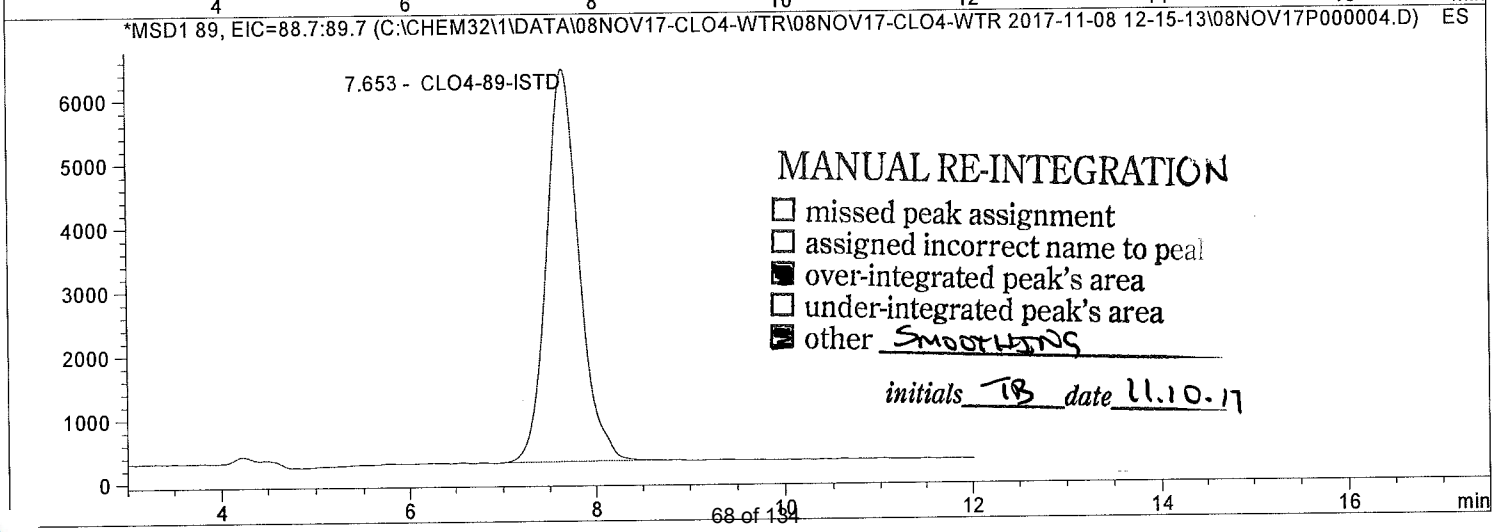
| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 12:56:08 | Seq Line: | 4 |
| Sample Name: | 573327 LMB | Location: | Vial 74 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate




MANUAL RE-INTEGRATION
- ☐ missed peak assignment
- ☐ assigned incorrect name to peal
- ■ over-integrated peak's area
- ☐ under-integrated peak's area
- ■ other SMOOTHING

*initials* TB *date* 11.10.17

Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573327 LMB

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 12:56:08 | Seq Line: | 4 |
| Sample Name: | 573327 LMB | Location: | Vial 74 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.000 ug/L |

## 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 |
|---|---|---|---|---|
| 7.653 | BB | 149738.4 | 5.0000 | CLO4-89-ISTD |

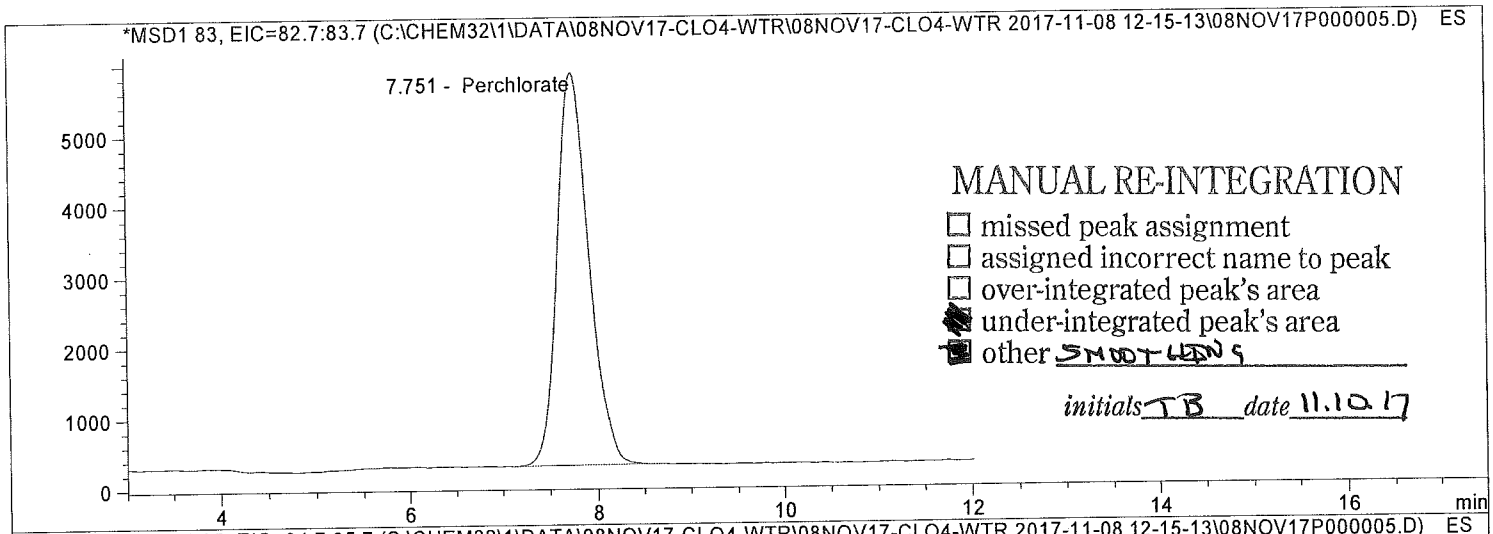
*** End of Report ***

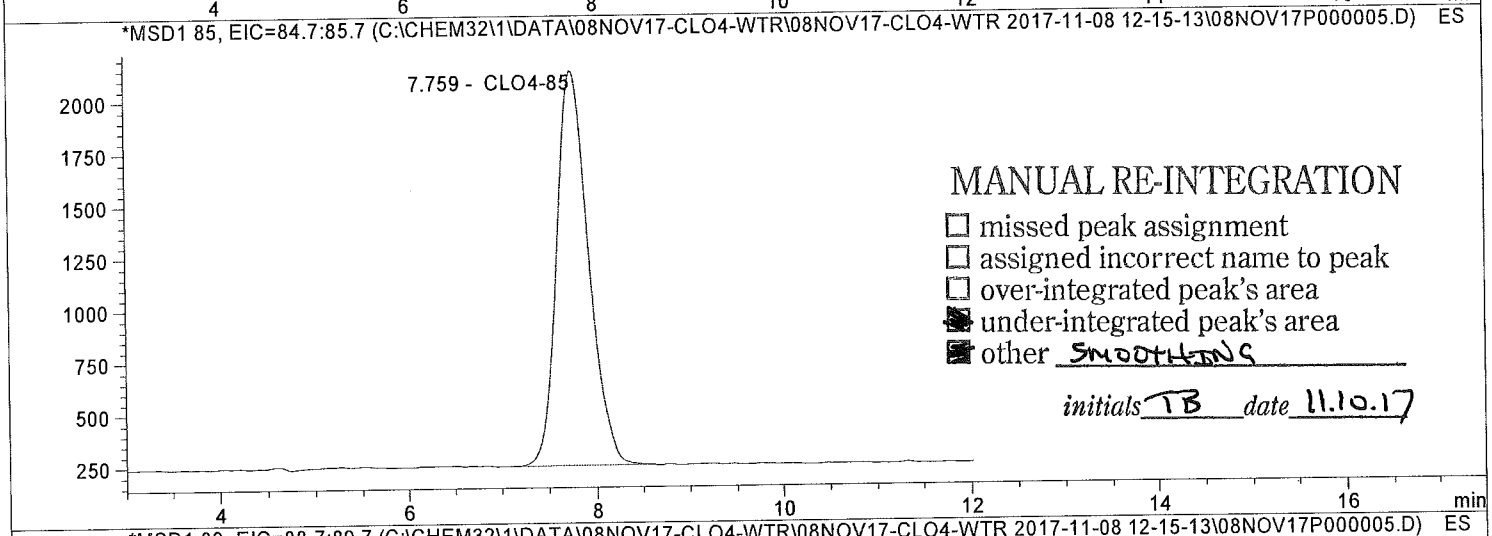
Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573328 QC@5.0

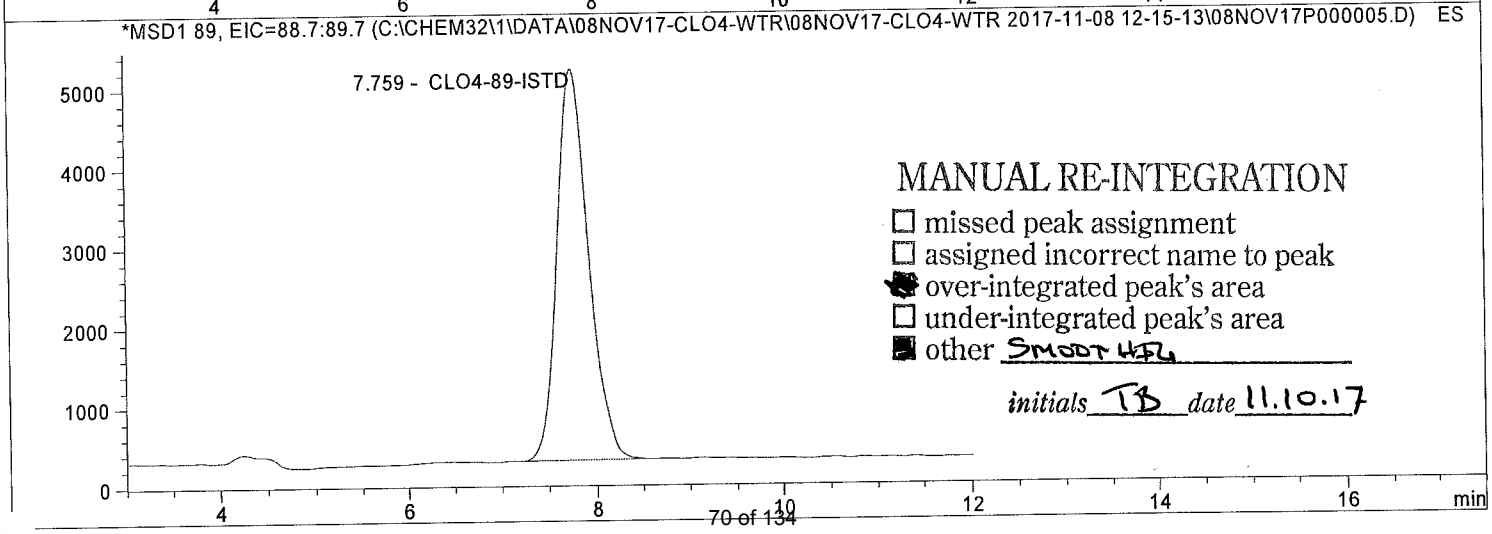
| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 13:09:44 | Seq Line: | 5 |
| Sample Name: | 573328 QC@5.0 | Location: | Vial 75 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate



Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573328 QC@5.0

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 13:09:44 | Seq Line: | 5 |
| Sample Name: | 573328 QC@5.0 | Location: | Vial 75 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 5.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.751 | MM | 128117.2 | 5.0469 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.759 | MM | 43705.7 | 5.2488 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.759 | MM | 112693.7 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***

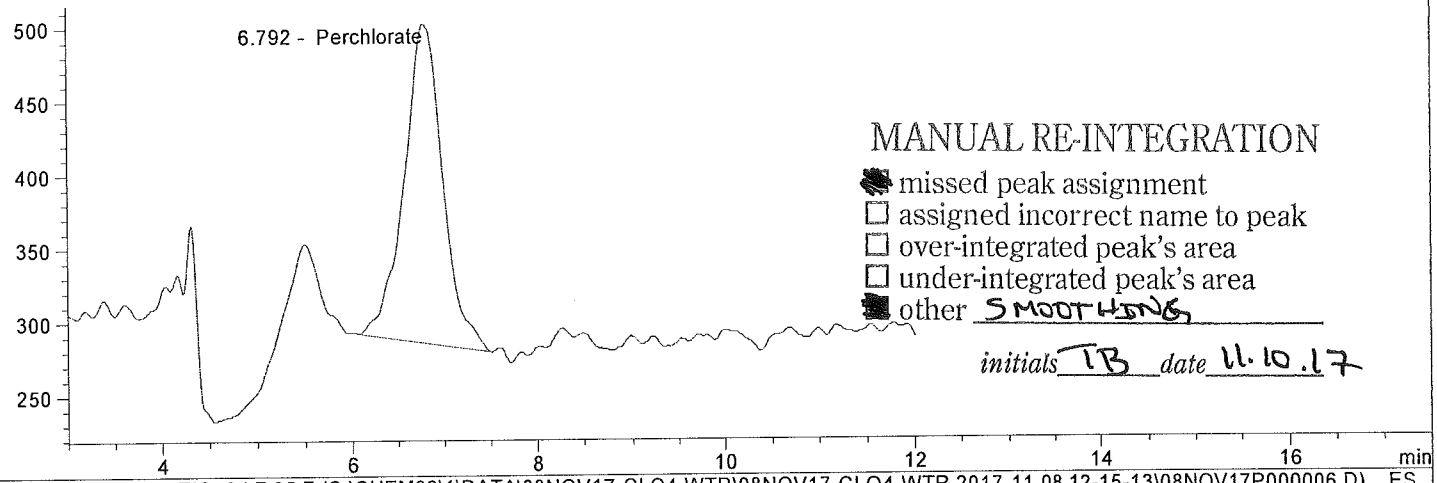
Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 1730040001

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 13:23:17 | Seq Line: | 6 |
| Sample Name: | 1730040001 | Location: | Vial 76 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

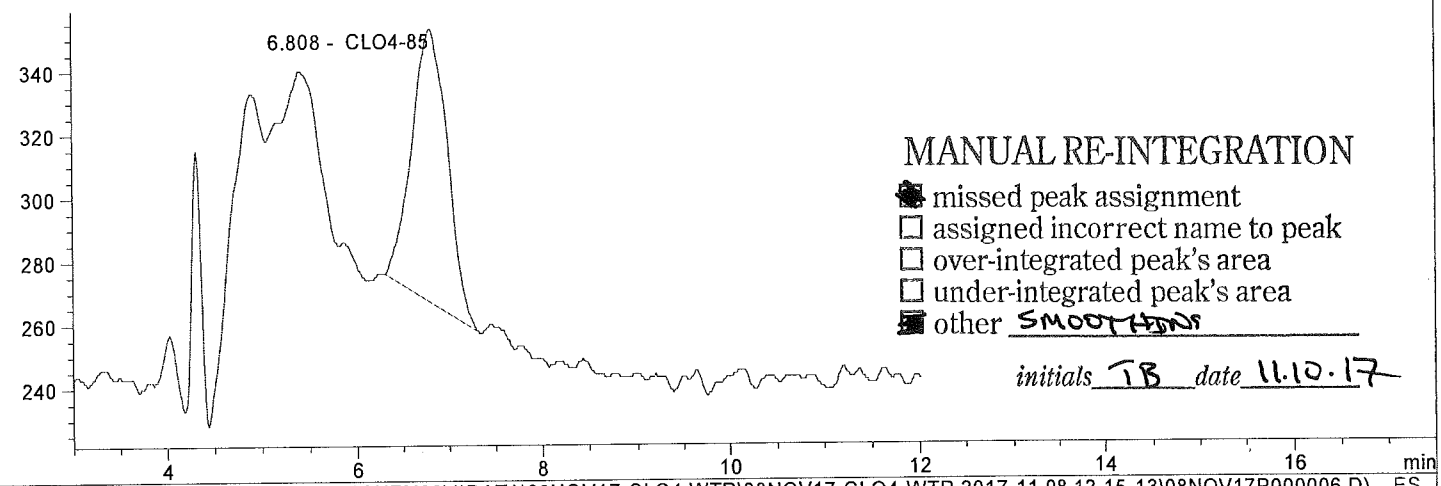
*MSD1 83, EIC=82.7:83.7 (C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR 2017-11-08 12-15-13\08NOV17P000006.D) ES




MANUAL RE-INTEGRATION
- [x] missed peak assignment
- [ ] assigned incorrect name to peak
- [ ] over-integrated peak's area
- [ ] under-integrated peak's area
- [x] other SMOOTHING

*initials* TB *date* 11.10.17

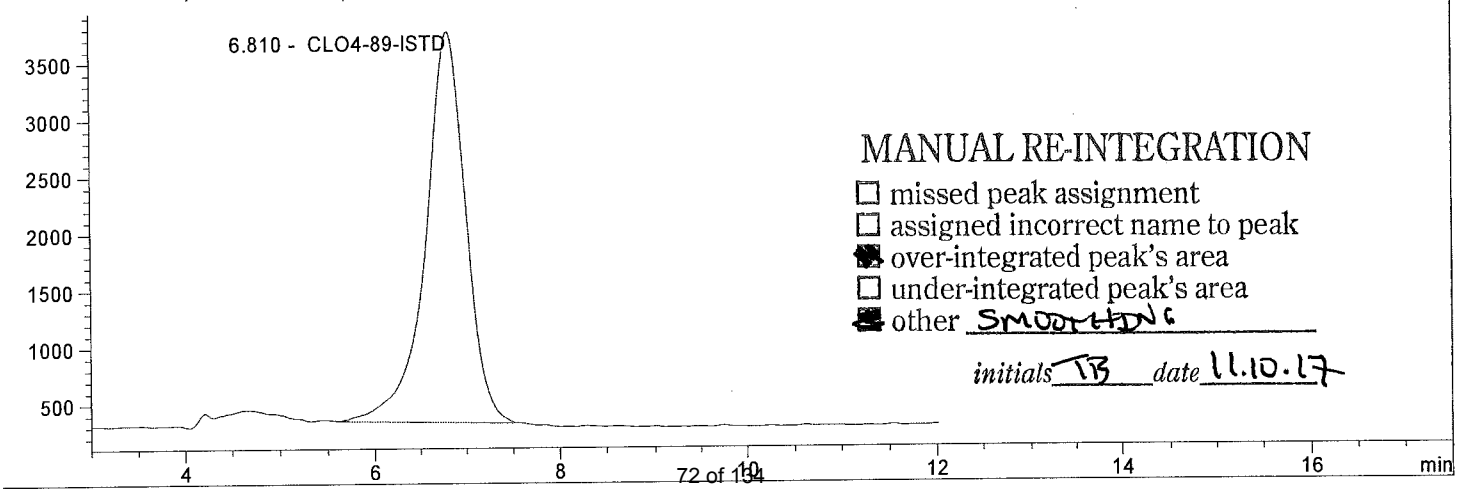
*MSD1 85, EIC=84.7:85.7 (C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR 2017-11-08 12-15-13\08NOV17P000006.D) ES




MANUAL RE-INTEGRATION
- [x] missed peak assignment
- [ ] assigned incorrect name to peak
- [ ] over-integrated peak's area
- [ ] under-integrated peak's area
- [x] other SMOOTHING

*initials* TB *date* 11.10.17

*MSD1 89, EIC=88.7:89.7 (C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR 2017-11-08 12-15-13\08NOV17P000006.D) ES




MANUAL RE-INTEGRATION
- [ ] missed peak assignment
- [ ] assigned incorrect name to peak
- [x] over-integrated peak's area
- [ ] under-integrated peak's area
- [x] other SMOOTHING

*initials* TB *date* 11.10.17

Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 1730040001

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 13:23:17 | Seq Line: | 6 |
| Sample Name: | 1730040001 | Location: | Vial 76 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.000 ug/L |

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.792 | MM | 6319.3 | 0.2698 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.808 | MM | 2310.4 | 0.4295 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.810 | MM | 103967.1 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***

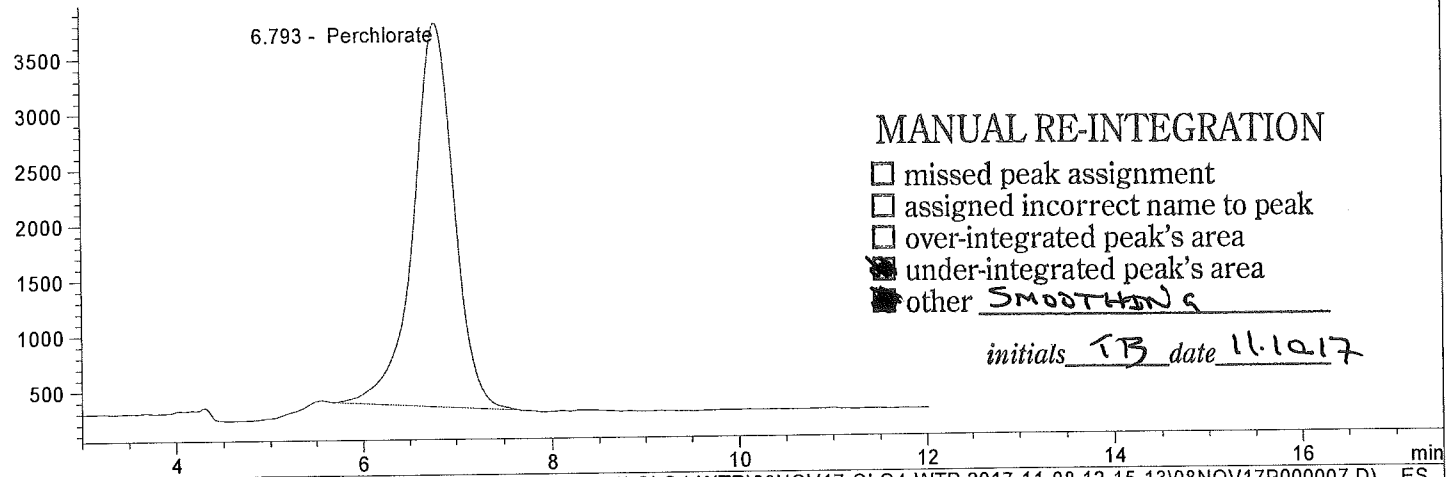
Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573329 300401MS

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 13:36:49 | Seq Line: | 7 |
| Sample Name: | 573329 300401MS | Location: | Vial 77 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

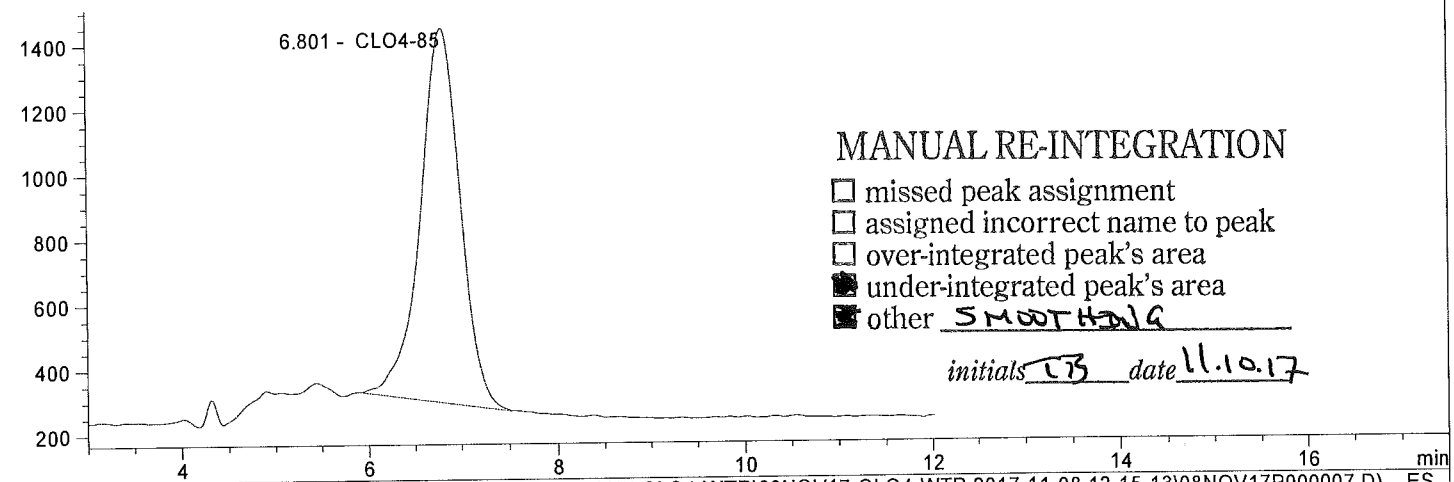
Perchlorate

*MSD1 83, EIC=82.7:83.7 (C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR 2017-11-08 12-15-13\08NOV17P000007.D) ES



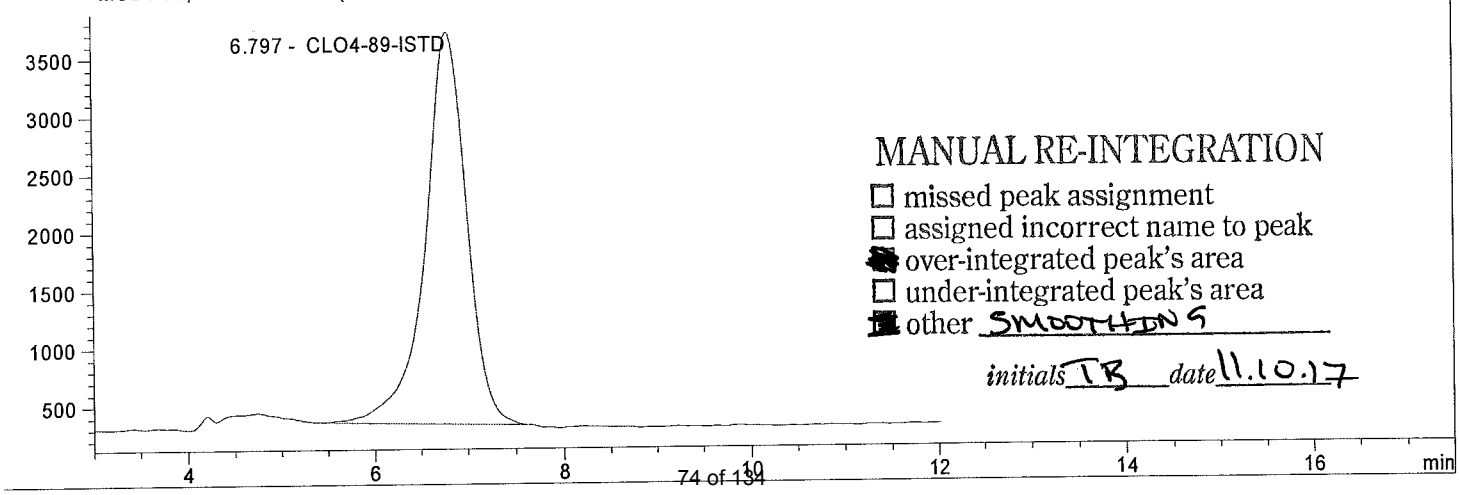

MANUAL RE-INTEGRATION
☐ missed peak assignment
☐ assigned incorrect name to peak
☐ over-integrated peak's area
■ under-integrated peak's area
■ other SMOOTHING
initials TB date 11.10.17

*MSD1 85, EIC=84.7:85.7 (C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR 2017-11-08 12-15-13\08NOV17P000007.D) ES




MANUAL RE-INTEGRATION
☐ missed peak assignment
☐ assigned incorrect name to peak
☐ over-integrated peak's area
■ under-integrated peak's area
■ other SMOOTHING
initials TB date 11.10.17

*MSD1 89, EIC=88.7:89.7 (C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR 2017-11-08 12-15-13\08NOV17P000007.D) ES




MANUAL RE-INTEGRATION
☐ missed peak assignment
☐ assigned incorrect name to peak
■ over-integrated peak's area
☐ under-integrated peak's area
■ other SMOOTHING
initials TB date 11.10.17

Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573329 300401MS

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 13:36:49 | Seq Line: | 7 |
| Sample Name: | 573329 300401MS | Location: | Vial 77 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.793 | MM | 105321.5 | 4.4711 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.801 | MM | 34274.7 | 4.4570 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.797 | MM | 104574.9 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***

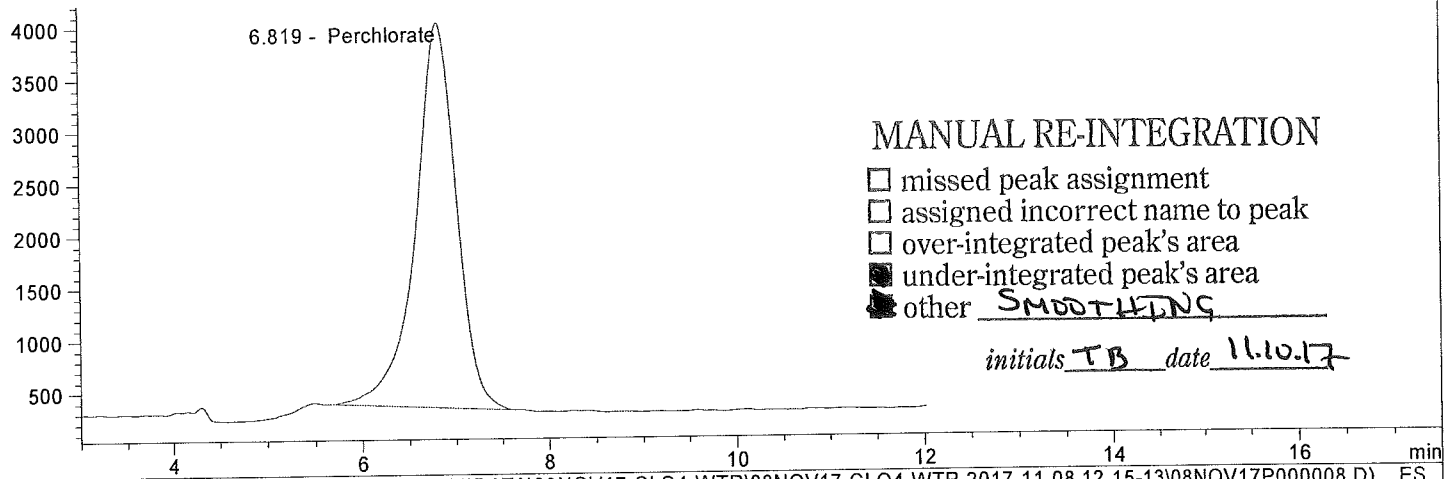
Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573330 300401MSD

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 13:50:22 | Seq Line: | 8 |
| Sample Name: | 573330 300401MSD | Location: | Vial 78 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

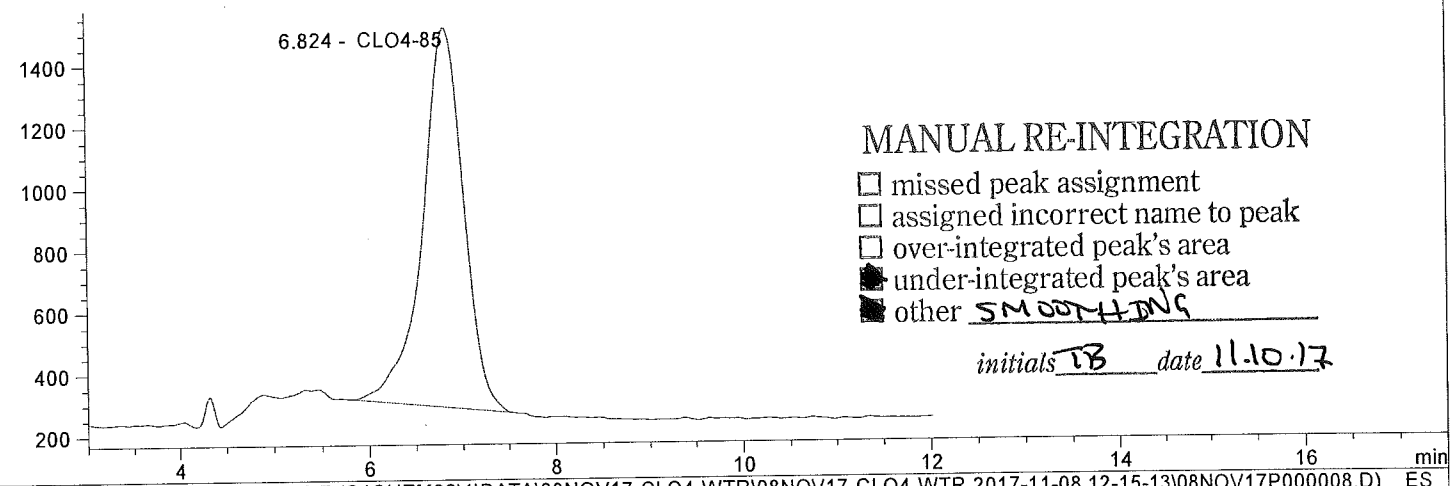
Perchlorate

*MSD1 83, EIC=82.7:83.7 (C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR 2017-11-08 12-15-13\08NOV17P000008.D) ES



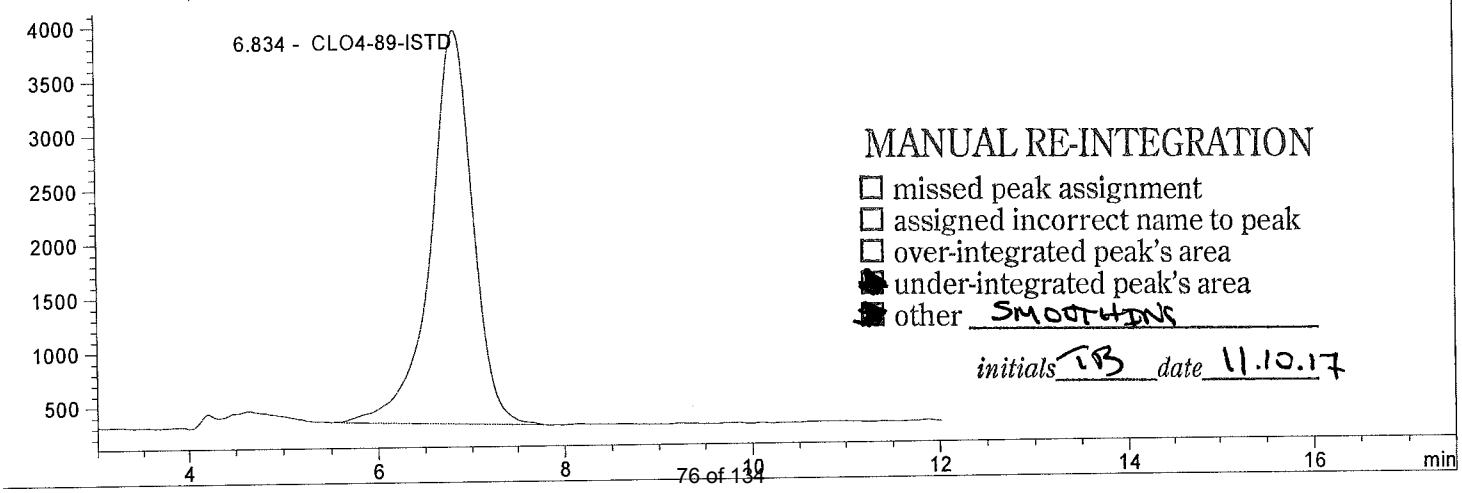

MANUAL RE-INTEGRATION
☐ missed peak assignment
☐ assigned incorrect name to peak
☐ over-integrated peak's area
■ under-integrated peak's area
■ other SMOOTHING
*initials* TB *date* 11.10.17

*MSD1 85, EIC=84.7:85.7 (C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR 2017-11-08 12-15-13\08NOV17P000008.D) ES




MANUAL RE-INTEGRATION
☐ missed peak assignment
☐ assigned incorrect name to peak
☐ over-integrated peak's area
■ under-integrated peak's area
■ other SMOOTHING
*initials* TB *date* 11.10.17

*MSD1 89, EIC=88.7:89.7 (C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR 2017-11-08 12-15-13\08NOV17P000008.D) ES




MANUAL RE-INTEGRATION
☐ missed peak assignment
☐ assigned incorrect name to peak
☐ over-integrated peak's area
■ under-integrated peak's area
■ other SMOOTHING
*initials* TB *date* 11.10.17

Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573330 300401MSD

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 13:50:22 | Seq Line: | 8 |
| Sample Name: | 573330 300401MSD | Location: | Vial 78 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.819 | MM | 111878.0 | 4.3530 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.824 | MM | 37451.5 | 4.4634 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.834 | MM | 114097.0 | 5.0000 | CLO4-89-ISTD |

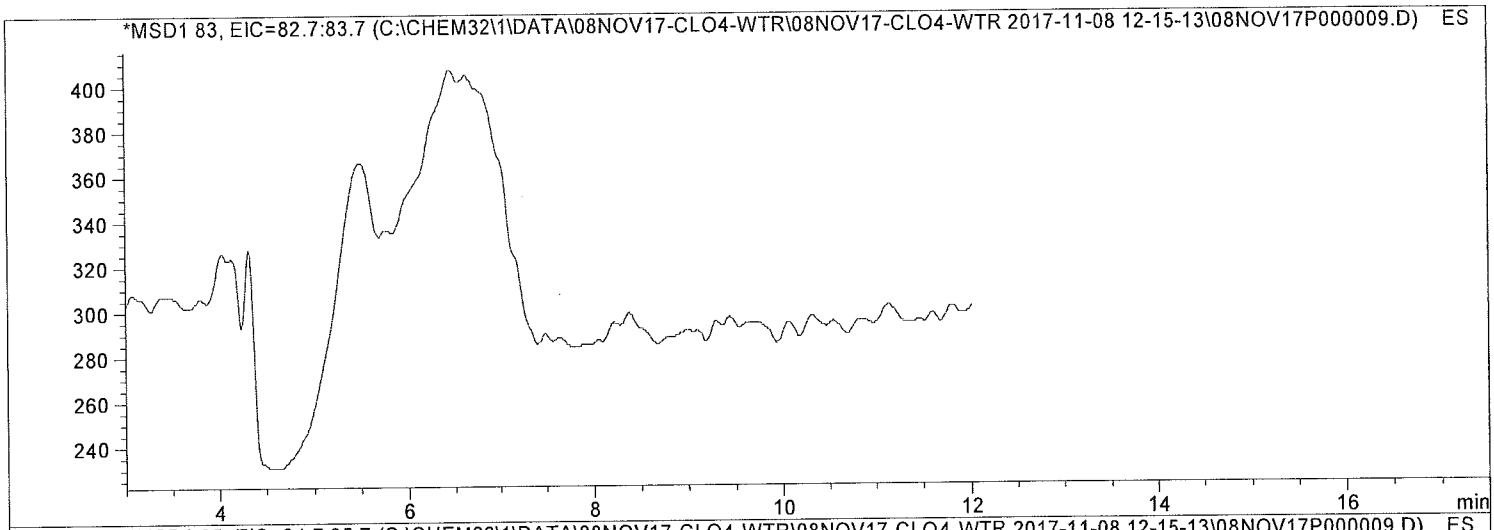
*** End of Report ***

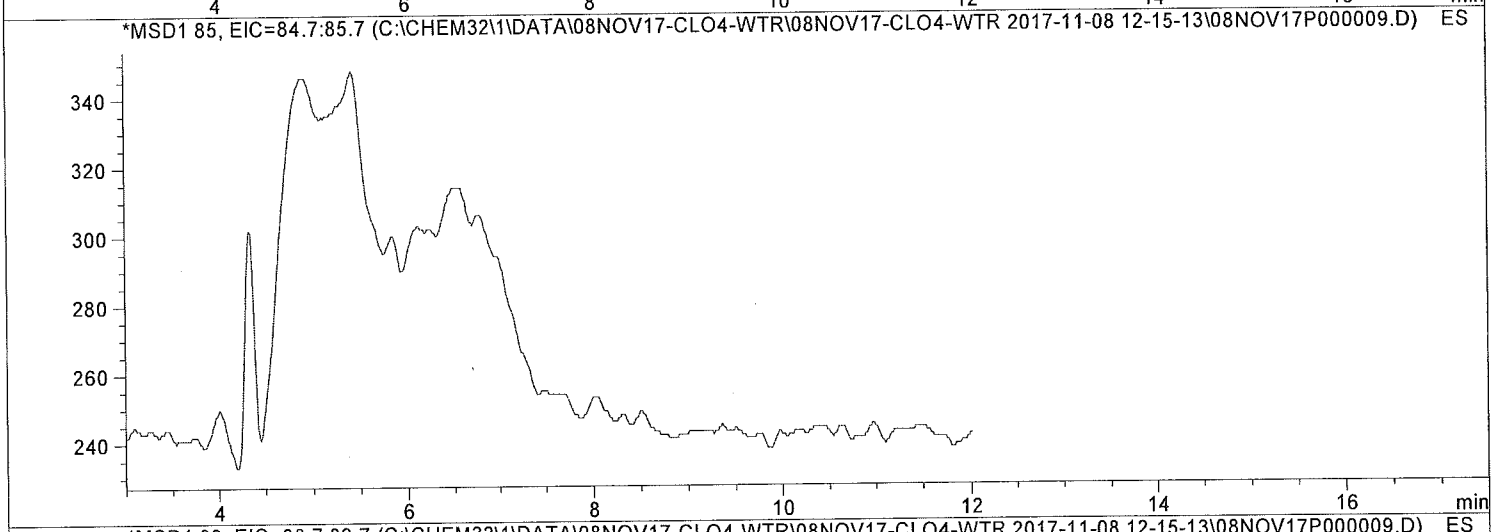
Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 1730755001

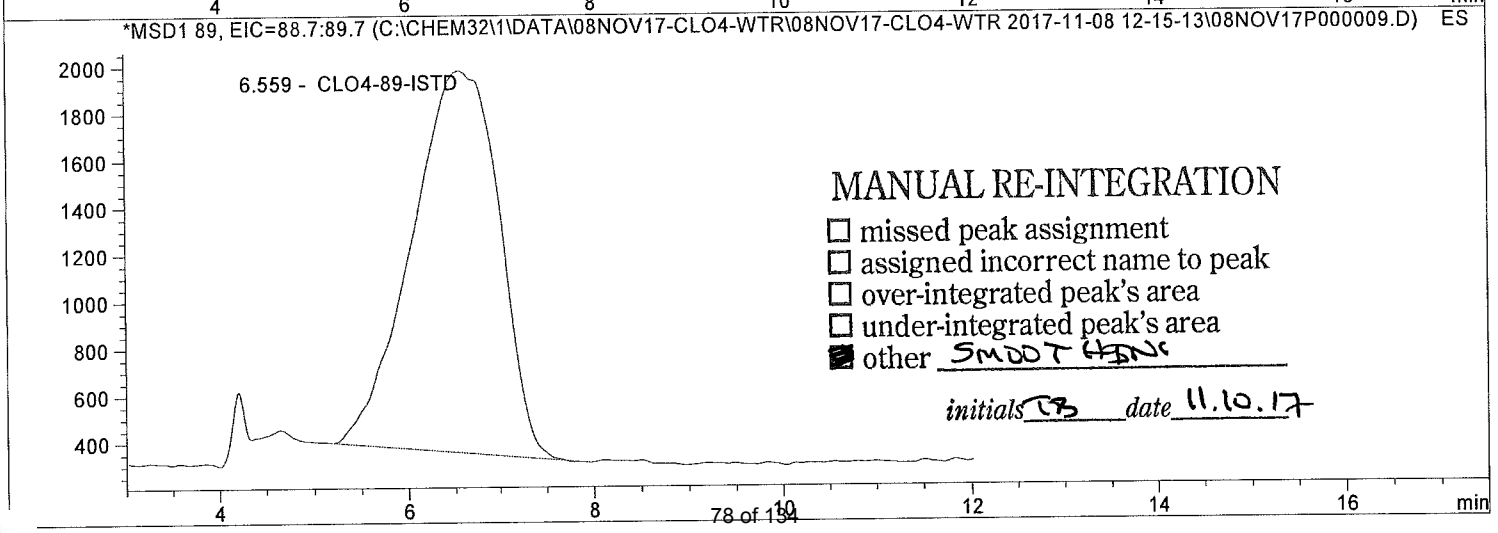
| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 14:03:58 | Seq Line: | 9 |
| Sample Name: | 1730755001 | Location: | Vial 79 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate




MANUAL RE-INTEGRATION

- ☐ missed peak assignment
- ☐ assigned incorrect name to peak
- ☐ over-integrated peak's area
- ☐ under-integrated peak's area
- ☑ other SMOOTHING

*initials* CB *date* 11.10.17

Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 1730755001

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 14:03:58 | Seq Line: | 9 |
| Sample Name: | 1730755001 | Location: | Vial 79 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.000 ug/L |

## 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 |
|---|---|---|---|---|
| 6.559 | BB | 107588.5 | 5.0000 | CLO4-89-ISTD |

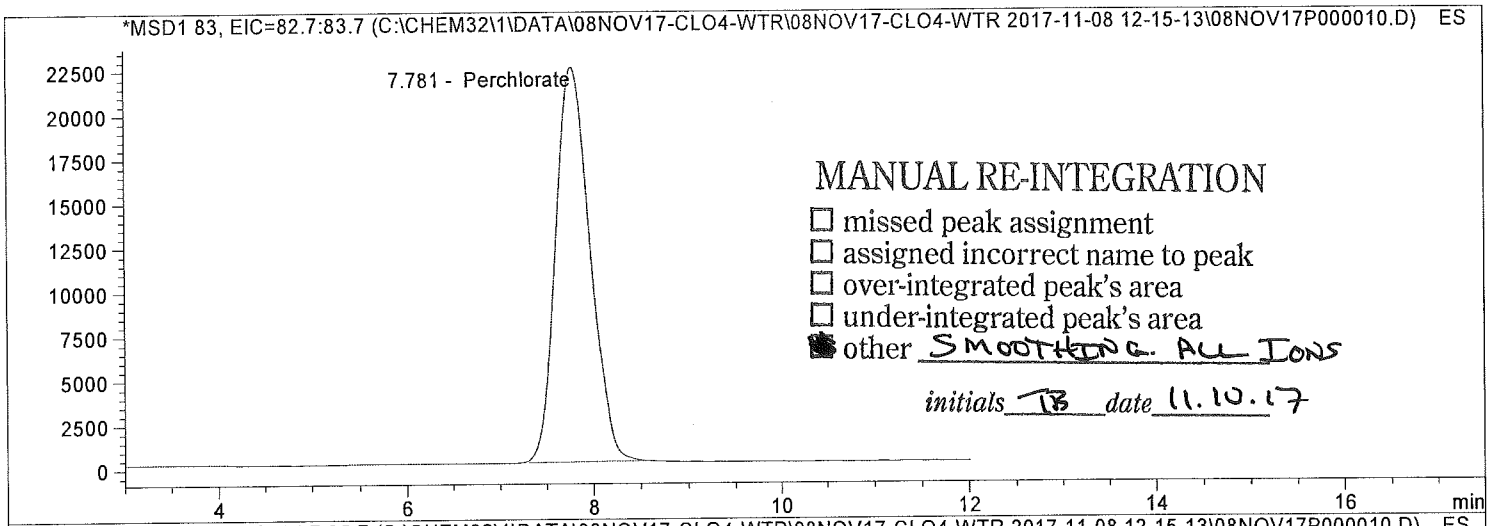
*** End of Report ***

Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573331 CCV@25

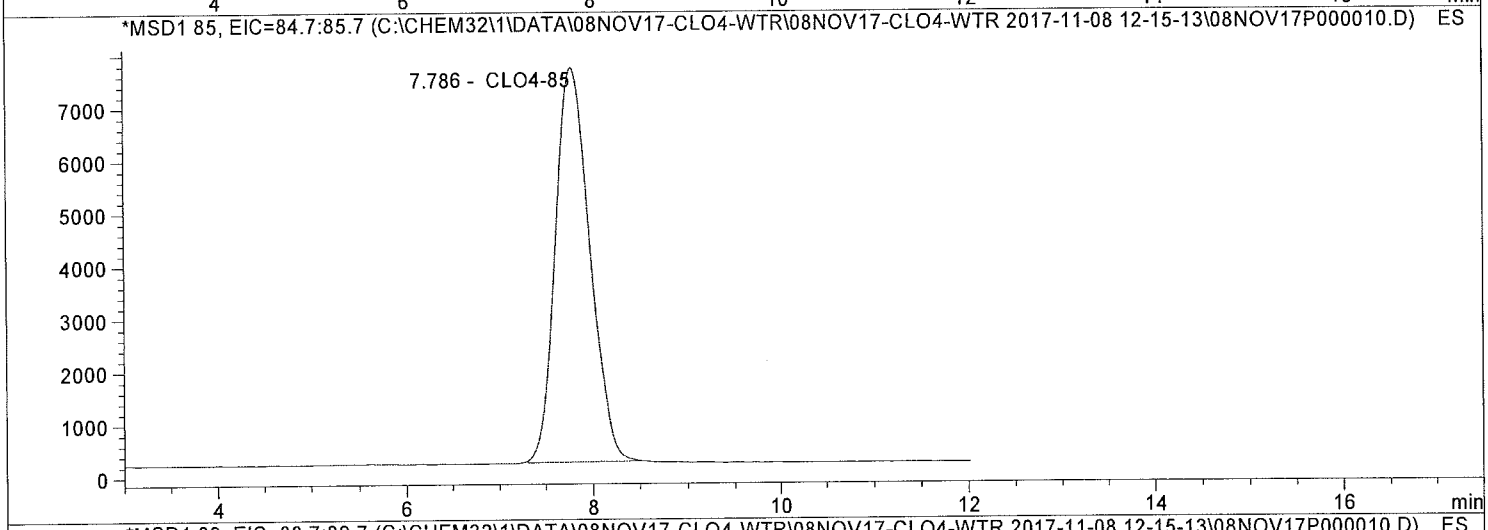
| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 14:17:30 | Seq Line: | 10 |
| Sample Name: | 573331 CCV@25 | Location: | Vial 71 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

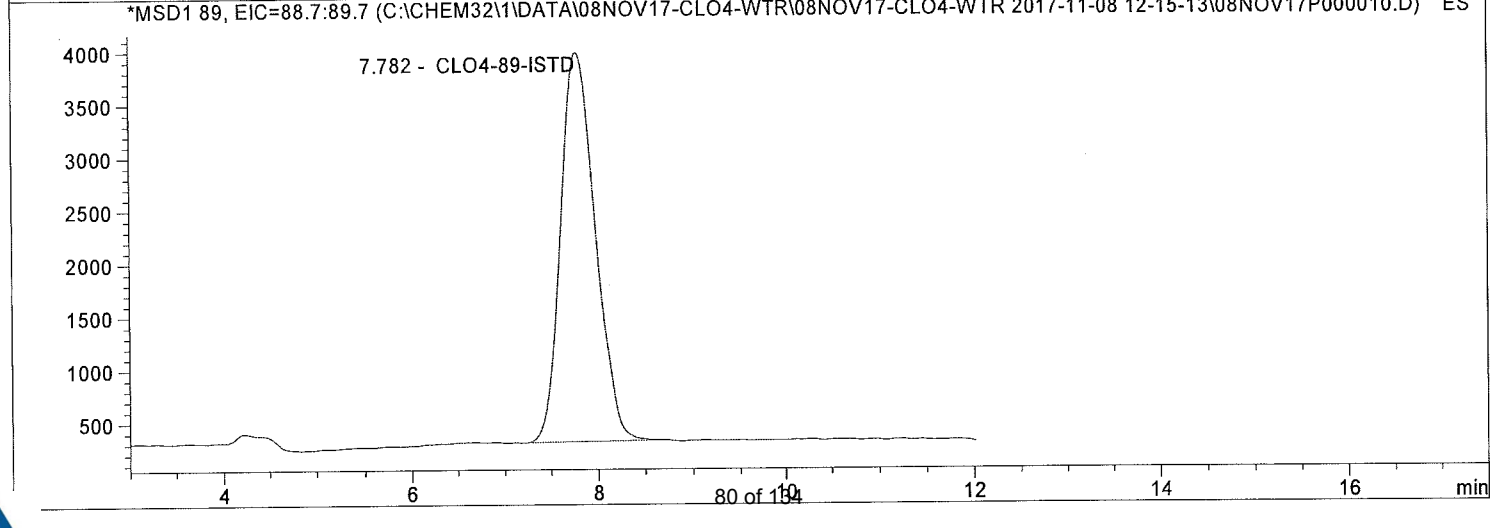
Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate




MANUAL RE-INTEGRATION
☐ missed peak assignment
☐ assigned incorrect name to peak
☐ over-integrated peak's area
☐ under-integrated peak's area
☒ other SMOOTHING ALL IONS
*initials* TB *date* 11.10.17



Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573331 CCV@25

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 14:17:30 | Seq Line: | 10 |
| Sample Name: | 573331 CCV@25 | Location: | Vial 71 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 25.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.781 | BB | 567576.2 | 26.8671 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.786 | BB | 190259.9 | 26.8787 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.782 | BB | 93783.1 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***

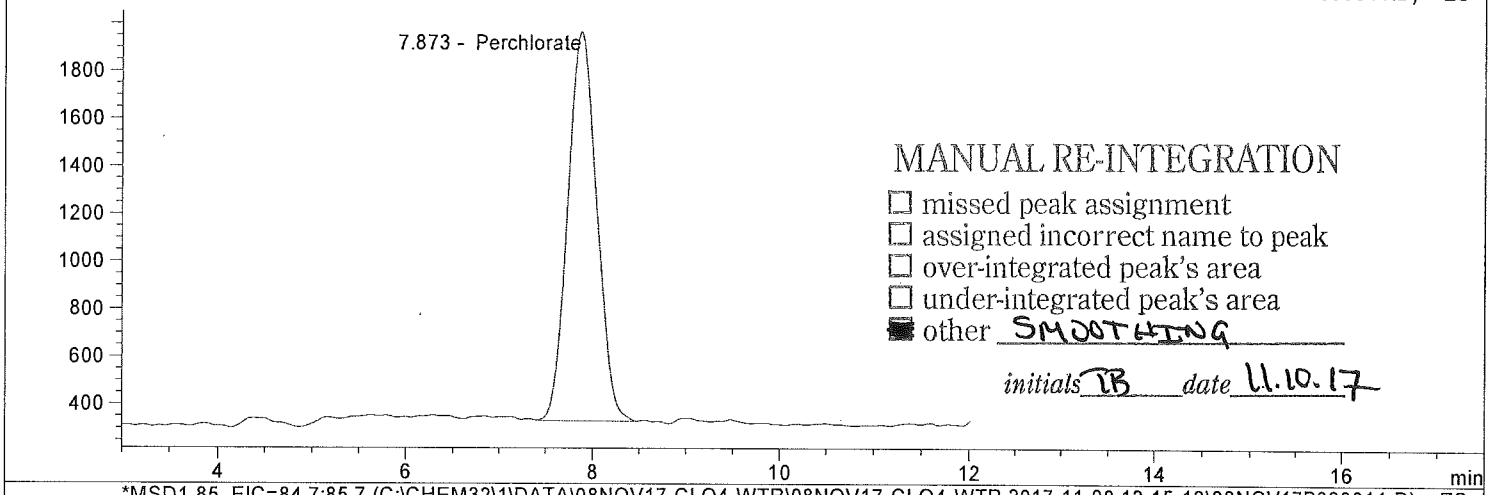
Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573332 LODV@1.

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 14:31:03 | Seq Line: | 11 |
| Sample Name: | 573332 LODV@1. | Location: | Vial 72 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

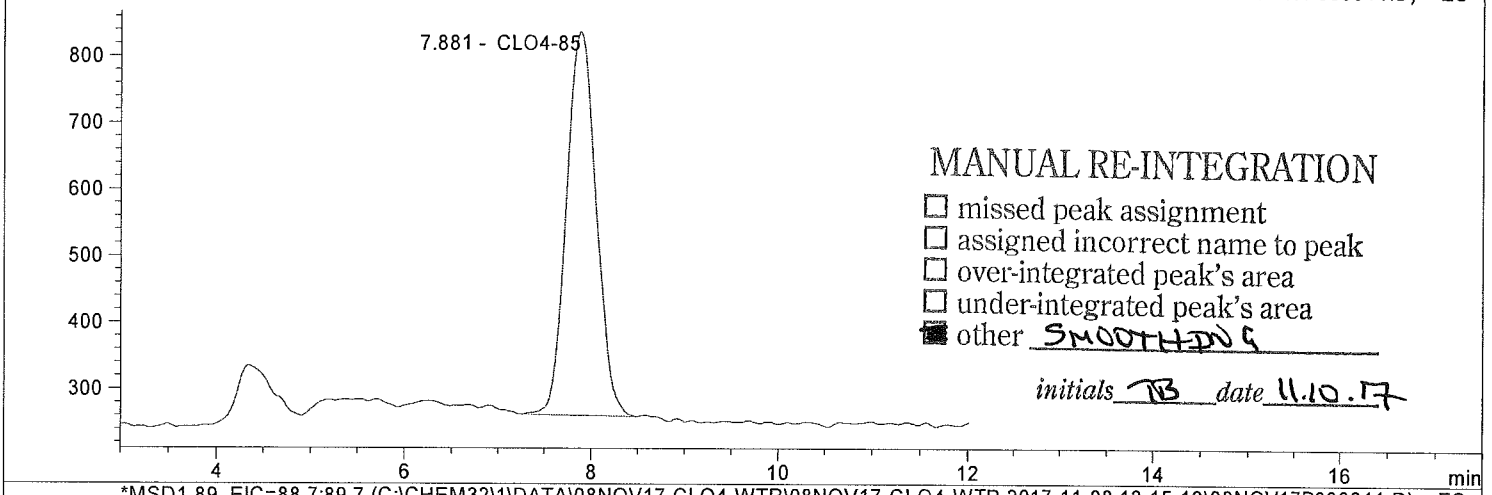
Perchlorate

*MSD1 83, EIC=82.7:83.7 (C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR 2017-11-08 12-15-13\08NOV17P000011.D) ES



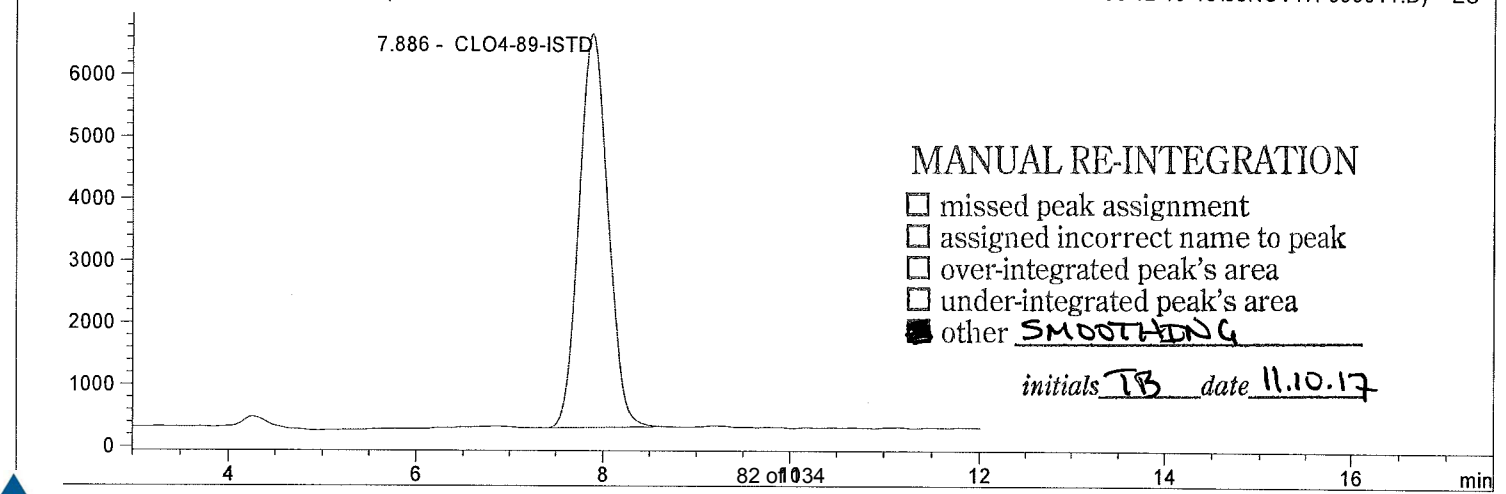

MANUAL RE-INTEGRATION
☐ missed peak assignment
☐ assigned incorrect name to peak
☐ over-integrated peak's area
☐ under-integrated peak's area
■ other SMOOTHING
*initials* TB *date* 11.10.17

*MSD1 85, EIC=84.7:85.7 (C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR 2017-11-08 12-15-13\08NOV17P000011.D) ES




MANUAL RE-INTEGRATION
☐ missed peak assignment
☐ assigned incorrect name to peak
☐ over-integrated peak's area
☐ under-integrated peak's area
■ other SMOOTHING
*initials* TB *date* 11.10.17

*MSD1 89, EIC=88.7:89.7 (C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR 2017-11-08 12-15-13\08NOV17P000011.D) ES




MANUAL RE-INTEGRATION
☐ missed peak assignment
☐ assigned incorrect name to peak
☐ over-integrated peak's area
☐ under-integrated peak's area
■ other SMOOTHING
*initials* TB *date* 11.10.17

Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573332 LODV@1.

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 14:31:03 | Seq Line: | 11 |
| Sample Name: | 573332 LODV@1. | Location: | Vial 72 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 1.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.873 | MM | 35115.5 | 1.1453 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.881 | MM | 12687.7 | 1.3654 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.886 | MM | 136108.7 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

# Raw Data

## Initial Calibration

ethod C:\CHEM32\1\METHODS\CLO4-090717-PR2.M

## Calibration Table

Perchlorate

Calib. Data Modified : 11/8/2017 12:01:35 PM

Calculate : Internal Standard
Based on : Peak Area

Rel. Reference Window : 10.000 %
Abs. Reference Window : 0.000 min
Rel. Non-ref. Window : 10.000 %
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 [ug/L] | 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 [ug/L] | Area | Amt/Area | Ref | Grp | Name |
|---|---|---|---|---|---|---|---|---|
| 7.600 | 1 | 4 | 1.00000 | 6.30618e4 | 1.58575e-5 | 1 | | Perchlorate |
| | | 5 | 5.00000 | 2.92905e5 | 1.70704e-5 | | | |
| | | 6 | 10.00000 | 5.54517e5 | 1.80337e-5 | | | |
| | | 7 | 25.00000 | 1.24481e6 | 2.00834e-5 | | | |
| | | 8 | 50.00000 | 2.13797e6 | 2.33867e-5 | | | |
| 7.630 | 2 | 4 | 1.00000 | 2.14332e4 | 4.66567e-5 | 1 | | CLO4-85 |
| | | 5 | 5.00000 | 9.84017e4 | 5.08121e-5 | | | |
| | | 6 | 10.00000 | 1.86452e5 | 5.36331e-5 | | | |
| | | 7 | 25.00000 | 4.11175e5 | 6.08013e-5 | | | |
| | | 8 | 50.00000 | 7.17406e5 | 6.96955e-5 | | | |
| 7.700 | 3 | 4 | 5.00000 | 3.08061e5 | 1.62306e-5 | I1 | | CLO4-89-ISTD |
| | | 5 | 5.00000 | 2.74022e5 | 1.82467e-5 | | | |
| | | 6 | 5.00000 | 2.56127e5 | 1.95216e-5 | | | |

thod C:\CHEM32\1\METHODS\CLO4-090717-PR2.M

| RetTime [min] | Sig | Lvl | Amount [ug/L] | Area | Amt/Area | Ref | Grp | Name |
|---|---|---|---|---|---|---|---|---|
| | | 7 | 5.00000 | 2.21499e5 | 2.25734e-5 | | | |
| | | 8 | 5.00000 | 1.86887e5 | 2.67541e-5 | | | |

More compound-specific settings:

Compound: Perchlorate
- Time Window : From 5.860 min To 9.320 min
- Curve Type : Linear
- Origin : Forced
- Calibration Level Weights:/
  - Level 4 : 1
  - Level 5 : 0.2
  - Level 6 : 0.1
  - Level 7 : 0.04
  - Level 8 : 0.02

Compound: CLO4-85
- Time Window : From 5.870 min To 9.340 min
- Curve Type : Linear
- Origin : Ignored
- Calibration Level Weights:/
  - Level 4 : 1
  - Level 5 : 0.2
  - Level 6 : 0.1
  - Level 7 : 0.04
  - Level 8 : 0.02

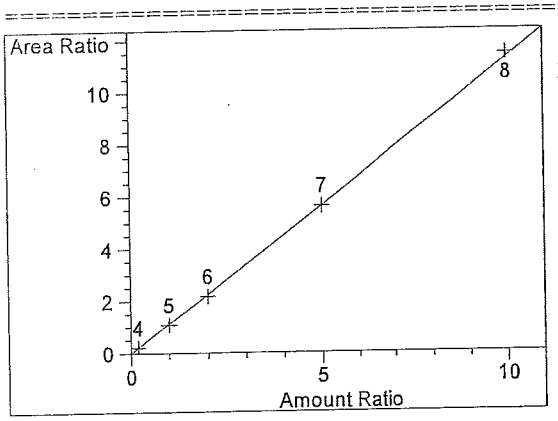
Compound: CLO4-89-ISTD
- Time Window : From 5.920 min To 9.400 min
- Curve Type : Linear
- Origin : Included
- Calibration Level Weights:/
  - Level 4 : 1
  - Level 5 : 1
  - Level 6 : 1
  - Level 7 : 1
  - Level 8 : 1

Peak Sum Table

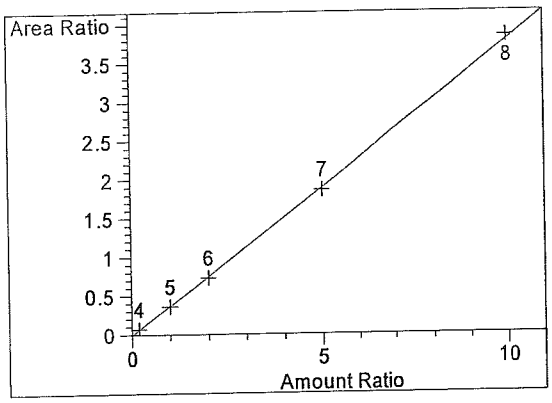
***No Entries in table***

thod C:\CHEM32\1\METHODS\CLO4-090717-PR2.M

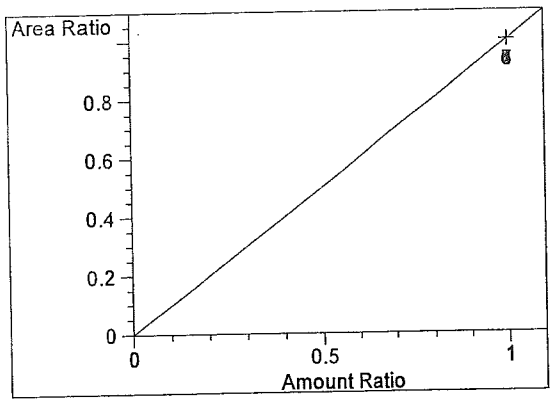
## Calibration Curves




Perchlorate at exp. RT: 7.600
MSD1 83, EIC=82.7:83.7
Correlation: 0.99973
Residual Std. Dev.: 0.10350
Formula: y = mx
m: 1.12629
x: Amount
y: Area
Calibration Level Weights:
Level 4 : 1
Level 5 : 0.2
Level 6 : 0.1
Level 7 : 0.04
Level 8 : 0.02




CLO4-85 at exp. RT: 7.630
MSD1 85, EIC=84.7:85.7
Correlation: 0.99979
Residual Std. Dev.: 0.03893
Formula: y = mx + b
m: 3.79313e-1
b: -1.03635e-2
x: Amount
y: Area
Calibration Level Weights:
Level 4 : 1
Level 5 : 0.2
Level 6 : 0.1
Level 7 : 0.04
Level 8 : 0.02



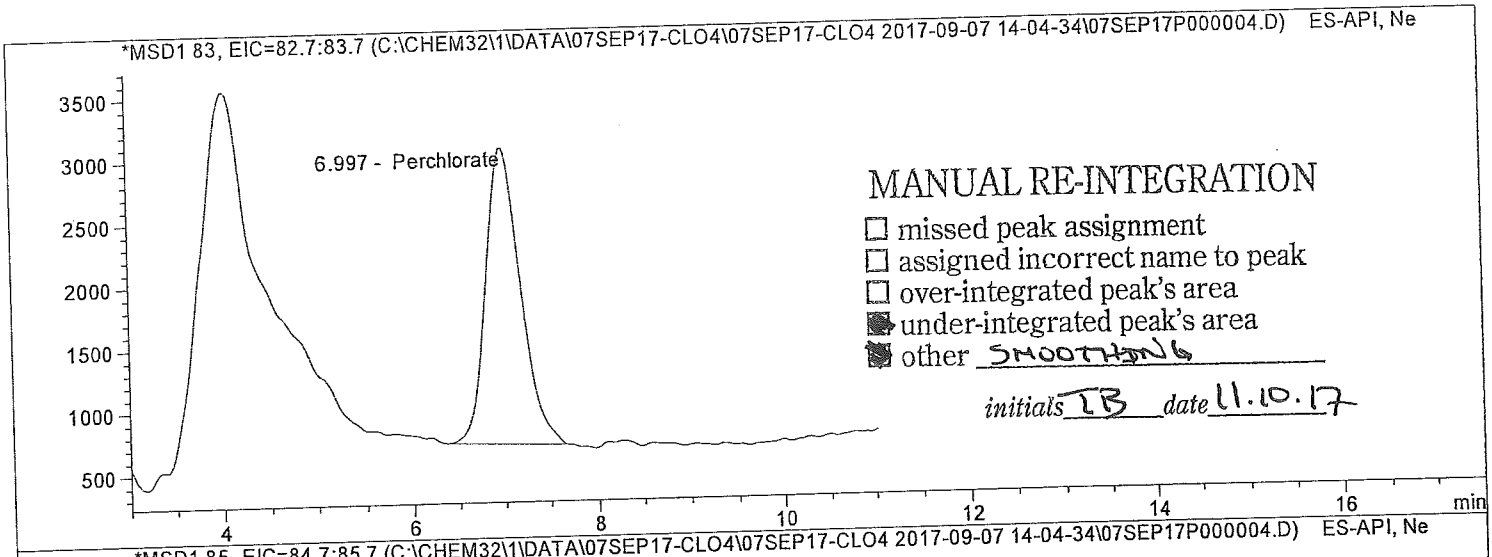

CLO4-89-ISTD at exp. RT: 7.700
MSD1 89, EIC=88.7:89.7
Correlation: 1.00000
Residual Std. Dev.: 0.00000
Formula: y = mx + b
m: 1.00000
b: 0.00000
x: Amount
y: Area
Calibration Level Weights:
Level 4 : 1
Level 5 : 1
Level 6 : 1
Level 7 : 1
Level 8 : 1

Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICL4@1.ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 14:46:29 | Seq Line: | 4 |
| Sample Name: | CLO4 ICL4@1.ug/L | Location: | Vial 64 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

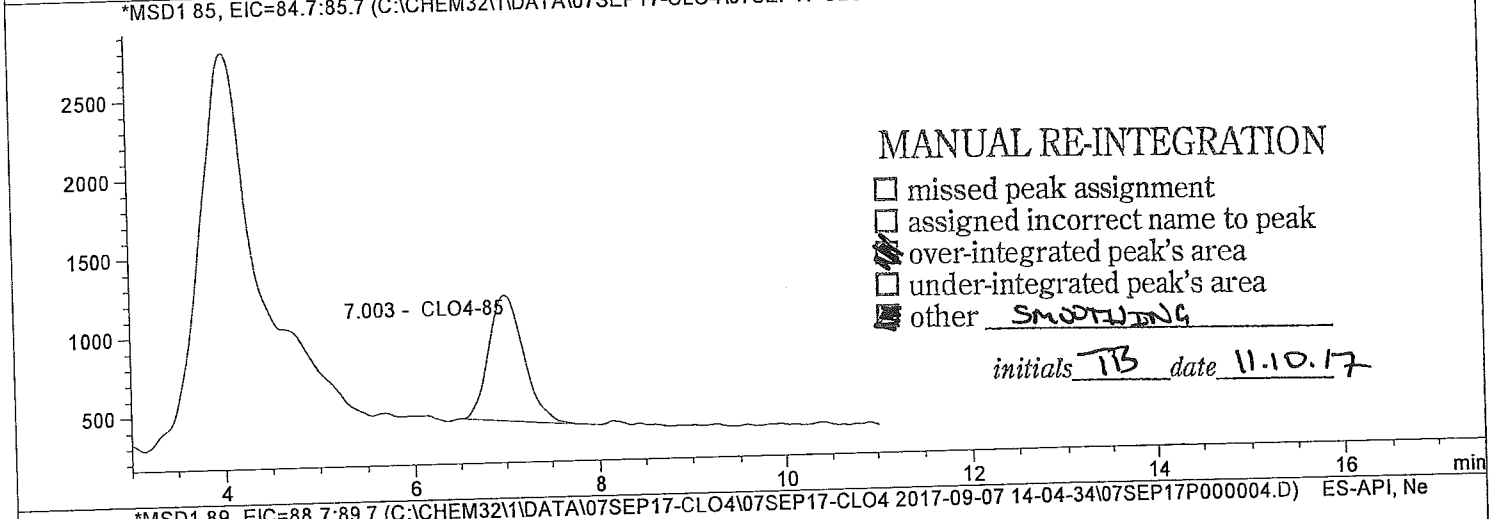
Acq. Method: C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate



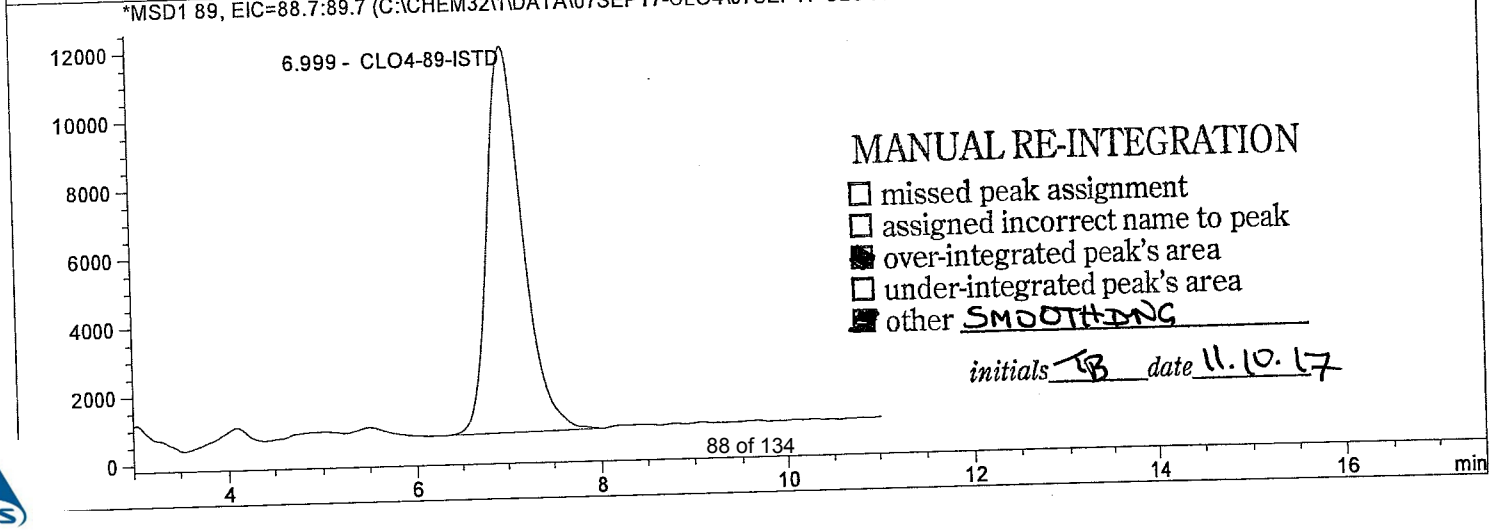

MANUAL RE-INTEGRATION
- ☐ missed peak assignment
- ☐ assigned incorrect name to peak
- ☐ over-integrated peak's area
- ■ under-integrated peak's area
- ■ other SMOOTHING

*initials* TB *date* 11.10.17




MANUAL RE-INTEGRATION
- ☐ missed peak assignment
- ☐ assigned incorrect name to peak
- ■ over-integrated peak's area
- ☐ under-integrated peak's area
- ■ other SMOOTHING

*initials* TB *date* 11.10.17




MANUAL RE-INTEGRATION
- ☐ missed peak assignment
- ☐ assigned incorrect name to peak
- ■ over-integrated peak's area
- ☐ under-integrated peak's area
- ■ other SMOOTHING

*initials* TB *date* 11.10.17

Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICL4@1.ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 14:46:29 | Seq Line: | 4 |
| Sample Name: | CLO4 ICL4@1.ug/L | Location: | Vial 64 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 1.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.997 | MM | 63061.8 | 0.9088 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.003 | MM | 21433.2 | 1.0537 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.999 | MM | 308061.0 | 5.0000 | CLO4-89-ISTD |

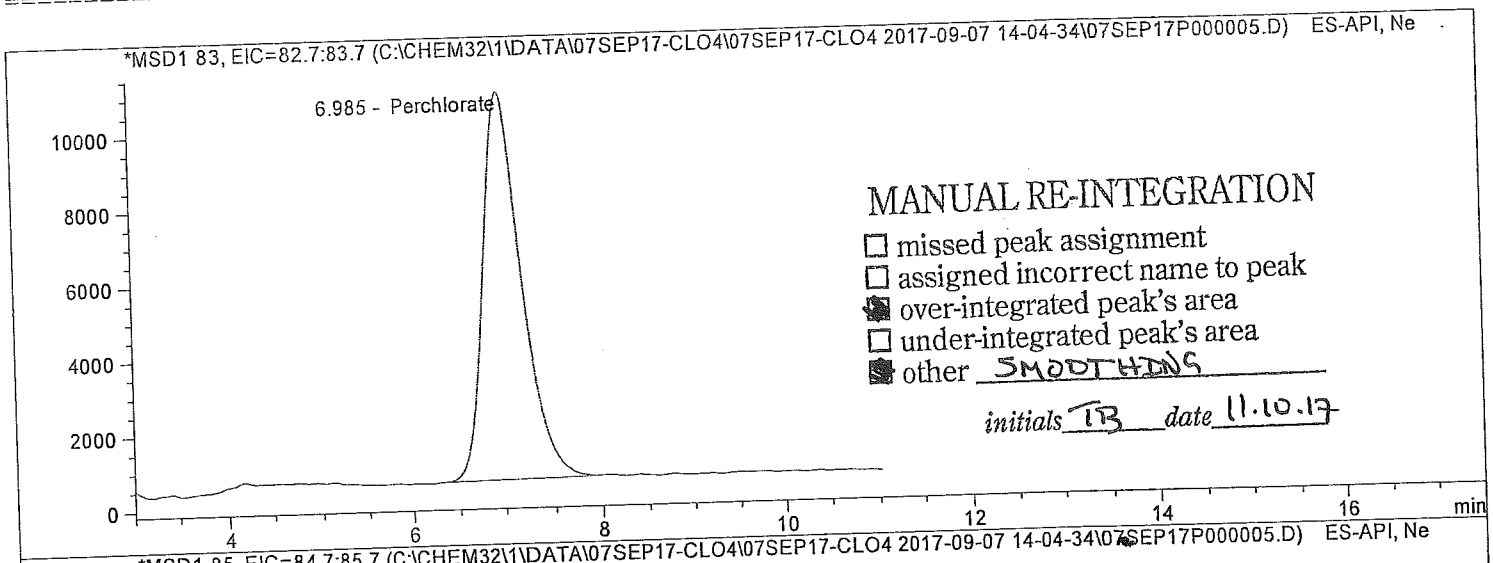
*** End of Report ***

Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICL5@5.ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 14:59:04 | Seq Line: | 5 |
| Sample Name: | CLO4 ICL5@5.ug/L | Location: | Vial 65 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

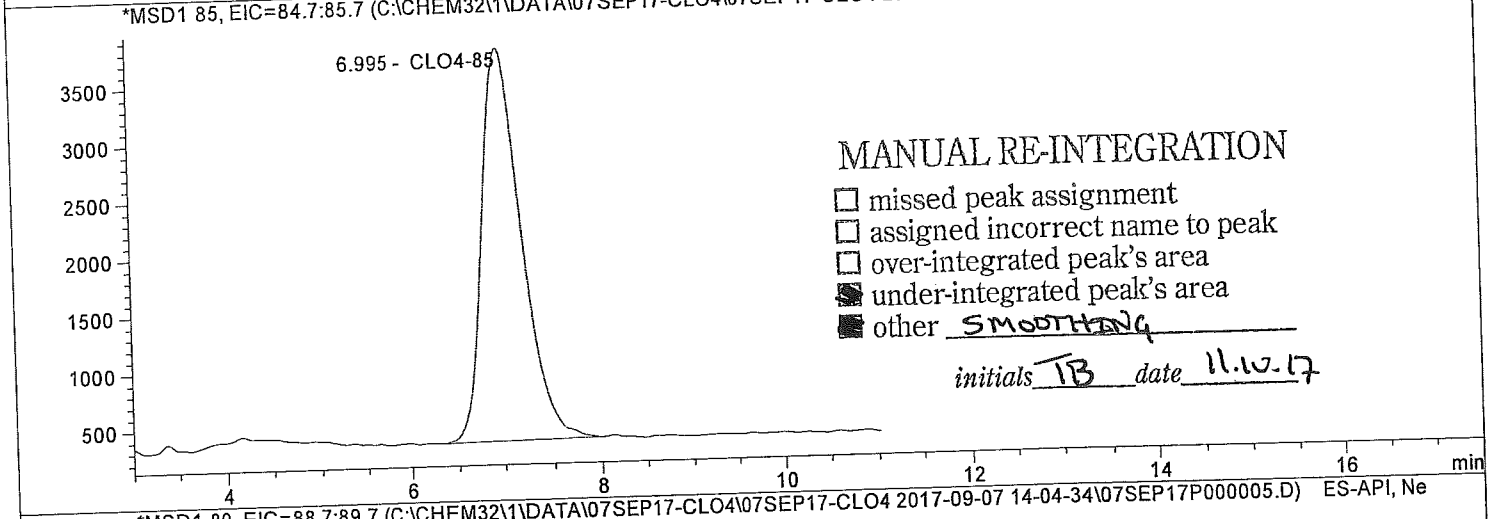
Acq. Method: C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate



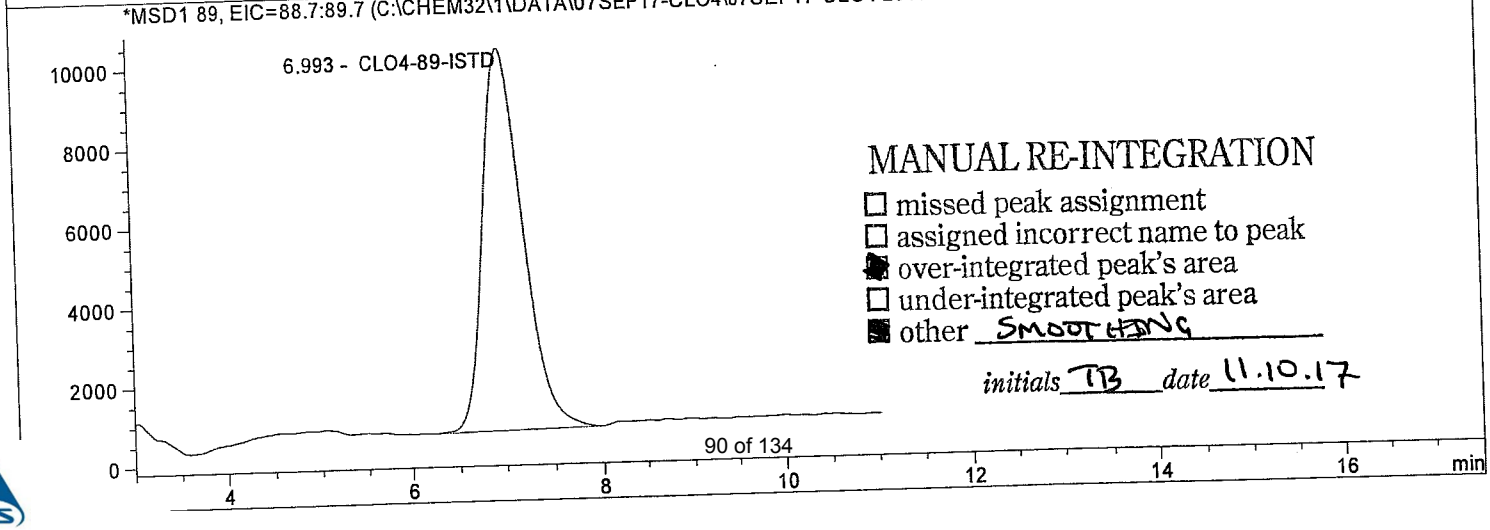

MANUAL RE-INTEGRATION
- ☐ missed peak assignment
- ☐ assigned incorrect name to peak
- ☒ over-integrated peak's area
- ☐ under-integrated peak's area
- ☒ other SMOOTHING

*initials* TB *date* 11.10.17




MANUAL RE-INTEGRATION
- ☐ missed peak assignment
- ☐ assigned incorrect name to peak
- ☐ over-integrated peak's area
- ☒ under-integrated peak's area
- ☒ other SMOOTHING

*initials* TB *date* 11.10.17




MANUAL RE-INTEGRATION
- ☐ missed peak assignment
- ☐ assigned incorrect name to peak
- ☒ over-integrated peak's area
- ☐ under-integrated peak's area
- ☒ other SMOOTHING

*initials* TB *date* 11.10.17

Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICL5@5.ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 14:59:04 | Seq Line: | 5 |
| Sample Name: | CLO4 ICL5@5.ug/L | Location: | Vial 65 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 5.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.985 | MM | 292904.5 | 4.7453 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.995 | MM | 98401.7 | 4.8702 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.993 | MM | 274022.0 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***

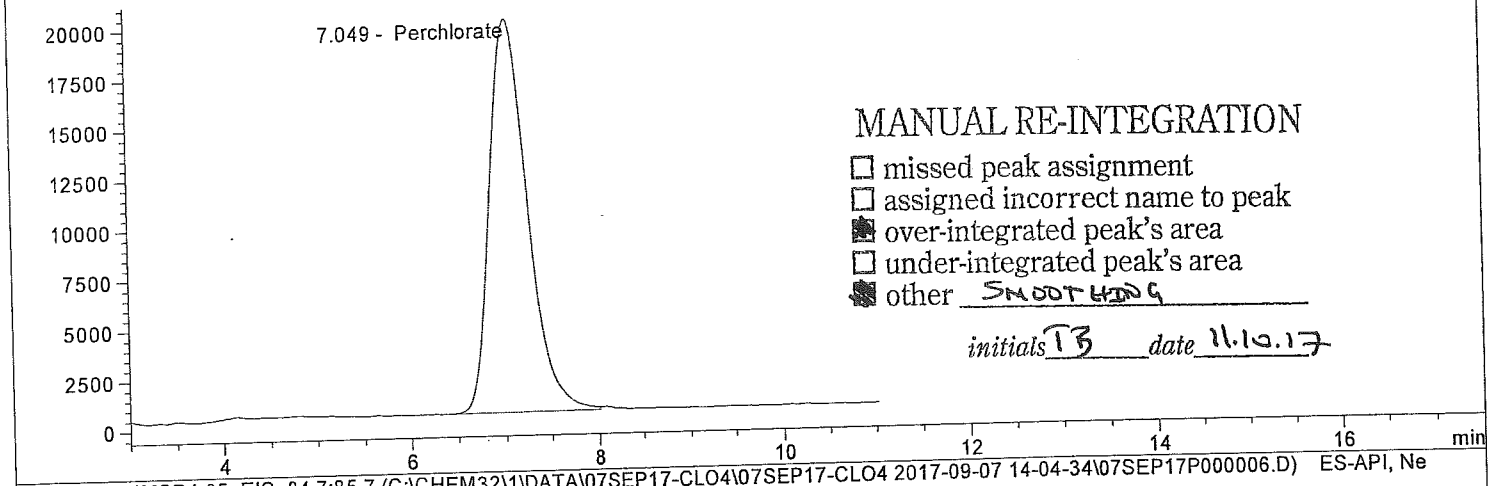
Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICL6@10ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 15:11:37 | Seq Line: | 6 |
| Sample Name: | CLO4 ICL6@10ug/L | Location: | Vial 66 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

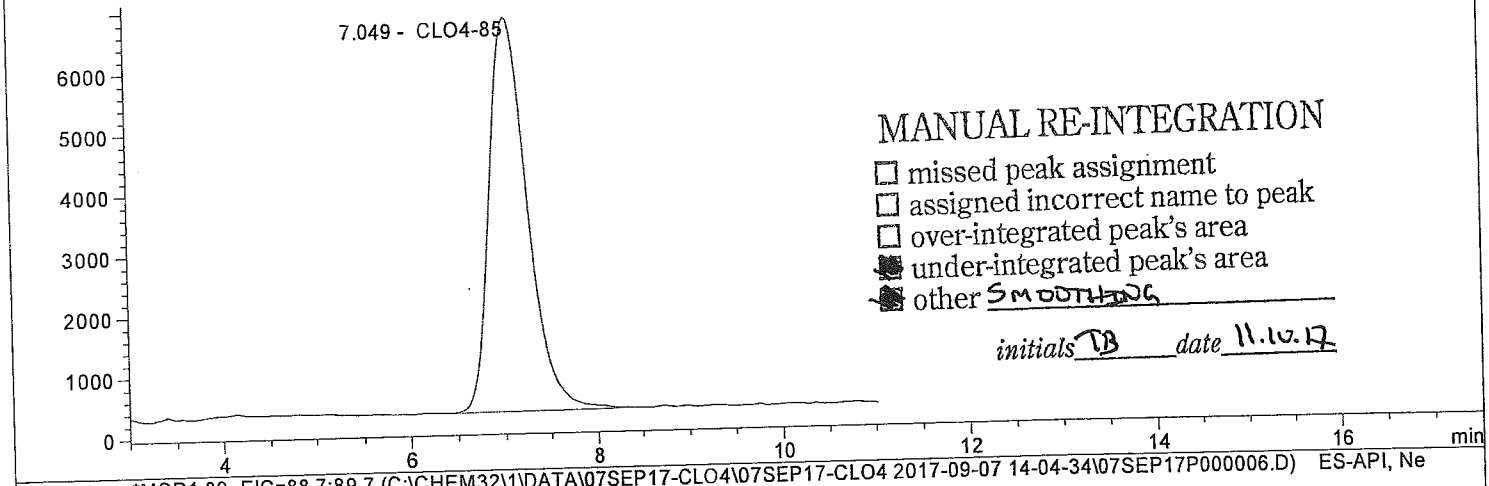
*MSD1 83, EIC=82.7:83.7 (C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-07 14-04-34\07SEP17P000006.D) ES-API, Ne




MANUAL RE-INTEGRATION
- ☐ missed peak assignment
- ☐ assigned incorrect name to peak
- ☒ over-integrated peak's area
- ☐ under-integrated peak's area
- ☒ other SMOOTHING

*initials* TB *date* 11.10.17

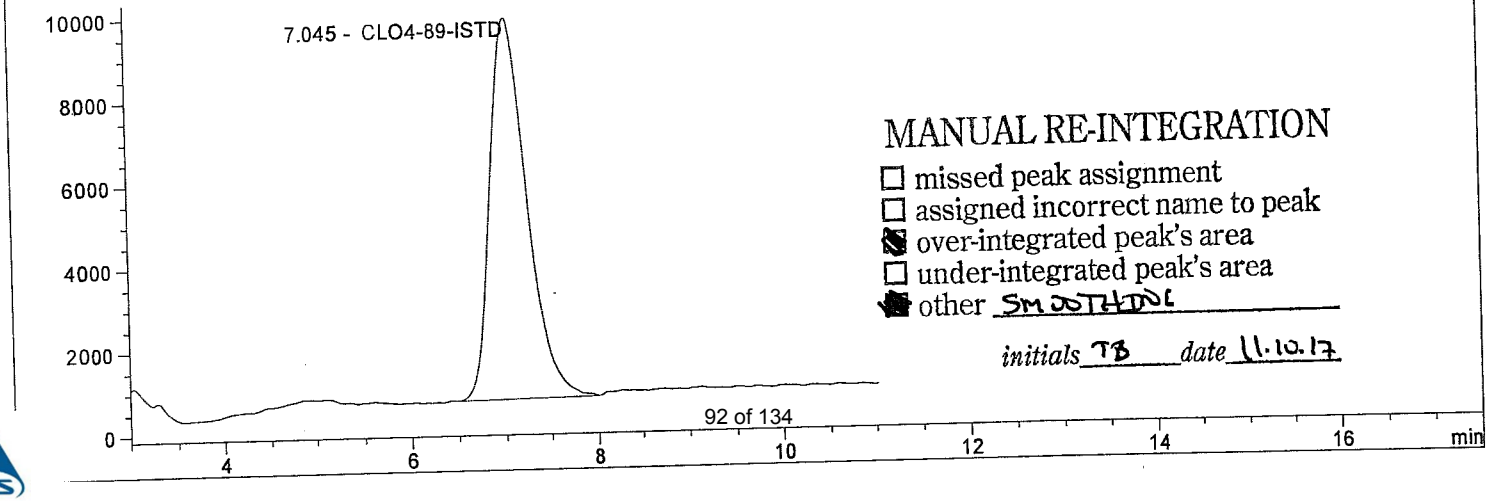
*MSD1 85, EIC=84.7:85.7 (C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-07 14-04-34\07SEP17P000006.D) ES-API, Ne




MANUAL RE-INTEGRATION
- ☐ missed peak assignment
- ☐ assigned incorrect name to peak
- ☐ over-integrated peak's area
- ☒ under-integrated peak's area
- ☒ other SMOOTHING

*initials* TB *date* 11.10.17

*MSD1 89, EIC=88.7:89.7 (C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-07 14-04-34\07SEP17P000006.D) ES-API, Ne




MANUAL RE-INTEGRATION
- ☐ missed peak assignment
- ☐ assigned incorrect name to peak
- ☒ over-integrated peak's area
- ☐ under-integrated peak's area
- ☒ other SMOOTHING

*initials* TB *date* 11.10.17

Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICL6@10ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 15:11:37 | Seq Line: | 6 |
| Sample Name: | CLO4 ICL6@10ug/L | Location: | Vial 66 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

| | |
|---|---|
| Acq. Method: | C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09--> |
| Analysis Method: | C:\CHEM32\1\METHODS\CLO4-090717-PR2.M |
| Last Changed: | 11/8/2017 16:48:07 |

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 10.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.049 | MF | 554516.7 | 9.6113 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.049 | MM | 186452.0 | 9.7325 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.045 | MM | 256126.6 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***

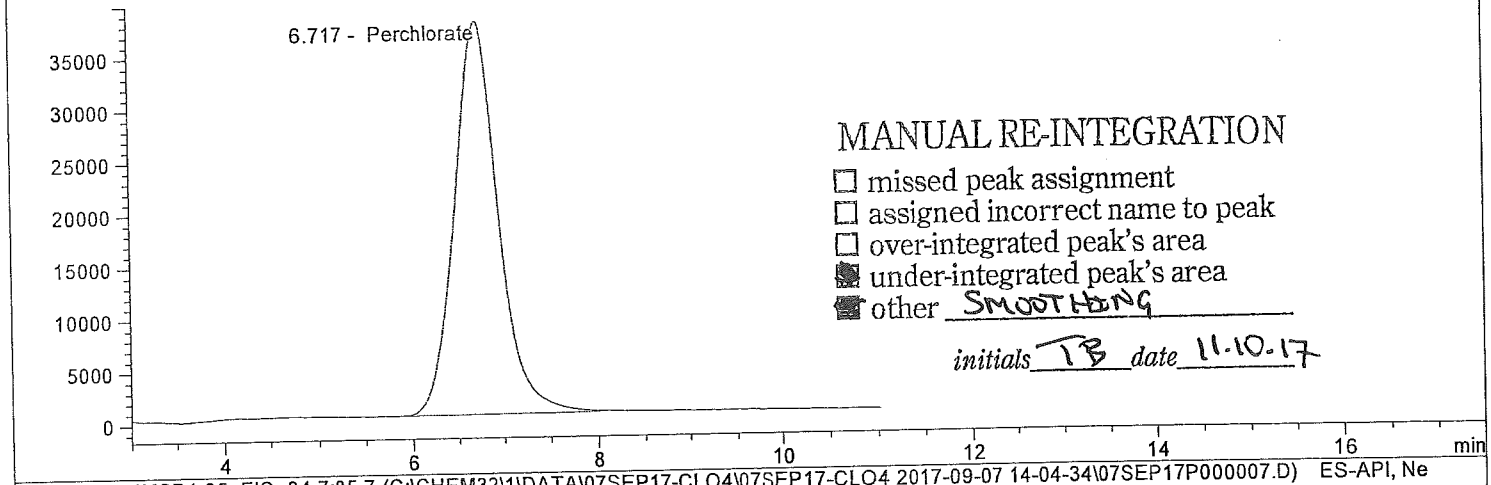
Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICL7@25ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 15:24:10 | Seq Line: | 7 |
| Sample Name: | CLO4 ICL7@25ug/L | Location: | Vial 67 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

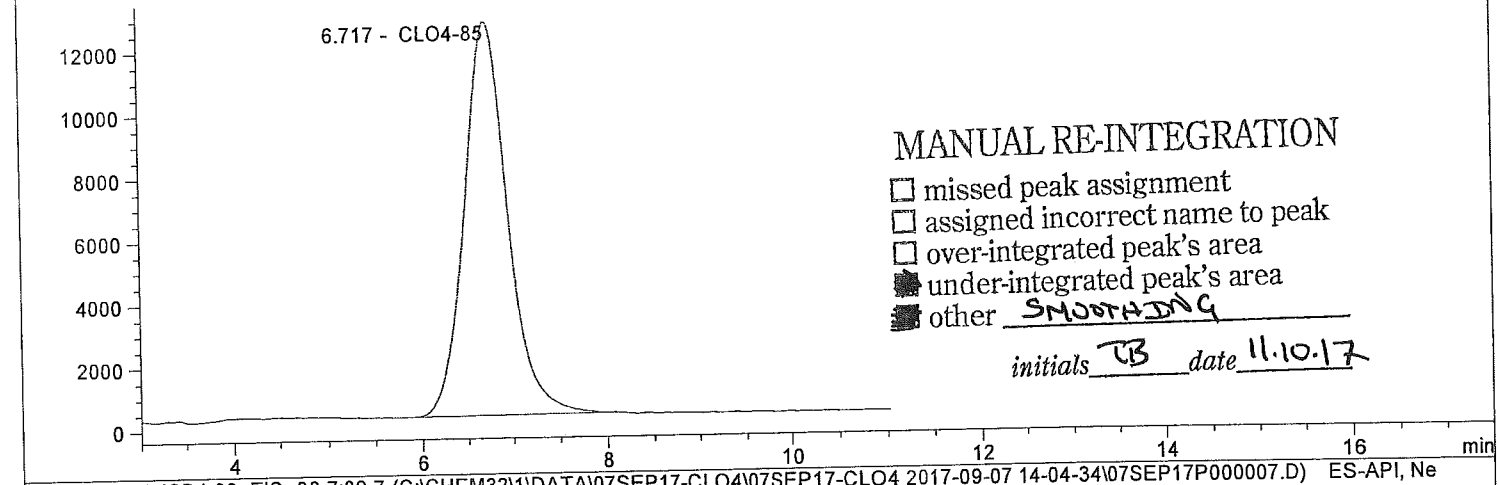
Perchlorate

*MSD1 83, EIC=82.7:83.7 (C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-07 14-04-34\07SEP17P000007.D) ES-API, Ne



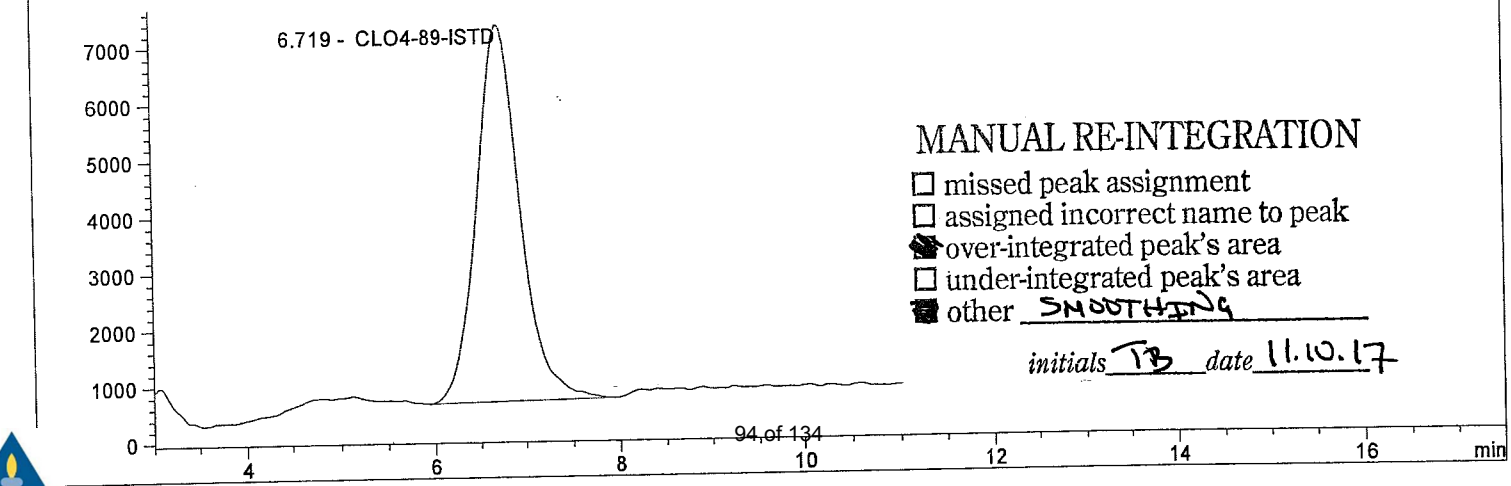

MANUAL RE-INTEGRATION
☐ missed peak assignment
☐ assigned incorrect name to peak
☐ over-integrated peak's area
■ under-integrated peak's area
■ other SMOOTHING
*initials* TB *date* 11.10.17

*MSD1 85, EIC=84.7:85.7 (C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-07 14-04-34\07SEP17P000007.D) ES-API, Ne




MANUAL RE-INTEGRATION
☐ missed peak assignment
☐ assigned incorrect name to peak
☐ over-integrated peak's area
■ under-integrated peak's area
■ other SMOOTHING
*initials* TB *date* 11.10.17

*MSD1 89, EIC=88.7:89.7 (C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-07 14-04-34\07SEP17P000007.D) ES-API, Ne




MANUAL RE-INTEGRATION
☐ missed peak assignment
☐ assigned incorrect name to peak
■ over-integrated peak's area
☐ under-integrated peak's area
■ other SMOOTHING
*initials* TB *date* 11.10.17

Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICL7@25ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 15:24:10 | Seq Line: | 7 |
| Sample Name: | CLO4 ICL7@25ug/L | Location: | Vial 67 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

| | |
|---|---|
| Acq. Method: | C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09--> |
| Analysis Method: | C:\CHEM32\1\METHODS\CLO4-090717-PR2.M |
| Last Changed: | 11/8/2017 16:48:07 |

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 25.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.717 | MF | 1244808.4 | 24.9489 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.717 | MM | 411175.3 | 24.6062 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.719 | MM | 221499.4 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***

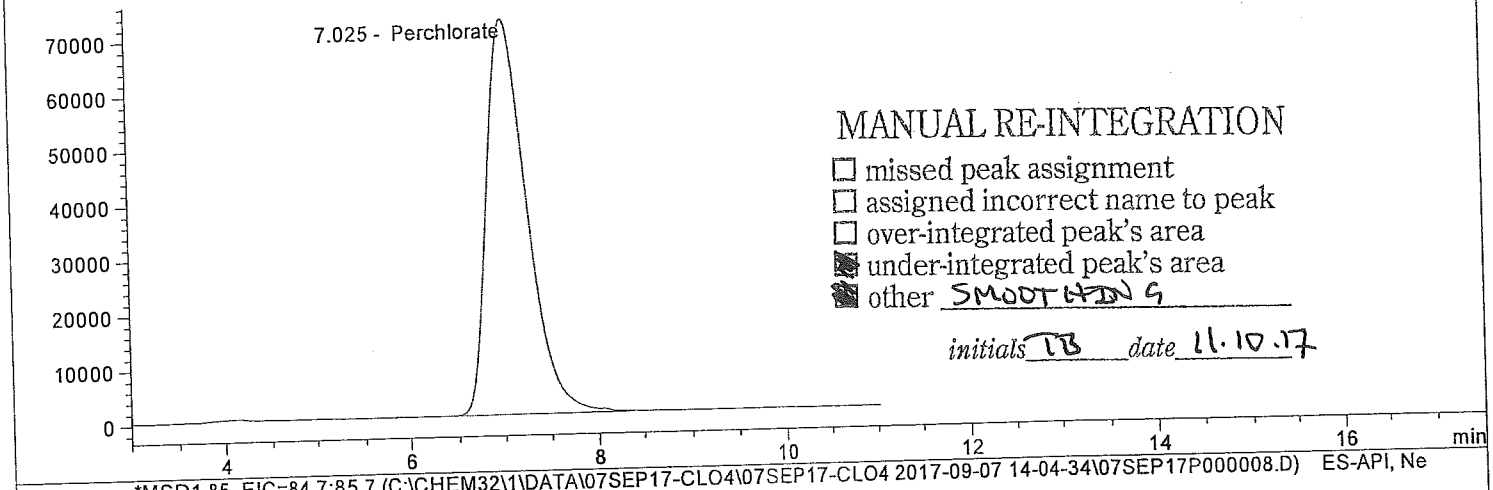
Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICL8@50ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 15:36:44 | Seq Line: | 8 |
| Sample Name: | CLO4 ICL8@50ug/L | Location: | Vial 68 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

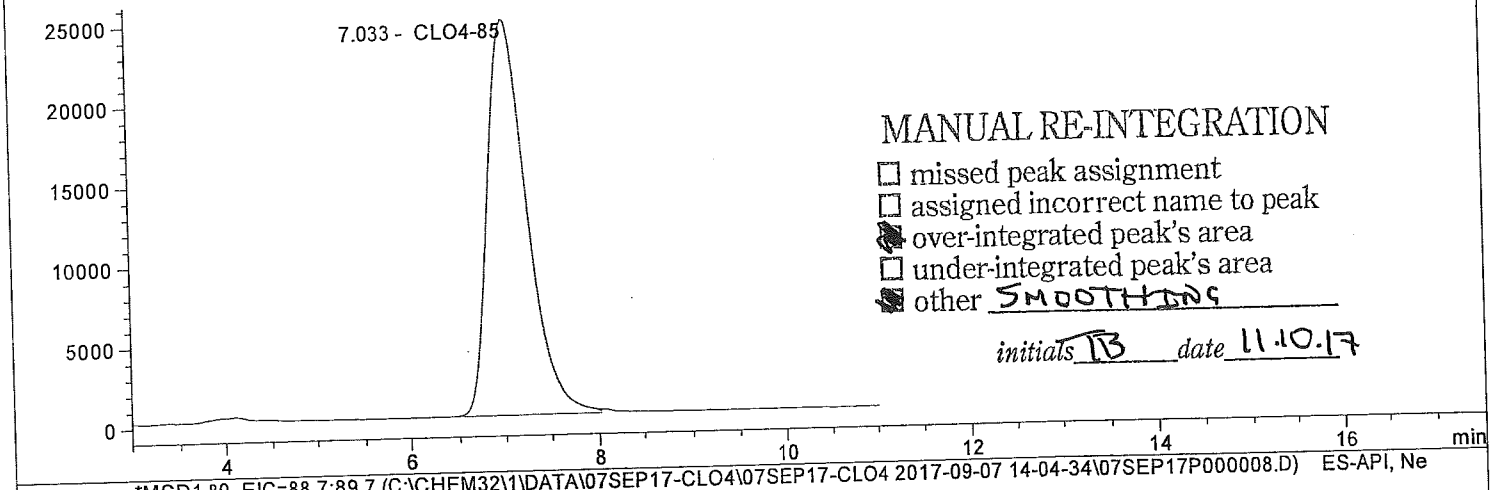
*MSD1 83, EIC=82.7:83.7 (C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-07 14-04-34\07SEP17P000008.D) ES-API, Ne




MANUAL RE-INTEGRATION
- ☐ missed peak assignment
- ☐ assigned incorrect name to peak
- ☐ over-integrated peak's area
- ☒ under-integrated peak's area
- ☒ other SMOOTHING

*initials* TB *date* 11.10.17

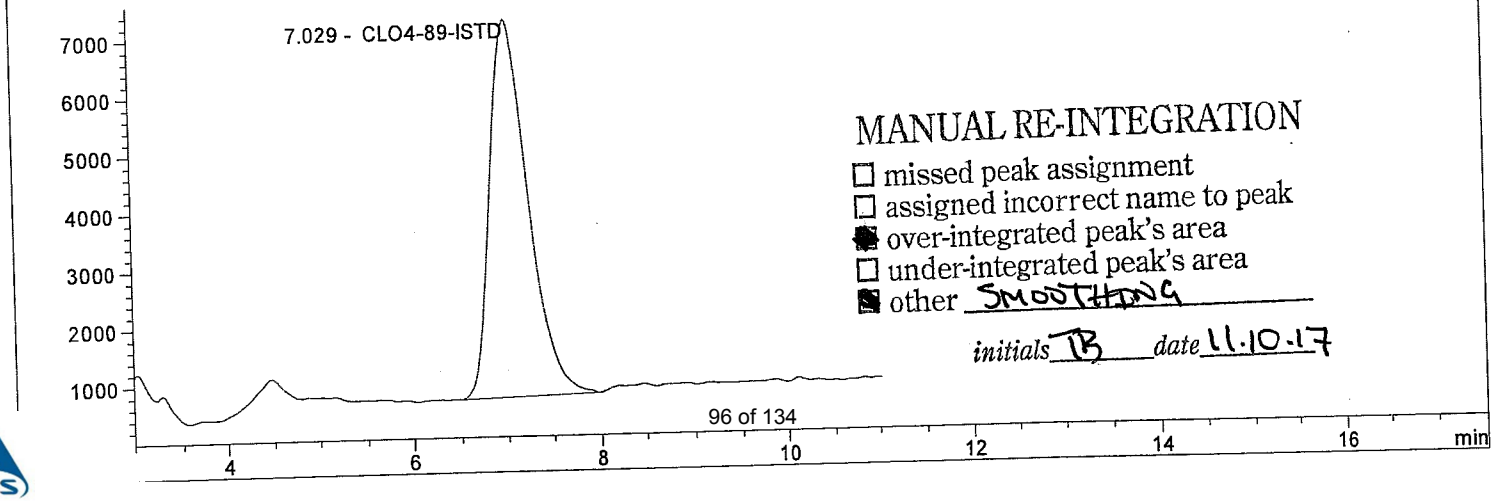
*MSD1 85, EIC=84.7:85.7 (C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-07 14-04-34\07SEP17P000008.D) ES-API, Ne




MANUAL RE-INTEGRATION
- ☐ missed peak assignment
- ☐ assigned incorrect name to peak
- ☒ over-integrated peak's area
- ☐ under-integrated peak's area
- ☒ other SMOOTHING

*initials* TB *date* 11.10.17

*MSD1 89, EIC=88.7:89.7 (C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-07 14-04-34\07SEP17P000008.D) ES-API, Ne




MANUAL RE-INTEGRATION
- ☐ missed peak assignment
- ☐ assigned incorrect name to peak
- ☒ over-integrated peak's area
- ☐ under-integrated peak's area
- ☒ other SMOOTHING

*initials* TB *date* 11.10.17

Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICL8@50ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 15:36:44 | Seq Line: | 8 |
| Sample Name: | CLO4 ICL8@50ug/L | Location: | Vial 68 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

| | |
|---|---|
| Acq. Method: | C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09--> |
| Analysis Method: | C:\CHEM32\1\METHODS\CLO4-090717-PR2.M |
| Last Changed: | 11/8/2017 16:48:07 |

Perchlorate

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 50.000 ug/L |

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.025 | MF | 2137969.0 | 50.7858 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.033 | MF | 717406.0 | 50.7374 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.029 | MM | 186887.2 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***

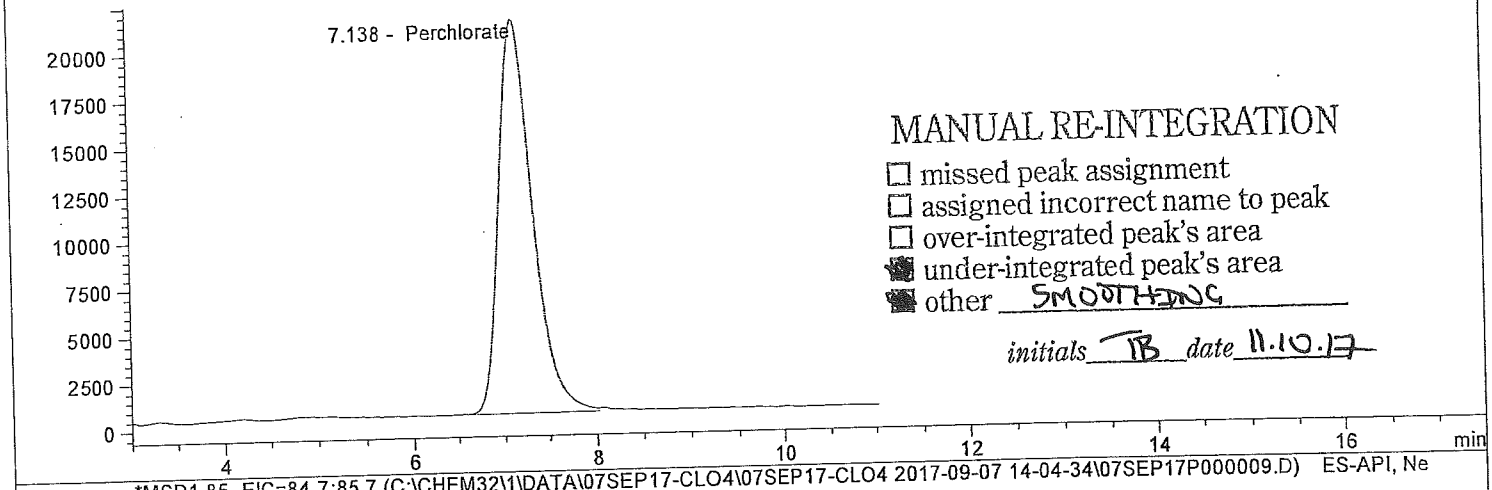
Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICV@10ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 15:49:16 | Seq Line: | 9 |
| Sample Name: | CLO4 ICV@10ug/L | Location: | Vial 69 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

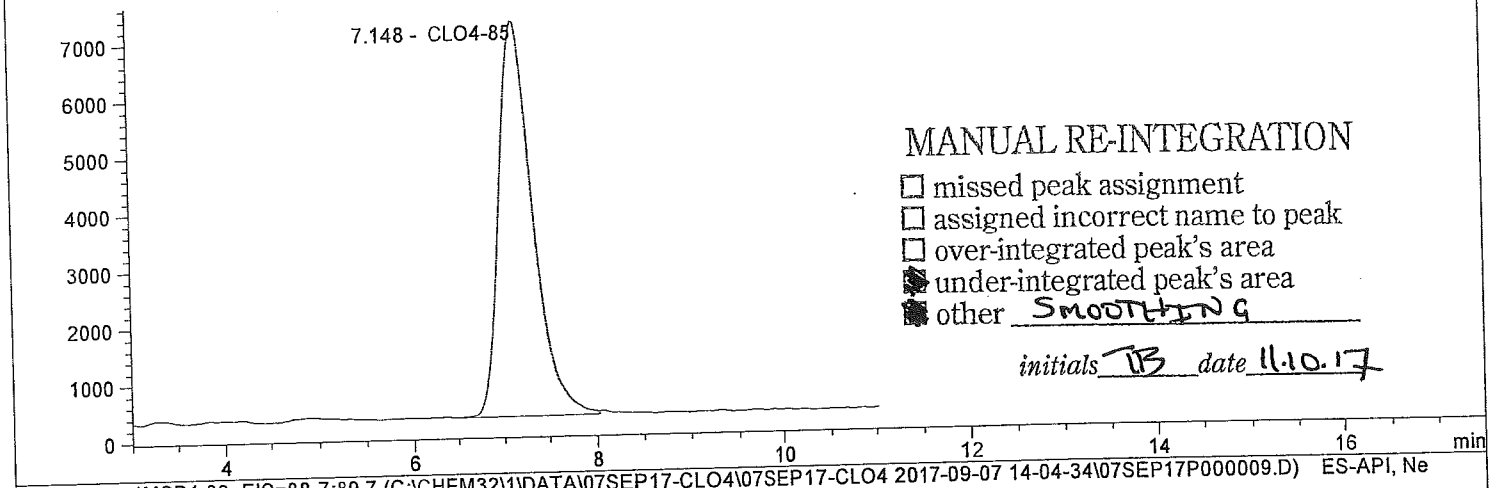
Perchlorate

*MSD1 83, EIC=82.7:83.7 (C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-07 14-04-34\07SEP17P000009.D) ES-API, Ne



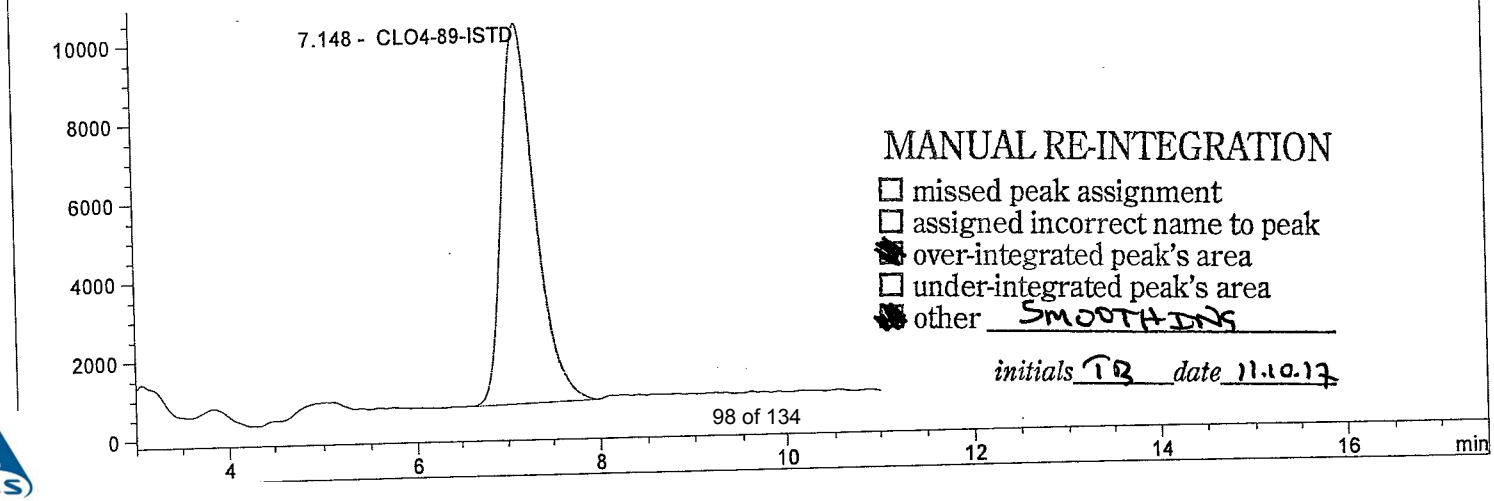

MANUAL RE-INTEGRATION
☐ missed peak assignment
☐ assigned incorrect name to peak
☐ over-integrated peak's area
☒ under-integrated peak's area
☒ other SMOOTHING
*initials* TB *date* 11.10.17

*MSD1 85, EIC=84.7:85.7 (C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-07 14-04-34\07SEP17P000009.D) ES-API, Ne




MANUAL RE-INTEGRATION
☐ missed peak assignment
☐ assigned incorrect name to peak
☐ over-integrated peak's area
☒ under-integrated peak's area
☒ other SMOOTHING
*initials* TB *date* 11.10.17

*MSD1 89, EIC=88.7:89.7 (C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-07 14-04-34\07SEP17P000009.D) ES-API, Ne




MANUAL RE-INTEGRATION
☐ missed peak assignment
☐ assigned incorrect name to peak
☒ over-integrated peak's area
☐ under-integrated peak's area
☒ other SMOOTHING
*initials* TB *date* 11.10.17

Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICV@10ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 15:49:16 | Seq Line: | 9 |
| Sample Name: | CLO4 ICV@10ug/L | Location: | Vial 69 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 10.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.138 | MF | 548799.1 | 9.7284 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.148 | MF | 182852.1 | 9.7611 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.148 | MM | 250434.1 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

# Raw Data

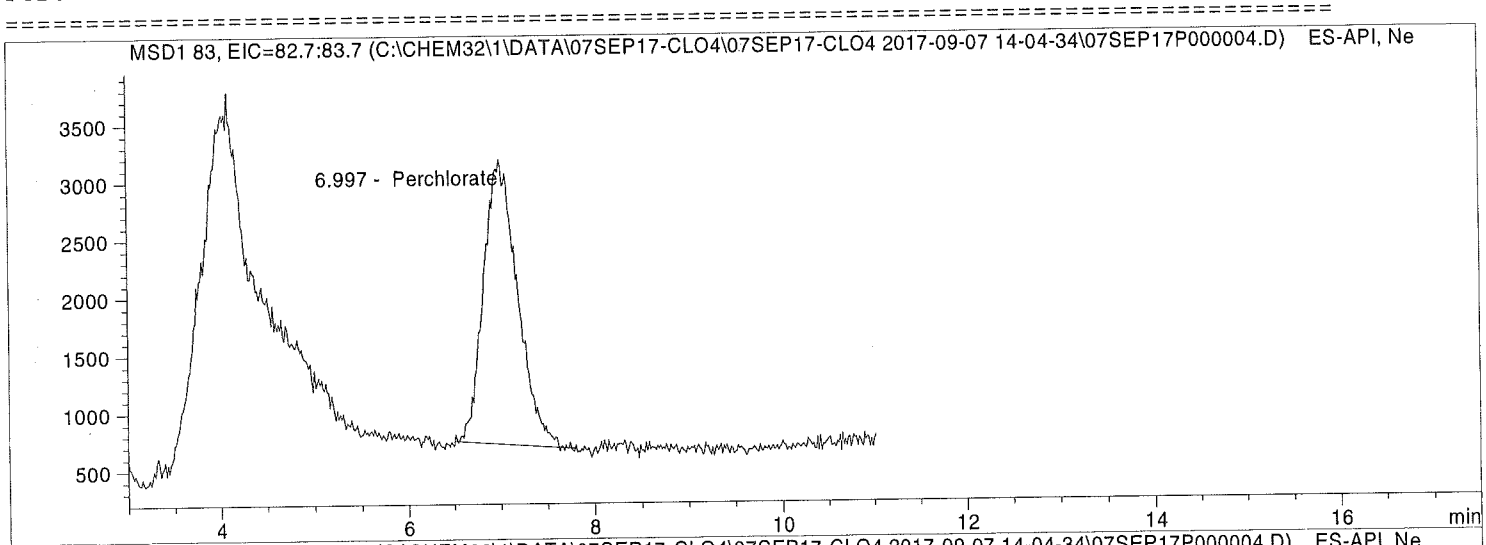
## Unmodified

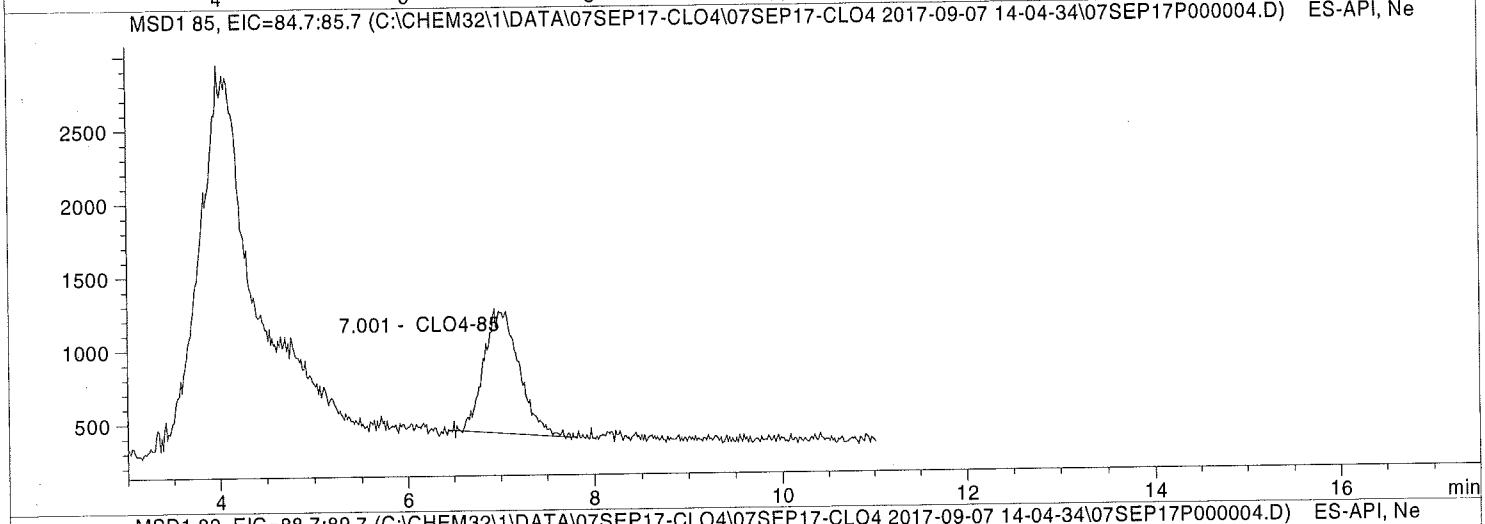
Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICL4@1.ug/L

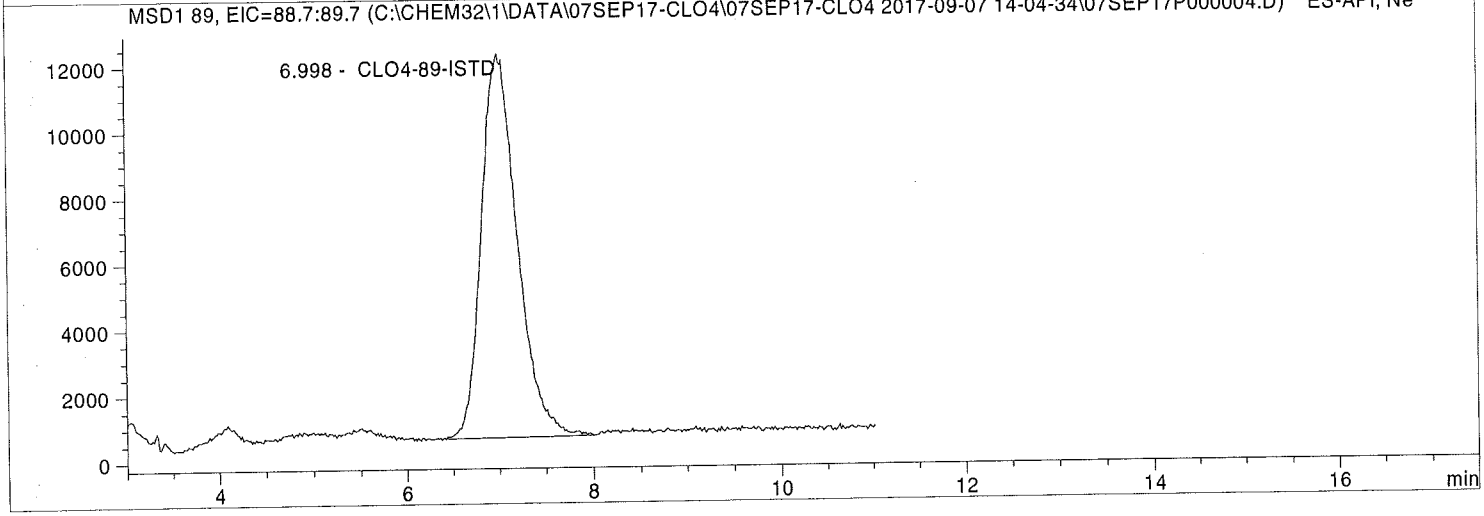
| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 14:46:29 | Seq Line: | 4 |
| Sample Name: | CLO4 ICL4@1.ug/L | Location: | Vial 64 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate



Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICL4@1.ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 14:46:29 | Seq Line: | 4 |
| Sample Name: | CLO4 ICL4@1.ug/L | Location: | Vial 64 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 1.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.997 | BB | 61864.7 | 0.8857 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.001 | BB | 21906.9 | 1.0679 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.998 | BB | 310065.4 | 5.0000 | CLO4-89-ISTD |

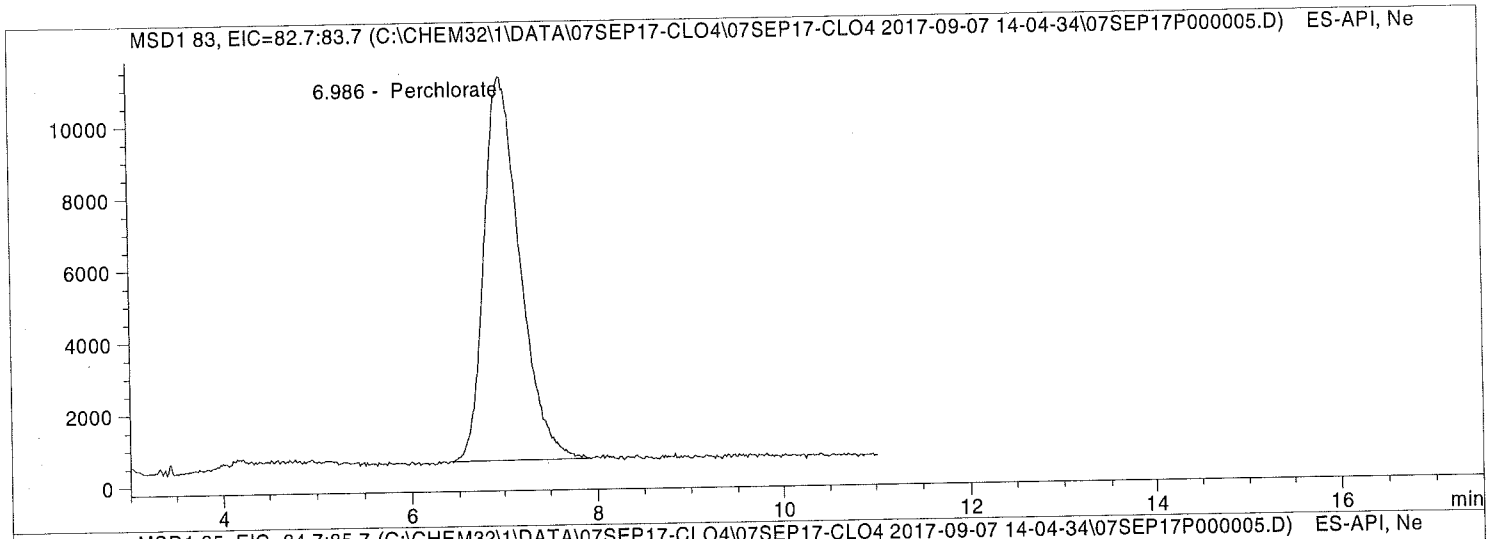
*** End of Report ***

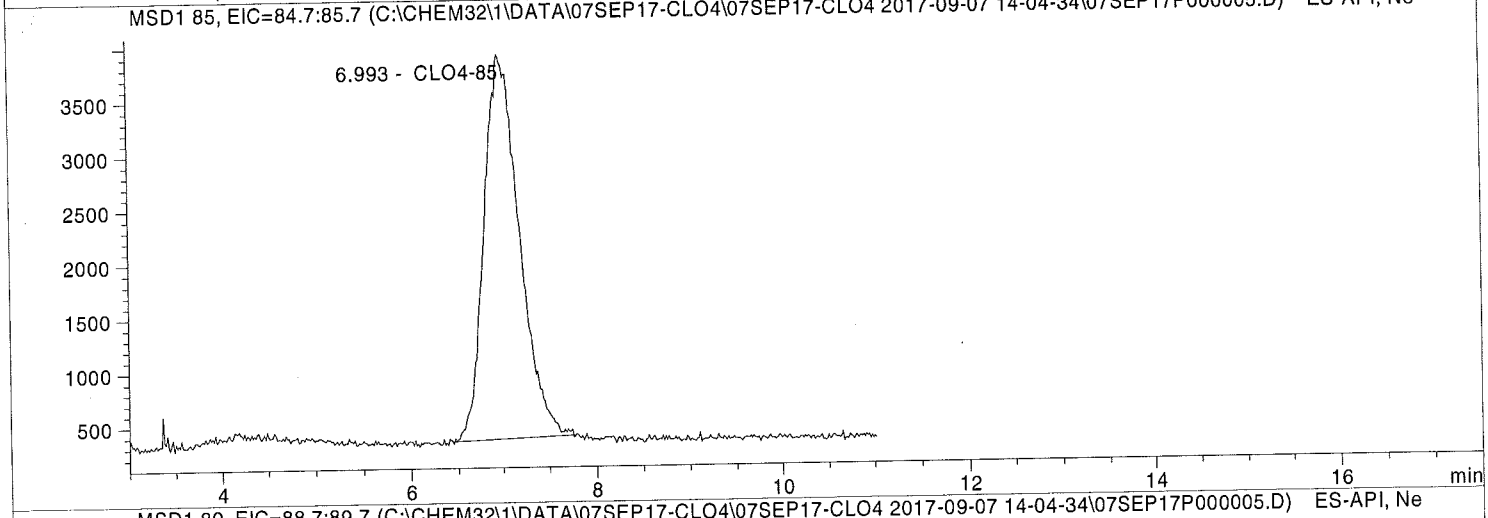
Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICL5@5.ug/L

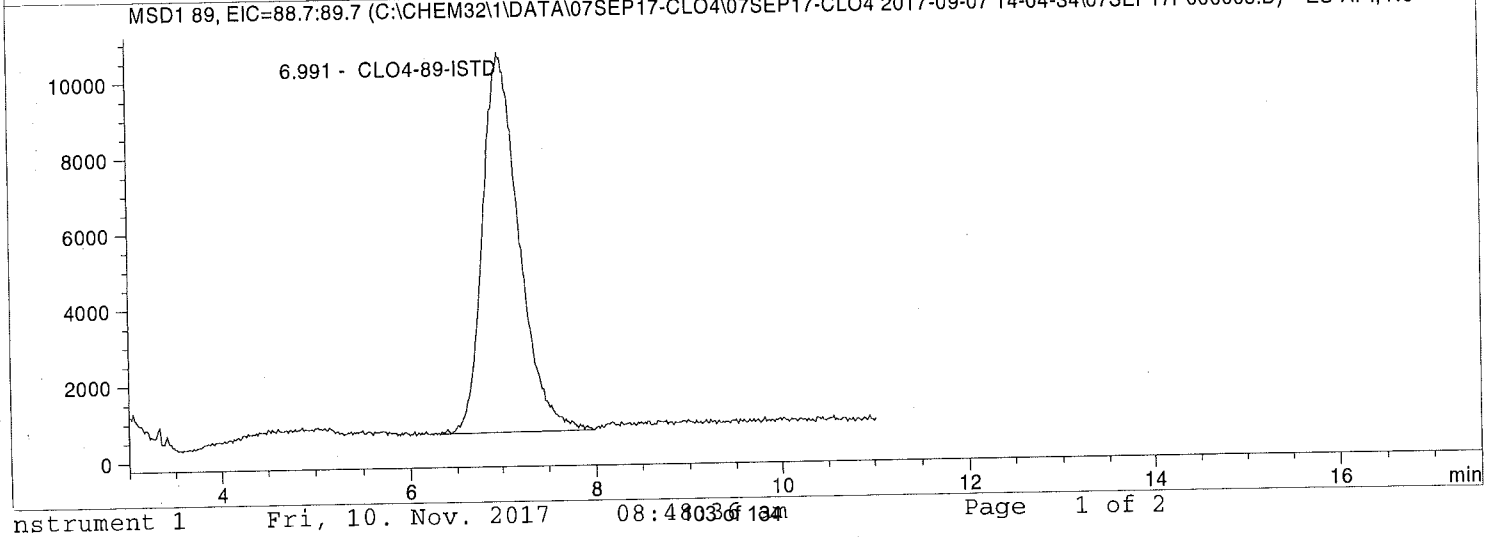
| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 14:59:04 | Seq Line: | 5 |
| Sample Name: | CLO4 ICL5@5.ug/L | Location: | Vial 65 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate



Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICL5@5.ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 14:59:04 | Seq Line: | 5 |
| Sample Name: | CLO4 ICL5@5.ug/L | Location: | Vial 65 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

| | |
|---|---|
| Acq. Method: | C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09--> |
| Analysis Method: | C:\CHEM32\1\METHODS\CLO4-090717-PR2.M |
| Last Changed: | 11/8/2017 16:48:07 |

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 5.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.986 | BB | 293168.7 | 4.7074 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.993 | BB | 95992.6 | 4.7133 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.991 | BB | 276477.1 | 5.0000 | CLO4-89-ISTD |

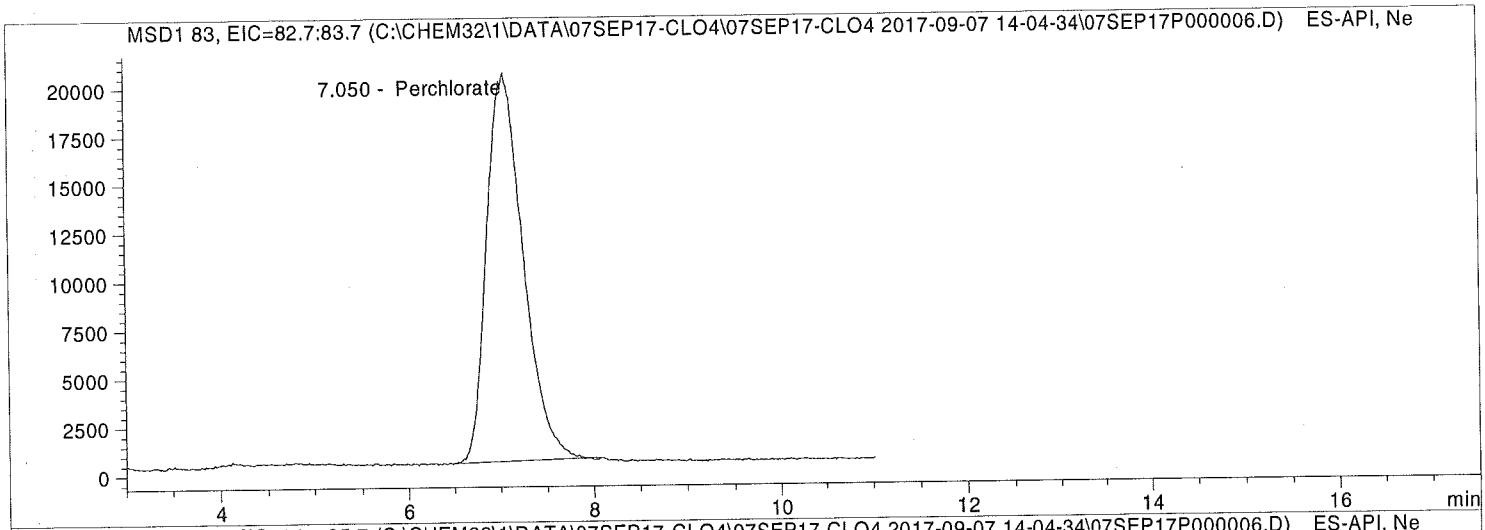
*** End of Report ***

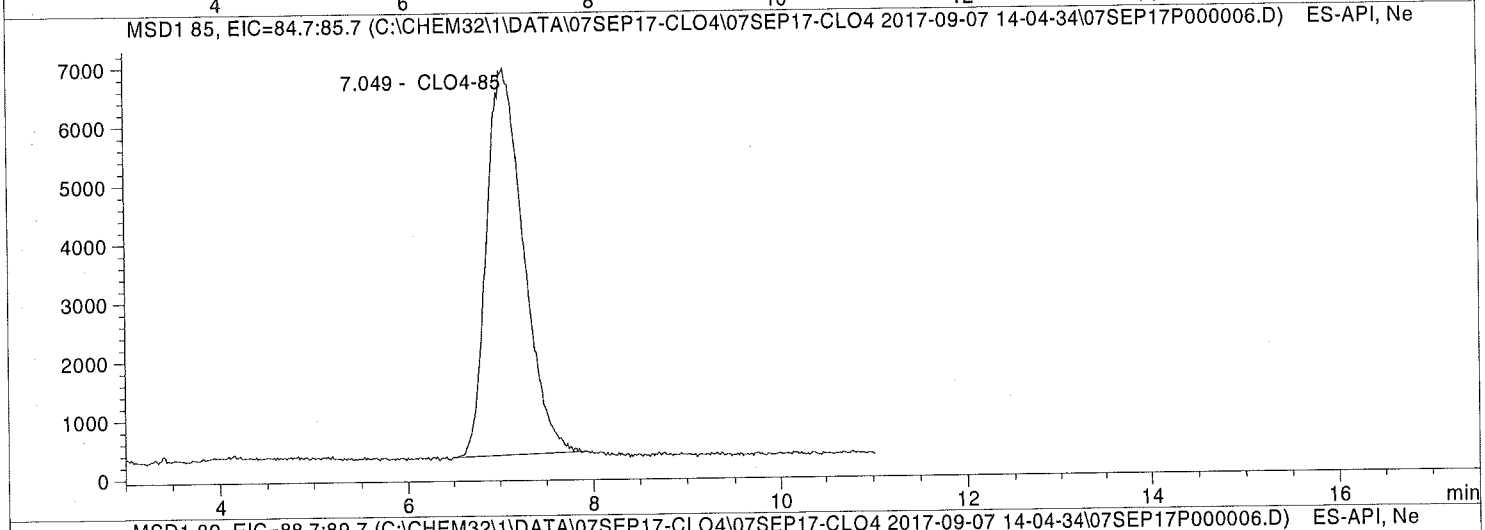
Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICL6@10ug/L

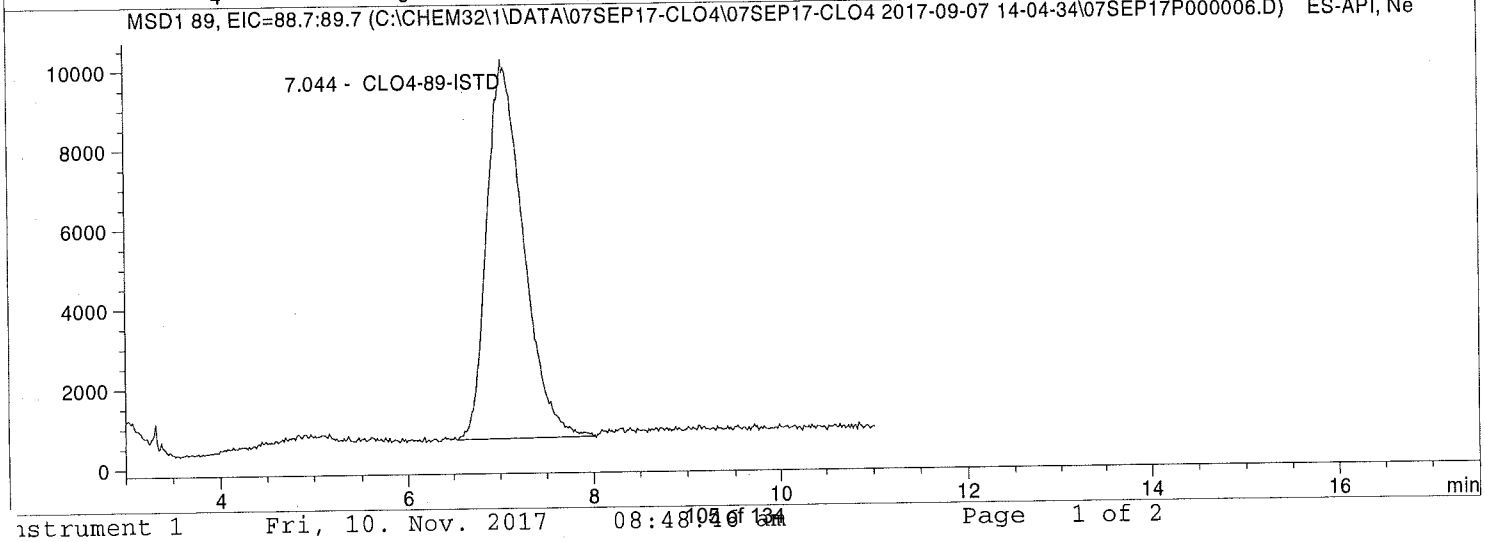
| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 15:11:37 | Seq Line: | 6 |
| Sample Name: | CLO4 ICL6@10ug/L | Location: | Vial 66 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate



Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICL6@10ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 15:11:37 | Seq Line: | 6 |
| Sample Name: | CLO4 ICL6@10ug/L | Location: | Vial 66 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 10.000 ug/L |

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.050 | BB | 544568.7 | 9.3543 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.049 | BB | 181130.7 | 9.3751 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.044 | BB | 258442.5 | 5.0000 | CLO4-89-ISTD |

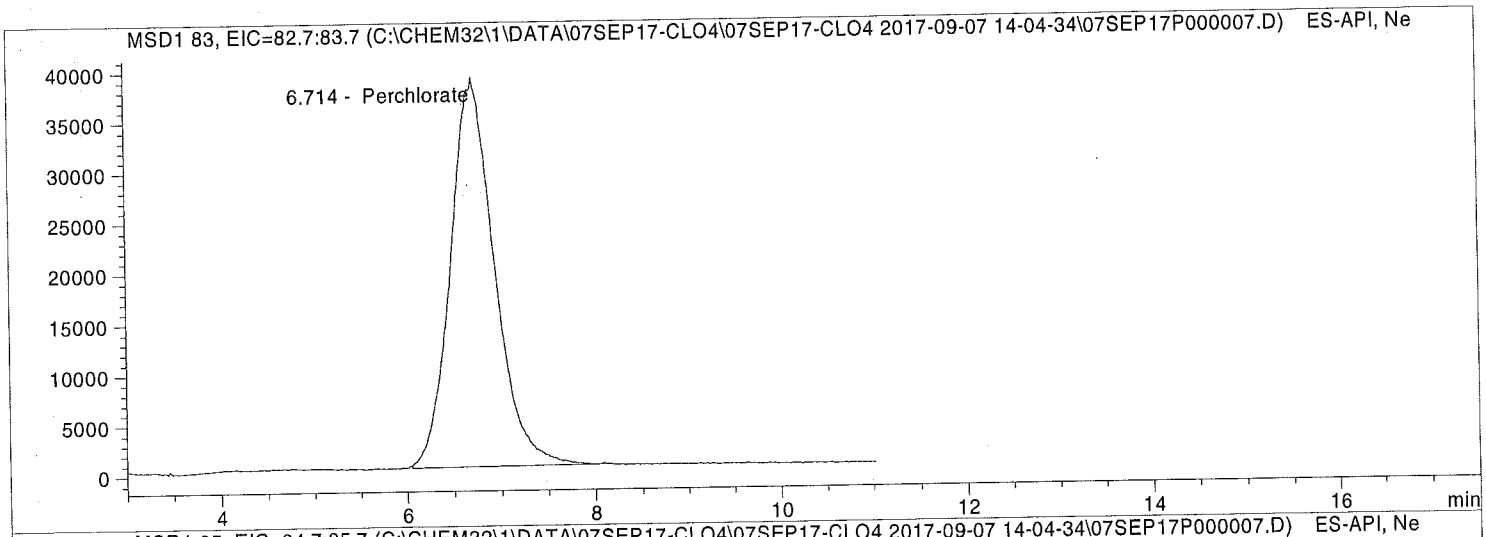
*** End of Report ***

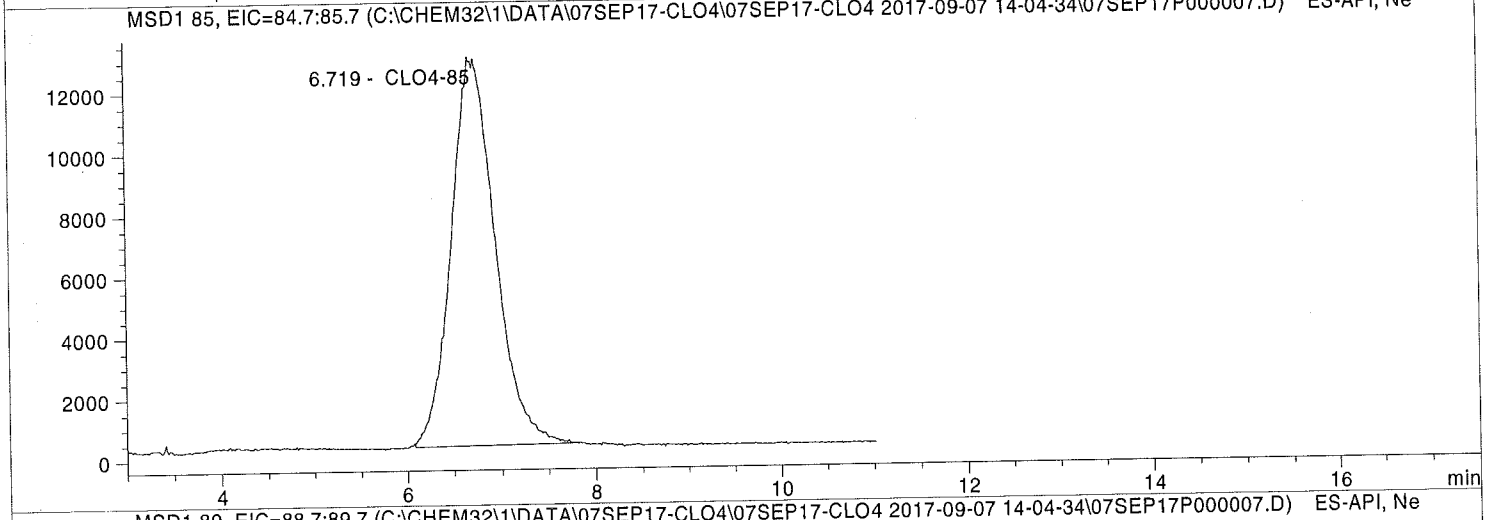
Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICL7@25ug/L

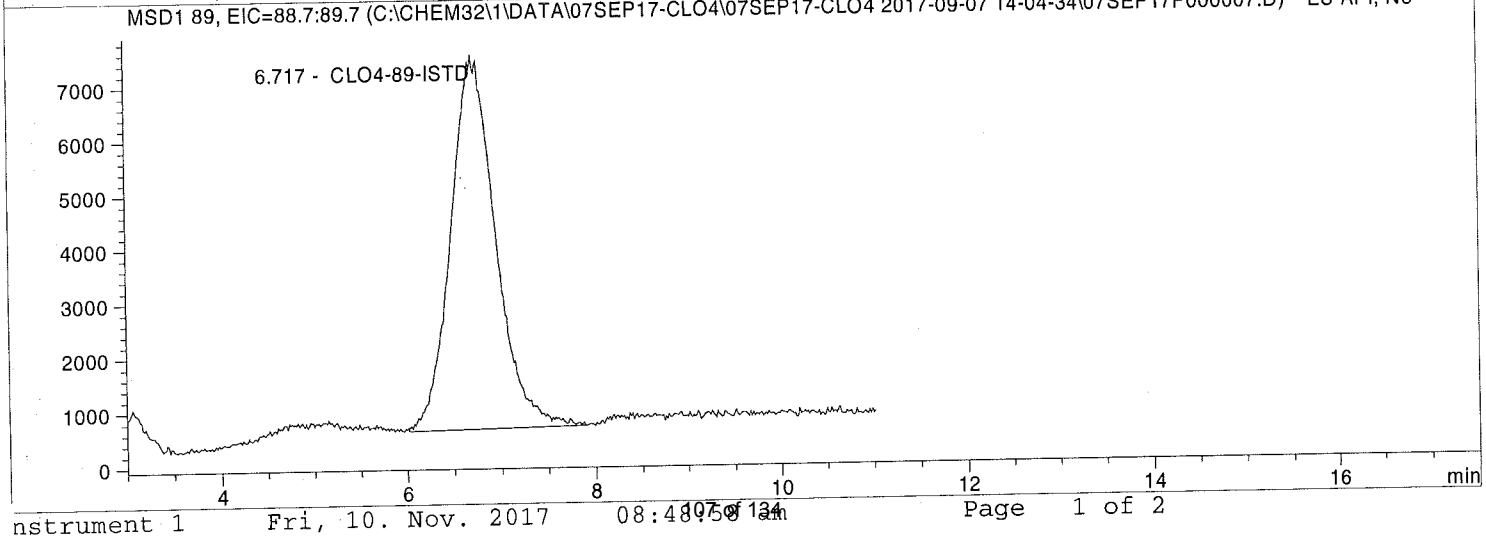
| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 15:24:10 | Seq Line: | 7 |
| Sample Name: | CLO4 ICL7@25ug/L | Location: | Vial 67 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate



Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICL7@25ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 15:24:10 | Seq Line: | 7 |
| Sample Name: | CLO4 ICL7@25ug/L | Location: | Vial 67 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 25.000 ug/L |

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.714 | BB | 1237741.4 | 24.5508 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.719 | BB | 406716.0 | 24.0907 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.717 | BB | 223812.6 | 5.0000 | CLO4-89-ISTD |

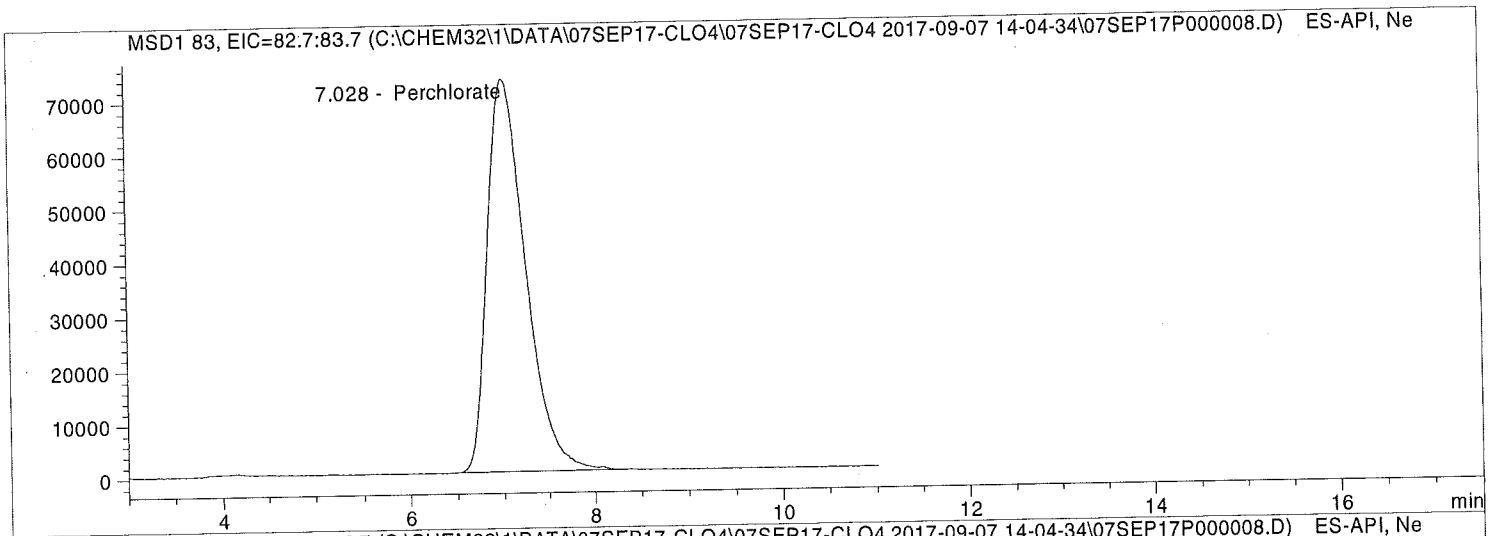
*** End of Report ***

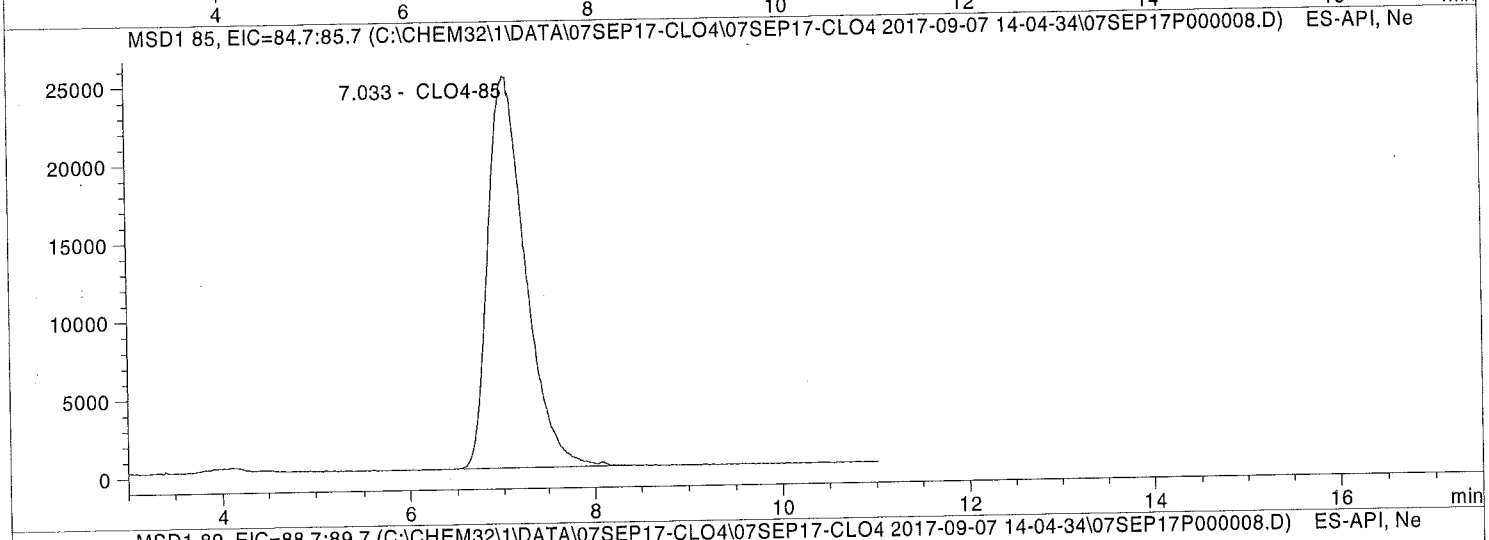
Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICL8@50ug/L

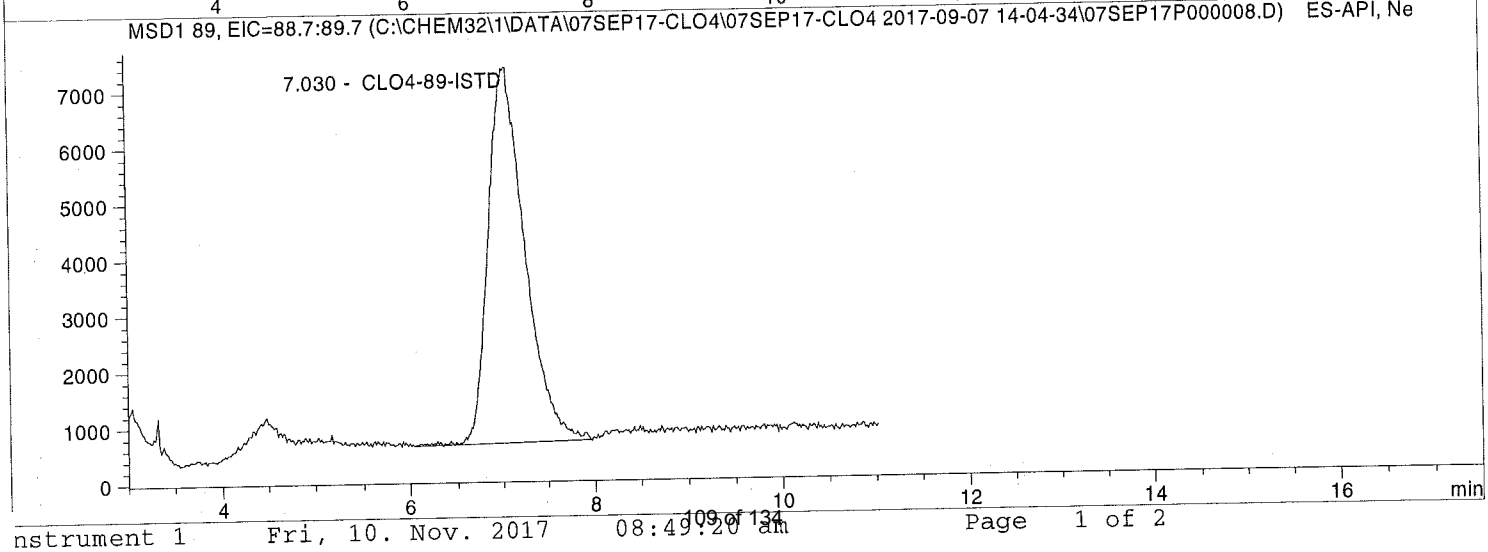
| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 15:36:44 | Seq Line: | 8 |
| Sample Name: | CLO4 ICL8@50ug/L | Location: | Vial 68 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate



Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICL8@50ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 15:36:44 | Seq Line: | 8 |
| Sample Name: | CLO4 ICL8@50ug/L | Location: | Vial 68 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 50.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.028 | BB | 2127413.5 | 49.7272 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.033 | BB | 717685.7 | 49.9479 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.030 | BB | 189923.4 | 5.0000 | CLO4-89-ISTD |

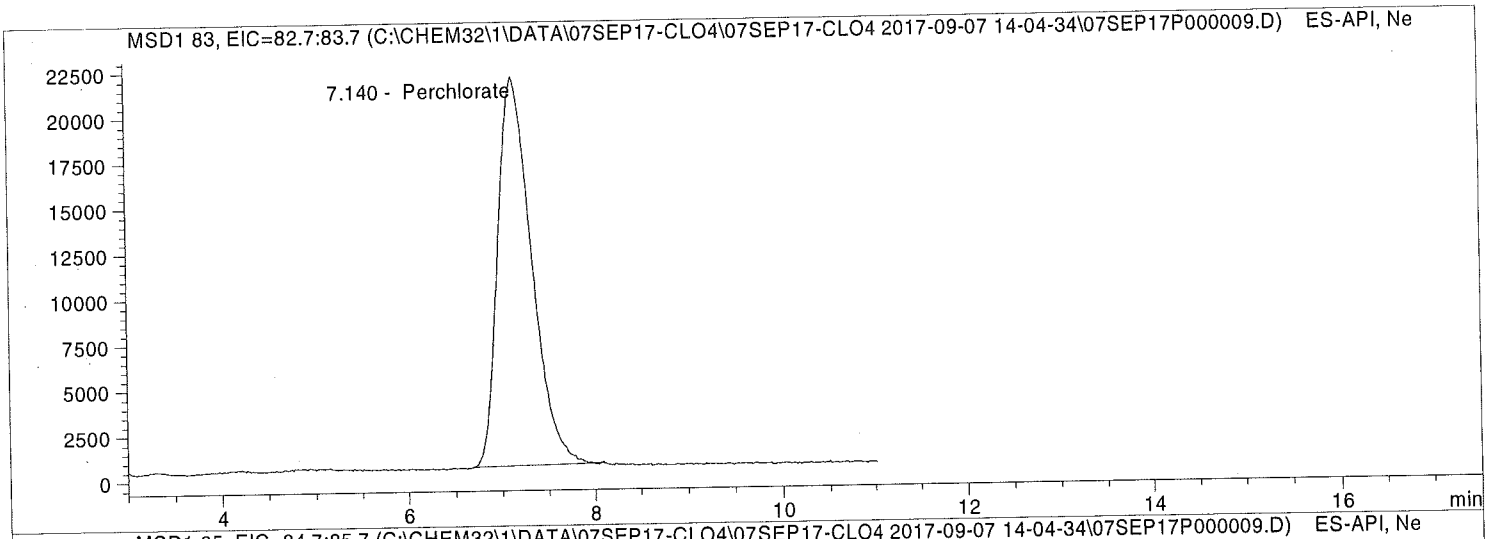
*** End of Report ***

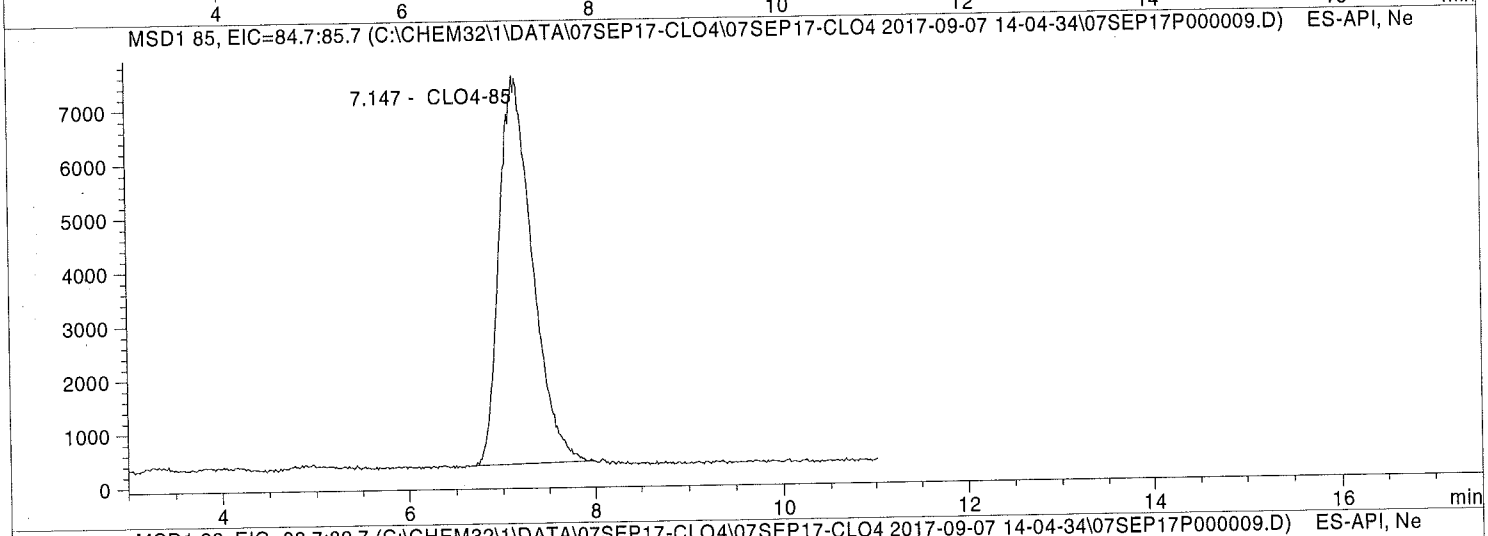
Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICV@10ug/L

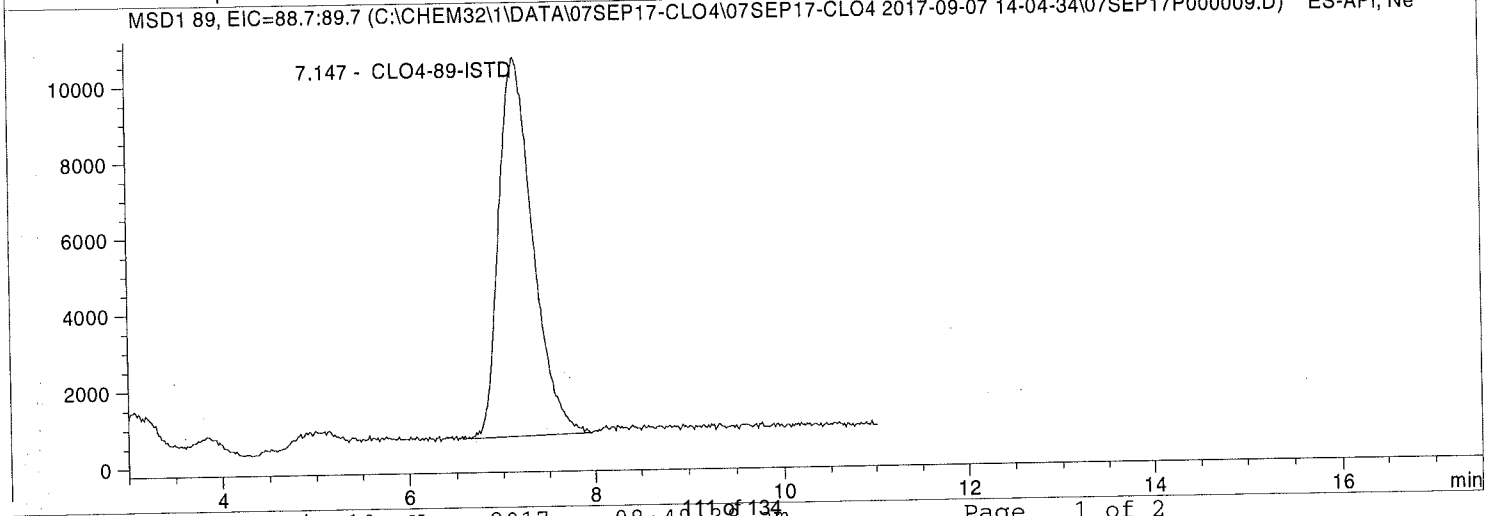
| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 15:49:16 | Seq Line: | 9 |
| Sample Name: | CLO4 ICV@10ug/L | Location: | Vial 69 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate



Data file: C:\CHEM32\1\DATA\07SEP17-CLO4\07SEP17-CL-> Sample Name: CLO4 ICV@10ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 9/07/2017 15:49:16 | Seq Line: | 9 |
| Sample Name: | CLO4 ICV@10ug/L | Location: | Vial 69 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\07SEP17-CLO4\07SEP17-CLO4 2017-09-->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 10.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.140 | BB | 540254.9 | 9.4943 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.147 | BB | 179189.6 | 9.4870 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.147 | BB | 252613.8 | 5.0000 | CLO4-89-ISTD |

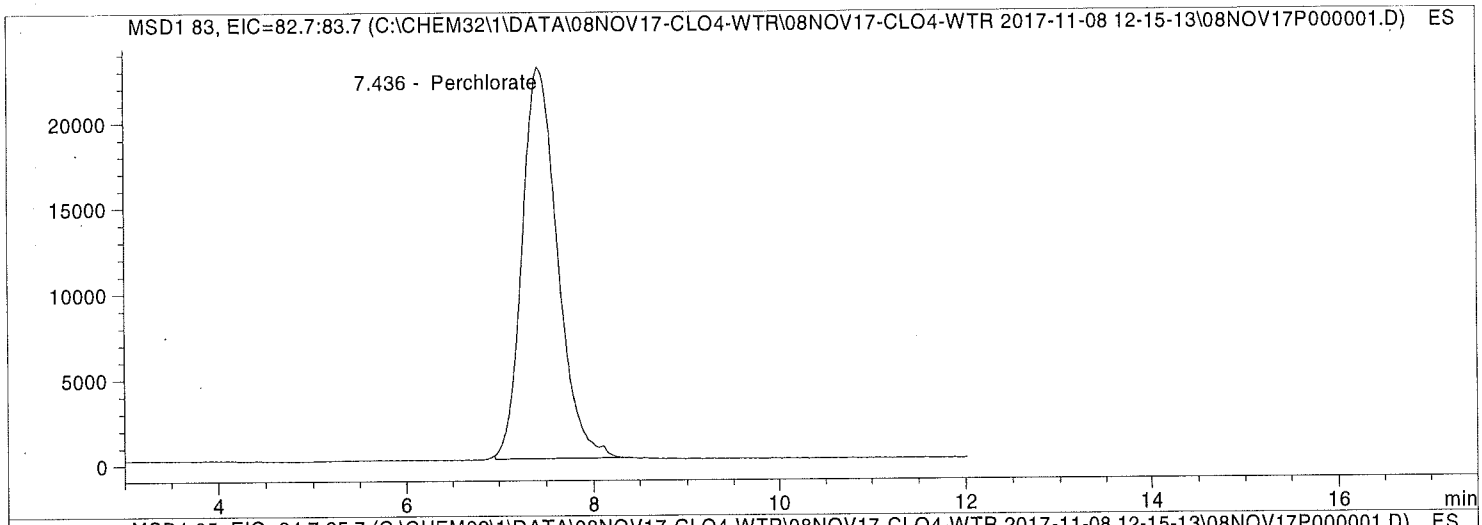
*** End of Report ***

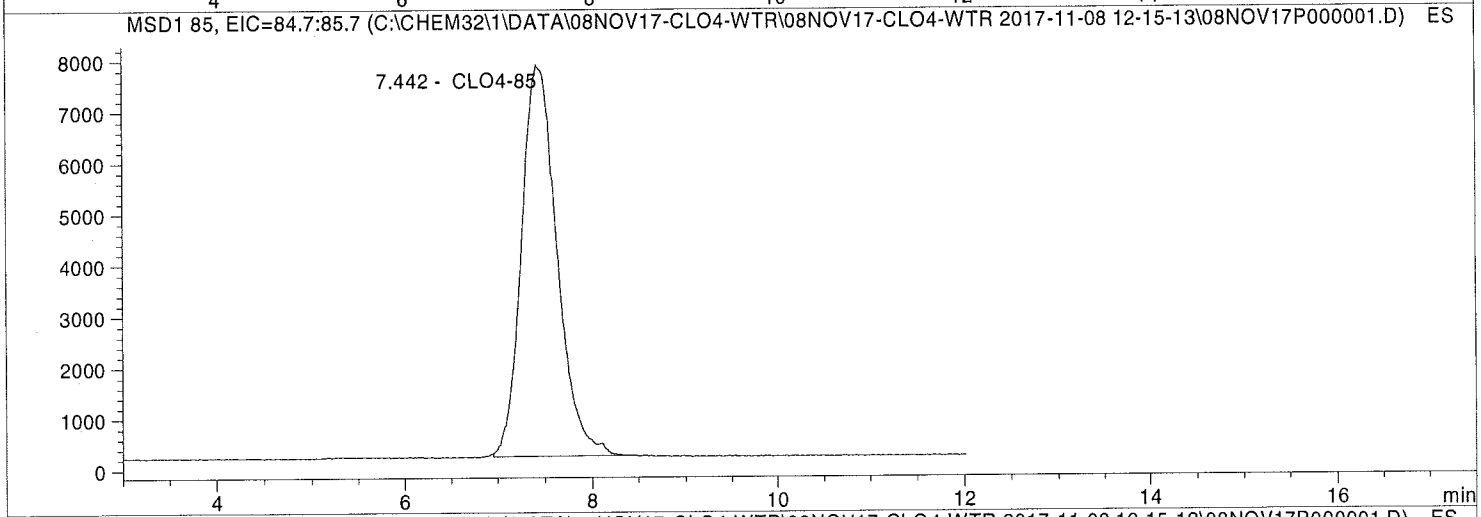
Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573324 CCV@25

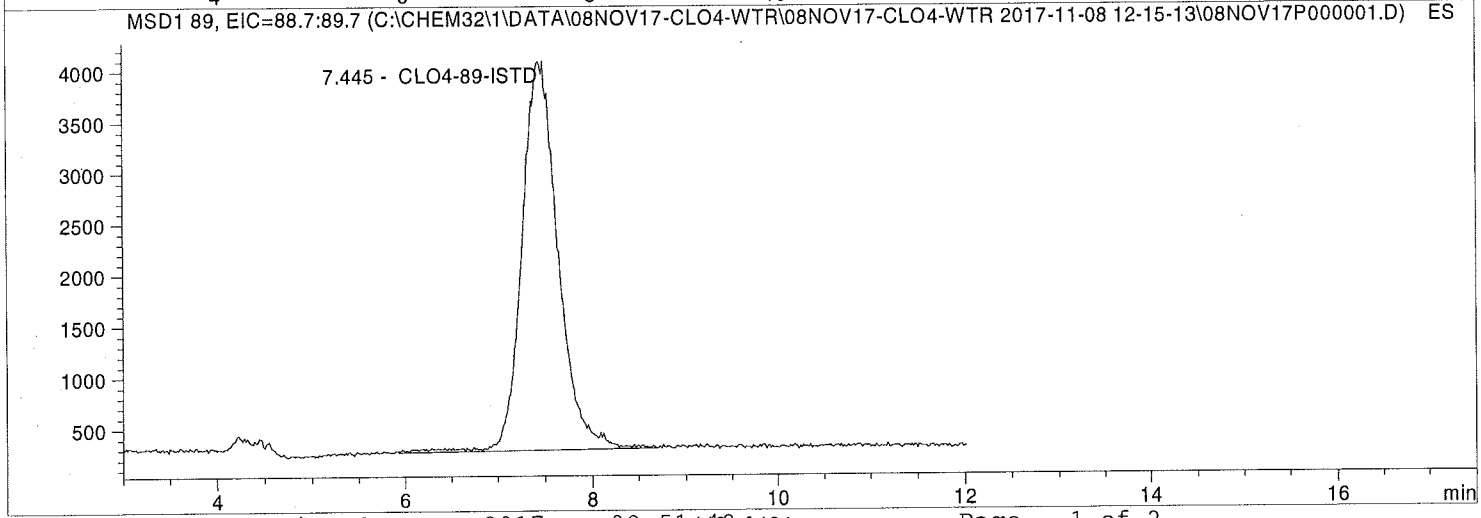
| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 12:15:37 | Seq Line: | 1 |
| Sample Name: | 573324 CCV@25 | Location: | Vial 71 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate



Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573324 CCV@25

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 12:15:37 | Seq Line: | 1 |
| Sample Name: | 573324 CCV@25 | Location: | Vial 71 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 25.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.436 | BB | 590307.4 | 26.0255 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.442 | BB | 198194.5 | 26.0822 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.445 | BB | 100693.2 | 5.0000 | CLO4-89-ISTD |

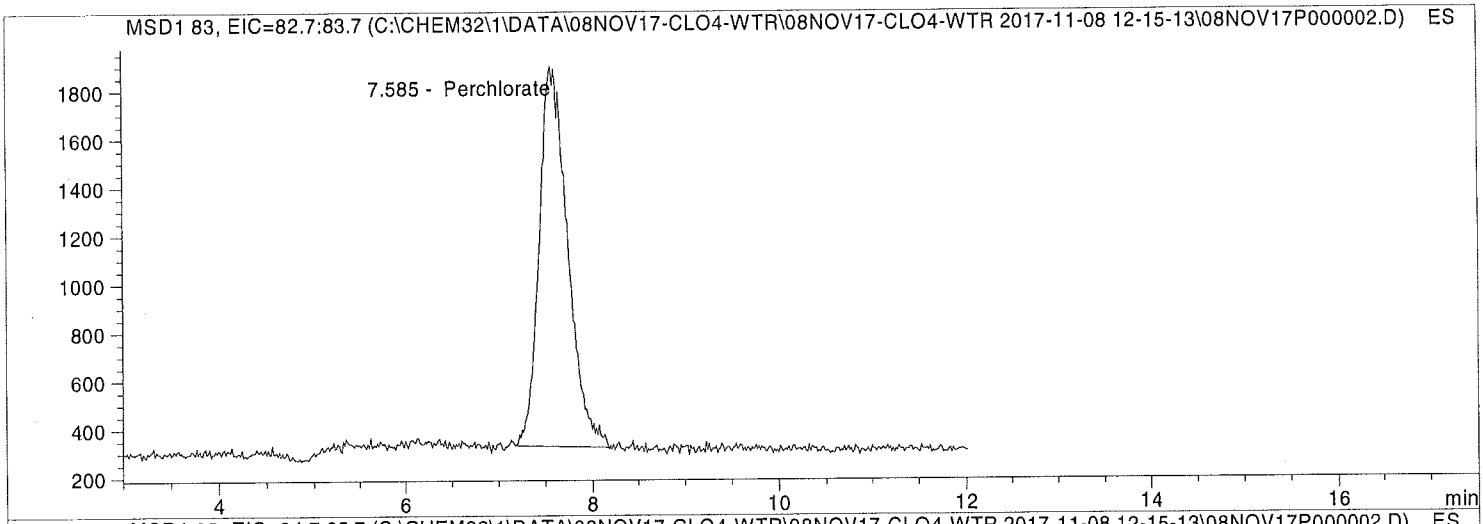
*** End of Report ***

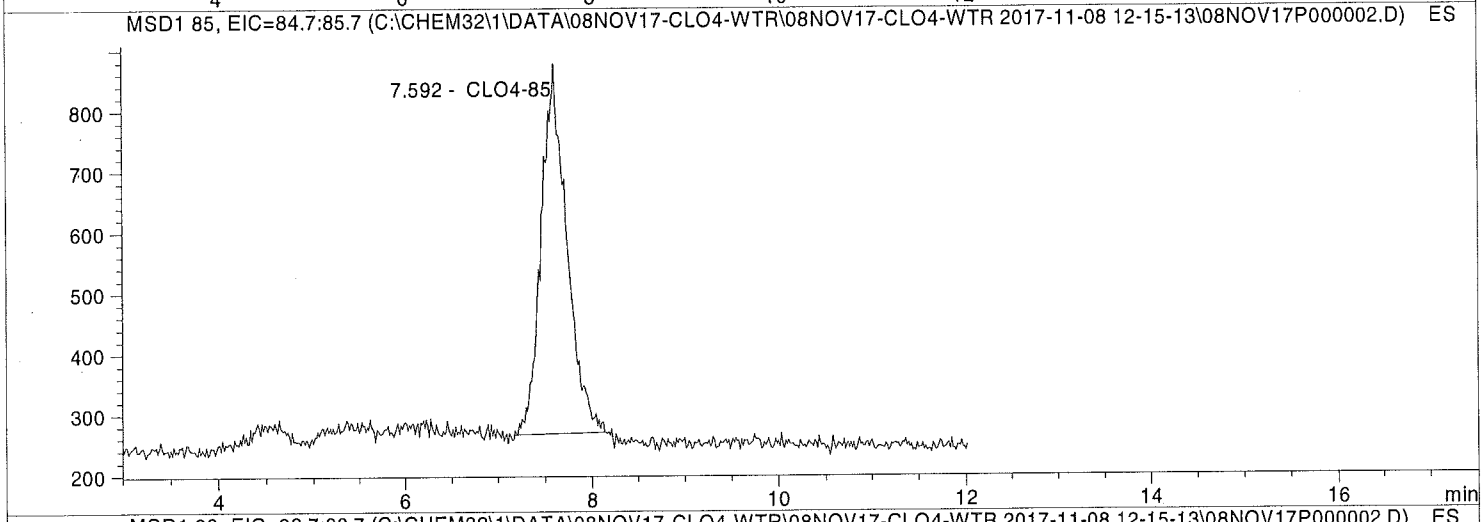
Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573325 LODV@1.

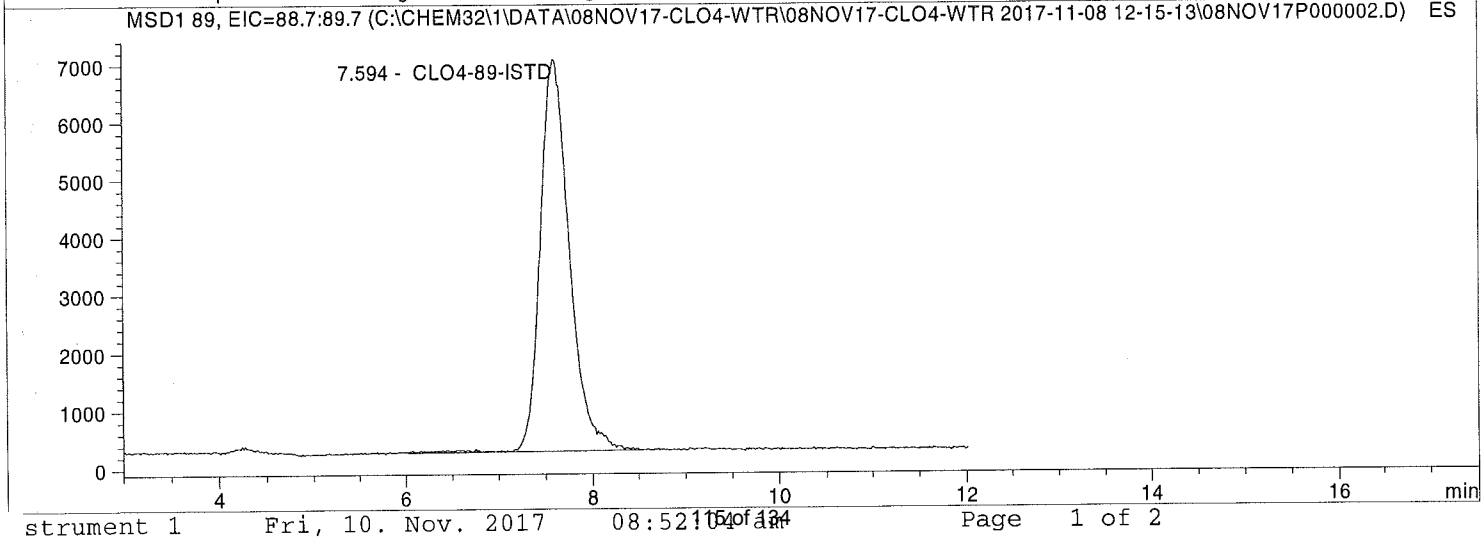
| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 12:29:08 | Seq Line: | 2 |
| Sample Name: | 573325 LODV@1. | Location: | Vial 72 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate



Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573325 LODV@1.

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 12:29:08 | Seq Line: | 2 |
| Sample Name: | 573325 LODV@1. | Location: | Vial 72 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 1.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.585 | BB | 32865.5 | 1.0026 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.592 | BB | 11391.3 | 1.1685 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.594 | BB | 145516.9 | 5.0000 | CLO4-89-ISTD |

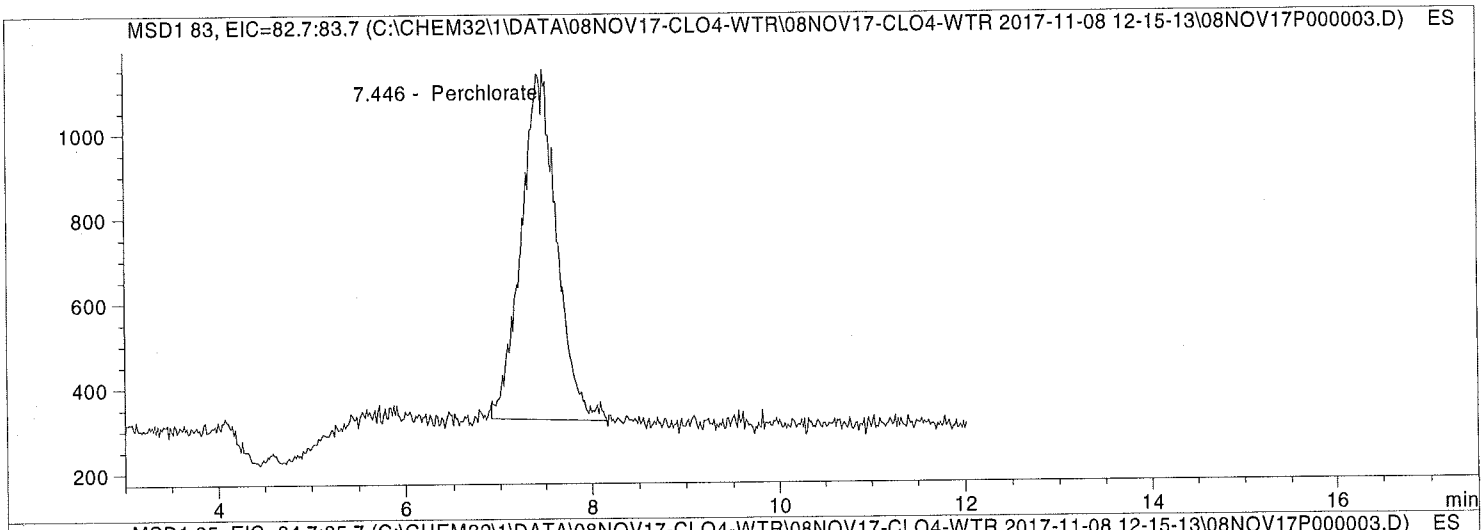
*** End of Report ***

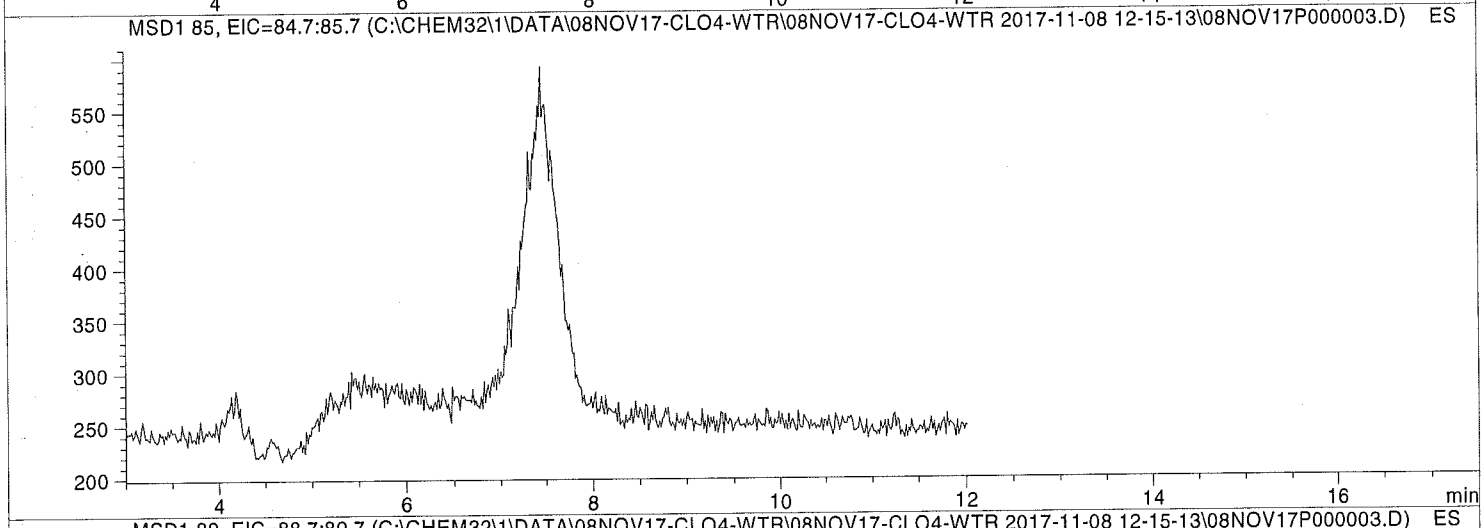
Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573326 ICS@1.0

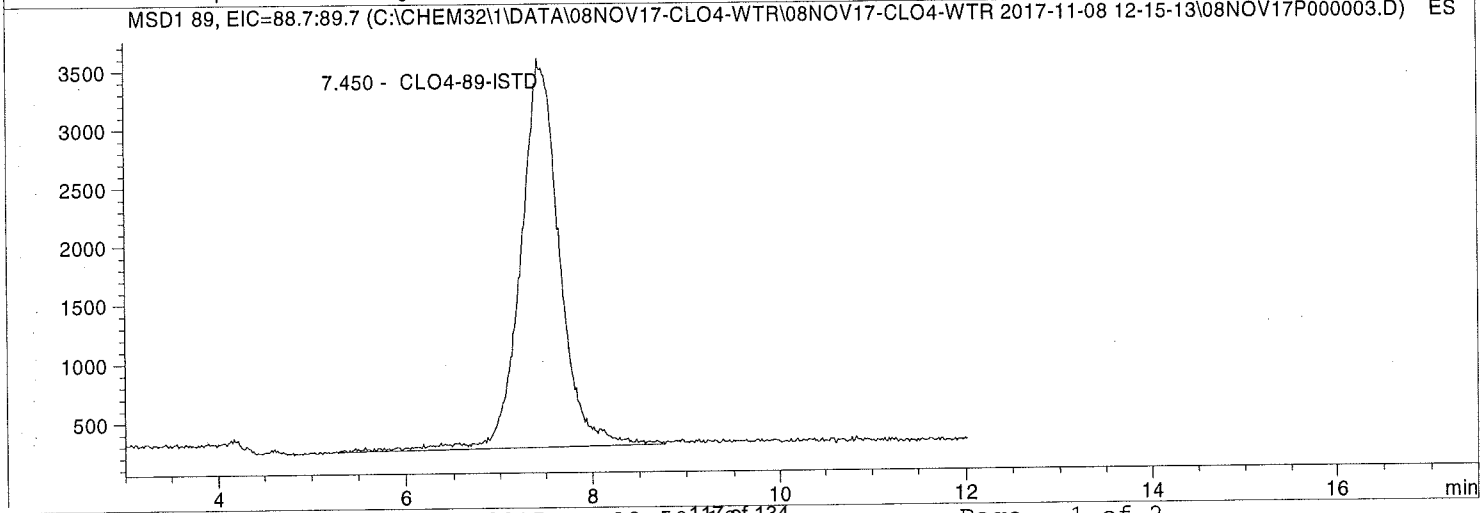
| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 12:42:38 | Seq Line: | 3 |
| Sample Name: | 573326 ICS@1.0 | Location: | Vial 73 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate



Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573326 ICS@1.0

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 12:42:38 | Seq Line: | 3 |
| Sample Name: | 573326 ICS@1.0 | Location: | Vial 73 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 1.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.446 | BB | 22017.6 | 1.0080 | 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 |
|---|---|---|---|---|
| 7.450 | BB | 96968.0 | 5.0000 | CLO4-89-ISTD |

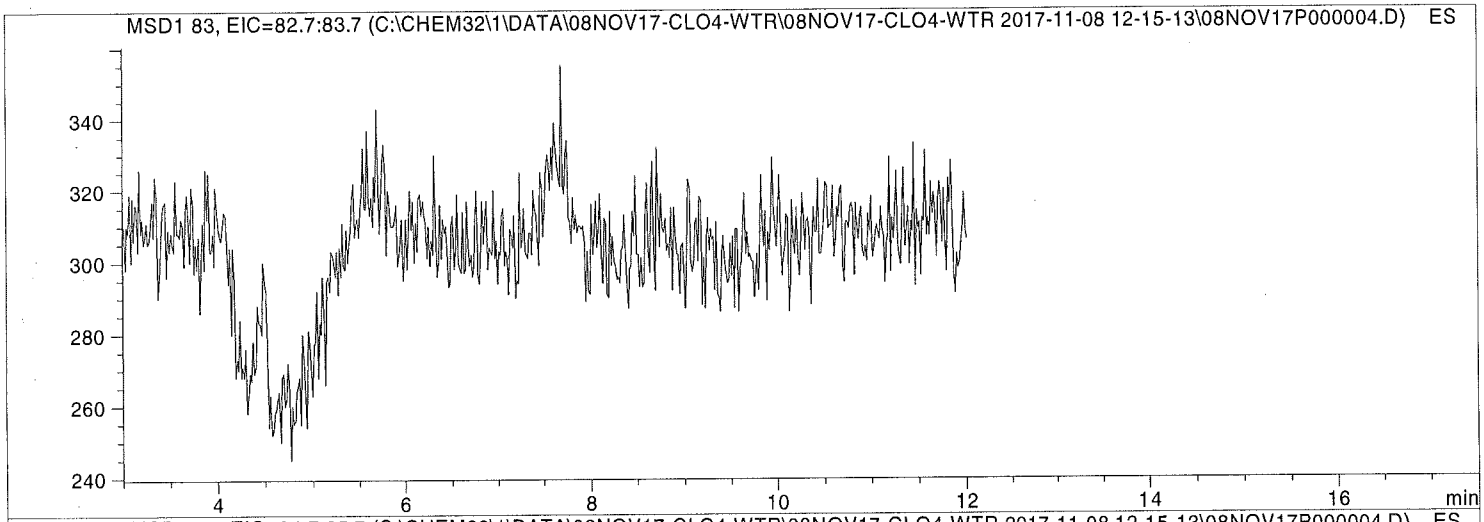
*** End of Report ***

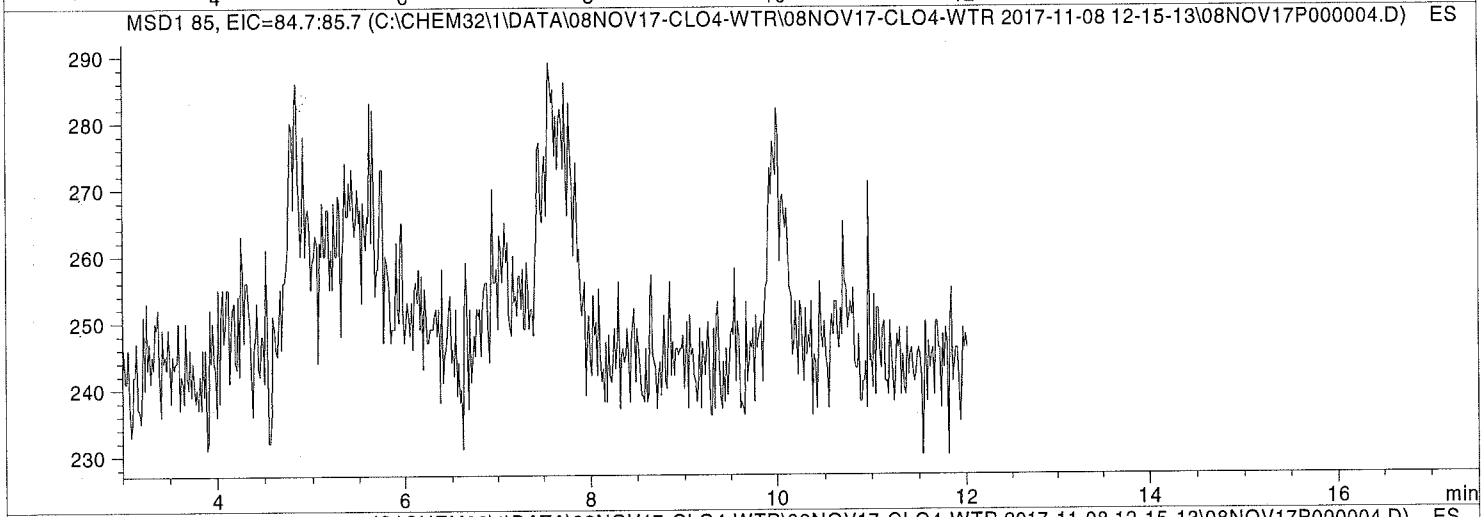
Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573327 LMB

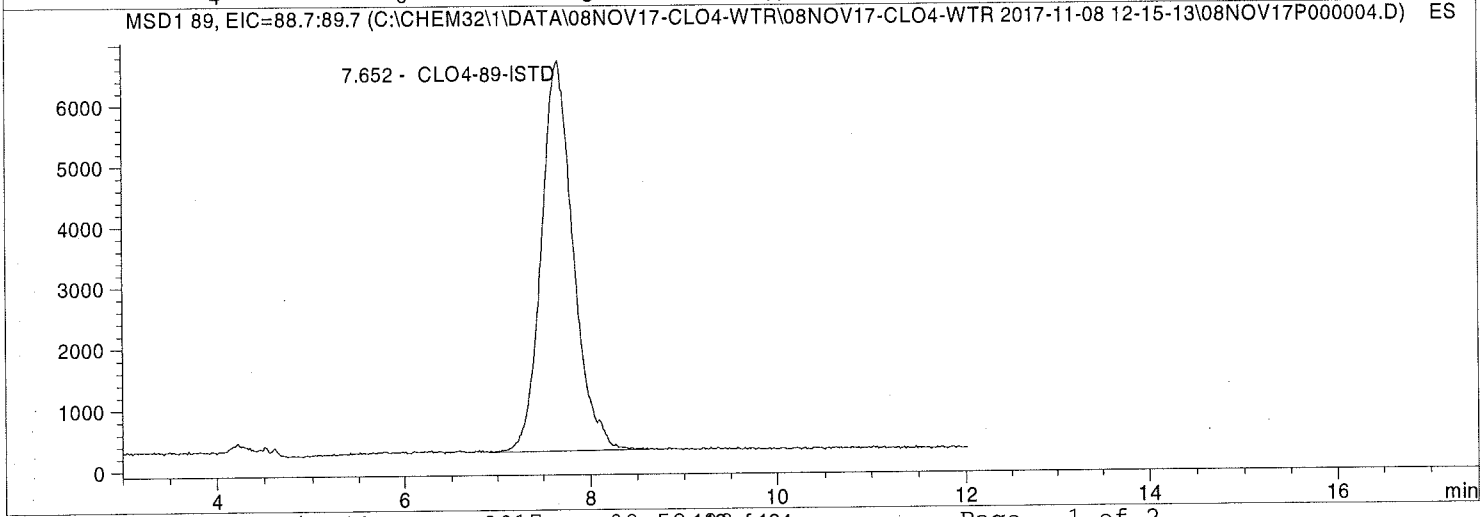
| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 12:56:08 | Seq Line: | 4 |
| Sample Name: | 573327 LMB | Location: | Vial 74 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate



Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573327 LMB

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 12:56:08 | Seq Line: | 4 |
| Sample Name: | 573327 LMB | Location: | Vial 74 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.000 ug/L |

## 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 |
|---|---|---|---|---|
| 7.652 | BB | 151053.9 | 5.0000 | CLO4-89-ISTD |

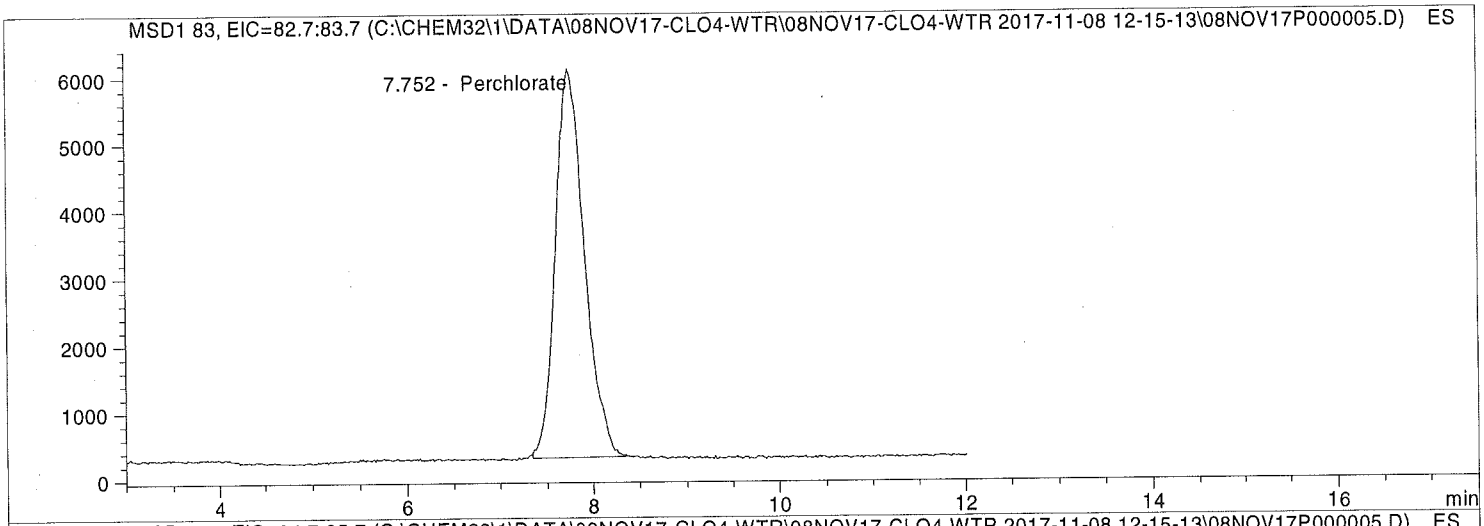
*** End of Report ***

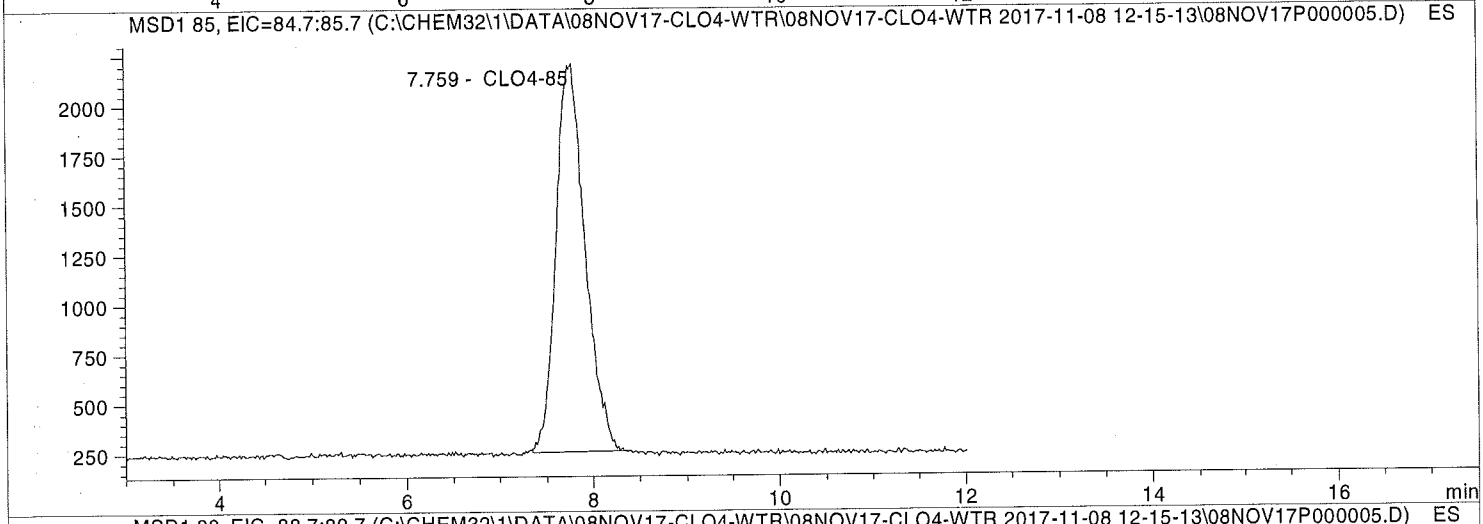
Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573328 QC@5.0

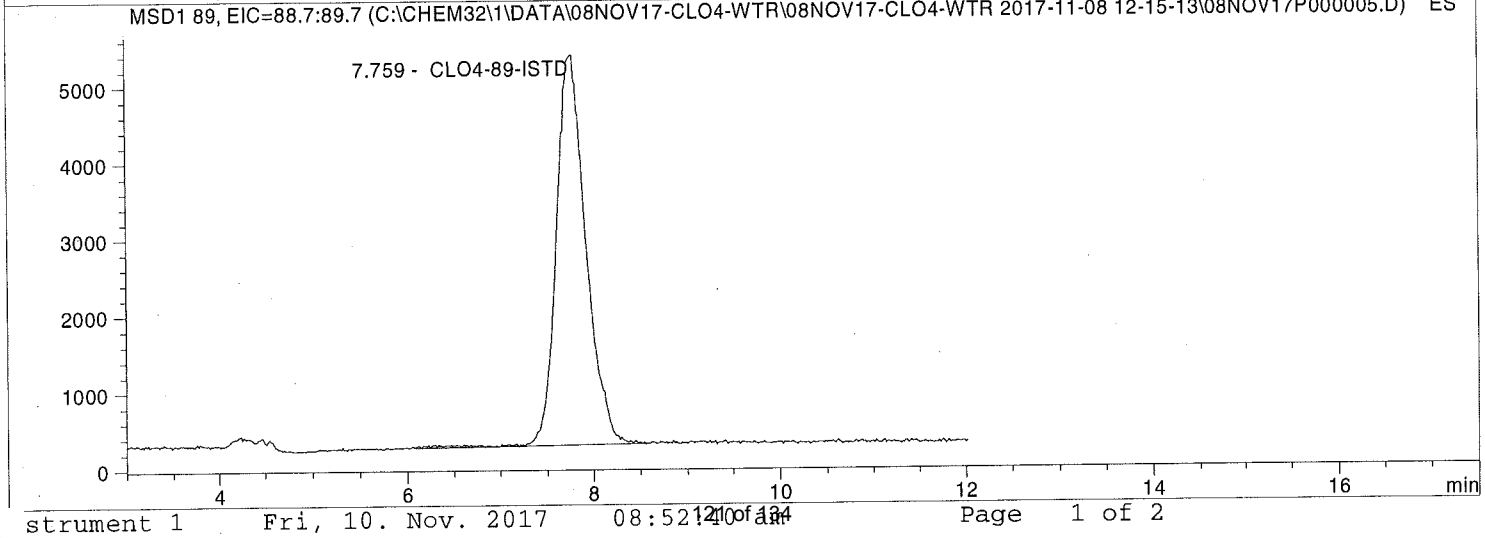
| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 13:09:44 | Seq Line: | 5 |
| Sample Name: | 573328 QC@5.0 | Location: | Vial 75 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate



Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573328 QC@5.0

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 13:09:44 | Seq Line: | 5 |
| Sample Name: | 573328 QC@5.0 | Location: | Vial 75 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 5.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.752 | BB | 127003.5 | 4.9213 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.759 | BB | 43088.4 | 5.0943 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.759 | BB | 114566.0 | 5.0000 | CLO4-89-ISTD |

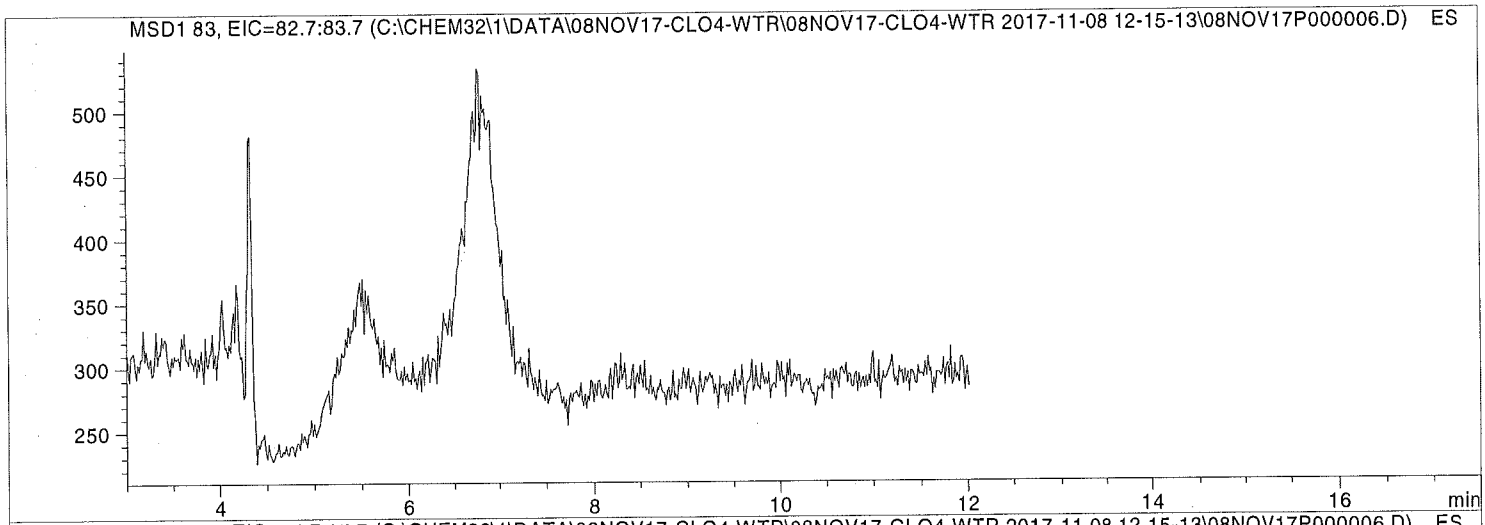
*** End of Report ***

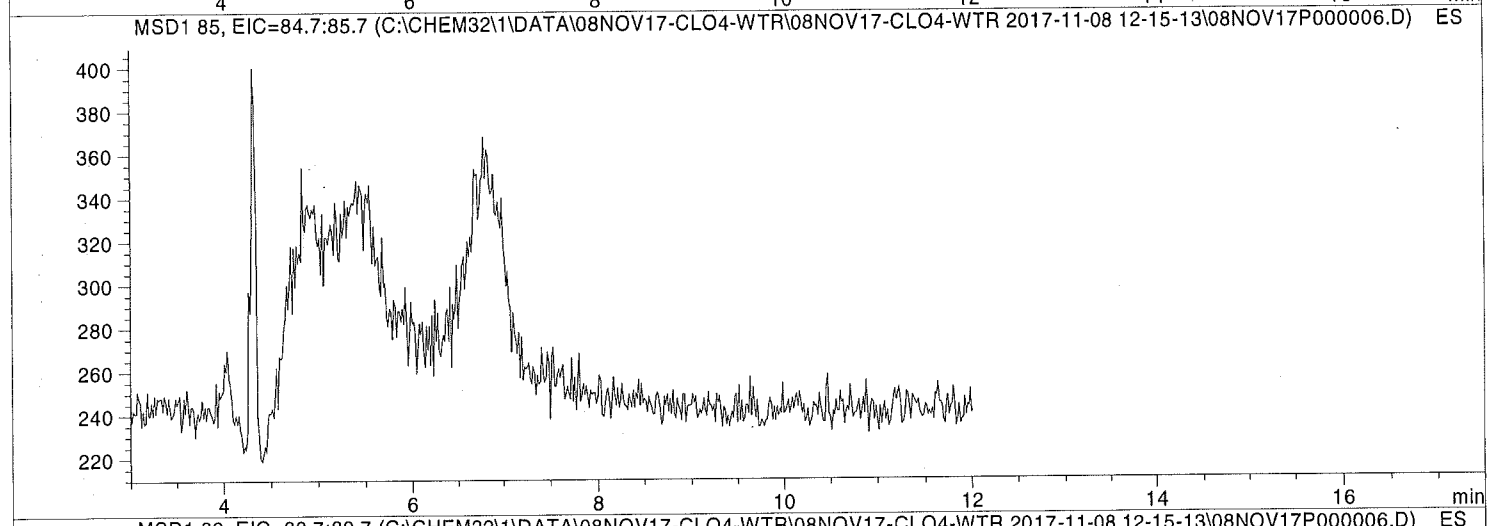
Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 1730040001

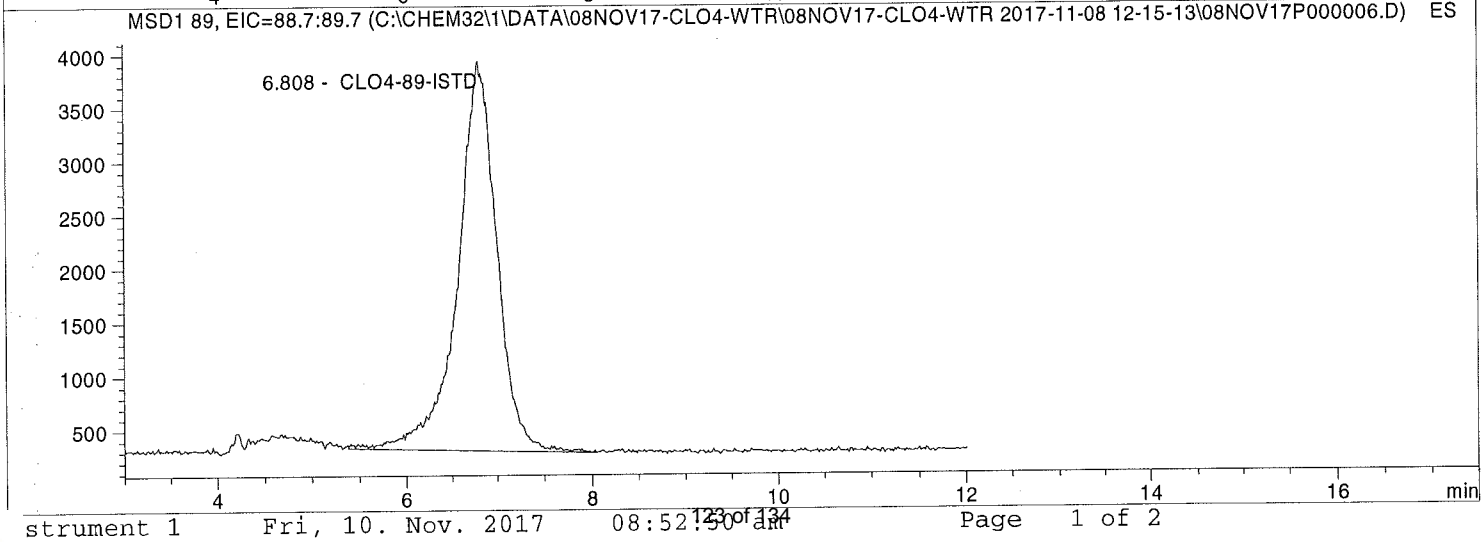
| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 13:23:17 | Seq Line: | 6 |
| Sample Name: | 1730040001 | Location: | Vial 76 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate



Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 1730040001

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 13:23:17 | Seq Line: | 6 |
| Sample Name: | 1730040001 | Location: | Vial 76 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.000 ug/L |

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 |
|---|---|---|---|---|
| 6.808 | BB | 108232.1 | 5.0000 | CLO4-89-ISTD |

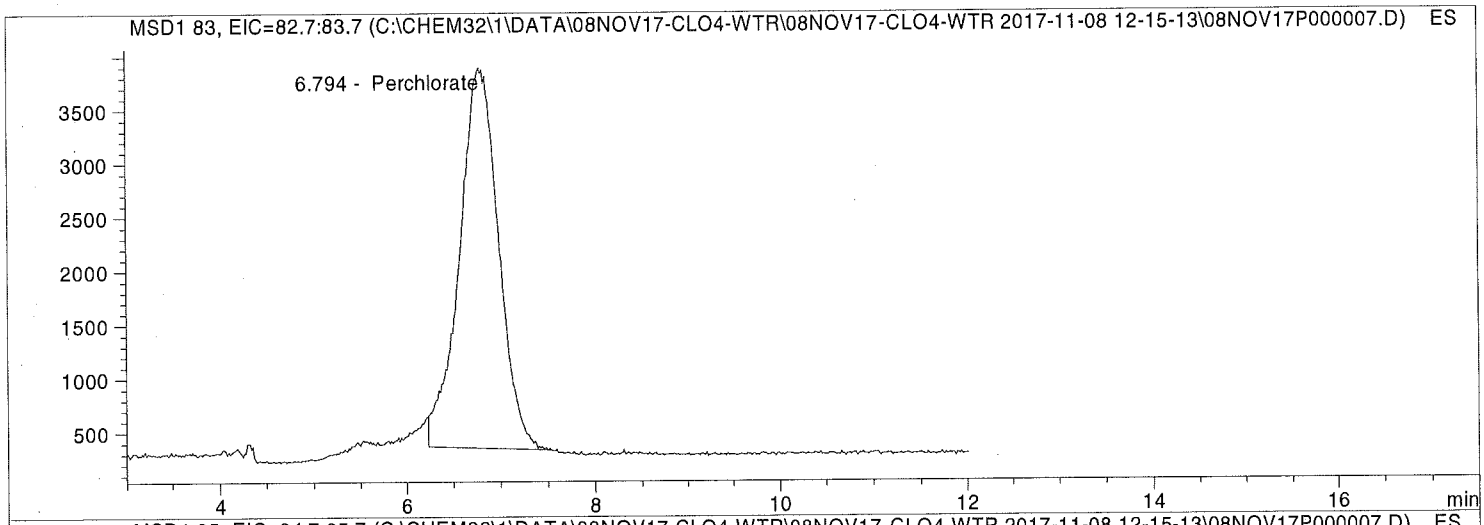
*** End of Report ***

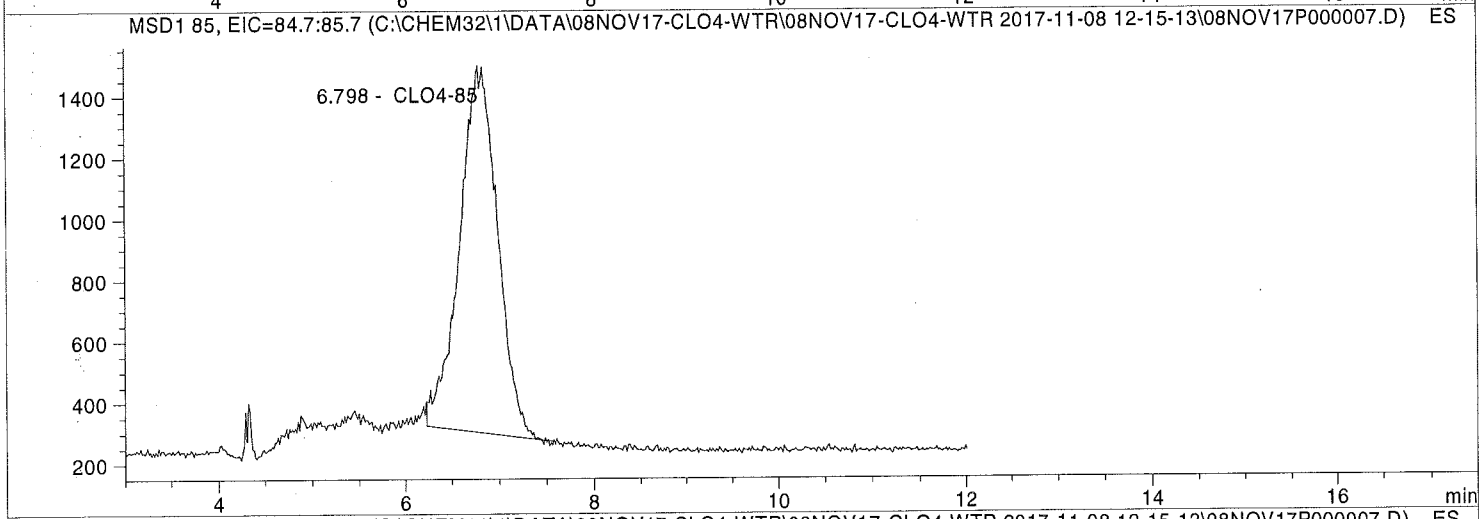
Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573329 300401MS

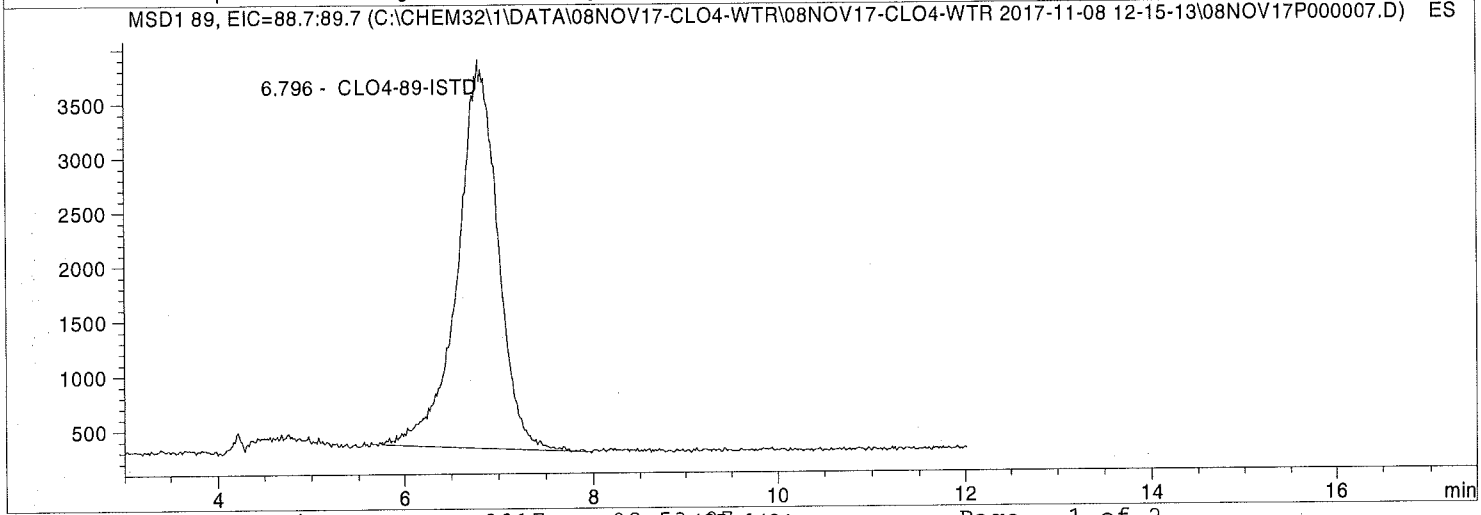
| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 13:36:49 | Seq Line: | 7 |
| Sample Name: | 573329 300401MS | Location: | Vial 77 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate



Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573329 300401MS

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 13:36:49 | Seq Line: | 7 |
| Sample Name: | 573329 300401MS | Location: | Vial 77 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.794 | BB | 101567.5 | 4.3014 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.798 | BB | 33269.3 | 4.3202 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.796 | BB | 104824.2 | 5.0000 | CLO4-89-ISTD |

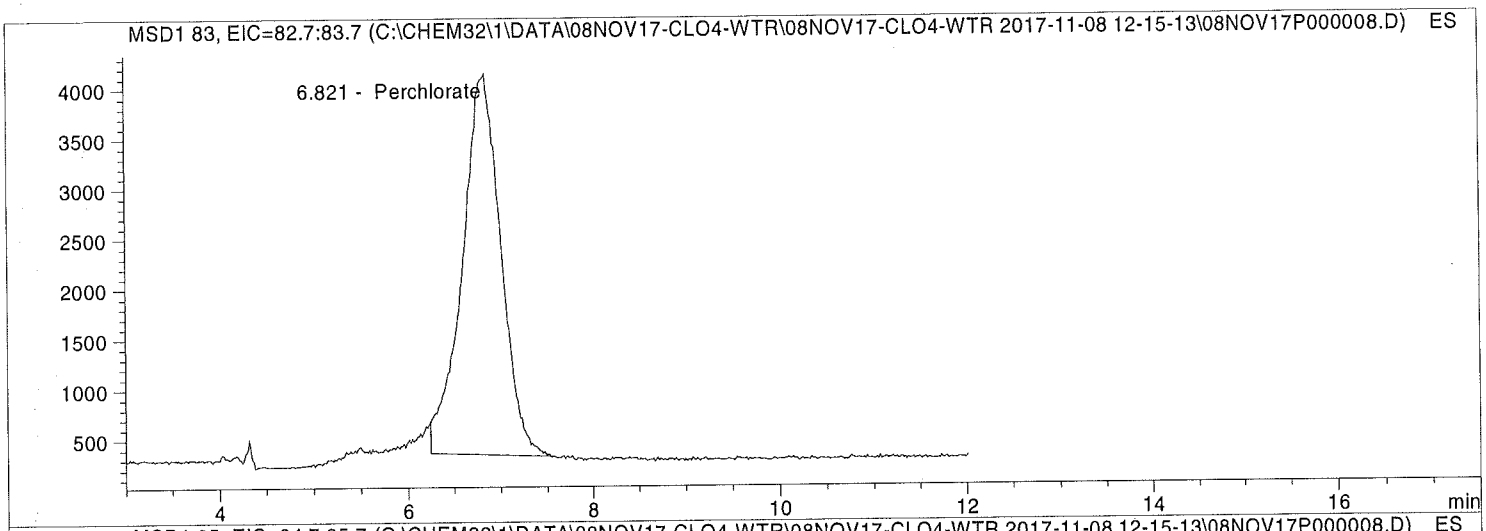
*** End of Report ***

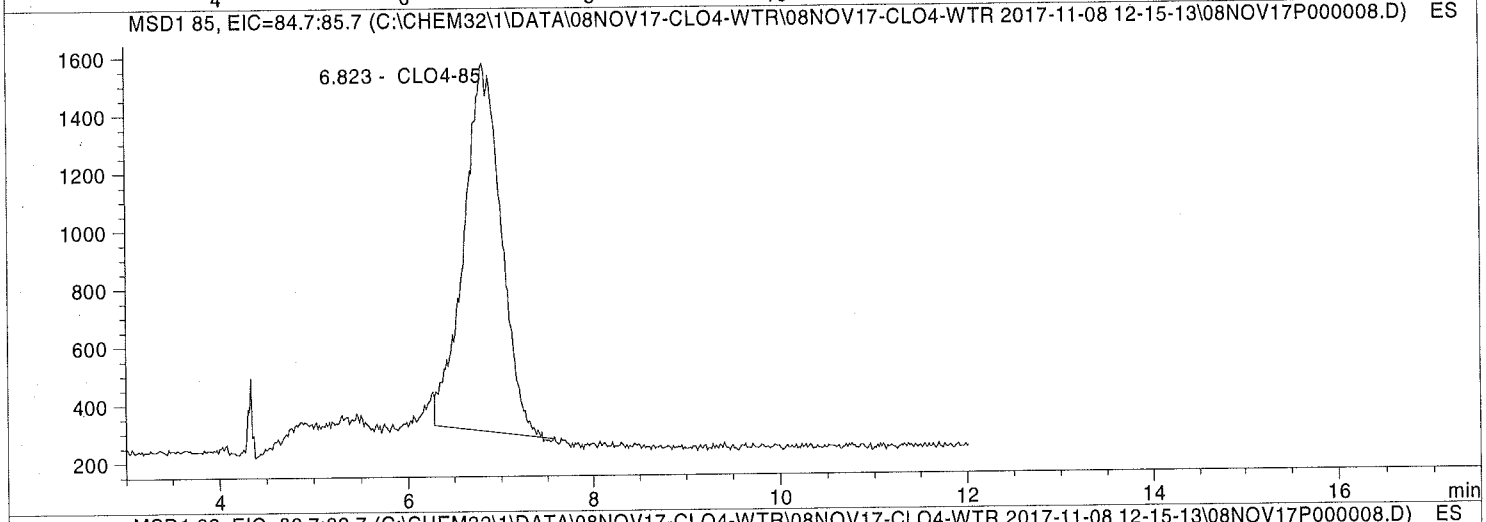
Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573330 300401MSD

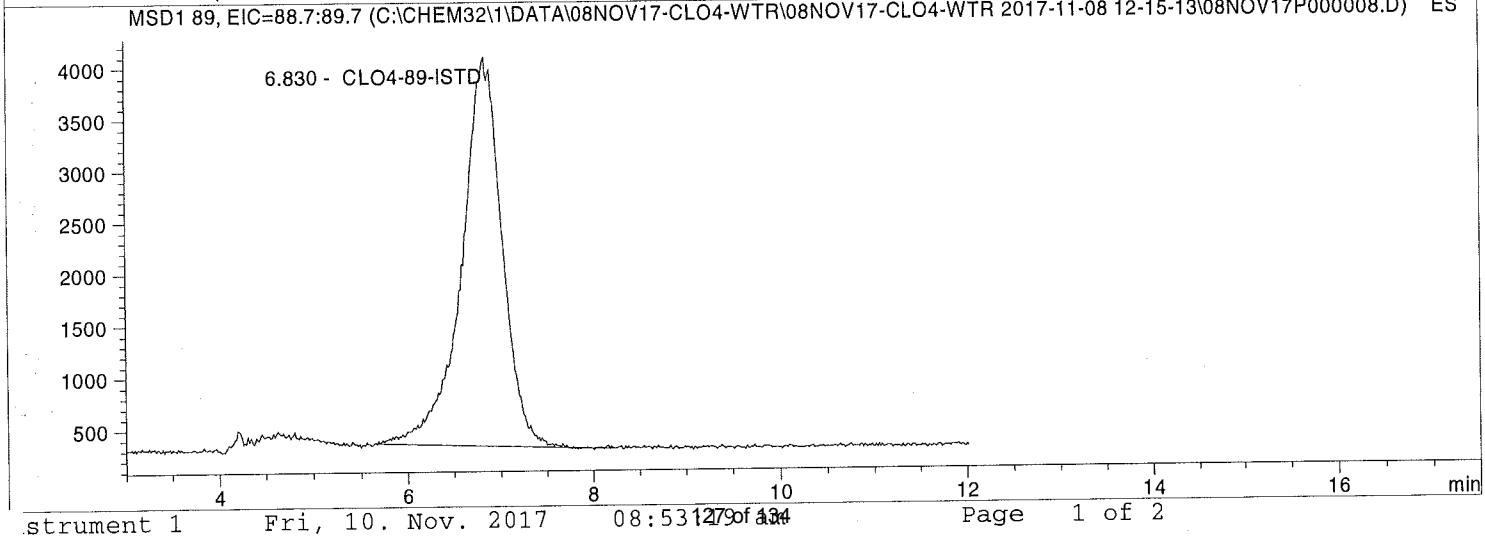
| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 13:50:22 | Seq Line: | 8 |
| Sample Name: | 573330 300401MSD | Location: | Vial 78 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate



Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573330 300401MSD

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 13:50:22 | Seq Line: | 8 |
| Sample Name: | 573330 300401MSD | Location: | Vial 78 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.821 | BB | 108402.3 | 4.2657 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.823 | BB | 35099.2 | 4.2377 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 6.830 | BB | 112815.7 | 5.0000 | CLO4-89-ISTD |

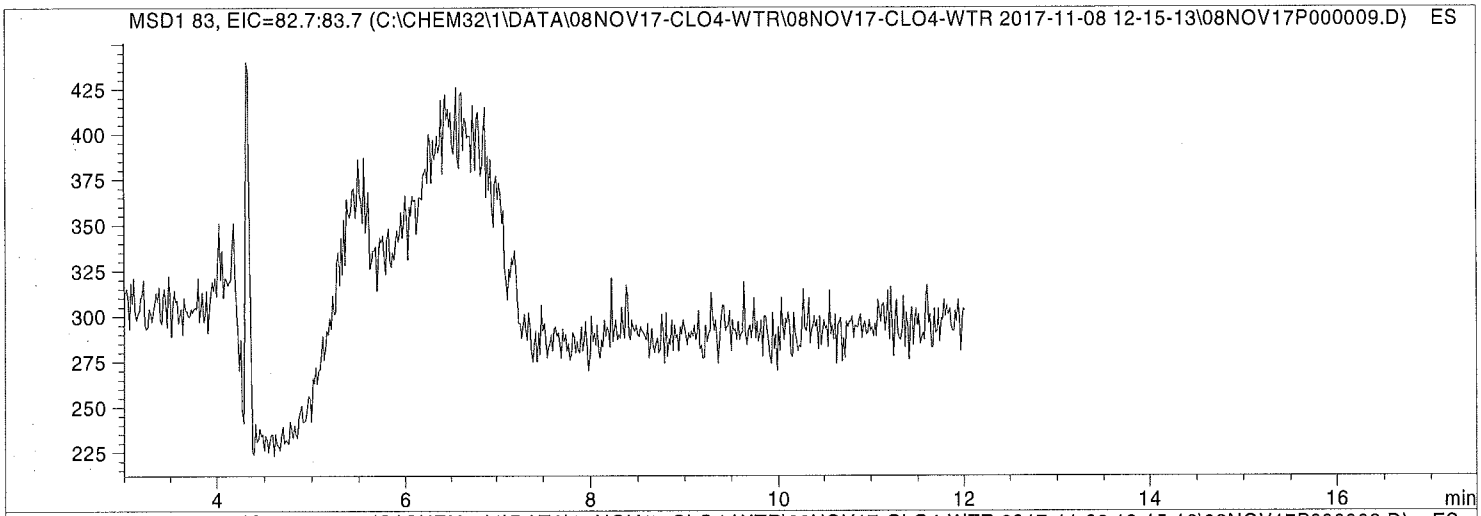
*** End of Report ***

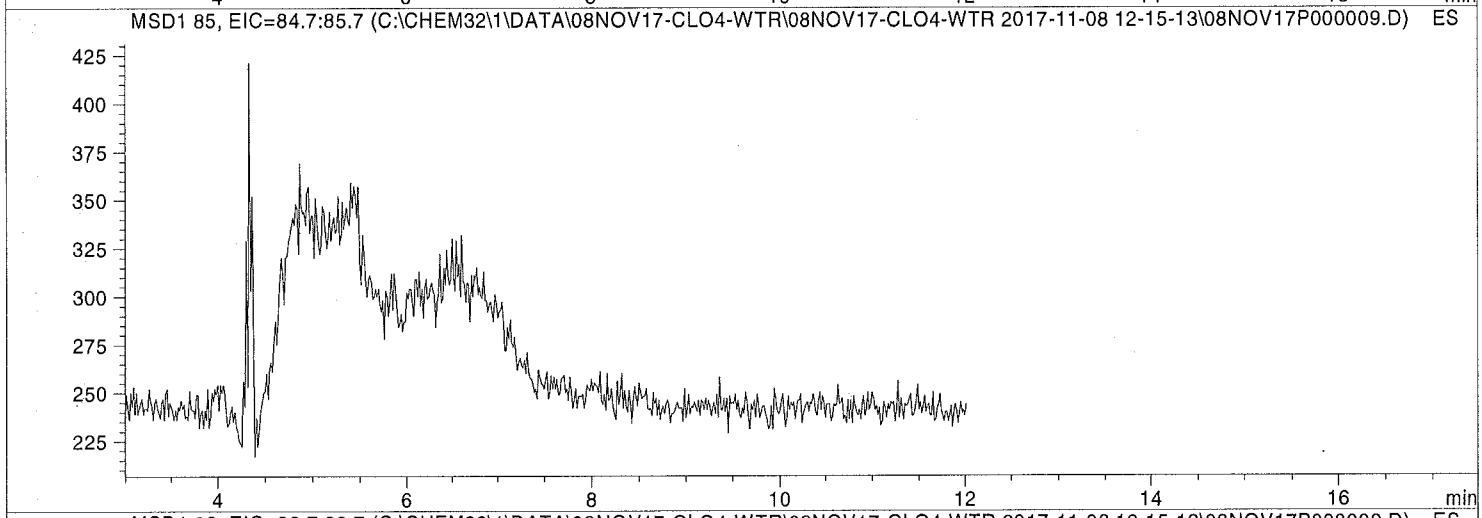
Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 1730755001

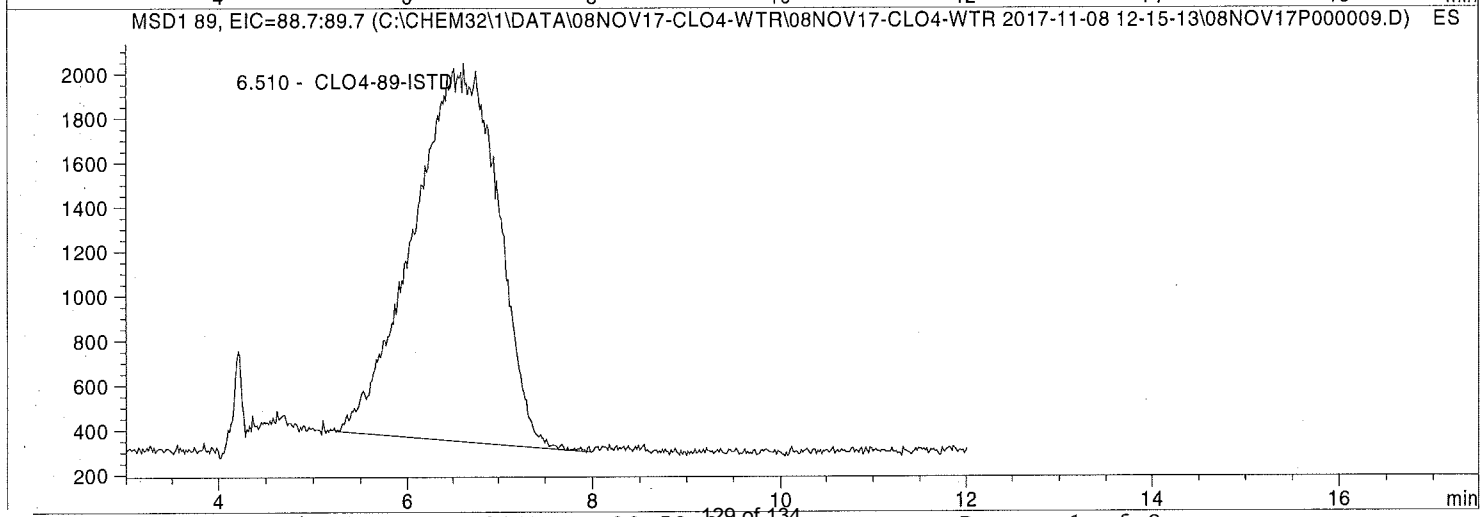
| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 14:03:58 | Seq Line: | 9 |
| Sample Name: | 1730755001 | Location: | Vial 79 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate



Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 1730755001

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 14:03:58 | Seq Line: | 9 |
| Sample Name: | 1730755001 | Location: | Vial 79 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.000 ug/L |

## 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 |
|---|---|---|---|---|
| 6.510 | BB | 108552.3 | 5.0000 | CLO4-89-ISTD |

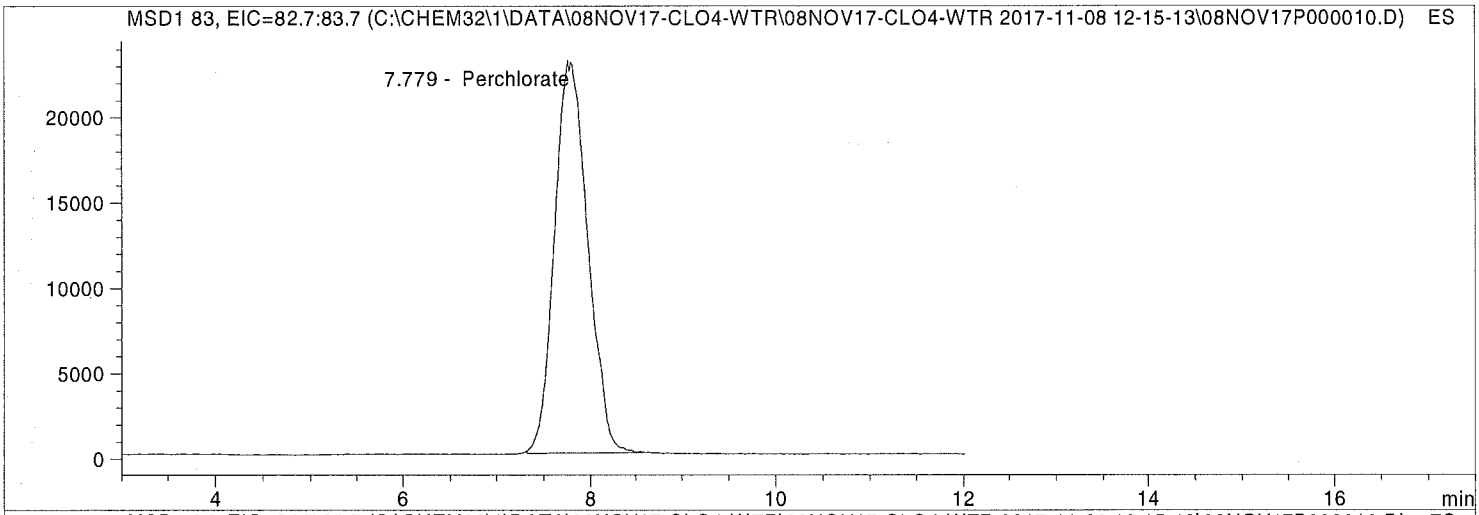
*** End of Report ***

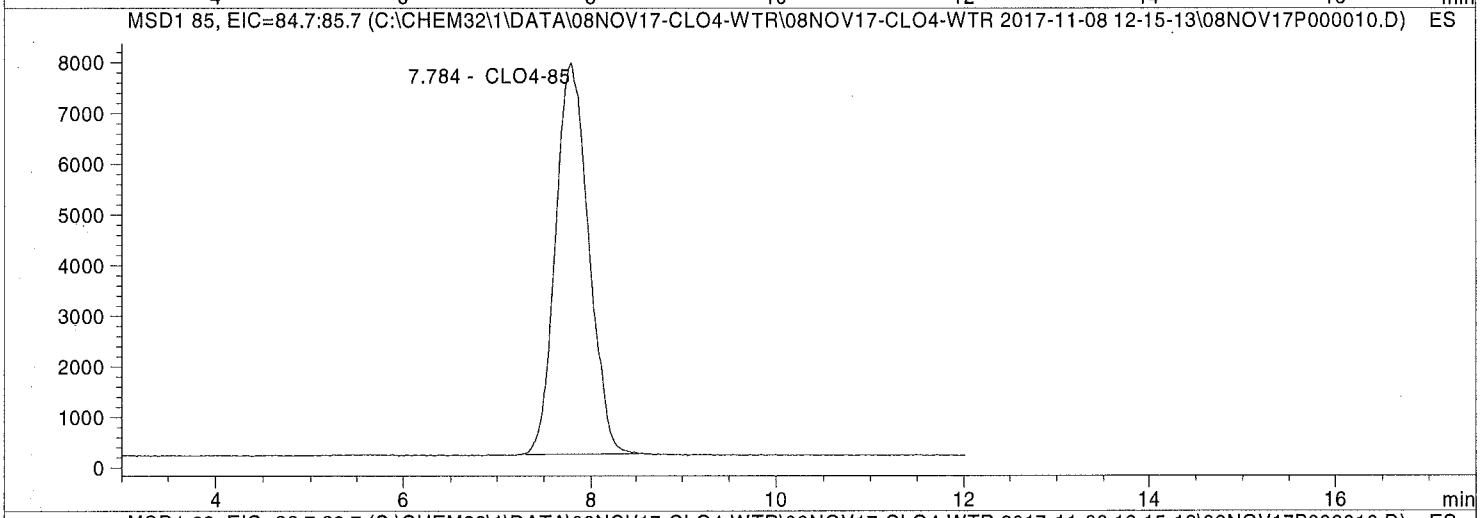
Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573331 CCV@25

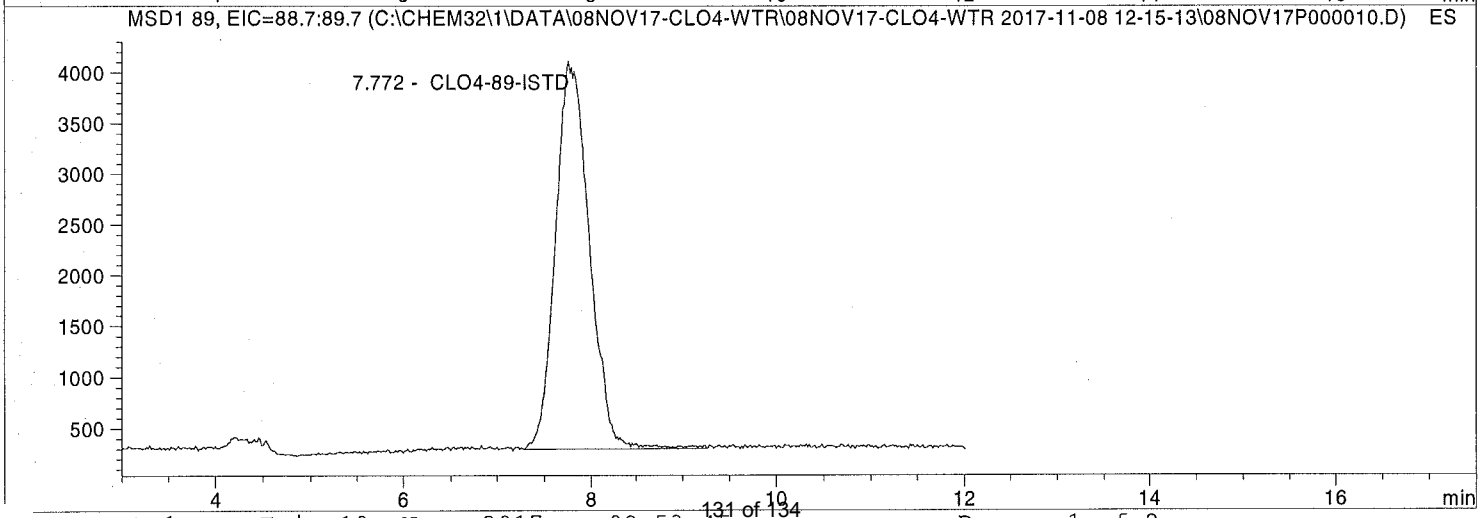
| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 14:17:30 | Seq Line: | 10 |
| Sample Name: | 573331 CCV@25 | Location: | Vial 71 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate



Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573331 CCV@25

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 14:17:30 | Seq Line: | 10 |
| Sample Name: | 573331 CCV@25 | Location: | Vial 71 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 25.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.779 | BB | 568034.8 | 26.2593 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.784 | BB | 190716.4 | 26.3153 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.772 | BB | 96031.1 | 5.0000 | CLO4-89-ISTD |

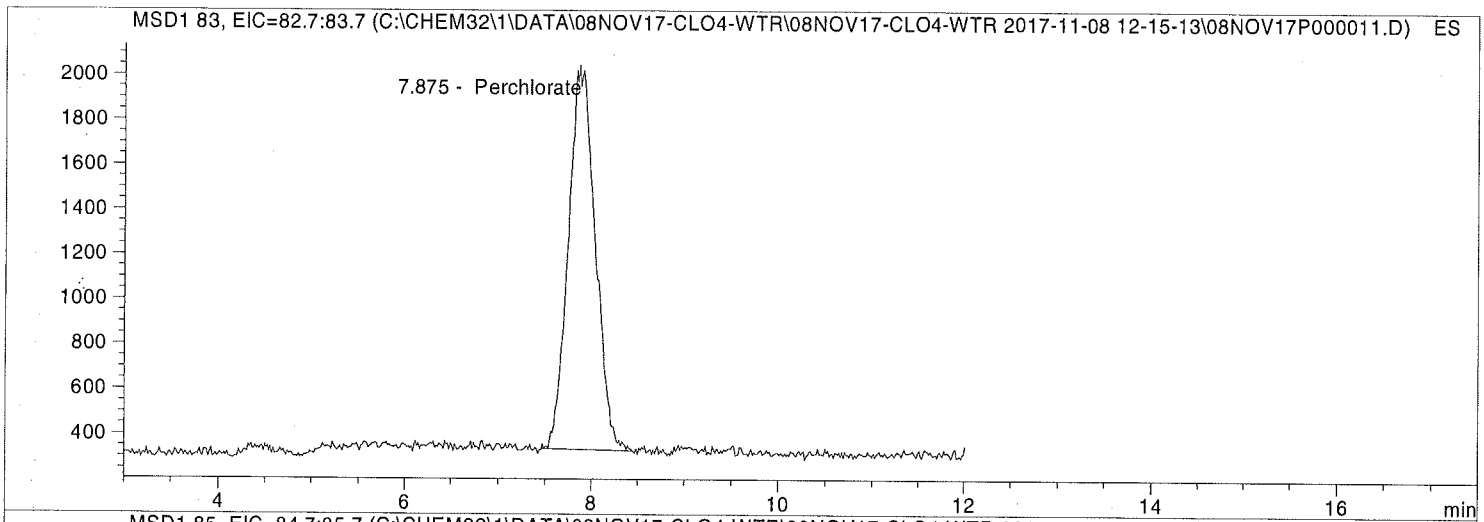
*** End of Report ***

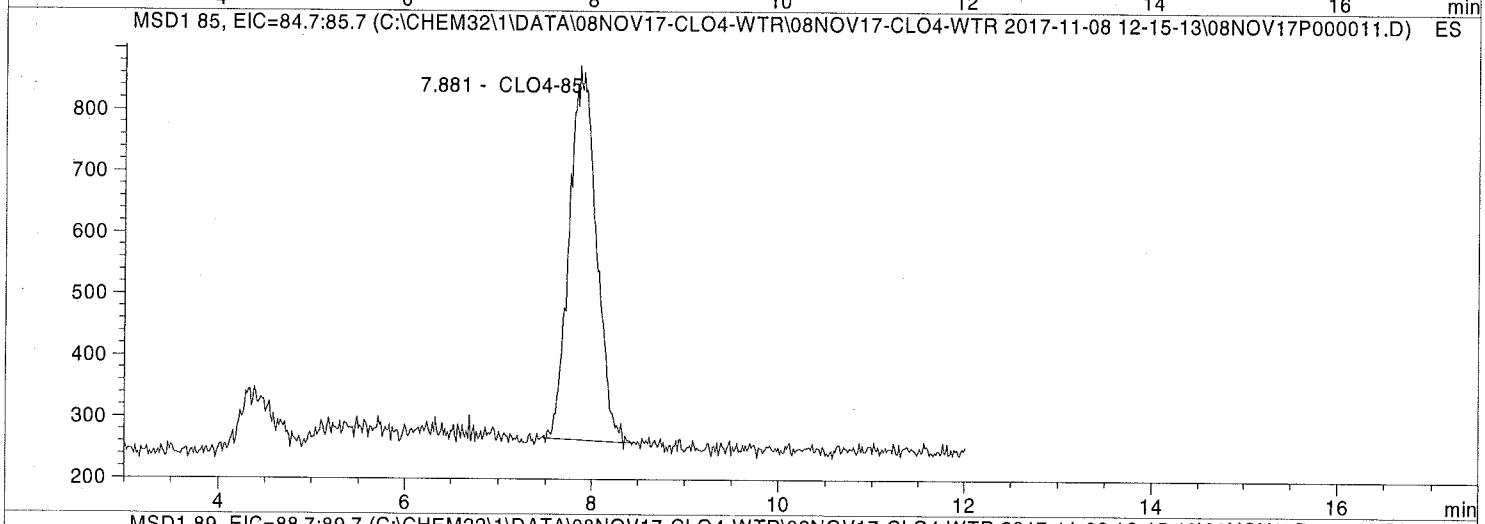
Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573332 LODV@1.

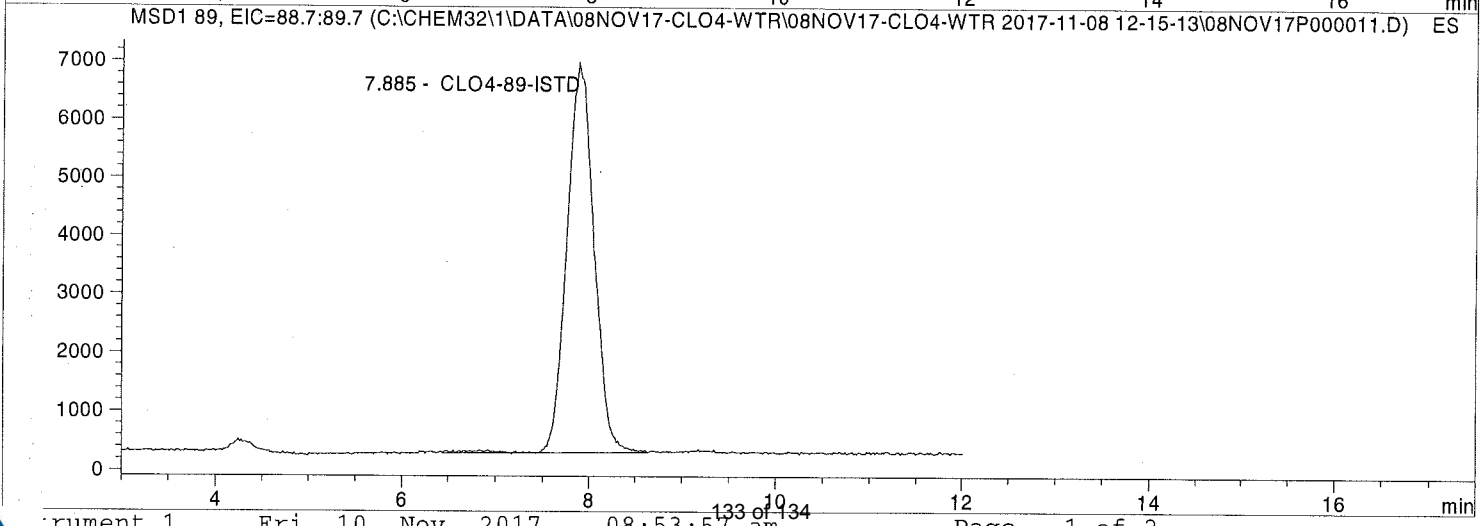
| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 14:31:03 | Seq Line: | 11 |
| Sample Name: | 573332 LODV@1. | Location: | Vial 72 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate



Data file: C:\CHEM32\1\DATA\08NOV17-CLO4-WTR\08NOV1-> Sample Name: 573332 LODV@1.

| | | | |
|---|---|---|---|
| Injection Date: | 11/08/2017 14:31:03 | Seq Line: | 11 |
| Sample Name: | 573332 LODV@1. | Location: | Vial 72 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: C:\Chem32\1\DATA\08NOV17-CLO4-WTR\08NOV17-CLO4-WTR ->
Analysis Method: C:\CHEM32\1\METHODS\CLO4-090717-PR2.M
Last Changed: 11/8/2017 16:48:07

Perchlorate

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Wed, 8. Nov. 2017, 00:01:35 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 1.000 ug/L |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.875 | BB | 34969.9 | 1.1246 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.881 | BB | 12500.0 | 1.3303 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 7.885 | BB | 138040.0 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***

10450 Stancliff Rd. Suite 210
Houston, TX 77099
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# WorkOrder: HS17110083

## Groundwater Treatment Plant Bi-Weekly Samples

## Bhate Environmental Associates, Inc.

Marcia Olive
445 Union Blvd Ste 129
Lakewood CO 80228

**09-Feb-2018**

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

November 09, 2017

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd Ste 129
Lakewood, CO 80228

Work Order: **HS17110083**

Laboratory Results for: **Groundwater Treatment Plant Bi-Weekly Samples**

Dear Marcia,

ALS Environmental received 2 sample(s) on Nov 02, 2017 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,

Sonia West

**Generated By: Jumoke.Lawal**
Sonia West
Project Manager

**ALS Group USA, Corp** Date: 09-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Bi-Weekly Samples
**Work Order:** HS17110083

## SAMPLE SUMMARY

| Lab Samp ID | Client Sample ID | Matrix | TagNo | Collection Date | Date Received | Hold |
|---|---|---|---|---|---|---|
| HS17110083-01 | LH18/24-SP650_110117 | Water | | 01-Nov-2017 14:00 | 02-Nov-2017 08:32 | ☐ |
| HS17110083-02 | Trip Blank | Water | NON ALS | 01-Nov-2017 00:01 | 02-Nov-2017 08:32 | ☐ |

**ALS Group USA, Corp** Date: 09-Nov-17

**Client:** Bhate Environmental Associates, Inc. **CASE NARRATIVE**
**Project:** Groundwater Treatment Plant Bi-Weekly Samples
**Work Order:** HS17110083

## GCMS Volatiles by Method SW8260

### Batch ID: R304751

#### Sample ID: HS17101441-20MS

- MS and MSD are for an unrelated sample

## WetChemistry by Method SW9056

### Batch ID: R305085

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

**ALS Group USA, Corp** Date: 09-Nov-17

Client: Bhate Environmental Associates, Inc. **ANALYTICAL REPORT**
Project: Groundwater Treatment Plant Bi-Weekly Samples WorkOrder:HS17110083
Sample ID: LH18/24-SP650_110117 Lab ID:HS17110083-01
Collection Date: 01-Nov-2017 14:00 Matrix:Water

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: AKP |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| 1,1-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| 1,1-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| 1,2,3-Trichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| 1,2,3-Trichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| 1,2,4-Trichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| 1,2-Dibromo-3-chloropropane | 1.0 | U | 0.20 | 1.0 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| 1,2-Dichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| 1,3-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| 1,4-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| 2-Hexanone | 1.0 | U | 1.0 | 1.0 | 2.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| 4-Chlorotoluene | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| 4-Methyl-2-pentanone | 0.50 | U | 0.70 | 0.50 | 2.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| Acetone | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| Bromobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| **Carbon disulfide** | **1.4** | J | **0.60** | **1.0** | **2.0** | **ug/L** | 1 | 02-Nov-2017 18:12 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 09-Nov-17

Client: Bhate Environmental Associates, Inc.
**ANALYTICAL REPORT**
Project: Groundwater Treatment Plant Bi-Weekly Samples
WorkOrder:HS17110083
Sample ID: LH18/24-SP650_110117
Lab ID:HS17110083-01
Collection Date: 01-Nov-2017 14:00
Matrix:Water

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: AKP |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| **cis-1,2-Dichloroethene** | **5.9** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 02-Nov-2017 18:12 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| **Methylene chloride** | **0.45** | J | **0.40** | **1.0** | **2.0** | **ug/L** | 1 | 02-Nov-2017 18:12 |
| n-Butylbenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| **Trichloroethene** | **0.90** | J | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 02-Nov-2017 18:12 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 18:12 |
| *Surr: 1,2-Dichloroethane-d4* | *99.4* | | | **0** | *81-118* | *%REC* | *1* | *02-Nov-2017 18:12* |
| *Surr: 4-Bromofluorobenzene* | *108* | | | **0** | *85-114* | *%REC* | *1* | *02-Nov-2017 18:12* |
| *Surr: Dibromofluoromethane* | *98.7* | | | **0** | *80-119* | *%REC* | *1* | *02-Nov-2017 18:12* |
| *Surr: Toluene-d8* | *102* | | | **0** | *89-112* | *%REC* | *1* | *02-Nov-2017 18:12* |
| **ANIONS BY SW9056A** | | **Method:SW9056** | | | | | | Analyst: JBA |
| **Chloride** | **534** | | **4.00** | **5.00** | **10.0** | **mg/L** | 20 | 02-Nov-2017 15:02 |
| **Sulfate** | **61.0** | | **4.00** | **5.00** | **10.0** | **mg/L** | 20 | 02-Nov-2017 15:02 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 09-Nov-17

Client: Bhate Environmental Associates, Inc. **ANALYTICAL REPORT**
Project: Groundwater Treatment Plant Bi-Weekly Samples WorkOrder:HS17110083
Sample ID: Trip Blank Lab ID:HS17110083-02
Collection Date: 01-Nov-2017 00:01 Matrix:Water

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | **Method:SW8260** | | | | | | | Analyst: AKP |
| 1,1,1,2-Tetrachloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| 1,1-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| 1,1-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| 1,2,3-Trichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| 1,2,3-Trichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| 1,2,4-Trichlorobenzene | 1.0 | U | 0.50 | 1.0 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| 1,2-Dibromo-3-chloropropane | 1.0 | U | 0.20 | 1.0 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| 1,2-Dichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| 1,3-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| 1,4-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| 2-Hexanone | 1.0 | U | 1.0 | 1.0 | 2.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| 4-Chlorotoluene | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| 4-Methyl-2-pentanone | 0.50 | U | 0.70 | 0.50 | 2.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| Acetone | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| Bromobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 09-Nov-17

Client: Bhate Environmental Associates, Inc.
**ANALYTICAL REPORT**
Project: Groundwater Treatment Plant Bi-Weekly Samples
WorkOrder:HS17110083
Sample ID: Trip Blank
Lab ID:HS17110083-02
Collection Date: 01-Nov-2017 00:01
Matrix:Water

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **VOLATILES ORGANICS BY METHOD 8260C** | | **Method:SW8260** | | | | | | Analyst: AKP |
| Chloroform | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| Methylene chloride | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| n-Butylbenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| **Trichlorofluoromethane** | **4.8** | | **0.30** | **0.50** | **1.0** | **ug/L** | 1 | 02-Nov-2017 17:21 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 02-Nov-2017 17:21 |
| *Surr: 1,2-Dichloroethane-d4* | *97.6* | | | **0** | *81-118* | *%REC* | *1* | *02-Nov-2017 17:21* |
| *Surr: 4-Bromofluorobenzene* | *106* | | | **0** | *85-114* | *%REC* | *1* | *02-Nov-2017 17:21* |
| *Surr: Dibromofluoromethane* | *98.0* | | | **0** | *80-119* | *%REC* | *1* | *02-Nov-2017 17:21* |
| *Surr: Toluene-d8* | *98.7* | | | **0** | *89-112* | *%REC* | *1* | *02-Nov-2017 17:21* |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 09-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Bi-Weekly Samples
**WorkOrder:** HS17110083

## DATES REPORT

| Sample ID | Client Samp ID | Collection Date | TCLP Date | Prep Date | Analysis Date | DF |
|---|---|---|---|---|---|---|
| **Batch ID** R304751 | **Test Name :** VOLATILES ORGANICS BY METHOD 8260C | | | **Matrix:** Water | | |
| HS17110083-01 | LH18/24-SP650_110117 | 01 Nov 2017 14:00 | | | 02 Nov 2017 18:12 | 1 |
| HS17110083-02 | Trip Blank | 01 Nov 2017 00:01 | | | 02 Nov 2017 17:21 | 1 |
| **Batch ID** R305085 | **Test Name :** ANIONS BY SW9056A | | | **Matrix:** Water | | |
| HS17110083-01 | LH18/24-SP650_110117 | 01 Nov 2017 14:00 | | | 02 Nov 2017 15:02 | 20 |

**ALS Group USA, Corp** Date: 09-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Bi-Weekly Samples
**WorkOrder:** HS17110083

**QC BATCH REPORT**

**Batch ID: R304751** **Instrument: VOA4** **Method: SW8260**

**MBLK** Sample ID: **VBLKW-171102** Units: **ug/L** Analysis Date: **02-Nov-2017 16:29**
Client ID: Run ID: **VOA4_304751** SeqNo: **4293324** 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-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 | 0.50 | 1.0 | | | | | | | | U |
| 1,2,3-Trichloropropane | 0.50 | 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 | 1.0 | 1.0 | | | | | | | | U |
| 1,2-Dibromoethane | 0.50 | 1.0 | | | | | | | | U |
| 1,2-Dichlorobenzene | 0.50 | 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 | 0.50 | 1.0 | | | | | | | | U |
| 1,3-Dichloropropane | 0.50 | 1.0 | | | | | | | | U |
| 1,4-Dichlorobenzene | 0.50 | 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 | 1.0 | 2.0 | | | | | | | | U |
| 4-Chlorotoluene | 0.50 | 1.0 | | | | | | | | U |
| 4-Isopropyltoluene | 0.50 | 1.0 | | | | | | | | U |
| 4-Methyl-2-pentanone | 0.50 | 2.0 | | | | | | | | U |
| Acetone | 1.0 | 2.0 | | | | | | | | U |
| Benzene | 0.50 | 1.0 | | | | | | | | U |
| Bromobenzene | 0.50 | 1.0 | | | | | | | | U |
| Bromochloromethane | 0.50 | 1.0 | | | | | | | | U |
| Bromodichloromethane | 0.50 | 1.0 | | | | | | | | U |
| Bromoform | 0.50 | 1.0 | | | | | | | | U |
| Bromomethane | 0.50 | 1.0 | | | | | | | | U |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 09-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Bi-Weekly Samples
**WorkOrder:** HS17110083

**QC BATCH REPORT**

**Batch ID: R304751** **Instrument: VOA4** **Method: SW8260**

**MBLK** Sample ID: **VBLKW-171102** Units: **ug/L** Analysis Date: **02-Nov-2017 16:29**
Client ID: Run ID: **VOA4_304751** SeqNo: **4293324** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| 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 | 0.50 | 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* | *49.37* | *1.0* | *50* | *0* | *98.7* | *81 - 118* | | | | |
| *Surr: 4-Bromofluorobenzene* | *54.19* | *1.0* | *50* | *0* | *108* | *85 - 114* | | | | |
| *Surr: Dibromofluoromethane* | *51.78* | *1.0* | *50* | *0* | *104* | *80 - 119* | | | | |
| *Surr: Toluene-d8* | *49.61* | *1.0* | *50* | *0* | *99.2* | *89 - 112* | | | | |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 09-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Bi-Weekly Samples
**WorkOrder:** HS17110083

**QC BATCH REPORT**

**Batch ID: R304751** **Instrument: VOA4** **Method: SW8260**

**LCS** Sample ID: **VLCSW-171102** Units: **ug/L** Analysis Date: **02-Nov-2017 15:37**
Client ID: Run ID: **VOA4_304751** SeqNo: **4293322** 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 | 53.27 | 1.0 | 50 | 0 | 107 | 78 - 124 | | | | |
| 1,1,1-Trichloroethane | 59.4 | 1.0 | 50 | 0 | 119 | 74 - 131 | | | | |
| 1,1,2,2-Tetrachloroethane | 47.01 | 1.0 | 50 | 0 | 94.0 | 71 - 121 | | | | |
| 1,1,2-Trichloroethane | 53.64 | 1.0 | 50 | 0 | 107 | 80 - 119 | | | | |
| 1,1-Dichloroethane | 57.47 | 1.0 | 50 | 0 | 115 | 77 - 125 | | | | |
| 1,1-Dichloroethene | 55.72 | 1.0 | 50 | 0 | 111 | 71 - 131 | | | | |
| 1,1-Dichloropropene | 54.75 | 1.0 | 50 | 0 | 109 | 79 - 125 | | | | |
| 1,2,3-Trichlorobenzene | 51.59 | 1.0 | 50 | 0 | 103 | 69 - 129 | | | | |
| 1,2,3-Trichloropropane | 50.49 | 1.0 | 50 | 0 | 101 | 73 - 122 | | | | |
| 1,2,4-Trichlorobenzene | 53.59 | 1.0 | 50 | 0 | 107 | 69 - 130 | | | | |
| 1,2,4-Trimethylbenzene | 46.84 | 1.0 | 50 | 0 | 93.7 | 76 - 124 | | | | |
| 1,2-Dibromo-3-chloropropane | 49.68 | 1.0 | 50 | 0 | 99.4 | 62 - 128 | | | | |
| 1,2-Dibromoethane | 53.22 | 1.0 | 50 | 0 | 106 | 77 - 121 | | | | |
| 1,2-Dichlorobenzene | 47.42 | 1.0 | 50 | 0 | 94.8 | 80 - 119 | | | | |
| 1,2-Dichloroethane | 58 | 1.0 | 50 | 0 | 116 | 73 - 128 | | | | |
| 1,2-Dichloropropane | 56.23 | 1.0 | 50 | 0 | 112 | 78 - 122 | | | | |
| 1,3,5-Trimethylbenzene | 46.21 | 1.0 | 50 | 0 | 92.4 | 75 - 124 | | | | |
| 1,3-Dichlorobenzene | 47.64 | 1.0 | 50 | 0 | 95.3 | 80 - 119 | | | | |
| 1,3-Dichloropropane | 53.61 | 1.0 | 50 | 0 | 107 | 80 - 119 | | | | |
| 1,4-Dichlorobenzene | 45.87 | 1.0 | 50 | 0 | 91.7 | 79 - 118 | | | | |
| 2,2-Dichloropropane | 56.84 | 1.0 | 50 | 0 | 114 | 60 - 139 | | | | |
| 2-Butanone | 121.1 | 2.0 | 100 | 0 | 121 | 56 - 143 | | | | |
| 2-Chlorotoluene | 45.39 | 1.0 | 50 | 0 | 90.8 | 79 - 122 | | | | |
| 2-Hexanone | 119.1 | 2.0 | 100 | 0 | 119 | 57 - 139 | | | | |
| 4-Chlorotoluene | 45.58 | 1.0 | 50 | 0 | 91.2 | 78 - 122 | | | | |
| 4-Isopropyltoluene | 46.32 | 1.0 | 50 | 0 | 92.6 | 77 - 127 | | | | |
| 4-Methyl-2-pentanone | 125.5 | 2.0 | 100 | 0 | 126 | 67 - 130 | | | | |
| Acetone | 117.6 | 2.0 | 100 | 0 | 118 | 39 - 160 | | | | |
| Benzene | 55.32 | 1.0 | 50 | 0 | 111 | 79 - 120 | | | | |
| Bromobenzene | 45.71 | 1.0 | 50 | 0 | 91.4 | 80 - 120 | | | | |
| Bromochloromethane | 55.75 | 1.0 | 50 | 0 | 112 | 78 - 123 | | | | |
| Bromodichloromethane | 58.78 | 1.0 | 50 | 0 | 118 | 79 - 125 | | | | |
| Bromoform | 56.88 | 1.0 | 50 | 0 | 114 | 66 - 130 | | | | |
| Bromomethane | 55.86 | 1.0 | 50 | 0 | 112 | 53 - 141 | | | | |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 09-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Bi-Weekly Samples
**WorkOrder:** HS17110083

**QC BATCH REPORT**

**Batch ID: R304751** **Instrument: VOA4** **Method: SW8260**

**LCS** Sample ID: **VLCSW-171102** Units: **ug/L** Analysis Date: **02-Nov-2017 15:37**
Client ID: Run ID: **VOA4_304751** SeqNo: **4293322** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Carbon disulfide | 110.9 | 2.0 | 100 | 0 | 111 | 64 - 133 | | | | |
| Carbon tetrachloride | 54.24 | 1.0 | 50 | 0 | 108 | 72 - 136 | | | | |
| Chlorobenzene | 51.13 | 1.0 | 50 | 0 | 102 | 80 - 120 | | | | |
| Chloroethane | 56.14 | 1.0 | 50 | 0 | 112 | 82 - 118 | | | | |
| Chloroform | 57.06 | 1.0 | 50 | 0 | 114 | 79 - 124 | | | | |
| Chloromethane | 53.47 | 1.0 | 50 | 0 | 107 | 50 - 139 | | | | |
| cis-1,2-Dichloroethene | 55.65 | 1.0 | 50 | 0 | 111 | 78 - 123 | | | | |
| cis-1,3-Dichloropropene | 59.78 | 1.0 | 50 | 0 | 120 | 75 - 124 | | | | |
| Dibromochloromethane | 54.94 | 1.0 | 50 | 0 | 110 | 74 - 126 | | | | |
| Dibromomethane | 58.07 | 1.0 | 50 | 0 | 116 | 79 - 123 | | | | |
| Dichlorodifluoromethane | 55.16 | 1.0 | 50 | 0 | 110 | 32 - 152 | | | | |
| Ethylbenzene | 51.47 | 1.0 | 50 | 0 | 103 | 79 - 121 | | | | |
| Hexachlorobutadiene | 48.1 | 1.0 | 50 | 0 | 96.2 | 66 - 134 | | | | |
| Isopropylbenzene | 51.33 | 1.0 | 50 | 0 | 103 | 72 - 131 | | | | |
| m,p-Xylene | 100 | 2.0 | 100 | 0 | 100 | 80 - 121 | | | | |
| Methylene chloride | 56.02 | 2.0 | 50 | 0 | 112 | 74 - 124 | | | | |
| Naphthalene | 54.3 | 1.0 | 50 | 0 | 109 | 61 - 128 | | | | |
| n-Butylbenzene | 48.1 | 1.0 | 50 | 0 | 96.2 | 75 - 128 | | | | |
| n-Propylbenzene | 46.01 | 1.0 | 50 | 0 | 92.0 | 76 - 126 | | | | |
| o-Xylene | 51.28 | 1.0 | 50 | 0 | 103 | 78 - 122 | | | | |
| sec-Butylbenzene | 46.84 | 1.0 | 50 | 0 | 93.7 | 77 - 126 | | | | |
| Styrene | 52.88 | 1.0 | 50 | 0 | 106 | 78 - 128 | | | | |
| tert-Butylbenzene | 45.5 | 1.0 | 50 | 0 | 91.0 | 78 - 124 | | | | |
| Tetrachloroethene | 50.21 | 1.0 | 50 | 0 | 100 | 74 - 129 | | | | |
| Toluene | 50.97 | 1.0 | 50 | 0 | 102 | 80 - 121 | | | | |
| trans-1,2-Dichloroethene | 56.92 | 1.0 | 50 | 0 | 114 | 75 - 124 | | | | |
| trans-1,3-Dichloropropene | 59.78 | 1.0 | 50 | 0 | 120 | 73 - 127 | | | | |
| Trichloroethene | 57.17 | 1.0 | 50 | 0 | 114 | 79 - 123 | | | | |
| Trichlorofluoromethane | 59.06 | 1.0 | 50 | 0 | 118 | 65 - 141 | | | | |
| Vinyl chloride | 57.62 | 1.0 | 50 | 0 | 115 | 58 - 137 | | | | |
| *Surr: 1,2-Dichloroethane-d4* | *48.09* | *1.0* | *50* | *0* | *96.2* | *81 - 118* | | | | |
| *Surr: 4-Bromofluorobenzene* | *55.62* | *1.0* | *50* | *0* | *111* | *85 - 114* | | | | |
| *Surr: Dibromofluoromethane* | *50.88* | *1.0* | *50* | *0* | *102* | *80 - 119* | | | | |
| *Surr: Toluene-d8* | *50.92* | *1.0* | *50* | *0* | *102* | *89 - 112* | | | | |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 09-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Bi-Weekly Samples
**WorkOrder:** HS17110083

**QC BATCH REPORT**

**Batch ID: R304751** **Instrument: VOA4** **Method: SW8260**

**MS** Sample ID: **HS17101441-20MS** Units: **ug/L** Analysis Date: **02-Nov-2017 19:04**
Client ID: Run ID: **VOA4_304751** SeqNo: **4293330** 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 | 55.72 | 1.0 | 50 | 0 | 111 | 78 - 124 | | | | |
| 1,1,1-Trichloroethane | 69.11 | 1.0 | 50 | 0 | 138 | 74 - 131 | | | | S |
| 1,1,2,2-Tetrachloroethane | 47 | 1.0 | 50 | 0 | 94.0 | 71 - 121 | | | | |
| 1,1,2-Trichloroethane | 54.72 | 1.0 | 50 | 0 | 109 | 80 - 119 | | | | |
| 1,1-Dichloroethane | 65.17 | 1.0 | 50 | 0 | 130 | 77 - 125 | | | | S |
| 1,1-Dichloroethene | 64.64 | 1.0 | 50 | 0 | 129 | 71 - 131 | | | | |
| 1,1-Dichloropropene | 65.57 | 1.0 | 50 | 0 | 131 | 79 - 125 | | | | S |
| 1,2,3-Trichlorobenzene | 54.03 | 1.0 | 50 | 0 | 108 | 69 - 129 | | | | |
| 1,2,3-Trichloropropane | 50.05 | 1.0 | 50 | 0 | 100 | 73 - 122 | | | | |
| 1,2,4-Trichlorobenzene | 54.97 | 1.0 | 50 | 0 | 110 | 69 - 130 | | | | |
| 1,2,4-Trimethylbenzene | 51.38 | 1.0 | 50 | 0 | 103 | 76 - 124 | | | | |
| 1,2-Dibromo-3-chloropropane | 56.43 | 1.0 | 50 | 0 | 113 | 62 - 128 | | | | |
| 1,2-Dibromoethane | 55.51 | 1.0 | 50 | 0 | 111 | 77 - 121 | | | | |
| 1,2-Dichlorobenzene | 51.27 | 1.0 | 50 | 0 | 103 | 80 - 119 | | | | |
| 1,2-Dichloroethane | 61.6 | 1.0 | 50 | 0 | 123 | 73 - 128 | | | | |
| 1,2-Dichloropropane | 60.93 | 1.0 | 50 | 0 | 122 | 78 - 122 | | | | |
| 1,3,5-Trimethylbenzene | 52.2 | 1.0 | 50 | 0 | 104 | 75 - 124 | | | | |
| 1,3-Dichlorobenzene | 51.67 | 1.0 | 50 | 0 | 103 | 80 - 119 | | | | |
| 1,3-Dichloropropane | 55.91 | 1.0 | 50 | 0 | 112 | 80 - 119 | | | | |
| 1,4-Dichlorobenzene | 49.75 | 1.0 | 50 | 0 | 99.5 | 79 - 118 | | | | |
| 2,2-Dichloropropane | 64.86 | 1.0 | 50 | 0 | 130 | 60 - 139 | | | | |
| 2-Butanone | 124.8 | 2.0 | 100 | 0 | 125 | 56 - 143 | | | | |
| 2-Chlorotoluene | 51.82 | 1.0 | 50 | 0 | 104 | 79 - 122 | | | | |
| 2-Hexanone | 123.2 | 2.0 | 100 | 0 | 123 | 57 - 139 | | | | |
| 4-Chlorotoluene | 51.36 | 1.0 | 50 | 0 | 103 | 78 - 122 | | | | |
| 4-Isopropyltoluene | 53.48 | 1.0 | 50 | 0 | 107 | 77 - 127 | | | | |
| 4-Methyl-2-pentanone | 126.6 | 2.0 | 100 | 0 | 127 | 67 - 130 | | | | |
| Acetone | 118.5 | 2.0 | 100 | 0 | 118 | 39 - 160 | | | | |
| Benzene | 61.6 | 1.0 | 50 | 0 | 123 | 79 - 120 | | | | S |
| Bromobenzene | 49.07 | 1.0 | 50 | 0 | 98.1 | 80 - 120 | | | | |
| Bromochloromethane | 58.53 | 1.0 | 50 | 0 | 117 | 78 - 123 | | | | |
| Bromodichloromethane | 61.59 | 1.0 | 50 | 0 | 123 | 79 - 125 | | | | |
| Bromoform | 55.17 | 1.0 | 50 | 0 | 110 | 66 - 130 | | | | |
| Bromomethane | 36.44 | 1.0 | 50 | 0 | 72.9 | 53 - 141 | | | | |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 09-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Bi-Weekly Samples
**WorkOrder:** HS17110083

**QC BATCH REPORT**

**Batch ID: R304751** **Instrument: VOA4** **Method: SW8260**

**MS** Sample ID: **HS17101441-20MS** Units: **ug/L** Analysis Date: **02-Nov-2017 19:04**
Client ID: Run ID: **VOA4_304751** SeqNo: **4293330** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Carbon disulfide | 137.3 | 2.0 | 100 | 1.259 | 136 | 64 - 133 | | | | S |
| Carbon tetrachloride | 59.15 | 1.0 | 50 | 0 | 118 | 72 - 136 | | | | |
| Chlorobenzene | 56.6 | 1.0 | 50 | 0 | 113 | 80 - 120 | | | | |
| Chloroethane | 62.45 | 1.0 | 50 | 0 | 125 | 82 - 118 | | | | S |
| Chloroform | 63.84 | 1.0 | 50 | 0.6307 | 126 | 79 - 124 | | | | S |
| Chloromethane | 53.77 | 1.0 | 50 | 0 | 108 | 50 - 139 | | | | |
| cis-1,2-Dichloroethene | 62.05 | 1.0 | 50 | 0 | 124 | 78 - 123 | | | | S |
| cis-1,3-Dichloropropene | 62.11 | 1.0 | 50 | 0 | 124 | 75 - 124 | | | | S |
| Dibromochloromethane | 55.16 | 1.0 | 50 | 0 | 110 | 74 - 126 | | | | |
| Dibromomethane | 59.29 | 1.0 | 50 | 0 | 119 | 79 - 123 | | | | |
| Dichlorodifluoromethane | 56.84 | 1.0 | 50 | 0 | 114 | 32 - 152 | | | | |
| Ethylbenzene | 57.41 | 1.0 | 50 | 0 | 115 | 79 - 121 | | | | |
| Hexachlorobutadiene | 48.95 | 1.0 | 50 | 0 | 97.9 | 66 - 134 | | | | |
| Isopropylbenzene | 58.53 | 1.0 | 50 | 0 | 117 | 72 - 131 | | | | |
| m,p-Xylene | 113.5 | 2.0 | 100 | 0 | 113 | 80 - 121 | | | | |
| Methylene chloride | 62.33 | 2.0 | 50 | 0 | 125 | 74 - 124 | | | | S |
| Naphthalene | 54.43 | 1.0 | 50 | 0 | 109 | 61 - 128 | | | | |
| n-Butylbenzene | 56.41 | 1.0 | 50 | 0 | 113 | 75 - 128 | | | | |
| n-Propylbenzene | 53.95 | 1.0 | 50 | 0 | 108 | 76 - 126 | | | | |
| o-Xylene | 56.76 | 1.0 | 50 | 0 | 114 | 78 - 122 | | | | |
| sec-Butylbenzene | 51.38 | 1.0 | 50 | 0 | 103 | 77 - 126 | | | | |
| Styrene | 56.54 | 1.0 | 50 | 0 | 113 | 78 - 128 | | | | |
| tert-Butylbenzene | 53.06 | 1.0 | 50 | 0 | 106 | 78 - 124 | | | | |
| Tetrachloroethene | 56.61 | 1.0 | 50 | 0 | 113 | 74 - 129 | | | | |
| Toluene | 56.85 | 1.0 | 50 | 0 | 114 | 80 - 121 | | | | |
| trans-1,2-Dichloroethene | 62.41 | 1.0 | 50 | 0 | 125 | 75 - 124 | | | | S |
| trans-1,3-Dichloropropene | 62.11 | 1.0 | 50 | 0 | 124 | 73 - 127 | | | | |
| Trichloroethene | 63.62 | 1.0 | 50 | 2.416 | 122 | 79 - 123 | | | | |
| Trichlorofluoromethane | 68.79 | 1.0 | 50 | 0 | 138 | 65 - 141 | | | | |
| Vinyl chloride | 62.13 | 1.0 | 50 | 0 | 124 | 58 - 137 | | | | |
| *Surr: 1,2-Dichloroethane-d4* | *50.19* | *1.0* | *50* | *0* | *100* | *81 - 118* | | | | |
| *Surr: 4-Bromofluorobenzene* | *55.52* | *1.0* | *50* | *0* | *111* | *85 - 114* | | | | |
| *Surr: Dibromofluoromethane* | *51.92* | *1.0* | *50* | *0* | *104* | *80 - 119* | | | | |
| *Surr: Toluene-d8* | *50.19* | *1.0* | *50* | *0* | *100* | *89 - 112* | | | | |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 09-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Bi-Weekly Samples
**WorkOrder:** HS17110083

**QC BATCH REPORT**

**Batch ID: R304751** **Instrument: VOA4** **Method: SW8260**

**MSD** Sample ID: **HS17101441-20MSD** Units: **ug/L** Analysis Date: **02-Nov-2017 19:29**
Client ID: Run ID: **VOA4_304751** SeqNo: **4293331** 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 | 49.02 | 1.0 | 50 | 0 | 98.0 | 78 - 124 | 55.72 | 12.8 | 20 | |
| 1,1,1-Trichloroethane | 62.31 | 1.0 | 50 | 0 | 125 | 74 - 131 | 69.11 | 10.3 | 20 | |
| 1,1,2,2-Tetrachloroethane | 41.54 | 1.0 | 50 | 0 | 83.1 | 71 - 121 | 47 | 12.3 | 20 | |
| 1,1,2-Trichloroethane | 50.3 | 1.0 | 50 | 0 | 101 | 80 - 119 | 54.72 | 8.41 | 20 | |
| 1,1-Dichloroethane | 56.25 | 1.0 | 50 | 0 | 112 | 77 - 125 | 65.17 | 14.7 | 20 | |
| 1,1-Dichloroethene | 55.57 | 1.0 | 50 | 0 | 111 | 71 - 131 | 64.64 | 15.1 | 20 | |
| 1,1-Dichloropropene | 58.92 | 1.0 | 50 | 0 | 118 | 79 - 125 | 65.57 | 10.7 | 20 | |
| 1,2,3-Trichlorobenzene | 48.87 | 1.0 | 50 | 0 | 97.7 | 69 - 129 | 54.03 | 10 | 20 | |
| 1,2,3-Trichloropropane | 44.75 | 1.0 | 50 | 0 | 89.5 | 73 - 122 | 50.05 | 11.2 | 20 | |
| 1,2,4-Trichlorobenzene | 51.58 | 1.0 | 50 | 0 | 103 | 69 - 130 | 54.97 | 6.35 | 20 | |
| 1,2,4-Trimethylbenzene | 46.83 | 1.0 | 50 | 0 | 93.7 | 76 - 124 | 51.38 | 9.26 | 20 | |
| 1,2-Dibromo-3-chloropropane | 51.64 | 1.0 | 50 | 0 | 103 | 62 - 128 | 56.43 | 8.87 | 20 | |
| 1,2-Dibromoethane | 48.86 | 1.0 | 50 | 0 | 97.7 | 77 - 121 | 55.51 | 12.8 | 20 | |
| 1,2-Dichlorobenzene | 45.99 | 1.0 | 50 | 0 | 92.0 | 80 - 119 | 51.27 | 10.9 | 20 | |
| 1,2-Dichloroethane | 56.96 | 1.0 | 50 | 0 | 114 | 73 - 128 | 61.6 | 7.82 | 20 | |
| 1,2-Dichloropropane | 55.71 | 1.0 | 50 | 0 | 111 | 78 - 122 | 60.93 | 8.96 | 20 | |
| 1,3,5-Trimethylbenzene | 45.84 | 1.0 | 50 | 0 | 91.7 | 75 - 124 | 52.2 | 13 | 20 | |
| 1,3-Dichlorobenzene | 46.13 | 1.0 | 50 | 0 | 92.3 | 80 - 119 | 51.67 | 11.3 | 20 | |
| 1,3-Dichloropropane | 49.19 | 1.0 | 50 | 0 | 98.4 | 80 - 119 | 55.91 | 12.8 | 20 | |
| 1,4-Dichlorobenzene | 43.68 | 1.0 | 50 | 0 | 87.4 | 79 - 118 | 49.75 | 13 | 20 | |
| 2,2-Dichloropropane | 57.69 | 1.0 | 50 | 0 | 115 | 60 - 139 | 64.86 | 11.7 | 20 | |
| 2-Butanone | 113.8 | 2.0 | 100 | 0 | 114 | 56 - 143 | 124.8 | 9.26 | 20 | |
| 2-Chlorotoluene | 46.53 | 1.0 | 50 | 0 | 93.1 | 79 - 122 | 51.82 | 10.8 | 20 | |
| 2-Hexanone | 110.6 | 2.0 | 100 | 0 | 111 | 57 - 139 | 123.2 | 10.8 | 20 | |
| 4-Chlorotoluene | 45.92 | 1.0 | 50 | 0 | 91.8 | 78 - 122 | 51.36 | 11.2 | 20 | |
| 4-Isopropyltoluene | 47.81 | 1.0 | 50 | 0 | 95.6 | 77 - 127 | 53.48 | 11.2 | 20 | |
| 4-Methyl-2-pentanone | 115 | 2.0 | 100 | 0 | 115 | 67 - 130 | 126.6 | 9.61 | 20 | |
| Acetone | 111.5 | 2.0 | 100 | 0 | 111 | 39 - 160 | 118.5 | 6.08 | 20 | |
| Benzene | 55.54 | 1.0 | 50 | 0 | 111 | 79 - 120 | 61.6 | 10.3 | 20 | |
| Bromobenzene | 44.21 | 1.0 | 50 | 0 | 88.4 | 80 - 120 | 49.07 | 10.4 | 20 | |
| Bromochloromethane | 52.2 | 1.0 | 50 | 0 | 104 | 78 - 123 | 58.53 | 11.4 | 20 | |
| Bromodichloromethane | 57.38 | 1.0 | 50 | 0 | 115 | 79 - 125 | 61.59 | 7.07 | 20 | |
| Bromoform | 50.01 | 1.0 | 50 | 0 | 100 | 66 - 130 | 55.17 | 9.82 | 20 | |
| Bromomethane | 36.78 | 1.0 | 50 | 0 | 73.6 | 53 - 141 | 36.44 | 0.933 | 20 | |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 09-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Bi-Weekly Samples
**WorkOrder:** HS17110083

**QC BATCH REPORT**

**Batch ID: R304751** **Instrument: VOA4** **Method: SW8260**

**MSD** Sample ID: **HS17101441-20MSD** Units: **ug/L** Analysis Date: **02-Nov-2017 19:29**
Client ID: Run ID: **VOA4_304751** SeqNo: **4293331** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | RPD %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Carbon disulfide | 118.7 | 2.0 | 100 | 1.259 | 117 | 64 - 133 | 137.3 | 14.5 | 20 | |
| Carbon tetrachloride | 54.06 | 1.0 | 50 | 0 | 108 | 72 - 136 | 59.15 | 8.99 | 20 | |
| Chlorobenzene | 49.79 | 1.0 | 50 | 0 | 99.6 | 80 - 120 | 56.6 | 12.8 | 20 | |
| Chloroethane | 54.76 | 1.0 | 50 | 0 | 110 | 82 - 118 | 62.45 | 13.1 | 20 | |
| Chloroform | 56.89 | 1.0 | 50 | 0.6307 | 113 | 79 - 124 | 63.84 | 11.5 | 20 | |
| Chloromethane | 47.15 | 1.0 | 50 | 0 | 94.3 | 50 - 139 | 53.77 | 13.1 | 20 | |
| cis-1,2-Dichloroethene | 53.81 | 1.0 | 50 | 0 | 108 | 78 - 123 | 62.05 | 14.2 | 20 | |
| cis-1,3-Dichloropropene | 56.61 | 1.0 | 50 | 0 | 113 | 75 - 124 | 62.11 | 9.27 | 20 | |
| Dibromochloromethane | 50.78 | 1.0 | 50 | 0 | 102 | 74 - 126 | 55.16 | 8.28 | 20 | |
| Dibromomethane | 54.02 | 1.0 | 50 | 0 | 108 | 79 - 123 | 59.29 | 9.29 | 20 | |
| Dichlorodifluoromethane | 50.59 | 1.0 | 50 | 0 | 101 | 32 - 152 | 56.84 | 11.6 | 20 | |
| Ethylbenzene | 50.76 | 1.0 | 50 | 0 | 102 | 79 - 121 | 57.41 | 12.3 | 20 | |
| Hexachlorobutadiene | 48.06 | 1.0 | 50 | 0 | 96.1 | 66 - 134 | 48.95 | 1.84 | 20 | |
| Isopropylbenzene | 52.02 | 1.0 | 50 | 0 | 104 | 72 - 131 | 58.53 | 11.8 | 20 | |
| m,p-Xylene | 100.4 | 2.0 | 100 | 0 | 100 | 80 - 121 | 113.5 | 12.3 | 20 | |
| Methylene chloride | 54.16 | 2.0 | 50 | 0 | 108 | 74 - 124 | 62.33 | 14 | 20 | |
| Naphthalene | 50.64 | 1.0 | 50 | 0 | 101 | 61 - 128 | 54.43 | 7.22 | 20 | |
| n-Butylbenzene | 50.22 | 1.0 | 50 | 0 | 100 | 75 - 128 | 56.41 | 11.6 | 20 | |
| n-Propylbenzene | 47.24 | 1.0 | 50 | 0 | 94.5 | 76 - 126 | 53.95 | 13.3 | 20 | |
| o-Xylene | 50.75 | 1.0 | 50 | 0 | 101 | 78 - 122 | 56.76 | 11.2 | 20 | |
| sec-Butylbenzene | 46.83 | 1.0 | 50 | 0 | 93.7 | 77 - 126 | 51.38 | 9.26 | 20 | |
| Styrene | 50.75 | 1.0 | 50 | 0 | 101 | 78 - 128 | 56.54 | 10.8 | 20 | |
| tert-Butylbenzene | 47.25 | 1.0 | 50 | 0 | 94.5 | 78 - 124 | 53.06 | 11.6 | 20 | |
| Tetrachloroethene | 51.88 | 1.0 | 50 | 0 | 104 | 74 - 129 | 56.61 | 8.72 | 20 | |
| Toluene | 50.31 | 1.0 | 50 | 0 | 101 | 80 - 121 | 56.85 | 12.2 | 20 | |
| trans-1,2-Dichloroethene | 56.43 | 1.0 | 50 | 0 | 113 | 75 - 124 | 62.41 | 10.1 | 20 | |
| trans-1,3-Dichloropropene | 56.61 | 1.0 | 50 | 0 | 113 | 73 - 127 | 62.11 | 9.27 | 20 | |
| Trichloroethene | 56.78 | 1.0 | 50 | 2.416 | 109 | 79 - 123 | 63.62 | 11.4 | 20 | |
| Trichlorofluoromethane | 59.77 | 1.0 | 50 | 0 | 120 | 65 - 141 | 68.79 | 14 | 20 | |
| Vinyl chloride | 54.86 | 1.0 | 50 | 0 | 110 | 58 - 137 | 62.13 | 12.4 | 20 | |
| *Surr: 1,2-Dichloroethane-d4* | *50.3* | *1.0* | *50* | *0* | *101* | *81 - 118* | *50.19* | *0.219* | *20* | |
| *Surr: 4-Bromofluorobenzene* | *54.38* | *1.0* | *50* | *0* | *109* | *85 - 114* | *55.52* | *2.08* | *20* | |
| *Surr: Dibromofluoromethane* | *51.07* | *1.0* | *50* | *0* | *102* | *80 - 119* | *51.92* | *1.66* | *20* | |
| *Surr: Toluene-d8* | *49.53* | *1.0* | *50* | *0* | *99.1* | *89 - 112* | *50.19* | *1.33* | *20* | |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 09-Nov-17

| | |
|---|---|
| **Client:** | Bhate Environmental Associates, Inc. |
| **Project:** | Groundwater Treatment Plant Bi-Weekly Samples |
| **WorkOrder:** | HS17110083 |

**QC BATCH REPORT**

| | | | | | |
|---|---|---|---|---|---|
| **Batch ID:** | **R304751** | **Instrument:** | **VOA4** | **Method:** | **SW8260** |

**The following samples were analyzed in this batch:** HS17110083-01 HS17110083-02

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 09-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Bi-Weekly Samples
**WorkOrder:** HS17110083

**QC BATCH REPORT**

**Batch ID: R305085** **Instrument: ICS2100** **Method: SW9056**

**MBLK** Sample ID: **WBLKW1-110217** Units: **mg/L** Analysis Date: **02-Nov-2017 12:07**
Client ID: Run ID: **ICS2100_305085** SeqNo: **4300963** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 0.250 | 0.500 | | | | | | | | U |
| Sulfate | 0.250 | 0.500 | | | | | | | | U |

**LCS** Sample ID: **WLCSW1-110217** Units: **mg/L** Analysis Date: **02-Nov-2017 12:22**
Client ID: Run ID: **ICS2100_305085** SeqNo: **4300964** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 20.77 | 0.500 | 20 | 0 | 104 | 80 - 120 | | | | |
| Sulfate | 21.2 | 0.500 | 20 | 0 | 106 | 80 - 120 | | | | |

**LCSD** Sample ID: **WLCSDW1-110217** Units: **mg/L** Analysis Date: **02-Nov-2017 12:36**
Client ID: Run ID: **ICS2100_305085** SeqNo: **4300965** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 20.44 | 0.500 | 20 | 0 | 102 | 80 - 120 | 20.77 | 1.62 | 20 | |
| Sulfate | 20.68 | 0.500 | 20 | 0 | 103 | 80 - 120 | 21.2 | 2.51 | 20 | |

**MS** Sample ID: **HS17110079-01MS** Units: **mg/L** Analysis Date: **02-Nov-2017 13:49**
Client ID: Run ID: **ICS2100_305085** SeqNo: **4300966** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 49.01 | 0.500 | 10 | 38.22 | 108 | 80 - 120 | | | | |
| Sulfate | 58.26 | 0.500 | 10 | 47.62 | 106 | 80 - 120 | | | | O |

**MSD** Sample ID: **HS17110079-01MSD** Units: **mg/L** Analysis Date: **02-Nov-2017 14:03**
Client ID: Run ID: **ICS2100_305085** SeqNo: **4300967** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 48.52 | 0.500 | 10 | 38.22 | 103 | 80 - 120 | 49.01 | 1.01 | 20 | |
| Sulfate | 57.44 | 0.500 | 10 | 47.62 | 98.2 | 80 - 120 | 58.26 | 1.43 | 20 | O |

**The following samples were analyzed in this batch:** HS17110083-01

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 09-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Bi-Weekly Samples
**WorkOrder:** **HS17110083**

**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 | 17-027-0 | 27-Mar-2018 |
| California | 2919 2016-2018 | 31-Jul-2018 |
| Illinois | 004112 | 09-May-2018 |
| Kentucky | 123043 | 30-Apr-2018 |
| Louisiana | 03087 2017-2017 | 30-Jun-2018 |
| North Carolina | 624-2017 | 31-Dec-2017 |
| North Dakota | R193 2017-2017 | 30-Apr-2018 |
| Oklahoma | 2017-088 | 31-Aug-2018 |
| Texas | T104704231-17-19 | 30-Apr-2018 |

**ALS Group USA, Corp** Date: 09-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Groundwater Treatment Plant Bi-Weekly Samples
**Work Order:** HS17110083

**SAMPLE TRACKING**

| Lab Samp ID | Client Sample ID | Action | Date | Person | New Location |
|---|---|---|---|---|---|
| HS17110083-01 | LH18/24-SP650_110117 | Login | 11/2/2017 10:07:17 AM | CL | GCP089 |
| HS17110083-01 | LH18/24-SP650_110117 | Login | 11/2/2017 10:07:17 AM | CL | VOA096 |
| HS17110083-02 | Trip Blank | Login | 11/2/2017 10:07:17 AM | CL | VOA096 |

**ALS Group USA, Corp** Date: 09-Nov-17

## Sample Receipt Checklist

Client Name: Bhate Environmental
Work Order: HS17110083
Date/Time Received: **02-Nov-2017 08:32**
Received by: **CL**

Checklist completed by: *Cesar A. Lira* eSignature 2-Nov-2017 Date
Reviewed by: *Sonia West* eSignature 3-Nov-2017 Date

Matrices: **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 ☑ |
| Chain of custody present? | Yes ☑ | No ☐ | |
| Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | |
| Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | |
| Samples in proper container/bottle? | Yes ☑ | No ☐ | |
| Sample containers intact? | Yes ☑ | No ☐ | |
| TX1005 solids received in hermetically sealed vials? | Yes ☐ | No ☐ | N/A ☑ |
| 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): | 1.8c/2.1c uc/c | IR25 | |
| Cooler(s)/Kit(s): | 43239 | | |
| Date/Time sample(s) sent to storage: | 11/2/2017 10:25 | | |
| 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:

# CHAIN OF CUSTODY

Name Of Lab Shipping To: ALS 10450 Stancliff Rd. Suite 210, Houston, Tx. 77099 ATTN: SONIA WEST



**Project:** BHATE
LONGHORN ARMY AMMN. PLANT (LHAAP)
GROUNDWATER TREATMENT PLANT (GWTP)
KARNACK, TEXAS

**Project No.** NWO1312.0150.0 16.0001

**Job:**
## GROUNDWATER TREATMENT PLANT BI-WEEKLY SAMPLES

**Prepared By:** Scott Beesinger

**P.O Number**

**HS17110083**
Bhate Environmental Associates, Inc.
Groundwater Treatment Plant Bi-Weekly Samples

| Field Sample I.D. | Sample Matrix | Date / Time | MS / MSD | No. OF CONTAINERS | Analyses: VOC | Analyses: CHLORIDE, SULFATE | Remarks (Preservatives, etc.) | Lab I.D.# |
|---|---|---|---|---|---|---|---|---|
| LH18/24-SP650_110117 | Water | 11/01/17 / 14:00 | | 3 | 3 | | HCL | |
| LH18/24-SP650_110117 | Water | 11/01/17 / 14:00 | | 1 | | 1 | NONE | |
| Trip Blank | Water | 11/01/17 | | 2 | 2 | | HCL | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

**Additional Remarks:** STANDARD TAT ON ALL PARAMETERS.

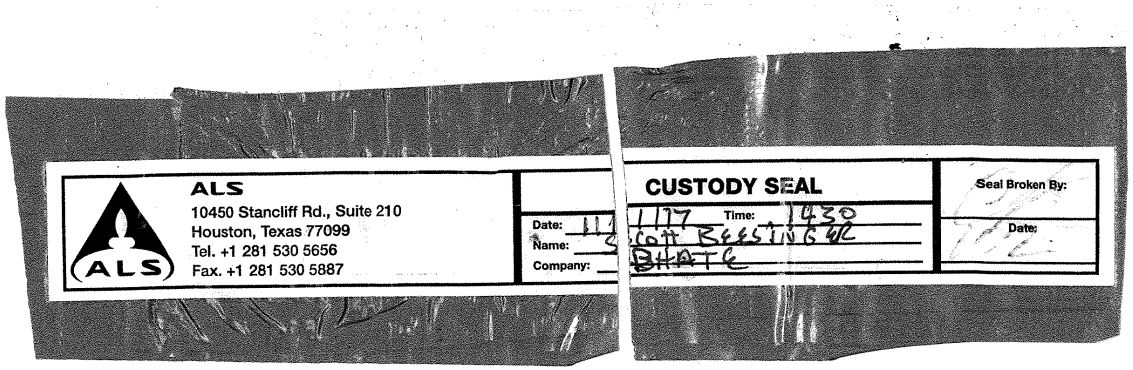
| Relinquished By: | Date | Time | Received By: | Date | Time | Relinquished By: | Date | Time | Received By: | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Scott Beesinger | 11/01/17 | 14:30 | | | | | | | | | |

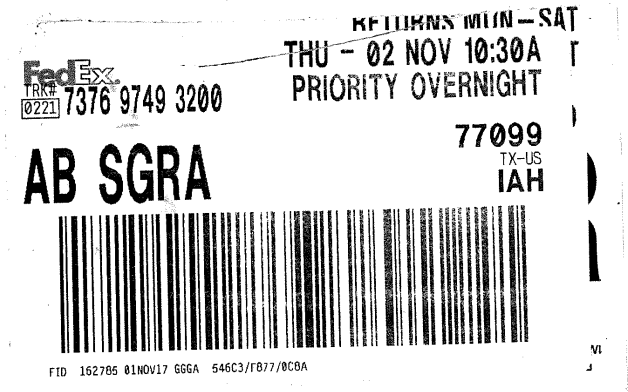
**For Lab Use Only**

| Received At Lab By: | Date | Time | Airbill No. | Opened By: | Date | Time | Temp of Container | Seal No. | Condition |
|---|---|---|---|---|---|---|---|---|---|
| Cesar Lu | 11-2-17 | 0832 | | | | 1.8c | | | 43239 |

Remarks
vm-25
OPC+0.3c

(Word) S:\1-ces\Forms\Chain of Custody - BiWeekly


ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887
Date:
Name:
Company:
CUSTODY SEAL
Time:
Seal Broken By:
Date:


RETURNS MTN – SAT
THU - 02 NOV 10:30A
PRIORITY OVERNIGHT
FedEx
TRK# 0221 7376 9749 3200
77099
TX-US
IAH
AB SGRA
FID 162705 01NOV17 GGGA 546C3/FB77/0C0A

# Volatile Organics Raw Data

Bhate Environmental Associates, Inc.
Project: GROUNDWATER TREATMENT PLANT
BI-WEEKLY SAMPLES
ALS WO# HS17110083

# FORM 2
## WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17110083

| | CLIENT SAMPLE NO. | SMC1 (DCE)# | SMC2 # | SMC3 (TOL)# | OTHER # | TOT OUT |
|---|---|---|---|---|---|---|
| 01 | VLCSW-171102 | 96 | 102 | 102 | 111 | 0 |
| 02 | VBLKW-171102 | 99 | 104 | 99 | 108 | 0 |
| 03 | HS17110083-02 | 98 | 98 | 99 | 106 | 0 |
| 04 | HS17110083-01 | 99 | 99 | 102 | 108 | 0 |
| 05 | HS17101441-20 | 100 | 104 | 100 | 111 | 0 |
| 06 | HS17101441-20 | 100 | 102 | 99 | 109 | 0 |
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| | | QC LIMITS |
|---|---|---|
| SMC1 (DCE) | = 1,2-Dichloroethane-d4 | (70-130) |
| SMC2 | = Dibromofluoromethane | (70-130) |
| SMC3 (TOL) | = Toluene-d8 | (70-130) |
| OTHER | = 4-Bromofluorobenzene | (70-130) |

# Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17110083

Matrix Spike - Sample No.: VSTD-ICV

| COMPOUND | SPIKE ADDED (ug/L) | SAMPLE AMOUNT (ug/l) | % REC # | QC. LIMITS REC. |
|---|---|---|---|---|
| 1,1,1-Trichloroethane | 50.00 | 49.14 | 98 | 80-120 |
| 1,1,1,2-Tetrachloroetha | 50.00 | 45.84 | 92 | 80-120 |
| tert-Butylbenzene | 50.00 | 45.99 | 92 | 80-120 |
| Naphthalene | 50.00 | 52.06 | 104 | 80-120 |
| sec-Butylbenzene | 50.00 | 45.17 | 90 | 80-120 |
| 1,1,2,2-Tetrachloroetha | 50.00 | 45.76 | 92 | 80-120 |
| 1,1,2-Trichloroethane | 50.00 | 45.73 | 91 | 80-120 |
| 1,1-Dichloropropene | 50.00 | 46.92 | 94 | 80-120 |
| 1,1-Dichloroethane | 50.00 | 46.89 | 94 | 80-120 |
| 1,1-Dichloroethene | 50.00 | 45.81 | 92 | 80-120 |
| 1,2,4-Trichlorobenzene | 50.00 | 51.64 | 103 | 80-120 |
| 1,2-Dibromo-3-Chloropro | 50.00 | 48.19 | 96 | 80-120 |
| 1,2-Dibromoethane | 50.00 | 46.24 | 92 | 80-120 |
| 1,2-Dichlorobenzene | 50.00 | 46.86 | 94 | 80-120 |
| 1,2-Dichloroethane | 50.00 | 48.44 | 97 | 80-120 |
| 1,2-Dichloropropane | 50.00 | 45.16 | 90 | 80-120 |
| 1,3-Dichlorobenzene | 50.00 | 46.66 | 93 | 80-120 |
| 1,4-Dichlorobenzene | 50.00 | 44.78 | 90 | 80-120 |
| 2-Butanone | 100.00 | 97.93 | 98 | 80-120 |
| 2-Hexanone | 100.00 | 105.14 | 105 | 80-120 |
| 4-Methyl-2-Pentanone | 100.00 | 108.17 | 108 | 80-120 |
| Acetone | 100.00 | 92.64 | 93 | 80-120 |
| Benzene | 50.00 | 45.50 | 91 | 80-120 |
| Bromodichloromethane | 50.00 | 47.44 | 95 | 80-120 |
| Bromoform | 50.00 | 50.89 | 102 | 80-120 |
| Bromomethane | 50.00 | 44.39 | 89 | 80-120 |
| Carbon Disulfide | 100.00 | 92.62 | 93 | 80-120 |
| Carbon Tetrachloride | 50.00 | 44.21 | 88 | 80-120 |

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

* Values outside of QC limits

COMMENTS: _____

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FORM III VOA

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17110083

Matrix Spike - Sample No.: VSTD-ICV

| COMPOUND | SPIKE ADDED (ug/L) | SAMPLE AMOUNT (ug/l) | % REC # | QC. LIMITS REC. |
|---|---|---|---|---|
| Chlorobenzene | 50.00 | 45.16 | 90 | 80-120 |
| Chloroethane | 50.00 | 47.14 | 94 | 80-120 |
| Chloroform | 50.00 | 46.12 | 92 | 80-120 |
| Chloromethane | 50.00 | 44.11 | 88 | 80-120 |
| cis-1,2-Dichloroethene | 50.00 | 44.85 | 90 | 80-120 |
| cis-1,3-Dichloropropene | 50.00 | 49.33 | 99 | 80-120 |
| Dibromochloromethane | 50.00 | 47.74 | 95 | 80-120 |
| Dichlorodifluoromethane | 50.00 | 49.07 | 98 | 80-120 |
| Ethylbenzene | 50.00 | 44.78 | 90 | 80-120 |
| Isopropylbenzene | 50.00 | 45.68 | 91 | 80-120 |
| Methylene Chloride | 50.00 | 46.26 | 92 | 80-120 |
| Tetrachloroethene | 50.00 | 45.56 | 91 | 80-120 |
| Toluene | 50.00 | 45.71 | 91 | 80-120 |
| trans-1,2-Dichloroethen | 50.00 | 46.35 | 93 | 80-120 |
| trans-1,3-Dichloroprope | 50.00 | 49.33 | 99 | 80-120 |
| Trichloroethene | 50.00 | 45.64 | 91 | 80-120 |
| Trichlorofluoromethane | 50.00 | 49.81 | 100 | 80-120 |
| Vinyl Chloride | 50.00 | 46.50 | 93 | 80-120 |
| m,p-Xylenes | 100.00 | 91.03 | 91 | 80-120 |
| o-Xylene | 50.00 | 45.32 | 91 | 80-120 |
| Xylenes (total) | 150.00 | 136.36 | 91 | 80-120 |
| 1,2,3-Trichloropropane | 50.00 | 49.28 | 98 | 80-120 |
| 1,2,3-Trichlorobenzene | 50.00 | 48.97 | 98 | 80-120 |
| 1,2,4-Trimethylbenzene | 50.00 | 45.17 | 90 | 80-120 |
| 1,3,5-Trimethylbenzene | 50.00 | 45.71 | 91 | 80-120 |
| 2,2-Dichloropropane | 50.00 | 47.27 | 94 | 80-120 |
| 1,3-Dichloropropane | 50.00 | 47.37 | 95 | 80-120 |
| 2-Chlorotoluene | 50.00 | 45.17 | 90 | 80-120 |

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

* Values outside of QC limits

COMMENTS: _____

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FORM III VOA

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17110083

Matrix Spike - Sample No.: VSTD-ICV

| COMPOUND | SPIKE ADDED (ug/L) | SAMPLE AMOUNT (ug/l) | % REC # | QC. LIMITS REC. |
|---|---|---|---|---|
| 4-Chlorotoluene | 50.00 | 45.51 | 91 | 80-120 |
| p-Isopropyltoluene | 50.00 | 47.00 | 94 | 80-120 |
| Bromochloromethane | 50.00 | 45.93 | 92 | 80-120 |
| Bromobenzene | 50.00 | 44.75 | 90 | 80-120 |
| Dibromomethane | 50.00 | 45.96 | 92 | 80-120 |
| Hexachlorobutadiene | 50.00 | 47.91 | 96 | 80-120 |
| n-Propylbenzene | 50.00 | 46.53 | 93 | 80-120 |
| n-Butylbenzene | 50.00 | 47.57 | 95 | 80-120 |
| Styrene | 50.00 | 45.55 | 91 | 80-120 |

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

* Values outside of QC limits

COMMENTS: _____

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FORM III VOA

# FORM 5
## VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
## BROMOFLUOROBENZENE (BFB)

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17110083

Lab File ID: J110201 BFB Injection Date: 11/02/17

Instrument ID: VOA4 BFB Injection Time: 0959

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 | 25.0 |
| 75 | 30.0 - 60.0% of mass 95 | 48.5 |
| 95 | Base Peak, 100% relative abundance | 100.0 |
| 96 | 5.0 - 9.0% of mass 95 | 7.2 |
| 173 | Less than 2.0% of mass 174 | 0.4 ( 0.8)1 |
| 174 | Greater than 50.0% of mass 95 | 51.0 |
| 175 | 5.0 - 9.0% of mass 174 | 4.0 ( 7.8)1 |
| 176 | 95.0 - 101.0% of mass 174 | 48.7 ( 95.4)1 |
| 177 | 5.0 - 9.0% of mass 176 | 3.4 ( 7.0)2 |

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

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

| | EPA SAMPLE NO. | LAB SAMPLE ID | LAB FILE ID | DATE ANALYZED | TIME ANALYZED |
|---|---|---|---|---|---|
| 01 | VSTD00.5 | VSTD00.5 | J110202 | 11/02/17 | 1031 |
| 02 | VSTD001 | VSTD001 | J110203 | 11/02/17 | 1056 |
| 03 | VSTD002 | VSTD002 | J110204 | 11/02/17 | 1121 |
| 04 | VSTD005 | VSTD005 | J110205 | 11/02/17 | 1146 |
| 05 | VSTD010 | VSTD010 | J110206 | 11/02/17 | 1212 |
| 06 | VSTD020 | VSTD020 | J110207 | 11/02/17 | 1237 |
| 07 | VSTD050 | VSTD050 | J110208 | 11/02/17 | 1302 |
| 08 | VSTD100 | VSTD100 | J110209 | 11/02/17 | 1328 |
| 09 | VSTD200 | VSTD200 | J110210 | 11/02/17 | 1353 |
| 10 | VSTD-ICV | VSTD-ICV | J110212 | 11/02/17 | 1445 |
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# FORM 6
## VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17110083

Instrument ID: VOA4 Calibration Date(s): 11/02/17 11/02/17

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1031 1353

LAB FILE ID: RF0.5: J110202 RF1: J110203 RF2: J110204
RF5: J110205 RF10: J110206 RF20: J110207

| COMPOUND | RF0.5 | RF1 | RF2 | RF5 | RF10 | RF20 |
|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | 0.596 | 0.778 | 0.736 | 0.680 | 0.694 | 0.730 |
| 1,1,1,2-Tetrachloroethane | 0.393 | 0.437 | 0.368 | 0.377 | 0.346 | 0.350 |
| tert-Butylbenzene | 2.222 | 2.441 | 2.425 | 2.254 | 2.226 | 2.246 |
| Naphthalene | 3500 | 5919 | 11931 | 42350 | 96809 | 225437 |
| sec-Butylbenzene | 2.583 | 3.420 | 3.082 | 3.062 | 2.768 | 2.850 |
| 1,1,2,2-Tetrachloroethane | 0.961 | 1.015 | 1.004 | 0.894 | 0.866 | 0.867 |
| 1,1,2-Trichloroethane | 0.282 | 0.313 | 0.261 | 0.309 | 0.263 | 0.278 |
| 1,1-Dichloropropene | 0.331 | 0.481 | 0.439 | 0.406 | 0.419 | 0.426 |
| 1,1-Dichloroethane | 0.922 | 1.092 | 0.990 | 0.940 | 0.878 | 0.952 |
| 1,1-Dichloroethene | 0.444 | 0.474 | 0.467 | 0.429 | 0.383 | 0.416 |
| 1,2,4-Trichlorobenzene | 1336 | 2292 | 5197 | 17494 | 36068 | 76038 |
| 1,2-Dibromo-3-Chloropropane | 616 | 903 | 1534 | 3822 | 7544 | 14936 |
| 1,2-Dibromoethane | 0.327 | 0.384 | 0.332 | 0.328 | 0.310 | 0.333 |
| 1,2-Dichlorobenzene | 1.470 | 1.780 | 1.566 | 1.514 | 1.459 | 1.545 |
| 1,2-Dichloroethane | 0.456 | 0.528 | 0.497 | 0.455 | 0.455 | 0.453 |
| 1,2-Dichloropropane | 0.365 | 0.424 | 0.348 | 0.354 | 0.334 | 0.338 |
| 1,3-Dichlorobenzene | 1.595 | 1.772 | 1.664 | 1.701 | 1.577 | 1.602 |
| 1,4-Dichlorobenzene | 1.832 | 2.003 | 1.813 | 1.716 | 1.554 | 1.644 |
| 2-Butanone | 0.235 | 0.242 | 0.230 | 0.206 | 0.208 | 0.216 |
| 2-Hexanone | 0.187 | 0.254 | 0.180 | 0.197 | 0.231 | 0.235 |
| 4-Methyl-2-Pentanone | 0.294 | 0.259 | 0.289 | 0.378 | 0.334 | 0.365 |
| Acetone | 3913 | 5257 | 8055 | 15174 | 27242 | 46043 |
| Benzene | 1.376 | 1.498 | 1.428 | 1.373 | 1.318 | 1.308 |
| Bromodichloromethane | 0.396 | 0.479 | 0.428 | 0.423 | 0.413 | 0.409 |
| Bromoform | 0.225 | 0.221 | 0.194 | 0.228 | 0.201 | 0.224 |
| Bromomethane | 0.263 | 0.316 | 0.249 | 0.250 | 0.243 | 0.227 |
| Carbon Disulfide | 1.190 | 1.296 | 1.128 | 1.191 | 1.096 | 1.142 |
| Carbon Tetrachloride | 0.534 | 0.491 | 0.418 | 0.400 | 0.404 | 0.404 |
| Chlorobenzene | 1.028 | 1.178 | 1.108 | 1.101 | 1.025 | 1.064 |
| Chloroethane | 0.475 | 0.468 | 0.352 | 0.336 | 0.324 | 0.358 |
| Chloroform | 0.805 | 0.994 | 0.928 | 0.847 | 0.848 | 0.835 |
| Chloromethane | 1.005 | 1.116 | 0.954 | 0.843 | 0.850 | 0.835 |
| cis-1,2-Dichloroethene | 0.609 | 0.740 | 0.628 | 0.592 | 0.553 | 0.566 |
| cis-1,3-Dichloropropene | 0.458 | 0.526 | 0.520 | 0.505 | 0.492 | 0.507 |
| Dibromochloromethane | 0.375 | 0.411 | 0.376 | 0.385 | 0.349 | 0.375 |
| Dichlorodifluoromethane | 0.422 | 0.494 | 0.543 | 0.497 | 0.492 | 0.506 |
| Ethylbenzene | 0.580 | 0.636 | 0.603 | 0.570 | 0.554 | 0.578 |
| Isopropylbenzene | 1.479 | 1.850 | 1.740 | 1.726 | 1.603 | 1.664 |
| Methylene Chloride | 0.640 | 0.614 | 0.561 | 0.483 | 0.477 | 0.507 |
| Tetrachloroethene | 0.297 | 0.350 | 0.297 | 0.320 | 0.268 | 0.297 |
| Toluene | 1.662 | 1.837 | 1.651 | 1.677 | 1.609 | 1.674 |
| trans-1,2-Dichloroethene | 0.523 | 0.584 | 0.526 | 0.507 | 0.498 | 0.500 |
| trans-1,3-Dichloropropene | 0.458 | 0.526 | 0.520 | 0.505 | 0.492 | 0.507 |
| Trichloroethene | 0.339 | 0.380 | 0.340 | 0.331 | 0.327 | 0.331 |

# FORM 6
# VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1711008

Instrument ID: VOA4 Calibration Date(s): 11/02/17 11/02/17

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1031 1353

LAB FILE ID: RF0.5: J110202 RF1: J110203 RF2: J110204
RF5: J110205 RF10: J110206 RF20: J110207

| COMPOUND | RF0.5 | RF1 | RF2 | RF5 | RF10 | RF20 |
|---|---|---|---|---|---|---|
| Trichlorofluoromethane | 0.596 | 0.708 | 0.671 | 0.604 | 0.664 | 0.703 |
| Vinyl Chloride | 0.605 | 0.712 | 0.714 | 0.645 | 0.646 | 0.662 |
| m,p-Xylenes | 0.720 | 0.749 | 0.762 | 0.755 | 0.698 | 0.707 |
| o-Xylene | 0.623 | 0.824 | 0.719 | 0.740 | 0.658 | 0.693 |
| Xylenes (total) | 0.574 | 0.652 | 0.632 | 0.627 | 0.581 | 0.587 |
| 1,2,3-Trichloropropane | 0.878 | 1.044 | 0.793 | 0.950 | 0.913 | 0.913 |
| 1,2,3-Trichlorobenzene | 1004 | 2746 | 6050 | 19214 | 36680 | 82527 |
| 1,2,4-Trimethylbenzene | 2.583 | 3.420 | 3.082 | 3.062 | 2.768 | 2.850 |
| 1,3,5-Trimethylbenzene | 2.855 | 3.199 | 3.038 | 2.956 | 2.698 | 2.813 |
| 2,2-Dichloropropane | 0.656 | 0.598 | 0.596 | 0.535 | 0.563 | 0.586 |
| 1,3-Dichloropropane | 0.579 | 0.623 | 0.633 | 0.601 | 0.556 | 0.574 |
| 2-Chlorotoluene | 2.685 | 3.053 | 2.498 | 2.689 | 2.464 | 2.514 |
| 4-Chlorotoluene | 2.816 | 3.712 | 3.054 | 3.087 | 2.861 | 2.958 |
| p-Isopropyltoluene | 2.484 | 2.974 | 2.768 | 2.737 | 2.658 | 2.658 |
| Bromochloromethane | 0.272 | 0.304 | 0.293 | 0.265 | 0.252 | 0.249 |
| Bromobenzene | 1.021 | 1.008 | 1.022 | 0.942 | 0.864 | 0.899 |
| Dibromomethane | 0.189 | 0.242 | 0.210 | 0.187 | 0.168 | 0.173 |
| Hexachlorobutadiene | 0.385 | 0.371 | 0.418 | 0.340 | 0.335 | 0.317 |
| n-Propylbenzene | 3.722 | 4.414 | 4.150 | 4.112 | 3.834 | 3.965 |
| n-Butylbenzene | 1.856 | 2.252 | 2.238 | 2.149 | 2.079 | 2.213 |
| Styrene | 1.183 | 1.380 | 1.247 | 1.233 | 1.177 | 1.217 |
| 1,2-Dichloroethane-d4 | 7453 | 6462 | 10816 | 24961 | 47319 | 90473 |
| Dibromofluoromethane | 5258 | 5203 | 8431 | 19892 | 39283 | 74938 |
| Toluene-d8 | 27566 | 23649 | 36730 | 82497 | 154254 | 290546 |
| 4-Bromofluorobenzene | 11814 | 9725 | 16593 | 32795 | 60963 | 116436 |

FORM VI VOA

# FORM 6
# VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1711008

Instrument ID: VOA4 Calibration Date(s): 11/02/17 11/02/17

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1031 1353

LAB FILE ID: RF50: J110208 RF100: J110209 RF200: J110210

| COMPOUND | RF50 | RF100 | RF200 |
|---|---|---|---|
| 1,1,1-Trichloroethane | 0.743 | 0.719 | 0.732 |
| 1,1,1,2-Tetrachloroethane | 0.355 | 0.357 | 0.357 |
| tert-Butylbenzene | 2.181 | 2.147 | 2.013 |
| Naphthalene | 590953 | 1203837 | 2266987 |
| sec-Butylbenzene | 2.786 | 2.708 | 2.581 |
| 1,1,2,2-Tetrachloroethane | 0.840 | 0.842 | 0.826 |
| 1,1,2-Trichloroethane | 0.258 | 0.265 | 0.263 |
| 1,1-Dichloropropene | 0.410 | 0.407 | 0.395 |
| 1,1-Dichloroethane | 0.923 | 0.899 | 0.928 |
| 1,1-Dichloroethene | 0.407 | 0.396 | 0.402 |
| 1,2,4-Trichlorobenzene | 202385 | 395656 | 740485 |
| 1,2-Dibromo-3-Chloropropane | 39217 | 77154 | 151851 |
| 1,2-Dibromoethane | 0.319 | 0.323 | 0.316 |
| 1,2-Dichlorobenzene | 1.493 | 1.431 | 1.398 |
| 1,2-Dichloroethane | 0.444 | 0.454 | 0.443 |
| 1,2-Dichloropropane | 0.340 | 0.346 | 0.334 |
| 1,3-Dichlorobenzene | 1.569 | 1.515 | 1.493 |
| 1,4-Dichlorobenzene | 1.590 | 1.594 | 1.538 |
| 2-Butanone | 0.223 | 0.230 | 0.242 |
| 2-Hexanone | 0.244 | 0.264 | 0.263 |
| 4-Methyl-2-Pentanone | 0.369 | 0.386 | 0.372 |
| Acetone | 116441 | 234791 | 472260 |
| Benzene | 1.267 | 1.250 | 1.206 |
| Bromodichloromethane | 0.410 | 0.421 | 0.417 |
| Bromoform | 0.225 | 0.229 | 0.236 |
| Bromomethane | 0.235 | 0.267 | 0.299 |
| Carbon Disulfide | 1.085 | 1.057 | 1.049 |
| Carbon Tetrachloride | 0.404 | 0.401 | 0.394 |
| Chlorobenzene | 1.015 | 1.002 | 0.945 |
| Chloroethane | 0.358 | 0.354 | 0.360 |
| Chloroform | 0.818 | 0.826 | 0.826 |
| Chloromethane | 0.807 | 0.786 | 0.792 |
| cis-1,2-Dichloroethene | 0.551 | 0.540 | 0.552 |
| cis-1,3-Dichloropropene | 0.510 | 0.523 | 0.514 |
| Dibromochloromethane | 0.365 | 0.377 | 0.374 |
| Dichlorodifluoromethane | 0.508 | 0.497 | 0.482 |
| Ethylbenzene | 0.560 | 0.552 | 0.536 |
| Isopropylbenzene | 1.602 | 1.546 | 1.466 |
| Methylene Chloride | 0.496 | 0.497 | 0.504 |
| Tetrachloroethene | 0.285 | 0.282 | 0.269 |
| Toluene | 1.593 | 1.547 | 1.454 |
| trans-1,2-Dichloroethene | 0.501 | 0.483 | 0.486 |
| trans-1,3-Dichloropropene | 0.510 | 0.523 | 0.514 |
| Trichloroethene | 0.325 | 0.322 | 0.322 |

# FORM 6
## VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1711008

Instrument ID: VOA4 Calibration Date(s): 11/02/17 11/02/17

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1031 1353

LAB FILE ID: RF50: J110208 RF100: J110209 RF200: J110210

| COMPOUND | RF50 | RF100 | RF200 |
|---|---|---|---|
| Trichlorofluoromethane | 0.676 | 0.674 | 0.669 |
| Vinyl Chloride | 0.636 | 0.628 | 0.624 |
| m,p-Xylenes | 0.676 | 0.653 | 0.623 |
| o-Xylene | 0.675 | 0.675 | 0.652 |
| Xylenes (total) | 0.570 | 0.558 | 0.540 |
| 1,2,3-Trichloropropane | 0.932 | 0.984 | 0.994 |
| 1,2,3-Trichlorobenzene | 219116 | 435015 | 846966 |
| 1,2,4-Trimethylbenzene | 2.786 | 2.708 | 2.581 |
| 1,3,5-Trimethylbenzene | 2.771 | 2.636 | 2.483 |
| 2,2-Dichloropropane | 0.615 | 0.613 | 0.645 |
| 1,3-Dichloropropane | 0.574 | 0.565 | 0.555 |
| 2-Chlorotoluene | 2.460 | 2.372 | 2.248 |
| 4-Chlorotoluene | 2.889 | 2.761 | 2.583 |
| p-Isopropyltoluene | 2.614 | 2.572 | 2.388 |
| Bromochloromethane | 0.236 | 0.216 | |
| Bromobenzene | 0.872 | 0.858 | 0.846 |
| Dibromomethane | 0.176 | 0.178 | 0.180 |
| Hexachlorobutadiene | 0.323 | 0.318 | 0.289 |
| n-Propylbenzene | 3.826 | 3.664 | 3.347 |
| n-Butylbenzene | 2.163 | 2.083 | 1.997 |
| Styrene | 1.173 | 1.154 | 1.107 |
| 1,2-Dichloroethane-d4 | 221049 | 447910 | 872907 |
| Dibromofluoromethane | 178297 | 346990 | 685779 |
| Toluene-d8 | 691481 | 1349362 | 2600208 |
| 4-Bromofluorobenzene | 276560 | 552613 | 1056865 |

FORM VI VOA

# FORM 6
## VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1711008

Instrument ID: VOA4 Calibration Date(s): 11/02/17 11/02/17

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1031 1353

| COMPOUND | CURVE | COEFFICENTS A0 | COEFFICENTS A1 | %RSD OR R^2 | MAX %RSD OR R^2 |
|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | AVRG | | 0.71209250 | 7.250 | 15.000 |
| 1,1,1,2-Tetrachloroethane | AVRG | | 0.37114235 | 7.710 | 15.000 |
| tert-Butylbenzene | AVRG | | 2.23951048 | 5.882 | 15.000 |
| Naphthalene | LINR | -3.38e-004 | 0.45826490 | 0.9988354 | 0.9900000 |
| sec-Butylbenzene | AVRG | | 2.87113256 | 9.496 | 15.000 |
| 1,1,2,2-Tetrachloroethane | AVRG | | 0.90179258 | 8.074 | 15.000 |
| 1,1,2-Trichloroethane | AVRG | | 0.27698125 | 7.588 | 15.000 |
| 1,1-Dichloropropene | AVRG | | 0.41288722 | 9.604 | 15.000 |
| 1,1-Dichloroethane | AVRG | | 0.94733023 | 6.612 | 15.000 |
| 1,1-Dichloroethene | AVRG | | 0.42427716 | 7.497 | 15.000 |
| 1,2,4-Trichlorobenzene | LINR | -1.61e-002 | 1.40471948 | 0.9983749 | 0.9900000 |
| 1,2-Dibromo-3-Chloropropane | LINR | -1.13e-002 | 6.93341335 | 0.9998138 | 0.9900000 |
| 1,2-Dibromoethane | AVRG | | 0.33025505 | 6.504 | 15.000 |
| 1,2-Dichlorobenzene | AVRG | | 1.51759677 | 7.359 | 15.000 |
| 1,2-Dichloroethane | AVRG | | 0.46516795 | 6.138 | 15.000 |
| 1,2-Dichloropropane | AVRG | | 0.35376910 | 7.997 | 15.000 |
| 1,3-Dichlorobenzene | AVRG | | 1.60970015 | 5.521 | 15.000 |
| 1,4-Dichlorobenzene | AVRG | | 1.69844179 | 9.220 | 15.000 |
| 2-Butanone | AVRG | | 0.22568109 | 5.980 | 15.000 |
| 2-Hexanone | AVRG | | 0.22837684 | 14.225 | 15.000 |
| 4-Methyl-2-Pentanone | AVRG | | 0.33863419 | 13.710 | 15.000 |
| Acetone | LINR | -3.17e-002 | 6.85058837 | 0.9996689 | 0.9900000 |
| Benzene | AVRG | | 1.33589517 | 6.896 | 15.000 |
| Bromodichloromethane | AVRG | | 0.42168680 | 5.520 | 15.000 |
| Bromoform | AVRG | | 0.22049966 | 6.232 | 15.000 |
| Bromomethane | AVRG | | 0.26099063 | 11.208 | 15.000 |
| Carbon Disulfide | AVRG | | 1.13724653 | 6.932 | 15.000 |
| Carbon Tetrachloride | AVRG | | 0.42787079 | 11.570 | 15.000 |
| Chlorobenzene | AVRG | | 1.05168760 | 6.561 | 15.000 |
| Chloroethane | AVRG | | 0.37617861 | 14.685 | 15.000 |
| Chloroform | AVRG | | 0.85842170 | 7.201 | 15.000 |
| Chloromethane | AVRG | | 0.88758339 | 12.742 | 15.000 |
| cis-1,2-Dichloroethene | AVRG | | 0.59246013 | 10.645 | 15.000 |
| cis-1,3-Dichloropropene | AVRG | | 0.50614823 | 4.101 | 15.000 |
| Dibromochloromethane | AVRG | | 0.37637328 | 4.386 | 15.000 |
| Dichlorodifluoromethane | AVRG | | 0.49343392 | 6.463 | 15.000 |
| Ethylbenzene | AVRG | | 0.57444238 | 5.224 | 15.000 |
| Isopropylbenzene | AVRG | | 1.63060398 | 7.787 | 15.000 |
| Methylene Chloride | AVRG | | 0.53106715 | 11.258 | 15.000 |
| Tetrachloroethene | AVRG | | 0.29636569 | 8.678 | 15.000 |
| Toluene | AVRG | | 1.63402684 | 6.426 | 15.000 |
| trans-1,2-Dichloroethene | AVRG | | 0.51193976 | 5.982 | 15.000 |
| trans-1,3-Dichloropropene | AVRG | | 0.50614823 | 4.101 | 15.000 |
| Trichloroethene | AVRG | | 0.33543435 | 5.386 | 15.000 |

FORM VI VOA

# FORM 6
# VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1711008

Instrument ID: VOA4 Calibration Date(s): 11/02/17 11/02/17

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1031 1353

| COMPOUND | CURVE | COEFFICENTS A0 | COEFFICENTS A1 | %RSD OR R^2 | MAX %RSD OR R^2 |
|---|---|---|---|---|---|
| Trichlorofluoromethane | AVRG | | 0.66269597 | 5.839 | 15.000 |
| Vinyl Chloride | AVRG | | 0.65239115 | 5.790 | 15.000 |
| m,p-Xylenes | AVRG | | 0.70478826 | 6.767 | 15.000 |
| o-Xylene | AVRG | | 0.69544842 | 8.575 | 15.000 |
| Xylenes (total) | AVRG | | 0.59137683 | 6.342 | 15.000 |
| 1,2,3-Trichloropropane | AVRG | | 0.93341222 | 7.782 | 15.000 |
| 1,2,3-Trichlorobenzene | LINR | -5.02e-004 | 1.23583392 | 0.9996074 | 0.9900000 |
| 1,2,4-Trimethylbenzene | AVRG | | 2.87113256 | 9.496 | 15.000 |
| 1,3,5-Trimethylbenzene | AVRG | | 2.82779821 | 7.662 | 15.000 |
| 2,2-Dichloropropane | AVRG | | 0.60099031 | 6.262 | 15.000 |
| 1,3-Dichloropropane | AVRG | | 0.58458284 | 4.843 | 15.000 |
| 2-Chlorotoluene | AVRG | | 2.55365870 | 9.111 | 15.000 |
| 4-Chlorotoluene | AVRG | | 2.96897710 | 10.697 | 15.000 |
| p-Isopropyltoluene | AVRG | | 2.65035904 | 6.400 | 15.000 |
| Bromochloromethane | AVRG | | 0.26094392 | 11.120 | 15.000 |
| Bromobenzene | AVRG | | 0.92580169 | 7.978 | 15.000 |
| Dibromomethane | AVRG | | 0.18925602 | 12.316 | 15.000 |
| Hexachlorobutadiene | AVRG | | 0.34412989 | 11.643 | 15.000 |
| n-Propylbenzene | AVRG | | 3.89267443 | 8.015 | 15.000 |
| n-Butylbenzene | AVRG | | 2.11460469 | 6.042 | 15.000 |
| Styrene | AVRG | | 1.20805593 | 6.393 | 15.000 |
| 1,2-Dichloroethane-d4 | LINR | -1.52e-002 | 1.83951692 | 0.9999924 | 0.9900000 |
| Dibromofluoromethane | LINR | -2.16e-002 | 2.34859521 | 0.9998545 | 0.9900000 |
| Toluene-d8 | LINR | -4.14e-002 | 0.85208888 | 0.9994872 | 0.9900000 |
| 4-Bromofluorobenzene | LINR | -3.93e-002 | 2.09370875 | 0.9994404 | 0.9900000 |

FORM VI VOA

# MSVOA04 -Logbook

**Batch:** 29625
**Date:** 11-02-2017
**Method:** 8260
**Comments:**

**Analyst:** Anjana Poluri
**Reviewer:**
**Laboratory:** Houston

| # | Samp ID | Type | Analyzed | DF | Init Wt/Vol | Final Vol | File ID | Matrix | Status | pH |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | BFB | TUNE | 11-02-2017 09:59 am | 1.00 | 50 mL | 50 mL | J110201.D | Liquid | Y | NA |
| | *Auto find/purged* | | | | | | | | | |
| 2 | VSTD00.5 | ICAL1 | 11-02-2017 10:31 am | 1.00 | 50 mL | 50 mL | J110202.D | Liquid | Y | NA |
| | *0.5 uL cal std/250 mL DI* | | | | | | | | | |
| 3 | VSTD001 | ICAL2 | 11-02-2017 10:56 am | 1.00 | 50 mL | 50 mL | J110203.D | Liquid | Y | NA |
| | *1 uL cal std/250 mL DI* | | | | | | | | | |
| 4 | VSTD002 | ICAL3 | 11-02-2017 11:21 am | 1.00 | 50 mL | 50 mL | J110204.D | Liquid | Y | NA |
| | *2 uL cal std/250 mL DI* | | | | | | | | | |
| 5 | VSTD005 | ICAL4 | 11-02-2017 11:46 am | 1.00 | 50 mL | 50 mL | J110205.D | Liquid | Y | NA |
| | *5 uL cal std/250 mL DI* | | | | | | | | | |
| 6 | VSTD010 | ICAL5 | 11-02-2017 12:12 pm | 1.00 | 50 mL | 50 mL | J110206.D | Liquid | Y | NA |
| | *2 uL cal std/50 mL DI* | | | | | | | | | |
| 7 | VSTD020 | ICAL6 | 11-02-2017 12:37 pm | 1.00 | 50 mL | 50 mL | J110207.D | Liquid | Y | NA |
| | *4 uL cal std/50 mL DI* | | | | | | | | | |
| 8 | VSTD050 | ICAL7 | 11-02-2017 01:02 pm | 1.00 | 50 mL | 50 mL | J110208.D | Liquid | Y | NA |
| | *10 uL cal std/50 mL DI* | | | | | | | | | |
| 9 | VSTD100 | ICAL8 | 11-02-2017 01:28 pm | 1.00 | 50 mL | 50 mL | J110209.D | Liquid | Y | NA |
| | *20 uL cal std/50 mL DI* | | | | | | | | | |
| 10 | VSTD200 | ICAL9 | 11-02-2017 01:53 pm | 1.00 | 50 mL | 50 mL | J110210.D | Liquid | Y | NA |
| | *40 uL cal std/50 mL DI* | | | | | | | | | |
| 11 | BLK | SAMP | 11-02-2017 02:19 pm | 1.00 | 50 mL | 50 mL | J110211.D | Liquid | Y | NA |
| | *Cleanup blk* | | | | | | | | | |
| 12 | VSTD050-ICV | ICV | 11-02-2017 02:45 pm | 1.00 | 50 mL | 50 mL | J110212.D | Liquid | Y | NA |
| | *10 uL ICV std/50 mL DI* | | | | | | | | | |
| 13 | VLCSW-171102 | LCS | 11-02-2017 03:11 pm | 1.00 | 50 mL | 50 mL | J110213.D | Liquid | Y | NA |
| | *10 uL cal std/50 mL DI* | | | | | | | | | |
| 14 | VLCSW-171102 | LCS | 11-02-2017 03:37 pm | 1.00 | 50 mL | 50 mL | J110214.D | Liquid | Y | NA |
| | *10 uL cal std/50 mL DI* | | | | | | | | | |
| 15 | BLK | SAMP | 11-02-2017 04:03 pm | 1.00 | 50 mL | 50 mL | J110215.D | Liquid | Y | NA |
| 16 | VBLKW-171102 | MBLK | 11-02-2017 04:29 pm | 1.00 | 50 mL | 50 mL | J110216.D | Liquid | Y | NA |
| 17 | HS17110086-07 | SAMP | 11-02-2017 04:55 pm | 1.00 | 50 mL | 50 mL | J110217.D | Liquid | Y | <2 |
| 18 | HS17110083-02 | SAMP | 11-02-2017 05:21 pm | 1.00 | 50 mL | 50 mL | J110218.D | Liquid | Y | <2 |
| 19 | HS17110101-02 | SAMP | 11-02-2017 05:47 pm | 1.00 | 50 mL | 50 mL | J110219.D | Liquid | Y | <2 |
| 20 | HS17110083-01 | SAMP | 11-02-2017 06:12 pm | 1.00 | 50 mL | 50 mL | J110220.D | Liquid | Y | <2 |
| 21 | HS17101441-20 | SAMP | 11-02-2017 06:38 pm | 1.00 | 50 mL | 50 mL | J110221.D | Liquid | Y | <2 |
| 22 | HS17101441-20MS | MS | 11-02-2017 07:04 pm | 1.00 | 50 mL | 50 mL | J110222.D | Liquid | Y | <2 |
| 23 | HS17101441-20MSD | MSD | 11-02-2017 07:29 pm | 1.00 | 50 mL | 50 mL | J110223.D | Liquid | Y | <2 |
| 24 | BLK | SAMP | 11-02-2017 07:54 pm | 1.00 | 50 mL | 50 mL | J110224.D | Liquid | Y | <2 |
| 25 | HS17101441-21 | SAMP | 11-02-2017 08:20 pm | 1.00 | 50 mL | 50 mL | J110225.D | Liquid | Y | <2 |
| 26 | HS17101441-22 | SAMP | 11-02-2017 08:45 pm | 1.00 | 50 mL | 50 mL | J110226.D | Liquid | Y | <2 |
| 27 | HS17101441-23 | SAMP | 11-02-2017 09:10 pm | 1.00 | 50 mL | 50 mL | J110227.D | Liquid | Y | <2 |
| 28 | CCV_END | CCV | 11-02-2017 09:36 pm | 1.00 | 50 mL | 50 mL | J110228.D | Liquid | Y | NA |
| | *10 uL cal std/50 mL DI* | | | | | | | | | |
| 29 | BFB | TUNE | 11-02-2017 10:01 pm | 1.00 | 50 mL | 50 mL | K110201.D | Liquid | Y | NA |
| 30 | CCV | CCV | 11-02-2017 10:26 pm | 1.00 | 50 mL | 50 mL | K110202.D | Liquid | Y | NA |
| 31 | CCV | CCV | 11-02-2017 10:51 pm | 1.00 | 50 mL | 50 mL | K110203.D | Liquid | Y | NA |
| 32 | CCB | SAMP | 11-02-2017 11:16 pm | 1.00 | 50 mL | 50 mL | K110204.D | Liquid | Y | NA |
| 33 | VLCSW-171102 | LCS | 11-02-2017 11:41 pm | 1.00 | 50 mL | 50 mL | K110205.D | Liquid | Y | NA |

# MSVOA04 -Logbook

| # | Samp ID | Type | Analyzed | DF | Init Wt/Vol | Final Vol | File ID | Matrix | Status | pH |
|---|---|---|---|---|---|---|---|---|---|---|
| 34 | BLK | SAMP | 11-03-2017 12:06 am | 1.00 | 50 mL | 50 ml | K110206.D | Liquid | Y | NA |
| 35 | VBLKW-171102 | MBLK | 11-03-2017 12:31 am | 1.00 | 50 mL | 50 ml | K110207.D | Liquid | Y | NA |
| 36 | HS17101441-25 | SAMP | 11-03-2017 12:56 am | 1.00 | 50 mL | 50 ml | K110208.D | Liquid | Y | <2 |
| 37 | HS17101441-24 | SAMP | 11-03-2017 01:20 am | 1.00 | 50 mL | 50 ml | K110209.D | Liquid | Y | <2 |
| 38 | HS17101441-24MS | MS | 11-03-2017 01:45 am | 1.00 | 50 mL | 50 mL | K110210.D | Liquid | Y | <2 |
| 39 | HS17101441-24MSD | MSD | 11-03-2017 02:10 am | 1.00 | 50 mL | 50 mL | K110211.D | Liquid | Y | <2 |
| 40 | BLK | SAMP | 11-03-2017 02:35 am | 1.00 | 50 mL | 50 mL | K110212.D | Liquid | Y | NA |
| 41 | HS17101441-26 | SAMP | 11-03-2017 03:00 am | 1.00 | 50 mL | 50 ml | K110213.D | Liquid | Y | <2 |
| 42 | HS17101441-27 | SAMP | 11-03-2017 03:24 am | 1.00 | 50 mL | 50 ml | K110214.D | Liquid | Y | <2 |
| 43 | HS17101441-28 | SAMP | 11-03-2017 03:49 am | 1.00 | 50 mL | 50 mL | K110215.D | Liquid | Y | <2 |
| 44 | HS17101441-29 | SAMP | 11-03-2017 04:14 am | 1.00 | 50 mL | 50 ml | K110216.D | Liquid | Y | <2 |
| 45 | HS17101441-30 | SAMP | 11-03-2017 04:39 am | 1.00 | 50 mL | 50 mL | K110217.D | Liquid | Y | <2 |
| 46 | HS17101441-31 | SAMP | 11-03-2017 05:04 am | 1.00 | 50 mL | 50 mL | K110218.D | Liquid | Y | <2 |
| 47 | HS17101441-32 | SAMP | 11-03-2017 05:29 am | 1.00 | 50 mL | 50 mL | K110219.D | Liquid | Y | <2 |
| 48 | HS17101427-01 | SAMP | 11-03-2017 05:54 am | 1.00 | 50 mL | 50 ml | K110220.D | Liquid | Y | <2 |
| 49 | HS17101427-02 | SAMP | 11-03-2017 06:18 am | 1.00 | 50 mL | 50 ml | K110221.D | Liquid | Y | <2 |
| 50 | HS17101427-03 | SAMP | 11-03-2017 06:43 am | 1.00 | 50 mL | 50 mL | K110222.D | Liquid | Y | <2 |
| 51 | HS17101427-04 | SAMP | 11-03-2017 07:08 am | 1.00 | 50 mL | 50 mL | K110223.D | Liquid | Y | <2 |
| 52 | HS17101427-05 | SAMP | 11-03-2017 07:33 am | 1.00 | 50 mL | 50 mL | K110224.D | Liquid | Y | <2 |
| 53 | HS17101427-06 | SAMP | 11-03-2017 07:58 am | 1.00 | 50 mL | 50 mL | K110225.D | Liquid | Y | <2 |
| 54 | HS17101427-07 | SAMP | 11-03-2017 08:23 am | 1.00 | 50 mL | 50 mL | K110226.D | Liquid | Y | <2 |
| 55 | HS17101427-08 | SAMP | 11-03-2017 08:48 am | 1.00 | 50 mL | 50 mL | K110227.D | Liquid | Y | <2 |
| 56 | HS17101514-01 | SAMP | 11-03-2017 09:13 am | 1.00 | 50 mL | 50 mL | K110228.D | Liquid | Y | <2 |
| 57 | HS17101514-02 | SAMP | 11-03-2017 09:39 am | 1.00 | 50 mL | 50 mL | K110229.D | Liquid | Y | <2 |
| 58 | HS17101514-03 | SAMP | 11-03-2017 10:04 am | 1.00 | 50 mL | 50 ml | K110230.D | Liquid | Y | <2 |

| Chemical | Value |
|---|---|
| SURR SPK ID | 29814-91-03 |
| IS ID | 29814-91-03 |
| ICV STD ID | 29814-91-02 |
| LCS/MS ID | 29814-91-01 |
| CAL STD ID | 29814-91-01 |
| BFB ID | 29814-91-03 |
| pH Paper | 634-37-03 |

Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110201.D 

Date : 02-NOV-2017 09:59

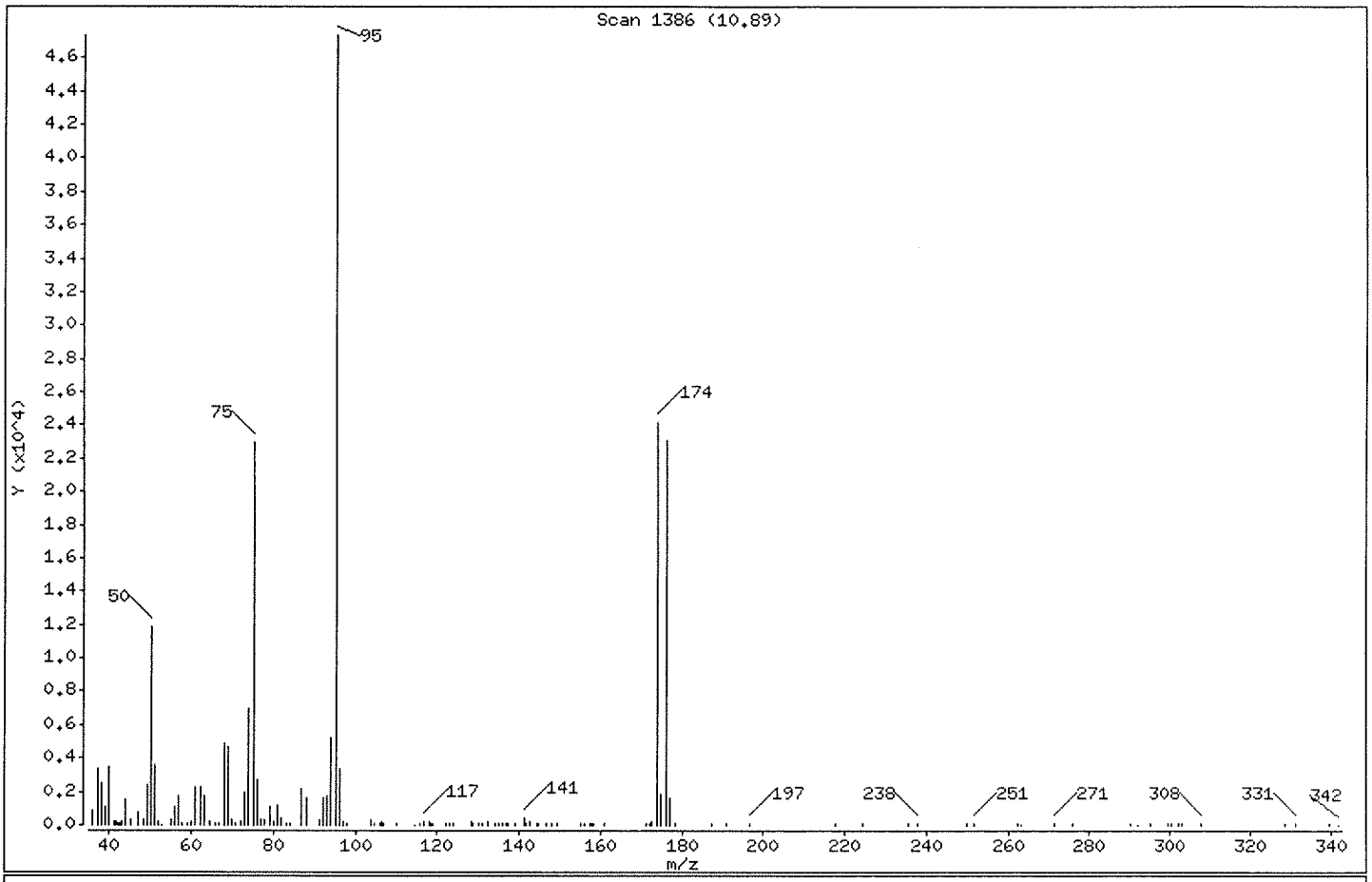
Client ID: BFB Instrument: VOA4.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0 Operator: AP

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 | 25.03 |
| 75 | 30.00 - 60.00% of mass 95 | 48.55 |
| 96 | 5.00 - 9.00% of mass 95 | 7.22 |
| 173 | Less than 2.00% of mass 174 | 0.42 ( 0.83) |
| 174 | Greater than 50.00% of mass 95 | 51.01 |
| 175 | 5.00 - 9.00% of mass 174 | 3.96 ( 7.76) |
| 176 | 95.00 - 101.00% of mass 174 | 48.68 ( 95.43) |
| 177 | 5.00 - 9.00% of mass 176 | 3.41 ( 7.01) |

Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110201.D 

Date : 02-NOV-2017 09:59

Client ID: BFB Instrument: VOA4.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0 Operator: AP

Column phase: DB624 Column diameter: 0.25

Data File: J110201.D
Spectrum: Scan 1386 (10.89)
Location of Maximum: 95.10
Number of points: 134

| m/z | Y | m/z | Y | m/z | Y | m/z | Y |
|---|---|---|---|---|---|---|---|
| 36.00 | 830 | 70.90 | 58 | 117.90 | 184 | 172.70 | 201 |
| 37.10 | 3361 | 71.90 | 185 | 118.70 | 117 | 174.00 | 24144 |
| 38.20 | 2551 | 73.10 | 1935 | 119.10 | 91 | 175.00 | 1874 |
| 39.20 | 1064 | 74.00 | 6962 | 122.20 | 87 | 176.00 | 23040 |
| 40.00 | 3515 | 75.10 | 22976 | 123.20 | 65 | 176.90 | 1614 |
| 41.20 | 201 | 76.10 | 2684 | 123.90 | 81 | 178.30 | 111 |
| 41.80 | 178 | 76.90 | 369 | 128.20 | 169 | 187.50 | 76 |
| 42.30 | 79 | 77.20 | 364 | 128.90 | 155 | 190.70 | 83 |
| 42.60 | 91 | 78.10 | 290 | 130.10 | 81 | 190.90 | 81 |
| 43.10 | 226 | 79.10 | 1057 | 131.20 | 110 | 196.70 | 106 |
| 44.10 | 1543 | 80.10 | 265 | 132.40 | 176 | 217.50 | 71 |
| 45.20 | 325 | 81.00 | 1239 | 134.10 | 98 | 224.40 | 55 |
| 46.90 | 738 | 82.00 | 424 | 134.90 | 152 | 235.40 | 56 |
| 48.30 | 337 | 83.40 | 105 | 135.90 | 85 | 238.00 | 82 |
| 49.20 | 2385 | 84.20 | 56 | 136.70 | 65 | 249.90 | 97 |
| 50.10 | 11845 | 86.90 | 2132 | 137.10 | 89 | 251.50 | 112 |
| 51.10 | 3594 | 88.10 | 1645 | 139.20 | 70 | 262.40 | 95 |
| 52.00 | 197 | 91.10 | 286 | 141.10 | 388 | 263.40 | 50 |
| 52.80 | 53 | 92.10 | 1671 | 141.80 | 93 | 271.30 | 127 |
| 55.00 | 358 | 93.10 | 1754 | 142.70 | 228 | 275.90 | 61 |
| 56.00 | 1088 | 94.10 | 5209 | 144.40 | 86 | 290.20 | 115 |
| 57.10 | 1719 | 95.10 | 47328 | 144.80 | 64 | 291.90 | 50 |
| 58.00 | 118 | 96.10 | 3416 | 146.80 | 66 | 295.10 | 56 |
| 59.20 | 64 | 97.00 | 177 | 147.90 | 91 | 299.30 | 73 |
| 60.00 | 262 | 97.80 | 72 | 149.40 | 82 | 300.40 | 78 |
| 61.00 | 2332 | 104.00 | 303 | 155.10 | 100 | 302.30 | 59 |
| 62.10 | 2305 | 104.90 | 128 | 156.10 | 94 | 303.10 | 59 |
| 63.10 | 1753 | 105.90 | 158 | 157.30 | 70 | 307.80 | 95 |
| 64.30 | 228 | 106.40 | 219 | 157.90 | 95 | 328.40 | 73 |
| 65.90 | 55 | 107.00 | 88 | 158.50 | 128 | 331.20 | 132 |
| 66.90 | 161 | 110.00 | 92 | 160.90 | 79 | 339.70 | 84 |
| 68.00 | 4937 | 114.40 | 52 | 161.10 | 87 | 341.80 | 51 |
| 69.10 | 4633 | 115.80 | 112 | 171.20 | 107 | | |
| 69.90 | 280 | 116.90 | 242 | 172.00 | 79 | | |

Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110201.D



Date : 02-NOV-2017 09:59

Client ID: BFB

Instrument: VOA4.i

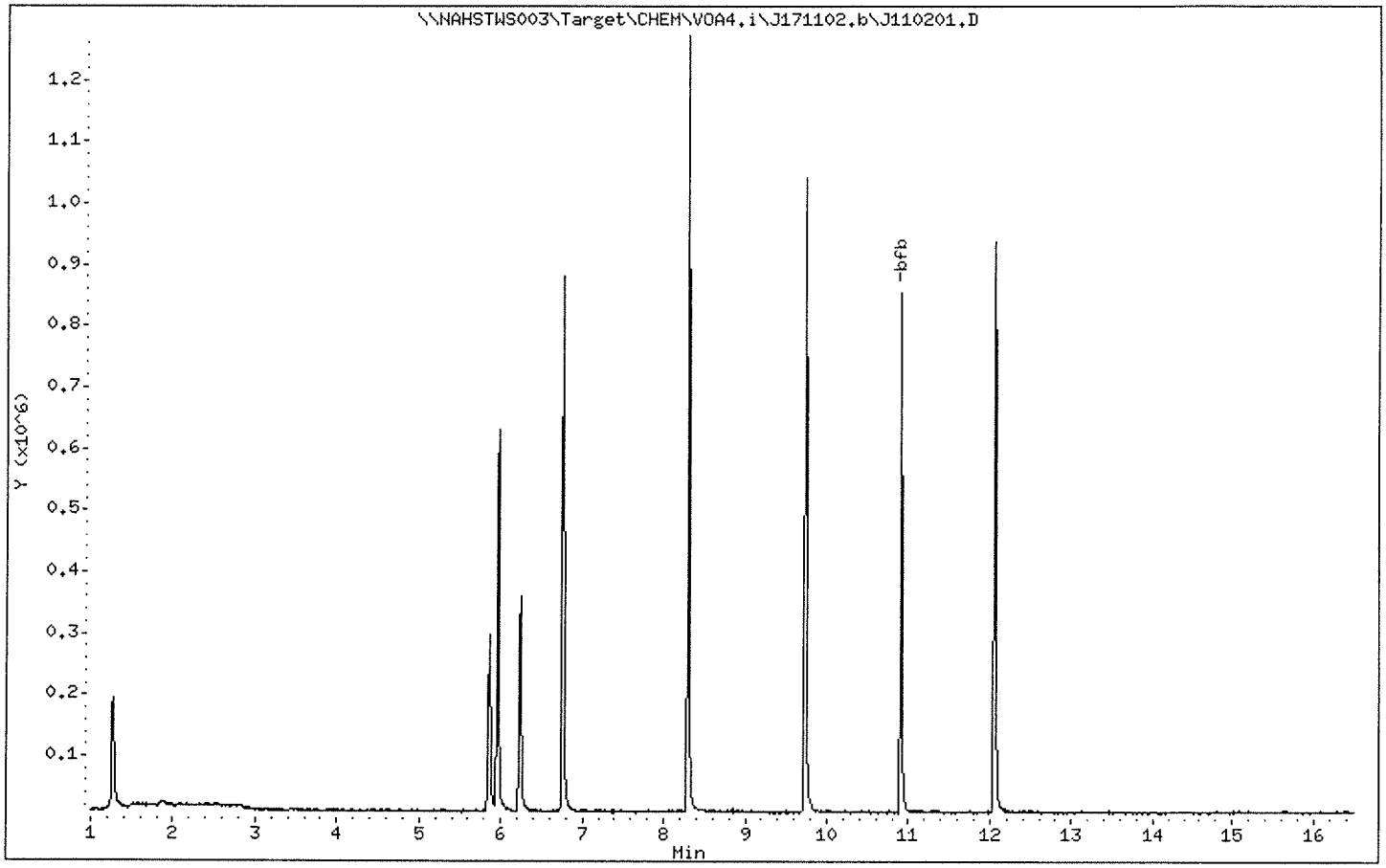
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: AP

Column phase: DB624

Column diameter: 0.25



Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110202.D
Report Date: 06-Feb-2018 16:57

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110202.D
Lab Smp Id: VSTD00.5 Client Smp ID: VSTD00.5
Inj Date : 02-NOV-2017 10:31
Operator : AP Inst ID: VOA4.i
Smp Info : VSTD00.5;VSTD00.5;1;1;
Misc Info : HS16050001;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\8260LLW.m
Meth Date : 06-Feb-2018 16:57 diana.nguy Quant Type: ISTD
Cal Date : 02-NOV-2017 10:31 Cal File: J110202.D
Als bottle: 4 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.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) |
|---|---|---|---|---|---|---|---|---|
| | 31 1,1,1-Trichloroethane | 97 | 5.861 | 5.861 | (0.983) | 2759 | 0.50000 | 0.41(a) |
| * | 1 Pentafluorobenzene | 168 | 5.961 | 5.961 | (1.000) | 462588 | 50.0000 | |
| $ | 30 Dibromofluoromethane | 113 | 5.861 | 5.861 | (0.983) | 5258 | 0.50000 | 0.25(aM) |
| * | 36 1,4-Difluorobenzene | 114 | 6.762 | 6.762 | (1.000) | 734682 | 50.0000 | |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 6.240 | 6.240 | (1.047) | 7453 | 0.50000 | 0.72(a) |
| * | 47 Chlorobenzene-d5 | 117 | 9.729 | 9.729 | (1.000) | 612965 | 50.0000 | |
| $ | 48 Toluene-d8 | 98 | 8.299 | 8.299 | (0.853) | 27566 | 0.50000 | (a) |
| $ | 69 4-Bromofluorobenzene | 95 | 10.909 | 10.909 | (1.121) | 11814 | 0.50000 | 0.05(a) |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 12.053 | 12.053 | (1.000) | 282839 | 50.0000 | |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 11.059 | 11.059 | (0.918) | 2719 | 0.50000 | 0.53(aM) |
| | 53 1,1,2-Trichloroethane | 83 | 8.778 | 8.778 | (0.902) | 1728 | 0.50000 | 0.50(a) |
| | 32 1,1-Dichloropropene | 75 | 6.061 | 6.061 | (0.896) | 2435 | 0.50000 | 0.40(a) |
| | 22 1,1-Dichloroethane | 63 | 4.460 | 4.460 | (0.748) | 4267 | 0.50000 | 0.48(aM) |
| | 11 1,1-Dichloroethene | 96 | 2.851 | 2.851 | (0.478) | 2054 | 0.50000 | 0.52(a) |
| | 90 1,2,4-Trichlorobenzene | 180 | 14.556 | 14.556 | (1.208) | 1336 | 0.50000 | (aM) |
| | 89 1,2-Dibromo-3-Chloropropane | 75 | 13.426 | 13.426 | (1.114) | 616 | 0.50000 | 0.18(aM) |
| | 57 1,2-Dibromoethane | 107 | 9.272 | 9.272 | (0.953) | 2007 | 0.50000 | 0.49(a) |
| | 88 1,2-Dichlorobenzene | 146 | 12.446 | 12.446 | (1.033) | 4159 | 0.50000 | 0.48(a) |
| | 33 1,2-Dichloroethane | 62 | 6.333 | 6.333 | (0.937) | 3353 | 0.50000 | 0.49(a) |
| | 42 1,2-Dichloropropane | 63 | 7.255 | 7.255 | (1.073) | 2684 | 0.50000 | 0.51(aM) |
| | 83 1,3-Dichlorobenzene | 146 | 11.989 | 11.989 | (0.995) | 4512 | 0.50000 | 0.49(a) |
| | 84 1,4-Dichlorobenzene | 146 | 12.075 | 12.075 | (1.002) | 5183 | 0.50000 | 0.53(a) |

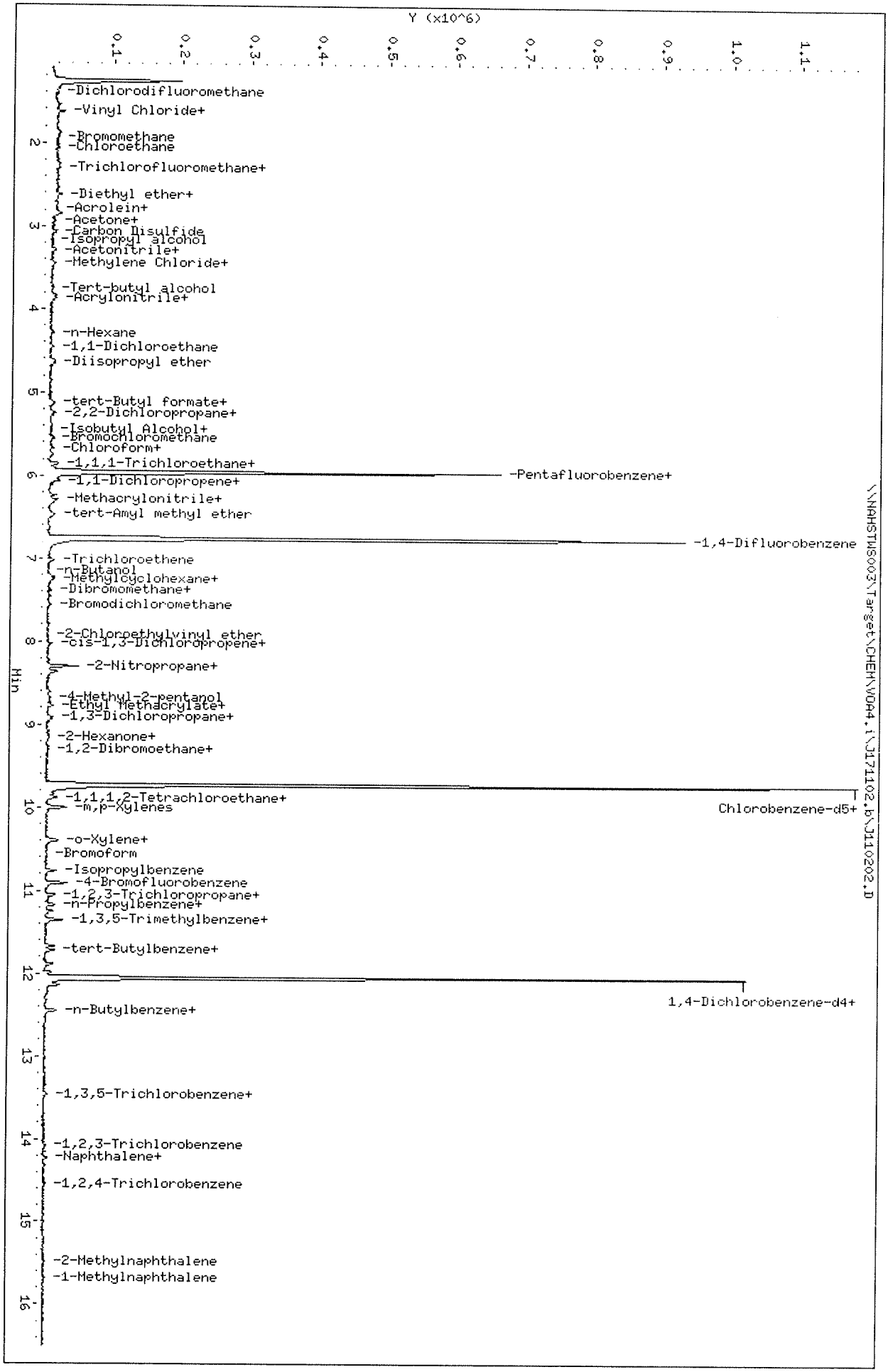
Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110202.D
Report Date: 06-Feb-2018 16:57

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 24 | 2-Butanone | 43 | 5.353 | 5.353 | (0.898) | 2172 | 1.00000 | 1.04(aM) |
| 52 | 2-Hexanone | 43 | 9.072 | 9.072 | (0.932) | 2292 | 1.00000 | 0.81(a) |
| 45 | 4-Methyl-2-Pentanone | 43 | 8.228 | 8.228 | (0.846) | 3609 | 1.00000 | 0.86(a) |
| 10 | Acetone | 43 | 2.930 | 2.930 | (0.491) | 3913 | 1.00000 | 1.31(a) |
| 37 | Benzene | 78 | 6.297 | 6.297 | (0.931) | 10107 | 0.50000 | 0.51(a) |
| 39 | Bromodichloromethane | 83 | 7.563 | 7.563 | (1.118) | 2912 | 0.50000 | 0.46(aM) |
| 66 | Bromoform | 173 | 10.566 | 10.566 | (1.086) | 1382 | 0.50000 | 0.51(aM) |
| 6 | Bromomethane | 94 | 1.943 | 1.943 | (0.326) | 1218 | 0.50000 | 0.50(a) |
| 19 | Carbon Disulfide | 76 | 3.065 | 3.065 | (0.514) | 11015 | 1.00000 | 1.04(a) |
| 34 | Carbon Tetrachloride | 117 | 6.054 | 6.054 | (0.895) | 3921 | 0.50000 | 0.62(a) |
| 59 | Chlorobenzene | 112 | 9.765 | 9.765 | (1.004) | 6304 | 0.50000 | 0.48(a) |
| 7 | Chloroethane | 64 | 2.043 | 2.043 | (0.343) | 2198 | 0.50000 | 0.63(a) |
| 28 | Chloroform | 83 | 5.675 | 5.675 | (0.952) | 3724 | 0.50000 | 0.46(a) |
| 3 | Chloromethane | 50 | 1.550 | 1.550 | (0.260) | 4649 | 0.50000 | 0.56(aM) |
| 27 | cis-1,2-Dichloroethene | 96 | 5.253 | 5.253 | (0.881) | 2819 | 0.50000 | 0.51(a) |
| 46 | cis-1,3-Dichloropropene | 75 | 8.028 | 8.028 | (1.187) | 3367 | 0.50000 | 0.45(a) |
| 55 | Dibromochloromethane | 129 | 9.157 | 9.157 | (0.941) | 2297 | 0.50000 | 0.49(a) |
| 2 | Dichlorodifluoromethane | 85 | 1.399 | 1.399 | (0.235) | 1950 | 0.50000 | 0.42(aM) |
| 61 | Ethylbenzene | 106 | 9.887 | 9.887 | (1.016) | 3555 | 0.50000 | 0.50(a) |
| 67 | Isopropylbenzene | 105 | 10.766 | 10.766 | (1.107) | 9064 | 0.50000 | 0.45(a) |
| 17 | Methylene Chloride | 84 | 3.444 | 3.444 | (0.578) | 2960 | 0.50000 | 0.60(a) |
| 56 | Tetrachloroethene | 164 | 8.921 | 8.921 | (0.917) | 1823 | 0.50000 | 0.50(a) |
| 50 | Toluene | 91 | 8.371 | 8.371 | (0.860) | 10190 | 0.50000 | 0.50(a) |
| 20 | trans-1,2-Dichloroethene | 96 | 3.845 | 3.845 | (0.645) | 2419 | 0.50000 | 0.51(a) |
| 51 | trans-1,3-Dichloropropene | 75 | 8.028 | 8.028 | (1.187) | 3367 | 0.50000 | 0.45(a) |
| 38 | Trichloroethene | 130 | 7.027 | 7.027 | (1.039) | 2490 | 0.50000 | 0.50(a) |
| 8 | Trichlorofluoromethane | 101 | 2.300 | 2.300 | (0.386) | 2757 | 0.50000 | 0.44(a) |
| 5 | Vinyl Chloride | 62 | 1.664 | 1.664 | (0.279) | 2800 | 0.50000 | 0.46(a) |
| 62 | m,p-Xylenes | 106 | 10.001 | 10.001 | (1.028) | 8833 | 1.00000 | 1.02(a) |
| 63 | o-Xylene | 106 | 10.394 | 10.394 | (1.068) | 3817 | 0.50000 | 0.44(a) |
| M 95 | Xylenes (total) | 106 | | | | 12650 | 1.50000 | 1.47(a) |
| 71 | 1,2,3-Trichloropropane | 75 | 11.095 | 11.095 | (0.921) | 2482 | 0.50000 | 0.47(a) |
| 93 | 1,2,3-Trichlorobenzene | 182 | 14.077 | 14.077 | (1.168) | 1004 | 0.50000 | 0.19(aM) |
| 79 | 1,2,4-Trimethylbenzene | 105 | 11.717 | 11.717 | (0.972) | 7306 | 0.50000 | 0.44(a) |
| 75 | 1,3,5-Trimethylbenzene | 105 | 11.353 | 11.353 | (0.942) | 8075 | 0.50000 | 0.50(a) |
| 26 | 2,2-Dichloropropane | 77 | 5.239 | 5.239 | (0.879) | 3035 | 0.50000 | 0.54(a) |
| 54 | 1,3-Dichloropropane | 76 | 8.936 | 8.936 | (0.918) | 3550 | 0.50000 | 0.49(a) |
| 76 | 2-Chlorotoluene | 91 | 11.245 | 11.245 | (0.933) | 7594 | 0.50000 | 0.52(a) |
| 77 | 4-Chlorotoluene | 91 | 11.360 | 11.360 | (0.942) | 7965 | 0.50000 | 0.47(a) |
| 82 | p-Isopropyltoluene | 119 | 12.046 | 12.046 | (0.999) | 7025 | 0.50000 | 0.46(a) |
| 29 | Bromochloromethane | 128 | 5.547 | 5.547 | (0.930) | 1257 | 0.50000 | 0.52(a) |
| 74 | Bromobenzene | 156 | 11.052 | 11.052 | (0.917) | 2888 | 0.50000 | 0.55(a) |
| 44 | Dibromomethane | 93 | 7.377 | 7.377 | (1.091) | 1386 | 0.50000 | 0.49(a) |
| 91 | Hexachlorobutadiene | 225 | 14.227 | 14.227 | (1.180) | 1089 | 0.50000 | 0.55(aM) |
| 73 | n-Propylbenzene | 91 | 11.174 | 11.174 | (0.927) | 10527 | 0.50000 | 0.47(a) |
| 87 | n-Butylbenzene | 91 | 12.454 | 12.454 | (1.033) | 5249 | 0.50000 | 0.43(a) |
| 81 | sec-Butylbenzene | 105 | 11.717 | 11.717 | (0.972) | 7306 | 0.50000 | 0.44(a) |
| 92 | Naphthalene | 128 | 14.320 | 14.320 | (1.188) | 3500 | 0.50000 | 0.26(a) |
| 78 | tert-Butylbenzene | 119 | 11.674 | 11.674 | (0.969) | 6286 | 0.50000 | 0.49(a) |
| 60 | 1,1,1,2-Tetrachloroethane | 131 | 9.844 | 9.844 | (1.012) | 2411 | 0.50000 | 0.52(a) |
| 64 | Styrene | 104 | 10.416 | 10.416 | (1.071) | 7252 | 0.50000 | 0.48(a) |

Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110202.D
Report Date: 06-Feb-2018 16:57

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.


Y (x10^6)
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
Min
-Dichlorodifluoromethane
-Vinyl Chloride+
-Bromomethane
-Chloroethane
-Trichlorofluoromethane+
-Diethyl ether+
-Acrolein+
-Acetone+
-Carbon Disulfide
-Isopropyl alcohol
-Acetonitrile+
-Methylene Chloride+
-Tert-butyl alcohol
-Acrylonitrile+
-n-Hexane
-1,1-Dichloroethane
-Diisopropyl ether
-tert-Butyl formate+
-2,2-Dichloropropane+
-Isobutyl Alcohol+
-Bromochloromethane
-Chloroform+
-1,1,1-Trichloroethane+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-Methacrylonitrile+
-tert-Amyl methyl ether
-1,4-Difluorobenzene
-Trichloroethene
-n-Butanol
-Methylcyclohexane+
-Dibromomethane+
-Bromodichloromethane
-2-Chloroethylvinyl ether
-cis-1,3-Dichloropropene+
-2-Nitropropane+
-4-Methyl-2-pentanol
-Ethyl Methacrylate+
-1,3-Dichloropropane+
-2-Hexanone+
-1,2-Dibromoethane+
-1,1,1,2-Tetrachloroethane+
-m,p-Xylenes
Chlorobenzene-d5+
-o-Xylene+
-Bromoform
-Isopropylbenzene
-4-Bromofluorobenzene
-1,2,3-Trichloropropane+
-n-Propylbenzene+
-1,3,5-Trimethylbenzene+
-tert-Butylbenzene+
1,4-Dichlorobenzene-d4+
-n-Butylbenzene+
-1,3,5-Trichlorobenzene+
-1,2,3-Trichlorobenzene
-Naphthalene+
-1,2,4-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene
\\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110202.D
Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110202.D
Date : 02-NOV-2017 10:31
Client ID: VSTD00.5
Sample Info: VSTD00.5;VSTD00.5;1;1;
Purge Volume: 5.0
Column phase: DB624
Instrument: VOA4.i
Operator: AP
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110203.D
Report Date: 06-Feb-2018 16:57

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110203.D
Lab Smp Id: VSTD001 Client Smp ID: VSTD001
Inj Date : 02-NOV-2017 10:56
Operator : AP Inst ID: VOA4.i
Smp Info : VSTD001;VSTD001;1;2;
Misc Info : HS16050001;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\8260LLW.m
Meth Date : 06-Feb-2018 16:57 diana.nguy Quant Type: ISTD
Cal Date : 02-NOV-2017 10:56 Cal File: J110203.D
Als bottle: 5 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.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) |
|---|---|---|---|---|---|---|---|---|
| | 31 1,1,1-Trichloroethane | 97 | 5.861 | 5.861 | (0.983) | 5935 | 1.00000 | 1.09(a) |
| * | 1 Pentafluorobenzene | 168 | 5.961 | 5.961 | (1.000) | 381423 | 50.0000 | |
| $ | 30 Dibromofluoromethane | 113 | 5.868 | 5.868 | (0.984) | 5203 | 1.00000 | 0.52(a) |
| * | 36 1,4-Difluorobenzene | 114 | 6.762 | 6.762 | (1.000) | 615390 | 50.0000 | |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 6.233 | 6.233 | (1.046) | 6462 | 1.00000 | 0.79(a) |
| * | 47 Chlorobenzene-d5 | 117 | 9.729 | 9.729 | (1.000) | 518888 | 50.0000 | |
| $ | 48 Toluene-d8 | 98 | 8.299 | 8.299 | (0.853) | 23649 | 1.00000 | (a) |
| $ | 69 4-Bromofluorobenzene | 95 | 10.909 | 10.909 | (1.121) | 9725 | 1.00000 | (a) |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 12.053 | 12.053 | (1.000) | 239344 | 50.0000 | |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 11.052 | 11.052 | (0.917) | 4859 | 1.00000 | 1.12(a) |
| | 53 1,1,2-Trichloroethane | 83 | 8.778 | 8.778 | (0.902) | 3252 | 1.00000 | 1.13(a) |
| | 32 1,1-Dichloropropene | 75 | 6.068 | 6.068 | (0.897) | 5919 | 1.00000 | 1.16(a) |
| | 22 1,1-Dichloroethane | 63 | 4.467 | 4.467 | (0.749) | 8330 | 1.00000 | 1.15(a) |
| | 11 1,1-Dichloroethene | 96 | 2.837 | 2.837 | (0.476) | 3619 | 1.00000 | 1.11(a) |
| | 90 1,2,4-Trichlorobenzene | 180 | 14.534 | 14.534 | (1.206) | 2292 | 1.00000 | (a) |
| | 89 1,2-Dibromo-3-Chloropropane | 75 | 13.448 | 13.448 | (1.116) | 903 | 1.00000 | 0.74(aM) |
| | 57 1,2-Dibromoethane | 107 | 9.265 | 9.265 | (0.952) | 3985 | 1.00000 | 1.16(a) |
| | 88 1,2-Dichlorobenzene | 146 | 12.447 | 12.447 | (1.033) | 8519 | 1.00000 | 1.17(a) |
| | 33 1,2-Dichloroethane | 62 | 6.333 | 6.333 | (0.937) | 6504 | 1.00000 | 1.13(a) |
| | 42 1,2-Dichloropropane | 63 | 7.255 | 7.255 | (1.073) | 5223 | 1.00000 | 1.19(aM) |
| | 83 1,3-Dichlorobenzene | 146 | 11.989 | 11.989 | (0.995) | 8481 | 1.00000 | 1.10(a) |
| | 84 1,4-Dichlorobenzene | 146 | 12.075 | 12.075 | (1.002) | 9589 | 1.00000 | 1.17(a) |

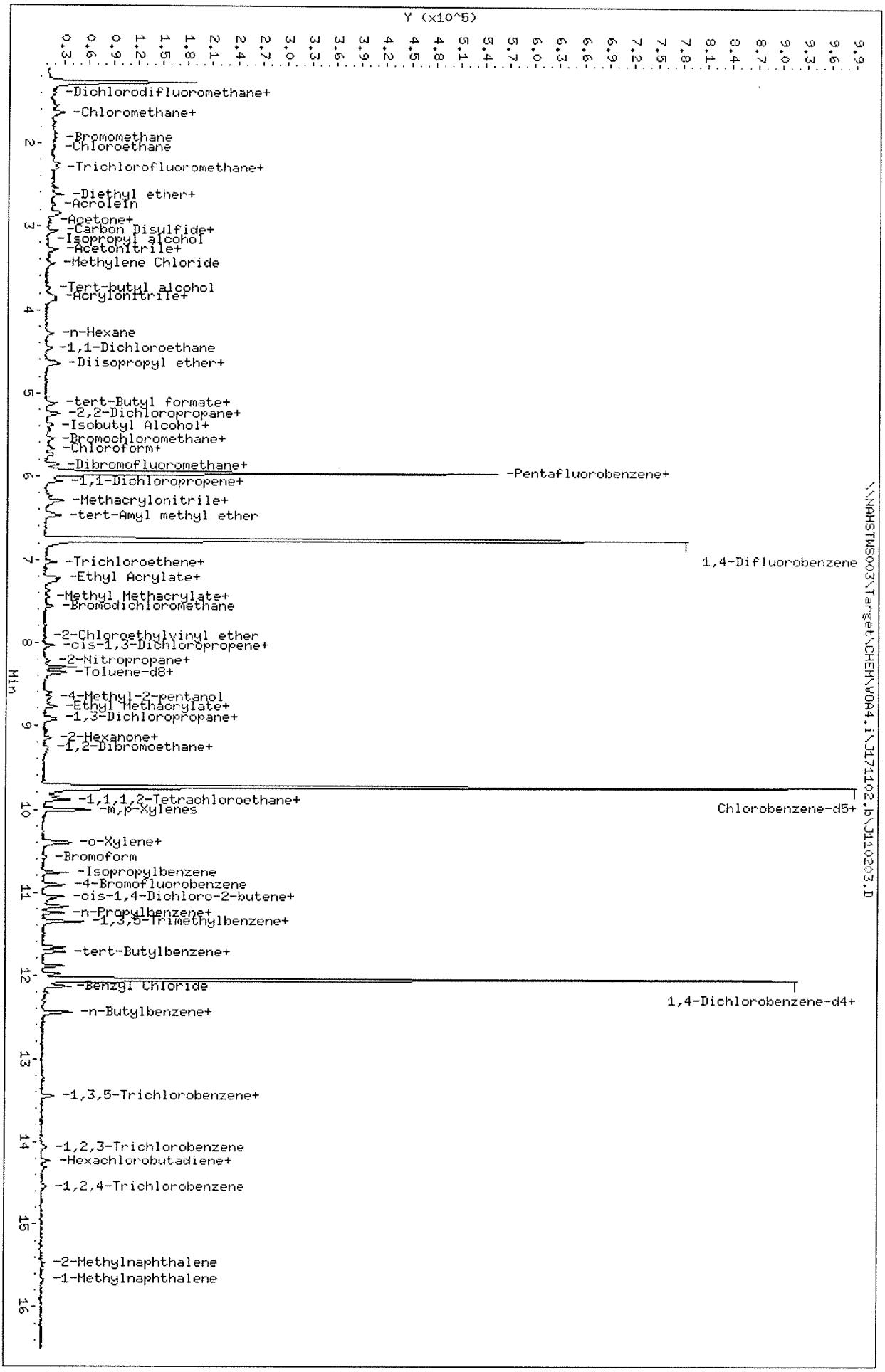
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Report Date: 06-Feb-2018 16:57

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| | 24 2-Butanone | 43 | 5.339 | 5.339 | (0.896) | 3689 | 2.00000 | 2.14(a) |
| | 52 2-Hexanone | 43 | 9.072 | 9.072 | (0.932) | 5284 | 2.00000 | 2.22(a) |
| | 45 4-Methyl-2-Pentanone | 43 | 8.214 | 8.214 | (0.844) | 5383 | 2.00000 | 1.53(a) |
| | 10 Acetone | 43 | 2.930 | 2.930 | (0.491) | 5257 | 2.00000 | 3.13(a) |
| | 37 Benzene | 78 | 6.290 | 6.290 | (0.930) | 18432 | 1.00000 | 1.12(a) |
| | 39 Bromodichloromethane | 83 | 7.563 | 7.563 | (1.118) | 5891 | 1.00000 | 1.13(aM) |
| | 66 Bromoform | 173 | 10.573 | 10.573 | (1.087) | 2295 | 1.00000 | 1.00(Ta) |
| | 6 Bromomethane | 94 | 1.943 | 1.943 | (0.326) | 2407 | 1.00000 | 1.20(a) |
| | 19 Carbon Disulfide | 76 | 3.058 | 3.058 | (0.513) | 19775 | 2.00000 | 2.27(a) |
| | 34 Carbon Tetrachloride | 117 | 6.054 | 6.054 | (0.895) | 6045 | 1.00000 | 1.14(a) |
| | 59 Chlorobenzene | 112 | 9.758 | 9.758 | (1.003) | 12220 | 1.00000 | 1.11(a) |
| | 7 Chloroethane | 64 | 2.050 | 2.050 | (0.344) | 3567 | 1.00000 | 1.24(a) |
| | 28 Chloroform | 83 | 5.675 | 5.675 | (0.952) | 7580 | 1.00000 | 1.15(a) |
| | 3 Chloromethane | 50 | 1.557 | 1.557 | (0.261) | 8512 | 1.00000 | 1.25(a) |
| | 27 cis-1,2-Dichloroethene | 96 | 5.253 | 5.253 | (0.881) | 5648 | 1.00000 | 1.24(a) |
| | 46 cis-1,3-Dichloropropene | 75 | 8.035 | 8.035 | (1.188) | 6471 | 1.00000 | 1.03(a) |
| | 55 Dibromochloromethane | 129 | 9.165 | 9.165 | (0.942) | 4264 | 1.00000 | 1.09(a) |
| | 2 Dichlorodifluoromethane | 85 | 1.399 | 1.399 | (0.235) | 3768 | 1.00000 | 1.00(a) |
| | 61 Ethylbenzene | 106 | 9.880 | 9.880 | (1.015) | 6600 | 1.00000 | 1.10(a) |
| | 67 Isopropylbenzene | 105 | 10.759 | 10.759 | (1.106) | 19194 | 1.00000 | 1.13(a) |
| | 17 Methylene Chloride | 84 | 3.452 | 3.452 | (0.579) | 4688 | 1.00000 | 1.15(a) |
| | 56 Tetrachloroethene | 164 | 8.914 | 8.914 | (0.916) | 3629 | 1.00000 | 1.17(a) |
| | 50 Toluene | 91 | 8.364 | 8.364 | (0.860) | 19069 | 1.00000 | 1.12(a) |
| | 20 trans-1,2-Dichloroethene | 96 | 3.838 | 3.838 | (0.644) | 4455 | 1.00000 | 1.14(a) |
| | 51 trans-1,3-Dichloropropene | 75 | 8.035 | 8.035 | (1.188) | 6471 | 1.00000 | 1.03(a) |
| | 38 Trichloroethene | 130 | 7.027 | 7.027 | (1.039) | 4681 | 1.00000 | 1.13(a) |
| | 8 Trichlorofluoromethane | 101 | 2.293 | 2.293 | (0.385) | 5404 | 1.00000 | 1.06(a) |
| | 5 Vinyl Chloride | 62 | 1.657 | 1.657 | (0.278) | 5435 | 1.00000 | 1.09(a) |
| | 62 m,p-Xylenes | 106 | 10.001 | 10.001 | (1.028) | 15539 | 2.00000 | 2.12(a) |
| | 63 o-Xylene | 106 | 10.394 | 10.394 | (1.068) | 8549 | 1.00000 | 1.18(a) |
| M | 95 Xylenes (total) | 106 | | | | 24088 | 3.00000 | 3.30(a) |
| | 71 1,2,3-Trichloropropane | 75 | 11.088 | 11.088 | (0.920) | 4996 | 1.00000 | 1.11(a) |
| | 93 1,2,3-Trichlorobenzene | 182 | 14.070 | 14.070 | (1.167) | 2746 | 1.00000 | 0.68(a) |
| | 79 1,2,4-Trimethylbenzene | 105 | 11.724 | 11.724 | (0.973) | 16371 | 1.00000 | 1.19(a) |
| | 75 1,3,5-Trimethylbenzene | 105 | 11.353 | 11.353 | (0.942) | 15314 | 1.00000 | 1.13(a) |
| | 26 2,2-Dichloropropane | 77 | 5.232 | 5.232 | (0.878) | 4564 | 1.00000 | 0.99(a) |
| | 54 1,3-Dichloropropane | 76 | 8.936 | 8.936 | (0.918) | 6470 | 1.00000 | 1.06(a) |
| | 76 2-Chlorotoluene | 91 | 11.245 | 11.245 | (0.933) | 14615 | 1.00000 | 1.19(a) |
| | 77 4-Chlorotoluene | 91 | 11.360 | 11.360 | (0.942) | 17767 | 1.00000 | 1.25(a) |
| | 82 p-Isopropyltoluene | 119 | 12.039 | 12.039 | (0.999) | 14237 | 1.00000 | 1.12(a) |
| | 29 Bromochloromethane | 128 | 5.554 | 5.554 | (0.932) | 2321 | 1.00000 | 1.16(a) |
| | 74 Bromobenzene | 156 | 11.045 | 11.045 | (0.916) | 4827 | 1.00000 | 1.08(a) |
| | 44 Dibromomethane | 93 | 7.370 | 7.370 | (1.090) | 2982 | 1.00000 | 1.28(a) |
| | 91 Hexachlorobutadiene | 225 | 14.227 | 14.227 | (1.180) | 1776 | 1.00000 | 1.07(a) |
| | 73 n-Propylbenzene | 91 | 11.174 | 11.174 | (0.927) | 21131 | 1.00000 | 1.13(a) |
| | 87 n-Butylbenzene | 91 | 12.447 | 12.447 | (1.033) | 10782 | 1.00000 | 1.06(a) |
| | 81 sec-Butylbenzene | 105 | 11.724 | 11.724 | (0.973) | 16371 | 1.00000 | 1.19(a) |
| | 92 Naphthalene | 128 | 14.313 | 14.313 | (1.187) | 5919 | 1.00000 | 0.54(a) |
| | 78 tert-Butylbenzene | 119 | 11.667 | 11.667 | (0.968) | 11684 | 1.00000 | 1.08(a) |
| | 60 1,1,1,2-Tetrachloroethane | 131 | 9.844 | 9.844 | (1.012) | 4531 | 1.00000 | 1.17(a) |
| | 64 Styrene | 104 | 10.409 | 10.409 | (1.070) | 14320 | 1.00000 | 1.14(a) |

Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110203.D
Report Date: 06-Feb-2018 16:57

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.


Y (x10^5)
Min
-Dichlorodifluoromethane+
-Chloromethane+
-Bromomethane
-Chloroethane
-Trichlorofluoromethane+
-Diethyl ether+
-Acrolein
-Acetone+
-Carbon Disulfide+
-Isopropyl alcohol
-Acetonitrile+
-Methylene Chloride
-Tert-butyl alcohol
-Acrylonitrile+
-n-Hexane
-1,1-Dichloroethane
-Diisopropyl ether+
-tert-Butyl formate+
-2,2-Dichloropropane+
-Isobutyl Alcohol+
-Bromochloromethane+
-Chloroform+
-Dibromofluoromethane+
-1,1-Dichloropropene+
-Methacrylonitrile+
-tert-Amyl methyl ether
-Trichloroethene+
-Ethyl Acrylate+
-Methyl Methacrylate+
-Bromodichloromethane
-2-Chloroethylvinyl ether
-cis-1,3-Dichloropropene+
-2-Nitropropane+
-Toluene-d8+
-4-Methyl-2-pentanol
-Ethyl Methacrylate+
-1,3-Dichloropropane+
-2-Hexanone+
-1,2-Dibromoethane+
-1,1,1,2-Tetrachloroethane+
-m,p-Xylenes
-o-Xylene+
-Bromoform
-Isopropylbenzene
-4-Bromofluorobenzene
-cis-1,4-Dichloro-2-butene+
-n-Propylbenzene+
-1,3,5-Trimethylbenzene+
-tert-Butylbenzene+
-Benzyl Chloride
-n-Butylbenzene+
-1,3,5-Trichlorobenzene+
-1,2,3-Trichlorobenzene
-Hexachlorobutadiene+
-1,2,4-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene
-Pentafluorobenzene+
1,4-Difluorobenzene
Chlorobenzene-d5+
1,4-Dichlorobenzene-d4+
\\NAHSTWS003\Target\CHEM\WOA4,i\J171102,b\J110203,D
Data File: \\NAHSTWS003\Target\CHEM\WOA4,i\J171102,b\J110203,D
Date : 02-NOV-2017 10:56
Client ID: VSTD001
Sample Info: VSTD001;VSTD001;1;2;
Purge Volume: 5.0
Column phase: DB624
Instrument: WOA4,i
Operator: AP
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110204.D
Report Date: 06-Feb-2018 16:57

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110204.D
Lab Smp Id: VSTD002 Client Smp ID: VSTD002
Inj Date : 02-NOV-2017 11:21
Operator : AP Inst ID: VOA4.i
Smp Info : VSTD002;VSTD002;1;3;
Misc Info : HS16050001;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\8260LLW.m
Meth Date : 06-Feb-2018 16:57 diana.nguy Quant Type: ISTD
Cal Date : 02-NOV-2017 11:21 Cal File: J110204.D
Als bottle: 6 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.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) |
|---|---|---|---|---|---|---|---|---|
| | 31 1,1,1-Trichloroethane | 97 | 5.861 | 5.861 | (0.983) | 11802 | 2.00000 | 2.06(a) |
| * | 1 Pentafluorobenzene | 168 | 5.961 | 5.961 | (1.000) | 400903 | 50.0000 | |
| $ | 30 Dibromofluoromethane | 113 | 5.861 | 5.861 | (0.983) | 8431 | 2.00000 | 1.39(a) |
| * | 36 1,4-Difluorobenzene | 114 | 6.755 | 6.755 | (1.000) | 643403 | 50.0000 | |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 6.240 | 6.240 | (1.047) | 10816 | 2.00000 | 1.72(a) |
| * | 47 Chlorobenzene-d5 | 117 | 9.729 | 9.729 | (1.000) | 544359 | 50.0000 | |
| $ | 48 Toluene-d8 | 98 | 8.292 | 8.292 | (0.852) | 36730 | 2.00000 | 0.80(a) |
| $ | 69 4-Bromofluorobenzene | 95 | 10.902 | 10.902 | (1.121) | 16593 | 2.00000 | 1.22(a) |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 12.053 | 12.053 | (1.000) | 246929 | 50.0000 | |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 11.052 | 11.052 | (0.917) | 9915 | 2.00000 | 2.22(a) |
| | 53 1,1,2-Trichloroethane | 83 | 8.771 | 8.771 | (0.902) | 5693 | 2.00000 | 1.88(a) |
| | 32 1,1-Dichloropropene | 75 | 6.061 | 6.061 | (0.897) | 11311 | 2.00000 | 2.12(a) |
| | 22 1,1-Dichloroethane | 63 | 4.467 | 4.467 | (0.749) | 15870 | 2.00000 | 2.08(a) |
| | 11 1,1-Dichloroethene | 96 | 2.837 | 2.837 | (0.476) | 7492 | 2.00000 | 2.20(a) |
| | 90 1,2,4-Trichlorobenzene | 180 | 14.534 | 14.534 | (1.206) | 5197 | 2.00000 | 0.67(a) |
| | 89 1,2-Dibromo-3-Chloropropane | 75 | 13.447 | 13.447 | (1.116) | 1534 | 2.00000 | 1.58(a) |
| | 57 1,2-Dibromoethane | 107 | 9.265 | 9.265 | (0.952) | 7228 | 2.00000 | 2.01(a) |
| | 88 1,2-Dichlorobenzene | 146 | 12.446 | 12.446 | (1.033) | 15473 | 2.00000 | 2.06(a) |
| | 33 1,2-Dichloroethane | 62 | 6.326 | 6.326 | (0.936) | 12797 | 2.00000 | 2.13(a) |
| | 42 1,2-Dichloropropane | 63 | 7.255 | 7.255 | (1.074) | 8960 | 2.00000 | 1.96(a) |
| | 83 1,3-Dichlorobenzene | 146 | 11.989 | 11.989 | (0.995) | 16437 | 2.00000 | 2.06(a) |
| | 84 1,4-Dichlorobenzene | 146 | 12.075 | 12.075 | (1.002) | 17904 | 2.00000 | 2.13(a) |

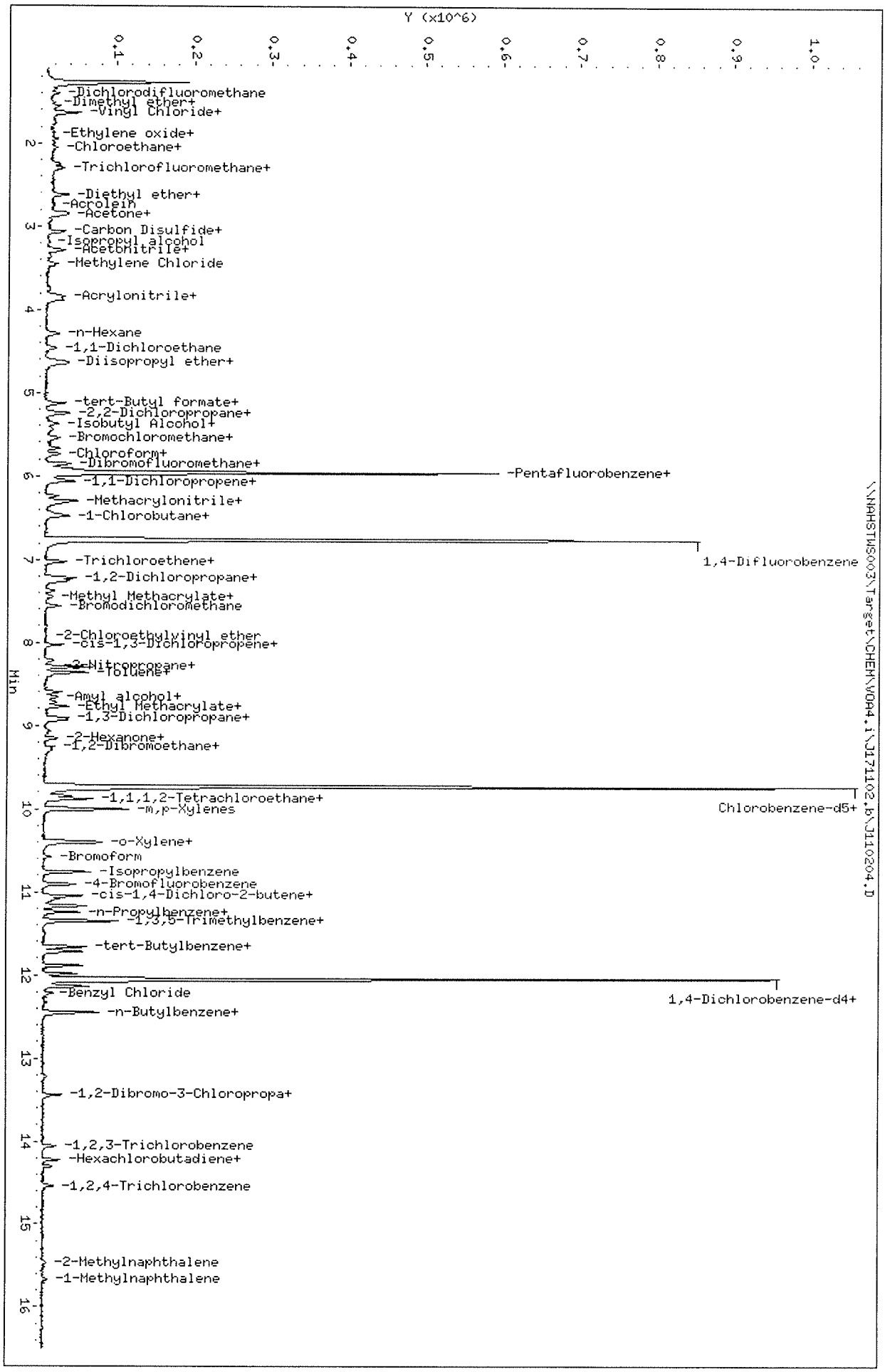
Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110204.D
Report Date: 06-Feb-2018 16:57

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 24 | 2-Butanone | 43 | 5.325 | 5.325 | (0.893) | 7385 | 4.00000 | 4.08(a) |
| 52 | 2-Hexanone | 43 | 9.064 | 9.064 | (0.932) | 7848 | 4.00000 | 3.15(a) |
| 45 | 4-Methyl-2-Pentanone | 43 | 8.221 | 8.221 | (0.845) | 12593 | 4.00000 | 3.41(a) |
| 10 | Acetone | 43 | 2.929 | 2.929 | (0.491) | 8055 | 4.00000 | 5.29 |
| 37 | Benzene | 78 | 6.290 | 6.290 | (0.931) | 36763 | 2.00000 | 2.13(a) |
| 39 | Bromodichloromethane | 83 | 7.556 | 7.556 | (1.119) | 11021 | 2.00000 | 2.03(a) |
| 66 | Bromoform | 173 | 10.580 | 10.580 | (1.087) | 4230 | 2.00000 | 1.76(Ta) |
| 6 | Bromomethane | 94 | 1.950 | 1.950 | (0.327) | 3990 | 2.00000 | 1.90(a) |
| 19 | Carbon Disulfide | 76 | 3.065 | 3.065 | (0.514) | 36183 | 4.00000 | 3.96(a) |
| 34 | Carbon Tetrachloride | 117 | 6.054 | 6.054 | (0.896) | 10764 | 2.00000 | 1.95(a) |
| 59 | Chlorobenzene | 112 | 9.758 | 9.758 | (1.003) | 24131 | 2.00000 | 2.10(a) |
| 7 | Chloroethane | 64 | 2.043 | 2.043 | (0.343) | 5652 | 2.00000 | 1.87(a) |
| 28 | Chloroform | 83 | 5.668 | 5.668 | (0.951) | 14882 | 2.00000 | 2.16(a) |
| 3 | Chloromethane | 50 | 1.549 | 1.549 | (0.260) | 15295 | 2.00000 | 2.14(aM) |
| 27 | cis-1,2-Dichloroethene | 96 | 5.253 | 5.253 | (0.881) | 10079 | 2.00000 | 2.12(a) |
| 46 | cis-1,3-Dichloropropene | 75 | 8.028 | 8.028 | (1.188) | 13383 | 2.00000 | 2.05(a) |
| 55 | Dibromochloromethane | 129 | 9.157 | 9.157 | (0.941) | 8190 | 2.00000 | 1.99(a) |
| 2 | Dichlorodifluoromethane | 85 | 1.399 | 1.399 | (0.235) | 8704 | 2.00000 | 2.19(a) |
| 61 | Ethylbenzene | 106 | 9.880 | 9.880 | (1.015) | 13124 | 2.00000 | 2.09(a) |
| 67 | Isopropylbenzene | 105 | 10.759 | 10.759 | (1.106) | 37877 | 2.00000 | 2.13(a) |
| 17 | Methylene Chloride | 84 | 3.451 | 3.451 | (0.579) | 8995 | 2.00000 | 2.11(a) |
| 56 | Tetrachloroethene | 164 | 8.907 | 8.907 | (0.915) | 6477 | 2.00000 | 2.00(a) |
| 50 | Toluene | 91 | 8.364 | 8.364 | (0.860) | 35953 | 2.00000 | 2.02(a) |
| 20 | trans-1,2-Dichloroethene | 96 | 3.838 | 3.838 | (0.644) | 8435 | 2.00000 | 2.05(a) |
| 51 | trans-1,3-Dichloropropene | 75 | 8.028 | 8.028 | (1.188) | 13383 | 2.00000 | 2.05(a) |
| 38 | Trichloroethene | 130 | 7.027 | 7.027 | (1.040) | 8760 | 2.00000 | 2.02(a) |
| 8 | Trichlorofluoromethane | 101 | 2.300 | 2.300 | (0.386) | 10754 | 2.00000 | 2.02(a) |
| 5 | Vinyl Chloride | 62 | 1.657 | 1.657 | (0.278) | 11442 | 2.00000 | 2.18(a) |
| 62 | m,p-Xylenes | 106 | 10.001 | 10.001 | (1.028) | 33169 | 4.00000 | 4.32(a) |
| 63 | o-Xylene | 106 | 10.387 | 10.387 | (1.068) | 15660 | 2.00000 | 2.06(a) |
| M 95 | Xylenes (total) | 106 | | | | 48829 | 6.00000 | 6.39 |
| 71 | 1,2,3-Trichloropropane | 75 | 11.088 | 11.088 | (0.920) | 7837 | 2.00000 | 1.70(a) |
| 93 | 1,2,3-Trichlorobenzene | 182 | 14.062 | 14.062 | (1.167) | 6050 | 2.00000 | 1.48(a) |
| 79 | 1,2,4-Trimethylbenzene | 105 | 11.717 | 11.717 | (0.972) | 30442 | 2.00000 | 2.14(a) |
| 75 | 1,3,5-Trimethylbenzene | 105 | 11.345 | 11.345 | (0.941) | 30011 | 2.00000 | 2.14(a) |
| 26 | 2,2-Dichloropropane | 77 | 5.239 | 5.239 | (0.879) | 9564 | 2.00000 | 1.98(a) |
| 54 | 1,3-Dichloropropane | 76 | 8.936 | 8.936 | (0.918) | 13776 | 2.00000 | 2.16(a) |
| 76 | 2-Chlorotoluene | 91 | 11.245 | 11.245 | (0.933) | 24671 | 2.00000 | 1.95(a) |
| 77 | 4-Chlorotoluene | 91 | 11.360 | 11.360 | (0.942) | 30168 | 2.00000 | 2.05(a) |
| 82 | p-Isopropyltoluene | 119 | 12.039 | 12.039 | (0.999) | 27336 | 2.00000 | 2.08(a) |
| 29 | Bromochloromethane | 128 | 5.546 | 5.546 | (0.930) | 4703 | 2.00000 | 2.24(a) |
| 74 | Bromobenzene | 156 | 11.045 | 11.045 | (0.916) | 10090 | 2.00000 | 2.20(a) |
| 44 | Dibromomethane | 93 | 7.370 | 7.370 | (1.091) | 5402 | 2.00000 | 2.21(a) |
| 91 | Hexachlorobutadiene | 225 | 14.227 | 14.227 | (1.180) | 4132 | 2.00000 | 2.43(a) |
| 73 | n-Propylbenzene | 91 | 11.174 | 11.174 | (0.927) | 40986 | 2.00000 | 2.13(a) |
| 87 | n-Butylbenzene | 91 | 12.446 | 12.446 | (1.033) | 22109 | 2.00000 | 2.11(a) |
| 81 | sec-Butylbenzene | 105 | 11.717 | 11.717 | (0.972) | 30442 | 2.00000 | 2.14(a) |
| 92 | Naphthalene | 128 | 14.306 | 14.306 | (1.187) | 11931 | 2.00000 | 1.09(aM) |
| 78 | tert-Butylbenzene | 119 | 11.667 | 11.667 | (0.968) | 23953 | 2.00000 | 2.16(a) |
| 60 | 1,1,1,2-Tetrachloroethane | 131 | 9.844 | 9.844 | (1.012) | 8015 | 2.00000 | 1.98(a) |
| 64 | Styrene | 104 | 10.409 | 10.409 | (1.070) | 27159 | 2.00000 | 2.06(a) |

Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110204.D
Report Date: 06-Feb-2018 16:57

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.


Y (x10^6)
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
Min
-Dichlorodifluoromethane
-Dimethyl ether+
-Vinyl Chloride+
-Ethylene oxide+
-Chloroethane+
-Trichlorofluoromethane+
-Diethyl ether+
-Acrolein
-Acetone+
-Carbon Disulfide+
-Isopropyl alcohol
-Acetonitrile+
-Methylene Chloride
-Acrylonitrile+
-n-Hexane
-1,1-Dichloroethane
-Diisopropyl ether+
-tert-Butyl formate+
-2,2-Dichloropropane+
-Isobutyl Alcohol+
-Bromochloromethane+
-Chloroform+
-Dibromofluoromethane+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-Methacrylonitrile+
-1-Chlorobutane+
1,4-Difluorobenzene
-Trichloroethene+
-1,2-Dichloropropane+
-Methyl Methacrylate+
-Bromodichloromethane
-2-Chloroethylvinyl ether
-cis-1,3-Dichloropropene+
-2-Nitropropane+
-Toluene+
-Amyl alcohol+
-Ethyl Methacrylate+
-1,3-Dichloropropane+
-2-Hexanone+
-1,2-Dibromoethane+
-1,1,1,2-Tetrachloroethane+
-m,p-Xylenes
Chlorobenzene-d5+
-o-Xylene+
-Bromoform
-Isopropylbenzene
-4-Bromofluorobenzene
-cis-1,4-Dichloro-2-butene+
-n-Propylbenzene+
-1,3,5-Trimethylbenzene+
-tert-Butylbenzene+
-Benzyl Chloride
1,4-Dichlorobenzene-d4+
-n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa+
-1,2,3-Trichlorobenzene
-Hexachlorobutadiene+
-1,2,4-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene
\\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110204.D
Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110204.D
Date : 02-NOV-2017 11:21
Client ID: VSTD002
Sample Info: VSTD002,VSTD002,1,3;
Purge Volume: 5.0
Column phase: DB624
Instrument: VOA4.i
Operator: AP
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110205.D
Report Date: 06-Feb-2018 16:57

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110205.D
Lab Smp Id: VSTD005 Client Smp ID: VSTD005
Inj Date : 02-NOV-2017 11:46
Operator : AP Inst ID: VOA4.i
Smp Info : VSTD005;VSTD005;1;4;
Misc Info : HS16050001;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\8260LLW.m
Meth Date : 06-Feb-2018 16:57 diana.nguy Quant Type: ISTD
Cal Date : 02-NOV-2017 11:46 Cal File: J110205.D
Als bottle: 7 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.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) |
|---|---|---|---|---|---|---|---|---|
| | 31 1,1,1-Trichloroethane | 97 | 5.861 | 5.861 | (0.983) | 27405 | 5.00000 | 4.77(a) |
| * | 1 Pentafluorobenzene | 168 | 5.961 | 5.961 | (1.000) | 402687 | 50.0000 | |
| $ | 30 Dibromofluoromethane | 113 | 5.854 | 5.854 | (0.982) | 19892 | 5.00000 | 4.72(a) |
| * | 36 1,4-Difluorobenzene | 114 | 6.755 | 6.755 | (1.000) | 650997 | 50.0000 | |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 6.240 | 6.240 | (1.047) | 24961 | 5.00000 | 4.94(a) |
| * | 47 Chlorobenzene-d5 | 117 | 9.729 | 9.729 | (1.000) | 543864 | 50.0000 | |
| $ | 48 Toluene-d8 | 98 | 8.292 | 8.292 | (0.852) | 82497 | 5.00000 | 4.39(a) |
| $ | 69 4-Bromofluorobenzene | 95 | 10.902 | 10.902 | (1.121) | 32795 | 5.00000 | 4.34(a) |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 12.053 | 12.053 | (1.000) | 255496 | 50.0000 | |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 11.052 | 11.052 | (0.917) | 22850 | 5.00000 | 4.95(a) |
| | 53 1,1,2-Trichloroethane | 83 | 8.771 | 8.771 | (0.902) | 16809 | 5.00000 | 5.57 |
| | 32 1,1-Dichloropropene | 75 | 6.061 | 6.061 | (0.897) | 26419 | 5.00000 | 4.91(a) |
| | 22 1,1-Dichloroethane | 63 | 4.460 | 4.460 | (0.748) | 37875 | 5.00000 | 4.96(a) |
| | 11 1,1-Dichloroethene | 96 | 2.844 | 2.844 | (0.477) | 17261 | 5.00000 | 5.05 |
| | 90 1,2,4-Trichlorobenzene | 180 | 14.534 | 14.534 | (1.206) | 17494 | 5.00000 | 4.00(a) |
| | 89 1,2-Dibromo-3-Chloropropane | 75 | 13.433 | 13.433 | (1.114) | 3822 | 5.00000 | 4.62(a) |
| | 57 1,2-Dibromoethane | 107 | 9.257 | 9.257 | (0.951) | 17843 | 5.00000 | 4.96(a) |
| | 88 1,2-Dichlorobenzene | 146 | 12.446 | 12.446 | (1.033) | 38694 | 5.00000 | 4.98(a) |
| | 33 1,2-Dichloroethane | 62 | 6.326 | 6.326 | (0.936) | 29649 | 5.00000 | 4.89(a) |
| | 42 1,2-Dichloropropane | 63 | 7.248 | 7.248 | (1.073) | 23024 | 5.00000 | 4.99(a) |
| | 83 1,3-Dichlorobenzene | 146 | 11.989 | 11.989 | (0.995) | 43456 | 5.00000 | 5.28 |
| | 84 1,4-Dichlorobenzene | 146 | 12.075 | 12.075 | (1.002) | 43853 | 5.00000 | 5.05 |

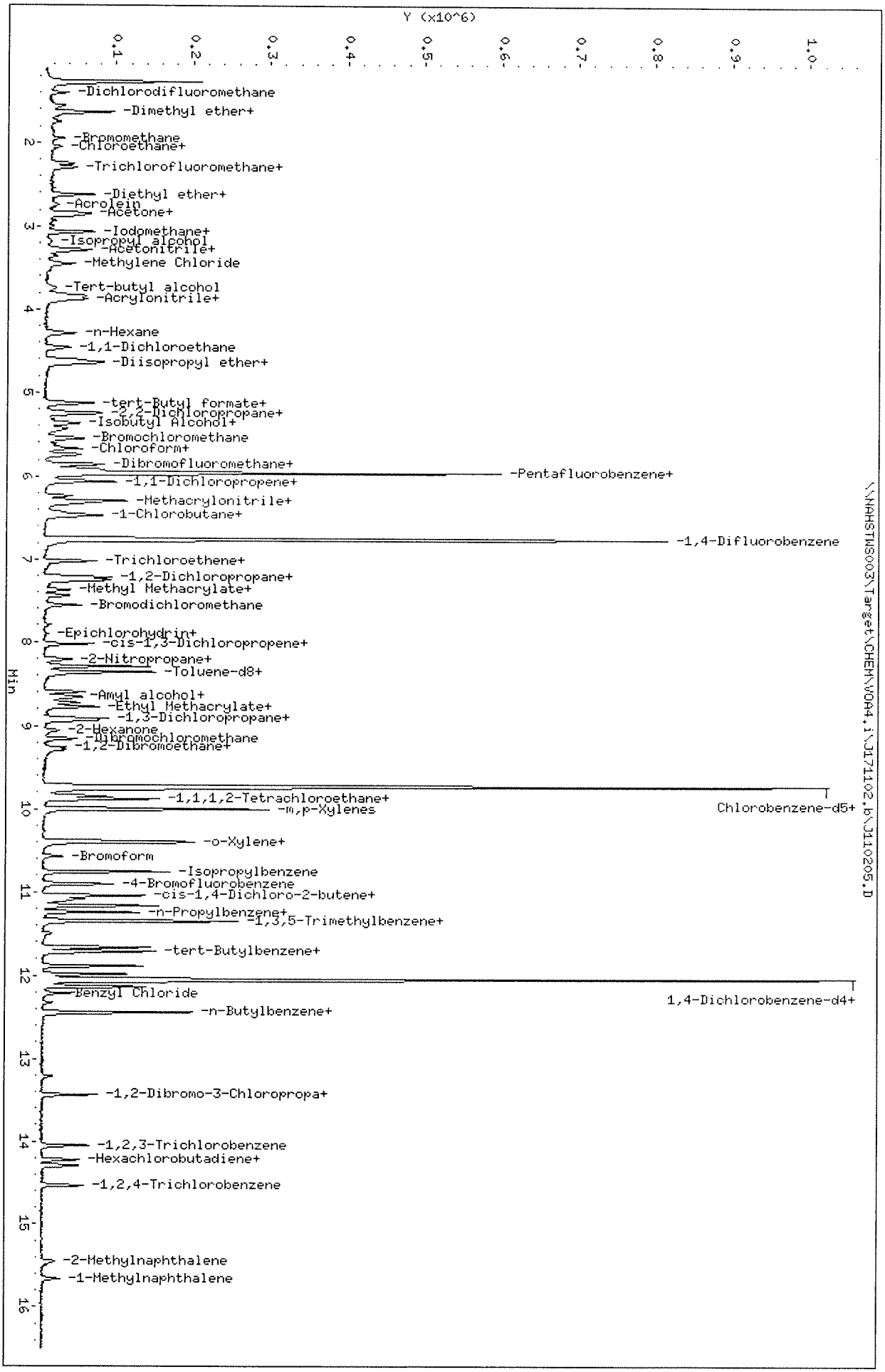
Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110205.D
Report Date: 06-Feb-2018 16:57

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| | 24 2-Butanone | 43 | 5.325 | 5.325 | (0.893) | 16586 | 10.0000 | 9.12 |
| | 52 2-Hexanone | 43 | 9.050 | 9.050 | (0.930) | 21465 | 10.0000 | 8.64 |
| | 45 4-Methyl-2-Pentanone | 43 | 8.206 | 8.206 | (0.843) | 41104 | 10.0000 | 11.15 |
| | 10 Acetone | 43 | 2.929 | 2.929 | (0.491) | 15174 | 10.0000 | 11.32 |
| | 37 Benzene | 78 | 6.297 | 6.297 | (0.932) | 89378 | 5.00000 | 5.13 |
| | 39 Bromodichloromethane | 83 | 7.556 | 7.556 | (1.119) | 27535 | 5.00000 | 5.01 |
| | 66 Bromoform | 173 | 10.573 | 10.573 | (1.087) | 12420 | 5.00000 | 5.17 |
| | 6 Bromomethane | 94 | 1.950 | 1.950 | (0.327) | 10064 | 5.00000 | 4.78(a) |
| | 19 Carbon Disulfide | 76 | 3.065 | 3.065 | (0.514) | 95935 | 10.0000 | 10.47 |
| | 34 Carbon Tetrachloride | 117 | 6.054 | 6.054 | (0.896) | 26078 | 5.00000 | 4.68(a) |
| | 59 Chlorobenzene | 112 | 9.758 | 9.758 | (1.003) | 59863 | 5.00000 | 5.23 |
| | 7 Chloroethane | 64 | 2.050 | 2.050 | (0.344) | 13550 | 5.00000 | 4.47(a) |
| | 28 Chloroform | 83 | 5.675 | 5.675 | (0.952) | 34121 | 5.00000 | 4.93(a) |
| | 3 Chloromethane | 50 | 1.549 | 1.549 | (0.260) | 33964 | 5.00000 | 4.75(a) |
| | 27 cis-1,2-Dichloroethene | 96 | 5.260 | 5.260 | (0.882) | 23824 | 5.00000 | 4.99(a) |
| | 46 cis-1,3-Dichloropropene | 75 | 8.028 | 8.028 | (1.188) | 32871 | 5.00000 | 4.98(a) |
| | 55 Dibromochloromethane | 129 | 9.157 | 9.157 | (0.941) | 20961 | 5.00000 | 5.12 |
| | 2 Dichlorodifluoromethane | 85 | 1.399 | 1.399 | (0.235) | 20022 | 5.00000 | 5.03 |
| | 61 Ethylbenzene | 106 | 9.879 | 9.879 | (1.015) | 31006 | 5.00000 | 4.96(a) |
| | 67 Isopropylbenzene | 105 | 10.759 | 10.759 | (1.106) | 93893 | 5.00000 | 5.29 |
| | 17 Methylene Chloride | 84 | 3.451 | 3.451 | (0.579) | 19461 | 5.00000 | 4.55(a) |
| | 56 Tetrachloroethene | 164 | 8.907 | 8.907 | (0.915) | 17433 | 5.00000 | 5.40 |
| | 50 Toluene | 91 | 8.364 | 8.364 | (0.860) | 91225 | 5.00000 | 5.13 |
| | 20 trans-1,2-Dichloroethene | 96 | 3.845 | 3.845 | (0.645) | 20401 | 5.00000 | 4.94(a) |
| | 51 trans-1,3-Dichloropropene | 75 | 8.028 | 8.028 | (1.188) | 32871 | 5.00000 | 4.98(a) |
| | 38 Trichloroethene | 130 | 7.026 | 7.026 | (1.040) | 21561 | 5.00000 | 4.93(a) |
| | 8 Trichlorofluoromethane | 101 | 2.300 | 2.300 | (0.386) | 24324 | 5.00000 | 4.55(a) |
| | 5 Vinyl Chloride | 62 | 1.657 | 1.657 | (0.278) | 25965 | 5.00000 | 4.94(a) |
| | 62 m,p-Xylenes | 106 | 10.001 | 10.001 | (1.028) | 82159 | 10.0000 | 10.71 |
| | 63 o-Xylene | 106 | 10.387 | 10.387 | (1.068) | 40259 | 5.00000 | 5.32 |
| M | 95 Xylenes (total) | 106 | | | | 122418 | 15.0000 | 16.03 |
| | 71 1,2,3-Trichloropropane | 75 | 11.088 | 11.088 | (0.920) | 24278 | 5.00000 | 5.09 |
| | 93 1,2,3-Trichlorobenzene | 182 | 14.055 | 14.055 | (1.166) | 19214 | 5.00000 | 4.62(a) |
| | 79 1,2,4-Trimethylbenzene | 105 | 11.717 | 11.717 | (0.972) | 78248 | 5.00000 | 5.33 |
| | 75 1,3,5-Trimethylbenzene | 105 | 11.345 | 11.345 | (0.941) | 75532 | 5.00000 | 5.22 |
| | 26 2,2-Dichloropropane | 77 | 5.239 | 5.239 | (0.879) | 21562 | 5.00000 | 4.45(a) |
| | 54 1,3-Dichloropropane | 76 | 8.936 | 8.936 | (0.918) | 32708 | 5.00000 | 5.14 |
| | 76 2-Chlorotoluene | 91 | 11.245 | 11.245 | (0.933) | 68715 | 5.00000 | 5.26 |
| | 77 4-Chlorotoluene | 91 | 11.352 | 11.352 | (0.942) | 78884 | 5.00000 | 5.19 |
| | 82 p-Isopropyltoluene | 119 | 12.039 | 12.039 | (0.999) | 69941 | 5.00000 | 5.16 |
| | 29 Bromochloromethane | 128 | 5.539 | 5.539 | (0.929) | 10656 | 5.00000 | 5.07 |
| | 74 Bromobenzene | 156 | 11.045 | 11.045 | (0.916) | 24060 | 5.00000 | 5.08 |
| | 44 Dibromomethane | 93 | 7.377 | 7.377 | (1.092) | 12198 | 5.00000 | 4.95(a) |
| | 91 Hexachlorobutadiene | 225 | 14.234 | 14.234 | (1.181) | 8696 | 5.00000 | 4.94(a) |
| | 73 n-Propylbenzene | 91 | 11.166 | 11.166 | (0.926) | 105049 | 5.00000 | 5.28 |
| | 87 n-Butylbenzene | 91 | 12.446 | 12.446 | (1.033) | 54916 | 5.00000 | 5.08 |
| | 81 sec-Butylbenzene | 105 | 11.717 | 11.717 | (0.972) | 78248 | 5.00000 | 5.33 |
| | 92 Naphthalene | 128 | 14.291 | 14.291 | (1.186) | 42350 | 5.00000 | 3.78(aM) |
| | 78 tert-Butylbenzene | 119 | 11.667 | 11.667 | (0.968) | 57585 | 5.00000 | 5.03 |
| | 60 1,1,1,2-Tetrachloroethane | 131 | 9.844 | 9.844 | (1.012) | 20492 | 5.00000 | 5.07 |
| | 64 Styrene | 104 | 10.401 | 10.401 | (1.069) | 67077 | 5.00000 | 5.10 |

Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110205.D
Report Date: 06-Feb-2018 16:57

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.


Y (x10^6)
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
Min
-Dichlorodifluoromethane
-Dimethyl ether+
-Bromomethane
-Chloroethane+
-Trichlorofluoromethane+
-Diethyl ether+
-Acrolein
-Acetone+
-Iodomethane+
-Isopropyl alcohol
-Acetonitrile+
-Methylene Chloride
-Tert-butyl alcohol
-Acrylonitrile+
-n-Hexane
-1,1-Dichloroethane
-Diisopropyl ether+
-tert-Butyl formate+
-2,2-Dichloropropane+
-Isobutyl Alcohol+
-Bromochloromethane
-Chloroform+
-Dibromofluoromethane+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-Methacrylonitrile+
-1-Chlorobutane+
-1,4-Difluorobenzene
-Trichloroethene+
-1,2-Dichloropropane+
-Methyl Methacrylate+
-Bromodichloromethane
-Epichlorohydrin+
-cis-1,3-Dichloropropene+
-2-Nitropropane+
-Toluene-d8+
-Amyl alcohol+
-Ethyl Methacrylate+
-1,3-Dichloropropane+
-2-Hexanone
-Dibromochloromethane
-1,2-Dibromoethane+
-1,1,1,2-Tetrachloroethane+
-m,p-Xylenes
Chlorobenzene-d5+
-o-Xylene+
-Bromoform
-Isopropylbenzene
-4-Bromofluorobenzene
-cis-1,4-Dichloro-2-butene+
-n-Propylbenzene+
-1,3,5-Trimethylbenzene+
-tert-Butylbenzene+
-Benzyl Chloride
1,4-Dichlorobenzene-d4+
-n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa+
-1,2,3-Trichlorobenzene
-Hexachlorobutadiene+
-1,2,4-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene
\\NAHSTWS003\Target\CHEM\VOA4,i\J171102,b\J110205,D
Data File: \\NAHSTWS003\Target\CHEM\VOA4,i\J171102,b\J110205,D
Date : 02-NOV-2017 11:46
Client ID: VSTD005
Sample Info: VSTD005;VSTD005;1;4;
Purge Volume: 5.0
Column phase: DB624
Instrument: VOA4,i
Operator: AP
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110206.D
Report Date: 06-Feb-2018 16:57

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110206.D
Lab Smp Id: VSTD010 Client Smp ID: VSTD010
Inj Date : 02-NOV-2017 12:12
Operator : AP Inst ID: VOA4.i
Smp Info : VSTD010;VSTD010;1;5;
Misc Info : HS16050001;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\8260LLW.m
Meth Date : 06-Feb-2018 16:57 diana.nguy Quant Type: ISTD
Cal Date : 02-NOV-2017 12:12 Cal File: J110206.D
Als bottle: 8 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.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) |
|---|---|---|---|---|---|---|---|---|
| | 31 1,1,1-Trichloroethane | 97 | 5.861 | 5.861 | (0.983) | 55082 | 10.0000 | 9.74 |
| * | 1 Pentafluorobenzene | 168 | 5.961 | 5.961 | (1.000) | 396756 | 50.0000 | |
| $ | 30 Dibromofluoromethane | 113 | 5.861 | 5.861 | (0.983) | 39283 | 10.0000 | 10.54(M) |
| * | 36 1,4-Difluorobenzene | 114 | 6.755 | 6.755 | (1.000) | 634422 | 50.0000 | |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 6.233 | 6.233 | (1.046) | 47319 | 10.0000 | 10.20 |
| * | 47 Chlorobenzene-d5 | 117 | 9.729 | 9.729 | (1.000) | 538859 | 50.0000 | |
| $ | 48 Toluene-d8 | 98 | 8.292 | 8.292 | (0.852) | 154254 | 10.0000 | 10.12 |
| $ | 69 4-Bromofluorobenzene | 95 | 10.902 | 10.902 | (1.121) | 60963 | 10.0000 | 9.87 |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 12.046 | 12.046 | (1.000) | 253965 | 50.0000 | |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 11.052 | 11.052 | (0.917) | 43985 | 10.0000 | 9.60 |
| | 53 1,1,2-Trichloroethane | 83 | 8.771 | 8.771 | (0.902) | 28328 | 10.0000 | 9.48 |
| | 32 1,1-Dichloropropene | 75 | 6.061 | 6.061 | (0.897) | 53194 | 10.0000 | 10.15 |
| | 22 1,1-Dichloroethane | 63 | 4.459 | 4.459 | (0.748) | 69717 | 10.0000 | 9.27 |
| | 11 1,1-Dichloroethene | 96 | 2.844 | 2.844 | (0.477) | 30426 | 10.0000 | 9.03 |
| | 90 1,2,4-Trichlorobenzene | 180 | 14.534 | 14.534 | (1.207) | 36068 | 10.0000 | 9.17 |
| | 89 1,2-Dibromo-3-Chloropropane | 75 | 13.433 | 13.433 | (1.115) | 7544 | 10.0000 | 9.73 |
| | 57 1,2-Dibromoethane | 107 | 9.257 | 9.257 | (0.951) | 33460 | 10.0000 | 9.40 |
| | 88 1,2-Dichlorobenzene | 146 | 12.439 | 12.439 | (1.033) | 74099 | 10.0000 | 9.61 |
| | 33 1,2-Dichloroethane | 62 | 6.319 | 6.319 | (0.935) | 57696 | 10.0000 | 9.77 |
| | 42 1,2-Dichloropropane | 63 | 7.255 | 7.255 | (1.074) | 42444 | 10.0000 | 9.45 |
| | 83 1,3-Dichlorobenzene | 146 | 11.982 | 11.982 | (0.995) | 80099 | 10.0000 | 9.79 |
| | 84 1,4-Dichlorobenzene | 146 | 12.074 | 12.074 | (1.002) | 78952 | 10.0000 | 9.15 |

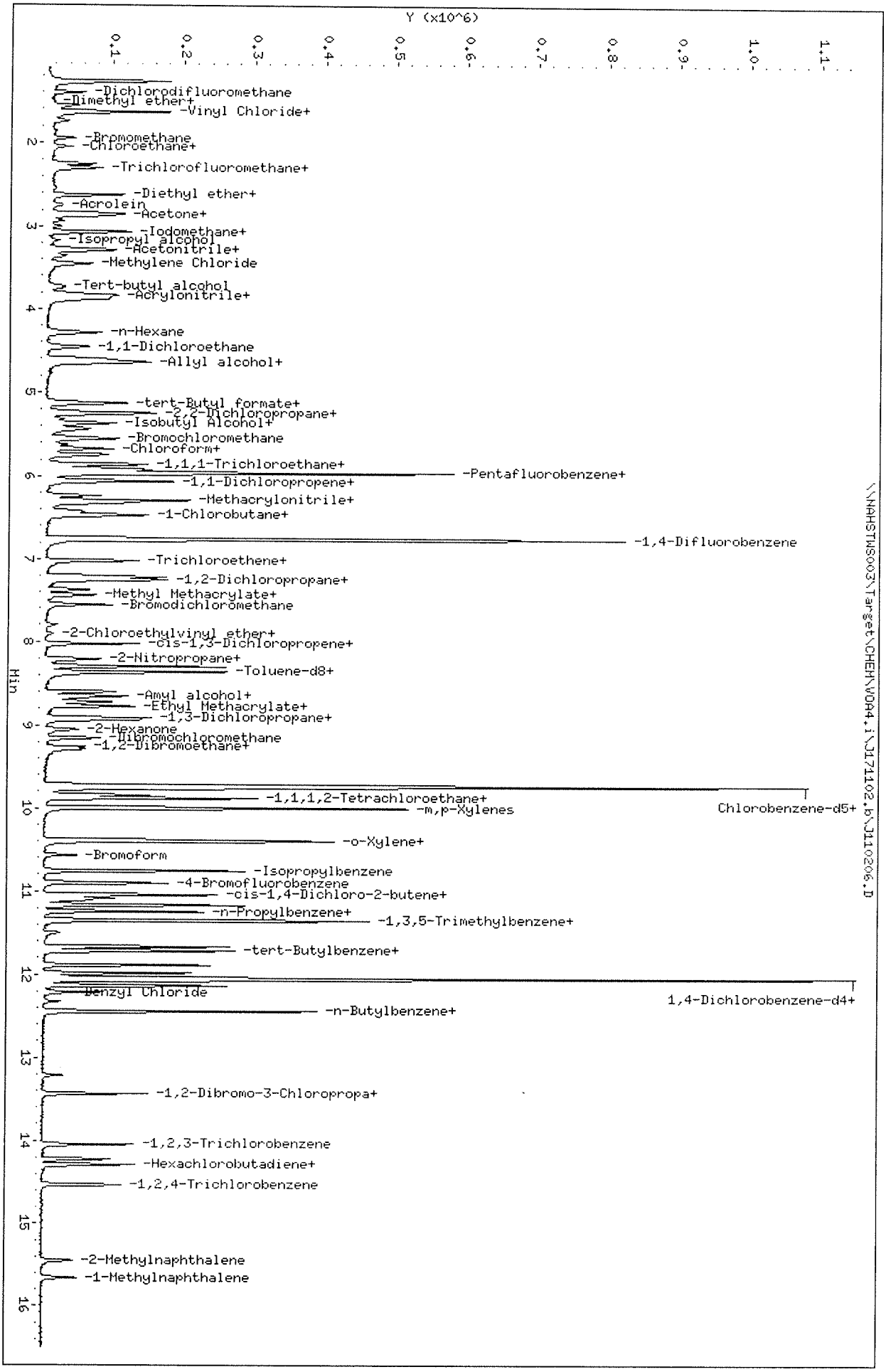
Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110206.D
Report Date: 06-Feb-2018 16:57

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| | 24 2-Butanone | 43 | 5.318 | 5.318 | (0.892) | 32945 | 20.0000 | 18.39 |
| | 52 2-Hexanone | 43 | 9.050 | 9.050 | (0.930) | 49727 | 20.0000 | 20.20 |
| | 45 4-Methyl-2-Pentanone | 43 | 8.206 | 8.206 | (0.843) | 72079 | 20.0000 | 19.75 |
| | 10 Acetone | 43 | 2.936 | 2.936 | (0.493) | 27242 | 20.0000 | 21.93 |
| | 37 Benzene | 78 | 6.290 | 6.290 | (0.931) | 167291 | 10.0000 | 9.86 |
| | 39 Bromodichloromethane | 83 | 7.556 | 7.556 | (1.119) | 52360 | 10.0000 | 9.78 |
| | 66 Bromoform | 173 | 10.573 | 10.573 | (1.087) | 21640 | 10.0000 | 9.10 |
| | 6 Bromomethane | 94 | 1.950 | 1.950 | (0.327) | 19265 | 10.0000 | 9.30 |
| | 19 Carbon Disulfide | 76 | 3.065 | 3.065 | (0.514) | 173882 | 20.0000 | 19.26 |
| | 34 Carbon Tetrachloride | 117 | 6.054 | 6.054 | (0.896) | 51224 | 10.0000 | 9.43 |
| | 59 Chlorobenzene | 112 | 9.758 | 9.758 | (1.003) | 110423 | 10.0000 | 9.74 |
| | 7 Chloroethane | 64 | 2.050 | 2.050 | (0.344) | 25731 | 10.0000 | 8.62 |
| | 28 Chloroform | 83 | 5.668 | 5.668 | (0.951) | 67271 | 10.0000 | 9.87 |
| | 3 Chloromethane | 50 | 1.556 | 1.556 | (0.261) | 67477 | 10.0000 | 9.58(M) |
| | 27 cis-1,2-Dichloroethene | 96 | 5.253 | 5.253 | (0.881) | 43881 | 10.0000 | 9.33 |
| | 46 cis-1,3-Dichloropropene | 75 | 8.027 | 8.027 | (1.188) | 62412 | 10.0000 | 9.71 |
| | 55 Dibromochloromethane | 129 | 9.157 | 9.157 | (0.941) | 37583 | 10.0000 | 9.26 |
| | 2 Dichlorodifluoromethane | 85 | 1.399 | 1.399 | (0.235) | 39002 | 10.0000 | 9.96 |
| | 61 Ethylbenzene | 106 | 9.879 | 9.879 | (1.015) | 59714 | 10.0000 | 9.64 |
| | 67 Isopropylbenzene | 105 | 10.759 | 10.759 | (1.106) | 172783 | 10.0000 | 9.83 |
| | 17 Methylene Chloride | 84 | 3.458 | 3.458 | (0.580) | 37867 | 10.0000 | 8.98 |
| | 56 Tetrachloroethene | 164 | 8.907 | 8.907 | (0.915) | 28888 | 10.0000 | 9.04 |
| | 50 Toluene | 91 | 8.356 | 8.356 | (0.859) | 173393 | 10.0000 | 9.84 |
| | 20 trans-1,2-Dichloroethene | 96 | 3.837 | 3.837 | (0.644) | 39480 | 10.0000 | 9.71 |
| | 51 trans-1,3-Dichloropropene | 75 | 8.027 | 8.027 | (1.188) | 62412 | 10.0000 | 9.71 |
| | 38 Trichloroethene | 130 | 7.026 | 7.026 | (1.040) | 41533 | 10.0000 | 9.75 |
| | 8 Trichlorofluoromethane | 101 | 2.300 | 2.300 | (0.386) | 52685 | 10.0000 | 10.01 |
| | 5 Vinyl Chloride | 62 | 1.649 | 1.649 | (0.277) | 51250 | 10.0000 | 9.89 |
| | 62 m,p-Xylenes | 106 | 10.001 | 10.001 | (1.028) | 150378 | 20.0000 | 19.79 |
| | 63 o-Xylene | 106 | 10.387 | 10.387 | (1.068) | 70909 | 10.0000 | 9.46 |
| M | 95 Xylenes (Total) | 106 | | | | 221287 | 30.0000 | 29.25 |
| | 71 1,2,3-Trichloropropane | 75 | 11.088 | 11.088 | (0.920) | 46361 | 10.0000 | 9.77 |
| | 93 1,2,3-Trichlorobenzene | 182 | 14.048 | 14.048 | (1.166) | 36680 | 10.0000 | 8.89 |
| | 79 1,2,4-Trimethylbenzene | 105 | 11.717 | 11.717 | (0.973) | 140597 | 10.0000 | 9.64 |
| | 75 1,3,5-Trimethylbenzene | 105 | 11.345 | 11.345 | (0.942) | 137017 | 10.0000 | 9.53 |
| | 26 2,2-Dichloropropane | 77 | 5.239 | 5.239 | (0.879) | 44706 | 10.0000 | 9.37 |
| | 54 1,3-Dichloropropane | 76 | 8.936 | 8.936 | (0.918) | 59898 | 10.0000 | 9.50 |
| | 76 2-Chlorotoluene | 91 | 11.245 | 11.245 | (0.934) | 125152 | 10.0000 | 9.64 |
| | 77 4-Chlorotoluene | 91 | 11.352 | 11.352 | (0.942) | 145324 | 10.0000 | 9.63 |
| | 82 p-Isopropyltoluene | 119 | 12.039 | 12.039 | (0.999) | 135001 | 10.0000 | 10.02 |
| | 29 Bromochloromethane | 128 | 5.546 | 5.546 | (0.930) | 19986 | 10.0000 | 9.65 |
| | 74 Bromobenzene | 156 | 11.045 | 11.045 | (0.917) | 43877 | 10.0000 | 9.33 |
| | 44 Dibromomethane | 93 | 7.377 | 7.377 | (1.092) | 21316 | 10.0000 | 8.87 |
| | 91 Hexachlorobutadiene | 225 | 14.227 | 14.227 | (1.181) | 16999 | 10.0000 | 9.72 |
| | 73 n-Propylbenzene | 91 | 11.166 | 11.166 | (0.927) | 194759 | 10.0000 | 9.85 |
| | 87 n-Butylbenzene | 91 | 12.439 | 12.439 | (1.033) | 105605 | 10.0000 | 9.83 |
| | 81 sec-Butylbenzene | 105 | 11.717 | 11.717 | (0.973) | 140597 | 10.0000 | 9.64 |
| | 92 Naphthalene | 128 | 14.291 | 14.291 | (1.186) | 96809 | 10.0000 | 8.71 |
| | 78 tert-Butylbenzene | 119 | 11.667 | 11.667 | (0.969) | 113083 | 10.0000 | 9.94 |
| | 60 1,1,1,2-Tetrachloroethane | 131 | 9.844 | 9.844 | (1.012) | 37247 | 10.0000 | 9.31 |
| | 64 Styrene | 104 | 10.401 | 10.401 | (1.069) | 126843 | 10.0000 | 9.74 |

Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110206.D
Report Date: 06-Feb-2018 16:57

QC Flag Legend

M - Compound response manually integrated.


Y (x10^6)
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
Min
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
-Dichlorodifluoromethane
-Dimethyl ether+
-Vinyl Chloride+
-Bromomethane
-Chloroethane+
-Trichlorofluoromethane+
-Diethyl ether+
-Acrolein
-Acetone+
-Iodomethane+
-Isopropyl alcohol
-Acetonitrile+
-Methylene Chloride
-Tert-butyl alcohol
-Acrylonitrile+
-n-Hexane
-1,1-Dichloroethane
-Allyl alcohol+
-tert-Butyl formate+
-2,2-Dichloropropane+
-Isobutyl Alcohol+
-Bromochloromethane
-Chloroform+
-1,1,1-Trichloroethane+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-Methacrylonitrile+
-1-Chlorobutane+
-1,4-Difluorobenzene
-Trichloroethene+
-1,2-Dichloropropane+
-Methyl Methacrylate+
-Bromodichloromethane
-2-Chloroethylvinyl ether+
-cis-1,3-Dichloropropene+
-2-Nitropropane+
-Toluene-d8+
-Amyl alcohol+
-Ethyl Methacrylate+
-1,3-Dichloropropane+
-2-Hexanone
-Dibromochloromethane
-1,2-Dibromoethane+
-1,1,1,2-Tetrachloroethane+
-m,p-Xylenes
Chlorobenzene-d5+
-o-Xylene+
-Bromoform
-Isopropylbenzene
-4-Bromofluorobenzene
-cis-1,4-Dichloro-2-butene+
-n-Propylbenzene+
-1,3,5-Trimethylbenzene+
-tert-Butylbenzene+
-Benzyl Chloride
1,4-Dichlorobenzene-d4+
-n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa+
-1,2,3-Trichlorobenzene
-Hexachlorobutadiene+
-1,2,4-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene
\\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110206.D
Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110206.D
Date : 02-NOV-2017 12:12
Client ID: VSTD010
Sample Info: VSTD010;VSTD010;1;5;
Purge Volume: 5.0
Column phase: DB624
Instrument: VOA4.i
Operator: AP
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110207.D
Report Date: 06-Feb-2018 16:57

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110207.D
Lab Smp Id: VSTD020 Client Smp ID: VSTD020
Inj Date : 02-NOV-2017 12:37
Operator : AP Inst ID: VOA4.i
Smp Info : VSTD020;VSTD020;1;6;
Misc Info : HS16050001;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\8260LLW.m
Meth Date : 06-Feb-2018 16:57 diana.nguy Quant Type: ISTD
Cal Date : 02-NOV-2017 12:37 Cal File: J110207.D
Als bottle: 9 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.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) |
|---|---|---|---|---|---|---|---|---|
| | 31 1,1,1-Trichloroethane | 97 | 5.861 | 5.861 | (0.983) | 115899 | 20.0000 | 20.50 |
| * | 1 Pentafluorobenzene | 168 | 5.961 | 5.961 | (1.000) | 396968 | 50.0000 | |
| $ | 30 Dibromofluoromethane | 113 | 5.854 | 5.854 | (0.982) | 74938 | 20.0000 | 21.08(M) |
| * | 36 1,4-Difluorobenzene | 114 | 6.762 | 6.762 | (1.000) | 641604 | 50.0000 | |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 6.233 | 6.233 | (1.046) | 90473 | 20.0000 | 20.20 |
| * | 47 Chlorobenzene-d5 | 117 | 9.729 | 9.729 | (1.000) | 535854 | 50.0000 | |
| $ | 48 Toluene-d8 | 98 | 8.292 | 8.292 | (0.852) | 290546 | 20.0000 | 21.03 |
| $ | 69 4-Bromofluorobenzene | 95 | 10.902 | 10.902 | (1.121) | 116436 | 20.0000 | 20.78 |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 12.053 | 12.053 | (1.000) | 257093 | 50.0000 | |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 11.052 | 11.052 | (0.917) | 89188 | 20.0000 | 19.23 |
| | 53 1,1,2-Trichloroethane | 83 | 8.771 | 8.771 | (0.902) | 59711 | 20.0000 | 20.11 |
| | 32 1,1-Dichloropropene | 75 | 6.061 | 6.061 | (0.896) | 109344 | 20.0000 | 20.63 |
| | 22 1,1-Dichloroethane | 63 | 4.460 | 4.460 | (0.748) | 151224 | 20.0000 | 20.10 |
| | 11 1,1-Dichloroethene | 96 | 2.844 | 2.844 | (0.477) | 66035 | 20.0000 | 19.60 |
| | 90 1,2,4-Trichlorobenzene | 180 | 14.527 | 14.527 | (1.205) | 76038 | 20.0000 | 19.96 |
| | 89 1,2-Dibromo-3-Chloropropane | 75 | 13.433 | 13.433 | (1.114) | 14936 | 20.0000 | 19.57 |
| | 57 1,2-Dibromoethane | 107 | 9.257 | 9.257 | (0.951) | 71310 | 20.0000 | 20.14 |
| | 88 1,2-Dichlorobenzene | 146 | 12.439 | 12.439 | (1.032) | 158933 | 20.0000 | 20.36 |
| | 33 1,2-Dichloroethane | 62 | 6.319 | 6.319 | (0.934) | 116252 | 20.0000 | 19.47 |
| | 42 1,2-Dichloropropane | 63 | 7.248 | 7.248 | (1.072) | 86778 | 20.0000 | 19.11 |
| | 83 1,3-Dichlorobenzene | 146 | 11.982 | 11.982 | (0.994) | 164711 | 20.0000 | 19.90 |
| | 84 1,4-Dichlorobenzene | 146 | 12.075 | 12.075 | (1.002) | 169117 | 20.0000 | 19.36 |

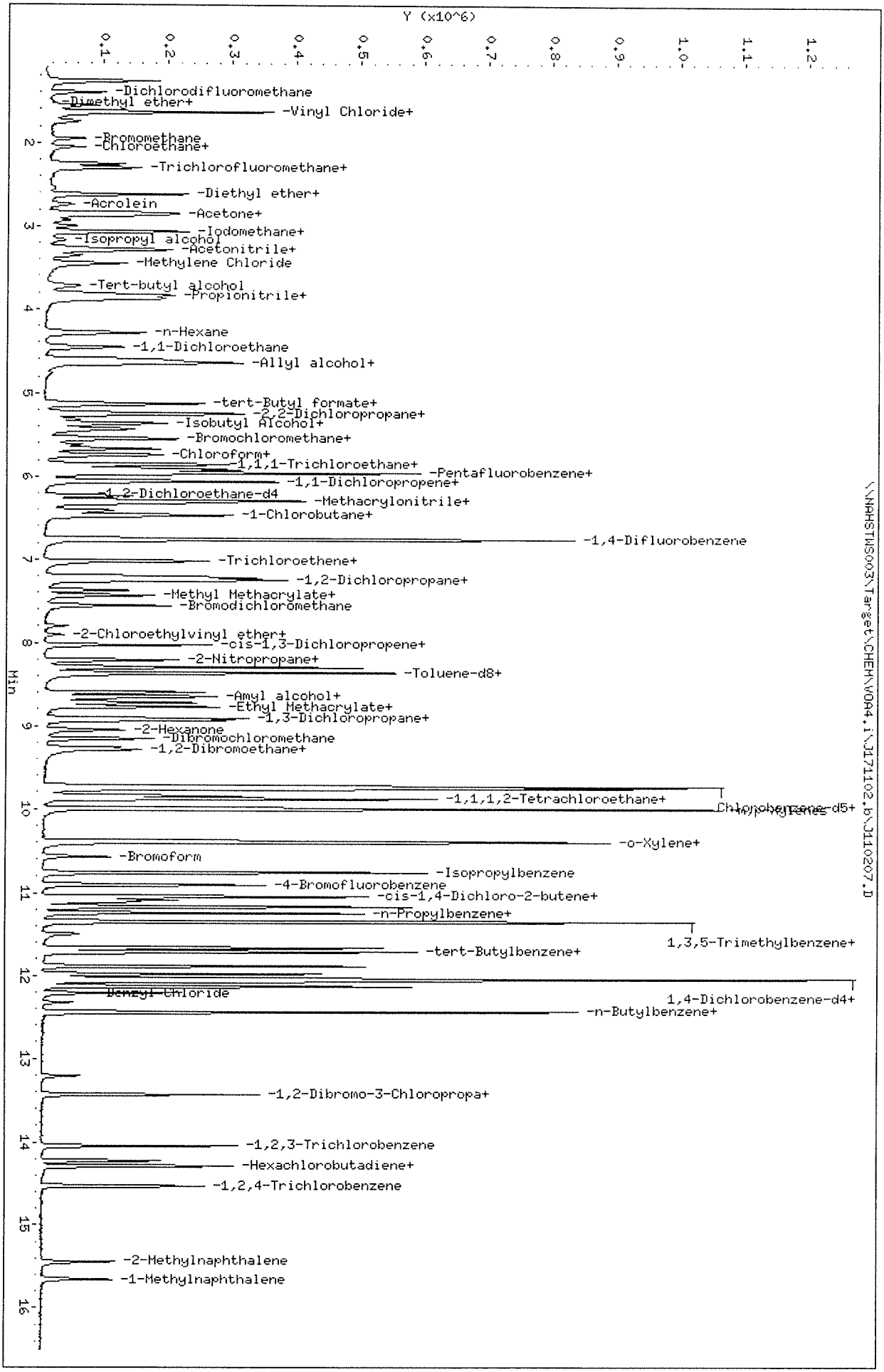
Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110207.D
Report Date: 06-Feb-2018 16:57

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| | 24 2-Butanone | 43 | 5.318 | 5.318 | (0.892) | 68648 | 40.0000 | 38.31 |
| | 52 2-Hexanone | 43 | 9.050 | 9.050 | (0.930) | 100657 | 40.0000 | 41.12 |
| | 45 4-Methyl-2-Pentanone | 43 | 8.206 | 8.206 | (0.843) | 156503 | 40.0000 | 43.12 |
| | 10 Acetone | 43 | 2.929 | 2.929 | (0.491) | 46043 | 40.0000 | 38.14 |
| | 37 Benzene | 78 | 6.297 | 6.297 | (0.931) | 335592 | 20.0000 | 19.57 |
| | 39 Bromodichloromethane | 83 | 7.556 | 7.556 | (1.117) | 105076 | 20.0000 | 19.41 |
| | 66 Bromoform | 173 | 10.573 | 10.573 | (1.087) | 47994 | 20.0000 | 20.30 |
| | 6 Bromomethane | 94 | 1.950 | 1.950 | (0.327) | 36092 | 20.0000 | 17.41 |
| | 19 Carbon Disulfide | 76 | 3.065 | 3.065 | (0.514) | 362641 | 40.0000 | 40.16 |
| | 34 Carbon Tetrachloride | 117 | 6.054 | 6.054 | (0.895) | 103652 | 20.0000 | 18.87 |
| | 59 Chlorobenzene | 112 | 9.758 | 9.758 | (1.003) | 228028 | 20.0000 | 20.23 |
| | 7 Chloroethane | 64 | 2.050 | 2.050 | (0.344) | 56938 | 20.0000 | 19.06 |
| | 28 Chloroform | 83 | 5.668 | 5.668 | (0.951) | 132580 | 20.0000 | 19.45 |
| | 3 Chloromethane | 50 | 1.557 | 1.557 | (0.261) | 132590 | 20.0000 | 18.81(M) |
| | 27 cis-1,2-Dichloroethene | 96 | 5.253 | 5.253 | (0.881) | 89923 | 20.0000 | 19.11 |
| | 46 cis-1,3-Dichloropropene | 75 | 8.027 | 8.027 | (1.187) | 130153 | 20.0000 | 20.03 |
| | 55 Dibromochloromethane | 129 | 9.157 | 9.157 | (0.941) | 80293 | 20.0000 | 19.90 |
| | 2 Dichlorodifluoromethane | 85 | 1.399 | 1.399 | (0.235) | 80407 | 20.0000 | 20.52 |
| | 61 Ethylbenzene | 106 | 9.879 | 9.879 | (1.015) | 123926 | 20.0000 | 20.12 |
| | 67 Isopropylbenzene | 105 | 10.759 | 10.759 | (1.106) | 356706 | 20.0000 | 20.41 |
| | 17 Methylene Chloride | 84 | 3.451 | 3.451 | (0.579) | 80485 | 20.0000 | 19.08 |
| | 56 Tetrachloroethene | 164 | 8.907 | 8.907 | (0.915) | 63756 | 20.0000 | 20.07 |
| | 50 Toluene | 91 | 8.364 | 8.364 | (0.860) | 358905 | 20.0000 | 20.49 |
| | 20 trans-1,2-Dichloroethene | 96 | 3.837 | 3.837 | (0.644) | 79355 | 20.0000 | 19.52 |
| | 51 trans-1,3-Dichloropropene | 75 | 8.027 | 8.027 | (1.187) | 130153 | 20.0000 | 20.03 |
| | 38 Trichloroethene | 130 | 7.019 | 7.019 | (1.038) | 85013 | 20.0000 | 19.75 |
| | 8 Trichlorofluoromethane | 101 | 2.300 | 2.300 | (0.386) | 111580 | 20.0000 | 21.20 |
| | 5 Vinyl Chloride | 62 | 1.657 | 1.657 | (0.278) | 105046 | 20.0000 | 20.28 |
| | 62 m,p-Xylenes | 106 | 10.001 | 10.001 | (1.028) | 303130 | 40.0000 | 40.13 |
| | 63 o-Xylene | 106 | 10.387 | 10.387 | (1.068) | 148589 | 20.0000 | 19.93 |
| M | 95 Xylenes (total) | 106 | | | | 451719 | 60.0000 | 60.06 |
| | 71 1,2,3-Trichloropropane | 75 | 11.088 | 11.088 | (0.920) | 93920 | 20.0000 | 19.56 |
| | 93 1,2,3-Trichlorobenzene | 182 | 14.048 | 14.048 | (1.166) | 82527 | 20.0000 | 19.81 |
| | 79 1,2,4-Trimethylbenzene | 105 | 11.717 | 11.717 | (0.972) | 293110 | 20.0000 | 19.85 |
| | 75 1,3,5-Trimethylbenzene | 105 | 11.345 | 11.345 | (0.941) | 289298 | 20.0000 | 19.89 |
| | 26 2,2-Dichloropropane | 77 | 5.239 | 5.239 | (0.879) | 92997 | 20.0000 | 19.49 |
| | 54 1,3-Dichloropropane | 76 | 8.936 | 8.936 | (0.918) | 123128 | 20.0000 | 19.65 |
| | 76 2-Chlorotoluene | 91 | 11.245 | 11.245 | (0.933) | 258501 | 20.0000 | 19.68 |
| | 77 4-Chlorotoluene | 91 | 11.352 | 11.352 | (0.942) | 304182 | 20.0000 | 19.92 |
| | 82 p-Isopropyltoluene | 119 | 12.032 | 12.032 | (0.998) | 273330 | 20.0000 | 20.05 |
| | 29 Bromochloromethane | 128 | 5.539 | 5.539 | (0.929) | 39613 | 20.0000 | 19.12 |
| | 74 Bromobenzene | 156 | 11.045 | 11.045 | (0.916) | 92440 | 20.0000 | 19.41 |
| | 44 Dibromomethane | 93 | 7.370 | 7.370 | (1.090) | 44382 | 20.0000 | 18.27 |
| | 91 Hexachlorobutadiene | 225 | 14.227 | 14.227 | (1.180) | 32634 | 20.0000 | 18.44 |
| | 73 n-Propylbenzene | 91 | 11.166 | 11.166 | (0.926) | 407780 | 20.0000 | 20.37 |
| | 87 n-Butylbenzene | 91 | 12.446 | 12.446 | (1.033) | 227569 | 20.0000 | 20.92 |
| | 81 sec-Butylbenzene | 105 | 11.717 | 11.717 | (0.972) | 293110 | 20.0000 | 19.85 |
| | 92 Naphthalene | 128 | 14.291 | 14.291 | (1.186) | 225437 | 20.0000 | 20.07 |
| | 78 tert-Butylbenzene | 119 | 11.667 | 11.667 | (0.968) | 230936 | 20.0000 | 20.05 |
| | 60 1,1,1,2-Tetrachloroethane | 131 | 9.844 | 9.844 | (1.012) | 75069 | 20.0000 | 18.87 |
| | 64 Styrene | 104 | 10.401 | 10.401 | (1.069) | 260937 | 20.0000 | 20.15 |

Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110207.D
Report Date: 06-Feb-2018 16:57

QC Flag Legend

M - Compound response manually integrated.


Y (x10^6)
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
Min
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
-Dichlorodifluoromethane
-Dimethyl ether+
-Vinyl Chloride+
-Bromomethane
-Chloroethane+
-Trichlorofluoromethane+
-Diethyl ether+
-Acrolein
-Acetone+
-Iodomethane+
-Isopropyl alcohol
-Acetonitrile+
-Methylene Chloride
-Tert-butyl alcohol
-Propionitrile+
-n-Hexane
-1,1-Dichloroethane
-Allyl alcohol+
-tert-Butyl formate+
-2,2-Dichloropropane+
-Isobutyl Alcohol+
-Bromochloromethane+
-Chloroform+
-1,1,1-Trichloroethane+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane-d4
-Methacrylonitrile+
-1-Chlorobutane+
-1,4-Difluorobenzene
-Trichloroethene+
-1,2-Dichloropropane+
-Methyl Methacrylate+
-Bromodichloromethane
-2-Chloroethylvinyl ether+
-cis-1,3-Dichloropropene+
-2-Nitropropane+
-Toluene-d8+
-Amyl alcohol+
-Ethyl Methacrylate+
-1,3-Dichloropropane+
-2-Hexanone
-Dibromochloromethane
-1,2-Dibromoethane+
-1,1,1,2-Tetrachloroethane+
Chlorobenzene-d5+
-o-Xylene+
-Bromoform
-Isopropylbenzene
-4-Bromofluorobenzene
-cis-1,4-Dichloro-2-butene+
-n-Propylbenzene+
1,3,5-Trimethylbenzene+
-tert-Butylbenzene+
Benzyl Chloride
1,4-Dichlorobenzene-d4+
-n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa+
-1,2,3-Trichlorobenzene
-Hexachlorobutadiene+
-1,2,4-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene
\\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110207.D
Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110207.D
Date : 02-NOV-2017 12:37
Client ID: VSTD020
Sample Info: VSTD020;VSTD020;1;6;
Purge Volume: 5.0
Column phase: DB624
Instrument: VOA4.i
Operator: AP
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110208.D
Report Date: 06-Feb-2018 16:57

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110208.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 02-NOV-2017 13:02
Operator : AP Inst ID: VOA4.i
Smp Info : VSTD050;VSTD050;1;7;
Misc Info : HS16050001;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\8260LLW.m
Meth Date : 06-Feb-2018 16:57 diana.nguy Quant Type: ISTD
Cal Date : 02-NOV-2017 13:02 Cal File: J110208.D
Als bottle: 10 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.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) |
|---|---|---|---|---|---|---|---|---|
| | 31 1,1,1-Trichloroethane | 97 | 5.861 | 5.861 | (0.983) | 298403 | 50.0000 | 52.17 |
| * | 1 Pentafluorobenzene | 168 | 5.961 | 5.961 | (1.000) | 401544 | 50.0000 | |
| $ | 30 Dibromofluoromethane | 113 | 5.861 | 5.861 | (0.983) | 178297 | 50.0000 | 51.06(M) |
| * | 36 1,4-Difluorobenzene | 114 | 6.762 | 6.762 | (1.000) | 650151 | 50.0000 | |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 6.233 | 6.233 | (1.046) | 221049 | 50.0000 | 49.87 |
| * | 47 Chlorobenzene-d5 | 117 | 9.729 | 9.729 | (1.000) | 548678 | 50.0000 | |
| $ | 48 Toluene-d8 | 98 | 8.292 | 8.292 | (0.852) | 691481 | 50.0000 | 51.62 |
| $ | 69 4-Bromofluorobenzene | 95 | 10.902 | 10.902 | (1.121) | 276560 | 50.0000 | 50.80 |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 12.046 | 12.046 | (1.000) | 258807 | 50.0000 | |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 11.052 | 11.052 | (0.917) | 217301 | 50.0000 | 46.55 |
| | 53 1,1,2-Trichloroethane | 83 | 8.771 | 8.771 | (0.902) | 141440 | 50.0000 | 46.53 |
| | 32 1,1-Dichloropropene | 75 | 6.061 | 6.061 | (0.896) | 266764 | 50.0000 | 49.68 |
| | 22 1,1-Dichloroethane | 63 | 4.460 | 4.460 | (0.748) | 370820 | 50.0000 | 48.74 |
| | 11 1,1-Dichloroethene | 96 | 2.844 | 2.844 | (0.477) | 163311 | 50.0000 | 47.92 |
| | 90 1,2,4-Trichlorobenzene | 180 | 14.527 | 14.527 | (1.206) | 202385 | 50.0000 | 54.11 |
| | 89 1,2-Dibromo-3-Chloropropane | 75 | 13.426 | 13.426 | (1.115) | 39217 | 50.0000 | 51.96 |
| | 57 1,2-Dibromoethane | 107 | 9.257 | 9.257 | (0.951) | 174963 | 50.0000 | 48.27 |
| | 88 1,2-Dichlorobenzene | 146 | 12.439 | 12.439 | (1.033) | 386469 | 50.0000 | 49.19 |
| | 33 1,2-Dichloroethane | 62 | 6.319 | 6.319 | (0.934) | 288612 | 50.0000 | 47.71 |
| | 42 1,2-Dichloropropane | 63 | 7.255 | 7.255 | (1.073) | 220957 | 50.0000 | 48.03 |
| | 83 1,3-Dichlorobenzene | 146 | 11.982 | 11.982 | (0.995) | 406102 | 50.0000 | 48.73 |
| | 84 1,4-Dichlorobenzene | 146 | 12.075 | 12.075 | (1.002) | 411511 | 50.0000 | 46.80 |

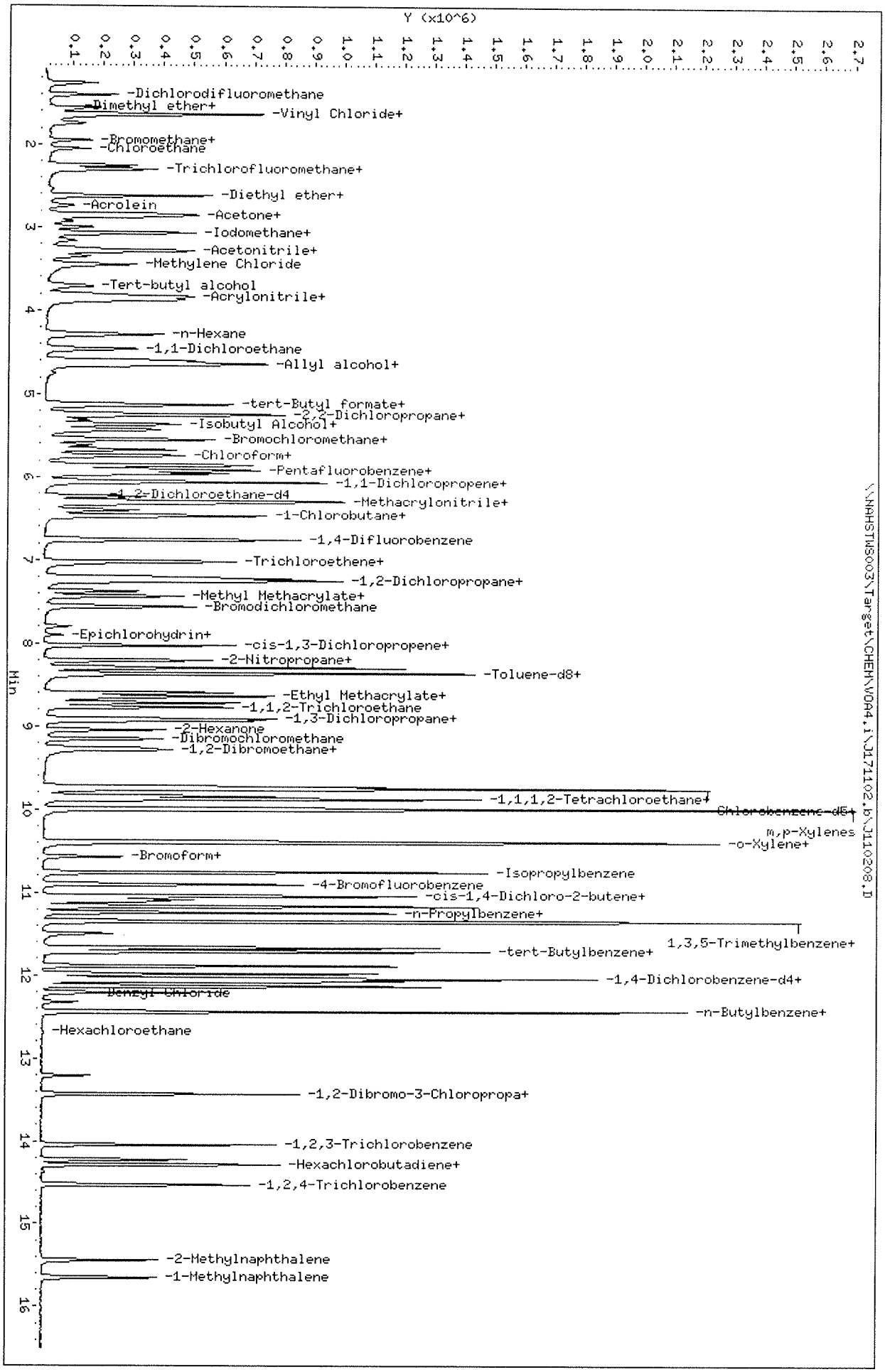
Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110208.D
Report Date: 06-Feb-2018 16:57

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| | 24 2-Butanone | 43 | 5.310 | 5.310 | (0.891) | 178780 | 100.000 | 98.64 |
| | 52 2-Hexanone | 43 | 9.043 | 9.043 | (0.929) | 267353 | 100.000 | 106.68 |
| | 45 4-Methyl-2-Pentanone | 43 | 8.199 | 8.199 | (0.843) | 405265 | 100.000 | 109.05 |
| | 10 Acetone | 43 | 2.929 | 2.929 | (0.491) | 116441 | 100.000 | 97.74 |
| | 37 Benzene | 78 | 6.290 | 6.290 | (0.930) | 823506 | 50.0000 | 47.40 |
| | 39 Bromodichloromethane | 83 | 7.556 | 7.556 | (1.117) | 266278 | 50.0000 | 48.56 |
| | 66 Bromoform | 173 | 10.566 | 10.566 | (1.086) | 123678 | 50.0000 | 51.11 |
| | 6 Bromomethane | 94 | 1.950 | 1.950 | (0.327) | 94509 | 50.0000 | 45.09 |
| | 19 Carbon Disulfide | 76 | 3.065 | 3.065 | (0.514) | 871580 | 100.000 | 95.43 |
| | 34 Carbon Tetrachloride | 117 | 6.054 | 6.054 | (0.895) | 262663 | 50.0000 | 47.21 |
| | 59 Chlorobenzene | 112 | 9.758 | 9.758 | (1.003) | 556983 | 50.0000 | 48.26 |
| | 7 Chloroethane | 64 | 2.050 | 2.050 | (0.344) | 143659 | 50.0000 | 47.55 |
| | 28 Chloroform | 83 | 5.668 | 5.668 | (0.951) | 328368 | 50.0000 | 47.63 |
| | 3 Chloromethane | 50 | 1.549 | 1.549 | (0.260) | 324003 | 50.0000 | 45.45 |
| | 27 cis-1,2-Dichloroethene | 96 | 5.253 | 5.253 | (0.881) | 221140 | 50.0000 | 46.47 |
| | 46 cis-1,3-Dichloropropene | 75 | 8.020 | 8.020 | (1.186) | 331362 | 50.0000 | 50.34 |
| | 55 Dibromochloromethane | 129 | 9.157 | 9.157 | (0.941) | 200184 | 50.0000 | 48.46 |
| | 2 Dichlorodifluoromethane | 85 | 1.399 | 1.399 | (0.235) | 204063 | 50.0000 | 51.49 |
| | 61 Ethylbenzene | 106 | 9.879 | 9.879 | (1.015) | 307441 | 50.0000 | 48.77 |
| | 67 Isopropylbenzene | 105 | 10.759 | 10.759 | (1.106) | 878945 | 50.0000 | 49.12 |
| | 17 Methylene Chloride | 84 | 3.451 | 3.451 | (0.579) | 199016 | 50.0000 | 46.66 |
| | 56 Tetrachloroethene | 164 | 8.907 | 8.907 | (0.915) | 156626 | 50.0000 | 48.16 |
| | 50 Toluene | 91 | 8.364 | 8.364 | (0.860) | 874206 | 50.0000 | 48.75 |
| | 20 trans-1,2-Dichloroethene | 96 | 3.837 | 3.837 | (0.644) | 201273 | 50.0000 | 48.95 |
| | 51 trans-1,3-Dichloropropene | 75 | 8.020 | 8.020 | (1.186) | 331362 | 50.0000 | 50.34 |
| | 38 Trichloroethene | 130 | 7.027 | 7.027 | (1.039) | 211501 | 50.0000 | 48.49 |
| | 8 Trichlorofluoromethane | 101 | 2.300 | 2.300 | (0.386) | 271259 | 50.0000 | 50.96 |
| | 5 Vinyl Chloride | 62 | 1.657 | 1.657 | (0.278) | 255325 | 50.0000 | 48.73 |
| | 62 m,p-Xylenes | 106 | 10.001 | 10.001 | (1.028) | 741834 | 100.000 | 95.91 |
| | 63 o-Xylene | 106 | 10.387 | 10.387 | (1.068) | 370300 | 50.0000 | 48.52 |
| M | 95 Xylenes (total) | 106 | | | | 1112134 | 150.000 | 144.44 |
| | 71 1,2,3-Trichloropropane | 75 | 11.088 | 11.088 | (0.920) | 241184 | 50.0000 | 49.91 |
| | 93 1,2,3-Trichlorobenzene | 182 | 14.048 | 14.048 | (1.166) | 219116 | 50.0000 | 52.29 |
| | 79 1,2,4-Trimethylbenzene | 105 | 11.717 | 11.717 | (0.973) | 720913 | 50.0000 | 48.50 |
| | 75 1,3,5-Trimethylbenzene | 105 | 11.345 | 11.345 | (0.942) | 717251 | 50.0000 | 49.00 |
| | 26 2,2-Dichloropropane | 77 | 5.239 | 5.239 | (0.879) | 246956 | 50.0000 | 51.16 |
| | 54 1,3-Dichloropropane | 76 | 8.936 | 8.936 | (0.918) | 314830 | 50.0000 | 49.07 |
| | 76 2-Chlorotoluene | 91 | 11.245 | 11.245 | (0.934) | 636545 | 50.0000 | 48.15 |
| | 77 4-Chlorotoluene | 91 | 11.352 | 11.352 | (0.942) | 747627 | 50.0000 | 48.64 |
| | 82 p-Isopropyltoluene | 119 | 12.032 | 12.032 | (0.999) | 676566 | 50.0000 | 49.31 |
| | 29 Bromochloromethane | 128 | 5.539 | 5.539 | (0.929) | 94928 | 50.0000 | 45.29 |
| | 74 Bromobenzene | 156 | 11.045 | 11.045 | (0.917) | 225747 | 50.0000 | 47.10 |
| | 44 Dibromomethane | 93 | 7.370 | 7.370 | (1.090) | 114300 | 50.0000 | 46.44 |
| | 91 Hexachlorobutadiene | 225 | 14.227 | 14.227 | (1.181) | 83571 | 50.0000 | 46.91 |
| | 73 n-Propylbenzene | 91 | 11.166 | 11.166 | (0.927) | 990296 | 50.0000 | 49.14 |
| | 87 n-Butylbenzene | 91 | 12.439 | 12.439 | (1.033) | 559847 | 50.0000 | 51.14 |
| | 81 sec-Butylbenzene | 105 | 11.717 | 11.717 | (0.973) | 720913 | 50.0000 | 48.50 |
| | 92 Naphthalene | 128 | 14.284 | 14.284 | (1.186) | 590953 | 50.0000 | 52.30 |
| | 78 tert-Butylbenzene | 119 | 11.667 | 11.667 | (0.969) | 564539 | 50.0000 | 48.70 |
| | 60 1,1,1,2-Tetrachloroethane | 131 | 9.844 | 9.844 | (1.012) | 194954 | 50.0000 | 47.86 |
| | 64 Styrene | 104 | 10.401 | 10.401 | (1.069) | 643802 | 50.0000 | 48.56 |

Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110208.D
Report Date: 06-Feb-2018 16:57

QC Flag Legend

M - Compound response manually integrated.


Y (x10^6)
0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3 2.4 2.5 2.6 2.7
Min
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
-Dichlorodifluoromethane
-Dimethyl ether+
-Vinyl Chloride+
-Bromomethane+
-Chloroethane
-Trichlorofluoromethane+
-Diethyl ether+
-Acrolein
-Acetone+
-Iodomethane+
-Acetonitrile+
-Methylene Chloride
-Tert-butyl alcohol
-Acrylonitrile+
-n-Hexane
-1,1-Dichloroethane
-Allyl alcohol+
-tert-Butyl formate+
-2,2-Dichloropropane+
-Isobutyl Alcohol+
-Bromochloromethane+
-Chloroform+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane-d4
-Methacrylonitrile+
-1-Chlorobutane+
-1,4-Difluorobenzene
-Trichloroethene+
-1,2-Dichloropropane+
-Methyl Methacrylate+
-Bromodichloromethane
-Epichlorohydrin+
-cis-1,3-Dichloropropene+
-2-Nitropropane+
-Toluene-d8+
-Ethyl Methacrylate+
-1,1,2-Trichloroethane
-1,3-Dichloropropane+
-2-Hexanone
-Dibromochloromethane
-1,2-Dibromoethane+
-1,1,1,2-Tetrachloroethane+
Chlorobenzene-d5+
m,p-Xylenes
-o-Xylene+
-Bromoform+
-Isopropylbenzene
-4-Bromofluorobenzene
-cis-1,4-Dichloro-2-butene+
-n-Propylbenzene+
1,3,5-Trimethylbenzene+
-tert-Butylbenzene+
-1,4-Dichlorobenzene-d4+
Benzyl Chloride
-n-Butylbenzene+
-Hexachloroethane
-1,2-Dibromo-3-Chloropropa+
-1,2,3-Trichlorobenzene
-Hexachlorobutadiene+
-1,2,4-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene
\\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110208.D
Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110208.D
Date : 02-NOV-2017 13:02
Client ID: VSTD050
Sample Info: VSTD050;VSTD050;1;7;
Purge Volume: 5.0
Column phase: DB624
Instrument: VOA4.i
Operator: AP
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110209.D
Report Date: 06-Feb-2018 16:57

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110209.D
Lab Smp Id: VSTD100 Client Smp ID: VSTD100
Inj Date : 02-NOV-2017 13:28
Operator : AP Inst ID: VOA4.i
Smp Info : VSTD100;VSTD100;1;8;
Misc Info : HS16050001;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\8260LLW.m
Meth Date : 06-Feb-2018 16:57 diana.nguy Quant Type: ISTD
Cal Date : 02-NOV-2017 13:28 Cal File: J110209.D
Als bottle: 11 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.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) |
|---|---|---|---|---|---|---|---|
| 31 1,1,1-Trichloroethane | 97 | 5.861 | 5.861 | (0.983) | 587677 | 100.000 | 100.98 |
| * 1 Pentafluorobenzene | 168 | 5.961 | 5.961 | (1.000) | 408619 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 5.854 | 5.854 | (0.982) | 346990 | 100.000 | 98.63 |
| * 36 1,4-Difluorobenzene | 114 | 6.755 | 6.755 | (1.000) | 648304 | 50.0000 | |
| $ 35 1,2-Dichloroethane-d4 | 65 | 6.233 | 6.233 | (1.046) | 447910 | 100.000 | 100.05 |
| * 47 Chlorobenzene-d5 | 117 | 9.729 | 9.729 | (1.000) | 548439 | 50.0000 | |
| $ 48 Toluene-d8 | 98 | 8.292 | 8.292 | (0.852) | 1349362 | 100.000 | 102.75 |
| $ 69 4-Bromofluorobenzene | 95 | 10.902 | 10.902 | (1.121) | 552613 | 100.000 | 103.51 |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 12.053 | 12.053 | (1.000) | 263136 | 50.0000 | |
| 68 1,1,2,2-Tetrachloroethane | 83 | 11.052 | 11.052 | (0.917) | 443320 | 100.000 | 93.41 |
| 53 1,1,2-Trichloroethane | 83 | 8.771 | 8.771 | (0.902) | 290853 | 100.000 | 95.73 |
| 32 1,1-Dichloropropene | 75 | 6.061 | 6.061 | (0.897) | 528165 | 100.000 | 98.65 |
| 22 1,1-Dichloroethane | 63 | 4.453 | 4.453 | (0.747) | 735020 | 100.000 | 94.94 |
| 11 1,1-Dichloroethene | 96 | 2.844 | 2.844 | (0.477) | 323918 | 100.000 | 93.41 |
| 90 1,2,4-Trichlorobenzene | 180 | 14.527 | 14.527 | (1.205) | 395656 | 100.000 | 104.80 |
| 89 1,2-Dibromo-3-Chloropropane | 75 | 13.433 | 13.433 | (1.114) | 77154 | 100.000 | 101.08 |
| 57 1,2-Dibromoethane | 107 | 9.257 | 9.257 | (0.951) | 354223 | 100.000 | 97.78 |
| 88 1,2-Dichlorobenzene | 146 | 12.439 | 12.439 | (1.032) | 753134 | 100.000 | 94.29 |
| 33 1,2-Dichloroethane | 62 | 6.319 | 6.319 | (0.935) | 589202 | 100.000 | 97.68 |
| 42 1,2-Dichloropropane | 63 | 7.248 | 7.248 | (1.073) | 448069 | 100.000 | 97.68 |
| 83 1,3-Dichlorobenzene | 146 | 11.989 | 11.989 | (0.995) | 797153 | 100.000 | 94.09 |
| 84 1,4-Dichlorobenzene | 146 | 12.075 | 12.075 | (1.002) | 838952 | 100.000 | 93.85 |

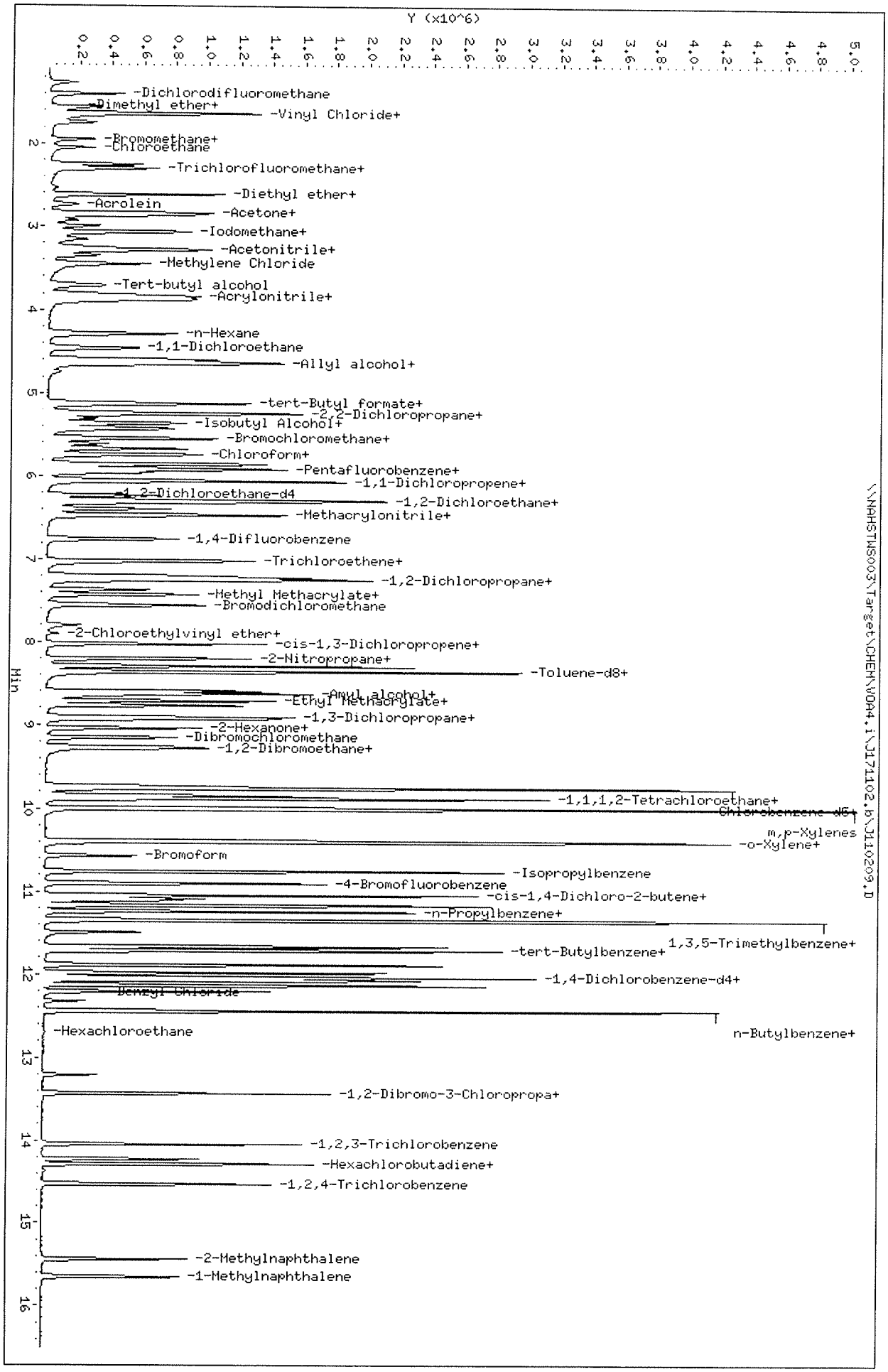
Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110209.D
Report Date: 06-Feb-2018 16:57

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 24 | 2-Butanone | 43 | 5.303 | 5.303 | (0.890) | 376464 | 200.000 | 204.11(A) |
| 52 | 2-Hexanone | 43 | 9.043 | 9.043 | (0.929) | 578726 | 200.000 | 231.02(A) |
| 45 | 4-Methyl-2-Pentanone | 43 | 8.199 | 8.199 | (0.843) | 846007 | 200.000 | 227.76(A) |
| 10 | Acetone | 43 | 2.930 | 2.930 | (0.491) | 234791 | 200.000 | 195.23 |
| 37 | Benzene | 78 | 6.290 | 6.290 | (0.931) | 1620419 | 100.000 | 93.55 |
| 39 | Bromodichloromethane | 83 | 7.556 | 7.556 | (1.119) | 545442 | 100.000 | 99.75 |
| 66 | Bromoform | 173 | 10.566 | 10.566 | (1.086) | 251635 | 100.000 | 104.04 |
| 6 | Bromomethane | 94 | 1.950 | 1.950 | (0.327) | 218229 | 100.000 | 102.31 |
| 19 | Carbon Disulfide | 76 | 3.073 | 3.073 | (0.515) | 1728413 | 200.000 | 185.97 |
| 34 | Carbon Tetrachloride | 117 | 6.054 | 6.054 | (0.896) | 520350 | 100.000 | 93.79 |
| 59 | Chlorobenzene | 112 | 9.758 | 9.758 | (1.003) | 1098968 | 100.000 | 95.26 |
| 7 | Chloroethane | 64 | 2.050 | 2.050 | (0.344) | 289133 | 100.000 | 94.04 |
| 28 | Chloroform | 83 | 5.668 | 5.668 | (0.951) | 674697 | 100.000 | 96.17 |
| 3 | Chloromethane | 50 | 1.550 | 1.550 | (0.260) | 642638 | 100.000 | 88.59 |
| 27 | cis-1,2-Dichloroethene | 96 | 5.253 | 5.253 | (0.881) | 441598 | 100.000 | 91.20 |
| 46 | cis-1,3-Dichloropropene | 75 | 8.020 | 8.020 | (1.187) | 678475 | 100.000 | 103.38 |
| 55 | Dibromochloromethane | 129 | 9.157 | 9.157 | (0.941) | 414022 | 100.000 | 100.28 |
| 2 | Dichlorodifluoromethane | 85 | 1.399 | 1.399 | (0.235) | 405964 | 100.000 | 100.67 |
| 61 | Ethylbenzene | 106 | 9.880 | 9.880 | (1.015) | 605735 | 100.000 | 96.13 |
| 67 | Isopropylbenzene | 105 | 10.759 | 10.759 | (1.106) | 1695459 | 100.000 | 94.79 |
| 17 | Methylene Chloride | 84 | 3.451 | 3.451 | (0.579) | 406565 | 100.000 | 93.67 |
| 56 | Tetrachloroethene | 164 | 8.907 | 8.907 | (0.915) | 309178 | 100.000 | 95.10 |
| 50 | Toluene | 91 | 8.357 | 8.357 | (0.859) | 1696921 | 100.000 | 94.67 |
| 20 | trans-1,2-Dichloroethene | 96 | 3.838 | 3.838 | (0.644) | 394595 | 100.000 | 94.31 |
| 51 | trans-1,3-Dichloropropene | 75 | 8.020 | 8.020 | (1.187) | 678475 | 100.000 | 103.38 |
| 38 | Trichloroethene | 130 | 7.027 | 7.027 | (1.040) | 417304 | 100.000 | 95.94 |
| 8 | Trichlorofluoromethane | 101 | 2.300 | 2.300 | (0.386) | 551157 | 100.000 | 101.76 |
| 5 | Vinyl Chloride | 62 | 1.657 | 1.657 | (0.278) | 513509 | 100.000 | 96.31 |
| 62 | m,p-Xylenes | 106 | 10.001 | 10.001 | (1.028) | 1432676 | 200.000 | 185.32 |
| 63 | o-Xylene | 106 | 10.387 | 10.387 | (1.068) | 739958 | 100.000 | 97.00 |
| M 95 | Xylenes (total) | 106 | | | | 2172634 | 300.000 | 282.32 |
| 71 | 1,2,3-Trichloropropane | 75 | 11.088 | 11.088 | (0.920) | 517651 | 100.000 | 105.37 |
| 93 | 1,2,3-Trichlorobenzene | 182 | 14.048 | 14.048 | (1.166) | 435015 | 100.000 | 102.12 |
| 79 | 1,2,4-Trimethylbenzene | 105 | 11.717 | 11.717 | (0.972) | 1425054 | 100.000 | 94.31 |
| 75 | 1,3,5-Trimethylbenzene | 105 | 11.345 | 11.345 | (0.941) | 1387488 | 100.000 | 93.23 |
| 26 | 2,2-Dichloropropane | 77 | 5.239 | 5.239 | (0.879) | 501049 | 100.000 | 102.01 |
| 54 | 1,3-Dichloropropane | 76 | 8.929 | 8.929 | (0.918) | 619851 | 100.000 | 96.66 |
| 76 | 2-Chlorotoluene | 91 | 11.245 | 11.245 | (0.933) | 1248591 | 100.000 | 92.90 |
| 77 | 4-Chlorotoluene | 91 | 11.352 | 11.352 | (0.942) | 1452889 | 100.000 | 92.98 |
| 82 | p-Isopropyltoluene | 119 | 12.032 | 12.032 | (0.998) | 1353566 | 100.000 | 97.04 |
| 29 | Bromochloromethane | 128 | 5.539 | 5.539 | (0.929) | 176457 | 100.000 | 82.74 |
| 74 | Bromobenzene | 156 | 11.045 | 11.045 | (0.916) | 451835 | 100.000 | 92.73 |
| 44 | Dibromomethane | 93 | 7.370 | 7.370 | (1.091) | 231180 | 100.000 | 94.20 |
| 91 | Hexachlorobutadiene | 225 | 14.227 | 14.227 | (1.180) | 167390 | 100.000 | 92.42 |
| 73 | n-Propylbenzene | 91 | 11.167 | 11.167 | (0.926) | 1928257 | 100.000 | 94.12 |
| 87 | n-Butylbenzene | 91 | 12.439 | 12.439 | (1.032) | 1096388 | 100.000 | 98.52 |
| 81 | sec-Butylbenzene | 105 | 11.717 | 11.717 | (0.972) | 1425054 | 100.000 | 94.31 |
| 92 | Naphthalene | 128 | 14.284 | 14.284 | (1.185) | 1203837 | 100.000 | 104.81(M) |
| 78 | tert-Butylbenzene | 119 | 11.667 | 11.667 | (0.968) | 1129767 | 100.000 | 95.85 |
| 60 | 1,1,1,2-Tetrachloroethane | 131 | 9.844 | 9.844 | (1.012) | 392080 | 100.000 | 96.31 |
| 64 | Styrene | 104 | 10.402 | 10.402 | (1.069) | 1266179 | 100.000 | 95.55 |

Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110209.D
Report Date: 06-Feb-2018 16:57

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.


Y (x10^6)
Min
-Dichlorodifluoromethane
-Dimethyl ether+
-Vinyl Chloride+
-Bromomethane+
-Chloroethane
-Trichlorofluoromethane+
-Diethyl ether+
-Acrolein
-Acetone+
-Iodomethane+
-Acetonitrile+
-Methylene Chloride
-Tert-butyl alcohol
-Acrylonitrile+
-n-Hexane
-1,1-Dichloroethane
-Allyl alcohol+
-tert-Butyl formate+
-2,2-Dichloropropane+
-Isobutyl Alcohol+
-Bromochloromethane+
-Chloroform+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane-d4
-1,2-Dichloroethane+
-Methacrylonitrile+
-1,4-Difluorobenzene
-Trichloroethene+
-1,2-Dichloropropane+
-Methyl Methacrylate+
-Bromodichloromethane
-2-Chloroethylvinyl ether+
-cis-1,3-Dichloropropene+
-2-Nitropropane+
-Toluene-d8+
-Amyl alcohol+
-Ethyl Methacrylate+
-1,3-Dichloropropane+
-2-Hexanone+
-Dibromochloromethane
-1,2-Dibromoethane+
-1,1,1,2-Tetrachloroethane+
Chlorobenzene-d5+
m,p-Xylenes
-o-Xylene+
-Bromoform
-Isopropylbenzene
-4-Bromofluorobenzene
-cis-1,4-Dichloro-2-butene+
-n-Propylbenzene+
1,3,5-Trimethylbenzene+
-tert-Butylbenzene+
-1,4-Dichlorobenzene-d4+
Benzyl Chloride
-Hexachloroethane
n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa+
-1,2,3-Trichlorobenzene
-Hexachlorobutadiene+
-1,2,4-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene
\\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110209.D
Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110209.D
Date : 02-NOV-2017 13:28
Client ID: VSTD100
Sample Info: VSTD100;VSTD100;1;8;
Purge Volume: 5.0
Column phase: DB624
Instrument: VOA4.i
Operator: AP
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110210.D
Report Date: 06-Feb-2018 16:57

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110210.D
Lab Smp Id: VSTD200 Client Smp ID: VSTD200
Inj Date : 02-NOV-2017 13:53
Operator : AP Inst ID: VOA4.i
Smp Info : VSTD200;VSTD200;1;9;
Misc Info : HS16050001;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\8260LLW.m
Meth Date : 06-Feb-2018 16:57 diana.nguy Quant Type: ISTD
Cal Date : 02-NOV-2017 13:53 Cal File: J110210.D
Als bottle: 12 Calibration Sample, Level: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.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) |
|---|---|---|---|---|---|---|---|
| 31 1,1,1-Trichloroethane | 97 | 5.861 | 5.861 | (0.983) | 1170424 | 200.000 | 205.47(A) |
| * 1 Pentafluorobenzene | 168 | 5.961 | 5.961 | (1.000) | 399962 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 5.861 | 5.861 | (0.983) | 685779 | 200.000 | 200.26(A) |
| * 36 1,4-Difluorobenzene | 114 | 6.762 | 6.762 | (1.000) | 648703 | 50.0000 | |
| $ 35 1,2-Dichloroethane-d4 | 65 | 6.233 | 6.233 | (1.046) | 872907 | 200.000 | 199.97 |
| * 47 Chlorobenzene-d5 | 117 | 9.729 | 9.729 | (1.000) | 553572 | 50.0000 | |
| $ 48 Toluene-d8 | 98 | 8.292 | 8.292 | (0.852) | 2600208 | 200.000 | 198.04 |
| $ 69 4-Bromofluorobenzene | 95 | 10.902 | 10.902 | (1.121) | 1056865 | 200.000 | 197.89 |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 12.053 | 12.053 | (1.000) | 263777 | 50.0000 | |
| 68 1,1,2,2-Tetrachloroethane | 83 | 11.052 | 11.052 | (0.917) | 871867 | 200.000 | 183.26 |
| 53 1,1,2-Trichloroethane | 83 | 8.771 | 8.771 | (0.902) | 581609 | 200.000 | 189.66 |
| 32 1,1-Dichloropropene | 75 | 6.061 | 6.061 | (0.896) | 1025906 | 200.000 | 191.51 |
| 22 1,1-Dichloroethane | 63 | 4.460 | 4.460 | (0.748) | 1483946 | 200.000 | 195.82 |
| 11 1,1-Dichloroethene | 96 | 2.844 | 2.844 | (0.477) | 642902 | 200.000 | 189.42 |
| 90 1,2,4-Trichlorobenzene | 180 | 14.527 | 14.527 | (1.205) | 740485 | 200.000 | 196.36 |
| 89 1,2-Dibromo-3-Chloropropane | 75 | 13.433 | 13.433 | (1.114) | 151851 | 200.000 | 199.00 |
| 57 1,2-Dibromoethane | 107 | 9.258 | 9.258 | (0.951) | 699417 | 200.000 | 191.28 |
| 88 1,2-Dichlorobenzene | 146 | 12.439 | 12.439 | (1.032) | 1475662 | 200.000 | 184.31 |
| 33 1,2-Dichloroethane | 62 | 6.319 | 6.319 | (0.934) | 1149447 | 200.000 | 190.45 |
| 42 1,2-Dichloropropane | 63 | 7.248 | 7.248 | (1.072) | 867559 | 200.000 | 189.01 |
| 83 1,3-Dichlorobenzene | 146 | 11.989 | 11.989 | (0.995) | 1575123 | 200.000 | 185.48 |
| 84 1,4-Dichlorobenzene | 146 | 12.075 | 12.075 | (1.002) | 1622942 | 200.000 | 181.12 |

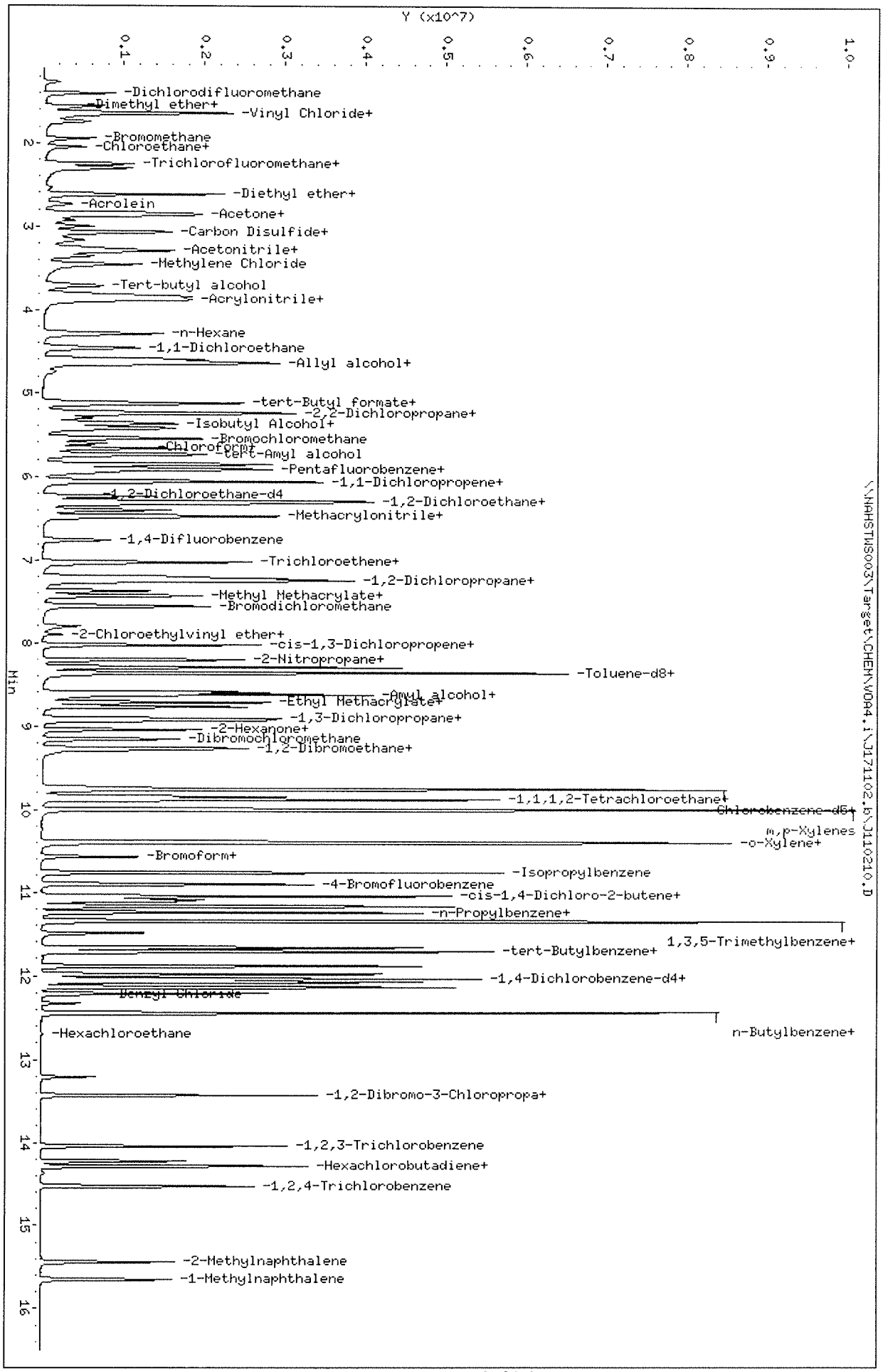
Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110210.D
Report Date: 06-Feb-2018 16:57

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 24 | 2-Butanone | 43 | 5.311 | 5.311 | (0.891) | 773279 | 400.000 | 428.34(A) |
| 52 | 2-Hexanone | 43 | 9.043 | 9.043 | (0.929) | 1166260 | 400.000 | 461.25(A) |
| 45 | 4-Methyl-2-Pentanone | 43 | 8.206 | 8.206 | (0.843) | 1649510 | 400.000 | 439.96(A) |
| 10 | Acetone | 43 | 2.930 | 2.930 | (0.491) | 472260 | 400.000 | 402.86(A) |
| 37 | Benzene | 78 | 6.290 | 6.290 | (0.930) | 3129127 | 200.000 | 180.54 |
| 39 | Bromodichloromethane | 83 | 7.556 | 7.556 | (1.117) | 1081166 | 200.000 | 197.61 |
| 66 | Bromoform | 173 | 10.573 | 10.573 | (1.087) | 521972 | 200.000 | 213.81(A) |
| 6 | Bromomethane | 94 | 1.943 | 1.943 | (0.326) | 478155 | 200.000 | 229.03(A) |
| 19 | Carbon Disulfide | 76 | 3.065 | 3.065 | (0.514) | 3355933 | 400.000 | 368.90(A) |
| 34 | Carbon Tetrachloride | 117 | 6.054 | 6.054 | (0.895) | 1023006 | 200.000 | 184.28 |
| 59 | Chlorobenzene | 112 | 9.758 | 9.758 | (1.003) | 2092067 | 200.000 | 179.67 |
| 7 | Chloroethane | 64 | 2.043 | 2.043 | (0.343) | 575165 | 200.000 | 191.13 |
| 28 | Chloroform | 83 | 5.675 | 5.675 | (0.952) | 1320973 | 200.000 | 192.37 |
| 3 | Chloromethane | 50 | 1.550 | 1.550 | (0.260) | 1266424 | 200.000 | 178.36(M) |
| 27 | cis-1,2-Dichloroethene | 96 | 5.253 | 5.253 | (0.881) | 882839 | 200.000 | 186.28 |
| 46 | cis-1,3-Dichloropropene | 75 | 8.028 | 8.028 | (1.187) | 1334710 | 200.000 | 203.25(A) |
| 55 | Dibromochloromethane | 129 | 9.157 | 9.157 | (0.941) | 829411 | 200.000 | 199.04 |
| 2 | Dichlorodifluoromethane | 85 | 1.399 | 1.399 | (0.235) | 772085 | 200.000 | 195.60 |
| 61 | Ethylbenzene | 106 | 9.880 | 9.880 | (1.015) | 1187723 | 200.000 | 186.75 |
| 67 | Isopropylbenzene | 105 | 10.759 | 10.759 | (1.106) | 3246569 | 200.000 | 179.83 |
| 17 | Methylene Chloride | 84 | 3.452 | 3.452 | (0.579) | 805989 | 200.000 | 189.72 |
| 56 | Tetrachloroethene | 164 | 8.907 | 8.907 | (0.915) | 596451 | 200.000 | 181.77 |
| 50 | Toluene | 91 | 8.364 | 8.364 | (0.860) | 3219899 | 200.000 | 177.98 |
| 20 | trans-1,2-Dichloroethene | 96 | 3.830 | 3.830 | (0.643) | 778377 | 200.000 | 190.07 |
| 51 | trans-1,3-Dichloropropene | 75 | 8.028 | 8.028 | (1.187) | 1334710 | 200.000 | 203.25(A) |
| 38 | Trichloroethene | 130 | 7.019 | 7.019 | (1.038) | 836430 | 200.000 | 192.19 |
| 8 | Trichlorofluoromethane | 101 | 2.300 | 2.300 | (0.386) | 1069679 | 200.000 | 201.78(A) |
| 5 | Vinyl Chloride | 62 | 1.657 | 1.657 | (0.278) | 998047 | 200.000 | 191.24 |
| 62 | m,p-Xylenes | 106 | 10.001 | 10.001 | (1.028) | 2759249 | 400.000 | 353.61(A) |
| 63 | o-Xylene | 106 | 10.387 | 10.387 | (1.068) | 1444648 | 200.000 | 187.62 |
| M 95 | Xylenes (total) | 106 | | | | 4203897 | 600.000 | 541.23 |
| 71 | 1,2,3-Trichloropropane | 75 | 11.088 | 11.088 | (0.920) | 1049050 | 200.000 | 213.03(A) |
| 93 | 1,2,3-Trichlorobenzene | 182 | 14.048 | 14.048 | (1.166) | 846966 | 200.000 | 198.38 |
| 79 | 1,2,4-Trimethylbenzene | 105 | 11.717 | 11.717 | (0.972) | 2723075 | 200.000 | 179.77 |
| 75 | 1,3,5-Trimethylbenzene | 105 | 11.345 | 11.345 | (0.941) | 2619608 | 200.000 | 175.59 |
| 26 | 2,2-Dichloropropane | 77 | 5.239 | 5.239 | (0.879) | 1032698 | 200.000 | 214.81(A) |
| 54 | 1,3-Dichloropropane | 76 | 8.936 | 8.936 | (0.918) | 1229901 | 200.000 | 190.02 |
| 76 | 2-Chlorotoluene | 91 | 11.245 | 11.245 | (0.933) | 2371783 | 200.000 | 176.05 |
| 77 | 4-Chlorotoluene | 91 | 11.353 | 11.353 | (0.942) | 2725168 | 200.000 | 173.98 |
| 82 | p-Isopropyltoluene | 119 | 12.039 | 12.039 | (0.999) | 2519957 | 200.000 | 180.22 |
| 29 | Bromochloromethane | 128 | 5.547 | 5.547 | (0.930) | 332447 | 200.000 | 159.26 |
| 74 | Bromobenzene | 156 | 11.045 | 11.045 | (0.916) | 892577 | 200.000 | 182.75 |
| 44 | Dibromomethane | 93 | 7.370 | 7.370 | (1.090) | 467226 | 200.000 | 190.28 |
| 91 | Hexachlorobutadiene | 225 | 14.227 | 14.227 | (1.180) | 305400 | 200.000 | 168.22 |
| 73 | n-Propylbenzene | 91 | 11.167 | 11.167 | (0.926) | 3531043 | 200.000 | 171.94 |
| 87 | n-Butylbenzene | 91 | 12.439 | 12.439 | (1.032) | 2106946 | 200.000 | 188.86 |
| 81 | sec-Butylbenzene | 105 | 11.717 | 11.717 | (0.972) | 2723075 | 200.000 | 179.77 |
| 92 | Naphthalene | 128 | 14.284 | 14.284 | (1.185) | 2266987 | 200.000 | 196.90 |
| 78 | tert-Butylbenzene | 119 | 11.667 | 11.667 | (0.968) | 2124253 | 200.000 | 179.79 |
| 60 | 1,1,1,2-Tetrachloroethane | 131 | 9.844 | 9.844 | (1.012) | 790178 | 200.000 | 192.30 |
| 64 | Styrene | 104 | 10.402 | 10.402 | (1.069) | 2450837 | 200.000 | 183.24 |

Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110210.D
Report Date: 06-Feb-2018 16:57

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.




Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110210.D
Date : 02-NOV-2017 13:53
Client ID: VSTD200
Sample Info: VSTD200;VSTD200;1;9;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA4.i
Operator: AP
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110212.D
Report Date: 06-Feb-2018 16:57

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110212.D
Lab Smp Id: VSTD-ICV Client Smp ID: VSTD-ICV
Inj Date : 02-NOV-2017 14:45
Operator : AP Inst ID: VOA4.i
Smp Info : VSTD-ICV;VSTD-ICV;2;;
Misc Info : HS16050001;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\8260LLW.m
Meth Date : 06-Feb-2018 16:57 diana.nguy Quant Type: ISTD
Cal Date : 02-NOV-2017 13:53 Cal File: J110210.D
Als bottle: 14 QC Sample: METHSPIKE
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.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) |
|---|---|---|---|---|---|---|---|---|
| | 31 1,1,1-Trichloroethane | 97 | 5.854 | 5.861 | (0.983) | 286212 | 49.1443 | 49.14 |
| * | 1 Pentafluorobenzene | 168 | 5.954 | 5.961 | (1.000) | 408929 | 50.0000 | |
| $ | 30 Dibromofluoromethane | 113 | 5.854 | 5.861 | (0.983) | 178415 | 50.1556 | 50.15 |
| * | 36 1,4-Difluorobenzene | 114 | 6.755 | 6.762 | (1.000) | 662663 | 50.0000 | |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 6.233 | 6.233 | (1.047) | 224508 | 49.7359 | 49.73 |
| * | 47 Chlorobenzene-d5 | 117 | 9.729 | 9.729 | (1.000) | 565232 | 50.0000 | |
| $ | 48 Toluene-d8 | 98 | 8.292 | 8.292 | (0.852) | 678813 | 49.0960 | 49.09 |
| $ | 69 4-Bromofluorobenzene | 95 | 10.902 | 10.902 | (1.121) | 278410 | 49.5987 | 49.59 |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 12.053 | 12.053 | (1.000) | 265676 | 50.0000 | |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 11.052 | 11.052 | (0.917) | 219291 | 45.7648 | 45.76 |
| | 53 1,1,2-Trichloroethane | 83 | 8.764 | 8.771 | (0.901) | 143196 | 45.7324 | 45.73 |
| | 32 1,1-Dichloropropene | 75 | 6.061 | 6.061 | (0.897) | 256772 | 46.9238 | 46.92 |
| | 22 1,1-Dichloroethane | 63 | 4.460 | 4.460 | (0.749) | 363327 | 46.8941 | 46.89 |
| | 11 1,1-Dichloroethene | 96 | 2.844 | 2.844 | (0.478) | 158978 | 45.8152 | 45.81 |
| | 90 1,2,4-Trichlorobenzene | 180 | 14.527 | 14.527 | (1.205) | 198410 | 51.6485 | 51.64 |
| | 89 1,2-Dibromo-3-Chloropropane | 75 | 13.433 | 13.433 | (1.114) | 37368 | 48.1946 | 48.19 |
| | 57 1,2-Dibromoethane | 107 | 9.257 | 9.258 | (0.951) | 172636 | 46.2408 | 46.24 |
| | 88 1,2-Dichlorobenzene | 146 | 12.439 | 12.439 | (1.032) | 377890 | 46.8626 | 46.86 |
| | 33 1,2-Dichloroethane | 62 | 6.319 | 6.319 | (0.935) | 298688 | 48.4491 | 48.44 |
| | 42 1,2-Dichloropropane | 63 | 7.248 | 7.248 | (1.073) | 211755 | 45.1639 | 45.16 |
| | 83 1,3-Dichlorobenzene | 146 | 11.982 | 11.989 | (0.994) | 399113 | 46.6626 | 46.66 |
| | 84 1,4-Dichlorobenzene | 146 | 12.075 | 12.075 | (1.002) | 404129 | 44.7803 | 44.78 |

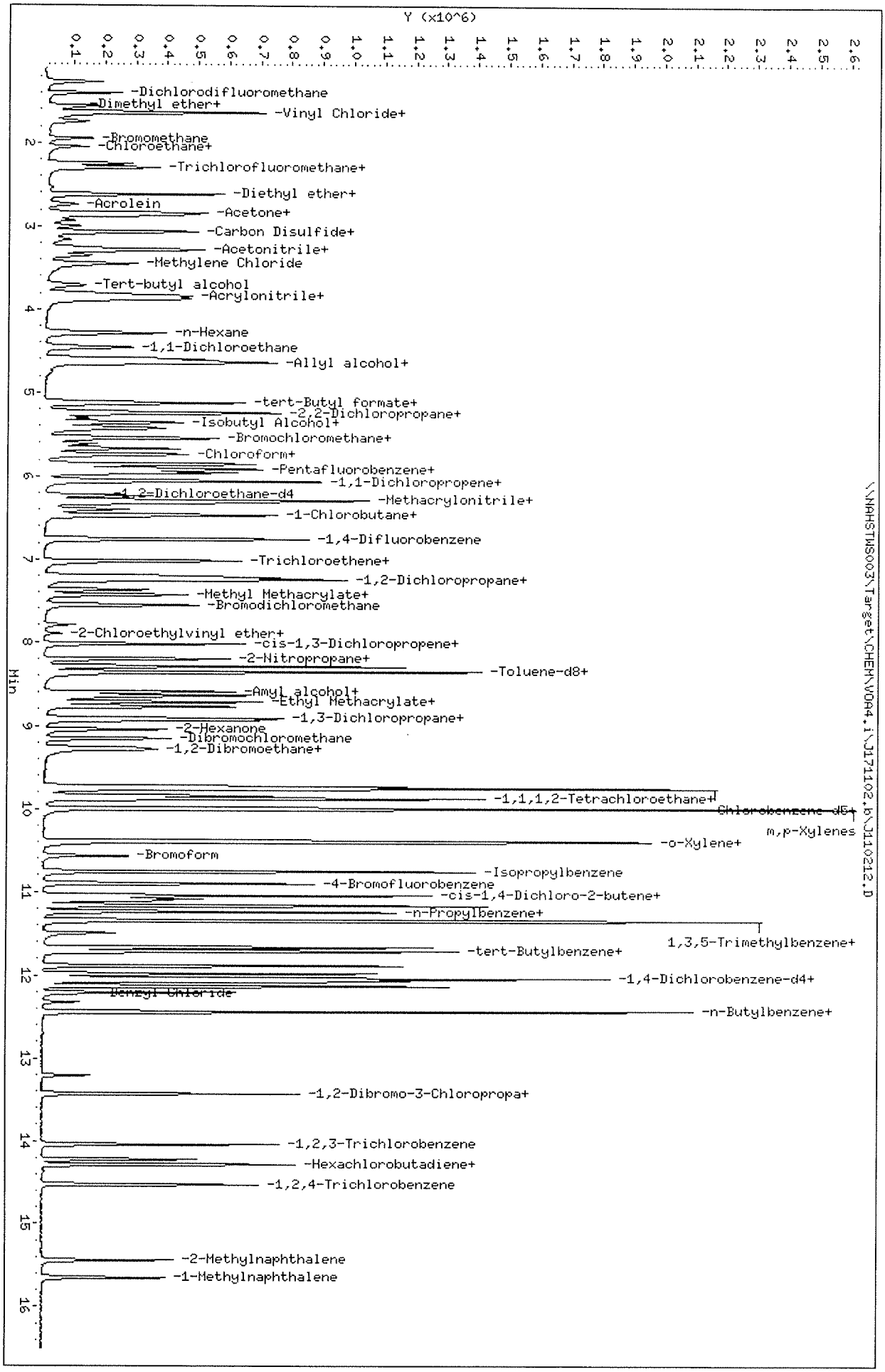
Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110212.D
Report Date: 06-Feb-2018 16:57

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 24 | 2-Butanone | 43 | 5.310 | 5.311 | (0.892) | 180760 | 97.9330 | 97.93 |
| 52 | 2-Hexanone | 43 | 9.043 | 9.043 | (0.929) | 271451 | 105.144 | 105.14 |
| 45 | 4-Methyl-2-Pentanone | 43 | 8.206 | 8.206 | (0.843) | 414097 | 108.172 | 108.17 |
| 10 | Acetone | 43 | 2.929 | 2.930 | (0.492) | 112496 | 92.6468 | 92.64 |
| 37 | Benzene | 78 | 6.290 | 6.290 | (0.931) | 805682 | 45.5060 | 45.50 |
| 39 | Bromodichloromethane | 83 | 7.556 | 7.556 | (1.119) | 265153 | 47.4443 | 47.44 |
| 66 | Bromoform | 173 | 10.573 | 10.573 | (1.087) | 126854 | 50.8908 | 50.89 |
| 6 | Bromomethane | 94 | 1.950 | 1.943 | (0.328) | 94755 | 44.3914 | 44.39 |
| 19 | Carbon Disulfide | 76 | 3.065 | 3.065 | (0.515) | 861534 | 92.6275 | 92.62 |
| 34 | Carbon Tetrachloride | 117 | 6.054 | 6.054 | (0.896) | 250706 | 44.2109 | 44.21 |
| 59 | Chlorobenzene | 112 | 9.758 | 9.758 | (1.003) | 537016 | 45.1693 | 45.16 |
| 7 | Chloroethane | 64 | 2.043 | 2.043 | (0.343) | 145046 | 47.1448 | 47.14 |
| 28 | Chloroform | 83 | 5.668 | 5.675 | (0.952) | 323863 | 46.1299 | 46.12 |
| 3 | Chloromethane | 50 | 1.557 | 1.550 | (0.261) | 320240 | 44.1152 | 44.11(M) |
| 27 | cis-1,2-Dichloroethene | 96 | 5.253 | 5.253 | (0.882) | 217339 | 44.8539 | 44.85 |
| 46 | cis-1,3-Dichloropropene | 75 | 8.028 | 8.028 | (1.188) | 330912 | 49.3301 | 49.33 |
| 55 | Dibromochloromethane | 129 | 9.150 | 9.157 | (0.940) | 203157 | 47.7481 | 47.74 |
| 2 | Dichlorodifluoromethane | 85 | 1.399 | 1.399 | (0.235) | 198043 | 49.0741 | 49.07 |
| 61 | Ethylbenzene | 106 | 9.879 | 9.880 | (1.015) | 290831 | 44.7855 | 44.78 |
| 67 | Isopropylbenzene | 105 | 10.759 | 10.759 | (1.106) | 842215 | 45.6896 | 45.68 |
| 17 | Methylene Chloride | 84 | 3.444 | 3.452 | (0.579) | 200933 | 46.2619 | 46.26 |
| 56 | Tetrachloroethene | 164 | 8.907 | 8.907 | (0.915) | 152657 | 45.5651 | 45.56 |
| 50 | Toluene | 91 | 8.356 | 8.364 | (0.859) | 844490 | 45.7171 | 45.71 |
| 20 | trans-1,2-Dichloroethene | 96 | 3.838 | 3.830 | (0.645) | 194089 | 46.3558 | 46.35 |
| 51 | trans-1,3-Dichloropropene | 75 | 8.028 | 8.028 | (1.188) | 330912 | 49.3301 | 49.33 |
| 38 | Trichloroethene | 130 | 7.019 | 7.019 | (1.039) | 202898 | 45.6402 | 45.64 |
| 8 | Trichlorofluoromethane | 101 | 2.300 | 2.300 | (0.386) | 269966 | 49.8100 | 49.81 |
| 5 | Vinyl Chloride | 62 | 1.650 | 1.657 | (0.277) | 248140 | 46.5062 | 46.50 |
| 62 | m,p-Xylenes | 106 | 10.001 | 10.001 | (1.028) | 725349 | 91.0399 | 91.03 |
| 63 | o-Xylene | 106 | 10.387 | 10.387 | (1.068) | 356312 | 45.3220 | 45.32 |
| M 95 | Xylenes (total) | 106 | | | | 1081661 | 136.362 | 136.36 |
| 71 | 1,2,3-Trichloropropane | 75 | 11.088 | 11.088 | (0.920) | 244436 | 49.2844 | 49.28 |
| 93 | 1,2,3-Trichlorobenzene | 182 | 14.048 | 14.048 | (1.166) | 210659 | 48.9706 | 48.97 |
| 79 | 1,2,4-Trimethylbenzene | 105 | 11.717 | 11.717 | (0.972) | 689191 | 45.1756 | 45.17 |
| 75 | 1,3,5-Trimethylbenzene | 105 | 11.345 | 11.345 | (0.941) | 686914 | 45.7164 | 45.71 |
| 26 | 2,2-Dichloropropane | 77 | 5.239 | 5.239 | (0.880) | 232370 | 47.2753 | 47.27 |
| 54 | 1,3-Dichloropropane | 76 | 8.929 | 8.936 | (0.918) | 313060 | 47.3723 | 47.37 |
| 76 | 2-Chlorotoluene | 91 | 11.245 | 11.245 | (0.933) | 612945 | 45.1727 | 45.17 |
| 77 | 4-Chlorotoluene | 91 | 11.352 | 11.353 | (0.942) | 718065 | 45.5171 | 45.51 |
| 82 | p-Isopropyltoluene | 119 | 12.032 | 12.039 | (0.998) | 662024 | 47.0096 | 47.00 |
| 29 | Bromochloromethane | 128 | 5.539 | 5.547 | (0.930) | 98029 | 45.9335 | 45.93 |
| 74 | Bromobenzene | 156 | 11.045 | 11.045 | (0.916) | 220163 | 44.7553 | 44.75 |
| 44 | Dibromomethane | 93 | 7.370 | 7.370 | (1.091) | 115299 | 45.9677 | 45.96 |
| 91 | Hexachlorobutadiene | 225 | 14.227 | 14.227 | (1.180) | 87612 | 47.9136 | 47.91 |
| 73 | n-Propylbenzene | 91 | 11.167 | 11.167 | (0.926) | 962485 | 46.5333 | 46.53 |
| 87 | n-Butylbenzene | 91 | 12.439 | 12.439 | (1.032) | 534501 | 47.5704 | 47.57 |
| 81 | sec-Butylbenzene | 105 | 11.717 | 11.717 | (0.972) | 689191 | 45.1756 | 45.17 |
| 92 | Naphthalene | 128 | 14.284 | 14.284 | (1.185) | 603837 | 52.0610 | 52.06 |
| 78 | tert-Butylbenzene | 119 | 11.667 | 11.667 | (0.968) | 547321 | 45.9946 | 45.99 |
| 60 | 1,1,1,2-Tetrachloroethane | 131 | 9.844 | 9.844 | (1.012) | 192349 | 45.8451 | 45.84 |
| 64 | Styrene | 104 | 10.401 | 10.402 | (1.069) | 622146 | 45.5563 | 45.55 |

Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110212.D
Report Date: 06-Feb-2018 16:57

QC Flag Legend

M - Compound response manually integrated.




Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110212.D
Date : 02-NOV-2017 14:45
Client ID: VSTD-ICV
Sample Info: VSTD-ICV;VSTD-ICV;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA4.i
Operator: AP
Column diameter: 0.18

# FORM 5
## VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
## BROMOFLUOROBENZENE (BFB)

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17110083

Lab File ID: J110201 BFB Injection Date: 11/02/17

Instrument ID: VOA4 BFB Injection Time: 0959

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 | 25.0 |
| 75 | 30.0 - 60.0% of mass 95 | 48.5 |
| 95 | Base Peak, 100% relative abundance | 100.0 |
| 96 | 5.0 - 9.0% of mass 95 | 7.2 |
| 173 | Less than 2.0% of mass 174 | 0.4 ( 0.8)1 |
| 174 | Greater than 50.0% of mass 95 | 51.0 |
| 175 | 5.0 - 9.0% of mass 174 | 4.0 ( 7.8)1 |
| 176 | 95.0 - 101.0% of mass 174 | 48.7 ( 95.4)1 |
| 177 | 5.0 - 9.0% of mass 176 | 3.4 ( 7.0)2 |

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

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

| | EPA SAMPLE NO. | LAB SAMPLE ID | LAB FILE ID | DATE ANALYZED | TIME ANALYZED |
|---|---|---|---|---|---|
| 01 | VLCSW-171102 | VLCSW-171102 | J110214 | 11/02/17 | 1537 |
| 02 | VBLKW-171102 | VBLKW-171102 | J110216 | 11/02/17 | 1629 |
| 03 | HS17110083-0 | HS17110083-02 | J110218 | 11/02/17 | 1721 |
| 04 | HS17110083-0 | HS17110083-01 | J110220 | 11/02/17 | 1812 |
| 05 | HS17101441-2 | HS17101441-20M | J110222 | 11/02/17 | 1904 |
| 06 | HS17101441-2 | HS17101441-20M | J110223 | 11/02/17 | 1929 |
| 07 | CCV_END | CCV_END | J110228 | 11/02/17 | 2136 |
| 08 | | | | | |
| 09 | | | | | |
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# FORM 7B
## VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17110083

Instrument ID: VOA4 Calibration Date: 11/02/17 Time: 2136

Lab File ID: J110228 Init. Calib. Date(s): 11/02/17 11/02/17

Init. Calib. Times: 1031 1353

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 |
|---|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | 0.7120000 | 0.9300098 | 0.9300098 | 0.1 | 30.62 | 50.00 | AVRG |
| 1,1,1,2-Tetrachloroethane | 0.3710000 | 0.3760199 | 0.3760199 | 0.1 | 1.35 | 50.00 | AVRG |
| tert-Butylbenzene | 2.2390000 | 2.1571217 | 2.1571217 | 0.1 | -3.66 | 50.00 | AVRG |
| Naphthalene | 46.664533 | 50.000000 | 2.0373130 | 0.2 | -6.67 | 50.00 | LINR |
| sec-Butylbenzene | 2.8710000 | 2.7219826 | 2.7219826 | 0.1 | -5.19 | 50.00 | AVRG |
| 1,1,2,2-Tetrachloroethane | 0.9020000 | 0.7656634 | 0.7656634 | 0.3 | -15.11 | 50.00 | AVRG |
| 1,1,2-Trichloroethane | 0.2770000 | 0.2772926 | 0.2772926 | 0.1 | 0.10 | 50.00 | AVRG |
| 1,1-Dichloropropene | 0.4130000 | 0.5150864 | 0.5150864 | 0.1 | 24.72 | 50.00 | AVRG |
| 1,1-Dichloroethane | 0.9470000 | 1.1226220 | 1.1226220 | 0.2 | 18.54 | 50.00 | AVRG |
| 1,1-Dichloroethene | 0.4240000 | 0.5305712 | 0.5305712 | 0.1 | 25.13 | 50.00 | AVRG |
| 1,2,4-Trichlorobenzene | 47.532376 | 50.000000 | 0.6882073 | 0.2 | -4.94 | 50.00 | LINR |
| 1,2-Dibromo-3-Chloropropane | 48.668169 | 50.000000 | 0.1420186 | 0.05 | -2.66 | 50.00 | LINR |
| 1,2-Dibromoethane | 0.3300000 | 0.3391621 | 0.3391621 | 0.1 | 2.78 | 50.00 | AVRG |
| 1,2-Dichlorobenzene | 1.5170000 | 1.4273405 | 1.4273405 | 0.4 | -5.91 | 50.00 | AVRG |
| 1,2-Dichloroethane | 0.4650000 | 0.5476997 | 0.5476997 | 0.1 | 17.78 | 50.00 | AVRG |
| 1,2-Dichloropropane | 0.3540000 | 0.4084262 | 0.4084262 | 0.1 | 15.37 | 50.00 | AVRG |
| 1,3-Dichlorobenzene | 1.6100000 | 1.5181802 | 1.5181802 | 0.6 | -5.70 | 50.00 | AVRG |
| 1,4-Dichlorobenzene | 1.6980000 | 1.5108599 | 1.5108599 | 0.4 | -11.02 | 50.00 | AVRG |
| 2-Butanone | 0.2260000 | 0.2461309 | 0.2461309 | 0.1 | 8.91 | 50.00 | AVRG |
| 2-Hexanone | 0.2280000 | 0.2448782 | 0.2448782 | 0.1 | 7.40 | 50.00 | AVRG |
| 4-Methyl-2-Pentanone | 0.3380000 | 0.3765363 | 0.3765363 | 0.1 | 11.40 | 50.00 | AVRG |
| Acetone | 109.22334 | 100.00000 | 0.1617468 | 0.1 | 9.22 | 50.00 | LINR |
| Benzene | 1.3360000 | 1.5387300 | 1.5387300 | 0.5 | 15.17 | 50.00 | AVRG |
| Bromodichloromethane | 0.4220000 | 0.5031419 | 0.5031419 | 0.2 | 19.23 | 50.00 | AVRG |
| Bromoform | 0.2200000 | 0.2287863 | 0.2287863 | 0.1 | 3.99 | 50.00 | AVRG |
| Bromomethane | 0.2610000 | 0.2750553 | 0.2750553 | 0.1 | 5.38 | 50.00 | AVRG |
| Carbon Disulfide | 1.1370000 | 1.3806415 | 1.3806415 | 0.1 | 21.43 | 50.00 | AVRG |
| Carbon Tetrachloride | 0.4280000 | 0.5035034 | 0.5035034 | 0.1 | 17.64 | 50.00 | AVRG |
| Chlorobenzene | 1.0520000 | 1.1081397 | 1.1081397 | 0.5 | 5.34 | 50.00 | AVRG |
| Chloroethane | 0.3760000 | 0.4455339 | 0.4455339 | 0.1 | 18.49 | 50.00 | AVRG |
| Chloroform | 0.8580000 | 1.0095853 | 1.0095853 | 0.2 | 17.67 | 50.00 | AVRG |
| Chloromethane | 0.8880000 | 0.7616105 | 0.7616105 | 0.1 | -14.23 | 50.00 | AVRG |
| cis-1,2-Dichloroethene | 0.5920000 | 0.6692100 | 0.6692100 | 0.1 | 13.04 | 50.00 | AVRG |
| cis-1,3-Dichloropropene | 0.5060000 | 0.5952776 | 0.5952776 | 0.2 | 17.64 | 50.00 | AVRG |
| Dibromochloromethane | 0.3760000 | 0.3894890 | 0.3894890 | 0.1 | 3.59 | 50.00 | AVRG |
| Dichlorodifluoromethane | 0.4930000 | 0.6728343 | 0.6728343 | 0.1 | 36.48 | 50.00 | AVRG |
| Ethylbenzene | 0.5740000 | 0.6163675 | 0.6163675 | 0.1 | 7.38 | 50.00 | AVRG |
| Isopropylbenzene | 1.6310000 | 1.7625557 | 1.7625557 | 0.1 | 8.06 | 50.00 | AVRG |
| Methylene Chloride | 0.5310000 | 0.6033878 | 0.6033878 | 0.1 | 13.63 | 50.00 | AVRG |
| Tetrachloroethene | 0.2960000 | 0.3149131 | 0.3149131 | 0.2 | 6.39 | 50.00 | AVRG |
| Toluene | 1.6340000 | 1.7385042 | 1.7385042 | 0.4 | 6.40 | 50.00 | AVRG |
| trans-1,2-Dichloroethene | 0.5120000 | 0.6069485 | 0.6069485 | 0.1 | 18.54 | 50.00 | AVRG |

# FORM 7B
# VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1711008

Instrument ID: VOA4 Calibration Date: 11/02/17 Time: 2136

Lab File ID: J110228 Init. Calib. Date(s): 11/02/17 11/02/17

Init. Calib. Times: 1031 1353

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 |
|---|---|---|---|---|---|---|---|
| trans-1,3-Dichloropropene | 0.5060000 | 0.5952776 | 0.5952776 | 0.1 | 17.64 | 50.00 | AVRG |
| Trichloroethene | 0.3350000 | 0.3956466 | 0.3956466 | 0.2 | 18.10 | 50.00 | AVRG |
| Trichlorofluoromethane | 0.6630000 | 0.8977313 | 0.8977313 | 0.1 | 35.40 | 50.00 | AVRG |
| Vinyl Chloride | 0.6520000 | 0.7931895 | 0.7931895 | 0.1 | 21.65 | 50.00 | AVRG |
| m,p-Xylenes | 0.7050000 | 0.7486575 | 0.7486575 | 0.1 | 6.19 | 50.00 | AVRG |
| o-Xylene | 0.6950000 | 0.7306255 | 0.7306255 | 0.3 | 5.12 | 50.00 | AVRG |
| Xylenes (total) | 0.5910000 | 0.7021388 | 0.7021388 | 0.1 | 18.80 | 50.00 | AVRG |
| 1,2,3-Trichloropropane | 0.9330000 | 0.8152612 | 0.8152612 | 0.1 | -12.62 | 50.00 | AVRG |
| 1,2,3-Trichlorobenzene | 47.564253 | 50.000000 | 0.7701575 | 0.1 | -4.87 | 50.00 | LINR |
| 1,2,4-Trimethylbenzene | 2.8710000 | 2.7219826 | 2.7219826 | 0.1 | -5.19 | 50.00 | AVRG |
| 1,3,5-Trimethylbenzene | 2.8280000 | 2.6776972 | 2.6776972 | 0.1 | -5.31 | 50.00 | AVRG |
| 2,2-Dichloropropane | 0.6010000 | 0.6910607 | 0.6910607 | 0.1 | 14.98 | 50.00 | AVRG |
| 1,3-Dichloropropane | 0.5840000 | 0.5893003 | 0.5893003 | 0.1 | 0.91 | 50.00 | AVRG |
| 2-Chlorotoluene | 2.5540000 | 2.4025890 | 2.4025890 | 0.1 | -5.93 | 50.00 | AVRG |
| 4-Chlorotoluene | 2.9690000 | 2.7675922 | 2.7675922 | 0.1 | -6.78 | 50.00 | AVRG |
| p-Isopropyltoluene | 2.6500000 | 2.5571375 | 2.5571375 | 0.1 | -3.50 | 50.00 | AVRG |
| Bromochloromethane | 0.2610000 | 0.2870759 | 0.2870759 | 0.1 | 9.99 | 50.00 | AVRG |
| Bromobenzene | 0.9260000 | 0.8373446 | 0.8373446 | 0.1 | -9.57 | 50.00 | AVRG |
| Dibromomethane | 0.1890000 | 0.2058872 | 0.2058872 | 0.1 | 8.94 | 50.00 | AVRG |
| Hexachlorobutadiene | 0.3440000 | 0.2926224 | 0.2926224 | 0.1 | -14.94 | 50.00 | AVRG |
| n-Propylbenzene | 3.8930000 | 3.7802130 | 3.7802130 | 0.1 | -2.90 | 50.00 | AVRG |
| n-Butylbenzene | 2.1140000 | 2.1208324 | 2.1208324 | 0.05 | 0.32 | 50.00 | AVRG |
| Styrene | 1.2080000 | 1.2801710 | 1.2801710 | 0.3 | 5.97 | 50.00 | AVRG |
| 1,2-Dichloroethane-d4 | 48.971164 | 50.000000 | 0.5407002 | 0.1 | -2.06 | 50.00 | LINR |
| Dibromofluoromethane | 52.028655 | 50.000000 | 0.4522483 | 0.1 | 4.06 | 50.00 | LINR |
| Toluene-d8 | 50.261347 | 50.000000 | 1.2282979 | 0.1 | 0.52 | 50.00 | LINR |
| 4-Bromofluorobenzene | 55.275042 | 50.000000 | 0.5467814 | 0.1 | 10.55 | 50.00 | LINR |

# FORM 8
## VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17110083

Lab File ID (Standard): J110228 Date Analyzed: 11/02/17

Instrument ID: VOA4 Time Analyzed: 2136

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

| | | IS1 AREA # | IS1 RT # | IS2(DFB) AREA # | IS2(DFB) RT # | IS3(CBZ) AREA # | IS3(CBZ) RT # |
|---|---|---|---|---|---|---|---|
| | 12 HOUR STD | 314544 | 5.96 | 508934 | 6.76 | 481174 | 9.73 |
| | UPPER LIMIT | 629088 | 6.46 | 1017868 | 7.26 | 962348 | 10.23 |
| | LOWER LIMIT | 157272 | 5.46 | 254467 | 6.26 | 240587 | 9.23 |
| | CLIENT SAMPLE NO. | | | | | | |
| 01 | VLCSW-171102 | 329834 | 5.96 | 534110 | 6.76 | 494797 | 9.73 |
| 02 | VBLKW-171102 | 309188 | 5.96 | 497834 | 6.76 | 474298 | 9.73 |
| 03 | HS17110083-02 | 338433 | 5.96 | 541929 | 6.76 | 516016 | 9.73 |
| 04 | HS17110083-01 | 303610 | 5.96 | 489566 | 6.76 | 457295 | 9.73 |
| 05 | HS17101441-20 | 326115 | 5.96 | 533841 | 6.76 | 496101 | 9.73 |
| 06 | HS17101441-20 | 321228 | 5.96 | 513740 | 6.76 | 488167 | 9.73 |
| 07 | | | | | | | |
| 08 | | | | | | | |
| 09 | | | | | | | |
| 10 | | | | | | | |
| 11 | | | | | | | |
| 12 | | | | | | | |
| 13 | | | | | | | |
| 14 | | | | | | | |
| 15 | | | | | | | |
| 16 | | | | | | | |
| 17 | | | | | | | |
| 18 | | | | | | | |
| 19 | | | | | | | |
| 20 | | | | | | | |

IS1 = Pentafluorobenzene
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

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

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

# FORM 8
## VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17110083

Lab File ID (Standard): J110228 Date Analyzed: 11/02/17

Instrument ID: VOA4 Time Analyzed: 2136

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

| | | IS4 (DCB) AREA # | RT # | AREA # | RT # | AREA # | RT # |
|---|---|---|---|---|---|---|---|
| | 12 HOUR STD | 252995 | 12.05 | | | | |
| | UPPER LIMIT | 505990 | 12.55 | | | | |
| | LOWER LIMIT | 126498 | 11.55 | | | | |
| | CLIENT SAMPLE NO. | | | | | | |
| 01 | VLCSW-171102 | 260801 | 12.05 | | | | |
| 02 | VBLKW-171102 | 234418 | 12.05 | | | | |
| 03 | HS17110083-02 | 246523 | 12.05 | | | | |
| 04 | HS17110083-01 | 236173 | 12.05 | | | | |
| 05 | HS17101441-20 | 256947 | 12.05 | | | | |
| 06 | HS17101441-20 | 254513 | 12.05 | | | | |
| 07 | | | | | | | |
| 08 | | | | | | | |
| 09 | | | | | | | |
| 10 | | | | | | | |
| 11 | | | | | | | |
| 12 | | | | | | | |
| 13 | | | | | | | |
| 14 | | | | | | | |
| 15 | | | | | | | |
| 16 | | | | | | | |
| 17 | | | | | | | |
| 18 | | | | | | | |
| 19 | | | | | | | |
| 20 | | | | | | | |

IS4 (DCB) = 1,4-Dichlorobenzene-d4

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.

# MSVOA04 -Logbook

| # | Samp ID | Type | Analyzed | DF | Init Wt/Vol | Final Vol | File ID | Matrix | Status | pH |
|---|---|---|---|---|---|---|---|---|---|---|
| 34 | BLK | SAMP | 11-03-2017 12:06 am | 1.00 | 50 mL | 50 mL | K110206.D | Liquid | Y | NA |
| 35 | VBLKW-171102 | MBLK | 11-03-2017 12:31 am | 1.00 | 50 mL | 50 mL | K110207.D | Liquid | Y | NA |
| 36 | HS17101441-25 | SAMP | 11-03-2017 12:56 am | 1.00 | 50 mL | 50 mL | K110208.D | Liquid | Y | <2 |
| 37 | HS17101441-24 | SAMP | 11-03-2017 01:20 am | 1.00 | 50 mL | 50 mL | K110209.D | Liquid | Y | <2 |
| 38 | HS17101441-24MS | MS | 11-03-2017 01:45 am | 1.00 | 50 mL | 50 mL | K110210.D | Liquid | Y | <2 |
| 39 | HS17101441-24MSD | MSD | 11-03-2017 02:10 am | 1.00 | 50 mL | 50 mL | K110211.D | Liquid | Y | <2 |
| 40 | BLK | SAMP | 11-03-2017 02:35 am | 1.00 | 50 mL | 50 mL | K110212.D | Liquid | Y | NA |
| 41 | HS17101441-26 | SAMP | 11-03-2017 03:00 am | 1.00 | 50 mL | 50 mL | K110213.D | Liquid | Y | <2 |
| 42 | HS17101441-27 | SAMP | 11-03-2017 03:24 am | 1.00 | 50 mL | 50 mL | K110214.D | Liquid | Y | <2 |
| 43 | HS17101441-28 | SAMP | 11-03-2017 03:49 am | 1.00 | 50 mL | 50 mL | K110215.D | Liquid | Y | <2 |
| 44 | HS17101441-29 | SAMP | 11-03-2017 04:14 am | 1.00 | 50 mL | 50 mL | K110216.D | Liquid | Y | <2 |
| 45 | HS17101441-30 | SAMP | 11-03-2017 04:39 am | 1.00 | 50 mL | 50 mL | K110217.D | Liquid | Y | <2 |
| 46 | HS17101441-31 | SAMP | 11-03-2017 05:04 am | 1.00 | 50 mL | 50 mL | K110218.D | Liquid | Y | <2 |
| 47 | HS17101441-32 | SAMP | 11-03-2017 05:29 am | 1.00 | 50 mL | 50 mL | K110219.D | Liquid | Y | <2 |
| 48 | HS17101427-01 | SAMP | 11-03-2017 05:54 am | 1.00 | 50 mL | 50 mL | K110220.D | Liquid | Y | <2 |
| 49 | HS17101427-02 | SAMP | 11-03-2017 06:18 am | 1.00 | 50 mL | 50 mL | K110221.D | Liquid | Y | <2 |
| 50 | HS17101427-03 | SAMP | 11-03-2017 06:43 am | 1.00 | 50 mL | 50 mL | K110222.D | Liquid | Y | <2 |
| 51 | HS17101427-04 | SAMP | 11-03-2017 07:08 am | 1.00 | 50 mL | 50 mL | K110223.D | Liquid | Y | <2 |
| 52 | HS17101427-05 | SAMP | 11-03-2017 07:33 am | 1.00 | 50 mL | 50 mL | K110224.D | Liquid | Y | <2 |
| 53 | HS17101427-06 | SAMP | 11-03-2017 07:58 am | 1.00 | 50 mL | 50 mL | K110225.D | Liquid | Y | <2 |
| 54 | HS17101427-07 | SAMP | 11-03-2017 08:23 am | 1.00 | 50 mL | 50 mL | K110226.D | Liquid | Y | <2 |
| 55 | HS17101427-08 | SAMP | 11-03-2017 08:48 am | 1.00 | 50 mL | 50 mL | K110227.D | Liquid | Y | <2 |
| 56 | HS17101514-01 | SAMP | 11-03-2017 09:13 am | 1.00 | 50 mL | 50 mL | K110228.D | Liquid | Y | <2 |
| 57 | HS17101514-02 | SAMP | 11-03-2017 09:39 am | 1.00 | 50 mL | 50 mL | K110229.D | Liquid | Y | <2 |
| 58 | HS17101514-03 | SAMP | 11-03-2017 10:04 am | 1.00 | 50 mL | 50 mL | K110230.D | Liquid | Y | <2 |

| Chemical | Value |
|---|---|
| SURR SPK ID | 29814-91-03 |
| IS ID | 29814-91-03 |
| ICV STD ID | 29814-91-02 |
| LCS/MS ID | 29814-91-01 |
| CAL STD ID | 29814-91-01 |
| BFB ID | 29814-91-03 |
| pH Paper | 634-37-03 |

# MSVOA04 -Logbook

**Batch:** 29625
**Date:** 11-02-2017
**Method:** 8260
**Comments:**

**Analyst:** Anjana Poluri
**Reviewer:**
**Laboratory:** Houston

| # | Samp ID | Type | Analyzed | DF | Init Wt/Vol | Final Vol | File ID | Matrix | Status | pH |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | BFB | TUNE | 11-02-2017 09:59 am | 1.00 | 50 mL | 50 mL | J110201.D | Liquid | Y | NA |
| 2 | *Auto find/purged* VSTD00.5 | ICAL1 | 11-02-2017 10:31 am | 1.00 | 50 mL | 50 mL | J110202.D | Liquid | Y | NA |
| 3 | *0.5 uL cal std/250 mL DI* VSTD001 | ICAL2 | 11-02-2017 10:56 am | 1.00 | 50 mL | 50 mL | J110203.D | Liquid | Y | NA |
| 4 | *1 uL cal std/250 mL DI* VSTD002 | ICAL3 | 11-02-2017 11:21 am | 1.00 | 50 mL | 50 mL | J110204.D | Liquid | Y | NA |
| 5 | *2 uL cal std/250 mL DI* VSTD005 | ICAL4 | 11-02-2017 11:46 am | 1.00 | 50 mL | 50 mL | J110205.D | Liquid | Y | NA |
| 6 | *5 uL cal std/250 mL DI* VSTD010 | ICAL5 | 11-02-2017 12:12 pm | 1.00 | 50 mL | 50 mL | J110206.D | Liquid | Y | NA |
| 7 | *2 uL cal std/50 mL DI* VSTD020 | ICAL6 | 11-02-2017 12:37 pm | 1.00 | 50 mL | 50 mL | J110207.D | Liquid | Y | NA |
| 8 | *4 uL cal std/50 mL DI* VSTD050 | ICAL7 | 11-02-2017 01:02 pm | 1.00 | 50 mL | 50 mL | J110208.D | Liquid | Y | NA |
| 9 | *10 uL cal std/50 mL DI* VSTD100 | ICAL8 | 11-02-2017 01:28 pm | 1.00 | 50 mL | 50 mL | J110209.D | Liquid | Y | NA |
| 10 | *20 uL cal std/50 mL DI* VSTD200 | ICAL9 | 11-02-2017 01:53 pm | 1.00 | 50 mL | 50 mL | J110210.D | Liquid | Y | NA |
| 11 | *40 uL cal std/50 mL DI* BLK | SAMP | 11-02-2017 02:19 pm | 1.00 | 50 mL | 50 mL | J110211.D | Liquid | Y | NA |
| 12 | *Cleanup blk* VSTD050-ICV | ICV | 11-02-2017 02:45 pm | 1.00 | 50 mL | 50 mL | J110212.D | Liquid | Y | NA |
| 13 | *10 uL ICV std/50 mL DI* VLCSW-171102 | LCS | 11-02-2017 03:11 pm | 1.00 | 50 mL | 50 mL | J110213.D | Liquid | Y | NA |
| 14 | *10 uL cal std/50 mL DI* VLCSW-171102 | LCS | 11-02-2017 03:37 pm | 1.00 | 50 mL | 50 mL | J110214.D | Liquid | Y | NA |
| 15 | *10 uL cal std/50 mL DI* BLK | SAMP | 11-02-2017 04:03 pm | 1.00 | 50 mL | 50 mL | J110215.D | Liquid | Y | NA |
| 16 | VBLKW-171102 | MBLK | 11-02-2017 04:29 pm | 1.00 | 50 mL | 50 mL | J110216.D | Liquid | Y | NA |
| 17 | HS17110086-07 | SAMP | 11-02-2017 04:55 pm | 1.00 | 50 mL | 50 mL | J110217.D | Liquid | Y | <2 |
| 18 | HS17110083-02 | SAMP | 11-02-2017 05:21 pm | 1.00 | 50 mL | 50 mL | J110218.D | Liquid | Y | <2 |
| 19 | HS17110101-02 | SAMP | 11-02-2017 05:47 pm | 1.00 | 50 mL | 50 mL | J110219.D | Liquid | Y | <2 |
| 20 | HS17110083-01 | SAMP | 11-02-2017 06:12 pm | 1.00 | 50 mL | 50 mL | J110220.D | Liquid | Y | <2 |
| 21 | HS17101441-20 | SAMP | 11-02-2017 06:38 pm | 1.00 | 50 mL | 50 mL | J110221.D | Liquid | Y | <2 |
| 22 | HS17101441-20MS | MS | 11-02-2017 07:04 pm | 1.00 | 50 mL | 50 mL | J110222.D | Liquid | Y | <2 |
| 23 | HS17101441-20MSD | MSD | 11-02-2017 07:29 pm | 1.00 | 50 mL | 50 mL | J110223.D | Liquid | Y | <2 |
| 24 | BLK | SAMP | 11-02-2017 07:54 pm | 1.00 | 50 mL | 50 mL | J110224.D | Liquid | Y | <2 |
| 25 | HS17101441-21 | SAMP | 11-02-2017 08:20 pm | 1.00 | 50 mL | 50 mL | J110225.D | Liquid | Y | <2 |
| 26 | HS17101441-22 | SAMP | 11-02-2017 08:45 pm | 1.00 | 50 mL | 50 mL | J110226.D | Liquid | Y | <2 |
| 27 | HS17101441-23 | SAMP | 11-02-2017 09:10 pm | 1.00 | 50 mL | 50 mL | J110227.D | Liquid | Y | <2 |
| 28 | CCV_END | CCV | 11-02-2017 09:36 pm | 1.00 | 50 mL | 50 mL | J110228.D | Liquid | Y | NA |
| 29 | *10 uL cal std/50 mL DI* BFB | TUNE | 11-02-2017 10:01 pm | 1.00 | 50 mL | 50 mL | K110201.D | Liquid | Y | NA |
| 30 | CCV | CCV | 11-02-2017 10:26 pm | 1.00 | 50 mL | 50 mL | K110202.D | Liquid | Y | NA |
| 31 | CCV | CCV | 11-02-2017 10:51 pm | 1.00 | 50 mL | 50 mL | K110203.D | Liquid | Y | NA |
| 32 | CCB | SAMP | 11-02-2017 11:16 pm | 1.00 | 50 mL | 50 mL | K110204.D | Liquid | Y | NA |
| 33 | VLCSW-171102 | LCS | 11-02-2017 11:41 pm | 1.00 | 50 mL | 50 mL | K110205.D | Liquid | Y | NA |

Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110201.D 

Date : 02-NOV-2017 09:59

Client ID: BFB

Instrument: VOA4.i

Sample Info: BFB;BFB;3;;BFB

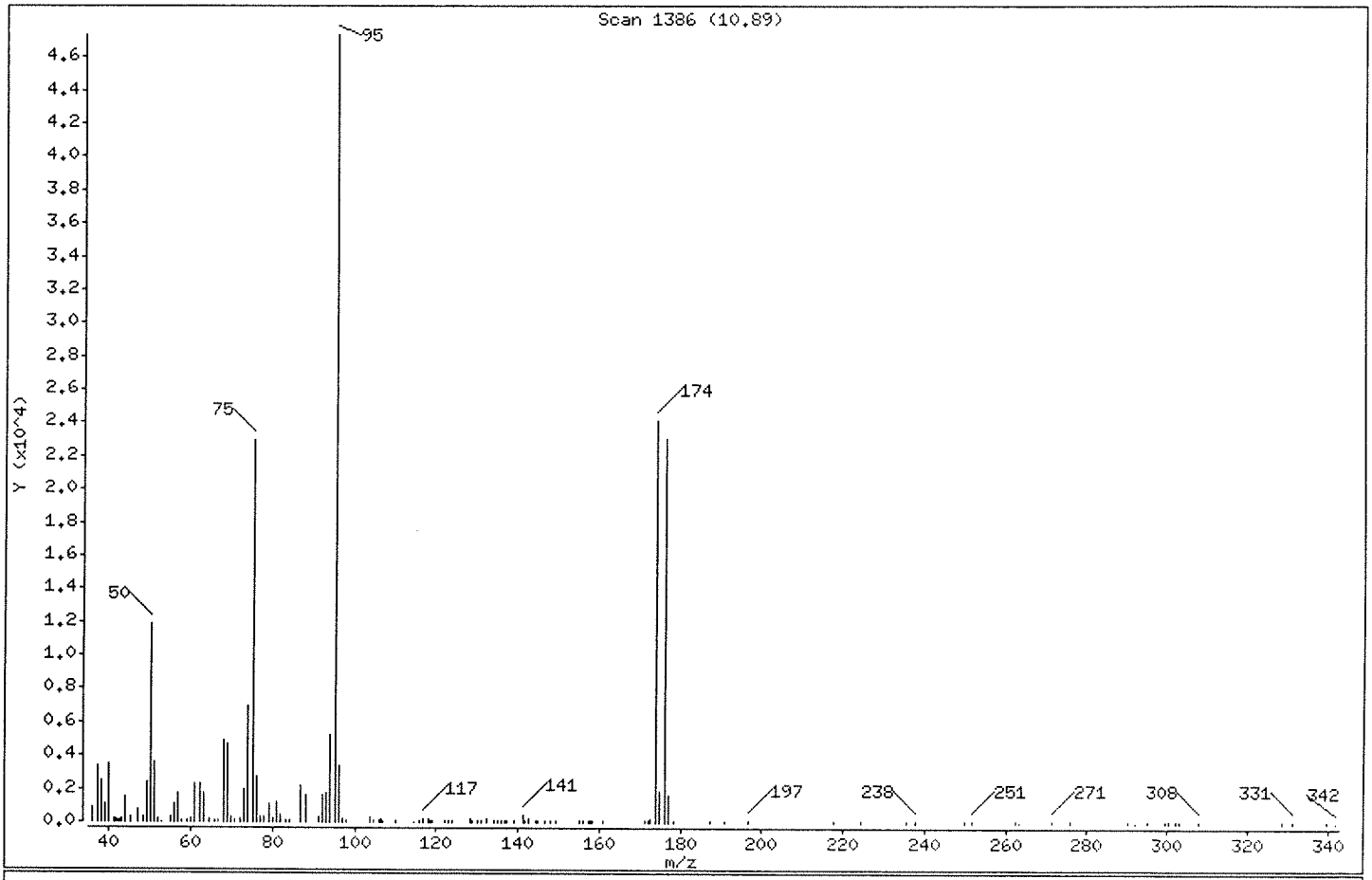
Volume Injected (uL): 2.0

Operator: AP

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 | 25.03 |
| 75 | 30.00 - 60.00% of mass 95 | 48.55 |
| 96 | 5.00 - 9.00% of mass 95 | 7.22 |
| 173 | Less than 2.00% of mass 174 | 0.42 ( 0.83) |
| 174 | Greater than 50.00% of mass 95 | 51.01 |
| 175 | 5.00 - 9.00% of mass 174 | 3.96 ( 7.76) |
| 176 | 95.00 - 101.00% of mass 174 | 48.68 ( 95.43) |
| 177 | 5.00 - 9.00% of mass 176 | 3.41 ( 7.01) |

Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110201.D



Date : 02-NOV-2017 09:59

Client ID: BFB

Instrument: VOA4.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: AP

Column phase: DB624

Column diameter: 0.25

Data File: J110201.D
Spectrum: Scan 1386 (10.89)
Location of Maximum: 95.10
Number of points: 134

| m/z | Y | m/z | Y | m/z | Y | m/z | Y |
|---|---|---|---|---|---|---|---|
| 36.00 | 830 | 70.90 | 58 | 117.90 | 184 | 172.70 | 201 |
| 37.10 | 3361 | 71.90 | 185 | 118.70 | 117 | 174.00 | 24144 |
| 38.20 | 2551 | 73.10 | 1935 | 119.10 | 91 | 175.00 | 1874 |
| 39.20 | 1064 | 74.00 | 6962 | 122.20 | 87 | 176.00 | 23040 |
| 40.00 | 3515 | 75.10 | 22976 | 123.20 | 65 | 176.90 | 1614 |
| 41.20 | 201 | 76.10 | 2684 | 123.90 | 81 | 178.30 | 111 |
| 41.80 | 178 | 76.90 | 369 | 128.20 | 169 | 187.50 | 76 |
| 42.30 | 79 | 77.20 | 364 | 128.90 | 155 | 190.70 | 83 |
| 42.60 | 91 | 78.10 | 290 | 130.10 | 81 | 190.90 | 81 |
| 43.10 | 226 | 79.10 | 1057 | 131.20 | 110 | 196.70 | 106 |
| 44.10 | 1543 | 80.10 | 265 | 132.40 | 176 | 217.50 | 71 |
| 45.20 | 325 | 81.00 | 1239 | 134.10 | 98 | 224.40 | 55 |
| 46.90 | 738 | 82.00 | 424 | 134.90 | 152 | 235.40 | 56 |
| 48.30 | 337 | 83.40 | 105 | 135.90 | 85 | 238.00 | 82 |
| 49.20 | 2385 | 84.20 | 56 | 136.70 | 65 | 249.90 | 97 |
| 50.10 | 11845 | 86.90 | 2132 | 137.10 | 89 | 251.50 | 112 |
| 51.10 | 3594 | 88.10 | 1645 | 139.20 | 70 | 262.40 | 95 |
| 52.00 | 197 | 91.10 | 286 | 141.10 | 388 | 263.40 | 50 |
| 52.80 | 53 | 92.10 | 1671 | 141.80 | 93 | 271.30 | 127 |
| 55.00 | 358 | 93.10 | 1754 | 142.70 | 228 | 275.90 | 61 |
| 56.00 | 1088 | 94.10 | 5209 | 144.40 | 86 | 290.20 | 115 |
| 57.10 | 1719 | 95.10 | 47328 | 144.80 | 64 | 291.90 | 50 |
| 58.00 | 118 | 96.10 | 3416 | 146.80 | 66 | 295.10 | 56 |
| 59.20 | 64 | 97.00 | 177 | 147.90 | 91 | 299.30 | 73 |
| 60.00 | 262 | 97.80 | 72 | 149.40 | 82 | 300.40 | 78 |
| 61.00 | 2332 | 104.00 | 303 | 155.10 | 100 | 302.30 | 59 |
| 62.10 | 2305 | 104.90 | 128 | 156.10 | 94 | 303.10 | 59 |
| 63.10 | 1753 | 105.90 | 158 | 157.30 | 70 | 307.80 | 95 |
| 64.30 | 228 | 106.40 | 219 | 157.90 | 95 | 328.40 | 73 |
| 65.90 | 55 | 107.00 | 88 | 158.50 | 128 | 331.20 | 132 |
| 66.90 | 161 | 110.00 | 92 | 160.90 | 79 | 339.70 | 84 |
| 68.00 | 4937 | 114.40 | 52 | 161.10 | 87 | 341.80 | 51 |
| 69.10 | 4633 | 115.80 | 112 | 171.20 | 107 | | |
| 69.90 | 280 | 116.90 | 242 | 172.00 | 79 | | |

Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110201.D



Date : 02-NOV-2017 09:59

Client ID: BFB

Instrument: VOA4.i

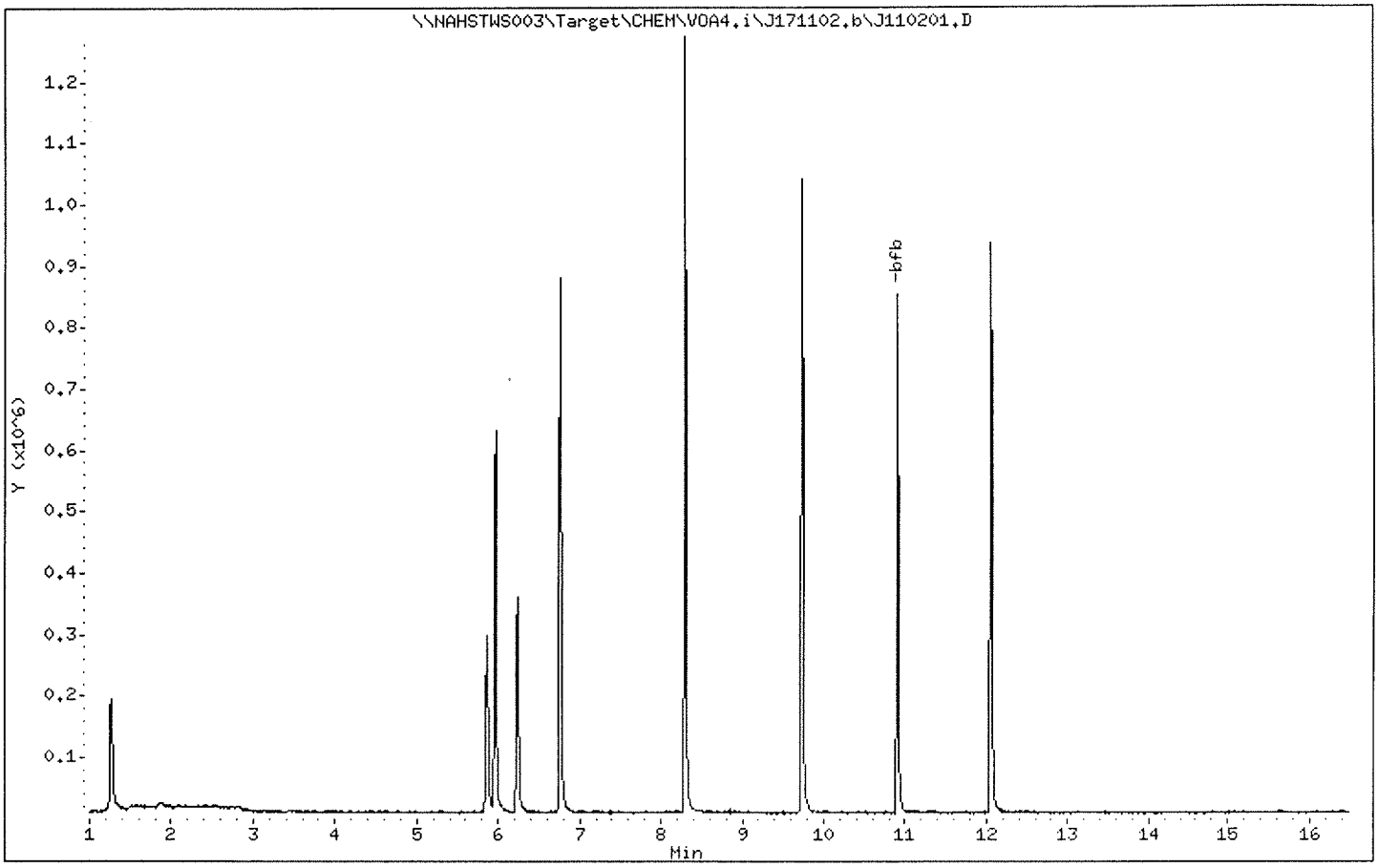
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: AP

Column phase: DB624

Column diameter: 0.25



Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110214.D
Report Date: 06-Feb-2018 17:02

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110214.D
Lab Smp Id: VLCSW-171102 Client Smp ID: VLCSW-171102
Inj Date : 02-NOV-2017 15:37
Operator : AP Inst ID: VOA4.i
Smp Info : VLCSW-171102;VLCSW-171102;3;;LCS
Misc Info : HS16050001;WATER;0;1;
Comment :
Method : \\nahstws003\Target\CHEM\VOA4.i\J171102.b\8260LLW.m
Meth Date : 06-Feb-2018 16:57 diana.nguy Quant Type: ISTD
Cal Date : 02-NOV-2017 13:53 Cal File: J110210.D
Als bottle: 16 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.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) |
|---|---|---|---|---|---|---|---|---|
| | 31 1,1,1-Trichloroethane | 97 | 5.861 | 5.861 | (0.983) | 279008 | 59.3957 | 59.39 |
| * | 1 Pentafluorobenzene | 168 | 5.961 | 5.961 | (1.000) | 329834 | 50.0000 | |
| $ | 30 Dibromofluoromethane | 113 | 5.854 | 5.861 | (0.982) | 145932 | 50.8770 | 50.87 |
| * | 36 1,4-Difluorobenzene | 114 | 6.762 | 6.762 | (1.000) | 534110 | 50.0000 | |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 6.233 | 6.233 | (1.046) | 175178 | 48.0891 | 48.08 |
| * | 47 Chlorobenzene-d5 | 117 | 9.729 | 9.729 | (1.000) | 494797 | 50.0000 | |
| $ | 48 Toluene-d8 | 98 | 8.292 | 8.292 | (0.852) | 615382 | 50.9178 | 50.91 |
| $ | 69 4-Bromofluorobenzene | 95 | 10.902 | 10.902 | (1.121) | 272173 | 55.6193 | 55.61 |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 12.053 | 12.053 | (1.000) | 260801 | 50.0000 | |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 11.052 | 11.052 | (0.917) | 221119 | 47.0089 | 47.00 |
| | 53 1,1,2-Trichloroethane | 83 | 8.771 | 8.771 | (0.902) | 147019 | 53.6372 | 53.63 |
| | 32 1,1-Dichloropropene | 75 | 6.061 | 6.061 | (0.896) | 241467 | 54.7477 | 54.74 |
| | 22 1,1-Dichloroethane | 63 | 4.460 | 4.460 | (0.748) | 359133 | 57.4683 | 57.46 |
| | 11 1,1-Dichloroethene | 96 | 2.844 | 2.844 | (0.477) | 155951 | 55.7203 | 55.72 |
| | 90 1,2,4-Trichlorobenzene | 180 | 14.527 | 14.527 | (1.205) | 201984 | 53.5915 | 53.59 |
| | 89 1,2-Dibromo-3-Chloropropane | 75 | 13.433 | 13.433 | (1.114) | 37803 | 49.6843 | 49.68 |
| | 57 1,2-Dibromoethane | 107 | 9.257 | 9.258 | (0.951) | 173942 | 53.2228 | 53.22 |
| | 88 1,2-Dichlorobenzene | 146 | 12.439 | 12.439 | (1.032) | 375376 | 47.4210 | 47.42 |
| | 33 1,2-Dichloroethane | 62 | 6.319 | 6.319 | (0.934) | 288191 | 57.9976 | 57.99 |
| | 42 1,2-Dichloropropane | 63 | 7.248 | 7.248 | (1.072) | 212481 | 56.2263 | 56.22 |
| | 83 1,3-Dichlorobenzene | 146 | 11.982 | 11.989 | (0.994) | 400033 | 47.6444 | 47.64 |
| | 84 1,4-Dichlorobenzene | 146 | 12.075 | 12.075 | (1.002) | 406403 | 45.8740 | 45.87 |

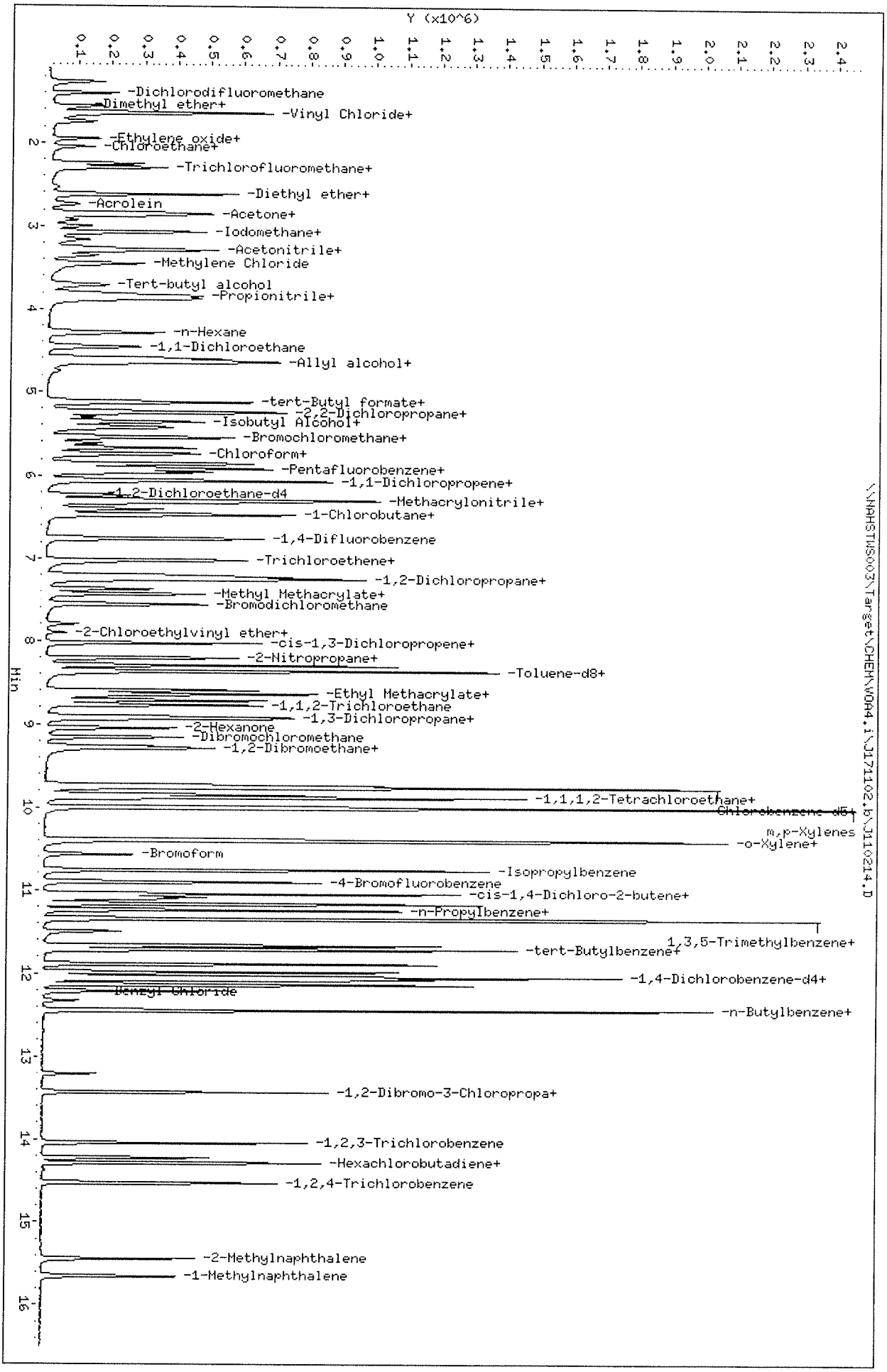
Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110214.D
Report Date: 06-Feb-2018 17:02

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| | 24 2-Butanone | 43 | 5.303 | 5.311 | (0.890) | 180361 | 121.150 | 121.14 |
| | 52 2-Hexanone | 43 | 9.043 | 9.043 | (0.929) | 269202 | 119.116 | 119.11(M) |
| | 45 4-Methyl-2-Pentanone | 43 | 8.199 | 8.206 | (0.843) | 420583 | 125.506 | 125.50 |
| | 10 Acetone | 43 | 2.930 | 2.930 | (0.491) | 114780 | 117.615 | 117.61 |
| | 37 Benzene | 78 | 6.290 | 6.290 | (0.930) | 789431 | 55.3199 | 55.31 |
| | 39 Bromodichloromethane | 83 | 7.556 | 7.556 | (1.117) | 264782 | 58.7811 | 58.78 |
| | 66 Bromoform | 173 | 10.573 | 10.573 | (1.087) | 124111 | 56.8781 | 56.87 |
| | 6 Bromomethane | 94 | 1.950 | 1.943 | (0.327) | 96181 | 55.8649 | 55.86 |
| | 19 Carbon Disulfide | 76 | 3.065 | 3.065 | (0.514) | 831913 | 110.891 | 110.89 |
| | 34 Carbon Tetrachloride | 117 | 6.054 | 6.054 | (0.895) | 247896 | 54.2371 | 54.23 |
| | 59 Chlorobenzene | 112 | 9.758 | 9.758 | (1.003) | 532086 | 51.1256 | 51.12 |
| | 7 Chloroethane | 64 | 2.050 | 2.043 | (0.344) | 139301 | 56.1351 | 56.13 |
| | 28 Chloroform | 83 | 5.668 | 5.675 | (0.951) | 323104 | 57.0580 | 57.05 |
| | 3 Chloromethane | 50 | 1.557 | 1.550 | (0.261) | 313075 | 53.4704 | 53.47 |
| | 27 cis-1,2-Dichloroethene | 96 | 5.246 | 5.253 | (0.880) | 217501 | 55.6515 | 55.65 |
| | 46 cis-1,3-Dichloropropene | 75 | 8.020 | 8.028 | (1.186) | 323222 | 59.7809 | 59.78 |
| | 55 Dibromochloromethane | 129 | 9.157 | 9.157 | (0.941) | 204621 | 54.9382 | 54.93 |
| | 2 Dichlorodifluoromethane | 85 | 1.399 | 1.399 | (0.235) | 179558 | 55.1633 | 55.16 |
| | 61 Ethylbenzene | 106 | 9.880 | 9.880 | (1.015) | 292586 | 51.4695 | 51.46 |
| | 67 Isopropylbenzene | 105 | 10.759 | 10.759 | (1.106) | 828311 | 51.3320 | 51.33 |
| | 17 Methylene Chloride | 84 | 3.444 | 3.452 | (0.578) | 196242 | 56.0166 | 56.01 |
| | 56 Tetrachloroethene | 164 | 8.907 | 8.907 | (0.915) | 147249 | 50.2074 | 50.20 |
| | 50 Toluene | 91 | 8.364 | 8.364 | (0.860) | 824118 | 50.9651 | 50.96 |
| | 20 trans-1,2-Dichloroethene | 96 | 3.838 | 3.830 | (0.644) | 192239 | 56.9242 | 56.92 |
| | 51 trans-1,3-Dichloropropene | 75 | 8.020 | 8.028 | (1.186) | 323222 | 59.7809 | 59.78 |
| | 38 Trichloroethene | 130 | 7.019 | 7.019 | (1.038) | 204848 | 57.1694 | 57.16 |
| | 8 Trichlorofluoromethane | 101 | 2.300 | 2.300 | (0.386) | 258194 | 59.0618 | 59.06 |
| | 5 Vinyl Chloride | 62 | 1.650 | 1.657 | (0.277) | 247975 | 57.6202 | 57.62 |
| | 62 m,p-Xylenes | 106 | 10.001 | 10.001 | (1.028) | 697554 | 100.014 | 100.01 |
| | 63 o-Xylene | 106 | 10.387 | 10.387 | (1.068) | 352900 | 51.2778 | 51.27 |
| M | 95 Xylenes (total) | 106 | | | | 1050454 | 151.292 | 151.29 |
| | 71 1,2,3-Trichloropropane | 75 | 11.088 | 11.088 | (0.920) | 245804 | 50.4866 | 50.48 |
| | 93 1,2,3-Trichlorobenzene | 182 | 14.048 | 14.048 | (1.166) | 217863 | 51.5933 | 51.59 |
| | 79 1,2,4-Trimethylbenzene | 105 | 11.717 | 11.717 | (0.972) | 701402 | 46.8354 | 46.83 |
| | 75 1,3,5-Trimethylbenzene | 105 | 11.345 | 11.345 | (0.941) | 681641 | 46.2134 | 46.21 |
| | 26 2,2-Dichloropropane | 77 | 5.232 | 5.239 | (0.878) | 225346 | 56.8404 | 56.84 |
| | 54 1,3-Dichloropropane | 76 | 8.929 | 8.936 | (0.918) | 310110 | 53.6059 | 53.60 |
| | 76 2-Chlorotoluene | 91 | 11.245 | 11.245 | (0.933) | 604555 | 45.3872 | 45.38 |
| | 77 4-Chlorotoluene | 91 | 11.352 | 11.353 | (0.942) | 705792 | 45.5754 | 45.57 |
| | 82 p-Isopropyltoluene | 119 | 12.032 | 12.039 | (0.998) | 640366 | 46.3217 | 46.32 |
| | 29 Bromochloromethane | 128 | 5.539 | 5.547 | (0.929) | 95972 | 55.7535 | 55.75 |
| | 74 Bromobenzene | 156 | 11.045 | 11.045 | (0.916) | 220740 | 45.7113 | 45.71 |
| | 44 Dibromomethane | 93 | 7.370 | 7.370 | (1.090) | 117389 | 58.0653 | 58.06 |
| | 91 Hexachlorobutadiene | 225 | 14.227 | 14.227 | (1.180) | 86346 | 48.1039 | 48.10 |
| | 73 n-Propylbenzene | 91 | 11.167 | 11.167 | (0.926) | 934214 | 46.0107 | 46.01 |
| | 87 n-Butylbenzene | 91 | 12.439 | 12.439 | (1.032) | 530527 | 48.0993 | 48.09 |
| | 81 sec-Butylbenzene | 105 | 11.717 | 11.717 | (0.972) | 701402 | 46.8354 | 46.83 |
| | 92 Naphthalene | 128 | 14.284 | 14.284 | (1.185) | 618207 | 54.2970 | 54.29 |
| | 78 tert-Butylbenzene | 119 | 11.667 | 11.667 | (0.968) | 531555 | 45.5047 | 45.50 |
| | 60 1,1,1,2-Tetrachloroethane | 131 | 9.844 | 9.844 | (1.012) | 195662 | 53.2732 | 53.27 |
| | 64 Styrene | 104 | 10.402 | 10.402 | (1.069) | 632132 | 52.8766 | 52.87 |

Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110214.D
Report Date: 06-Feb-2018 17:02

QC Flag Legend

M - Compound response manually integrated.


Y (x10^6)
0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3 2.4
Min
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
-Dichlorodifluoromethane
-Dimethyl ether+
-Vinyl Chloride+
-Ethylene oxide+
-Chloroethane+
-Trichlorofluoromethane+
-Diethyl ether+
-Acrolein
-Acetone+
-Iodomethane+
-Acetonitrile+
-Methylene Chloride
-Tert-butyl alcohol
-Propionitrile+
-n-Hexane
-1,1-Dichloroethane
-Allyl alcohol+
-tert-Butyl formate+
-2,2-Dichloropropane+
-Isobutyl Alcohol+
-Bromochloromethane+
-Chloroform+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane-d4
-Methacrylonitrile+
-1-Chlorobutane+
-1,4-Difluorobenzene
-Trichloroethene+
-1,2-Dichloropropane+
-Methyl Methacrylate+
-Bromodichloromethane
-2-Chloroethylvinyl ether+
-cis-1,3-Dichloropropene+
-2-Nitropropane+
-Toluene-d8+
-Ethyl Methacrylate+
-1,1,2-Trichloroethane
-1,3-Dichloropropane+
-2-Hexanone
-Dibromochloromethane
-1,2-Dibromoethane+
-1,1,1,2-Tetrachloroethane+
Chlorobenzene-d5+
m,p-Xylenes
-o-Xylene+
-Bromoform
-Isopropylbenzene
-4-Bromofluorobenzene
-cis-1,4-Dichloro-2-butene+
-n-Propylbenzene+
1,3,5-Trimethylbenzene+
-tert-Butylbenzene+
-1,4-Dichlorobenzene-d4+
Benzyl Chloride
-n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa+
-1,2,3-Trichlorobenzene
-Hexachlorobutadiene+
-1,2,4-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene
\\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110214.D
Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110214.D
Date : 02-NOV-2017 15:37
Client ID: VLCSW-171102
Sample Info: VLCSW-171102;VLCSW-171102;3;;LCS
Purge Volume: 5.0
Column phase: DB624
Instrument: VOA4.i
Operator: AP
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110216.D
Report Date: 06-Feb-2018 17:02

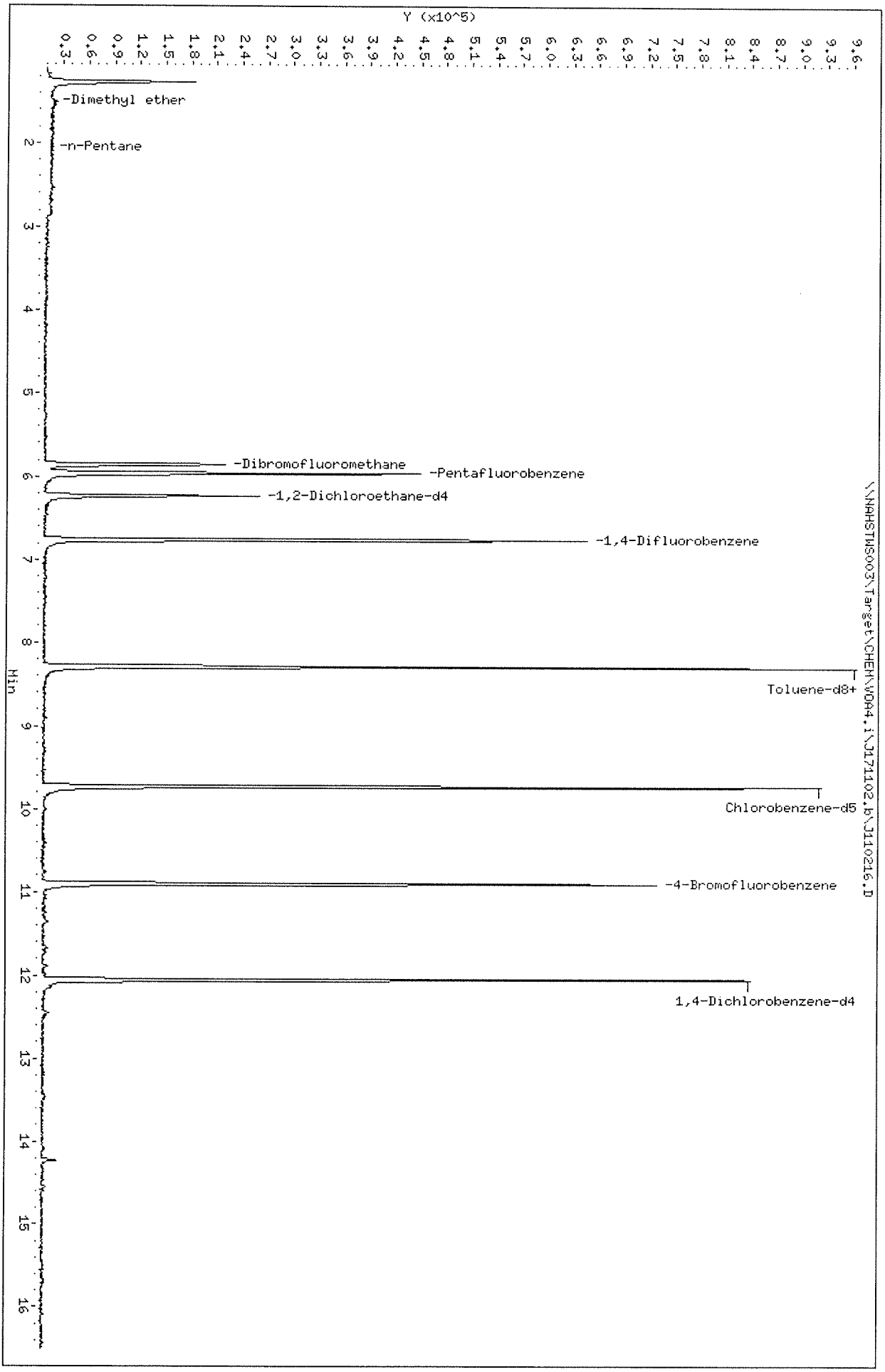
ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110216.D
Lab Smp Id: VBLKW-171102 Client Smp ID: VBLKW-171102
Inj Date : 02-NOV-2017 16:29
Operator : AP Inst ID: VOA4.i
Smp Info : VBLKW-171102;VBLKW-171102;3;;BLANK
Misc Info : HS16050001;WATER;0;1;
Comment :
Method : \\nahstws003\Target\CHEM\VOA4.i\J171102.b\8260LLW.m
Meth Date : 06-Feb-2018 16:57 diana.nguy Quant Type: ISTD
Cal Date : 02-NOV-2017 13:53 Cal File: J110210.D
Als bottle: 18 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.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 | 5.961 | 5.961 | (1.000) | 309188 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 5.861 | 5.861 | (0.983) | 139163 | 51.7754 | 51.77 |
| * 36 1,4-Difluorobenzene | 114 | 6.762 | 6.762 | (1.000) | 497834 | 50.0000 | |
| $ 35 1,2-Dichloroethane-d4 | 65 | 6.233 | 6.233 | (1.046) | 168508 | 49.3668 | 49.36 |
| * 47 Chlorobenzene-d5 | 117 | 9.729 | 9.729 | (1.000) | 474298 | 50.0000 | |
| $ 48 Toluene-d8 | 98 | 8.292 | 8.292 | (0.852) | 575325 | 49.6097 | 49.60 |
| $ 69 4-Bromofluorobenzene | 95 | 10.902 | 10.902 | (1.121) | 254413 | 54.1882 | 54.18 |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 12.053 | 12.053 | (1.000) | 234418 | 50.0000 | |


Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110216.D
Date : 02-NOV-2017 16:29
Client ID: VBLKW-171102
Sample Info: VBLKW-171102;VBLKW-171102;3;;BLANK
Purge Volume: 5.0
Column phase: DB624
Instrument: VOA4.i
Operator: AP
Column diameter: 0.18
Y (x10^5)
-Dimethyl ether
-n-Pentane
-Dibromofluoromethane
-Pentafluorobenzene
-1,2-Dichloroethane-d4
-1,4-Difluorobenzene
Toluene-d8+
Chlorobenzene-d5
-4-Bromofluorobenzene
1,4-Dichlorobenzene-d4
\\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110216.D
Min

Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110218.D
Report Date: 06-Feb-2018 17:02

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110218.D
Lab Smp Id: HS17110083-02 Client Smp ID: HS17110083-02
Inj Date : 02-NOV-2017 17:21
Operator : AP Inst ID: VOA4.i
Smp Info : HS17110083-02;HS17110083-02;;;
Misc Info : HS16050001;WATER;0;1;
Comment :
Method : \\nahstws003\Target\CHEM\VOA4.i\J171102.b\8260LLW.m
Meth Date : 06-Feb-2018 16:57 diana.nguy Quant Type: ISTD
Cal Date : 02-NOV-2017 13:53 Cal File: J110210.D
Als bottle: 20
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

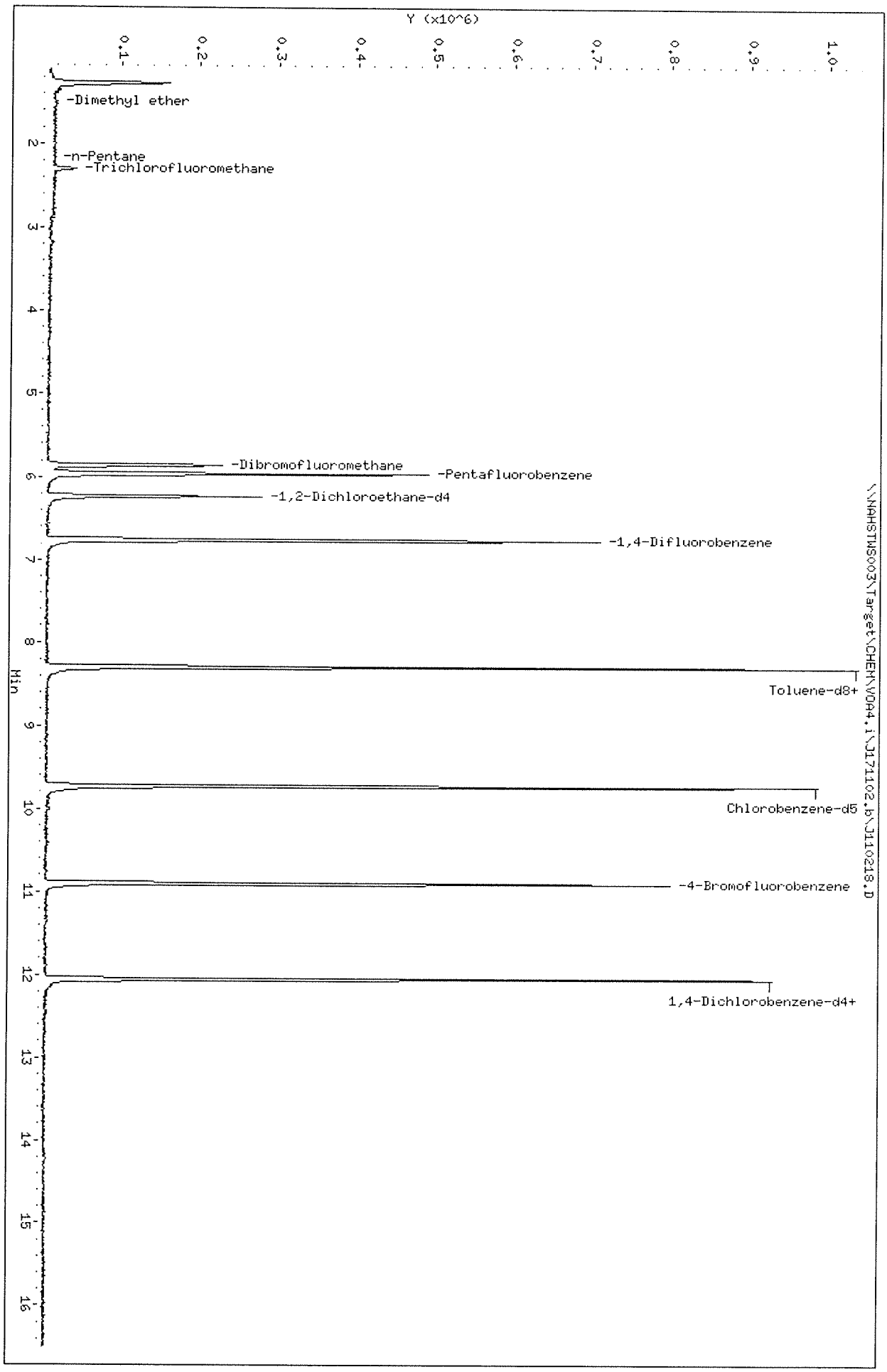
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| 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 | 5.961 | 5.961 | (1.000) | 338433 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 5.861 | 5.861 | (0.983) | 144389 | 49.0215 | 49.02 |
| * 36 1,4-Difluorobenzene | 114 | 6.762 | 6.762 | (1.000) | 541929 | 50.0000 | |
| $ 35 1,2-Dichloroethane-d4 | 65 | 6.233 | 6.233 | (1.046) | 182273 | 48.7761 | 48.77 |
| * 47 Chlorobenzene-d5 | 117 | 9.729 | 9.729 | (1.000) | 516016 | 50.0000 | |
| $ 48 Toluene-d8 | 98 | 8.292 | 8.292 | (0.852) | 623032 | 49.3705 | 49.37 |
| $ 69 4-Bromofluorobenzene | 95 | 10.902 | 10.902 | (1.121) | 271178 | 53.0495 | 53.04 |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 12.053 | 12.053 | (1.000) | 246523 | 50.0000 | |
| 8 Trichlorofluoromethane | 101 | 2.300 | 2.300 | (0.386) | 21489 | 4.79070 | 4.79(a) |

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).




Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110218.D
Date : 02-NOV-2017 17:21
Client ID: HS17110083-02
Sample Info: HS17110083-02;HS17110083-02;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA4.i
Operator: AP
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110218.D

Date : 02-NOV-2017 17:21

Client ID: HS17110083-02

Instrument: VOA4.i

Sample Info: HS17110083-02;HS17110083-02;;;

Purge Volume: 5.0

Operator: AP

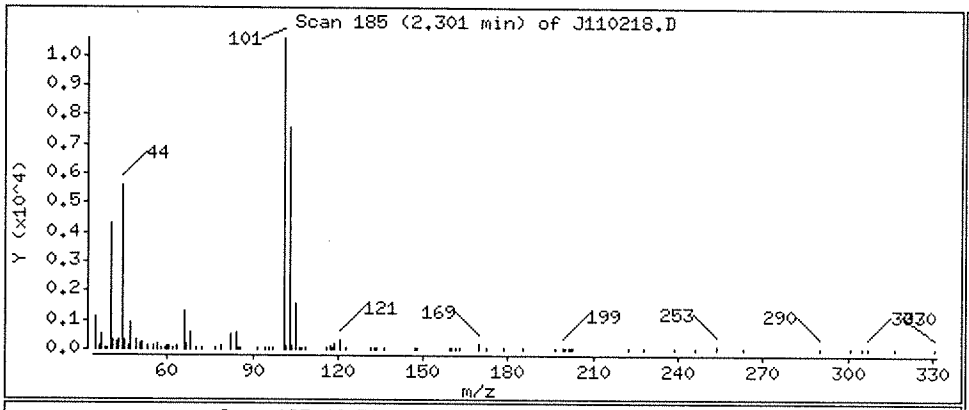
Column phase: DB624

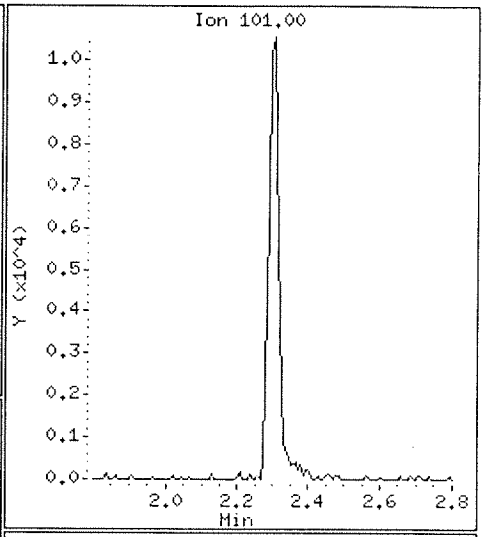
Column diameter: 0.18

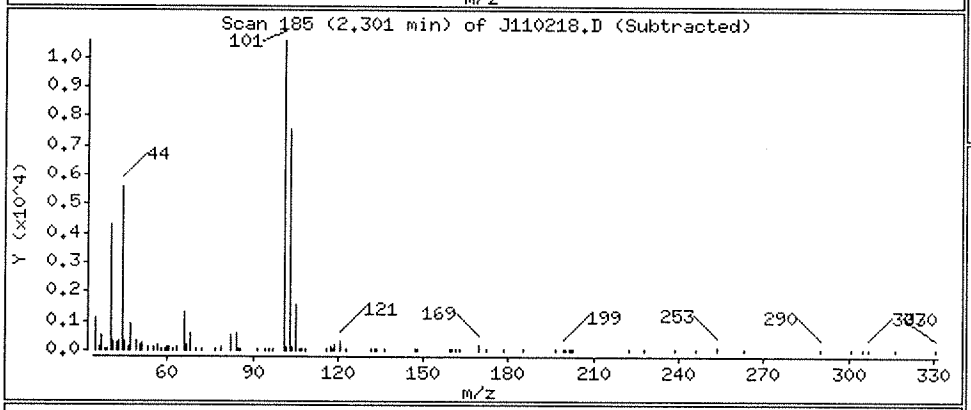
8 Trichlorofluoromethane

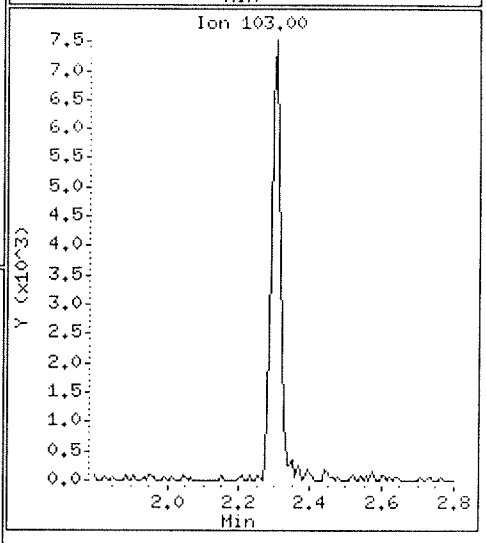
Concentration: 4.79 ug/l

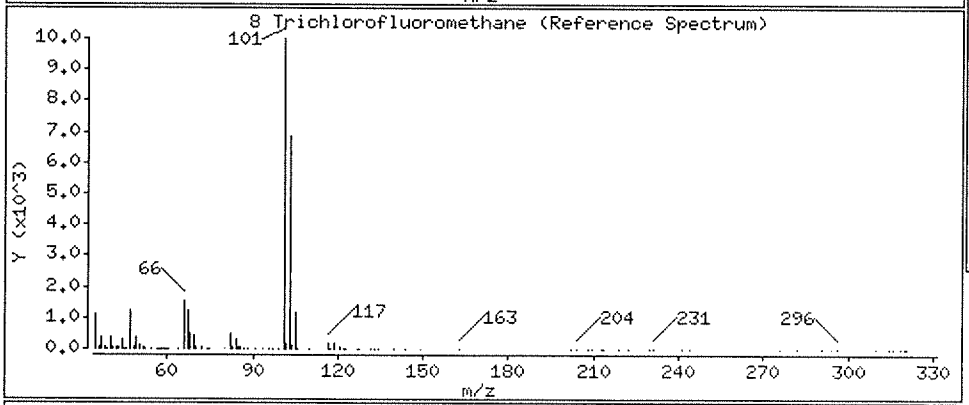
Review Code:

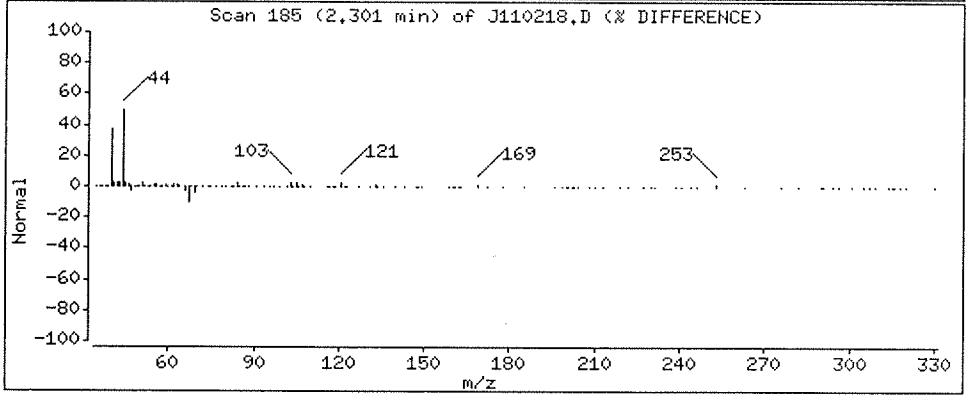


Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110220.D
Report Date: 06-Feb-2018 17:02

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110220.D
Lab Smp Id: HS17110083-01 Client Smp ID: HS17110083-01
Inj Date : 02-NOV-2017 18:12
Operator : AP Inst ID: VOA4.i
Smp Info : HS17110083-01;HS17110083-01;;;
Misc Info : HS16050001;WATER;0;1;
Comment :
Method : \\nahstws003\Target\CHEM\VOA4.i\J171102.b\8260LLW.m
Meth Date : 06-Feb-2018 16:57 diana.nguy Quant Type: ISTD
Cal Date : 02-NOV-2017 13:53 Cal File: J110210.D
Als bottle: 22
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

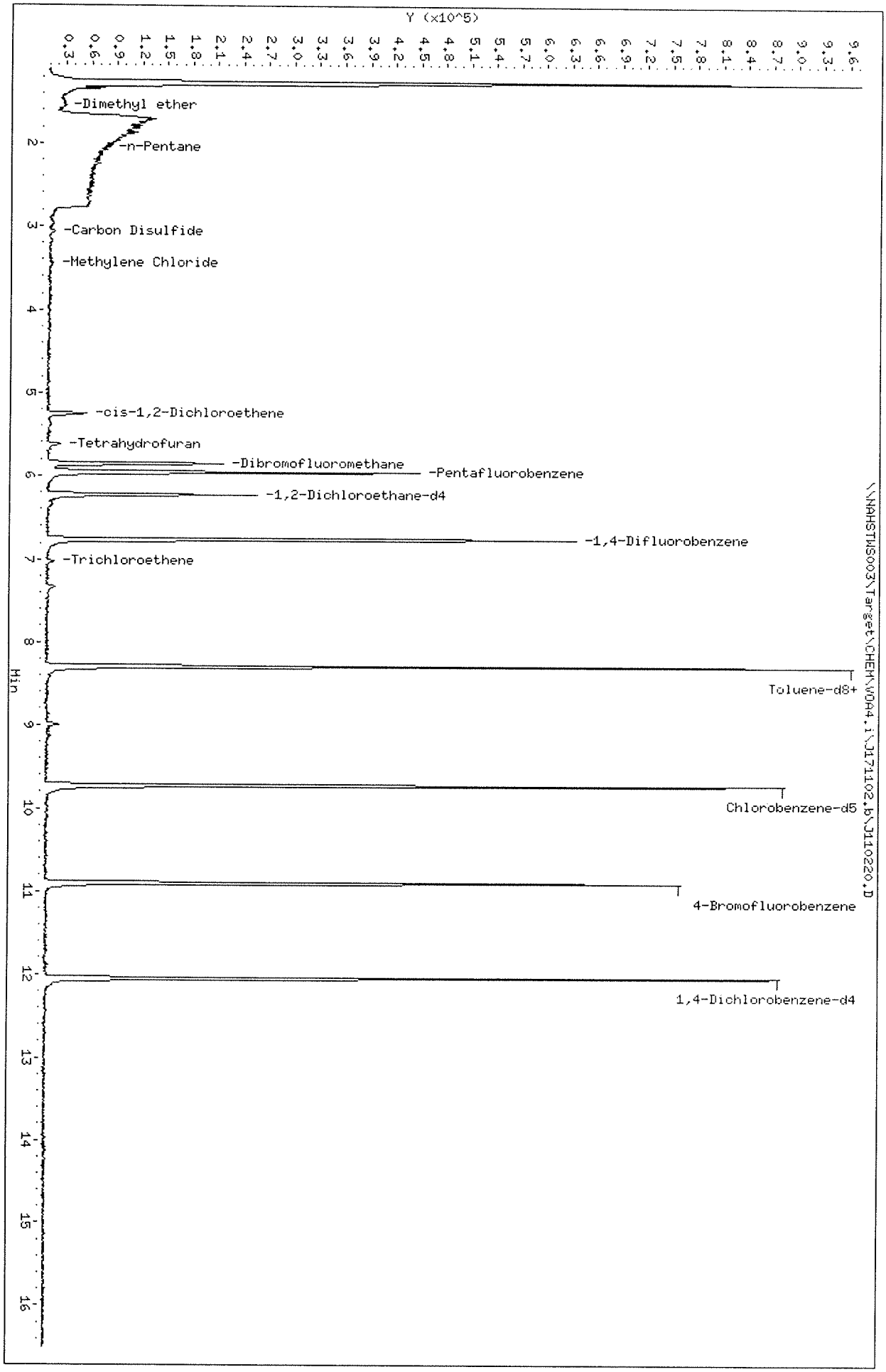
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| 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 | 5.961 | 5.961 | (1.000) | 303610 | 50.0000 | |
| $ | 30 Dibromofluoromethane | 113 | 5.854 | 5.861 | (0.982) | 130363 | 49.3428 | 49.34 |
| * | 36 1,4-Difluorobenzene | 114 | 6.755 | 6.762 | (1.000) | 489566 | 50.0000 | |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 6.233 | 6.233 | (1.046) | 166544 | 49.6928 | 49.69 |
| * | 47 Chlorobenzene-d5 | 117 | 9.729 | 9.729 | (1.000) | 457295 | 50.0000 | |
| $ | 48 Toluene-d8 | 98 | 8.292 | 8.292 | (0.852) | 568476 | 50.8932 | 50.89 |
| $ | 69 4-Bromofluorobenzene | 95 | 10.902 | 10.902 | (1.121) | 244295 | 53.9598 | 53.95 |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 12.046 | 12.053 | (1.000) | 236173 | 50.0000 | |
| | 19 Carbon Disulfide | 76 | 3.073 | 3.065 | (0.515) | 9888 | 1.43188 | 1.43(a) |
| | 27 cis-1,2-Dichloroethene | 96 | 5.253 | 5.253 | (0.881) | 21239 | 5.90376 | 5.90 |
| | 17 Methylene Chloride | 84 | 3.437 | 3.452 | (0.577) | 1450 | 0.44965 | 0.44(a) |
| | 38 Trichloroethene | 130 | 7.027 | 7.019 | (1.040) | 2959 | 0.90094 | 0.90(a) |

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).




Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110220.D
Date : 02-NOV-2017 18:12
Client ID: HS17110083-01
Sample Info: HS17110083-01;HS17110083-01;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA4.i
Operator: AP
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110220.D

Date : 02-NOV-2017 18:12

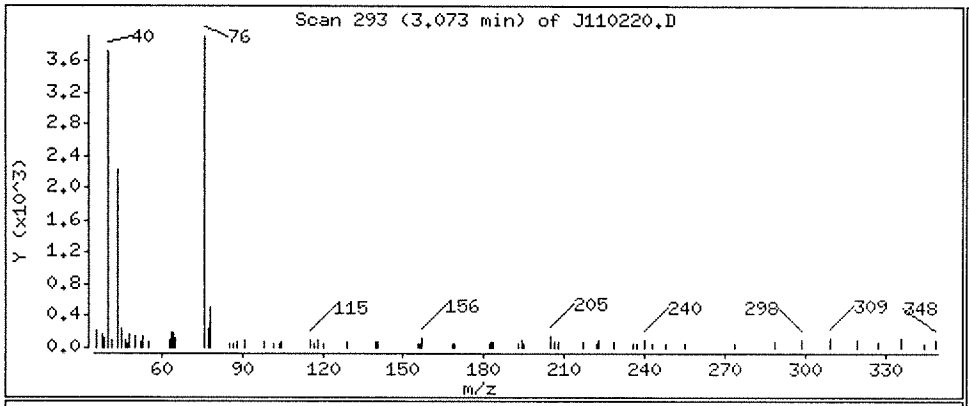
Client ID: HS17110083-01 Instrument: VOA4.i

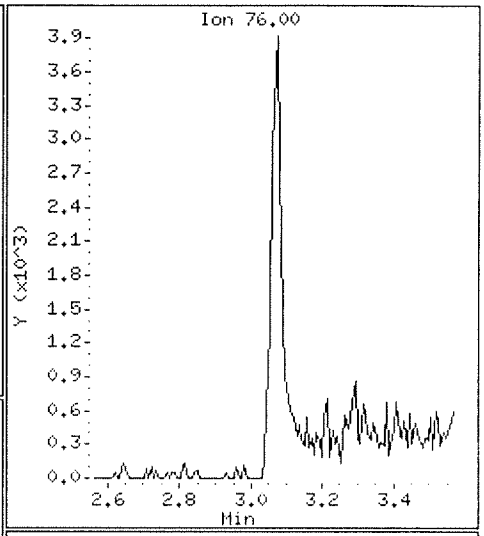
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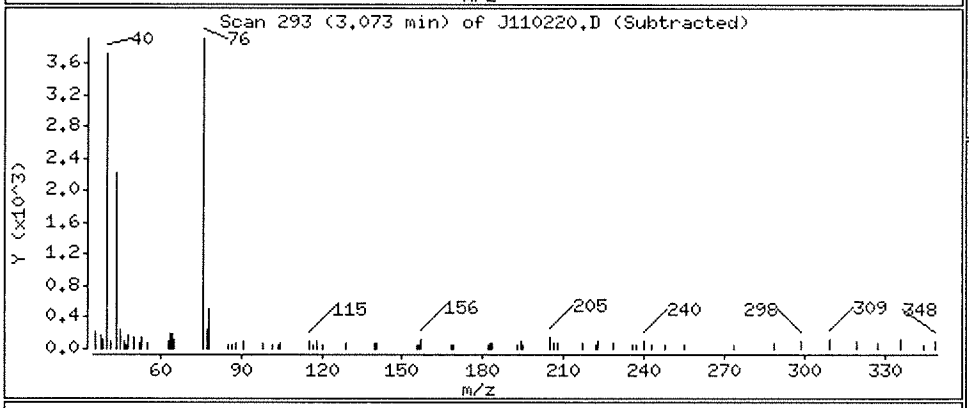
Purge Volume: 5.0 Operator: AP

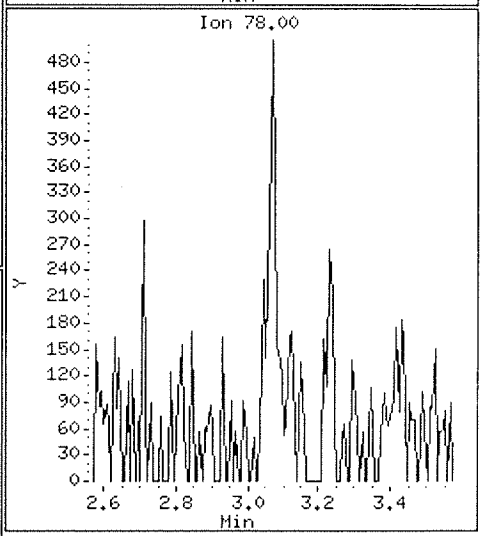
Column phase: DB624 Column diameter: 0.18

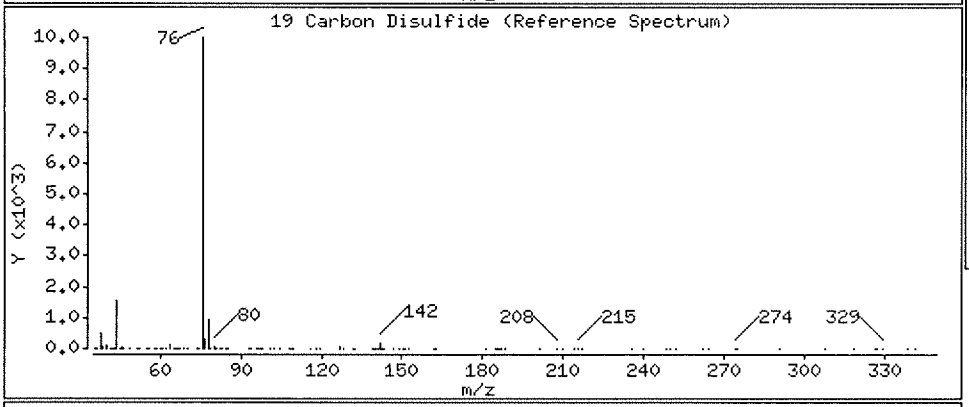
19 Carbon Disulfide Concentration: 1.43 ug/l Review Code:

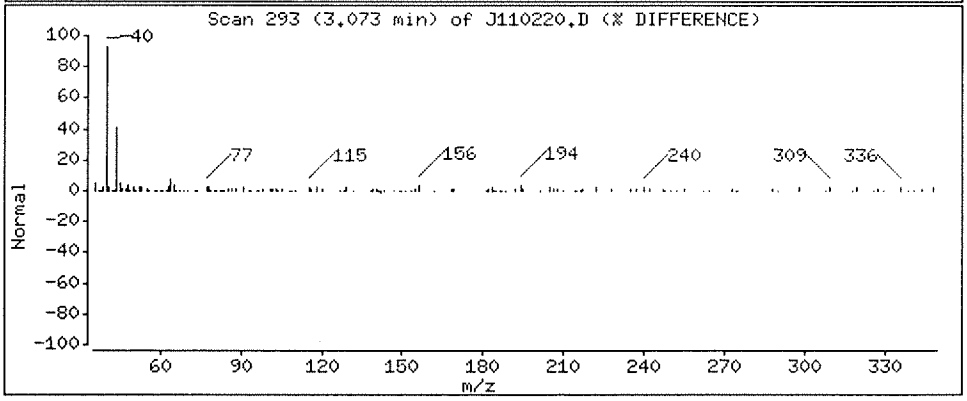


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Date : 02-NOV-2017 18:12

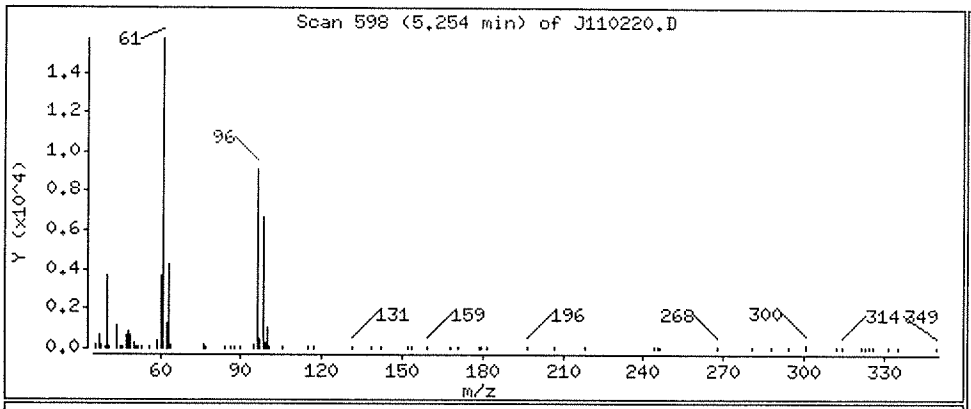
Client ID: HS17110083-01 Instrument: VOA4.i

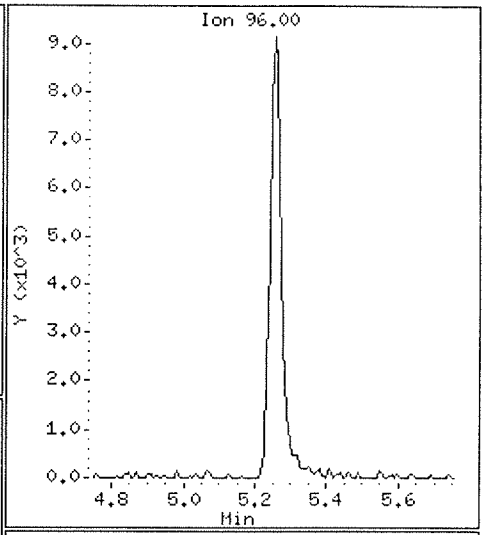
Sample Info: HS17110083-01;HS17110083-01;;;

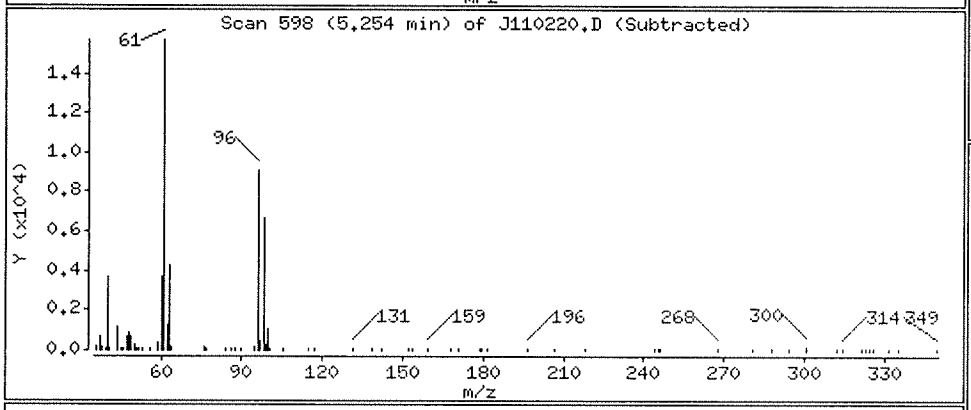
Purge Volume: 5.0 Operator: AP

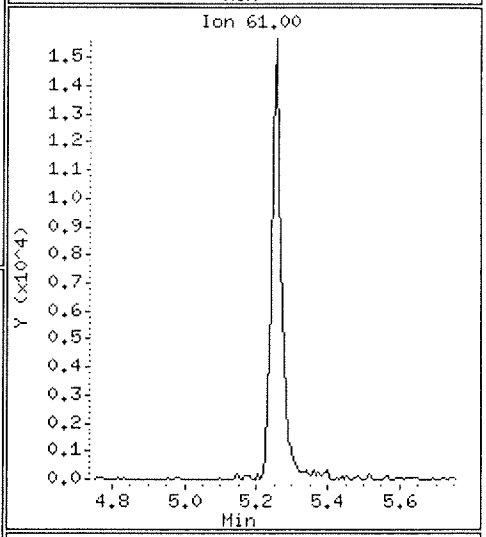
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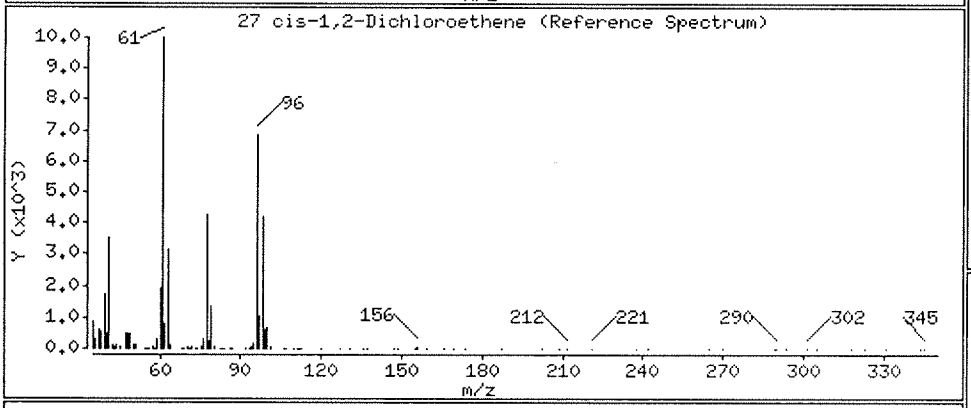
27 cis-1,2-Dichloroethene Concentration: 5.90 ug/l Review Code:

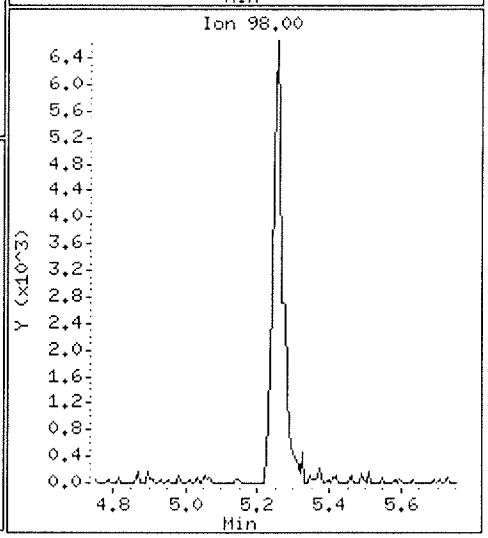


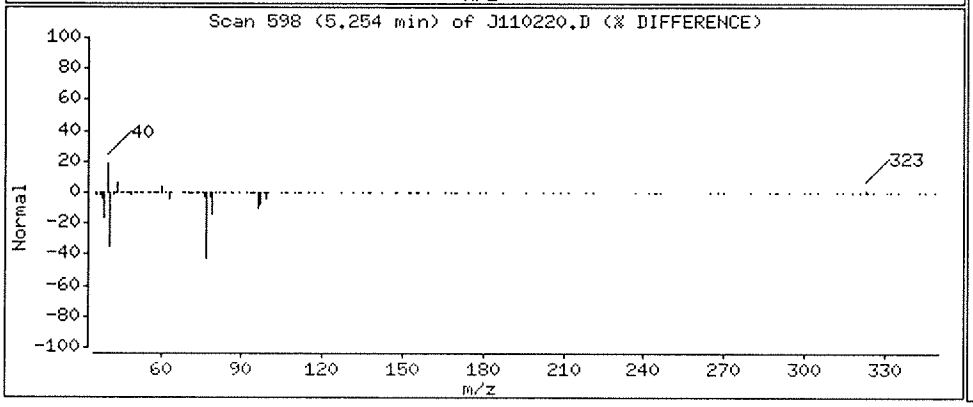



Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110220.D

Date : 02-NOV-2017 18:12

Client ID: HS17110083-01

Instrument: VOA4.i

Sample Info: HS17110083-01;HS17110083-01;;;

Purge Volume: 5.0

Operator: AP

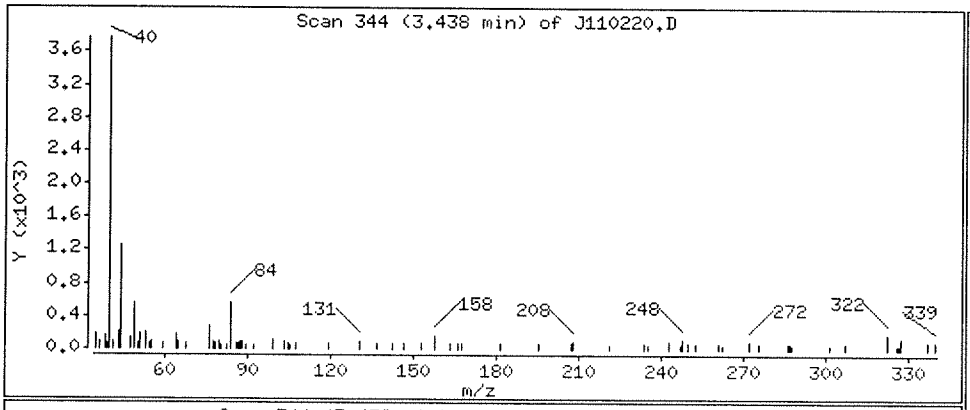
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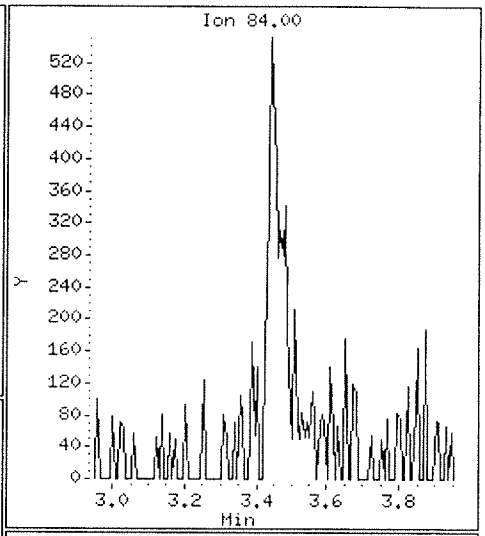
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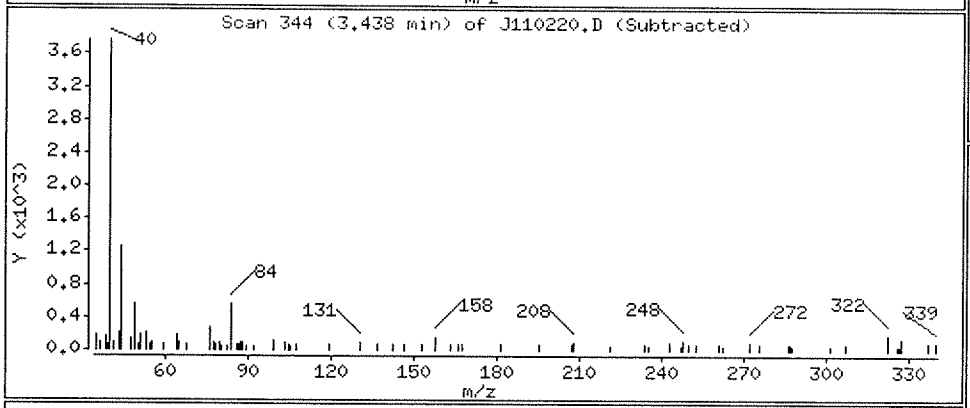
17 Methylene Chloride

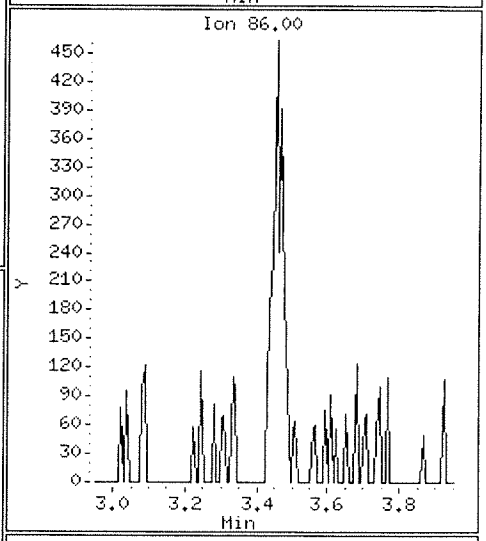
Concentration: 0.44 ug/l

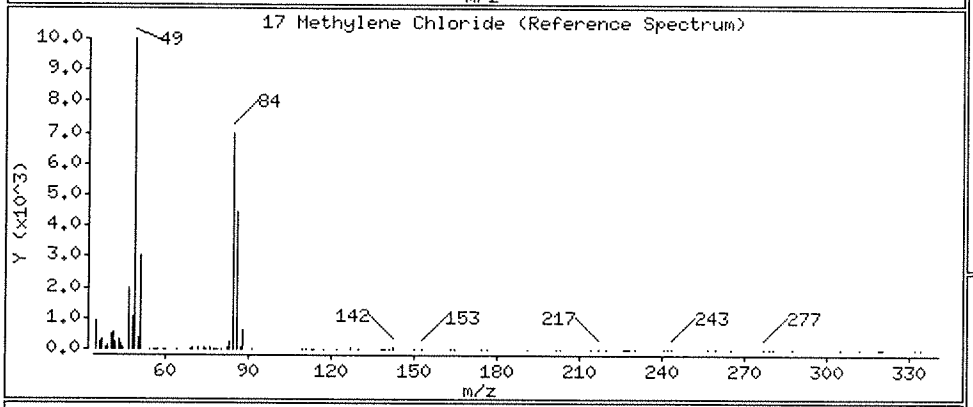
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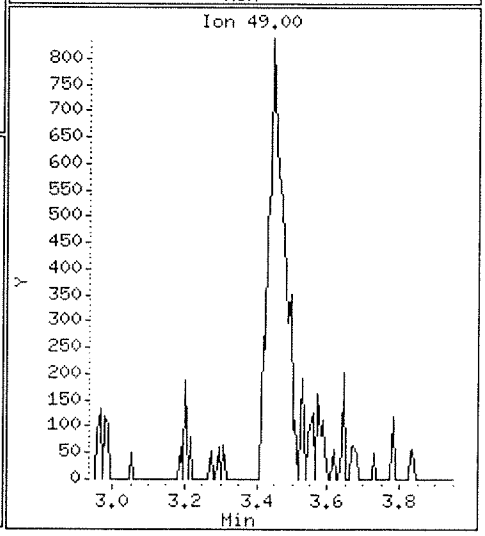


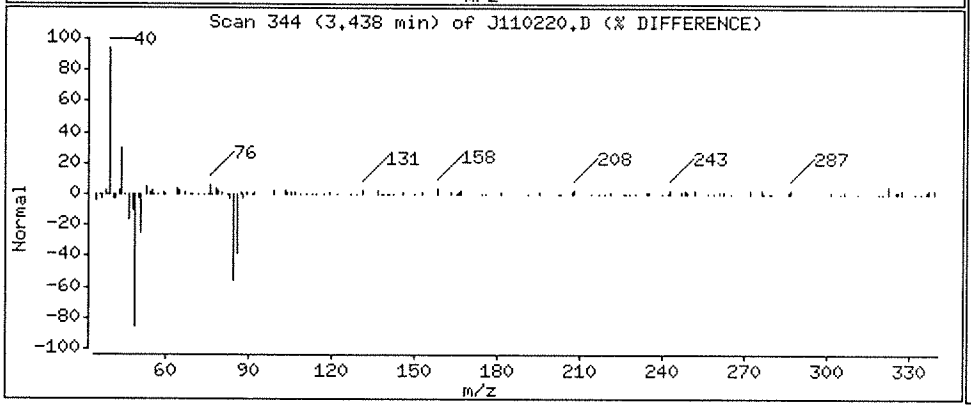



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Date : 02-NOV-2017 18:12

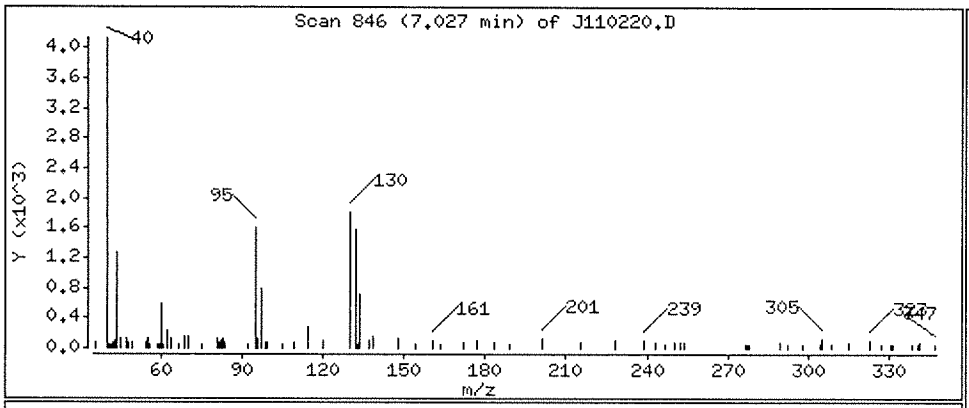
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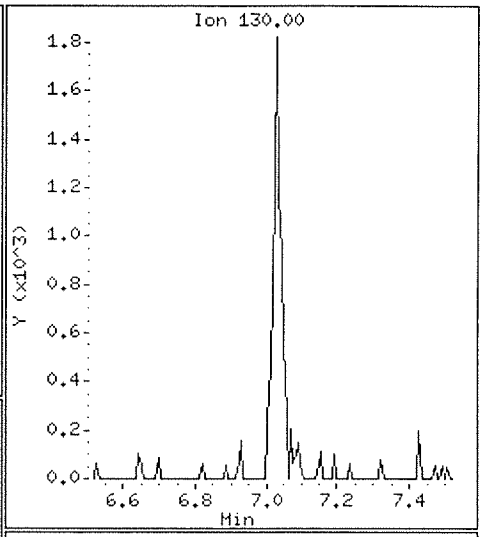
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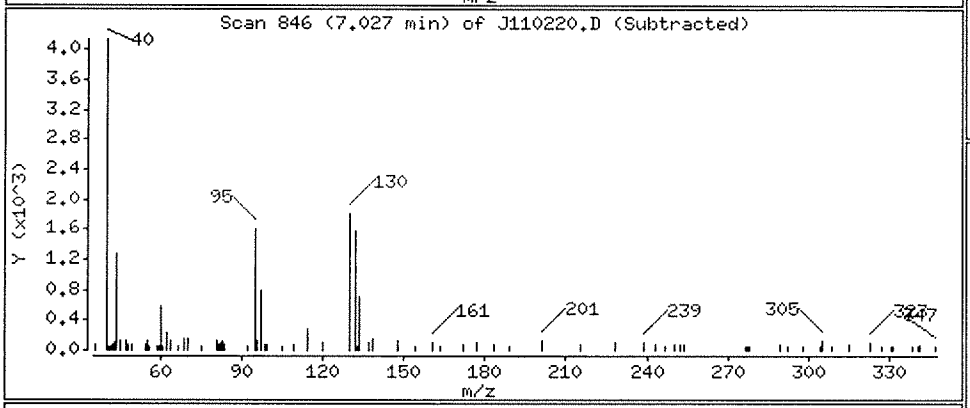
Purge Volume: 5.0 Operator: AP

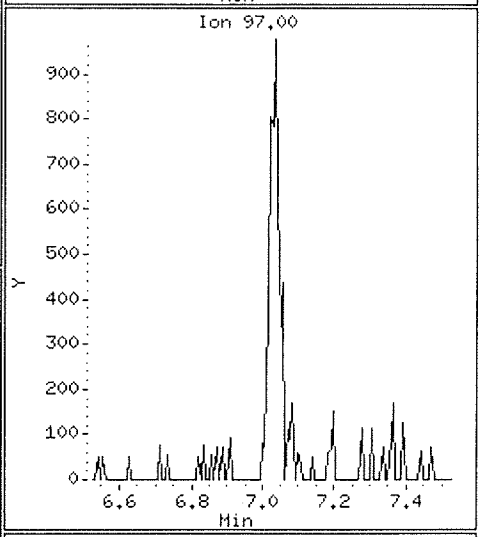
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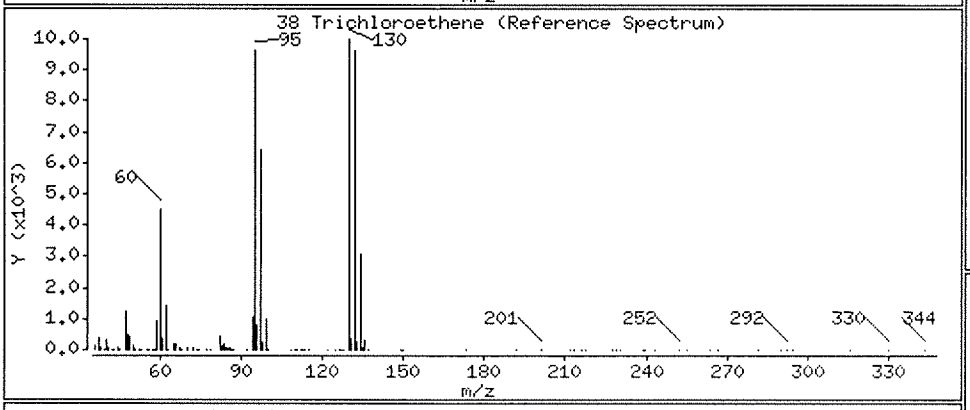
38 Trichloroethene Concentration: 0.90 ug/l Review Code:

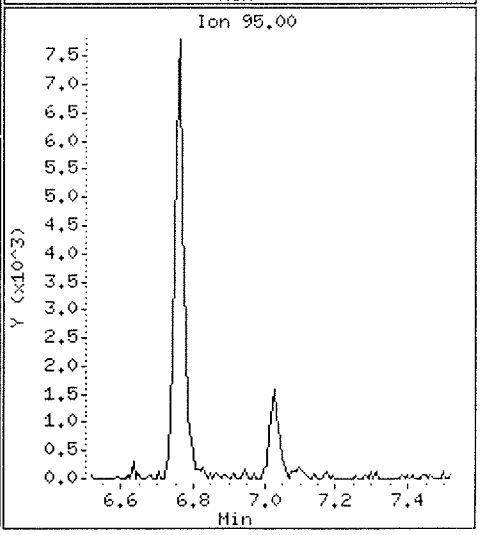


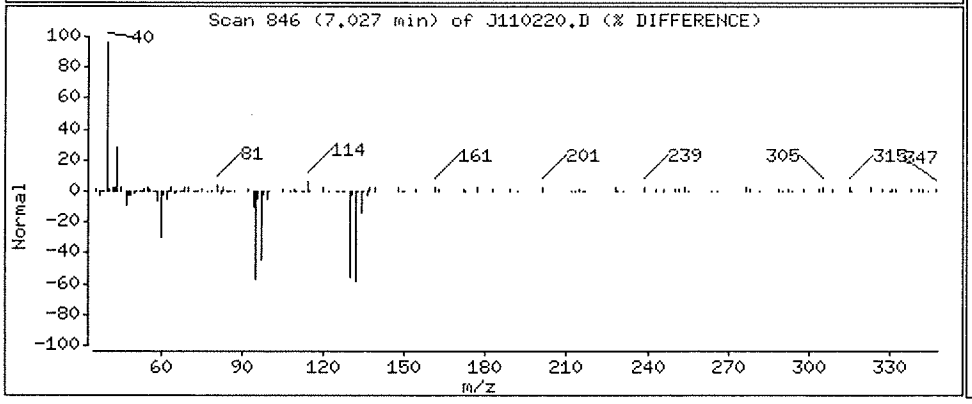



Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110222.D
Report Date: 06-Feb-2018 17:02

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110222.D
Lab Smp Id: HS17101441-20MS Client Smp ID: HS17101441-20MS
Inj Date : 02-NOV-2017 19:04
Operator : AP Inst ID: VOA4.i
Smp Info : HS17101441-20MS;HS17101441-20MS;3;;MS
Misc Info : HS16050001;WATER;0;1;
Comment :
Method : \\nahstws003\Target\CHEM\VOA4.i\J171102.b\8260LLW.m
Meth Date : 06-Feb-2018 16:57 diana.nguy Quant Type: ISTD
Cal Date : 02-NOV-2017 13:53 Cal File: J110210.D
Als bottle: 24 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

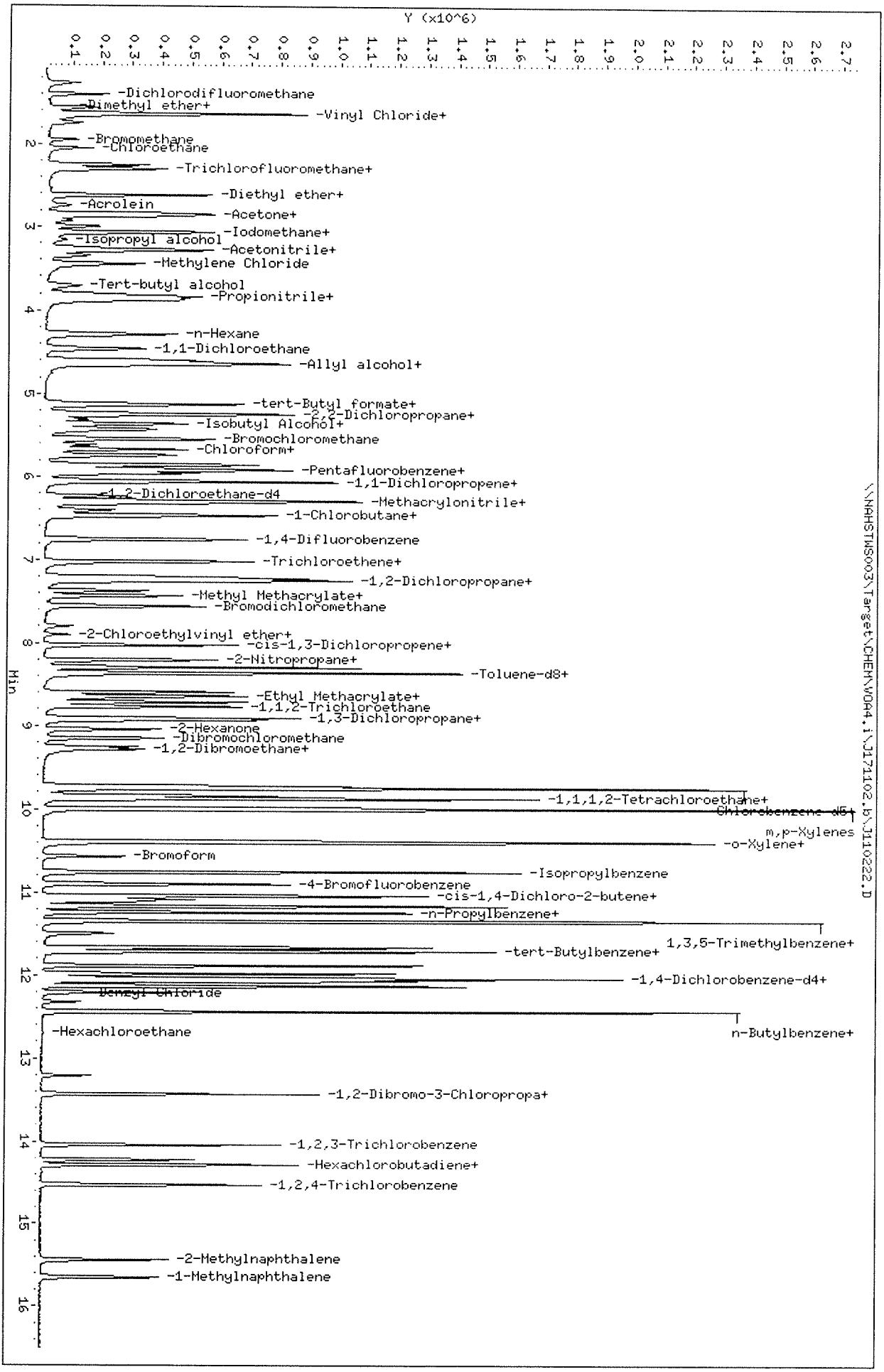
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| 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) |
|---|---|---|---|---|---|---|---|---|
| | 31 1,1,1-Trichloroethane | 97 | 5.861 | 5.861 | (0.983) | 320969 | 69.1076 | 69.10 |
| * | 1 Pentafluorobenzene | 168 | 5.961 | 5.961 | (1.000) | 326115 | 50.0000 | |
| $ | 30 Dibromofluoromethane | 113 | 5.854 | 5.861 | (0.982) | 147181 | 51.9192 | 51.91 |
| * | 36 1,4-Difluorobenzene | 114 | 6.762 | 6.762 | (1.000) | 533841 | 50.0000 | |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 6.233 | 6.233 | (1.046) | 180642 | 50.1872 | 50.18 |
| * | 47 Chlorobenzene-d5 | 117 | 9.729 | 9.729 | (1.000) | 496101 | 50.0000 | |
| $ | 48 Toluene-d8 | 98 | 8.292 | 8.292 | (0.852) | 608572 | 50.1937 | 50.19 |
| $ | 69 4-Bromofluorobenzene | 95 | 10.902 | 10.902 | (1.121) | 272443 | 55.5249 | 55.52 |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 12.046 | 12.053 | (1.000) | 256947 | 50.0000 | |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 11.045 | 11.052 | (0.917) | 217791 | 46.9959 | 46.99 |
| | 53 1,1,2-Trichloroethane | 83 | 8.771 | 8.771 | (0.902) | 150376 | 54.7177 | 54.71 |
| | 32 1,1-Dichloropropene | 75 | 6.061 | 6.061 | (0.896) | 289034 | 65.5655 | 65.56 |
| | 22 1,1-Dichloroethane | 63 | 4.460 | 4.460 | (0.748) | 402671 | 65.1701 | 65.17 |
| | 11 1,1-Dichloroethene | 96 | 2.836 | 2.844 | (0.476) | 178881 | 64.6419 | 64.64 |
| | 90 1,2,4-Trichlorobenzene | 180 | 14.527 | 14.527 | (1.206) | 204031 | 54.9670 | 54.96 |
| | 89 1,2-Dibromo-3-Chloropropane | 75 | 13.433 | 13.433 | (1.115) | 42245 | 56.4311 | 56.43 |
| | 57 1,2-Dibromoethane | 107 | 9.257 | 9.258 | (0.951) | 181897 | 55.5106 | 55.51 |
| | 88 1,2-Dichlorobenzene | 146 | 12.439 | 12.439 | (1.033) | 399861 | 51.2719 | 51.27 |
| | 33 1,2-Dichloroethane | 62 | 6.319 | 6.319 | (0.934) | 305915 | 61.5955 | 61.59 |
| | 42 1,2-Dichloropropane | 63 | 7.248 | 7.248 | (1.072) | 230145 | 60.9312 | 60.93 |
| | 83 1,3-Dichlorobenzene | 146 | 11.982 | 11.989 | (0.995) | 427441 | 51.6723 | 51.67 |
| | 84 1,4-Dichlorobenzene | 146 | 12.075 | 12.075 | (1.002) | 434205 | 49.7474 | 49.74 |

Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110222.D
Report Date: 06-Feb-2018 17:02

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| | 24 2-Butanone | 43 | 5.310 | 5.311 | (0.891) | 183721 | 124.814 | 124.81 |
| | 52 2-Hexanone | 43 | 9.043 | 9.043 | (0.929) | 279155 | 123.195 | 123.19 |
| | 45 4-Methyl-2-Pentanone | 43 | 8.199 | 8.206 | (0.843) | 425525 | 126.647 | 126.64 |
| | 10 Acetone | 43 | 2.929 | 2.930 | (0.491) | 114307 | 118.478 | 118.47 |
| | 37 Benzene | 78 | 6.290 | 6.290 | (0.930) | 878600 | 61.5995 | 61.59 |
| | 39 Bromodichloromethane | 83 | 7.556 | 7.556 | (1.117) | 277275 | 61.5855 | 61.58 |
| | 66 Bromoform | 173 | 10.566 | 10.573 | (1.086) | 120705 | 55.1718 | 55.17 |
| | 6 Bromomethane | 94 | 1.950 | 1.943 | (0.327) | 62036 | 36.4433 | 36.44 |
| | 19 Carbon Disulfide | 76 | 3.072 | 3.065 | (0.515) | 1018242 | 137.276 | 137.27 |
| | 34 Carbon Tetrachloride | 117 | 6.054 | 6.054 | (0.895) | 270227 | 59.1526 | 59.15 |
| | 59 Chlorobenzene | 112 | 9.758 | 9.758 | (1.003) | 590637 | 56.6023 | 56.60 |
| | 7 Chloroethane | 64 | 2.050 | 2.043 | (0.344) | 153216 | 62.4467 | 62.44 |
| | 28 Chloroform | 83 | 5.668 | 5.675 | (0.951) | 357437 | 63.8408 | 63.84 |
| | 3 Chloromethane | 50 | 1.557 | 1.550 | (0.261) | 311251 | 53.7651 | 53.76 |
| | 27 cis-1,2-Dichloroethene | 96 | 5.253 | 5.253 | (0.881) | 239781 | 62.0519 | 62.05 |
| | 46 cis-1,3-Dichloropropene | 75 | 8.028 | 8.028 | (1.187) | 335626 | 62.1063 | 62.10 |
| | 55 Dibromochloromethane | 129 | 9.157 | 9.157 | (0.941) | 206007 | 55.1649 | 55.16 |
| | 2 Dichlorodifluoromethane | 85 | 1.399 | 1.399 | (0.235) | 182918 | 56.8364 | 56.83 |
| | 61 Ethylbenzene | 106 | 9.879 | 9.880 | (1.015) | 327197 | 57.4067 | 57.40 |
| | 67 Isopropylbenzene | 105 | 10.759 | 10.759 | (1.106) | 946930 | 58.5288 | 58.52 |
| | 17 Methylene Chloride | 84 | 3.451 | 3.452 | (0.579) | 215895 | 62.3293 | 62.32 |
| | 56 Tetrachloroethene | 164 | 8.907 | 8.907 | (0.915) | 166474 | 56.6133 | 56.61 |
| | 50 Toluene | 91 | 8.364 | 8.364 | (0.860) | 921702 | 56.8501 | 56.85 |
| | 20 trans-1,2-Dichloroethene | 96 | 3.845 | 3.830 | (0.645) | 208375 | 62.4059 | 62.40 |
| | 51 trans-1,3-Dichloropropene | 75 | 8.028 | 8.028 | (1.187) | 335626 | 62.1063 | 62.10 |
| | 38 Trichloroethene | 130 | 7.019 | 7.019 | (1.038) | 227857 | 63.6228 | 63.62 |
| | 8 Trichlorofluoromethane | 101 | 2.300 | 2.300 | (0.386) | 297315 | 68.7863 | 68.78 |
| | 5 Vinyl Chloride | 62 | 1.657 | 1.657 | (0.278) | 264387 | 62.1343 | 62.13 |
| | 62 m,p-Xylenes | 106 | 10.001 | 10.001 | (1.028) | 793519 | 113.475 | 113.47 |
| | 63 o-Xylene | 106 | 10.387 | 10.387 | (1.068) | 391641 | 56.7575 | 56.75 |
| M | 95 Xylenes (total) | 106 | | | | 1185160 | 170.232 | 170.23 |
| | 71 1,2,3-Trichloropropane | 75 | 11.088 | 11.088 | (0.920) | 240099 | 50.0545 | 50.05 |
| | 93 1,2,3-Trichlorobenzene | 182 | 14.041 | 14.048 | (1.166) | 224762 | 54.0266 | 54.02 |
| | 79 1,2,4-Trimethylbenzene | 105 | 11.717 | 11.717 | (0.973) | 758114 | 51.3816 | 51.38 |
| | 75 1,3,5-Trimethylbenzene | 105 | 11.345 | 11.345 | (0.942) | 758618 | 52.2037 | 52.20 |
| | 26 2,2-Dichloropropane | 77 | 5.239 | 5.239 | (0.879) | 254238 | 64.8593 | 64.85 |
| | 54 1,3-Dichloropropane | 76 | 8.936 | 8.936 | (0.918) | 324314 | 55.9139 | 55.91 |
| | 76 2-Chlorotoluene | 91 | 11.245 | 11.245 | (0.934) | 680075 | 51.8227 | 51.82 |
| | 77 4-Chlorotoluene | 91 | 11.352 | 11.353 | (0.942) | 783675 | 51.3636 | 51.36 |
| | 82 p-Isopropyltoluene | 119 | 12.039 | 12.039 | (0.999) | 728349 | 53.4763 | 53.47 |
| | 29 Bromochloromethane | 128 | 5.539 | 5.547 | (0.929) | 99615 | 58.5298 | 58.52 |
| | 74 Bromobenzene | 156 | 11.045 | 11.045 | (0.917) | 233443 | 49.0670 | 49.06 |
| | 44 Dibromomethane | 93 | 7.370 | 7.370 | (1.090) | 119797 | 59.2863 | 59.28 |
| | 91 Hexachlorobutadiene | 225 | 14.227 | 14.227 | (1.181) | 86570 | 48.9521 | 48.95 |
| | 73 n-Propylbenzene | 91 | 11.167 | 11.167 | (0.927) | 1079308 | 53.9540 | 53.95 |
| | 87 n-Butylbenzene | 91 | 12.439 | 12.439 | (1.033) | 613008 | 56.4109 | 56.41 |
| | 81 sec-Butylbenzene | 105 | 11.717 | 11.717 | (0.973) | 758114 | 51.3816 | 51.38 |
| | 92 Naphthalene | 128 | 14.284 | 14.284 | (1.186) | 610616 | 54.4348 | 54.43 |
| | 78 tert-Butylbenzene | 119 | 11.667 | 11.667 | (0.969) | 610644 | 53.0593 | 53.05 |
| | 60 1,1,1,2-Tetrachloroethane | 131 | 9.844 | 9.844 | (1.012) | 205180 | 55.7179 | 55.71 |
| | 64 Styrene | 104 | 10.401 | 10.402 | (1.069) | 677720 | 56.5410 | 56.54 |


Y (x10^6)
0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3 2.4 2.5 2.6 2.7
Min
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
-Dichlorodifluoromethane
-Dimethyl ether+
-Vinyl Chloride+
-Bromomethane
-Chloroethane
-Trichlorofluoromethane+
-Diethyl ether+
-Acrolein
-Acetone+
-Iodomethane+
-Isopropyl alcohol
-Acetonitrile+
-Methylene Chloride
-Tert-butyl alcohol
-Propionitrile+
-n-Hexane
-1,1-Dichloroethane
-Allyl alcohol+
-tert-Butyl formate+
-2,2-Dichloropropane+
-Isobutyl Alcohol+
-Bromochloromethane
-Chloroform+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane-d4
-Methacrylonitrile+
-1-Chlorobutane+
-1,4-Difluorobenzene
-Trichloroethene+
-1,2-Dichloropropane+
-Methyl Methacrylate+
-Bromodichloromethane
-2-Chloroethylvinyl ether+
-cis-1,3-Dichloropropene+
-2-Nitropropane+
-Toluene-d8+
-Ethyl Methacrylate+
-1,1,2-Trichloroethane
-1,3-Dichloropropane+
-2-Hexanone
-Dibromochloromethane
-1,2-Dibromoethane+
-1,1,1,2-Tetrachloroethane+
Chlorobenzene-d5+
m,p-Xylenes
-o-Xylene+
-Bromoform
-Isopropylbenzene
-4-Bromofluorobenzene
-cis-1,4-Dichloro-2-butene+
-n-Propylbenzene+
1,3,5-Trimethylbenzene+
-tert-Butylbenzene+
-1,4-Dichlorobenzene-d4+
Benzyl Chloride
-Hexachloroethane
n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa+
-1,2,3-Trichlorobenzene
-Hexachlorobutadiene+
-1,2,4-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene
\\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110222.D
Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110222.D
Date : 02-NOV-2017 19:04
Client ID: HS17101441-20MS
Sample Info: HS17101441-20MS;HS17101441-20MS;3;;MS
Purge Volume: 5.0
Column phase: DB624
Instrument: VOA4.i
Operator: AP
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110223.D
Report Date: 06-Feb-2018 17:02

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110223.D
Lab Smp Id: HS17101441-20MSD Client Smp ID: HS17101441-20MSD
Inj Date : 02-NOV-2017 19:29
Operator : AP Inst ID: VOA4.i
Smp Info : HS17101441-20MSD;HS17101441-20MSD;3;;MSD
Misc Info : HS16050001;WATER;0;1;
Comment :
Method : \\nahstws003\Target\CHEM\VOA4.i\J171102.b\8260LLW.m
Meth Date : 06-Feb-2018 16:57 diana.nguy Quant Type: ISTD
Cal Date : 02-NOV-2017 13:53 Cal File: J110210.D
Als bottle: 25 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

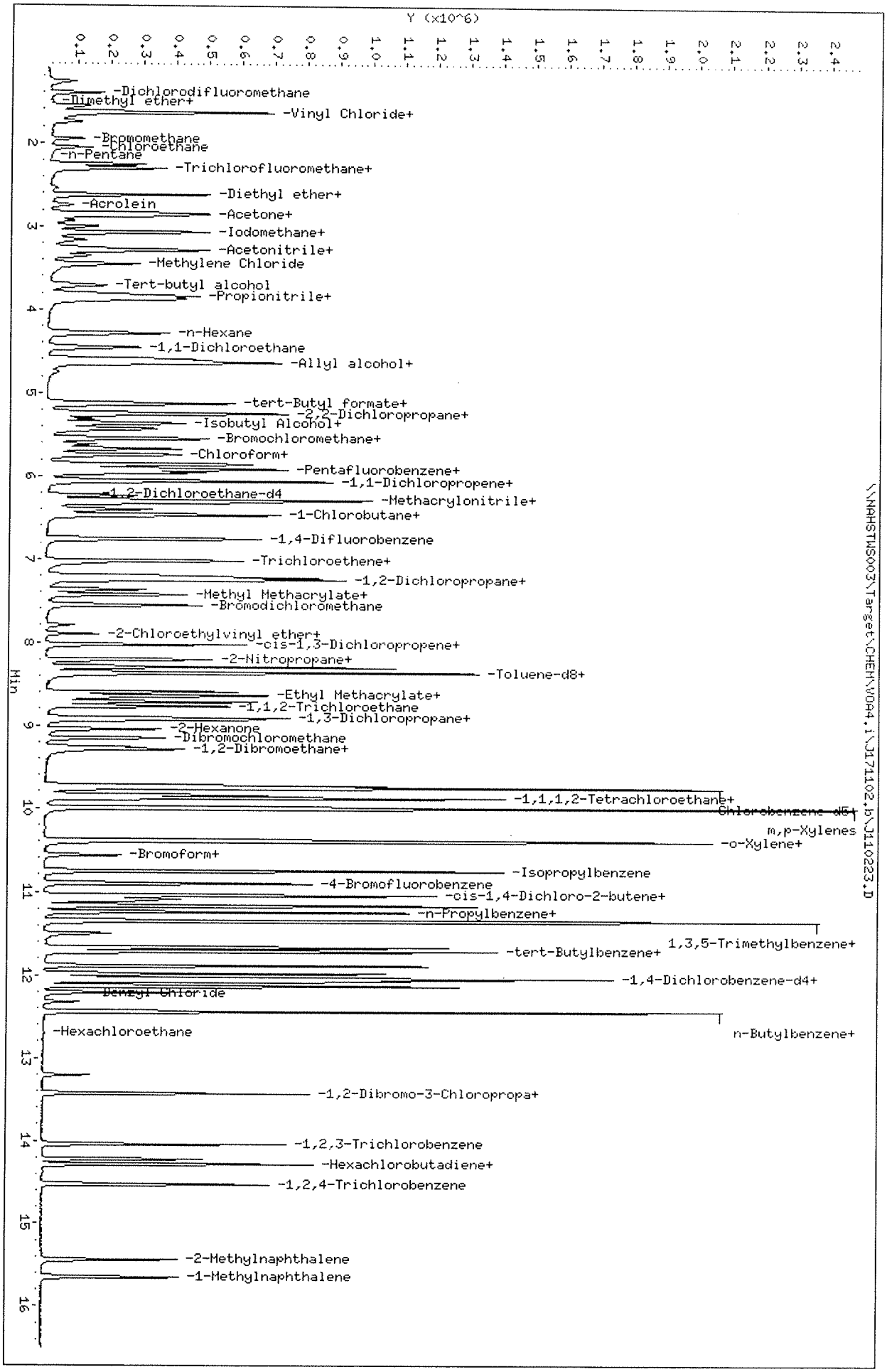
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| 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) |
|---|---|---|---|---|---|---|---|---|
| | 31 1,1,1-Trichloroethane | 97 | 5.861 | 5.861 | (0.983) | 285059 | 62.3096 | 62.30 |
| * | 1 Pentafluorobenzene | 168 | 5.961 | 5.961 | (1.000) | 321228 | 50.0000 | |
| $ | 30 Dibromofluoromethane | 113 | 5.854 | 5.861 | (0.982) | 142643 | 51.0666 | 51.06 |
| * | 36 1,4-Difluorobenzene | 114 | 6.755 | 6.762 | (1.000) | 513740 | 50.0000 | |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 6.233 | 6.233 | (1.046) | 178319 | 50.2971 | 50.29 |
| * | 47 Chlorobenzene-d5 | 117 | 9.729 | 9.729 | (1.000) | 488167 | 50.0000 | |
| $ | 48 Toluene-d8 | 98 | 8.292 | 8.292 | (0.852) | 591235 | 49.5300 | 49.53 |
| $ | 69 4-Bromofluorobenzene | 95 | 10.902 | 10.902 | (1.121) | 262763 | 54.3835 | 54.38 |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 12.053 | 12.053 | (1.000) | 254513 | 50.0000 | |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 11.052 | 11.052 | (0.917) | 190695 | 41.5425 | 41.54 |
| | 53 1,1,2-Trichloroethane | 83 | 8.771 | 8.771 | (0.902) | 136034 | 50.3036 | 50.30 |
| | 32 1,1-Dichloropropene | 75 | 6.061 | 6.061 | (0.897) | 249966 | 58.9218 | 58.92 |
| | 22 1,1-Dichloroethane | 63 | 4.460 | 4.460 | (0.748) | 342336 | 56.2481 | 56.24 |
| | 11 1,1-Dichloroethene | 96 | 2.844 | 2.844 | (0.477) | 151463 | 55.5666 | 55.56 |
| | 90 1,2,4-Trichlorobenzene | 180 | 14.527 | 14.527 | (1.205) | 189836 | 51.5830 | 51.58 |
| | 89 1,2-Dibromo-3-Chloropropane | 75 | 13.433 | 13.433 | (1.114) | 38326 | 51.6381 | 51.63 |
| | 57 1,2-Dibromoethane | 107 | 9.257 | 9.258 | (0.951) | 157530 | 48.8557 | 48.85 |
| | 88 1,2-Dichlorobenzene | 146 | 12.439 | 12.439 | (1.032) | 355275 | 45.9905 | 45.99 |
| | 33 1,2-Dichloroethane | 62 | 6.319 | 6.319 | (0.935) | 272229 | 56.9575 | 56.95 |
| | 42 1,2-Dichloropropane | 63 | 7.255 | 7.248 | (1.074) | 202494 | 55.7082 | 55.70 |
| | 83 1,3-Dichlorobenzene | 146 | 11.982 | 11.989 | (0.994) | 377984 | 46.1305 | 46.13 |
| | 84 1,4-Dichlorobenzene | 146 | 12.075 | 12.075 | (1.002) | 377605 | 43.6764 | 43.67 |

Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110223.D
Report Date: 06-Feb-2018 17:02

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 24 | 2-Butanone | 43 | 5.310 | 5.311 | (0.891) | 164944 | 113.762 | 113.76 |
| 52 | 2-Hexanone | 43 | 9.043 | 9.043 | (0.929) | 246650 | 110.619 | 110.61 |
| 45 | 4-Methyl-2-Pentanone | 43 | 8.199 | 8.206 | (0.843) | 380330 | 115.035 | 115.03 |
| 10 | Acetone | 43 | 2.922 | 2.930 | (0.490) | 106034 | 111.483 | 111.48 |
| 37 | Benzene | 78 | 6.290 | 6.290 | (0.931) | 762370 | 55.5418 | 55.54 |
| 39 | Bromodichloromethane | 83 | 7.556 | 7.556 | (1.119) | 248606 | 57.3784 | 57.37 |
| 66 | Bromoform | 173 | 10.566 | 10.573 | (1.086) | 107656 | 50.0071 | 50.00 |
| 6 | Bromomethane | 94 | 1.950 | 1.943 | (0.327) | 61679 | 36.7849 | 36.78 |
| 19 | Carbon Disulfide | 76 | 3.065 | 3.065 | (0.514) | 867556 | 118.741 | 118.74 |
| 34 | Carbon Tetrachloride | 117 | 6.054 | 6.054 | (0.896) | 237685 | 54.0649 | 54.06 |
| 59 | Chlorobenzene | 112 | 9.758 | 9.758 | (1.003) | 511246 | 49.7903 | 49.79 |
| 7 | Chloroethane | 64 | 2.050 | 2.043 | (0.344) | 132342 | 54.7596 | 54.75 |
| 28 | Chloroform | 83 | 5.668 | 5.675 | (0.951) | 313720 | 56.8850 | 56.88 |
| 3 | Chloromethane | 50 | 1.549 | 1.550 | (0.260) | 268842 | 47.1460 | 47.14 |
| 27 | cis-1,2-Dichloroethene | 96 | 5.253 | 5.253 | (0.881) | 204812 | 53.8087 | 53.80 |
| 46 | cis-1,3-Dichloropropene | 75 | 8.020 | 8.028 | (1.187) | 294379 | 56.6051 | 56.60 |
| 55 | Dibromochloromethane | 129 | 9.150 | 9.157 | (0.940) | 186588 | 50.7769 | 50.77 |
| 2 | Dichlorodifluoromethane | 85 | 1.399 | 1.399 | (0.235) | 160390 | 50.5947 | 50.59 |
| 61 | Ethylbenzene | 106 | 9.879 | 9.880 | (1.015) | 284670 | 50.7571 | 50.75 |
| 67 | Isopropylbenzene | 105 | 10.759 | 10.759 | (1.106) | 828136 | 52.0181 | 52.01 |
| 17 | Methylene Chloride | 84 | 3.451 | 3.452 | (0.579) | 184770 | 54.1550 | 54.15 |
| 56 | Tetrachloroethene | 164 | 8.907 | 8.907 | (0.915) | 150122 | 51.8822 | 51.88 |
| 50 | Toluene | 91 | 8.356 | 8.364 | (0.859) | 802612 | 50.3093 | 50.30 |
| 20 | trans-1,2-Dichloroethene | 96 | 3.838 | 3.830 | (0.644) | 185607 | 56.4329 | 56.43 |
| 51 | trans-1,3-Dichloropropene | 75 | 8.020 | 8.028 | (1.187) | 294379 | 56.6051 | 56.60 |
| 38 | Trichloroethene | 130 | 7.019 | 7.019 | (1.039) | 195684 | 56.7773 | 56.77 |
| 8 | Trichlorofluoromethane | 101 | 2.300 | 2.300 | (0.386) | 254487 | 59.7734 | 59.77 |
| 5 | Vinyl Chloride | 62 | 1.657 | 1.657 | (0.278) | 229925 | 54.8573 | 54.85 |
| 62 | m,p-Xylenes | 106 | 10.001 | 10.001 | (1.028) | 690623 | 100.365 | 100.36 |
| 63 | o-Xylene | 106 | 10.387 | 10.387 | (1.068) | 344568 | 50.7471 | 50.74 |
| M 95 | Xylenes (total) | 106 | | | | 1035191 | 151.113 | 151.11 |
| 71 | 1,2,3-Trichloropropane | 75 | 11.081 | 11.088 | (0.919) | 212606 | 44.7468 | 44.74 |
| 93 | 1,2,3-Trichlorobenzene | 182 | 14.048 | 14.048 | (1.166) | 201402 | 48.8721 | 48.87 |
| 79 | 1,2,4-Trimethylbenzene | 105 | 11.717 | 11.717 | (0.972) | 684463 | 46.8335 | 46.83 |
| 75 | 1,3,5-Trimethylbenzene | 105 | 11.345 | 11.345 | (0.941) | 659835 | 45.8402 | 45.84 |
| 26 | 2,2-Dichloropropane | 77 | 5.239 | 5.239 | (0.879) | 222764 | 57.6945 | 57.69 |
| 54 | 1,3-Dichloropropane | 76 | 8.929 | 8.936 | (0.918) | 280724 | 49.1853 | 49.18 |
| 76 | 2-Chlorotoluene | 91 | 11.245 | 11.245 | (0.933) | 604863 | 46.5323 | 46.53 |
| 77 | 4-Chlorotoluene | 91 | 11.352 | 11.353 | (0.942) | 694027 | 45.9229 | 45.92 |
| 82 | p-Isopropyltoluene | 119 | 12.032 | 12.039 | (0.998) | 645043 | 47.8128 | 47.81 |
| 29 | Bromochloromethane | 128 | 5.539 | 5.547 | (0.929) | 87505 | 52.1966 | 52.19 |
| 74 | Bromobenzene | 156 | 11.045 | 11.045 | (0.916) | 208320 | 44.2052 | 44.20 |
| 44 | Dibromomethane | 93 | 7.370 | 7.370 | (1.091) | 105055 | 54.0249 | 54.02 |
| 91 | Hexachlorobutadiene | 225 | 14.227 | 14.227 | (1.180) | 84186 | 48.0593 | 48.05 |
| 73 | n-Propylbenzene | 91 | 11.167 | 11.167 | (0.926) | 936014 | 47.2383 | 47.23 |
| 87 | n-Butylbenzene | 91 | 12.439 | 12.439 | (1.032) | 540559 | 50.2197 | 50.21 |
| 81 | sec-Butylbenzene | 105 | 11.717 | 11.717 | (0.972) | 684463 | 46.8335 | 46.83 |
| 92 | Naphthalene | 128 | 14.284 | 14.284 | (1.185) | 562721 | 50.6436 | 50.64 |
| 78 | tert-Butylbenzene | 119 | 11.667 | 11.667 | (0.968) | 538609 | 47.2477 | 47.24 |
| 60 | 1,1,1,2-Tetrachloroethane | 131 | 9.844 | 9.844 | (1.012) | 177612 | 49.0155 | 49.01 |
| 64 | Styrene | 104 | 10.401 | 10.402 | (1.069) | 598544 | 50.7470 | 50.74 |


Y (x10^6)
0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3 2.4
Min
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
-Dichlorodifluoromethane
-Dimethyl ether+
-Vinyl Chloride+
-Bromomethane
-Chloroethane
-n-Pentane
-Trichlorofluoromethane+
-Diethyl ether+
-Acrolein
-Acetone+
-Iodomethane+
-Acetonitrile+
-Methylene Chloride
-Tert-butyl alcohol
-Propionitrile+
-n-Hexane
-1,1-Dichloroethane
-Allyl alcohol+
-tert-Butyl formate+
-2,2-Dichloropropane+
-Isobutyl Alcohol+
-Bromochloromethane+
-Chloroform+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane-d4
-Methacrylonitrile+
-1-Chlorobutane+
-1,4-Difluorobenzene
-Trichloroethene+
-1,2-Dichloropropane+
-Methyl Methacrylate+
-Bromodichloromethane
-2-Chloroethylvinyl ether+
-cis-1,3-Dichloropropene+
-2-Nitropropane+
-Toluene-d8+
-Ethyl Methacrylate+
-1,1,2-Trichloroethane
-1,3-Dichloropropane+
-2-Hexanone
-Dibromochloromethane
-1,2-Dibromoethane+
-1,1,1,2-Tetrachloroethane+
Chlorobenzene-d5+
m,p-Xylenes
-o-Xylene+
-Bromoform+
-Isopropylbenzene
-4-Bromofluorobenzene
-cis-1,4-Dichloro-2-butene+
-n-Propylbenzene+
1,3,5-Trimethylbenzene+
-tert-Butylbenzene+
-1,4-Dichlorobenzene-d4+
Benzyl Chloride
-Hexachloroethane
n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa+
-1,2,3-Trichlorobenzene
-Hexachlorobutadiene+
-1,2,4-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene
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Date : 02-NOV-2017 19:29
Client ID: HS17101441-20HSD
Sample Info: HS17101441-20HSD;HS17101441-20HSD;3;;HSD
Purge Volume: 5.0
Column phase: DB624
Instrument: WOA4.i
Operator: AP
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110228.D
Report Date: 06-Feb-2018 17:02

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110228.D
Lab Smp Id: CCV_END Client Smp ID: CCV_END
Inj Date : 02-NOV-2017 21:36
Operator : AP Inst ID: VOA4.i
Smp Info : CCV_END;CCV_END;2;;
Misc Info : HS160050001;WATER;0;1;
Comment :
Method : \\nahstws003\Target\CHEM\VOA4.i\J171102.b\8260LLW.m
Meth Date : 06-Feb-2018 17:02 VOA4.i Quant Type: ISTD
Cal Date : 02-NOV-2017 13:53 Cal File: J110210.D
Als bottle: 30 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.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) |
|---|---|---|---|---|---|---|---|---|
| | 31 1,1,1-Trichloroethane | 97 | 5.861 | 5.861 | (0.983) | 292529 | 50.0000 | 65.30 |
| * | 1 Pentafluorobenzene | 168 | 5.961 | 5.961 | (1.000) | 314544 | 50.0000 | |
| $ | 30 Dibromofluoromethane | 113 | 5.861 | 5.861 | (0.983) | 142252 | 50.0000 | 52.02 |
| * | 36 1,4-Difluorobenzene | 114 | 6.762 | 6.762 | (1.000) | 508934 | 50.0000 | |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 6.226 | 6.226 | (1.044) | 170074 | 50.0000 | 48.97 |
| * | 47 Chlorobenzene-d5 | 117 | 9.729 | 9.729 | (1.000) | 481174 | 50.0000 | |
| $ | 48 Toluene-d8 | 98 | 8.292 | 8.292 | (0.852) | 591025 | 50.0000 | 50.26 |
| $ | 69 4-Bromofluorobenzene | 95 | 10.902 | 10.902 | (1.121) | 263097 | 50.0000 | 55.27 |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 12.046 | 12.046 | (1.000) | 252995 | 50.0000 | |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 11.052 | 11.052 | (0.917) | 193709 | 50.0000 | 42.45 |
| | 53 1,1,2-Trichloroethane | 83 | 8.771 | 8.771 | (0.902) | 133426 | 50.0000 | 50.05 |
| | 32 1,1-Dichloropropene | 75 | 6.061 | 6.061 | (0.896) | 262145 | 50.0000 | 62.37 |
| | 22 1,1-Dichloroethane | 63 | 4.460 | 4.460 | (0.748) | 353114 | 50.0000 | 59.25 |
| | 11 1,1-Dichloroethene | 96 | 2.844 | 2.844 | (0.477) | 166888 | 50.0000 | 62.52 |
| | 90 1,2,4-Trichlorobenzene | 180 | 14.527 | 14.527 | (1.206) | 174113 | 50.0000 | 47.53 |
| | 89 1,2-Dibromo-3-Chloropropane | 75 | 13.433 | 13.433 | (1.115) | 35930 | 50.0000 | 48.66 |
| | 57 1,2-Dibromoethane | 107 | 9.257 | 9.257 | (0.951) | 163196 | 50.0000 | 51.34 |
| | 88 1,2-Dichlorobenzene | 146 | 12.439 | 12.439 | (1.033) | 361110 | 50.0000 | 47.02 |
| | 33 1,2-Dichloroethane | 62 | 6.319 | 6.319 | (0.934) | 278743 | 50.0000 | 58.87 |
| | 42 1,2-Dichloropropane | 63 | 7.255 | 7.255 | (1.073) | 207862 | 50.0000 | 57.72 |
| | 83 1,3-Dichlorobenzene | 146 | 11.982 | 11.982 | (0.995) | 384092 | 50.0000 | 47.15 |
| | 84 1,4-Dichlorobenzene | 146 | 12.075 | 12.075 | (1.002) | 382240 | 50.0000 | 44.47 |

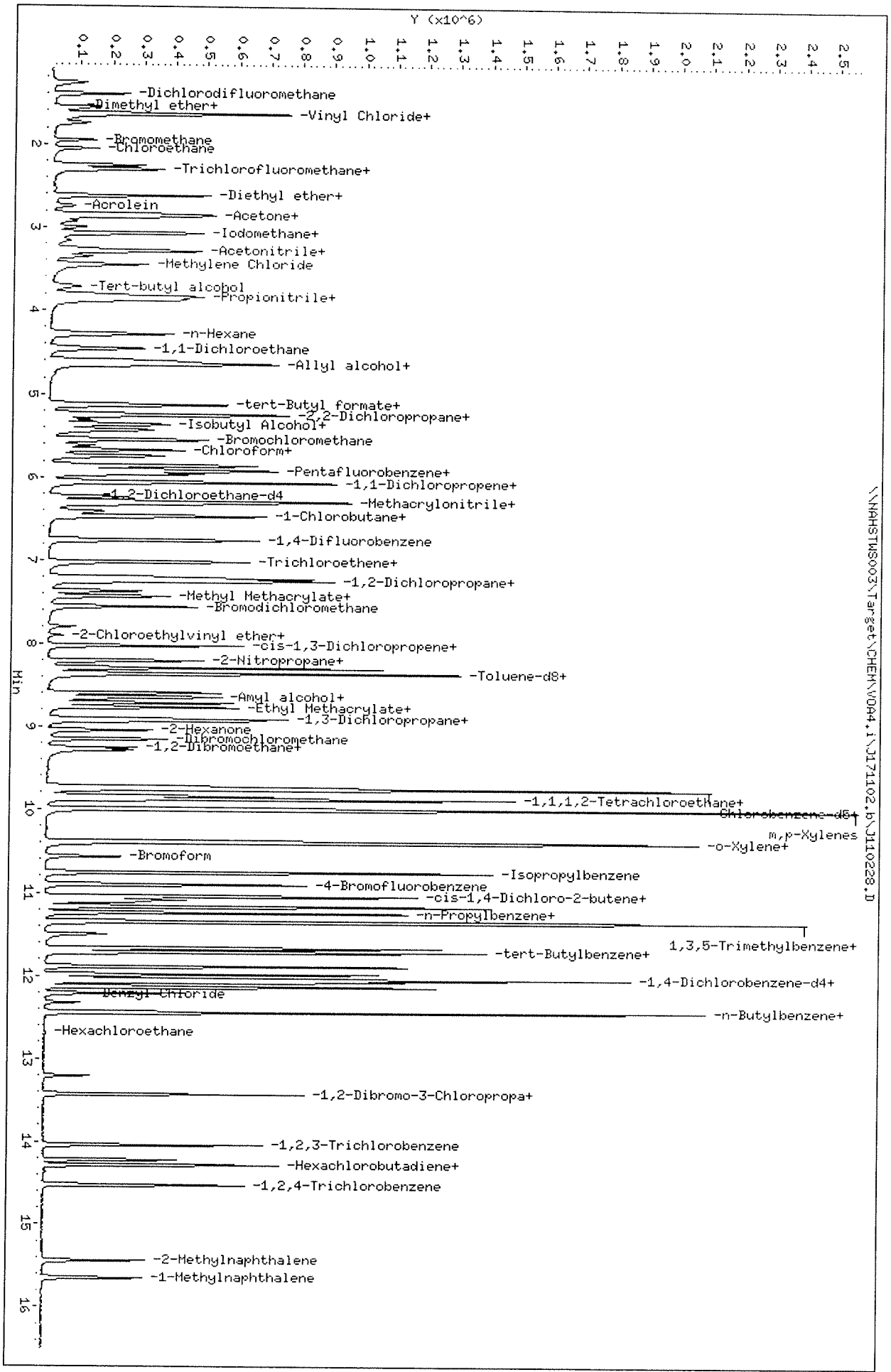
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Report Date: 06-Feb-2018 17:02

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) | |
|---|---|---|---|---|---|---|---|---|---|
| 24 | 2-Butanone | 43 | 5.310 | 5.310 | (0.891) | 154838 | 100.000 | 109.06 | |
| 52 | 2-Hexanone | 43 | 9.043 | 9.043 | (0.929) | 235658 | 100.000 | 107.22 | |
| 45 | 4-Methyl-2-Pentanone | 43 | 8.206 | 8.206 | (0.843) | 362359 | 100.000 | 111.19 | |
| 10 | Acetone | 43 | 2.929 | 2.929 | (0.491) | 101753 | 100.000 | 109.22 | |
| 37 | Benzene | 78 | 6.290 | 6.290 | (0.930) | 783112 | 50.0000 | 57.59 | |
| 39 | Bromodichloromethane | 83 | 7.556 | 7.556 | (1.117) | 256066 | 50.0000 | 59.65 | |
| 66 | Bromoform | 173 | 10.573 | 10.573 | (1.087) | 110086 | 50.0000 | 51.87 | |
| 6 | Bromomethane | 94 | 1.950 | 1.950 | (0.327) | 86517 | 50.0000 | 52.69 | |
| 19 | Carbon Disulfide | 76 | 3.072 | 3.072 | (0.515) | 868545 | 100.000 | 121.40 | |
| 34 | Carbon Tetrachloride | 117 | 6.054 | 6.054 | (0.895) | 256250 | 50.0000 | 58.83 | |
| 59 | Chlorobenzene | 112 | 9.758 | 9.758 | (1.003) | 533208 | 50.0000 | 52.68 | |
| 7 | Chloroethane | 64 | 2.050 | 2.050 | (0.344) | 140140 | 50.0000 | 59.21 | |
| 28 | Chloroform | 83 | 5.668 | 5.668 | (0.951) | 317559 | 50.0000 | 58.80 | |
| 3 | Chloromethane | 50 | 1.549 | 1.549 | (0.260) | 239560 | 50.0000 | 42.90 | |
| 27 | cis-1,2-Dichloroethene | 96 | 5.253 | 5.253 | (0.881) | 210496 | 50.0000 | 56.47 | |
| 46 | cis-1,3-Dichloropropene | 75 | 8.020 | 8.020 | (1.186) | 302957 | 50.0000 | 58.80 | |
| 55 | Dibromochloromethane | 129 | 9.157 | 9.157 | (0.941) | 187412 | 50.0000 | 51.74 | |
| 2 | Dichlorodifluoromethane | 85 | 1.399 | 1.399 | (0.235) | 211636 | 50.0000 | 68.17 | |
| 61 | Ethylbenzene | 106 | 9.879 | 9.879 | (1.015) | 296580 | 50.0000 | 53.64 | |
| 67 | Isopropylbenzene | 105 | 10.759 | 10.759 | (1.106) | 848096 | 50.0000 | 54.04 | |
| 17 | Methylene Chloride | 84 | 3.451 | 3.451 | (0.579) | 189792 | 50.0000 | 56.80 | |
| 56 | Tetrachloroethene | 164 | 8.907 | 8.907 | (0.915) | 151528 | 50.0000 | 53.12 | |
| 50 | Toluene | 91 | 8.356 | 8.356 | (0.859) | 836523 | 50.0000 | 53.19 | |
| 20 | trans-1,2-Dichloroethene | 96 | 3.837 | 3.837 | (0.644) | 190912 | 50.0000 | 59.27 | |
| 51 | trans-1,3-Dichloropropene | 75 | 8.020 | 8.020 | (1.186) | 302957 | 50.0000 | 58.80 | |
| 38 | Trichloroethene | 130 | 7.026 | 7.026 | (1.039) | 201358 | 50.0000 | 58.97 | |
| 8 | Trichlorofluoromethane | 101 | 2.300 | 2.300 | (0.386) | 282376 | 50.0000 | 67.73 | |
| 5 | Vinyl Chloride | 62 | 1.657 | 1.657 | (0.278) | 249493 | 50.0000 | 60.79 | |
| 62 | m,p-Xylenes | 106 | 10.001 | 10.001 | (1.028) | 720469 | 100.000 | 106.22 | |
| 63 | o-Xylene | 106 | 10.387 | 10.387 | (1.068) | 351558 | 50.0000 | 52.52 | |
| M 95 | Xylenes (total) | 106 | | | | 1072027 | 150.000 | | (a) |
| 71 | 1,2,3-Trichloropropane | 75 | 11.088 | 11.088 | (0.920) | 206257 | 50.0000 | 43.67 | |
| 93 | 1,2,3-Trichlorobenzene | 182 | 14.048 | 14.048 | (1.166) | 194846 | 50.0000 | 47.56 | |
| 79 | 1,2,4-Trimethylbenzene | 105 | 11.717 | 11.717 | (0.973) | 688648 | 50.0000 | 47.40 | |
| 75 | 1,3,5-Trimethylbenzene | 105 | 11.345 | 11.345 | (0.942) | 677444 | 50.0000 | 47.34 | |
| 26 | 2,2-Dichloropropane | 77 | 5.239 | 5.239 | (0.879) | 217369 | 50.0000 | 57.49 | |
| 54 | 1,3-Dichloropropane | 76 | 8.928 | 8.928 | (0.918) | 283556 | 50.0000 | 50.40 | |
| 76 | 2-Chlorotoluene | 91 | 11.245 | 11.245 | (0.934) | 607843 | 50.0000 | 47.04 | |
| 77 | 4-Chlorotoluene | 91 | 11.352 | 11.352 | (0.942) | 700187 | 50.0000 | 46.60 | |
| 82 | p-Isopropyltoluene | 119 | 12.032 | 12.032 | (0.999) | 646943 | 50.0000 | 48.24 | |
| 29 | Bromochloromethane | 128 | 5.539 | 5.539 | (0.929) | 90298 | 50.0000 | 55.00 | |
| 74 | Bromobenzene | 156 | 11.045 | 11.045 | (0.917) | 211844 | 50.0000 | 45.22 | |
| 44 | Dibromomethane | 93 | 7.370 | 7.370 | (1.090) | 104783 | 50.0000 | 54.39 | |
| 91 | Hexachlorobutadiene | 225 | 14.227 | 14.227 | (1.181) | 74032 | 50.0000 | 42.51 | |
| 73 | n-Propylbenzene | 91 | 11.166 | 11.166 | (0.927) | 956375 | 50.0000 | 48.55 | |
| 87 | n-Butylbenzene | 91 | 12.439 | 12.439 | (1.033) | 536560 | 50.0000 | 50.14 | |
| 81 | sec-Butylbenzene | 105 | 11.717 | 11.717 | (0.973) | 688648 | 50.0000 | 47.40 | |
| 92 | Naphthalene | 128 | 14.284 | 14.284 | (1.186) | 515430 | 50.0000 | 46.66 | |
| 78 | tert-Butylbenzene | 119 | 11.667 | 11.667 | (0.969) | 545741 | 50.0000 | 48.16 | |
| 60 | 1,1,1,2-Tetrachloroethane | 131 | 9.844 | 9.844 | (1.012) | 180931 | 50.0000 | 50.65 | |
| 64 | Styrene | 104 | 10.401 | 10.401 | (1.069) | 615985 | 50.0000 | 52.98 | |

Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110228.D
Report Date: 06-Feb-2018 17:02

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).


Y (x10^6)
0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3 2.4 2.5
Min
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
-Dichlorodifluoromethane
-Dimethyl ether+
-Vinyl Chloride+
-Bromomethane
-Chloroethane
-Trichlorofluoromethane+
-Diethyl ether+
-Acrolein
-Acetone+
-Iodomethane+
-Acetonitrile+
-Methylene Chloride
-Tert-butyl alcohol
-Propionitrile+
-n-Hexane
-1,1-Dichloroethane
-Allyl alcohol+
-tert-Butyl formate+
-2,2-Dichloropropane+
-Isobutyl Alcohol+
-Bromochloromethane
-Chloroform+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane-d4
-Methacrylonitrile+
-1-Chlorobutane+
-1,4-Difluorobenzene
-Trichloroethene+
-1,2-Dichloropropane+
-Methyl Methacrylate+
-Bromodichloromethane
-2-Chloroethylvinyl ether+
-cis-1,3-Dichloropropene+
-2-Nitropropane+
-Toluene-d8+
-Amyl alcohol+
-Ethyl Methacrylate+
-1,3-Dichloropropane+
-2-Hexanone
-Dibromochloromethane
-1,2-Dibromoethane+
-1,1,1,2-Tetrachloroethane+
Chlorobenzene-d5+
m,p-Xylenes
-o-Xylene+
-Bromoform
-Isopropylbenzene
-4-Bromofluorobenzene
-cis-1,4-Dichloro-2-butene+
-n-Propylbenzene+
1,3,5-Trimethylbenzene+
-tert-Butylbenzene+
-1,4-Dichlorobenzene-d4+
Benzyl Chloride
-n-Butylbenzene+
-Hexachloroethane
-1,2-Dibromo-3-Chloropropa+
-1,2,3-Trichlorobenzene
-Hexachlorobutadiene+
-1,2,4-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene
\\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110228.D
Data File: \\NAHSTWS003\Target\CHEM\VOA4.i\J171102.b\J110228.D
Date : 02-NOV-2017 21:36
Client ID: CCV_END
Sample Info: CCV_END;CCV_END;2;;
Purge Volume: 5.0
Column phase: DB624
Instrument: VOA4.i
Operator: AP
Column diameter: 0.18

# Wet Chemistry Raw Data

Bhate Environmental Associates, Inc.
Project: GROUNDWATER TREATMENT PLANT
BI-WEEKLY SAMPLES
ALS WO# HS17110083

Sequence: 110217
Operator: alshs.nouser

HS17110083



Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\09-2017
Timebase: ICS2100
#Samples: 78

Created: 11/2/2017 11:08:37 AM by alshs.nouser
Last Update: 11/3/2017 3:08:29 PM by alshs.nouser

| No. | Name | Comment | Type | Pos. | Dil. Factor | Inj. Vol. | *Initial_Vol_Wt | *Final_Volume | Method |
|---|---|---|---|---|---|---|---|---|---|
| 1 | STD1 | | Standard | 1 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 2 | STD2 | | Standard | 2 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 3 | STD3 | | Standard | 3 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 4 | STD4 | | Standard | 4 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 5 | STD5 | | Standard | 5 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 6 | STD6 | | Standard | 6 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 7 | ICV | | Unknown | 7 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 8 | ICB | | Unknown | 8 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 9 | CCV | | Unknown | 1 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 10 | CCB | | Unknown | 2 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 11 | WBLKW1-110217 | | Unknown | 5 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 12 | WLCSW1-110217 | | Unknown | 6 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 13 | WLCSDW1-110217 | | Unknown | 7 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 14 | HS17101624-01 | | Unknown | 8 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 15 | HS17101623-01 | | Unknown | 9 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 16 | HS17101623-02 | | Unknown | 10 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 17 | HS17110079-01 | | Unknown | 11 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 18 | HS17110079-01MS | | Unknown | 12 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 19 | HS17110079-01MSD | | Unknown | 13 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 20 | HS17110079-01DF20 | | Unknown | 14 | 20.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 21 | CCV1 | | Unknown | 3 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 22 | CCB | | Unknown | 4 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 23 | HS17110083-01DF20 | | Unknown | 15 | 20.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 24 | HS17110095-01 | | Unknown | 16 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 25 | HS17110095-01DF20 | | Unknown | 17 | 20.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 26 | HS17110109-01DF20 | | Unknown | 18 | 20.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 27 | DIH2O | | Unknown | 19 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 28 | HS17110112-04 | | Unknown | 20 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 29 | DIH2O | | Unknown | 21 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 30 | HS17101654-01 | | Unknown | 22 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 31 | HS17101654-01DF200 | | Unknown | 23 | 200.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 32 | CCB | | Unknown | 2 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 33 | CCV | | Unknown | 1 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 34 | HS17101654-02 | | Unknown | 25 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 35 | HS17101654-02DF200 | | Unknown | 26 | 200.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 36 | HS17101654-03 | | Unknown | 27 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 37 | HS17101654-03MS | | Unknown | 28 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 38 | HS17101654-03MSD | | Unknown | 29 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 39 | HS17101654-03DF200 | | Unknown | 30 | 200.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 40 | HS17101654-04 | | Unknown | 31 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 41 | HS17101654-04DF10 | | Unknown | 32 | 10.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 42 | HS17101654-05 | | Unknown | 33 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |

Sequence: 110217
Operator: alshs.nouser



Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\09-2017
Timebase: ICS2100
#Samples: 78

Created: 11/2/2017 11:08:37 AM by alshs.nouser
Last Update: 11/3/2017 3:08:29 PM by alshs.nouser

| No. | Name | Status | Inj. Date/Time | Program |
|---|---|---|---|---|
| 1 | STD1 | Finished | 9/11/2017 1:39:59 PM | Anions Gradient Program |
| 2 | STD2 | Finished | 9/11/2017 1:54:32 PM | Anions Gradient Program |
| 3 | STD3 | Finished | 9/11/2017 2:09:04 PM | Anions Gradient Program |
| 4 | STD4 | Finished | 9/11/2017 2:23:37 PM | Anions Gradient Program |
| 5 | STD5 | Finished | 9/11/2017 2:38:10 PM | Anions Gradient Program |
| 6 | STD6 | Finished | 9/11/2017 2:52:43 PM | Anions Gradient Program |
| 7 | ICV | Finished | 9/11/2017 3:07:16 PM | Anions Gradient Program |
| 8 | ICB | Finished | 9/11/2017 3:21:49 PM | Anions Gradient Program |
| 9 | CCV | Finished | 11/2/2017 11:38:28 AM | Anions Gradient Program |
| 10 | CCB | Finished | 11/2/2017 11:53:01 AM | Anions Gradient Program |
| 11 | WBLKW1-110217 | Finished | 11/2/2017 12:07:34 PM | Anions Gradient Program |
| 12 | WLCSW1-110217 | Finished | 11/2/2017 12:22:06 PM | Anions Gradient Program |
| 13 | WLCSDW1-110217 | Finished | 11/2/2017 12:36:38 PM | Anions Gradient Program |
| 14 | HS17101624-01 | Finished | 11/2/2017 12:51:11 PM | Anions Gradient Program |
| 15 | HS17101623-01 | Finished | 11/2/2017 1:05:43 PM | Anions Gradient Program |
| 16 | HS17101623-02 | Finished | 11/2/2017 1:20:16 PM | Anions Gradient Program |
| 17 | HS17110079-01 | Finished | 11/2/2017 1:34:48 PM | Anions Gradient Program |
| 18 | HS17110079-01MS | Finished | 11/2/2017 1:49:21 PM | Anions Gradient Program |
| 19 | HS17110079-01MSD | Finished | 11/2/2017 2:03:54 PM | Anions Gradient Program |
| 20 | HS17110079-01DF20 | Finished | 11/2/2017 2:18:27 PM | Anions Gradient Program |
| 21 | CCV1 | Finished | 11/2/2017 2:33:00 PM | Anions Gradient Program |
| 22 | CCB | Finished | 11/2/2017 2:47:33 PM | Anions Gradient Program |
| 23 | HS17110083-01DF20 | Finished | 11/2/2017 3:02:06 PM | Anions Gradient Program |
| 24 | HS17110095-01 | Finished | 11/2/2017 3:16:39 PM | Anions Gradient Program |
| 25 | HS17110095-01DF20 | Finished | 11/2/2017 3:31:12 PM | Anions Gradient Program |
| 26 | HS17110109-01DF20 | Finished | 11/2/2017 3:45:45 PM | Anions Gradient Program |
| 27 | DIH2O | Finished | 11/2/2017 4:00:18 PM | Anions Gradient Program |
| 28 | HS17110112-04 | Finished | 11/2/2017 4:14:50 PM | Anions Gradient Program |
| 29 | DIH2O | Finished | 11/2/2017 4:29:23 PM | Anions Gradient Program |
| 30 | HS17101654-01 | Finished | 11/2/2017 4:43:55 PM | Anions Gradient Program |
| 31 | HS17101654-01DF200 | Finished | 11/2/2017 4:58:27 PM | Anions Gradient Program |
| 32 | CCB | Finished | 11/2/2017 5:13:00 PM | Anions Gradient Program |
| 33 | CCV | Finished | 11/2/2017 5:27:33 PM | Anions Gradient Program |
| 34 | HS17101654-02 | Finished | 11/2/2017 5:56:39 PM | Anions Gradient Program |
| 35 | HS17101654-02DF200 | Finished | 11/2/2017 6:11:12 PM | Anions Gradient Program |
| 36 | HS17101654-03 | Finished | 11/2/2017 6:25:44 PM | Anions Gradient Program |
| 37 | HS17101654-03MS | Finished | 11/2/2017 6:40:17 PM | Anions Gradient Program |
| 38 | HS17101654-03MSD | Finished | 11/2/2017 6:54:50 PM | Anions Gradient Program |
| 39 | HS17101654-03DF200 | Finished | 11/2/2017 7:09:22 PM | Anions Gradient Program |
| 40 | HS17101654-04 | Finished | 11/2/2017 7:23:56 PM | Anions Gradient Program |
| 41 | HS17101654-04DF10 | Finished | 11/2/2017 7:38:29 PM | Anions Gradient Program |
| 42 | HS17101654-05 | Finished | 11/2/2017 7:53:02 PM | Anions Gradient Program |

Sequence: 110217
Operator: alshs.nouser



Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\09-2017
Timebase: ICS2100
#Samples: 78

Created: 11/2/2017 11:08:37 AM by alshs.nouser
Last Update: 11/3/2017 3:08:29 PM by alshs.nouser

| No. | Name | GUID |
|---|---|---|
| 1 | STD1 | ff1d63be-971f-11e7-b6d6-dc3e14f594d5 |
| 2 | STD2 | 846d1ada-9722-11e7-b6d6-dc3e14f594d5 |
| 3 | STD3 | 8c2e4184-9724-11e7-b6d6-dc3e14f594d5 |
| 4 | STD4 | 9479af70-9726-11e7-b6d6-dc3e14f594d5 |
| 5 | STD5 | 9cd5cdaf-9728-11e7-b6d6-dc3e14f594d5 |
| 6 | STD6 | a51c76f1-972a-11e7-b6d6-dc3e14f594d5 |
| 7 | ICV | ad54d235-972c-11e7-b6d6-dc3e14f594d5 |
| 8 | ICB | b59dddcc-972e-11e7-b6d6-dc3e14f594d5 |
| 9 | CCV | a261d2bc-bfeb-11e7-b6d8-a1ac6b506e3a |
| 10 | CCB | 27b71834-bfee-11e7-b6d8-a1ac6b506e3a |
| 11 | WBLKW1-110217 | 3015c53c-bff0-11e7-b6d8-a1ac6b506e3a |
| 12 | WLCSW1-110217 | 38720fec-bff2-11e7-b6d8-a1ac6b506e3a |
| 13 | WLCSDW1-110217 | 401b8ad4-bff4-11e7-b6d8-a1ac6b506e3a |
| 14 | HS17101624-01 | 483513e4-bff6-11e7-b6d8-a1ac6b506e3a |
| 15 | HS17101623-01 | 4fea7a84-bff8-11e7-b6d8-a1ac6b506e3a |
| 16 | HS17101623-02 | 57f3532c-bffa-11e7-b6d8-a1ac6b506e3a |
| 17 | HS17110079-01 | 604f9ddc-bffc-11e7-b6d8-a1ac6b506e3a |
| 18 | HS17110079-01MS | 685d3b34-bffe-11e7-b6d8-a1ac6b506e3a |
| 19 | HS17110079-01MSD | 706613dc-c000-11e7-b6d8-a1ac6b506e3a |
| 20 | HS17110079-01DF20 | 78c25e8c-c002-11e7-b6d8-a1ac6b506e3a |
| 21 | CCV1 | 8119e48c-c004-11e7-b6d8-a1ac6b506e3a |
| 22 | CCB | 896a4384-c006-11e7-b6d8-a1ac6b506e3a |
| 23 | HS17110083-01DF20 | 91c1c984-c008-11e7-b6d8-a1ac6b506e3a |
| 24 | HS17110095-01 | 9a16ed2c-c00a-11e7-b6d8-a1ac6b506e3a |
| 25 | HS17110095-01DF20 | a2759a34-c00c-11e7-b6d8-a1ac6b506e3a |
| 26 | HS17110109-01DF20 | aacf828c-c00e-11e7-b6d8-a1ac6b506e3a |
| 27 | DIH2O | b32bcd3c-c010-11e7-b6d8-a1ac6b506e3a |
| 28 | HS17110112-04 | bb8a7a44-c012-11e7-b6d8-a1ac6b506e3a |
| 29 | DIH2O | c33fe0e4-c014-11e7-b6d8-a1ac6b506e3a |
| 30 | HS17101654-01 | cb54a544-c016-11e7-b6d8-a1ac6b506e3a |
| 31 | HS17101654-01DF200 | d33c1d1c-c018-11e7-b6d8-a1ac6b506e3a |
| 32 | CCB | db5a6adc-c01a-11e7-b6d8-a1ac6b506e3a |
| 33 | CCV | e3aac9d4-c01c-11e7-b6d8-a1ac6b506e3a |
| 34 | HS17101654-02 | f44db760-c020-11e7-b6d8-a1ac6b506e3a |
| 35 | HS17101654-02DF200 | fc936ff9-c022-11e7-b6d8-a1ac6b506e3a |
| 36 | HS17101654-03 | 04a82984-c025-11e7-b6d8-a1ac6b506e3a |
| 37 | HS17101654-03MS | 0cfd4d2c-c027-11e7-b6d8-a1ac6b506e3a |
| 38 | HS17101654-03MSD | 155e5c8c-c029-11e7-b6d8-a1ac6b506e3a |
| 39 | HS17101654-03DF200 | 1d378654-c02b-11e7-b6d8-a1ac6b506e3a |
| 40 | HS17101654-04 | 2583209c-c02d-11e7-b6d8-a1ac6b506e3a |
| 41 | HS17101654-04DF10 | 2e2e18a4-c02f-11e7-b6d8-a1ac6b506e3a |
| 42 | HS17101654-05 | 368f2804-c031-11e7-b6d8-a1ac6b506e3a |

Sequence: 110217
Operator: alshs.nouser



Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\09-2017
Timebase: ICS2100
#Samples: 78

Created: 11/2/2017 11:08:37 AM by alshs.nouser
Last Update: 11/3/2017 3:08:29 PM by alshs.nouser

| No. | Name | Comment | Type | Pos. | Dil. Factor | Inj. Vol. | *Initial_Vol_Wt | *Final_Volume | Method |
|---|---|---|---|---|---|---|---|---|---|
| 43 | DIH2O | | Unknown | 34 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 44 | CCV1 | | Unknown | 3 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 45 | CCB | | Unknown | 4 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 46 | HS17101654-06 | | Unknown | 35 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 47 | HS17101654-06DF50 | | Unknown | 36 | 50.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 48 | HS17101654-07 | | Unknown | 37 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 49 | HS17101654-07DF10 | | Unknown | 38 | 10.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 50 | HS17101654-08DF10 | | Unknown | 39 | 10.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 51 | HS17101654-08DF100 | | Unknown | 40 | 100.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 52 | HS17101654-09DF5 | | Unknown | 41 | 5.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 53 | DIH2O | | Unknown | 42 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 54 | CCV | | Unknown | 1 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 55 | CCB | | Unknown | 2 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 56 | CCV | | Unknown | 1 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 57 | CCB | | Unknown | 2 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 58 | HS17101654-02 | | Unknown | 25 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 59 | HS17101654-02DF200 | | Unknown | 26 | 200.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 60 | HS17101654-03 | | Unknown | 27 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 61 | HS17101654-03MS | | Unknown | 28 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 62 | HS17101654-03MSD | | Unknown | 29 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 63 | HS17101654-03DF200 | | Unknown | 30 | 200.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 64 | HS17101654-04DF10 | | Unknown | 31 | 10.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 65 | HS17101654-04DF100 | | Unknown | 32 | 100.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 66 | HS17101654-05 | | Unknown | 33 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 67 | DIH2O | | Unknown | 34 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 68 | CCV1 | | Unknown | 3 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 69 | CCB | | Unknown | 4 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 70 | HS17101654-06DF10 | | Unknown | 35 | 10.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 71 | HS17101654-06DF50 | | Unknown | 36 | 50.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 72 | HS17101654-07 | | Unknown | 37 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 73 | HS17101654-07DF10 | | Unknown | 38 | 10.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 74 | HS17101654-08DF10 | | Unknown | 39 | 10.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 75 | HS17101654-08DF100 | | Unknown | 40 | 100.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 76 | HS17101654-09DF5 | | Unknown | 41 | 5.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 77 | CCV | | Unknown | 1 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |
| 78 | CCB | | Unknown | 2 | 1.0000 | 10.0 | 1.00 | 1.00 | 091117 |

Sequence: 110217
Operator: alshs.nouser



Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\09-2017
Timebase: ICS2100
#Samples: 78

Created: 11/2/2017 11:08:37 AM by alshs.nouser
Last Update: 11/3/2017 3:08:29 PM by alshs.nouser

| No. | Name | Status | Inj. Date/Time | Program |
|---|---|---|---|---|
| 43 | DIH2O | Finished | 11/2/2017 8:07:35 PM | Anions Gradient Program |
| 44 | CCV1 | Finished | 11/2/2017 8:22:07 PM | Anions Gradient Program |
| 45 | CCB | Finished | 11/2/2017 8:36:40 PM | Anions Gradient Program |
| 46 | HS17101654-06 | Finished | 11/2/2017 8:51:13 PM | Anions Gradient Program |
| 47 | HS17101654-06DF50 | Finished | 11/2/2017 9:05:45 PM | Anions Gradient Program |
| 48 | HS17101654-07 | Finished | 11/2/2017 9:20:18 PM | Anions Gradient Program |
| 49 | HS17101654-07DF10 | Finished | 11/2/2017 9:34:51 PM | Anions Gradient Program |
| 50 | HS17101654-08DF10 | Finished | 11/2/2017 9:49:24 PM | Anions Gradient Program |
| 51 | HS17101654-08DF100 | Finished | 11/2/2017 10:03:57 PM | Anions Gradient Program |
| 52 | HS17101654-09DF5 | Finished | 11/2/2017 10:18:30 PM | Anions Gradient Program |
| 53 | DIH2O | Finished | 11/2/2017 10:33:03 PM | Anions Gradient Program |
| 54 | CCV | Finished | 11/2/2017 10:47:36 PM | Anions Gradient Program |
| 55 | CCB | Finished | 11/2/2017 11:02:08 PM | Anions Gradient Program |
| 56 | CCV | Finished | 11/3/2017 9:09:12 AM | Anions Gradient Program |
| 57 | CCB | Finished | 11/3/2017 9:23:44 AM | Anions Gradient Program |
| 58 | HS17101654-02 | Finished | 11/3/2017 9:38:17 AM | Anions Gradient Program |
| 59 | HS17101654-02DF200 | Finished | 11/3/2017 9:52:49 AM | Anions Gradient Program |
| 60 | HS17101654-03 | Finished | 11/3/2017 10:07:22 AM | Anions Gradient Program |
| 61 | HS17101654-03MS | Finished | 11/3/2017 10:21:55 AM | Anions Gradient Program |
| 62 | HS17101654-03MSD | Finished | 11/3/2017 10:36:28 AM | Anions Gradient Program |
| 63 | HS17101654-03DF200 | Finished | 11/3/2017 10:51:01 AM | Anions Gradient Program |
| 64 | HS17101654-04DF10 | Finished | 11/3/2017 11:05:34 AM | Anions Gradient Program |
| 65 | HS17101654-04DF100 | Finished | 11/3/2017 11:20:07 AM | Anions Gradient Program |
| 66 | HS17101654-05 | Finished | 11/3/2017 11:34:39 AM | Anions Gradient Program |
| 67 | DIH2O | Finished | 11/3/2017 11:49:12 AM | Anions Gradient Program |
| 68 | CCV1 | Finished | 11/3/2017 12:03:45 PM | Anions Gradient Program |
| 69 | CCB | Finished | 11/3/2017 12:18:18 PM | Anions Gradient Program |
| 70 | HS17101654-06DF10 | Finished | 11/3/2017 12:32:51 PM | Anions Gradient Program |
| 71 | HS17101654-06DF50 | Finished | 11/3/2017 12:47:24 PM | Anions Gradient Program |
| 72 | HS17101654-07 | Finished | 11/3/2017 1:01:57 PM | Anions Gradient Program |
| 73 | HS17101654-07DF10 | Finished | 11/3/2017 1:16:30 PM | Anions Gradient Program |
| 74 | HS17101654-08DF10 | Finished | 11/3/2017 1:31:03 PM | Anions Gradient Program |
| 75 | HS17101654-08DF100 | Finished | 11/3/2017 1:45:36 PM | Anions Gradient Program |
| 76 | HS17101654-09DF5 | Finished | 11/3/2017 2:00:09 PM | Anions Gradient Program |
| 77 | CCV | Finished | 11/3/2017 2:28:03 PM | Anions Gradient Program |
| 78 | CCB | Finished | 11/3/2017 2:42:35 PM | Anions Gradient Program |

| | | | |
|---|---|---|---|
| Sequence: | 110217 | | Page 6 of 6 |
| Operator: | alshs.nouser | | Printed: 11/22/2017 8:39:53 AM |
| Title: | | | |
| Datasource: | DB7CGHK1_local | | |
| Location: | ICS2100\Sequences and Data\09-2017 | | |
| Timebase: | ICS2100 | Created: | 11/2/2017 11:08:37 AM by alshs.nouser |
| #Samples: | 78 | Last Update: | 11/3/2017 3:08:29 PM by alshs.nouser |

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| 43 | DIH2O | 3eedd50c-c033-11e7-b6d8-a1ac6b506e3a |
| 44 | CCV1 | 46acc50c-c035-11e7-b6d8-a1ac6b506e3a |
| 45 | CCB | 4ebcc4bc-c037-11e7-b6d8-a1ac6b506e3a |
| 46 | HS17101654-06 | 5729bfd4-c039-11e7-b6d8-a1ac6b506e3a |
| 47 | HS17101654-06DF50 | 5f755a1c-c03b-11e7-b6d8-a1ac6b506e3a |
| 48 | HS17101654-07 | 67be920c-c03d-11e7-b6d8-a1ac6b506e3a |
| 49 | HS17101654-07DF10 | 7016180c-c03f-11e7-b6d8-a1ac6b506e3a |
| 50 | HS17101654-08DF10 | 7877276c-c041-11e7-b6d8-a1ac6b506e3a |
| 51 | HS17101654-08DF100 | 8082626c-c043-11e7-b6d8-a1ac6b506e3a |
| 52 | HS17101654-09DF5 | 88d05f0c-c045-11e7-b6d8-a1ac6b506e3a |
| 53 | DIH2O | 912ca9bc-c047-11e7-b6d8-a1ac6b506e3a |
| 54 | CCV | 9994e024-c049-11e7-b6d8-a1ac6b506e3a |
| 55 | CCB | a18d0864-c04b-11e7-b6d8-a1ac6b506e3a |
| 56 | CCV | f2964c2c-c09f-11e7-b6d8-a1ac6b506e3a |
| 57 | CCB | 77dae13c-c0a2-11e7-b6d8-a1ac6b506e3a |
| 58 | HS17101654-02 | 80182d74-c0a4-11e7-b6d8-a1ac6b506e3a |
| 59 | HS17101654-02DF200 | 8819df14-c0a6-11e7-b6d8-a1ac6b506e3a |
| 60 | HS17101654-03 | 903105cc-c0a8-11e7-b6d8-a1ac6b506e3a |
| 61 | HS17101654-03MS | 988d507c-c0aa-11e7-b6d8-a1ac6b506e3a |
| 62 | HS17101654-03MSD | a0962924-c0ac-11e7-b6d8-a1ac6b506e3a |
| 63 | HS17101654-03DF200 | a8f273d4-c0ae-11e7-b6d8-a1ac6b506e3a |
| 64 | HS17101654-04DF10 | b14ebe84-c0b0-11e7-b6d8-a1ac6b506e3a |
| 65 | HS17101654-04DF100 | b9be1bf4-c0b2-11e7-b6d8-a1ac6b506e3a |
| 66 | HS17101654-05 | c1c49244-c0b4-11e7-b6d8-a1ac6b506e3a |
| 67 | DIH2O | ca19b5ec-c0b6-11e7-b6d8-a1ac6b506e3a |
| 68 | CCV1 | d25b67ae-c0b8-11e7-b6d8-a1ac6b506e3a |
| 69 | CCB | dab0f514-c0ba-11e7-b6d8-a1ac6b506e3a |
| 70 | HS17101654-06DF10 | e30ce794-c0bc-11e7-b6d8-a1ac6b506e3a |
| 71 | HS17101654-06DF50 | eb5881dc-c0be-11e7-b6d8-a1ac6b506e3a |
| 72 | HS17101654-07 | f3b007dc-c0c0-11e7-b6d8-a1ac6b506e3a |
| 73 | HS17101654-07DF10 | fc1d02f4-c0c2-11e7-b6d8-a1ac6b506e3a |
| 74 | HS17101654-08DF10 | 04178d8c-c0c5-11e7-b6d8-a1ac6b506e3a |
| 75 | HS17101654-08DF100 | 0c73d83c-c0c7-11e7-b6d8-a1ac6b506e3a |
| 76 | HS17101654-09DF5 | 14d022ec-c0c9-11e7-b6d8-a1ac6b506e3a |
| 77 | CCV | 7dc6ee54-c0cc-11e7-b6d8-a1ac6b506e3a |
| 78 | CCB | 02bcd60c-c0cf-11e7-b6d8-a1ac6b506e3a |

| STD | Vendor | ID | Lot | Exp | Analyte | Con (PPM) |
|---|---|---|---|---|---|---|
| Primary IC STD | Inorganic Ventures | 2970204315 | M2-MEB659406 | 07/18/18 | Br, Fl, NO3, NO3, o-PO4 | 100 |
| | | | | | CL, SO4 | 500 |
| Secondary IC STD | Inorganic Ventures | 2970202501 | K2-MEB640014 | ~~11/01/17~~ | Br, Fl, NO2, NO3, o-PO4 | 100 |
| | | | | | Cl, SO4 | 500 |
| Eluent | ThermoScientific | 74532 | 1.71072E+11 | 10/16/19 | | |

Analyst: JBA Prep Date: 09/11/2017 Inst: ICS-2100

ICAL

| Cal Levels (PPM) | STD ID | STD Exp Date | STOCK NAME | STOCK ID | STOCK EXP DATE | Vol Add (mL) | Final Vol (mL) | Analytes | Con (PPM) | Analytes | Con (PPM) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Inst STD IC | Inst STD IC 091117 | ~~9/12/2017~~ | Primary IC STD | 2970204315 | 7/18/2018 | 20 | 100 | Br, Fl, NO3, NO3, o-PO4 | 20 | CL, SO4 | 100 |

| Cal Level | Vol Added(mL) | Final Vol (mL) | STD ID | Exp Date | STOCK Name | Stock Exp Date | Stock ID | Br, Fl, NO3, NO3, o-PO4 conc, PPM | CL, SO4 Conc, PPM |
|---|---|---|---|---|---|---|---|---|---|
| Cal 0.1/0.5 PPM | 0.5 | 100 | ICAL 0.1- 091117 | ~~9/12/2017~~ | Inst STD IC | 07/18/18 | Inst STD IC 091117 | 0.1 | 0.50 |
| Cal 0.4/2.0 ppm | 2 | 100 | ICAL 0.4- 091117 | ~~9/12/2017~~ | Inst STD IC | 07/18/18 | Inst STD IC 091117 | 0.4 | 2.00 |
| Cal 2.0/10 PPM | 10 | 100 | ICAL 2.0- 091117 | ~~9/12/2017~~ | Inst STD IC | 07/18/18 | Inst STD IC 091117 | 2.0 | 10.0 |
| Cal 4.0/20 PPM | 20 | 100 | ICAL 4.0- 091117 | ~~9/12/2017~~ | Inst STD IC | 07/18/18 | Inst STD IC 091117 | 4.0 | 20.0 |
| Cal 10/50 PPM | 50 | 100 | ICAL 10.0- 091117 | ~~9/12/2017~~ | Inst STD IC | 07/18/18 | Inst STD IC 091117 | 10 | 50.0 |
| Cal 20/100 PPM | 20 | 100 | ICAL 20.0- 091117 | ~~9/12/2017~~ | Primary IC STD | 07/18/18 | 2970204315 | 20 | 100 |
| ICV | 0.4 | 10 | ICV 091117 | ~~9/12/2017~~ | Secondary IC STD | 07/18/18 | 2970202501 | 4.0 | 20.0 |
| Eluent | | | 74532 | | Eluent | 10/16/19 | 74532 | | |



Analyst: JBA Prep Date: 11/02/2017 Inst: ICS-2100

CCV

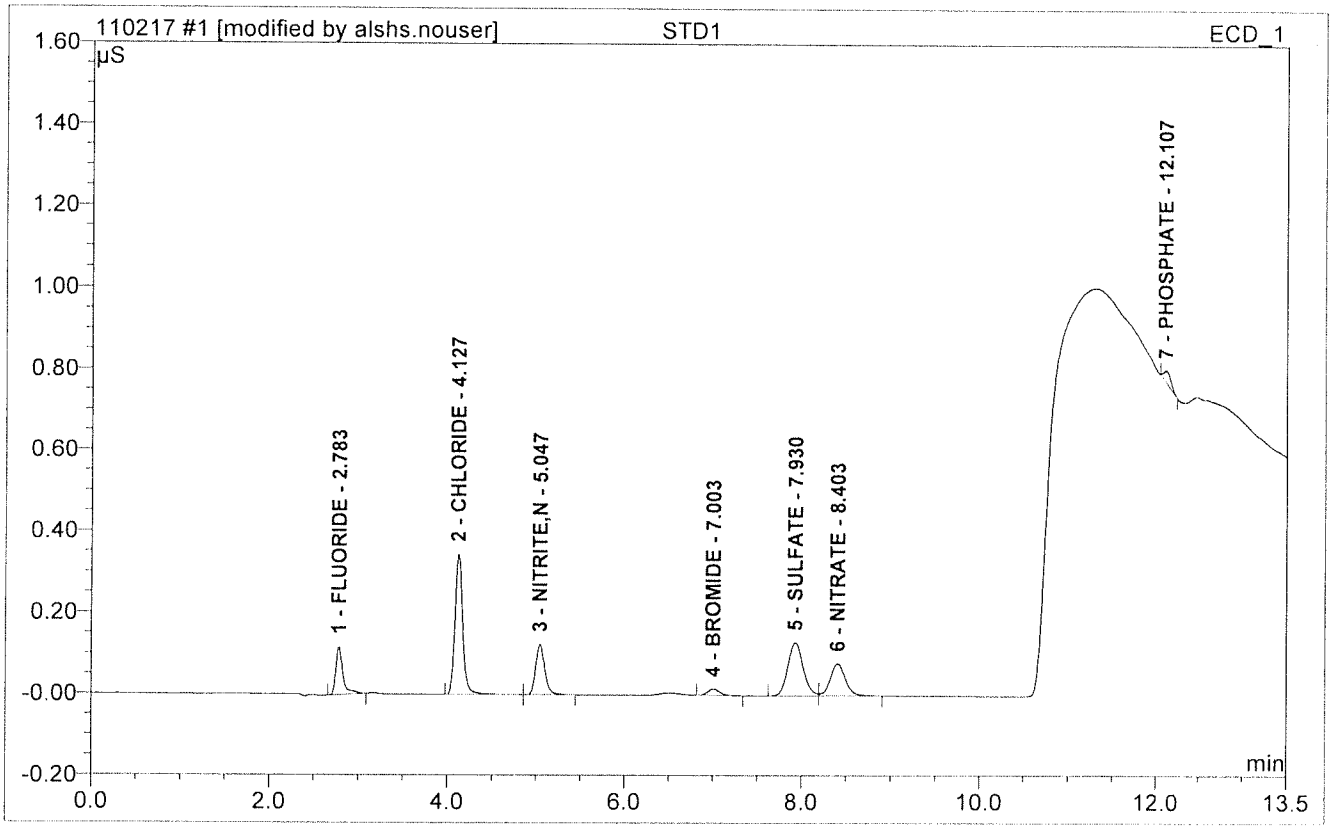
| Cal Level | Vol Added(mL) | Final Vol (mL) | STD ID | Exp Date | STOCK Name | Stock ID | Br, Fl, NO3, NO3, o-PO4 conc, PPM | CL, SO4 Conc, PPM |
|---|---|---|---|---|---|---|---|---|
| CCV/LCS/LCSD | 0.4 | 10 | CCV 110217 | ~~11/3/2017~~ | Primary IC STD | 2970204315 | 4.0 | 20.0 |
| MS/MSD | 0.2 | 10 | LCS 110217 | ~~11/3/2017~~ | Primary IC STD | 2970204315 | 2.0 | 10.0 |



00876935

# 1 STD1

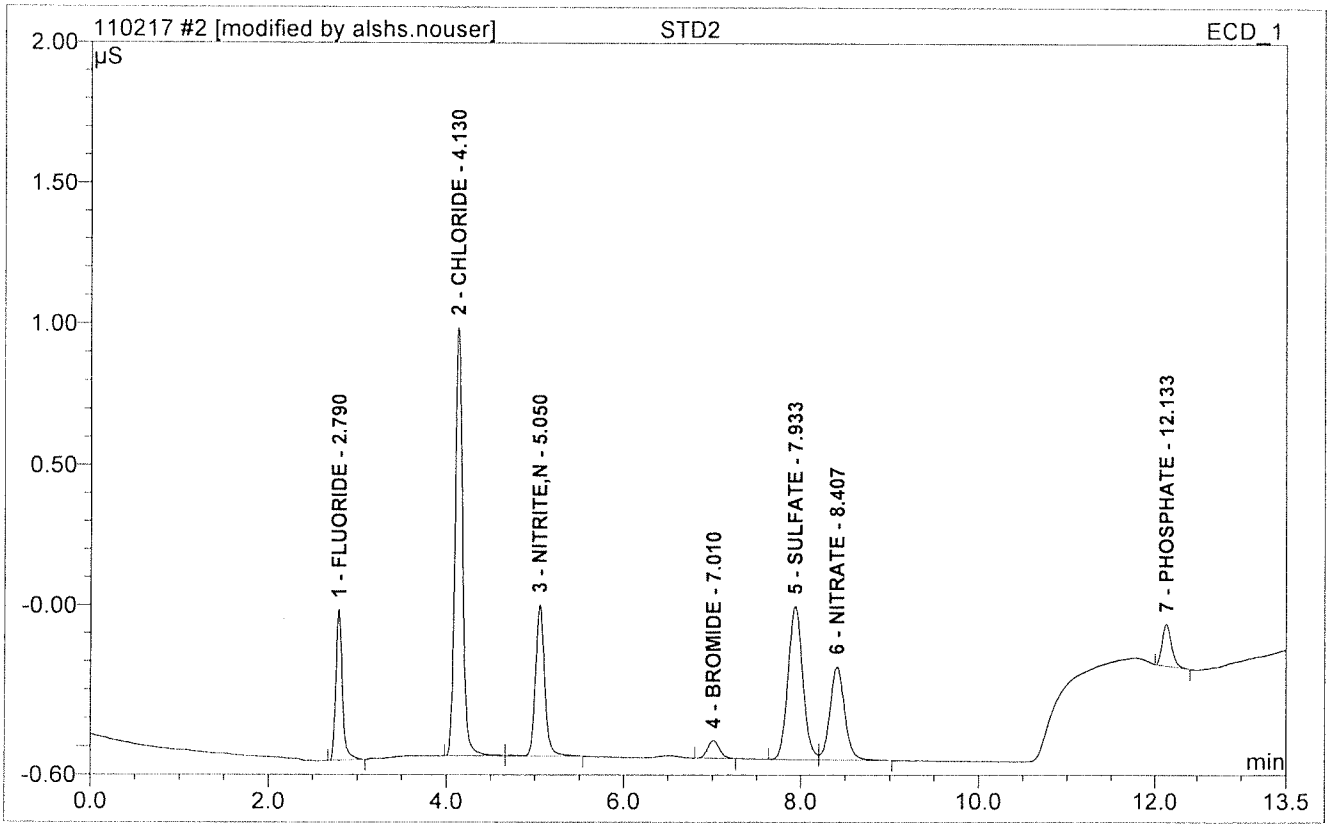
| | | | |
|---|---|---|---|
| *Sample Name:* | **STD1** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **1** | *Channel:* | **ECD_1** |
| *Sample Type:* | **standard** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **091117** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **9/11/2017 13:39** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.78 | FLUORIDE | 0.118 | 0.011 | 10.04 | 0.105 | 1. |
| 2 | 4.13 | CHLORIDE | 0.344 | 0.035 | 32.38 | 0.538 | 1. |
| 3 | 5.05 | NITRITE,N | 0.123 | 0.015 | 13.85 | 0.095 | 1. |
| 4 | 7.00 | BROMIDE | 0.016 | 0.002 | 2.28 | 0.131 | 1. |
| 5 | 7.93 | SULFATE | 0.131 | 0.026 | 24.31 | 0.559 | 1. |
| 6 | 8.40 | NITRATE | 0.079 | 0.015 | 14.45 | 0.119 | 1. |
| 7 | 12.11 | PHOSPHATE | 0.028 | 0.003 | 2.70 | 0.119 | 1. |
| **Total:** | | | 0.838 | 0.107 | 100.00 | 1.668 | |

# 2 STD2

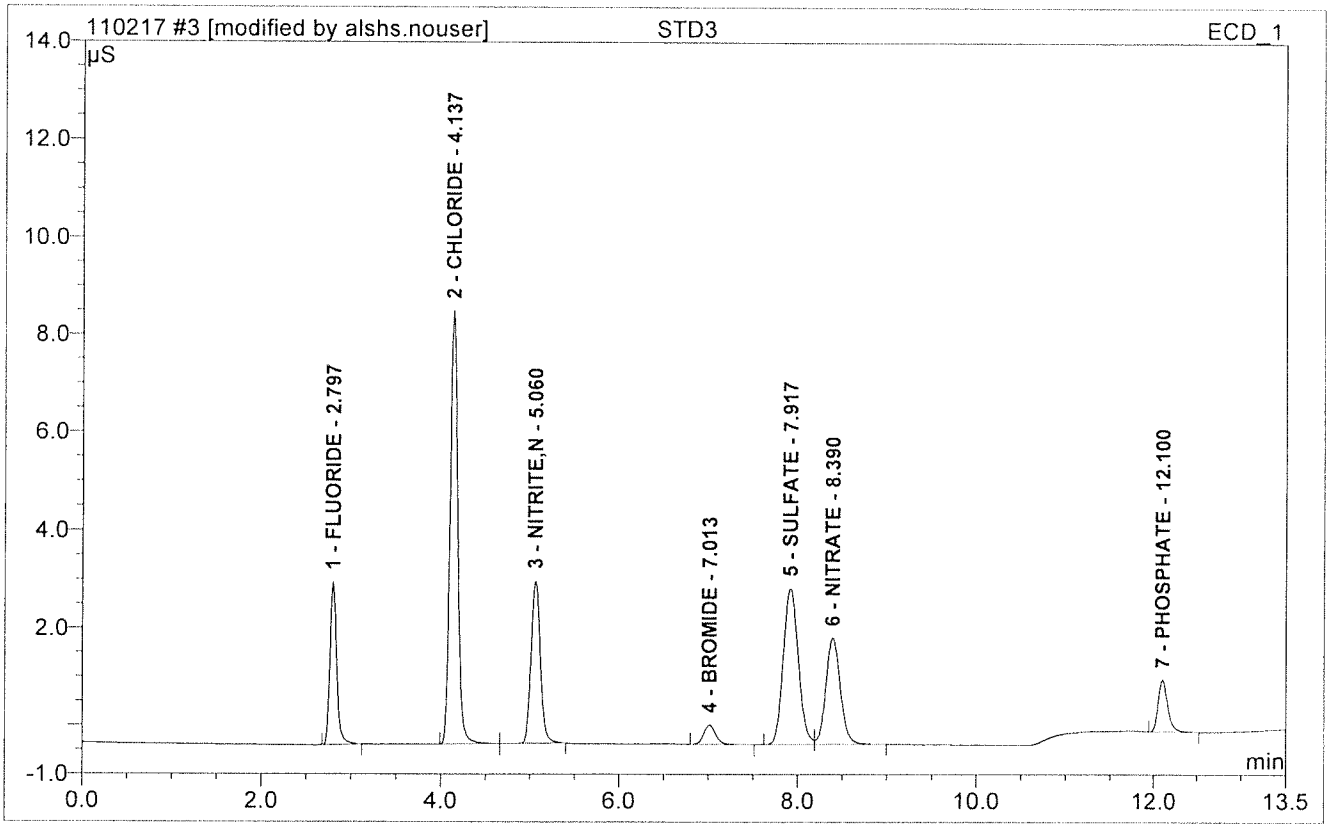
| | | | |
|---|---|---|---|
| *Sample Name:* | **STD2** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **2** | *Channel:* | **ECD_1** |
| *Sample Type:* | **standard** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **091117** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **9/11/2017 13:54** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.79 | FLUORIDE | 0.533 | 0.045 | 9.82 | 0.348 | 1. |
| 2 | 4.13 | CHLORIDE | 1.518 | 0.150 | 32.84 | 1.806 | 1. |
| 3 | 5.05 | NITRITE,N | 0.535 | 0.065 | 14.17 | 0.361 | 1. |
| 4 | 7.01 | BROMIDE | 0.063 | 0.010 | 2.13 | 0.329 | 1. |
| 5 | 7.93 | SULFATE | 0.542 | 0.106 | 23.09 | 1.776 | 1. |
| 6 | 8.41 | NITRATE | 0.329 | 0.063 | 13.84 | 0.332 | 1. |
| 7 | 12.13 | PHOSPHATE | 0.150 | 0.019 | 4.11 | 0.313 | 1. |
| **Total:** | | | 3.669 | 0.457 | 100.00 | 5.266 | |

# 3 STD3

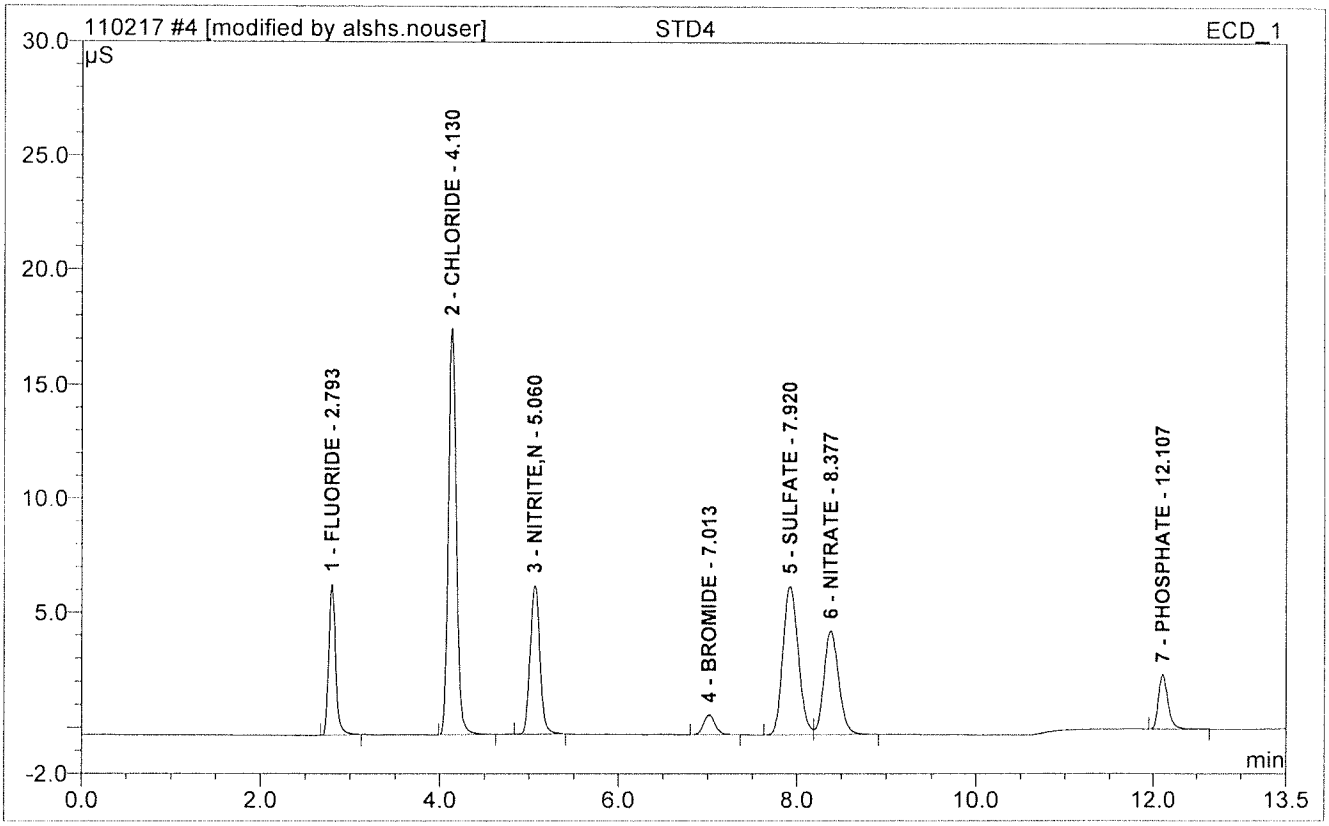
| | | | |
|---|---|---|---|
| *Sample Name:* | **STD3** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **3** | *Channel:* | **ECD_1** |
| *Sample Type:* | **standard** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **091117** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **9/11/2017 14:09** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.80 | FLUORIDE | 3.353 | 0.289 | 10.17 | 2.084 | 1. |
| 2 | 4.14 | CHLORIDE | 8.874 | 0.897 | 31.62 | 10.008 | 1. |
| 3 | 5.06 | NITRITE,N | 3.346 | 0.405 | 14.27 | 2.172 | 1. |
| 4 | 7.01 | BROMIDE | 0.398 | 0.062 | 2.17 | 1.740 | 1. |
| 5 | 7.92 | SULFATE | 3.221 | 0.631 | 22.23 | 9.819 | 1. |
| 6 | 8.39 | NITRATE | 2.198 | 0.417 | 14.71 | 1.910 | 1. |
| 7 | 12.10 | PHOSPHATE | 1.068 | 0.137 | 4.83 | 1.752 | 1. |
| **Total:** | | | 22.459 | 2.838 | 100.00 | 29.485 | |

# 4 STD4

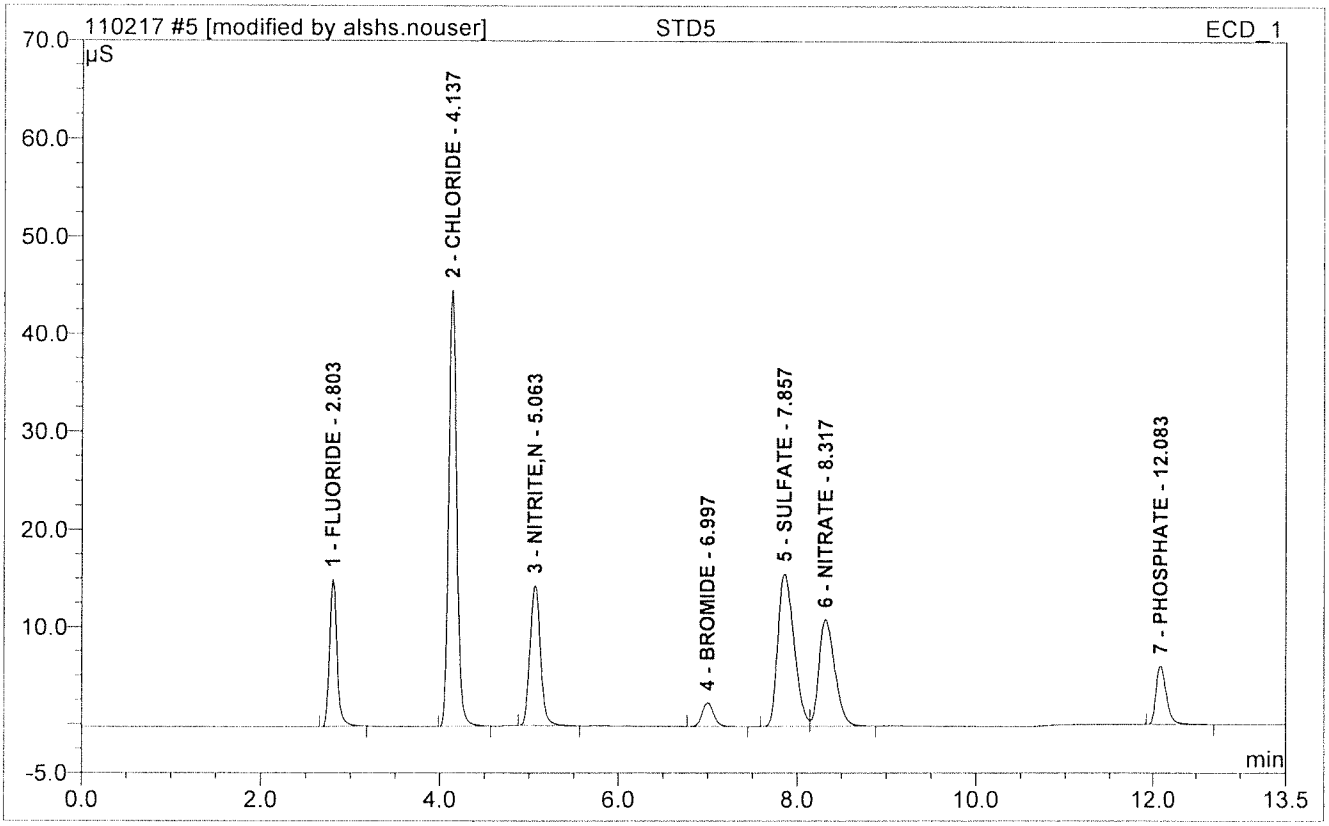
| | | | |
|---|---|---|---|
| *Sample Name:* | **STD4** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **4** | *Channel:* | **ECD_1** |
| *Sample Type:* | **standard** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **091117** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **9/11/2017 14:23** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.79 | FLUORIDE | 6.572 | 0.584 | 10.01 | 4.191 | 1. |
| 2 | 4.13 | CHLORIDE | 17.759 | 1.824 | 31.24 | 20.180 | 1. |
| 3 | 5.06 | NITRITE,N | 6.464 | 0.821 | 14.07 | 4.386 | 1. |
| 4 | 7.01 | BROMIDE | 0.876 | 0.132 | 2.27 | 3.659 | 1. |
| 5 | 7.92 | SULFATE | 6.451 | 1.295 | 22.20 | 19.997 | 1. |
| 6 | 8.38 | NITRATE | 4.490 | 0.876 | 15.00 | 3.951 | 1. |
| 7 | 12.11 | PHOSPHATE | 2.350 | 0.304 | 5.21 | 3.785 | 1. |
| **Total:** | | | 44.963 | 5.836 | 100.00 | 60.149 | |

# 5 STD5

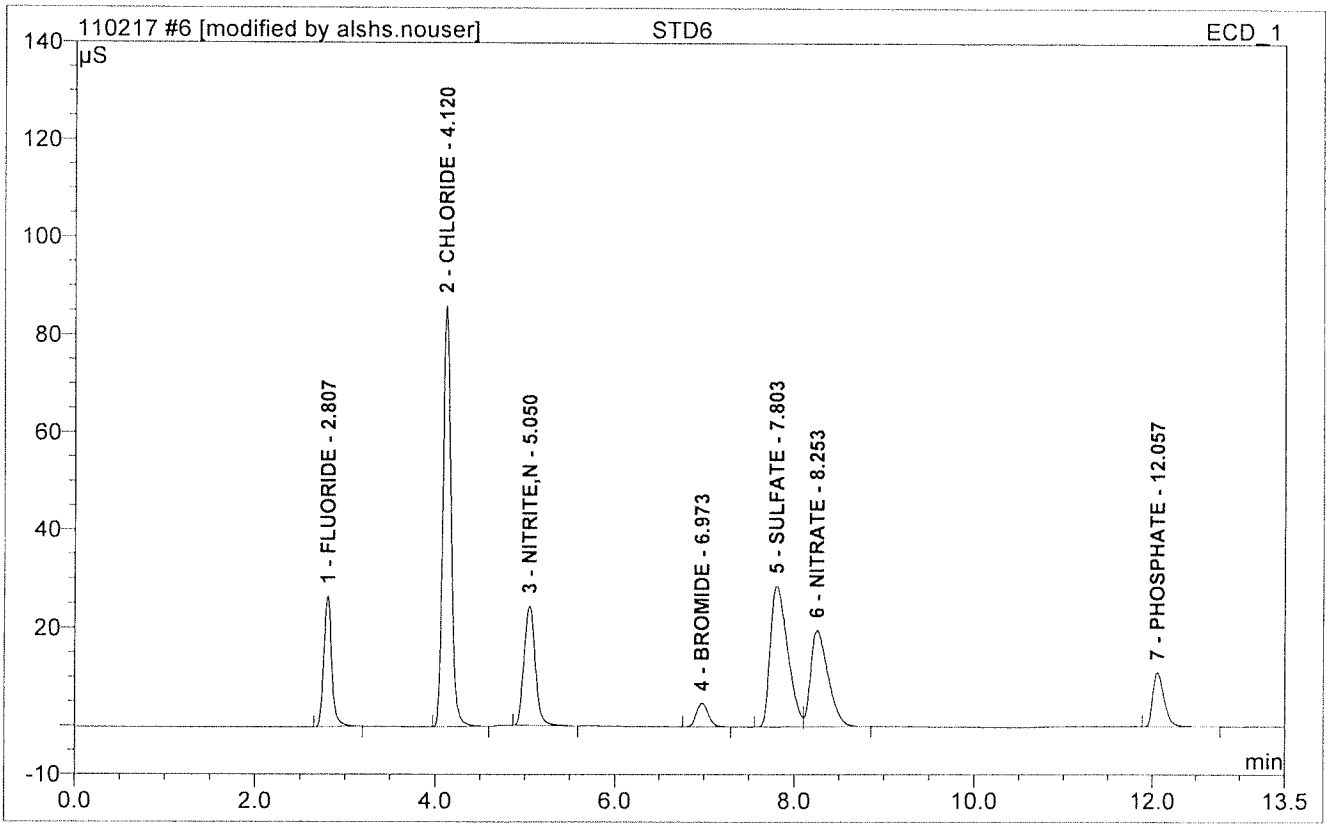
| | | | |
|---|---|---|---|
| *Sample Name:* | **STD5** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **5** | *Channel:* | **ECD_1** |
| *Sample Type:* | **standard** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **091117** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **9/11/2017 14:38** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.80 | FLUORIDE | 15.211 | 1.455 | 9.79 | 10.397 | 1. |
| 2 | 4.14 | CHLORIDE | 44.753 | 4.639 | 31.21 | 51.091 | 1. |
| 3 | 5.06 | NITRITE,N | 14.440 | 1.975 | 13.29 | 10.529 | 1. |
| 4 | 7.00 | BROMIDE | 2.444 | 0.371 | 2.50 | 10.147 | 1. |
| 5 | 7.86 | SULFATE | 15.763 | 3.315 | 22.31 | 50.927 | 1. |
| 6 | 8.32 | NITRATE | 11.013 | 2.275 | 15.31 | 10.183 | 1. |
| 7 | 12.08 | PHOSPHATE | 5.998 | 0.830 | 5.58 | 10.184 | 1. |
| **Total:** | | | 109.621 | 14.861 | 100.00 | 153.458 | |

# 6 STD6

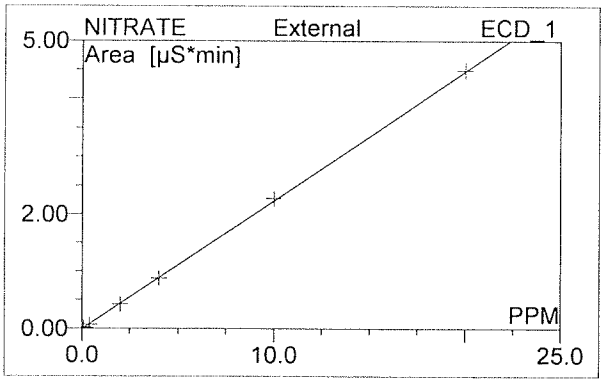
| | | | |
|---|---|---|---|
| *Sample Name:* | **STD6** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **6** | *Channel:* | **ECD_1** |
| *Sample Type:* | **standard** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **091117** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **9/11/2017 14:52** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |

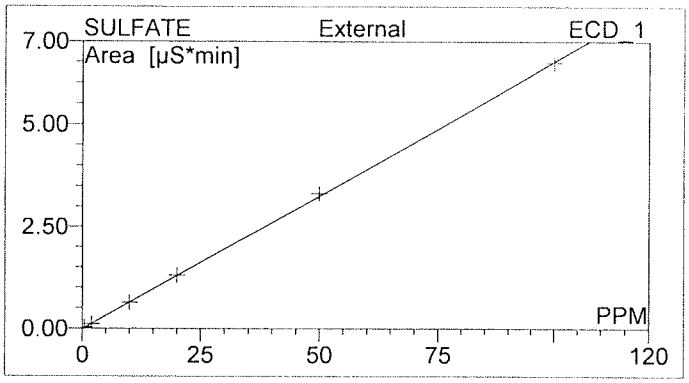


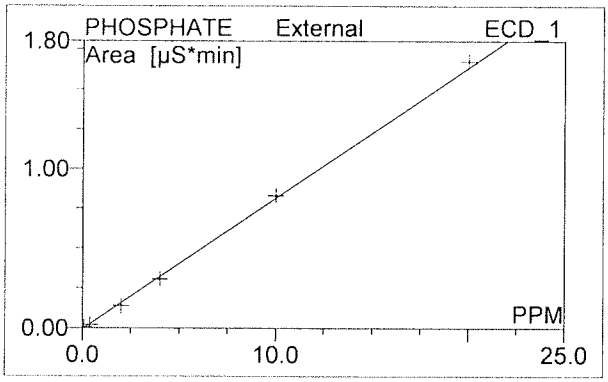

| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.81 | FLUORIDE | 26.654 | 2.723 | 9.49 | 19.427 | 1. |
| 2 | 4.12 | CHLORIDE | 86.222 | 8.991 | 31.33 | 98.877 | 1. |
| 3 | 5.05 | NITRITE,N | 24.345 | 3.582 | 12.48 | 19.080 | 1. |
| 4 | 6.97 | BROMIDE | 4.937 | 0.757 | 2.64 | 20.621 | 1. |
| 5 | 7.80 | SULFATE | 28.773 | 6.482 | 22.59 | 99.422 | 1. |
| 6 | 8.25 | NITRATE | 19.743 | 4.487 | 15.64 | 20.035 | 1. |
| 7 | 12.06 | PHOSPHATE | 11.105 | 1.673 | 5.83 | 20.454 | 1. |
| **Total:** | | | 201.778 | 28.695 | 100.00 | 297.916 | |

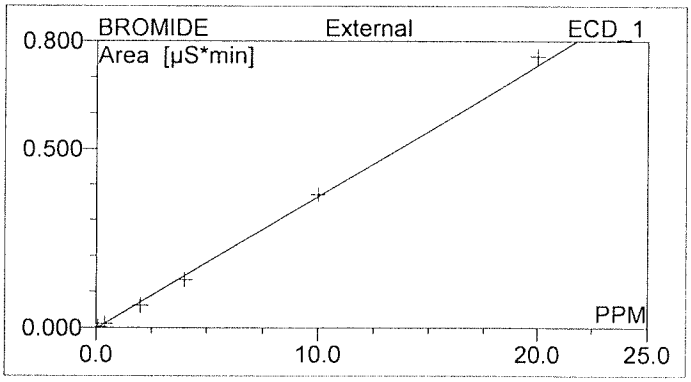
## 6 STD6

| | | | |
|---|---|---|---|
| *Sample Name:* | **STD6** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **6** | *Channel:* | **ECD_1** |
| *Sample Type:* | **standard** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **091117** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **9/11/2017 14:52** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |



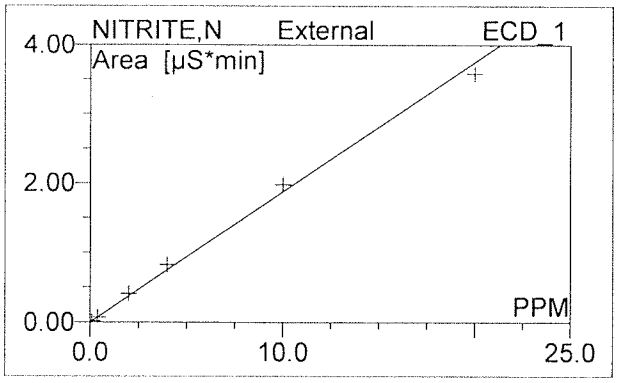



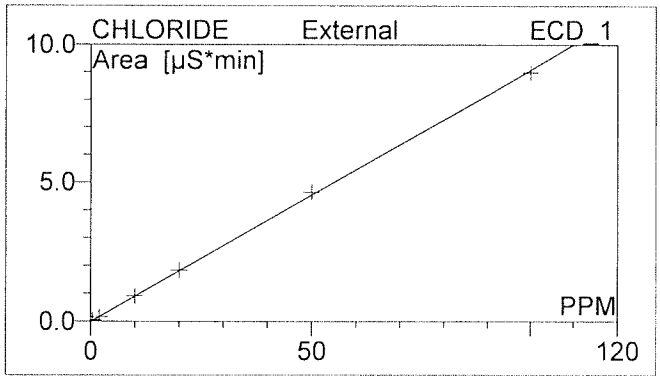

Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\09-2017\110217.SEQ\CD_1.CHL\6.acd".
The system cannot find the path specified.

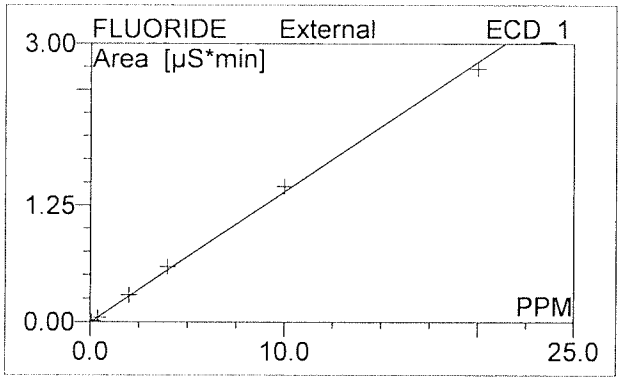
Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\09-2017\110217.SEQ\CD_1.CHL\6.acd".
The system cannot find the path specified.

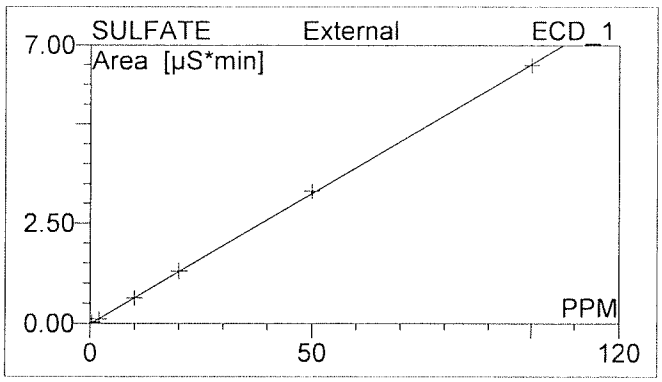
## 6 STD6

| | | | |
|---|---|---|---|
| *Sample Name:* | **STD6** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **6** | *Channel:* | **ECD_1** |
| *Sample Type:* | **standard** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **091117** | *Dilution Factor:* | **1.000** |
| *Recording Time:* | **9/11/2017 14:52** | *Sample Weight/Volume:* | **1.000** |
| *Run Time (min):* | **13.50** | *Final Volume:* | **1.000** |




Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\09-2017\110217.SEQ\CD_1.CHL\6.acd".
The system cannot find the path specified.

Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\09-2017\110217.SEQ\CD_1.CHL\6.acd".
The system cannot find the path specified.

Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\09-2017\110217.SEQ\CD_1.CHL\6.acd". The system cannot find the path specified.

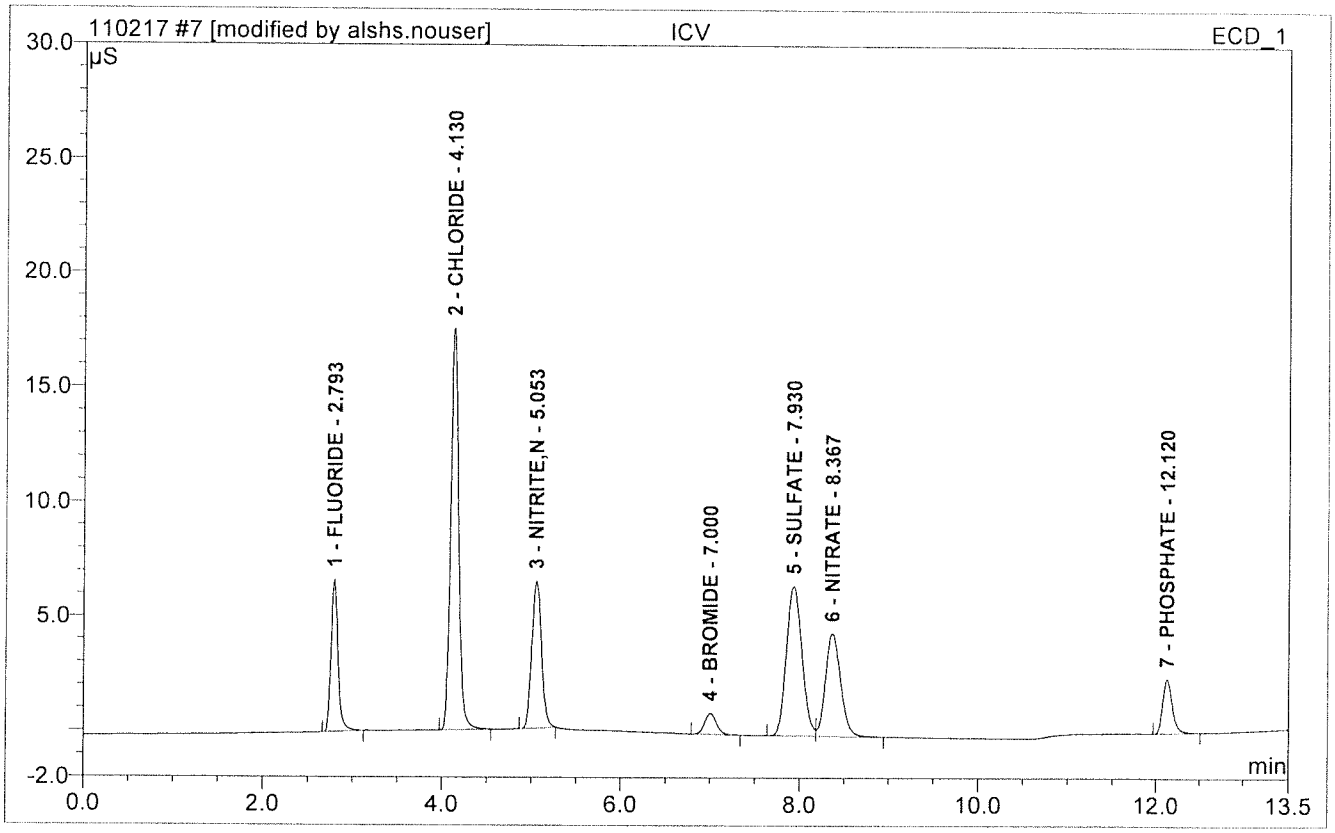
Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\09-2017\110217.SEQ\CD_1.CHL\6.acd". The system cannot find the path specified.

| No. | Ret.Time min | Peak Name | Cal.Type | Points | Coeff.Det. % | Offset | Slope | Curve |
|---|---|---|---|---|---|---|---|---|
| 1 | 2.81 | FLUORIDE | YLOff | 6 | 99.8453 | -0.0040 | 0.1404 | 0.000 |
| 2 | 4.12 | CHLORIDE | XLOff | 6 | 99.9646 | -0.0143 | 0.0911 | 0.000 |
| 3 | 5.05 | NITRITE,N | YLOff | 6 | 99.6406 | -0.0031 | 0.1879 | 0.000 |
| 4 | 6.97 | BROMIDE | YLOff | 6 | 99.6305 | -0.0024 | 0.0368 | 0.000 |
| 5 | 7.80 | SULFATE | XLOff | 6 | 99.9670 | -0.0104 | 0.0653 | 0.000 |
| 6 | 8.25 | NITRATE | YLOff | 6 | 99.9123 | -0.0113 | 0.2245 | 0.000 |
| 7 | 12.06 | PHOSPHATE | YLOff | 6 | 99.6957 | -0.0069 | 0.0822 | 0.000 |
| Average: | | | | | 99.8080 | -0.0075 | 0.1183 | 0.000 |

| No. | Ret.Time min | Peak Name | Cal.Type | Points | Corr.Coeff. % | RF-Value | Std.Dev. | RSD % |
|---|---|---|---|---|---|---|---|---|
| 1 | 2.81 | FLUORIDE | YLOff | 6 | 99.923 | 7.124 | 0.010 | 19.409 |
| 2 | 4.12 | CHLORIDE | XLOff | 6 | 99.982 | 10.980 | 0.017 | 8.793 |
| 3 | 5.05 | NITRITE,N | YLOff | 6 | 99.820 | 5.322 | 0.020 | 29.041 |
| 4 | 6.97 | BROMIDE | YLOff | 6 | 99.815 | 27.159 | 0.004 | 32.461 |
| 5 | 7.80 | SULFATE | XLOff | 6 | 99.984 | 15.313 | 0.012 | 8.499 |
| 6 | 8.25 | NITRATE | YLOff | 6 | 99.956 | 4.454 | 0.011 | 15.438 |
| 7 | 12.06 | PHOSPHATE | YLOff | 6 | 99.848 | 12.172 | 0.006 | 38.765 |
| Average: | | | | | 99.9039 | 11.789 | 0.011 | 21.772 |

# 7 ICV

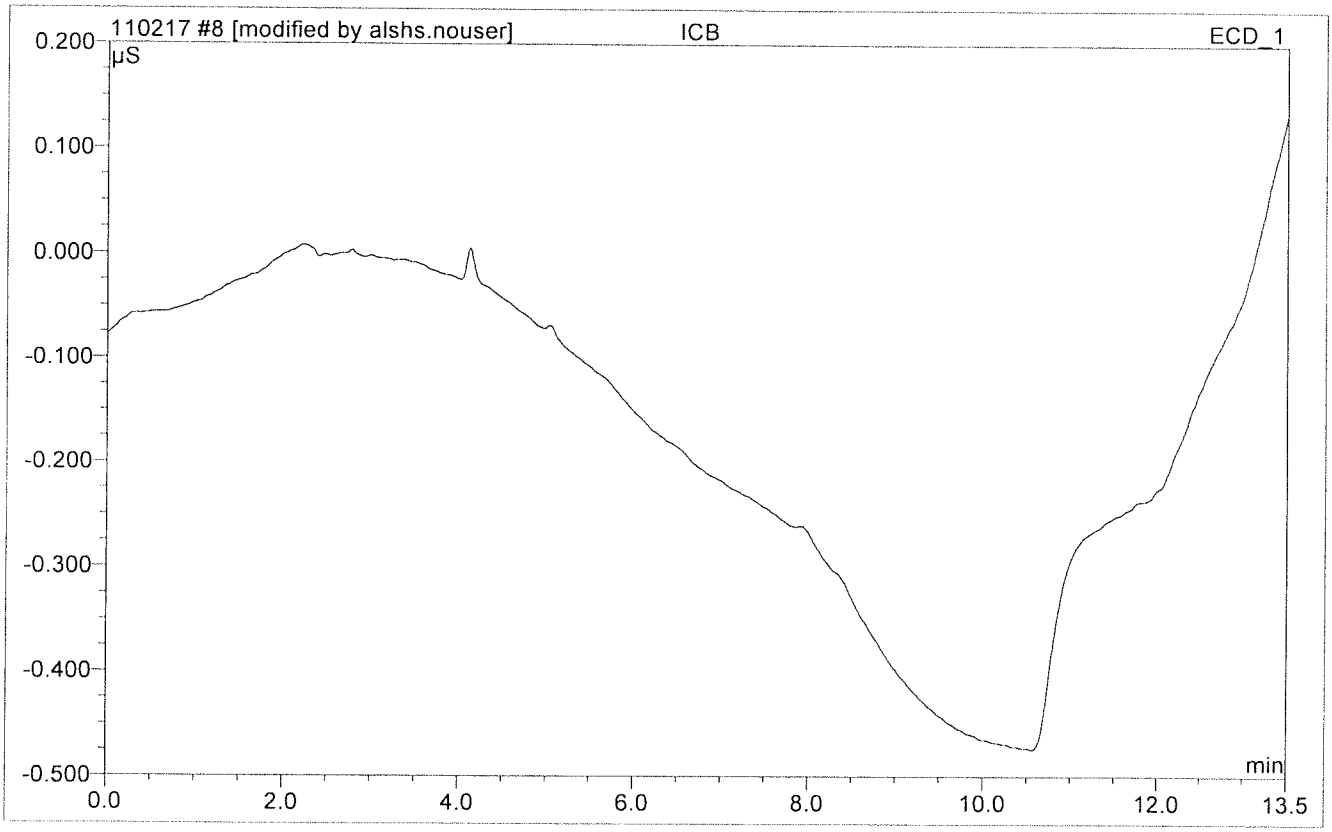
| | | | |
|---|---|---|---|
| *Sample Name:* | **ICV** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **7** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **091117** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **9/11/2017 15:07** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.79 | FLUORIDE | 6.648 | 0.598 | 10.20 | 4.289 | 1. |
| 2 | 4.13 | CHLORIDE | 17.521 | 1.811 | 30.87 | 20.037 | 1. |
| 3 | 5.05 | NITRITE,N | 6.425 | 0.810 | 13.81 | 4.326 | 1. |
| 4 | 7.00 | BROMIDE | 0.916 | 0.140 | 2.39 | 3.868 | 1. |
| 5 | 7.93 | SULFATE | 6.535 | 1.315 | 22.42 | 20.290 | 1. |
| 6 | 8.37 | NITRATE | 4.485 | 0.887 | 15.12 | 3.999 | 1. |
| 7 | 12.12 | PHOSPHATE | 2.362 | 0.305 | 5.20 | 3.797 | 1. |
| **Total:** | | | 44.893 | 5.865 | 100.00 | 60.607 | |

## 8 ICB

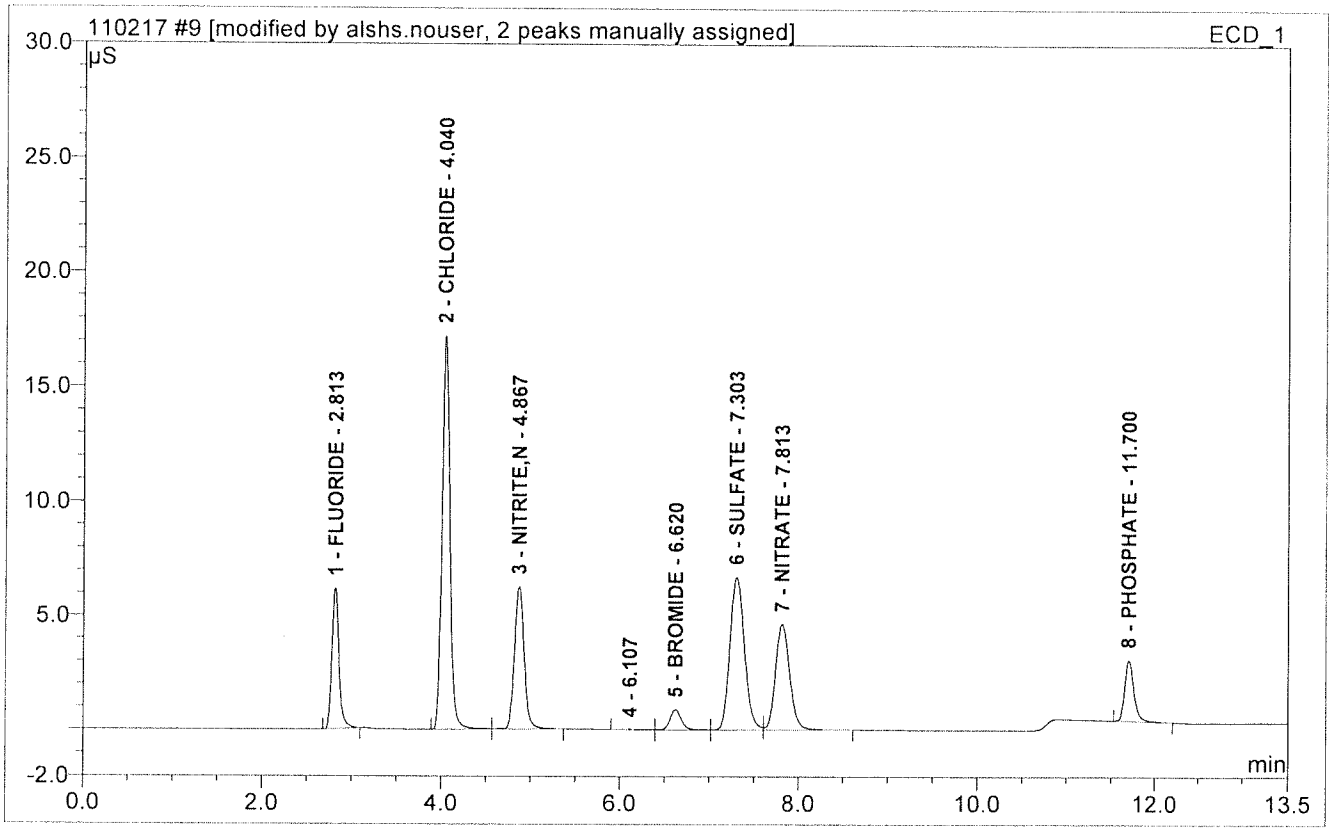
| | | | |
|---|---|---|---|
| *Sample Name:* | **ICB** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **8** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **091117** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **9/11/2017 15:21** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| Total: | | | 0.000 | 0.000 | 0.00 | 0.000 | |

# 9 CCV

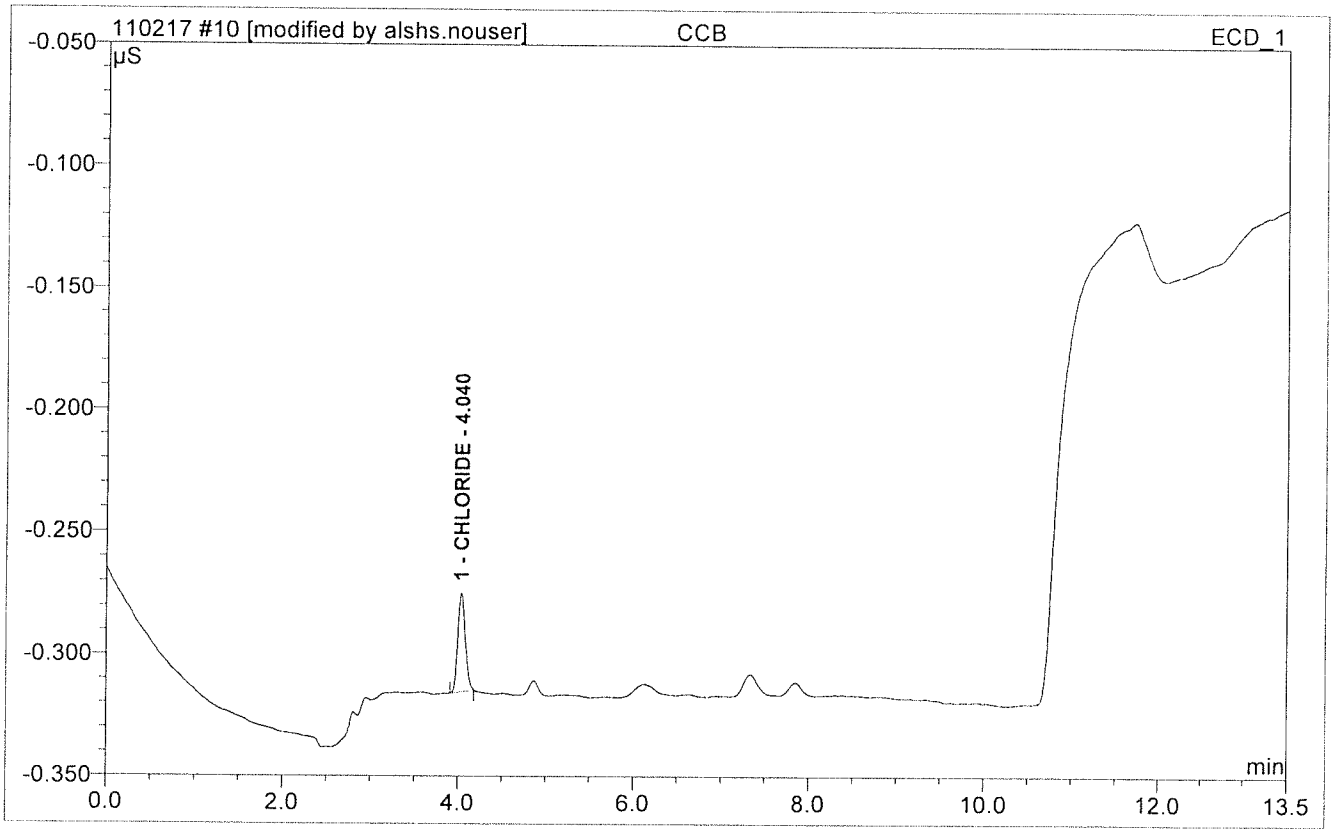
| | | | |
|---|---|---|---|
| *Sample Name:* | **CCV** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **1** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **091117** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **11/2/2017 11:38** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.81 | FLUORIDE | 6.165 | 0.562 | 9.84 | 4.031 | 1. |
| 2 | 4.04 | CHLORIDE | 17.208 | 1.763 | 30.89 | 19.516 | 1. |
| 3 | 4.87 | NITRITE,N | 6.246 | 0.789 | 13.83 | 4.216 | 1. |
| 5 | 6.62 | BROMIDE | 0.889 | 0.135 | 2.36 | 3.723 | 1. |
| 6 | 7.30 | SULFATE | 6.712 | 1.272 | 22.28 | 19.634 | 1. |
| 7 | 7.81 | NITRATE | 4.640 | 0.858 | 15.04 | 3.874 | 1. |
| 8 | 11.70 | PHOSPHATE | 2.666 | 0.324 | 5.67 | 4.023 | 1. |
| **Total:** | | | 44.525 | 5.702 | 99.92 | 59.016 | |

## 10 CCB

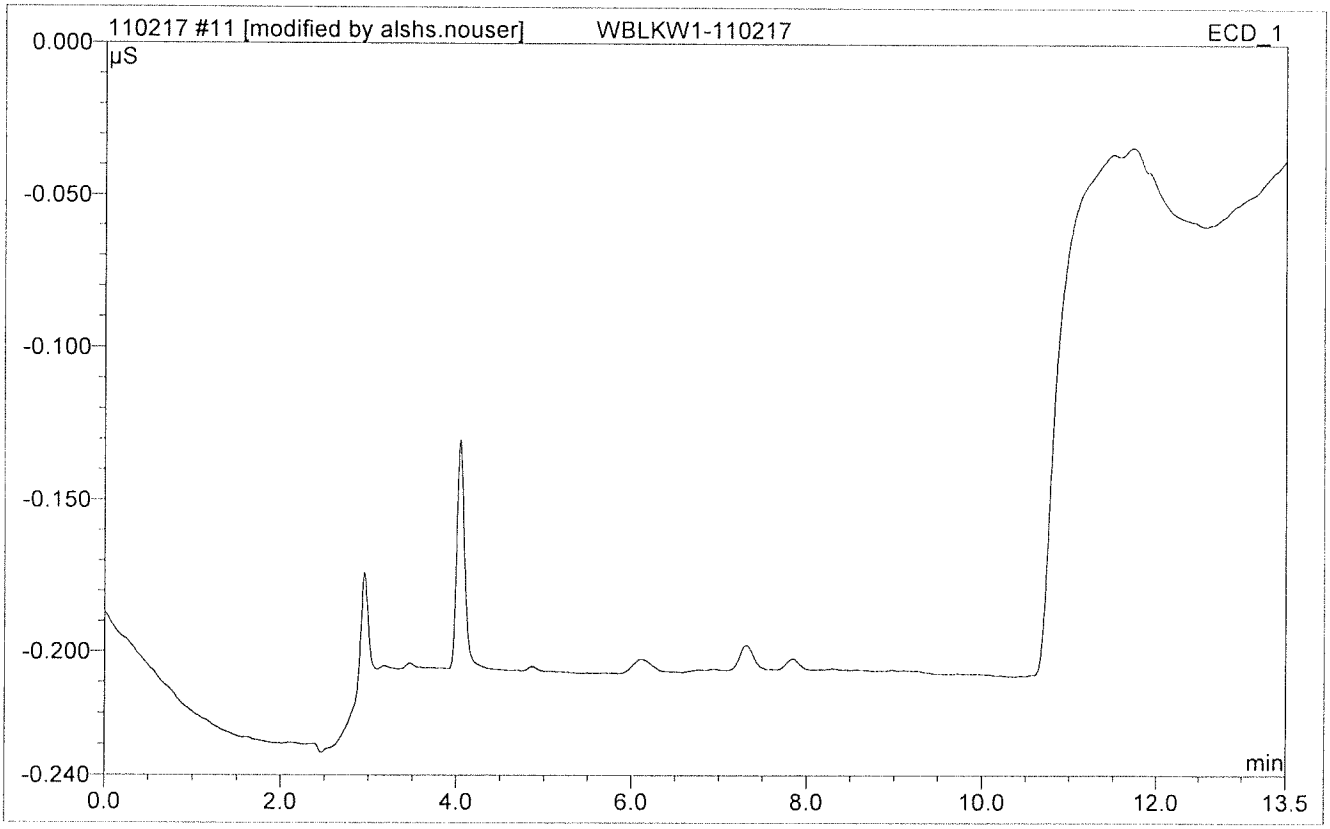
| | | | |
|---|---|---|---|
| *Sample Name:* | **CCB** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **2** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **091117** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **11/2/2017 11:53** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 4.04 | CHLORIDE | 0.041 | 0.004 | 100.00 | 0.202 | 1. |
| **Total:** | | | 0.041 | 0.004 | 100.00 | 0.202 | |

## 11 WBLKW1-110217

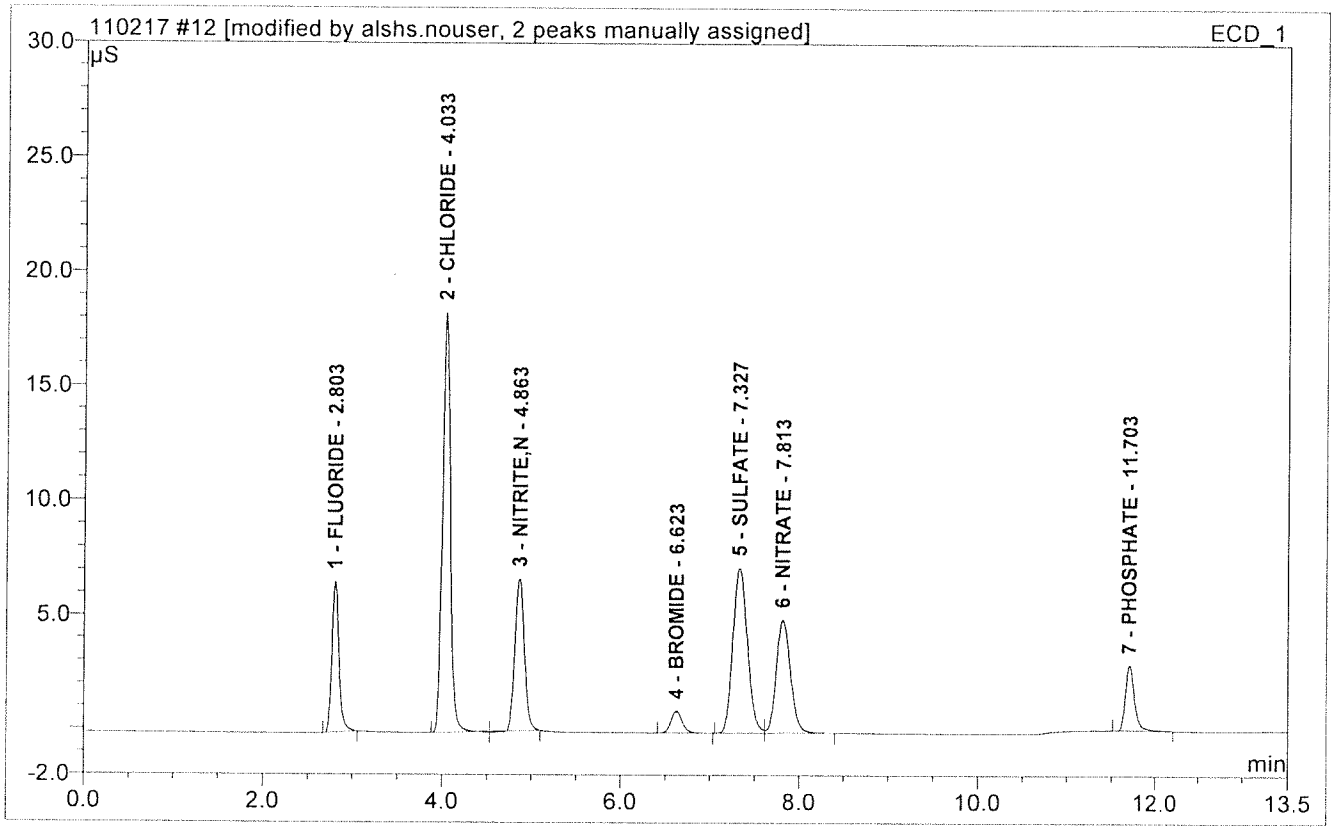
| | | | |
|---|---|---|---|
| *Sample Name:* | **WBLKW1-110217** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **5** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **091117** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **11/2/2017 12:07** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| **Total:** | | | 0.000 | 0.000 | 0.00 | 0.000 | |

# 12 WLCSW1-110217

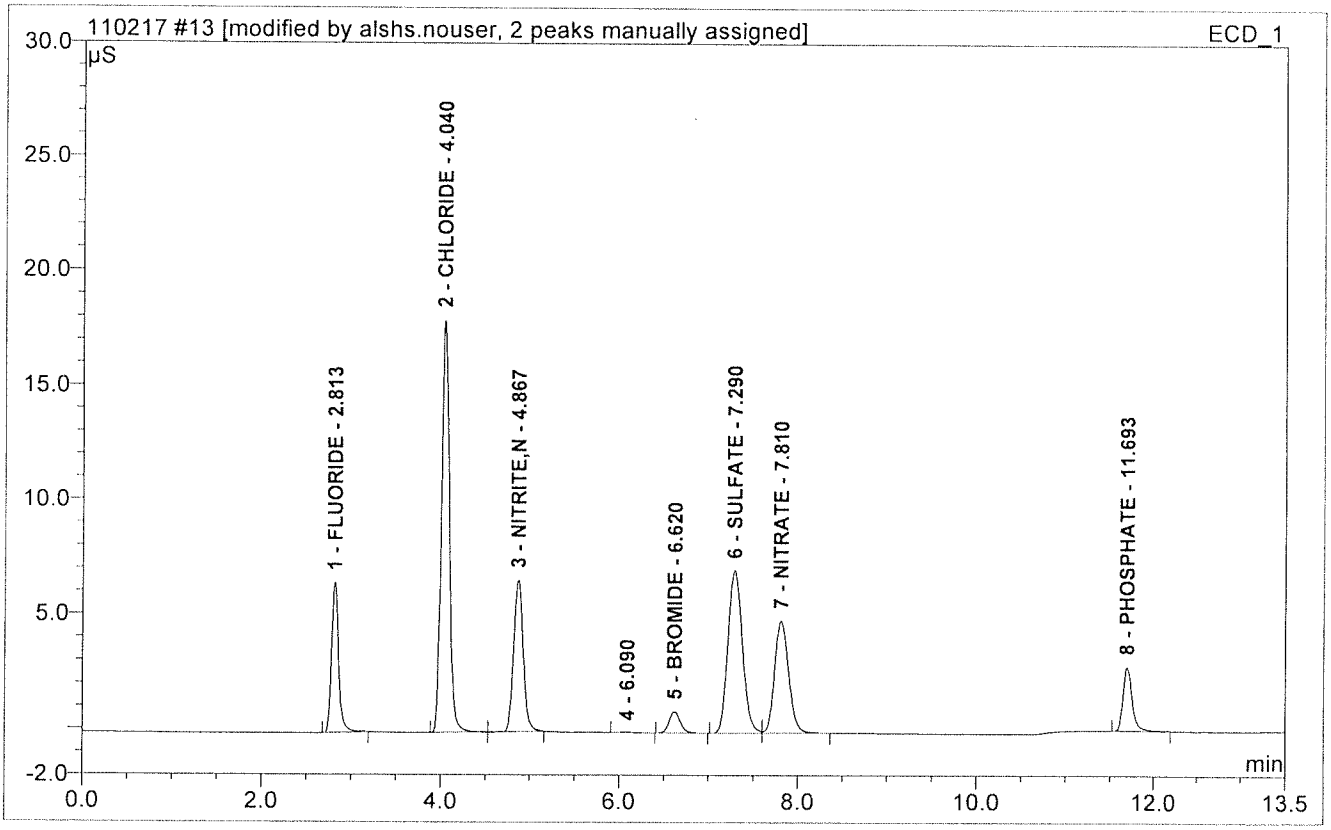
| | | | |
|---|---|---|---|
| *Sample Name:* | **WLCSW1-110217** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **6** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **091117** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **11/2/2017 12:22** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.80 | FLUORIDE | 6.638 | 0.606 | 9.94 | 4.343 | 1. |
| 2 | 4.03 | CHLORIDE | 18.366 | 1.877 | 30.81 | 20.772 | 1. |
| 3 | 4.86 | NITRITE,N | 6.688 | 0.822 | 13.49 | 4.390 | 1. |
| 4 | 6.62 | BROMIDE | 0.967 | 0.142 | 2.33 | 3.917 | 1. |
| 5 | 7.33 | SULFATE | 7.270 | 1.374 | 22.55 | 21.205 | 1. |
| 6 | 7.81 | NITRATE | 5.005 | 0.926 | 15.19 | 4.173 | 1. |
| 7 | 11.70 | PHOSPHATE | 2.866 | 0.347 | 5.69 | 4.303 | 1. |
| **Total:** | | | 47.800 | 6.093 | 100.00 | 63.104 | |

# 13 WLCSDW1-110217

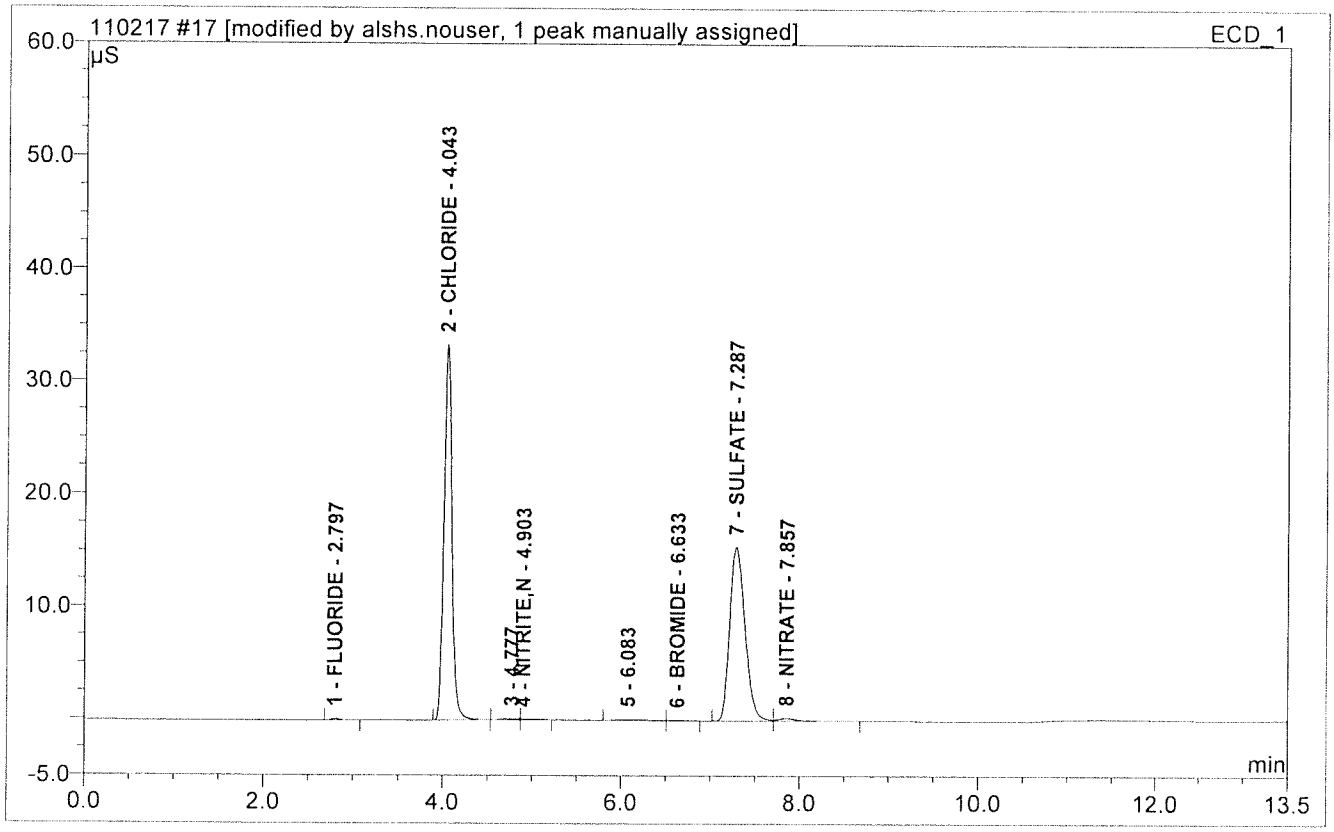
| | | | |
|---|---|---|---|
| *Sample Name:* | **WLCSDW1-110217** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **7** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **091117** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **11/2/2017 12:36** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.81 | FLUORIDE | 6.519 | 0.602 | 10.05 | 4.315 | 1. |
| 2 | 4.04 | CHLORIDE | 17.993 | 1.847 | 30.84 | 20.438 | 1. |
| 3 | 4.87 | NITRITE,N | 6.579 | 0.821 | 13.71 | 4.384 | 1. |
| 5 | 6.62 | BROMIDE | 0.942 | 0.138 | 2.30 | 3.803 | 1. |
| 6 | 7.29 | SULFATE | 7.072 | 1.340 | 22.38 | 20.679 | 1. |
| 7 | 7.81 | NITRATE | 4.881 | 0.900 | 15.04 | 4.061 | 1. |
| 8 | 11.69 | PHOSPHATE | 2.788 | 0.337 | 5.64 | 4.192 | 1. |
| **Total:** | | | 46.774 | 5.985 | 99.95 | 61.871 | |

## 17 HS17110079-01

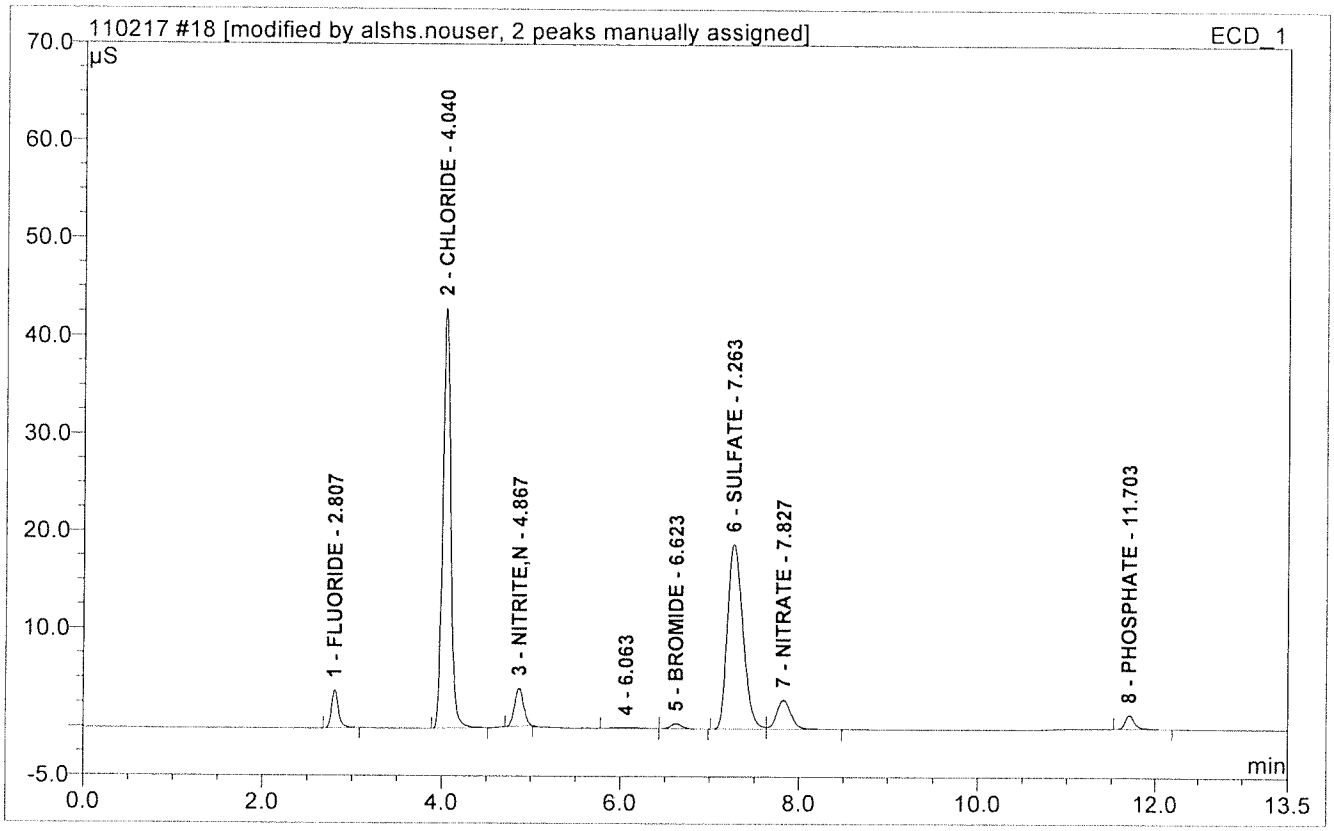
| | | | |
|---|---|---|---|
| *Sample Name:* | **HS17110079-01** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **11** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **091117** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **11/2/2017 13:34** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.80 | FLUORIDE | 0.145 | 0.014 | 0.21 | 0.131 | 1. |
| 2 | 4.04 | CHLORIDE | 33.376 | 3.466 | 51.63 | 38.217 | 1. |
| 4 | 4.90 | NITRITE,N | 0.078 | 0.015 | 0.23 | 0.098 | 1. |
| 6 | 6.63 | BROMIDE | 0.044 | 0.007 | 0.11 | 0.267 | 1. |
| 7 | 7.29 | SULFATE | 15.544 | 3.099 | 46.16 | 47.619 | 1. |
| 8 | 7.86 | NITRATE | 0.244 | 0.058 | 0.87 | 0.311 | 1. |
| **Total:** | | | 49.430 | 6.661 | 99.21 | 86.643 | |

## 18 HS17110079-01MS

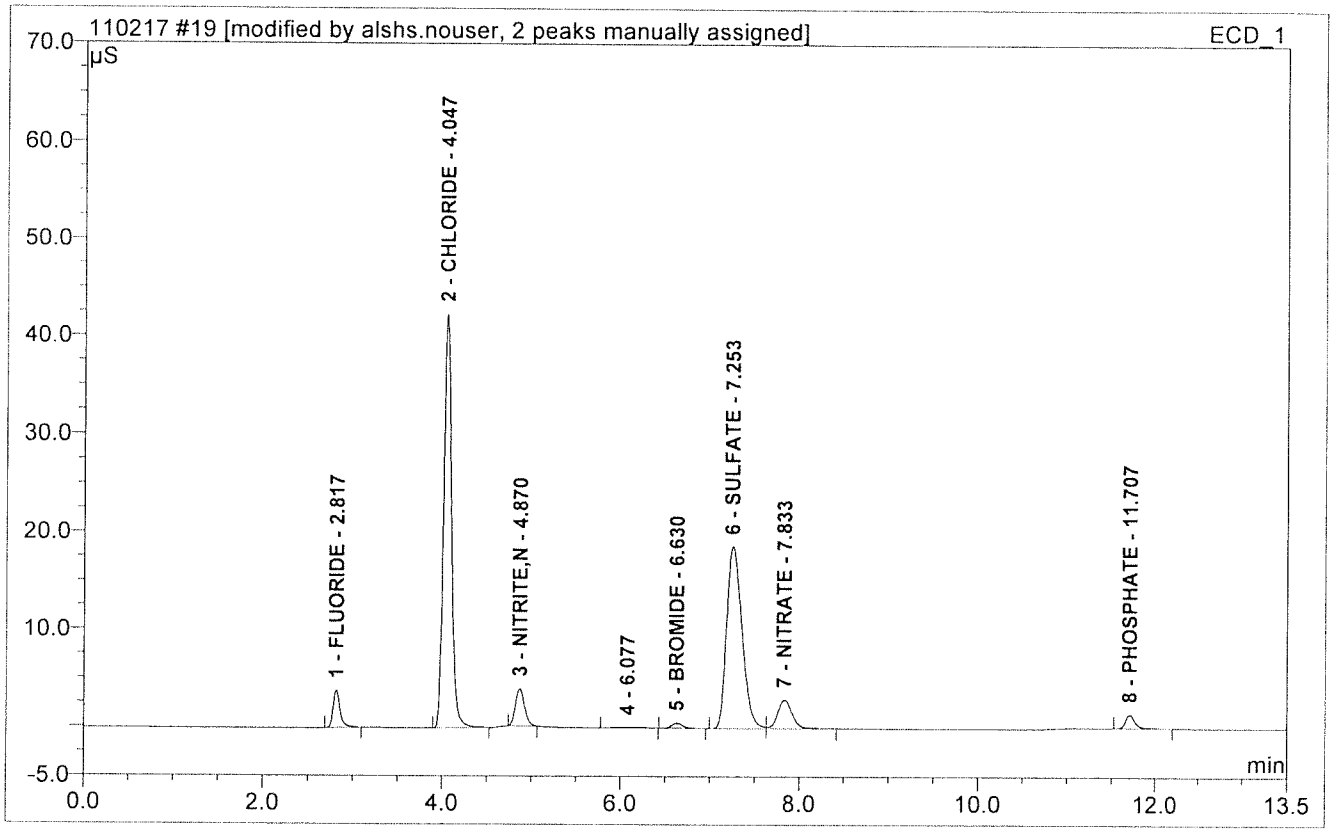
| | | | |
|---|---|---|---|
| *Sample Name:* | **HS17110079-01MS** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **12** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **091117** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **11/2/2017 13:49** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.81 | FLUORIDE | 3.838 | 0.342 | 3.47 | 2.468 | 1. |
| 2 | 4.04 | CHLORIDE | 42.966 | 4.449 | 45.03 | 49.007 | 1. |
| 3 | 4.87 | NITRITE,N | 3.854 | 0.452 | 4.58 | 2.424 | 1. |
| 5 | 6.62 | BROMIDE | 0.532 | 0.077 | 0.78 | 2.158 | 1. |
| 6 | 7.26 | SULFATE | 18.896 | 3.794 | 38.41 | 58.264 | 1. |
| 7 | 7.83 | NITRATE | 2.988 | 0.560 | 5.67 | 2.545 | 1. |
| 8 | 11.70 | PHOSPHATE | 1.414 | 0.176 | 1.78 | 2.221 | 1. |
| **Total:** | | | 74.489 | 9.851 | 99.71 | 119.087 | |

## 19 HS17110079-01MSD

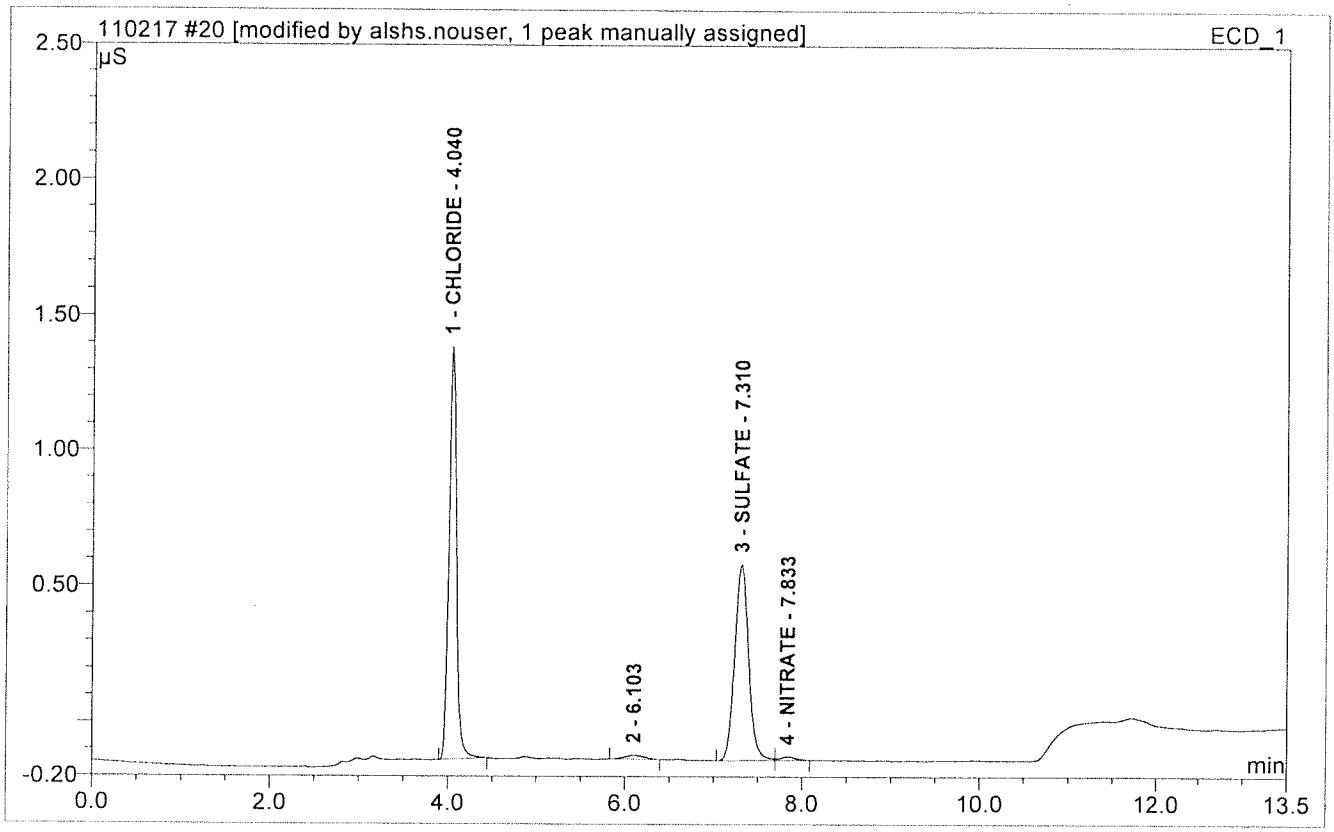
| | | | |
|---|---|---|---|
| *Sample Name:* | **HS17110079-01MSD** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **13** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **091117** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **11/2/2017 14:03** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.82 | FLUORIDE | 3.791 | 0.341 | 3.49 | 2.457 | 1. |
| 2 | 4.05 | CHLORIDE | 42.338 | 4.404 | 45.11 | 48.516 | 1. |
| 3 | 4.87 | NITRITE,N | 3.806 | 0.450 | 4.61 | 2.412 | 1. |
| 5 | 6.63 | BROMIDE | 0.526 | 0.077 | 0.79 | 2.148 | 1. |
| 6 | 7.25 | SULFATE | 18.736 | 3.740 | 38.31 | 57.436 | 1. |
| 7 | 7.83 | NITRATE | 2.953 | 0.549 | 5.62 | 2.494 | 1. |
| 8 | 11.71 | PHOSPHATE | 1.402 | 0.175 | 1.80 | 2.217 | 1. |
| **Total:** | | | 73.552 | 9.736 | 99.73 | 117.680 | |

## 20 HS17110079-01DF20

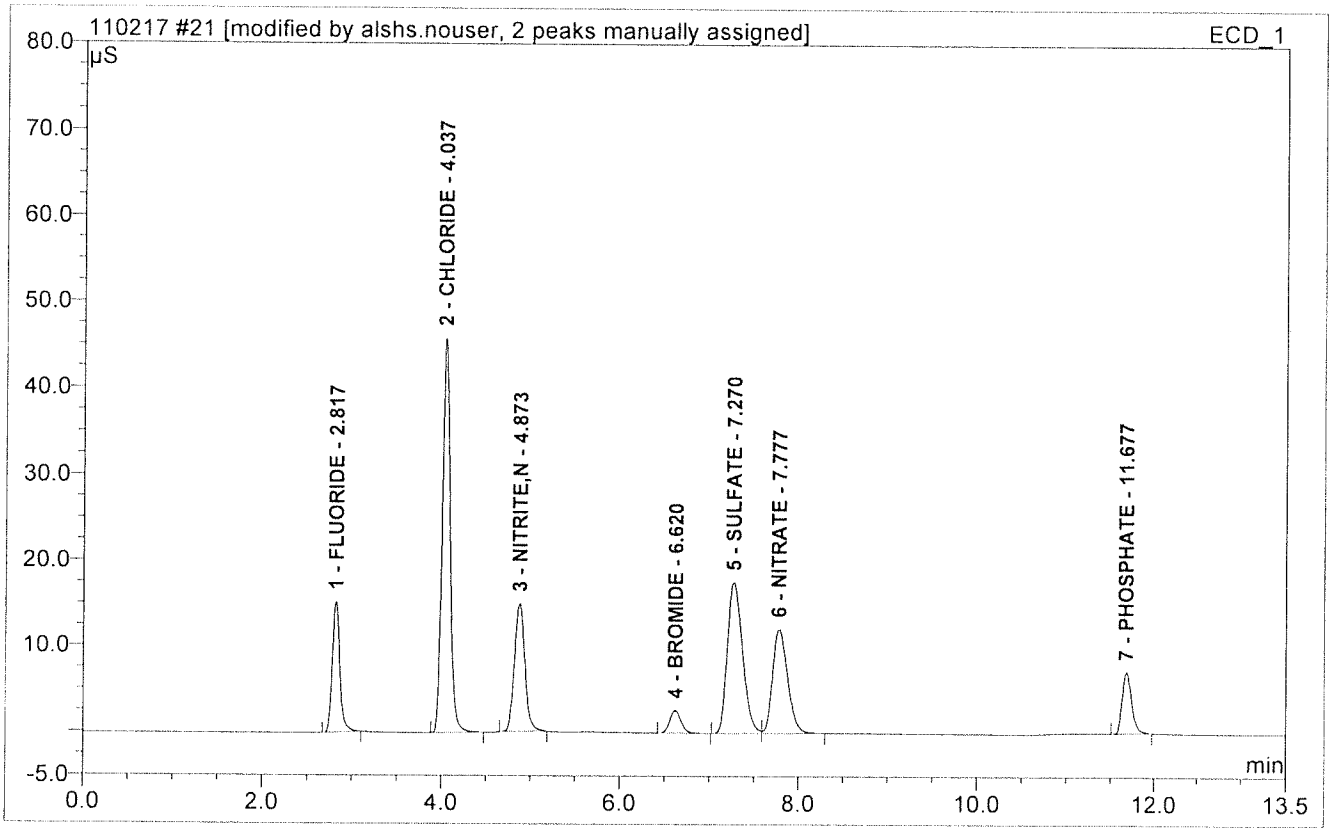
| | | | |
|---|---|---|---|
| *Sample Name:* | **HS17110079-01DF20** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **14** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **091117** | *Dilution Factor:* | **20.** |
| *Recording Time:* | **11/2/2017 14:18** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 4.04 | CHLORIDE | 1.523 | 0.151 | 52.04 | 36.217 | 20. |
| 3 | 7.31 | SULFATE | 0.722 | 0.132 | 45.74 | 43.733 | 20. |
| 4 | 7.83 | NITRATE | 0.013 | 0.003 | 0.91 | 1.244 | 20. |
| **Total:** | | | 2.259 | 0.286 | 98.69 | 81.194 | |

# 21 CCV1

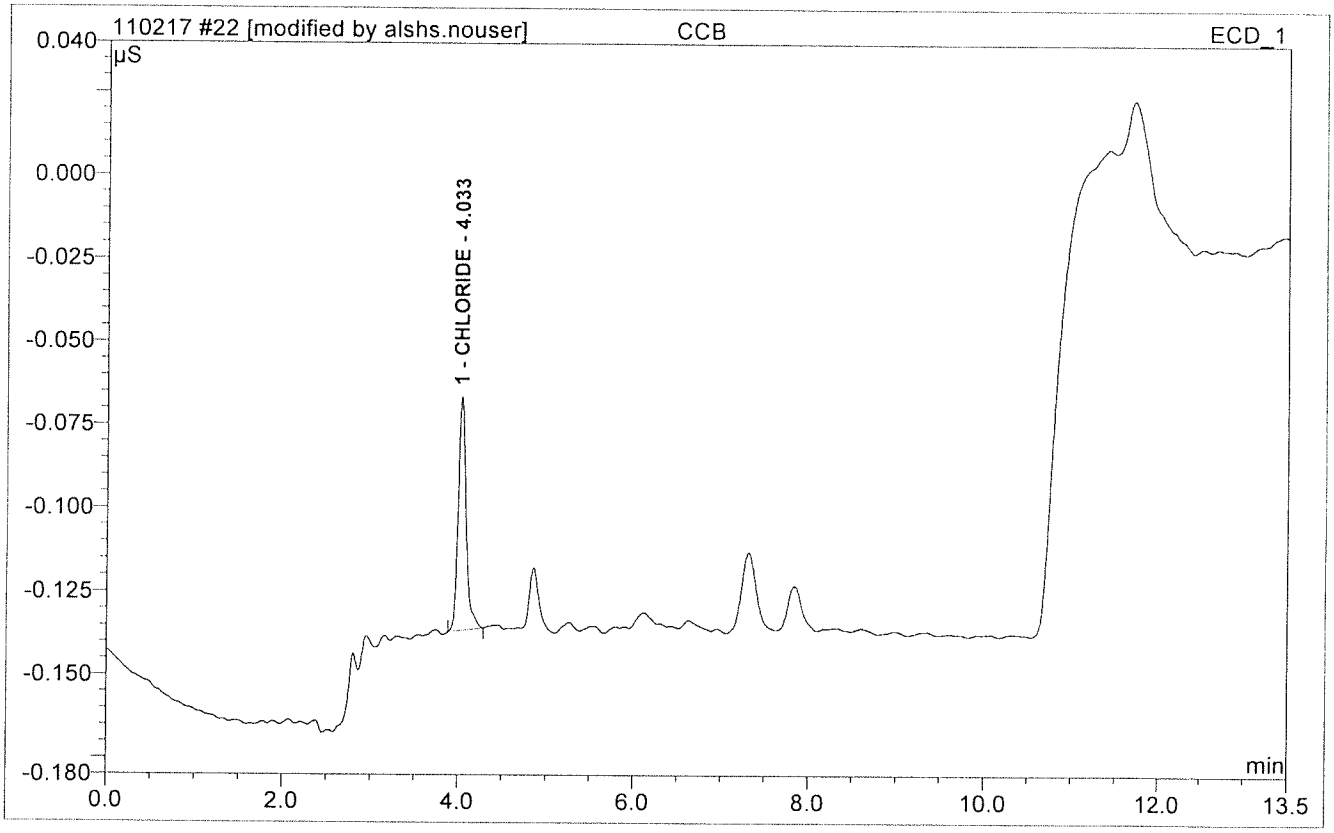
| | | | |
|---|---|---|---|
| *Sample Name:* | **CCV1** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **3** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **091117** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **11/2/2017 14:33** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.82 | FLUORIDE | 15.221 | 1.491 | 9.67 | 10.651 | 1. |
| 2 | 4.04 | CHLORIDE | 45.817 | 4.776 | 30.98 | 52.599 | 1. |
| 3 | 4.87 | NITRITE,N | 14.887 | 2.028 | 13.15 | 10.806 | 1. |
| 4 | 6.62 | BROMIDE | 2.649 | 0.391 | 2.54 | 10.685 | 1. |
| 5 | 7.27 | SULFATE | 17.626 | 3.484 | 22.60 | 53.512 | 1. |
| 6 | 7.78 | NITRATE | 12.130 | 2.367 | 15.35 | 10.594 | 1. |
| 7 | 11.68 | PHOSPHATE | 7.122 | 0.881 | 5.71 | 10.807 | 1. |
| **Total:** | | | 115.452 | 15.418 | 100.00 | 159.654 | |

## 22 CCB

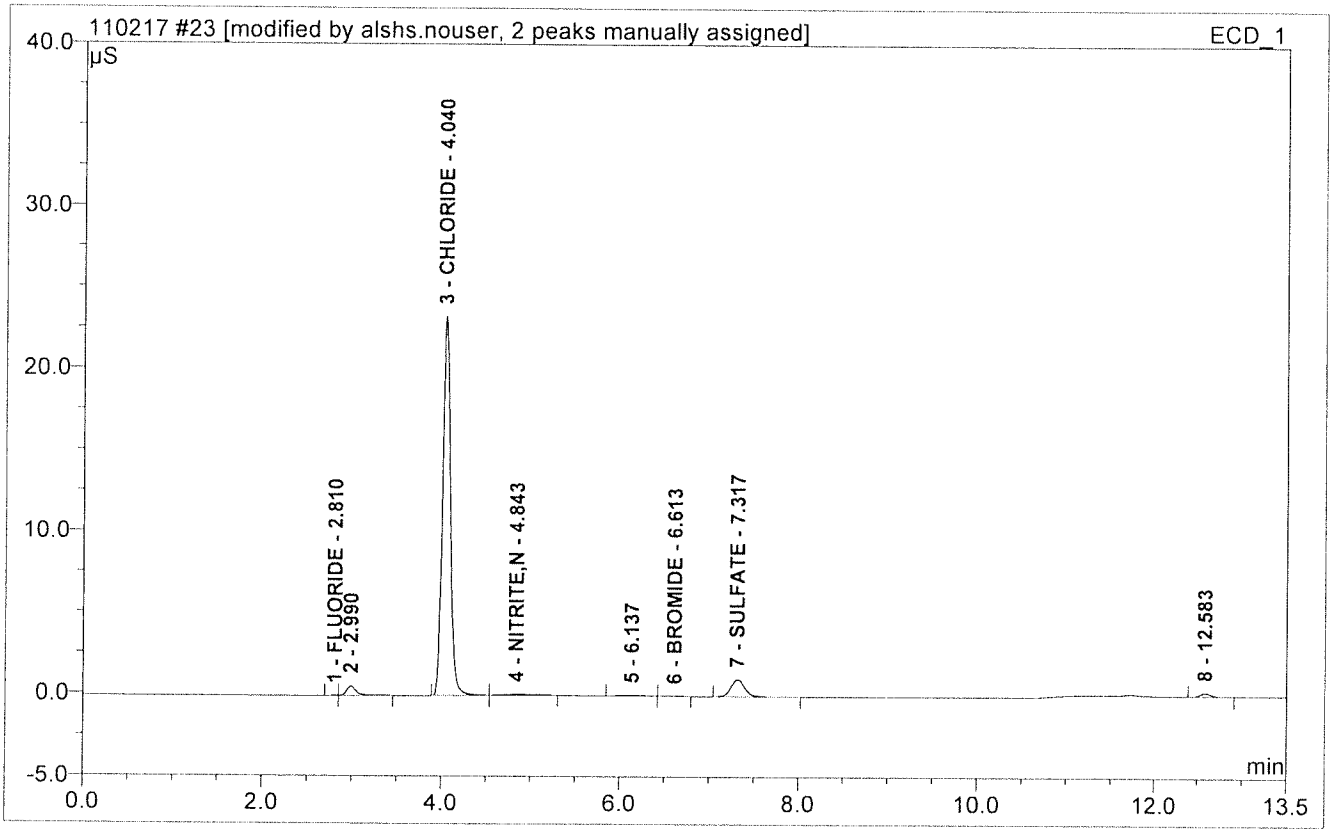
| | | | |
|---|---|---|---|
| *Sample Name:* | **CCB** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **4** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **091117** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **11/2/2017 14:47** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 4.03 | CHLORIDE | 0.070 | 0.007 | 100.00 | 0.238 | 1. |
| **Total:** | | | 0.070 | 0.007 | 100.00 | 0.238 | |

## 23 HS17110083-01DF20

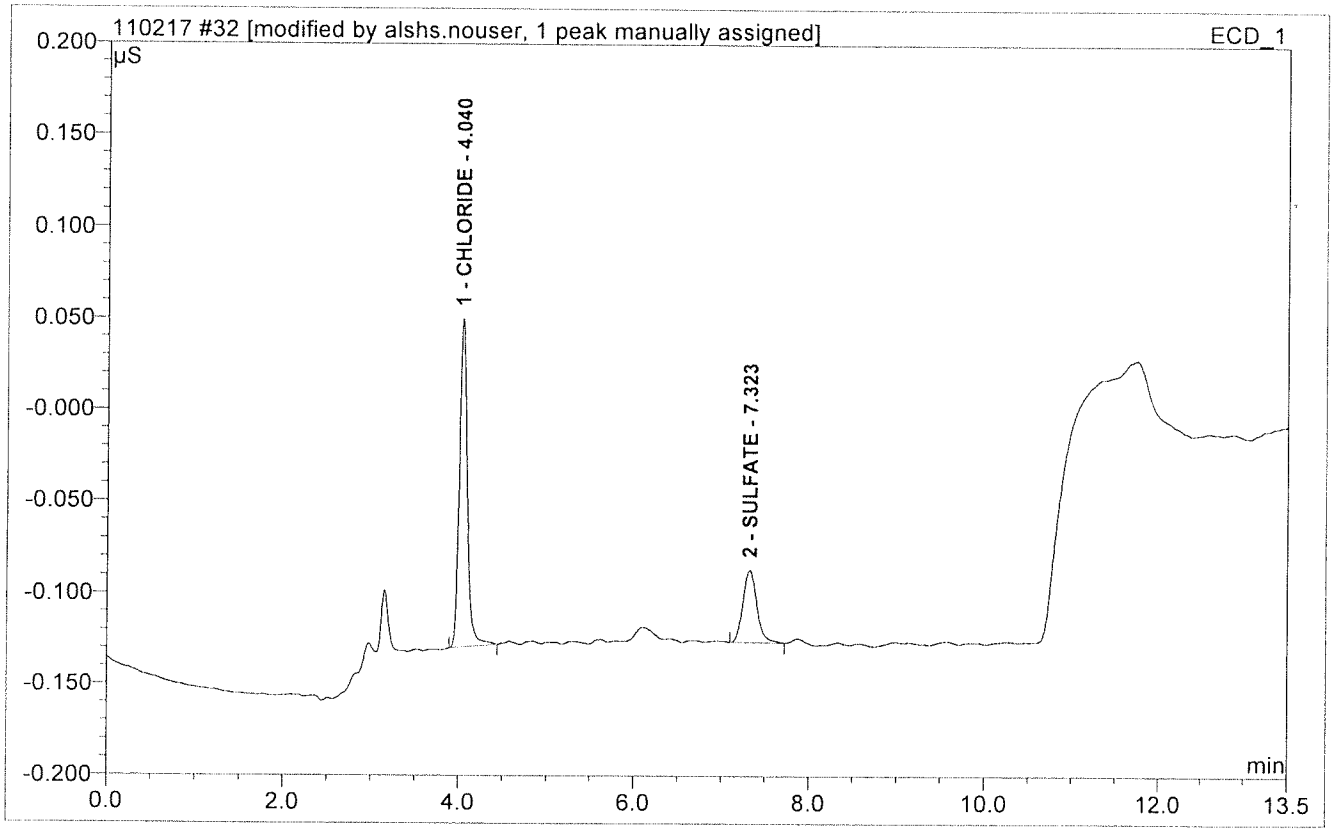
| | | | |
|---|---|---|---|
| *Sample Name:* | **HS17110083-01DF20** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **15** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **091117** | *Dilution Factor:* | **20.** |
| *Recording Time:* | **11/2/2017 15:02** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.81 | FLUORIDE | 0.012 | 0.001 | 0.04 | 0.719 | 20. |
| 3 | 4.04 | CHLORIDE | 23.292 | 2.417 | 87.71 | 534.036 | 20. |
| 4 | 4.84 | NITRITE,N | 0.077 | 0.031 | 1.14 | 3.668 | 20. |
| 6 | 6.61 | BROMIDE | 0.010 | 0.002 | 0.06 | 2.179 | 20. |
| 7 | 7.32 | SULFATE | 1.038 | 0.189 | 6.85 | 61.037 | 20. |
| **Total:** | | | 24.429 | 2.640 | 95.79 | 601.639 | |

## 32 CCB

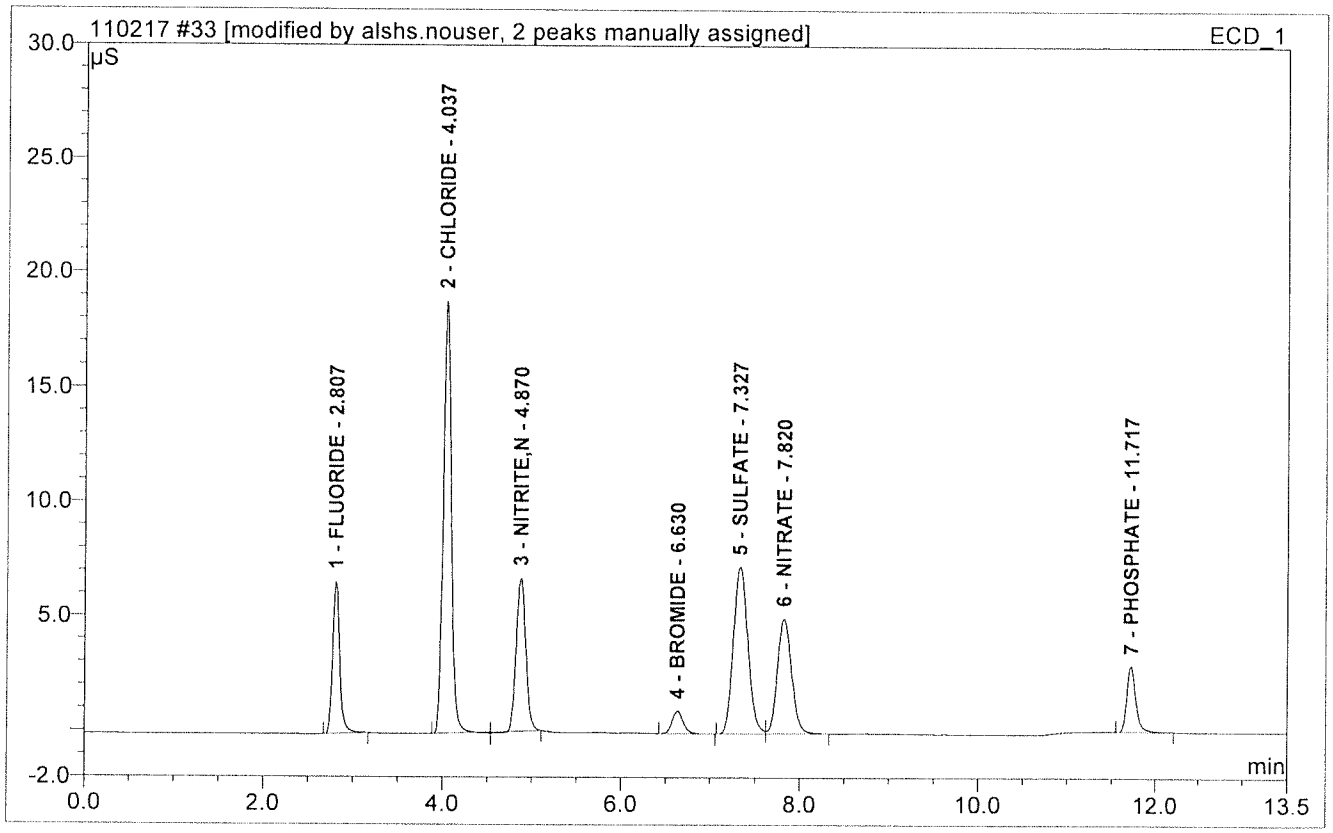
| | | | |
|---|---|---|---|
| *Sample Name:* | **CCB** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **2** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **091117** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **11/2/2017 17:13** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 4.04 | CHLORIDE | 0.180 | 0.019 | 71.52 | 0.363 | 1. |
| 2 | 7.32 | SULFATE | 0.040 | 0.007 | 28.48 | 0.274 | 1. |
| **Total:** | | | 0.220 | 0.026 | 100.00 | 0.637 | |

## 33 CCV

| | | | |
|---|---|---|---|
| *Sample Name:* | **CCV** | *Injection Volume:* | **10.0** |
| *Vial Number:* | **1** | *Channel:* | **ECD_1** |
| *Sample Type:* | **unknown** | *Wavelength:* | **n.a.** |
| *Control Program:* | **Anions Gradient Program** | *Bandwidth:* | **n.a.** |
| *Quantif. Method:* | **091117** | *Dilution Factor:* | **1.** |
| *Recording Time:* | **11/2/2017 17:27** | *Sample Weight:* | **1.0000** |
| *Run Time (min):* | **13.50** | *Sample Amount:* | **1.0000** |




| No. | Ret.Time min | Peak Name | Height µS | Area µS*min | Rel.Area % | Amount PPM | Dil.Fac. |
|---|---|---|---|---|---|---|---|
| 1 | 2.81 | FLUORIDE | 6.625 | 0.611 | 9.93 | 4.381 | 1. |
| 2 | 4.04 | CHLORIDE | 18.834 | 1.943 | 31.59 | 21.488 | 1. |
| 3 | 4.87 | NITRITE,N | 6.656 | 0.819 | 13.32 | 4.375 | 1. |
| 4 | 6.63 | BROMIDE | 0.973 | 0.142 | 2.31 | 3.918 | 1. |
| 5 | 7.33 | SULFATE | 7.256 | 1.371 | 22.29 | 21.153 | 1. |
| 6 | 7.82 | NITRATE | 5.007 | 0.922 | 14.99 | 4.158 | 1. |
| 7 | 11.72 | PHOSPHATE | 2.840 | 0.342 | 5.56 | 4.248 | 1. |
| **Total:** | | | 48.191 | 6.150 | 100.00 | 63.720 | |

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Houston, TX 77099
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www.alsglobal.com

# WorkOrder: HS17110493

## Longhorn GW Treatment Plant Monthly Effluent

## Bhate Environmental Associates, Inc.

Marcia Olive
445 Union Blvd Ste 129
Lakewood CO 80228

**22-Jan-2018**

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

November 28, 2017

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd Ste 129
Lakewood, CO 80228

Work Order: **HS17110493**

Laboratory Results for: **Longhorn GW Treatment Plant Monthly Effluent**

Dear Marcia,

ALS Environmental received 2 sample(s) on Nov 10, 2017 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,

Sonia West

**Generated By: Jumoke.Lawal**
Sonia West
Project Manager

**ALS Group USA, Corp** Date: 28-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Longhorn GW Treatment Plant Monthly Effluent
**Work Order:** HS17110493

## SAMPLE SUMMARY

| Lab Samp ID | Client Sample ID | Matrix | TagNo | Collection Date | Date Received | Hold |
|---|---|---|---|---|---|---|
| HS17110493-01 | LH18/24-SP650_110917 | Water | | 09-Nov-2017 14:00 | 10-Nov-2017 08:45 | ☐ |
| HS17110493-02 | Trip Blank | Water | Not ALS | 09-Nov-2017 00:01 | 10-Nov-2017 08:45 | ☐ |

**ALS Group USA, Corp** Date: 28-Nov-17

**Client:** Bhate Environmental Associates, Inc. **CASE NARRATIVE**
**Project:** Longhorn GW Treatment Plant Monthly Effluent
**Work Order:** HS17110493

## Work Order Comments

• The analysis for Perchlorate was subcontracted to ALS Environmental in Salt Lake City UT Final report attached.

## GCMS Semivolatiles by Method SW8270SIM

### Batch ID: 122176

**Sample ID: LCS-122176**

• Low area counts for all internal standard except Napthalene-d5 which is the only internal standard associated with target compound.

**Sample ID: LCSD-122176**

• LCSD RPD was above the control limits. The individual recoveries were in control.

• Low area counts for all internal standard except Napthalene-d5 which is the only internal standard associated with target compound.

**Sample ID: LH18/24-SP650_110917 (HS17110493-01)**

• High %R for Surrogate 4-terphenyl-d14. it is not associated with target compound.

**Sample ID: MBLK-122176**

• High %R for Surrogate 4-terphenyl-d14. it is not associated with target compound.

## GCMS Volatiles by Method SW8260

### Batch ID: R305631

**Sample ID: LH18/24-SP650_110917 (HS17110493-01MS)**

• MS/MSD failed QC and RPD limits for some compounds.

## Metals by Method SW6020

### Batch ID: 122183

• The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

## WetChemistry by Method SW7196

### Batch ID: R305307

• The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

**ALS Group USA, Corp** Date: 28-Nov-17

Client: Bhate Environmental Associates, Inc.
**ANALYTICAL REPORT**
Project: Longhorn GW Treatment Plant Monthly Effluent
WorkOrder:HS17110493
Sample ID: LH18/24-SP650_110917
Lab ID:HS17110493-01
Collection Date: 09-Nov-2017 14:00
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 | 16-Nov-2017 13:51 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| 1,1-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| 1,1-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| 1,2,3-Trichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| 1,2,3-Trichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| 1,2,4-Trichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| 1,2-Dichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| 1,3-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| 1,4-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| 2-Hexanone | 1.0 | U | 1.0 | 1.0 | 2.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| 4-Chlorotoluene | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| 4-Methyl-2-pentanone | 1.0 | U | 0.70 | 1.0 | 2.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| Acetone | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| Bromobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 28-Nov-17

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent
Sample ID: LH18/24-SP650_110917
Collection Date: 09-Nov-2017 14:00

**ANALYTICAL REPORT**
WorkOrder:HS17110493
Lab ID:HS17110493-01
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 | 16-Nov-2017 13:51 |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| **cis-1,2-Dichloroethene** | **4.2** | | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 16-Nov-2017 13:51 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| Methylene chloride | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| n-Butylbenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| Trichlorofluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:51 |
| **Vinyl chloride** | **0.47** | J | **0.20** | **0.50** | **1.0** | **ug/L** | 1 | 16-Nov-2017 13:51 |
| *Surr: 1,2-Dichloroethane-d4* | *96.4* | | | **0** | *81-118* | *%REC* | *1* | *16-Nov-2017 13:51* |
| *Surr: 4-Bromofluorobenzene* | *102* | | | **0** | *85-114* | *%REC* | *1* | *16-Nov-2017 13:51* |
| *Surr: Dibromofluoromethane* | *93.7* | | | **0** | *80-119* | *%REC* | *1* | *16-Nov-2017 13:51* |
| *Surr: Toluene-d8* | *102* | | | **0** | *89-112* | *%REC* | *1* | *16-Nov-2017 13:51* |
| **SEMIVOLATILES SIM** | | **Method:SW8270SIM** | | | | Prep:SW3510 / 15-Nov-2017 | | Analyst: ACN |
| **1,4-Dioxane** | **8.2** | | **0.51** | **0** | **0.51** | **ug/L** | 50 | 20-Nov-2017 17:56 |
| *Surr: 2-Fluorobiphenyl* | *138* | | | **0** | *40-140* | *%REC* | *50* | *20-Nov-2017 17:56* |
| *Surr: 4-Terphenyl-d14* | *196* | *S* | | **0** | *40-140* | *%REC* | *50* | *20-Nov-2017 17:56* |
| *Surr: Nitrobenzene-d5* | *101* | | | **0** | *40-140* | *%REC* | *50* | *20-Nov-2017 17:56* |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 28-Nov-17

Client: Bhate Environmental Associates, Inc.
**ANALYTICAL REPORT**
Project: Longhorn GW Treatment Plant Monthly Effluent
WorkOrder:HS17110493
Sample ID: LH18/24-SP650_110917
Lab ID:HS17110493-01
Collection Date: 09-Nov-2017 14:00
Matrix:Water

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **ICP-MS METALS BY SW6020A** | | **Method:SW6020** | | | | Prep:SW3010A / 15-Nov-2017 | | Analyst: RPM |
| **Barium** | **0.165** | | **0.00190** | **0.00100** | **0.00400** | **mg/L** | 1 | 16-Nov-2017 15:35 |
| Lead | 0.00100 | U | 0.000600 | 0.00100 | 0.00200 | mg/L | 1 | 16-Nov-2017 15:35 |
| Selenium | 0.00100 | U | 0.00110 | 0.00100 | 0.00200 | mg/L | 1 | 16-Nov-2017 15:35 |
| Silver | 0.00100 | U | 0.000200 | 0.00100 | 0.00200 | mg/L | 1 | 16-Nov-2017 15:35 |
| **HEXAVALENT CHROMIUM BY SW7196A** | | **Method:SW7196** | | | | Prep:SW7196 | | Analyst: JHD |
| Chromium, Hexavalent | 0.00500 | U | 0.00600 | 0.00500 | 0.0100 | mg/L | 1 | 10-Nov-2017 12:32 |
| **SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)** | | **Method:NA** | | | | | | Analyst: SUB |
| Subcontract Analysis | See Attached | | 0 | 0 | | | 1 | 28-Nov-2017 16:53 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 28-Nov-17

Client: Bhate Environmental Associates, Inc.
**ANALYTICAL REPORT**
Project: Longhorn GW Treatment Plant Monthly Effluent
WorkOrder:HS17110493
Sample ID: Trip Blank
Lab ID:HS17110493-02
Collection Date: 09-Nov-2017 00:01
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 | 16-Nov-2017 13:26 |
| 1,1,1-Trichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| 1,1,2,2-Tetrachloroethane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| 1,1,2-Trichloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| 1,1-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| 1,1-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| 1,1-Dichloropropene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| 1,2,3-Trichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| 1,2,3-Trichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| 1,2,4-Trichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| 1,2,4-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| 1,2-Dibromo-3-chloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| 1,2-Dibromoethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| 1,2-Dichlorobenzene | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| 1,2-Dichloroethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| 1,2-Dichloropropane | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| 1,3,5-Trimethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| 1,3-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| 1,3-Dichloropropane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| 1,4-Dichlorobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| 2,2-Dichloropropane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| 2-Butanone | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| 2-Chlorotoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| 2-Hexanone | 1.0 | U | 1.0 | 1.0 | 2.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| 4-Chlorotoluene | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| 4-Isopropyltoluene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| 4-Methyl-2-pentanone | 1.0 | U | 0.70 | 1.0 | 2.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| Acetone | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| Benzene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| Bromobenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| Bromochloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| Bromodichloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| Bromoform | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| Bromomethane | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| Carbon disulfide | 1.0 | U | 0.60 | 1.0 | 2.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| Carbon tetrachloride | 0.50 | U | 0.50 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| Chlorobenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| Chloroethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 28-Nov-17

Client: Bhate Environmental Associates, Inc.
**ANALYTICAL REPORT**
Project: Longhorn GW Treatment Plant Monthly Effluent
WorkOrder:HS17110493
Sample ID: Trip Blank
Lab ID:HS17110493-02
Collection Date: 09-Nov-2017 00:01
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 | 16-Nov-2017 13:26 |
| Chloromethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| cis-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| cis-1,3-Dichloropropene | 0.50 | U | 0.10 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| Dibromochloromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| Dibromomethane | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| Dichlorodifluoromethane | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| Ethylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| Hexachlorobutadiene | 1.0 | U | 1.0 | 1.0 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| Isopropylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| m,p-Xylene | 1.0 | U | 0.50 | 1.0 | 2.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| Methylene chloride | 1.0 | U | 0.40 | 1.0 | 2.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| n-Butylbenzene | 0.50 | U | 0.40 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| n-Propylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| Naphthalene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| o-Xylene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| sec-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| Styrene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| tert-Butylbenzene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| Tetrachloroethene | 0.50 | U | 0.30 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| Toluene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| trans-1,2-Dichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| trans-1,3-Dichloropropene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| Trichloroethene | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| **Trichlorofluoromethane** | **2.2** | | **0.30** | **0.50** | **1.0** | **ug/L** | 1 | 16-Nov-2017 13:26 |
| Vinyl chloride | 0.50 | U | 0.20 | 0.50 | 1.0 | ug/L | 1 | 16-Nov-2017 13:26 |
| *Surr: 1,2-Dichloroethane-d4* | *95.5* | | | **0** | *81-118* | *%REC* | *1* | *16-Nov-2017 13:26* |
| *Surr: 4-Bromofluorobenzene* | *100* | | | **0** | *85-114* | *%REC* | *1* | *16-Nov-2017 13:26* |
| *Surr: Dibromofluoromethane* | *93.7* | | | **0** | *80-119* | *%REC* | *1* | *16-Nov-2017 13:26* |
| *Surr: Toluene-d8* | *100* | | | **0** | *89-112* | *%REC* | *1* | *16-Nov-2017 13:26* |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 28-Nov-17

**WEIGHT LOG**

**Client:** Bhate Environmental Associates, Inc.
**Project:** Longhorn GW Treatment Plant Monthly Effluent
**WorkOrder:** HS17110493

**Batch ID:** 122176 **Method:** SEMIVOLATILES SIM **Prep:** 3510_B_SIM

| SampID | Container | Sample Wt/Vol | Final Volume | Prep Factor |
|---|---|---|---|---|
| HS17110493-01 | 1 | 990 | 1 (mL) | 0.00101 |

**Batch ID:** 122183 **Method:** ICP-MS METALS BY SW6020A **Prep:** 3010A

| SampID | Container | Sample Wt/Vol | Final Volume | Prep Factor |
|---|---|---|---|---|
| HS17110493-01 | 1 | 10 | 10 (mL) | 1 |

**ALS Group USA, Corp** Date: 28-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Longhorn GW Treatment Plant Monthly Effluent
**WorkOrder:** HS17110493

**DATES REPORT**

| Sample ID | Client Samp ID | Collection Date | TCLP Date | Prep Date | Analysis Date | DF |
|---|---|---|---|---|---|---|
| **Batch ID** 122176 | **Test Name :** SEMIVOLATILES SIM | | | **Matrix:** Water | | |
| HS17110493-01 | LH18/24-SP650_110917 | 09 Nov 2017 14:00 | | 15 Nov 2017 08:10 | 20 Nov 2017 17:56 | 50 |
| **Batch ID** 122183 | **Test Name :** ICP-MS METALS BY SW6020A | | | **Matrix:** Water | | |
| HS17110493-01 | LH18/24-SP650_110917 | 09 Nov 2017 14:00 | | 15 Nov 2017 10:50 | 16 Nov 2017 15:35 | 1 |
| **Batch ID** R305307 | **Test Name :** HEXAVALENT CHROMIUM BY SW7196A | | | **Matrix:** Water | | |
| HS17110493-01 | LH18/24-SP650_110917 | 09 Nov 2017 14:00 | | | 10 Nov 2017 12:32 | 1 |
| **Batch ID** R305631 | **Test Name :** VOLATILES ORGANICS BY METHOD 8260C | | | **Matrix:** Water | | |
| HS17110493-01 | LH18/24-SP650_110917 | 09 Nov 2017 14:00 | | | 16 Nov 2017 13:51 | 1 |
| HS17110493-02 | Trip Blank | 09 Nov 2017 00:01 | | | 16 Nov 2017 13:26 | 1 |
| **Batch ID** R306179 | **Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850) | | | **Matrix:** Water | | |
| HS17110493-01 | LH18/24-SP650_110917 | 09 Nov 2017 14:00 | | | 28 Nov 2017 16:53 | 1 |

**ALS Group USA, Corp** Date: 28-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Longhorn GW Treatment Plant Monthly Effluent
**WorkOrder:** HS17110493

**QC BATCH REPORT**

**Batch ID: 122183** **Instrument: ICPMS05** **Method: SW6020**

**MBLK** Sample ID: **MBLK-122183** Units: **mg/L** Analysis Date: **16-Nov-2017 14:27**
Client ID: Run ID: **ICPMS05_305556** SeqNo: **4312777** PrepDate: **15-Nov-2017** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Barium | 0.00100 | 0.00400 | | | | | | | | U |
| Lead | 0.00100 | 0.00200 | | | | | | | | U |
| Selenium | 0.00100 | 0.00200 | | | | | | | | U |
| Silver | 0.00100 | 0.00200 | | | | | | | | U |

**LCS** Sample ID: **LCS-122183** Units: **mg/L** Analysis Date: **16-Nov-2017 14:43**
Client ID: Run ID: **ICPMS05_305556** SeqNo: **4312785** PrepDate: **15-Nov-2017** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Barium | 0.04877 | 0.00400 | 0.05 | 0 | 97.5 | 80 - 120 | | | | |
| Lead | 0.04663 | 0.00200 | 0.05 | 0 | 93.3 | 80 - 120 | | | | |
| Selenium | 0.04507 | 0.00200 | 0.05 | 0 | 90.1 | 80 - 120 | | | | |
| Silver | 0.04792 | 0.00200 | 0.05 | 0 | 95.8 | 80 - 120 | | | | |

**MS** Sample ID: **HS17110570-05MS** Units: **mg/L** Analysis Date: **16-Nov-2017 14:51**
Client ID: Run ID: **ICPMS05_305556** SeqNo: **4312789** PrepDate: **15-Nov-2017** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Barium | 0.05469 | 0.00400 | 0.05 | 0.01184 | 85.7 | 80 - 120 | | | | |
| Lead | 0.0454 | 0.00200 | 0.05 | 0.000204 | 90.4 | 80 - 120 | | | | |
| Selenium | 0.04943 | 0.00200 | 0.05 | 0.003083 | 92.7 | 80 - 120 | | | | |
| Silver | 0.04592 | 0.00200 | 0.05 | 0.000017 | 91.8 | 80 - 120 | | | | |

**MSD** Sample ID: **HS17110570-05MSD** Units: **mg/L** Analysis Date: **16-Nov-2017 14:53**
Client ID: Run ID: **ICPMS05_305556** SeqNo: **4312790** PrepDate: **15-Nov-2017** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Barium | 0.05634 | 0.00400 | 0.05 | 0.01184 | 89.0 | 80 - 120 | 0.05469 | 2.98 | 20 | |
| Lead | 0.04641 | 0.00200 | 0.05 | 0.000204 | 92.4 | 80 - 120 | 0.0454 | 2.2 | 20 | |
| Selenium | 0.04878 | 0.00200 | 0.05 | 0.003083 | 91.4 | 80 - 120 | 0.04943 | 1.31 | 20 | |
| Silver | 0.0433 | 0.00200 | 0.05 | 0.000017 | 86.6 | 80 - 120 | 0.04592 | 5.86 | 20 | |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 28-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Longhorn GW Treatment Plant Monthly Effluent
**WorkOrder:** HS17110493

**QC BATCH REPORT**

**Batch ID: 122183** **Instrument: ICPMS05** **Method: SW6020**

**PDS** Sample ID: **HS17110570-05PDS** Units: **mg/L** Analysis Date: **16-Nov-2017 14:55**
Client ID: Run ID: **ICPMS05_305556** SeqNo: **4312791** PrepDate: **15-Nov-2017** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Barium | 0.1023 | 0.00400 | 0.1 | 0.01184 | 90.4 | 75 - 125 | | | | |
| Lead | 0.09105 | 0.00200 | 0.1 | 0 | 91.0 | 75 - 125 | | | | |
| Selenium | 0.09863 | 0.00200 | 0.1 | 0.003083 | 95.6 | 75 - 125 | | | | |
| Silver | 0.08958 | 0.00200 | 0.1 | 0 | 89.6 | 75 - 125 | | | | |

**SD** Sample ID: **HS17110570-05SD** Units: **mg/L** Analysis Date: **16-Nov-2017 14:49**
Client ID: Run ID: **ICPMS05_305556** SeqNo: **4312788** PrepDate: **15-Nov-2017** DF: **5**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %D | %D Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Barium | 0.01143 | 0.0200 | | | | | 0.01184 | 0 | 10 | J |
| Lead | 0.00500 | 0.0100 | | | | | 0.000204 | 0 | 10 | U |
| Selenium | 0.00500 | 0.0100 | | | | | 0.003083 | 0 | 10 | U |
| Silver | 0.00500 | 0.0100 | | | | | 0.000017 | 0 | 10 | U |

**The following samples were analyzed in this batch:** HS17110493-01

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 28-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Longhorn GW Treatment Plant Monthly Effluent
**WorkOrder:** HS17110493

**QC BATCH REPORT**

**Batch ID: 122176** **Instrument: SV-6** **Method: SW8270SIM**

**MBLK** Sample ID: **MBLK-122176** Units: **ug/L** Analysis Date: **20-Nov-2017 16:14**
Client ID: Run ID: **SV-6_305797** SeqNo: **4317831** PrepDate: **15-Nov-2017** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| 1,4-Dioxane | 0 | 0.010 | | | | | | | | U |
| *Surr: 2-Fluorobiphenyl* | *0.09931* | *0* | *0.08* | *0* | *124* | *40 - 140* | | | | |
| *Surr: 4-Terphenyl-d14* | *0.1316* | *0* | *0.08* | *0* | *164* | *40 - 140* | | | | S |
| *Surr: Nitrobenzene-d5* | *0.07179* | *0* | *0.08* | *0* | *89.7* | *40 - 140* | | | | |

**LCS** Sample ID: **LCS-122176** Units: **ug/L** Analysis Date: **20-Nov-2017 16:32**
Client ID: Run ID: **SV-6_305797** SeqNo: **4317832** PrepDate: **15-Nov-2017** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| 1,4-Dioxane | 0.081 | 0.010 | 0.08 | 0 | 101 | 40 - 140 | | | | |
| *Surr: 2-Fluorobiphenyl* | *0.09708* | *0* | *0.08* | *0* | *121* | *40 - 140* | | | | |
| *Surr: 4-Terphenyl-d14* | *0.09428* | *0* | *0.08* | *0* | *118* | *40 - 140* | | | | |
| *Surr: Nitrobenzene-d5* | *0.05767* | *0* | *0.08* | *0* | *72.1* | *40 - 140* | | | | |

**LCSD** Sample ID: **LCSD-122176** Units: **ug/L** Analysis Date: **20-Nov-2017 16:50**
Client ID: Run ID: **SV-6_305797** SeqNo: **4317833** PrepDate: **15-Nov-2017** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| 1,4-Dioxane | 0.08107 | 0.010 | 0.08 | 0 | 101 | 40 - 140 | 0.081 | 0.0876 | 20 | |
| *Surr: 2-Fluorobiphenyl* | *0.09652* | *0* | *0.08* | *0* | *121* | *40 - 140* | *0.09708* | *0.583* | *20* | |
| *Surr: 4-Terphenyl-d14* | *0.1039* | *0* | *0.08* | *0* | *130* | *40 - 140* | *0.09428* | *9.69* | *20* | |
| *Surr: Nitrobenzene-d5* | *0.08144* | *0* | *0.08* | *0* | *102* | *40 - 140* | *0.05767* | *34.2* | *20* | R |

**The following samples were analyzed in this batch:** HS17110493-01

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 28-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Longhorn GW Treatment Plant Monthly Effluent
**WorkOrder:** HS17110493

**QC BATCH REPORT**

**Batch ID: R305631** **Instrument: VOA6** **Method: SW8260**

**MBLK** Sample ID: **VBLKW-171116** Units: **ug/L** Analysis Date: **16-Nov-2017 13:01**
Client ID: Run ID: **VOA6_305631** SeqNo: **4313847** 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-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 | 0.50 | 1.0 | | | | | | | | U |
| 1,2,3-Trichloropropane | 0.50 | 1.0 | | | | | | | | U |
| 1,2,4-Trichlorobenzene | 0.50 | 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 | 0.50 | 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 | 0.50 | 1.0 | | | | | | | | U |
| 1,3-Dichloropropane | 0.50 | 1.0 | | | | | | | | U |
| 1,4-Dichlorobenzene | 0.50 | 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 | 1.0 | 2.0 | | | | | | | | U |
| 4-Chlorotoluene | 0.50 | 1.0 | | | | | | | | U |
| 4-Isopropyltoluene | 0.50 | 1.0 | | | | | | | | U |
| 4-Methyl-2-pentanone | 1.0 | 2.0 | | | | | | | | U |
| Acetone | 1.0 | 2.0 | | | | | | | | U |
| Benzene | 0.50 | 1.0 | | | | | | | | U |
| Bromobenzene | 0.50 | 1.0 | | | | | | | | U |
| Bromochloromethane | 0.50 | 1.0 | | | | | | | | U |
| Bromodichloromethane | 0.50 | 1.0 | | | | | | | | U |
| Bromoform | 0.50 | 1.0 | | | | | | | | U |
| Bromomethane | 0.50 | 1.0 | | | | | | | | U |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 28-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Longhorn GW Treatment Plant Monthly Effluent
**WorkOrder:** HS17110493

**QC BATCH REPORT**

**Batch ID: R305631** **Instrument: VOA6** **Method: SW8260**

**MBLK** Sample ID: **VBLKW-171116** Units: **ug/L** Analysis Date: **16-Nov-2017 13:01**
Client ID: Run ID: **VOA6_305631** SeqNo: **4313847** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| 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 | 0.50 | 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* | *48.63* | *1.0* | *50* | *0* | *97.3* | *81 - 118* | | | | |
| *Surr: 4-Bromofluorobenzene* | *50.79* | *1.0* | *50* | *0* | *102* | *85 - 114* | | | | |
| *Surr: Dibromofluoromethane* | *47.4* | *1.0* | *50* | *0* | *94.8* | *80 - 119* | | | | |
| *Surr: Toluene-d8* | *51.28* | *1.0* | *50* | *0* | *103* | *89 - 112* | | | | |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 28-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Longhorn GW Treatment Plant Monthly Effluent
**WorkOrder:** HS17110493

**QC BATCH REPORT**

**Batch ID: R305631** **Instrument: VOA6** **Method: SW8260**

**LCS** Sample ID: **VLCSW-171116** Units: **ug/L** Analysis Date: **16-Nov-2017 11:47**
Client ID: Run ID: **VOA6_305631** SeqNo: **4313846** 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 | 43.62 | 1.0 | 50 | 0 | 87.2 | 78 - 124 | | | | |
| 1,1,1-Trichloroethane | 42.13 | 1.0 | 50 | 0 | 84.3 | 74 - 131 | | | | |
| 1,1,2,2-Tetrachloroethane | 56.58 | 1.0 | 50 | 0 | 113 | 71 - 121 | | | | |
| 1,1,2-Trichloroethane | 47.22 | 1.0 | 50 | 0 | 94.4 | 80 - 119 | | | | |
| 1,1-Dichloroethane | 43.74 | 1.0 | 50 | 0 | 87.5 | 77 - 125 | | | | |
| 1,1-Dichloroethene | 43.12 | 1.0 | 50 | 0 | 86.2 | 71 - 131 | | | | |
| 1,1-Dichloropropene | 41.87 | 1.0 | 50 | 0 | 83.7 | 79 - 125 | | | | |
| 1,2,3-Trichlorobenzene | 50.84 | 1.0 | 50 | 0 | 102 | 69 - 129 | | | | |
| 1,2,3-Trichloropropane | 53.84 | 1.0 | 50 | 0 | 108 | 73 - 122 | | | | |
| 1,2,4-Trichlorobenzene | 47.99 | 1.0 | 50 | 0 | 96.0 | 69 - 130 | | | | |
| 1,2,4-Trimethylbenzene | 46.27 | 1.0 | 50 | 0 | 92.5 | 76 - 124 | | | | |
| 1,2-Dibromo-3-chloropropane | 51.42 | 1.0 | 50 | 0 | 103 | 62 - 128 | | | | |
| 1,2-Dibromoethane | 47.46 | 1.0 | 50 | 0 | 94.9 | 77 - 121 | | | | |
| 1,2-Dichlorobenzene | 45.81 | 1.0 | 50 | 0 | 91.6 | 80 - 119 | | | | |
| 1,2-Dichloroethane | 44.33 | 1.0 | 50 | 0 | 88.7 | 73 - 128 | | | | |
| 1,2-Dichloropropane | 43.28 | 1.0 | 50 | 0 | 86.6 | 78 - 122 | | | | |
| 1,3,5-Trimethylbenzene | 46.21 | 1.0 | 50 | 0 | 92.4 | 75 - 124 | | | | |
| 1,3-Dichlorobenzene | 44.95 | 1.0 | 50 | 0 | 89.9 | 80 - 119 | | | | |
| 1,3-Dichloropropane | 47.02 | 1.0 | 50 | 0 | 94.0 | 80 - 119 | | | | |
| 1,4-Dichlorobenzene | 44.94 | 1.0 | 50 | 0 | 89.9 | 79 - 118 | | | | |
| 2,2-Dichloropropane | 42.83 | 1.0 | 50 | 0 | 85.7 | 60 - 139 | | | | |
| 2-Butanone | 91.78 | 2.0 | 100 | 0 | 91.8 | 56 - 143 | | | | |
| 2-Chlorotoluene | 47.95 | 1.0 | 50 | 0 | 95.9 | 79 - 122 | | | | |
| 2-Hexanone | 90.1 | 2.0 | 100 | 0 | 90.1 | 57 - 139 | | | | |
| 4-Chlorotoluene | 48.62 | 1.0 | 50 | 0 | 97.2 | 78 - 122 | | | | |
| 4-Isopropyltoluene | 45.07 | 1.0 | 50 | 0 | 90.1 | 77 - 127 | | | | |
| 4-Methyl-2-pentanone | 91.9 | 2.0 | 100 | 0 | 91.9 | 67 - 130 | | | | |
| Acetone | 94.25 | 2.0 | 100 | 0 | 94.3 | 39 - 160 | | | | |
| Benzene | 42.62 | 1.0 | 50 | 0 | 85.2 | 79 - 120 | | | | |
| Bromobenzene | 46.58 | 1.0 | 50 | 0 | 93.2 | 80 - 120 | | | | |
| Bromochloromethane | 41.82 | 1.0 | 50 | 0 | 83.6 | 78 - 123 | | | | |
| Bromodichloromethane | 42.68 | 1.0 | 50 | 0 | 85.4 | 79 - 125 | | | | |
| Bromoform | 44.31 | 1.0 | 50 | 0 | 88.6 | 66 - 130 | | | | |
| Bromomethane | 47.13 | 1.0 | 50 | 0 | 94.3 | 53 - 141 | | | | |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 28-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Longhorn GW Treatment Plant Monthly Effluent
**WorkOrder:** HS17110493

**QC BATCH REPORT**

**Batch ID: R305631** **Instrument: VOA6** **Method: SW8260**

**LCS** Sample ID: **VLCSW-171116** Units: **ug/L** Analysis Date: **16-Nov-2017 11:47**
Client ID: Run ID: **VOA6_305631** SeqNo: **4313846** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Carbon disulfide | 90.94 | 2.0 | 100 | 0 | 90.9 | 64 - 133 | | | | |
| Carbon tetrachloride | 41.67 | 1.0 | 50 | 0 | 83.3 | 72 - 136 | | | | |
| Chlorobenzene | 45.09 | 1.0 | 50 | 0 | 90.2 | 80 - 120 | | | | |
| Chloroethane | 42.05 | 1.0 | 50 | 0 | 84.1 | 82 - 118 | | | | |
| Chloroform | 43.97 | 1.0 | 50 | 0 | 87.9 | 79 - 124 | | | | |
| Chloromethane | 45.5 | 1.0 | 50 | 0 | 91.0 | 50 - 139 | | | | |
| cis-1,2-Dichloroethene | 43.95 | 1.0 | 50 | 0 | 87.9 | 78 - 123 | | | | |
| cis-1,3-Dichloropropene | 42.52 | 1.0 | 50 | 0 | 85.0 | 75 - 124 | | | | |
| Dibromochloromethane | 47.43 | 1.0 | 50 | 0 | 94.9 | 74 - 126 | | | | |
| Dibromomethane | 44.76 | 1.0 | 50 | 0 | 89.5 | 79 - 123 | | | | |
| Dichlorodifluoromethane | 45.57 | 1.0 | 50 | 0 | 91.1 | 32 - 152 | | | | |
| Ethylbenzene | 43.86 | 1.0 | 50 | 0 | 87.7 | 79 - 121 | | | | |
| Hexachlorobutadiene | 48.89 | 1.0 | 50 | 0 | 97.8 | 66 - 134 | | | | |
| Isopropylbenzene | 42.68 | 1.0 | 50 | 0 | 85.4 | 72 - 131 | | | | |
| m,p-Xylene | 87.28 | 2.0 | 100 | 0 | 87.3 | 80 - 121 | | | | |
| Methylene chloride | 42.86 | 2.0 | 50 | 0 | 85.7 | 74 - 124 | | | | |
| Naphthalene | 48.02 | 1.0 | 50 | 0 | 96.0 | 61 - 128 | | | | |
| n-Butylbenzene | 49.11 | 1.0 | 50 | 0 | 98.2 | 75 - 128 | | | | |
| n-Propylbenzene | 47.37 | 1.0 | 50 | 0 | 94.7 | 76 - 126 | | | | |
| o-Xylene | 43.63 | 1.0 | 50 | 0 | 87.3 | 78 - 122 | | | | |
| sec-Butylbenzene | 45.11 | 1.0 | 50 | 0 | 90.2 | 77 - 126 | | | | |
| Styrene | 44.95 | 1.0 | 50 | 0 | 89.9 | 78 - 128 | | | | |
| tert-Butylbenzene | 44.11 | 1.0 | 50 | 0 | 88.2 | 78 - 124 | | | | |
| Tetrachloroethene | 40.91 | 1.0 | 50 | 0 | 81.8 | 74 - 129 | | | | |
| Toluene | 46.7 | 1.0 | 50 | 0 | 93.4 | 80 - 121 | | | | |
| trans-1,2-Dichloroethene | 43.57 | 1.0 | 50 | 0 | 87.1 | 75 - 124 | | | | |
| trans-1,3-Dichloropropene | 42.16 | 1.0 | 50 | 0 | 84.3 | 73 - 127 | | | | |
| Trichloroethene | 40.34 | 1.0 | 50 | 0 | 80.7 | 79 - 123 | | | | |
| Trichlorofluoromethane | 43.65 | 1.0 | 50 | 0 | 87.3 | 65 - 141 | | | | |
| Vinyl chloride | 45.42 | 1.0 | 50 | 0 | 90.8 | 58 - 137 | | | | |
| *Surr: 1,2-Dichloroethane-d4* | *46.82* | *1.0* | *50* | *0* | *93.6* | *81 - 118* | | | | |
| *Surr: 4-Bromofluorobenzene* | *51.17* | *1.0* | *50* | *0* | *102* | *85 - 114* | | | | |
| *Surr: Dibromofluoromethane* | *47* | *1.0* | *50* | *0* | *94.0* | *80 - 119* | | | | |
| *Surr: Toluene-d8* | *51.63* | *1.0* | *50* | *0* | *103* | *89 - 112* | | | | |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 28-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Longhorn GW Treatment Plant Monthly Effluent
**WorkOrder:** HS17110493

**QC BATCH REPORT**

**Batch ID: R305631** **Instrument: VOA6** **Method: SW8260**

**MS** Sample ID: **HS17110493-01MS** Units: **ug/L** Analysis Date: **16-Nov-2017 17:10**
Client ID: **LH18/24-SP650_110917** Run ID: **VOA6_305631** SeqNo: **4313856** 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 | 41.9 | 1.0 | 50 | 0 | 83.8 | 78 - 124 | | | | |
| 1,1,1-Trichloroethane | 37.59 | 1.0 | 50 | 0 | 75.2 | 74 - 131 | | | | |
| 1,1,2,2-Tetrachloroethane | 56.6 | 1.0 | 50 | 0 | 113 | 71 - 121 | | | | |
| 1,1,2-Trichloroethane | 46.47 | 1.0 | 50 | 0 | 92.9 | 80 - 119 | | | | |
| 1,1-Dichloroethane | 40.62 | 1.0 | 50 | 0 | 81.2 | 77 - 125 | | | | |
| 1,1-Dichloroethene | 39.28 | 1.0 | 50 | 0 | 78.6 | 71 - 131 | | | | |
| 1,1-Dichloropropene | 37.9 | 1.0 | 50 | 0 | 75.8 | 79 - 125 | | | | S |
| 1,2,3-Trichlorobenzene | 47.8 | 1.0 | 50 | 0 | 95.6 | 69 - 129 | | | | |
| 1,2,3-Trichloropropane | 51.94 | 1.0 | 50 | 0 | 104 | 73 - 122 | | | | |
| 1,2,4-Trichlorobenzene | 44.24 | 1.0 | 50 | 0 | 88.5 | 69 - 130 | | | | |
| 1,2,4-Trimethylbenzene | 43.42 | 1.0 | 50 | 0 | 86.8 | 76 - 124 | | | | |
| 1,2-Dibromo-3-chloropropane | 52.28 | 1.0 | 50 | 0 | 105 | 62 - 128 | | | | |
| 1,2-Dibromoethane | 46.27 | 1.0 | 50 | 0 | 92.5 | 77 - 121 | | | | |
| 1,2-Dichlorobenzene | 44.57 | 1.0 | 50 | 0 | 89.1 | 80 - 119 | | | | |
| 1,2-Dichloroethane | 43.43 | 1.0 | 50 | 0 | 86.9 | 73 - 128 | | | | |
| 1,2-Dichloropropane | 41.55 | 1.0 | 50 | 0 | 83.1 | 78 - 122 | | | | |
| 1,3,5-Trimethylbenzene | 42.7 | 1.0 | 50 | 0 | 85.4 | 75 - 124 | | | | |
| 1,3-Dichlorobenzene | 42.65 | 1.0 | 50 | 0 | 85.3 | 80 - 119 | | | | |
| 1,3-Dichloropropane | 46.31 | 1.0 | 50 | 0 | 92.6 | 80 - 119 | | | | |
| 1,4-Dichlorobenzene | 42.74 | 1.0 | 50 | 0 | 85.5 | 79 - 118 | | | | |
| 2,2-Dichloropropane | 37.65 | 1.0 | 50 | 0 | 75.3 | 60 - 139 | | | | |
| 2-Butanone | 93.74 | 2.0 | 100 | 0 | 93.7 | 56 - 143 | | | | |
| 2-Chlorotoluene | 45.31 | 1.0 | 50 | 0 | 90.6 | 79 - 122 | | | | |
| 2-Hexanone | 101.3 | 2.0 | 100 | 0 | 101 | 57 - 139 | | | | |
| 4-Chlorotoluene | 45.14 | 1.0 | 50 | 0 | 90.3 | 78 - 122 | | | | |
| 4-Isopropyltoluene | 39.41 | 1.0 | 50 | 0 | 78.8 | 77 - 127 | | | | |
| 4-Methyl-2-pentanone | 101.6 | 2.0 | 100 | 0 | 102 | 67 - 130 | | | | |
| Acetone | 95.84 | 2.0 | 100 | 0 | 95.8 | 39 - 160 | | | | |
| Benzene | 39.73 | 1.0 | 50 | 0 | 79.5 | 79 - 120 | | | | |
| Bromobenzene | 45.26 | 1.0 | 50 | 0 | 90.5 | 80 - 120 | | | | |
| Bromochloromethane | 40.49 | 1.0 | 50 | 0 | 81.0 | 78 - 123 | | | | |
| Bromodichloromethane | 40.69 | 1.0 | 50 | 0 | 81.4 | 79 - 125 | | | | |
| Bromoform | 42.14 | 1.0 | 50 | 0 | 84.3 | 66 - 130 | | | | |
| Bromomethane | 22.31 | 1.0 | 50 | 0 | 44.6 | 53 - 141 | | | | S |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 28-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Longhorn GW Treatment Plant Monthly Effluent
**WorkOrder:** HS17110493

**QC BATCH REPORT**

**Batch ID: R305631** **Instrument: VOA6** **Method: SW8260**

**MS** Sample ID: **HS17110493-01MS** Units: **ug/L** Analysis Date: **16-Nov-2017 17:10**
Client ID: **LH18/24-SP650_110917** Run ID: **VOA6_305631** SeqNo: **4313856** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Carbon disulfide | 74.99 | 2.0 | 100 | 0 | 75.0 | 64 - 133 | | | | |
| Carbon tetrachloride | 33.24 | 1.0 | 50 | 0 | 66.5 | 72 - 136 | | | | S |
| Chlorobenzene | 42.7 | 1.0 | 50 | 0 | 85.4 | 80 - 120 | | | | |
| Chloroethane | 31.36 | 1.0 | 50 | 0 | 62.7 | 82 - 118 | | | | S |
| Chloroform | 42.11 | 1.0 | 50 | 0 | 84.2 | 79 - 124 | | | | |
| Chloromethane | 26.68 | 1.0 | 50 | 0 | 53.4 | 50 - 139 | | | | |
| cis-1,2-Dichloroethene | 45.18 | 1.0 | 50 | 4.156 | 82.1 | 78 - 123 | | | | |
| cis-1,3-Dichloropropene | 39.23 | 1.0 | 50 | 0 | 78.5 | 75 - 124 | | | | |
| Dibromochloromethane | 43.69 | 1.0 | 50 | 0 | 87.4 | 74 - 126 | | | | |
| Dibromomethane | 43.66 | 1.0 | 50 | 0 | 87.3 | 79 - 123 | | | | |
| Dichlorodifluoromethane | 16.4 | 1.0 | 50 | 0 | 32.8 | 32 - 152 | | | | |
| Ethylbenzene | 41.04 | 1.0 | 50 | 0 | 82.1 | 79 - 121 | | | | |
| Hexachlorobutadiene | 31.56 | 1.0 | 50 | 0 | 63.1 | 66 - 134 | | | | S |
| Isopropylbenzene | 39.77 | 1.0 | 50 | 0 | 79.5 | 72 - 131 | | | | |
| m,p-Xylene | 82.02 | 2.0 | 100 | 0 | 82.0 | 80 - 121 | | | | |
| Methylene chloride | 40.54 | 2.0 | 50 | 0 | 81.1 | 74 - 124 | | | | |
| Naphthalene | 49.32 | 1.0 | 50 | 0 | 98.6 | 61 - 128 | | | | |
| n-Butylbenzene | 41.53 | 1.0 | 50 | 0 | 83.1 | 75 - 128 | | | | |
| n-Propylbenzene | 42.67 | 1.0 | 50 | 0 | 85.3 | 76 - 126 | | | | |
| o-Xylene | 41.59 | 1.0 | 50 | 0 | 83.2 | 78 - 122 | | | | |
| sec-Butylbenzene | 39.81 | 1.0 | 50 | 0 | 79.6 | 77 - 126 | | | | |
| Styrene | 42.48 | 1.0 | 50 | 0 | 85.0 | 78 - 128 | | | | |
| tert-Butylbenzene | 39.72 | 1.0 | 50 | 0 | 79.4 | 78 - 124 | | | | |
| Tetrachloroethene | 38.85 | 1.0 | 50 | 0 | 77.7 | 74 - 129 | | | | |
| Toluene | 43.21 | 1.0 | 50 | 0 | 86.4 | 80 - 121 | | | | |
| trans-1,2-Dichloroethene | 38.97 | 1.0 | 50 | 0 | 77.9 | 75 - 124 | | | | |
| trans-1,3-Dichloropropene | 38.66 | 1.0 | 50 | 0 | 77.3 | 73 - 127 | | | | |
| Trichloroethene | 37.41 | 1.0 | 50 | 0 | 74.8 | 79 - 123 | | | | S |
| Trichlorofluoromethane | 34.46 | 1.0 | 50 | 0 | 68.9 | 65 - 141 | | | | |
| Vinyl chloride | 31.2 | 1.0 | 50 | 0.4656 | 61.5 | 58 - 137 | | | | |
| *Surr: 1,2-Dichloroethane-d4* | *46.65* | *1.0* | *50* | *0* | *93.3* | *81 - 118* | | | | |
| *Surr: 4-Bromofluorobenzene* | *51.02* | *1.0* | *50* | *0* | *102* | *85 - 114* | | | | |
| *Surr: Dibromofluoromethane* | *46.44* | *1.0* | *50* | *0* | *92.9* | *80 - 119* | | | | |
| *Surr: Toluene-d8* | *50.85* | *1.0* | *50* | *0* | *102* | *89 - 112* | | | | |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 28-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Longhorn GW Treatment Plant Monthly Effluent
**WorkOrder:** HS17110493

**QC BATCH REPORT**

**Batch ID: R305631** **Instrument: VOA6** **Method: SW8260**

**MSD** Sample ID: **HS17110493-01MSD** Units: **ug/L** Analysis Date: **16-Nov-2017 17:35**
Client ID: **LH18/24-SP650_110917** Run ID: **VOA6_305631** SeqNo: **4313857** 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 | 44.14 | 1.0 | 50 | 0 | 88.3 | 78 - 124 | 41.9 | 5.2 | 20 | |
| 1,1,1-Trichloroethane | 38.71 | 1.0 | 50 | 0 | 77.4 | 74 - 131 | 37.59 | 2.93 | 20 | |
| 1,1,2,2-Tetrachloroethane | 61.15 | 1.0 | 50 | 0 | 122 | 71 - 121 | 56.6 | 7.72 | 20 | S |
| 1,1,2-Trichloroethane | 49.81 | 1.0 | 50 | 0 | 99.6 | 80 - 119 | 46.47 | 6.95 | 20 | |
| 1,1-Dichloroethane | 42.26 | 1.0 | 50 | 0 | 84.5 | 77 - 125 | 40.62 | 3.94 | 20 | |
| 1,1-Dichloroethene | 37.78 | 1.0 | 50 | 0 | 75.6 | 71 - 131 | 39.28 | 3.89 | 20 | |
| 1,1-Dichloropropene | 38.7 | 1.0 | 50 | 0 | 77.4 | 79 - 125 | 37.9 | 2.1 | 20 | S |
| 1,2,3-Trichlorobenzene | 64.14 | 1.0 | 50 | 0 | 128 | 69 - 129 | 47.8 | 29.2 | 20 | R |
| 1,2,3-Trichloropropane | 55.36 | 1.0 | 50 | 0 | 111 | 73 - 122 | 51.94 | 6.39 | 20 | |
| 1,2,4-Trichlorobenzene | 55.29 | 1.0 | 50 | 0 | 111 | 69 - 130 | 44.24 | 22.2 | 20 | R |
| 1,2,4-Trimethylbenzene | 47.02 | 1.0 | 50 | 0 | 94.0 | 76 - 124 | 43.42 | 7.95 | 20 | |
| 1,2-Dibromo-3-chloropropane | 61.14 | 1.0 | 50 | 0 | 122 | 62 - 128 | 52.28 | 15.6 | 20 | |
| 1,2-Dibromoethane | 50.36 | 1.0 | 50 | 0 | 101 | 77 - 121 | 46.27 | 8.46 | 20 | |
| 1,2-Dichlorobenzene | 48.75 | 1.0 | 50 | 0 | 97.5 | 80 - 119 | 44.57 | 8.96 | 20 | |
| 1,2-Dichloroethane | 46.7 | 1.0 | 50 | 0 | 93.4 | 73 - 128 | 43.43 | 7.25 | 20 | |
| 1,2-Dichloropropane | 44.22 | 1.0 | 50 | 0 | 88.4 | 78 - 122 | 41.55 | 6.24 | 20 | |
| 1,3,5-Trimethylbenzene | 46.53 | 1.0 | 50 | 0 | 93.1 | 75 - 124 | 42.7 | 8.57 | 20 | |
| 1,3-Dichlorobenzene | 46.31 | 1.0 | 50 | 0 | 92.6 | 80 - 119 | 42.65 | 8.24 | 20 | |
| 1,3-Dichloropropane | 49.56 | 1.0 | 50 | 0 | 99.1 | 80 - 119 | 46.31 | 6.79 | 20 | |
| 1,4-Dichlorobenzene | 46.69 | 1.0 | 50 | 0 | 93.4 | 79 - 118 | 42.74 | 8.83 | 20 | |
| 2,2-Dichloropropane | 38.67 | 1.0 | 50 | 0 | 77.3 | 60 - 139 | 37.65 | 2.66 | 20 | |
| 2-Butanone | 98.38 | 2.0 | 100 | 0 | 98.4 | 56 - 143 | 93.74 | 4.83 | 20 | |
| 2-Chlorotoluene | 48.2 | 1.0 | 50 | 0 | 96.4 | 79 - 122 | 45.31 | 6.17 | 20 | |
| 2-Hexanone | 108.1 | 2.0 | 100 | 0 | 108 | 57 - 139 | 101.3 | 6.49 | 20 | |
| 4-Chlorotoluene | 48.4 | 1.0 | 50 | 0 | 96.8 | 78 - 122 | 45.14 | 6.97 | 20 | |
| 4-Isopropyltoluene | 43.35 | 1.0 | 50 | 0 | 86.7 | 77 - 127 | 39.41 | 9.52 | 20 | |
| 4-Methyl-2-pentanone | 108.3 | 2.0 | 100 | 0 | 108 | 67 - 130 | 101.6 | 6.32 | 20 | |
| Acetone | 102.8 | 2.0 | 100 | 0 | 103 | 39 - 160 | 95.84 | 7 | 20 | |
| Benzene | 42.38 | 1.0 | 50 | 0 | 84.8 | 79 - 120 | 39.73 | 6.45 | 20 | |
| Bromobenzene | 48.42 | 1.0 | 50 | 0 | 96.8 | 80 - 120 | 45.26 | 6.76 | 20 | |
| Bromochloromethane | 43.71 | 1.0 | 50 | 0 | 87.4 | 78 - 123 | 40.49 | 7.65 | 20 | |
| Bromodichloromethane | 43.15 | 1.0 | 50 | 0 | 86.3 | 79 - 125 | 40.69 | 5.88 | 20 | |
| Bromoform | 43.6 | 1.0 | 50 | 0 | 87.2 | 66 - 130 | 42.14 | 3.42 | 20 | |
| Bromomethane | 24.32 | 1.0 | 50 | 0 | 48.6 | 53 - 141 | 22.31 | 8.62 | 20 | S |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 28-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Longhorn GW Treatment Plant Monthly Effluent
**WorkOrder:** HS17110493

**QC BATCH REPORT**

**Batch ID: R305631** **Instrument: VOA6** **Method: SW8260**

**MSD** Sample ID: **HS17110493-01MSD** Units: **ug/L** Analysis Date: **16-Nov-2017 17:35**
Client ID: **LH18/24-SP650_110917** Run ID: **VOA6_305631** SeqNo: **4313857** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | RPD %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Carbon disulfide | 78.53 | 2.0 | 100 | 0 | 78.5 | 64 - 133 | 74.99 | 4.61 | 20 | |
| Carbon tetrachloride | 32.65 | 1.0 | 50 | 0 | 65.3 | 72 - 136 | 33.24 | 1.8 | 20 | S |
| Chlorobenzene | 45.47 | 1.0 | 50 | 0 | 90.9 | 80 - 120 | 42.7 | 6.3 | 20 | |
| Chloroethane | 32.67 | 1.0 | 50 | 0 | 65.3 | 82 - 118 | 31.36 | 4.1 | 20 | S |
| Chloroform | 44.21 | 1.0 | 50 | 0 | 88.4 | 79 - 124 | 42.11 | 4.87 | 20 | |
| Chloromethane | 27.25 | 1.0 | 50 | 0 | 54.5 | 50 - 139 | 26.68 | 2.13 | 20 | |
| cis-1,2-Dichloroethene | 47.55 | 1.0 | 50 | 4.156 | 86.8 | 78 - 123 | 45.18 | 5.1 | 20 | |
| cis-1,3-Dichloropropene | 41.84 | 1.0 | 50 | 0 | 83.7 | 75 - 124 | 39.23 | 6.45 | 20 | |
| Dibromochloromethane | 45.33 | 1.0 | 50 | 0 | 90.7 | 74 - 126 | 43.69 | 3.69 | 20 | |
| Dibromomethane | 47.72 | 1.0 | 50 | 0 | 95.4 | 79 - 123 | 43.66 | 8.88 | 20 | |
| Dichlorodifluoromethane | 15.58 | 1.0 | 50 | 0 | 31.2 | 32 - 152 | 16.4 | 5.08 | 20 | S |
| Ethylbenzene | 43.06 | 1.0 | 50 | 0 | 86.1 | 79 - 121 | 41.04 | 4.81 | 20 | |
| Hexachlorobutadiene | 41.23 | 1.0 | 50 | 0 | 82.5 | 66 - 134 | 31.56 | 26.6 | 20 | R |
| Isopropylbenzene | 42.47 | 1.0 | 50 | 0 | 84.9 | 72 - 131 | 39.77 | 6.55 | 20 | |
| m,p-Xylene | 86.45 | 2.0 | 100 | 0 | 86.4 | 80 - 121 | 82.02 | 5.26 | 20 | |
| Methylene chloride | 43.34 | 2.0 | 50 | 0 | 86.7 | 74 - 124 | 40.54 | 6.68 | 20 | |
| Naphthalene | 64.28 | 1.0 | 50 | 0 | 129 | 61 - 128 | 49.32 | 26.3 | 20 | SR |
| n-Butylbenzene | 46.47 | 1.0 | 50 | 0 | 92.9 | 75 - 128 | 41.53 | 11.2 | 20 | |
| n-Propylbenzene | 45.48 | 1.0 | 50 | 0 | 91.0 | 76 - 126 | 42.67 | 6.38 | 20 | |
| o-Xylene | 44.51 | 1.0 | 50 | 0 | 89.0 | 78 - 122 | 41.59 | 6.79 | 20 | |
| sec-Butylbenzene | 43.2 | 1.0 | 50 | 0 | 86.4 | 77 - 126 | 39.81 | 8.17 | 20 | |
| Styrene | 45.52 | 1.0 | 50 | 0 | 91.0 | 78 - 128 | 42.48 | 6.91 | 20 | |
| tert-Butylbenzene | 43.43 | 1.0 | 50 | 0 | 86.9 | 78 - 124 | 39.72 | 8.93 | 20 | |
| Tetrachloroethene | 40.47 | 1.0 | 50 | 0 | 80.9 | 74 - 129 | 38.85 | 4.09 | 20 | |
| Toluene | 45.76 | 1.0 | 50 | 0 | 91.5 | 80 - 121 | 43.21 | 5.72 | 20 | |
| trans-1,2-Dichloroethene | 40.32 | 1.0 | 50 | 0 | 80.6 | 75 - 124 | 38.97 | 3.4 | 20 | |
| trans-1,3-Dichloropropene | 41.03 | 1.0 | 50 | 0 | 82.1 | 73 - 127 | 38.66 | 5.94 | 20 | |
| Trichloroethene | 39.86 | 1.0 | 50 | 0 | 79.7 | 79 - 123 | 37.41 | 6.36 | 20 | |
| Trichlorofluoromethane | 32.72 | 1.0 | 50 | 0 | 65.4 | 65 - 141 | 34.46 | 5.18 | 20 | |
| Vinyl chloride | 31.4 | 1.0 | 50 | 0.4656 | 61.9 | 58 - 137 | 31.2 | 0.651 | 20 | |
| *Surr: 1,2-Dichloroethane-d4* | *47.35* | *1.0* | *50* | *0* | *94.7* | *81 - 118* | *46.65* | *1.5* | *20* | |
| *Surr: 4-Bromofluorobenzene* | *51.14* | *1.0* | *50* | *0* | *102* | *85 - 114* | *51.02* | *0.243* | *20* | |
| *Surr: Dibromofluoromethane* | *46.72* | *1.0* | *50* | *0* | *93.4* | *80 - 119* | *46.44* | *0.603* | *20* | |
| *Surr: Toluene-d8* | *50.98* | *1.0* | *50* | *0* | *102* | *89 - 112* | *50.85* | *0.257* | *20* | |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 28-Nov-17

| | |
|---|---|
| **Client:** | Bhate Environmental Associates, Inc. |
| **Project:** | Longhorn GW Treatment Plant Monthly Effluent |
| **WorkOrder:** | HS17110493 |

**QC BATCH REPORT**

| | | | | | |
|---|---|---|---|---|---|
| **Batch ID:** | **R305631** | **Instrument:** | **VOA6** | **Method:** | **SW8260** |

| | | |
|---|---|---|
| **The following samples were analyzed in this batch:** | HS17110493-01 | HS17110493-02 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 28-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Longhorn GW Treatment Plant Monthly Effluent
**WorkOrder:** HS17110493

**QC BATCH REPORT**

**Batch ID: R305307** **Instrument: UV-2450** **Method: SW7196**

**MBLK** Sample ID: **MBLK-305307** Units: **mg/L** Analysis Date: **10-Nov-2017 12:32**
Client ID: Run ID: **UV-2450_305307** SeqNo: **4306143** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 0.00500 | 0.0100 | | | | | | | | U |

**LCS** Sample ID: **LCS-305307** Units: **mg/L** Analysis Date: **10-Nov-2017 12:32**
Client ID: Run ID: **UV-2450_305307** SeqNo: **4306144** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 0.232 | 0.0100 | 0.25 | 0 | 92.8 | 80 - 120 | | | | |

**LCSD** Sample ID: **LCSD-305307** Units: **mg/L** Analysis Date: **10-Nov-2017 12:32**
Client ID: Run ID: **UV-2450_305307** SeqNo: **4306145** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 0.233 | 0.0100 | 0.25 | 0 | 93.2 | 80 - 120 | 0.232 | 0.43 | 20 | |

**MS** Sample ID: **HS17110496-01MS** Units: **mg/L** Analysis Date: **10-Nov-2017 12:32**
Client ID: Run ID: **UV-2450_305307** SeqNo: **4306147** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 0.225 | 0.0100 | 0.25 | -0.002 | 90.8 | 75 - 125 | | | | |

**MSD** Sample ID: **HS17110496-01MSD** Units: **mg/L** Analysis Date: **10-Nov-2017 12:32**
Client ID: Run ID: **UV-2450_305307** SeqNo: **4306148** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 0.215 | 0.0100 | 0.25 | -0.002 | 86.8 | 75 - 125 | 0.225 | 4.55 | 20 | |

**The following samples were analyzed in this batch:** HS17110493-01

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 28-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Longhorn GW Treatment Plant Monthly Effluent
**WorkOrder:** **HS17110493**

**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 |

## CERTIFICATIONS,ACCREDITATIONS & LICENSES

| Agency | Number | Expire Date |
|---|---|---|
| Arkansas | 17-027-0 | 27-Mar-2018 |
| California | 2919 2016-2018 | 31-Jul-2018 |
| Illinois | 004112 | 09-May-2018 |
| Kentucky | 123043 | 30-Apr-2018 |
| Louisiana | 03087 2017-2017 | 30-Jun-2018 |
| North Carolina | 624-2017 | 31-Dec-2017 |
| North Dakota | R193 2017-2017 | 30-Apr-2018 |
| Oklahoma | 2017-088 | 31-Aug-2018 |
| Texas | T104704231-17-19 | 30-Apr-2018 |

**ALS Group USA, Corp** Date: 28-Nov-17

## Sample Receipt Checklist

Client Name: Bhate Environmental
Work Order: HS17110493
Date/Time Received: **10-Nov-2017 08:45**
Received by: **JRM**

Checklist completed by: *Jared R. Makan* eSignature 10-Nov-2017 Date
Reviewed by: *Sonia West* eSignature 13-Nov-2017 Date

Matrices: **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 ☑ |
| Chain of custody present? | Yes ☑ | No ☐ | |
| Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | |
| Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | |
| Samples in proper container/bottle? | Yes ☑ | No ☐ | |
| Sample containers intact? | Yes ☑ | No ☐ | |
| TX1005 solids received in hermetically sealed vials? | Yes ☐ | No ☐ | N/A ☑ |
| 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): | 1.6c/1.9c UC/C | IR30 | |
| Cooler(s)/Kit(s): | 24028 | | |
| Date/Time sample(s) sent to storage: | 11/10/2017 10:55 | | |
| 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:

# CHAIN OF CUSTODY

Name Of Lab Shipping To: ALS 10450 Stancliff Rd., Suite 210 Houston, TX 77099 (281) 530 – 5656 ATTN: SONIA WEST



**Project:** BHATE
LONGHORN ARMY AMMN. PLANT (LHAAP)
GROUNDWATER TREATMENT PLANT (GWTP)
KARNACK, TEXAS

**Project No.** NWO1312.0150.0 16.0001

**Job:** GROUNDWATER TREATMENT PLANT MONTHLY EFFLUENT SAMPLES

**Prepared By:** Scott Beesinger

**P.O. Number**

| Field Sample I.D. | Sample Matrix | Date / Time | MS / MSD | No. OF CONTAINERS | Analyses: VOLATILES | SILVER, SELENIUM, LEAD, BARIUM | HEXAVALENT CHROMIUM | 1, 4 - DIOXANE | PERCHLORATE | | | | | | Remarks (Preservatives, etc.) | Lab I.D.# |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LH18/24-SP650_110917 | Water | 11/09/17 / 14:00 | | 3 | X | | | | | | | | | | HCL | |
| LH18/24-SP650_110917 | Water | 11/09/17 / 14:00 | | 3 | | | X | X | X | | | | | | NONE | |
| LH18/24-SP650_110917 | Water | 11/09/17 / 14:00 | | 1 | | X | | | | | | | | | HNO3 | |
| Trip Blank | Water | 11/09/17 | | 2 | X | | | | | | | | | | HCL | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |

Additional Remarks: **STANDARD TURN AROUND TIME**

| Relinquished By: | Date | Time | Received By: | Date | Time | Relinquished By: | Date | Time | Received By: | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Scott Beesinger | 11/09/17 | 14:30 | JM | 11/9/17 | 18:40 | | | | | | |

**For Lab Use Only**

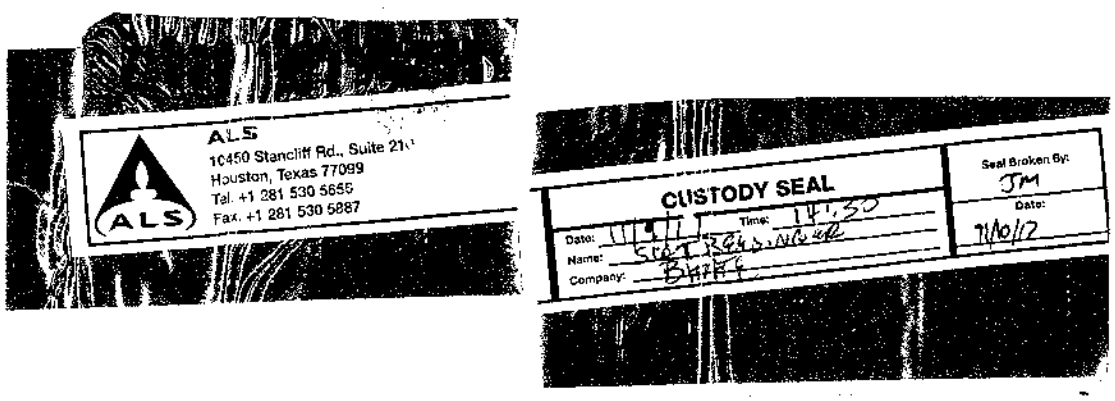
| Received At Lab By: | Date | Time | Airbill No. | Opened By: | Date | Time | Temp of Container | Seal No. | Condition |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |

Remarks: Cooler – 24928 1430
Temp 1.6 COC?

**HS17110493**

Bhate Environmental Associates, Inc.
Longhorn GW Treatment Plant

(Word) S:\U-ees\Forms\Chain of Custody - BiWeekly


ALS
10450 Stancliff Rd., Suite 21
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887
CUSTODY SEAL
Date:
Time:
Name:
Company:
Seal Broken By:
JM
Date:
7/10/12


FRI - 10 NOV 10:30A
PRIORITY OVERNIGHT
7376 9749 3265
AB SGRA
77099
TX-US
IAH
RETURNS MON-SAT
PRIORITY OVERNIGHT

# Volatile Organics Raw Data

## Bhate Environmental Associates, Inc.

Project: Longhorn GW Treatment Plant Monthly Effluent

ALS WO# HS17110493

FORM 2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17110493

| | CLIENT SAMPLE NO. | SMC1 (DCE)# | SMC2 (TOL)# | SMC3 # | OTHER # | TOT OUT |
|---|---|---|---|---|---|---|
| 01 | VLCSW-171116 | 94 | 103 | 102 | 94 | 0 |
| 02 | VBLKW-0171116 | 97 | 102 | 102 | 95 | 0 |
| 03 | HS17110493-02 | 95 | 100 | 100 | 94 | 0 |
| 04 | HS17110493-01 | 96 | 102 | 102 | 94 | 0 |
| 05 | HS17110493-01 | 93 | 102 | 102 | 93 | 0 |
| 06 | HS17110493-01 | 95 | 102 | 102 | 93 | 0 |
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| | | QC LIMITS |
|---|---|---|
| SMC1 (DCE) | = 1,2-Dichloroethane-d4 | (70-130) |
| SMC2 (TOL) | = Toluene-d8 | (70-130) |
| SMC3 | = 4-Bromofluorobenzene | (70-130) |
| OTHER | = Dibromofluoromethane | (70-130) |

# Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

# FORM 2
## WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17110493

| | CLIENT SAMPLE NO. | SMC1 (DCE)# | SMC2 (TOL)# | SMC3 # | OTHER # | TOT OUT |
|---|---|---|---|---|---|---|
| 01 | VLCSW-171119 | 92 | 102 | 102 | 93 | 0 |
| 02 | VBLKW-0171119 | 94 | 101 | 102 | 95 | 0 |
| 03 | HS17110664-11 | 93 | 102 | 102 | 93 | 0 |
| 04 | HS17110664-11 | 90 | 101 | 101 | 92 | 0 |
| 05 | HS17110493-02 | 92 | 100 | 101 | 93 | 0 |
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| | | QC LIMITS |
|---|---|---|
| SMC1 (DCE) | = 1,2-Dichloroethane-d4 | (70-130) |
| SMC2 (TOL) | = Toluene-d8 | (70-130) |
| SMC3 | = 4-Bromofluorobenzene | (70-130) |
| OTHER | = Dibromofluoromethane | (70-130) |

# Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

# FORM 3
## WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code:  Case No.:  SAS No.:  SDG No.: HS17110493

Matrix Spike - Sample No.: VSTD-ICV

| COMPOUND | SPIKE ADDED (ug/L) | SAMPLE AMOUNT () | % REC # | QC. LIMITS REC. |
|---|---|---|---|---|
| Dichlorodifluoromethane | 50.00 | 45.01 | 90 | 80-120 |
| Chloromethane | 50.00 | 48.14 | 96 | 80-120 |
| Vinyl Chloride | 50.00 | 46.90 | 94 | 80-120 |
| Bromomethane | 50.00 | 50.64 | 101 | 80-120 |
| Chloroethane | 50.00 | 44.27 | 88 | 80-120 |
| Trichlorofluoromethane | 50.00 | 45.60 | 91 | 80-120 |
| Acetone | 100.00 | 97.69 | 98 | 80-120 |
| 1,1-Dichloroethene | 50.00 | 45.63 | 91 | 80-120 |
| Methylene Chloride | 50.00 | 45.22 | 90 | 80-120 |
| Carbon Disulfide | 100.00 | 91.15 | 91 | 80-120 |
| trans-1,2-Dichloroethen | 50.00 | 45.95 | 92 | 80-120 |
| 1,1-Dichloroethane | 50.00 | 46.49 | 93 | 80-120 |
| 2-Butanone | 100.00 | 99.69 | 100 | 80-120 |
| cis-1,2-Dichloroethene | 50.00 | 47.14 | 94 | 80-120 |
| Chloroform | 50.00 | 46.28 | 92 | 80-120 |
| 1,1,1-Trichloroethane | 50.00 | 45.45 | 91 | 80-120 |
| 1,2-Dichloroethane | 50.00 | 46.42 | 93 | 80-120 |
| Carbon Tetrachloride | 50.00 | 46.42 | 93 | 80-120 |
| Benzene | 50.00 | 47.52 | 95 | 80-120 |
| Trichloroethene | 50.00 | 45.84 | 92 | 80-120 |
| Styrene | 50.00 | 46.93 | 94 | 80-120 |
| Bromodichloromethane | 50.00 | 47.09 | 94 | 80-120 |
| 1,2-Dichloropropane | 50.00 | 46.89 | 94 | 80-120 |
| 4-Methyl-2-Pentanone | 100.00 | 90.89 | 91 | 80-120 |
| cis-1,3-Dichloropropene | 50.00 | 47.03 | 94 | 80-120 |
| Toluene | 50.00 | 47.45 | 95 | 80-120 |
| trans-1,3-Dichloroprope | 50.00 | 46.65 | 93 | 80-120 |
| 2-Hexanone | 100.00 | 92.25 | 92 | 80-120 |

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

* Values outside of QC limits

COMMENTS: _____

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FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17110493

Matrix Spike - Sample No.: VSTD-ICV

| COMPOUND | SPIKE ADDED (ug/L) | SAMPLE AMOUNT () | % REC # | QC. LIMITS REC. |
|---|---|---|---|---|
| 1,1,2-Trichloroethane | 50.00 | 46.21 | 92 | 80-120 |
| Dibromochloromethane | 50.00 | 46.97 | 94 | 80-120 |
| Tetrachloroethene | 50.00 | 46.15 | 92 | 80-120 |
| 1,2-Dibromoethane | 50.00 | 47.49 | 95 | 80-120 |
| Chlorobenzene | 50.00 | 46.71 | 93 | 80-120 |
| Ethylbenzene | 50.00 | 46.52 | 93 | 80-120 |
| m,p-Xylenes | 100.00 | 93.04 | 93 | 80-120 |
| o-Xylene | 50.00 | 45.76 | 92 | 80-120 |
| Bromoform | 50.00 | 45.93 | 92 | 80-120 |
| Isopropylbenzene | 50.00 | 45.91 | 92 | 80-120 |
| 1,1,2,2-Tetrachloroetha | 50.00 | 49.86 | 100 | 80-120 |
| tert-Butylbenzene | 50.00 | 43.64 | 87 | 80-120 |
| n-Propylbenzene | 50.00 | 45.22 | 90 | 80-120 |
| n-Butylbenzene | 50.00 | 45.85 | 92 | 80-120 |
| 1,1-Dichloropropene | 50.00 | 46.75 | 94 | 80-120 |
| Bromochloromethane | 50.00 | 44.64 | 89 | 80-120 |
| p-Isopropyltoluene | 50.00 | 44.84 | 90 | 80-120 |
| 4-Chlorotoluene | 50.00 | 45.96 | 92 | 80-120 |
| 1,3-Dichlorobenzene | 50.00 | 46.21 | 92 | 80-120 |
| Hexachlorobutadiene | 50.00 | 47.14 | 94 | 80-120 |
| Dibromomethane | 50.00 | 46.91 | 94 | 80-120 |
| sec-Butylbenzene | 50.00 | 43.25 | 86 | 80-120 |
| Naphthalene | 50.00 | 50.89 | 102 | 80-120 |
| Xylenes (total) | 150.00 | 138.81 | 92 | 80-120 |
| 1,2,3-Trichloropropane | 50.00 | 47.72 | 95 | 80-120 |
| 1,2,3-Trichlorobenzene | 50.00 | 55.08 | 110 | 80-120 |
| 1,2,4-Trimethylbenzene | 50.00 | 45.71 | 91 | 80-120 |
| 1,3,5-Trimethylbenzene | 50.00 | 45.86 | 92 | 80-120 |

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

* Values outside of QC limits

COMMENTS: _____

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FORM III VOA

# FORM 3
## WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code:  Case No.:  SAS No.:  SDG No.: HS17110493

Matrix Spike - Sample No.: VSTD-ICV

| COMPOUND | SPIKE ADDED (ug/L) | SAMPLE AMOUNT () | % REC # | QC. LIMITS REC. |
|---|---|---|---|---|
| 2,2-Dichloropropane | 50.00 | 46.49 | 93 | 80-120 |
| 1,3-Dichloropropane | 50.00 | 45.93 | 92 | 80-120 |
| 2-Chlorotoluene | 50.00 | 46.71 | 93 | 80-120 |
| Bromobenzene | 50.00 | 47.50 | 95 | 80-120 |
| 1,4-Dichlorobenzene | 50.00 | 45.32 | 91 | 80-120 |
| 1,1,1,2-Tetrachloroetha | 50.00 | 45.86 | 92 | 80-120 |
| 1,2-Dichlorobenzene | 50.00 | 46.34 | 93 | 80-120 |
| 1,2-Dibromo-3-Chloropro | 50.00 | 50.77 | 102 | 80-120 |
| 1,2,4-Trichlorobenzene | 50.00 | 53.20 | 106 | 80-120 |

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

* Values outside of QC limits

COMMENTS: _____

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FORM III VOA

# FORM 5
## VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
## BROMOFLUOROBENZENE (BFB)

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code:  Case No.:  SAS No.:  SDG No.: HS17110493

Lab File ID: X101001  BFB Injection Date: 10/10/17

Instrument ID: VOA6  BFB Injection Time: 1005

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 | 23.9 |
| 75 | 30.0 - 60.0% of mass 95 | 52.0 |
| 95 | Base Peak, 100% relative abundance | 100.0 |
| 96 | 5.0 - 9.0% of mass 95 | 7.0 |
| 173 | Less than 2.0% of mass 174 | 0.6 ( 1.1)1 |
| 174 | Greater than 50.0% of mass 95 | 53.5 |
| 175 | 5.0 - 9.0% of mass 174 | 4.4 ( 8.2)1 |
| 176 | 95.0 - 101.0% of mass 174 | 52.4 ( 98.0)1 |
| 177 | 5.0 - 9.0% of mass 176 | 3.9 ( 7.4)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 | VSTD000.5 | VSTD000.5 | X101003 | 10/10/17 | 1128 |
| 02 | VSTD001 | VSTD001 | X101004 | 10/10/17 | 1153 |
| 03 | VSTD002 | VSTD002 | X101005 | 10/10/17 | 1218 |
| 04 | VSTD005 | VSTD005 | X101006 | 10/10/17 | 1243 |
| 05 | VSTD020 | VSTD020 | X101007 | 10/10/17 | 1308 |
| 06 | VSTD050 | VSTD050 | X101008 | 10/10/17 | 1333 |
| 07 | VSTD100 | VSTD100 | X101009 | 10/10/17 | 1358 |
| 08 | VSTD150 | VSTD150 | X101010 | 10/10/17 | 1422 |
| 09 | VSTD200 | VSTD200 | X101011 | 10/10/17 | 1447 |
| 10 | VSTD-ICV | VSTD-ICV | X101013 | 10/10/17 | 1723 |
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# FORM 6
## VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code:  Case No.:  SAS No.:  SDG No.: HS17110493

Instrument ID: VOA6  Calibration Date(s): 10/10/17 10/10/17

Column: DB624  ID: 0.18 (mm)  Calibration Time(s): 1014  1447

LAB FILE ID:  RF0.5: X101003  RF1: X101004  RF2: X101005
RF5: X101006  RF20: X101007  RF50: X101008

| COMPOUND | RF0.5 | RF1 | RF2 | RF5 | RF20 | RF50 |
|---|---|---|---|---|---|---|
| Dichlorodifluoromethane | 0.758 | 0.559 | 0.682 | 0.578 | 0.583 | 0.638 |
| Chloromethane | 4746 | 8919 | 17438 | 39933 | 152259 | 371695 |
| Vinyl Chloride | 0.975 | 0.708 | 0.902 | 0.847 | 0.825 | 0.850 |
| Bromomethane | 0.571 | 0.543 | 0.449 | 0.474 | 0.432 | 0.450 |
| Chloroethane | 0.610 | 0.588 | 0.539 | 0.540 | 0.493 | 0.477 |
| Trichlorofluoromethane | 1.077 | 0.749 | 0.852 | 0.805 | 0.762 | 0.827 |
| Acetone | 4739 | 6610 | 8765 | 17904 | 57879 | 134851 |
| 1,1-Dichloroethene | 0.704 | 0.519 | 0.627 | 0.575 | 0.558 | 0.560 |
| Methylene Chloride | 0.914 | 0.860 | 0.823 | 0.800 | 0.715 | 0.706 |
| Carbon Disulfide | 2.178 | 1.776 | 1.997 | 1.863 | 1.763 | 1.763 |
| trans-1,2-Dichloroethene | 0.858 | 0.621 | 0.702 | 0.687 | 0.657 | 0.642 |
| 1,1-Dichloroethane | 1.593 | 1.289 | 1.385 | 1.334 | 1.261 | 1.243 |
| 2-Butanone | 0.288 | 0.276 | 0.300 | 0.293 | 0.296 | 0.310 |
| cis-1,2-Dichloroethene | 0.896 | 0.744 | 0.764 | 0.753 | 0.741 | 0.715 |
| Chloroform | 1.376 | 1.250 | 1.332 | 1.256 | 1.173 | 1.158 |
| 1,1,1-Trichloroethane | 1.228 | 0.948 | 1.009 | 0.994 | 0.924 | 0.928 |
| 1,2-Dichloroethane | 0.652 | 0.557 | 0.614 | 0.562 | 0.534 | 0.534 |
| Carbon Tetrachloride | 0.465 | 0.430 | 0.509 | 0.463 | 0.434 | 0.444 |
| Benzene | 1.813 | 1.689 | 1.671 | 1.657 | 1.577 | 1.579 |
| Trichloroethene | 0.504 | 0.400 | 0.407 | 0.400 | 0.378 | 0.375 |
| Styrene | 1.350 | 1.127 | 1.156 | 1.109 | 1.072 | 1.035 |
| Bromodichloromethane | 0.719 | 0.588 | 0.559 | 0.559 | 0.534 | 0.527 |
| 1,2-Dichloropropane | 0.526 | 0.450 | 0.463 | 0.501 | 0.451 | 0.439 |
| 4-Methyl-2-Pentanone | 0.524 | 0.434 | 0.429 | 0.449 | 0.433 | 0.405 |
| cis-1,3-Dichloropropene | 0.854 | 0.710 | 0.727 | 0.734 | 0.700 | 0.685 |
| Toluene | 1.909 | 1.566 | 1.657 | 1.638 | 1.589 | 1.534 |
| trans-1,3-Dichloropropene | 0.717 | 0.647 | 0.642 | 0.614 | 0.586 | 0.590 |
| 2-Hexanone | 0.516 | 0.371 | 0.414 | 0.398 | 0.398 | 0.385 |
| 1,1,2-Trichloroethane | 0.395 | 0.337 | 0.345 | 0.330 | 0.314 | 0.301 |
| Dibromochloromethane | 0.503 | 0.404 | 0.445 | 0.437 | 0.410 | 0.402 |
| Tetrachloroethene | 0.333 | 0.252 | 0.279 | 0.269 | 0.264 | 0.256 |
| 1,2-Dibromoethane | 0.448 | 0.366 | 0.398 | 0.401 | 0.373 | 0.356 |
| Chlorobenzene | 1.228 | 1.021 | 1.063 | 1.009 | 0.978 | 0.958 |
| Ethylbenzene | 0.654 | 0.484 | 0.534 | 0.514 | 0.492 | 0.477 |
| m,p-Xylenes | 0.786 | 0.573 | 0.619 | 0.615 | 0.589 | 0.581 |
| o-Xylene | 0.791 | 0.618 | 0.649 | 0.600 | 0.598 | 0.578 |
| Bromoform | 0.357 | 0.271 | 0.281 | 0.283 | 0.274 | 0.262 |
| Isopropylbenzene | 1.465 | 1.107 | 1.316 | 1.266 | 1.211 | 1.171 |
| 1,1,2,2-Tetrachloroethane | 4206 | 6731 | 13394 | 31643 | 118197 | 277176 |
| tert-Butylbenzene | 2.089 | 1.511 | 1.603 | 1.557 | 1.423 | 1.442 |
| n-Propylbenzene | 3.874 | 2.899 | 3.132 | 3.176 | 2.908 | 2.959 |
| n-Butylbenzene | 1.823 | 1.240 | 1.433 | 1.530 | 1.406 | 1.496 |
| 1,1-Dichloropropene | 0.582 | 0.525 | 0.578 | 0.546 | 0.523 | 0.532 |
| Bromochloromethane | 0.377 | 0.376 | 0.396 | 0.353 | 0.318 | 0.307 |

# FORM 6
## VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code:  Case No.:  SAS No.:  SDG No.: HS1711049

Instrument ID: VOA6  Calibration Date(s): 10/10/17 10/10/17

Column: DB624  ID: 0.18 (mm)  Calibration Time(s): 1014  1447

LAB FILE ID:  RF0.5: X101003  RF1: X101004  RF2: X101005
RF5: X101006  RF20: X101007  RF50: X101008

| COMPOUND | RF0.5 | RF1 | RF2 | RF5 | RF20 | RF50 |
|---|---|---|---|---|---|---|
| p-Isopropyltoluene | 2.339 | 1.654 | 1.821 | 1.858 | 1.677 | 1.718 |
| 4-Chlorotoluene | 3.044 | 2.325 | 2.468 | 2.408 | 2.280 | 2.301 |
| 1,3-Dichlorobenzene | 1.700 | 1.267 | 1.295 | 1.278 | 1.193 | 1.232 |
| Hexachlorobutadiene | 1021 | 1041 | 2823 | 6979 | 21569 | 58354 |
| Dibromomethane | 0.316 | 0.240 | 0.290 | 0.266 | 0.258 | 0.256 |
| sec-Butylbenzene | 2.643 | 1.890 | 2.239 | 2.113 | 1.905 | 1.985 |
| Naphthalene | 2916 | 4030 | 8735 | 27541 | 125593 | 326975 |
| Xylenes (total) | 0.792 | 0.586 | 0.619 | 0.603 | 0.590 | 0.585 |
| 1,2,3-Trichloropropane | 1.122 | 0.764 | 0.849 | 0.868 | 0.872 | 0.862 |
| 1,2,3-Trichlorobenzene | 0.347 | 0.229 | 0.279 | 0.307 | 0.294 | 0.315 |
| 1,2,4-Trimethylbenzene | 2.808 | 2.098 | 2.331 | 2.218 | 2.106 | 2.122 |
| 1,3,5-Trimethylbenzene | 2.536 | 1.954 | 2.144 | 2.136 | 1.973 | 1.979 |
| 2,2-Dichloropropane | 1.119 | 1.050 | 1.048 | 1.039 | 0.992 | 0.984 |
| 1,3-Dichloropropane | 0.840 | 0.674 | 0.758 | 0.698 | 0.664 | 0.642 |
| 2-Chlorotoluene | 2.478 | 2.024 | 2.172 | 2.086 | 1.946 | 1.975 |
| Bromobenzene | 1.016 | 0.806 | 0.877 | 0.872 | 0.808 | 0.838 |
| 1,4-Dichlorobenzene | 1.828 | 1.342 | 1.414 | 1.337 | 1.228 | 1.274 |
| 1,1,1,2-Tetrachloroethane | 0.460 | 0.386 | 0.374 | 0.371 | 0.351 | 0.339 |
| 1,2-Dichlorobenzene | 1.647 | 1.213 | 1.258 | 1.240 | 1.195 | 1.179 |
| 1,2-Dibromo-3-Chloropropane | 522 | 911 | 1484 | 3907 | 13745 | 33919 |
| 1,2,4-Trichlorobenzene | 0.459 | 0.329 | 0.385 | 0.428 | 0.420 | 0.449 |
| 1,2-Dichloroethane-d4 | 4869 | 8408 | 14296 | 35051 | 138773 | 340941 |
| Toluene-d8 | 13883 | 25142 | 43375 | 94423 | 398851 | 994742 |
| 4-Bromofluorobenzene | 5297 | 8638 | 16347 | 36044 | 142465 | 354904 |
| Dibromofluoromethane | 3706 | 6592 | 11210 | 26199 | 111395 | 270013 |

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code:  Case No.:  SAS No.:  SDG No.: HS1711049

Instrument ID: VOA6  Calibration Date(s): 10/10/17 10/10/17

Column: DB624  ID: 0.18 (mm)  Calibration Time(s): 1014  1447

LAB FILE ID:  RF100: X101009  RF150: X101010  RF200: X101011

| COMPOUND | RF100 | RF150 | RF200 |
|---|---|---|---|
| Dichlorodifluoromethane | 0.619 | 0.669 | 0.667 |
| Chloromethane | 748853 | 1119443 | 1476509 |
| Vinyl Chloride | 0.858 | 0.871 | 0.868 |
| Bromomethane | 0.466 | 0.496 | 0.484 |
| Chloroethane | 0.475 | 0.478 | 0.468 |
| Trichlorofluoromethane | 0.805 | 0.838 | 0.825 |
| Acetone | 257034 | 376636 | 501328 |
| 1,1-Dichloroethene | 0.562 | 0.557 | 0.550 |
| Methylene Chloride | 0.712 | 0.701 | 0.692 |
| Carbon Disulfide | 1.753 | 1.753 | 1.749 |
| trans-1,2-Dichloroethene | 0.647 | 0.636 | 0.629 |
| 1,1-Dichloroethane | 1.262 | 1.243 | 1.210 |
| 2-Butanone | 0.297 | 0.299 | 0.301 |
| cis-1,2-Dichloroethene | 0.727 | 0.714 | 0.694 |
| Chloroform | 1.173 | 1.147 | 1.119 |
| 1,1,1-Trichloroethane | 0.930 | 0.936 | 0.930 |
| 1,2-Dichloroethane | 0.529 | 0.530 | 0.511 |
| Carbon Tetrachloride | 0.450 | 0.459 | 0.462 |
| Benzene | 1.611 | 1.583 | 1.572 |
| Trichloroethene | 0.385 | 0.387 | 0.385 |
| Styrene | 1.071 | 1.028 | 1.029 |
| Bromodichloromethane | 0.541 | 0.539 | 0.533 |
| 1,2-Dichloropropane | 0.447 | 0.444 | 0.439 |
| 4-Methyl-2-Pentanone | 0.417 | 0.414 | 0.416 |
| cis-1,3-Dichloropropene | 0.698 | 0.702 | 0.704 |
| Toluene | 1.560 | 1.520 | 1.496 |
| trans-1,3-Dichloropropene | 0.598 | 0.596 | 0.584 |
| 2-Hexanone | 0.400 | 0.399 | 0.404 |
| 1,1,2-Trichloroethane | 0.301 | 0.294 | 0.288 |
| Dibromochloromethane | 0.408 | 0.399 | 0.393 |
| Tetrachloroethene | 0.257 | 0.255 | 0.252 |
| 1,2-Dibromoethane | 0.356 | 0.350 | 0.344 |
| Chlorobenzene | 0.982 | 0.951 | 0.934 |
| Ethylbenzene | 0.486 | 0.478 | 0.471 |
| m,p-Xylenes | 0.583 | 0.577 | 0.565 |
| o-Xylene | 0.588 | 0.574 | 0.563 |
| Bromoform | 0.266 | 0.258 | 0.255 |
| Isopropylbenzene | 1.179 | 1.182 | 1.159 |
| 1,1,2,2-Tetrachloroethane | 545730 | 810128 | 1055403 |
| tert-Butylbenzene | 1.433 | 1.437 | 1.402 |
| n-Propylbenzene | 2.972 | 2.924 | 2.867 |
| n-Butylbenzene | 1.411 | 1.458 | 1.409 |
| 1,1-Dichloropropene | 0.529 | 0.540 | 0.531 |
| Bromochloromethane | 0.301 | 0.295 | 0.283 |

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code:  Case No.:  SAS No.:  SDG No.: HS1711049

Instrument ID: VOA6  Calibration Date(s): 10/10/17 10/10/17

Column: DB624  ID: 0.18 (mm)  Calibration Time(s): 1014  1447

LAB FILE ID:  RF100: X101009  RF150: X101010  RF200: X101011

| COMPOUND | RF100 | RF150 | RF200 |
|---|---|---|---|
| p-Isopropyltoluene | 1.672 | 1.703 | 1.668 |
| 4-Chlorotoluene | 2.320 | 2.262 | 2.192 |
| 1,3-Dichlorobenzene | 1.230 | 1.198 | 1.182 |
| Hexachlorobutadiene | 96788 | 161761 | 223916 |
| Dibromomethane | 0.258 | 0.252 | 0.246 |
| sec-Butylbenzene | 1.917 | 1.974 | 1.932 |
| Naphthalene | 677057 | 1113941 | 1535347 |
| Xylenes (total) | 0.594 | 0.597 | 0.585 |
| 1,2,3-Trichloropropane | 0.879 | 0.842 | 0.814 |
| 1,2,3-Trichlorobenzene | 0.324 | 0.345 | 0.356 |
| 1,2,4-Trimethylbenzene | 2.105 | 2.077 | 2.011 |
| 1,3,5-Trimethylbenzene | 1.990 | 1.968 | 1.910 |
| 2,2-Dichloropropane | 0.990 | 1.000 | 0.984 |
| 1,3-Dichloropropane | 0.644 | 0.622 | 0.620 |
| 2-Chlorotoluene | 1.977 | 1.901 | 1.878 |
| Bromobenzene | 0.845 | 0.805 | 0.792 |
| 1,4-Dichlorobenzene | 1.289 | 1.247 | 1.231 |
| 1,1,1,2-Tetrachloroethane | 0.350 | 0.346 | 0.339 |
| 1,2-Dichlorobenzene | 1.191 | 1.170 | 1.155 |
| 1,2-Dibromo-3-Chloropropane | 65831 | 100495 | 136011 |
| 1,2,4-Trichlorobenzene | 0.452 | 0.477 | 0.481 |
| 1,2-Dichloroethane-d4 | 681709 | | |
| Toluene-d8 | 2037259 | | |
| 4-Bromofluorobenzene | 718688 | | |
| Dibromofluoromethane | 550814 | | |

FORM VI VOA

# FORM 6
## VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code:  Case No.:  SAS No.:  SDG No.: HS1711049

Instrument ID: VOA6  Calibration Date(s): 10/10/17 10/10/17

Column: DB624  ID: 0.18 (mm)  Calibration Time(s): 1014  1447

| COMPOUND | CURVE | COEFFICENTS A0 | A1 | A2 | %RSD OR R^2 | MAX %RSD OR R^2 |
|---|---|---|---|---|---|---|
| Dichlorodifluoromethane | AVRG | | 0.63903284 | | 9.791 | 15.000 |
| Chloromethane | LINR | 5.277e-003 | 0.98055583 | | 0.9999346 | 0.9900000 |
| Vinyl Chloride | AVRG | | 0.85620998 | | 8.228 | 15.000 |
| Bromomethane | AVRG | | 0.48495516 | | 9.401 | 15.000 |
| Chloroethane | AVRG | | 0.51879772 | | 10.217 | 15.000 |
| Trichlorofluoromethane | AVRG | | 0.83790218 | | 11.423 | 15.000 |
| Acetone | LINR | -6.28e-002 | 5.84029333 | | 0.9999375 | 0.9900000 |
| 1,1-Dichloroethene | AVRG | | 0.57907612 | | 9.446 | 15.000 |
| Methylene Chloride | AVRG | | 0.76949993 | | 10.659 | 15.000 |
| Carbon Disulfide | AVRG | | 1.84393774 | | 8.108 | 15.000 |
| trans-1,2-Dichloroethene | AVRG | | 0.67549576 | | 10.873 | 15.000 |
| 1,1-Dichloroethane | AVRG | | 1.31320487 | | 8.954 | 15.000 |
| 2-Butanone | AVRG | | 0.29561958 | | 3.122 | 15.000 |
| cis-1,2-Dichloroethene | AVRG | | 0.74988740 | | 7.865 | 15.000 |
| Chloroform | AVRG | | 1.22047141 | | 7.263 | 15.000 |
| 1,1,1-Trichloroethane | AVRG | | 0.98078541 | | 9.945 | 15.000 |
| 1,2-Dichloroethane | AVRG | | 0.55819611 | | 8.292 | 15.000 |
| Carbon Tetrachloride | AVRG | | 0.45733692 | | 5.084 | 15.000 |
| Benzene | AVRG | | 1.63914659 | | 4.822 | 15.000 |
| Trichloroethene | AVRG | | 0.40237296 | | 9.830 | 15.000 |
| Styrene | AVRG | | 1.10860465 | | 9.139 | 15.000 |
| Bromodichloromethane | AVRG | | 0.56661926 | | 10.649 | 15.000 |
| 1,2-Dichloropropane | AVRG | | 0.46231513 | | 6.642 | 15.000 |
| 4-Methyl-2-Pentanone | AVRG | | 0.43560474 | | 8.186 | 15.000 |
| cis-1,3-Dichloropropene | AVRG | | 0.72370601 | | 7.038 | 15.000 |
| Toluene | AVRG | | 1.60762897 | | 7.748 | 15.000 |
| trans-1,3-Dichloropropene | AVRG | | 0.61935471 | | 6.985 | 15.000 |
| 2-Hexanone | AVRG | | 0.40971185 | | 10.159 | 15.000 |
| 1,1,2-Trichloroethane | AVRG | | 0.32271760 | | 10.408 | 15.000 |
| Dibromochloromethane | AVRG | | 0.42234822 | | 8.233 | 15.000 |
| Tetrachloroethene | AVRG | | 0.26836531 | | 9.658 | 15.000 |
| 1,2-Dibromoethane | AVRG | | 0.37687398 | | 8.821 | 15.000 |
| Chlorobenzene | AVRG | | 1.01385254 | | 8.827 | 15.000 |
| Ethylbenzene | AVRG | | 0.51008269 | | 11.307 | 15.000 |
| m,p-Xylenes | AVRG | | 0.60978023 | | 11.275 | 15.000 |
| o-Xylene | AVRG | | 0.61758240 | | 11.314 | 15.000 |
| Bromoform | AVRG | | 0.27860296 | | 11.125 | 15.000 |
| Isopropylbenzene | AVRG | | 1.22852311 | | 8.767 | 15.000 |
| 1,1,2,2-Tetrachloroethane | LINR | -1.96e-002 | 1.15153646 | | 0.9995894 | 0.9900000 |
| tert-Butylbenzene | AVRG | | 1.54433337 | | 13.942 | 15.000 |
| n-Propylbenzene | AVRG | | 3.07907830 | | 10.271 | 15.000 |
| n-Butylbenzene | AVRG | | 1.46742302 | | 10.616 | 15.000 |
| 1,1-Dichloropropene | AVRG | | 0.54300023 | | 4.127 | 15.000 |
| Bromochloromethane | AVRG | | 0.33401360 | | 12.547 | 15.000 |

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code:  Case No.:  SAS No.:  SDG No.: HS1711049

Instrument ID: VOA6  Calibration Date(s): 10/10/17 10/10/17

Column: DB624  ID: 0.18 (mm)  Calibration Time(s): 1014  1447

| COMPOUND | CURVE | COEFFICENTS A0 | A1 | A2 | %RSD OR R^2 | MAX %RSD OR R^2 |
|---|---|---|---|---|---|---|
| p-Isopropyltoluene | AVRG | | 1.78996364 | | 12.181 | 15.000 |
| 4-Chlorotoluene | AVRG | | 2.40002499 | | 10.600 | 15.000 |
| 1,3-Dichlorobenzene | AVRG | | 1.28616380 | | 12.463 | 15.000 |
| Hexachlorobutadiene | LINR | 1.229e-002 | 5.58830222 | | 0.9967239 | 0.9900000 |
| Dibromomethane | AVRG | | 0.26490593 | | 9.023 | 15.000 |
| sec-Butylbenzene | AVRG | | 2.06624995 | | 11.819 | 15.000 |
| Naphthalene | LINR | 5.948e-002 | 0.80478733 | | 0.9974376 | 0.9900000 |
| Xylenes (total) | AVRG | | 0.61670238 | | 10.803 | 15.000 |
| 1,2,3-Trichloropropane | AVRG | | 0.87475241 | | 11.389 | 15.000 |
| 1,2,3-Trichlorobenzene | AVRG | | 0.31068032 | | 12.866 | 15.000 |
| 1,2,4-Trimethylbenzene | AVRG | | 2.20857016 | | 10.999 | 15.000 |
| 1,3,5-Trimethylbenzene | AVRG | | 2.06575900 | | 9.383 | 15.000 |
| 2,2-Dichloropropane | AVRG | | 1.02299813 | | 4.430 | 15.000 |
| 1,3-Dichloropropane | AVRG | | 0.68466482 | | 10.538 | 15.000 |
| 2-Chlorotoluene | AVRG | | 2.04860978 | | 9.020 | 15.000 |
| Bromobenzene | AVRG | | 0.85099476 | | 8.103 | 15.000 |
| 1,4-Dichlorobenzene | AVRG | | 1.35457164 | | 13.860 | 15.000 |
| 1,1,1,2-Tetrachloroethane | AVRG | | 0.36856885 | | 10.291 | 15.000 |
| 1,2-Dichlorobenzene | AVRG | | 1.24996367 | | 12.202 | 15.000 |
| 1,2-Dibromo-3-Chloropropane | LINR | 1.753e-003 | 9.07193640 | | 0.9997738 | 0.9900000 |
| 1,2,4-Trichlorobenzene | AVRG | | 0.43124571 | | 11.274 | 15.000 |
| 1,2-Dichloroethane-d4 | 2ORDR | -3.04e-003 | 1.13108115 | -2.49e-002 | 0.9999968 | 0.9900000 |
| Toluene-d8 | 2ORDR | -3.34e-003 | 0.67361520 | -1.64e-002 | 0.9999692 | 0.9900000 |
| 4-Bromofluorobenzene | 2ORDR | -5.03e-003 | 1.87811049 | -0.1026315 | 0.9999914 | 0.9900000 |
| Dibromofluoromethane | 2ORDR | -2.69e-003 | 1.44083816 | -6.55e-002 | 0.9999603 | 0.9900000 |

FORM VI VOA

# MSVOA06 -Logbook

**Batch:** 29513
**Date:** 10-10-2017
**Method:** 8260
**Comments:**

**Analyst:** Presenta Cabascango
**Reviewer:**
**Laboratory:** Houston

| # | Samp ID | Type | Analyzed | DF | Init Wt/Vol | Final Vol | File ID | Matrix | Status | pH |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | BFB | TUNE | 10-10-2017 10:05 am | 1.00 | 50 mL | 50 mL | X101001.D | Liquid | Y | NA |
| | *auto find/ purged* | | | | | | | | | |
| 2 | VSTD000.25 | ICAL1 | 10-10-2017 10:14 am | 1.00 | 50 mL | 50 mL | X101002.D | Liquid | Y | NA |
| | *0.10 uL cal std/100 mL DI* | | | | | | | | | |
| 3 | VSTD000.5 | ICAL2 | 10-10-2017 11:28 am | 1.00 | 50 mL | 50 mL | X101003.D | Liquid | Y | NA |
| | *0.10 uL cal std/50 mL DI* | | | | | | | | | |
| 4 | VSTD001 | ICAL3 | 10-10-2017 11:53 am | 1.00 | 50 mL | 50 mL | X101004.D | Liquid | Y | NA |
| | *0.20 uL cal std/50 mL DI* | | | | | | | | | |
| 5 | VSTD002 | ICAL4 | 10-10-2017 12:18 pm | 1.00 | 50 mL | 50 mL | X101005.D | Liquid | Y | NA |
| | *0.40 uL cal std/50 mL DI* | | | | | | | | | |
| 6 | VSTD005 | ICAL5 | 10-10-2017 12:43 pm | 1.00 | 50 mL | 50 mL | X101006.D | Liquid | Y | NA |
| | *1.0 uL cal std/50 mL DI* | | | | | | | | | |
| 7 | VSTD020 | ICAL6 | 10-10-2017 01:08 pm | 1.00 | 50 mL | 50 mL | X101007.D | Liquid | Y | NA |
| | *4.0 uL cal std/50 mL DI* | | | | | | | | | |
| 8 | VSTD050 | ICAL7 | 10-10-2017 01:33 pm | 1.00 | 50 mL | 50 mL | X101008.D | Liquid | Y | NA |
| | *10 uL cal std/50 mL DI* | | | | | | | | | |
| 9 | VSTD100 | ICAL8 | 10-10-2017 01:58 pm | 1.00 | 50 mL | 50 mL | X101009.D | Liquid | Y | NA |
| | *20 uL cal std/50 mL DI* | | | | | | | | | |
| 10 | VSTD150 | ICAL9 | 10-10-2017 02:22 pm | 1.00 | 50 mL | 50 mL | X101010.D | Liquid | Y | NA |
| | *30 uL cal std/50 mL DI* | | | | | | | | | |
| 11 | VSTD200 | ICAL | 10-10-2017 02:47 pm | 1.00 | 50 mL | 50 mL | X101011.D | Liquid | Y | NA |
| | *40 uL cal std/50 mL DI* | | | | | | | | | |
| 12 | BLKW | SAMP | 10-10-2017 04:29 pm | 1.00 | 50 mL | 50 mL | X101012.D | Liquid | Y | NA |
| 13 | VSTD050 | ICV | 10-10-2017 05:23 pm | 1.00 | 50 mL | 50 mL | X101013.D | Liquid | Y | NA |
| | *10 uL icv std/50 mL DI* | | | | | | | | | |

| Chemical | Value |
|---|---|
| SURR SPK ID | 29810-94-03 |
| IS ID | 29810-94-04 |
| ICV STD ID | 29814-87-01 |
| CAL STD ID | 29810-97-01/02 |
| BFB ID | 29810-94-03 |
| pH Paper | n/a |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101001.D



Date : 10-OCT-2017 10:05

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

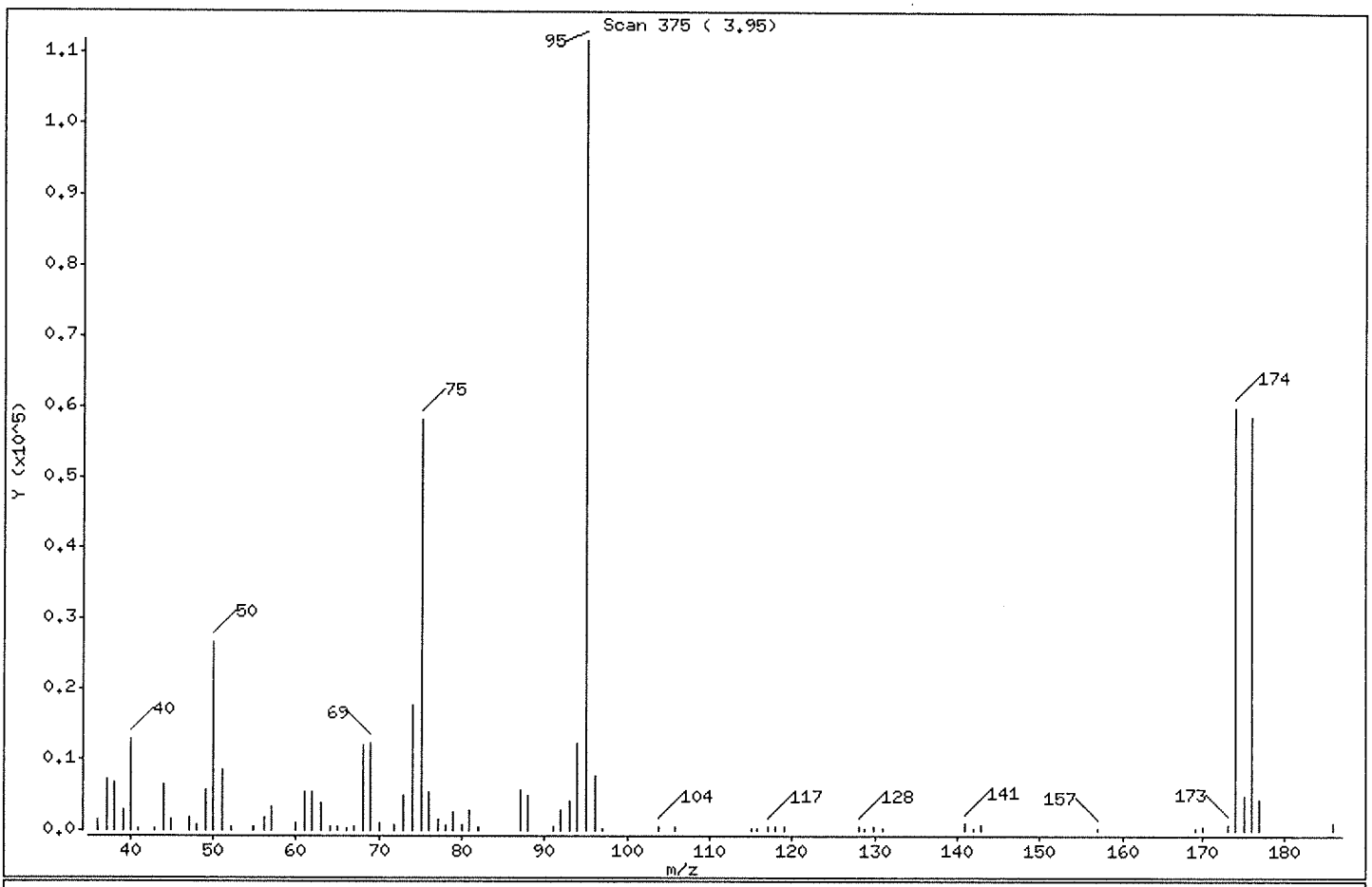
Volume Injected (uL): 2.0

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 | 23.88 |
| 75 | 30.00 - 60.00% of mass 95 | 51.99 |
| 96 | 5.00 - 9.00% of mass 95 | 6.95 |
| 173 | Less than 2.00% of mass 174 | 0.60 ( 1.12) |
| 174 | Greater than 50.00% of mass 95 | 53.51 |
| 175 | 5.00 - 9.00% of mass 174 | 4.37 ( 8.17) |
| 176 | 95.00 - 101.00% of mass 174 | 52.42 ( 97.97) |
| 177 | 5.00 - 9.00% of mass 176 | 3.90 ( 7.44) |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101001.D



Date : 10-OCT-2017 10:05

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: X101001.D
Spectrum: Scan 375 ( 3.95)
Location of Maximum: 95.00
Number of points: 72

| m/z | Y | m/z | Y | m/z | Y | m/z | Y |
|---|---|---|---|---|---|---|---|
| 36.00 | 1579 | 61.00 | 5513 | 80.90 | 2924 | 128.80 | 266 |
| 37.10 | 7183 | 62.00 | 5494 | 81.90 | 576 | 129.90 | 395 |
| 38.10 | 6622 | 63.00 | 3893 | 87.00 | 5560 | 130.90 | 218 |
| 39.10 | 2880 | 64.10 | 570 | 88.00 | 4773 | 141.00 | 928 |
| 40.00 | 12897 | 65.00 | 484 | 91.00 | 433 | 142.00 | 267 |
| 41.00 | 233 | 66.10 | 204 | 92.00 | 2723 | 142.90 | 673 |
| 43.00 | 296 | 67.00 | 410 | 93.00 | 4109 | 157.00 | 299 |
| 44.00 | 6510 | 68.00 | 12120 | 94.00 | 12452 | 169.10 | 210 |
| 45.00 | 1543 | 69.00 | 12231 | 95.00 | 111840 | 170.00 | 449 |
| 47.10 | 1828 | 70.10 | 902 | 96.00 | 7777 | 173.10 | 672 |
| 48.00 | 837 | 71.90 | 796 | 97.00 | 232 | 173.90 | 59840 |
| 49.10 | 5768 | 73.00 | 4794 | 103.80 | 426 | 175.00 | 4887 |
| 50.10 | 26704 | 74.00 | 17664 | 105.90 | 425 | 175.90 | 58624 |
| 51.10 | 8588 | 75.10 | 58144 | 115.00 | 372 | 176.90 | 4360 |
| 52.10 | 543 | 76.10 | 5356 | 115.80 | 322 | 186.00 | 995 |
| 54.90 | 591 | 77.10 | 1525 | 117.00 | 594 | | |
| 56.10 | 1798 | 78.10 | 780 | 117.90 | 490 | | |
| 57.00 | 3414 | 79.00 | 2675 | 119.00 | 467 | | |
| 60.00 | 1073 | 79.90 | 737 | 128.00 | 492 | | |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101001.D



Date : 10-OCT-2017 10:05

Client ID: BFB

Instrument: voa6.i

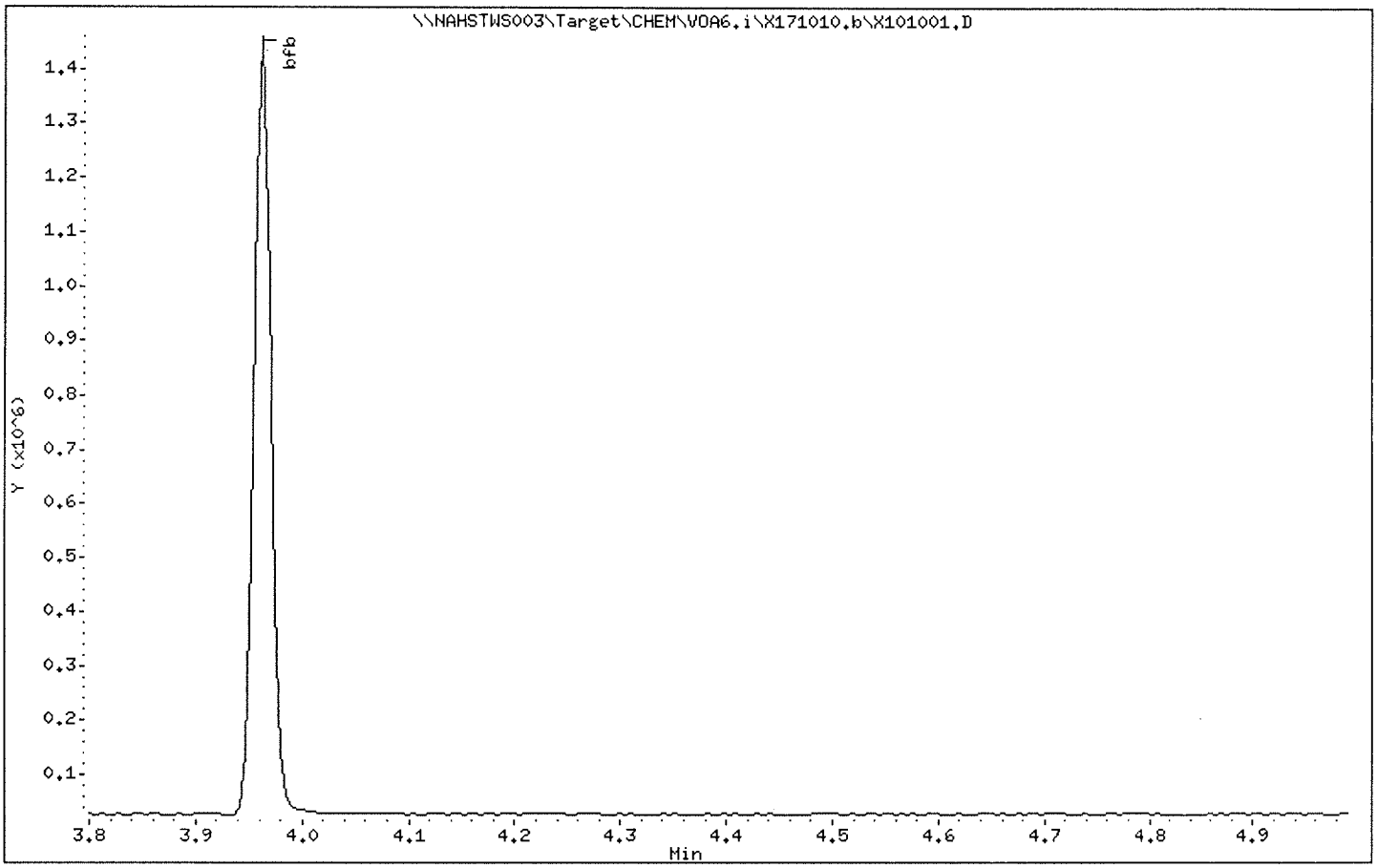
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101003.D
Report Date: 11-Jan-2018 18:10

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101003.D
Lab Smp Id: VSTD000.5 Client Smp ID: VSTD000.5
Inj Date : 10-OCT-2017 11:28
Operator : PC Inst ID: voa6.i
Smp Info : VSTD000.5;VSTD000.5;1;2;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\8260W.m
Meth Date : 11-Jan-2018 18:09 Priyanka.R Quant Type: ISTD
Cal Date : 10-OCT-2017 11:28 Cal File: X101003.D
Als bottle: 5 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0000_KelsoNEW.sub
Target Version: 4.14

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 | 4.325 | 4.325 | (1.000) | 387612 | 50.0000 | |
| 2 | Dichlorodifluoromethane | 85 | 1.081 | 1.081 | (0.250) | 2937 | 0.50000 | 0.59(a) |
| 3 | Chloromethane | 50 | 1.195 | 1.188 | (0.276) | 4746 | 0.50000 | 0.86(aM) |
| 4 | Propionitrile | 54 | 3.831 | 3.817 | (0.886) | 4544 | 5.00000 | 5.78(a) |
| 5 | Vinyl Chloride | 62 | 1.260 | 1.260 | (0.291) | 3780 | 0.50000 | 0.56(aM) |
| 6 | Bromomethane | 94 | 1.460 | 1.453 | (0.338) | 2213 | 0.50000 | 0.58(a) |
| 7 | Chloroethane | 64 | 1.525 | 1.525 | (0.353) | 2363 | 0.50000 | 0.58(aM) |
| 8 | Trichlorofluoromethane | 101 | 1.689 | 1.689 | (0.391) | 4174 | 0.50000 | 0.64(a) |
| 9 | Acrolein | 56 | 2.005 | 1.997 | (0.464) | 1009 | 1.00000 | 0.34(aM) |
| 10 | Acetone | 43 | 2.126 | 2.112 | (0.492) | 4739 | 1.00000 | 0.43(aM) |
| 11 | 1,1-Dichloroethene | 96 | 2.048 | 2.055 | (0.473) | 2728 | 0.50000 | 0.60(aM) |
| 12 | Isobutyl Alcohol | 43 | 4.820 | 4.805 | (1.114) | 13372 | 10.0000 | 0.10(a) |
| 13 | Acetonitrile | 39 | 2.341 | 2.341 | (0.541) | 4605 | 5.00000 | (aM) |
| 14 | Allyl Chloride | 41 | 2.348 | 2.341 | (0.543) | 9325 | 0.50000 | 0.57(aM) |
| 15 | Iodomethane | 142 | 2.169 | 2.169 | (0.502) | 3599 | 1.00000 | 2.66(a) |
| 16 | Acrylonitrile | 53 | 2.707 | 2.685 | (0.626) | 2346 | 1.00000 | 1.11(a) |
| 17 | Methylene Chloride | 84 | 2.449 | 2.449 | (0.566) | 3545 | 0.50000 | 0.59(aM) |
| 18 | Methyl tert-butyl ether | 73 | 2.685 | 2.685 | (0.621) | 10006 | 0.50000 | 0.61(aM) |
| 19 | Carbon Disulfide | 76 | 2.212 | 2.212 | (0.512) | 16888 | 1.00000 | 1.18(aM) |
| 20 | trans-1,2-Dichloroethene | 96 | 2.678 | 2.678 | (0.619) | 3326 | 0.50000 | 0.63(aM) |
| 21 | Vinyl Acetate | 43 | 2.914 | 2.922 | (0.674) | 2060 | 1.00000 | 2.38(aM) |
| 22 | 1,1-Dichloroethane | 63 | 3.079 | 3.079 | (0.712) | 6175 | 0.50000 | 0.60(aM) |
| 23 | Chloroprene | 53 | 1.904 | 1.904 | (0.440) | 2395 | 0.50000 | 0.57(aM) |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101003.D
Report Date: 11-Jan-2018 18:10

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| | 24 2-Butanone | 43 | 3.767 | 3.731 | (0.871) | 2235 | 1.00000 | 0.97(a) |
| | 25 Methacrylonitrile | 41 | 3.989 | 3.982 | (0.922) | 3229 | 0.50000 | 0.54(aM) |
| | 26 2,2-Dichloropropane | 77 | 3.666 | 3.666 | (0.848) | 4337 | 0.50000 | 0.54(aM) |
| | 27 cis-1,2-Dichloroethene | 96 | 3.688 | 3.688 | (0.853) | 3473 | 0.50000 | 0.59(aM) |
| | 28 Chloroform | 83 | 4.068 | 4.068 | (0.940) | 5333 | 0.50000 | 0.56(aM) |
| | 29 Bromochloromethane | 128 | 3.953 | 3.960 | (0.914) | 1461 | 0.50000 | 0.56(aM) |
| $ | 30 Dibromofluoromethane | 113 | 4.254 | 4.254 | (0.983) | 3706 | 0.50000 | 0.55(a) |
| | 31 1,1,1-Trichloroethane | 97 | 4.240 | 4.240 | (0.980) | 4759 | 0.50000 | 0.62(aM) |
| | 32 1,1-Dichloropropene | 75 | 4.426 | 4.426 | (0.870) | 3826 | 0.50000 | 0.53(aM) |
| | 33 1,2-Dichloroethane | 62 | 4.698 | 4.691 | (0.924) | 4286 | 0.50000 | 0.58(aM) |
| | 34 Carbon Tetrachloride | 117 | 4.411 | 4.411 | (0.868) | 3056 | 0.50000 | 0.50(aM) |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 4.612 | 4.612 | (1.066) | 4869 | 0.50000 | 0.55(aM) |
| * | 36 1,4-Difluorobenzene | 114 | 5.085 | 5.085 | (1.000) | 656933 | 50.0000 | |
| | 37 Benzene | 78 | 4.655 | 4.648 | (0.915) | 11911 | 0.50000 | 0.55(aM) |
| | 38 Trichloroethene | 130 | 5.321 | 5.321 | (1.046) | 3311 | 0.50000 | 0.62(aM) |
| | 39 Bromodichloromethane | 83 | 5.830 | 5.830 | (1.146) | 4726 | 0.50000 | 0.63(aM) |
| | 40 Methyl Methacrylate | 41 | 5.715 | 5.701 | (1.321) | 3165 | 0.50000 | 0.52(a) |
| | 41 2-Chloroethylvinyl ether | 63 | 6.145 | 6.138 | (1.208) | 2350 | 1.00000 | 5.41(M) |
| | 42 1,2-Dichloropropane | 63 | 5.543 | 5.543 | (1.090) | 3458 | 0.50000 | 0.56(aM) |
| | 43 2-Nitropropane | 43 | 6.066 | 6.066 | (1.402) | 1487 | 0.50000 | 1.01(aM) |
| | 44 Dibromomethane | 93 | 5.658 | 5.658 | (1.113) | 2079 | 0.50000 | 0.59(aM) |
| | 45 4-Methyl-2-Pentanone | 43 | 6.431 | 6.410 | (0.831) | 6916 | 1.00000 | 1.20(aM) |
| | 46 cis-1,3-Dichloropropene | 75 | 6.252 | 6.245 | (1.230) | 5607 | 0.50000 | 0.58(aM) |
| * | 47 Chlorobenzene-d5 | 117 | 7.742 | 7.742 | (1.000) | 660241 | 50.0000 | |
| $ | 48 Toluene-d8 | 98 | 6.474 | 6.474 | (0.836) | 13883 | 0.50000 | 0.54(a) |
| | 49 Ethyl Methacrylate | 69 | 6.876 | 6.868 | (1.352) | 5445 | 0.50000 | 0.60(aM) |
| | 50 Toluene | 91 | 6.532 | 6.532 | (0.844) | 12604 | 0.50000 | 0.59(aM) |
| | 51 trans-1,3-Dichloropropene | 75 | 6.768 | 6.761 | (1.331) | 4708 | 0.50000 | 0.57(aM) |
| | 52 2-Hexanone | 43 | 7.298 | 7.284 | (0.943) | 6814 | 1.00000 | 1.25(aM) |
| | 53 1,1,2-Trichloroethane | 83 | 6.918 | 6.926 | (0.894) | 2607 | 0.50000 | 0.61(aM) |
| | 54 1,3-Dichloropropane | 76 | 7.062 | 7.062 | (0.912) | 5544 | 0.50000 | 0.61(aM) |
| | 55 Dibromochloromethane | 129 | 7.255 | 7.255 | (0.937) | 3320 | 0.50000 | 0.59(a) |
| | 56 Tetrachloroethene | 164 | 7.012 | 7.012 | (0.906) | 2200 | 0.50000 | 0.62(aM) |
| | 57 1,2-Dibromoethane | 107 | 7.341 | 7.341 | (0.948) | 2956 | 0.50000 | 0.59(aM) |
| | 58 1-Chlorohexane | 55 | 7.757 | 7.764 | (1.525) | 3257 | 0.50000 | 0.25(aM) |
| | 59 Chlorobenzene | 112 | 7.764 | 7.771 | (1.003) | 8109 | 0.50000 | 0.60(aM) |
| | 60 1,1,1,2-Tetrachloroethane | 131 | 7.850 | 7.850 | (1.014) | 3034 | 0.50000 | 0.62(aM) |
| | 61 Ethylbenzene | 106 | 7.871 | 7.871 | (1.017) | 4321 | 0.50000 | 0.64(aM) |
| | 62 m,p-Xylenes | 106 | 7.971 | 7.971 | (1.030) | 10386 | 1.00000 | 1.28(aM) |
| | 63 o-Xylene | 106 | 8.308 | 8.308 | (1.073) | 5221 | 0.50000 | 0.64(aM) |
| | 64 Styrene | 104 | 8.330 | 8.330 | (1.076) | 8916 | 0.50000 | 0.60(aM) |
| | 66 Bromoform | 173 | 8.480 | 8.480 | (1.095) | 2358 | 0.50000 | 0.64(aM) |
| | 67 Isopropylbenzene | 105 | 8.630 | 8.630 | (1.115) | 9673 | 0.50000 | 0.59(aM) |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 8.903 | 8.903 | (0.915) | 4206 | 0.50000 | (aM) |
| $ | 69 4-Bromofluorobenzene | 95 | 8.759 | 8.752 | (1.131) | 5297 | 0.50000 | 0.50(a) |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 9.726 | 9.726 | (1.000) | 313204 | 50.0000 | |
| | 71 1,2,3-Trichloropropane | 75 | 8.931 | 8.931 | (0.918) | 3516 | 0.50000 | 0.64(aM) |
| | 72 trans-1,4-Dichloro-2-butene | 53 | 8.960 | 8.953 | (1.157) | 1094 | 0.50000 | 0.56(a) |
| | 73 n-Propylbenzene | 91 | 8.974 | 8.974 | (0.923) | 12133 | 0.50000 | 0.62(aM) |
| | 74 Bromobenzene | 156 | 8.874 | 8.874 | (0.912) | 3182 | 0.50000 | 0.59(aM) |
| | 75 1,3,5-Trimethylbenzene | 105 | 9.132 | 9.132 | (0.939) | 7944 | 0.50000 | 0.61(aM) |
| | 76 2-Chlorotoluene | 91 | 9.039 | 9.039 | (0.929) | 7760 | 0.50000 | 0.60(aM) |
| | 77 4-Chlorotoluene | 91 | 9.139 | 9.132 | (0.940) | 9534 | 0.50000 | 0.63(aM) |
| | 78 tert-Butylbenzene | 119 | 9.397 | 9.397 | (0.966) | 6544 | 0.50000 | 0.67(aM) |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101003.D
Report Date: 11-Jan-2018 18:10

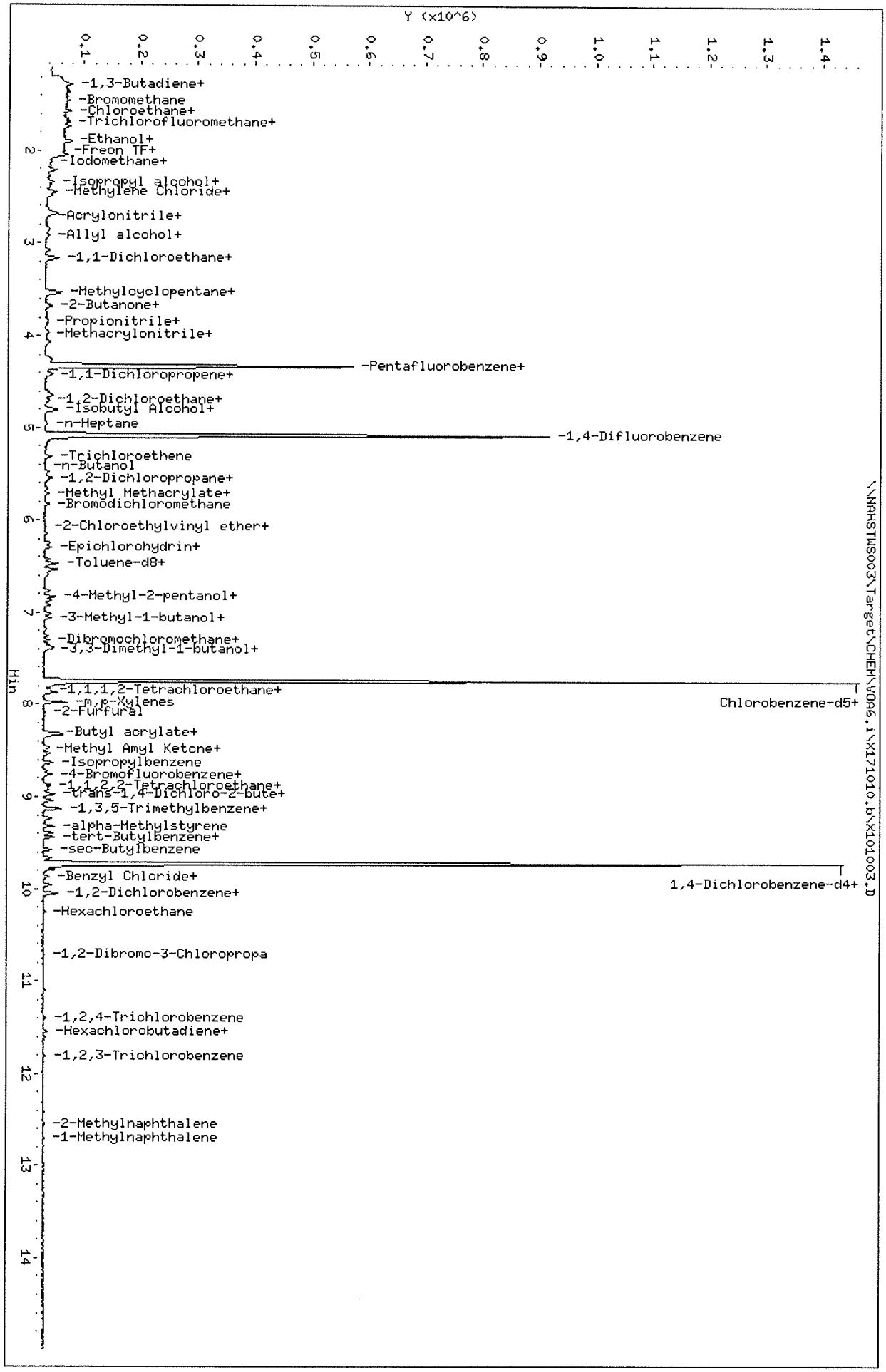
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| 79 1,2,4-Trimethylbenzene | 105 | 9.440 | 9.440 | (0.971) | 8796 | 0.50000 | 0.63(aM) |
| 81 sec-Butylbenzene | 105 | 9.583 | 9.583 | (0.985) | 8277 | 0.50000 | 0.63(aM) |
| 82 p-Isopropyltoluene | 119 | 9.712 | 9.712 | (0.999) | 7327 | 0.50000 | 0.65(aM) |
| 83 1,3-Dichlorobenzene | 146 | 9.669 | 9.669 | (0.994) | 5326 | 0.50000 | 0.66(a) |
| 84 1,4-Dichlorobenzene | 146 | 9.748 | 9.748 | (1.002) | 5726 | 0.50000 | 0.67(a) |
| 86 Benzyl Chloride | 91 | 9.870 | 9.870 | (1.275) | 7102 | 0.50000 | 0.61(aM) |
| 87 n-Butylbenzene | 91 | 10.056 | 10.056 | (1.034) | 5709 | 0.50000 | 0.62(aM) |
| 88 1,2-Dichlorobenzene | 146 | 10.056 | 10.056 | (1.034) | 5159 | 0.50000 | 0.65(a) |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 10.722 | 10.715 | (1.102) | 522 | 0.50000 | 0.84(aM) |
| 90 1,2,4-Trichlorobenzene | 180 | 11.403 | 11.395 | (1.172) | 1438 | 0.50000 | 0.53(aM) |
| 91 Hexachlorobutadiene | 225 | 11.539 | 11.539 | (1.186) | 1021 | 0.50000 | 1.52(a) |
| 92 Naphthalene | 128 | 11.603 | 11.603 | (1.193) | 2916 | 0.50000 | 3.34(a) |
| 93 1,2,3-Trichlorobenzene | 180 | 11.804 | 11.804 | (1.214) | 1086 | 0.50000 | 0.55(aM) |
| 130 Ethyl Acetate | 43 | 4.820 | 4.805 | (1.114) | 13372 | 0.50000 | 0.00(Ta) |
| 131 Methyl Acrylate | 55 | 3.867 | 3.838 | (0.894) | 3981 | 0.50000 | 0.57(aM) |
| 132 n-Butanol | 56 | 5.421 | 5.357 | (1.253) | 1445 | 10.0000 | 43.91(aH) |
| 133 Ethyl Acrylate | 55 | 5.493 | 5.486 | (1.270) | 7044 | 0.50000 | 0.59(aM) |
| 134 Cyclohexanone | 55 | 8.724 | 8.709 | (0.897) | 2678 | 10.0000 | 18.08(a) |
| 135 1,4-Dioxane | 88 | 5.729 | 5.701 | (1.325) | 641 | 10.0000 | 31.07(a) |
| 136 n-Hexane | 57 | 2.922 | 2.922 | (0.675) | 2230 | 0.50000 | 0.51(aM) |
| 137 n-Pentane | 43 | 1.740 | 1.732 | (0.402) | 4348 | 0.50000 | 0.59(a) |
| 138 Freon TF | 101 | 2.055 | 2.055 | (0.475) | 2113 | 0.50000 | 0.57(a) |
| 146 Methyl Acetate | 43 | 2.384 | 2.377 | (0.551) | 4911 | 0.50000 | 0.57(aM) |
| 147 Methylcyclohexane | 83 | 5.479 | 5.479 | (1.077) | 2811 | 0.50000 | 0.90(aM) |
| 149 Isopropyl alcohol | 45 | 2.277 | 2.241 | (0.526) | 4440 | 10.0000 | 17.67(T) |
| 152 Amyl alcohol | 42 | 7.012 | 6.976 | (0.906) | 1860 | 10.0000 | 11.22(M) |
| 150 Allyl alcohol | 57 | 2.922 | 2.922 | (0.675) | 2868 | 10.0000 | 12.78 |
| 151 4-Methyl-2-pentanol | 45 | 6.825 | 6.790 | (1.342) | 17518 | 10.0000 | 12.57 |
| 148 Tert-butyl alcohol | 59 | 2.642 | 2.578 | (0.611) | 6914 | 10.0000 | 17.99 |
| 139 Diethyl ether | 59 | 1.890 | 1.890 | (0.437) | 3045 | 0.50000 | 0.63(aM) |
| 140 1,3-Butadiene | 54 | 1.281 | 1.281 | (0.296) | 3228 | 0.50000 | 0.56(a) |
| 141 Cyclohexane | 56 | 4.275 | 4.275 | (0.988) | 4100 | 0.50000 | 0.57(aH) |
| 142 Tetrahydrofuran | 42 | 4.025 | 4.003 | (0.930) | 1057 | 1.00000 | 1.00(aM) |
| 145 alpha-Methylstyrene | 118 | 9.325 | 9.325 | (0.959) | 5709 | 0.50000 | 0.63(a) |
| 155 2-Pentanone | 43 | 5.565 | 5.550 | (1.286) | 4539 | 1.00000 | 1.40(aM) |
| 156 Diisopropyl ether | 45 | 3.158 | 3.151 | (0.730) | 12918 | 0.50000 | 0.60(TaM) |
| 157 n-Heptane | 43 | 4.963 | 4.956 | (1.147) | 2285 | 0.50000 | 1.15(aM) |
| 158 Dichlorofluoromethane | 67 | 1.661 | 1.654 | (0.384) | 4497 | 0.50000 | 0.51(M) |
| 159 Propylene oxide | 43 | 2.126 | 2.112 | (0.492) | 4344 | 1.00000 | 0.22(aM) |
| 160 2-Methylnaphthalene | 142 | 12.549 | 12.541 | (1.290) | 1062 | 0.50000 | 2.70(aM) |
| 161 3-Methyl-1-butanol | 55 | 7.012 | 6.976 | (0.906) | 1698 | 10.0000 | 12.55 |
| 162 Butyl acrylate | 55 | 8.322 | 8.315 | (1.075) | 7513 | 0.50000 | 0.56(a) |
| 166 1,2,3-Trimethylbenzene | 105 | 9.791 | 9.791 | (1.007) | 8308 | 0.50000 | 0.63(a) |
| 167 Ethanol | 45 | 1.847 | 1.840 | (0.427) | 1663 | 10.0000 | 6.02 |
| 172 tert-Butyl formate | 59 | 4.813 | 4.748 | (1.113) | 6861 | 1.00000 | 3.51(aM) |
| 173 3,3-Dimethyl-1-butanol | 57 | 7.398 | 7.363 | (0.956) | 5597 | 10.0000 | (aM) |
| 174 tert-Amyl methyl ether | 73 | 4.798 | 4.798 | (1.109) | 13836 | 0.50000 | (aM) |
| 175 tert-Butyl ethyl ether | 59 | 3.530 | 3.530 | (0.816) | 11749 | 0.50000 | 0.60(aM) |
| 176 tert-Amyl alcohol | 59 | 4.813 | 4.748 | (1.113) | 6806 | 10.0000 | 10.44 |
| 179 Hexachloroethane | 166 | 10.256 | 10.256 | (1.054) | 381 | 0.50000 | 1.54(aM) |
| 180 1-Methylnaphthalene | 142 | 12.699 | 12.692 | (1.306) | 718 | 0.50000 | 2.28(aM) |
| 181 2-Furfural | 96 | 8.079 | 8.036 | (1.043) | 1916 | 20.0000 | 116.47 |
| 182 Epichlorohydrin | 57 | 6.202 | 6.188 | (1.220) | 728 | 2.00000 | 2.08(a) |
| 183 2-Methylpropane | 43 | 1.568 | 1.568 | (0.363) | 3023 | 0.50000 | 0.61(aM) |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101003.D
Report Date: 11-Jan-2018 18:10

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 184 | Cyclopentane | 42 | 2.485 | 2.485 | (0.574) | 7029 | 0.50000 | 0.58(aM) |
| 185 | Isoprene | 39 | 1.897 | 1.904 | (0.439) | 3921 | 0.50000 | 0.25(aM) |
| 186 | Isopentane | 42 | 1.568 | 1.561 | (0.363) | 2578 | 0.50000 | 0.60(aM) |
| 187 | n-Amyl acetate | 43 | 8.523 | 8.516 | (1.101) | 7027 | 0.50000 | 0.58(aM) |
| 188 | Isopropyl acetate | 43 | 4.820 | 4.805 | (0.948) | 14003 | 0.50000 | 0.06(aM) |
| 189 | n-Butyl acetate | 43 | 7.377 | 7.348 | (0.953) | 3060 | 0.50000 | 0.61(aM) |
| 190 | Propanal | 58 | 2.040 | 2.040 | (0.472) | 2843 | 1.00000 | (Ta) |
| 193 | 2-Ethyl-1-hexanol | 57 | 9.956 | 9.956 | (1.024) | 5810 | 10.0000 | (aM) |
| 194 | Acetaldehyde | 44 | 1.331 | 1.324 | (0.308) | 1839 | 2.00000 | (aM) |
| 195 | Methyl Amyl Ketone | 43 | 8.459 | 8.444 | (1.093) | 7074 | 0.50000 | 0.56(a) |
| 196 | 2-Methylpentane | 43 | 2.449 | 2.449 | (0.566) | 4783 | 0.50000 | 2.05(aM) |
| 197 | 3-Methylpentane | 57 | 2.671 | 2.671 | (0.618) | 6336 | 0.50000 | 0.63(a) |
| 198 | Methylcyclopentane | 56 | 3.530 | 3.530 | (0.816) | 9302 | 0.50000 | 0.58(a) |
| 199 | 1-Hexene | 56 | 2.843 | 2.843 | (0.657) | 2508 | 0.50000 | 0.57(a) |
| 200 | Dimethyl Disulfide | 94 | 6.295 | 6.288 | (0.813) | 6352 | 0.50000 | 0.55(aM) |
| 201 | 1-Butene | 41 | 1.360 | 1.360 | (0.314) | 2075 | 0.50000 | 0.56(TaAM) |
| M 94 | 1,2-Dichloroethylene (total) | 96 | | | | 6799 | 1.00000 | (a) |
| M 95 | Xylenes (total) | 106 | | | | 15607 | 1.50000 | (a) |

## QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.




Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101003.D
Date : 10-OCT-2017 11:28
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

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101004.D
Report Date: 11-Jan-2018 18:10

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101004.D
Lab Smp Id: VSTD001 Client Smp ID: VSTD001
Inj Date : 10-OCT-2017 11:53
Operator : PC Inst ID: voa6.i
Smp Info : VSTD001;VSTD001;1;3;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\8260W.m
Meth Date : 11-Jan-2018 18:09 Priyanka.R Quant Type: ISTD
Cal Date : 10-OCT-2017 11:53 Cal File: X101004.D
Als bottle: 6 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0000_KelsoNEW.sub
Target Version: 4.14

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 | 4.325 | 4.325 | (1.000) | 386230 | 50.0000 | |
| 2 | Dichlorodifluoromethane | 85 | 1.080 | 1.081 | (0.250) | 4316 | 1.00000 | 0.87(a) |
| 3 | Chloromethane | 50 | 1.195 | 1.188 | (0.276) | 8919 | 1.00000 | 1.39(aM) |
| 4 | Propionitrile | 54 | 3.831 | 3.817 | (0.886) | 7652 | 10.0000 | 9.77(a) |
| 5 | Vinyl Chloride | 62 | 1.260 | 1.260 | (0.291) | 5469 | 1.00000 | 0.82(a) |
| 6 | Bromomethane | 94 | 1.460 | 1.453 | (0.338) | 4193 | 1.00000 | 1.11(aM) |
| 7 | Chloroethane | 64 | 1.525 | 1.525 | (0.353) | 4546 | 1.00000 | 1.13(aM) |
| 8 | Trichlorofluoromethane | 101 | 1.689 | 1.689 | (0.391) | 5789 | 1.00000 | 0.89(a) |
| 9 | Acrolein | 56 | 1.997 | 1.997 | (0.462) | 1911 | 2.00000 | 1.87(aM) |
| 10 | Acetone | 43 | 2.119 | 2.112 | (0.490) | 6610 | 2.00000 | 1.85(a) |
| 11 | 1,1-Dichloroethene | 96 | 2.055 | 2.055 | (0.475) | 4008 | 1.00000 | 0.89(a) |
| 12 | Isobutyl Alcohol | 43 | 4.812 | 4.805 | (1.113) | 22129 | 20.0000 | 10.14(a) |
| 13 | Acetonitrile | 39 | 2.341 | 2.341 | (0.541) | 8600 | 10.0000 | (aM) |
| 14 | Allyl Chloride | 41 | 2.348 | 2.341 | (0.543) | 18617 | 1.00000 | 1.14 |
| 15 | Iodomethane | 142 | 2.169 | 2.169 | (0.502) | 5430 | 2.00000 | 3.04(a) |
| 16 | Acrylonitrile | 53 | 2.699 | 2.685 | (0.624) | 4460 | 2.00000 | 2.13(a) |
| 17 | Methylene Chloride | 84 | 2.449 | 2.449 | (0.566) | 6642 | 1.00000 | 1.11(a) |
| 18 | Methyl tert-butyl ether | 73 | 2.685 | 2.685 | (0.621) | 17332 | 1.00000 | 1.06 |
| 19 | Carbon Disulfide | 76 | 2.212 | 2.212 | (0.512) | 27434 | 2.00000 | 1.92(a) |
| 20 | trans-1,2-Dichloroethene | 96 | 2.678 | 2.678 | (0.619) | 4794 | 1.00000 | 0.91(a) |
| 21 | Vinyl Acetate | 43 | 2.921 | 2.922 | (0.675) | 2922 | 2.00000 | 2.94(a) |
| 22 | 1,1-Dichloroethane | 63 | 3.079 | 3.079 | (0.712) | 9957 | 1.00000 | 0.98(a) |
| 23 | Chloroprene | 53 | 1.904 | 1.904 | (0.440) | 3363 | 1.00000 | 0.80(aM) |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101004.D
Report Date: 11-Jan-2018 18:10

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| | 24 2-Butanone | 43 | 3.759 | 3.731 | (0.869) | 4271 | 2.00000 | 1.87(a) |
| | 25 Methacrylonitrile | 41 | 3.989 | 3.982 | (0.922) | 6314 | 1.00000 | 1.06(aM) |
| | 26 2,2-Dichloropropane | 77 | 3.673 | 3.666 | (0.849) | 8110 | 1.00000 | 1.02(a) |
| | 27 cis-1,2-Dichloroethene | 96 | 3.688 | 3.688 | (0.853) | 5750 | 1.00000 | 0.99(a) |
| | 28 Chloroform | 83 | 4.067 | 4.068 | (0.940) | 9658 | 1.00000 | 1.02(a) |
| | 29 Bromochloromethane | 128 | 3.953 | 3.960 | (0.914) | 2903 | 1.00000 | 1.12(a) |
| $ | 30 Dibromofluoromethane | 113 | 4.254 | 4.254 | (0.983) | 6592 | 1.00000 | 1.09(a) |
| | 31 1,1,1-Trichloroethane | 97 | 4.239 | 4.240 | (0.980) | 7325 | 1.00000 | 0.96(a) |
| | 32 1,1-Dichloropropene | 75 | 4.433 | 4.426 | (0.872) | 6995 | 1.00000 | 0.96(a) |
| | 33 1,2-Dichloroethane | 62 | 4.698 | 4.691 | (0.924) | 7424 | 1.00000 | 0.99(aM) |
| | 34 Carbon Tetrachloride | 117 | 4.411 | 4.411 | (0.868) | 5726 | 1.00000 | 0.93(a) |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 4.612 | 4.612 | (1.066) | 8408 | 1.00000 | 1.07(a) |
| * | 36 1,4-Difluorobenzene | 114 | 5.085 | 5.085 | (1.000) | 666505 | 50.0000 | |
| | 37 Benzene | 78 | 4.648 | 4.648 | (0.914) | 22515 | 1.00000 | 1.03 |
| | 38 Trichloroethene | 130 | 5.321 | 5.321 | (1.046) | 5333 | 1.00000 | 0.99(a) |
| | 39 Bromodichloromethane | 83 | 5.830 | 5.830 | (1.146) | 7843 | 1.00000 | 1.03(a) |
| | 40 Methyl Methacrylate | 41 | 5.708 | 5.701 | (1.320) | 6489 | 1.00000 | 1.07(M) |
| | 41 2-Chloroethylvinyl ether | 63 | 6.145 | 6.138 | (1.208) | 3733 | 2.00000 | 5.86 |
| | 42 1,2-Dichloropropane | 63 | 5.543 | 5.543 | (1.090) | 6003 | 1.00000 | 0.97(aM) |
| | 43 2-Nitropropane | 43 | 6.066 | 6.066 | (1.402) | 2447 | 1.00000 | 1.50(a) |
| | 44 Dibromomethane | 93 | 5.658 | 5.658 | (1.113) | 3206 | 1.00000 | 0.90(a) |
| | 45 4-Methyl-2-Pentanone | 43 | 6.431 | 6.410 | (0.831) | 11541 | 2.00000 | 1.99(a) |
| | 46 cis-1,3-Dichloropropene | 75 | 6.245 | 6.245 | (1.228) | 9472 | 1.00000 | 0.98(a) |
| * | 47 Chlorobenzene-d5 | 117 | 7.742 | 7.742 | (1.000) | 664695 | 50.0000 | |
| $ | 48 Toluene-d8 | 98 | 6.474 | 6.474 | (0.836) | 25142 | 1.00000 | 1.10(a) |
| | 49 Ethyl Methacrylate | 69 | 6.875 | 6.868 | (1.352) | 10205 | 1.00000 | 1.10(aM) |
| | 50 Toluene | 91 | 6.539 | 6.532 | (0.845) | 20814 | 1.00000 | 0.97(a) |
| | 51 trans-1,3-Dichloropropene | 75 | 6.768 | 6.761 | (1.331) | 8624 | 1.00000 | 1.04(a) |
| | 52 2-Hexanone | 43 | 7.298 | 7.284 | (0.943) | 9876 | 2.00000 | 1.81(a) |
| | 53 1,1,2-Trichloroethane | 83 | 6.925 | 6.926 | (0.895) | 4486 | 1.00000 | 1.04(a) |
| | 54 1,3-Dichloropropane | 76 | 7.062 | 7.062 | (0.912) | 8967 | 1.00000 | 0.98(a) |
| | 55 Dibromochloromethane | 129 | 7.255 | 7.255 | (0.937) | 5378 | 1.00000 | 0.95(a) |
| | 56 Tetrachloroethene | 164 | 7.011 | 7.012 | (0.906) | 3344 | 1.00000 | 0.93(a) |
| | 57 1,2-Dibromoethane | 107 | 7.341 | 7.341 | (0.948) | 4867 | 1.00000 | 0.97(a) |
| | 58 1-Chlorohexane | 55 | 7.764 | 7.764 | (1.527) | 4884 | 1.00000 | 0.63(aM) |
| | 59 Chlorobenzene | 112 | 7.771 | 7.771 | (1.004) | 13569 | 1.00000 | 1.00(a) |
| | 60 1,1,1,2-Tetrachloroethane | 131 | 7.850 | 7.850 | (1.014) | 5136 | 1.00000 | 1.04(a) |
| | 61 Ethylbenzene | 106 | 7.871 | 7.871 | (1.017) | 6434 | 1.00000 | 0.94(a) |
| | 62 m,p-Xylenes | 106 | 7.971 | 7.971 | (1.030) | 15225 | 2.00000 | 1.87(a) |
| | 63 o-Xylene | 106 | 8.308 | 8.308 | (1.073) | 8210 | 1.00000 | 0.99(a) |
| | 64 Styrene | 104 | 8.329 | 8.330 | (1.076) | 14988 | 1.00000 | 1.01(a) |
| | 66 Bromoform | 173 | 8.480 | 8.480 | (1.095) | 3608 | 1.00000 | 0.97(Ta) |
| | 67 Isopropylbenzene | 105 | 8.630 | 8.630 | (1.115) | 14713 | 1.00000 | 0.90(a) |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 8.902 | 8.903 | (0.915) | 6731 | 1.00000 | 0.21(a) |
| $ | 69 4-Bromofluorobenzene | 95 | 8.759 | 8.752 | (1.131) | 8638 | 1.00000 | 0.96(a) |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 9.726 | 9.726 | (1.000) | 323044 | 50.0000 | |
| | 71 1,2,3-Trichloropropane | 75 | 8.931 | 8.931 | (0.918) | 4935 | 1.00000 | 0.87(aM) |
| | 72 trans-1,4-Dichloro-2-butene | 53 | 8.953 | 8.953 | (1.156) | 1972 | 1.00000 | 1.00 |
| | 73 n-Propylbenzene | 91 | 8.974 | 8.974 | (0.923) | 18731 | 1.00000 | 0.94(a) |
| | 74 Bromobenzene | 156 | 8.874 | 8.874 | (0.912) | 5206 | 1.00000 | 0.94(a) |
| | 75 1,3,5-Trimethylbenzene | 105 | 9.132 | 9.132 | (0.939) | 12625 | 1.00000 | 0.94(a) |
| | 76 2-Chlorotoluene | 91 | 9.039 | 9.039 | (0.929) | 13078 | 1.00000 | 0.98(a) |
| | 77 4-Chlorotoluene | 91 | 9.132 | 9.132 | (0.939) | 15023 | 1.00000 | 0.96(a) |
| | 78 tert-Butylbenzene | 119 | 9.397 | 9.397 | (0.966) | 9762 | 1.00000 | 0.97(a) |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101004.D
Report Date: 11-Jan-2018 18:10

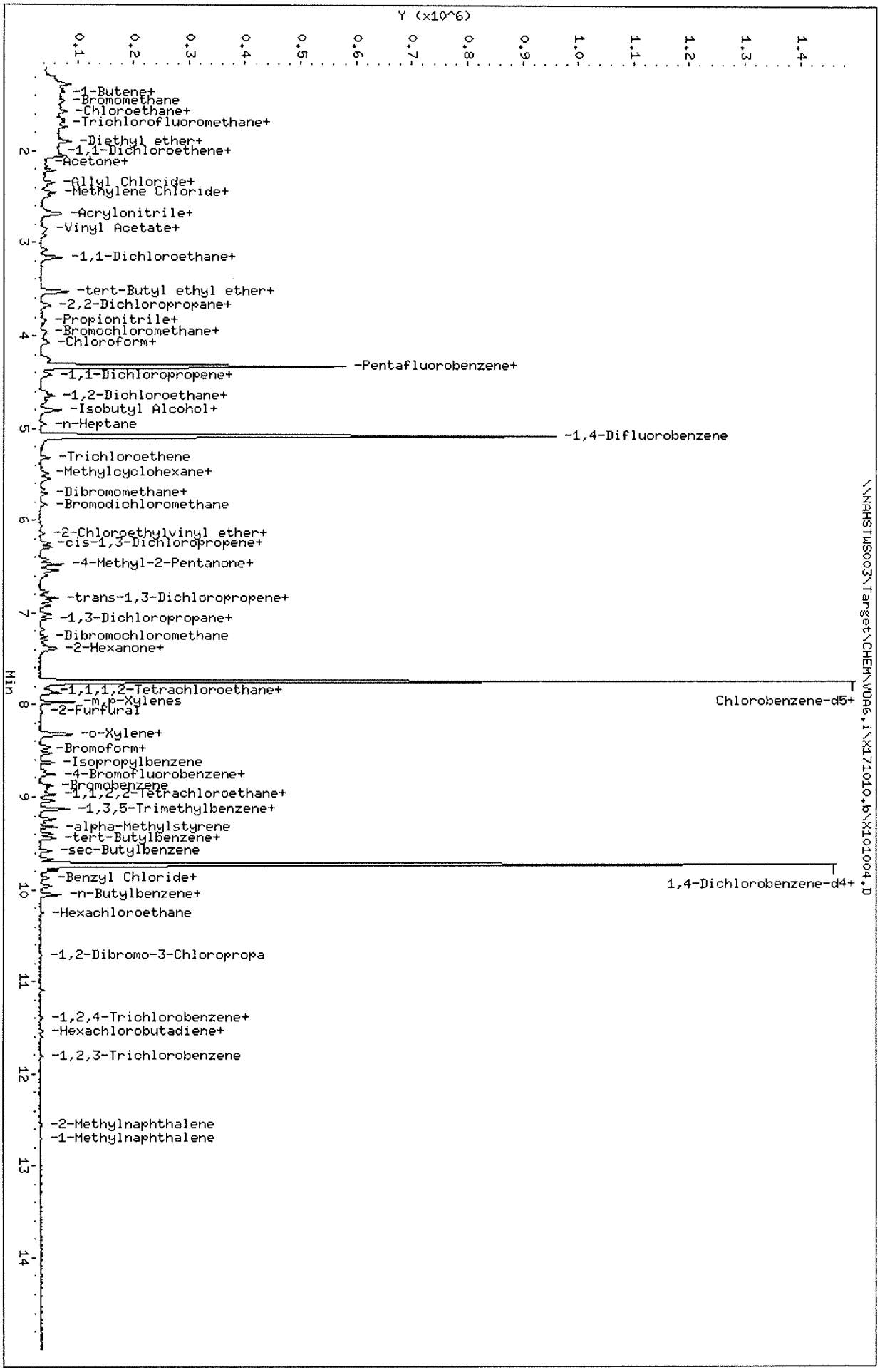
| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 79 | 1,2,4-Trimethylbenzene | 105 | 9.440 | 9.440 | (0.971) | 13553 | 1.00000 | 0.94(a) |
| 81 | sec-Butylbenzene | 105 | 9.583 | 9.583 | (0.985) | 12208 | 1.00000 | 0.91(a) |
| 82 | p-Isopropyltoluene | 119 | 9.712 | 9.712 | (0.999) | 10688 | 1.00000 | 0.92(a) |
| 83 | 1,3-Dichlorobenzene | 146 | 9.669 | 9.669 | (0.994) | 8186 | 1.00000 | 0.98(a) |
| 84 | 1,4-Dichlorobenzene | 146 | 9.748 | 9.748 | (1.002) | 8670 | 1.00000 | 0.99(a) |
| 86 | Benzyl Chloride | 91 | 9.869 | 9.870 | (1.275) | 10674 | 1.00000 | 0.91(a) |
| 87 | n-Butylbenzene | 91 | 10.056 | 10.056 | (1.034) | 8014 | 1.00000 | 0.84(a) |
| 88 | 1,2-Dichlorobenzene | 146 | 10.056 | 10.056 | (1.034) | 7838 | 1.00000 | 0.97(a) |
| 89 | 1,2-Dibromo-3-Chloropropane | 155 | 10.715 | 10.715 | (1.102) | 911 | 1.00000 | 1.36(a) |
| 90 | 1,2,4-Trichlorobenzene | 180 | 11.395 | 11.395 | (1.172) | 2125 | 1.00000 | 0.76(a) |
| 91 | Hexachlorobutadiene | 225 | 11.538 | 11.539 | (1.186) | 1041 | 1.00000 | 1.51(a) |
| 92 | Naphthalene | 128 | 11.603 | 11.603 | (1.193) | 4030 | 1.00000 | 3.47(a) |
| 93 | 1,2,3-Trichlorobenzene | 180 | 11.804 | 11.804 | (1.214) | 1477 | 1.00000 | 0.73(aM) |
| 130 | Ethyl Acetate | 43 | 4.812 | 4.805 | (1.113) | 22129 | 1.00000 | 0.50(Ta) |
| 131 | Methyl Acrylate | 55 | 3.853 | 3.838 | (0.891) | 7679 | 1.00000 | 1.11(a) |
| 132 | n-Butanol | 56 | 5.414 | 5.357 | (1.252) | 1498 | 20.0000 | 44.36(aH) |
| 133 | Ethyl Acrylate | 55 | 5.500 | 5.486 | (1.272) | 12126 | 1.00000 | 1.02(a) |
| 134 | Cyclohexanone | 55 | 8.723 | 8.709 | (0.897) | 4142 | 20.0000 | 26.48(a) |
| 135 | 1,4-Dioxane | 88 | 5.722 | 5.701 | (1.323) | 883 | 20.0000 | 36.46(a) |
| 136 | n-Hexane | 57 | 2.921 | 2.922 | (0.675) | 3751 | 1.00000 | 0.86(a) |
| 137 | n-Pentane | 43 | 1.739 | 1.732 | (0.402) | 7388 | 1.00000 | 1.01(a) |
| 138 | Freon TF | 101 | 2.055 | 2.055 | (0.475) | 3192 | 1.00000 | 0.86(a) |
| 146 | Methyl Acetate | 43 | 2.384 | 2.377 | (0.551) | 8550 | 1.00000 | 1.00(a) |
| 147 | Methylcyclohexane | 83 | 5.486 | 5.479 | (1.079) | 4601 | 1.00000 | 1.35(a) |
| 149 | Isopropyl alcohol | 45 | 2.277 | 2.241 | (0.526) | 5808 | 20.0000 | 22.30(T) |
| 152 | Amyl alcohol | 42 | 7.011 | 6.976 | (0.906) | 3531 | 20.0000 | 21.16 |
| 150 | Allyl alcohol | 57 | 2.921 | 2.922 | (0.675) | 3751 | 20.0000 | 16.78 |
| 151 | 4-Methyl-2-pentanol | 45 | 6.832 | 6.790 | (1.344) | 30398 | 20.0000 | 21.51 |
| 148 | Tert-butyl alcohol | 59 | 2.642 | 2.578 | (0.611) | 9926 | 20.0000 | 24.74 |
| 139 | Diethyl ether | 59 | 1.890 | 1.890 | (0.437) | 5329 | 1.00000 | 1.10(a) |
| 140 | 1,3-Butadiene | 54 | 1.281 | 1.281 | (0.296) | 4977 | 1.00000 | 0.86(a) |
| 141 | Cyclohexane | 56 | 4.275 | 4.275 | (0.988) | 5761 | 1.00000 | 0.80(aH) |
| 142 | Tetrahydrofuran | 42 | 4.024 | 4.003 | (0.930) | 2714 | 2.00000 | 2.59(aM) |
| 145 | alpha-Methylstyrene | 118 | 9.325 | 9.325 | (0.959) | 8615 | 1.00000 | 0.93(a) |
| 155 | 2-Pentanone | 43 | 5.572 | 5.550 | (1.288) | 9084 | 2.00000 | 2.55(a) |
| 156 | Diisopropyl ether | 45 | 3.158 | 3.151 | (0.730) | 22678 | 1.00000 | 1.06(a) |
| 157 | n-Heptane | 43 | 4.956 | 4.956 | (1.146) | 3089 | 1.00000 | 1.37(aM) |
| 158 | Dichlorofluoromethane | 67 | 1.661 | 1.654 | (0.384) | 8522 | 1.00000 | 0.97(M) |
| 159 | Propylene oxide | 43 | 2.119 | 2.112 | (0.490) | 6392 | 2.00000 | 1.78(aM) |
| 160 | 2-Methylnaphthalene | 142 | 12.548 | 12.541 | (1.290) | 1364 | 1.00000 | 2.94(a) |
| 161 | 3-Methyl-1-butanol | 55 | 7.019 | 6.976 | (0.907) | 2574 | 20.0000 | 18.89 |
| 162 | Butyl acrylate | 55 | 8.322 | 8.315 | (1.075) | 13190 | 1.00000 | 0.98(a) |
| 166 | 1,2,3-Trimethylbenzene | 105 | 9.798 | 9.791 | (1.007) | 14267 | 1.00000 | 1.05(a) |
| 167 | Ethanol | 45 | 1.854 | 1.840 | (0.429) | 2885 | 20.0000 | 37.33(M) |
| 170 | 1,3,5-Trichlorobenzene | 180 | 11.395 | 11.395 | (1.172) | 2125 | 1.00000 | (a) |
| 172 | tert-Butyl formate | 59 | 4.812 | 4.748 | (1.113) | 9986 | 2.00000 | 4.33(aM) |
| 173 | 3,3-Dimethyl-1-butanol | 57 | 7.391 | 7.363 | (0.955) | 10933 | 20.0000 | 10.84 |
| 174 | tert-Amyl methyl ether | 73 | 4.798 | 4.798 | (1.109) | 24237 | 1.00000 | (a) |
| 175 | tert-Butyl ethyl ether | 59 | 3.537 | 3.530 | (0.818) | 21111 | 1.00000 | 1.09(a) |
| 176 | tert-Amyl alcohol | 59 | 4.812 | 4.748 | (1.113) | 9564 | 20.0000 | 17.85 |
| 179 | Hexachloroethane | 166 | 10.256 | 10.256 | (1.054) | 518 | 1.00000 | 1.78(aM) |
| 180 | 1-Methylnaphthalene | 142 | 12.699 | 12.692 | (1.306) | 1090 | 1.00000 | 2.70(aM) |
| 181 | 2-Furfural | 96 | 8.072 | 8.036 | (1.043) | 3900 | 40.0000 | 130.84 |
| 182 | Epichlorohydrin | 57 | 6.195 | 6.188 | (1.218) | 1642 | 4.00000 | 4.64(aM) |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101004.D
Report Date: 11-Jan-2018 18:10

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 183 | 2-Methylpropane | 43 | 1.568 | 1.568 | (0.362) | 5068 | 1.00000 | 1.03 (aM) |
| 184 | Cyclopentane | 42 | 2.484 | 2.485 | (0.574) | 10377 | 1.00000 | 0.86 (a) |
| 185 | Isoprene | 39 | 1.904 | 1.904 | (0.440) | 6030 | 1.00000 | 0.92 (aM) |
| 186 | Isopentane | 42 | 1.568 | 1.561 | (0.362) | 4235 | 1.00000 | 1.00 (aM) |
| 187 | n-Amyl acetate | 43 | 8.530 | 8.516 | (1.102) | 10542 | 1.00000 | 0.86 (aM) |
| 188 | Isopropyl acetate | 43 | 4.812 | 4.805 | (0.946) | 22592 | 1.00000 | 0.52 (a) |
| 189 | n-Butyl acetate | 43 | 7.384 | 7.348 | (0.954) | 5370 | 1.00000 | 1.07 (aM) |
| 190 | Propanal | 58 | 2.040 | 2.040 | (0.472) | 4924 | 2.00000 | (a) |
| 193 | 2-Ethyl-1-hexanol | 57 | 9.955 | 9.956 | (1.024) | 10319 | 20.0000 | (a) |
| 194 | Acetaldehyde | 44 | 1.331 | 1.324 | (0.308) | 4175 | 4.00000 | (aM) |
| 195 | Methyl Amyl Ketone | 43 | 8.458 | 8.444 | (1.093) | 11664 | 1.00000 | 0.92 (a) |
| 196 | 2-Methylpentane | 43 | 2.449 | 2.449 | (0.566) | 8424 | 1.00000 | 2.54 (a) |
| 197 | 3-Methylpentane | 57 | 2.678 | 2.671 | (0.619) | 10954 | 1.00000 | 1.10 (a) |
| 198 | Methylcyclopentane | 56 | 3.537 | 3.530 | (0.818) | 16230 | 1.00000 | 1.02 (a) |
| 199 | 1-Hexene | 56 | 2.850 | 2.843 | (0.659) | 3696 | 1.00000 | 0.85 (a) |
| 200 | Dimethyl Disulfide | 94 | 6.295 | 6.288 | (0.813) | 13145 | 1.00000 | 1.14 (a) |
| 201 | 1-Butene | 41 | 1.360 | 1.360 | (0.314) | 4407 | 1.00000 | 1.21 (TaA) |
| M 94 | 1,2-Dichloroethylene (total) | 96 | | | | 10544 | 2.00000 | (a) |
| M 95 | Xylenes (total) | 106 | | | | 23435 | 3.00000 | (a) |

## QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.




Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101004.D
Date : 10-OCT-2017 11:53
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

\\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101004.D

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101005.D
Report Date: 11-Jan-2018 18:10

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101005.D
Lab Smp Id: VSTD002 Client Smp ID: VSTD002
Inj Date : 10-OCT-2017 12:18
Operator : PC Inst ID: voa6.i
Smp Info : VSTD002;VSTD002;1;4;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\8260W.m
Meth Date : 11-Jan-2018 18:09 Priyanka.R Quant Type: ISTD
Cal Date : 10-OCT-2017 12:18 Cal File: X101005.D
Als bottle: 7 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0000_KelsoNEW.sub
Target Version: 4.14

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 | 4.325 | 4.325 | (1.000) | 385876 | 50.0000 | |
| 2 | Dichlorodifluoromethane | 85 | 1.081 | 1.081 | (0.250) | 10521 | 2.00000 | 2.13(aM) |
| 3 | Chloromethane | 50 | 1.195 | 1.188 | (0.276) | 17438 | 2.00000 | 2.47(a) |
| 4 | Propionitrile | 54 | 3.824 | 3.817 | (0.884) | 16498 | 20.0000 | 21.09(a) |
| 5 | Vinyl Chloride | 62 | 1.260 | 1.260 | (0.291) | 13927 | 2.00000 | 2.10(aM) |
| 6 | Bromomethane | 94 | 1.460 | 1.453 | (0.338) | 6934 | 2.00000 | 1.85(a) |
| 7 | Chloroethane | 64 | 1.525 | 1.525 | (0.353) | 8318 | 2.00000 | 2.07(aM) |
| 8 | Trichlorofluoromethane | 101 | 1.689 | 1.689 | (0.391) | 13158 | 2.00000 | 2.03(a) |
| 9 | Acrolein | 56 | 1.997 | 1.997 | (0.462) | 3123 | 4.00000 | 3.92(a) |
| 10 | Acetone | 43 | 2.119 | 2.112 | (0.490) | 8765 | 4.00000 | 3.49(a) |
| 11 | 1,1-Dichloroethene | 96 | 2.055 | 2.055 | (0.475) | 9678 | 2.00000 | 2.16(a) |
| 12 | Isobutyl Alcohol | 43 | 4.813 | 4.805 | (1.113) | 44233 | 40.0000 | 35.39 |
| 13 | Acetonitrile | 39 | 2.341 | 2.341 | (0.541) | 15037 | 20.0000 | (aM) |
| 14 | Allyl Chloride | 41 | 2.348 | 2.341 | (0.543) | 34568 | 2.00000 | 2.12 |
| 15 | Iodomethane | 142 | 2.169 | 2.169 | (0.502) | 11988 | 4.00000 | 4.42(a) |
| 16 | Acrylonitrile | 53 | 2.692 | 2.685 | (0.622) | 6907 | 4.00000 | 3.30(a) |
| 17 | Methylene Chloride | 84 | 2.449 | 2.449 | (0.566) | 12710 | 2.00000 | 2.14(a) |
| 18 | Methyl tert-butyl ether | 73 | 2.685 | 2.685 | (0.621) | 33736 | 2.00000 | 2.07 |
| 19 | Carbon Disulfide | 76 | 2.212 | 2.212 | (0.512) | 61641 | 4.00000 | 4.33(a) |
| 20 | trans-1,2-Dichloroethene | 96 | 2.678 | 2.678 | (0.619) | 10840 | 2.00000 | 2.07(a) |
| 21 | Vinyl Acetate | 43 | 2.921 | 2.922 | (0.675) | 8179 | 4.00000 | 6.30 |
| 22 | 1,1-Dichloroethane | 63 | 3.079 | 3.079 | (0.712) | 21378 | 2.00000 | 2.10(a) |
| 23 | Chloroprene | 53 | 1.904 | 1.904 | (0.440) | 8997 | 2.00000 | 2.15(aM) |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101005.D
Report Date: 11-Jan-2018 18:10

| | | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|---|
| | 24 | 2-Butanone | 43 | 3.745 | 3.731 | (0.866) | 9250 | 4.00000 | 4.05(a) |
| | 25 | Methacrylonitrile | 41 | 3.982 | 3.982 | (0.921) | 12642 | 2.00000 | 2.13 |
| | 26 | 2,2-Dichloropropane | 77 | 3.674 | 3.666 | (0.849) | 16185 | 2.00000 | 2.05(a) |
| | 27 | cis-1,2-Dichloroethene | 96 | 3.681 | 3.688 | (0.851) | 11799 | 2.00000 | 2.03(a) |
| | 28 | Chloroform | 83 | 4.068 | 4.068 | (0.940) | 20561 | 2.00000 | 2.18(a) |
| | 29 | Bromochloromethane | 128 | 3.960 | 3.960 | (0.916) | 6116 | 2.00000 | 2.37(aM) |
| $ | 30 | Dibromofluoromethane | 113 | 4.254 | 4.254 | (0.983) | 11210 | 2.00000 | 1.95(a) |
| | 31 | 1,1,1-Trichloroethane | 97 | 4.239 | 4.240 | (0.980) | 15568 | 2.00000 | 2.05(a) |
| | 32 | 1,1-Dichloropropene | 75 | 4.426 | 4.426 | (0.870) | 15414 | 2.00000 | 2.13(a) |
| | 33 | 1,2-Dichloroethane | 62 | 4.691 | 4.691 | (0.923) | 16375 | 2.00000 | 2.20(a) |
| | 34 | Carbon Tetrachloride | 117 | 4.411 | 4.411 | (0.868) | 13563 | 2.00000 | 2.22(a) |
| $ | 35 | 1,2-Dichloroethane-d4 | 65 | 4.612 | 4.612 | (1.066) | 14296 | 2.00000 | 1.94(a) |
| * | 36 | 1,4-Difluorobenzene | 114 | 5.085 | 5.085 | (1.000) | 666206 | 50.0000 | |
| | 37 | Benzene | 78 | 4.648 | 4.648 | (0.914) | 44531 | 2.00000 | 2.03 |
| | 38 | Trichloroethene | 130 | 5.321 | 5.321 | (1.046) | 10841 | 2.00000 | 2.02(a) |
| | 39 | Bromodichloromethane | 83 | 5.830 | 5.830 | (1.146) | 14894 | 2.00000 | 1.97(a) |
| | 40 | Methyl Methacrylate | 41 | 5.708 | 5.701 | (1.320) | 13291 | 2.00000 | 2.21 |
| | 41 | 2-Chloroethylvinyl ether | 63 | 6.145 | 6.138 | (1.208) | 8515 | 4.00000 | 7.46 |
| | 42 | 1,2-Dichloropropane | 63 | 5.543 | 5.543 | (1.090) | 12340 | 2.00000 | 2.00(aM) |
| | 43 | 2-Nitropropane | 43 | 6.066 | 6.066 | (1.402) | 4657 | 2.00000 | 2.62(a) |
| | 44 | Dibromomethane | 93 | 5.658 | 5.658 | (1.113) | 7729 | 2.00000 | 2.18(aM) |
| | 45 | 4-Methyl-2-Pentanone | 43 | 6.424 | 6.410 | (0.830) | 22526 | 4.00000 | 3.94(a) |
| | 46 | cis-1,3-Dichloropropene | 75 | 6.245 | 6.245 | (1.228) | 19366 | 2.00000 | 2.00(a) |
| * | 47 | Chlorobenzene-d5 | 117 | 7.742 | 7.742 | (1.000) | 656030 | 50.0000 | |
| $ | 48 | Toluene-d8 | 98 | 6.474 | 6.474 | (0.836) | 43375 | 2.00000 | 2.05(a) |
| | 49 | Ethyl Methacrylate | 69 | 6.868 | 6.868 | (1.351) | 19425 | 2.00000 | 2.11(a) |
| | 50 | Toluene | 91 | 6.532 | 6.532 | (0.844) | 43485 | 2.00000 | 2.06 |
| | 51 | trans-1,3-Dichloropropene | 75 | 6.768 | 6.761 | (1.331) | 17113 | 2.00000 | 2.07(a) |
| | 52 | 2-Hexanone | 43 | 7.291 | 7.284 | (0.942) | 21721 | 4.00000 | 4.04(a) |
| | 53 | 1,1,2-Trichloroethane | 83 | 6.918 | 6.926 | (0.894) | 9046 | 2.00000 | 2.13(a) |
| | 54 | 1,3-Dichloropropane | 76 | 7.062 | 7.062 | (0.912) | 19887 | 2.00000 | 2.21(a) |
| | 55 | Dibromochloromethane | 129 | 7.255 | 7.255 | (0.937) | 11669 | 2.00000 | 2.10(a) |
| | 56 | Tetrachloroethene | 164 | 7.012 | 7.012 | (0.906) | 7314 | 2.00000 | 2.07(a) |
| | 57 | 1,2-Dibromoethane | 107 | 7.341 | 7.341 | (0.948) | 10446 | 2.00000 | 2.11(a) |
| | 58 | 1-Chlorohexane | 55 | 7.764 | 7.764 | (1.527) | 9153 | 2.00000 | 1.66(aM) |
| | 59 | Chlorobenzene | 112 | 7.764 | 7.771 | (1.003) | 27896 | 2.00000 | 2.09(a) |
| | 60 | 1,1,1,2-Tetrachloroethane | 131 | 7.850 | 7.850 | (1.014) | 9818 | 2.00000 | 2.03(a) |
| | 61 | Ethylbenzene | 106 | 7.871 | 7.871 | (1.017) | 14011 | 2.00000 | 2.09 |
| | 62 | m,p-Xylenes | 106 | 7.971 | 7.971 | (1.030) | 32488 | 4.00000 | 4.06 |
| | 63 | o-Xylene | 106 | 8.308 | 8.308 | (1.073) | 17034 | 2.00000 | 2.10 |
| | 64 | Styrene | 104 | 8.330 | 8.330 | (1.076) | 30342 | 2.00000 | 2.08(a) |
| | 66 | Bromoform | 173 | 8.480 | 8.480 | (1.095) | 7371 | 2.00000 | 2.01(a) |
| | 67 | Isopropylbenzene | 105 | 8.630 | 8.630 | (1.115) | 34535 | 2.00000 | 2.14(a) |
| | 68 | 1,1,2,2-Tetrachloroethane | 83 | 8.903 | 8.903 | (0.915) | 13394 | 2.00000 | 1.41(a) |
| $ | 69 | 4-Bromofluorobenzene | 95 | 8.752 | 8.752 | (1.130) | 16347 | 2.00000 | 2.08(a) |
| * | 70 | 1,4-Dichlorobenzene-d4 | 152 | 9.726 | 9.726 | (1.000) | 321349 | 50.0000 | |
| | 71 | 1,2,3-Trichloropropane | 75 | 8.931 | 8.931 | (0.918) | 10910 | 2.00000 | 1.94(aM) |
| | 72 | trans-1,4-Dichloro-2-butene | 53 | 8.953 | 8.953 | (1.156) | 3972 | 2.00000 | 2.05 |
| | 73 | n-Propylbenzene | 91 | 8.974 | 8.974 | (0.923) | 40264 | 2.00000 | 2.03(a) |
| | 74 | Bromobenzene | 156 | 8.874 | 8.874 | (0.912) | 11269 | 2.00000 | 2.06(a) |
| | 75 | 1,3,5-Trimethylbenzene | 105 | 9.132 | 9.132 | (0.939) | 27562 | 2.00000 | 2.07(a) |
| | 76 | 2-Chlorotoluene | 91 | 9.039 | 9.039 | (0.929) | 27924 | 2.00000 | 2.12(a) |
| | 77 | 4-Chlorotoluene | 91 | 9.132 | 9.132 | (0.939) | 31719 | 2.00000 | 2.05(a) |
| | 78 | tert-Butylbenzene | 119 | 9.397 | 9.397 | (0.966) | 20607 | 2.00000 | 2.07(a) |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101005.D
Report Date: 11-Jan-2018 18:10

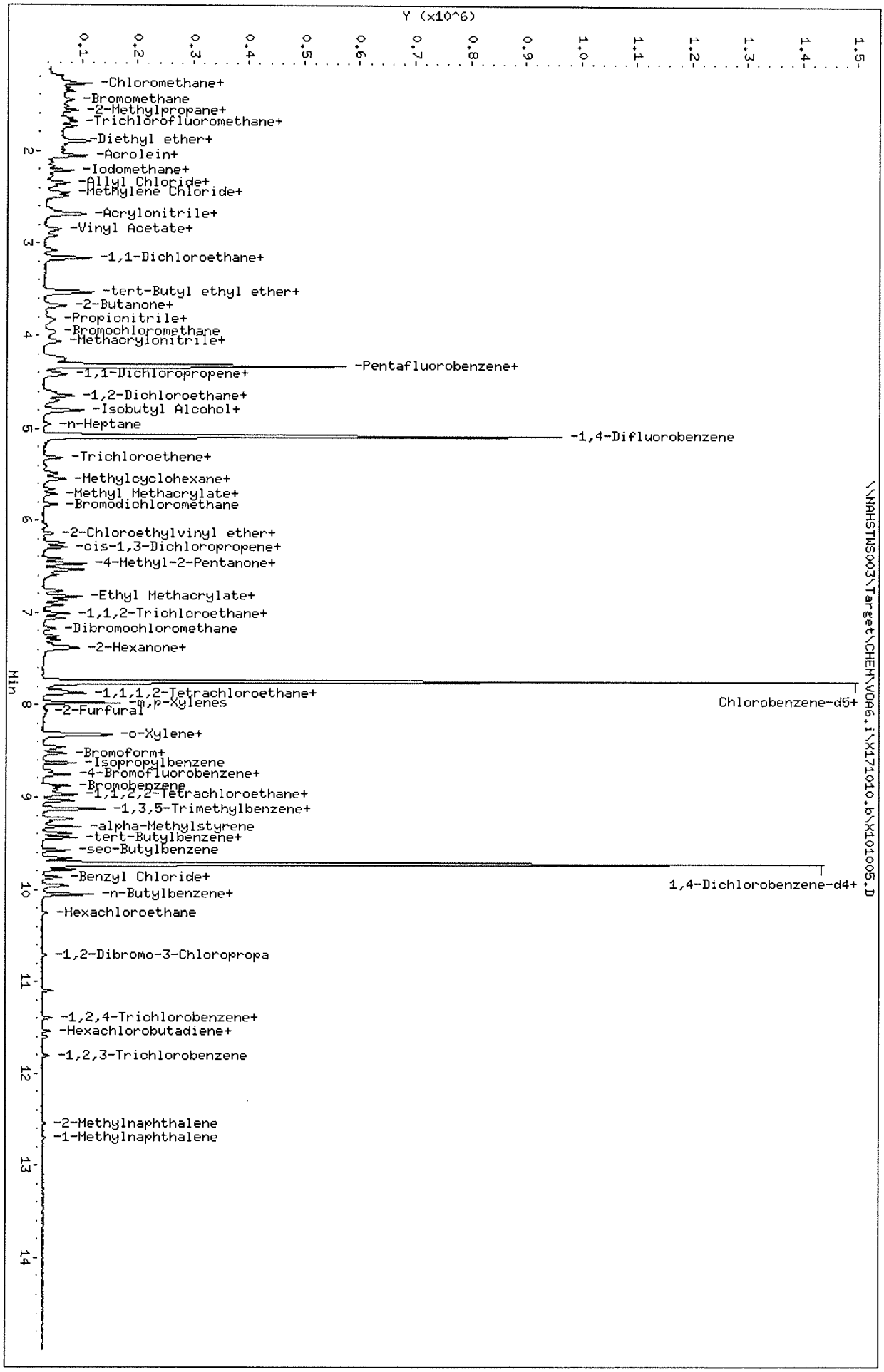
| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 79 | 1,2,4-Trimethylbenzene | 105 | 9.440 | 9.440 | (0.971) | 29965 | 2.00000 | 2.11(a) |
| 81 | sec-Butylbenzene | 105 | 9.583 | 9.583 | (0.985) | 28775 | 2.00000 | 2.16(a) |
| 82 | p-Isopropyltoluene | 119 | 9.712 | 9.712 | (0.999) | 23404 | 2.00000 | 2.03(a) |
| 83 | 1,3-Dichlorobenzene | 146 | 9.669 | 9.669 | (0.994) | 16650 | 2.00000 | 2.01(a) |
| 84 | 1,4-Dichlorobenzene | 146 | 9.748 | 9.748 | (1.002) | 18183 | 2.00000 | 2.08(a) |
| 86 | Benzyl Chloride | 91 | 9.870 | 9.870 | (1.275) | 20879 | 2.00000 | 1.81(a) |
| 87 | n-Butylbenzene | 91 | 10.056 | 10.056 | (1.034) | 18420 | 2.00000 | 1.95(a) |
| 88 | 1,2-Dichlorobenzene | 146 | 10.056 | 10.056 | (1.034) | 16173 | 2.00000 | 2.01(a) |
| 89 | 1,2-Dibromo-3-Chloropropane | 155 | 10.715 | 10.715 | (1.102) | 1484 | 2.00000 | 2.18(a) |
| 90 | 1,2,4-Trichlorobenzene | 180 | 11.403 | 11.395 | (1.172) | 4947 | 2.00000 | 1.78(a) |
| 91 | Hexachlorobutadiene | 225 | 11.539 | 11.539 | (1.186) | 2823 | 2.00000 | 3.06(a) |
| 92 | Naphthalene | 128 | 11.603 | 11.603 | (1.193) | 8735 | 2.00000 | 4.06(a) |
| 93 | 1,2,3-Trichlorobenzene | 180 | 11.804 | 11.804 | (1.214) | 3582 | 2.00000 | 1.79(a) |
| 130 | Ethyl Acetate | 43 | 4.813 | 4.805 | (1.113) | 44233 | 2.00000 | 1.76(a) |
| 131 | Methyl Acrylate | 55 | 3.853 | 3.838 | (0.891) | 14689 | 2.00000 | 2.13(a) |
| 132 | n-Butanol | 56 | 5.407 | 5.357 | (1.250) | 3792 | 40.0000 | 62.17(aH) |
| 133 | Ethyl Acrylate | 55 | 5.493 | 5.486 | (1.270) | 21823 | 2.00000 | 1.84(a) |
| 134 | Cyclohexanone | 55 | 8.716 | 8.709 | (0.896) | 7367 | 40.0000 | 46.33(a) |
| 135 | 1,4-Dioxane | 88 | 5.715 | 5.701 | (1.321) | 1958 | 40.0000 | 60.24(a) |
| 136 | n-Hexane | 57 | 2.921 | 2.922 | (0.675) | 9299 | 2.00000 | 2.15(a) |
| 137 | n-Pentane | 43 | 1.740 | 1.732 | (0.402) | 12458 | 2.00000 | 1.70(a) |
| 138 | Freon TF | 101 | 2.055 | 2.055 | (0.475) | 7871 | 2.00000 | 2.13(a) |
| 146 | Methyl Acetate | 43 | 2.384 | 2.377 | (0.551) | 18120 | 2.00000 | 2.13(a) |
| 147 | Methylcyclohexane | 83 | 5.479 | 5.479 | (1.077) | 7313 | 2.00000 | 2.04(a) |
| 149 | Isopropyl alcohol | 45 | 2.270 | 2.241 | (0.525) | 13634 | 40.0000 | 48.51 |
| 152 | Amyl alcohol | 42 | 7.012 | 6.976 | (0.906) | 6940 | 40.0000 | 42.15 |
| 150 | Allyl alcohol | 57 | 2.921 | 2.922 | (0.675) | 9299 | 40.0000 | 41.64 |
| 151 | 4-Methyl-2-pentanol | 45 | 6.825 | 6.790 | (1.342) | 57297 | 40.0000 | 40.57 |
| 148 | Tert-butyl alcohol | 59 | 2.635 | 2.578 | (0.609) | 20235 | 40.0000 | 47.69(M) |
| 139 | Diethyl ether | 59 | 1.890 | 1.890 | (0.437) | 9511 | 2.00000 | 1.97(a) |
| 140 | 1,3-Butadiene | 54 | 1.281 | 1.281 | (0.296) | 12186 | 2.00000 | 2.12(a) |
| 141 | Cyclohexane | 56 | 4.275 | 4.275 | (0.988) | 15776 | 2.00000 | 2.20(aH) |
| 142 | Tetrahydrofuran | 42 | 4.025 | 4.003 | (0.930) | 4293 | 4.00000 | 4.10(a) |
| 145 | alpha-Methylstyrene | 118 | 9.318 | 9.325 | (0.958) | 18837 | 2.00000 | 2.05(a) |
| 155 | 2-Pentanone | 43 | 5.565 | 5.550 | (1.286) | 18078 | 4.00000 | 4.80(a) |
| 156 | Diisopropyl ether | 45 | 3.158 | 3.151 | (0.730) | 41969 | 2.00000 | 1.97(a) |
| 157 | n-Heptane | 43 | 4.956 | 4.956 | (1.146) | 5485 | 2.00000 | 2.02(a) |
| 158 | Dichlorofluoromethane | 67 | 1.661 | 1.654 | (0.384) | 17691 | 2.00000 | 2.03 |
| 159 | Propylene oxide | 43 | 2.119 | 2.112 | (0.490) | 8765 | 4.00000 | 3.57(a) |
| 160 | 2-Methylnaphthalene | 142 | 12.549 | 12.541 | (1.290) | 2295 | 2.00000 | 3.81(a) |
| 161 | 3-Methyl-1-butanol | 55 | 7.012 | 6.976 | (0.906) | 5569 | 40.0000 | 41.42 |
| 162 | Butyl acrylate | 55 | 8.322 | 8.315 | (1.075) | 25871 | 2.00000 | 1.96(a) |
| 166 | 1,2,3-Trimethylbenzene | 105 | 9.791 | 9.791 | (1.007) | 26449 | 2.00000 | 1.96(a) |
| 167 | Ethanol | 45 | 1.854 | 1.840 | (0.429) | 3565 | 40.0000 | 54.73(M) |
| 170 | 1,3,5-Trichlorobenzene | 180 | 11.403 | 11.395 | (1.172) | 4947 | 2.00000 | (a) |
| 172 | tert-Butyl formate | 59 | 4.805 | 4.748 | (1.111) | 20053 | 4.00000 | 6.96 |
| 173 | 3,3-Dimethyl-1-butanol | 57 | 7.391 | 7.363 | (0.955) | 22611 | 40.0000 | 39.28 |
| 174 | tert-Amyl methyl ether | 73 | 4.798 | 4.798 | (1.109) | 44537 | 2.00000 | 0.41(a) |
| 175 | tert-Butyl ethyl ether | 59 | 3.538 | 3.530 | (0.818) | 38917 | 2.00000 | 2.02(a) |
| 176 | tert-Amyl alcohol | 59 | 4.805 | 4.748 | (1.111) | 20103 | 40.0000 | 45.95 |
| 179 | Hexachloroethane | 166 | 10.256 | 10.256 | (1.054) | 1069 | 2.00000 | 2.86(a) |
| 180 | 1-Methylnaphthalene | 142 | 12.699 | 12.692 | (1.306) | 1951 | 2.00000 | 3.76(aM) |
| 181 | 2-Furfural | 96 | 8.065 | 8.036 | (1.042) | 7628 | 80.0000 | 158.76 |
| 182 | Epichlorohydrin | 57 | 6.195 | 6.188 | (1.218) | 2376 | 8.00000 | 6.71(M) |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101005.D
Report Date: 11-Jan-2018 18:10

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 183 | 2-Methylpropane | 43 | 1.568 | 1.568 | (0.363) | 9439 | 2.00000 | 1.92(a) |
| 184 | Cyclopentane | 42 | 2.485 | 2.485 | (0.574) | 25781 | 2.00000 | 2.14(aM) |
| 185 | Isoprene | 39 | 1.904 | 1.904 | (0.440) | 10073 | 2.00000 | 2.18(aM) |
| 186 | Isopentane | 42 | 1.568 | 1.561 | (0.363) | 7207 | 2.00000 | 1.71(a) |
| 187 | n-Amyl acetate | 43 | 8.523 | 8.516 | (1.101) | 24336 | 2.00000 | 2.03(aM) |
| 188 | Isopropyl acetate | 43 | 4.813 | 4.805 | (0.946) | 44831 | 2.00000 | 1.76(a) |
| 189 | n-Butyl acetate | 43 | 7.377 | 7.348 | (0.953) | 11346 | 2.00000 | 2.30(aM) |
| 190 | Propanal | 58 | 2.040 | 2.040 | (0.472) | 8915 | 4.00000 | (a) |
| 193 | 2-Ethyl-1-hexanol | 57 | 9.956 | 9.956 | (1.024) | 21919 | 40.0000 | 31.66 |
| 194 | Acetaldehyde | 44 | 1.324 | 1.324 | (0.306) | 5421 | 8.00000 | 0.16(aAM) |
| 195 | Methyl Amyl Ketone | 43 | 8.459 | 8.444 | (1.093) | 24402 | 2.00000 | 1.96(a) |
| 196 | 2-Methylpentane | 43 | 2.449 | 2.449 | (0.566) | 13329 | 2.00000 | 3.20(a) |
| 197 | 3-Methylpentane | 57 | 2.678 | 2.671 | (0.619) | 18811 | 2.00000 | 1.89(a) |
| 198 | Methylcyclopentane | 56 | 3.530 | 3.530 | (0.816) | 26464 | 2.00000 | 1.67(a) |
| 199 | 1-Hexene | 56 | 2.843 | 2.843 | (0.657) | 9792 | 2.00000 | 2.27(a) |
| 200 | Dimethyl Disulfide | 94 | 6.295 | 6.288 | (0.813) | 22547 | 2.00000 | 1.99(a) |
| 201 | 1-Butene | 41 | 1.360 | 1.360 | (0.314) | 7922 | 2.00000 | 2.17(TaA) |
| M 94 | 1,2-Dichloroethylene (total) | 96 | | | | 22639 | 4.00000 | (a) |
| M 95 | Xylenes (total) | 106 | | | | 49522 | 6.00000 | (a) |

## QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.




Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101005.D
Date : 10-OCT-2017 12:18
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: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101006.D
Report Date: 11-Jan-2018 18:10

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101006.D
Lab Smp Id: VSTD005 Client Smp ID: VSTD005
Inj Date : 10-OCT-2017 12:43
Operator : PC Inst ID: voa6.i
Smp Info : VSTD005;VSTD005;1;5;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\8260W.m
Meth Date : 11-Jan-2018 18:09 Priyanka.R Quant Type: ISTD
Cal Date : 10-OCT-2017 12:43 Cal File: X101006.D
Als bottle: 8 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0000_KelsoNEW.sub
Target Version: 4.14

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 | 4.326 | 4.325 | (1.000) | 392557 | 50.0000 | |
| 2 | Dichlorodifluoromethane | 85 | 1.081 | 1.081 | (0.250) | 22677 | 5.00000 | 4.51(a) |
| 3 | Chloromethane | 50 | 1.188 | 1.188 | (0.275) | 39933 | 5.00000 | 5.25 |
| 4 | Propionitrile | 54 | 3.817 | 3.817 | (0.882) | 41837 | 50.0000 | 52.59(a) |
| 5 | Vinyl Chloride | 62 | 1.260 | 1.260 | (0.291) | 33245 | 5.00000 | 4.94(a) |
| 6 | Bromomethane | 94 | 1.460 | 1.453 | (0.338) | 18611 | 5.00000 | 4.88(aM) |
| 7 | Chloroethane | 64 | 1.525 | 1.525 | (0.353) | 21206 | 5.00000 | 5.20 |
| 8 | Trichlorofluoromethane | 101 | 1.690 | 1.689 | (0.391) | 31607 | 5.00000 | 4.80(a) |
| 9 | Acrolein | 56 | 1.998 | 1.997 | (0.462) | 6596 | 10.0000 | 9.60(a) |
| 10 | Acetone | 43 | 2.119 | 2.112 | (0.490) | 17904 | 10.0000 | 10.17 |
| 11 | 1,1-Dichloroethene | 96 | 2.055 | 2.055 | (0.475) | 22577 | 5.00000 | 4.96(a) |
| 12 | Isobutyl Alcohol | 43 | 4.805 | 4.805 | (1.111) | 106822 | 100.000 | 104.74 |
| 13 | Acetonitrile | 39 | 2.341 | 2.341 | (0.541) | 36818 | 50.0000 | 32.90(M) |
| 14 | Allyl Chloride | 41 | 2.349 | 2.341 | (0.543) | 83416 | 5.00000 | 5.04 |
| 15 | Iodomethane | 142 | 2.169 | 2.169 | (0.502) | 32081 | 10.0000 | 8.52 |
| 16 | Acrylonitrile | 53 | 2.692 | 2.685 | (0.622) | 23072 | 10.0000 | 10.84(a) |
| 17 | Methylene Chloride | 84 | 2.449 | 2.449 | (0.566) | 31401 | 5.00000 | 5.19 |
| 18 | Methyl tert-butyl ether | 73 | 2.685 | 2.685 | (0.621) | 82438 | 5.00000 | 4.97 |
| 19 | Carbon Disulfide | 76 | 2.212 | 2.212 | (0.512) | 146252 | 10.0000 | 10.10 |
| 20 | trans-1,2-Dichloroethene | 96 | 2.678 | 2.678 | (0.619) | 26967 | 5.00000 | 5.08 |
| 21 | Vinyl Acetate | 43 | 2.922 | 2.922 | (0.675) | 17844 | 10.0000 | 12.29 |
| 22 | 1,1-Dichloroethane | 63 | 3.079 | 3.079 | (0.712) | 52379 | 5.00000 | 5.08 |
| 23 | Chloroprene | 53 | 1.904 | 1.904 | (0.440) | 20667 | 5.00000 | 4.86(aM) |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101006.D
Report Date: 11-Jan-2018 18:10

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 24 | 2-Butanone | 43 | 3.745 | 3.731 | (0.866) | 23019 | 10.0000 | 9.91 |
| 25 | Methacrylonitrile | 41 | 3.982 | 3.982 | (0.921) | 31016 | 5.00000 | 5.13 |
| 26 | 2,2-Dichloropropane | 77 | 3.667 | 3.666 | (0.848) | 40797 | 5.00000 | 5.07 |
| 27 | cis-1,2-Dichloroethene | 96 | 3.688 | 3.688 | (0.853) | 29578 | 5.00000 | 5.02 |
| 28 | Chloroform | 83 | 4.068 | 4.068 | (0.940) | 49297 | 5.00000 | 5.14 |
| 29 | Bromochloromethane | 128 | 3.953 | 3.960 | (0.914) | 13859 | 5.00000 | 5.28 |
| $ 30 | Dibromofluoromethane | 113 | 4.254 | 4.254 | (0.983) | 26199 | 5.00000 | 4.65(a) |
| 31 | 1,1,1-Trichloroethane | 97 | 4.240 | 4.240 | (0.980) | 39012 | 5.00000 | 5.06 |
| 32 | 1,1-Dichloropropene | 75 | 4.426 | 4.426 | (0.870) | 36620 | 5.00000 | 5.02 |
| 33 | 1,2-Dichloroethane | 62 | 4.691 | 4.691 | (0.923) | 37697 | 5.00000 | 5.03 |
| 34 | Carbon Tetrachloride | 117 | 4.412 | 4.411 | (0.868) | 31055 | 5.00000 | 5.06 |
| $ 35 | 1,2-Dichloroethane-d4 | 65 | 4.612 | 4.612 | (1.066) | 35051 | 5.00000 | 4.88(a) |
| * 36 | 1,4-Difluorobenzene | 114 | 5.085 | 5.085 | (1.000) | 670592 | 50.0000 | |
| 37 | Benzene | 78 | 4.648 | 4.648 | (0.914) | 111093 | 5.00000 | 5.05 |
| 38 | Trichloroethene | 130 | 5.321 | 5.321 | (1.046) | 26799 | 5.00000 | 4.96(a) |
| 39 | Bromodichloromethane | 83 | 5.830 | 5.830 | (1.146) | 37494 | 5.00000 | 4.93(a) |
| 40 | Methyl Methacrylate | 41 | 5.708 | 5.701 | (1.320) | 30929 | 5.00000 | 5.05 |
| 41 | 2-Chloroethylvinyl ether | 63 | 6.138 | 6.138 | (1.207) | 20692 | 10.0000 | 11.48 |
| 42 | 1,2-Dichloropropane | 63 | 5.543 | 5.543 | (1.090) | 33605 | 5.00000 | 5.41 |
| 43 | 2-Nitropropane | 43 | 6.066 | 6.066 | (1.402) | 9913 | 5.00000 | 5.20 |
| 44 | Dibromomethane | 93 | 5.658 | 5.658 | (1.113) | 17851 | 5.00000 | 5.02 |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.417 | 6.410 | (0.829) | 59492 | 10.0000 | 10.30 |
| 46 | cis-1,3-Dichloropropene | 75 | 6.245 | 6.245 | (1.228) | 49234 | 5.00000 | 5.07 |
| * 47 | Chlorobenzene-d5 | 117 | 7.742 | 7.742 | (1.000) | 662461 | 50.0000 | |
| $ 48 | Toluene-d8 | 98 | 6.474 | 6.474 | (0.836) | 94423 | 5.00000 | 4.61(a) |
| 49 | Ethyl Methacrylate | 69 | 6.868 | 6.868 | (1.351) | 46684 | 5.00000 | 5.04 |
| 50 | Toluene | 91 | 6.532 | 6.532 | (0.844) | 108480 | 5.00000 | 5.09 |
| 51 | trans-1,3-Dichloropropene | 75 | 6.761 | 6.761 | (1.330) | 41166 | 5.00000 | 4.95(a) |
| 52 | 2-Hexanone | 43 | 7.291 | 7.284 | (0.942) | 52800 | 10.0000 | 9.72 |
| 53 | 1,1,2-Trichloroethane | 83 | 6.919 | 6.926 | (0.894) | 21840 | 5.00000 | 5.10 |
| 54 | 1,3-Dichloropropane | 76 | 7.062 | 7.062 | (0.912) | 46210 | 5.00000 | 5.09 |
| 55 | Dibromochloromethane | 129 | 7.255 | 7.255 | (0.937) | 28938 | 5.00000 | 5.17 |
| 56 | Tetrachloroethene | 164 | 7.012 | 7.012 | (0.906) | 17817 | 5.00000 | 5.01 |
| 57 | 1,2-Dibromoethane | 107 | 7.341 | 7.341 | (0.948) | 26539 | 5.00000 | 5.31 |
| 58 | 1-Chlorohexane | 55 | 7.764 | 7.764 | (1.527) | 23052 | 5.00000 | 4.97(aM) |
| 59 | Chlorobenzene | 112 | 7.764 | 7.771 | (1.003) | 66842 | 5.00000 | 4.97(a) |
| 60 | 1,1,1,2-Tetrachloroethane | 131 | 7.850 | 7.850 | (1.014) | 24609 | 5.00000 | 5.03 |
| 61 | Ethylbenzene | 106 | 7.871 | 7.871 | (1.017) | 34021 | 5.00000 | 5.03 |
| 62 | m,p-Xylenes | 106 | 7.972 | 7.971 | (1.030) | 81493 | 10.0000 | 10.08 |
| 63 | o-Xylene | 106 | 8.308 | 8.308 | (1.073) | 39776 | 5.00000 | 4.86 |
| 64 | Styrene | 104 | 8.330 | 8.330 | (1.076) | 73447 | 5.00000 | 5.00 |
| 66 | Bromoform | 173 | 8.480 | 8.480 | (1.095) | 18747 | 5.00000 | 5.07 |
| 67 | Isopropylbenzene | 105 | 8.631 | 8.630 | (1.115) | 83868 | 5.00000 | 5.15 |
| 68 | 1,1,2,2-Tetrachloroethane | 83 | 8.903 | 8.903 | (0.915) | 31643 | 5.00000 | 4.64(a) |
| $ 69 | 4-Bromofluorobenzene | 95 | 8.752 | 8.752 | (1.130) | 36044 | 5.00000 | 4.84(a) |
| * 70 | 1,4-Dichlorobenzene-d4 | 152 | 9.726 | 9.726 | (1.000) | 323946 | 50.0000 | |
| 71 | 1,2,3-Trichloropropane | 75 | 8.931 | 8.931 | (0.918) | 28131 | 5.00000 | 4.96(aM) |
| 72 | trans-1,4-Dichloro-2-butene | 53 | 8.953 | 8.953 | (1.156) | 9356 | 5.00000 | 4.79 |
| 73 | n-Propylbenzene | 91 | 8.974 | 8.974 | (0.923) | 102872 | 5.00000 | 5.15 |
| 74 | Bromobenzene | 156 | 8.874 | 8.874 | (0.912) | 28257 | 5.00000 | 5.12 |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.132 | 9.132 | (0.939) | 69204 | 5.00000 | 5.17 |
| 76 | 2-Chlorotoluene | 91 | 9.039 | 9.039 | (0.929) | 67575 | 5.00000 | 5.09 |
| 77 | 4-Chlorotoluene | 91 | 9.132 | 9.132 | (0.939) | 77993 | 5.00000 | 5.01 |
| 78 | tert-Butylbenzene | 119 | 9.397 | 9.397 | (0.966) | 50444 | 5.00000 | 5.04 |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101006.D
Report Date: 11-Jan-2018 18:10

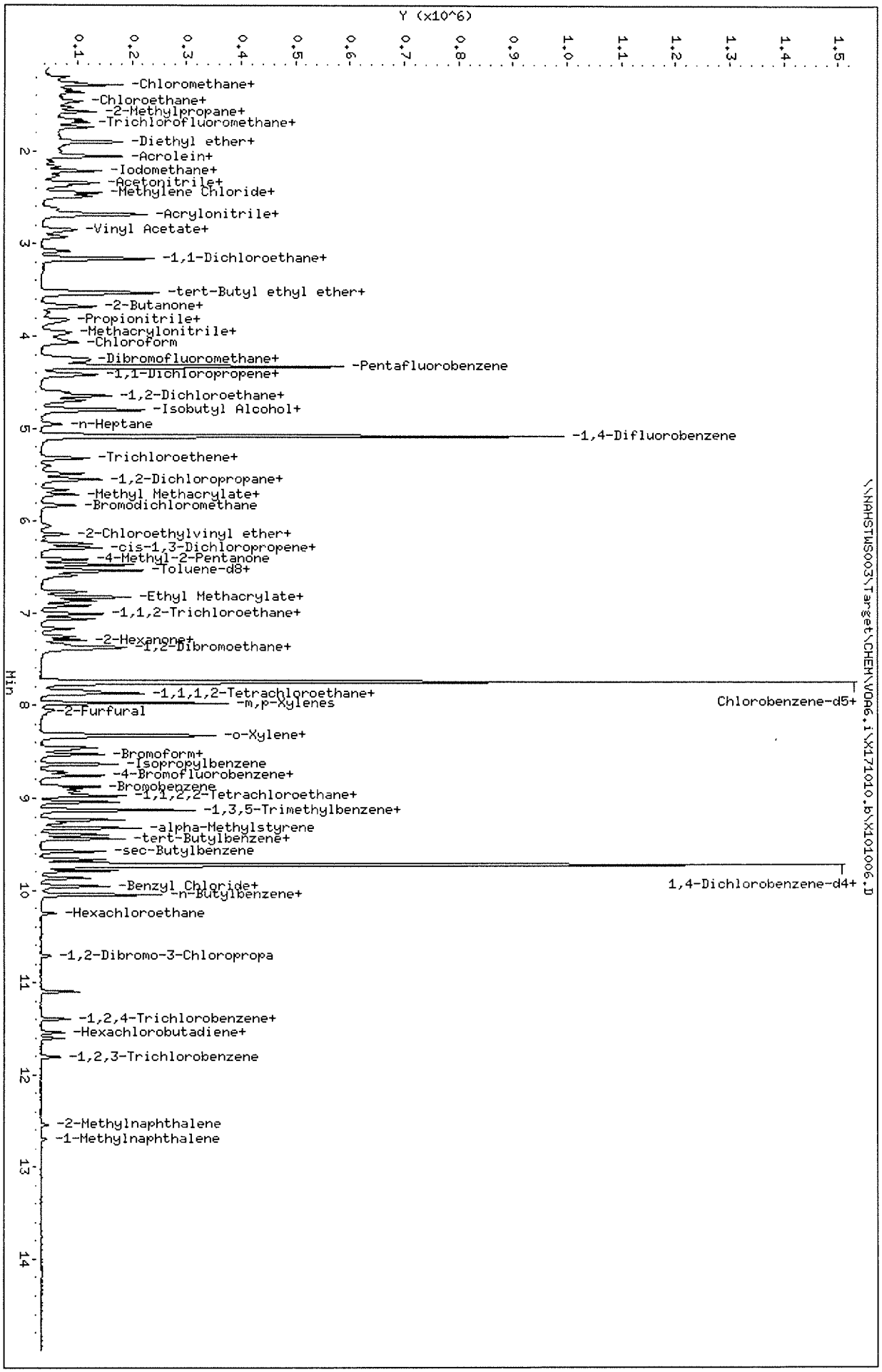
| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 79 | 1,2,4-Trimethylbenzene | 105 | 9.440 | 9.440 | (0.971) | 71855 | 5.00000 | 5.02 |
| 81 | sec-Butylbenzene | 105 | 9.583 | 9.583 | (0.985) | 68465 | 5.00000 | 5.11 |
| 82 | p-Isopropyltoluene | 119 | 9.712 | 9.712 | (0.999) | 60193 | 5.00000 | 5.19 |
| 83 | 1,3-Dichlorobenzene | 146 | 9.669 | 9.669 | (0.994) | 41386 | 5.00000 | 4.96(a) |
| 84 | 1,4-Dichlorobenzene | 146 | 9.748 | 9.748 | (1.002) | 43315 | 5.00000 | 4.93(a) |
| 86 | Benzyl Chloride | 91 | 9.870 | 9.870 | (1.275) | 55215 | 5.00000 | 4.74(a) |
| 87 | n-Butylbenzene | 91 | 10.056 | 10.056 | (1.034) | 49557 | 5.00000 | 5.21 |
| 88 | 1,2-Dichlorobenzene | 146 | 10.056 | 10.056 | (1.034) | 40181 | 5.00000 | 4.96(a) |
| 89 | 1,2-Dibromo-3-Chloropropane | 155 | 10.715 | 10.715 | (1.102) | 3907 | 5.00000 | 5.55 |
| 90 | 1,2,4-Trichlorobenzene | 180 | 11.395 | 11.395 | (1.172) | 13883 | 5.00000 | 4.96(a) |
| 91 | Hexachlorobutadiene | 225 | 11.539 | 11.539 | (1.186) | 6979 | 5.00000 | 6.63 |
| 92 | Naphthalene | 128 | 11.603 | 11.603 | (1.193) | 27541 | 5.00000 | 6.39 |
| 93 | 1,2,3-Trichlorobenzene | 180 | 11.804 | 11.804 | (1.214) | 9955 | 5.00000 | 4.94(a) |
| 130 | Ethyl Acetate | 43 | 4.805 | 4.805 | (1.111) | 106822 | 5.00000 | 5.23 |
| 131 | Methyl Acrylate | 55 | 3.846 | 3.838 | (0.889) | 36166 | 5.00000 | 5.17 |
| 132 | n-Butanol | 56 | 5.400 | 5.357 | (1.248) | 10862 | 100.000 | 115.60(aH) |
| 133 | Ethyl Acrylate | 55 | 5.493 | 5.486 | (1.270) | 57296 | 5.00000 | 4.75(a) |
| 134 | Cyclohexanone | 55 | 8.717 | 8.709 | (0.896) | 18457 | 100.000 | 113.26(a) |
| 135 | 1,4-Dioxane | 88 | 5.708 | 5.701 | (1.320) | 4654 | 100.000 | 118.07(a) |
| 136 | n-Hexane | 57 | 2.922 | 2.922 | (0.675) | 21400 | 5.00000 | 4.86(a) |
| 137 | n-Pentane | 43 | 1.740 | 1.732 | (0.402) | 30642 | 5.00000 | 4.12(a) |
| 138 | Freon TF | 101 | 2.055 | 2.055 | (0.475) | 18048 | 5.00000 | 4.81(a) |
| 146 | Methyl Acetate | 43 | 2.377 | 2.377 | (0.550) | 44593 | 5.00000 | 5.15 |
| 147 | Methylcyclohexane | 83 | 5.479 | 5.479 | (1.077) | 18506 | 5.00000 | 4.87(a) |
| 149 | Isopropyl alcohol | 45 | 2.270 | 2.241 | (0.525) | 30579 | 100.000 | 103.49(T) |
| 152 | Amyl alcohol | 42 | 7.005 | 6.976 | (0.905) | 17756 | 100.000 | 106.79 |
| 150 | Allyl alcohol | 57 | 2.922 | 2.922 | (0.675) | 21400 | 100.000 | 94.21 |
| 151 | 4-Methyl-2-pentanol | 45 | 6.818 | 6.790 | (1.341) | 143632 | 100.000 | 101.03 |
| 148 | Tert-butyl alcohol | 59 | 2.621 | 2.578 | (0.606) | 49723 | 100.000 | 111.39 |
| 139 | Diethyl ether | 59 | 1.890 | 1.890 | (0.437) | 23821 | 5.00000 | 4.87(a) |
| 140 | 1,3-Butadiene | 54 | 1.281 | 1.281 | (0.296) | 28616 | 5.00000 | 4.91(a) |
| 141 | Cyclohexane | 56 | 4.275 | 4.275 | (0.988) | 36259 | 5.00000 | 4.98(aM) |
| 142 | Tetrahydrofuran | 42 | 4.010 | 4.003 | (0.927) | 10268 | 10.0000 | 9.64 |
| 145 | alpha-Methylstyrene | 118 | 9.318 | 9.325 | (0.958) | 45287 | 5.00000 | 4.90(a) |
| 155 | 2-Pentanone | 43 | 5.558 | 5.550 | (1.285) | 42188 | 10.0000 | 10.66 |
| 156 | Diisopropyl ether | 45 | 3.158 | 3.151 | (0.730) | 105375 | 5.00000 | 4.88(a) |
| 157 | n-Heptane | 43 | 4.956 | 4.956 | (1.146) | 16097 | 5.00000 | 4.83(a) |
| 158 | Dichlorofluoromethane | 67 | 1.661 | 1.654 | (0.384) | 42525 | 5.00000 | 4.80 |
| 159 | Propylene oxide | 43 | 2.119 | 2.112 | (0.490) | 17904 | 10.0000 | 10.26 |
| 160 | 2-Methylnaphthalene | 142 | 12.542 | 12.541 | (1.289) | 5413 | 5.00000 | 6.64 |
| 161 | 3-Methyl-1-butanol | 55 | 7.005 | 6.976 | (0.905) | 13100 | 100.000 | 96.50 |
| 162 | Butyl acrylate | 55 | 8.323 | 8.315 | (1.075) | 63635 | 5.00000 | 4.79(a) |
| 166 | 1,2,3-Trimethylbenzene | 105 | 9.791 | 9.791 | (1.007) | 63760 | 5.00000 | 4.70(a) |
| 167 | Ethanol | 45 | 1.847 | 1.840 | (0.427) | 5061 | 100.000 | 90.60(M) |
| 170 | 1,3,5-Trichlorobenzene | 180 | 11.395 | 11.395 | (1.172) | 13883 | 5.00000 | (a) |
| 172 | tert-Butyl formate | 59 | 4.798 | 4.748 | (1.109) | 49161 | 10.0000 | 14.34 |
| 173 | 3,3-Dimethyl-1-butanol | 57 | 7.384 | 7.363 | (0.954) | 53450 | 100.000 | 111.94 |
| 174 | tert-Amyl methyl ether | 73 | 4.798 | 4.798 | (1.109) | 110825 | 5.00000 | 4.35(a) |
| 175 | tert-Butyl ethyl ether | 59 | 3.538 | 3.530 | (0.818) | 96230 | 5.00000 | 4.91(a) |
| 176 | tert-Amyl alcohol | 59 | 4.798 | 4.748 | (1.109) | 49161 | 100.000 | 121.13 |
| 179 | Hexachloroethane | 166 | 10.257 | 10.256 | (1.054) | 2520 | 5.00000 | 5.65 |
| 180 | 1-Methylnaphthalene | 142 | 12.699 | 12.692 | (1.306) | 4626 | 5.00000 | 6.97 |
| 181 | 2-Furfural | 96 | 8.050 | 8.036 | (1.040) | 19065 | 200.000 | 241.87 |
| 182 | Epichlorohydrin | 57 | 6.195 | 6.188 | (1.218) | 7012 | 20.0000 | 19.69 |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101006.D
Report Date: 11-Jan-2018 18:10

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 183 | 2-Methylpropane | 43 | 1.568 | 1.568 | (0.363) | 20045 | 5.00000 | 4.01(a) |
| 184 | Cyclopentane | 42 | 2.492 | 2.485 | (0.576) | 57361 | 5.00000 | 4.68(aM) |
| 185 | Isoprene | 39 | 1.904 | 1.904 | (0.440) | 21277 | 5.00000 | 5.57 |
| 186 | Isopentane | 42 | 1.568 | 1.561 | (0.363) | 17339 | 5.00000 | 4.04(a) |
| 187 | n-Amyl acetate | 43 | 8.523 | 8.516 | (1.101) | 60011 | 5.00000 | 4.95(a) |
| 188 | Isopropyl acetate | 43 | 4.805 | 4.805 | (0.945) | 108231 | 5.00000 | 5.25 |
| 189 | n-Butyl acetate | 43 | 7.370 | 7.348 | (0.952) | 27144 | 5.00000 | 5.46 |
| 190 | Propanal | 58 | 2.041 | 2.040 | (0.472) | 20046 | 10.0000 | 7.78(T) |
| 193 | 2-Ethyl-1-hexanol | 57 | 9.956 | 9.956 | (1.024) | 52506 | 100.000 | 125.49(M) |
| 194 | Acetaldehyde | 44 | 1.331 | 1.324 | (0.308) | 23521 | 20.0000 | 26.50(A) |
| 195 | Methyl Amyl Ketone | 43 | 8.451 | 8.444 | (1.092) | 60209 | 5.00000 | 4.79(a) |
| 196 | 2-Methylpentane | 43 | 2.449 | 2.449 | (0.566) | 32558 | 5.00000 | 5.68 |
| 197 | 3-Methylpentane | 57 | 2.671 | 2.671 | (0.618) | 47828 | 5.00000 | 4.73(a) |
| 198 | Methylcyclopentane | 56 | 3.530 | 3.530 | (0.816) | 66873 | 5.00000 | 4.15(a) |
| 199 | 1-Hexene | 56 | 2.843 | 2.843 | (0.657) | 20844 | 5.00000 | 4.75(a) |
| 200 | Dimethyl Disulfide | 94 | 6.288 | 6.288 | (0.812) | 55294 | 5.00000 | 4.85(a) |
| 201 | 1-Butene | 41 | 1.360 | 1.360 | (0.315) | 17100 | 5.00000 | 4.62(TaA) |
| M 94 | 1,2-Dichloroethylene (total) | 96 | | | | 56545 | 10.0000 | (a) |
| M 95 | Xylenes (total) | 106 | | | | 121269 | 15.0000 | (a) |

## QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.




Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101006.D
Date : 10-OCT-2017 12:43
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

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101007.D
Report Date: 11-Jan-2018 18:10

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101007.D
Lab Smp Id: VSTD020 Client Smp ID: VSTD020
Inj Date : 10-OCT-2017 13:08
Operator : PC Inst ID: voa6.i
Smp Info : VSTD020;VSTD020;1;6;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\8260W.m
Meth Date : 11-Jan-2018 18:09 Priyanka.R Quant Type: ISTD
Cal Date : 10-OCT-2017 13:08 Cal File: X101007.D
Als bottle: 9 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0000_KelsoNEW.sub
Target Version: 4.14

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 | 4.325 | 4.325 | (1.000) | 385613 | 50.0000 | |
| 2 Dichlorodifluoromethane | 85 | 1.081 | 1.081 | (0.250) | 89877 | 20.0000 | 18.23 |
| 3 Chloromethane | 50 | 1.188 | 1.188 | (0.275) | 152259 | 20.0000 | 19.62 |
| 4 Propionitrile | 54 | 3.817 | 3.817 | (0.882) | 153337 | 200.000 | 196.23(a) |
| 5 Vinyl Chloride | 62 | 1.260 | 1.260 | (0.291) | 127323 | 20.0000 | 19.28 |
| 6 Bromomethane | 94 | 1.460 | 1.453 | (0.338) | 66628 | 20.0000 | 17.81 |
| 7 Chloroethane | 64 | 1.525 | 1.525 | (0.353) | 76107 | 20.0000 | 19.02 |
| 8 Trichlorofluoromethane | 101 | 1.689 | 1.689 | (0.391) | 117592 | 20.0000 | 18.19 |
| 9 Acrolein | 56 | 1.997 | 1.997 | (0.462) | 25148 | 40.0000 | 41.20 |
| 10 Acetone | 43 | 2.119 | 2.112 | (0.490) | 57879 | 40.0000 | 40.69 |
| 11 1,1-Dichloroethene | 96 | 2.055 | 2.055 | (0.475) | 86071 | 20.0000 | 19.27 |
| 12 Isobutyl Alcohol | 43 | 4.805 | 4.805 | (1.111) | 403480 | 400.000 | 445.67 |
| 13 Acetonitrile | 39 | 2.341 | 2.341 | (0.541) | 148257 | 200.000 | 238.43 |
| 14 Allyl Chloride | 41 | 2.341 | 2.341 | (0.541) | 332218 | 20.0000 | 20.47 |
| 15 Iodomethane | 142 | 2.169 | 2.169 | (0.502) | 149760 | 40.0000 | 33.36 |
| 16 Acrylonitrile | 53 | 2.685 | 2.685 | (0.621) | 83345 | 40.0000 | 39.89 |
| 17 Methylene Chloride | 84 | 2.449 | 2.449 | (0.566) | 110310 | 20.0000 | 18.58 |
| 18 Methyl tert-butyl ether | 73 | 2.685 | 2.685 | (0.621) | 309832 | 20.0000 | 19.03 |
| 19 Carbon Disulfide | 76 | 2.212 | 2.212 | (0.512) | 543912 | 40.0000 | 38.24 |
| 20 trans-1,2-Dichloroethene | 96 | 2.678 | 2.678 | (0.619) | 101300 | 20.0000 | 19.44 |
| 21 Vinyl Acetate | 43 | 2.921 | 2.922 | (0.675) | 58276 | 40.0000 | 38.36 |
| 22 1,1-Dichloroethane | 63 | 3.072 | 3.079 | (0.710) | 194464 | 20.0000 | 19.20 |
| 23 Chloroprene | 53 | 1.904 | 1.904 | (0.440) | 79140 | 20.0000 | 18.96(M) |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101007.D
Report Date: 11-Jan-2018 18:10

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| | 24 2-Butanone | 43 | 3.738 | 3.731 | (0.864) | 91292 | 40.0000 | 40.04 |
| | 25 Methacrylonitrile | 41 | 3.974 | 3.982 | (0.919) | 116769 | 20.0000 | 19.69 |
| | 26 2,2-Dichloropropane | 77 | 3.666 | 3.666 | (0.848) | 152968 | 20.0000 | 19.38 |
| | 27 cis-1,2-Dichloroethene | 96 | 3.681 | 3.688 | (0.851) | 114298 | 20.0000 | 19.76 |
| | 28 Chloroform | 83 | 4.068 | 4.068 | (0.940) | 180968 | 20.0000 | 19.22 |
| | 29 Bromochloromethane | 128 | 3.953 | 3.960 | (0.914) | 49132 | 20.0000 | 19.07 |
| $ | 30 Dibromofluoromethane | 113 | 4.254 | 4.254 | (0.983) | 111395 | 20.0000 | 20.40 |
| | 31 1,1,1-Trichloroethane | 97 | 4.239 | 4.240 | (0.980) | 142517 | 20.0000 | 18.84 |
| | 32 1,1-Dichloropropene | 75 | 4.426 | 4.426 | (0.870) | 135837 | 20.0000 | 19.25 |
| | 33 1,2-Dichloroethane | 62 | 4.691 | 4.691 | (0.923) | 138839 | 20.0000 | 19.14 |
| | 34 Carbon Tetrachloride | 117 | 4.411 | 4.411 | (0.868) | 112876 | 20.0000 | 18.99 |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 4.612 | 4.612 | (1.066) | 138773 | 20.0000 | 20.03 |
| * | 36 1,4-Difluorobenzene | 114 | 5.085 | 5.085 | (1.000) | 649630 | 50.0000 | |
| | 37 Benzene | 78 | 4.648 | 4.648 | (0.914) | 409889 | 20.0000 | 19.24 |
| | 38 Trichloroethene | 130 | 5.321 | 5.321 | (1.046) | 98333 | 20.0000 | 18.80 |
| | 39 Bromodichloromethane | 83 | 5.830 | 5.830 | (1.146) | 138817 | 20.0000 | 18.85 |
| | 40 Methyl Methacrylate | 41 | 5.708 | 5.701 | (1.320) | 116159 | 20.0000 | 19.32 |
| | 41 2-Chloroethylvinyl ether | 63 | 6.138 | 6.138 | (1.207) | 92083 | 40.0000 | 36.16 (M) |
| | 42 1,2-Dichloropropane | 63 | 5.543 | 5.543 | (1.090) | 117210 | 20.0000 | 19.51 |
| | 43 2-Nitropropane | 43 | 6.066 | 6.066 | (1.402) | 39185 | 20.0000 | 20.12 |
| | 44 Dibromomethane | 93 | 5.658 | 5.658 | (1.113) | 67157 | 20.0000 | 19.51 |
| | 45 4-Methyl-2-Pentanone | 43 | 6.410 | 6.410 | (0.828) | 224337 | 40.0000 | 39.79 |
| | 46 cis-1,3-Dichloropropene | 75 | 6.245 | 6.245 | (1.228) | 181818 | 20.0000 | 19.33 |
| * | 47 Chlorobenzene-d5 | 117 | 7.742 | 7.742 | (1.000) | 647033 | 50.0000 | |
| $ | 48 Toluene-d8 | 98 | 6.474 | 6.474 | (0.836) | 398851 | 20.0000 | 20.28 |
| | 49 Ethyl Methacrylate | 69 | 6.861 | 6.868 | (1.349) | 173640 | 20.0000 | 19.37 |
| | 50 Toluene | 91 | 6.532 | 6.532 | (0.844) | 411381 | 20.0000 | 19.77 |
| | 51 trans-1,3-Dichloropropene | 75 | 6.761 | 6.761 | (1.330) | 152342 | 20.0000 | 18.93 |
| | 52 2-Hexanone | 43 | 7.284 | 7.284 | (0.941) | 206121 | 40.0000 | 38.87 |
| | 53 1,1,2-Trichloroethane | 83 | 6.918 | 6.926 | (0.894) | 81341 | 20.0000 | 19.47 |
| | 54 1,3-Dichloropropane | 76 | 7.062 | 7.062 | (0.912) | 171871 | 20.0000 | 19.39 |
| | 55 Dibromochloromethane | 129 | 7.255 | 7.255 | (0.937) | 106031 | 20.0000 | 19.40 |
| | 56 Tetrachloroethene | 164 | 7.012 | 7.012 | (0.906) | 68304 | 20.0000 | 19.66 |
| | 57 1,2-Dibromoethane | 107 | 7.341 | 7.341 | (0.948) | 96648 | 20.0000 | 19.81 |
| | 58 1-Chlorohexane | 55 | 7.764 | 7.764 | (1.527) | 85173 | 20.0000 | 20.48 |
| | 59 Chlorobenzene | 112 | 7.764 | 7.771 | (1.003) | 253108 | 20.0000 | 19.29 |
| | 60 1,1,1,2-Tetrachloroethane | 131 | 7.842 | 7.850 | (1.013) | 90841 | 20.0000 | 19.04 |
| | 61 Ethylbenzene | 106 | 7.871 | 7.871 | (1.017) | 127320 | 20.0000 | 19.28 |
| | 62 m,p-Xylenes | 106 | 7.971 | 7.971 | (1.030) | 305076 | 40.0000 | 38.66 |
| | 63 o-Xylene | 106 | 8.308 | 8.308 | (1.073) | 154844 | 20.0000 | 19.37 |
| | 64 Styrene | 104 | 8.322 | 8.330 | (1.075) | 277336 | 20.0000 | 19.33 |
| | 66 Bromoform | 173 | 8.480 | 8.480 | (1.095) | 70979 | 20.0000 | 19.68 |
| | 67 Isopropylbenzene | 105 | 8.623 | 8.630 | (1.114) | 313335 | 20.0000 | 19.70 |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 8.903 | 8.903 | (0.915) | 118197 | 20.0000 | 20.24 |
| $ | 69 4-Bromofluorobenzene | 95 | 8.752 | 8.752 | (1.130) | 142465 | 20.0000 | 20.17 |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 9.726 | 9.726 | (1.000) | 320561 | 50.0000 | |
| | 71 1,2,3-Trichloropropane | 75 | 8.931 | 8.931 | (0.918) | 111837 | 20.0000 | 19.94 (M) |
| | 72 trans-1,4-Dichloro-2-butene | 53 | 8.953 | 8.953 | (1.156) | 37943 | 20.0000 | 19.90 |
| | 73 n-Propylbenzene | 91 | 8.974 | 8.974 | (0.923) | 372948 | 20.0000 | 18.89 |
| | 74 Bromobenzene | 156 | 8.874 | 8.874 | (0.912) | 103657 | 20.0000 | 18.99 |
| | 75 1,3,5-Trimethylbenzene | 105 | 9.132 | 9.132 | (0.939) | 252963 | 20.0000 | 19.10 |
| | 76 2-Chlorotoluene | 91 | 9.039 | 9.039 | (0.929) | 249582 | 20.0000 | 19.00 |
| | 77 4-Chlorotoluene | 91 | 9.132 | 9.132 | (0.939) | 292387 | 20.0000 | 19.00 |
| | 78 tert-Butylbenzene | 119 | 9.397 | 9.397 | (0.966) | 182498 | 20.0000 | 18.43 |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101007.D
Report Date: 11-Jan-2018 18:10

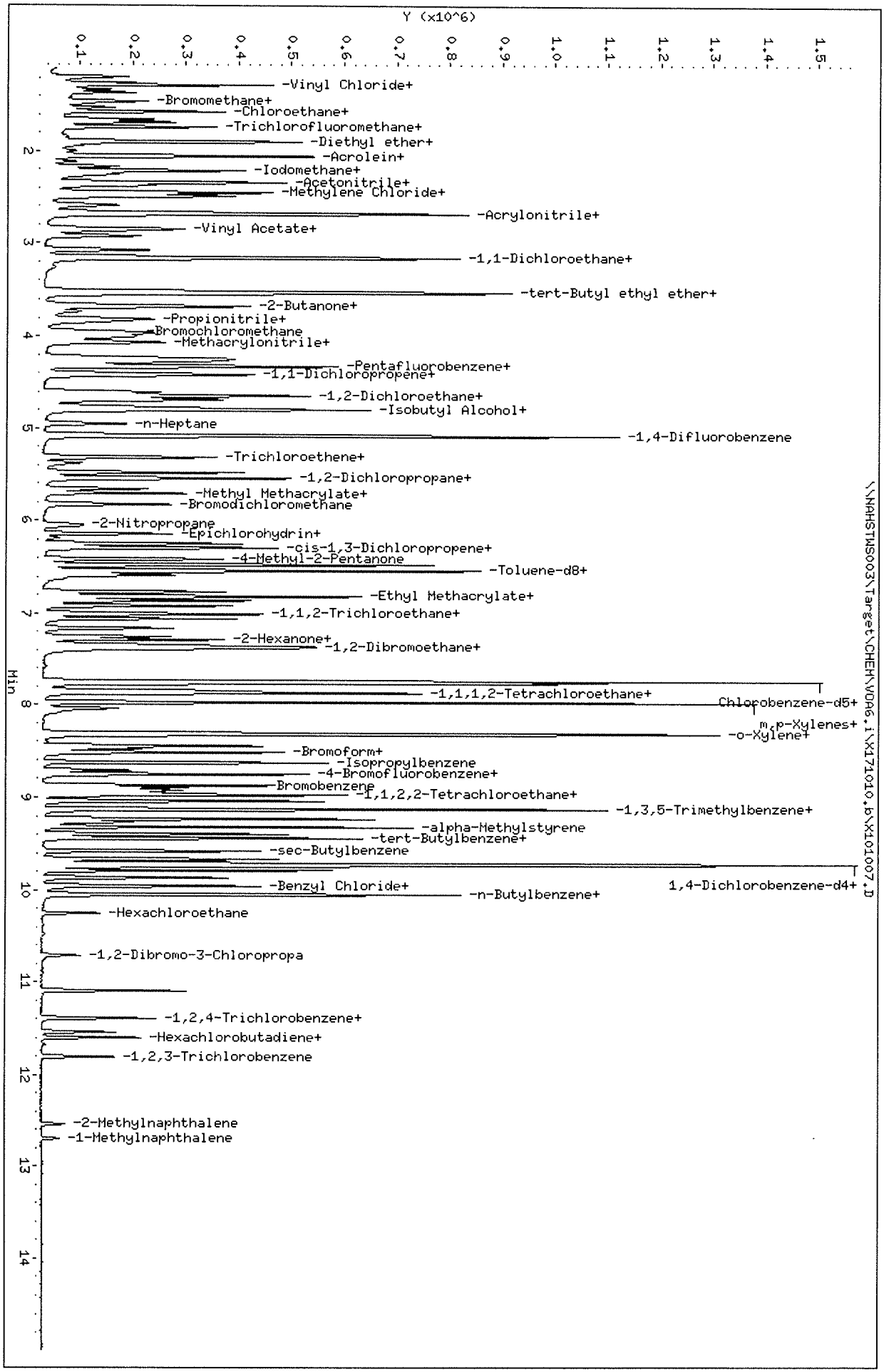
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| 79 1,2,4-Trimethylbenzene | 105 | 9.440 | 9.440 | (0.971) | 270096 | 20.0000 | 19.07 |
| 80 Pentachloroethane | 167 | 9.411 | 9.411 | (1.216) | 1537 | 20.0000 | (a) |
| 81 sec-Butylbenzene | 105 | 9.583 | 9.583 | (0.985) | 244252 | 20.0000 | 18.43 |
| 82 p-Isopropyltoluene | 119 | 9.712 | 9.712 | (0.999) | 214988 | 20.0000 | 18.73 |
| 83 1,3-Dichlorobenzene | 146 | 9.669 | 9.669 | (0.994) | 152939 | 20.0000 | 18.54 |
| 84 1,4-Dichlorobenzene | 146 | 9.741 | 9.748 | (1.001) | 157509 | 20.0000 | 18.13 |
| 86 Benzyl Chloride | 91 | 9.870 | 9.870 | (1.275) | 217424 | 20.0000 | 19.11 |
| 87 n-Butylbenzene | 91 | 10.056 | 10.056 | (1.034) | 180338 | 20.0000 | 19.16 |
| 88 1,2-Dichlorobenzene | 146 | 10.056 | 10.056 | (1.034) | 153216 | 20.0000 | 19.11 |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 10.715 | 10.715 | (1.102) | 13745 | 20.0000 | 19.53 |
| 90 1,2,4-Trichlorobenzene | 180 | 11.395 | 11.395 | (1.172) | 53883 | 20.0000 | 19.48 |
| 91 Hexachlorobutadiene | 225 | 11.539 | 11.539 | (1.186) | 21569 | 20.0000 | 19.41 |
| 92 Naphthalene | 128 | 11.603 | 11.603 | (1.193) | 125593 | 20.0000 | 18.73 |
| 93 1,2,3-Trichlorobenzene | 180 | 11.804 | 11.804 | (1.214) | 37764 | 20.0000 | 18.95 |
| 130 Ethyl Acetate | 43 | 4.805 | 4.805 | (1.111) | 403480 | 20.0000 | 22.28 |
| 131 Methyl Acrylate | 55 | 3.845 | 3.838 | (0.889) | 127614 | 20.0000 | 18.59 |
| 132 n-Butanol | 56 | 5.378 | 5.357 | (1.243) | 47118 | 400.000 | 398.63(aM) |
| 133 Ethyl Acrylate | 55 | 5.486 | 5.486 | (1.268) | 231591 | 20.0000 | 19.56 |
| 134 Cyclohexanone | 55 | 8.716 | 8.709 | (0.896) | 64729 | 400.000 | 398.14(a) |
| 135 1,4-Dioxane | 88 | 5.701 | 5.701 | (1.318) | 17306 | 400.000 | 399.70(aM) |
| 136 n-Hexane | 57 | 2.921 | 2.922 | (0.675) | 81961 | 20.0000 | 18.96 |
| 137 n-Pentane | 43 | 1.740 | 1.732 | (0.402) | 133912 | 20.0000 | 18.35 |
| 138 Freon TF | 101 | 2.055 | 2.055 | (0.475) | 69703 | 20.0000 | 18.94 |
| 146 Methyl Acetate | 43 | 2.377 | 2.377 | (0.550) | 178962 | 20.0000 | 21.06 |
| 147 Methylcyclohexane | 83 | 5.479 | 5.479 | (1.077) | 82853 | 20.0000 | 21.44 |
| 149 Isopropyl alcohol | 45 | 2.248 | 2.241 | (0.520) | 120039 | 400.000 | 404.93 |
| 152 Amyl alcohol | 42 | 6.990 | 6.976 | (0.903) | 60231 | 400.000 | 370.91 |
| 150 Allyl alcohol | 57 | 2.921 | 2.922 | (0.675) | 81961 | 400.000 | 367.34 |
| 151 4-Methyl-2-pentanol | 45 | 6.811 | 6.790 | (1.339) | 524756 | 400.000 | 381.05 |
| 148 Tert-butyl alcohol | 59 | 2.592 | 2.578 | (0.599) | 178710 | 400.000 | 400.42 |
| 139 Diethyl ether | 59 | 1.890 | 1.890 | (0.437) | 90221 | 20.0000 | 18.78 |
| 140 1,3-Butadiene | 54 | 1.281 | 1.281 | (0.296) | 99158 | 20.0000 | 17.33 |
| 141 Cyclohexane | 56 | 4.275 | 4.275 | (0.988) | 141528 | 20.0000 | 19.81 |
| 142 Tetrahydrofuran | 42 | 4.010 | 4.003 | (0.927) | 42056 | 40.0000 | 40.21 |
| 145 alpha-Methylstyrene | 118 | 9.318 | 9.325 | (0.958) | 172182 | 20.0000 | 18.85 |
| 155 2-Pentanone | 43 | 5.550 | 5.550 | (1.283) | 167419 | 40.0000 | 42.23 |
| 156 Diisopropyl ether | 45 | 3.151 | 3.151 | (0.728) | 406752 | 20.0000 | 19.19(T) |
| 157 n-Heptane | 43 | 4.949 | 4.956 | (1.144) | 70637 | 20.0000 | 19.72 |
| 158 Dichlorofluoromethane | 67 | 1.654 | 1.654 | (0.382) | 169924 | 20.0000 | 19.55 |
| 159 Propylene oxide | 43 | 2.119 | 2.112 | (0.490) | 57879 | 40.0000 | 40.76 |
| 160 2-Methylnaphthalene | 142 | 12.541 | 12.541 | (1.289) | 18099 | 20.0000 | 18.17 |
| 161 3-Methyl-1-butanol | 55 | 6.997 | 6.976 | (0.904) | 50488 | 400.000 | 380.81 |
| 162 Butyl acrylate | 55 | 8.315 | 8.315 | (1.074) | 250321 | 20.0000 | 19.29 |
| 166 1,2,3-Trimethylbenzene | 105 | 9.791 | 9.791 | (1.007) | 254910 | 20.0000 | 19.01 |
| 167 Ethanol | 45 | 1.840 | 1.840 | (0.425) | 16141 | 400.000 | 372.25(M) |
| 170 1,3,5-Trichlorobenzene | 180 | 11.395 | 11.395 | (1.172) | 53883 | 20.0000 | (a) |
| 172 tert-Butyl formate | 59 | 4.770 | 4.748 | (1.103) | 142838 | 40.0000 | 39.03(M) |
| 173 3,3-Dimethyl-1-butanol | 57 | 7.384 | 7.363 | (0.954) | 190961 | 400.000 | 443.78 |
| 174 tert-Amyl methyl ether | 73 | 4.798 | 4.798 | (1.109) | 419179 | 20.0000 | 23.34 |
| 175 tert-Butyl ethyl ether | 59 | 3.530 | 3.530 | (0.816) | 361875 | 20.0000 | 18.82 |
| 176 tert-Amyl alcohol | 59 | 4.770 | 4.748 | (1.103) | 182891 | 400.000 | 479.97 |
| 178 Ethylene oxide | 44 | 1.453 | 1.446 | (0.336) | 52490 | 40.0000 | 40.23 |
| 179 Hexachloroethane | 166 | 10.256 | 10.256 | (1.054) | 9623 | 20.0000 | 19.57 |
| 180 1-Methylnaphthalene | 142 | 12.699 | 12.692 | (1.306) | 13760 | 20.0000 | 17.95 |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101007.D
Report Date: 11-Jan-2018 18:10

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 181 | 2-Furfural | 96 | 8.043 | 8.036 | (1.039) | 86225 | 800.000 | 748.16 |
| 182 | Epichlorohydrin | 57 | 6.188 | 6.188 | (1.217) | 22003 | 80.0000 | 63.79 |
| 183 | 2-Methylpropane | 43 | 1.568 | 1.568 | (0.362) | 88313 | 20.0000 | 18.01 |
| 184 | Cyclopentane | 42 | 2.485 | 2.485 | (0.574) | 225289 | 20.0000 | 18.72(M) |
| 185 | Isoprene | 39 | 1.904 | 1.904 | (0.440) | 67096 | 20.0000 | 20.02 |
| 186 | Isopentane | 42 | 1.568 | 1.561 | (0.362) | 76851 | 20.0000 | 18.26 |
| 187 | n-Amyl acetate | 43 | 8.516 | 8.516 | (1.100) | 223784 | 20.0000 | 18.93 |
| 188 | Isopropyl acetate | 43 | 4.805 | 4.805 | (0.945) | 403523 | 20.0000 | 22.29 |
| 189 | n-Butyl acetate | 43 | 7.363 | 7.348 | (0.951) | 93138 | 20.0000 | 19.19 |
| 190 | Propanal | 58 | 2.040 | 2.040 | (0.472) | 68332 | 40.0000 | 46.44 |
| 191 | n-Buteraldehyde | 44 | 3.516 | 3.516 | (0.813) | 106604 | 20.0000 | (a) |
| 193 | 2-Ethyl-1-hexanol | 57 | 9.956 | 9.956 | (1.024) | 176655 | 400.000 | 490.01 |
| 194 | Acetaldehyde | 44 | 1.331 | 1.324 | (0.308) | 69002 | 80.0000 | 94.86(A) |
| 195 | Methyl Amyl Ketone | 43 | 8.451 | 8.444 | (1.092) | 239574 | 20.0000 | 19.52 |
| 196 | 2-Methylpentane | 43 | 2.449 | 2.449 | (0.566) | 139858 | 20.0000 | 19.88 |
| 197 | 3-Methylpentane | 57 | 2.671 | 2.671 | (0.617) | 180496 | 20.0000 | 18.18 |
| 198 | Methylcyclopentane | 56 | 3.530 | 3.530 | (0.816) | 301321 | 20.0000 | 19.05 |
| 199 | 1-Hexene | 56 | 2.843 | 2.843 | (0.657) | 79653 | 20.0000 | 18.49 |
| 200 | Dimethyl Disulfide | 94 | 6.288 | 6.288 | (0.812) | 213759 | 20.0000 | 19.20 |
| 201 | 1-Butene | 41 | 1.360 | 1.360 | (0.314) | 62649 | 20.0000 | 17.23(TA) |
| M 94 | 1,2-Dichloroethylene (total) | 96 | | | | 215598 | 40.0000 | (a) |
| M 95 | Xylenes (total) | 106 | | | | 459920 | 60.0000 | (a) |

## QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.




Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101007.D
Date : 10-OCT-2017 13:08
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: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101008.D
Report Date: 11-Jan-2018 18:10

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101008.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 10-OCT-2017 13:33
Operator : PC Inst ID: voa6.i
Smp Info : VSTD050;VSTD050;1;7;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\8260W.m
Meth Date : 11-Jan-2018 18:09 Priyanka.R Quant Type: ISTD
Cal Date : 10-OCT-2017 13:33 Cal File: X101008.D
Als bottle: 10 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0000_KelsoNEW.sub
Target Version: 4.14

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 | 4.325 | 4.325 | (1.000) | 376844 | 50.0000 | |
| 2 Dichlorodifluoromethane | 85 | 1.081 | 1.081 | (0.250) | 240512 | 50.0000 | 49.93 |
| 3 Chloromethane | 50 | 1.188 | 1.188 | (0.275) | 371695 | 50.0000 | 48.62 |
| 4 Propionitrile | 54 | 3.810 | 3.817 | (0.881) | 362792 | 500.000 | 475.07 |
| 5 Vinyl Chloride | 62 | 1.260 | 1.260 | (0.291) | 320507 | 50.0000 | 49.66 |
| 6 Bromomethane | 94 | 1.460 | 1.453 | (0.338) | 169712 | 50.0000 | 46.43 |
| 7 Chloroethane | 64 | 1.525 | 1.525 | (0.353) | 179732 | 50.0000 | 45.96(M) |
| 8 Trichlorofluoromethane | 101 | 1.689 | 1.689 | (0.391) | 311693 | 50.0000 | 49.35 |
| 9 Acrolein | 56 | 1.997 | 1.997 | (0.462) | 59057 | 100.000 | 100.90 |
| 10 Acetone | 43 | 2.112 | 2.112 | (0.488) | 134851 | 100.000 | 101.35 |
| 11 1,1-Dichloroethene | 96 | 2.055 | 2.055 | (0.475) | 211140 | 50.0000 | 48.37 |
| 12 Isobutyl Alcohol | 43 | 4.805 | 4.805 | (1.111) | 856333 | 1000.00 | 985.57 |
| 13 Acetonitrile | 39 | 2.341 | 2.341 | (0.541) | 338116 | 500.000 | 600.99(M) |
| 14 Allyl Chloride | 41 | 2.341 | 2.341 | (0.541) | 793947 | 50.0000 | 50.06 |
| 15 Iodomethane | 142 | 2.169 | 2.169 | (0.502) | 444385 | 100.000 | 97.40 |
| 16 Acrylonitrile | 53 | 2.685 | 2.685 | (0.621) | 199869 | 100.000 | 97.90 |
| 17 Methylene Chloride | 84 | 2.449 | 2.449 | (0.566) | 266274 | 50.0000 | 45.91 |
| 18 Methyl tert-butyl ether | 73 | 2.685 | 2.685 | (0.621) | 739031 | 50.0000 | 46.45 |
| 19 Carbon Disulfide | 76 | 2.212 | 2.212 | (0.512) | 1329103 | 100.000 | 95.63 |
| 20 trans-1,2-Dichloroethene | 96 | 2.678 | 2.678 | (0.619) | 242050 | 50.0000 | 47.54 |
| 21 Vinyl Acetate | 43 | 2.921 | 2.922 | (0.675) | 151229 | 100.000 | 100.08 |
| 22 1,1-Dichloroethane | 63 | 3.072 | 3.079 | (0.710) | 468268 | 50.0000 | 47.31 |
| 23 Chloroprene | 53 | 1.904 | 1.904 | (0.440) | 205692 | 50.0000 | 50.43(M) |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101008.D
Report Date: 11-Jan-2018 18:10

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| | 24 2-Butanone | 43 | 3.731 | 3.731 | (0.863) | 233295 | 100.000 | 104.70 |
| | 25 Methacrylonitrile | 41 | 3.974 | 3.982 | (0.919) | 277205 | 50.0000 | 47.83 |
| | 26 2,2-Dichloropropane | 77 | 3.666 | 3.666 | (0.848) | 370733 | 50.0000 | 48.08 |
| | 27 cis-1,2-Dichloroethene | 96 | 3.681 | 3.688 | (0.851) | 269450 | 50.0000 | 47.67 |
| | 28 Chloroform | 83 | 4.068 | 4.068 | (0.940) | 436283 | 50.0000 | 47.42 |
| | 29 Bromochloromethane | 128 | 3.953 | 3.960 | (0.914) | 115645 | 50.0000 | 45.93 |
| $ | 30 Dibromofluoromethane | 113 | 4.254 | 4.254 | (0.983) | 270013 | 50.0000 | 49.80 |
| | 31 1,1,1-Trichloroethane | 97 | 4.239 | 4.240 | (0.980) | 349671 | 50.0000 | 47.30 |
| | 32 1,1-Dichloropropene | 75 | 4.426 | 4.426 | (0.870) | 339587 | 50.0000 | 48.94 |
| | 33 1,2-Dichloroethane | 62 | 4.691 | 4.691 | (0.923) | 340945 | 50.0000 | 47.80 |
| | 34 Carbon Tetrachloride | 117 | 4.411 | 4.411 | (0.868) | 283651 | 50.0000 | 48.54 |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 4.612 | 4.612 | (1.066) | 340941 | 50.0000 | 49.99 |
| * | 36 1,4-Difluorobenzene | 114 | 5.085 | 5.085 | (1.000) | 638834 | 50.0000 | |
| | 37 Benzene | 78 | 4.648 | 4.648 | (0.914) | 1008825 | 50.0000 | 48.17 |
| | 38 Trichloroethene | 130 | 5.321 | 5.321 | (1.046) | 239521 | 50.0000 | 46.59 |
| | 39 Bromodichloromethane | 83 | 5.822 | 5.830 | (1.145) | 336770 | 50.0000 | 46.51 |
| | 40 Methyl Methacrylate | 41 | 5.701 | 5.701 | (1.318) | 281252 | 50.0000 | 47.88 |
| | 41 2-Chloroethylvinyl ether | 63 | 6.138 | 6.138 | (1.207) | 247761 | 100.000 | 90.93 |
| | 42 1,2-Dichloropropane | 63 | 5.543 | 5.543 | (1.090) | 280327 | 50.0000 | 47.45 |
| | 43 2-Nitropropane | 43 | 6.059 | 6.066 | (1.401) | 92584 | 50.0000 | 48.28 |
| | 44 Dibromomethane | 93 | 5.658 | 5.658 | (1.113) | 163286 | 50.0000 | 48.24 |
| | 45 4-Methyl-2-Pentanone | 43 | 6.410 | 6.410 | (0.828) | 521923 | 100.000 | 92.97 |
| | 46 cis-1,3-Dichloropropene | 75 | 6.245 | 6.245 | (1.228) | 437531 | 50.0000 | 47.31 |
| * | 47 Chlorobenzene-d5 | 117 | 7.742 | 7.742 | (1.000) | 644367 | 50.0000 | |
| $ | 48 Toluene-d8 | 98 | 6.474 | 6.474 | (0.836) | 994742 | 50.0000 | 49.87 |
| | 49 Ethyl Methacrylate | 69 | 6.861 | 6.868 | (1.349) | 397220 | 50.0000 | 45.07 |
| | 50 Toluene | 91 | 6.532 | 6.532 | (0.844) | 988460 | 50.0000 | 47.71 |
| | 51 trans-1,3-Dichloropropene | 75 | 6.761 | 6.761 | (1.330) | 377084 | 50.0000 | 47.65 |
| | 52 2-Hexanone | 43 | 7.284 | 7.284 | (0.941) | 496706 | 100.000 | 94.07 |
| | 53 1,1,2-Trichloroethane | 83 | 6.918 | 6.926 | (0.894) | 193939 | 50.0000 | 46.63 |
| | 54 1,3-Dichloropropane | 76 | 7.062 | 7.062 | (0.912) | 413508 | 50.0000 | 46.86 |
| | 55 Dibromochloromethane | 129 | 7.255 | 7.255 | (0.937) | 259103 | 50.0000 | 47.60 |
| | 56 Tetrachloroethene | 164 | 7.012 | 7.012 | (0.906) | 164699 | 50.0000 | 47.62 |
| | 57 1,2-Dibromoethane | 107 | 7.341 | 7.341 | (0.948) | 229239 | 50.0000 | 47.19 |
| | 58 1-Chlorohexane | 55 | 7.764 | 7.764 | (1.527) | 202068 | 50.0000 | 50.18 |
| | 59 Chlorobenzene | 112 | 7.764 | 7.771 | (1.003) | 617592 | 50.0000 | 47.26 |
| | 60 1,1,1,2-Tetrachloroethane | 131 | 7.850 | 7.850 | (1.014) | 218464 | 50.0000 | 45.99 |
| | 61 Ethylbenzene | 106 | 7.871 | 7.871 | (1.017) | 307324 | 50.0000 | 46.75 |
| | 62 m,p-Xylenes | 106 | 7.971 | 7.971 | (1.030) | 748582 | 100.000 | 95.25 |
| | 63 o-Xylene | 106 | 8.308 | 8.308 | (1.073) | 372625 | 50.0000 | 46.81 |
| | 64 Styrene | 104 | 8.322 | 8.330 | (1.075) | 666810 | 50.0000 | 46.67 |
| | 66 Bromoform | 173 | 8.480 | 8.480 | (1.095) | 168536 | 50.0000 | 46.94 |
| | 67 Isopropylbenzene | 105 | 8.623 | 8.630 | (1.114) | 754735 | 50.0000 | 47.67 |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 8.903 | 8.903 | (0.915) | 277176 | 50.0000 | 50.70 |
| $ | 69 4-Bromofluorobenzene | 95 | 8.752 | 8.752 | (1.130) | 354904 | 50.0000 | 49.91 |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 9.726 | 9.726 | (1.000) | 308789 | 50.0000 | |
| | 71 1,2,3-Trichloropropane | 75 | 8.931 | 8.931 | (0.918) | 266225 | 50.0000 | 49.28 (M) |
| | 72 trans-1,4-Dichloro-2-butene | 53 | 8.953 | 8.953 | (1.156) | 90947 | 50.0000 | 47.91 |
| | 73 n-Propylbenzene | 91 | 8.974 | 8.974 | (0.923) | 913661 | 50.0000 | 48.04 |
| | 74 Bromobenzene | 156 | 8.874 | 8.874 | (0.912) | 258901 | 50.0000 | 49.26 |
| | 75 1,3,5-Trimethylbenzene | 105 | 9.132 | 9.132 | (0.939) | 611066 | 50.0000 | 47.89 |
| | 76 2-Chlorotoluene | 91 | 9.039 | 9.039 | (0.929) | 609776 | 50.0000 | 48.19 |
| | 77 4-Chlorotoluene | 91 | 9.132 | 9.132 | (0.939) | 710648 | 50.0000 | 47.94 |
| | 78 tert-Butylbenzene | 119 | 9.397 | 9.397 | (0.966) | 445453 | 50.0000 | 46.70 |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101008.D
Report Date: 11-Jan-2018 18:10

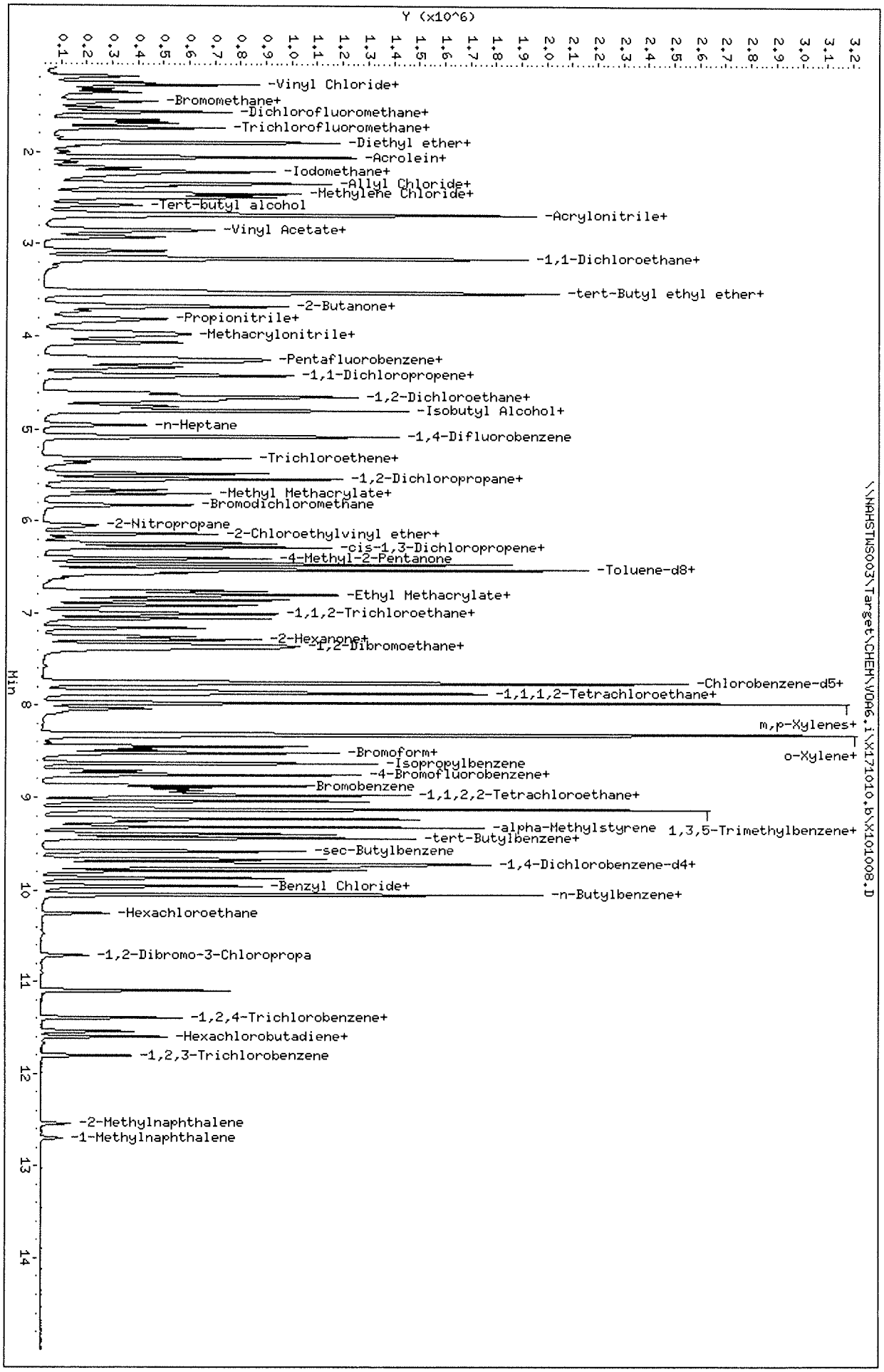
| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | ON-COL ( ug/l) | |
|---|---|---|---|---|---|---|---|---|---|
| 79 | 1,2,4-Trimethylbenzene | 105 | 9.440 | 9.440 | (0.971) | 655140 | 50.0000 | 48.03 | |
| 80 | Pentachloroethane | 167 | 9.411 | 9.411 | (1.216) | 3553 | 50.0000 | | (a) |
| 81 | sec-Butylbenzene | 105 | 9.583 | 9.583 | (0.985) | 612901 | 50.0000 | 48.03 | |
| 82 | p-Isopropyltoluene | 119 | 9.712 | 9.712 | (0.999) | 530350 | 50.0000 | 47.97 | |
| 83 | 1,3-Dichlorobenzene | 146 | 9.669 | 9.669 | (0.994) | 380472 | 50.0000 | 47.89 | |
| 84 | 1,4-Dichlorobenzene | 146 | 9.748 | 9.748 | (1.002) | 393422 | 50.0000 | 47.02 | |
| 86 | Benzyl Chloride | 91 | 9.870 | 9.870 | (1.275) | 545687 | 50.0000 | 48.18 | |
| 87 | n-Butylbenzene | 91 | 10.049 | 10.056 | (1.033) | 462007 | 50.0000 | 50.98 | |
| 88 | 1,2-Dichlorobenzene | 146 | 10.056 | 10.056 | (1.034) | 364205 | 50.0000 | 47.17 | |
| 89 | 1,2-Dibromo-3-Chloropropane | 155 | 10.715 | 10.715 | (1.102) | 33919 | 50.0000 | 49.91 | |
| 90 | 1,2,4-Trichlorobenzene | 180 | 11.395 | 11.395 | (1.172) | 138568 | 50.0000 | 52.02 | |
| 91 | Hexachlorobutadiene | 225 | 11.539 | 11.539 | (1.186) | 58354 | 50.0000 | 53.41 | |
| 92 | Naphthalene | 128 | 11.603 | 11.603 | (1.193) | 326975 | 50.0000 | 45.58 | |
| 93 | 1,2,3-Trichlorobenzene | 180 | 11.804 | 11.804 | (1.214) | 97202 | 50.0000 | 50.66 | |
| 130 | Ethyl Acetate | 43 | 4.805 | 4.805 | (1.111) | 856333 | 50.0000 | 49.27 | |
| 131 | Methyl Acrylate | 55 | 3.838 | 3.838 | (0.887) | 310255 | 50.0000 | 46.25 | |
| 132 | n-Butanol | 56 | 5.364 | 5.357 | (1.240) | 112840 | 1000.00 | 929.36 | (M) |
| 133 | Ethyl Acrylate | 55 | 5.486 | 5.486 | (1.268) | 545201 | 50.0000 | 47.13 | |
| 134 | Cyclohexanone | 55 | 8.709 | 8.709 | (0.895) | 152850 | 1000.00 | 974.16 | |
| 135 | 1,4-Dioxane | 88 | 5.701 | 5.701 | (1.318) | 39800 | 1000.00 | 917.66 | |
| 136 | n-Hexane | 57 | 2.921 | 2.922 | (0.675) | 213269 | 50.0000 | 50.50 | |
| 137 | n-Pentane | 43 | 1.740 | 1.732 | (0.402) | 304186 | 50.0000 | 42.66 | |
| 138 | Freon TF | 101 | 2.055 | 2.055 | (0.475) | 176149 | 50.0000 | 48.98 | |
| 146 | Methyl Acetate | 43 | 2.377 | 2.377 | (0.550) | 425076 | 50.0000 | 51.18 | |
| 147 | Methylcyclohexane | 83 | 5.479 | 5.479 | (1.077) | 182600 | 50.0000 | 46.13 | |
| 149 | Isopropyl alcohol | 45 | 2.241 | 2.241 | (0.518) | 280792 | 1000.00 | 965.24 | |
| 152 | Amyl alcohol | 42 | 6.990 | 6.976 | (0.903) | 139846 | 1000.00 | 864.76 | |
| 150 | Allyl alcohol | 57 | 2.921 | 2.922 | (0.675) | 213269 | 1000.00 | 978.09 | |
| 151 | 4-Methyl-2-pentanol | 45 | 6.797 | 6.790 | (1.337) | 1145523 | 1000.00 | 845.88 | |
| 148 | Tert-butyl alcohol | 59 | 2.578 | 2.578 | (0.596) | 426489 | 1000.00 | 973.96 | |
| 139 | Diethyl ether | 59 | 1.890 | 1.890 | (0.437) | 218412 | 50.0000 | 46.53 | |
| 140 | 1,3-Butadiene | 54 | 1.281 | 1.281 | (0.296) | 282688 | 50.0000 | 50.56 | |
| 141 | Cyclohexane | 56 | 4.275 | 4.275 | (0.988) | 343253 | 50.0000 | 49.17 | |
| 142 | Tetrahydrofuran | 42 | 4.003 | 4.003 | (0.925) | 96319 | 100.000 | 94.24 | |
| 145 | alpha-Methylstyrene | 118 | 9.318 | 9.325 | (0.958) | 426437 | 50.0000 | 48.48 | |
| 155 | 2-Pentanone | 43 | 5.550 | 5.550 | (1.283) | 386467 | 100.000 | 99.37 | |
| 156 | Diisopropyl ether | 45 | 3.151 | 3.151 | (0.728) | 984934 | 50.0000 | 47.57 | |
| 157 | n-Heptane | 43 | 4.956 | 4.956 | (1.146) | 173265 | 50.0000 | 48.69 | |
| 158 | Dichlorofluoromethane | 67 | 1.654 | 1.654 | (0.382) | 417846 | 50.0000 | 49.19 | |
| 159 | Propylene oxide | 43 | 2.112 | 2.112 | (0.488) | 134851 | 100.000 | 101.41 | |
| 160 | 2-Methylnaphthalene | 142 | 12.541 | 12.541 | (1.289) | 44853 | 50.0000 | 42.68 | |
| 161 | 3-Methyl-1-butanol | 55 | 6.990 | 6.976 | (0.903) | 118030 | 1000.00 | 893.94 | |
| 162 | Butyl acrylate | 55 | 8.315 | 8.315 | (1.074) | 607582 | 50.0000 | 47.02 | |
| 166 | 1,2,3-Trimethylbenzene | 105 | 9.791 | 9.791 | (1.007) | 602116 | 50.0000 | 46.63 | |
| 167 | Ethanol | 45 | 1.840 | 1.840 | (0.425) | 41051 | 1000.00 | 1005.71 | (M) |
| 170 | 1,3,5-Trichlorobenzene | 180 | 11.395 | 11.395 | (1.172) | 138568 | 50.0000 | | (a) |
| 172 | tert-Butyl formate | 59 | 4.748 | 4.748 | (1.098) | 348910 | 100.000 | 94.98 | |
| 173 | 3,3-Dimethyl-1-butanol | 57 | 7.384 | 7.363 | (0.954) | 410358 | 1000.00 | 954.55 | |
| 174 | tert-Amyl methyl ether | 73 | 4.798 | 4.798 | (1.109) | 890833 | 50.0000 | 53.48 | |
| 175 | tert-Butyl ethyl ether | 59 | 3.530 | 3.530 | (0.816) | 878363 | 50.0000 | 46.75 | |
| 176 | tert-Amyl alcohol | 59 | 4.748 | 4.748 | (1.098) | 348910 | 1000.00 | 944.22 | |
| 178 | Ethylene oxide | 44 | 1.453 | 1.446 | (0.336) | 137900 | 100.000 | 108.17 | |
| 179 | Hexachloroethane | 166 | 10.256 | 10.256 | (1.054) | 22898 | 50.0000 | 47.21 | |
| 180 | 1-Methylnaphthalene | 142 | 12.692 | 12.692 | (1.305) | 34826 | 50.0000 | 43.43 | |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101008.D
Report Date: 11-Jan-2018 18:10

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| 181 2-Furfural | 96 | 8.036 | 8.036 | (1.038) | 227569 | 2000.00 | 1813.75 |
| 182 Epichlorohydrin | 57 | 6.188 | 6.188 | (1.217) | 62274 | 200.000 | 183.61 |
| 183 2-Methylpropane | 43 | 1.568 | 1.568 | (0.362) | 196911 | 50.0000 | 41.10 |
| 184 Cyclopentane | 42 | 2.484 | 2.485 | (0.574) | 573816 | 50.0000 | 48.80(M) |
| 185 Isoprene | 39 | 1.904 | 1.904 | (0.440) | 159257 | 50.0000 | 50.01 |
| 186 Isopentane | 42 | 1.568 | 1.561 | (0.362) | 175330 | 50.0000 | 42.63 |
| 187 n-Amyl acetate | 43 | 8.516 | 8.516 | (1.100) | 543832 | 50.0000 | 46.20 |
| 188 Isopropyl acetate | 43 | 4.805 | 4.805 | (0.945) | 854058 | 50.0000 | 48.81 |
| 189 n-Butyl acetate | 43 | 7.363 | 7.348 | (0.951) | 199253 | 50.0000 | 41.22 |
| 190 Propanal | 58 | 2.040 | 2.040 | (0.472) | 146688 | 100.000 | 111.43 |
| 191 n-Buteraldehyde | 44 | 3.516 | 3.516 | (0.813) | 171314 | 50.0000 | (a) |
| 193 2-Ethyl-1-hexanol | 57 | 9.956 | 9.956 | (1.024) | 342530 | 1000.00 | 944.65 |
| 194 Acetaldehyde | 44 | 1.324 | 1.324 | (0.306) | 141291 | 200.000 | 207.41(A) |
| 195 Methyl Amyl Ketone | 43 | 8.444 | 8.444 | (1.091) | 562944 | 50.0000 | 46.07 |
| 196 2-Methylpentane | 43 | 2.449 | 2.449 | (0.566) | 310339 | 50.0000 | 42.61 |
| 197 3-Methylpentane | 57 | 2.671 | 2.671 | (0.617) | 409219 | 50.0000 | 42.18 |
| 198 Methylcyclopentane | 56 | 3.530 | 3.530 | (0.816) | 672363 | 50.0000 | 43.49 |
| 199 1-Hexene | 56 | 2.843 | 2.843 | (0.657) | 205812 | 50.0000 | 48.89 |
| 200 Dimethyl Disulfide | 94 | 6.288 | 6.288 | (0.812) | 523300 | 50.0000 | 47.21 |
| 201 1-Butene | 41 | 1.360 | 1.360 | (0.314) | 166656 | 50.0000 | 46.90(TA) |
| M 94 1,2-Dichloroethylene (total) | 96 | | | | 511500 | 100.000 | (a) |
| M 95 Xylenes (total) | 106 | | | | 1121207 | 150.000 | (a) |

## QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.




Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101008.D
Date : 10-OCT-2017 13:33
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: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101009.D
Report Date: 11-Jan-2018 18:10

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101009.D
Lab Smp Id: VSTD100 Client Smp ID: VSTD100
Inj Date : 10-OCT-2017 13:58
Operator : PC Inst ID: voa6.i
Smp Info : VSTD100;VSTD100;1;8;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\8260W.m
Meth Date : 11-Jan-2018 18:09 Priyanka.R Quant Type: ISTD
Cal Date : 10-OCT-2017 13:58 Cal File: X101009.D
Als bottle: 11 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0000_KelsoNEW.sub
Target Version: 4.14

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 | 4.325 | 4.325 | (1.000) | 369317 | 50.0000 | |
| 2 Dichlorodifluoromethane | 85 | 1.081 | 1.081 | (0.250) | 457433 | 100.000 | 96.91 |
| 3 Chloromethane | 50 | 1.188 | 1.188 | (0.275) | 748853 | 100.000 | 99.67 |
| 4 Propionitrile | 54 | 3.810 | 3.817 | (0.881) | 699887 | 1000.00 | 935.18 |
| 5 Vinyl Chloride | 62 | 1.260 | 1.260 | (0.291) | 633468 | 100.000 | 100.16 |
| 6 Bromomethane | 94 | 1.460 | 1.453 | (0.338) | 343961 | 100.000 | 96.02 |
| 7 Chloroethane | 64 | 1.525 | 1.525 | (0.353) | 351134 | 100.000 | 91.63 |
| 8 Trichlorofluoromethane | 101 | 1.689 | 1.689 | (0.391) | 594603 | 100.000 | 96.07 |
| 9 Acrolein | 56 | 1.997 | 1.997 | (0.462) | 111359 | 200.000 | 195.39 |
| 10 Acetone | 43 | 2.112 | 2.112 | (0.488) | 257034 | 200.000 | 200.09(A) |
| 11 1,1-Dichloroethene | 96 | 2.055 | 2.055 | (0.475) | 415159 | 100.000 | 97.06 |
| 12 Isobutyl Alcohol | 43 | 4.805 | 4.805 | (1.111) | 1673440 | 2000.00 | 1980.24 |
| 13 Acetonitrile | 39 | 2.341 | 2.341 | (0.541) | 533916 | 1000.00 | 988.78(M) |
| 14 Allyl Chloride | 41 | 2.341 | 2.341 | (0.541) | 1404465 | 100.000 | 90.37 |
| 15 Iodomethane | 142 | 2.169 | 2.169 | (0.502) | 937661 | 200.000 | 207.50 |
| 16 Acrylonitrile | 53 | 2.678 | 2.685 | (0.619) | 391337 | 200.000 | 195.60 |
| 17 Methylene Chloride | 84 | 2.449 | 2.449 | (0.566) | 525988 | 100.000 | 92.54 |
| 18 Methyl tert-butyl ether | 73 | 2.685 | 2.685 | (0.621) | 1464375 | 100.000 | 93.93 |
| 19 Carbon Disulfide | 76 | 2.212 | 2.212 | (0.512) | 2589759 | 200.000 | 190.14 |
| 20 trans-1,2-Dichloroethene | 96 | 2.678 | 2.678 | (0.619) | 478246 | 100.000 | 95.85 |
| 21 Vinyl Acetate | 43 | 2.922 | 2.922 | (0.675) | 279169 | 200.000 | 187.56 |
| 22 1,1-Dichloroethane | 63 | 3.072 | 3.079 | (0.710) | 931932 | 100.000 | 96.07 |
| 23 Chloroprene | 53 | 1.904 | 1.904 | (0.440) | 395377 | 100.000 | 98.92(M) |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101009.D
Report Date: 11-Jan-2018 18:10

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| | 24 2-Butanone | 43 | 3.731 | 3.731 | (0.863) | 439449 | 200.000 | 201.25 |
| | 25 Methacrylonitrile | 41 | 3.974 | 3.982 | (0.919) | 535363 | 100.000 | 94.26 |
| | 26 2,2-Dichloropropane | 77 | 3.666 | 3.666 | (0.848) | 731530 | 100.000 | 96.81 |
| | 27 cis-1,2-Dichloroethene | 96 | 3.681 | 3.688 | (0.851) | 536704 | 100.000 | 96.89 |
| | 28 Chloroform | 83 | 4.068 | 4.068 | (0.940) | 866693 | 100.000 | 96.14 |
| | 29 Bromochloromethane | 128 | 3.960 | 3.960 | (0.916) | 222588 | 100.000 | 90.22(M) |
| $ | 30 Dibromofluoromethane | 113 | 4.254 | 4.254 | (0.983) | 550814 | 100.000 | 100.03 |
| | 31 1,1,1-Trichloroethane | 97 | 4.240 | 4.240 | (0.980) | 687167 | 100.000 | 94.85 |
| | 32 1,1-Dichloropropene | 75 | 4.426 | 4.426 | (0.870) | 657729 | 100.000 | 97.50 |
| | 33 1,2-Dichloroethane | 62 | 4.691 | 4.691 | (0.923) | 657258 | 100.000 | 94.78 |
| | 34 Carbon Tetrachloride | 117 | 4.411 | 4.411 | (0.868) | 558443 | 100.000 | 98.29 |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 4.612 | 4.612 | (1.066) | 681709 | 100.000 | 99.99 |
| * | 36 1,4-Difluorobenzene | 114 | 5.085 | 5.085 | (1.000) | 621134 | 50.0000 | |
| | 37 Benzene | 78 | 4.648 | 4.648 | (0.914) | 2001428 | 100.000 | 98.28 |
| | 38 Trichloroethene | 130 | 5.321 | 5.321 | (1.046) | 478710 | 100.000 | 95.76 |
| | 39 Bromodichloromethane | 83 | 5.830 | 5.830 | (1.146) | 671661 | 100.000 | 95.42 |
| | 40 Methyl Methacrylate | 41 | 5.701 | 5.701 | (1.318) | 554769 | 100.000 | 96.38 |
| | 41 2-Chloroethylvinyl ether | 63 | 6.138 | 6.138 | (1.207) | 528886 | 200.000 | 194.13 |
| | 42 1,2-Dichloropropane | 63 | 5.543 | 5.543 | (1.090) | 554908 | 100.000 | 96.62 |
| | 43 2-Nitropropane | 43 | 6.059 | 6.066 | (1.401) | 184655 | 100.000 | 97.98 |
| | 44 Dibromomethane | 93 | 5.658 | 5.658 | (1.113) | 321007 | 100.000 | 97.54 |
| | 45 4-Methyl-2-Pentanone | 43 | 6.410 | 6.410 | (0.828) | 1052217 | 200.000 | 191.33 |
| | 46 cis-1,3-Dichloropropene | 75 | 6.245 | 6.245 | (1.228) | 866768 | 100.000 | 96.41 |
| * | 47 Chlorobenzene-d5 | 117 | 7.742 | 7.742 | (1.000) | 631220 | 50.0000 | |
| $ | 48 Toluene-d8 | 98 | 6.474 | 6.474 | (0.836) | 2037259 | 100.000 | 100.01 |
| | 49 Ethyl Methacrylate | 69 | 6.861 | 6.868 | (1.349) | 773809 | 100.000 | 90.30 |
| | 50 Toluene | 91 | 6.532 | 6.532 | (0.844) | 1969216 | 100.000 | 97.02 |
| | 51 trans-1,3-Dichloropropene | 75 | 6.761 | 6.761 | (1.330) | 742568 | 100.000 | 96.51 |
| | 52 2-Hexanone | 43 | 7.284 | 7.284 | (0.941) | 1009670 | 200.000 | 195.20 |
| | 53 1,1,2-Trichloroethane | 83 | 6.918 | 6.926 | (0.894) | 379700 | 100.000 | 93.19 |
| | 54 1,3-Dichloropropane | 76 | 7.062 | 7.062 | (0.912) | 813681 | 100.000 | 94.13 |
| | 55 Dibromochloromethane | 129 | 7.255 | 7.255 | (0.937) | 515584 | 100.000 | 96.69 |
| | 56 Tetrachloroethene | 164 | 7.012 | 7.012 | (0.906) | 324241 | 100.000 | 95.70 |
| | 57 1,2-Dibromoethane | 107 | 7.341 | 7.341 | (0.948) | 449604 | 100.000 | 94.49 |
| | 58 1-Chlorohexane | 55 | 7.764 | 7.764 | (1.527) | 384933 | 100.000 | 98.83 |
| | 59 Chlorobenzene | 112 | 7.764 | 7.771 | (1.003) | 1239714 | 100.000 | 96.85 |
| | 60 1,1,1,2-Tetrachloroethane | 131 | 7.850 | 7.850 | (1.014) | 442088 | 100.000 | 95.01 |
| | 61 Ethylbenzene | 106 | 7.871 | 7.871 | (1.017) | 613961 | 100.000 | 95.34 |
| | 62 m,p-Xylenes | 106 | 7.971 | 7.971 | (1.030) | 1471141 | 200.000 | 191.10 |
| | 63 o-Xylene | 106 | 8.308 | 8.308 | (1.073) | 741727 | 100.000 | 95.13 |
| | 64 Styrene | 104 | 8.322 | 8.330 | (1.075) | 1351996 | 100.000 | 96.60 |
| | 66 Bromoform | 173 | 8.480 | 8.480 | (1.095) | 335757 | 100.000 | 95.46 |
| | 67 Isopropylbenzene | 105 | 8.623 | 8.630 | (1.114) | 1489007 | 100.000 | 96.00 |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 8.903 | 8.903 | (0.915) | 545730 | 100.000 | 103.40 |
| $ | 69 4-Bromofluorobenzene | 95 | 8.752 | 8.752 | (1.130) | 718688 | 100.000 | 100.01 |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 9.726 | 9.726 | (1.000) | 301010 | 50.0000 | |
| | 71 1,2,3-Trichloropropane | 75 | 8.931 | 8.931 | (0.918) | 529256 | 100.000 | 100.50(M) |
| | 72 trans-1,4-Dichloro-2-butene | 53 | 8.953 | 8.953 | (1.156) | 182988 | 100.000 | 98.40 |
| | 73 n-Propylbenzene | 91 | 8.974 | 8.974 | (0.923) | 1789251 | 100.000 | 96.52 |
| | 74 Bromobenzene | 156 | 8.874 | 8.874 | (0.912) | 508744 | 100.000 | 99.30 |
| | 75 1,3,5-Trimethylbenzene | 105 | 9.132 | 9.132 | (0.939) | 1198260 | 100.000 | 96.35 |
| | 76 2-Chlorotoluene | 91 | 9.039 | 9.039 | (0.929) | 1189960 | 100.000 | 96.48 |
| | 77 4-Chlorotoluene | 91 | 9.132 | 9.132 | (0.939) | 1396932 | 100.000 | 96.68 |
| | 78 tert-Butylbenzene | 119 | 9.397 | 9.397 | (0.966) | 862987 | 100.000 | 92.82 |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101009.D
Report Date: 11-Jan-2018 18:10

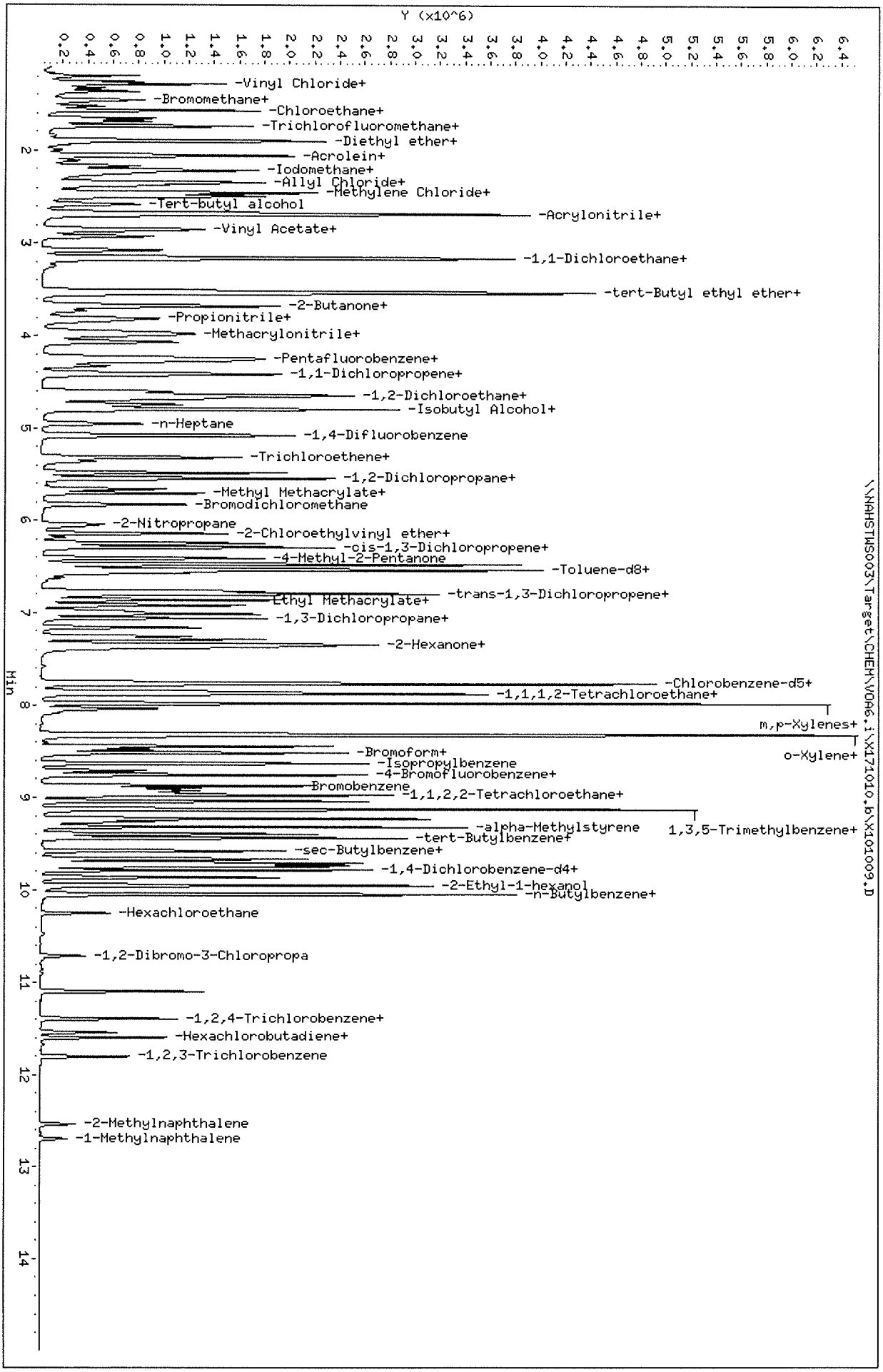
| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 79 | 1,2,4-Trimethylbenzene | 105 | 9.440 | 9.440 | (0.971) | 1267474 | 100.000 | 95.32 |
| 80 | Pentachloroethane | 167 | 9.411 | 9.411 | (1.216) | 6897 | 100.000 | (a) |
| 81 | sec-Butylbenzene | 105 | 9.583 | 9.583 | (0.985) | 1153943 | 100.000 | 92.76 |
| 82 | p-Isopropyltoluene | 119 | 9.712 | 9.712 | (0.999) | 1006657 | 100.000 | 93.41 |
| 83 | 1,3-Dichlorobenzene | 146 | 9.669 | 9.669 | (0.994) | 740308 | 100.000 | 95.61 |
| 84 | 1,4-Dichlorobenzene | 146 | 9.748 | 9.748 | (1.002) | 776092 | 100.000 | 95.17 |
| 86 | Benzyl Chloride | 91 | 9.870 | 9.870 | (1.275) | 1129252 | 100.000 | 101.78 |
| 87 | n-Butylbenzene | 91 | 10.056 | 10.056 | (1.034) | 849544 | 100.000 | 96.16 |
| 88 | 1,2-Dichlorobenzene | 146 | 10.056 | 10.056 | (1.034) | 717243 | 100.000 | 95.31 |
| 89 | 1,2-Dibromo-3-Chloropropane | 155 | 10.715 | 10.715 | (1.102) | 65831 | 100.000 | 99.28 |
| 90 | 1,2,4-Trichlorobenzene | 180 | 11.395 | 11.395 | (1.172) | 272147 | 100.000 | 104.82 |
| 91 | Hexachlorobutadiene | 225 | 11.539 | 11.539 | (1.186) | 96788 | 100.000 | 90.45 |
| 92 | Naphthalene | 128 | 11.603 | 11.603 | (1.193) | 677057 | 100.000 | 93.48 |
| 93 | 1,2,3-Trichlorobenzene | 180 | 11.804 | 11.804 | (1.214) | 195198 | 100.000 | 104.36 |
| 130 | Ethyl Acetate | 43 | 4.805 | 4.805 | (1.111) | 1673440 | 100.000 | 99.01 |
| 131 | Methyl Acrylate | 55 | 3.838 | 3.838 | (0.887) | 605289 | 100.000 | 92.07 |
| 132 | n-Butanol | 56 | 5.357 | 5.357 | (1.238) | 233139 | 2000.00 | 1923.00(M) |
| 133 | Ethyl Acrylate | 55 | 5.486 | 5.486 | (1.268) | 1110424 | 100.000 | 97.95 |
| 134 | Cyclohexanone | 55 | 8.709 | 8.709 | (0.895) | 303499 | 2000.00 | 1982.95 |
| 135 | 1,4-Dioxane | 88 | 5.701 | 5.701 | (1.318) | 83288 | 2000.00 | 1940.23 |
| 136 | n-Hexane | 57 | 2.922 | 2.922 | (0.675) | 402934 | 100.000 | 97.35 |
| 137 | n-Pentane | 43 | 1.740 | 1.732 | (0.402) | 752831 | 100.000 | 107.73 |
| 138 | Freon TF | 101 | 2.055 | 2.055 | (0.475) | 342528 | 100.000 | 97.19 |
| 146 | Methyl Acetate | 43 | 2.370 | 2.377 | (0.548) | 771945 | 100.000 | 94.85 |
| 147 | Methylcyclohexane | 83 | 5.479 | 5.479 | (1.077) | 438349 | 100.000 | 102.37(A) |
| 149 | Isopropyl alcohol | 45 | 2.241 | 2.241 | (0.518) | 572081 | 2000.00 | 2003.54 |
| 152 | Amyl alcohol | 42 | 6.983 | 6.976 | (0.902) | 294515 | 2000.00 | 1859.12 |
| 150 | Allyl alcohol | 57 | 2.922 | 2.922 | (0.675) | 402934 | 2000.00 | 1885.59 |
| 151 | 4-Methyl-2-pentanol | 45 | 6.790 | 6.790 | (1.335) | 2314622 | 2000.00 | 1757.89 |
| 148 | Tert-butyl alcohol | 59 | 2.578 | 2.578 | (0.596) | 848896 | 2000.00 | 1975.35 |
| 139 | Diethyl ether | 59 | 1.890 | 1.890 | (0.437) | 432621 | 100.000 | 94.04 |
| 140 | 1,3-Butadiene | 54 | 1.281 | 1.281 | (0.296) | 547612 | 100.000 | 99.94 |
| 141 | Cyclohexane | 56 | 4.275 | 4.275 | (0.988) | 654936 | 100.000 | 95.73 |
| 142 | Tetrahydrofuran | 42 | 4.003 | 4.003 | (0.925) | 186212 | 200.000 | 185.91 |
| 145 | alpha-Methylstyrene | 118 | 9.318 | 9.325 | (0.958) | 836865 | 100.000 | 97.60 |
| 155 | 2-Pentanone | 43 | 5.550 | 5.550 | (1.283) | 756806 | 200.000 | 198.29 |
| 156 | Diisopropyl ether | 45 | 3.151 | 3.151 | (0.728) | 1952314 | 100.000 | 96.21 |
| 157 | n-Heptane | 43 | 4.956 | 4.956 | (1.146) | 353065 | 100.000 | 100.67 |
| 158 | Dichlorofluoromethane | 67 | 1.654 | 1.654 | (0.382) | 853761 | 100.000 | 102.57 |
| 159 | Propylene oxide | 43 | 2.112 | 2.112 | (0.488) | 257034 | 200.000 | 200.12(A) |
| 160 | 2-Methylnaphthalene | 142 | 12.541 | 12.541 | (1.289) | 111660 | 100.000 | 97.24 |
| 161 | 3-Methyl-1-butanol | 55 | 6.983 | 6.976 | (0.902) | 250106 | 2000.00 | 1933.71 |
| 162 | Butyl acrylate | 55 | 8.315 | 8.315 | (1.074) | 1280487 | 100.000 | 101.16 |
| 166 | 1,2,3-Trimethylbenzene | 105 | 9.791 | 9.791 | (1.007) | 1225751 | 100.000 | 97.39 |
| 167 | Ethanol | 45 | 1.840 | 1.840 | (0.425) | 81639 | 2000.00 | 2006.02 |
| 170 | 1,3,5-Trichlorobenzene | 180 | 11.395 | 11.395 | (1.172) | 272147 | 100.000 | (a) |
| 172 | tert-Butyl formate | 59 | 4.748 | 4.748 | (1.098) | 696936 | 200.000 | 191.78 |
| 173 | 3,3-Dimethyl-1-butanol | 57 | 7.370 | 7.363 | (0.952) | 879988 | 2000.00 | 2007.74 |
| 174 | tert-Amyl methyl ether | 73 | 4.798 | 4.798 | (1.109) | 1610764 | 100.000 | 100.62 |
| 175 | tert-Butyl ethyl ether | 59 | 3.530 | 3.530 | (0.816) | 1751429 | 100.000 | 95.13 |
| 176 | tert-Amyl alcohol | 59 | 4.748 | 4.748 | (1.098) | 696936 | 2000.00 | 1932.38 |
| 178 | Ethylene oxide | 44 | 1.446 | 1.446 | (0.334) | 247899 | 200.000 | 198.41 |
| 179 | Hexachloroethane | 166 | 10.256 | 10.256 | (1.054) | 46619 | 100.000 | 97.75 |
| 180 | 1-Methylnaphthalene | 142 | 12.692 | 12.692 | (1.305) | 84817 | 100.000 | 97.33 |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101009.D
Report Date: 11-Jan-2018 18:10

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | ON-COL ( ug/l) | |
|---|---|---|---|---|---|---|---|---|---|
| 181 | 2-Furfural | 96 | 8.036 | 8.036 | (1.038) | 483751 | 4000.00 | 3816.03 | |
| 182 | Epichlorohydrin | 57 | 6.188 | 6.188 | (1.217) | 135323 | 400.000 | 410.37 | |
| 183 | 2-Methylpropane | 43 | 1.568 | 1.568 | (0.363) | 490887 | 100.000 | 104.55 | |
| 184 | Cyclopentane | 42 | 2.485 | 2.485 | (0.574) | 1113195 | 100.000 | 96.60 | (M) |
| 185 | Isoprene | 39 | 1.904 | 1.904 | (0.440) | 302477 | 100.000 | 97.83 | |
| 186 | Isopentane | 42 | 1.568 | 1.561 | (0.363) | 431700 | 100.000 | 107.12 | |
| 187 | n-Amyl acetate | 43 | 8.516 | 8.516 | (1.100) | 1165061 | 100.000 | 101.05 | |
| 188 | Isopropyl acetate | 43 | 4.805 | 4.805 | (0.945) | 1673440 | 100.000 | 99.10 | |
| 189 | n-Butyl acetate | 43 | 7.348 | 7.348 | (0.949) | 405051 | 100.000 | 85.55 | |
| 190 | Propanal | 58 | 2.040 | 2.040 | (0.472) | 266483 | 200.000 | 213.28 | |
| 191 | n-Buteraldehyde | 44 | 3.516 | 3.516 | (0.813) | 346514 | 100.000 | | (a) |
| 193 | 2-Ethyl-1-hexanol | 57 | 9.956 | 9.956 | (1.024) | 1264120 | 2000.00 | 2002.27 | |
| 194 | Acetaldehyde | 44 | 1.324 | 1.324 | (0.306) | 257116 | 400.000 | 391.91 | (A) |
| 195 | Methyl Amyl Ketone | 43 | 8.444 | 8.444 | (1.091) | 1201483 | 100.000 | 100.38 | |
| 196 | 2-Methylpentane | 43 | 2.449 | 2.449 | (0.566) | 755731 | 100.000 | 99.02 | |
| 197 | 3-Methylpentane | 57 | 2.671 | 2.671 | (0.618) | 918321 | 100.000 | 96.59 | |
| 198 | Methylcyclopentane | 56 | 3.530 | 3.530 | (0.816) | 1625595 | 100.000 | 107.31 | |
| 199 | 1-Hexene | 56 | 2.843 | 2.843 | (0.657) | 392462 | 100.000 | 95.14 | |
| 200 | Dimethyl Disulfide | 94 | 6.288 | 6.288 | (0.812) | 1048518 | 100.000 | 96.57 | |
| 201 | 1-Butene | 41 | 1.360 | 1.360 | (0.314) | 341129 | 100.000 | 97.97 | (TA) |
| M 94 | 1,2-Dichloroethylene (total) | 96 | | | | 1014950 | 200.000 | | (a) |
| M 95 | Xylenes (total) | 106 | | | | 2212868 | 300.000 | | (a) |

## QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.




Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101009.D
Date : 10-OCT-2017 13:58
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: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101010.D
Report Date: 11-Jan-2018 18:10

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101010.D
Lab Smp Id: VSTD150 Client Smp ID: VSTD150
Inj Date : 10-OCT-2017 14:22
Operator : PC Inst ID: voa6.i
Smp Info : VSTD150;VSTD150;1;9;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\8260W.m
Meth Date : 11-Jan-2018 18:09 Priyanka.R Quant Type: ISTD
Cal Date : 10-OCT-2017 14:22 Cal File: X101010.D
Als bottle: 12 Calibration Sample, Level: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0000_KelsoNEW.sub
Target Version: 4.14

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 | 4.325 | 4.325 | (1.000) | 365822 | 50.0000 | |
| 2 Dichlorodifluoromethane | 85 | 1.081 | 1.081 | (0.250) | 733784 | 150.000 | 156.94 |
| 3 Chloromethane | 50 | 1.188 | 1.188 | (0.275) | 1119443 | 150.000 | 150.29 |
| 4 Propionitrile | 54 | 3.817 | 3.817 | (0.882) | 1058530 | 1500.00 | 1427.91 |
| 5 Vinyl Chloride | 62 | 1.260 | 1.260 | (0.291) | 956365 | 150.000 | 152.66 |
| 6 Bromomethane | 94 | 1.460 | 1.453 | (0.338) | 544026 | 150.000 | 153.32 |
| 7 Chloroethane | 64 | 1.525 | 1.525 | (0.353) | 524463 | 150.000 | 138.17 |
| 8 Trichlorofluoromethane | 101 | 1.689 | 1.689 | (0.391) | 919730 | 150.000 | 150.02 |
| 9 Acrolein | 56 | 1.997 | 1.997 | (0.462) | 173550 | 300.000 | 308.20 |
| 10 Acetone | 43 | 2.112 | 2.112 | (0.488) | 376636 | 300.000 | 297.50(A) |
| 11 1,1-Dichloroethene | 96 | 2.055 | 2.055 | (0.475) | 610869 | 150.000 | 144.18(M) |
| 12 Isobutyl Alcohol | 43 | 4.805 | 4.805 | (1.111) | 2504588 | 3000.00 | 2999.79 |
| 13 Acetonitrile | 39 | 2.341 | 2.341 | (0.541) | 799704 | 1500.00 | 1512.26 |
| 14 Allyl Chloride | 41 | 2.341 | 2.341 | (0.541) | 1981532 | 150.000 | 128.72 |
| 15 Iodomethane | 142 | 2.169 | 2.169 | (0.502) | 1420733 | 300.000 | 316.40 |
| 16 Acrylonitrile | 53 | 2.678 | 2.685 | (0.619) | 586088 | 300.000 | 295.74 |
| 17 Methylene Chloride | 84 | 2.449 | 2.449 | (0.566) | 769636 | 150.000 | 136.70 |
| 18 Methyl tert-butyl ether | 73 | 2.685 | 2.685 | (0.621) | 2178227 | 150.000 | 141.05 |
| 19 Carbon Disulfide | 76 | 2.212 | 2.212 | (0.512) | 3847459 | 300.000 | 285.18 |
| 20 trans-1,2-Dichloroethene | 96 | 2.678 | 2.678 | (0.619) | 697965 | 150.000 | 141.22 |
| 21 Vinyl Acetate | 43 | 2.921 | 2.922 | (0.675) | 450829 | 300.000 | 305.11 |
| 22 1,1-Dichloroethane | 63 | 3.072 | 3.079 | (0.710) | 1363851 | 150.000 | 141.94 |
| 23 Chloroprene | 53 | 1.904 | 1.904 | (0.440) | 614454 | 150.000 | 155.20 |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101010.D
Report Date: 11-Jan-2018 18:10

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| | 24 2-Butanone | 43 | 3.731 | 3.731 | (0.863) | 656143 | 300.000 | 303.36 |
| | 25 Methacrylonitrile | 41 | 3.974 | 3.982 | (0.919) | 794815 | 150.000 | 141.28 |
| | 26 2,2-Dichloropropane | 77 | 3.666 | 3.666 | (0.848) | 1097426 | 150.000 | 146.62 |
| | 27 cis-1,2-Dichloroethene | 96 | 3.681 | 3.688 | (0.851) | 783202 | 150.000 | 142.75 |
| | 28 Chloroform | 83 | 4.068 | 4.068 | (0.940) | 1258886 | 150.000 | 140.98 |
| | 29 Bromochloromethane | 128 | 3.960 | 3.960 | (0.916) | 323442 | 150.000 | 132.35 |
| $ | 30 Dibromofluoromethane | 113 | 4.254 | 4.254 | (0.983) | 807409 | 150.000 | 142.92 |
| | 31 1,1,1-Trichloroethane | 97 | 4.239 | 4.240 | (0.980) | 1027255 | 150.000 | 143.15 |
| | 32 1,1-Dichloropropene | 75 | 4.426 | 4.426 | (0.870) | 990181 | 150.000 | 149.21 |
| | 33 1,2-Dichloroethane | 62 | 4.691 | 4.691 | (0.923) | 971623 | 150.000 | 142.43 |
| | 34 Carbon Tetrachloride | 117 | 4.411 | 4.411 | (0.868) | 841250 | 150.000 | 150.52 |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 4.612 | 4.612 | (1.066) | 1005478 | 150.000 | 145.89 |
| * | 36 1,4-Difluorobenzene | 114 | 5.085 | 5.085 | (1.000) | 611030 | 50.0000 | |
| | 37 Benzene | 78 | 4.648 | 4.648 | (0.914) | 2901936 | 150.000 | 144.86 |
| | 38 Trichloroethene | 130 | 5.321 | 5.321 | (1.046) | 710112 | 150.000 | 144.41 |
| | 39 Bromodichloromethane | 83 | 5.823 | 5.830 | (1.145) | 988214 | 150.000 | 142.71 |
| | 40 Methyl Methacrylate | 41 | 5.701 | 5.701 | (1.318) | 818459 | 150.000 | 143.55 |
| | 41 2-Chloroethylvinyl ether | 63 | 6.138 | 6.138 | (1.207) | 817023 | 300.000 | 302.22 |
| | 42 1,2-Dichloropropane | 63 | 5.543 | 5.543 | (1.090) | 814386 | 150.000 | 144.14 |
| | 43 2-Nitropropane | 43 | 6.059 | 6.066 | (1.401) | 283215 | 150.000 | 151.56 |
| | 44 Dibromomethane | 93 | 5.658 | 5.658 | (1.113) | 463015 | 150.000 | 143.02 |
| | 45 4-Methyl-2-Pentanone | 43 | 6.410 | 6.410 | (0.828) | 1571738 | 300.000 | 284.94 |
| | 46 cis-1,3-Dichloropropene | 75 | 6.245 | 6.245 | (1.228) | 1287432 | 150.000 | 145.56 |
| * | 47 Chlorobenzene-d5 | 117 | 7.742 | 7.742 | (1.000) | 633142 | 50.0000 | |
| $ | 48 Toluene-d8 | 98 | 6.474 | 6.474 | (0.836) | 2976689 | 150.000 | 140.10 |
| | 49 Ethyl Methacrylate | 69 | 6.868 | 6.868 | (1.351) | 1178380 | 150.000 | 139.78 |
| | 50 Toluene | 91 | 6.532 | 6.532 | (0.844) | 2887123 | 150.000 | 141.82 |
| | 51 trans-1,3-Dichloropropene | 75 | 6.761 | 6.761 | (1.330) | 1092726 | 150.000 | 144.37 |
| | 52 2-Hexanone | 43 | 7.284 | 7.284 | (0.941) | 1517498 | 300.000 | 292.49 |
| | 53 1,1,2-Trichloroethane | 83 | 6.918 | 6.926 | (0.894) | 557992 | 150.000 | 136.54 |
| | 54 1,3-Dichloropropane | 76 | 7.062 | 7.062 | (0.912) | 1181727 | 150.000 | 136.30 |
| | 55 Dibromochloromethane | 129 | 7.255 | 7.255 | (0.937) | 757747 | 150.000 | 141.68 |
| | 56 Tetrachloroethene | 164 | 7.012 | 7.012 | (0.906) | 484302 | 150.000 | 142.51 |
| | 57 1,2-Dibromoethane | 107 | 7.341 | 7.341 | (0.948) | 665490 | 150.000 | 139.44 |
| | 58 1-Chlorohexane | 55 | 7.764 | 7.764 | (1.527) | 590928 | 150.000 | 154.54 |
| | 59 Chlorobenzene | 112 | 7.764 | 7.771 | (1.003) | 1806011 | 150.000 | 140.67 |
| | 60 1,1,1,2-Tetrachloroethane | 131 | 7.850 | 7.850 | (1.014) | 657525 | 150.000 | 140.88 |
| | 61 Ethylbenzene | 106 | 7.871 | 7.871 | (1.017) | 908338 | 150.000 | 140.62 |
| | 62 m,p-Xylenes | 106 | 7.971 | 7.971 | (1.030) | 2191660 | 300.000 | 283.83 |
| | 63 o-Xylene | 106 | 8.308 | 8.308 | (1.073) | 1089461 | 150.000 | 139.31 |
| | 64 Styrene | 104 | 8.322 | 8.330 | (1.075) | 1952650 | 150.000 | 139.09 |
| | 66 Bromoform | 173 | 8.480 | 8.480 | (1.095) | 490387 | 150.000 | 139.00 |
| | 67 Isopropylbenzene | 105 | 8.623 | 8.630 | (1.114) | 2245545 | 150.000 | 144.34 |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 8.903 | 8.903 | (0.915) | 810128 | 150.000 | 150.18 |
| $ | 69 4-Bromofluorobenzene | 95 | 8.752 | 8.752 | (1.130) | 1051275 | 150.000 | 141.52 |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 9.726 | 9.726 | (1.000) | 308561 | 50.0000 | |
| | 71 1,2,3-Trichloropropane | 75 | 8.931 | 8.931 | (0.918) | 779047 | 150.000 | 144.31(M) |
| | 72 trans-1,4-Dichloro-2-butene | 53 | 8.953 | 8.953 | (1.156) | 274724 | 150.000 | 147.29 |
| | 73 n-Propylbenzene | 91 | 8.974 | 8.974 | (0.923) | 2706592 | 150.000 | 142.43 |
| | 74 Bromobenzene | 156 | 8.874 | 8.874 | (0.912) | 744971 | 150.000 | 141.85 |
| | 75 1,3,5-Trimethylbenzene | 105 | 9.132 | 9.132 | (0.939) | 1822241 | 150.000 | 142.94 |
| | 76 2-Chlorotoluene | 91 | 9.039 | 9.039 | (0.929) | 1760111 | 150.000 | 139.22 |
| | 77 4-Chlorotoluene | 91 | 9.132 | 9.132 | (0.939) | 2093660 | 150.000 | 141.35 |
| | 78 tert-Butylbenzene | 119 | 9.397 | 9.397 | (0.966) | 1330122 | 150.000 | 139.56 |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101010.D
Report Date: 11-Jan-2018 18:10

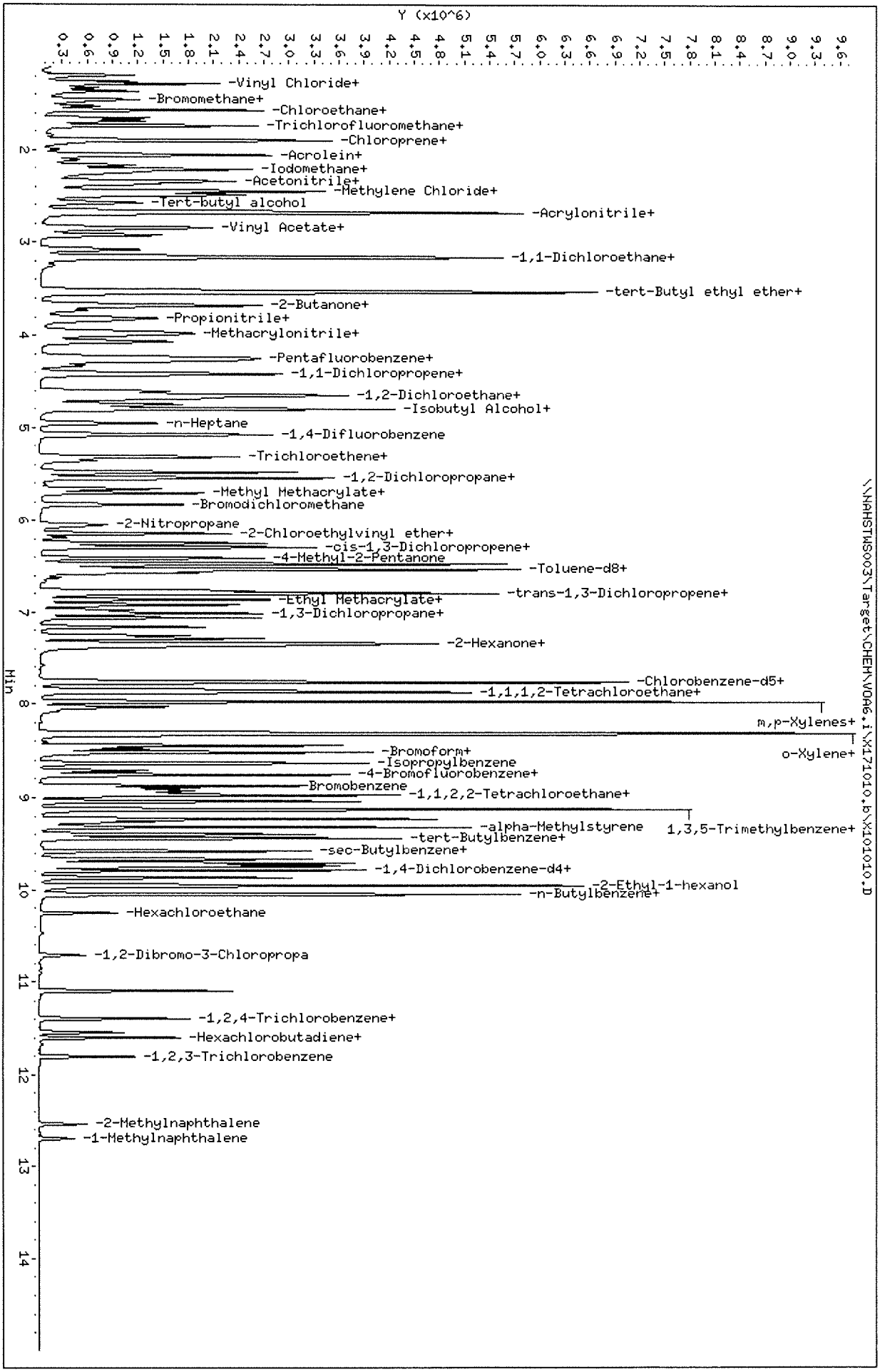
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| 79 1,2,4-Trimethylbenzene | 105 | 9.440 | 9.440 | (0.971) | 1922510 | 150.000 | 141.05 |
| 80 Pentachloroethane | 167 | 9.411 | 9.411 | (1.216) | 10524 | 150.000 | (a) |
| 81 sec-Butylbenzene | 105 | 9.583 | 9.583 | (0.985) | 1826855 | 150.000 | 143.26 |
| 82 p-Isopropyltoluene | 119 | 9.712 | 9.712 | (0.999) | 1576453 | 150.000 | 142.71 |
| 83 1,3-Dichlorobenzene | 146 | 9.669 | 9.669 | (0.994) | 1109075 | 150.000 | 139.73 |
| 84 1,4-Dichlorobenzene | 146 | 9.741 | 9.748 | (1.001) | 1153992 | 150.000 | 138.04 |
| 86 Benzyl Chloride | 91 | 9.870 | 9.870 | (1.275) | 1723681 | 150.000 | 154.89 |
| 87 n-Butylbenzene | 91 | 10.056 | 10.056 | (1.034) | 1350052 | 150.000 | 149.08 |
| 88 1,2-Dichlorobenzene | 146 | 10.056 | 10.056 | (1.034) | 1082709 | 150.000 | 140.35 |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 10.715 | 10.715 | (1.102) | 100495 | 150.000 | 147.81 |
| 90 1,2,4-Trichlorobenzene | 180 | 11.395 | 11.395 | (1.172) | 442001 | 150.000 | 166.08 |
| 91 Hexachlorobutadiene | 225 | 11.539 | 11.539 | (1.186) | 161761 | 150.000 | 147.09 |
| 92 Naphthalene | 128 | 11.603 | 11.603 | (1.193) | 1113941 | 150.000 | 148.24 |
| 93 1,2,3-Trichlorobenzene | 180 | 11.804 | 11.804 | (1.214) | 319720 | 150.000 | 166.75 |
| 130 Ethyl Acetate | 43 | 4.805 | 4.805 | (1.111) | 2504588 | 150.000 | 149.98 |
| 131 Methyl Acrylate | 55 | 3.838 | 3.838 | (0.887) | 913247 | 150.000 | 140.24 |
| 132 n-Butanol | 56 | 5.357 | 5.357 | (1.238) | 363187 | 3000.00 | 3005.55(M) |
| 133 Ethyl Acrylate | 55 | 5.486 | 5.486 | (1.268) | 1727637 | 150.000 | 153.85 |
| 134 Cyclohexanone | 55 | 8.709 | 8.709 | (0.895) | 468508 | 3000.00 | 2985.51 |
| 135 1,4-Dioxane | 88 | 5.701 | 5.701 | (1.318) | 128208 | 3000.00 | 3005.80 |
| 136 n-Hexane | 57 | 2.921 | 2.922 | (0.675) | 663841 | 150.000 | 161.92 |
| 137 n-Pentane | 43 | 1.740 | 1.732 | (0.402) | 1199607 | 150.000 | 173.30 |
| 138 Freon TF | 101 | 2.055 | 2.055 | (0.475) | 543653 | 150.000 | 155.73 |
| 146 Methyl Acetate | 43 | 2.377 | 2.377 | (0.550) | 1062793 | 150.000 | 131.83 |
| 147 Methylcyclohexane | 83 | 5.479 | 5.479 | (1.077) | 718023 | 150.000 | 149.35(A) |
| 149 Isopropyl alcohol | 45 | 2.241 | 2.241 | (0.518) | 847140 | 3000.00 | 2993.76 |
| 152 Amyl alcohol | 42 | 6.976 | 6.976 | (0.901) | 459351 | 3000.00 | 2890.85 |
| 150 Allyl alcohol | 57 | 2.921 | 2.922 | (0.675) | 663841 | 3000.00 | 3136.22 |
| 151 4-Methyl-2-pentanol | 45 | 6.790 | 6.790 | (1.335) | 3715289 | 3000.00 | 2868.32 |
| 148 Tert-butyl alcohol | 59 | 2.578 | 2.578 | (0.596) | 1278488 | 3000.00 | 3002.02 |
| 139 Diethyl ether | 59 | 1.890 | 1.890 | (0.437) | 643686 | 150.000 | 141.27 |
| 140 1,3-Butadiene | 54 | 1.281 | 1.281 | (0.296) | 852897 | 150.000 | 157.15 |
| 141 Cyclohexane | 56 | 4.275 | 4.275 | (0.988) | 1040121 | 150.000 | 153.48(A) |
| 142 Tetrahydrofuran | 42 | 4.003 | 4.003 | (0.925) | 277348 | 300.000 | 279.54 |
| 145 alpha-Methylstyrene | 118 | 9.318 | 9.325 | (0.958) | 1253998 | 150.000 | 142.68 |
| 155 2-Pentanone | 43 | 5.550 | 5.550 | (1.283) | 1151587 | 300.000 | 304.47 |
| 156 Diisopropyl ether | 45 | 3.151 | 3.151 | (0.728) | 2850709 | 150.000 | 141.83 |
| 157 n-Heptane | 43 | 4.956 | 4.956 | (1.146) | 621824 | 150.000 | 178.58 |
| 158 Dichlorofluoromethane | 67 | 1.654 | 1.654 | (0.382) | 1261241 | 150.000 | 152.98 |
| 159 Propylene oxide | 43 | 2.112 | 2.112 | (0.488) | 376636 | 300.000 | 297.50(A) |
| 160 2-Methylnaphthalene | 142 | 12.541 | 12.541 | (1.289) | 214902 | 150.000 | 156.38 |
| 161 3-Methyl-1-butanol | 55 | 6.976 | 6.976 | (0.901) | 377571 | 3000.00 | 2910.36 |
| 162 Butyl acrylate | 55 | 8.315 | 8.315 | (1.074) | 1920759 | 150.000 | 151.28 |
| 166 1,2,3-Trimethylbenzene | 105 | 9.791 | 9.791 | (1.007) | 1858663 | 150.000 | 144.07 |
| 167 Ethanol | 45 | 1.840 | 1.840 | (0.425) | 124849 | 3000.00 | 2997.30 |
| 170 1,3,5-Trichlorobenzene | 180 | 11.395 | 11.395 | (1.172) | 442001 | 150.000 | (a) |
| 172 tert-Butyl formate | 59 | 4.748 | 4.748 | (1.098) | 1048801 | 300.000 | 290.47(A) |
| 173 3,3-Dimethyl-1-butanol | 57 | 7.363 | 7.363 | (0.951) | 1391776 | 3000.00 | 3007.26 |
| 174 tert-Amyl methyl ether | 73 | 4.798 | 4.798 | (1.109) | 2376813 | 150.000 | 151.03 |
| 175 tert-Butyl ethyl ether | 59 | 3.530 | 3.530 | (0.816) | 2578470 | 150.000 | 141.39 |
| 176 tert-Amyl alcohol | 59 | 4.748 | 4.748 | (1.098) | 1048801 | 3000.00 | 2939.72(A) |
| 178 Ethylene oxide | 44 | 1.446 | 1.446 | (0.334) | 370278 | 300.000 | 299.20 |
| 179 Hexachloroethane | 166 | 10.256 | 10.256 | (1.054) | 74268 | 150.000 | 151.48 |
| 180 1-Methylnaphthalene | 142 | 12.692 | 12.692 | (1.305) | 162281 | 150.000 | 155.92 |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101010.D
Report Date: 11-Jan-2018 18:10

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | ON-COL ( ug/l) | |
|---|---|---|---|---|---|---|---|---|---|
| 181 | 2-Furfural | 96 | 8.036 | 8.036 | (1.038) | 764550 | 6000.00 | 5953.82 | |
| 182 | Epichlorohydrin | 57 | 6.188 | 6.188 | (1.217) | 217853 | 600.000 | 671.57 | |
| 183 | 2-Methylpropane | 43 | 1.568 | 1.568 | (0.363) | 779120 | 150.000 | 167.53 | |
| 184 | Cyclopentane | 42 | 2.485 | 2.485 | (0.574) | 1851182 | 150.000 | 162.17 | |
| 185 | Isoprene | 39 | 1.904 | 1.904 | (0.440) | 466198 | 150.000 | 152.76 | |
| 186 | Isopentane | 42 | 1.568 | 1.561 | (0.363) | 688682 | 150.000 | 172.52 | |
| 187 | n-Amyl acetate | 43 | 8.516 | 8.516 | (1.100) | 1782133 | 150.000 | 154.10 | |
| 188 | Isopropyl acetate | 43 | 4.805 | 4.805 | (0.945) | 2499051 | 150.000 | 150.82 | |
| 189 | n-Butyl acetate | 43 | 7.348 | 7.348 | (0.949) | 627798 | 150.000 | 132.19 | |
| 190 | Propanal | 58 | 2.040 | 2.040 | (0.472) | 366624 | 300.000 | 299.29 | |
| 191 | n-Buteraldehyde | 44 | 3.516 | 3.516 | (0.813) | 426097 | 150.000 | | (a) |
| 193 | 2-Ethyl-1-hexanol | 57 | 9.956 | 9.956 | (1.024) | 2699520 | 3000.00 | | (aM) |
| 194 | Acetaldehyde | 44 | 1.324 | 1.324 | (0.306) | 333023 | 600.000 | 514.90 | (A) |
| 195 | Methyl Amyl Ketone | 43 | 8.444 | 8.444 | (1.091) | 1868764 | 150.000 | 155.66 | |
| 196 | 2-Methylpentane | 43 | 2.449 | 2.449 | (0.566) | 1266959 | 150.000 | 157.29 | |
| 197 | 3-Methylpentane | 57 | 2.671 | 2.671 | (0.618) | 1449493 | 150.000 | 153.92 | |
| 198 | Methylcyclopentane | 56 | 3.530 | 3.530 | (0.816) | 2562658 | 150.000 | 170.78 | |
| 199 | 1-Hexene | 56 | 2.843 | 2.843 | (0.657) | 632509 | 150.000 | 154.80 | |
| 200 | Dimethyl Disulfide | 94 | 6.288 | 6.288 | (0.812) | 1559345 | 150.000 | 143.19 | |
| 201 | 1-Butene | 41 | 1.360 | 1.360 | (0.314) | 461491 | 150.000 | 133.81 | (TA) |
| M 94 | 1,2-Dichloroethylene (total) | 96 | | | | 1481167 | 300.000 | | (a) |
| M 95 | Xylenes (total) | 106 | | | | 3281121 | 450.000 | | (a) |

## QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
A - Target compound detected but, quantitated amount
exceeded maximum amount.
M - Compound response manually integrated.




Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101010.D
Date : 10-OCT-2017 14:22
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: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101011.D
Report Date: 11-Jan-2018 18:10

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101011.D
Lab Smp Id: VSTD200 Client Smp ID: VSTD200
Inj Date : 10-OCT-2017 14:47
Operator : PC Inst ID: voa6.i
Smp Info : VSTD200;VSTD200;1;10;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\8260W.m
Meth Date : 11-Jan-2018 18:09 Priyanka.R Quant Type: ISTD
Cal Date : 10-OCT-2017 14:47 Cal File: X101011.D
Als bottle: 13 Calibration Sample, Level: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0000_KelsoNEW.sub
Target Version: 4.14

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 | 4.325 | 4.325 | (1.000) | 361891 | 50.0000 | |
| 2 | Dichlorodifluoromethane | 85 | 1.081 | 1.081 | (0.250) | 965107 | 200.000 | 208.66(A) |
| 3 | Chloromethane | 50 | 1.188 | 1.188 | (0.275) | 1476509 | 200.000 | 200.29(A) |
| 4 | Propionitrile | 54 | 3.817 | 3.817 | (0.882) | 1378773 | 2000.00 | 1880.11 |
| 5 | Vinyl Chloride | 62 | 1.260 | 1.260 | (0.291) | 1257204 | 200.000 | 202.86(A) |
| 6 | Bromomethane | 94 | 1.453 | 1.453 | (0.336) | 700366 | 200.000 | 199.53 |
| 7 | Chloroethane | 64 | 1.525 | 1.525 | (0.353) | 677909 | 200.000 | 180.53 |
| 8 | Trichlorofluoromethane | 101 | 1.689 | 1.689 | (0.391) | 1193771 | 200.000 | 196.84 |
| 9 | Acrolein | 56 | 1.997 | 1.997 | (0.462) | 220114 | 400.000 | 395.53 |
| 10 | Acetone | 43 | 2.112 | 2.112 | (0.488) | 501328 | 400.000 | 401.38(A) |
| 11 | 1,1-Dichloroethene | 96 | 2.055 | 2.055 | (0.475) | 796023 | 200.000 | 189.92(M) |
| 12 | Isobutyl Alcohol | 43 | 4.805 | 4.805 | (1.111) | 3306498 | 4000.00 | 4008.32(A) |
| 13 | Acetonitrile | 39 | 2.341 | 2.341 | (0.541) | 1020336 | 2000.00 | 1960.12 |
| 14 | Allyl Chloride | 41 | 2.341 | 2.341 | (0.541) | 2588396 | 200.000 | 169.97 |
| 15 | Iodomethane | 142 | 2.169 | 2.169 | (0.502) | 1705975 | 400.000 | 383.65(M) |
| 16 | Acrylonitrile | 53 | 2.685 | 2.685 | (0.621) | 757152 | 400.000 | 386.21 |
| 17 | Methylene Chloride | 84 | 2.449 | 2.449 | (0.566) | 1002541 | 200.000 | 180.00 |
| 18 | Methyl tert-butyl ether | 73 | 2.685 | 2.685 | (0.621) | 2818919 | 200.000 | 184.53 |
| 19 | Carbon Disulfide | 76 | 2.212 | 2.212 | (0.512) | 5063736 | 400.000 | 379.41 |
| 20 | trans-1,2-Dichloroethene | 96 | 2.678 | 2.678 | (0.619) | 910532 | 200.000 | 186.23 |
| 21 | Vinyl Acetate | 43 | 2.922 | 2.922 | (0.675) | 587997 | 400.000 | 401.93(A) |
| 22 | 1,1-Dichloroethane | 63 | 3.079 | 3.079 | (0.712) | 1751045 | 200.000 | 184.22 |
| 23 | Chloroprene | 53 | 1.904 | 1.904 | (0.440) | 801098 | 200.000 | 204.54(A) |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101011.D
Report Date: 11-Jan-2018 18:10

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 24 | 2-Butanone | 43 | 3.731 | 3.731 | (0.863) | 871732 | 400.000 | 407.41(A) |
| 25 | Methacrylonitrile | 41 | 3.982 | 3.982 | (0.921) | 1040286 | 200.000 | 186.93 |
| 26 | 2,2-Dichloropropane | 77 | 3.666 | 3.666 | (0.848) | 1425109 | 200.000 | 192.47 |
| 27 | cis-1,2-Dichloroethene | 96 | 3.688 | 3.688 | (0.853) | 1005214 | 200.000 | 185.20(M) |
| 28 | Chloroform | 83 | 4.068 | 4.068 | (0.940) | 1619485 | 200.000 | 183.33 |
| 29 | Bromochloromethane | 128 | 3.960 | 3.960 | (0.916) | 409116 | 200.000 | 169.22 |
| $ 30 | Dibromofluoromethane | 113 | 4.254 | 4.254 | (0.983) | 1013155 | 200.000 | 175.90 |
| 31 | 1,1,1-Trichloroethane | 97 | 4.240 | 4.240 | (0.980) | 1346837 | 200.000 | 189.72 |
| 32 | 1,1-Dichloropropene | 75 | 4.426 | 4.426 | (0.870) | 1286445 | 200.000 | 195.72 |
| 33 | 1,2-Dichloroethane | 62 | 4.691 | 4.691 | (0.923) | 1236234 | 200.000 | 182.96 |
| 34 | Carbon Tetrachloride | 117 | 4.411 | 4.411 | (0.868) | 1119346 | 200.000 | 202.19(A) |
| $ 35 | 1,2-Dichloroethane-d4 | 65 | 4.612 | 4.612 | (1.066) | 1304355 | 200.000 | 187.52 |
| * 36 | 1,4-Difluorobenzene | 114 | 5.085 | 5.085 | (1.000) | 605229 | 50.0000 | |
| 37 | Benzene | 78 | 4.648 | 4.648 | (0.914) | 3804958 | 200.000 | 191.77 |
| 38 | Trichloroethene | 130 | 5.321 | 5.321 | (1.046) | 931410 | 200.000 | 191.23 |
| 39 | Bromodichloromethane | 83 | 5.830 | 5.830 | (1.146) | 1289436 | 200.000 | 188.00 |
| 40 | Methyl Methacrylate | 41 | 5.701 | 5.701 | (1.318) | 1029590 | 200.000 | 182.55 |
| 41 | 2-Chloroethylvinyl ether | 63 | 6.138 | 6.138 | (1.207) | 1084182 | 400.000 | 403.32(A) |
| 42 | 1,2-Dichloropropane | 63 | 5.543 | 5.543 | (1.090) | 1062996 | 200.000 | 189.95 |
| 43 | 2-Nitropropane | 43 | 6.066 | 6.066 | (1.402) | 370186 | 200.000 | 200.18(A) |
| 44 | Dibromomethane | 93 | 5.658 | 5.658 | (1.113) | 595314 | 200.000 | 185.65 |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.410 | 6.410 | (0.828) | 2085182 | 400.000 | 381.56 |
| 46 | cis-1,3-Dichloropropene | 75 | 6.245 | 6.245 | (1.228) | 1703619 | 200.000 | 194.47 |
| * 47 | Chlorobenzene-d5 | 117 | 7.742 | 7.742 | (1.000) | 627272 | 50.0000 | |
| $ 48 | Toluene-d8 | 98 | 6.474 | 6.474 | (0.836) | 3936343 | 200.000 | 178.98 |
| 49 | Ethyl Methacrylate | 69 | 6.868 | 6.868 | (1.351) | 1532338 | 200.000 | 183.51 |
| 50 | Toluene | 91 | 6.532 | 6.532 | (0.844) | 3753557 | 200.000 | 186.11 |
| 51 | trans-1,3-Dichloropropene | 75 | 6.761 | 6.761 | (1.330) | 1414101 | 200.000 | 188.62 |
| 52 | 2-Hexanone | 43 | 7.284 | 7.284 | (0.941) | 2030213 | 400.000 | 394.98 |
| 53 | 1,1,2-Trichloroethane | 83 | 6.926 | 6.926 | (0.895) | 722501 | 200.000 | 178.45 |
| 54 | 1,3-Dichloropropane | 76 | 7.062 | 7.062 | (0.912) | 1555345 | 200.000 | 181.07 |
| 55 | Dibromochloromethane | 129 | 7.255 | 7.255 | (0.937) | 986345 | 200.000 | 186.15 |
| 56 | Tetrachloroethene | 164 | 7.012 | 7.012 | (0.906) | 631132 | 200.000 | 187.45 |
| 57 | 1,2-Dibromoethane | 107 | 7.341 | 7.341 | (0.948) | 862287 | 200.000 | 182.37 |
| 58 | 1-Chlorohexane | 55 | 7.764 | 7.764 | (1.527) | 745292 | 200.000 | 196.92 |
| 59 | Chlorobenzene | 112 | 7.771 | 7.771 | (1.004) | 2344776 | 200.000 | 184.34 |
| 60 | 1,1,1,2-Tetrachloroethane | 131 | 7.850 | 7.850 | (1.014) | 851188 | 200.000 | 184.08 |
| 61 | Ethylbenzene | 106 | 7.871 | 7.871 | (1.017) | 1182773 | 200.000 | 184.83 |
| 62 | m,p-Xylenes | 106 | 7.971 | 7.971 | (1.030) | 2834918 | 400.000 | 370.57 |
| 63 | o-Xylene | 106 | 8.308 | 8.308 | (1.073) | 1411763 | 200.000 | 182.21 |
| 64 | Styrene | 104 | 8.330 | 8.330 | (1.076) | 2582507 | 200.000 | 185.68 |
| 66 | Bromoform | 173 | 8.480 | 8.480 | (1.095) | 639971 | 200.000 | 183.10 |
| 67 | Isopropylbenzene | 105 | 8.630 | 8.630 | (1.115) | 2908508 | 200.000 | 188.71 |
| 68 | 1,1,2,2-Tetrachloroethane | 83 | 8.903 | 8.903 | (0.915) | 1055403 | 200.000 | 197.88 |
| $ 69 | 4-Bromofluorobenzene | 95 | 8.752 | 8.752 | (1.130) | 1367102 | 200.000 | 180.03 |
| * 70 | 1,4-Dichlorobenzene-d4 | 152 | 9.726 | 9.726 | (1.000) | 305564 | 50.0000 | |
| 71 | 1,2,3-Trichloropropane | 75 | 8.931 | 8.931 | (0.918) | 995064 | 200.000 | 186.13(M) |
| 72 | trans-1,4-Dichloro-2-butene | 53 | 8.953 | 8.953 | (1.156) | 355515 | 200.000 | 192.39 |
| 73 | n-Propylbenzene | 91 | 8.974 | 8.974 | (0.923) | 3504630 | 200.000 | 186.24 |
| 74 | Bromobenzene | 156 | 8.874 | 8.874 | (0.912) | 967507 | 200.000 | 186.03 |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.132 | 9.132 | (0.939) | 2334767 | 200.000 | 184.94 |
| 76 | 2-Chlorotoluene | 91 | 9.039 | 9.039 | (0.929) | 2295489 | 200.000 | 183.35 |
| 77 | 4-Chlorotoluene | 91 | 9.132 | 9.132 | (0.939) | 2679072 | 200.000 | 182.65 |
| 78 | tert-Butylbenzene | 119 | 9.397 | 9.397 | (0.966) | 1713732 | 200.000 | 181.58 |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101011.D
Report Date: 11-Jan-2018 18:10

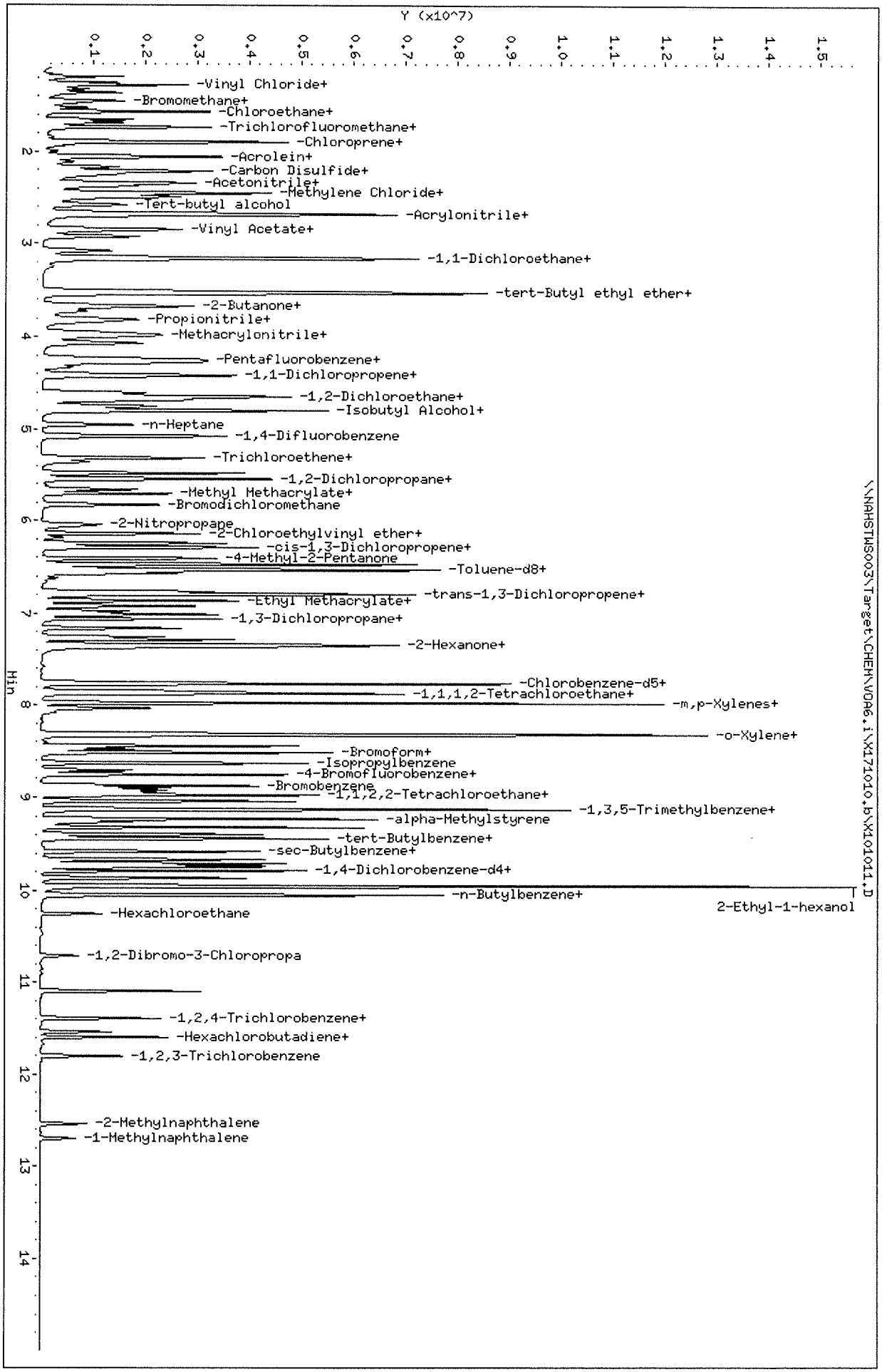
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|
| 79 1,2,4-Trimethylbenzene | 105 | 9.440 | 9.440 | (0.971) | 2458485 | 200.000 | 182.14 |
| 80 Pentachloroethane | 167 | 9.411 | 9.411 | (1.216) | 13945 | 200.000 | (a) |
| 81 sec-Butylbenzene | 105 | 9.583 | 9.583 | (0.985) | 2361299 | 200.000 | 186.99 |
| 82 p-Isopropyltoluene | 119 | 9.712 | 9.712 | (0.999) | 2038528 | 200.000 | 186.35 |
| 83 1,3-Dichlorobenzene | 146 | 9.669 | 9.669 | (0.994) | 1445179 | 200.000 | 183.86 |
| 84 1,4-Dichlorobenzene | 146 | 9.748 | 9.748 | (1.002) | 1504696 | 200.000 | 181.76 |
| 86 Benzyl Chloride | 91 | 9.870 | 9.870 | (1.275) | 2289969 | 200.000 | 207.70(A) |
| 87 n-Butylbenzene | 91 | 10.056 | 10.056 | (1.034) | 1721697 | 200.000 | 191.98 |
| 88 1,2-Dichlorobenzene | 146 | 10.056 | 10.056 | (1.034) | 1412182 | 200.000 | 184.86 |
| 89 1,2-Dibromo-3-Chloropropane | 155 | 10.715 | 10.715 | (1.102) | 136011 | 200.000 | 201.99(A) |
| 90 1,2,4-Trichlorobenzene | 180 | 11.395 | 11.395 | (1.172) | 588209 | 200.000 | 223.18(A) |
| 91 Hexachlorobutadiene | 225 | 11.539 | 11.539 | (1.186) | 223916 | 200.000 | 205.36(A) |
| 92 Naphthalene | 128 | 11.603 | 11.603 | (1.193) | 1535347 | 200.000 | 205.16(A) |
| 93 1,2,3-Trichlorobenzene | 180 | 11.804 | 11.804 | (1.214) | 434974 | 200.000 | 229.09(A) |
| 130 Ethyl Acetate | 43 | 4.805 | 4.805 | (1.111) | 3306498 | 200.000 | 200.41(A) |
| 131 Methyl Acrylate | 55 | 3.838 | 3.838 | (0.887) | 1178029 | 200.000 | 182.87 |
| 132 n-Butanol | 56 | 5.357 | 5.357 | (1.238) | 485198 | 4000.00 | 4047.39(AM) |
| 133 Ethyl Acrylate | 55 | 5.486 | 5.486 | (1.268) | 2209407 | 200.000 | 198.90 |
| 134 Cyclohexanone | 55 | 8.709 | 8.709 | (0.895) | 625575 | 4000.00 | 4025.05(A) |
| 135 1,4-Dioxane | 88 | 5.701 | 5.701 | (1.318) | 170794 | 4000.00 | 4041.83(A) |
| 136 n-Hexane | 57 | 2.922 | 2.922 | (0.675) | 849264 | 200.000 | 209.40(A) |
| 137 n-Pentane | 43 | 1.732 | 1.732 | (0.401) | 1535996 | 200.000 | 224.31(A) |
| 138 Freon TF | 101 | 2.055 | 2.055 | (0.475) | 705902 | 200.000 | 204.41(A) |
| 146 Methyl Acetate | 43 | 2.377 | 2.377 | (0.550) | 1347779 | 200.000 | 169.00 |
| 147 Methylcyclohexane | 83 | 5.479 | 5.479 | (1.077) | 909543 | 200.000 | 172.20(A) |
| 149 Isopropyl alcohol | 45 | 2.241 | 2.241 | (0.518) | 1122924 | 4000.00 | 4010.50(A) |
| 152 Amyl alcohol | 42 | 6.976 | 6.976 | (0.901) | 637319 | 4000.00 | 4048.40(A) |
| 150 Allyl alcohol | 57 | 2.922 | 2.922 | (0.675) | 849264 | 4000.00 | 4055.81(A) |
| 151 4-Methyl-2-pentanol | 45 | 6.790 | 6.790 | (1.335) | 5173246 | 4000.00 | 4032.19(A) |
| 148 Tert-butyl alcohol | 59 | 2.578 | 2.578 | (0.596) | 1692486 | 4000.00 | 4016.40(AH) |
| 139 Diethyl ether | 59 | 1.890 | 1.890 | (0.437) | 824594 | 200.000 | 182.94 |
| 140 1,3-Butadiene | 54 | 1.281 | 1.281 | (0.296) | 1113171 | 200.000 | 207.33(A) |
| 141 Cyclohexane | 56 | 4.275 | 4.275 | (0.988) | 1337355 | 200.000 | 199.49(A) |
| 142 Tetrahydrofuran | 42 | 4.003 | 4.003 | (0.925) | 353318 | 400.000 | 359.98 |
| 145 alpha-Methylstyrene | 118 | 9.325 | 9.325 | (0.959) | 1624670 | 200.000 | 186.66 |
| 155 2-Pentanone | 43 | 5.550 | 5.550 | (1.283) | 1486918 | 400.000 | 397.31 |
| 156 Diisopropyl ether | 45 | 3.151 | 3.151 | (0.728) | 3706984 | 200.000 | 186.43 |
| 157 n-Heptane | 43 | 4.956 | 4.956 | (1.146) | 749450 | 200.000 | 217.46(A) |
| 158 Dichlorofluoromethane | 67 | 1.654 | 1.654 | (0.382) | 1640366 | 200.000 | 201.12(A) |
| 159 Propylene oxide | 43 | 2.112 | 2.112 | (0.488) | 501328 | 400.000 | 401.35(A) |
| 160 2-Methylnaphthalene | 142 | 12.541 | 12.541 | (1.289) | 337528 | 200.000 | 197.90 |
| 161 3-Methyl-1-butanol | 55 | 6.976 | 6.976 | (0.901) | 522449 | 4000.00 | 4064.78(A) |
| 162 Butyl acrylate | 55 | 8.315 | 8.315 | (1.074) | 2538272 | 200.000 | 201.79(A) |
| 166 1,2,3-Trimethylbenzene | 105 | 9.791 | 9.791 | (1.007) | 2378714 | 200.000 | 186.18 |
| 167 Ethanol | 45 | 1.840 | 1.840 | (0.425) | 146011 | 4000.00 | 3476.94 |
| 170 1,3,5-Trichlorobenzene | 180 | 11.395 | 11.395 | (1.172) | 588209 | 200.000 | (a) |
| 172 tert-Butyl formate | 59 | 4.748 | 4.748 | (1.098) | 1472574 | 400.000 | 411.54(A) |
| 173 3,3-Dimethyl-1-butanol | 57 | 7.363 | 7.363 | (0.951) | 1953161 | 4000.00 | 3996.32 |
| 174 tert-Amyl methyl ether | 73 | 4.798 | 4.798 | (1.109) | 3064369 | 200.000 | 197.54 |
| 175 tert-Butyl ethyl ether | 59 | 3.530 | 3.530 | (0.816) | 3325488 | 200.000 | 184.34 |
| 176 tert-Amyl alcohol | 59 | 4.748 | 4.748 | (1.098) | 1438337 | 4000.00 | 4078.30(AH) |
| 178 Ethylene oxide | 44 | 1.446 | 1.446 | (0.334) | 451952 | 400.000 | 369.16 |
| 179 Hexachloroethane | 166 | 10.256 | 10.256 | (1.054) | 97524 | 200.000 | 200.62(A) |
| 180 1-Methylnaphthalene | 142 | 12.692 | 12.692 | (1.305) | 258221 | 200.000 | 198.12 |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101011.D
Report Date: 11-Jan-2018 18:10

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | ON-COL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 181 | 2-Furfural | 96 | 8.036 | 8.036 | (1.038) | 1043083 | 8000.00 | 8160.25(A) |
| 182 | Epichlorohydrin | 57 | 6.188 | 6.188 | (1.217) | 285531 | 800.000 | 888.64(A) |
| 183 | 2-Methylpropane | 43 | 1.568 | 1.568 | (0.363) | 1003143 | 200.000 | 218.04(A) |
| 184 | Cyclopentane | 42 | 2.485 | 2.485 | (0.574) | 2280714 | 200.000 | 201.97(A) |
| 185 | Isoprene | 39 | 1.904 | 1.904 | (0.440) | 599630 | 200.000 | 198.91 |
| 186 | Isopentane | 42 | 1.561 | 1.561 | (0.361) | 887373 | 200.000 | 224.70(A) |
| 187 | n-Amyl acetate | 43 | 8.516 | 8.516 | (1.100) | 2405930 | 200.000 | 209.99(A) |
| 188 | Isopropyl acetate | 43 | 4.805 | 4.805 | (0.945) | 3275909 | 200.000 | 199.84 |
| 189 | n-Butyl acetate | 43 | 7.348 | 7.348 | (0.949) | 866255 | 200.000 | 184.11 |
| 190 | Propanal | 58 | 2.040 | 2.040 | (0.472) | 468722 | 400.000 | 389.09 |
| 191 | n-Buteraldehyde | 44 | 3.516 | 3.516 | (0.813) | 618651 | 200.000 | (a) |
| 193 | 2-Ethyl-1-hexanol | 57 | 9.956 | 9.956 | (1.024) | 6153165 | 4000.00 | (a) |
| 194 | Acetaldehyde | 44 | 1.324 | 1.324 | (0.306) | 442203 | 800.000 | 693.84(A) |
| 195 | Methyl Amyl Ketone | 43 | 8.444 | 8.444 | (1.091) | 2533739 | 200.000 | 213.03 |
| 196 | 2-Methylpentane | 43 | 2.449 | 2.449 | (0.566) | 1640045 | 200.000 | 196.18 |
| 197 | 3-Methylpentane | 57 | 2.671 | 2.671 | (0.618) | 1843974 | 200.000 | 197.94 |
| 198 | Methylcyclopentane | 56 | 3.530 | 3.530 | (0.816) | 3278980 | 200.000 | 220.89(A) |
| 199 | 1-Hexene | 56 | 2.843 | 2.843 | (0.657) | 817552 | 200.000 | 202.27(A) |
| 200 | Dimethyl Disulfide | 94 | 6.288 | 6.288 | (0.812) | 2021411 | 200.000 | 187.35 |
| 201 | 1-Butene | 41 | 1.360 | 1.360 | (0.314) | 661507 | 200.000 | 193.88(TA) |
| M 94 | 1,2-Dichloroethylene (total) | 96 | | | | 1915746 | 400.000 | (a) |
| M 95 | Xylenes (total) | 106 | | | | 4246681 | 600.000 | (a) |

## QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.




Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101011.D
Date : 10-OCT-2017 14:47
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: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101013.D
Report Date: 11-Jan-2018 18:10

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101013.D
Lab Smp Id: VSTD-ICV Client Smp ID: VSTD-ICV
Inj Date : 10-OCT-2017 17:23
Operator : PC Inst ID: voa6.i
Smp Info : VSTD-ICV;VSTD-ICV;2;;ICV
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\8260W.m
Meth Date : 11-Jan-2018 18:09 Priyanka.R Quant Type: ISTD
Cal Date : 10-OCT-2017 13:08 Cal File: X101007.D
Als bottle: 19 QC Sample: METHSPIKE
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0000_KelsoNEW.sub
Target Version: 4.14

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 | 4.326 | 4.325 | (1.000) | 370293 | 50.0000 | |
| 2 Dichlorodifluoromethane | 85 | 1.081 | 1.081 | (0.250) | 213029 | 45.0132 | 45.01 |
| 3 Chloromethane | 50 | 1.188 | 1.188 | (0.275) | 361661 | 48.1487 | 48.14 |
| 4 Propionitrile | 54 | 3.810 | 3.817 | (0.881) | 350485 | 467.083 | 467.08 |
| 5 Vinyl Chloride | 62 | 1.260 | 1.260 | (0.291) | 297435 | 46.9069 | 46.90 |
| 6 Bromomethane | 94 | 1.460 | 1.453 | (0.338) | 181883 | 50.6425 | 50.64 |
| 7 Chloroethane | 64 | 1.525 | 1.525 | (0.353) | 170116 | 44.2763 | 44.27 |
| 8 Trichlorofluoromethane | 101 | 1.690 | 1.689 | (0.391) | 283021 | 45.6089 | 45.60 |
| 9 Acrolein | 56 | 1.998 | 1.997 | (0.462) | 57623 | 100.188 | 100.18 |
| 10 Acetone | 43 | 2.112 | 2.112 | (0.488) | 127869 | 97.6987 | 97.69 |
| 11 1,1-Dichloroethene | 96 | 2.055 | 2.055 | (0.475) | 195702 | 45.6335 | 45.63 |
| 12 Isobutyl Alcohol | 43 | 4.798 | 4.805 | (1.109) | 808867 | 946.827 | 946.82 |
| 13 Acetonitrile | 39 | 2.341 | 2.341 | (0.541) | 328661 | 594.162 | 594.16(M) |
| 14 Allyl Chloride | 41 | 2.341 | 2.341 | (0.541) | 757759 | 48.6303 | 48.63 |
| 15 Iodomethane | 142 | 2.170 | 2.169 | (0.502) | 400192 | 89.4286 | 89.42 |
| 16 Acrylonitrile | 53 | 2.685 | 2.685 | (0.621) | 191276 | 95.3546 | 95.35 |
| 17 Methylene Chloride | 84 | 2.449 | 2.449 | (0.566) | 257738 | 45.2266 | 45.22 |
| 18 Methyl tert-butyl ether | 73 | 2.685 | 2.685 | (0.621) | 714587 | 45.7166 | 45.71 |
| 19 Carbon Disulfide | 76 | 2.212 | 2.212 | (0.512) | 1244761 | 91.1516 | 91.15 |
| 20 trans-1,2-Dichloroethene | 96 | 2.678 | 2.678 | (0.619) | 229881 | 45.9521 | 45.95 |
| 21 Vinyl Acetate | 43 | 2.922 | 2.922 | (0.675) | 127387 | 85.9511 | 85.95 |
| 22 1,1-Dichloroethane | 63 | 3.072 | 3.079 | (0.710) | 452146 | 46.4912 | 46.49 |
| 23 Chloroprene | 53 | 1.904 | 1.904 | (0.440) | 190400 | 47.5112 | 47.51(M) |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101013.D
Report Date: 11-Jan-2018 18:10

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| | 24 2-Butanone | 43 | 3.731 | 3.731 | (0.863) | 218264 | 99.6950 | 99.69 |
| | 25 Methacrylonitrile | 41 | 3.975 | 3.982 | (0.919) | 261654 | 45.9510 | 45.95 |
| | 26 2,2-Dichloropropane | 77 | 3.667 | 3.666 | (0.848) | 352219 | 46.4903 | 46.49 |
| | 27 cis-1,2-Dichloroethene | 96 | 3.681 | 3.688 | (0.851) | 261819 | 47.1443 | 47.14 |
| | 28 Chloroform | 83 | 4.068 | 4.068 | (0.940) | 418362 | 46.2859 | 46.28 |
| | 29 Bromochloromethane | 128 | 3.953 | 3.960 | (0.914) | 110435 | 44.6444 | 44.64 |
| $ | 30 Dibromofluoromethane | 113 | 4.254 | 4.254 | (0.983) | 255845 | 48.0784 | 48.07(R) |
| | 31 1,1,1-Trichloroethane | 97 | 4.232 | 4.240 | (0.978) | 330194 | 45.4590 | 45.45 |
| | 32 1,1-Dichloropropene | 75 | 4.426 | 4.426 | (0.870) | 316212 | 46.7557 | 46.75 |
| | 33 1,2-Dichloroethane | 62 | 4.691 | 4.691 | (0.923) | 322761 | 46.4249 | 46.42 |
| | 34 Carbon Tetrachloride | 117 | 4.412 | 4.411 | (0.868) | 264433 | 46.4233 | 46.42 |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 4.612 | 4.612 | (1.066) | 312036 | 46.6210 | 46.62(R) |
| * | 36 1,4-Difluorobenzene | 114 | 5.085 | 5.085 | (1.000) | 622750 | 50.0000 | |
| | 37 Benzene | 78 | 4.648 | 4.648 | (0.914) | 970233 | 47.5242 | 47.52 |
| | 38 Trichloroethene | 130 | 5.321 | 5.321 | (1.046) | 229755 | 45.8450 | 45.84 |
| | 39 Bromodichloromethane | 83 | 5.830 | 5.830 | (1.146) | 332363 | 47.0953 | 47.09 |
| | 40 Methyl Methacrylate | 41 | 5.701 | 5.701 | (1.318) | 267746 | 46.3961 | 46.39 |
| | 41 2-Chloroethylvinyl ether | 63 | 6.138 | 6.138 | (1.207) | 247401 | 93.0377 | 93.03 |
| | 42 1,2-Dichloropropane | 63 | 5.543 | 5.543 | (1.090) | 270039 | 46.8970 | 46.89 |
| | 43 2-Nitropropane | 43 | 6.059 | 6.066 | (1.401) | 89585 | 47.5495 | 47.54 |
| | 44 Dibromomethane | 93 | 5.658 | 5.658 | (1.113) | 154779 | 46.9112 | 46.91 |
| | 45 4-Methyl-2-Pentanone | 43 | 6.410 | 6.410 | (0.828) | 494701 | 90.8977 | 90.89 |
| | 46 cis-1,3-Dichloropropene | 75 | 6.245 | 6.245 | (1.228) | 423935 | 47.0320 | 47.03 |
| * | 47 Chlorobenzene-d5 | 117 | 7.742 | 7.742 | (1.000) | 624694 | 50.0000 | |
| $ | 48 Toluene-d8 | 98 | 6.474 | 6.474 | (0.836) | 958829 | 49.6020 | 49.60(R) |
| | 49 Ethyl Methacrylate | 69 | 6.861 | 6.868 | (1.349) | 380245 | 44.2583 | 44.25 |
| | 50 Toluene | 91 | 6.532 | 6.532 | (0.844) | 953124 | 47.4533 | 47.45 |
| | 51 trans-1,3-Dichloropropene | 75 | 6.761 | 6.761 | (1.330) | 359920 | 46.6576 | 46.65 |
| | 52 2-Hexanone | 43 | 7.284 | 7.284 | (0.941) | 472262 | 92.2587 | 92.25 |
| | 53 1,1,2-Trichloroethane | 83 | 6.919 | 6.926 | (0.894) | 186329 | 46.2126 | 46.21 |
| | 54 1,3-Dichloropropane | 76 | 7.062 | 7.062 | (0.912) | 392974 | 45.9397 | 45.93 |
| | 55 Dibromochloromethane | 129 | 7.255 | 7.255 | (0.937) | 247866 | 46.9731 | 46.97 |
| | 56 Tetrachloroethene | 164 | 7.012 | 7.012 | (0.906) | 154761 | 46.1570 | 46.15 |
| | 57 1,2-Dibromoethane | 107 | 7.341 | 7.341 | (0.948) | 223641 | 47.4961 | 47.49 |
| | 58 1-Chlorohexane | 55 | 7.764 | 7.764 | (1.527) | 183886 | 46.8105 | 46.81 |
| | 59 Chlorobenzene | 112 | 7.764 | 7.771 | (1.003) | 591722 | 46.7138 | 46.71 |
| | 60 1,1,1,2-Tetrachloroethane | 131 | 7.850 | 7.850 | (1.014) | 211205 | 45.8657 | 45.86 |
| | 61 Ethylbenzene | 106 | 7.871 | 7.871 | (1.017) | 296509 | 46.5265 | 46.52 |
| | 62 m,p-Xylenes | 106 | 7.972 | 7.971 | (1.030) | 708897 | 93.0492 | 93.04 |
| | 63 o-Xylene | 106 | 8.308 | 8.308 | (1.073) | 353135 | 45.7666 | 45.76 |
| | 64 Styrene | 104 | 8.323 | 8.330 | (1.075) | 650153 | 46.9398 | 46.93 |
| | 66 Bromoform | 173 | 8.480 | 8.480 | (1.095) | 159876 | 45.9304 | 45.93 |
| | 67 Isopropylbenzene | 105 | 8.623 | 8.630 | (1.114) | 704708 | 45.9122 | 45.91 |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 8.903 | 8.903 | (0.915) | 267608 | 49.8685 | 49.86 |
| $ | 69 4-Bromofluorobenzene | 95 | 8.752 | 8.752 | (1.130) | 325748 | 47.3203 | 47.32(R) |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 9.727 | 9.726 | (1.000) | 303011 | 50.0000 | |
| | 71 1,2,3-Trichloropropane | 75 | 8.931 | 8.931 | (0.918) | 252976 | 47.7206 | 47.72(M) |
| | 72 trans-1,4-Dichloro-2-butene | 53 | 8.953 | 8.953 | (1.156) | 86719 | 47.1227 | 47.12 |
| | 73 n-Propylbenzene | 91 | 8.974 | 8.974 | (0.923) | 843896 | 45.2251 | 45.22 |
| | 74 Bromobenzene | 156 | 8.874 | 8.874 | (0.912) | 244977 | 47.5018 | 47.50 |
| | 75 1,3,5-Trimethylbenzene | 105 | 9.132 | 9.132 | (0.939) | 574137 | 45.8614 | 45.86 |
| | 76 2-Chlorotoluene | 91 | 9.039 | 9.039 | (0.929) | 579988 | 46.7166 | 46.71 |
| | 77 4-Chlorotoluene | 91 | 9.132 | 9.132 | (0.939) | 668490 | 45.9611 | 45.96 |
| | 78 tert-Butylbenzene | 119 | 9.397 | 9.397 | (0.966) | 408431 | 43.6405 | 43.64 |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101013.D
Report Date: 11-Jan-2018 18:10

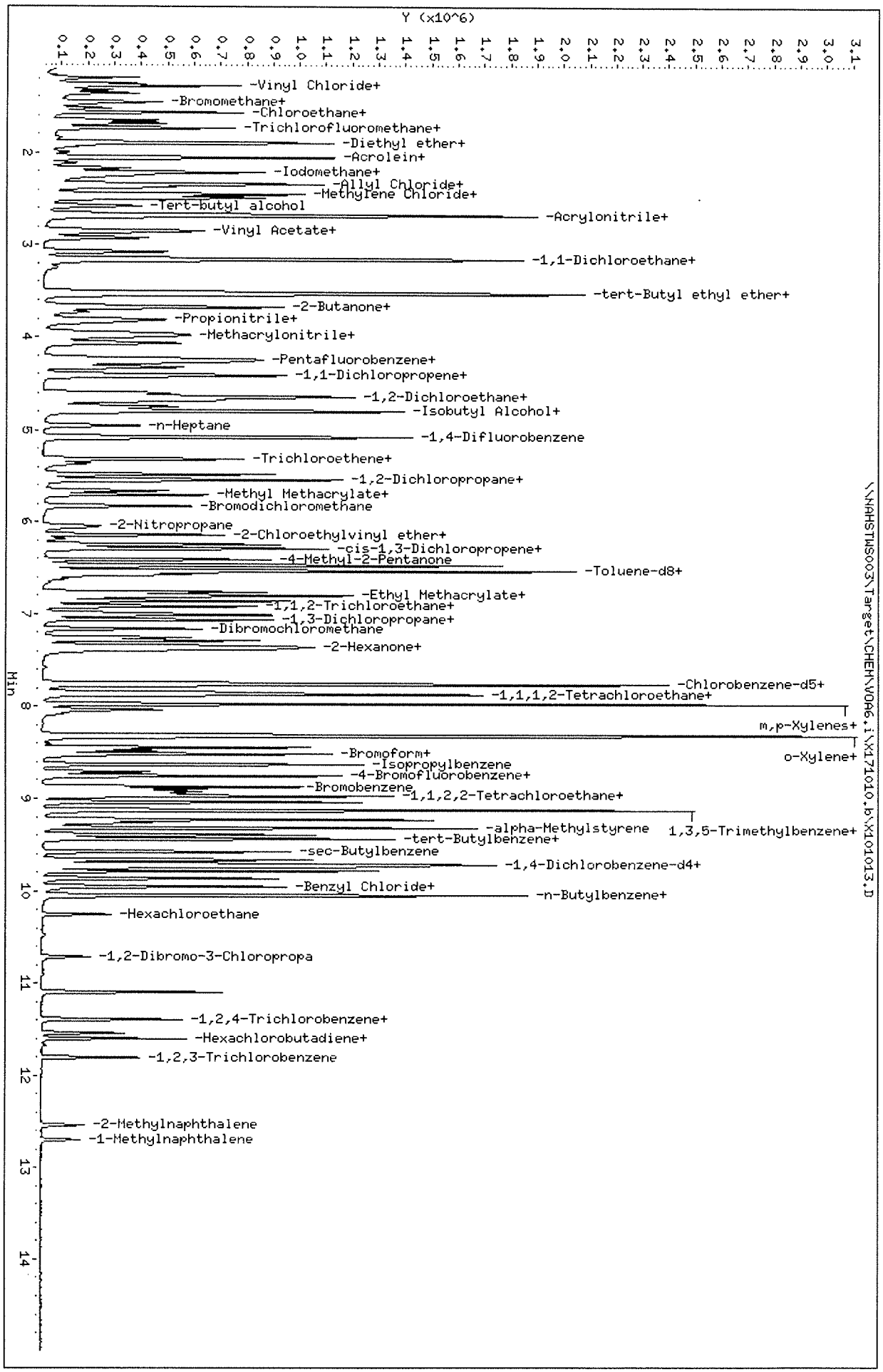
| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) | |
|---|---|---|---|---|---|---|---|---|---|
| 79 | 1,2,4-Trimethylbenzene | 105 | 9.440 | 9.440 | (0.971) | 611894 | 45.7169 | 45.71 | |
| 80 | Pentachloroethane | 167 | 9.411 | 9.411 | (1.216) | 3465 | | | (a) |
| 81 | sec-Butylbenzene | 105 | 9.583 | 9.583 | (0.985) | 541614 | 43.2532 | 43.25 | |
| 82 | p-Isopropyltoluene | 119 | 9.712 | 9.712 | (0.999) | 486474 | 44.8463 | 44.84 | |
| 83 | 1,3-Dichlorobenzene | 146 | 9.669 | 9.669 | (0.994) | 360182 | 46.2101 | 46.21 | |
| 84 | 1,4-Dichlorobenzene | 146 | 9.748 | 9.748 | (1.002) | 372094 | 45.3276 | 45.32 | |
| 86 | Benzyl Chloride | 91 | 9.870 | 9.870 | (1.275) | 532185 | 48.4695 | 48.46 | |
| 87 | n-Butylbenzene | 91 | 10.056 | 10.056 | (1.034) | 407779 | 45.8544 | 45.85 | |
| 88 | 1,2-Dichlorobenzene | 146 | 10.056 | 10.056 | (1.034) | 351056 | 46.3437 | 46.34 | |
| 89 | 1,2-Dibromo-3-Chloropropane | 155 | 10.715 | 10.715 | (1.102) | 33858 | 50.7719 | 50.77 | |
| 90 | 1,2,4-Trichlorobenzene | 180 | 11.396 | 11.395 | (1.172) | 139054 | 53.2072 | 53.20 | |
| 91 | Hexachlorobutadiene | 225 | 11.539 | 11.539 | (1.186) | 50463 | 47.1479 | 47.14 | |
| 92 | Naphthalene | 128 | 11.603 | 11.603 | (1.193) | 360854 | 50.8950 | 50.89 | |
| 93 | 1,2,3-Trichlorobenzene | 180 | 11.804 | 11.804 | (1.214) | 103709 | 55.0826 | 55.08 | |
| 130 | Ethyl Acetate | 43 | 4.798 | 4.805 | (1.109) | 808867 | 47.3414 | 47.34 | |
| 131 | Methyl Acrylate | 55 | 3.838 | 3.838 | (0.887) | 300660 | 45.6143 | 45.61 | |
| 132 | n-Butanol | 56 | 5.364 | 5.357 | (1.240) | 108536 | 910.424 | 910.42 | |
| 133 | Ethyl Acrylate | 55 | 5.486 | 5.486 | (1.268) | 536127 | 47.1695 | 47.16 | |
| 134 | Cyclohexanone | 55 | 8.709 | 8.709 | (0.895) | 152831 | 992.591 | 992.59 | |
| 135 | 1,4-Dioxane | 88 | 5.701 | 5.701 | (1.318) | 39221 | 920.266 | 920.26 | |
| 136 | n-Hexane | 57 | 2.922 | 2.922 | (0.675) | 180730 | 43.5529 | 43.55 | |
| 137 | n-Pentane | 43 | 1.740 | 1.732 | (0.402) | 315789 | 45.0712 | 45.07 | |
| 138 | Freon TF | 101 | 2.055 | 2.055 | (0.475) | 157690 | 44.6267 | 44.62 | |
| 146 | Methyl Acetate | 43 | 2.370 | 2.377 | (0.548) | 401668 | 49.2236 | 49.22 | |
| 147 | Methylcyclohexane | 83 | 5.479 | 5.479 | (1.077) | 191141 | 49.2813 | 49.28 | |
| 149 | Isopropyl alcohol | 45 | 2.241 | 2.241 | (0.518) | 275734 | 964.628 | 964.62 | |
| 152 | Amyl alcohol | 42 | 6.990 | 6.976 | (0.903) | 136476 | 870.506 | 870.50 | |
| 150 | Allyl alcohol | 57 | 2.922 | 2.922 | (0.675) | 180730 | 843.526 | 843.52 | |
| 151 | 4-Methyl-2-pentanol | 45 | 6.797 | 6.790 | (1.337) | 1111465 | 841.937 | 841.93 | |
| 148 | Tert-butyl alcohol | 59 | 2.578 | 2.578 | (0.596) | 403775 | 938.508 | 938.50 | |
| 139 | Diethyl ether | 59 | 1.890 | 1.890 | (0.437) | 212186 | 46.0067 | 46.00 | |
| 140 | 1,3-Butadiene | 54 | 1.281 | 1.281 | (0.296) | 259672 | 47.2682 | 47.26 | |
| 141 | Cyclohexane | 56 | 4.275 | 4.275 | (0.988) | 309693 | 45.1481 | 45.14 | |
| 142 | Tetrahydrofuran | 42 | 4.003 | 4.003 | (0.925) | 92529 | 92.1355 | 92.13 | |
| 145 | alpha-Methylstyrene | 118 | 9.318 | 9.325 | (0.958) | 403464 | 46.7474 | 46.74 | |
| 155 | 2-Pentanone | 43 | 5.550 | 5.550 | (1.283) | 380162 | 99.4857 | 99.48 | |
| 156 | Diisopropyl ether | 45 | 3.151 | 3.151 | (0.728) | 950103 | 46.7000 | 46.69 | |
| 157 | n-Heptane | 43 | 4.949 | 4.956 | (1.144) | 169822 | 48.5779 | 48.57 | |
| 158 | Dichlorofluoromethane | 67 | 1.654 | 1.654 | (0.382) | 403842 | 48.3919 | 48.39 | |
| 159 | Propylene oxide | 43 | 2.112 | 2.112 | (0.488) | 127869 | 97.7561 | 97.75 | |
| 160 | 2-Methylnaphthalene | 142 | 12.542 | 12.541 | (1.289) | 66553 | 61.8927 | 61.89 | |
| 161 | 3-Methyl-1-butanol | 55 | 6.990 | 6.976 | (0.903) | 114427 | 893.944 | 893.94 | |
| 162 | Butyl acrylate | 55 | 8.315 | 8.315 | (1.074) | 586342 | 46.8064 | 46.80 | |
| 166 | 1,2,3-Trimethylbenzene | 105 | 9.791 | 9.791 | (1.007) | 598954 | 47.2770 | 47.27 | |
| 167 | Ethanol | 45 | 1.840 | 1.840 | (0.425) | 38646 | 963.408 | 963.40 | |
| 170 | 1,3,5-Trichlorobenzene | 180 | 11.396 | 11.395 | (1.172) | 139054 | | | (a) |
| 172 | tert-Butyl formate | 59 | 4.748 | 4.748 | (1.098) | 342966 | 95.0142 | 95.01 | |
| 173 | 3,3-Dimethyl-1-butanol | 57 | 7.384 | 7.363 | (0.954) | 410562 | 984.322 | 984.32 | |
| 174 | tert-Amyl methyl ether | 73 | 4.791 | 4.798 | (1.108) | 957459 | 58.7161 | 58.71 | |
| 175 | tert-Butyl ethyl ether | 59 | 3.530 | 3.530 | (0.816) | 850091 | 46.0544 | 46.05 | |
| 176 | tert-Amyl alcohol | 59 | 4.748 | 4.748 | (1.098) | 342966 | 944.558 | 944.55 | |
| 178 | Ethylene oxide | 44 | 1.453 | 1.446 | (0.336) | 130838 | 104.447 | 104.44 | |
| 179 | Hexachloroethane | 166 | 10.257 | 10.256 | (1.054) | 22414 | 47.0977 | 47.09 | |
| 180 | 1-Methylnaphthalene | 142 | 12.692 | 12.692 | (1.305) | 57932 | 69.8007 | 69.80 | |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101013.D
Report Date: 11-Jan-2018 18:10

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 181 | 2-Furfural | 96 | 8.036 | 8.036 | (1.038) | 236804 | 1939.28 | 1939.28 |
| 182 | Epichlorohydrin | 57 | 6.188 | 6.188 | (1.217) | 60378 | 182.625 | 182.62 |
| 183 | 2-Methylpropane | 43 | 1.568 | 1.568 | (0.363) | 208055 | 44.1971 | 44.19 |
| 184 | Cyclopentane | 42 | 2.485 | 2.485 | (0.574) | 658783 | 57.0179 | 57.01 |
| 185 | Isoprene | 39 | 1.904 | 1.904 | (0.440) | 143049 | 45.6383 | 45.63 |
| 186 | Isopentane | 42 | 1.568 | 1.561 | (0.363) | 182298 | 45.1157 | 45.11 |
| 187 | n-Amyl acetate | 43 | 8.516 | 8.516 | (1.100) | 524967 | 46.0094 | 46.00 |
| 188 | Isopropyl acetate | 43 | 4.798 | 4.805 | (0.944) | 804931 | 47.1696 | 47.16 |
| 189 | n-Butyl acetate | 43 | 7.356 | 7.348 | (0.950) | 191869 | 40.9493 | 40.94 |
| 190 | Propanal | 58 | 2.041 | 2.040 | (0.472) | 141425 | 109.193 | 109.19 |
| 191 | n-Buteraldehyde | 44 | 3.516 | 3.516 | (0.813) | 197385 | | (a) |
| 193 | 2-Ethyl-1-hexanol | 57 | 9.956 | 9.956 | (1.024) | 342623 | 960.521 | 960.52(M) |
| 194 | Acetaldehyde | 44 | 1.324 | 1.324 | (0.306) | 135700 | 202.558 | 202.55(A) |
| 195 | Methyl Amyl Ketone | 43 | 8.444 | 8.444 | (1.091) | 558940 | 47.1894 | 47.18 |
| 196 | 2-Methylpentane | 43 | 2.449 | 2.449 | (0.566) | 318587 | 44.3995 | 44.39 |
| 197 | 3-Methylpentane | 57 | 2.671 | 2.671 | (0.618) | 415285 | 43.5676 | 43.56 |
| 198 | Methylcyclopentane | 56 | 3.530 | 3.530 | (0.816) | 705711 | 46.4639 | 46.46 |
| 199 | 1-Hexene | 56 | 2.843 | 2.843 | (0.657) | 182966 | 44.2409 | 44.24 |
| 200 | Dimethyl Disulfide | 94 | 6.288 | 6.288 | (0.812) | 498573 | 46.4019 | 46.40 |
| 201 | 1-Butene | 41 | 1.360 | 1.360 | (0.315) | 175364 | 50.2335 | 50.23(TA) |
| M 94 | 1,2-Dichloroethylene (total) | 96 | | | | 491700 | 93.0964 | 93.09(R) |
| M 95 | Xylenes (total) | 106 | | | | 1062032 | 138.816 | 138.81 |

## QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
A - Target compound detected but, quantitated amount
    exceeded maximum amount.
R - Spike/Surrogate failed recovery limits.
M - Compound response manually integrated.


Y (x10^6)
0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3 2.4 2.5 2.6 2.7 2.8 2.9 3.0 3.1
Min
2
3
4
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9
10
11
12
13
14
-Vinyl Chloride+
-Bromomethane+
-Chloroethane+
-Trichlorofluoromethane+
-Diethyl ether+
-Acrolein+
-Iodomethane+
-Allyl Chloride+
-Methylene Chloride+
-Tert-butyl alcohol
-Acrylonitrile+
-Vinyl Acetate+
-1,1-Dichloroethane+
-tert-Butyl ethyl ether+
-2-Butanone+
-Propionitrile+
-Methacrylonitrile+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-Isobutyl Alcohol+
-n-Heptane
-1,4-Difluorobenzene
-Trichloroethene+
-1,2-Dichloropropane+
-Methyl Methacrylate+
-Bromodichloromethane
-2-Nitropropane
-2-Chloroethylvinyl ether+
-cis-1,3-Dichloropropene+
-4-Methyl-2-Pentanone
-Toluene-d8+
-Ethyl Methacrylate+
-1,1,2-Trichloroethane+
-1,3-Dichloropropane+
-Dibromochloromethane
-2-Hexanone+
-Chlorobenzene-d5+
-1,1,1,2-Tetrachloroethane+
m,p-Xylenes+
o-Xylene+
-Bromoform+
-Isopropylbenzene
-4-Bromofluorobenzene+
-Bromobenzene
-1,1,2,2-Tetrachloroethane+
-alpha-Methylstyrene
1,3,5-Trimethylbenzene+
-tert-Butylbenzene+
-sec-Butylbenzene
-1,4-Dichlorobenzene-d4+
-Benzyl Chloride+
-n-Butylbenzene+
-Hexachloroethane
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene+
-Hexachlorobutadiene+
-1,2,3-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene
\\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101013.D
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171010.b\X101013.D
Date : 10-OCT-2017 17:23
Client ID: VSTD-ICV
Sample Info: VSTD-ICV;VSTD-ICV;2;;ICV
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18

# FORM 5
## VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
## BROMOFLUOROBENZENE (BFB)

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code:  Case No.:  SAS No.:  SDG No.: HS17110493

Lab File ID: X111601  BFB Injection Date: 11/16/17

Instrument ID: VOA6  BFB Injection Time: 1032

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 | 21.0 |
| 75 | 30.0 - 60.0% of mass 95 | 49.4 |
| 95 | Base Peak, 100% relative abundance | 100.0 |
| 96 | 5.0 - 9.0% of mass 95 | 6.3 |
| 173 | Less than 2.0% of mass 174 | 0.5 ( 0.8)1 |
| 174 | Greater than 50.0% of mass 95 | 70.3 |
| 175 | 5.0 - 9.0% of mass 174 | 5.3 ( 7.5)1 |
| 176 | 95.0 - 101.0% of mass 174 | 69.2 ( 98.4)1 |
| 177 | 5.0 - 9.0% of mass 176 | 4.5 ( 6.5)2 |

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

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

| | EPA SAMPLE NO. | LAB SAMPLE ID | LAB FILE ID | DATE ANALYZED | TIME ANALYZED |
|---|---|---|---|---|---|
| 01 | VSTD050 | VSTD050 | X111602 | 11/16/17 | 1057 |
| 02 | VLCSW-171116 | VLCSW-171116 | X111604 | 11/16/17 | 1147 |
| 03 | VBLKW-017111 | VBLKW-171116 | X111607 | 11/16/17 | 1301 |
| 04 | HS17110493-0 | HS17110493-02 | X111608 | 11/16/17 | 1326 |
| 05 | HS17110493-0 | HS17110493-01 | X111609 | 11/16/17 | 1351 |
| 06 | HS17110493-0 | HS17110493-01M | X111617 | 11/16/17 | 1710 |
| 07 | HS17110493-0 | HS17110493-01M | X111618 | 11/16/17 | 1735 |
| 08 | VSTD050-END | VSTD050-END | X111629 | 11/16/17 | 2209 |
| 09 | | | | | |
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FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code:  Case No.:  SAS No.:  SDG No.: HS17110493

Instrument ID: VOA6  Calibration Date: 11/16/17  Time: 1057

Lab File ID: X111602  Init. Calib. Date(s): 10/10/17  10/10/17

Init. Calib. Times:  1014  1447

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 |
|---|---|---|---|---|---|---|---|
| Dichlorodifluoromethane | 0.6390000 | 0.5898120 | 0.5898120 | 0.1 | 7.70 | 20.00 | AVRG |
| Chloromethane | 45.408101 | 50.000000 | 0.9207891 | 0.1 | 9.18 | 20.00 | LINR |
| Vinyl Chloride | 0.8560000 | 0.7686669 | 0.7686669 | 0.1 | 10.20 | 20.00 | AVRG |
| Bromomethane | 0.4850000 | 0.4550571 | 0.4550571 | 0.1 | 6.17 | 20.00 | AVRG |
| Chloroethane | 0.5190000 | 0.4414171 | 0.4414171 | 0.1 | 14.95 | 20.00 | AVRG |
| Trichlorofluoromethane | 0.8380000 | 0.7380289 | 0.7380289 | 0.1 | 11.93 | 20.00 | AVRG |
| Acetone | 98.041129 | 100.00000 | 0.1732455 | 0.1 | 1.96 | 20.00 | LINR |
| 1,1-Dichloroethene | 0.5790000 | 0.4920316 | 0.4920316 | 0.1 | 15.02 | 20.00 | AVRG |
| Methylene Chloride | 0.7690000 | 0.6583244 | 0.6583244 | 0.1 | 14.39 | 20.00 | AVRG |
| Carbon Disulfide | 1.8440000 | 1.6672146 | 1.6672146 | 0.1 | 9.59 | 20.00 | AVRG |
| trans-1,2-Dichloroethene | 0.6750000 | 0.5912122 | 0.5912122 | 0.1 | 12.41 | 20.00 | AVRG |
| 1,1-Dichloroethane | 1.3130000 | 1.1556111 | 1.1556111 | 0.2 | 11.99 | 20.00 | AVRG |
| 2-Butanone | 0.2960000 | 0.2758882 | 0.2758882 | 0.1 | 6.79 | 20.00 | AVRG |
| cis-1,2-Dichloroethene | 0.7500000 | 0.6583412 | 0.6583412 | 0.1 | 12.22 | 20.00 | AVRG |
| Chloroform | 1.2200000 | 1.0825588 | 1.0825588 | 0.2 | 11.26 | 20.00 | AVRG |
| 1,1,1-Trichloroethane | 0.9810000 | 0.8282740 | 0.8282740 | 0.1 | 15.57 | 20.00 | AVRG |
| 1,2-Dichloroethane | 0.5580000 | 0.4967524 | 0.4967524 | 0.1 | 10.98 | 20.00 | AVRG |
| Carbon Tetrachloride | 0.4570000 | 0.3877515 | 0.3877515 | 0.1 | 15.15 | 20.00 | AVRG |
| Benzene | 1.6390000 | 1.4228705 | 1.4228705 | 0.5 | 13.19 | 20.00 | AVRG |
| Trichloroethene | 0.4020000 | 0.3286596 | 0.3286596 | 0.2 | 18.24 | 20.00 | AVRG |
| Styrene | 1.1080000 | 1.0123494 | 1.0123494 | 0.3 | 8.63 | 20.00 | AVRG |
| Bromodichloromethane | 0.5660000 | 0.5014404 | 0.5014404 | 0.2 | 11.41 | 20.00 | AVRG |
| 1,2-Dichloropropane | 0.4620000 | 0.3988762 | 0.3988762 | 0.1 | 13.66 | 20.00 | AVRG |
| 4-Methyl-2-Pentanone | 0.4360000 | 0.4010011 | 0.4010011 | 0.1 | 8.03 | 20.00 | AVRG |
| cis-1,3-Dichloropropene | 0.7240000 | 0.6205472 | 0.6205472 | 0.2 | 14.29 | 20.00 | AVRG |
| Toluene | 1.6080000 | 1.4939614 | 1.4939614 | 0.4 | 7.09 | 20.00 | AVRG |
| trans-1,3-Dichloropropene | 0.6190000 | 0.5263090 | 0.5263090 | 0.1 | 14.97 | 20.00 | AVRG |
| 2-Hexanone | 0.4090000 | 0.3782731 | 0.3782731 | 0.1 | 7.51 | 20.00 | AVRG |
| 1,1,2-Trichloroethane | 0.3230000 | 0.3059532 | 0.3059532 | 0.1 | 5.28 | 20.00 | AVRG |
| Dibromochloromethane | 0.4220000 | 0.3926027 | 0.3926027 | 0.1 | 6.97 | 20.00 | AVRG |
| Tetrachloroethene | 0.2680000 | 0.2220821 | 0.2220821 | 0.2 | 17.13 | 20.00 | AVRG |
| 1,2-Dibromoethane | 0.3770000 | 0.3593090 | 0.3593090 | 0.1 | 4.69 | 20.00 | AVRG |
| Chlorobenzene | 1.0140000 | 0.9202639 | 0.9202639 | 0.5 | 9.24 | 20.00 | AVRG |
| Ethylbenzene | 0.5100000 | 0.4550680 | 0.4550680 | 0.1 | 10.77 | 20.00 | AVRG |
| m,p-Xylenes | 0.6100000 | 0.5420939 | 0.5420939 | 0.1 | 11.13 | 20.00 | AVRG |
| o-Xylene | 0.6180000 | 0.5474299 | 0.5474299 | 0.3 | 11.42 | 20.00 | AVRG |
| Bromoform | 0.2780000 | 0.2456350 | 0.2456350 | 0.1 | 11.64 | 20.00 | AVRG |
| Isopropylbenzene | 1.2280000 | 1.0787157 | 1.0787157 | 0.1 | 12.16 | 20.00 | AVRG |
| 1,1,2,2-Tetrachloroethane | 58.549982 | 50.000000 | 1.0339438 | 0.3 | -17.10 | 20.00 | LINR |
| tert-Butylbenzene | 1.5440000 | 1.3906584 | 1.3906584 | 0.1 | 9.93 | 20.00 | AVRG |
| sec-Butylbenzene | 2.0660000 | 1.8979849 | 1.8979849 | 0.1 | 8.13 | 20.00 | AVRG |
| Bromobenzene | 0.8510000 | 0.8281986 | 0.8281986 | 0.1 | 2.68 | 20.00 | AVRG |

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code:  Case No.:  SAS No.:  SDG No.: HS1711049

Instrument ID: VOA6  Calibration Date: 11/16/17  Time: 1057

Lab File ID: X111602  Init. Calib. Date(s): 10/10/17  10/10/17

Init. Calib. Times:  1014  1447

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 |
|---|---|---|---|---|---|---|---|
| 1,1-Dichloropropene | 0.5430000 | 0.4625994 | 0.4625994 | 0.1 | 14.81 | 20.00 | AVRG |
| n-Butylbenzene | 1.4670000 | 1.4494732 | 1.4494732 | 0.5 | 1.19 | 20.00 | AVRG |
| 1,3-Dichlorobenzene | 1.2860000 | 1.2204610 | 1.2204610 | 0.6 | 5.10 | 20.00 | AVRG |
| n-Propylbenzene | 3.0790000 | 2.9828348 | 2.9828348 | 0.1 | 3.12 | 20.00 | AVRG |
| Bromochloromethane | 0.3340000 | 0.2848590 | 0.2848590 | 0.1 | 14.71 | 20.00 | AVRG |
| Hexachlorobutadiene | 45.239657 | 50.000000 | 0.1597090 | 0.1 | 9.52 | 20.00 | LINR |
| Naphthalene | 56.644448 | 50.000000 | 1.3337762 | 0.2 | -13.29 | 20.00 | LINR |
| p-Isopropyltoluene | 1.7900000 | 1.6372126 | 1.6372126 | 0.1 | 8.54 | 20.00 | AVRG |
| Xylenes (total) | 0.6170000 | 0.4993084 | 0.4993084 | 0.1 | 19.07 | 20.00 | AVRG |
| 1,2,3-Trichloropropane | 0.8750000 | 0.9614714 | 0.9614714 | 0.1 | -9.88 | 20.00 | AVRG |
| 1,2,3-Trichlorobenzene | 0.3110000 | 0.3667248 | 0.3667248 | 0.1 | -17.92 | 20.00 | AVRG |
| 1,2,4-Trimethylbenzene | 2.2080000 | 2.1272821 | 2.1272821 | 0.1 | 3.66 | 20.00 | AVRG |
| 1,3,5-Trimethylbenzene | 2.0660000 | 1.9950046 | 1.9950046 | 0.1 | 3.44 | 20.00 | AVRG |
| 2,2-Dichloropropane | 1.0230000 | 0.8853929 | 0.8853929 | 0.1 | 13.45 | 20.00 | AVRG |
| 1,3-Dichloropropane | 0.6850000 | 0.6447834 | 0.6447834 | 0.1 | 5.87 | 20.00 | AVRG |
| 2-Chlorotoluene | 2.0480000 | 2.0637957 | 2.0637957 | 0.1 | -0.77 | 20.00 | AVRG |
| 4-Chlorotoluene | 2.4000000 | 2.3911657 | 2.3911657 | 0.1 | 0.37 | 20.00 | AVRG |
| Dibromomethane | 0.2650000 | 0.2424196 | 0.2424196 | 0.1 | 8.52 | 20.00 | AVRG |
| 1,4-Dichlorobenzene | 1.3540000 | 1.2736619 | 1.2736619 | 0.4 | 5.93 | 20.00 | AVRG |
| 1,1,1,2-Tetrachloroethane | 0.3680000 | 0.3321655 | 0.3321655 | 0.1 | 9.74 | 20.00 | AVRG |
| 1,2-Dichlorobenzene | 1.2500000 | 1.2085570 | 1.2085570 | 0.4 | 3.32 | 20.00 | AVRG |
| 1,2-Dibromo-3-Chloropropane | 53.910745 | 50.000000 | 0.1186585 | 0.05 | -7.82 | 20.00 | LINR |
| 1,2,4-Trichlorobenzene | 0.4310000 | 0.4601356 | 0.4601356 | 0.2 | -6.76 | 20.00 | AVRG |
| Toluene-d8 | 51.117157 | 50.000000 | 1.5835489 | 0.1 | -2.23 | 20.00 | 2RDR |
| 4-Bromofluorobenzene | 50.158745 | 50.000000 | 0.5535652 | 0.1 | -0.32 | 20.00 | 2RDR |
| Dibromofluoromethane | 46.410283 | 50.000000 | 0.6662492 | 0.1 | 7.18 | 20.00 | 2RDR |



FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code:  Case No.:  SAS No.:  SDG No.: HS17110493

Instrument ID: VOA6  Calibration Date: 11/16/17  Time: 2209

Lab File ID: X111629  Init. Calib. Date(s): 10/10/17  10/10/17

Init. Calib. Times:  1014  1447

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 | |
|---|---|---|---|---|---|---|---|---|
| Dichlorodifluoromethane | 0.6390000 | 0.5172558 | 0.5172558 | 0.1 | 19.05 | 20.00 | AVRG | |
| Chloromethane | 41.402511 | 50.000000 | 0.8390887 | 0.1 | 17.19 | 20.00 | LINR | |
| Vinyl Chloride | 0.8560000 | 0.7210205 | 0.7210205 | 0.1 | 15.77 | 20.00 | AVRG | |
| Bromomethane | 0.4850000 | 0.3994607 | 0.3994607 | 0.1 | 17.64 | 20.00 | AVRG | |
| Chloroethane | 0.5190000 | 0.4315593 | 0.4315593 | 0.1 | 16.85 | 20.00 | AVRG | |
| Trichlorofluoromethane | 0.8380000 | 0.6435483 | 0.6435483 | 0.1 | 23.20 | 20.00 | AVRG | <- |
| Acetone | 96.189998 | 100.00000 | 0.1700759 | 0.1 | 3.81 | 20.00 | LINR | |
| 1,1-Dichloroethene | 0.5790000 | 0.4822844 | 0.4822844 | 0.1 | 16.70 | 20.00 | AVRG | |
| Methylene Chloride | 0.7690000 | 0.6656561 | 0.6656561 | 0.1 | 13.44 | 20.00 | AVRG | |
| Carbon Disulfide | 1.8440000 | 1.6026861 | 1.6026861 | 0.1 | 13.09 | 20.00 | AVRG | |
| trans-1,2-Dichloroethene | 0.6750000 | 0.5811730 | 0.5811730 | 0.1 | 13.90 | 20.00 | AVRG | |
| 1,1-Dichloroethane | 1.3130000 | 1.1334486 | 1.1334486 | 0.2 | 13.67 | 20.00 | AVRG | |
| 2-Butanone | 0.2960000 | 0.2642041 | 0.2642041 | 0.1 | 10.74 | 20.00 | AVRG | |
| cis-1,2-Dichloroethene | 0.7500000 | 0.6654901 | 0.6654901 | 0.1 | 11.27 | 20.00 | AVRG | |
| Chloroform | 1.2200000 | 1.0893333 | 1.0893333 | 0.2 | 10.71 | 20.00 | AVRG | |
| 1,1,1-Trichloroethane | 0.9810000 | 0.7988661 | 0.7988661 | 0.1 | 18.57 | 20.00 | AVRG | |
| 1,2-Dichloroethane | 0.5580000 | 0.4982727 | 0.4982727 | 0.1 | 10.70 | 20.00 | AVRG | |
| Carbon Tetrachloride | 0.4570000 | 0.3558287 | 0.3558287 | 0.1 | 22.14 | 20.00 | AVRG | <- |
| Benzene | 1.6390000 | 1.3844835 | 1.3844835 | 0.5 | 15.53 | 20.00 | AVRG | |
| Trichloroethene | 0.4020000 | 0.3179156 | 0.3179156 | 0.2 | 20.92 | 20.00 | AVRG | <- |
| Styrene | 1.1080000 | 0.9990342 | 0.9990342 | 0.3 | 9.83 | 20.00 | AVRG | |
| Bromodichloromethane | 0.5660000 | 0.4853363 | 0.4853363 | 0.2 | 14.25 | 20.00 | AVRG | |
| 1,2-Dichloropropane | 0.4620000 | 0.3939413 | 0.3939413 | 0.1 | 14.73 | 20.00 | AVRG | |
| 4-Methyl-2-Pentanone | 0.4360000 | 0.3839050 | 0.3839050 | 0.1 | 11.95 | 20.00 | AVRG | |
| cis-1,3-Dichloropropene | 0.7240000 | 0.5910846 | 0.5910846 | 0.2 | 18.36 | 20.00 | AVRG | |
| Toluene | 1.6080000 | 1.4830398 | 1.4830398 | 0.4 | 7.77 | 20.00 | AVRG | |
| trans-1,3-Dichloropropene | 0.6190000 | 0.4972628 | 0.4972628 | 0.1 | 19.67 | 20.00 | AVRG | |
| 2-Hexanone | 0.4090000 | 0.3574323 | 0.3574323 | 0.1 | 12.61 | 20.00 | AVRG | |
| 1,1,2-Trichloroethane | 0.3230000 | 0.3019449 | 0.3019449 | 0.1 | 6.52 | 20.00 | AVRG | |
| Dibromochloromethane | 0.4220000 | 0.3949398 | 0.3949398 | 0.1 | 6.41 | 20.00 | AVRG | |
| Tetrachloroethene | 0.2680000 | 0.2154487 | 0.2154487 | 0.2 | 19.61 | 20.00 | AVRG | |
| 1,2-Dibromoethane | 0.3770000 | 0.3537353 | 0.3537353 | 0.1 | 6.17 | 20.00 | AVRG | |
| Chlorobenzene | 1.0140000 | 0.9136775 | 0.9136775 | 0.5 | 9.89 | 20.00 | AVRG | |
| Ethylbenzene | 0.5100000 | 0.4501070 | 0.4501070 | 0.1 | 11.74 | 20.00 | AVRG | |
| m,p-Xylenes | 0.6100000 | 0.5354098 | 0.5354098 | 0.1 | 12.23 | 20.00 | AVRG | |
| o-Xylene | 0.6180000 | 0.5455569 | 0.5455569 | 0.3 | 11.72 | 20.00 | AVRG | |
| Bromoform | 0.2780000 | 0.2403693 | 0.2403693 | 0.1 | 13.54 | 20.00 | AVRG | |
| Isopropylbenzene | 1.2280000 | 1.0508356 | 1.0508356 | 0.1 | 14.43 | 20.00 | AVRG | |
| 1,1,2,2-Tetrachloroethane | 53.495903 | 50.000000 | 0.9461641 | 0.3 | -6.99 | 20.00 | LINR | |
| tert-Butylbenzene | 1.5440000 | 1.3071891 | 1.3071891 | 0.1 | 15.34 | 20.00 | AVRG | |
| sec-Butylbenzene | 2.0660000 | 1.7116141 | 1.7116141 | 0.1 | 17.15 | 20.00 | AVRG | |
| Bromobenzene | 0.8510000 | 0.7969911 | 0.7969911 | 0.1 | 6.35 | 20.00 | AVRG | |

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code:  Case No.:  SAS No.:  SDG No.: HS1711049

Instrument ID: VOA6  Calibration Date: 11/16/17  Time: 2209

Lab File ID: X111629  Init. Calib. Date(s): 10/10/17  10/10/17

Init. Calib. Times:  1014  1447

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 | |
|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloropropene | 0.5430000 | 0.4322556 | 0.4322556 | 0.1 | 20.39 | 20.00 | AVRG | <- |
| n-Butylbenzene | 1.4670000 | 1.2757937 | 1.2757937 | 0.5 | 13.03 | 20.00 | AVRG | |
| 1,3-Dichlorobenzene | 1.2860000 | 1.1575937 | 1.1575937 | 0.6 | 9.98 | 20.00 | AVRG | |
| n-Propylbenzene | 3.0790000 | 2.7723361 | 2.7723361 | 0.1 | 9.96 | 20.00 | AVRG | |
| Bromochloromethane | 0.3340000 | 0.2877465 | 0.2877465 | 0.1 | 13.85 | 20.00 | AVRG | |
| Hexachlorobutadiene | 33.368714 | 50.000000 | 0.1172240 | 0.1 | 33.26 | 20.00 | LINR | <- |
| Naphthalene | 41.490374 | 50.000000 | 0.9571780 | 0.2 | 17.02 | 20.00 | LINR | |
| p-Isopropyltoluene | 1.7900000 | 1.4756267 | 1.4756267 | 0.1 | 17.56 | 20.00 | AVRG | |
| Xylenes (total) | 0.6170000 | 0.4887869 | 0.4887869 | 0.1 | 20.78 | 20.00 | AVRG | <- |
| 1,2,3-Trichloropropane | 0.8750000 | 0.8677169 | 0.8677169 | 0.1 | 0.83 | 20.00 | AVRG | |
| 1,2,3-Trichlorobenzene | 0.3110000 | 0.2724770 | 0.2724770 | 0.1 | 12.39 | 20.00 | AVRG | |
| 1,2,4-Trimethylbenzene | 2.2080000 | 2.0309146 | 2.0309146 | 0.1 | 8.02 | 20.00 | AVRG | |
| 1,3,5-Trimethylbenzene | 2.0660000 | 1.8810520 | 1.8810520 | 0.1 | 8.95 | 20.00 | AVRG | |
| 2,2-Dichloropropane | 1.0230000 | 0.7668436 | 0.7668436 | 0.1 | 25.04 | 20.00 | AVRG | <- |
| 1,3-Dichloropropane | 0.6850000 | 0.6394405 | 0.6394405 | 0.1 | 6.65 | 20.00 | AVRG | |
| 2-Chlorotoluene | 2.0480000 | 1.9647925 | 1.9647925 | 0.1 | 4.06 | 20.00 | AVRG | |
| 4-Chlorotoluene | 2.4000000 | 2.3319898 | 2.3319898 | 0.1 | 2.83 | 20.00 | AVRG | |
| Dibromomethane | 0.2650000 | 0.2344118 | 0.2344118 | 0.1 | 11.54 | 20.00 | AVRG | |
| 1,4-Dichlorobenzene | 1.3540000 | 1.2165577 | 1.2165577 | 0.4 | 10.15 | 20.00 | AVRG | |
| 1,1,1,2-Tetrachloroethane | 0.3680000 | 0.3231631 | 0.3231631 | 0.1 | 12.18 | 20.00 | AVRG | |
| 1,2-Dichlorobenzene | 1.2500000 | 1.1389264 | 1.1389264 | 0.4 | 8.88 | 20.00 | AVRG | |
| 1,2-Dibromo-3-Chloropropane | 47.052690 | 50.000000 | 0.1035392 | 0.05 | 5.89 | 20.00 | LINR | |
| 1,2,4-Trichlorobenzene | 0.4310000 | 0.3740057 | 0.3740057 | 0.2 | 13.22 | 20.00 | AVRG | |
| Toluene-d8 | 51.817551 | 50.000000 | 1.6060898 | 0.1 | -3.64 | 20.00 | 2RDR | |
| 4-Bromofluorobenzene | 51.796362 | 50.000000 | 0.5721473 | 0.1 | -3.59 | 20.00 | 2RDR | |
| Dibromofluoromethane | 47.372994 | 50.000000 | 0.6804833 | 0.1 | 5.25 | 20.00 | 2RDR | |



FORM VII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code:  Case No.:  SAS No.:  SDG No.: HS17110493

Lab File ID (Standard): X111602  Date Analyzed: 11/16/17

Instrument ID: VOA6  Time Analyzed: 1057

GC Column: DB624  ID: 0.18 (mm)  Heated Purge: (Y/N) N

| | | IS1(CBZ) AREA # | RT # | IS2(DCB) AREA # | RT # | IS3(DFB) AREA # | RT # |
|---|---|---|---|---|---|---|---|
| | 12 HOUR STD | 470389 | 7.74 | 206989 | 9.73 | 512372 | 5.09 |
| | UPPER LIMIT | 940778 | 8.24 | 413978 | 10.23 | 1024744 | 5.59 |
| | LOWER LIMIT | 235195 | 7.24 | 103495 | 9.23 | 256186 | 4.59 |
| | CLIENT SAMPLE NO. | | | | | | |
| 01 | VLCSW-171116 | 467675 | 7.74 | 207970 | 9.73 | 513616 | 5.09 |
| 02 | VBLKW-0171116 | 475907 | 7.74 | 201667 | 9.73 | 514376 | 5.09 |
| 03 | HS17110493-02 | 480586 | 7.74 | 203387 | 9.73 | 518667 | 5.09 |
| 04 | HS17110493-01 | 471378 | 7.74 | 210539 | 9.73 | 521847 | 5.09 |
| 05 | HS17110493-01 | 468120 | 7.74 | 210575 | 9.73 | 510723 | 5.09 |
| 06 | HS17110493-01 | 464874 | 7.74 | 209841 | 9.73 | 501773 | 5.09 |
| 07 | | | | | | | |
| 08 | | | | | | | |
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IS1 (CBZ) = Chlorobenzene-d5
IS2 (DCB) = 1,4-Dichlorobenzene-d4
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: ALS LABORATORY GROUP  Contract:

Lab Code:  Case No.:  SAS No.:  SDG No.: HS17110493

Lab File ID (Standard): X111602  Date Analyzed: 11/16/17

Instrument ID: VOA6  Time Analyzed: 1057

GC Column: DB624  ID: 0.18 (mm)  Heated Purge: (Y/N) N

| | | IS4 AREA # | RT # | AREA # | RT # | AREA # | RT # |
|---|---|---|---|---|---|---|---|
| | 12 HOUR STD | 297800 | 4.33 | | | | |
| | UPPER LIMIT | 595600 | 4.83 | | | | |
| | LOWER LIMIT | 148900 | 3.83 | | | | |
| | CLIENT SAMPLE NO. | | | | | | |
| 01 | VLCSW-171116 | 298209 | 4.33 | | | | |
| 02 | VBLKW-0171116 | 296743 | 4.33 | | | | |
| 03 | HS17110493-02 | 299335 | 4.33 | | | | |
| 04 | HS17110493-01 | 300737 | 4.33 | | | | |
| 05 | HS17110493-01 | 294844 | 4.33 | | | | |
| 06 | HS17110493-01 | 293331 | 4.33 | | | | |
| 07 | | | | | | | |
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| 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

# MSVOA06 -Logbook

**Batch:** 29723 **Analyst:** Presenta Cabascango

**Date:** 11-16-2017 **Reviewer:**

**Method:** 8260 **Laboratory:** Houston

**Comments:**

| # | Samp ID | Type | Analyzed | DF | Init Wt/Vol | Final Vol | File ID | Matrix | Status | pH |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | BFB | TUNE | 11-16-2017 10:32 am | 1.00 | 50 mL | 50 mL | X111601.D | Liquid | Y | na |
| | *auto find/ purged* | | | | | | | | | |
| 2 | VSTD050 | CCV | 11-16-2017 10:57 am | 1.00 | 50 mL | 50 mL | X111602.D | Liquid | Y | na |
| | *10 uL cal std/50 mL DI* | | | | | | | | | |
| 3 | CCB | SAMP | 11-16-2017 11:22 am | 1.00 | 50 mL | 50 mL | X111603.D | Liquid | Y | na |
| 4 | VLCSW-171116 | LCS | 11-16-2017 11:47 am | 1.00 | 50 mL | 50 mL | X111604.D | Liquid | Y | na |
| | *10 uL cal std/50 mL DI* | | | | | | | | | |
| 5 | BLKW | SAMP | 11-16-2017 12:11 pm | 1.00 | 50 mL | 50 mL | X111605.D | Liquid | Y | na |
| 6 | BLKW | SAMP | 11-16-2017 12:36 pm | 1.00 | 50 mL | 50 mL | X111606.D | Liquid | Y | na |
| 7 | VBLKW-171116 | MBLK | 11-16-2017 01:01 pm | 1.00 | 50 mL | 50 mL | X111607.D | Liquid | Y | na |
| 8 | HS17110493-02 | SAMP | 11-16-2017 01:26 pm | 1.00 | 50 mL | 50 mL | X111608.D | Liquid | Y | <2 |
| 9 | HS17110493-01 | SAMP | 11-16-2017 01:51 pm | 1.00 | 50 mL | 50 mL | X111609.D | Liquid | Y | <2 |
| 10 | HS17110465-01 | SAMP | 11-16-2017 02:16 pm | 1.00 | 50 mL | 50 mL | X111610.D | Liquid | Y | <2 |
| 11 | HS17110465-02 | SAMP | 11-16-2017 02:41 pm | 1.00 | 50 mL | 50 mL | X111611.D | Liquid | Y | <2 |
| 12 | HS17110465-03 | SAMP | 11-16-2017 03:06 pm | 1.00 | 50 mL | 50 mL | X111612.D | Liquid | Y | <2 |
| 13 | HS17110801-01 | SAMP | 11-16-2017 03:31 pm | 100.0( | 500 µL | 50 mL | X111613.D | Liquid | Y | <2 |
| 14 | HS17110732-02 | SAMP | 11-16-2017 03:56 pm | 1.00 | 50 mL | 50 mL | X111614.D | Liquid | Y | <2 |
| 15 | HS17110731-02 | SAMP | 11-16-2017 04:20 pm | 1.00 | 50 mL | 50 mL | X111615.D | Liquid | Y | <2 |
| 16 | HS17110731-03 | SAMP | 11-16-2017 04:45 pm | 1.00 | 50 mL | 50 mL | X111616.D | Liquid | Y | <2 |
| 17 | HS17110493-01MS | MS | 11-16-2017 05:10 pm | 1.00 | 50 mL | 50 mL | X111617.D | Liquid | Y | <2 |
| | *5 uL cal std/25 mL sample* | | | | | | | | | |
| 18 | HS17110493-01MSD | MSD | 11-16-2017 05:35 pm | 1.00 | 50 mL | 50 mL | X111618.D | Liquid | Y | <2 |
| | *5 uL cal std/25 mL sample* | | | | | | | | | |
| 19 | HS17110732-02 | SAMP | 11-16-2017 06:00 pm | 5.00 | 10 mL | 50 mL | X111619.D | Liquid | Y | <2 |
| 20 | HS17110748-01 | SAMP | 11-16-2017 06:25 pm | 1.00 | 50 mL | 50 mL | X111620.D | Liquid | Y | <2 |
| 21 | HS17110731-02 | SAMP | 11-16-2017 06:50 pm | 25.00 | 2 mL | 50 mL | X111621.D | Liquid | Y | <2 |
| 22 | HS17110731-03 | SAMP | 11-16-2017 07:15 pm | 25.00 | 2 mL | 50 mL | X111622.D | Liquid | Y | <2 |
| 23 | HS17110792-01 | SAMP | 11-16-2017 07:40 pm | 1.00 | 50 mL | 50 mL | X111623.D | Liquid | Y | <2 |
| 24 | HS17110792-12 | SAMP | 11-16-2017 08:05 pm | 1.00 | 50 mL | 50 mL | X111624.D | Liquid | Y | <2 |
| 25 | HS17110732-03 | SAMP | 11-16-2017 08:30 pm | 1.00 | 50 mL | 50 mL | X111625.D | Liquid | Y | <2 |
| 26 | HS17110731-04 | SAMP | 11-16-2017 08:55 pm | 1.00 | 50 mL | 50 mL | X111626.D | Liquid | Y | <2 |
| 27 | HS17110731-01 | SAMP | 11-16-2017 09:20 pm | 1.00 | 50 mL | 50 mL | X111627.D | Liquid | Y | <2 |
| 28 | HS17110732-01 | SAMP | 11-16-2017 09:44 pm | 1.00 | 50 mL | 50 mL | X111628.D | Liquid | Y | <2 |
| 29 | VSTD050-END | CCV | 11-16-2017 10:09 pm | 1.00 | 50 mL | 50 mL | X111629.D | Liquid | Y | na |
| | *10 uL cal std/50 mL DI* | | | | | | | | | |

| Chemical | Value |
|---|---|
| SURR SPK ID | 29810-98-03 |
| IS ID | 29810-98-04 |
| LCS/MS ID | 30502-02-01/02 |
| BFB ID | 29810-98-03 |
| pH Paper | 634-37-03 |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171116.b\X111601.D



Date : 16-NOV-2017 10:32

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

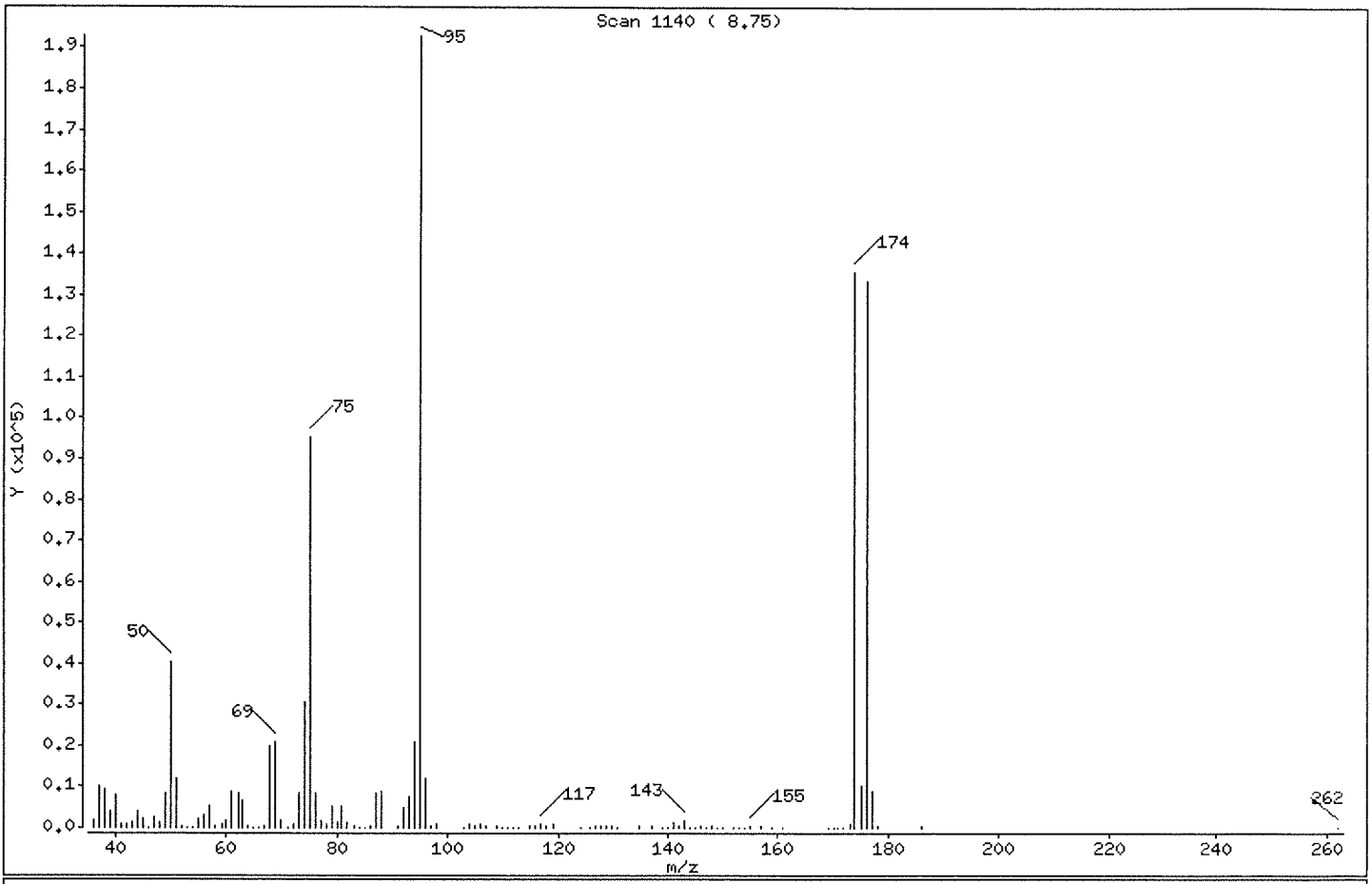
Volume Injected (uL): 2.0

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 | 21.02 |
| 75 | 30.00 - 60.00% of mass 95 | 49.39 |
| 96 | 5.00 - 9.00% of mass 95 | 6.31 |
| 173 | Less than 2.00% of mass 174 | 0.55 ( 0.78) |
| 174 | Greater than 50.00% of mass 95 | 70.26 |
| 175 | 5.00 - 9.00% of mass 174 | 5.29 ( 7.53) |
| 176 | 95.00 - 101.00% of mass 174 | 69.17 ( 98.44) |
| 177 | 5.00 - 9.00% of mass 176 | 4.48 ( 6.48) |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171116.b\X111601.D



Date : 16-NOV-2017 10:32

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: X111601.D
Spectrum: Scan 1140 ( 8.75)
Location of Maximum: 95.00
Number of points: 116

| m/z | Y | m/z | Y | m/z | Y | m/z | Y |
|---|---|---|---|---|---|---|---|
| 36.10 | 1764 | 66.00 | 94 | 98.10 | 712 | 144.00 | 77 |
| 37.10 | 10274 | 67.00 | 577 | 103.00 | 154 | 145.10 | 72 |
| 38.10 | 9206 | 68.00 | 19848 | 103.90 | 892 | 145.90 | 222 |
| 39.10 | 4047 | 69.00 | 21056 | 104.90 | 270 | 146.90 | 58 |
| 40.00 | 8183 | 70.00 | 1829 | 105.90 | 800 | 147.90 | 424 |
| 41.00 | 1081 | 71.20 | 190 | 106.90 | 414 | 148.90 | 85 |
| 42.10 | 1036 | 72.00 | 842 | 108.90 | 443 | 149.90 | 157 |
| 43.10 | 1192 | 73.00 | 8535 | 109.90 | 118 | 151.80 | 69 |
| 44.00 | 4033 | 74.00 | 30440 | 110.90 | 120 | 152.80 | 50 |
| 45.00 | 2384 | 75.00 | 95240 | 111.90 | 80 | 153.80 | 105 |
| 46.10 | 151 | 76.00 | 8513 | 112.90 | 199 | 155.00 | 511 |
| 47.10 | 2634 | 77.00 | 1557 | 115.00 | 259 | 157.00 | 265 |
| 48.00 | 1227 | 78.00 | 981 | 116.00 | 585 | 158.90 | 107 |
| 49.10 | 8247 | 79.00 | 5103 | 116.90 | 1005 | 160.80 | 220 |
| 50.10 | 40536 | 80.00 | 1388 | 117.90 | 661 | 169.00 | 67 |
| 51.10 | 12022 | 80.90 | 5252 | 119.00 | 826 | 170.00 | 212 |
| 52.00 | 617 | 81.90 | 1131 | 124.00 | 87 | 170.90 | 133 |
| 53.00 | 189 | 83.00 | 291 | 125.70 | 69 | 171.90 | 171 |
| 54.00 | 200 | 84.10 | 55 | 126.80 | 273 | 173.00 | 1054 |
| 55.00 | 2143 | 85.00 | 87 | 127.90 | 651 | 173.90 | 135488 |
| 56.00 | 2943 | 85.90 | 245 | 128.90 | 355 | 175.00 | 10198 |
| 57.00 | 5440 | 87.00 | 8358 | 129.90 | 605 | 176.00 | 133376 |
| 58.00 | 390 | 88.00 | 8917 | 130.80 | 182 | 176.90 | 8647 |
| 59.10 | 942 | 91.00 | 633 | 134.80 | 276 | 177.90 | 242 |
| 60.00 | 1881 | 92.00 | 4730 | 136.90 | 259 | 186.00 | 429 |
| 61.00 | 8962 | 93.00 | 7723 | 139.00 | 84 | 262.10 | 75 |
| 62.10 | 8493 | 94.00 | 20800 | 140.00 | 98 | | |
| 63.00 | 6714 | 95.00 | 192832 | 141.00 | 1520 | | |
| 63.90 | 603 | 96.00 | 12172 | 141.90 | 338 | | |
| 65.00 | 187 | 96.90 | 484 | 142.90 | 1602 | | |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171116.b\X111601.D



Date : 16-NOV-2017 10:32

Client ID: BFB

Instrument: voa6.i

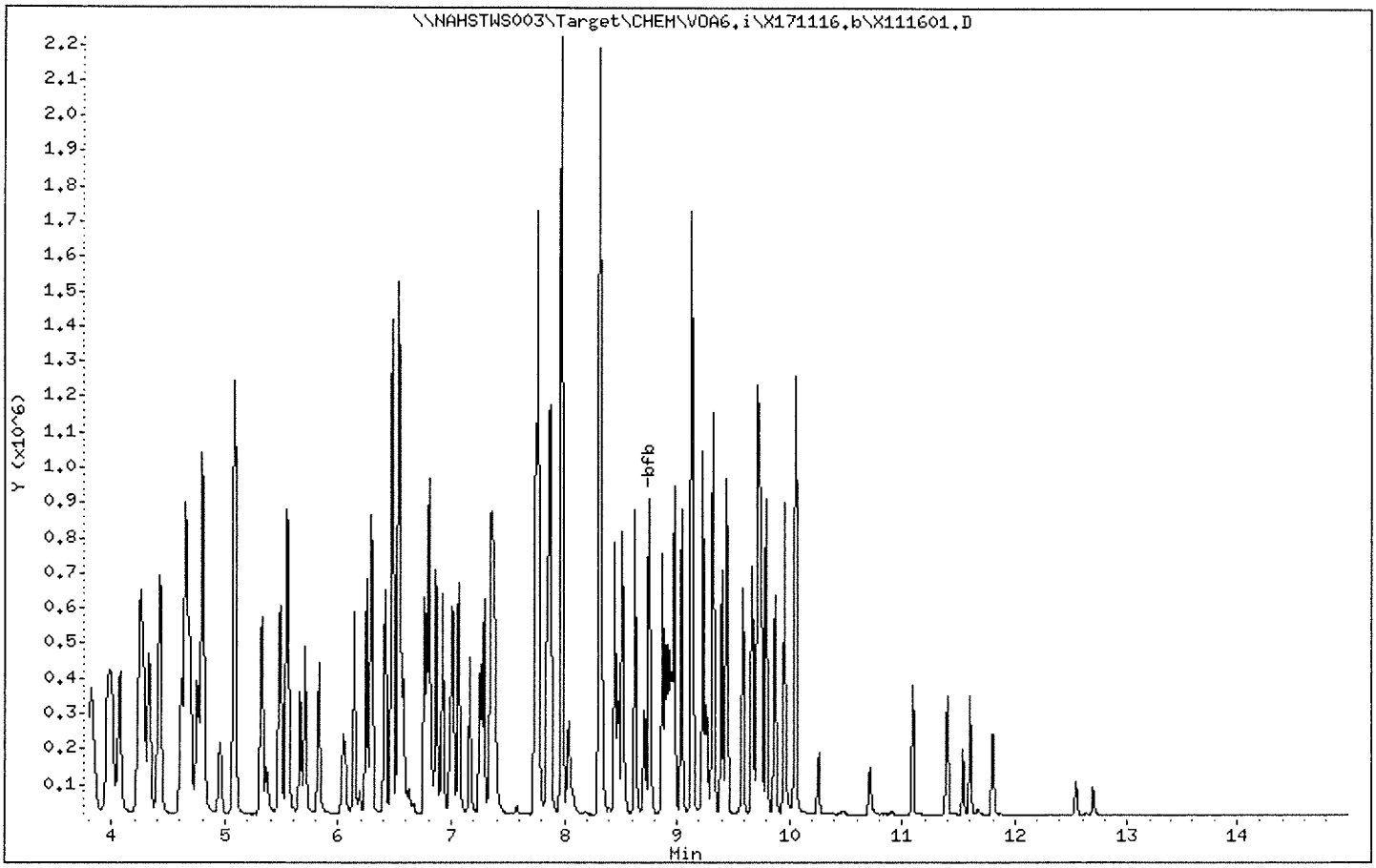
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171116.b\X111602.D  Version 19
Report Date: 11-Jan-2018 18:23

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171116.b\X111602.D
Lab Smp Id: VSTD050  Client Smp ID: VSTD050
Inj Date  : 16-NOV-2017 10:57
Operator  : PC  Inst ID: voa6.i
Smp Info  : VSTD050;VSTD050;2;;
Misc Info : HS16030331;WATER;0;1;
Comment   :
Method    : \\NAHSTWS003\Target\CHEM\VOA6.i\X171116.b\8260W.m
Meth Date : 11-Jan-2018 18:22 voa6.i  Quant Type: ISTD
Cal Date  : 10-OCT-2017 13:33  Cal File: X101008.D
Als bottle: 5  Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE  Compound Sublist: 000_bhateNEW.sub
Target Version:  4.14

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) |
|---|---|---|---|---|---|---|---|---|
| 31 | 1,1,1-Trichloroethane | 97 | 4.239 | 4.239 | (0.980) | 246660 | 50.0000 | 42.22 |
| * 1 | Pentafluorobenzene | 168 | 4.325 | 4.325 | (1.000) | 297800 | 50.0000 | |
| $ 30 | Dibromofluoromethane | 113 | 4.254 | 4.254 | (0.983) | 198409 | 50.0000 | 46.41 |
| * 36 | 1,4-Difluorobenzene | 114 | 5.085 | 5.085 | (1.000) | 512372 | 50.0000 | |
| $ 35 | 1,2-Dichloroethane-d4 | 65 | 4.612 | 4.612 | (1.066) | 251765 | 50.0000 | 46.77 |
| * 47 | Chlorobenzene-d5 | 117 | 7.742 | 7.742 | (1.000) | 470389 | 50.0000 | |
| $ 48 | Toluene-d8 | 98 | 6.474 | 6.474 | (0.836) | 744884 | 50.0000 | 51.11 |
| $ 69 | 4-Bromofluorobenzene | 95 | 8.752 | 8.752 | (1.130) | 260391 | 50.0000 | 50.15 |
| * 70 | 1,4-Dichlorobenzene-d4 | 152 | 9.726 | 9.726 | (1.000) | 206989 | 50.0000 | |
| 68 | 1,1,2,2-Tetrachloroethane | 83 | 8.903 | 8.903 | (0.915) | 214015 | 50.0000 | 58.54 |
| 53 | 1,1,2-Trichloroethane | 83 | 6.918 | 6.918 | (0.894) | 143917 | 50.0000 | 47.40 |
| 32 | 1,1-Dichloropropene | 75 | 4.426 | 4.426 | (0.870) | 237023 | 50.0000 | 42.59 |
| 22 | 1,1-Dichloroethane | 63 | 3.072 | 3.079 | (0.710) | 344141 | 50.0000 | 43.99 |
| 11 | 1,1-Dichloroethene | 96 | 2.055 | 2.055 | (0.475) | 146527 | 50.0000 | 42.48 |
| 90 | 1,2,4-Trichlorobenzene | 180 | 11.395 | 11.395 | (1.172) | 95243 | 50.0000 | 53.34 |
| 89 | 1,2-Dibromo-3-Chloropropane | 155 | 10.715 | 10.715 | (1.102) | 24561 | 50.0000 | 53.91 |
| 57 | 1,2-Dibromoethane | 107 | 7.341 | 7.341 | (0.948) | 169015 | 50.0000 | 47.66 |
| 88 | 1,2-Dichlorobenzene | 146 | 10.056 | 10.056 | (1.034) | 250158 | 50.0000 | 48.34 |
| 33 | 1,2-Dichloroethane | 62 | 4.691 | 4.691 | (0.923) | 254522 | 50.0000 | 44.49 |
| 42 | 1,2-Dichloropropane | 63 | 5.543 | 5.543 | (1.090) | 204373 | 50.0000 | 43.13 |
| 83 | 1,3-Dichlorobenzene | 146 | 9.669 | 9.669 | (0.994) | 252622 | 50.0000 | 47.44 |
| 84 | 1,4-Dichlorobenzene | 146 | 9.741 | 9.741 | (1.001) | 263634 | 50.0000 | 47.01 |
| 24 | 2-Butanone | 43 | 3.731 | 3.731 | (0.863) | 164319 | 100.000 | 93.32 |

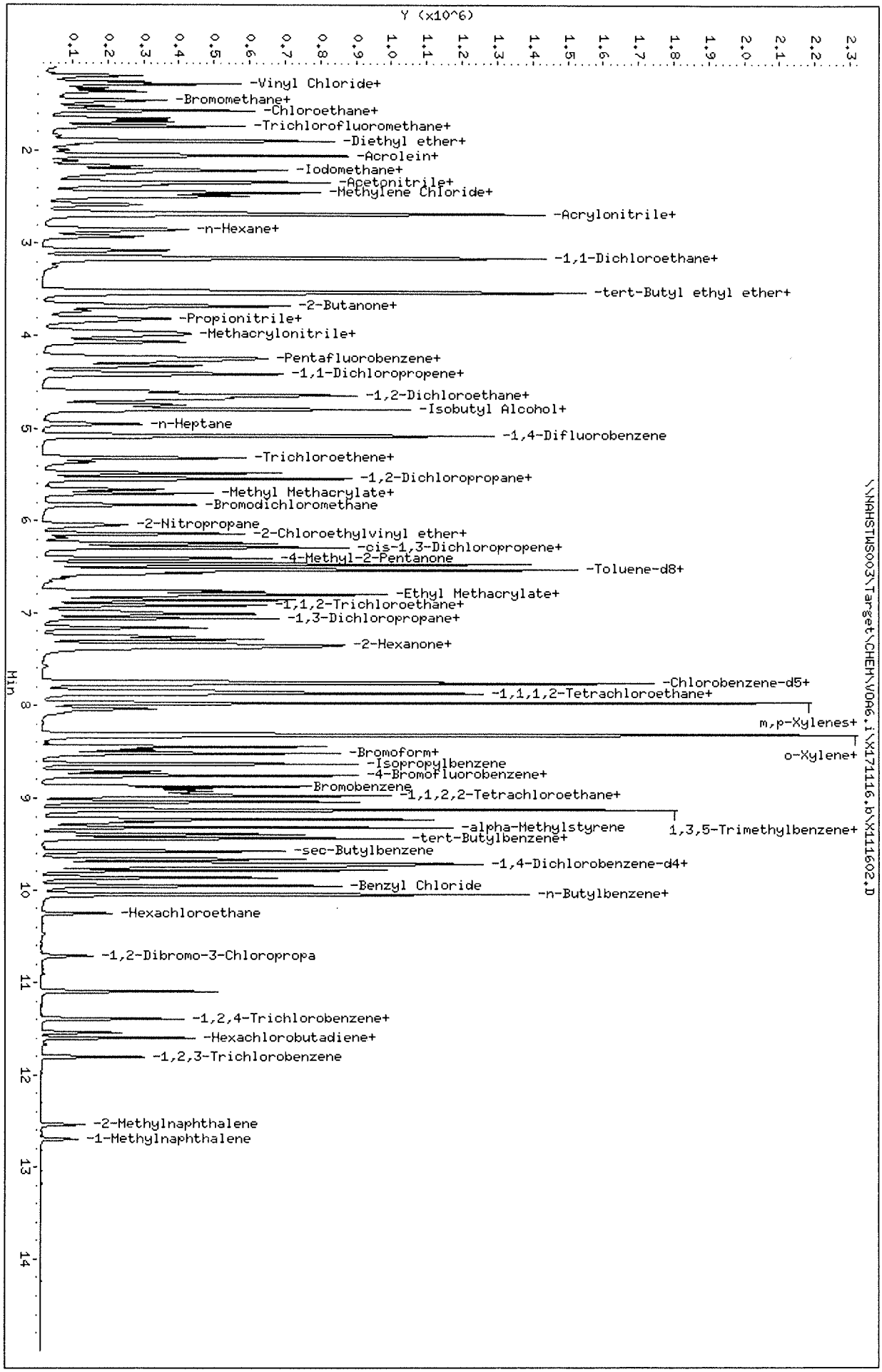
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171116.b\X111602.D Version 19
Report Date: 11-Jan-2018 18:23

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | ON-COL ( ug/l) | |
|---|---|---|---|---|---|---|---|---|---|
| 52 | 2-Hexanone | 43 | 7.284 | 7.284 | (0.941) | 355871 | 100.000 | 92.32 | |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.410 | 6.410 | (0.828) | 377253 | 100.000 | 92.05 | |
| 10 | Acetone | 43 | 2.112 | 2.112 | (0.488) | 103185 | 100.000 | 98.04 | |
| 37 | Benzene | 78 | 4.648 | 4.648 | (0.914) | 729039 | 50.0000 | 43.40 | |
| 39 | Bromodichloromethane | 83 | 5.830 | 5.830 | (1.146) | 256924 | 50.0000 | 44.24 | |
| 66 | Bromoform | 173 | 8.480 | 8.480 | (1.095) | 115544 | 50.0000 | 44.08 | |
| 6 | Bromomethane | 94 | 1.460 | 1.460 | (0.338) | 135516 | 50.0000 | 46.91 | |
| 19 | Carbon Disulfide | 76 | 2.212 | 2.212 | (0.512) | 992993 | 100.000 | 90.41 | |
| 34 | Carbon Tetrachloride | 117 | 4.411 | 4.411 | (0.868) | 198673 | 50.0000 | 42.39 | |
| 59 | Chlorobenzene | 112 | 7.764 | 7.764 | (1.003) | 432882 | 50.0000 | 45.38 | |
| 7 | Chloroethane | 64 | 1.525 | 1.525 | (0.353) | 131454 | 50.0000 | 42.54 | |
| 28 | Chloroform | 83 | 4.067 | 4.067 | (0.940) | 322386 | 50.0000 | 44.35 | |
| 3 | Chloromethane | 50 | 1.188 | 1.195 | (0.275) | 274211 | 50.0000 | 45.40 | |
| 27 | cis-1,2-Dichloroethene | 96 | 3.681 | 3.688 | (0.851) | 196054 | 50.0000 | 43.89 | |
| 46 | cis-1,3-Dichloropropene | 75 | 6.245 | 6.245 | (1.228) | 317951 | 50.0000 | 42.87 | |
| 55 | Dibromochloromethane | 129 | 7.255 | 7.255 | (0.937) | 184676 | 50.0000 | 46.47 | |
| 2 | Dichlorodifluoromethane | 85 | 1.081 | 1.080 | (0.250) | 175646 | 50.0000 | 46.14 | |
| 61 | Ethylbenzene | 106 | 7.871 | 7.871 | (1.017) | 214059 | 50.0000 | 44.60 | |
| 67 | Isopropylbenzene | 105 | 8.623 | 8.623 | (1.114) | 507416 | 50.0000 | 43.90 | |
| 17 | Methylene Chloride | 84 | 2.449 | 2.449 | (0.566) | 196049 | 50.0000 | 42.77 | |
| 56 | Tetrachloroethene | 164 | 7.012 | 7.011 | (0.906) | 104465 | 50.0000 | 41.37 | |
| 50 | Toluene | 91 | 6.532 | 6.532 | (0.844) | 702743 | 50.0000 | 46.46 | |
| 20 | trans-1,2-Dichloroethene | 96 | 2.678 | 2.678 | (0.619) | 176063 | 50.0000 | 43.76 | |
| 51 | trans-1,3-Dichloropropene | 75 | 6.761 | 6.761 | (1.330) | 269666 | 50.0000 | 42.48 | |
| 38 | Trichloroethene | 130 | 5.321 | 5.321 | (1.046) | 168396 | 50.0000 | 40.84 | |
| 8 | Trichlorofluoromethane | 101 | 1.689 | 1.689 | (0.391) | 219785 | 50.0000 | 44.04 | |
| 5 | Vinyl Chloride | 62 | 1.260 | 1.260 | (0.291) | 228909 | 50.0000 | 44.88 | |
| 62 | m,p-Xylenes | 106 | 7.971 | 7.971 | (1.030) | 509990 | 100.000 | 88.89 | |
| 63 | o-Xylene | 106 | 8.308 | 8.308 | (1.073) | 257505 | 50.0000 | 44.32 | |
| M 95 | Xylenes (total) | 106 | | | | 767495 | 150.000 | | (a) |
| 71 | 1,2,3-Trichloropropane | 75 | 8.931 | 8.931 | (0.918) | 199014 | 50.0000 | 54.95 | (M) |
| 93 | 1,2,3-Trichlorobenzene | 180 | 11.804 | 11.804 | (1.214) | 75908 | 50.0000 | 59.01 | |
| 79 | 1,2,4-Trimethylbenzene | 105 | 9.440 | 9.440 | (0.971) | 440324 | 50.0000 | 48.15 | |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.132 | 9.132 | (0.939) | 412944 | 50.0000 | 48.28 | |
| 26 | 2,2-Dichloropropane | 77 | 3.666 | 3.666 | (0.848) | 263670 | 50.0000 | 43.27 | |
| 54 | 1,3-Dichloropropane | 76 | 7.062 | 7.062 | (0.912) | 303299 | 50.0000 | 47.08 | |
| 76 | 2-Chlorotoluene | 91 | 9.039 | 9.039 | (0.929) | 427183 | 50.0000 | 50.37 | |
| 77 | 4-Chlorotoluene | 91 | 9.132 | 9.132 | (0.939) | 494945 | 50.0000 | 49.81 | |
| 82 | p-Isopropyltoluene | 119 | 9.712 | 9.712 | (0.999) | 338885 | 50.0000 | 45.73 | |
| 29 | Bromochloromethane | 128 | 3.953 | 3.960 | (0.914) | 84831 | 50.0000 | 42.64 | |
| 74 | Bromobenzene | 156 | 8.874 | 8.874 | (0.912) | 171428 | 50.0000 | 48.66 | |
| 44 | Dibromomethane | 93 | 5.658 | 5.658 | (1.113) | 124209 | 50.0000 | 45.75 | |
| 91 | Hexachlorobutadiene | 225 | 11.539 | 11.539 | (1.186) | 33058 | 50.0000 | 45.23 | |
| 73 | n-Propylbenzene | 91 | 8.974 | 8.974 | (0.923) | 617414 | 50.0000 | 48.43 | |
| 87 | n-Butylbenzene | 91 | 10.056 | 10.056 | (1.034) | 300025 | 50.0000 | 49.38 | |
| 81 | sec-Butylbenzene | 105 | 9.583 | 9.583 | (0.985) | 392862 | 50.0000 | 45.92 | |
| 92 | Naphthalene | 128 | 11.603 | 11.603 | (1.193) | 276077 | 50.0000 | 56.64 | |
| 78 | tert-Butylbenzene | 119 | 9.397 | 9.397 | (0.966) | 287851 | 50.0000 | 45.02 | |
| 60 | 1,1,1,2-Tetrachloroethane | 131 | 7.850 | 7.842 | (1.014) | 156247 | 50.0000 | 45.06 | |
| 64 | Styrene | 104 | 8.322 | 8.322 | (1.075) | 476198 | 50.0000 | 45.65 | |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171116.b\X111602.D Version 19
Report Date: 11-Jan-2018 18:23

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.




Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171116.b\X111602.D
Date : 16-NOV-2017 10:57
Client ID: VSTD050
Sample Info: VSTD050;VSTD050;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171116.b\X111604.D  Version 16
Report Date: 11-Jan-2018 18:23

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171116.b\X111604.D
Lab Smp Id: VLCSW-171116  Client Smp ID: VLCSW-171116
Inj Date  : 16-NOV-2017 11:47
Operator  : PC  Inst ID: voa6.i
Smp Info  : VLCSW-171116;VLCSW-171116;3;;LCS
Misc Info : HS16030331;WATER;0;1;
Comment   :
Method    : \\NAHSTWS003\Target\CHEM\VOA6.i\X171116.b\8260W.m
Meth Date : 11-Jan-2018 18:22 voa6.i  Quant Type: ISTD
Cal Date  : 10-OCT-2017 13:33  Cal File: X101008.D
Als bottle: 7  QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE  Compound Sublist: 000_bhateNEW.sub
Target Version:  4.14

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) |
|---|---|---|---|---|---|---|---|---|
| 31 | 1,1,1-Trichloroethane | 97 | 4.239 | 4.239 | (0.980) | 246424 | 42.1268 | 42.12 |
| * 1 | Pentafluorobenzene | 168 | 4.325 | 4.325 | (1.000) | 298209 | 50.0000 | |
| $ 30 | Dibromofluoromethane | 113 | 4.254 | 4.254 | (0.983) | 201269 | 46.9973 | 46.99(R) |
| * 36 | 1,4-Difluorobenzene | 114 | 5.085 | 5.085 | (1.000) | 513616 | 50.0000 | |
| $ 35 | 1,2-Dichloroethane-d4 | 65 | 4.612 | 4.612 | (1.066) | 252362 | 46.8162 | 46.81(R) |
| * 47 | Chlorobenzene-d5 | 117 | 7.742 | 7.742 | (1.000) | 467675 | 50.0000 | |
| $ 48 | Toluene-d8 | 98 | 6.474 | 6.474 | (0.836) | 748336 | 51.6321 | 51.63(R) |
| $ 69 | 4-Bromofluorobenzene | 95 | 8.752 | 8.752 | (1.130) | 264239 | 51.1674 | 51.16(R) |
| * 70 | 1,4-Dichlorobenzene-d4 | 152 | 9.726 | 9.726 | (1.000) | 207970 | 50.0000 | |
| 68 | 1,1,2,2-Tetrachloroethane | 83 | 8.903 | 8.903 | (0.915) | 207904 | 56.5773 | 56.57 |
| 53 | 1,1,2-Trichloroethane | 83 | 6.918 | 6.918 | (0.894) | 142531 | 47.2185 | 47.21 |
| 32 | 1,1-Dichloropropene | 75 | 4.426 | 4.426 | (0.870) | 233543 | 41.8696 | 41.86 |
| 22 | 1,1-Dichloroethane | 63 | 3.072 | 3.079 | (0.710) | 342597 | 43.7422 | 43.74 |
| 11 | 1,1-Dichloroethene | 96 | 2.055 | 2.055 | (0.475) | 148937 | 43.1237 | 43.12 |
| 90 | 1,2,4-Trichlorobenzene | 180 | 11.395 | 11.395 | (1.172) | 86078 | 47.9884 | 47.98 |
| 89 | 1,2-Dibromo-3-Chloropropane | 155 | 10.715 | 10.715 | (1.102) | 23537 | 51.4234 | 51.42 |
| 57 | 1,2-Dibromoethane | 107 | 7.341 | 7.341 | (0.948) | 167288 | 47.4564 | 47.45 |
| 88 | 1,2-Dichlorobenzene | 146 | 10.056 | 10.056 | (1.034) | 238188 | 45.8133 | 45.81 |
| 33 | 1,2-Dichloroethane | 62 | 4.691 | 4.691 | (0.923) | 254189 | 44.3304 | 44.33 |
| 42 | 1,2-Dichloropropane | 63 | 5.543 | 5.543 | (1.090) | 205520 | 43.2760 | 43.27 |
| 83 | 1,3-Dichlorobenzene | 146 | 9.669 | 9.669 | (0.994) | 240441 | 44.9450 | 44.94 |
| 84 | 1,4-Dichlorobenzene | 146 | 9.741 | 9.741 | (1.001) | 253189 | 44.9378 | 44.93 |
| 24 | 2-Butanone | 43 | 3.731 | 3.731 | (0.863) | 161813 | 91.7761 | 91.77 |

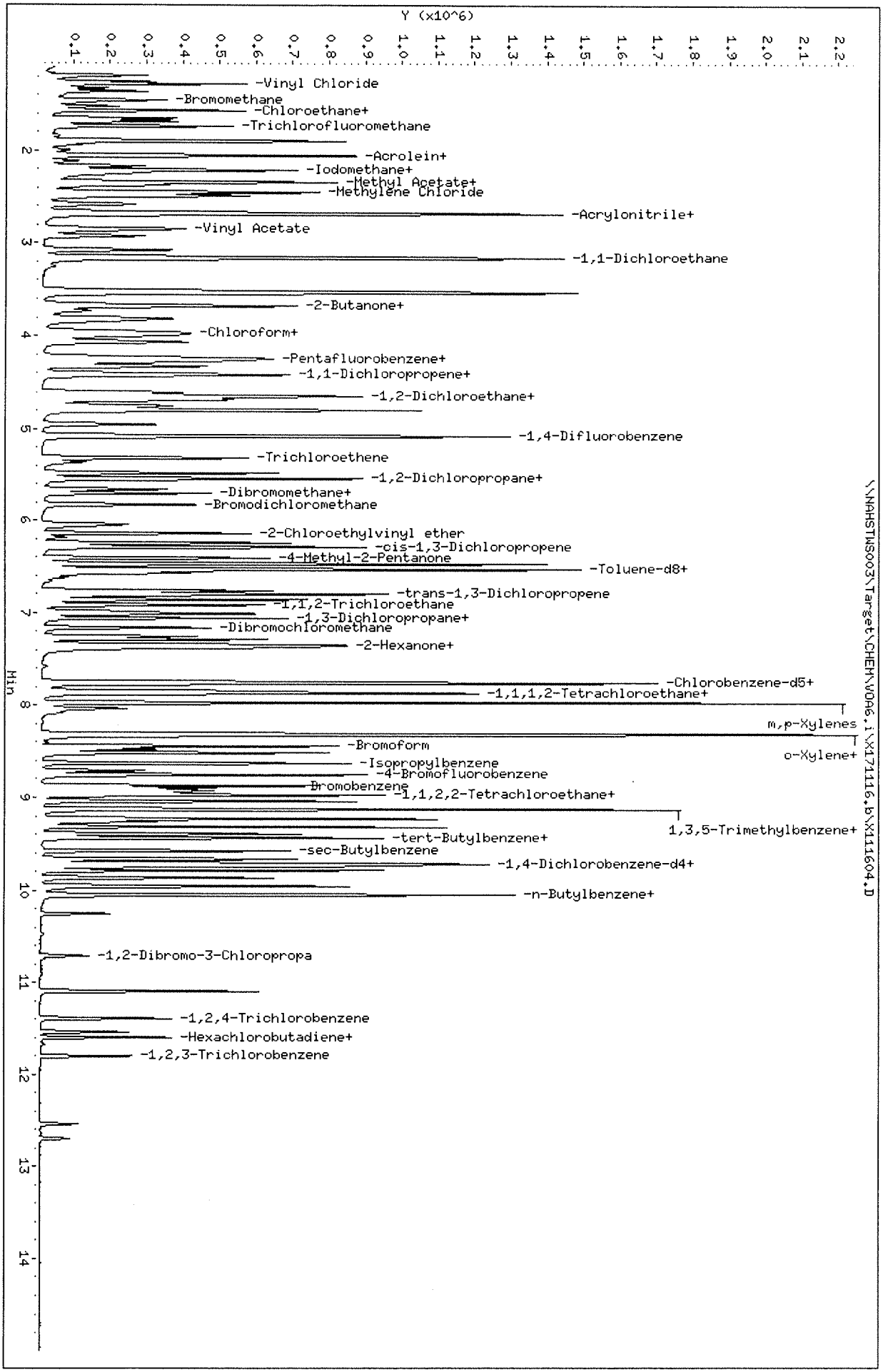
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171116.b\X111604.D Version 16
Report Date: 11-Jan-2018 18:23

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 52 | 2-Hexanone | 43 | 7.284 | 7.284 | (0.941) | 345268 | 90.0956 | 90.09 |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.410 | 6.410 | (0.828) | 374456 | 91.9039 | 91.90 |
| 10 | Acetone | 43 | 2.112 | 2.112 | (0.488) | 99456 | 94.2508 | 94.25 |
| 37 | Benzene | 78 | 4.648 | 4.648 | (0.914) | 717590 | 42.6177 | 42.61 |
| 39 | Bromodichloromethane | 83 | 5.830 | 5.830 | (1.146) | 248445 | 42.6845 | 42.68 |
| 66 | Bromoform | 173 | 8.480 | 8.480 | (1.095) | 115469 | 44.3104 | 44.31 |
| 6 | Bromomethane | 94 | 1.460 | 1.460 | (0.338) | 136320 | 47.1311 | 47.13 |
| 19 | Carbon Disulfide | 76 | 2.212 | 2.212 | (0.512) | 1000077 | 90.9361 | 90.93 |
| 34 | Carbon Tetrachloride | 117 | 4.411 | 4.411 | (0.868) | 195779 | 41.6736 | 41.67 |
| 59 | Chlorobenzene | 112 | 7.764 | 7.764 | (1.003) | 427564 | 45.0871 | 45.08 |
| 7 | Chloroethane | 64 | 1.525 | 1.525 | (0.353) | 130117 | 42.0519 | 42.05 |
| 28 | Chloroform | 83 | 4.068 | 4.067 | (0.940) | 320077 | 43.9720 | 43.97 |
| 3 | Chloromethane | 50 | 1.188 | 1.195 | (0.275) | 275156 | 45.5015 | 45.50 |
| 27 | cis-1,2-Dichloroethene | 96 | 3.681 | 3.688 | (0.851) | 196557 | 43.9483 | 43.94 |
| 46 | cis-1,3-Dichloropropene | 75 | 6.245 | 6.245 | (1.228) | 316102 | 42.5203 | 42.52 |
| 55 | Dibromochloromethane | 129 | 7.255 | 7.255 | (0.937) | 187386 | 47.4343 | 47.43 |
| 2 | Dichlorodifluoromethane | 85 | 1.081 | 1.080 | (0.250) | 173699 | 45.5747 | 45.57 |
| 61 | Ethylbenzene | 106 | 7.871 | 7.871 | (1.017) | 209274 | 43.8632 | 43.86 |
| 67 | Isopropylbenzene | 105 | 8.623 | 8.623 | (1.114) | 490395 | 42.6765 | 42.67 |
| 17 | Methylene Chloride | 84 | 2.449 | 2.449 | (0.566) | 196685 | 42.8560 | 42.85 |
| 56 | Tetrachloroethene | 164 | 7.012 | 7.011 | (0.906) | 102702 | 40.9146 | 40.91 |
| 50 | Toluene | 91 | 6.532 | 6.532 | (0.844) | 702252 | 46.7017 | 46.70 |
| 20 | trans-1,2-Dichloroethene | 96 | 2.678 | 2.678 | (0.619) | 175521 | 43.5668 | 43.56 |
| 51 | trans-1,3-Dichloropropene | 75 | 6.761 | 6.761 | (1.330) | 268240 | 42.1615 | 42.16 |
| 38 | Trichloroethene | 130 | 5.321 | 5.321 | (1.046) | 166742 | 40.3411 | 40.34 |
| 8 | Trichlorofluoromethane | 101 | 1.689 | 1.689 | (0.391) | 218131 | 43.6489 | 43.64 |
| 5 | Vinyl Chloride | 62 | 1.260 | 1.260 | (0.291) | 231965 | 45.4246 | 45.42 |
| 62 | m,p-Xylenes | 106 | 7.971 | 7.971 | (1.030) | 497811 | 87.2805 | 87.28 |
| 63 | o-Xylene | 106 | 8.308 | 8.308 | (1.073) | 252053 | 43.6338 | 43.63 |
| M 95 | Xylenes (total) | 106 | | | | 749864 | 130.914 | 130.91 |
| 71 | 1,2,3-Trichloropropane | 75 | 8.931 | 8.931 | (0.918) | 195879 | 53.8359 | 53.83 (M) |
| 93 | 1,2,3-Trichlorobenzene | 180 | 11.804 | 11.804 | (1.214) | 65700 | 50.8418 | 50.84 |
| 79 | 1,2,4-Trimethylbenzene | 105 | 9.440 | 9.440 | (0.971) | 425079 | 46.2730 | 46.27 |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.132 | 9.132 | (0.939) | 397087 | 46.2142 | 46.21 |
| 26 | 2,2-Dichloropropane | 77 | 3.666 | 3.666 | (0.848) | 261314 | 42.8289 | 42.82 |
| 54 | 1,3-Dichloropropane | 76 | 7.062 | 7.062 | (0.912) | 301121 | 47.0207 | 47.02 |
| 76 | 2-Chlorotoluene | 91 | 9.039 | 9.039 | (0.929) | 408589 | 47.9509 | 47.95 |
| 77 | 4-Chlorotoluene | 91 | 9.132 | 9.132 | (0.939) | 485400 | 48.6243 | 48.62 |
| 82 | p-Isopropyltoluene | 119 | 9.712 | 9.712 | (0.999) | 335583 | 45.0739 | 45.07 |
| 29 | Bromochloromethane | 128 | 3.953 | 3.960 | (0.914) | 83318 | 41.8238 | 41.82 |
| 74 | Bromobenzene | 156 | 8.874 | 8.874 | (0.912) | 164866 | 46.5772 | 46.57 |
| 44 | Dibromomethane | 93 | 5.658 | 5.658 | (1.113) | 121788 | 44.7553 | 44.75 |
| 91 | Hexachlorobutadiene | 225 | 11.539 | 11.539 | (1.186) | 35935 | 48.8945 | 48.89 |
| 73 | n-Propylbenzene | 91 | 8.974 | 8.974 | (0.923) | 606661 | 47.3690 | 47.36 |
| 87 | n-Butylbenzene | 91 | 10.049 | 10.056 | (1.033) | 299756 | 49.1113 | 49.11 |
| 81 | sec-Butylbenzene | 105 | 9.583 | 9.583 | (0.985) | 387688 | 45.1096 | 45.10 |
| 92 | Naphthalene | 128 | 11.603 | 11.603 | (1.193) | 232803 | 48.0184 | 48.01 |
| 78 | tert-Butylbenzene | 119 | 9.397 | 9.397 | (0.966) | 283352 | 44.1118 | 44.11 |
| 60 | 1,1,1,2-Tetrachloroethane | 131 | 7.850 | 7.842 | (1.014) | 150383 | 43.6220 | 43.62 |
| 64 | Styrene | 104 | 8.322 | 8.322 | (1.075) | 466135 | 44.9532 | 44.95 |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171116.b\X111604.D Version 16
Report Date: 11-Jan-2018 18:23

QC Flag Legend

R - Spike/Surrogate failed recovery limits.
M - Compound response manually integrated.




Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171116.b\X111604.D
Date : 16-NOV-2017 11:47
Client ID: VLCSW-171116
Sample Info: VLCSW-171116;VLCSW-171116;3;;LCS
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171116.b\X111607.D  Version 15
Report Date: 11-Jan-2018 18:23

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171116.b\X111607.D
Lab Smp Id: VBLKW-171116  Client Smp ID: VBLKW-0171116
Inj Date  : 16-NOV-2017 13:01
Operator  : PC  Inst ID: voa6.i
Smp Info  : VBLKW-171116;VBLKW-0171116;3;;BLANK
Misc Info : HS16030331;WATER;0;1;
Comment   :
Method    : \\nahstws003\Target\chem\voa6.i\X171116.b\8260W.m
Meth Date : 11-Jan-2018 18:22 voa6.i  Quant Type: ISTD
Cal Date  : 10-OCT-2017 13:33  Cal File: X101008.D
Als bottle: 7  QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE  Compound Sublist: 000_bhateNEW.sub
Target Version:  4.14

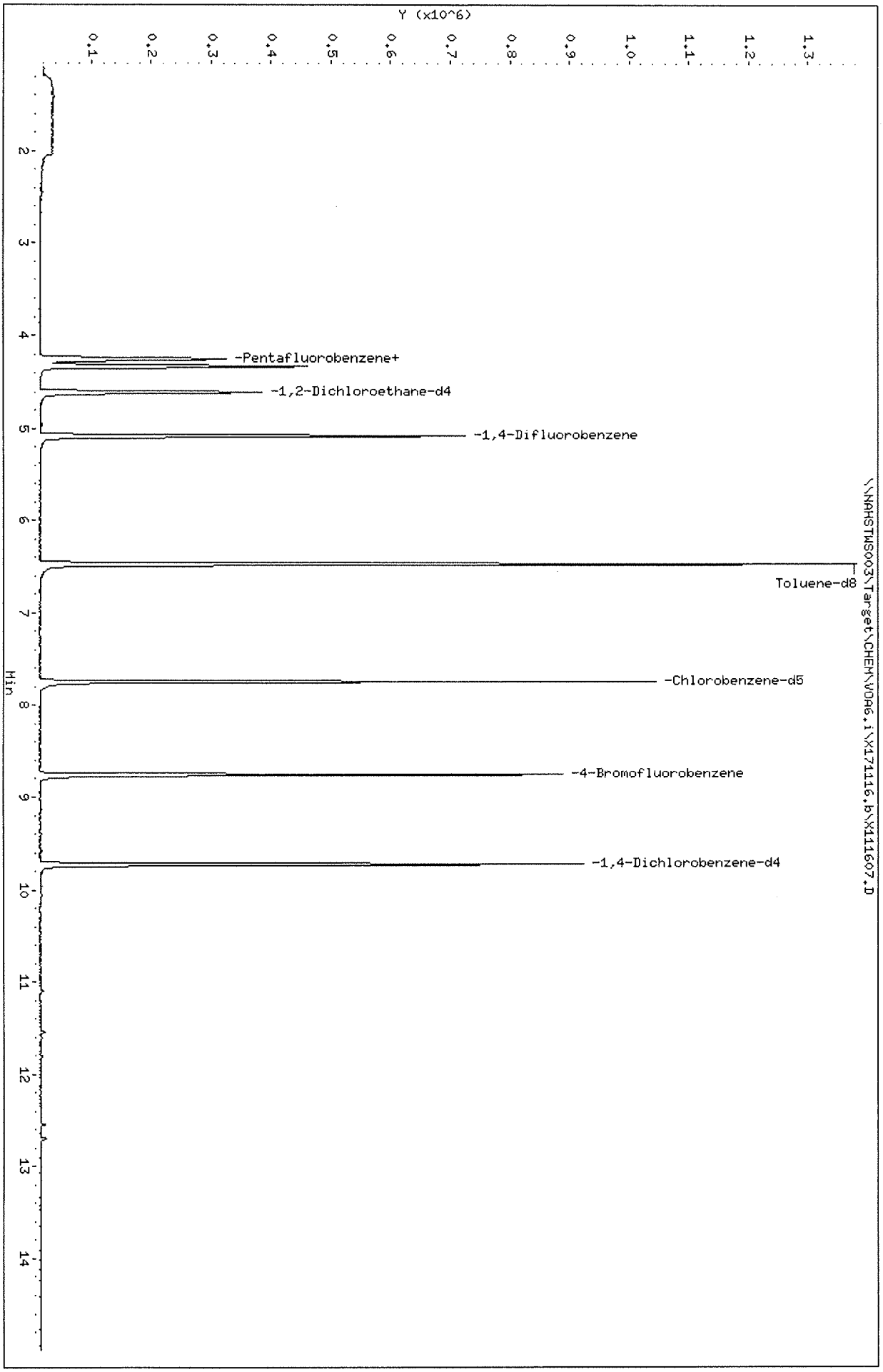
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| 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 | 4.326 | 4.325 | (1.000) | 296743 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.254 | 4.254 | (0.983) | 202046 | 47.3997 | 47.39(R) |
| * 36 1,4-Difluorobenzene | 114 | 5.085 | 5.085 | (1.000) | 514376 | 50.0000 | |
| $ 35 1,2-Dichloroethane-d4 | 65 | 4.612 | 4.612 | (1.066) | 261027 | 48.6324 | 48.63(R) |
| * 47 Chlorobenzene-d5 | 117 | 7.742 | 7.742 | (1.000) | 475907 | 50.0000 | |
| $ 48 Toluene-d8 | 98 | 6.474 | 6.474 | (0.836) | 756159 | 51.2829 | 51.28(R) |
| $ 69 4-Bromofluorobenzene | 95 | 8.752 | 8.752 | (1.130) | 266858 | 50.7911 | 50.79(R) |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 9.726 | 9.726 | (1.000) | 201667 | 50.0000 | |

QC Flag Legend

R - Spike/Surrogate failed recovery limits.


Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171116.b\X111607.D
Date : 16-NOV-2017 13:01
Client ID: VBLKW-0171116
Sample Info: VBLKW-171116;VBLKW-0171116;3;;BLANK
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
Y (x10^6)
Min
-Pentafluorobenzene+
-1,2-Dichloroethane-d4
-1,4-Difluorobenzene
Toluene-d8
-Chlorobenzene-d5
-4-Bromofluorobenzene
-1,4-Dichlorobenzene-d4
\\NAHSTWS003\Target\CHEM\VOA6.i\X171116.b\X111607.D

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171116.b\X111608.D  Version 6
Report Date: 11-Jan-2018 18:23

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171116.b\X111608.D
Lab Smp Id: HS17110493-02  Client Smp ID: HS17110493-02
Inj Date  : 16-NOV-2017 13:26
Operator  : PC  Inst ID: voa6.i
Smp Info  : HS17110493-02;HS17110493-02;;;
Misc Info : HS16030331;WATER;0;1;
Comment   :
Method    : \\nahstws003\Target\chem\voa6.i\X171116.b\8260W.m
Meth Date : 11-Jan-2018 18:22 voa6.i  Quant Type: ISTD
Cal Date  : 10-OCT-2017 13:33  Cal File: X101008.D
Als bottle: 8
Dil Factor: 1.00000
Integrator: HP RTE  Compound Sublist: 000_bhateNEW.sub
Target Version:  4.14

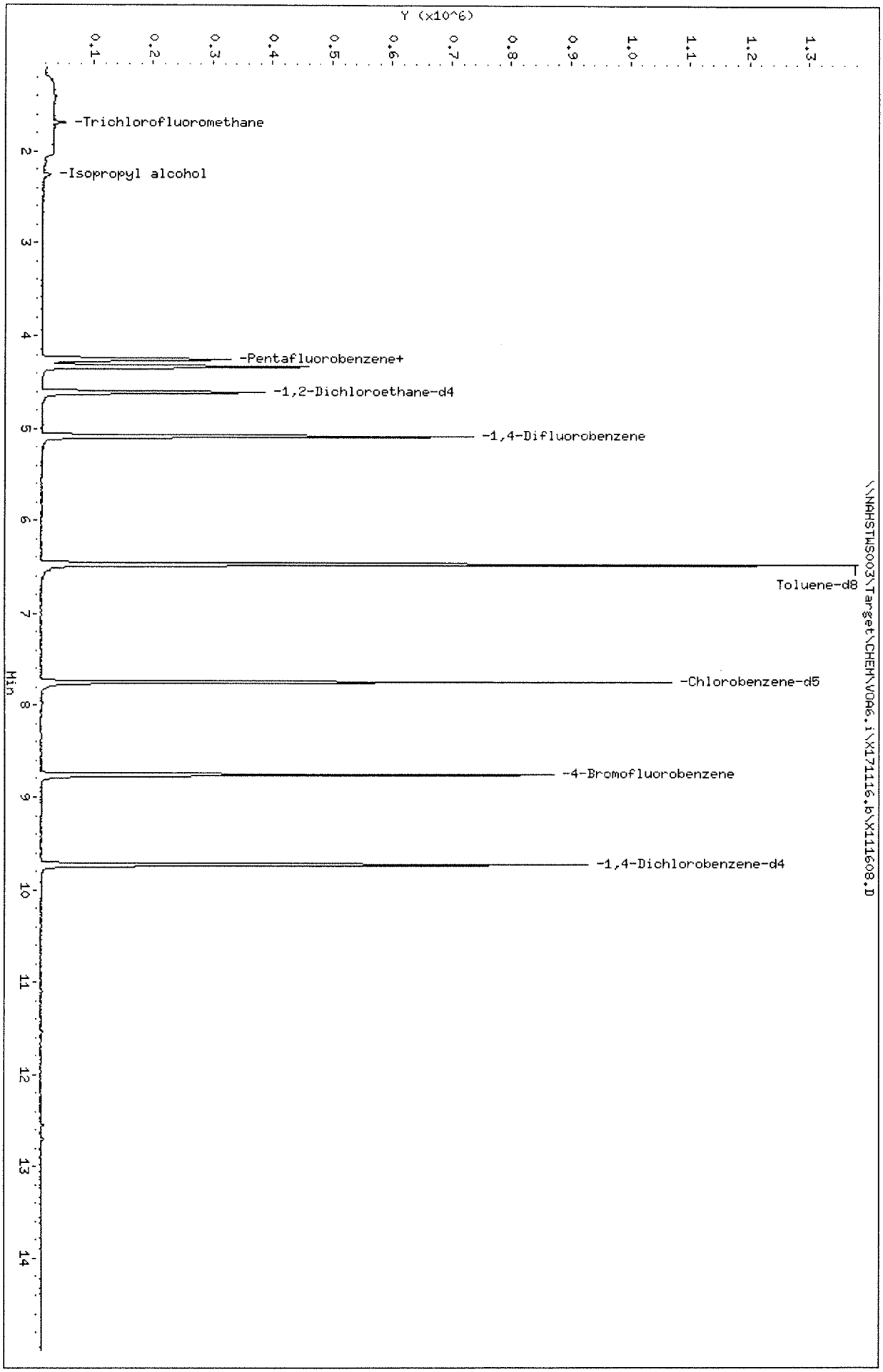
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| 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 | 4.325 | 4.325 | (1.000) | 299335 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.254 | 4.254 | (0.983) | 201368 | 46.8480 | 46.84(R) |
| * 36 1,4-Difluorobenzene | 114 | 5.085 | 5.085 | (1.000) | 518667 | 50.0000 | |
| $ 35 1,2-Dichloroethane-d4 | 65 | 4.612 | 4.612 | (1.066) | 258411 | 47.7428 | 47.74(R) |
| * 47 Chlorobenzene-d5 | 117 | 7.742 | 7.742 | (1.000) | 480586 | 50.0000 | |
| $ 48 Toluene-d8 | 98 | 6.474 | 6.474 | (0.836) | 745298 | 50.0984 | 50.09(R) |
| $ 69 4-Bromofluorobenzene | 95 | 8.752 | 8.752 | (1.130) | 266081 | 50.1671 | 50.16(R) |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 9.726 | 9.726 | (1.000) | 203387 | 50.0000 | |
| 8 Trichlorofluoromethane | 101 | 1.689 | 1.689 | (0.391) | 11264 | 2.24549 | 2.24(a) |

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
R - Spike/Surrogate failed recovery limits.


Y (x10^6)
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
-Trichlorofluoromethane
-Isopropyl alcohol
-Pentafluorobenzene+
-1,2-Dichloroethane-d4
-1,4-Difluorobenzene
Toluene-d8
-Chlorobenzene-d5
-4-Bromofluorobenzene
-1,4-Dichlorobenzene-d4
Min
2
3
4
5
6
7
8
9
10
11
12
13
14
\\NAHSTWS003\Target\CHEM\VOA6.i\X171116.b\X111608.D
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171116.b\X111608.D
Date : 16-NOV-2017 13:26
Client ID: HS17110493-02
Sample Info: HS17110493-02;HS17110493-02;;;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171116.b\X111609.D  Version 7
Report Date: 11-Jan-2018 18:23

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171116.b\X111609.D
Lab Smp Id: HS17110493-01  Client Smp ID: HS17110493-01
Inj Date  : 16-NOV-2017 13:51
Operator  : PC  Inst ID: voa6.i
Smp Info  : HS17110493-01;HS17110493-01;;;
Misc Info : HS16030331;WATER;0;1;
Comment   :
Method    : \\nahstws003\Target\chem\voa6.i\X171116.b\8260W.m
Meth Date : 11-Jan-2018 18:22 voa6.i  Quant Type: ISTD
Cal Date  : 10-OCT-2017 13:33  Cal File: X101008.D
Als bottle: 9
Dil Factor: 1.00000
Integrator: HP RTE  Compound Sublist: 000_bhateNEW.sub
Target Version:  4.14

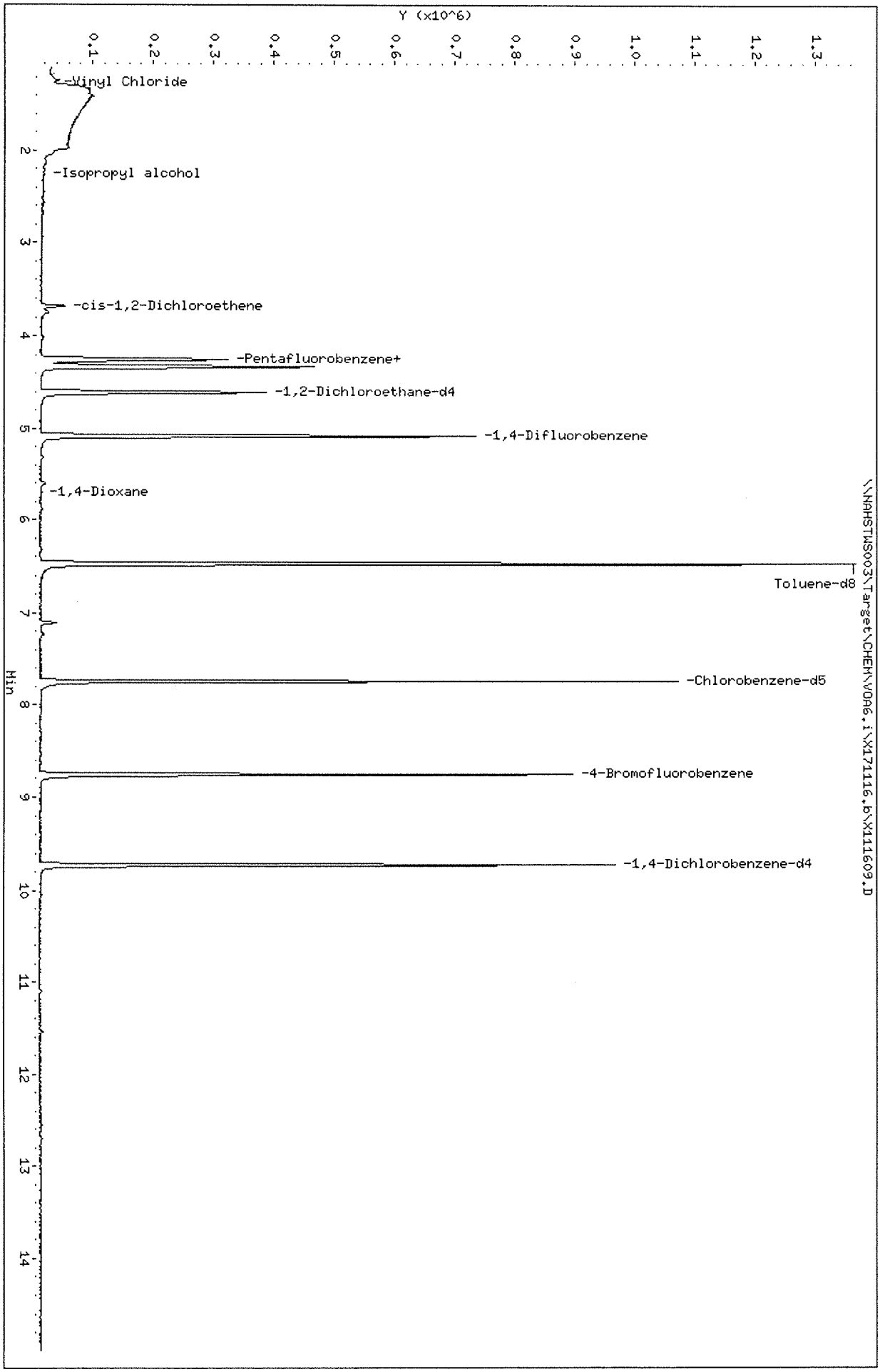
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

| 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 | 4.325 | 4.325 | (1.000) | 300737 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.254 | 4.254 | (0.983) | 202344 | 46.8553 | 46.85(R) |
| * 36 1,4-Difluorobenzene | 114 | 5.085 | 5.085 | (1.000) | 521847 | 50.0000 | |
| $ 35 1,2-Dichloroethane-d4 | 65 | 4.612 | 4.612 | (1.066) | 262269 | 48.2217 | 48.22(R) |
| * 47 Chlorobenzene-d5 | 117 | 7.742 | 7.742 | (1.000) | 471378 | 50.0000 | |
| $ 48 Toluene-d8 | 98 | 6.474 | 6.474 | (0.836) | 747966 | 51.2171 | 51.21(R) |
| $ 69 4-Bromofluorobenzene | 95 | 8.752 | 8.752 | (1.130) | 266575 | 51.2130 | 51.21(R) |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 9.726 | 9.726 | (1.000) | 210539 | 50.0000 | |
| 27 cis-1,2-Dichloroethene | 96 | 3.688 | 3.688 | (0.853) | 18746 | 4.15619 | 4.15(a) |
| 5 Vinyl Chloride | 62 | 1.260 | 1.260 | (0.291) | 2398 | 0.46564 | 0.46(a) |

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
R - Spike/Surrogate failed recovery limits.


Y (x10^6)
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
Vinyl Chloride
-Isopropyl alcohol
-cis-1,2-Dichloroethene
-Pentafluorobenzene+
-1,2-Dichloroethane-d4
-1,4-Difluorobenzene
-1,4-Dioxane
Toluene-d8
-Chlorobenzene-d5
-4-Bromofluorobenzene
-1,4-Dichlorobenzene-d4
Min
2
3
4
5
6
7
8
9
10
11
12
13
14
\\NAHSTWS003\Target\CHEM\VOA6.i\X171116.b\X111609.D
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171116.b\X111609.D
Date : 16-NOV-2017 13:51
Client ID: HS17110493-01
Sample Info: HS17110493-01;HS17110493-01;;;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171116.b\X111617.D  Version 15
Report Date: 11-Jan-2018 18:23

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171116.b\X111617.D
Lab Smp Id: HS17110493-01MS  Client Smp ID: HS17110493-01MS
Inj Date  : 16-NOV-2017 17:10
Operator  : PC  Inst ID: voa6.i
Smp Info  : HS17110493-01MS;HS17110493-01MS;3;;MS
Misc Info : HS16030331;WATER;0;1;
Comment   :
Method    : \\nahstws003\Target\chem\voa6.i\X171116.b\8260W.m
Meth Date : 11-Jan-2018 18:22 voa6.i  Quant Type: ISTD
Cal Date  : 10-OCT-2017 13:33  Cal File: X101008.D
Als bottle: 17  QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE  Compound Sublist: 000_bhateNEW.sub
Target Version:  4.14

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) |
|---|---|---|---|---|---|---|---|---|
| | 31 1,1,1-Trichloroethane | 97 | 4.232 | 4.239 | (0.978) | 217408 | 37.5906 | 37.59 |
| * | 1 Pentafluorobenzene | 168 | 4.325 | 4.325 | (1.000) | 294844 | 50.0000 | |
| $ | 30 Dibromofluoromethane | 113 | 4.254 | 4.254 | (0.983) | 196584 | 46.4434 | 46.44(R) |
| * | 36 1,4-Difluorobenzene | 114 | 5.085 | 5.085 | (1.000) | 510723 | 50.0000 | |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 4.612 | 4.612 | (1.066) | 248595 | 46.6464 | 46.64(R) |
| * | 47 Chlorobenzene-d5 | 117 | 7.742 | 7.742 | (1.000) | 468120 | 50.0000 | |
| $ | 48 Toluene-d8 | 98 | 6.474 | 6.474 | (0.836) | 737254 | 50.8490 | 50.84(R) |
| $ | 69 4-Bromofluorobenzene | 95 | 8.752 | 8.752 | (1.130) | 263684 | 51.0156 | 51.01(R) |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 9.726 | 9.726 | (1.000) | 210575 | 50.0000 | |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 8.903 | 8.903 | (0.915) | 210605 | 56.6038 | 56.60 |
| | 53 1,1,2-Trichloroethane | 83 | 6.918 | 6.918 | (0.894) | 140396 | 46.4670 | 46.46 |
| | 32 1,1-Dichloropropene | 75 | 4.426 | 4.426 | (0.870) | 210210 | 37.8999 | 37.89 |
| | 22 1,1-Dichloroethane | 63 | 3.072 | 3.079 | (0.710) | 314572 | 40.6224 | 40.62 |
| | 11 1,1-Dichloroethene | 96 | 2.055 | 2.055 | (0.475) | 134129 | 39.2794 | 39.27 |
| | 90 1,2,4-Trichlorobenzene | 180 | 11.395 | 11.395 | (1.172) | 80353 | 44.2426 | 44.24 |
| | 89 1,2-Dibromo-3-Chloropropane | 155 | 10.715 | 10.715 | (1.102) | 24229 | 52.2790 | 52.27 |
| | 57 1,2-Dibromoethane | 107 | 7.341 | 7.341 | (0.948) | 163272 | 46.2731 | 46.27 |
| | 88 1,2-Dichlorobenzene | 146 | 10.056 | 10.056 | (1.034) | 234626 | 44.5699 | 44.56 |
| | 33 1,2-Dichloroethane | 62 | 4.691 | 4.691 | (0.923) | 247641 | 43.4331 | 43.43 |
| | 42 1,2-Dichloropropane | 63 | 5.543 | 5.543 | (1.090) | 196190 | 41.5454 | 41.54 |
| | 83 1,3-Dichlorobenzene | 146 | 9.669 | 9.669 | (0.994) | 231002 | 42.6464 | 42.64 |
| | 84 1,4-Dichlorobenzene | 146 | 9.748 | 9.741 | (1.002) | 243799 | 42.7359 | 42.73 |
| | 24 2-Butanone | 43 | 3.731 | 3.731 | (0.863) | 163412 | 93.7408 | 93.74 |

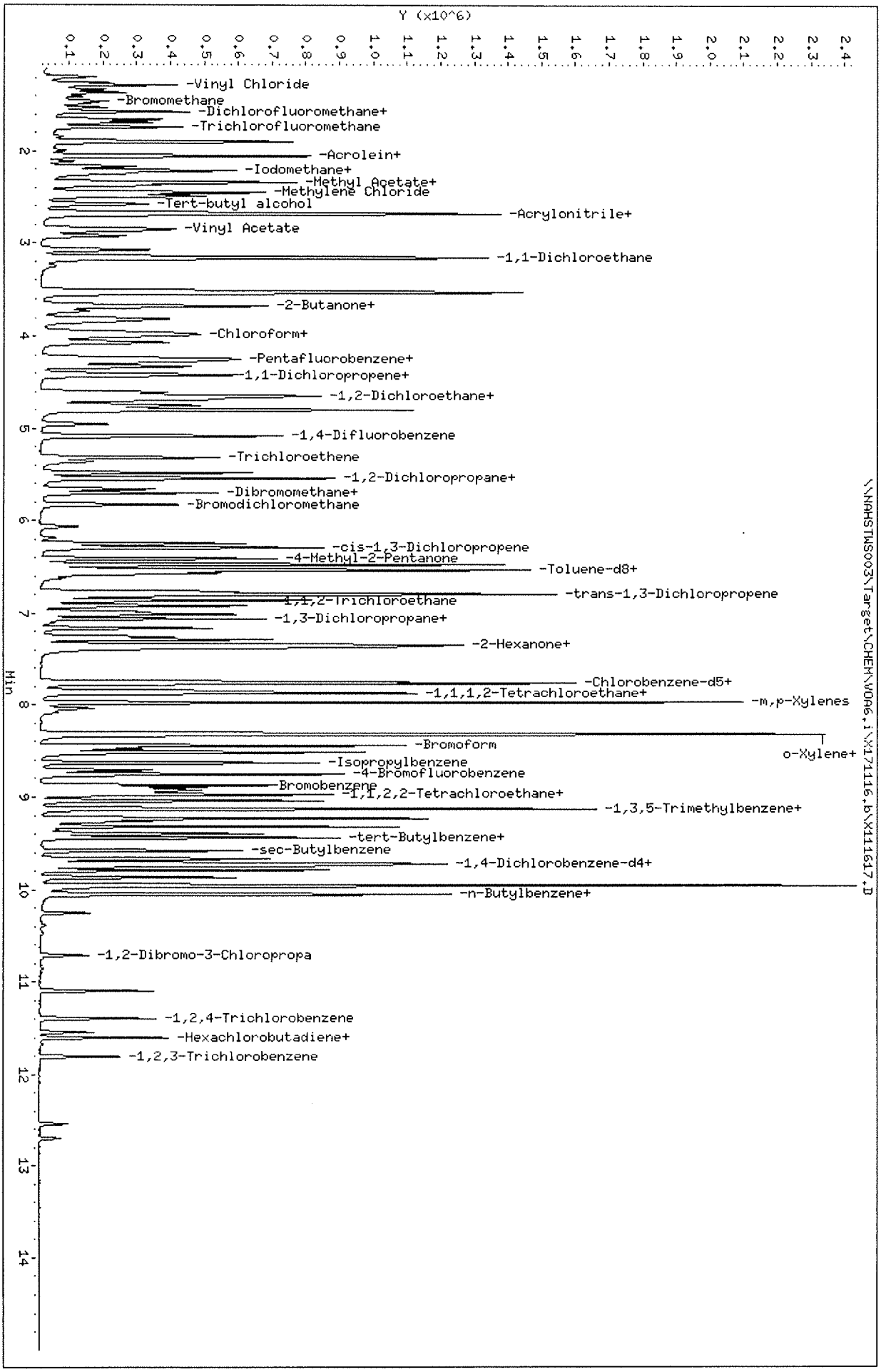
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171116.b\X111617.D Version 15
Report Date: 11-Jan-2018 18:23

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 52 | 2-Hexanone | 43 | 7.284 | 7.284 | (0.941) | 388744 | 101.344 | 101.34 |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.410 | 6.410 | (0.828) | 414530 | 101.643 | 101.64 |
| 10 | Acetone | 43 | 2.112 | 2.112 | (0.488) | 99941 | 95.8427 | 95.84 |
| 37 | Benzene | 78 | 4.648 | 4.648 | (0.914) | 665275 | 39.7345 | 39.73 |
| 39 | Bromodichloromethane | 83 | 5.830 | 5.830 | (1.146) | 235506 | 40.6907 | 40.69 |
| 66 | Bromoform | 173 | 8.480 | 8.480 | (1.095) | 109905 | 42.1351 | 42.13 |
| 6 | Bromomethane | 94 | 1.460 | 1.460 | (0.338) | 63810 | 22.3134 | 22.31 |
| 19 | Carbon Disulfide | 76 | 2.212 | 2.212 | (0.512) | 815433 | 74.9928 | 74.99 |
| 34 | Carbon Tetrachloride | 117 | 4.411 | 4.411 | (0.868) | 155298 | 33.2441 | 33.24 |
| 59 | Chlorobenzene | 112 | 7.764 | 7.764 | (1.003) | 405294 | 42.6981 | 42.69 |
| 7 | Chloroethane | 64 | 1.525 | 1.525 | (0.353) | 95924 | 31.3550 | 31.35(M) |
| 28 | Chloroform | 83 | 4.067 | 4.067 | (0.940) | 303078 | 42.1119 | 42.11 |
| 3 | Chloromethane | 50 | 1.195 | 1.195 | (0.276) | 158834 | 26.6754 | 26.67 |
| 27 | cis-1,2-Dichloroethene | 96 | 3.681 | 3.688 | (0.851) | 199796 | 45.1823 | 45.18 |
| 46 | cis-1,3-Dichloropropene | 75 | 6.245 | 6.245 | (1.228) | 289973 | 39.2265 | 39.22 |
| 55 | Dibromochloromethane | 129 | 7.255 | 7.255 | (0.937) | 172764 | 43.6913 | 43.69 |
| 2 | Dichlorodifluoromethane | 85 | 1.081 | 1.080 | (0.250) | 61782 | 16.3952 | 16.39 |
| 61 | Ethylbenzene | 106 | 7.871 | 7.871 | (1.017) | 195969 | 41.0355 | 41.03 |
| 67 | Isopropylbenzene | 105 | 8.623 | 8.623 | (1.114) | 457455 | 39.7720 | 39.77 |
| 17 | Methylene Chloride | 84 | 2.449 | 2.449 | (0.566) | 183941 | 40.5366 | 40.53 |
| 56 | Tetrachloroethene | 164 | 7.012 | 7.011 | (0.906) | 97603 | 38.8463 | 38.84 |
| 50 | Toluene | 91 | 6.532 | 6.532 | (0.844) | 650420 | 43.2136 | 43.21 |
| 20 | trans-1,2-Dichloroethene | 96 | 2.678 | 2.678 | (0.619) | 155223 | 38.9683 | 38.96 |
| 51 | trans-1,3-Dichloropropene | 75 | 6.761 | 6.761 | (1.330) | 244603 | 38.6640 | 38.66 |
| 38 | Trichloroethene | 130 | 5.321 | 5.321 | (1.046) | 153746 | 37.4076 | 37.40 |
| 8 | Trichlorofluoromethane | 101 | 1.689 | 1.689 | (0.391) | 170281 | 34.4628 | 34.46 |
| 5 | Vinyl Chloride | 62 | 1.260 | 1.260 | (0.291) | 157524 | 31.1992 | 31.19 |
| 62 | m,p-Xylenes | 106 | 7.971 | 7.971 | (1.030) | 468237 | 82.0172 | 82.01 |
| 63 | o-Xylene | 106 | 8.308 | 8.308 | (1.073) | 240473 | 41.5895 | 41.58 |
| M 95 | Xylenes (total) | 106 | | | | 708710 | 123.607 | 123.60 |
| 71 | 1,2,3-Trichloropropane | 75 | 8.931 | 8.931 | (0.918) | 191340 | 51.9378 | 51.93(M) |
| 93 | 1,2,3-Trichlorobenzene | 180 | 11.804 | 11.804 | (1.214) | 62548 | 47.8039 | 47.80 |
| 79 | 1,2,4-Trimethylbenzene | 105 | 9.440 | 9.440 | (0.971) | 403904 | 43.4240 | 43.42 |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.132 | 9.132 | (0.939) | 371514 | 42.7030 | 42.70 |
| 26 | 2,2-Dichloropropane | 77 | 3.666 | 3.666 | (0.848) | 227124 | 37.6501 | 37.65 |
| 54 | 1,3-Dichloropropane | 76 | 7.062 | 7.062 | (0.912) | 296850 | 46.3097 | 46.30 |
| 76 | 2-Chlorotoluene | 91 | 9.039 | 9.039 | (0.929) | 390934 | 45.3114 | 45.31 |
| 77 | 4-Chlorotoluene | 91 | 9.132 | 9.132 | (0.939) | 456262 | 45.1400 | 45.14 |
| 82 | p-Isopropyltoluene | 119 | 9.712 | 9.712 | (0.999) | 297087 | 39.4097 | 39.40 |
| 29 | Bromochloromethane | 128 | 3.960 | 3.960 | (0.916) | 79753 | 40.4912 | 40.49 |
| 74 | Bromobenzene | 156 | 8.874 | 8.874 | (0.912) | 162204 | 45.2583 | 45.25 |
| 44 | Dibromomethane | 93 | 5.658 | 5.658 | (1.113) | 118139 | 43.6602 | 43.66 |
| 91 | Hexachlorobutadiene | 225 | 11.539 | 11.539 | (1.186) | 23324 | 31.5635 | 31.56 |
| 73 | n-Propylbenzene | 91 | 8.974 | 8.974 | (0.923) | 553278 | 42.6664 | 42.66 |
| 87 | n-Butylbenzene | 91 | 10.056 | 10.056 | (1.034) | 256649 | 41.5286 | 41.52 |
| 81 | sec-Butylbenzene | 105 | 9.583 | 9.583 | (0.985) | 346450 | 39.8126 | 39.81 |
| 92 | Naphthalene | 128 | 11.603 | 11.603 | (1.193) | 242529 | 49.3197 | 49.31 |
| 78 | tert-Butylbenzene | 119 | 9.397 | 9.397 | (0.966) | 258309 | 39.7157 | 39.71 |
| 60 | 1,1,1,2-Tetrachloroethane | 131 | 7.850 | 7.842 | (1.014) | 144594 | 41.9029 | 41.90 |
| 64 | Styrene | 104 | 8.322 | 8.322 | (1.075) | 440893 | 42.4785 | 42.47 |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171116.b\X111617.D Version 15
Report Date: 11-Jan-2018 18:23

QC Flag Legend

R - Spike/Surrogate failed recovery limits.
M - Compound response manually integrated.




Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171116.b\X111617.D
Date : 16-NOV-2017 17:10
Client ID: HS17110493-01MS
Sample Info: HS17110493-01MS;HS17110493-01MS;3;;MS
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171116.b\X111618.D  Version 13
Report Date: 11-Jan-2018 18:23

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171116.b\X111618.D
Lab Smp Id: HS17110493-01MSD  Client Smp ID: HS17110493-01MSD
Inj Date : 16-NOV-2017 17:35
Operator : PC  Inst ID: voa6.i
Smp Info : HS17110493-01MSD;HS17110493-01MSD;3;;MSD
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X171116.b\8260W.m
Meth Date : 11-Jan-2018 18:22 voa6.i  Quant Type: ISTD
Cal Date : 10-OCT-2017 13:33  Cal File: X101008.D
Als bottle: 18  QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE  Compound Sublist: 000_bhateNEW.sub
Target Version: 4.14

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) |
|---|---|---|---|---|---|---|---|---|
| | 31 1,1,1-Trichloroethane | 97 | 4.239 | 4.239 | (0.980) | 222715 | 38.7068 | 38.70 |
| * | 1 Pentafluorobenzene | 168 | 4.325 | 4.325 | (1.000) | 293331 | 50.0000 | |
| $ | 30 Dibromofluoromethane | 113 | 4.254 | 4.254 | (0.983) | 196792 | 46.7241 | 46.72(R) |
| * | 36 1,4-Difluorobenzene | 114 | 5.085 | 5.085 | (1.000) | 501773 | 50.0000 | |
| $ | 35 1,2-Dichloroethane-d4 | 65 | 4.612 | 4.612 | (1.066) | 251126 | 47.3529 | 47.35(R) |
| * | 47 Chlorobenzene-d5 | 117 | 7.742 | 7.742 | (1.000) | 464874 | 50.0000 | |
| $ | 48 Toluene-d8 | 98 | 6.474 | 6.474 | (0.836) | 734096 | 50.9797 | 50.97(R) |
| $ | 69 4-Bromofluorobenzene | 95 | 8.752 | 8.752 | (1.130) | 262511 | 51.1398 | 51.13(R) |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 9.726 | 9.726 | (1.000) | 209841 | 50.0000 | |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 8.903 | 8.903 | (0.915) | 226447 | 61.1520 | 61.15 |
| | 53 1,1,2-Trichloroethane | 83 | 6.918 | 6.918 | (0.894) | 149464 | 49.8137 | 49.81 |
| | 32 1,1-Dichloropropene | 75 | 4.426 | 4.426 | (0.870) | 210906 | 38.7036 | 38.70 |
| | 22 1,1-Dichloroethane | 63 | 3.079 | 3.079 | (0.712) | 325547 | 42.2565 | 42.25 |
| | 11 1,1-Dichloroethene | 96 | 2.055 | 2.055 | (0.475) | 128346 | 37.7797 | 37.77 |
| | 90 1,2,4-Trichlorobenzene | 180 | 11.395 | 11.395 | (1.172) | 100063 | 55.2877 | 55.28 |
| | 89 1,2-Dibromo-3-Chloropropane | 155 | 10.715 | 10.715 | (1.102) | 28245 | 61.1426 | 61.14 |
| | 57 1,2-Dibromoethane | 107 | 7.341 | 7.341 | (0.948) | 176458 | 50.3593 | 50.35 |
| | 88 1,2-Dichlorobenzene | 146 | 10.056 | 10.056 | (1.034) | 255742 | 48.7511 | 48.75 |
| | 33 1,2-Dichloroethane | 62 | 4.691 | 4.691 | (0.923) | 261599 | 46.6995 | 46.69 |
| | 42 1,2-Dichloropropane | 63 | 5.543 | 5.543 | (1.090) | 205177 | 44.2235 | 44.22 |
| | 83 1,3-Dichlorobenzene | 146 | 9.669 | 9.669 | (0.994) | 249975 | 46.3106 | 46.31 |
| | 84 1,4-Dichlorobenzene | 146 | 9.741 | 9.741 | (1.001) | 265404 | 46.6858 | 46.68 |
| | 24 2-Butanone | 43 | 3.731 | 3.731 | (0.863) | 170626 | 98.3839 | 98.38 |

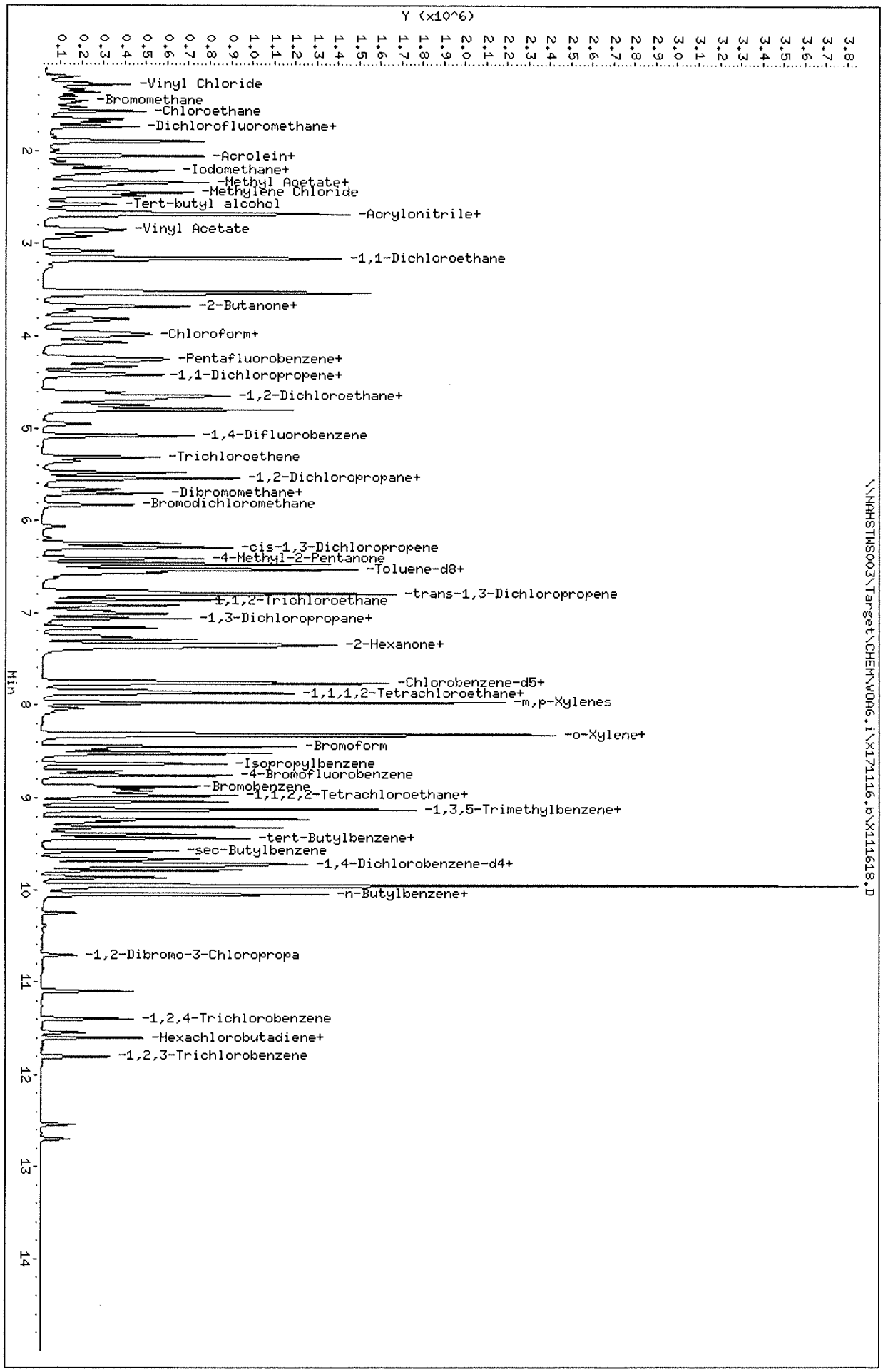
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171116.b\X111618.D Version 13
Report Date: 11-Jan-2018 18:23

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 52 | 2-Hexanone | 43 | 7.284 | 7.284 | (0.941) | 411932 | 108.139 | 108.13 |
| 45 | 4-Methyl-2-Pentanone | 43 | 6.410 | 6.410 | (0.828) | 438525 | 108.277 | 108.27 |
| 10 | Acetone | 43 | 2.112 | 2.112 | (0.488) | 106416 | 102.799 | 102.79 |
| 37 | Benzene | 78 | 4.648 | 4.648 | (0.914) | 697194 | 42.3837 | 42.38 |
| 39 | Bromodichloromethane | 83 | 5.822 | 5.830 | (1.145) | 245386 | 43.1540 | 43.15 |
| 66 | Bromoform | 173 | 8.480 | 8.480 | (1.095) | 112940 | 43.6010 | 43.60 |
| 6 | Bromomethane | 94 | 1.460 | 1.460 | (0.338) | 69204 | 24.3244 | 24.32 |
| 19 | Carbon Disulfide | 76 | 2.212 | 2.212 | (0.512) | 849516 | 78.5303 | 78.53 |
| 34 | Carbon Tetrachloride | 117 | 4.411 | 4.411 | (0.868) | 149857 | 32.6515 | 32.65 |
| 59 | Chlorobenzene | 112 | 7.764 | 7.764 | (1.003) | 428644 | 45.4733 | 45.47 |
| 7 | Chloroethane | 64 | 1.525 | 1.525 | (0.353) | 99423 | 32.6664 | 32.66(M) |
| 28 | Chloroform | 83 | 4.067 | 4.067 | (0.940) | 316575 | 44.2141 | 44.21 |
| 3 | Chloromethane | 50 | 1.195 | 1.195 | (0.276) | 161461 | 27.2507 | 27.25 |
| 27 | cis-1,2-Dichloroethene | 96 | 3.688 | 3.688 | (0.853) | 209176 | 47.5475 | 47.54 |
| 46 | cis-1,3-Dichloropropene | 75 | 6.245 | 6.245 | (1.228) | 303869 | 41.8395 | 41.83 |
| 55 | Dibromochloromethane | 129 | 7.255 | 7.255 | (0.937) | 178010 | 45.3324 | 45.33 |
| 2 | Dichlorodifluoromethane | 85 | 1.081 | 1.080 | (0.250) | 58418 | 15.5824 | 15.58 |
| 61 | Ethylbenzene | 106 | 7.871 | 7.871 | (1.017) | 204192 | 43.0559 | 43.05 |
| 67 | Isopropylbenzene | 105 | 8.623 | 8.623 | (1.114) | 485048 | 42.4655 | 42.46 |
| 17 | Methylene Chloride | 84 | 2.449 | 2.449 | (0.566) | 195637 | 43.3366 | 43.33 |
| 56 | Tetrachloroethene | 164 | 7.011 | 7.011 | (0.906) | 100975 | 40.4690 | 40.46 |
| 50 | Toluene | 91 | 6.532 | 6.532 | (0.844) | 683947 | 45.7585 | 45.75 |
| 20 | trans-1,2-Dichloroethene | 96 | 2.678 | 2.678 | (0.619) | 159775 | 40.3179 | 40.31 |
| 51 | trans-1,3-Dichloropropene | 75 | 6.761 | 6.761 | (1.330) | 255025 | 41.0304 | 41.03 |
| 38 | Trichloroethene | 130 | 5.321 | 5.321 | (1.046) | 160971 | 39.8641 | 39.86 |
| 8 | Trichlorofluoromethane | 101 | 1.689 | 1.689 | (0.391) | 160861 | 32.7242 | 32.72 |
| 5 | Vinyl Chloride | 62 | 1.260 | 1.260 | (0.291) | 157740 | 31.4032 | 31.40 |
| 62 | m,p-Xylenes | 106 | 7.971 | 7.971 | (1.030) | 490115 | 86.4489 | 86.44 |
| 63 | o-Xylene | 106 | 8.308 | 8.308 | (1.073) | 255592 | 44.5130 | 44.51 |
| M 95 | Xylenes (total) | 106 | | | | 745707 | 130.962 | 130.96 |
| 71 | 1,2,3-Trichloropropane | 75 | 8.931 | 8.931 | (0.918) | 203254 | 55.3648 | 55.36(M) |
| 93 | 1,2,3-Trichlorobenzene | 180 | 11.804 | 11.804 | (1.214) | 83636 | 64.1445 | 64.14 |
| 79 | 1,2,4-Trimethylbenzene | 105 | 9.440 | 9.440 | (0.971) | 435806 | 47.0177 | 47.01 |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.132 | 9.132 | (0.939) | 403379 | 46.5279 | 46.52 |
| 26 | 2,2-Dichloropropane | 77 | 3.666 | 3.666 | (0.848) | 232054 | 38.6657 | 38.66 |
| 54 | 1,3-Dichloropropane | 76 | 7.062 | 7.062 | (0.912) | 315509 | 49.5642 | 49.56 |
| 76 | 2-Chlorotoluene | 91 | 9.039 | 9.039 | (0.929) | 414374 | 48.1962 | 48.19 |
| 77 | 4-Chlorotoluene | 91 | 9.132 | 9.132 | (0.939) | 487489 | 48.3981 | 48.39 |
| 82 | p-Isopropyltoluene | 119 | 9.712 | 9.712 | (0.999) | 325651 | 43.3499 | 43.34 |
| 29 | Bromochloromethane | 128 | 3.960 | 3.960 | (0.916) | 85656 | 43.7125 | 43.71 |
| 74 | Bromobenzene | 156 | 8.874 | 8.874 | (0.912) | 172943 | 48.4235 | 48.42 |
| 44 | Dibromomethane | 93 | 5.658 | 5.658 | (1.113) | 126850 | 47.7157 | 47.71 |
| 91 | Hexachlorobutadiene | 225 | 11.539 | 11.539 | (1.186) | 30503 | 41.2310 | 41.23 |
| 73 | n-Propylbenzene | 91 | 8.974 | 8.974 | (0.923) | 587705 | 45.4798 | 45.47 |
| 87 | n-Butylbenzene | 91 | 10.049 | 10.056 | (1.033) | 286170 | 46.4674 | 46.46 |
| 81 | sec-Butylbenzene | 105 | 9.583 | 9.583 | (0.985) | 374651 | 43.2040 | 43.20 |
| 92 | Naphthalene | 128 | 11.603 | 11.603 | (1.193) | 319716 | 64.2833 | 64.28 |
| 78 | tert-Butylbenzene | 119 | 9.397 | 9.397 | (0.966) | 281483 | 43.4301 | 43.43 |
| 60 | 1,1,1,2-Tetrachloroethane | 131 | 7.842 | 7.842 | (1.013) | 151262 | 44.1414 | 44.14 |
| 64 | Styrene | 104 | 8.322 | 8.322 | (1.075) | 469157 | 45.5173 | 45.51 |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171116.b\X111618.D Version 13
Report Date: 11-Jan-2018 18:23

QC Flag Legend

R - Spike/Surrogate failed recovery limits.
M - Compound response manually integrated.




Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171116.b\X111618.D
Date : 16-NOV-2017 17:35
Client ID: HS17110493-01MSD
Sample Info: HS17110493-01MSD;HS17110493-01MSD;3;;MSD
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171116.b\X111629.D  Version 12
Report Date: 11-Jan-2018 18:23

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171116.b\X111629.D
Lab Smp Id: VSTD050-END  Client Smp ID: VSTD050-END
Inj Date  : 16-NOV-2017 22:09
Operator  : PC  Inst ID: voa6.i
Smp Info  : VSTD050-END;VSTD050-END;2;;
Misc Info : HS16030331;WATER;0;1;
Comment   :
Method    : \\nahstws003\Target\chem\voa6.i\X171116.b\8260W.m
Meth Date : 11-Jan-2018 18:22 voa6.i  Quant Type: ISTD
Cal Date  : 10-OCT-2017 13:33  Cal File: X101008.D
Als bottle: 29  Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE  Compound Sublist: 000_bhateNEW.sub
Target Version:  4.14

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) |
|---|---|---|---|---|---|---|---|---|
| 31 | 1,1,1-Trichloroethane | 97 | 4.239 | 4.239 | (0.980) | 231084 | 50.0000 | 40.72 |
| * 1 | Pentafluorobenzene | 168 | 4.325 | 4.325 | (1.000) | 289265 | 50.0000 | |
| $ 30 | Dibromofluoromethane | 113 | 4.254 | 4.254 | (0.983) | 196840 | 50.0000 | 47.37 |
| * 36 | 1,4-Difluorobenzene | 114 | 5.085 | 5.085 | (1.000) | 501067 | 50.0000 | |
| $ 35 | 1,2-Dichloroethane-d4 | 65 | 4.612 | 4.612 | (1.066) | 248014 | 50.0000 | 47.42 |
| * 47 | Chlorobenzene-d5 | 117 | 7.742 | 7.742 | (1.000) | 454563 | 50.0000 | |
| $ 48 | Toluene-d8 | 98 | 6.474 | 6.474 | (0.836) | 730069 | 50.0000 | 51.81 |
| $ 69 | 4-Bromofluorobenzene | 95 | 8.752 | 8.752 | (1.130) | 260077 | 50.0000 | 51.79 |
| * 70 | 1,4-Dichlorobenzene-d4 | 152 | 9.726 | 9.726 | (1.000) | 205922 | 50.0000 | |
| 68 | 1,1,2,2-Tetrachloroethane | 83 | 8.903 | 8.903 | (0.915) | 194836 | 50.0000 | 53.49 |
| 53 | 1,1,2-Trichloroethane | 83 | 6.918 | 6.918 | (0.894) | 137253 | 50.0000 | 46.78 |
| 32 | 1,1-Dichloropropene | 75 | 4.426 | 4.426 | (0.870) | 216589 | 50.0000 | 39.80 |
| 22 | 1,1-Dichloroethane | 63 | 3.079 | 3.079 | (0.712) | 327867 | 50.0000 | 43.15 |
| 11 | 1,1-Dichloroethene | 96 | 2.055 | 2.055 | (0.475) | 139508 | 50.0000 | 41.64 |
| 90 | 1,2,4-Trichlorobenzene | 180 | 11.395 | 11.395 | (1.172) | 77016 | 50.0000 | 43.36 |
| 89 | 1,2-Dibromo-3-Chloropropane | 155 | 10.715 | 10.715 | (1.102) | 21321 | 50.0000 | 47.05 |
| 57 | 1,2-Dibromoethane | 107 | 7.341 | 7.341 | (0.948) | 160795 | 50.0000 | 46.93 |
| 88 | 1,2-Dichlorobenzene | 146 | 10.056 | 10.056 | (1.034) | 234530 | 50.0000 | 45.55 |
| 33 | 1,2-Dichloroethane | 62 | 4.691 | 4.691 | (0.923) | 249668 | 50.0000 | 44.63 |
| 42 | 1,2-Dichloropropane | 63 | 5.543 | 5.543 | (1.090) | 197391 | 50.0000 | 42.60 |
| 83 | 1,3-Dichlorobenzene | 146 | 9.669 | 9.669 | (0.994) | 238374 | 50.0000 | 45.00 |
| 84 | 1,4-Dichlorobenzene | 146 | 9.741 | 9.741 | (1.001) | 250516 | 50.0000 | 44.90 |
| 24 | 2-Butanone | 43 | 3.731 | 3.731 | (0.863) | 152850 | 100.000 | 89.37 |

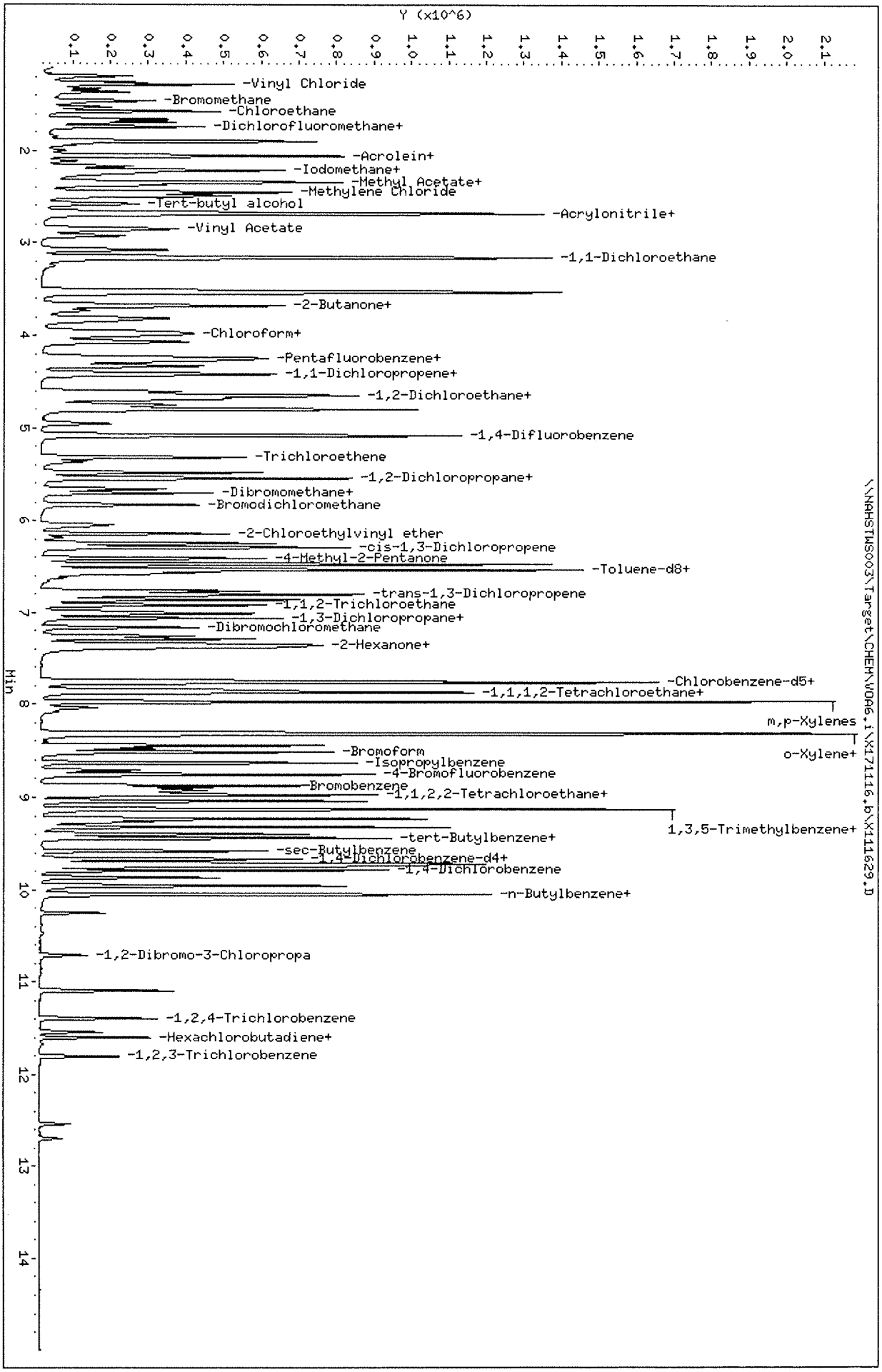
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171116.b\X111629.D  Version 12
Report Date: 11-Jan-2018 18:23

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | ON-COL ( ug/l) | |
|---|---|---|---|---|---|---|---|---|---|
| | 52 2-Hexanone | 43 | 7.284 | 7.284 | (0.941) | 324951 | 100.000 | 87.23 | |
| | 45 4-Methyl-2-Pentanone | 43 | 6.410 | 6.410 | (0.828) | 349018 | 100.000 | 88.13 | |
| | 10 Acetone | 43 | 2.112 | 2.112 | (0.488) | 98394 | 100.000 | 96.19 | |
| | 37 Benzene | 78 | 4.648 | 4.648 | (0.914) | 693719 | 50.0000 | 42.23 | |
| | 39 Bromodichloromethane | 83 | 5.830 | 5.830 | (1.146) | 243186 | 50.0000 | 42.82 | |
| | 66 Bromoform | 173 | 8.480 | 8.480 | (1.095) | 109263 | 50.0000 | 43.13 | |
| | 6 Bromomethane | 94 | 1.460 | 1.460 | (0.338) | 115550 | 50.0000 | 41.18 | |
| | 19 Carbon Disulfide | 76 | 2.212 | 2.212 | (0.512) | 927202 | 100.000 | 86.91 | |
| | 34 Carbon Tetrachloride | 117 | 4.411 | 4.411 | (0.868) | 178294 | 50.0000 | 38.90 | |
| | 59 Chlorobenzene | 112 | 7.764 | 7.764 | (1.003) | 415324 | 50.0000 | 45.05 | |
| | 7 Chloroethane | 64 | 1.525 | 1.525 | (0.353) | 124835 | 50.0000 | 41.59 | |
| | 28 Chloroform | 83 | 4.067 | 4.067 | (0.940) | 315106 | 50.0000 | 44.62 | |
| | 3 Chloromethane | 50 | 1.195 | 1.195 | (0.276) | 242719 | 50.0000 | 41.40 | |
| | 27 cis-1,2-Dichloroethene | 96 | 3.688 | 3.688 | (0.853) | 192503 | 50.0000 | 44.37 | |
| | 46 cis-1,3-Dichloropropene | 75 | 6.245 | 6.245 | (1.228) | 296173 | 50.0000 | 40.83 | |
| | 55 Dibromochloromethane | 129 | 7.255 | 7.255 | (0.937) | 179525 | 50.0000 | 46.75 | |
| | 2 Dichlorodifluoromethane | 85 | 1.080 | 1.080 | (0.250) | 149624 | 50.0000 | 40.47 | |
| | 61 Ethylbenzene | 106 | 7.871 | 7.871 | (1.017) | 204602 | 50.0000 | 44.12 | |
| | 67 Isopropylbenzene | 105 | 8.623 | 8.623 | (1.114) | 477671 | 50.0000 | 42.76 | |
| | 17 Methylene Chloride | 84 | 2.449 | 2.449 | (0.566) | 192551 | 50.0000 | 43.25 | |
| | 56 Tetrachloroethene | 164 | 7.011 | 7.011 | (0.906) | 97935 | 50.0000 | 40.14 | |
| | 50 Toluene | 91 | 6.532 | 6.532 | (0.844) | 674135 | 50.0000 | 46.12 | |
| | 20 trans-1,2-Dichloroethene | 96 | 2.678 | 2.678 | (0.619) | 168113 | 50.0000 | 43.01 | |
| | 51 trans-1,3-Dichloropropene | 75 | 6.761 | 6.761 | (1.330) | 249162 | 50.0000 | 40.14 | |
| | 38 Trichloroethene | 130 | 5.321 | 5.321 | (1.046) | 159297 | 50.0000 | 39.50 | |
| | 8 Trichlorofluoromethane | 101 | 1.689 | 1.689 | (0.391) | 186156 | 50.0000 | 38.40 | |
| | 5 Vinyl Chloride | 62 | 1.260 | 1.260 | (0.291) | 208566 | 50.0000 | 42.10 | |
| | 62 m,p-Xylenes | 106 | 7.971 | 7.971 | (1.030) | 486755 | 100.000 | 87.80 | |
| | 63 o-Xylene | 106 | 8.308 | 8.308 | (1.073) | 247990 | 50.0000 | 44.16 | |
| M | 95 Xylenes (total) | 106 | | | | 734745 | 150.000 | | (a) |
| | 71 1,2,3-Trichloropropane | 75 | 8.931 | 8.931 | (0.918) | 178682 | 50.0000 | 49.59 | (M) |
| | 93 1,2,3-Trichlorobenzene | 180 | 11.804 | 11.804 | (1.214) | 56109 | 50.0000 | 43.85 | |
| | 79 1,2,4-Trimethylbenzene | 105 | 9.440 | 9.440 | (0.971) | 418210 | 50.0000 | 45.97 | |
| | 75 1,3,5-Trimethylbenzene | 105 | 9.132 | 9.132 | (0.939) | 387350 | 50.0000 | 45.52 | |
| | 26 2,2-Dichloropropane | 77 | 3.666 | 3.666 | (0.848) | 221821 | 50.0000 | 37.48 | |
| | 54 1,3-Dichloropropane | 76 | 7.062 | 7.062 | (0.912) | 290666 | 50.0000 | 46.69 | |
| | 76 2-Chlorotoluene | 91 | 9.039 | 9.039 | (0.929) | 404594 | 50.0000 | 47.95 | |
| | 77 4-Chlorotoluene | 91 | 9.132 | 9.132 | (0.939) | 480208 | 50.0000 | 48.58 | |
| | 82 p-Isopropyltoluene | 119 | 9.712 | 9.712 | (0.999) | 303864 | 50.0000 | 41.21 | |
| | 29 Bromochloromethane | 128 | 3.960 | 3.960 | (0.916) | 83235 | 50.0000 | 43.07 | |
| | 74 Bromobenzene | 156 | 8.874 | 8.874 | (0.912) | 164118 | 50.0000 | 46.82 | |
| | 44 Dibromomethane | 93 | 5.658 | 5.658 | (1.113) | 117456 | 50.0000 | 44.24 | |
| | 91 Hexachlorobutadiene | 225 | 11.539 | 11.539 | (1.186) | 24139 | 50.0000 | 33.36 | |
| | 73 n-Propylbenzene | 91 | 8.974 | 8.974 | (0.923) | 570885 | 50.0000 | 45.01 | |
| | 87 n-Butylbenzene | 91 | 10.056 | 10.056 | (1.034) | 262714 | 50.0000 | 43.47 | |
| | 81 sec-Butylbenzene | 105 | 9.583 | 9.583 | (0.985) | 352459 | 50.0000 | 41.41 | |
| | 92 Naphthalene | 128 | 11.603 | 11.603 | (1.193) | 197104 | 50.0000 | 41.49 | |
| | 78 tert-Butylbenzene | 119 | 9.397 | 9.397 | (0.966) | 269179 | 50.0000 | 42.32 | |
| | 60 1,1,1,2-Tetrachloroethane | 131 | 7.842 | 7.842 | (1.013) | 146898 | 50.0000 | 43.84 | |
| | 64 Styrene | 104 | 8.322 | 8.322 | (1.075) | 454124 | 50.0000 | 45.05 | |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171116.b\X111629.D  Version 12
Report Date: 11-Jan-2018 18:23

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.




Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171116.b\X111629.D
Date : 16-NOV-2017 22:09
Client ID: VSTD050-END
Sample Info: VSTD050-END;VSTD050-END;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

# FORM 5
## VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
## BROMOFLUOROBENZENE (BFB)

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code:  Case No.:  SAS No.:  SDG No.: HS17110493

Lab File ID: X111901  BFB Injection Date: 11/19/17

Instrument ID: VOA6  BFB Injection Time: 0939

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 | 22.4 |
| 75 | 30.0 - 60.0% of mass 95 | 50.0 |
| 95 | Base Peak, 100% relative abundance | 100.0 |
| 96 | 5.0 - 9.0% of mass 95 | 6.8 |
| 173 | Less than 2.0% of mass 174 | 0.5 ( 0.9)1 |
| 174 | Greater than 50.0% of mass 95 | 58.9 |
| 175 | 5.0 - 9.0% of mass 174 | 4.6 ( 7.9)1 |
| 176 | 95.0 - 101.0% of mass 174 | 57.6 ( 97.9)1 |
| 177 | 5.0 - 9.0% of mass 176 | 3.9 ( 6.8)2 |

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

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

| | EPA SAMPLE NO. | LAB SAMPLE ID | LAB FILE ID | DATE ANALYZED | TIME ANALYZED |
|---|---|---|---|---|---|
| 01 | VSTD050 | VSTD050 | X111902 | 11/19/17 | 1004 |
| 02 | VLCSW-171119 | VLCSW-171119 | X111903 | 11/19/17 | 1029 |
| 03 | VBLKW-017111 | VBLKW-171119 | X111906 | 11/19/17 | 1144 |
| 04 | HS17110664-1 | HS17110664-11M | X111913 | 11/19/17 | 1438 |
| 05 | HS17110664-1 | HS17110664-11M | X111914 | 11/19/17 | 1503 |
| 06 | HS17110493-0 | HS17110493-02 | X111915 | 11/19/17 | 1528 |
| 07 | VSTD050-END | VSTD050-END | X111929 | 11/19/17 | 2116 |
| 08 | | | | | |
| 09 | | | | | |
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| 22 | | | | | |

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code:  Case No.:  SAS No.:  SDG No.: HS17110493

Instrument ID: VOA6  Calibration Date: 11/19/17  Time: 1004

Lab File ID: X111902  Init. Calib. Date(s): 10/10/17  10/10/17

Init. Calib. Times:  1014  1447

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 |
|---|---|---|---|---|---|---|---|
| Bromochloromethane | 0.3340000 | 0.2828360 | 0.2828360 | 0.1 | 15.32 | 20.00 | AVRG |
| Chloromethane | 44.775278 | 50.000000 | 0.9078817 | 0.1 | 10.45 | 20.00 | LINR |
| Bromomethane | 0.4850000 | 0.4605454 | 0.4605454 | 0.1 | 5.04 | 20.00 | AVRG |
| Vinyl Chloride | 0.8560000 | 0.7598081 | 0.7598081 | 0.1 | 11.24 | 20.00 | AVRG |
| Chloroethane | 0.5190000 | 0.4367518 | 0.4367518 | 0.1 | 15.85 | 20.00 | AVRG |
| Methylene Chloride | 0.7690000 | 0.6690630 | 0.6690630 | 0.1 | 13.00 | 20.00 | AVRG |
| Acetone | 91.323837 | 100.00000 | 0.1617438 | 0.1 | 8.68 | 20.00 | LINR |
| Carbon Disulfide | 1.8440000 | 1.6710637 | 1.6710637 | 0.1 | 9.38 | 20.00 | AVRG |
| 1,1-Dichloroethene | 0.5790000 | 0.5005253 | 0.5005253 | 0.1 | 13.55 | 20.00 | AVRG |
| 1,1-Dichloroethane | 1.3130000 | 1.1613915 | 1.1613915 | 0.2 | 11.55 | 20.00 | AVRG |
| Chloroform | 1.2200000 | 1.0892532 | 1.0892532 | 0.2 | 10.72 | 20.00 | AVRG |
| 1,2-Dichloroethane | 0.5580000 | 0.4965361 | 0.4965361 | 0.1 | 11.02 | 20.00 | AVRG |
| 2-Butanone | 0.2960000 | 0.2568458 | 0.2568458 | 0.1 | 13.23 | 20.00 | AVRG |
| 1,1,1-Trichloroethane | 0.9810000 | 0.8256102 | 0.8256102 | 0.1 | 15.84 | 20.00 | AVRG |
| Carbon Tetrachloride | 0.4570000 | 0.3745058 | 0.3745058 | 0.1 | 18.05 | 20.00 | AVRG |
| Bromodichloromethane | 0.5660000 | 0.4952513 | 0.4952513 | 0.2 | 12.50 | 20.00 | AVRG |
| 1,2-Dichloropropane | 0.4620000 | 0.3945314 | 0.3945314 | 0.1 | 14.60 | 20.00 | AVRG |
| cis-1,3-Dichloropropene | 0.7240000 | 0.6173370 | 0.6173370 | 0.2 | 14.73 | 20.00 | AVRG |
| Trichloroethene | 0.4020000 | 0.3223991 | 0.3223991 | 0.2 | 19.80 | 20.00 | AVRG |
| Dibromochloromethane | 0.4220000 | 0.3932156 | 0.3932156 | 0.1 | 6.82 | 20.00 | AVRG |
| 1,1,2-Trichloroethane | 0.3230000 | 0.2953299 | 0.2953299 | 0.1 | 8.57 | 20.00 | AVRG |
| Benzene | 1.6390000 | 1.4197648 | 1.4197648 | 0.5 | 13.38 | 20.00 | AVRG |
| trans-1,3-Dichloropropene | 0.6190000 | 0.5170390 | 0.5170390 | 0.1 | 16.47 | 20.00 | AVRG |
| Bromoform | 0.2780000 | 0.2343935 | 0.2343935 | 0.1 | 15.68 | 20.00 | AVRG |
| 4-Methyl-2-Pentanone | 0.4360000 | 0.3773667 | 0.3773667 | 0.1 | 13.45 | 20.00 | AVRG |
| 2-Hexanone | 0.4090000 | 0.3523579 | 0.3523579 | 0.1 | 13.85 | 20.00 | AVRG |
| Tetrachloroethene | 0.2680000 | 0.2188889 | 0.2188889 | 0.2 | 18.32 | 20.00 | AVRG |
| 1,1,2,2-Tetrachloroethane | 54.266078 | 50.000000 | 0.9595406 | 0.3 | -8.53 | 20.00 | LINR |
| Toluene | 1.6080000 | 1.4934545 | 1.4934545 | 0.4 | 7.12 | 20.00 | AVRG |
| Chlorobenzene | 1.0140000 | 0.9142983 | 0.9142983 | 0.5 | 9.83 | 20.00 | AVRG |
| Ethylbenzene | 0.5100000 | 0.4512579 | 0.4512579 | 0.1 | 11.52 | 20.00 | AVRG |
| Styrene | 1.1080000 | 1.0011131 | 1.0011131 | 0.3 | 9.65 | 20.00 | AVRG |
| Dichlorodifluoromethane | 0.6390000 | 0.5339121 | 0.5339121 | 0.1 | 16.44 | 20.00 | AVRG |
| Trichlorofluoromethane | 0.8380000 | 0.7072645 | 0.7072645 | 0.1 | 15.60 | 20.00 | AVRG |
| 1,3-Dichlorobenzene | 1.2860000 | 1.1813012 | 1.1813012 | 0.6 | 8.14 | 20.00 | AVRG |
| 1,4-Dichlorobenzene | 1.3540000 | 1.2402953 | 1.2402953 | 0.4 | 8.40 | 20.00 | AVRG |
| 1,2-Dichlorobenzene | 1.2500000 | 1.1456370 | 1.1456370 | 0.4 | 8.35 | 20.00 | AVRG |
| 2,2-Dichloropropane | 1.0230000 | 0.8909150 | 0.8909150 | 0.1 | 12.91 | 20.00 | AVRG |
| 1,1-Dichloropropene | 0.5430000 | 0.4523098 | 0.4523098 | 0.1 | 16.70 | 20.00 | AVRG |
| Dibromomethane | 0.2650000 | 0.2340974 | 0.2340974 | 0.1 | 11.66 | 20.00 | AVRG |
| 1,2-Dibromoethane | 0.3770000 | 0.3464667 | 0.3464667 | 0.1 | 8.10 | 20.00 | AVRG |
| 1,3-Dichloropropane | 0.6850000 | 0.6277776 | 0.6277776 | 0.1 | 8.35 | 20.00 | AVRG |



FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code:  Case No.:  SAS No.:  SDG No.: HS1711049

Instrument ID: VOA6  Calibration Date: 11/19/17  Time: 1004

Lab File ID: X111902  Init. Calib. Date(s): 10/10/17  10/10/17

Init. Calib. Times:  1014  1447

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 |
|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 0.3680000 | 0.3213810 | 0.3213810 | 0.1 | 12.67 | 20.00 | AVRG |
| Isopropylbenzene | 1.2280000 | 1.0609718 | 1.0609718 | 0.1 | 13.60 | 20.00 | AVRG |
| Bromobenzene | 0.8510000 | 0.8057042 | 0.8057042 | 0.1 | 5.32 | 20.00 | AVRG |
| 1,2,3-Trichloropropane | 0.8750000 | 0.8945443 | 0.8945443 | 0.1 | -2.23 | 20.00 | AVRG |
| n-Propylbenzene | 3.0790000 | 2.9331036 | 2.9331036 | 0.1 | 4.74 | 20.00 | AVRG |
| 2-Chlorotoluene | 2.0480000 | 2.0279317 | 2.0279317 | 0.1 | 0.98 | 20.00 | AVRG |
| 1,3,5-Trimethylbenzene | 2.0660000 | 1.9555847 | 1.9555847 | 0.1 | 5.34 | 20.00 | AVRG |
| 4-Chlorotoluene | 2.4000000 | 2.3878230 | 2.3878230 | 0.1 | 0.51 | 20.00 | AVRG |
| tert-Butylbenzene | 1.5440000 | 1.3753849 | 1.3753849 | 0.1 | 10.92 | 20.00 | AVRG |
| 1,2,4-Trimethylbenzene | 2.2080000 | 2.0960257 | 2.0960257 | 0.1 | 5.07 | 20.00 | AVRG |
| sec-Butylbenzene | 2.0660000 | 1.8803474 | 1.8803474 | 0.1 | 8.99 | 20.00 | AVRG |
| p-Isopropyltoluene | 1.7900000 | 1.6388356 | 1.6388356 | 0.1 | 8.44 | 20.00 | AVRG |
| n-Butylbenzene | 1.4670000 | 1.4483589 | 1.4483589 | 0.5 | 1.27 | 20.00 | AVRG |
| 1,2-Dibromo-3-Chloropropane | 46.970293 | 50.000000 | 0.1033576 | 0.05 | 6.06 | 20.00 | LINR |
| 1,2,4-Trichlorobenzene | 0.4310000 | 0.3770540 | 0.3770540 | 0.2 | 12.52 | 20.00 | AVRG |
| Hexachlorobutadiene | 42.982198 | 50.000000 | 0.1516297 | 0.1 | 14.04 | 20.00 | LINR |
| Naphthalene | 41.106759 | 50.000000 | 0.9476446 | 0.2 | 17.79 | 20.00 | LINR |
| 1,2,3-Trichlorobenzene | 0.3110000 | 0.2729892 | 0.2729892 | 0.1 | 12.22 | 20.00 | AVRG |
| Xylenes (total) | 0.6170000 | 0.4946328 | 0.4946328 | 0.1 | 19.83 | 20.00 | AVRG |
| Toluene-d8 | 52.037691 | 50.000000 | 1.6131801 | 0.1 | -4.08 | 20.00 | 2RDR |
| 4-Bromofluorobenzene | 51.601945 | 50.000000 | 0.5699392 | 0.1 | -3.20 | 20.00 | 2RDR |
| Dibromofluoromethane | 46.522040 | 50.000000 | 0.6679005 | 0.1 | 6.96 | 20.00 | 2RDR |

# FORM 7B
## VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code:  Case No.:  SAS No.:  SDG No.: HS17110493

Instrument ID: VOA6  Calibration Date: 11/19/17  Time: 2116

Lab File ID: X111929  Init. Calib. Date(s): 10/10/17  10/10/17

Init. Calib. Times:  1014  1447

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 | |
|---|---|---|---|---|---|---|---|---|
| Bromochloromethane | 0.3340000 | 0.2890738 | 0.2890738 | 0.1 | 13.45 | 20.00 | AVRG | |
| Chloromethane | 41.783048 | 50.000000 | 0.8468504 | 0.1 | 16.43 | 20.00 | LINR | |
| Bromomethane | 0.4850000 | 0.3620801 | 0.3620801 | 0.1 | 25.34 | 20.00 | AVRG | <- |
| Vinyl Chloride | 0.8560000 | 0.7342307 | 0.7342307 | 0.1 | 14.22 | 20.00 | AVRG | |
| Chloroethane | 0.5190000 | 0.4260136 | 0.4260136 | 0.1 | 17.92 | 20.00 | AVRG | |
| Methylene Chloride | 0.7690000 | 0.6688110 | 0.6688110 | 0.1 | 13.03 | 20.00 | AVRG | |
| Acetone | 100.28191 | 100.00000 | 0.1770822 | 0.1 | -0.28 | 20.00 | LINR | |
| Carbon Disulfide | 1.8440000 | 1.6589527 | 1.6589527 | 0.1 | 10.04 | 20.00 | AVRG | |
| 1,1-Dichloroethene | 0.5790000 | 0.4909061 | 0.4909061 | 0.1 | 15.21 | 20.00 | AVRG | |
| 1,1-Dichloroethane | 1.3130000 | 1.1440698 | 1.1440698 | 0.2 | 12.86 | 20.00 | AVRG | |
| Chloroform | 1.2200000 | 1.1017954 | 1.1017954 | 0.2 | 9.69 | 20.00 | AVRG | |
| 1,2-Dichloroethane | 0.5580000 | 0.4984785 | 0.4984785 | 0.1 | 10.67 | 20.00 | AVRG | |
| 2-Butanone | 0.2960000 | 0.2497240 | 0.2497240 | 0.1 | 15.63 | 20.00 | AVRG | |
| 1,1,1-Trichloroethane | 0.9810000 | 0.8253434 | 0.8253434 | 0.1 | 15.87 | 20.00 | AVRG | |
| Carbon Tetrachloride | 0.4570000 | 0.3642476 | 0.3642476 | 0.1 | 20.30 | 20.00 | AVRG | <- |
| Bromodichloromethane | 0.5660000 | 0.4997148 | 0.4997148 | 0.2 | 11.71 | 20.00 | AVRG | |
| 1,2-Dichloropropane | 0.4620000 | 0.4030593 | 0.4030593 | 0.1 | 12.76 | 20.00 | AVRG | |
| cis-1,3-Dichloropropene | 0.7240000 | 0.5941482 | 0.5941482 | 0.2 | 17.94 | 20.00 | AVRG | |
| Trichloroethene | 0.4020000 | 0.3255031 | 0.3255031 | 0.2 | 19.03 | 20.00 | AVRG | |
| Dibromochloromethane | 0.4220000 | 0.3964119 | 0.3964119 | 0.1 | 6.06 | 20.00 | AVRG | |
| 1,1,2-Trichloroethane | 0.3230000 | 0.3009142 | 0.3009142 | 0.1 | 6.84 | 20.00 | AVRG | |
| Benzene | 1.6390000 | 1.3869745 | 1.3869745 | 0.5 | 15.38 | 20.00 | AVRG | |
| trans-1,3-Dichloropropene | 0.6190000 | 0.4993482 | 0.4993482 | 0.1 | 19.33 | 20.00 | AVRG | |
| Bromoform | 0.2780000 | 0.2387676 | 0.2387676 | 0.1 | 14.11 | 20.00 | AVRG | |
| 4-Methyl-2-Pentanone | 0.4360000 | 0.3791306 | 0.3791306 | 0.1 | 13.04 | 20.00 | AVRG | |
| 2-Hexanone | 0.4090000 | 0.3602183 | 0.3602183 | 0.1 | 11.93 | 20.00 | AVRG | |
| Tetrachloroethene | 0.2680000 | 0.2186349 | 0.2186349 | 0.2 | 18.42 | 20.00 | AVRG | |
| 1,1,2,2-Tetrachloroethane | 52.170240 | 50.000000 | 0.9231398 | 0.3 | -4.34 | 20.00 | LINR | |
| Toluene | 1.6080000 | 1.4924000 | 1.4924000 | 0.4 | 7.19 | 20.00 | AVRG | |
| Chlorobenzene | 1.0140000 | 0.9228953 | 0.9228953 | 0.5 | 8.98 | 20.00 | AVRG | |
| Ethylbenzene | 0.5100000 | 0.4536546 | 0.4536546 | 0.1 | 11.05 | 20.00 | AVRG | |
| Styrene | 1.1080000 | 1.0167665 | 1.0167665 | 0.3 | 8.23 | 20.00 | AVRG | |
| Dichlorodifluoromethane | 0.6390000 | 0.5342951 | 0.5342951 | 0.1 | 16.38 | 20.00 | AVRG | |
| Trichlorofluoromethane | 0.8380000 | 0.6950666 | 0.6950666 | 0.1 | 17.06 | 20.00 | AVRG | |
| 1,3-Dichlorobenzene | 1.2860000 | 1.1784539 | 1.1784539 | 0.6 | 8.36 | 20.00 | AVRG | |
| 1,4-Dichlorobenzene | 1.3540000 | 1.2395923 | 1.2395923 | 0.4 | 8.45 | 20.00 | AVRG | |
| 1,2-Dichlorobenzene | 1.2500000 | 1.1639076 | 1.1639076 | 0.4 | 6.89 | 20.00 | AVRG | |
| 2,2-Dichloropropane | 1.0230000 | 0.7745837 | 0.7745837 | 0.1 | 24.28 | 20.00 | AVRG | <- |
| 1,1-Dichloropropene | 0.5430000 | 0.4468898 | 0.4468898 | 0.1 | 17.70 | 20.00 | AVRG | |
| Dibromomethane | 0.2650000 | 0.2382883 | 0.2382883 | 0.1 | 10.08 | 20.00 | AVRG | |
| 1,2-Dibromoethane | 0.3770000 | 0.3499845 | 0.3499845 | 0.1 | 7.16 | 20.00 | AVRG | |
| 1,3-Dichloropropane | 0.6850000 | 0.6341499 | 0.6341499 | 0.1 | 7.42 | 20.00 | AVRG | |

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code:  Case No.:  SAS No.:  SDG No.: HS1711049

Instrument ID: VOA6  Calibration Date: 11/19/17  Time: 2116

Lab File ID: X111929  Init. Calib. Date(s): 10/10/17  10/10/17

Init. Calib. Times:  1014  1447

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 | |
|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 0.3680000 | 0.3260773 | 0.3260773 | 0.1 | 11.39 | 20.00 | AVRG | |
| Isopropylbenzene | 1.2280000 | 1.0573736 | 1.0573736 | 0.1 | 13.89 | 20.00 | AVRG | |
| Bromobenzene | 0.8510000 | 0.7991292 | 0.7991292 | 0.1 | 6.10 | 20.00 | AVRG | |
| 1,2,3-Trichloropropane | 0.8750000 | 0.8763420 | 0.8763420 | 0.1 | -0.15 | 20.00 | AVRG | |
| n-Propylbenzene | 3.0790000 | 2.8100511 | 2.8100511 | 0.1 | 8.73 | 20.00 | AVRG | |
| 2-Chlorotoluene | 2.0480000 | 1.9737628 | 1.9737628 | 0.1 | 3.62 | 20.00 | AVRG | |
| 1,3,5-Trimethylbenzene | 2.0660000 | 1.8956929 | 1.8956929 | 0.1 | 8.24 | 20.00 | AVRG | |
| 4-Chlorotoluene | 2.4000000 | 2.2988451 | 2.2988451 | 0.1 | 4.21 | 20.00 | AVRG | |
| tert-Butylbenzene | 1.5440000 | 1.3136020 | 1.3136020 | 0.1 | 14.92 | 20.00 | AVRG | |
| 1,2,4-Trimethylbenzene | 2.2080000 | 2.0434723 | 2.0434723 | 0.1 | 7.45 | 20.00 | AVRG | |
| sec-Butylbenzene | 2.0660000 | 1.7568372 | 1.7568372 | 0.1 | 14.96 | 20.00 | AVRG | |
| p-Isopropyltoluene | 1.7900000 | 1.5277114 | 1.5277114 | 0.1 | 14.65 | 20.00 | AVRG | |
| n-Butylbenzene | 1.4670000 | 1.3112805 | 1.3112805 | 0.5 | 10.61 | 20.00 | AVRG | |
| 1,2-Dibromo-3-Chloropropane | 47.460974 | 50.000000 | 0.1044393 | 0.05 | 5.08 | 20.00 | LINR | |
| 1,2,4-Trichlorobenzene | 0.4310000 | 0.3951150 | 0.3951150 | 0.2 | 8.32 | 20.00 | AVRG | |
| Hexachlorobutadiene | 35.082998 | 50.000000 | 0.1233593 | 0.1 | 29.83 | 20.00 | LINR | <- |
| Naphthalene | 48.349260 | 50.000000 | 1.1276301 | 0.2 | 3.30 | 20.00 | LINR | |
| 1,2,3-Trichlorobenzene | 0.3110000 | 0.2994867 | 0.2994867 | 0.1 | 3.70 | 20.00 | AVRG | |
| Xylenes (total) | 0.6170000 | 0.4977588 | 0.4977588 | 0.1 | 19.32 | 20.00 | AVRG | |
| Toluene-d8 | 50.844024 | 50.000000 | 1.5747659 | 0.1 | -1.69 | 20.00 | 2RDR | |
| 4-Bromofluorobenzene | 50.993678 | 50.000000 | 0.5630342 | 0.1 | -1.99 | 20.00 | 2RDR | |
| Dibromofluoromethane | 47.259705 | 50.000000 | 0.6788072 | 0.1 | 5.48 | 20.00 | 2RDR | |

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS LABORATORY GROUP  Contract:

Lab Code:  Case No.:  SAS No.:  SDG No.: HS17110493

Lab File ID (Standard): X111902  Date Analyzed: 11/19/17

Instrument ID: VOA6  Time Analyzed: 1004

GC Column: DB624  ID: 0.18 (mm)  Heated Purge: (Y/N) N

| | | IS1(CBZ) AREA # | RT # | IS2(DCB) AREA # | RT # | IS3(DFB) AREA # | RT # |
|---|---|---|---|---|---|---|---|
| | 12 HOUR STD | 480632 | 7.74 | 212089 | 9.73 | 523829 | 5.09 |
| | UPPER LIMIT | 961264 | 8.24 | 424178 | 10.23 | 1047658 | 5.59 |
| | LOWER LIMIT | 240316 | 7.24 | 106045 | 9.23 | 261915 | 4.59 |
| | CLIENT SAMPLE NO. | | | | | | |
| 01 | VLCSW-171119 | 474055 | 7.74 | 214438 | 9.73 | 515010 | 5.09 |
| 02 | VBLKW-0171119 | 477889 | 7.74 | 203438 | 9.73 | 519116 | 5.09 |
| 03 | HS17110664-11 | 464422 | 7.74 | 204334 | 9.73 | 506164 | 5.09 |
| 04 | HS17110664-11 | 475832 | 7.74 | 209871 | 9.73 | 511561 | 5.09 |
| 05 | HS17110493-02 | 481327 | 7.74 | 211809 | 9.73 | 518596 | 5.09 |
| 06 | | | | | | | |
| 07 | | | | | | | |
| 08 | | | | | | | |
| 09 | | | | | | | |
| 10 | | | | | | | |
| 11 | | | | | | | |
| 12 | | | | | | | |
| 13 | | | | | | | |
| 14 | | | | | | | |
| 15 | | | | | | | |
| 16 | | | | | | | |
| 17 | | | | | | | |
| 18 | | | | | | | |
| 19 | | | | | | | |
| 20 | | | | | | | |

IS1 (CBZ) = Chlorobenzene-d5
IS2 (DCB) = 1,4-Dichlorobenzene-d4
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: ALS LABORATORY GROUP  Contract:

Lab Code:  Case No.:  SAS No.:  SDG No.: HS17110493

Lab File ID (Standard): X111902  Date Analyzed: 11/19/17

Instrument ID: VOA6  Time Analyzed: 1004

GC Column: DB624  ID: 0.18 (mm)  Heated Purge: (Y/N) N

| | | IS4 AREA # | RT # | AREA # | RT # | AREA # | RT # |
|---|---|---|---|---|---|---|---|
| | 12 HOUR STD | 303653 | 4.33 | | | | |
| | UPPER LIMIT | 607306 | 4.83 | | | | |
| | LOWER LIMIT | 151827 | 3.83 | | | | |
| | CLIENT SAMPLE NO. | | | | | | |
| 01 | VLCSW-171119 | 297741 | 4.33 | | | | |
| 02 | VBLKW-0171119 | 299446 | 4.33 | | | | |
| 03 | HS17110664-11 | 292514 | 4.33 | | | | |
| 04 | HS17110664-11 | 299477 | 4.33 | | | | |
| 05 | HS17110493-02 | 300829 | 4.33 | | | | |
| 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

# MSVOA06 -Logbook

**Batch:** 29725 **Analyst:** Presenta Cabascango

**Date:** 11-19-2017 **Reviewer:**

**Method:** 8260 **Laboratory:** Houston

**Comments:**

| # | Samp ID | Type | Analyzed | DF | Init Wt/Vol | Final Vol | File ID | Matrix | Status | pH |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | BFB | TUNE | 11-19-2017 09:39 am | 1.00 | 50 mL | 50 mL | X111901.D | Liquid | Y | na |
| | *auto find/ purged* | | | | | | | | | |
| 2 | VSTD050 | CCV | 11-19-2017 10:04 am | 1.00 | 50 mL | 50 mL | X111902.D | Liquid | Y | na |
| | *10 uL cal std/50 mL DI* | | | | | | | | | |
| 3 | VLCSW-171119 | LCS | 11-19-2017 10:29 am | 1.00 | 50 mL | 50 mL | X111903.D | Liquid | Y | na |
| | *10 uL cal std/50 mL DI* | | | | | | | | | |
| 4 | CCB | SAMP | 11-19-2017 10:54 am | 1.00 | 50 mL | 50 mL | X111904.D | Liquid | Y | na |
| 5 | BLKW | SAMP | 11-19-2017 11:19 am | 1.00 | 50 mL | 50 mL | X111905.D | Liquid | Y | na |
| 6 | VBLKW-171119 | MBLK | 11-19-2017 11:44 am | 1.00 | 50 mL | 50 mL | X111906.D | Liquid | Y | na |
| 7 | HS17110664-11 | SAMP | 11-19-2017 12:08 pm | 1.00 | 50 mL | 50 mL | X111907.D | Liquid | Y | <2 |
| 8 | HS17110664-12 | SAMP | 11-19-2017 12:33 pm | 1.00 | 50 mL | 50 mL | X111908.D | Liquid | Y | <2 |
| 9 | HS17110741-01 | SAMP | 11-19-2017 12:58 pm | 1.00 | 50 mL | 50 mL | X111909.D | Liquid | Y | <2 |
| 10 | HS17110741-02 | SAMP | 11-19-2017 01:23 pm | 1.00 | 50 mL | 50 mL | X111910.D | Liquid | Y | <2 |
| 11 | HS17110741-03 | SAMP | 11-19-2017 01:48 pm | 1.00 | 50 mL | 50 mL | X111911.D | Liquid | Y | <2 |
| 12 | HS17110741-04 | SAMP | 11-19-2017 02:13 pm | 1.00 | 50 mL | 50 mL | X111912.D | Liquid | Y | <2 |
| 13 | HS17110664-11MS | MS | 11-19-2017 02:38 pm | 1.00 | 50 mL | 50 mL | X111913.D | Liquid | Y | <2 |
| | *5 uL cal std/25 mL sample* | | | | | | | | | |
| 14 | HS17110664-11MSD | MSD | 11-19-2017 03:03 pm | 1.00 | 50 mL | 50 mL | X111914.D | Liquid | Y | <2 |
| | *5 uL cal std/25 mL sample* | | | | | | | | | |
| 15 | HS17110493-02 | SAMP | 11-19-2017 03:28 pm | 1.00 | 50 mL | 50 mL | X111915.D | Liquid | Y | <2 |
| 16 | HS17110946-08 | SAMP | 11-19-2017 03:53 pm | 1.00 | 50 mL | 50 mL | X111916.D | Liquid | Y | <2 |
| 17 | HS17110946-09 | SAMP | 11-19-2017 04:18 pm | 1.00 | 50 mL | 50 mL | X111917.D | Liquid | Y | <2 |
| 18 | HS17110946-10 | SAMP | 11-19-2017 04:43 pm | 1.00 | 50 mL | 50 mL | X111918.D | Liquid | Y | <2 |
| 19 | HS17110946-11 | SAMP | 11-19-2017 05:07 pm | 1.00 | 50 mL | 50 mL | X111919.D | Liquid | Y | <2 |
| 20 | HS17110827-09 | SAMP | 11-19-2017 05:32 pm | 1.00 | 50 mL | 50 mL | X111920.D | Liquid | Y | <2 |
| 21 | HS17110827-01 | SAMP | 11-19-2017 05:57 pm | 1.00 | 50 mL | 50 mL | X111921.D | Liquid | Y | <2 |
| 22 | HS17110827-02 | SAMP | 11-19-2017 06:22 pm | 1.00 | 50 mL | 50 mL | X111922.D | Liquid | Y | <2 |
| 23 | HS17110827-03 | SAMP | 11-19-2017 06:47 pm | 1.00 | 50 mL | 50 mL | X111923.D | Liquid | Y | <2 |
| 24 | HS17110827-04 | SAMP | 11-19-2017 07:12 pm | 1.00 | 50 mL | 50 mL | X111924.D | Liquid | Y | <2 |
| 25 | HS17110827-05 | SAMP | 11-19-2017 07:37 pm | 1.00 | 50 mL | 50 mL | X111925.D | Liquid | Y | <2 |
| 26 | HS17110827-06 | SAMP | 11-19-2017 08:02 pm | 1.00 | 50 mL | 50 mL | X111926.D | Liquid | Y | <2 |
| 27 | HS17110827-07 | SAMP | 11-19-2017 08:26 pm | 1.00 | 50 mL | 50 mL | X111927.D | Liquid | Y | <2 |
| 28 | HS17110827-10 | SAMP | 11-19-2017 08:51 pm | 1.00 | 50 mL | 50 mL | X111928.D | Liquid | Y | <2 |
| 29 | VSTD050-END | CCV | 11-19-2017 09:16 pm | 1.00 | 50 mL | 50 mL | X111929.D | Liquid | Y | na |
| | *10 uL cal std/50 mL DI* | | | | | | | | | |

| Chemical | Value |
|---|---|
| SURR SPK ID | 29810-98-03 |
| IS ID | 29810-98-04 |
| LCS/MS ID | 30502-02-01/02 |
| BFB ID | 29810-98-03 |
| pH Paper | 634-37-03 |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171119.b\X111901.D



Date : 19-NOV-2017 09:39

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

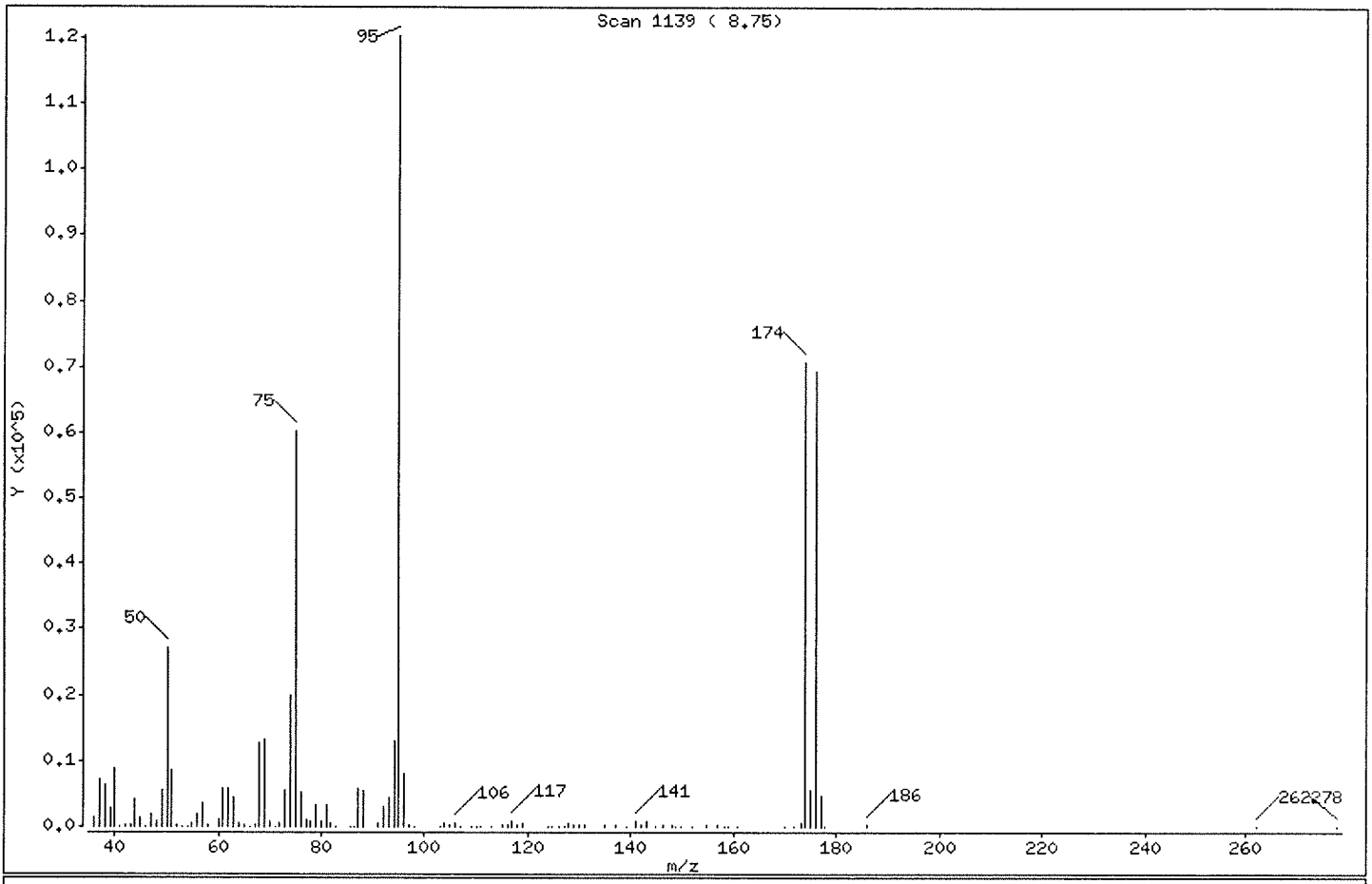
Volume Injected (uL): 2.0

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 | 22.42 |
| 75 | 30.00 - 60.00% of mass 95 | 50.01 |
| 96 | 5.00 - 9.00% of mass 95 | 6.77 |
| 173 | Less than 2.00% of mass 174 | 0.54 ( 0.92) |
| 174 | Greater than 50.00% of mass 95 | 58.86 |
| 175 | 5.00 - 9.00% of mass 174 | 4.62 ( 7.86) |
| 176 | 95.00 - 101.00% of mass 174 | 57.60 ( 97.86) |
| 177 | 5.00 - 9.00% of mass 176 | 3.90 ( 6.78) |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171119.b\X111901.D



Date : 19-NOV-2017 09:39

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: X111901.D
Spectrum: Scan 1139 ( 8.75)
Location of Maximum: 95.00
Number of points: 109

| m/z | Y | m/z | Y | m/z | Y | m/z | Y |
|---|---|---|---|---|---|---|---|
| 36.00 | 1364 | 65.00 | 170 | 96.00 | 8142 | 140.90 | 816 |
| 37.10 | 7313 | 66.00 | 117 | 97.10 | 196 | 142.00 | 156 |
| 38.10 | 6338 | 67.10 | 373 | 97.90 | 65 | 142.90 | 801 |
| 39.10 | 2762 | 68.00 | 12649 | 102.90 | 113 | 144.90 | 51 |
| 40.00 | 8789 | 69.00 | 13357 | 103.90 | 463 | 146.10 | 168 |
| 41.10 | 114 | 70.00 | 934 | 104.80 | 166 | 147.90 | 224 |
| 42.10 | 145 | 71.00 | 61 | 105.90 | 532 | 148.90 | 87 |
| 43.10 | 152 | 72.00 | 653 | 107.00 | 100 | 149.90 | 99 |
| 44.00 | 4196 | 73.00 | 5621 | 109.00 | 81 | 152.00 | 91 |
| 45.00 | 1381 | 74.00 | 19808 | 110.10 | 77 | 154.90 | 158 |
| 46.00 | 78 | 75.10 | 60136 | 110.90 | 78 | 157.00 | 184 |
| 47.10 | 1877 | 76.10 | 5339 | 113.00 | 99 | 158.20 | 91 |
| 48.00 | 852 | 77.00 | 1061 | 115.00 | 207 | 159.00 | 99 |
| 49.00 | 5501 | 78.00 | 788 | 116.00 | 314 | 160.80 | 111 |
| 50.10 | 26960 | 78.90 | 3209 | 116.90 | 728 | 169.90 | 94 |
| 51.10 | 8502 | 80.00 | 872 | 117.90 | 413 | 171.90 | 53 |
| 52.00 | 394 | 80.90 | 3209 | 118.90 | 533 | 173.10 | 651 |
| 53.00 | 130 | 81.90 | 636 | 123.90 | 75 | 174.00 | 70776 |
| 54.00 | 108 | 83.00 | 123 | 124.80 | 55 | 175.00 | 5560 |
| 55.00 | 534 | 85.80 | 57 | 126.00 | 91 | 176.00 | 69264 |
| 56.00 | 1977 | 86.20 | 70 | 127.00 | 75 | 176.90 | 4694 |
| 57.00 | 3456 | 87.00 | 5678 | 127.90 | 465 | 177.80 | 124 |
| 58.00 | 179 | 88.00 | 5458 | 129.00 | 376 | 186.10 | 386 |
| 60.10 | 1172 | 91.00 | 482 | 130.00 | 364 | 262.10 | 83 |
| 61.00 | 5850 | 92.00 | 2916 | 131.00 | 145 | 278.10 | 90 |
| 62.00 | 5859 | 93.00 | 4340 | 134.90 | 166 | | |
| 63.00 | 4315 | 94.10 | 12920 | 136.90 | 188 | | |
| 64.00 | 573 | 95.00 | 120240 | 139.00 | 79 | | |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171119.b\X111901.D



Date : 19-NOV-2017 09:39

Client ID: BFB

Instrument: voa6.i

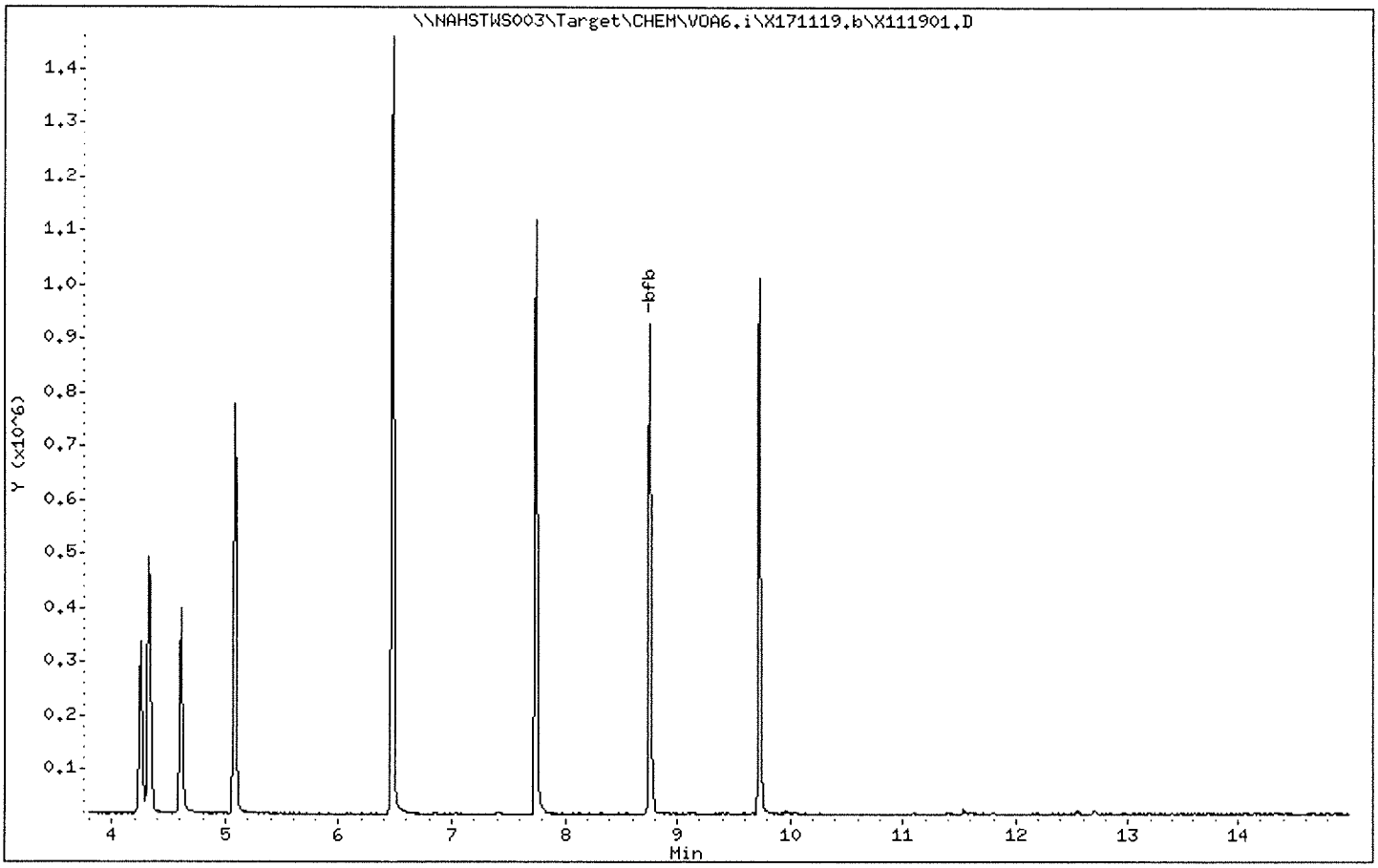
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171119.b\X111902.D  Version 12
Report Date: 11-Jan-2018 18:45

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171119.b\X111902.D
Lab Smp Id: VSTD050  Client Smp ID: VSTD050
Inj Date  : 19-NOV-2017 10:04
Operator  : PC  Inst ID: voa6.i
Smp Info  : VSTD050;VSTD050;2;;
Misc Info : HS16030331;WATER;0;1;
Comment   :
Method    : \\nahstws003\Target\chem\voa6.i\X171119.b\8260W.m
Meth Date : 11-Jan-2018 18:44 voa6.i  Quant Type: ISTD
Cal Date  : 10-OCT-2017 13:33  Cal File: X101008.D
Als bottle: 2  Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE  Compound Sublist: 000_bhateNEW.sub
Target Version:  4.14

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) |
|---|---|---|---|---|---|---|---|---|
| | 31 1,1,1-Trichloroethane | 97 | 4.232 | 4.240 | (0.978) | 250699 | 50.0000 | 42.08 |
| * | 1 Pentafluorobenzene | 168 | 4.326 | 4.325 | (1.000) | 303653 | 50.0000 | |
| $ | 30 Dibromofluoromethane | 113 | 4.254 | 4.254 | (0.983) | 202810 | 50.0000 | 46.52 |
| * | 36 1,4-Difluorobenzene | 114 | 5.085 | 5.085 | (1.000) | 523829 | 50.0000 | |
| * | 47 Chlorobenzene-d5 | 117 | 7.742 | 7.742 | (1.000) | 480632 | 50.0000 | |
| $ | 48 Toluene-d8 | 98 | 6.474 | 6.474 | (0.836) | 775346 | 50.0000 | 52.03 |
| $ | 69 4-Bromofluorobenzene | 95 | 8.752 | 8.752 | (1.130) | 273931 | 50.0000 | 51.60 |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 9.726 | 9.726 | (1.000) | 212089 | 50.0000 | |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 8.903 | 8.903 | (0.915) | 203508 | 50.0000 | 54.26 |
| | 53 1,1,2-Trichloroethane | 83 | 6.919 | 6.919 | (0.894) | 141945 | 50.0000 | 45.75 |
| | 32 1,1-Dichloropropene | 75 | 4.426 | 4.426 | (0.870) | 236933 | 50.0000 | 41.64 |
| | 22 1,1-Dichloroethane | 63 | 3.072 | 3.079 | (0.710) | 352660 | 50.0000 | 44.21 |
| | 11 1,1-Dichloroethene | 96 | 2.055 | 2.055 | (0.475) | 151986 | 50.0000 | 43.21 |
| | 90 1,2,4-Trichlorobenzene | 180 | 11.395 | 11.395 | (1.172) | 79969 | 50.0000 | 43.71 |
| | 89 1,2-Dibromo-3-Chloropropane | 155 | 10.715 | 10.715 | (1.102) | 21921 | 50.0000 | 46.97 |
| | 57 1,2-Dibromoethane | 107 | 7.341 | 7.341 | (0.948) | 166523 | 50.0000 | 45.96 |
| | 88 1,2-Dichlorobenzene | 146 | 10.056 | 10.056 | (1.034) | 242977 | 50.0000 | 45.82 |
| | 33 1,2-Dichloroethane | 62 | 4.691 | 4.691 | (0.923) | 260100 | 50.0000 | 44.47 |
| | 42 1,2-Dichloropropane | 63 | 5.543 | 5.543 | (1.090) | 206667 | 50.0000 | 42.66 |
| | 83 1,3-Dichlorobenzene | 146 | 9.669 | 9.669 | (0.994) | 250541 | 50.0000 | 45.92 |
| | 84 1,4-Dichlorobenzene | 146 | 9.741 | 9.741 | (1.001) | 263053 | 50.0000 | 45.78 |
| | 24 2-Butanone | 43 | 3.731 | 3.731 | (0.863) | 155984 | 100.000 | 86.88 |
| | 52 2-Hexanone | 43 | 7.284 | 7.284 | (0.941) | 338709 | 100.000 | 86.00 |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171119.b\X111902.D Version 12
Report Date: 11-Jan-2018 18:45

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | ON-COL ( ug/l) | |
|---|---|---|---|---|---|---|---|---|---|
| 45 | 4-Methyl-2-Pentanone | 43 | 6.410 | 6.410 | (0.828) | 362749 | 100.000 | 86.63 | |
| 10 | Acetone | 43 | 2.112 | 2.119 | (0.488) | 98228 | 100.000 | 91.32 | |
| 37 | Benzene | 78 | 4.648 | 4.648 | (0.914) | 743714 | 50.0000 | 43.30 | |
| 39 | Bromodichloromethane | 83 | 5.823 | 5.830 | (1.145) | 259427 | 50.0000 | 43.70 | |
| 66 | Bromoform | 173 | 8.480 | 8.480 | (1.095) | 112657 | 50.0000 | 42.06 | |
| 6 | Bromomethane | 94 | 1.460 | 1.460 | (0.338) | 139846 | 50.0000 | 47.48 | |
| 19 | Carbon Disulfide | 76 | 2.212 | 2.212 | (0.512) | 1014847 | 100.000 | 90.62 | |
| 34 | Carbon Tetrachloride | 117 | 4.412 | 4.411 | (0.868) | 196177 | 50.0000 | 40.94 | |
| 59 | Chlorobenzene | 112 | 7.764 | 7.764 | (1.003) | 439441 | 50.0000 | 45.09 | |
| 7 | Chloroethane | 64 | 1.525 | 1.525 | (0.353) | 132621 | 50.0000 | 42.09 | |
| 28 | Chloroform | 83 | 4.068 | 4.068 | (0.940) | 330755 | 50.0000 | 44.62 | |
| 3 | Chloromethane | 50 | 1.188 | 1.195 | (0.275) | 275681 | 50.0000 | 44.77 | |
| 27 | cis-1,2-Dichloroethene | 96 | 3.681 | 3.688 | (0.851) | 204287 | 50.0000 | 44.85 | |
| 46 | cis-1,3-Dichloropropene | 75 | 6.245 | 6.245 | (1.228) | 323379 | 50.0000 | 42.65 | |
| 55 | Dibromochloromethane | 129 | 7.255 | 7.255 | (0.937) | 188992 | 50.0000 | 46.55 | |
| 2 | Dichlorodifluoromethane | 85 | 1.081 | 1.081 | (0.250) | 162124 | 50.0000 | 41.77 | |
| 61 | Ethylbenzene | 106 | 7.871 | 7.871 | (1.017) | 216889 | 50.0000 | 44.23 | |
| 67 | Isopropylbenzene | 105 | 8.623 | 8.623 | (1.114) | 509937 | 50.0000 | 43.18 | |
| 17 | Methylene Chloride | 84 | 2.449 | 2.449 | (0.566) | 203163 | 50.0000 | 43.47 | |
| 56 | Tetrachloroethene | 164 | 7.012 | 7.012 | (0.906) | 105205 | 50.0000 | 40.78 | |
| 50 | Toluene | 91 | 6.532 | 6.532 | (0.844) | 717802 | 50.0000 | 46.44 | |
| 20 | trans-1,2-Dichloroethene | 96 | 2.678 | 2.678 | (0.619) | 180045 | 50.0000 | 43.88 | |
| 51 | trans-1,3-Dichloropropene | 75 | 6.761 | 6.761 | (1.330) | 270840 | 50.0000 | 41.74 | |
| 38 | Trichloroethene | 130 | 5.321 | 5.321 | (1.046) | 168882 | 50.0000 | 40.06 | |
| 8 | Trichlorofluoromethane | 101 | 1.690 | 1.689 | (0.391) | 214763 | 50.0000 | 42.20 | (M) |
| 5 | Vinyl Chloride | 62 | 1.260 | 1.260 | (0.291) | 230718 | 50.0000 | 44.37 | |
| 62 | m,p-Xylenes | 106 | 7.972 | 7.971 | (1.030) | 515790 | 100.000 | 87.99 | |
| 63 | o-Xylene | 106 | 8.308 | 8.308 | (1.073) | 261519 | 50.0000 | 44.05 | |
| M 95 | Xylenes (total) | 106 | | | | 777309 | 150.000 | | (a) |
| 71 | 1,2,3-Trichloropropane | 75 | 8.931 | 8.931 | (0.918) | 189723 | 50.0000 | 51.13 | (M) |
| 93 | 1,2,3-Trichlorobenzene | 180 | 11.804 | 11.804 | (1.214) | 57898 | 50.0000 | 43.93 | |
| 79 | 1,2,4-Trimethylbenzene | 105 | 9.440 | 9.440 | (0.971) | 444544 | 50.0000 | 47.45 | |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.132 | 9.132 | (0.939) | 414758 | 50.0000 | 47.33 | |
| 26 | 2,2-Dichloropropane | 77 | 3.667 | 3.666 | (0.848) | 270529 | 50.0000 | 43.54 | |
| 54 | 1,3-Dichloropropane | 76 | 7.062 | 7.062 | (0.912) | 301730 | 50.0000 | 45.84 | |
| 76 | 2-Chlorotoluene | 91 | 9.039 | 9.039 | (0.929) | 430102 | 50.0000 | 49.49 | |
| 77 | 4-Chlorotoluene | 91 | 9.132 | 9.132 | (0.939) | 506431 | 50.0000 | 49.74 | |
| 82 | p-Isopropyltoluene | 119 | 9.712 | 9.712 | (0.999) | 347579 | 50.0000 | 45.77 | |
| 29 | Bromochloromethane | 128 | 3.953 | 3.953 | (0.914) | 85884 | 50.0000 | 42.33 | |
| 74 | Bromobenzene | 156 | 8.874 | 8.867 | (0.912) | 170881 | 50.0000 | 47.33 | |
| 44 | Dibromomethane | 93 | 5.658 | 5.658 | (1.113) | 122627 | 50.0000 | 44.18 | |
| 91 | Hexachlorobutadiene | 225 | 11.539 | 11.539 | (1.186) | 32159 | 50.0000 | 42.98 | |
| 73 | n-Propylbenzene | 91 | 8.974 | 8.974 | (0.923) | 622079 | 50.0000 | 47.62 | |
| 87 | n-Butylbenzene | 91 | 10.049 | 10.056 | (1.033) | 307181 | 50.0000 | 49.35 | |
| 81 | sec-Butylbenzene | 105 | 9.583 | 9.583 | (0.985) | 398801 | 50.0000 | 45.50 | |
| 92 | Naphthalene | 128 | 11.603 | 11.603 | (1.193) | 200985 | 50.0000 | 41.10 | |
| 78 | tert-Butylbenzene | 119 | 9.397 | 9.397 | (0.966) | 291704 | 50.0000 | 44.53 | |
| 60 | 1,1,1,2-Tetrachloroethane | 131 | 7.843 | 7.843 | (1.013) | 154466 | 50.0000 | 43.59 | |
| 64 | Styrene | 104 | 8.323 | 8.322 | (1.075) | 481167 | 50.0000 | 45.15 | |

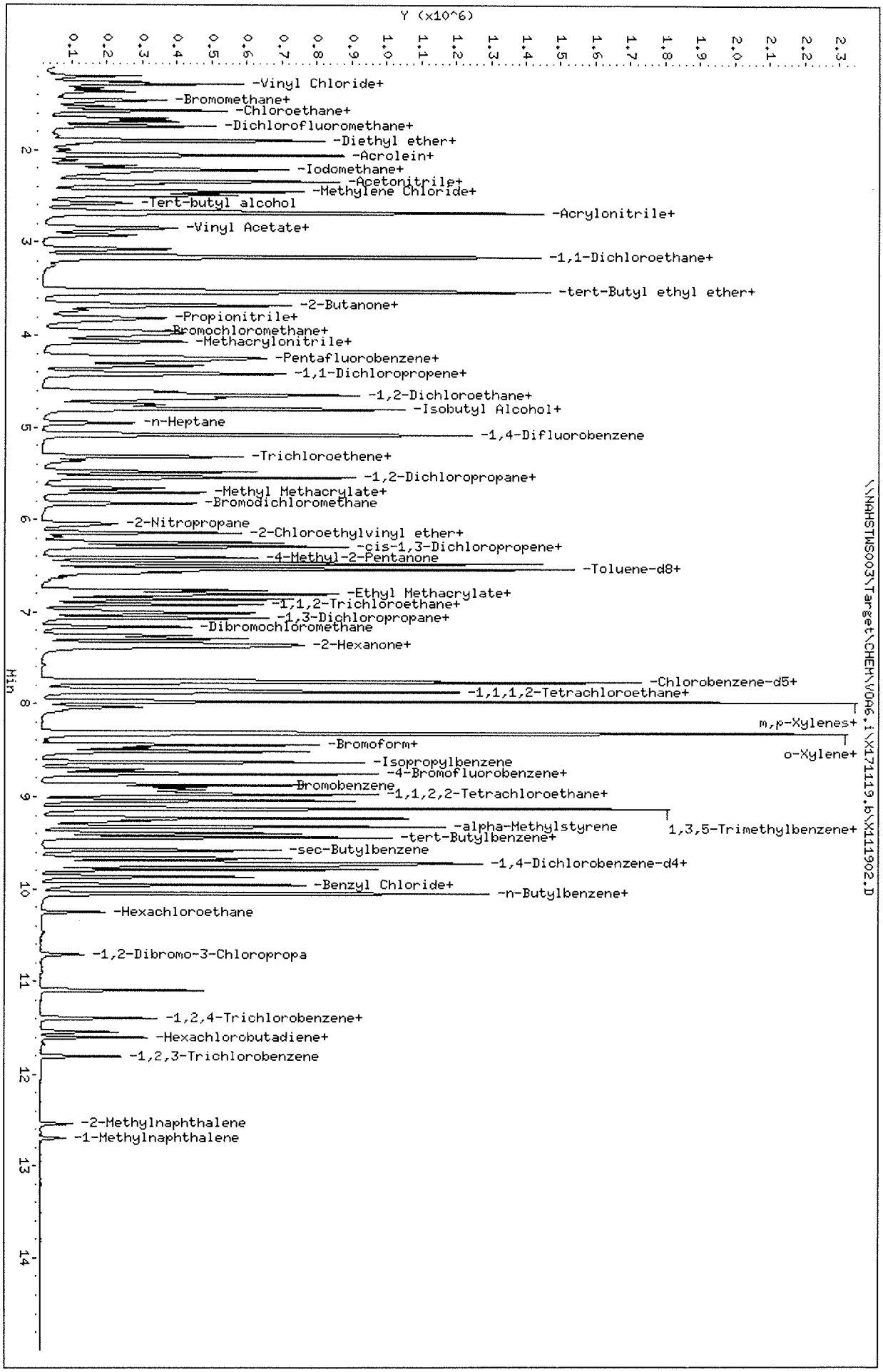
QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171119.b\X111902.D Version 12
Report Date: 11-Jan-2018 18:45

QC Flag Legend

M - Compound response manually integrated.




Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171119.b\X111902.D
Date : 19-NOV-2017 10:04
Client ID: VSTD050
Sample Info: VSTD050;VSTD050;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171119.b\X111903.D  Version 11
Report Date: 11-Jan-2018 18:45

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171119.b\X111903.D
Lab Smp Id: VLCSW-171119  Client Smp ID: VLCSW-171119
Inj Date  : 19-NOV-2017 10:29
Operator  : PC  Inst ID: voa6.i
Smp Info  : VLCSW-171119;VLCSW-171119;3;;
Misc Info : HS16030331;WATER;0;1;LCS
Comment   :
Method    : \\nahstws003\Target\chem\voa6.i\X171119.b\8260W.m
Meth Date : 11-Jan-2018 18:44 voa6.i  Quant Type: ISTD
Cal Date  : 10-OCT-2017 13:33  Cal File: X101008.D
Als bottle: 3  QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE  Compound Sublist: 000_bhateNEW.sub
Target Version:  4.14

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 |

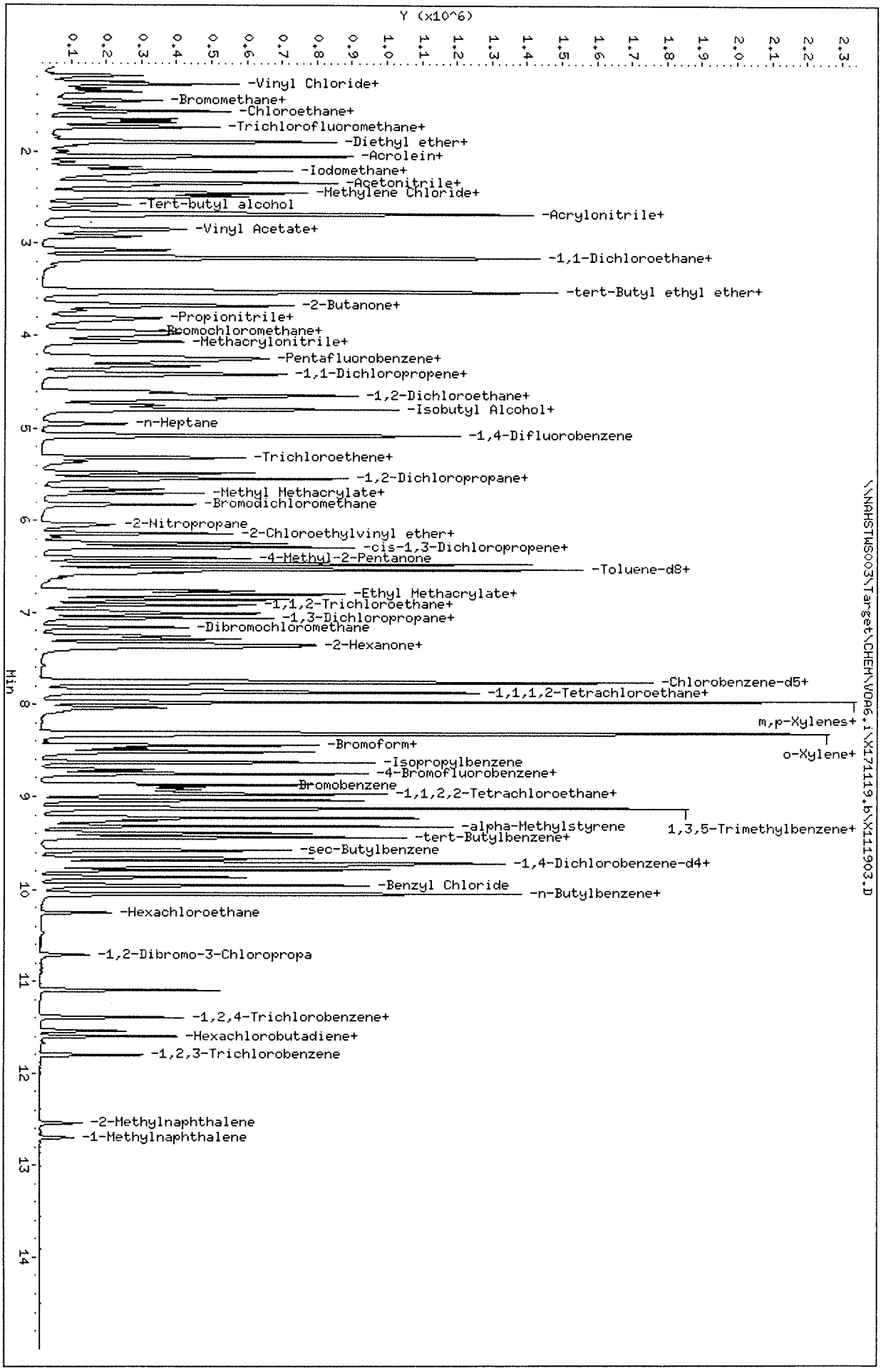
| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| | 31 1,1,1-Trichloroethane | 97 | 4.232 | 4.240 | (0.978) | 252139 | 43.1715 | 43.17 |
| * | 1 Pentafluorobenzene | 168 | 4.325 | 4.325 | (1.000) | 297741 | 50.0000 | |
| $ | 30 Dibromofluoromethane | 113 | 4.254 | 4.254 | (0.983) | 198775 | 46.5024 | 46.50(R) |
| * | 36 1,4-Difluorobenzene | 114 | 5.085 | 5.085 | (1.000) | 515010 | 50.0000 | |
| * | 47 Chlorobenzene-d5 | 117 | 7.742 | 7.742 | (1.000) | 474055 | 50.0000 | |
| $ | 48 Toluene-d8 | 98 | 6.474 | 6.474 | (0.836) | 750911 | 51.1317 | 51.13(R) |
| $ | 69 4-Bromofluorobenzene | 95 | 8.752 | 8.752 | (1.130) | 266870 | 50.9864 | 50.98(R) |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 9.726 | 9.726 | (1.000) | 214438 | 50.0000 | |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 8.902 | 8.903 | (0.915) | 203351 | 53.6187 | 53.61 |
| | 53 1,1,2-Trichloroethane | 83 | 6.918 | 6.919 | (0.894) | 141669 | 46.3013 | 46.30 |
| | 32 1,1-Dichloropropene | 75 | 4.426 | 4.426 | (0.870) | 240518 | 43.0033 | 43.00 |
| | 22 1,1-Dichloroethane | 63 | 3.072 | 3.079 | (0.710) | 348358 | 44.5476 | 44.54 |
| | 11 1,1-Dichloroethene | 96 | 2.055 | 2.055 | (0.475) | 149904 | 43.4719 | 43.47 |
| | 90 1,2,4-Trichlorobenzene | 180 | 11.395 | 11.395 | (1.172) | 98009 | 52.9919 | 52.99 |
| | 89 1,2-Dibromo-3-Chloropropane | 155 | 10.715 | 10.715 | (1.102) | 22908 | 48.5445 | 48.54 |
| | 57 1,2-Dibromoethane | 107 | 7.341 | 7.341 | (0.948) | 165287 | 46.2577 | 46.25 |
| | 88 1,2-Dichlorobenzene | 146 | 10.056 | 10.056 | (1.034) | 255027 | 47.5726 | 47.57 |
| | 33 1,2-Dichloroethane | 62 | 4.691 | 4.691 | (0.923) | 259150 | 45.0732 | 45.07 |
| | 42 1,2-Dichloropropane | 63 | 5.543 | 5.543 | (1.090) | 210877 | 44.2839 | 44.28 |
| | 83 1,3-Dichlorobenzene | 146 | 9.669 | 9.669 | (0.994) | 260898 | 47.2980 | 47.29 |
| | 84 1,4-Dichlorobenzene | 146 | 9.741 | 9.741 | (1.001) | 271109 | 46.6670 | 46.66 |
| | 24 2-Butanone | 43 | 3.731 | 3.731 | (0.863) | 149417 | 84.8786 | 84.87 |
| | 52 2-Hexanone | 43 | 7.284 | 7.284 | (0.941) | 324175 | 83.4531 | 83.45 |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171119.b\X111903.D  Version 11
Report Date: 11-Jan-2018 18:45

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 45 | 4-Methyl-2-Pentanone | 43 | 6.410 | 6.410 | (0.828) | 346252 | 83.8380 | 83.83 |
| 10 | Acetone | 43 | 2.112 | 2.119 | (0.488) | 94217 | 89.2657 | 89.26 |
| 37 | Benzene | 78 | 4.648 | 4.648 | (0.914) | 739652 | 43.8091 | 43.80 |
| 39 | Bromodichloromethane | 83 | 5.822 | 5.830 | (1.145) | 258886 | 44.3580 | 44.35 |
| 66 | Bromoform | 173 | 8.480 | 8.480 | (1.095) | 112051 | 42.4201 | 42.42 |
| 6 | Bromomethane | 94 | 1.460 | 1.460 | (0.338) | 136894 | 47.4039 | 47.40 |
| 19 | Carbon Disulfide | 76 | 2.212 | 2.212 | (0.512) | 1025108 | 93.3587 | 93.35 |
| 34 | Carbon Tetrachloride | 117 | 4.411 | 4.411 | (0.868) | 194507 | 41.2908 | 41.29 |
| 59 | Chlorobenzene | 112 | 7.764 | 7.764 | (1.003) | 440657 | 45.8424 | 45.84 |
| 7 | Chloroethane | 64 | 1.525 | 1.525 | (0.353) | 131905 | 42.6967 | 42.69 |
| 28 | Chloroform | 83 | 4.067 | 4.068 | (0.940) | 330036 | 45.4114 | 45.41 |
| 3 | Chloromethane | 50 | 1.188 | 1.195 | (0.275) | 270391 | 44.7880 | 44.78 |
| 27 | cis-1,2-Dichloroethene | 96 | 3.681 | 3.688 | (0.851) | 200330 | 44.8623 | 44.86 |
| 46 | cis-1,3-Dichloropropene | 75 | 6.245 | 6.245 | (1.228) | 317752 | 42.6266 | 42.62 |
| 55 | Dibromochloromethane | 129 | 7.255 | 7.255 | (0.937) | 184636 | 46.1091 | 46.10 |
| 2 | Dichlorodifluoromethane | 85 | 1.080 | 1.081 | (0.250) | 174180 | 45.7727 | 45.77 |
| 61 | Ethylbenzene | 106 | 7.871 | 7.871 | (1.017) | 218495 | 45.1796 | 45.17 |
| 67 | Isopropylbenzene | 105 | 8.623 | 8.623 | (1.114) | 525779 | 45.1400 | 45.13 |
| 17 | Methylene Chloride | 84 | 2.449 | 2.449 | (0.566) | 203757 | 44.4667 | 44.46 |
| 56 | Tetrachloroethene | 164 | 7.011 | 7.012 | (0.906) | 107611 | 42.2933 | 42.29 |
| 50 | Toluene | 91 | 6.532 | 6.532 | (0.844) | 726956 | 47.6940 | 47.69 |
| 20 | trans-1,2-Dichloroethene | 96 | 2.678 | 2.678 | (0.619) | 177801 | 44.2021 | 44.20 |
| 51 | trans-1,3-Dichloropropene | 75 | 6.761 | 6.761 | (1.330) | 267663 | 41.9569 | 41.95 |
| 38 | Trichloroethene | 130 | 5.321 | 5.321 | (1.046) | 169782 | 40.9654 | 40.96 |
| 8 | Trichlorofluoromethane | 101 | 1.689 | 1.689 | (0.391) | 221855 | 44.4639 | 44.46 |
| 5 | Vinyl Chloride | 62 | 1.260 | 1.260 | (0.291) | 228903 | 44.8955 | 44.89 |
| 62 | m,p-Xylenes | 106 | 7.971 | 7.971 | (1.030) | 529057 | 91.5104 | 91.51 |
| 63 | o-Xylene | 106 | 8.308 | 8.308 | (1.073) | 265193 | 45.2906 | 45.29 |
| M 95 | Xylenes (total) | 106 | | | | 794250 | 136.801 | 136.80 |
| 71 | 1,2,3-Trichloropropane | 75 | 8.924 | 8.931 | (0.918) | 187809 | 50.0610 | 50.06(M) |
| 93 | 1,2,3-Trichlorobenzene | 180 | 11.804 | 11.804 | (1.214) | 74899 | 56.2122 | 56.21 |
| 79 | 1,2,4-Trimethylbenzene | 105 | 9.440 | 9.440 | (0.971) | 459028 | 48.4614 | 48.46 |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.125 | 9.132 | (0.938) | 429116 | 48.4354 | 48.43 |
| 26 | 2,2-Dichloropropane | 77 | 3.666 | 3.666 | (0.848) | 267910 | 43.9790 | 43.97 |
| 54 | 1,3-Dichloropropane | 76 | 7.062 | 7.062 | (0.912) | 300207 | 46.2471 | 46.24 |
| 76 | 2-Chlorotoluene | 91 | 9.039 | 9.039 | (0.929) | 440153 | 50.0971 | 50.09 |
| 77 | 4-Chlorotoluene | 91 | 9.132 | 9.132 | (0.939) | 510452 | 49.5915 | 49.59 |
| 82 | p-Isopropyltoluene | 119 | 9.712 | 9.712 | (0.999) | 358088 | 46.6459 | 46.64 |
| 29 | Bromochloromethane | 128 | 3.953 | 3.953 | (0.914) | 84081 | 42.2732 | 42.27 |
| 74 | Bromobenzene | 156 | 8.874 | 8.867 | (0.912) | 174986 | 47.9451 | 47.94 |
| 44 | Dibromomethane | 93 | 5.658 | 5.658 | (1.113) | 121022 | 44.3534 | 44.35 |
| 91 | Hexachlorobutadiene | 225 | 11.538 | 11.539 | (1.186) | 35761 | 47.2115 | 47.21 |
| 73 | n-Propylbenzene | 91 | 8.974 | 8.974 | (0.923) | 638087 | 48.3201 | 48.32 |
| 87 | n-Butylbenzene | 91 | 10.049 | 10.056 | (1.033) | 314401 | 49.9571 | 49.95 |
| 81 | sec-Butylbenzene | 105 | 9.583 | 9.583 | (0.985) | 413585 | 46.6713 | 46.67 |
| 92 | Naphthalene | 128 | 11.603 | 11.603 | (1.193) | 263511 | 52.4221 | 52.42 |
| 78 | tert-Butylbenzene | 119 | 9.397 | 9.397 | (0.966) | 303566 | 45.8332 | 45.83 |
| 60 | 1,1,1,2-Tetrachloroethane | 131 | 7.842 | 7.843 | (1.013) | 156126 | 44.6784 | 44.67 |
| 64 | Styrene | 104 | 8.322 | 8.322 | (1.075) | 487612 | 46.3916 | 46.39 |

QC Flag Legend

R - Spike/Surrogate failed recovery limits.
M - Compound response manually integrated.




Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171119.b\X111903.D
Date : 19-NOV-2017 10:29
Client ID: VLCSW-171119
Sample Info: VLCSW-171119,VLCSW-171119,3,,
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171119.b\X111906.D  Version 9
Report Date: 11-Jan-2018 18:45

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171119.b\X111906.D
Lab Smp Id: VBLKW-171119  Client Smp ID: VBLKW-0171119
Inj Date  : 19-NOV-2017 11:44
Operator  : PC  Inst ID: voa6.i
Smp Info  : VBLKW-171119;VBLKW-0171119;3;;BLANK
Misc Info : HS16030331;WATER;0;1;
Comment   :
Method    : \\nahstws003\Target\chem\voa6.i\X171119.b\8260W.m
Meth Date : 11-Jan-2018 18:44 voa6.i  Quant Type: ISTD
Cal Date  : 10-OCT-2017 13:33  Cal File: X101008.D
Als bottle: 6  QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE  Compound Sublist: 000_bhateNEW.sub
Target Version:  4.14

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 | 4.325 | 4.325 | (1.000) | 299446 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.247 | 4.254 | (0.982) | 204316 | 47.4967 | 47.49(R) |
| * 36 1,4-Difluorobenzene | 114 | 5.085 | 5.085 | (1.000) | 519116 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 7.742 | 7.742 | (1.000) | 477889 | 50.0000 | |
| $ 48 Toluene-d8 | 98 | 6.474 | 6.474 | (0.836) | 748928 | 50.6074 | 50.60(R) |
| $ 69 4-Bromofluorobenzene | 95 | 8.752 | 8.752 | (1.130) | 268966 | 50.9749 | 50.97(R) |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 9.726 | 9.726 | (1.000) | 203438 | 50.0000 | |

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171119.b\X111906.D

Page 2

Date : 19-NOV-2017 11:44

Client ID: VBLKW-0171119

Instrument: voa6.i

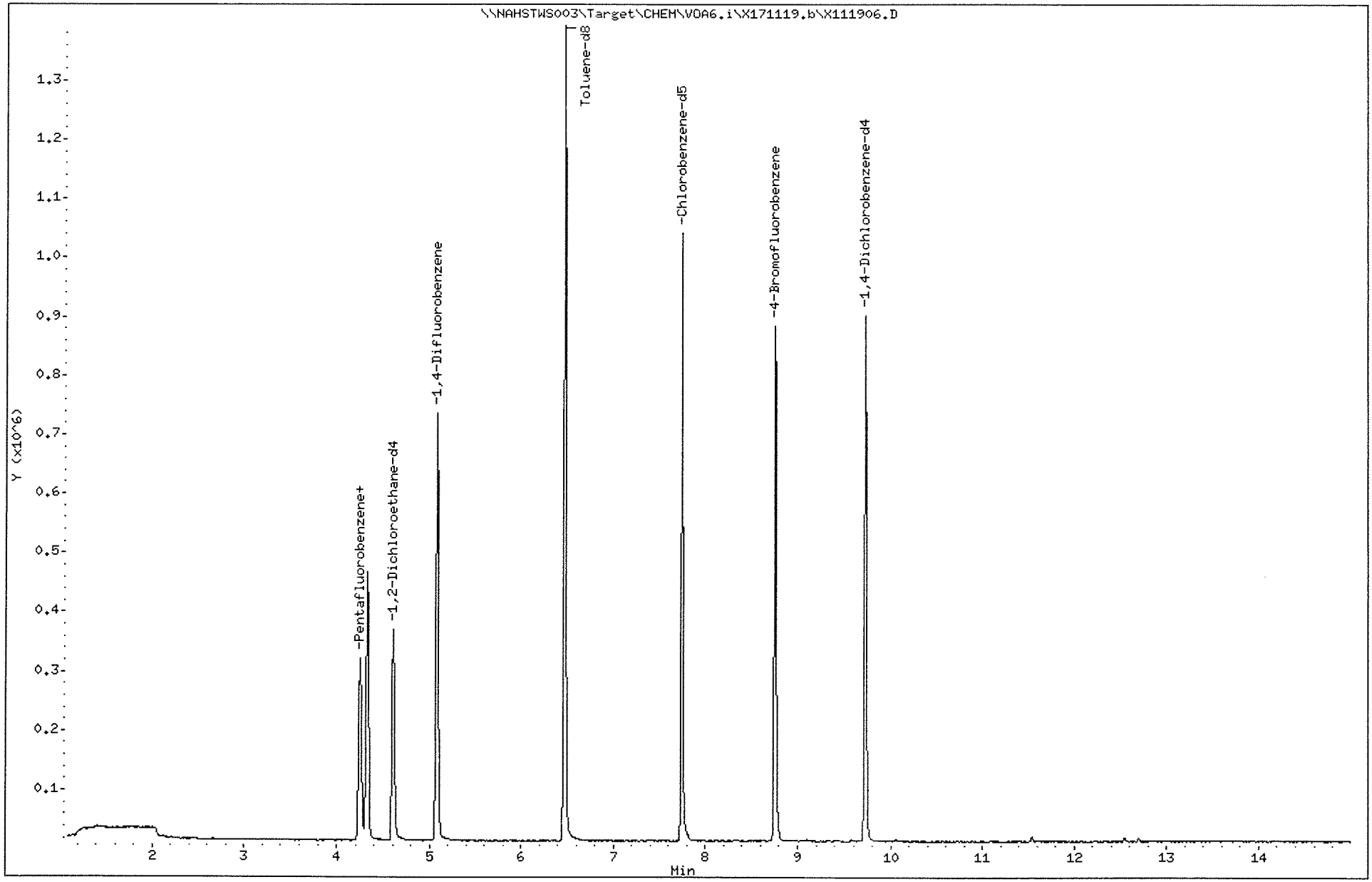
Sample Info: VBLKW-171119;VBLKW-0171119;3;;BLANK

Purge Volume: 5.0

Operator: PC

Column phase: DB624

Column diameter: 0.18



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171119.b\X111913.D  Version 8
Report Date: 11-Jan-2018 18:45

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171119.b\X111913.D
Lab Smp Id: HS17110664-11MS  Client Smp ID: HS17110664-11MS
Inj Date  : 19-NOV-2017 14:38
Operator  : PC  Inst ID: voa6.i
Smp Info  : HS17110664-11MS;HS17110664-11MS;3;;MS
Misc Info : HS16030331;WATER;0;1;
Comment   :
Method    : \\nahstws003\Target\chem\voa6.i\X171119.b\8260W.m
Meth Date : 11-Jan-2018 18:44 voa6.i  Quant Type: ISTD
Cal Date  : 10-OCT-2017 13:33  Cal File: X101008.D
Als bottle: 13  QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE  Compound Sublist: 000_bhateNEW.sub
Target Version:  4.14

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 |

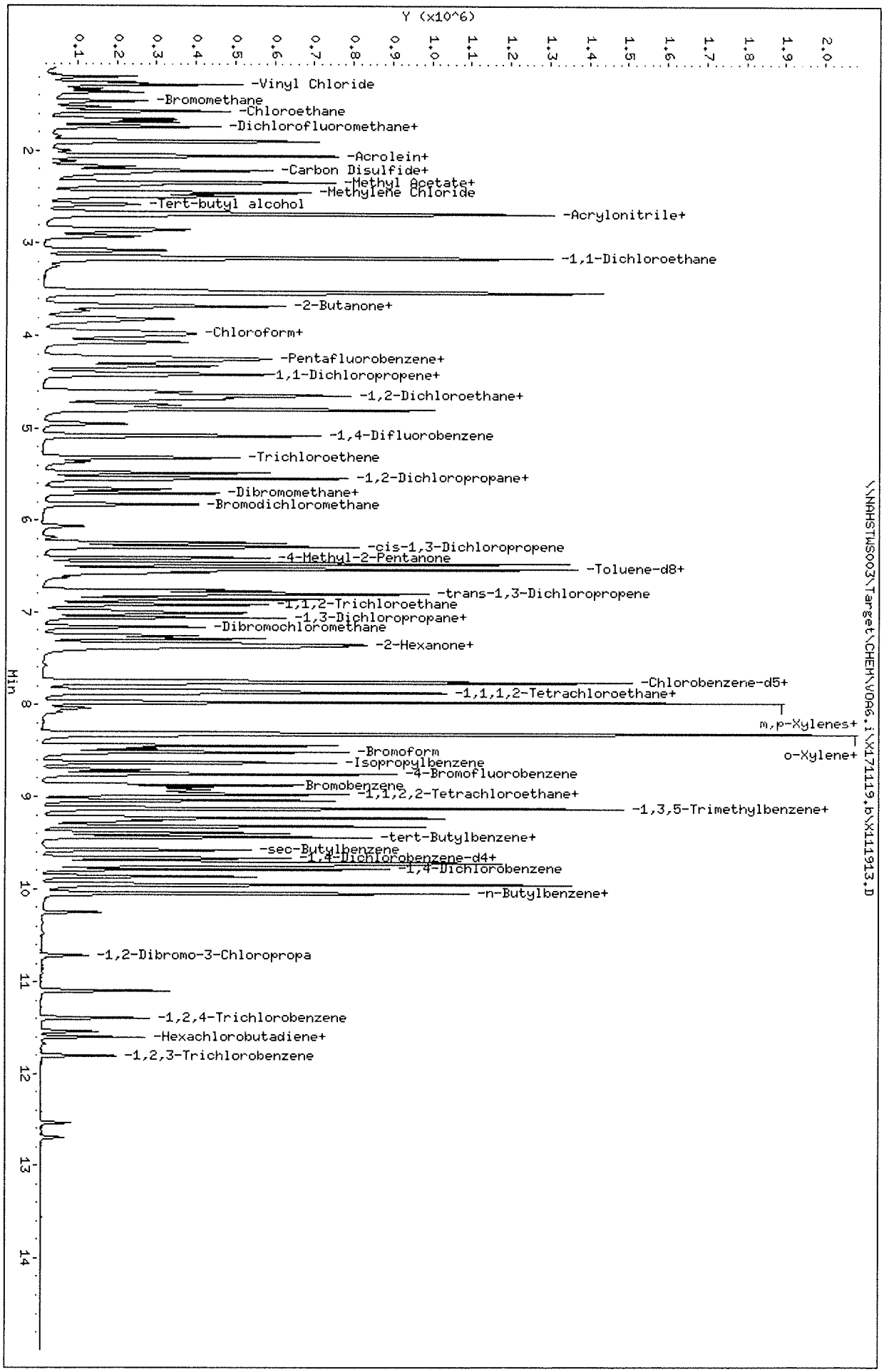
| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| | 31 1,1,1-Trichloroethane | 97 | 4.240 | 4.240 | (0.980) | 210098 | 36.6160 | 36.61 |
| * | 1 Pentafluorobenzene | 168 | 4.326 | 4.325 | (1.000) | 292514 | 50.0000 | |
| $ | 30 Dibromofluoromethane | 113 | 4.254 | 4.254 | (0.983) | 196072 | 46.6844 | 46.68(R) |
| * | 36 1,4-Difluorobenzene | 114 | 5.085 | 5.085 | (1.000) | 506164 | 50.0000 | |
| * | 47 Chlorobenzene-d5 | 117 | 7.742 | 7.742 | (1.000) | 464422 | 50.0000 | |
| $ | 48 Toluene-d8 | 98 | 6.474 | 6.474 | (0.836) | 737269 | 51.2399 | 51.23(R) |
| $ | 69 4-Bromofluorobenzene | 95 | 8.752 | 8.752 | (1.130) | 261567 | 51.0091 | 51.00(R) |
| * | 70 1,4-Dichlorobenzene-d4 | 152 | 9.726 | 9.726 | (1.000) | 204334 | 50.0000 | |
| | 68 1,1,2,2-Tetrachloroethane | 83 | 8.903 | 8.903 | (0.915) | 188729 | 52.1985 | 52.19 |
| | 53 1,1,2-Trichloroethane | 83 | 6.919 | 6.919 | (0.894) | 133257 | 44.4554 | 44.45 |
| | 32 1,1-Dichloropropene | 75 | 4.426 | 4.426 | (0.870) | 199619 | 36.3145 | 36.31 |
| | 22 1,1-Dichloroethane | 63 | 3.079 | 3.079 | (0.712) | 299472 | 38.9805 | 38.98 |
| | 11 1,1-Dichloroethene | 96 | 2.055 | 2.055 | (0.475) | 125675 | 37.0968 | 37.09 |
| | 90 1,2,4-Trichlorobenzene | 180 | 11.395 | 11.395 | (1.172) | 65896 | 37.3907 | 37.39 |
| | 89 1,2-Dibromo-3-Chloropropane | 155 | 10.715 | 10.715 | (1.102) | 20570 | 45.7506 | 45.75 |
| | 57 1,2-Dibromoethane | 107 | 7.341 | 7.341 | (0.948) | 156177 | 44.6147 | 44.61 |
| | 88 1,2-Dichlorobenzene | 146 | 10.056 | 10.056 | (1.034) | 214334 | 41.9588 | 41.95 |
| | 33 1,2-Dichloroethane | 62 | 4.691 | 4.691 | (0.923) | 240480 | 42.5570 | 42.55 |
| | 42 1,2-Dichloropropane | 63 | 5.543 | 5.543 | (1.090) | 183562 | 39.2214 | 39.22 |
| | 83 1,3-Dichlorobenzene | 146 | 9.669 | 9.669 | (0.994) | 213513 | 40.6216 | 40.62 |
| | 84 1,4-Dichlorobenzene | 146 | 9.741 | 9.741 | (1.001) | 222726 | 40.2345 | 40.23 |
| | 24 2-Butanone | 43 | 3.731 | 3.731 | (0.863) | 136205 | 78.7559 | 78.75 |
| | 52 2-Hexanone | 43 | 7.284 | 7.284 | (0.941) | 320028 | 84.0943 | 84.09 |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171119.b\X111913.D Version 8
Report Date: 11-Jan-2018 18:45

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 45 | 4-Methyl-2-Pentanone | 43 | 6.410 | 6.410 | (0.828) | 340466 | 84.1469 | 84.14 |
| 10 | Acetone | 43 | 2.112 | 2.119 | (0.488) | 82898 | 79.6172 | 79.61 |
| 37 | Benzene | 78 | 4.648 | 4.648 | (0.914) | 636943 | 38.3850 | 38.38 |
| 39 | Bromodichloromethane | 83 | 5.830 | 5.830 | (1.146) | 235123 | 40.9904 | 40.99 |
| 66 | Bromoform | 173 | 8.480 | 8.480 | (1.095) | 106042 | 40.9779 | 40.97 |
| 6 | Bromomethane | 94 | 1.460 | 1.460 | (0.338) | 112294 | 39.5802 | 39.58 |
| 19 | Carbon Disulfide | 76 | 2.212 | 2.212 | (0.512) | 828998 | 76.8476 | 76.84 |
| 34 | Carbon Tetrachloride | 117 | 4.412 | 4.411 | (0.868) | 165928 | 35.8395 | 35.83 |
| 59 | Chlorobenzene | 112 | 7.764 | 7.764 | (1.003) | 385759 | 40.9636 | 40.96 |
| 7 | Chloroethane | 64 | 1.525 | 1.525 | (0.353) | 110079 | 36.2685 | 36.26 |
| 28 | Chloroform | 83 | 4.068 | 4.068 | (0.940) | 292080 | 40.9070 | 40.90 |
| 3 | Chloromethane | 50 | 1.195 | 1.195 | (0.276) | 223771 | 37.7697 | 37.76 |
| 27 | cis-1,2-Dichloroethene | 96 | 3.688 | 3.688 | (0.853) | 177092 | 40.3670 | 40.36 |
| 46 | cis-1,3-Dichloropropene | 75 | 6.245 | 6.245 | (1.228) | 288352 | 39.3586 | 39.35 |
| 55 | Dibromochloromethane | 129 | 7.255 | 7.255 | (0.937) | 174587 | 44.5039 | 44.50 |
| 2 | Dichlorodifluoromethane | 85 | 1.081 | 1.081 | (0.250) | 146683 | 39.2356 | 39.23 |
| 61 | Ethylbenzene | 106 | 7.871 | 7.871 | (1.017) | 182632 | 38.5473 | 38.54 |
| 67 | Isopropylbenzene | 105 | 8.623 | 8.623 | (1.114) | 422061 | 36.9870 | 36.98 |
| 17 | Methylene Chloride | 84 | 2.449 | 2.449 | (0.566) | 181364 | 40.2871 | 40.28 |
| 56 | Tetrachloroethene | 164 | 7.012 | 7.012 | (0.906) | 86910 | 34.8659 | 34.86 |
| 50 | Toluene | 91 | 6.532 | 6.532 | (0.844) | 618015 | 41.3876 | 41.38 |
| 20 | trans-1,2-Dichloroethene | 96 | 2.678 | 2.678 | (0.619) | 153098 | 38.7409 | 38.74 |
| 51 | trans-1,3-Dichloropropene | 75 | 6.761 | 6.761 | (1.330) | 246758 | 39.3560 | 39.35 |
| 38 | Trichloroethene | 130 | 5.321 | 5.321 | (1.046) | 143529 | 35.2362 | 35.23 |
| 8 | Trichlorofluoromethane | 101 | 1.690 | 1.689 | (0.391) | 175209 | 35.7426 | 35.74 |
| 5 | Vinyl Chloride | 62 | 1.260 | 1.260 | (0.291) | 187468 | 37.4257 | 37.42 |
| 62 | m,p-Xylenes | 106 | 7.972 | 7.971 | (1.030) | 437293 | 77.2070 | 77.20 |
| 63 | o-Xylene | 106 | 8.308 | 8.308 | (1.073) | 226484 | 39.4821 | 39.48 |
| M 95 | Xylenes (total) | 106 | | | | 663777 | 116.689 | 116.68 |
| 71 | 1,2,3-Trichloropropane | 75 | 8.931 | 8.931 | (0.918) | 175363 | 49.0549 | 49.05(M) |
| 93 | 1,2,3-Trichlorobenzene | 180 | 11.804 | 11.804 | (1.214) | 48380 | 38.1050 | 38.10 |
| 79 | 1,2,4-Trimethylbenzene | 105 | 9.440 | 9.440 | (0.971) | 368740 | 40.8544 | 40.85 |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.132 | 9.132 | (0.939) | 339872 | 40.2592 | 40.25 |
| 26 | 2,2-Dichloropropane | 77 | 3.667 | 3.666 | (0.848) | 218742 | 36.5494 | 36.54 |
| 54 | 1,3-Dichloropropane | 76 | 7.062 | 7.062 | (0.912) | 279151 | 43.8953 | 43.89 |
| 76 | 2-Chlorotoluene | 91 | 9.039 | 9.039 | (0.929) | 356066 | 42.5305 | 42.53 |
| 77 | 4-Chlorotoluene | 91 | 9.132 | 9.132 | (0.939) | 423163 | 43.1441 | 43.14 |
| 82 | p-Isopropyltoluene | 119 | 9.712 | 9.712 | (0.999) | 272342 | 37.2306 | 37.23 |
| 29 | Bromochloromethane | 128 | 3.960 | 3.953 | (0.916) | 79426 | 40.6464 | 40.64 |
| 74 | Bromobenzene | 156 | 8.874 | 8.867 | (0.912) | 153320 | 44.0861 | 44.08 |
| 44 | Dibromomethane | 93 | 5.658 | 5.658 | (1.113) | 112601 | 41.9884 | 41.98 |
| 91 | Hexachlorobutadiene | 225 | 11.539 | 11.539 | (1.186) | 21285 | 29.7206 | 29.72 |
| 73 | n-Propylbenzene | 91 | 8.974 | 8.974 | (0.923) | 508143 | 40.3826 | 40.38 |
| 87 | n-Butylbenzene | 91 | 10.056 | 10.056 | (1.034) | 235377 | 39.2499 | 39.24 |
| 81 | sec-Butylbenzene | 105 | 9.583 | 9.583 | (0.985) | 313978 | 37.1831 | 37.18 |
| 92 | Naphthalene | 128 | 11.603 | 11.603 | (1.193) | 175253 | 37.4866 | 37.48 |
| 78 | tert-Butylbenzene | 119 | 9.397 | 9.397 | (0.966) | 236379 | 37.4539 | 37.45 |
| 60 | 1,1,1,2-Tetrachloroethane | 131 | 7.850 | 7.843 | (1.014) | 139278 | 40.6838 | 40.68 |
| 64 | Styrene | 104 | 8.323 | 8.322 | (1.075) | 424225 | 41.1981 | 41.19 |

QC Flag Legend

R - Spike/Surrogate failed recovery limits.
M - Compound response manually integrated.




Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171119.b\X111913.D
Date : 19-NOV-2017 14:38
Client ID: HS17110664-11MS
Sample Info: HS17110664-11MS;HS17110664-11MS;3;;MS
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171119.b\X111914.D  Version 8
Report Date: 11-Jan-2018 18:45

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171119.b\X111914.D
Lab Smp Id: HS17110664-11MSD  Client Smp ID: HS17110664-11MSD
Inj Date  : 19-NOV-2017 15:03
Operator  : PC  Inst ID: voa6.i
Smp Info  : HS17110664-11MSD;HS17110664-11MSD;3;;MSD
Misc Info : HS16030331;WATER;0;1;
Comment   :
Method    : \\nahstws003\Target\chem\voa6.i\X171119.b\8260W.m
Meth Date : 11-Jan-2018 18:44 voa6.i  Quant Type: ISTD
Cal Date  : 10-OCT-2017 13:33  Cal File: X101008.D
Als bottle: 14  QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE  Compound Sublist: 000_bhateNEW.sub
Target Version:  4.14

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 |

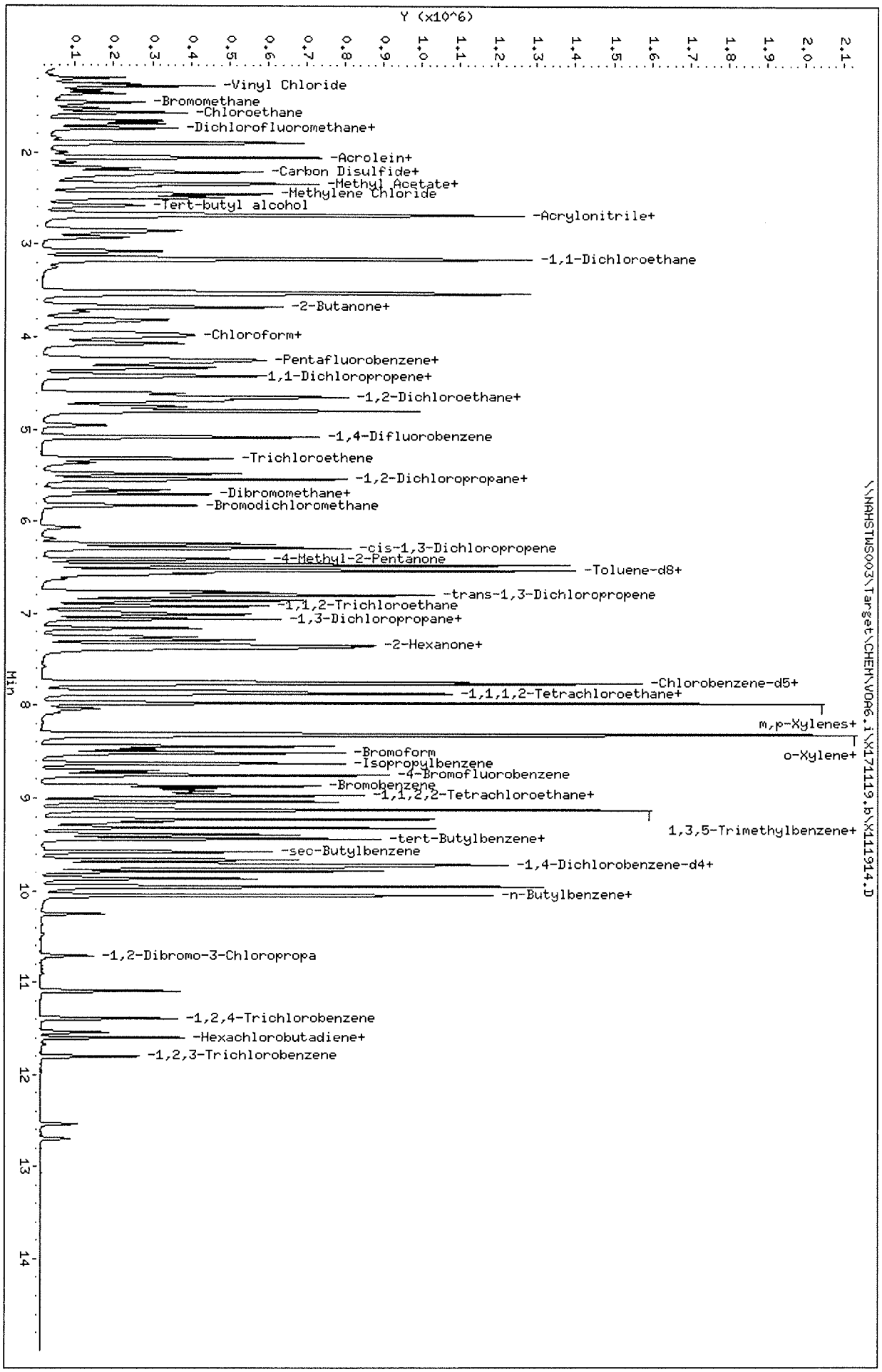
| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|---|
| 31 | 1,1,1-Trichloroethane | 97 | 4.240 | 4.240 | (0.980) | 211343 | 35.9766 | 35.97 |
| * 1 | Pentafluorobenzene | 168 | 4.326 | 4.325 | (1.000) | 299477 | 50.0000 | |
| $ 30 | Dibromofluoromethane | 113 | 4.254 | 4.254 | (0.983) | 196865 | 45.8086 | 45.80(R) |
| * 36 | 1,4-Difluorobenzene | 114 | 5.085 | 5.085 | (1.000) | 511561 | 50.0000 | |
| * 47 | Chlorobenzene-d5 | 117 | 7.742 | 7.742 | (1.000) | 475832 | 50.0000 | |
| $ 48 | Toluene-d8 | 98 | 6.474 | 6.474 | (0.836) | 742174 | 50.3764 | 50.37(R) |
| $ 69 | 4-Bromofluorobenzene | 95 | 8.752 | 8.752 | (1.130) | 264296 | 50.3241 | 50.32(R) |
| * 70 | 1,4-Dichlorobenzene-d4 | 152 | 9.726 | 9.726 | (1.000) | 209871 | 50.0000 | |
| 68 | 1,1,2,2-Tetrachloroethane | 83 | 8.903 | 8.903 | (0.915) | 196012 | 52.7935 | 52.79 |
| 53 | 1,1,2-Trichloroethane | 83 | 6.919 | 6.919 | (0.894) | 135449 | 44.1031 | 44.10 |
| 32 | 1,1-Dichloropropene | 75 | 4.426 | 4.426 | (0.870) | 196404 | 35.3527 | 35.35 |
| 22 | 1,1-Dichloroethane | 63 | 3.072 | 3.079 | (0.710) | 306128 | 38.9204 | 38.92 |
| 11 | 1,1-Dichloroethene | 96 | 2.055 | 2.055 | (0.475) | 125402 | 36.1556 | 36.15 |
| 90 | 1,2,4-Trichlorobenzene | 180 | 11.395 | 11.395 | (1.172) | 84102 | 46.4621 | 46.46 |
| 89 | 1,2-Dibromo-3-Chloropropane | 155 | 10.715 | 10.715 | (1.102) | 23313 | 50.4743 | 50.47 |
| 57 | 1,2-Dibromoethane | 107 | 7.341 | 7.341 | (0.948) | 155715 | 43.4161 | 43.41 |
| 88 | 1,2-Dichlorobenzene | 146 | 10.056 | 10.056 | (1.034) | 231585 | 44.1398 | 44.13 |
| 33 | 1,2-Dichloroethane | 62 | 4.691 | 4.691 | (0.923) | 243589 | 42.6524 | 42.65 |
| 42 | 1,2-Dichloropropane | 63 | 5.543 | 5.543 | (1.090) | 187605 | 39.6624 | 39.66 |
| 83 | 1,3-Dichlorobenzene | 146 | 9.669 | 9.669 | (0.994) | 229952 | 42.5950 | 42.59 |
| 84 | 1,4-Dichlorobenzene | 146 | 9.741 | 9.741 | (1.001) | 241072 | 42.3997 | 42.39 |
| 24 | 2-Butanone | 43 | 3.731 | 3.731 | (0.863) | 143856 | 81.2459 | 81.24 |
| 52 | 2-Hexanone | 43 | 7.284 | 7.284 | (0.941) | 322272 | 82.6533 | 82.65 |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171119.b\X111914.D Version 8
Report Date: 11-Jan-2018 18:45

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | CONCENTRATIONS FINAL ( ug/l) | |
|---|---|---|---|---|---|---|---|---|---|
| 45 | 4-Methyl-2-Pentanone | 43 | 6.410 | 6.410 | (0.828) | 342066 | 82.5151 | 82.51 | |
| 10 | Acetone | 43 | 2.112 | 2.119 | (0.488) | 84592 | 79.3448 | 79.34 | |
| 37 | Benzene | 78 | 4.648 | 4.648 | (0.914) | 653066 | 38.9414 | 38.94 | |
| 39 | Bromodichloromethane | 83 | 5.830 | 5.830 | (1.146) | 240513 | 41.4877 | 41.48 | |
| 66 | Bromoform | 173 | 8.480 | 8.480 | (1.095) | 108212 | 40.8137 | 40.81 | |
| 6 | Bromomethane | 94 | 1.460 | 1.460 | (0.338) | 120279 | 41.4090 | 41.40 | |
| 19 | Carbon Disulfide | 76 | 2.212 | 2.212 | (0.512) | 818297 | 74.0920 | 74.09 | |
| 34 | Carbon Tetrachloride | 117 | 4.411 | 4.411 | (0.868) | 161388 | 34.4911 | 34.49 | |
| 59 | Chlorobenzene | 112 | 7.764 | 7.764 | (1.003) | 400833 | 41.5437 | 41.54 | |
| 7 | Chloroethane | 64 | 1.525 | 1.525 | (0.353) | 110200 | 35.4642 | 35.46 | |
| 28 | Chloroform | 83 | 4.068 | 4.068 | (0.940) | 294398 | 40.2730 | 40.27 | |
| 3 | Chloromethane | 50 | 1.195 | 1.195 | (0.276) | 225559 | 37.1904 | 37.19 | |
| 27 | cis-1,2-Dichloroethene | 96 | 3.681 | 3.688 | (0.851) | 181042 | 40.3079 | 40.30 | |
| 46 | cis-1,3-Dichloropropene | 75 | 6.245 | 6.245 | (1.228) | 291035 | 39.3057 | 39.30 | |
| 55 | Dibromochloromethane | 129 | 7.255 | 7.255 | (0.937) | 178920 | 44.5148 | 44.51 | |
| 2 | Dichlorodifluoromethane | 85 | 1.081 | 1.081 | (0.250) | 138682 | 36.2329 | 36.23 | |
| 61 | Ethylbenzene | 106 | 7.871 | 7.871 | (1.017) | 189564 | 39.0510 | 39.05 | |
| 67 | Isopropylbenzene | 105 | 8.623 | 8.623 | (1.114) | 444353 | 38.0068 | 38.00 | |
| 17 | Methylene Chloride | 84 | 2.449 | 2.449 | (0.566) | 182492 | 39.5951 | 39.59 | |
| 56 | Tetrachloroethene | 164 | 7.012 | 7.012 | (0.906) | 88683 | 34.7240 | 34.72 | |
| 50 | Toluene | 91 | 6.532 | 6.532 | (0.844) | 631753 | 41.2931 | 41.29 | |
| 20 | trans-1,2-Dichloroethene | 96 | 2.678 | 2.678 | (0.619) | 153205 | 37.8666 | 37.86 | |
| 51 | trans-1,3-Dichloropropene | 75 | 6.761 | 6.761 | (1.330) | 250849 | 39.5864 | 39.58 | |
| 38 | Trichloroethene | 130 | 5.321 | 5.321 | (1.046) | 145053 | 35.2347 | 35.23 | |
| 8 | Trichlorofluoromethane | 101 | 1.690 | 1.689 | (0.391) | 176698 | 35.2083 | 35.20 | |
| 5 | Vinyl Chloride | 62 | 1.260 | 1.260 | (0.291) | 185649 | 36.2009 | 36.20 | |
| 62 | m,p-Xylenes | 106 | 7.971 | 7.971 | (1.030) | 452944 | 78.0526 | 78.05 | |
| 63 | o-Xylene | 106 | 8.308 | 8.308 | (1.073) | 235485 | 40.0668 | 40.06 | |
| M 95 | Xylenes (total) | 106 | | | | 688429 | 118.119 | 118.11 | |
| 71 | 1,2,3-Trichloropropane | 75 | 8.931 | 8.931 | (0.918) | 184063 | 50.1301 | 50.13 | (M) |
| 93 | 1,2,3-Trichlorobenzene | 180 | 11.804 | 11.804 | (1.214) | 66621 | 51.0875 | 51.08 | |
| 79 | 1,2,4-Trimethylbenzene | 105 | 9.440 | 9.440 | (0.971) | 392008 | 42.2865 | 42.28 | |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.125 | 9.132 | (0.938) | 367265 | 42.3562 | 42.35 | |
| 26 | 2,2-Dichloropropane | 77 | 3.667 | 3.666 | (0.848) | 221346 | 36.1246 | 36.12 | |
| 54 | 1,3-Dichloropropane | 76 | 7.062 | 7.062 | (0.912) | 288244 | 44.2383 | 44.23 | |
| 76 | 2-Chlorotoluene | 91 | 9.039 | 9.039 | (0.929) | 383722 | 44.6247 | 44.62 | |
| 77 | 4-Chlorotoluene | 91 | 9.132 | 9.132 | (0.939) | 448313 | 44.5024 | 44.50 | |
| 82 | p-Isopropyltoluene | 119 | 9.712 | 9.712 | (0.999) | 298178 | 39.6871 | 39.68 | |
| 29 | Bromochloromethane | 128 | 3.960 | 3.953 | (0.916) | 80238 | 40.1072 | 40.10 | |
| 74 | Bromobenzene | 156 | 8.867 | 8.867 | (0.912) | 161067 | 45.0918 | 45.09 | |
| 44 | Dibromomethane | 93 | 5.658 | 5.658 | (1.113) | 114289 | 42.1682 | 42.16 | |
| 91 | Hexachlorobutadiene | 225 | 11.539 | 11.539 | (1.186) | 26568 | 35.9863 | 35.98 | |
| 73 | n-Propylbenzene | 91 | 8.974 | 8.974 | (0.923) | 539068 | 41.7100 | 41.71 | |
| 87 | n-Butylbenzene | 91 | 10.049 | 10.056 | (1.033) | 259405 | 42.1154 | 42.11 | |
| 81 | sec-Butylbenzene | 105 | 9.583 | 9.583 | (0.985) | 342480 | 39.4884 | 39.48 | |
| 92 | Naphthalene | 128 | 11.603 | 11.603 | (1.193) | 246414 | 50.2200 | 50.22 | |
| 78 | tert-Butylbenzene | 119 | 9.397 | 9.397 | (0.966) | 257312 | 39.6951 | 39.69 | |
| 60 | 1,1,1,2-Tetrachloroethane | 131 | 7.850 | 7.843 | (1.014) | 143664 | 40.9587 | 40.95 | |
| 64 | Styrene | 104 | 8.322 | 8.322 | (1.075) | 440179 | 41.7224 | 41.72 | |

QC Flag Legend

R - Spike/Surrogate failed recovery limits.
M - Compound response manually integrated.




Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171119.b\X111914.D
Date : 19-NOV-2017 15:03
Client ID: HS17110664-11HSD
Sample Info: HS17110664-11HSD;HS17110664-11HSD;3;;HSD
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171119.b\X111915.D  Version 8
Report Date: 11-Jan-2018 18:45

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171119.b\X111915.D
Lab Smp Id: HS17110493-02  Client Smp ID: HS17110493-02
Inj Date  : 19-NOV-2017 15:28
Operator  : PC  Inst ID: voa6.i
Smp Info  : HS17110493-02;HS17110493-02;;;
Misc Info : HS16030331;WATER;0;1;
Comment   :
Method    : \\NAHSTWS003\Target\chem\voa6.i\X171119.b\8260W.m
Meth Date : 11-Jan-2018 18:44 voa6.i  Quant Type: ISTD
Cal Date  : 10-OCT-2017 13:33  Cal File: X101008.D
Als bottle: 15
Dil Factor: 1.00000
Integrator: HP RTE  Compound Sublist: 000_bhateNEW.sub
Target Version:  4.14

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 |

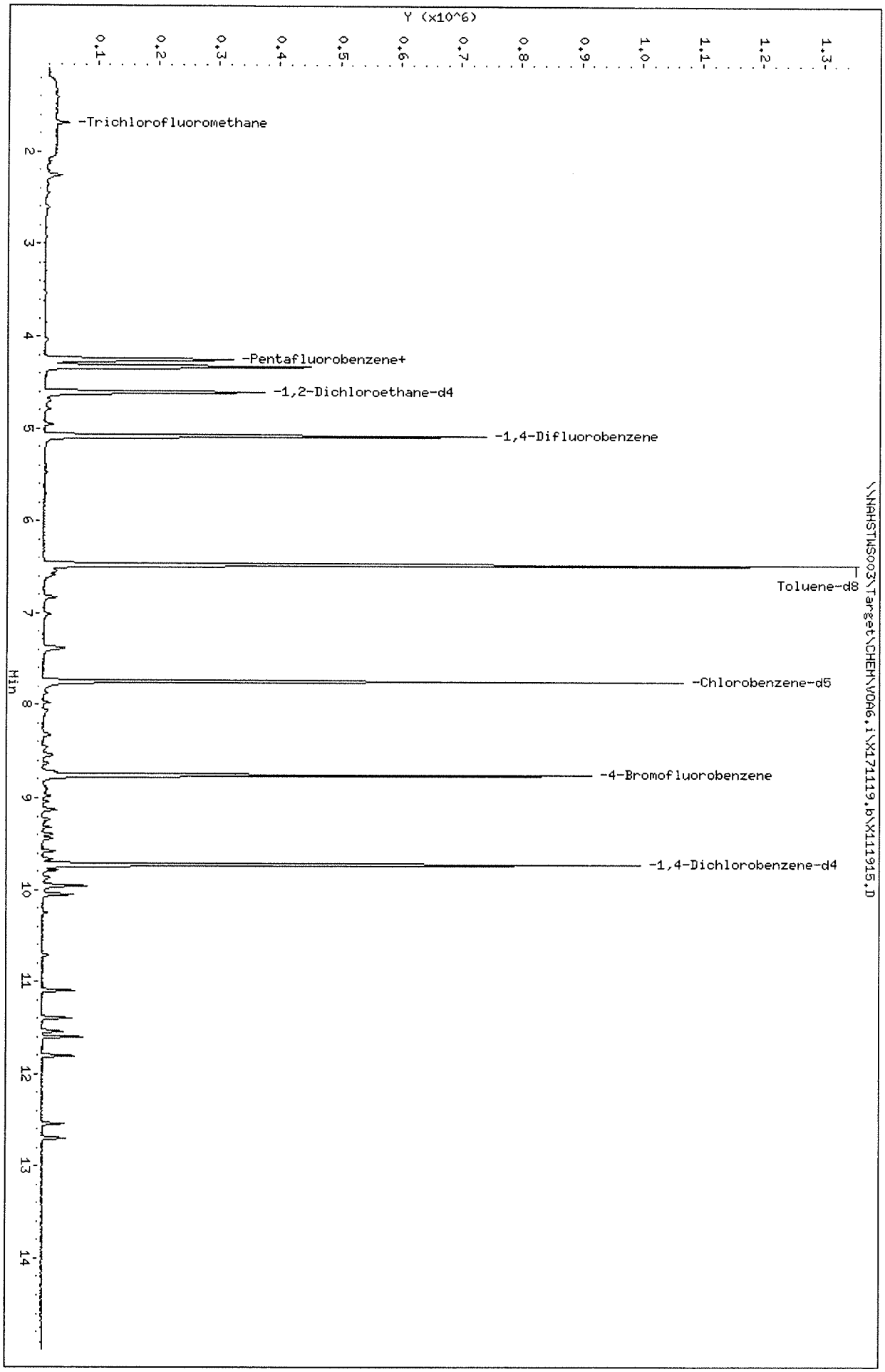
| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( ug/l) | FINAL ( ug/l) |
|---|---|---|---|---|---|---|---|
| * 1 Pentafluorobenzene | 168 | 4.325 | 4.325 | (1.000) | 300829 | 50.0000 | |
| $ 30 Dibromofluoromethane | 113 | 4.254 | 4.254 | (0.983) | 200007 | 46.3158 | 46.31(R) |
| * 36 1,4-Difluorobenzene | 114 | 5.085 | 5.085 | (1.000) | 518596 | 50.0000 | |
| * 47 Chlorobenzene-d5 | 117 | 7.742 | 7.742 | (1.000) | 481327 | 50.0000 | |
| $ 48 Toluene-d8 | 98 | 6.474 | 6.474 | (0.836) | 742770 | 49.8605 | 49.86(R) |
| $ 69 4-Bromofluorobenzene | 95 | 8.752 | 8.752 | (1.130) | 267642 | 50.3780 | 50.37(R) |
| * 70 1,4-Dichlorobenzene-d4 | 152 | 9.726 | 9.726 | (1.000) | 211809 | 50.0000 | |
| 8 Trichlorofluoromethane | 101 | 1.689 | 1.689 | (0.391) | 12783 | 2.53565 | 2.53(a) |

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
R - Spike/Surrogate failed recovery limits.

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171119.b\X111915.D
Date : 19-NOV-2017 15:28
Client ID: HS17110493-02
Sample Info: HS17110493-02;HS17110493-02;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171119.b\X111929.D  Version 10
Report Date: 11-Jan-2018 18:45

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171119.b\X111929.D
Lab Smp Id: VSTD050-END  Client Smp ID: VSTD050-END
Inj Date  : 19-NOV-2017 21:16
Operator  : PC  Inst ID: voa6.i
Smp Info  : VSTD050-END;VSTD050-END;2;;
Misc Info : HS16030331;WATER;0;1;
Comment   :
Method    : \\nahstws003\Target\chem\voa6.i\X171119.b\8260W.m
Meth Date : 11-Jan-2018 18:44 voa6.i  Quant Type: ISTD
Cal Date  : 10-OCT-2017 13:33  Cal File: X101008.D
Als bottle: 29  Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE  Compound Sublist: 000_bhateNEW.sub
Target Version:  4.14

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) |
|---|---|---|---|---|---|---|---|---|
| 31 | 1,1,1-Trichloroethane | 97 | 4.240 | 4.240 | (0.980) | 233247 | 50.0000 | 42.07 |
| * 1 | Pentafluorobenzene | 168 | 4.325 | 4.325 | (1.000) | 282606 | 50.0000 | |
| $ 30 | Dibromofluoromethane | 113 | 4.254 | 4.254 | (0.983) | 191835 | 50.0000 | 47.25 |
| * 36 | 1,4-Difluorobenzene | 114 | 5.085 | 5.085 | (1.000) | 490960 | 50.0000 | |
| * 47 | Chlorobenzene-d5 | 117 | 7.742 | 7.742 | (1.000) | 450660 | 50.0000 | |
| $ 48 | Toluene-d8 | 98 | 6.474 | 6.474 | (0.836) | 709684 | 50.0000 | 50.84 |
| $ 69 | 4-Bromofluorobenzene | 95 | 8.752 | 8.752 | (1.130) | 253737 | 50.0000 | 50.99 |
| * 70 | 1,4-Dichlorobenzene-d4 | 152 | 9.726 | 9.726 | (1.000) | 204176 | 50.0000 | |
| 68 | 1,1,2,2-Tetrachloroethane | 83 | 8.903 | 8.903 | (0.915) | 188483 | 50.0000 | 52.17 |
| 53 | 1,1,2-Trichloroethane | 83 | 6.919 | 6.919 | (0.894) | 135610 | 50.0000 | 46.62 |
| 32 | 1,1-Dichloropropene | 75 | 4.426 | 4.426 | (0.870) | 219405 | 50.0000 | 41.15 |
| 22 | 1,1-Dichloroethane | 63 | 3.079 | 3.079 | (0.712) | 323321 | 50.0000 | 43.56 |
| 11 | 1,1-Dichloroethene | 96 | 2.055 | 2.055 | (0.475) | 138733 | 50.0000 | 42.38 |
| 90 | 1,2,4-Trichlorobenzene | 180 | 11.395 | 11.395 | (1.172) | 80673 | 50.0000 | 45.81 |
| 89 | 1,2-Dibromo-3-Chloropropane | 155 | 10.715 | 10.715 | (1.102) | 21324 | 50.0000 | 47.46 |
| 57 | 1,2-Dibromoethane | 107 | 7.341 | 7.341 | (0.948) | 157724 | 50.0000 | 46.43 |
| 88 | 1,2-Dichlorobenzene | 146 | 10.056 | 10.056 | (1.034) | 237642 | 50.0000 | 46.55 |
| 33 | 1,2-Dichloroethane | 62 | 4.691 | 4.691 | (0.923) | 244733 | 50.0000 | 44.65 |
| 42 | 1,2-Dichloropropane | 63 | 5.543 | 5.543 | (1.090) | 197886 | 50.0000 | 43.59 |
| 83 | 1,3-Dichlorobenzene | 146 | 9.669 | 9.669 | (0.994) | 240612 | 50.0000 | 45.81 |
| 84 | 1,4-Dichlorobenzene | 146 | 9.741 | 9.741 | (1.001) | 253095 | 50.0000 | 45.75 |
| 24 | 2-Butanone | 43 | 3.731 | 3.731 | (0.863) | 141147 | 100.000 | 84.47 |
| 52 | 2-Hexanone | 43 | 7.284 | 7.284 | (0.941) | 324672 | 100.000 | 87.91 |

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171119.b\X111929.D Version 10
Report Date: 11-Jan-2018 18:45

| | Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( ug/l) | AMOUNTS ON-COL ( ug/l) | |
|---|---|---|---|---|---|---|---|---|---|
| 45 | 4-Methyl-2-Pentanone | 43 | 6.410 | 6.410 | (0.828) | 341718 | 100.000 | 87.03 | |
| 10 | Acetone | 43 | 2.119 | 2.119 | (0.490) | 100089 | 100.000 | 100.28 | |
| 37 | Benzene | 78 | 4.648 | 4.648 | (0.914) | 680949 | 50.0000 | 42.30 | |
| 39 | Bromodichloromethane | 83 | 5.830 | 5.830 | (1.146) | 245340 | 50.0000 | 44.09 | |
| 66 | Bromoform | 173 | 8.480 | 8.480 | (1.095) | 107603 | 50.0000 | 42.85 | |
| 6 | Bromomethane | 94 | 1.460 | 1.460 | (0.338) | 102326 | 50.0000 | 37.33 | |
| 19 | Carbon Disulfide | 76 | 2.212 | 2.212 | (0.512) | 937660 | 100.000 | 89.96 | |
| 34 | Carbon Tetrachloride | 117 | 4.411 | 4.411 | (0.868) | 178831 | 50.0000 | 39.82 | |
| 59 | Chlorobenzene | 112 | 7.764 | 7.764 | (1.003) | 415912 | 50.0000 | 45.51 | |
| 7 | Chloroethane | 64 | 1.525 | 1.525 | (0.353) | 120394 | 50.0000 | 41.05 | (M) |
| 28 | Chloroform | 83 | 4.068 | 4.068 | (0.940) | 311374 | 50.0000 | 45.13 | |
| 3 | Chloromethane | 50 | 1.195 | 1.195 | (0.276) | 239325 | 50.0000 | 41.78 | |
| 27 | cis-1,2-Dichloroethene | 96 | 3.688 | 3.688 | (0.853) | 189878 | 50.0000 | 44.79 | |
| 46 | cis-1,3-Dichloropropene | 75 | 6.245 | 6.245 | (1.228) | 291703 | 50.0000 | 41.04 | |
| 55 | Dibromochloromethane | 129 | 7.255 | 7.255 | (0.937) | 178647 | 50.0000 | 46.92 | |
| 2 | Dichlorodifluoromethane | 85 | 1.081 | 1.081 | (0.250) | 150995 | 50.0000 | 41.80 | |
| 61 | Ethylbenzene | 106 | 7.871 | 7.871 | (1.017) | 204444 | 50.0000 | 44.46 | |
| 67 | Isopropylbenzene | 105 | 8.623 | 8.623 | (1.114) | 476516 | 50.0000 | 43.03 | |
| 17 | Methylene Chloride | 84 | 2.449 | 2.449 | (0.566) | 189010 | 50.0000 | 43.45 | |
| 56 | Tetrachloroethene | 164 | 7.012 | 7.012 | (0.906) | 98530 | 50.0000 | 40.73 | |
| 50 | Toluene | 91 | 6.532 | 6.532 | (0.844) | 672565 | 50.0000 | 46.41 | |
| 20 | trans-1,2-Dichloroethene | 96 | 2.678 | 2.678 | (0.619) | 169156 | 50.0000 | 44.30 | |
| 51 | trans-1,3-Dichloropropene | 75 | 6.761 | 6.761 | (1.330) | 245160 | 50.0000 | 40.31 | |
| 38 | Trichloroethene | 130 | 5.321 | 5.321 | (1.046) | 159809 | 50.0000 | 40.44 | |
| 8 | Trichlorofluoromethane | 101 | 1.689 | 1.689 | (0.391) | 196430 | 50.0000 | 41.47 | |
| 5 | Vinyl Chloride | 62 | 1.260 | 1.260 | (0.291) | 207498 | 50.0000 | 42.87 | |
| 62 | m,p-Xylenes | 106 | 7.971 | 7.971 | (1.030) | 486069 | 100.000 | 88.43 | |
| 63 | o-Xylene | 106 | 8.308 | 8.308 | (1.073) | 247070 | 50.0000 | 44.38 | |
| M 95 | Xylenes (total) | 106 | | | | 733139 | 150.000 | | (a) |
| 71 | 1,2,3-Trichloropropane | 75 | 8.931 | 8.931 | (0.918) | 178928 | 50.0000 | 50.09 | (M) |
| 93 | 1,2,3-Trichlorobenzene | 180 | 11.804 | 11.804 | (1.214) | 61148 | 50.0000 | 48.19 | |
| 79 | 1,2,4-Trimethylbenzene | 105 | 9.440 | 9.440 | (0.971) | 417228 | 50.0000 | 46.26 | |
| 75 | 1,3,5-Trimethylbenzene | 105 | 9.132 | 9.132 | (0.939) | 387055 | 50.0000 | 45.88 | |
| 26 | 2,2-Dichloropropane | 77 | 3.666 | 3.666 | (0.848) | 218902 | 50.0000 | 37.85 | |
| 54 | 1,3-Dichloropropane | 76 | 7.062 | 7.062 | (0.912) | 285786 | 50.0000 | 46.31 | |
| 76 | 2-Chlorotoluene | 91 | 9.039 | 9.039 | (0.929) | 402995 | 50.0000 | 48.17 | |
| 77 | 4-Chlorotoluene | 91 | 9.132 | 9.132 | (0.939) | 469369 | 50.0000 | 47.89 | |
| 82 | p-Isopropyltoluene | 119 | 9.712 | 9.712 | (0.999) | 311922 | 50.0000 | 42.67 | |
| 29 | Bromochloromethane | 128 | 3.953 | 3.953 | (0.914) | 81694 | 50.0000 | 43.27 | |
| 74 | Bromobenzene | 156 | 8.867 | 8.867 | (0.912) | 163163 | 50.0000 | 46.95 | |
| 44 | Dibromomethane | 93 | 5.658 | 5.658 | (1.113) | 116990 | 50.0000 | 44.97 | |
| 91 | Hexachlorobutadiene | 225 | 11.539 | 11.539 | (1.186) | 25187 | 50.0000 | 35.08 | |
| 73 | n-Propylbenzene | 91 | 8.974 | 8.974 | (0.923) | 573745 | 50.0000 | 45.63 | |
| 87 | n-Butylbenzene | 91 | 10.056 | 10.056 | (1.034) | 267732 | 50.0000 | 44.67 | |
| 81 | sec-Butylbenzene | 105 | 9.583 | 9.583 | (0.985) | 358704 | 50.0000 | 42.51 | |
| 92 | Naphthalene | 128 | 11.603 | 11.603 | (1.193) | 230235 | 50.0000 | 48.34 | |
| 78 | tert-Butylbenzene | 119 | 9.397 | 9.397 | (0.966) | 268206 | 50.0000 | 42.52 | |
| 60 | 1,1,1,2-Tetrachloroethane | 131 | 7.843 | 7.843 | (1.013) | 146950 | 50.0000 | 44.23 | |
| 64 | Styrene | 104 | 8.322 | 8.322 | (1.075) | 458216 | 50.0000 | 45.85 | |

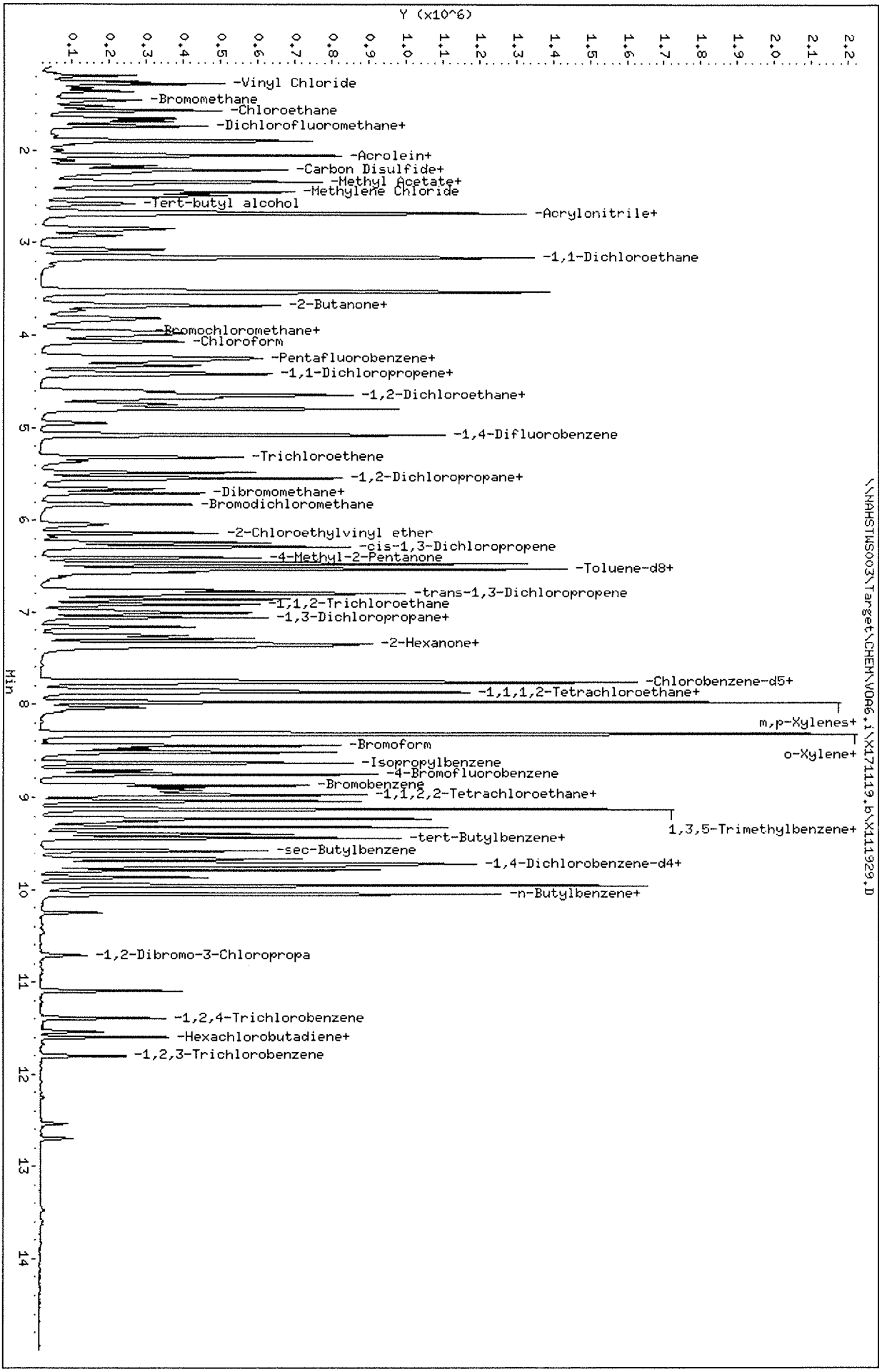
QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171119.b\X111929.D Version 10
Report Date: 11-Jan-2018 18:45

QC Flag Legend

M - Compound response manually integrated.




Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171119.b\X111929.D
Date : 19-NOV-2017 21:16
Client ID: VSTD050-END
Sample Info: VSTD050-END;VSTD050-END;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

# Semivolatile Organics Raw Data

## Bhate Environmental Associates, Inc.

Project: Longhorn GW Treatment Plant Monthly Effluent

ALS WO# HS17110493

# FORM 2
## WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17110493

| | CLIENT SAMPLE NO. | S1 (NBZ)# | S2 # | S3 (FBP)# | S4 # | S5 # | S6 # | S7 # | S8 # | TOT OUT |
|---|---|---|---|---|---|---|---|---|---|---|
| 01 | MBLK-122176 | 90 | 164* | 124 | | | | | | 1 |
| 02 | LCS-122176 | 72 | 118 | 121 | | | | | | 0 |
| 03 | LCSD-122176 | 102 | 130 | 121 | | | | | | 0 |
| 04 | HS17110493-01 | 101 | 196D | 138 | | | | | | 0 |
| 05 | | | | | | | | | | |
| 06 | | | | | | | | | | |
| 07 | | | | | | | | | | |
| 08 | | | | | | | | | | |
| 09 | | | | | | | | | | |
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| 24 | | | | | | | | | | |
| 25 | | | | | | | | | | |
| 26 | | | | | | | | | | |
| 27 | | | | | | | | | | |
| 28 | | | | | | | | | | |

| | QC LIMITS |
|---|---|
| S1 (NBZ) = Nitrobenzene-d5 | (41-120) |
| S2 = 4-Terphenyl-d14 | (40-140) |
| S3 (FBP) = 2-Fluorobiphenyl | (40-140) |

# Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

# SV06 -Logbook

**Batch:** 29589 **Analyst:** Andrew Neir

**Date:** 11-20-2017 **Reviewer:**

**Method:** 8270D(SIM) **Laboratory:** Houston

**Comments:** MSSV-003(SIM)

| # | Samp ID | Type | Analyzed | DF | Init Wt/Vol | Final Vol | File ID | Matrix | Status | pH |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | DFTPP | TUNE | 11-20-2017 11:53 am | 1.00 | | | 001.D | | Y | NA |
| 2 | SLSTD-2.5 | CCV | 11-20-2017 12:04 pm | 1.00 | | | 002.D | | Y | NA |
| 3 | DXSIM-0.08 | ICAL4 | 11-20-2017 12:56 pm | 1.00 | | | 003.D | | Y | NA |
| 4 | DXSIM-0.01 | ICAL1 | 11-20-2017 01:22 pm | 1.00 | | | 004.D | | Y | NA |
| 5 | DXSIM-0.03 | ICAL2 | 11-20-2017 01:40 pm | 1.00 | | | 005.D | | Y | NA |
| 6 | DXSIM-0.05 | ICAL3 | 11-20-2017 01:58 pm | 1.00 | | | 006.D | | Y | NA |
| 7 | DXSIM-0.10 | ICAL5 | 11-20-2017 02:17 pm | 1.00 | | | 007.D | | Y | NA |
| 8 | DXSIM-0.15 | ICAL6 | 11-20-2017 02:35 pm | 1.00 | | | 008.D | | Y | NA |
| 9 | DXSIM-0.20 | ICAL7 | 11-20-2017 02:54 pm | 1.00 | | | 009.D | | Y | NA |
| 10 | DXSIM-0.50 | ICAL8 | 11-20-2017 03:12 pm | 1.00 | | | 010.D | | Y | NA |
| 11 | DXSIM-ICV | SAMP | 11-20-2017 03:37 pm | 1.00 | | | 011.D | | Y | NA |
| 12 | CCB | SAMP | 11-20-2017 03:55 pm | 1.00 | | | 012.D | | Y | NA |
| 13 | MBLK-122176 | MBLK | 11-20-2017 04:14 pm | 1.00 | 1000.00 mL | 1.00 mL | 013.D | Liquid | Y | NA |
| 14 | LCS-122176 | LCS | 11-20-2017 04:32 pm | 1.00 | 1000.00 mL | 1.00 mL | 014.D | Liquid | Y | NA |
| 15 | LCSD-122176 | LCSD | 11-20-2017 04:50 pm | 1.00 | 1000.00 mL | 1.00 mL | 015.D | Liquid | Y | NA |
| 16 | HS17110493-01 | SAMP | 11-20-2017 05:09 pm | 1.00 | 1000.00 mL | 1.00 mL | 016.D | Liquid | Y | NA |
| 17 | HS17110493-01 | SAMP | 11-20-2017 05:32 pm | 10.00 | 1000.00 mL | 1.00 mL | 017.D | Liquid | Y | NA |
| 18 | HS17110493-01 | SAMP | 11-20-2017 05:56 pm | 50.00 | 1000.00 mL | 1.00 mL | 018.D | Liquid | Y | NA |
| 19 | DXSIM-0.08 | SAMP | 11-20-2017 06:16 pm | 1.00 | 1000.00 mL | 1.00 mL | 019.D | Liquid | Y | NA |

| Chemical | Value |
|---|---|
| IS ID | 3041109-02 |
| CAL STD ID | 3041117-04 |
| DFTPP ID | 29722-96-01 |
| PCP Tailing | 0.38 |
| Benz. Tailing | 0.62 |

FORM 3
WATER SEMIVOLATILE METHOD SPIKE RECOVERY

Lab Name: Contract:

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

Matrix Spike - Sample No.: DXSIM-ICV

| COMPOUND | SPIKE ADDED (ug/L) | SAMPLE CONCENTRATION (ug/L) | % REC # | QC. LIMITS REC. |
|---|---|---|---|---|
| 1,4-Dioxane | 0.08000 | 0.07757 | 97 | 75-125 |

# Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

COMMENTS: _____

_____

FORM III SV

FORM 3
WATER SEMIVOLATILE METHOD SPIKE RECOVERY

Lab Name: Contract:

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

Matrix Spike - Sample No.: DXSIM-0.08

| COMPOUND | SPIKE ADDED (ug/L) | SAMPLE CONCENTRATION (ug/L) | % REC # | QC. LIMITS REC. |
|---|---|---|---|---|
| 1,4-Dioxane | 0.08000 | 0.05741 | 72 | 40-140 |

# Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

COMMENTS: _____

_____

FORM III SV

# FORM 5
## SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
## DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17110493

Lab File ID: 001 DFTPP Injection Date: 11/20/17

Instrument ID: SV6 DFTPP Injection Time: 1153

| m/e | ION ABUNDANCE CRITERIA | % RELATIVE ABUNDANCE |
|---|---|---|
| 51 | 10.0 - 80.0% of mass 198 | 62.7 |
| 68 | Less than 2.0% of mass 69 | 1.2 ( 1.8)1 |
| 69 | Mass 69 relative abundance | 66.3 |
| 70 | Less than 2.0% of mass 69 | 0.3 ( 0.4)1 |
| 127 | 10.0 - 80.0% of mass 198 | 51.6 |
| 197 | Less than 2.0% of mass 198 | 0.0 |
| 198 | Base Peak, 100% relative abundance | 100.0 |
| 199 | 5.0 to 9.0% of mass 198 | 6.7 |
| 275 | 10.0 - 60.0% of mass 198 | 26.2 |
| 365 | 1.0 - 100.0% of mass 198 | 4.0 |
| 441 | Present, but less than mass 443 | 16.6 |
| 442 | 50.0 - 150.0% of mass 198 | 102.4 |
| 443 | 15.0 - 24.0% of mass 442 | 21.7 ( 21.2)2 |

1-Value is % mass 69 2-Value is % mass 442

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 | DXSIM-0.08 | DXSIM-0.08 | 003 | 11/20/17 | 1256 |
| 02 | DXSIM-0.01 | DXSIM-0.01 | 004 | 11/20/17 | 1322 |
| 03 | DXSIM-0.03 | DXSIM-0.03 | 005 | 11/20/17 | 1340 |
| 04 | DXSIM-0.05 | DXSIM-0.05 | 006 | 11/20/17 | 1358 |
| 05 | DXSIM-0.10 | DXSIM-0.10 | 007 | 11/20/17 | 1417 |
| 06 | DXSIM-0.15 | DXSIM-0.15 | 008 | 11/20/17 | 1435 |
| 07 | DXSIM-0.20 | DXSIM-0.20 | 009 | 11/20/17 | 1454 |
| 08 | DXSIM-0.50 | DXSIM-0.50 | 010 | 11/20/17 | 1512 |
| 09 | DXSIM-ICV | DXSIM-ICV | 011 | 11/20/17 | 1537 |
| 10 | MBLK-122176 | MBLK-122176 | 013 | 11/20/17 | 1614 |
| 11 | LCS-122176 | LCS-122176 | 014 | 11/20/17 | 1632 |
| 12 | LCSD-122176 | LCSD-122176 | 015 | 11/20/17 | 1650 |
| 13 | HS17110493-0 | HS17110493-01 | 018 | 11/20/17 | 1756 |
| 14 | DXSIM-0.08 | DXSIM-0.08 | 019 | 11/20/17 | 1816 |
| 15 | | | | | |
| 16 | | | | | |
| 17 | | | | | |
| 18 | | | | | |
| 19 | | | | | |
| 20 | | | | | |
| 21 | | | | | |
| 22 | | | | | |

FORM 6
SEMIVOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

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

Instrument ID: SV6 Calibration Date(s): 11/20/17 11/20/17

Column: RTX-5SIL MS ID: 0.28 (mm) Calibration Time(s): 1256 1512

LAB FILE ID: RF0.01: 004 RF0.025: 005 RF0.05: 006
RF0.08: 003 RF0.1: 007 RF0.15: 008

| COMPOUND | RF0.01 | RF0.025 | RF0.05 | RF0.08 | RF0.1 | RF0.15 |
|---|---|---|---|---|---|---|
| 1,4-Dioxane | 0.096 | 0.090 | 0.124 | 0.077 | 0.107 | 0.095 |
| Nitrobenzene-d5 | 0.574 | 0.665 | 0.500 | 0.557 | 0.610 | 0.503 |
| 4-Terphenyl-d14 | 0.507 | 0.631 | 0.506 | 0.483 | 0.549 | 0.526 |
| 2-Fluorobiphenyl | 0.934 | 1.162 | 0.969 | 0.842 | 1.057 | 0.943 |

FORM VI SV

# FORM 6
## SEMIVOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

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

Instrument ID: SV6 Calibration Date(s): 11/20/17 11/20/17

Column: RTX-5SIL MS ID: 0.28 (mm) Calibration Time(s): 1256 1512

LAB FILE ID: RF0.2: 009 RF0.5: 010

| COMPOUND | RF0.2 | RF0.5 | CURVE | COEFFICENT A1 | %RSD OR R^2 | MAX %RSD OR R^2 |
|---|---|---|---|---|---|---|
| 1,4-Dioxane | 0.100 | 0.087 | AVRG | 9.698e-002 | 14.442 | 20.000 |
| Nitrobenzene-d5 | 0.491 | 0.500 | AVRG | 0.55004775 | 11.564 | 20.000 |
| 4-Terphenyl-d14 | 0.569 | 0.618 | AVRG | 0.54872741 | 9.830 | 20.000 |
| 2-Fluorobiphenyl | 1.066 | 1.049 | AVRG | 1.00272078 | 9.977 | 20.000 |

# FORM 8
## SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17110493

Lab File ID (Standard): 003 Date Analyzed: 11/20/17

Instrument ID: SV6 Time Analyzed: 1256

| | | IS1 (NPT) AREA # | RT # | IS2 (ANT) AREA # | RT # | IS3 (PHN) AREA # | RT # |
|---|---|---|---|---|---|---|---|
| | 12 HOUR STD | 105593 | 4.71 | 86190 | 6.39 | 136523 | 7.84 |
| | UPPER LIMIT | 211186 | 5.21 | 172380 | 6.89 | 273046 | 8.34 |
| | LOWER LIMIT | 52797 | 4.21 | 43095 | 5.89 | 68262 | 7.34 |
| | CLIENT SAMPLE NO. | | | | | | |
| 01 | MBLK-122176 | 84225 | 4.71 | 45909 | 6.38 | 87901 | 7.83 |
| 02 | LCS-122176 | 53814 | 4.71 | 32331* | 6.39 | 45849* | 7.84 |
| 03 | LCSD-122176 | 63828 | 4.71 | 37648* | 6.39 | 69823 | 7.83 |
| 04 | HS17110493-01 | 65627 | 4.71 | 43878 | 6.39 | 70686 | 7.83 |
| 05 | | | | | | | |
| 06 | | | | | | | |
| 07 | | | | | | | |
| 08 | | | | | | | |
| 09 | | | | | | | |
| 10 | | | | | | | |
| 11 | | | | | | | |
| 12 | | | | | | | |
| 13 | | | | | | | |
| 14 | | | | | | | |
| 15 | | | | | | | |
| 16 | | | | | | | |
| 17 | | | | | | | |
| 18 | | | | | | | |
| 19 | | | | | | | |
| 20 | | | | | | | |

IS1 (NPT) = Naphthalene-d8
IS2 (ANT) = Acenaphthene-d10
IS3 (PHN) = Phenanthrene-d10

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

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



FORM VIII SV

FORM 8
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17110493

Lab File ID (Standard): 003 Date Analyzed: 11/20/17

Instrument ID: SV6 Time Analyzed: 1256

| | | IS4(CRY) AREA # | RT # | IS5(PRY) AREA # | RT # | AREA # | RT # |
|---|---|---|---|---|---|---|---|
| | 12 HOUR STD | 132573 | 10.67 | 119987 | 12.74 | | |
| | UPPER LIMIT | 265146 | 11.17 | 239974 | 13.24 | | |
| | LOWER LIMIT | 66287 | 10.17 | 59994 | 12.24 | | |
| | CLIENT SAMPLE NO. | | | | | | |
| 01 | MBLK-122176 | 67385 | 10.66 | 69158 | 12.73 | | |
| 02 | LCS-122176 | 45121* | 10.66 | 37631* | 12.74 | | |
| 03 | LCSD-122176 | 49543* | 10.66 | 51271* | 12.73 | | |
| 04 | HS17110493-01 | 71069 | 10.67 | 70945 | 12.74 | | |
| 05 | | | | | | | |
| 06 | | | | | | | |
| 07 | | | | | | | |
| 08 | | | | | | | |
| 09 | | | | | | | |
| 10 | | | | | | | |
| 11 | | | | | | | |
| 12 | | | | | | | |
| 13 | | | | | | | |
| 14 | | | | | | | |
| 15 | | | | | | | |
| 16 | | | | | | | |
| 17 | | | | | | | |
| 18 | | | | | | | |
| 19 | | | | | | | |
| 20 | | | | | | | |

IS4 (CRY) = Chrysene-d12
IS5 (PRY) = Perylene-d12

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

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



FORM VIII SV

Data File: \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\001.D



Date : 20-NOV-2017 11:53

Client ID: DFTPP

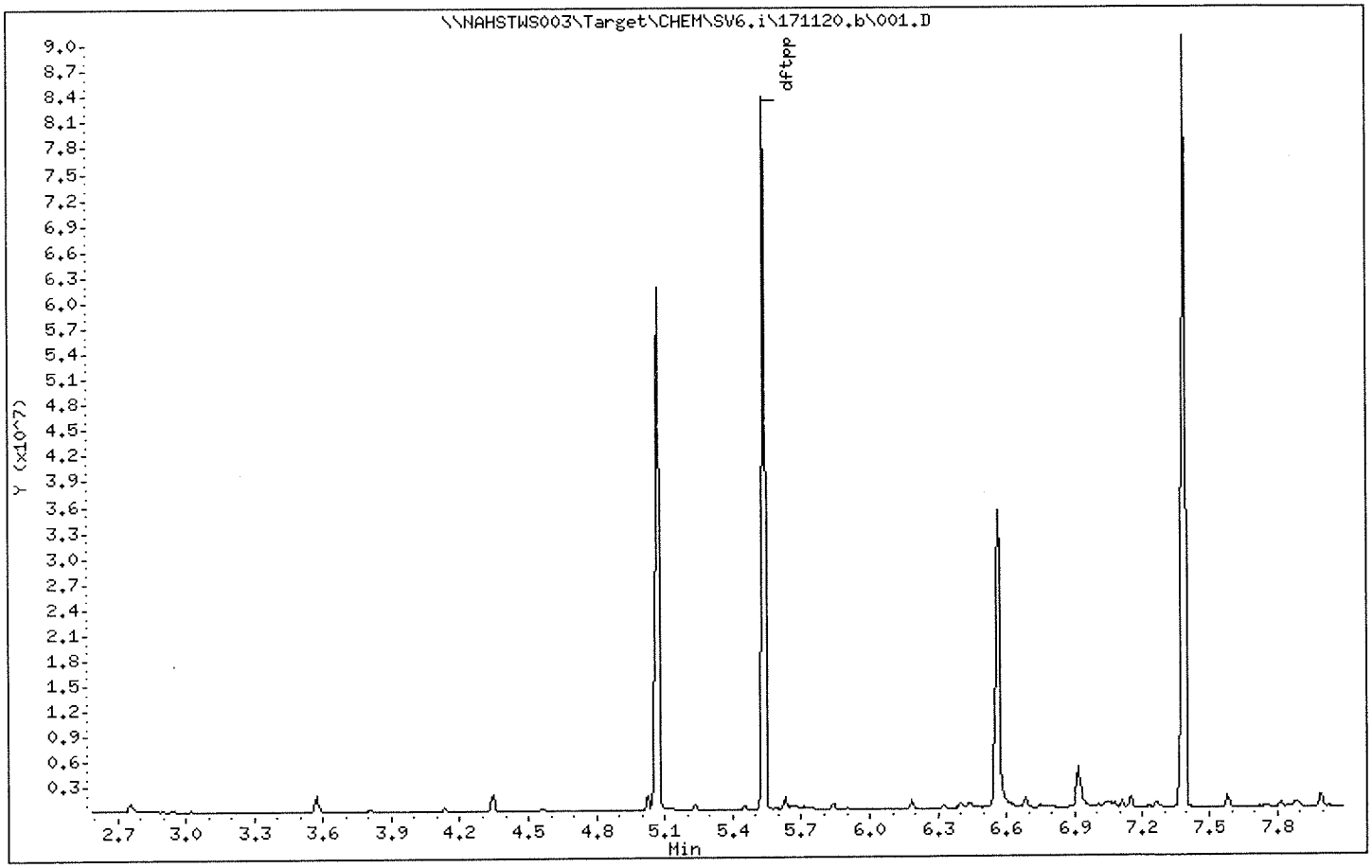
Instrument: SV6.i

Sample Info: DFTPP;DFTPP;3;;DFTPP

Operator: LG

Column phase: DB-5MS

Column diameter: 0.25



Data File: \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\001.D

Date : 20-NOV-2017 11:53

Client ID: DFTPP

Instrument: SV6.i

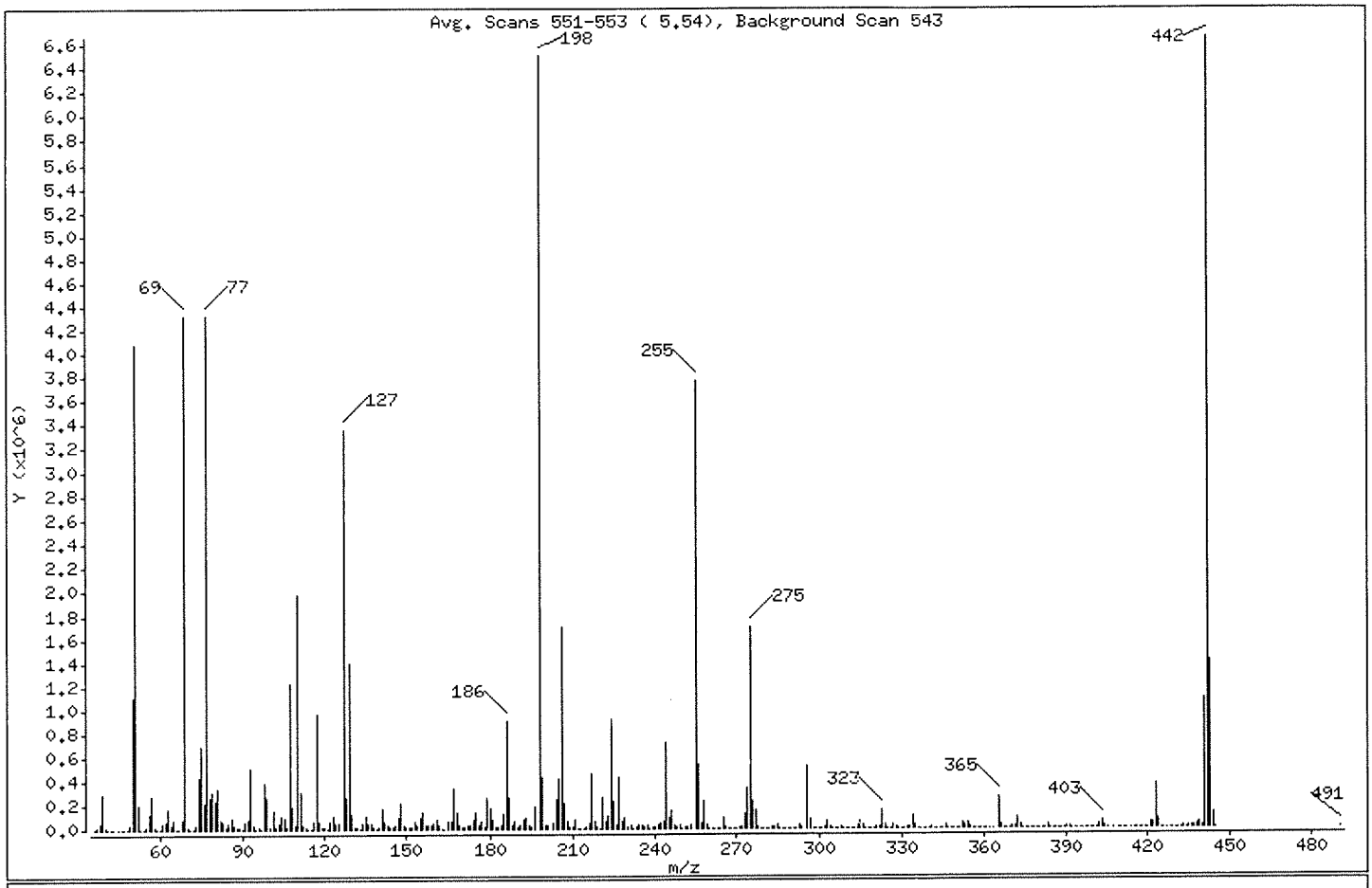
Sample Info: DFTPP;DFTPP;3;;DFTPP

Operator: LG

Column phase: DB-5MS

Column diameter: 0.25

1 dftpp




| m/e | ION ABUNDANCE CRITERIA | % RELATIVE ABUNDANCE |
|---|---|---|
| 198 | Base Peak, 100% relative abundance | 100.00 |
| 51 | 10.00 - 80.00% of mass 198 | 62.68 |
| 68 | Less than 2.00% of mass 69 | 1.22 ( 1.84) |
| 69 | Mass 69 relative abundance | 66.27 |
| 70 | Less than 2.00% of mass 69 | 0.28 ( 0.43) |
| 127 | 10.00 - 80.00% of mass 198 | 51.63 |
| 197 | Less than 2.00% of mass 198 | 0.00 |
| 199 | 5.00 - 9.00% of mass 198 | 6.66 |
| 275 | 10.00 - 60.00% of mass 198 | 26.16 |
| 365 | 1.00 - 100.00% of mass 198 | 4.04 |
| 441 | Present, but less than mass 443 | 16.63 |
| 442 | 50.00 - 150.00% of mass 198 | 102.39 |
| 443 | 15.00 - 24.00% of mass 442 | 21.68 ( 21.17) |

Data File: \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\001.D



Date : 20-NOV-2017 11:53

Client ID: DFTPP

Instrument: SV6.i

Sample Info: DFTPP;DFTPP;3;;DFTPP

Operator: LG

Column phase: DB-5MS

Column diameter: 0.25

Data File: 001.D
Spectrum: Avg. Scans 551-553 ( 5.54), Background Scan 543
Location of Maximum: 442.00
Number of points: 401

| m/z | Y | m/z | Y | m/z | Y | m/z | Y |
|---|---|---|---|---|---|---|---|
| 36.00 | 1082 | 139.00 | 7063 | 242.00 | 50208 | 345.00 | 1477 |
| 37.00 | 13979 | 140.00 | 16216 | 243.00 | 63776 | 346.00 | 33776 |
| 38.00 | 49368 | 141.00 | 172288 | 244.00 | 712704 | 347.00 | 7433 |
| 39.00 | 289600 | 142.00 | 55056 | 245.00 | 94192 | 348.00 | 1394 |
| 40.00 | 11141 | 143.00 | 37224 | 246.00 | 152832 | 349.00 | 1581 |
| 41.00 | 7083 | 144.00 | 10786 | 247.00 | 30688 | 350.00 | 2118 |
| 42.00 | 518 | 145.00 | 8988 | 248.00 | 9607 | 351.00 | 3268 |
| 43.00 | 1898 | 146.00 | 32560 | 249.00 | 23512 | 352.00 | 49792 |
| 45.00 | 6188 | 147.00 | 93856 | 250.00 | 6319 | 353.00 | 36176 |
| 46.00 | 426 | 148.00 | 207040 | 251.00 | 8436 | 354.00 | 53184 |
| 47.00 | 405 | 149.00 | 36312 | 252.00 | 9326 | 355.00 | 9334 |
| 48.00 | 1840 | 150.00 | 10830 | 253.00 | 32160 | 356.00 | 1496 |
| 49.00 | 28352 | 151.00 | 19536 | 255.00 | 3776512 | 357.00 | 1508 |
| 50.00 | 1108480 | 152.00 | 15208 | 256.00 | 533248 | 358.00 | 1158 |
| 51.00 | 4080128 | 153.00 | 53920 | 257.00 | 41592 | 359.00 | 3368 |
| 52.00 | 197504 | 154.00 | 37904 | 258.00 | 229952 | 360.00 | 2722 |
| 53.00 | 7415 | 155.00 | 90536 | 259.00 | 34568 | 361.00 | 2478 |
| 54.00 | 948 | 156.00 | 134912 | 260.00 | 6496 | 362.00 | 2174 |
| 55.00 | 20048 | 157.00 | 24560 | 261.00 | 6243 | 363.00 | 5547 |
| 56.00 | 125024 | 158.00 | 28968 | 262.00 | 1388 | 365.00 | 262976 |
| 57.00 | 274816 | 159.00 | 24472 | 263.00 | 1930 | 366.00 | 33704 |
| 58.00 | 11678 | 160.00 | 50000 | 264.00 | 6595 | 367.00 | 2813 |
| 59.00 | 4526 | 161.00 | 79416 | 265.00 | 91328 | 368.00 | 782 |
| 60.00 | 2954 | 162.00 | 24440 | 266.00 | 11473 | 369.00 | 185 |
| 61.00 | 48824 | 163.00 | 6839 | 267.00 | 1866 | 370.00 | 7738 |
| 62.00 | 57272 | 164.00 | 6568 | 268.00 | 2798 | 371.00 | 15760 |
| 63.00 | 170176 | 165.00 | 64176 | 269.00 | 2620 | 372.00 | 91312 |
| 64.00 | 23840 | 166.00 | 57096 | 270.00 | 5992 | 373.00 | 25160 |
| 65.00 | 73648 | 167.00 | 336704 | 271.00 | 10827 | 374.00 | 2692 |
| 66.00 | 4949 | 168.00 | 137664 | 272.00 | 19472 | 375.00 | 344 |
| 67.00 | 2413 | 169.00 | 24936 | 273.00 | 128144 | 376.00 | 828 |
| 68.00 | 79288 | 170.00 | 12985 | 274.00 | 332224 | 377.00 | 2361 |
| 69.00 | 4314112 | 171.00 | 12572 | 275.00 | 1702912 | 378.00 | 1098 |
| 70.00 | 18360 | 172.00 | 32312 | 276.00 | 222528 | 379.00 | 522 |
| 71.00 | 1533 | 173.00 | 37440 | 277.00 | 152128 | 380.00 | 394 |

Data File: \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\001.D 

Date : 20-NOV-2017 11:53

Client ID: DFTPP Instrument: SV6.i

Sample Info: DFTPP;DFTPP;3;;DFTPP

Operator: LG

Column phase: DB-5MS Column diameter: 0.25

Data File: 001.D
Spectrum: Avg. Scans 551-553 ( 5.54), Background Scan 543
Location of Maximum: 442.00
Number of points: 401

| m/z | Y | m/z | Y | m/z | Y | m/z | Y |
|---|---|---|---|---|---|---|---|
| 72.00 | 1008 | 174.00 | 69728 | 278.00 | 20328 | 381.00 | 837 |
| 73.00 | 32408 | 175.00 | 135808 | 279.00 | 5261 | 382.00 | 414 |
| 74.00 | 426368 | 176.00 | 32752 | 280.00 | 638 | 383.00 | 23760 |
| 75.00 | 682368 | 177.00 | 60664 | 281.00 | 749 | 384.00 | 6264 |
| 76.00 | 215872 | 178.00 | 17344 | 282.00 | 4009 | 385.00 | 2074 |
| 77.00 | 4319744 | 179.00 | 260992 | 283.00 | 17464 | 386.00 | 588 |
| 78.00 | 264832 | 180.00 | 170688 | 284.00 | 12742 | 387.00 | 66 |
| 79.00 | 309120 | 181.00 | 78592 | 285.00 | 27424 | 388.00 | 138 |
| 80.00 | 226752 | 182.00 | 12716 | 286.00 | 4772 | 389.00 | 798 |
| 81.00 | 333440 | 183.00 | 8972 | 287.00 | 778 | 390.00 | 11866 |
| 82.00 | 77848 | 184.00 | 24584 | 288.00 | 2028 | 391.00 | 9953 |
| 83.00 | 62104 | 185.00 | 119016 | 289.00 | 4957 | 392.00 | 7556 |
| 84.00 | 9308 | 186.00 | 900096 | 290.00 | 5720 | 393.00 | 1387 |
| 85.00 | 52096 | 187.00 | 256256 | 291.00 | 5399 | 394.00 | 102 |
| 86.00 | 91840 | 188.00 | 27648 | 292.00 | 6418 | 395.00 | 1275 |
| 87.00 | 36088 | 189.00 | 63720 | 293.00 | 31656 | 396.00 | 489 |
| 88.00 | 10726 | 190.00 | 11501 | 294.00 | 11102 | 397.00 | 1944 |
| 89.00 | 8116 | 191.00 | 28272 | 296.00 | 516160 | 398.00 | 798 |
| 90.00 | 802 | 192.00 | 76920 | 297.00 | 70304 | 399.00 | 984 |
| 91.00 | 65504 | 193.00 | 85256 | 298.00 | 5698 | 400.00 | 159 |
| 92.00 | 77856 | 194.00 | 23288 | 299.00 | 1994 | 401.00 | 5442 |
| 93.00 | 510272 | 195.00 | 12826 | 300.00 | 464 | 402.00 | 36712 |
| 94.00 | 32712 | 196.00 | 188416 | 301.00 | 6139 | 403.00 | 56256 |
| 95.00 | 6500 | 198.00 | 6509568 | 302.00 | 8020 | 404.00 | 18056 |
| 96.00 | 17872 | 199.00 | 433856 | 303.00 | 58728 | 405.00 | 3146 |
| 97.00 | 5448 | 200.00 | 34744 | 304.00 | 16123 | 407.00 | 436 |
| 98.00 | 377856 | 201.00 | 24072 | 305.00 | 1584 | 409.00 | 121 |
| 99.00 | 260160 | 203.00 | 49952 | 306.00 | 495 | 410.00 | 1288 |
| 100.00 | 22752 | 204.00 | 245184 | 307.00 | 984 | 411.00 | 858 |
| 101.00 | 157632 | 205.00 | 417024 | 308.00 | 8405 | 412.00 | 694 |
| 102.00 | 7709 | 206.00 | 1697792 | 309.00 | 4311 | 414.00 | 325 |
| 103.00 | 46048 | 207.00 | 217856 | 310.00 | 6793 | 415.00 | 3018 |
| 104.00 | 104168 | 208.00 | 59416 | 311.00 | 2533 | 416.00 | 1025 |
| 105.00 | 90088 | 209.00 | 17704 | 312.00 | 2955 | 417.00 | 1507 |
| 106.00 | 19504 | 210.00 | 15933 | 313.00 | 5338 | 418.00 | 1991 |

Data File: \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\001.D



Date : 20-NOV-2017 11:53

Client ID: DFTPP

Instrument: SV6.i

Sample Info: DFTPP;DFTPP;3;;DFTPP

Operator: LG

Column phase: DB-5MS

Column diameter: 0.25

Data File: 001.D
Spectrum: Avg. Scans 551-553 ( 5.54), Background Scan 543
Location of Maximum: 442.00
Number of points: 401

| m/z | Y | m/z | Y | m/z | Y | m/z | Y |
|---|---|---|---|---|---|---|---|
| 107.00 | 1232896 | 211.00 | 70048 | 314.00 | 24944 | 419.00 | 4136 |
| 108.00 | 182976 | 212.00 | 6838 | 315.00 | 55960 | 420.00 | 955 |
| 109.00 | 28192 | 213.00 | 6216 | 316.00 | 25680 | 421.00 | 52096 |
| 110.00 | 1969152 | 214.00 | 3150 | 317.00 | 5079 | 422.00 | 49832 |
| 111.00 | 302656 | 215.00 | 19832 | 318.00 | 1628 | 423.00 | 374272 |
| 112.00 | 36184 | 216.00 | 42784 | 319.00 | 1749 | 424.00 | 74584 |
| 113.00 | 14579 | 217.00 | 462848 | 320.00 | 3432 | 425.00 | 7070 |
| 114.00 | 3144 | 218.00 | 55152 | 321.00 | 20304 | 426.00 | 2232 |
| 115.00 | 3138 | 219.00 | 8687 | 322.00 | 7852 | 427.00 | 1521 |
| 116.00 | 64168 | 220.00 | 4017 | 323.00 | 156992 | 428.00 | 834 |
| 117.00 | 965184 | 221.00 | 266048 | 324.00 | 31032 | 429.00 | 3771 |
| 118.00 | 63888 | 222.00 | 64464 | 325.00 | 2901 | 430.00 | 2370 |
| 119.00 | 7726 | 223.00 | 109152 | 326.00 | 4384 | 431.00 | 2360 |
| 120.00 | 13539 | 224.00 | 926976 | 327.00 | 28040 | 432.00 | 6348 |
| 121.00 | 4502 | 225.00 | 233856 | 328.00 | 14657 | 433.00 | 8028 |
| 122.00 | 65736 | 226.00 | 29392 | 329.00 | 4075 | 434.00 | 4557 |
| 123.00 | 112984 | 227.00 | 422592 | 330.00 | 1818 | 435.00 | 13251 |
| 124.00 | 46224 | 228.00 | 56656 | 331.00 | 1567 | 436.00 | 20504 |
| 125.00 | 45464 | 229.00 | 86648 | 332.00 | 14776 | 437.00 | 11864 |
| 127.00 | 3360768 | 230.00 | 12266 | 333.00 | 17352 | 438.00 | 26448 |
| 128.00 | 260288 | 231.00 | 35864 | 334.00 | 104824 | 439.00 | 44152 |
| 129.00 | 1401344 | 232.00 | 6121 | 335.00 | 25944 | 440.00 | 12141 |
| 130.00 | 115912 | 233.00 | 8194 | 336.00 | 3271 | 441.00 | 1082368 |
| 131.00 | 21296 | 234.00 | 27416 | 337.00 | 644 | 442.00 | 6665216 |
| 132.00 | 10897 | 235.00 | 28888 | 338.00 | 1027 | 443.00 | 1411072 |
| 133.00 | 5044 | 236.00 | 19008 | 339.00 | 3123 | 444.00 | 119744 |
| 134.00 | 42160 | 237.00 | 26992 | 340.00 | 2070 | 445.00 | 6539 |
| 135.00 | 110568 | 238.00 | 4688 | 341.00 | 15549 | 491.00 | 173 |
| 136.00 | 45192 | 239.00 | 15758 | 342.00 | 4953 | | |
| 137.00 | 44880 | 240.00 | 11961 | 343.00 | 998 | | |
| 138.00 | 13776 | 241.00 | 24920 | 344.00 | 1086 | | |

ALS Laboratory Group

GC/MS Semivolatiles EPA method 8270D

Data file : \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\003.D
Lab Smp Id: DXSIM-0.08 Client Smp ID: DXSIM-0.08
Inj Date : 20-NOV-2017 12:56 MS Autotune Date: 14-NOV-2017 19:09
Operator : LG Inst ID: SV6.i
Smp Info : SLSTD-2.5;SLSTD-2.5
Misc Info : ;;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\DXSIM.m
Meth Date : 11-Jan-2018 14:32 SV6.i Quant Type: ISTD
Cal Date : 20-NOV-2017 15:12 Cal File: 010.D
Als bottle: 3 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 14DX.sub
Target Version: 4.14
Processing Host: NAHSTW7091

Concentration Formula: Amt * DF * Uf * Vt/Vo * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 1.000 | ng unit correction factor |
| Vt | 1000.000 | Volume of final extract (uL) |
| Vo | 1000.000 | Volume of sample extracted (mL) |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( NG) | ON-COL ( NG) | |
|---|---|---|---|---|---|---|---|---|
| * 45 Naphthalene-d8 | 136 | 4.713 | 4.713 | (1.000) | 105593 | 0.10000 | | (H) |
| $ 33 Nitrobenzene-d5 | 82 | 4.060 | 4.060 | (0.862) | 47048 | 0.08000 | 0.08100 | (MH) |
| * 86 Acenaphthene-d10 | 164 | 6.385 | 6.385 | (1.000) | 86190 | 0.10000 | | (H) |
| $ 69 2-Fluorobiphenyl | 172 | 5.734 | 5.734 | (0.937) | 58029 | 0.08000 | 0.06714 | (H) |
| * 126 Phenanthrene-d10 | 188 | 7.835 | 7.835 | (1.000) | 136523 | 0.10000 | | (H) |
| * 182 Chrysene-d12 | 240 | 10.670 | 10.670 | (1.000) | 132573 | 0.10000 | | (H) |
| $ 158 4-Terphenyl-d14 | 244 | 9.422 | 9.422 | (0.909) | 51234 | 0.08000 | 0.07043 | |
| * 198 Perylene-d12 | 264 | 12.738 | 12.738 | (1.000) | 119987 | 0.10000 | | (H) |
| 1 1,4-Dioxane | 58 | 1.943 | 1.943 | (0.412) | 6537 | 0.08000 | 0.06384 | (aMH) |

QC Flag Legend

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: \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\003.D



Date : 20-NOV-2017 12:56

Client ID: DXSIM-0.08

Instrument: SV6.i

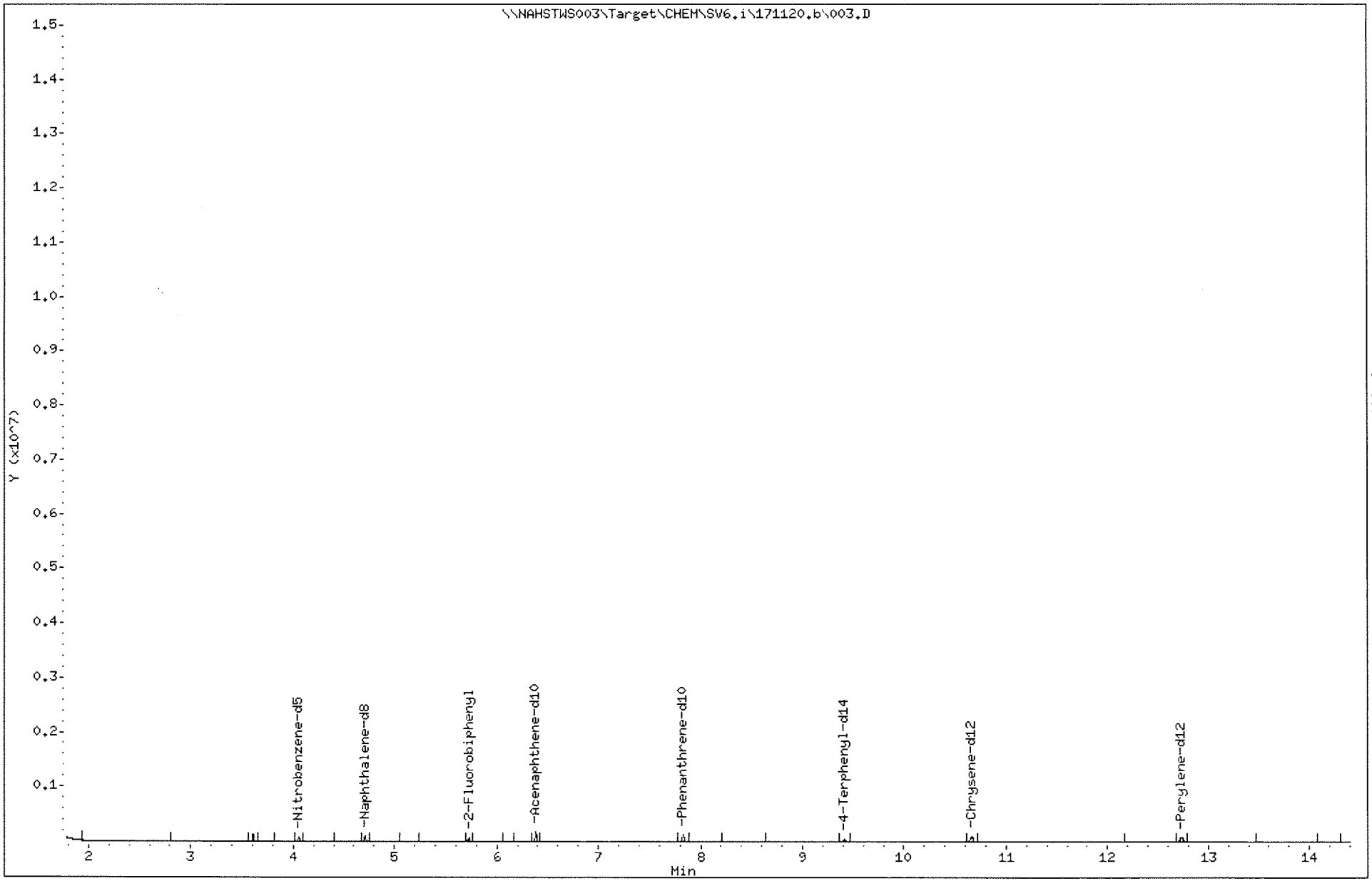
Sample Info: SLSTD-2.5;SLSTD-2.5

Purge Volume: 1000.0

Operator: LG

Column phase: RTX-5SIL MS

Column diameter: 0.28



ALS Laboratory Group

GC/MS Semivolatiles EPA method 8270D

Data file : \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\004.D
Lab Smp Id: DXSIM-0.01 Client Smp ID: DXSIM-0.01
Inj Date : 20-NOV-2017 13:22 MS Autotune Date: 14-NOV-2017 19:09
Operator : LG Inst ID: SV6.i
Smp Info : DXSIM-0.01;DXSIM-0.01
Misc Info : ;;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\DXSIM.m
Meth Date : 11-Jan-2018 14:32 SV6.i Quant Type: ISTD
Cal Date : 20-NOV-2017 12:56 Cal File: 003.D
Als bottle: 4 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 14DX.sub
Target Version: 4.14
Processing Host: NAHSTW7091

Concentration Formula: Amt * DF * Uf * Vt/Vo * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 1.000 | ng unit correction factor |
| Vt | 1000.000 | Volume of final extract (uL) |
| Vo | 1000.000 | Volume of sample extracted (mL) |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( NG) | AMOUNTS ON-COL ( NG) |
|---|---|---|---|---|---|---|---|
| * 45 Naphthalene-d8 | 136 | 4.713 | 4.713 | (1.000) | 101558 | 0.10000 | |
| $ 33 Nitrobenzene-d5 | 82 | 4.061 | 4.061 | (0.862) | 5835 | 0.01000 | 0.01044 |
| * 86 Acenaphthene-d10 | 164 | 6.385 | 6.385 | (1.000) | 74927 | 0.10000 | |
| $ 69 2-Fluorobiphenyl | 172 | 5.734 | 5.734 | (0.898) | 6996 | 0.01000 | 0.009312 |
| * 126 Phenanthrene-d10 | 188 | 7.835 | 7.835 | (1.000) | 137417 | 0.10000 | |
| * 182 Chrysene-d12 | 240 | 10.670 | 10.670 | (1.000) | 129269 | 0.10000 | |
| $ 158 4-Terphenyl-d14 | 244 | 9.422 | 9.422 | (0.883) | 6560 | 0.01000 | 0.009248 |
| * 198 Perylene-d12 | 264 | 12.738 | 12.738 | (1.000) | 130464 | 0.10000 | |

Data File: \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\004.D



Date : 20-NOV-2017 13:22

Client ID: DXSIM-0.01

Instrument: SV6.i

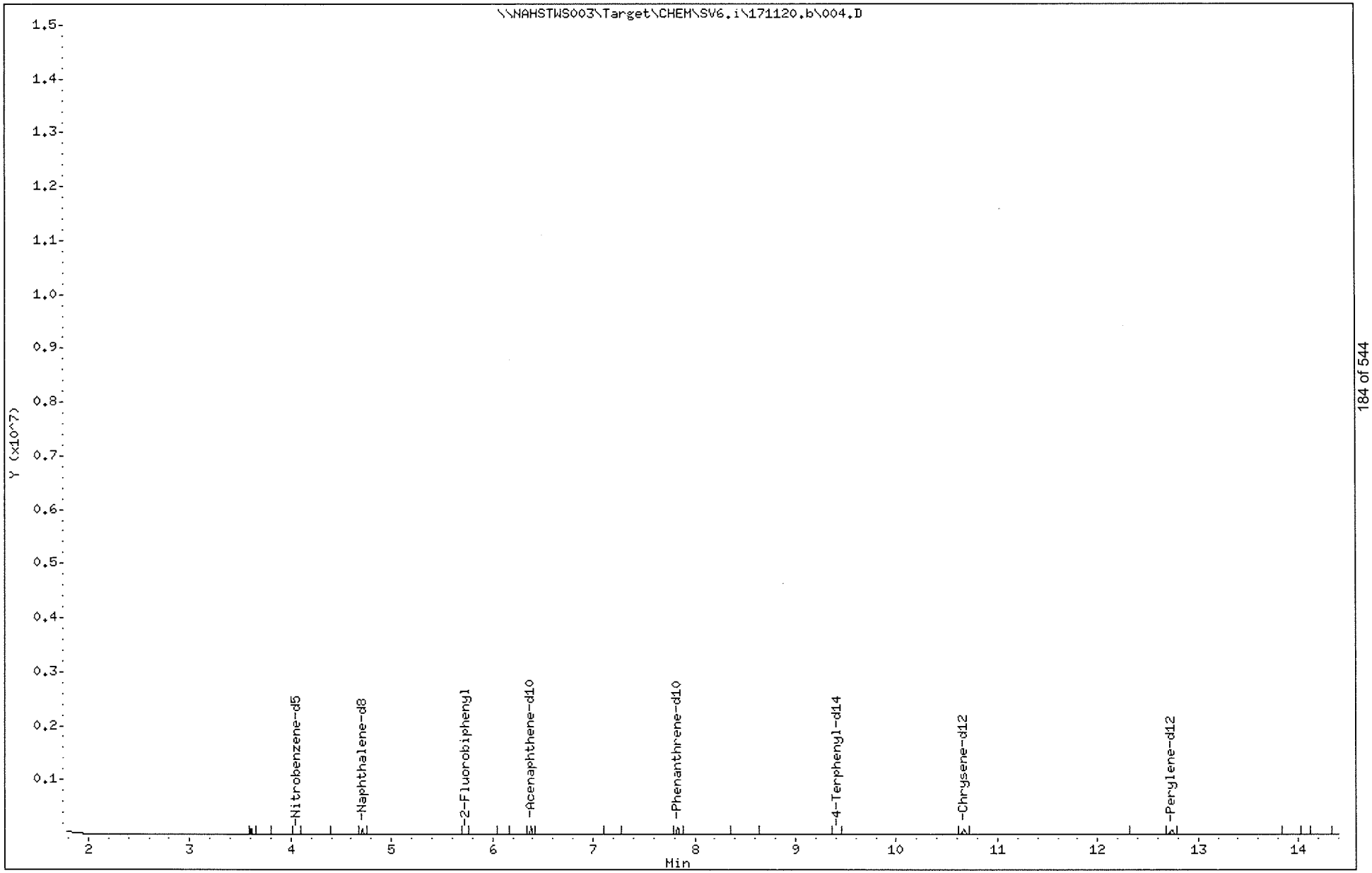
Sample Info: DXSIM-0.01;DXSIM-0.01

Purge Volume: 1000.0

Operator: LG

Column phase: RTX-5SIL MS

Column diameter: 0.28



ALS Laboratory Group

GC/MS Semivolatiles EPA method 8270D

Data file : \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\005.D
Lab Smp Id: DXSIM-0.03 Client Smp ID: DXSIM-0.03
Inj Date : 20-NOV-2017 13:40 MS Autotune Date: 14-NOV-2017 19:09
Operator : LG Inst ID: SV6.i
Smp Info : DXSIM-0.03;DXSIM-0.03
Misc Info : ;;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\DXSIM.m
Meth Date : 11-Jan-2018 14:32 SV6.i Quant Type: ISTD
Cal Date : 20-NOV-2017 13:22 Cal File: 004.D
Als bottle: 5 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 14DX.sub
Target Version: 4.14
Processing Host: NAHSTW7091

Concentration Formula: Amt * DF * Uf * Vt/Vo * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 1.000 | ng unit correction factor |
| Vt | 1000.000 | Volume of final extract (uL) |
| Vo | 1000.000 | Volume of sample extracted (mL) |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( NG) | ON-COL ( NG) | |
|---|---|---|---|---|---|---|---|---|
| * 45 Naphthalene-d8 | 136 | 4.713 | 4.713 | (1.000) | 79477 | 0.10000 | | |
| $ 33 Nitrobenzene-d5 | 82 | 4.066 | 4.066 | (0.863) | 13219 | 0.02500 | 0.03024 | |
| * 86 Acenaphthene-d10 | 164 | 6.385 | 6.385 | (1.000) | 57850 | 0.10000 | | |
| $ 69 2-Fluorobiphenyl | 172 | 5.734 | 5.734 | (0.898) | 16811 | 0.02500 | 0.02898 | |
| * 126 Phenanthrene-d10 | 188 | 7.835 | 7.835 | (1.000) | 98987 | 0.10000 | | |
| * 182 Chrysene-d12 | 240 | 10.664 | 10.664 | (1.000) | 89246 | 0.10000 | | (M) |
| $ 158 4-Terphenyl-d14 | 244 | 9.416 | 9.416 | (1.000) | 14076 | 0.02500 | 0.02874 | |
| * 198 Perylene-d12 | 264 | 12.738 | 12.738 | (1.000) | 92680 | 0.10000 | | |

QC Flag Legend

M - Compound response manually integrated.

Data File: \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\005.D



Date : 20-NOV-2017 13:40

Client ID: DXSIM-0.03

Instrument: SV6.i

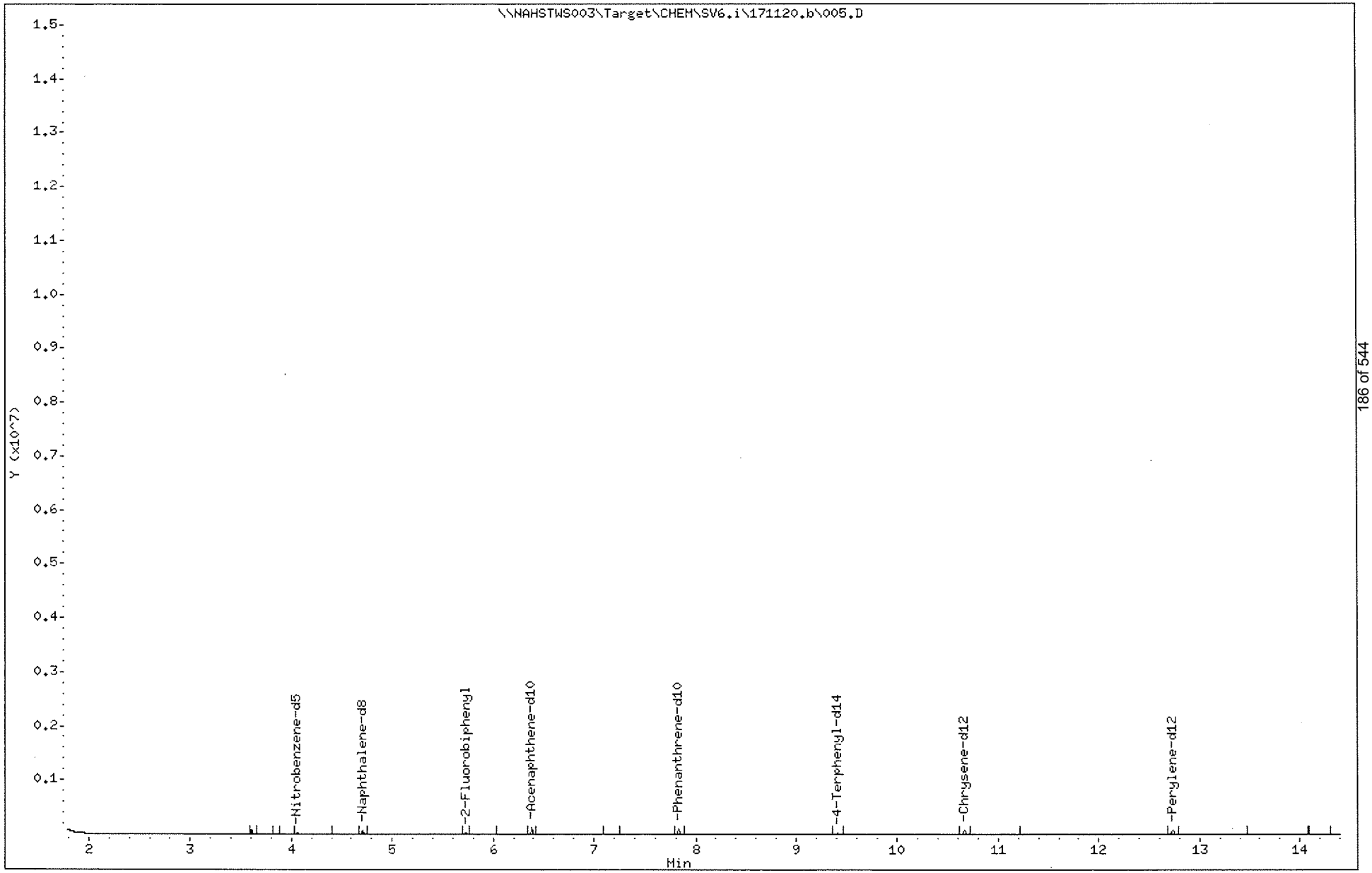
Sample Info: DXSIM-0.03;DXSIM-0.03

Purge Volume: 1000.0

Operator: LG

Column phase: RTX-5SIL MS

Column diameter: 0.28



ALS Laboratory Group

GC/MS Semivolatiles EPA method 8270D

Data file : \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\006.D
Lab Smp Id: DXSIM-0.05 Client Smp ID: DXSIM-0.05
Inj Date : 20-NOV-2017 13:58 MS Autotune Date: 14-NOV-2017 19:09
Operator : LG Inst ID: SV6.i
Smp Info : DXSIM-0.05;DXSIM-0.05
Misc Info : ;;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\DXSIM.m
Meth Date : 11-Jan-2018 14:32 SV6.i Quant Type: ISTD
Cal Date : 20-NOV-2017 13:40 Cal File: 005.D
Als bottle: 6 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 14DX.sub
Target Version: 4.14
Processing Host: NAHSTW7091

Concentration Formula: Amt * DF * Uf * Vt/Vo * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 1.000 | ng unit correction factor |
| Vt | 1000.000 | Volume of final extract (uL) |
| Vo | 1000.000 | Volume of sample extracted (mL) |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( NG) | AMOUNTS ON-COL ( NG) |
|---|---|---|---|---|---|---|---|
| * 45 Naphthalene-d8 | 136 | 4.713 | 4.713 | (1.000) | 80328 | 0.10000 | |
| $ 33 Nitrobenzene-d5 | 82 | 4.066 | 4.066 | (0.863) | 20072 | 0.05000 | 0.04543 |
| * 86 Acenaphthene-d10 | 164 | 6.389 | 6.389 | (1.000) | 58519 | 0.10000 | |
| $ 69 2-Fluorobiphenyl | 172 | 5.734 | 5.734 | (0.897) | 28362 | 0.05000 | 0.04833 |
| * 126 Phenanthrene-d10 | 188 | 7.833 | 7.833 | (1.000) | 107874 | 0.10000 | |
| * 182 Chrysene-d12 | 240 | 10.668 | 10.668 | (1.000) | 102365 | 0.10000 | |
| $ 158 4-Terphenyl-d14 | 244 | 9.420 | 9.420 | (0.883) | 25890 | 0.05000 | 0.04609 |
| * 198 Perylene-d12 | 264 | 12.736 | 12.736 | (1.000) | 100732 | 0.10000 | |
| 1 1,4-Dioxane | 58 | 1.934 | 1.934 | (0.410) | 4971 | 0.05000 | 0.06381(a) |

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

Data File: \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\006.D



Date : 20-NOV-2017 13:58

Client ID: DXSIM-0.05

Instrument: SV6.i

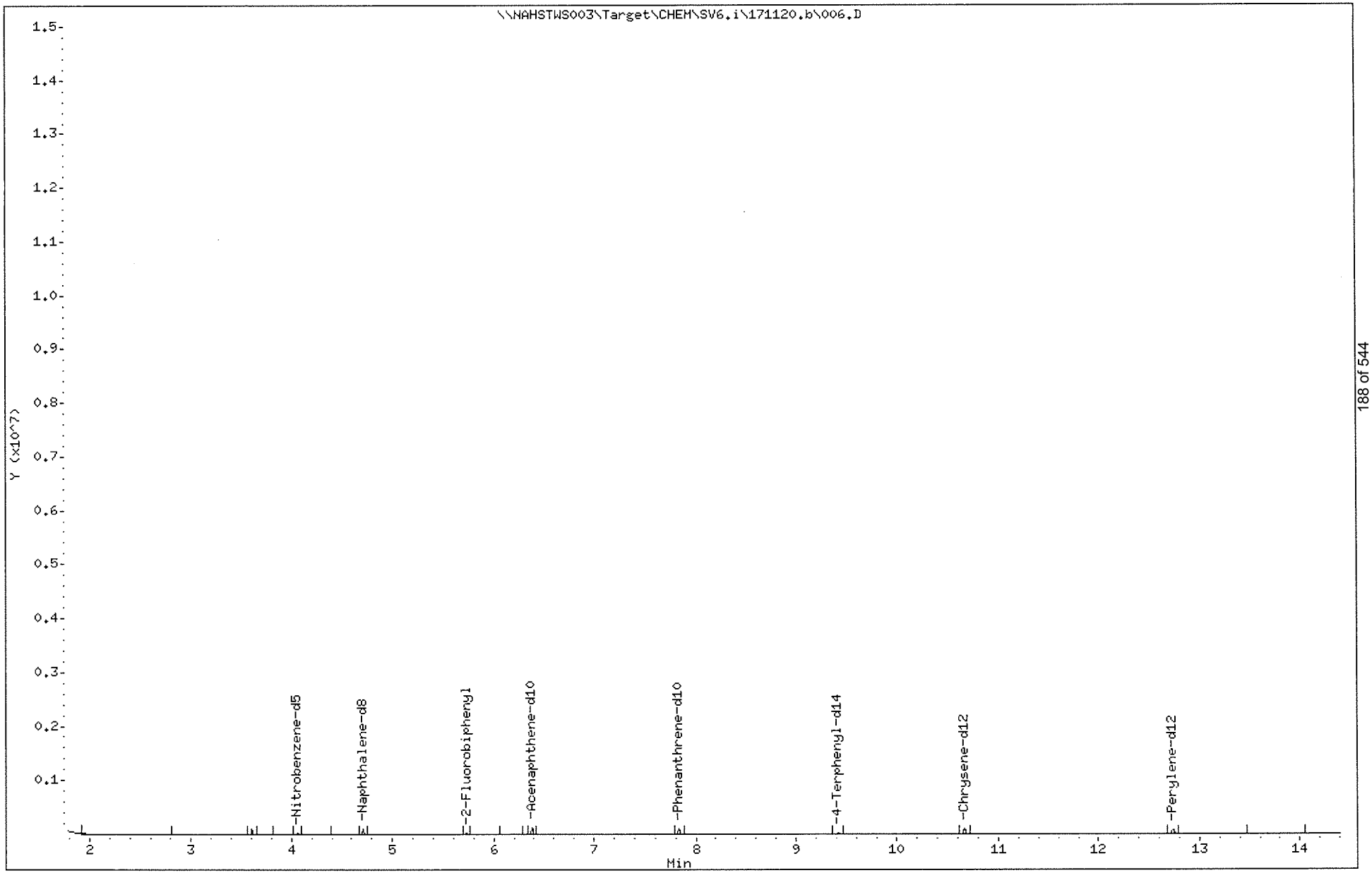
Sample Info: DXSIM-0.05;DXSIM-0.05

Purge Volume: 1000.0

Operator: LG

Column phase: RTX-5SIL MS

Column diameter: 0.28



ALS Laboratory Group

GC/MS Semivolatiles EPA method 8270D

Data file : \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\007.D
Lab Smp Id: DXSIM-0.10 Client Smp ID: DXSIM-0.10
Inj Date : 20-NOV-2017 14:17 MS Autotune Date: 14-NOV-2017 19:09
Operator : LG Inst ID: SV6.i
Smp Info : DXSIM-0.10;DXSIM-0.10
Misc Info : ;;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\DXSIM.m
Meth Date : 11-Jan-2018 14:32 SV6.i Quant Type: ISTD
Cal Date : 20-NOV-2017 13:58 Cal File: 006.D
Als bottle: 7 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 14DX.sub
Target Version: 4.14
Processing Host: NAHSTW7091

Concentration Formula: Amt * DF * Uf * Vt/Vo * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 1.000 | ng unit correction factor |
| Vt | 1000.000 | Volume of final extract (uL) |
| Vo | 1000.000 | Volume of sample extracted (mL) |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( NG) | AMOUNTS ON-COL ( NG) |
|---|---|---|---|---|---|---|---|
| * 45 Naphthalene-d8 | 136 | 4.713 | 4.713 | (1.000) | 54978 | 0.10000 | |
| $ 33 Nitrobenzene-d5 | 82 | 4.066 | 4.066 | (0.863) | 33546 | 0.10000 | 0.1109 |
| * 86 Acenaphthene-d10 | 164 | 6.391 | 6.391 | (1.000) | 41186 | 0.10000 | |
| $ 69 2-Fluorobiphenyl | 172 | 5.734 | 5.734 | (0.897) | 43530 | 0.10000 | 0.1054 |
| * 126 Phenanthrene-d10 | 188 | 7.835 | 7.835 | (1.000) | 78767 | 0.10000 | |
| * 182 Chrysene-d12 | 240 | 10.670 | 10.670 | (1.000) | 71861 | 0.10000 | |
| $ 158 4-Terphenyl-d14 | 244 | 9.422 | 9.422 | (0.883) | 39450 | 0.10000 | 0.1000 |
| * 198 Perylene-d12 | 264 | 12.738 | 12.738 | (1.000) | 67263 | 0.10000 | |
| 1 1,4-Dioxane | 58 | 1.898 | 1.898 | (0.403) | 5871 | 0.10000 | 0.1101(a) |

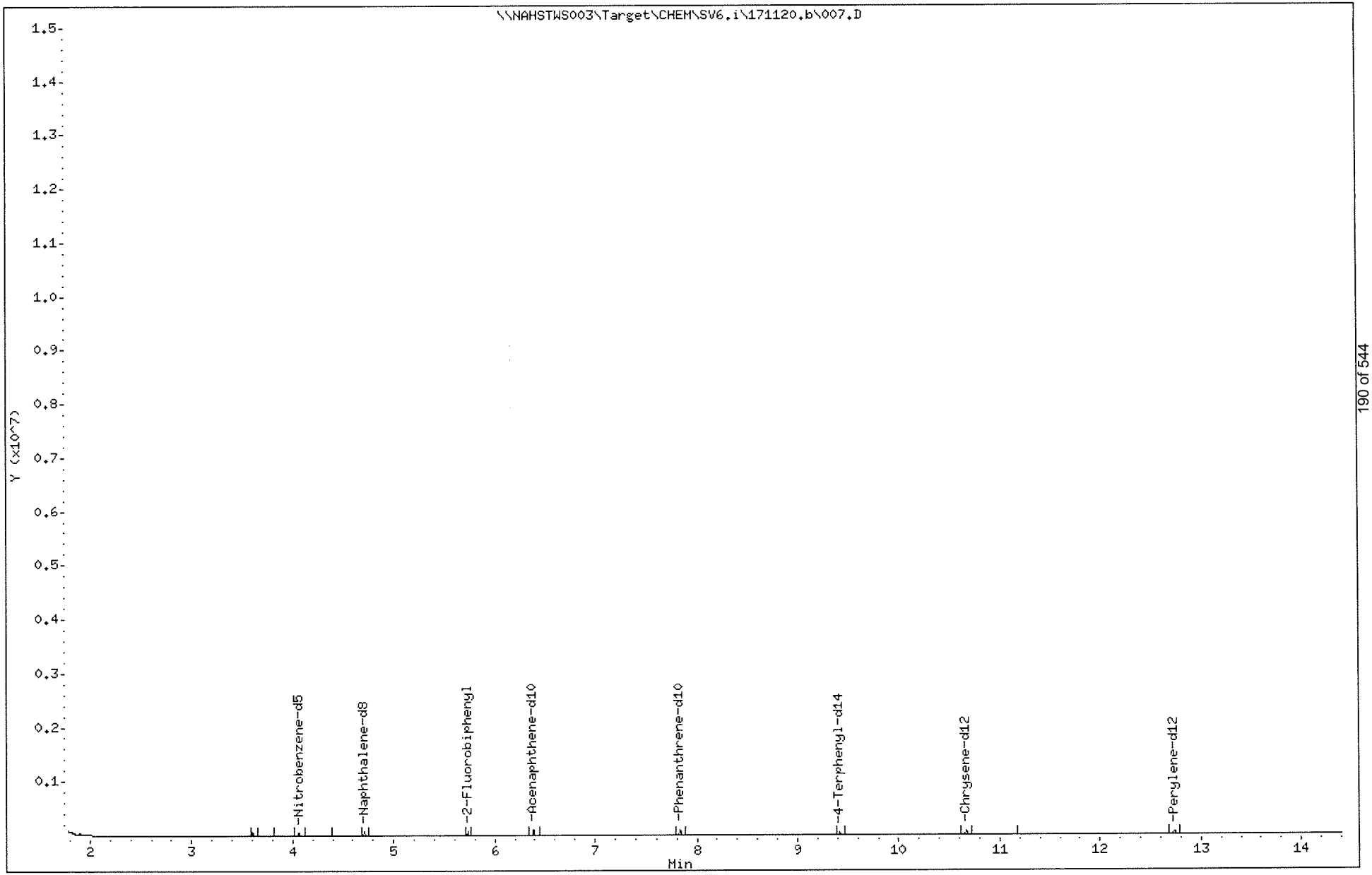
QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

Data File: \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\007.D
Date : 20-NOV-2017 14:17
Client ID: DXSIM-0.10
Sample Info: DXSIM-0.10;DXSIM-0.10
Purge Volume: 1000.0
Column phase: RTX-5SIL MS



Instrument: SV6.i
Operator: LG
Column diameter: 0.28



ALS Laboratory Group

GC/MS Semivolatiles EPA method 8270D

Data file : \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\008.D
Lab Smp Id: DXSIM-0.15 Client Smp ID: DXSIM-0.15
Inj Date : 20-NOV-2017 14:35 MS Autotune Date: 14-NOV-2017 19:09
Operator : LG Inst ID: SV6.i
Smp Info : DXSIM-0.15;DXSIM-0.15
Misc Info : ;;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\DXSIM.m
Meth Date : 11-Jan-2018 14:32 SV6.i Quant Type: ISTD
Cal Date : 20-NOV-2017 14:17 Cal File: 007.D
Als bottle: 8 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 14DX.sub
Target Version: 4.14
Processing Host: NAHSTW7091

Concentration Formula: Amt * DF * Uf * Vt/Vo * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 1.000 | ng unit correction factor |
| Vt | 1000.000 | Volume of final extract (uL) |
| Vo | 1000.000 | Volume of sample extracted (mL) |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( NG) | ON-COL ( NG) | |
|---|---|---|---|---|---|---|---|---|
| * 45 Naphthalene-d8 | 136 | 4.712 | 4.712 | (1.000) | 78070 | 0.10000 | | |
| $ 33 Nitrobenzene-d5 | 82 | 4.060 | 4.060 | (0.862) | 58910 | 0.15000 | 0.1372 | |
| * 86 Acenaphthene-d10 | 164 | 6.383 | 6.383 | (1.000) | 63364 | 0.10000 | | |
| $ 69 2-Fluorobiphenyl | 172 | 5.730 | 5.730 | (0.898) | 89597 | 0.15000 | 0.1410 | |
| * 126 Phenanthrene-d10 | 188 | 7.833 | 7.833 | (1.000) | 115902 | 0.10000 | | |
| * 182 Chrysene-d12 | 240 | 10.663 | 10.663 | (1.000) | 105743 | 0.10000 | | (M) |
| $ 158 4-Terphenyl-d14 | 244 | 9.414 | 9.414 | (1.000) | 83448 | 0.15000 | 0.1438 | |
| * 198 Perylene-d12 | 264 | 12.736 | 12.736 | (1.000) | 108201 | 0.10000 | | |
| 1 1,4-Dioxane | 58 | 1.943 | 1.943 | (0.412) | 11089 | 0.15000 | 0.1465 | (a) |

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.

Data File: \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\008.D



Date : 20-NOV-2017 14:35

Client ID: DXSIM-0.15

Instrument: SV6.i

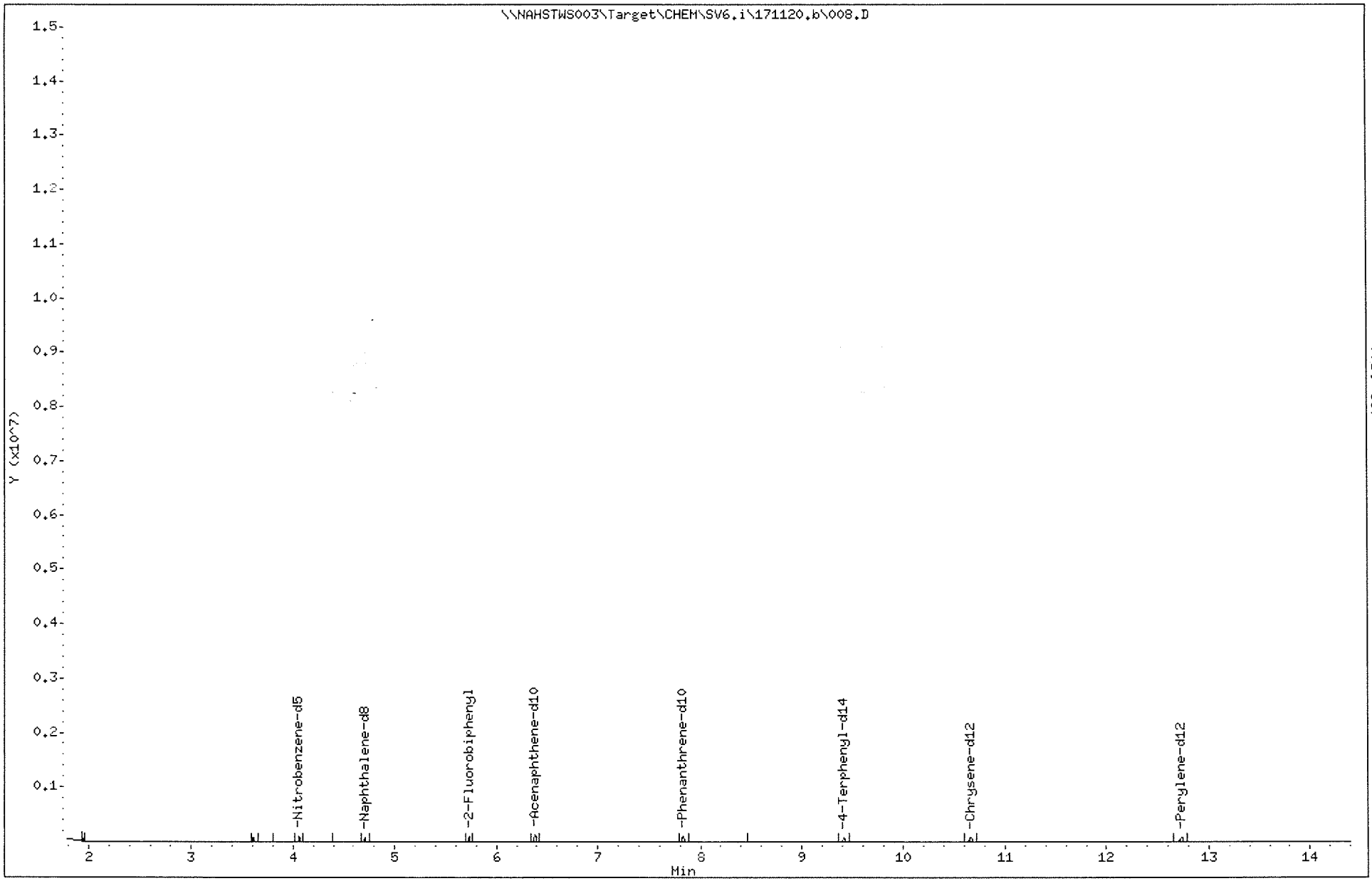
Sample Info: DXSIM-0.15;DXSIM-0.15

Purge Volume: 1000.0

Operator: LG

Column phase: RTX-5SIL MS

Column diameter: 0.28



ALS Laboratory Group

GC/MS Semivolatiles EPA method 8270D

Data file : \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\009.D
Lab Smp Id: DXSIM-0.20 Client Smp ID: DXSIM-0.20
Inj Date : 20-NOV-2017 14:54 MS Autotune Date: 14-NOV-2017 19:09
Operator : LG Inst ID: SV6.i
Smp Info : DXSIM-0.20;DXSIM-0.20
Misc Info : ;;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\DXSIM.m
Meth Date : 11-Jan-2018 14:32 SV6.i Quant Type: ISTD
Cal Date : 20-NOV-2017 14:35 Cal File: 008.D
Als bottle: 9 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 14DX.sub
Target Version: 4.14
Processing Host: NAHSTW7091

Concentration Formula: Amt * DF * Uf * Vt/Vo * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 1.000 | ng unit correction factor |
| Vt | 1000.000 | Volume of final extract (uL) |
| Vo | 1000.000 | Volume of sample extracted (mL) |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( NG) | AMOUNTS ON-COL ( NG) |
|---|---|---|---|---|---|---|---|
| * 45 Naphthalene-d8 | 136 | 4.712 | 4.712 | (1.000) | 69499 | 0.10000 | |
| $ 33 Nitrobenzene-d5 | 82 | 4.066 | 4.066 | (0.863) | 68202 | 0.20000 | 0.1784(A) |
| * 86 Acenaphthene-d10 | 164 | 6.383 | 6.383 | (1.000) | 49592 | 0.10000 | |
| $ 69 2-Fluorobiphenyl | 172 | 5.734 | 5.734 | (0.898) | 105767 | 0.20000 | 0.2127(A) |
| * 126 Phenanthrene-d10 | 188 | 7.833 | 7.833 | (1.000) | 85278 | 0.10000 | |
| * 182 Chrysene-d12 | 240 | 10.668 | 10.668 | (1.000) | 88602 | 0.10000 | |
| $ 158 4-Terphenyl-d14 | 244 | 9.420 | 9.420 | (0.883) | 100872 | 0.20000 | 0.2075(A) |
| * 198 Perylene-d12 | 264 | 12.736 | 12.736 | (1.000) | 59980 | 0.10000 | |
| 1 1,4-Dioxane | 58 | 1.943 | 1.943 | (0.412) | 13959 | 0.20000 | 0.2071 |

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.

Data File: \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\009.D



Date : 20-NOV-2017 14:54

Client ID: DXSIM-0.20

Instrument: SV6.i

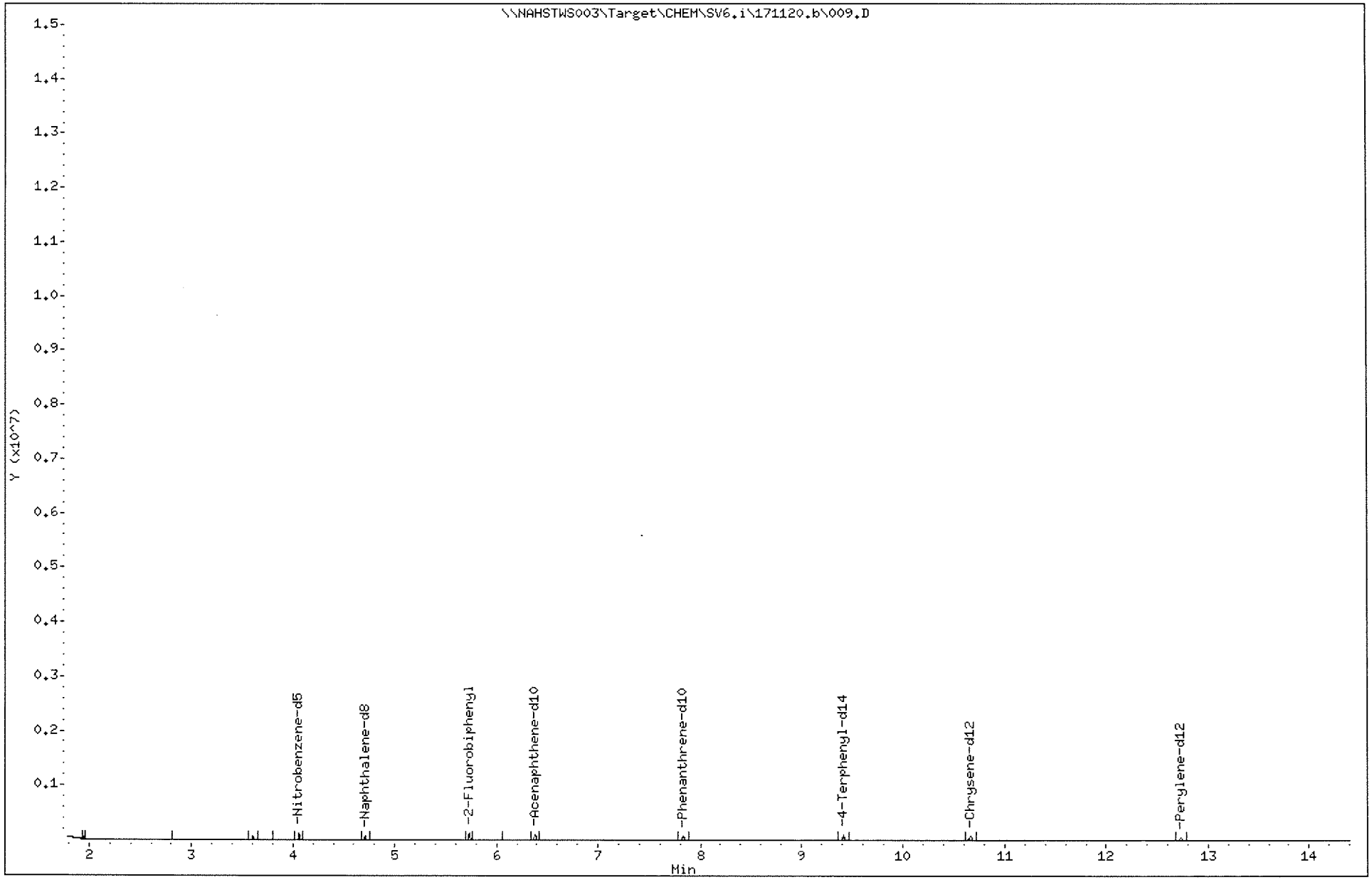
Sample Info: DXSIM-0.20;DXSIM-0.20

Purge Volume: 1000.0

Operator: LG

Column phase: RTX-5SIL MS

Column diameter: 0.28



ALS Laboratory Group

GC/MS Semivolatiles EPA method 8270D

Data file : \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\010.D
Lab Smp Id: DXSIM-0.50 Client Smp ID: DXSIM-0.50
Inj Date : 20-NOV-2017 15:12 MS Autotune Date: 14-NOV-2017 19:09
Operator : LG Inst ID: SV6.i
Smp Info : DXSIM-0.50;DXSIM-0.50
Misc Info : ;;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\DXSIM.m
Meth Date : 11-Jan-2018 14:32 SV6.i Quant Type: ISTD
Cal Date : 20-NOV-2017 14:54 Cal File: 009.D
Als bottle: 10 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 14DX.sub
Target Version: 4.14
Processing Host: NAHSTW7091

Concentration Formula: Amt * DF * Uf * Vt/Vo * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 1.000 | ng unit correction factor |
| Vt | 1000.000 | Volume of final extract (uL) |
| Vo | 1000.000 | Volume of sample extracted (mL) |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | AMOUNTS CAL-AMT ( NG) | AMOUNTS ON-COL ( NG) |
|---|---|---|---|---|---|---|---|
| * 45 Naphthalene-d8 | 136 | 4.712 | 4.712 | (1.000) | 118471 | 0.10000 | |
| $ 33 Nitrobenzene-d5 | 82 | 4.060 | 4.060 | (0.862) | 296142 | 0.50000 | 0.4544(A) |
| * 86 Acenaphthene-d10 | 164 | 6.383 | 6.383 | (1.000) | 79826 | 0.10000 | |
| $ 69 2-Fluorobiphenyl | 172 | 5.730 | 5.730 | (0.898) | 418610 | 0.50000 | 0.5230(A) |
| * 126 Phenanthrene-d10 | 188 | 7.833 | 7.833 | (1.000) | 141991 | 0.10000 | |
| * 182 Chrysene-d12 | 240 | 10.663 | 10.663 | (1.000) | 134054 | 0.10000 | |
| $ 158 4-Terphenyl-d14 | 244 | 9.414 | 9.414 | (0.883) | 414381 | 0.50000 | 0.5633(A) |
| * 198 Perylene-d12 | 264 | 12.731 | 12.731 | (1.000) | 116484 | 0.10000 | |
| 1 1,4-Dioxane | 58 | 1.952 | 1.952 | (0.414) | 51342 | 0.50000 | 0.4469 |

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.

Data File: \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\010.D

Page 2

Date : 20-NOV-2017 15:12

Client ID: DXSIM-0.50

Instrument: SV6.i

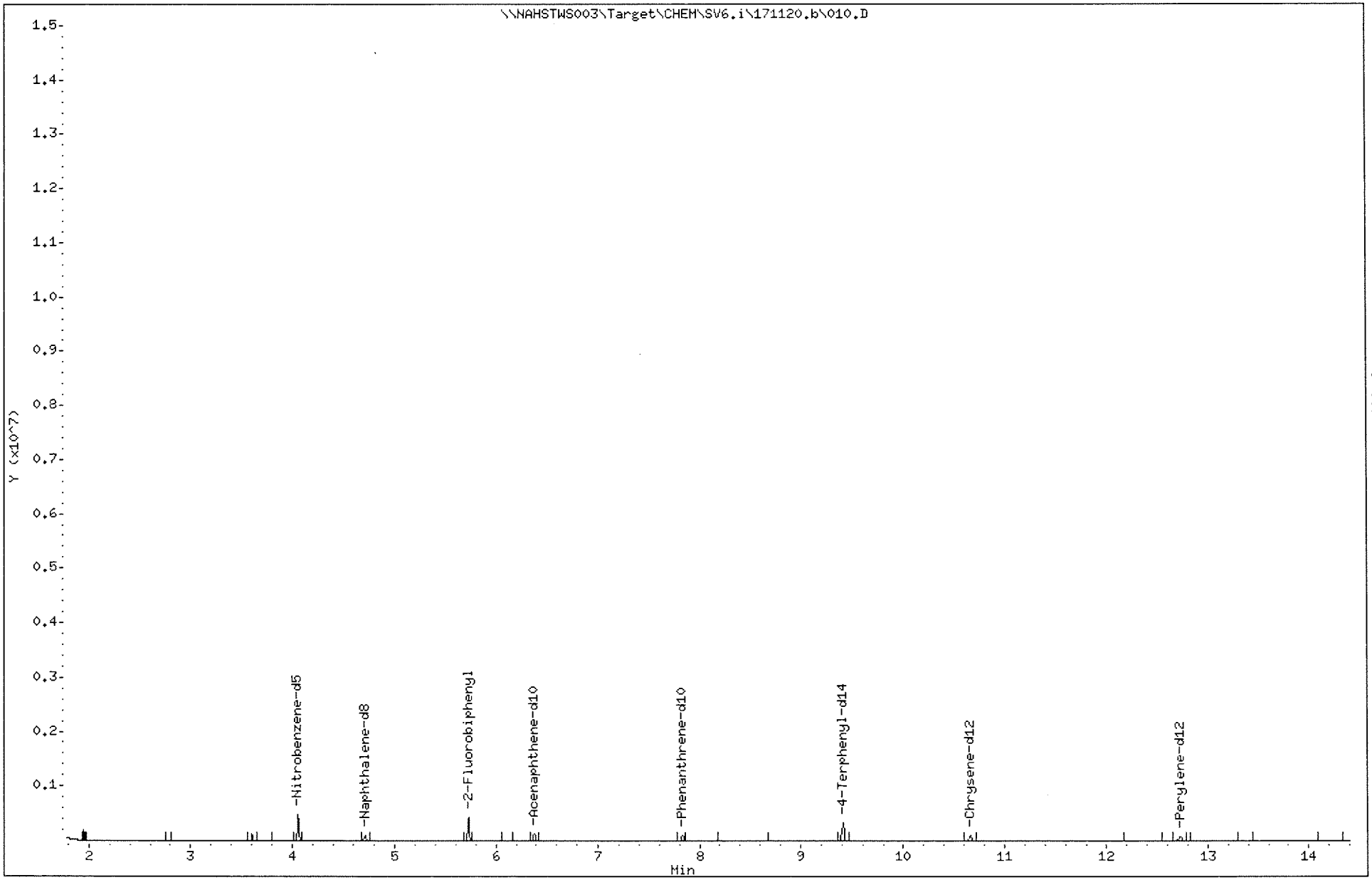
Sample Info: DXSIM-0.50;DXSIM-0.50

Purge Volume: 1000.0

Operator: LG

Column phase: RTX-5SIL MS

Column diameter: 0.28



ALS Laboratory Group

GC/MS Semivolatiles EPA method 8270D

Data file : \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\011.D
Lab Smp Id: DXSIM-ICV Client Smp ID: DXSIM-ICV
Inj Date : 20-NOV-2017 15:37 MS Autotune Date: 14-NOV-2017 19:09
Operator : LG Inst ID: SV6.i
Smp Info : DXSIM-ICV;DXSIM-ICV
Misc Info : ;;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\DXSIM.m
Meth Date : 11-Jan-2018 14:32 SV6.i Quant Type: ISTD
Cal Date : 20-NOV-2017 15:12 Cal File: 010.D
Als bottle: 11 QC Sample: METHSPIKE
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 14DX.sub
Target Version: 4.14
Processing Host: NAHSTW7091

Concentration Formula: Amt * DF * Uf * Vt/Vo * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 1.000 | ng unit correction factor |
| Vt | 1000.000 | Volume of final extract (uL) |
| Vo | 1000.000 | Volume of sample extracted (mL) |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( NG) | FINAL ( ug/L) |
|---|---|---|---|---|---|---|---|
| * 45 Naphthalene-d8 | 136 | 4.713 | 4.712 | (1.000) | 100910 | 0.10000 | |
| $ 33 Nitrobenzene-d5 | 82 | 4.066 | 4.060 | (0.863) | 38672 | 0.06967 | 0.06967 |
| * 86 Acenaphthene-d10 | 164 | 6.385 | 6.383 | (1.000) | 70987 | 0.10000 | |
| $ 69 2-Fluorobiphenyl | 172 | 5.734 | 5.730 | (0.898) | 56446 | 0.07930 | 0.07930 |
| * 126 Phenanthrene-d10 | 188 | 7.835 | 7.833 | (1.000) | 123555 | 0.10000 | |
| * 182 Chrysene-d12 | 240 | 10.670 | 10.663 | (1.000) | 99114 | 0.10000 | |
| $ 158 4-Terphenyl-d14 | 244 | 9.422 | 9.414 | (0.883) | 46537 | 0.08557 | 0.08557 |
| * 198 Perylene-d12 | 264 | 12.738 | 12.731 | (1.000) | 95490 | 0.10000 | |
| 1 1,4-Dioxane | 58 | 1.943 | 1.952 | (0.412) | 7591 | 0.07757 | 0.07757(a) |

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

Data File: \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\011.D



Date : 20-NOV-2017 15:37

Client ID: DXSIM-ICV

Instrument: SV6.i

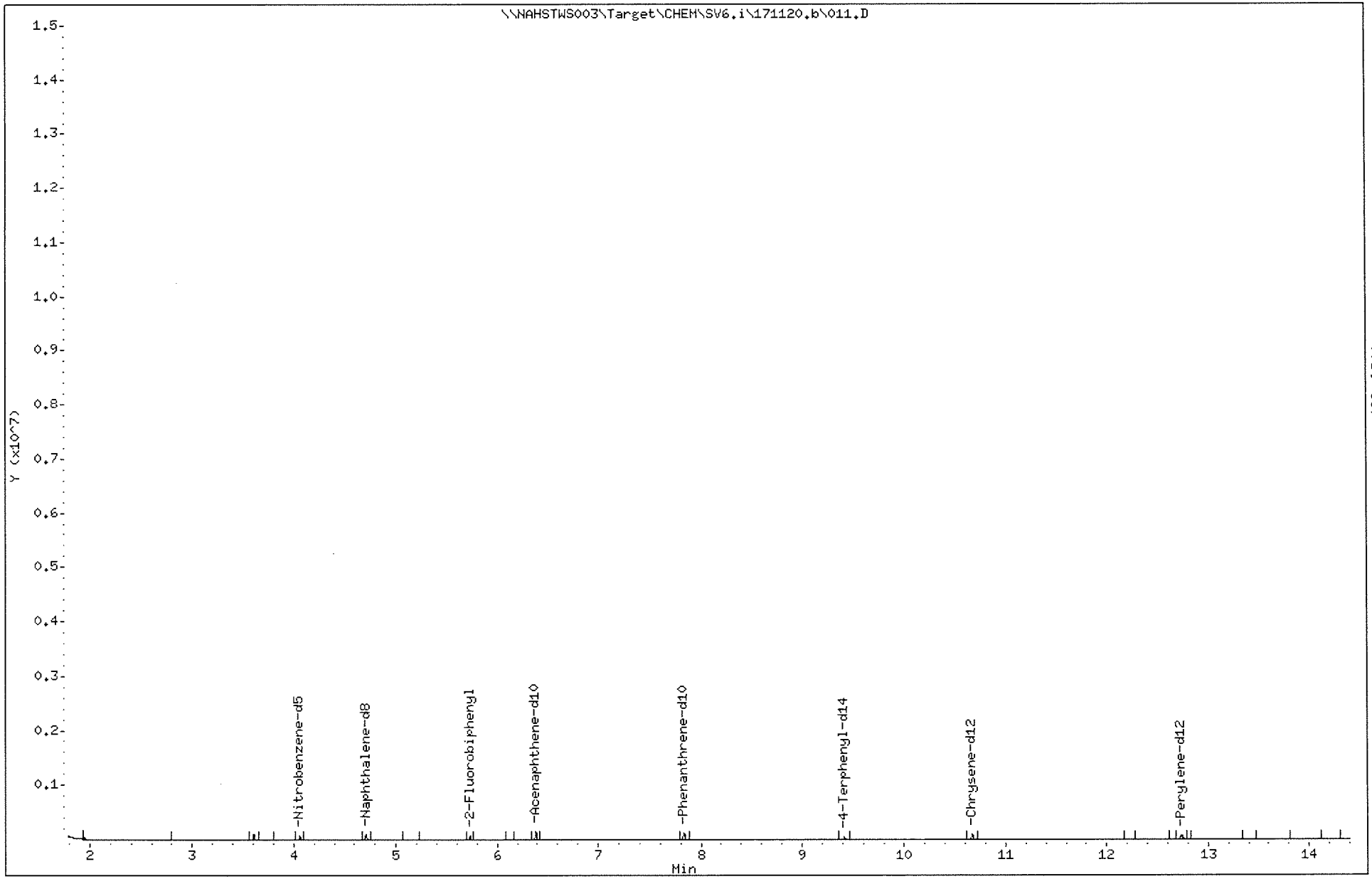
Sample Info: DXSIM-ICV;DXSIM-ICV

Purge Volume: 1000.0

Operator: LG

Column phase: RTX-5SIL MS

Column diameter: 0.28



ALS Laboratory Group

GC/MS Semivolatiles EPA method 8270D

Data file : \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\013.D
Lab Smp Id: MBLK-122176 Client Smp ID: MBLK-122176
Inj Date : 20-NOV-2017 16:14 MS Autotune Date: 14-NOV-2017 19:09
Operator : LG Inst ID: SV6.i
Smp Info : MBLK-122176;MBLK-122176;3;;BLANK
Misc Info : HS17110493;1;0;1
Comment :
Method : \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\DXSIM.m
Meth Date : 11-Jan-2018 14:32 SV6.i Quant Type: ISTD
Cal Date : 20-NOV-2017 15:12 Cal File: 010.D
Als bottle: 13 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 14DX.sub
Target Version: 4.14
Processing Host: NAHSTW7091

Concentration Formula: Amt * DF * Uf * Vt/Vo * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 1.000 | ng unit correction factor |
| Vt | 1000.000 | Volume of final extract (uL) |
| Vo | 1000.000 | Volume of sample extracted (mL) |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( NG) | FINAL ( ug/L) | |
|---|---|---|---|---|---|---|---|---|
| * 45 Naphthalene-d8 | 136 | 4.712 | 4.712 | (1.000) | 84225 | 0.10000 | | (M) |
| $ 33 Nitrobenzene-d5 | 82 | 4.060 | 4.060 | (0.862) | 33261 | 0.07179 | 0.07179 | (M) |
| * 86 Acenaphthene-d10 | 164 | 6.383 | 6.383 | (1.000) | 45909 | 0.10000 | | (M) |
| $ 69 2-Fluorobiphenyl | 172 | 5.734 | 5.730 | (0.898) | 45717 | 0.09931 | 0.09931 | (M) |
| * 126 Phenanthrene-d10 | 188 | 7.833 | 7.833 | (1.000) | 87901 | 0.10000 | | (M) |
| * 182 Chrysene-d12 | 240 | 10.663 | 10.663 | (1.000) | 67385 | 0.10000 | | |
| $ 158 4-Terphenyl-d14 | 244 | 9.420 | 9.414 | (0.883) | 48650 | 0.13157 | 0.1316 | (R) |
| * 198 Perylene-d12 | 264 | 12.731 | 12.731 | (1.000) | 69158 | 0.10000 | | |

QC Flag Legend

R - Spike/Surrogate failed recovery limits.
M - Compound response manually integrated.

00877160

Data File: \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\013.D

Page 2

Date : 20-NOV-2017 16:14

Client ID: MBLK-122176

Instrument: SV6.i

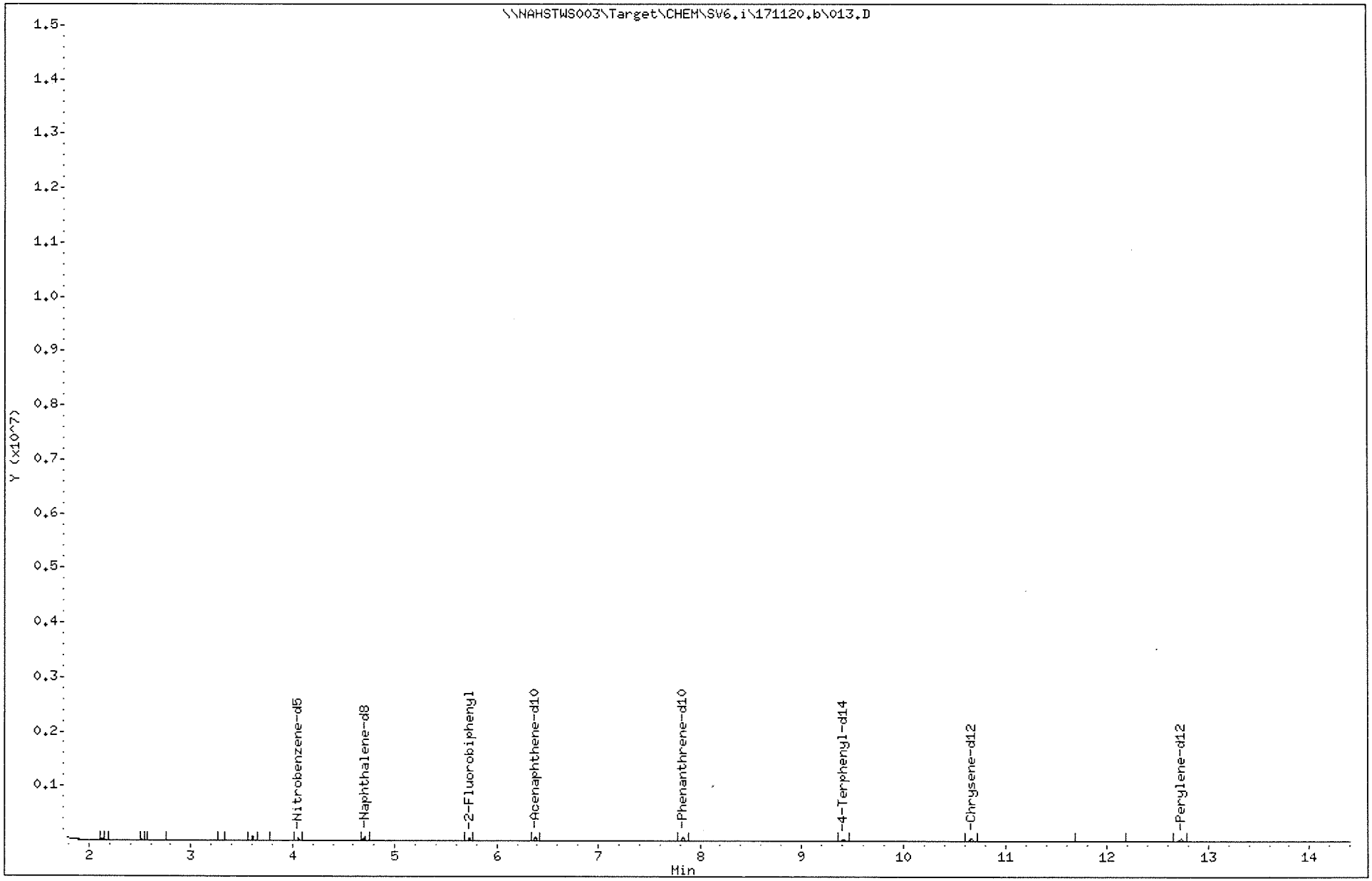
Sample Info: MBLK-122176;MBLK-122176;3;;BLANK

Purge Volume: 1000.0

Operator: LG

Column phase: RTX-5SIL MS

Column diameter: 0.28



ALS Laboratory Group

GC/MS Semivolatiles EPA method 8270D

Data file : \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\014.D
Lab Smp Id: LCS-122176 Client Smp ID: LCS-122176
Inj Date : 20-NOV-2017 16:32 MS Autotune Date: 14-NOV-2017 19:09
Operator : LG Inst ID: SV6.i
Smp Info : LCS-122176;LCS-122176;3;;LCS
Misc Info : HS17110493;1;0;1
Comment :
Method : \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\DXSIM.m
Meth Date : 11-Jan-2018 14:32 SV6.i Quant Type: ISTD
Cal Date : 20-NOV-2017 15:12 Cal File: 010.D
Als bottle: 14 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 14DX.sub
Target Version: 4.14
Processing Host: NAHSTW7091

Concentration Formula: Amt * DF * Uf * Vt/Vo * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 1.000 | ng unit correction factor |
| Vt | 1000.000 | Volume of final extract (uL) |
| Vo | 1000.000 | Volume of sample extracted (mL) |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( NG) | FINAL ( ug/L) | |
|---|---|---|---|---|---|---|---|---|
| * 45 Naphthalene-d8 | 136 | 4.713 | 4.712 | (1.000) | 53814 | 0.10000 | | (M) |
| $ 33 Nitrobenzene-d5 | 82 | 4.066 | 4.060 | (0.863) | 17071 | 0.05767 | 0.05767 | |
| * 86 Acenaphthene-d10 | 164 | 6.385 | 6.383 | (1.000) | 32331 | 0.10000 | | (M) |
| $ 69 2-Fluorobiphenyl | 172 | 5.734 | 5.730 | (0.898) | 31474 | 0.09709 | 0.09708 | |
| * 126 Phenanthrene-d10 | 188 | 7.835 | 7.833 | (1.000) | 45849 | 0.10000 | | |
| * 182 Chrysene-d12 | 240 | 10.664 | 10.663 | (1.000) | 45121 | 0.10000 | | (M) |
| $ 158 4-Terphenyl-d14 | 244 | 9.422 | 9.414 | (0.883) | 23343 | 0.09428 | 0.09428 | |
| * 198 Perylene-d12 | 264 | 12.738 | 12.731 | (1.000) | 37631 | 0.10000 | | |
| 1 1,4-Dioxane | 58 | 1.907 | 1.952 | (0.405) | 4227 | 0.08100 | 0.08100 | (a) |

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.

Data File: \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\014.D



Date : 20-NOV-2017 16:32

Client ID: LCS-122176

Instrument: SV6.i

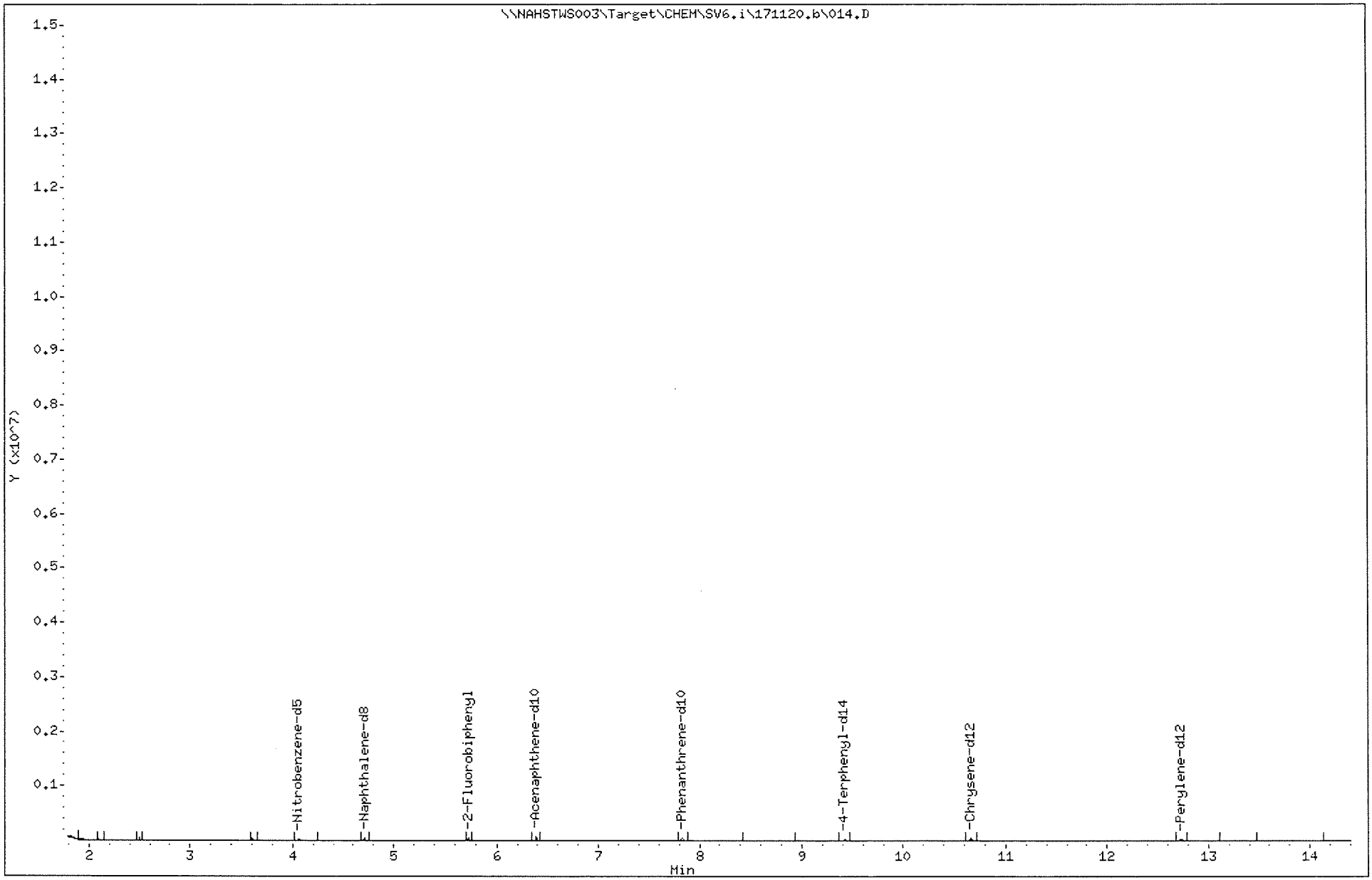
Sample Info: LCS-122176;LCS-122176;3;;LCS

Purge Volume: 1000.0

Operator: LG

Column phase: RTX-5SIL MS

Column diameter: 0.28



ALS Laboratory Group

GC/MS Semivolatiles EPA method 8270D

Data file : \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\015.D
Lab Smp Id: LCSD-122176 Client Smp ID: LCSD-122176
Inj Date : 20-NOV-2017 16:50 MS Autotune Date: 14-NOV-2017 19:09
Operator : LG Inst ID: SV6.i
Smp Info : LCSD-122176;LCSD-122176;3;;LCSD
Misc Info : HS17110493;1;0;1
Comment :
Method : \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\DXSIM.m
Meth Date : 11-Jan-2018 14:32 SV6.i Quant Type: ISTD
Cal Date : 20-NOV-2017 15:12 Cal File: 010.D
Als bottle: 15 QC Sample: LCSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 14DX.sub
Target Version: 4.14
Processing Host: NAHSTW7091

Concentration Formula: Amt * DF * Uf * Vt/Vo * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 1.000 | ng unit correction factor |
| Vt | 1000.000 | Volume of final extract (uL) |
| Vo | 1000.000 | Volume of sample extracted (mL) |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( NG) | FINAL ( ug/L) | |
|---|---|---|---|---|---|---|---|---|
| * 45 Naphthalene-d8 | 136 | 4.713 | 4.712 | (1.000) | 63828 | 0.10000 | | (M) |
| $ 33 Nitrobenzene-d5 | 82 | 4.060 | 4.060 | (0.862) | 28592 | 0.08144 | 0.08144 | |
| * 86 Acenaphthene-d10 | 164 | 6.385 | 6.383 | (1.000) | 37648 | 0.10000 | | (M) |
| $ 69 2-Fluorobiphenyl | 172 | 5.734 | 5.730 | (0.898) | 36437 | 0.09652 | 0.09652 | |
| * 126 Phenanthrene-d10 | 188 | 7.830 | 7.833 | (1.000) | 69823 | 0.10000 | | (M) |
| * 182 Chrysene-d12 | 240 | 10.664 | 10.663 | (1.000) | 49543 | 0.10000 | | (M) |
| $ 158 4-Terphenyl-d14 | 244 | 9.416 | 9.414 | (0.883) | 28241 | 0.10388 | 0.1039 | (M) |
| * 198 Perylene-d12 | 264 | 12.732 | 12.731 | (1.000) | 51271 | 0.10000 | | |
| 1 1,4-Dioxane | 58 | 1.934 | 1.952 | (0.410) | 5018 | 0.08107 | 0.08107 | (a) |

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.

Data File: \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\015.D



Date : 20-NOV-2017 16:50

Client ID: LCSD-122176

Instrument: SV6.i

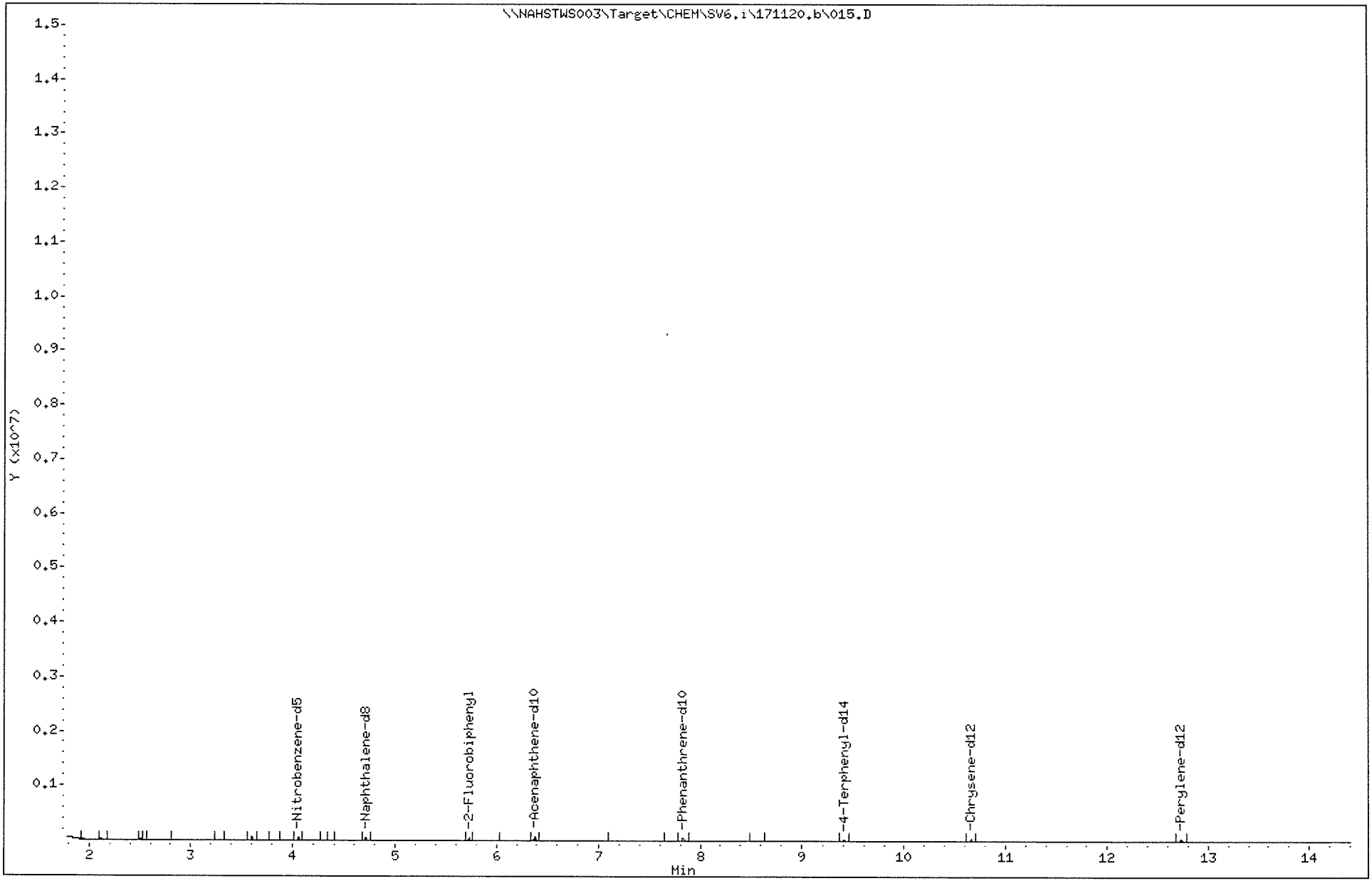
Sample Info: LCSD-122176;LCSD-122176;3;;LCSD

Purge Volume: 1000.0

Operator: LG

Column phase: RTX-5SIL MS

Column diameter: 0.28



ALS Laboratory Group

GC/MS Semivolatiles EPA method 8270D

Data file : \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\018.D
Lab Smp Id: HS17110493-01 Client Smp ID: HS17110493-01
Inj Date : 20-NOV-2017 17:56 MS Autotune Date: 14-NOV-2017 19:09
Operator : LG Inst ID: SV6.i
Smp Info : HS17110493-01;HS17110493-01
Misc Info : HS17110493;1;0;50
Comment :
Method : \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\DXSIM.m
Meth Date : 11-Jan-2018 14:32 SV6.i Quant Type: ISTD
Cal Date : 20-NOV-2017 15:12 Cal File: 010.D
Als bottle: 18
Dil Factor: 50.00000
Integrator: HP RTE Compound Sublist: 14DX.sub
Target Version: 4.14
Processing Host: NAHSTW7091

Concentration Formula: Amt * DF * Uf * Vt/Vo * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 50.000 | Dilution Factor |
| Uf | 1.000 | ng unit correction factor |
| Vt | 1000.000 | Volume of final extract (uL) |
| Vo | 1000.000 | Volume of sample extracted (mL) |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( NG) | FINAL ( ug/L) |
|---|---|---|---|---|---|---|---|
| * 45 Naphthalene-d8 | 136 | 4.713 | 4.712 | (1.000) | 65627 | 0.10000 | (Q) |
| $ 33 Nitrobenzene-d5 | 82 | 4.066 | 4.060 | (0.863) | 582 | 0.00161 | 0.08061(M) |
| * 86 Acenaphthene-d10 | 164 | 6.389 | 6.383 | (1.000) | 43878 | 0.10000 | (M) |
| $ 69 2-Fluorobiphenyl | 172 | 5.734 | 5.730 | (0.897) | 975 | 0.00222 | 0.1108(M) |
| * 126 Phenanthrene-d10 | 188 | 7.833 | 7.833 | (1.000) | 70686 | 0.10000 | |
| * 182 Chrysene-d12 | 240 | 10.668 | 10.663 | (1.000) | 71069 | 0.10000 | (M) |
| $ 158 4-Terphenyl-d14 | 244 | 9.420 | 9.414 | (0.883) | 1221 | 0.00313 | 0.1565(RM) |
| * 198 Perylene-d12 | 264 | 12.741 | 12.731 | (1.000) | 70945 | 0.10000 | |
| 1 1,4-Dioxane | 58 | 1.943 | 1.952 | (0.412) | 10292 | 0.16171 | 8.086(a) |

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
Q - Qualifier signal failed the ratio test.
R - Spike/Surrogate failed recovery limits.
M - Compound response manually integrated.

Data File: \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\018.D



Date : 20-NOV-2017 17:56

Client ID: HS17110493-01

Instrument: SV6.i

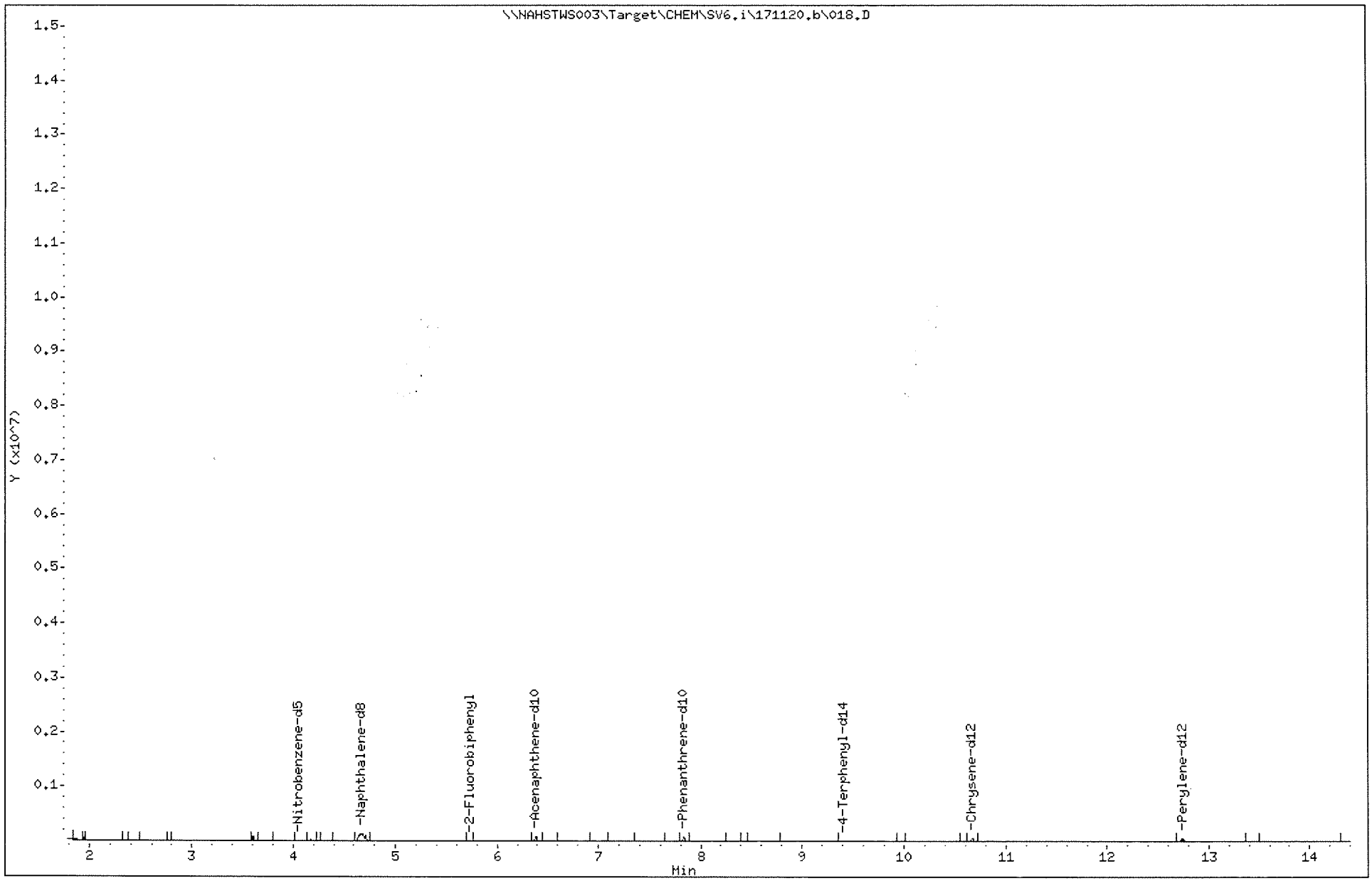
Sample Info: HS17110493-01;HS17110493-01

Purge Volume: 1000.0

Operator: LG

Column phase: RTX-5SIL MS

Column diameter: 0.28



Data File: \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\018.D



Date : 20-NOV-2017 17:56

Client ID: HS17110493-01

Instrument: SV6.i

Sample Info: HS17110493-01;HS17110493-01

Purge Volume: 1000.0

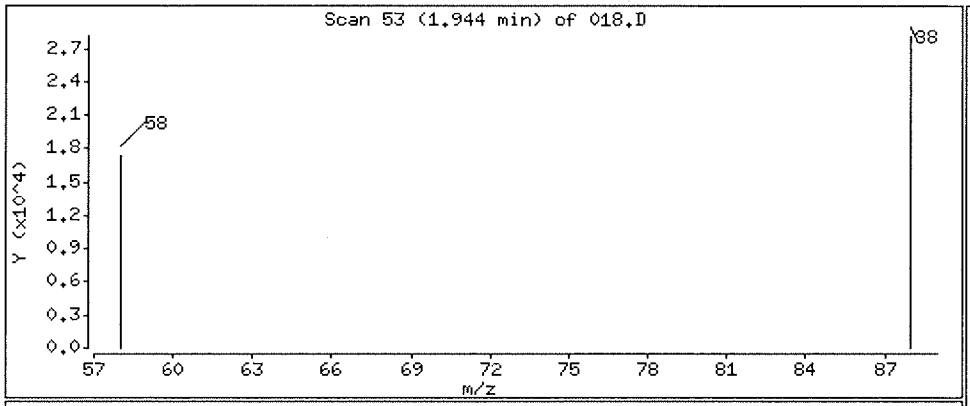
Operator: LG

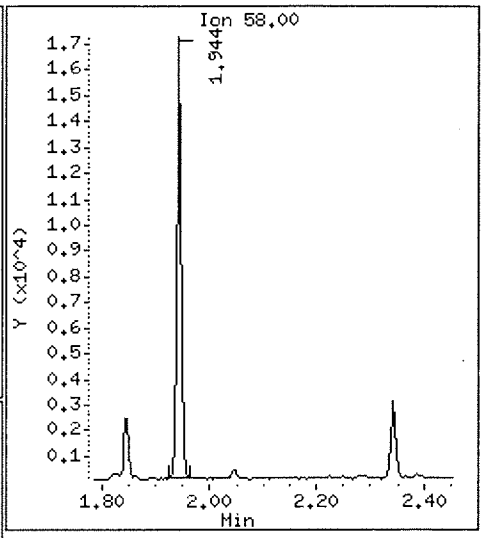
Column phase: RTX-5SIL MS

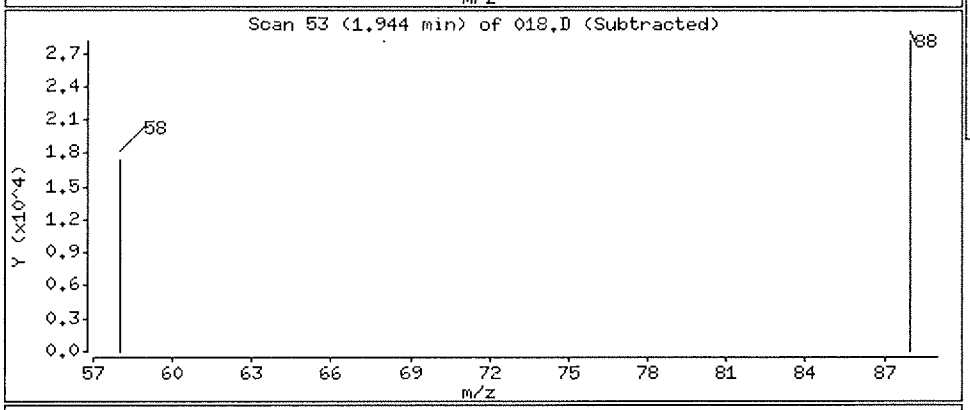
Column diameter: 0.28

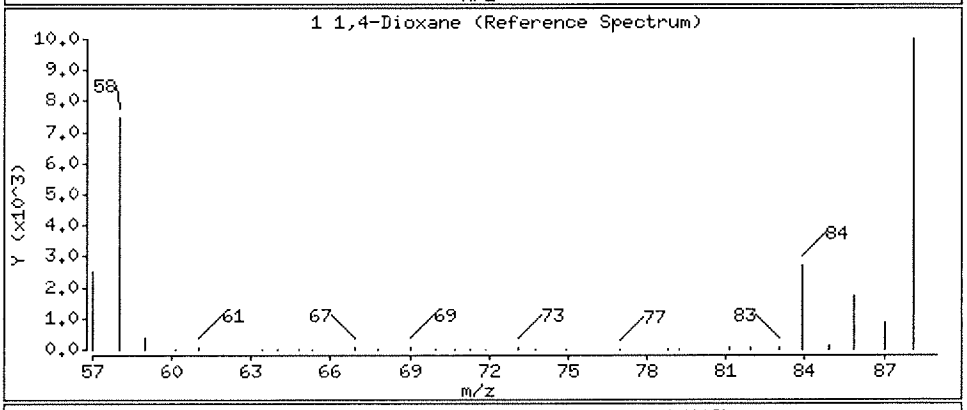
1 1,4-Dioxane

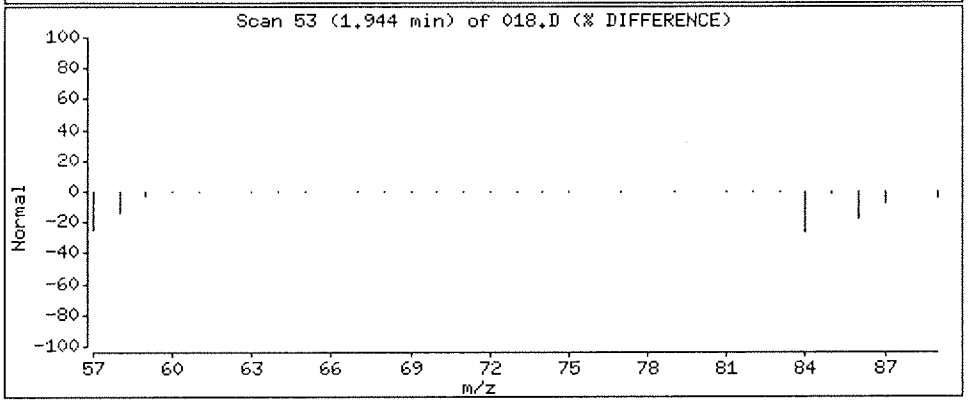
Concentration: 8.086 ug/L



ALS Laboratory Group

GC/MS Semivolatiles EPA method 8270D

Data file : \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\019.D
Lab Smp Id: DXSIM-0.08 Client Smp ID: DXSIM-0.08
Inj Date : 20-NOV-2017 18:16 MS Autotune Date: 14-NOV-2017 19:09
Operator : LG Inst ID: SV6.i
Smp Info : DXSIM-0.08;DXSIM-0.08
Misc Info : ;;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\DXSIM.m
Meth Date : 11-Jan-2018 14:32 SV6.i Quant Type: ISTD
Cal Date : 20-NOV-2017 15:12 Cal File: 010.D
Als bottle: 19
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 14DX.sub
Target Version: 4.14

Concentration Formula: Amt * DF * Uf * Vt/Vo * CpndVariable

| Name | Value | Description |
|---|---|---|
| DF | 1.000 | Dilution Factor |
| Uf | 1.000 | ng unit correction factor |
| Vt | 1000.000 | Volume of final extract (uL) |
| Vo | 1000.000 | Volume of sample extracted (mL) |
| Cpnd Variable | | Local Compound Variable |

| Compounds | QUANT SIG MASS | RT | EXP RT | REL RT | RESPONSE | CONCENTRATIONS ON-COLUMN ( NG) | FINAL ( ug/L) | |
|---|---|---|---|---|---|---|---|---|
| * 45 Naphthalene-d8 | 136 | 4.713 | 4.712 | (1.000) | 90026 | 0.10000 | | |
| $ 33 Nitrobenzene-d5 | 82 | 4.066 | 4.060 | (0.863) | 33572 | 0.06780 | 0.06780 | |
| * 86 Acenaphthene-d10 | 164 | 6.385 | 6.383 | (1.000) | 64614 | 0.10000 | | |
| $ 69 2-Fluorobiphenyl | 172 | 5.734 | 5.730 | (0.898) | 45389 | 0.07006 | 0.07006 | |
| * 126 Phenanthrene-d10 | 188 | 7.835 | 7.833 | (1.000) | 116145 | 0.10000 | | |
| * 182 Chrysene-d12 | 240 | 10.664 | 10.663 | (1.000) | 115876 | 0.10000 | | (M) |
| $ 158 4-Terphenyl-d14 | 244 | 9.416 | 9.414 | (0.906) | 47095 | 0.07407 | 0.07407 | |
| * 198 Perylene-d12 | 264 | 12.738 | 12.731 | (1.000) | 107919 | 0.10000 | | |
| 1 1,4-Dioxane | 58 | 1.943 | 1.952 | (0.412) | 5012 | 0.05741 | 0.05741 | (aM) |

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.

Data File: \\NAHSTWS003\Target\CHEM\SV6.i\171120.b\019.D



Date : 20-NOV-2017 18:16

Client ID: DXSIM-0.08

Instrument: SV6.i

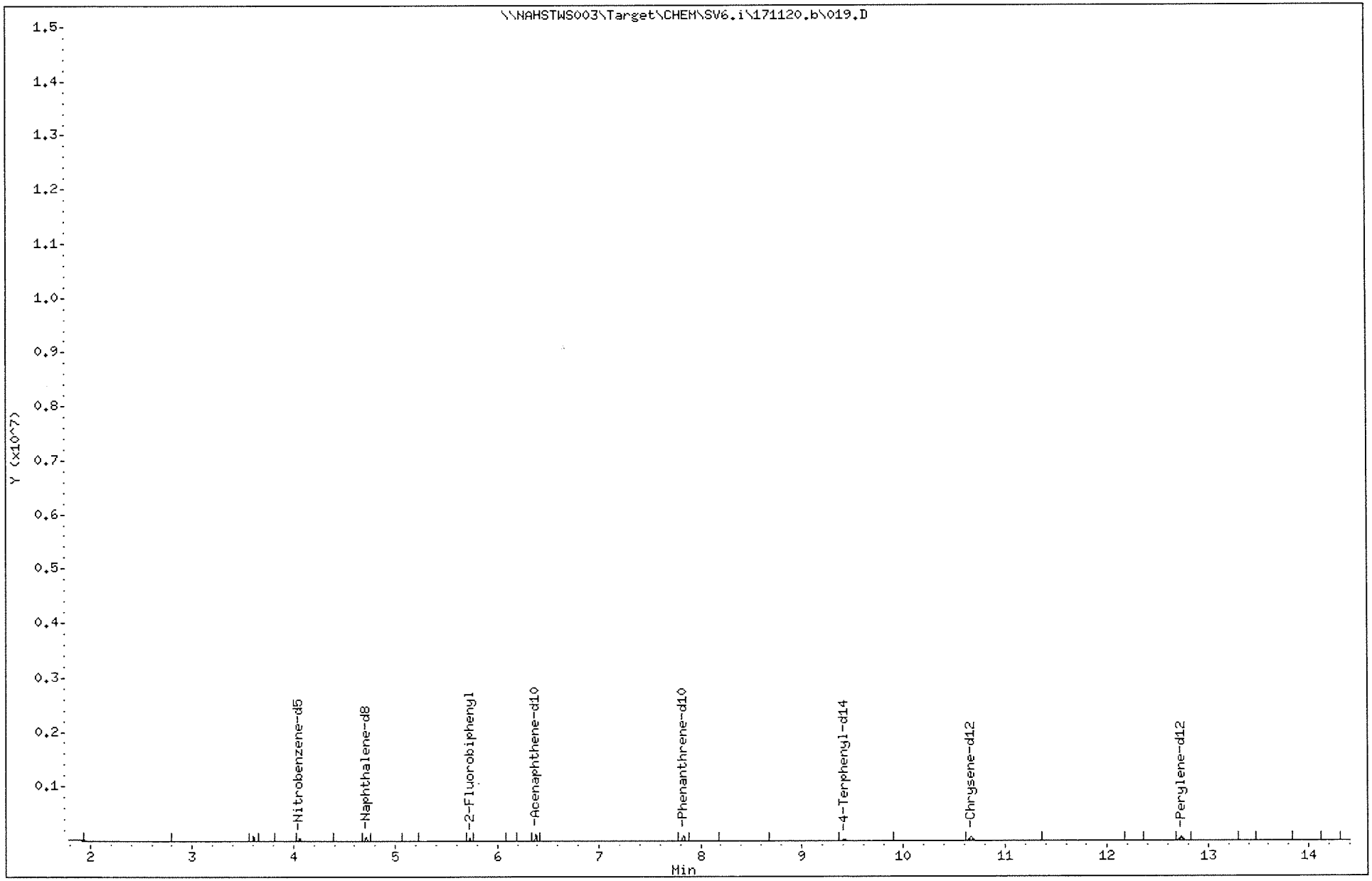
Sample Info: DXSIM-0.08;DXSIM-0.08

Purge Volume: 1000.0

Operator: LG

Column phase: RTX-5SIL MS

Column diameter: 0.28



# PREP BATCH REPORT

Batch ID: **122176**

Prep Code: **3510_B_SIM**

InitSampWt/Vol 0

FinSampVol: 1

Start Date: **15-Nov-17 08:10 am**

End Date: **15-Nov-17 03:13 pm**

OriginalFac: 0.001

Technician: **Todi Lala**

PrepUnitFac: 1

| SampID | Frac | Matrix | pH | Init Wt/Vol | FinalVol (mL) | PrepFac | SpkFac | Failsafe | TestDueDate | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| HS17110493-01 | E | Water | 7 | 990 | 1 | 0.00101 | 1.01 | 11-21-17 | 11-28-17 | ph adj 1/13 |
| MBLK-122176 | A | | 5 | 1000 | 1 | 0.001 | 1 | | | ph adj 1/13 |
| LCS-122176 | A | | 5 | 1000 | 1 | 0.001 | 1 | | | ph adj 1/13 |
| LCSD-122176 | A | | 5 | 1000 | 1 | 0.001 | 1 | | | ph adj 1/13 |

# Metals Raw Data

## Bhate Environmental Associates, Inc.

Project: Longhorn GW Treatment Plant Monthly Effluent

ALS WO# HS17110493

**ALS Group USA, Corp**

Date: 29-Nov-17

## Form 2 - Initial and Continuing Calibration Verification

**Client:** Bhate Environmental Associates, Inc.
**Project:** Longhorn GW Treatment Plant Monthly Effluent
**WorkOrder:** HS17110493

Run ID: ICPMS05_305556
Instrument: ICPMS05
Method: SW6020

| ICV | Date: 16-Nov-2017 10:31 | | Seq: 4312161 | ICV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Barium | 100 | 99.254 | 99 | 90-110 | |
| Lead | 100 | 103.811 | 104 | 90-110 | |
| Selenium | 100 | 98.53 | 99 | 90-110 | |
| Silver | 100 | 98.437 | 98 | 90-110 | |

| CCV1 | Date: 16-Nov-2017 11:04 | | Seq: 4312177 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Barium | 100 | 96.157 | 96 | 90-110 | |
| Lead | 100 | 102.372 | 102 | 90-110 | |
| Selenium | 100 | 103.653 | 104 | 90-110 | |
| Silver | 100 | 102.577 | 103 | 90-110 | |

| CCV2 | Date: 16-Nov-2017 11:28 | | Seq: 4312189 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Barium | 100 | 94.564 | 95 | 90-110 | |
| Lead | 100 | 100.329 | 100 | 90-110 | |
| Selenium | 100 | 95.814 | 96 | 90-110 | |
| Silver | 100 | 99.648 | 100 | 90-110 | |

| CCV3 | Date: 16-Nov-2017 11:52 | | Seq: 4312201 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Barium | 100 | 94.592 | 95 | 90-110 | |
| Lead | 100 | 100.294 | 100 | 90-110 | |
| Selenium | 100 | 99.906 | 100 | 90-110 | |
| Silver | 100 | 103.123 | 103 | 90-110 | |

| CCV4 | Date: 16-Nov-2017 12:16 | | Seq: 4312235 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Barium | 100 | 94.656 | 95 | 90-110 | |
| Lead | 100 | 103.779 | 104 | 90-110 | |
| Selenium | 100 | 100.413 | 100 | 90-110 | |
| Silver | 100 | 102.076 | 102 | 90-110 | |

| CCV5 | Date: 16-Nov-2017 12:40 | | Seq: 4312250 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Barium | 100 | 93.96 | 94 | 90-110 | |
| Lead | 100 | 103.843 | 104 | 90-110 | |
| Selenium | 100 | 95.506 | 96 | 90-110 | |
| Silver | 100 | 95.436 | 95 | 90-110 | |

| CCV6 | Date: 16-Nov-2017 13:04 | | Seq: 4312263 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Barium | 100 | 97.47 | 98 | 90-110 | |
| Lead | 100 | 100.847 | 101 | 90-110 | |
| Selenium | 100 | 99.99 | 100 | 90-110 | |
| Silver | 100 | 102.422 | 102 | 90-110 | |

| CCV7 | Date: 16-Nov-2017 13:28 | | Seq: 4312453 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Barium | 100 | 94.045 | 94 | 90-110 | |
| Lead | 100 | 100.562 | 101 | 90-110 | |
| Selenium | 100 | 91.12 | 91 | 90-110 | |
| Silver | 100 | 98.736 | 99 | 90-110 | |

| CCV8 | Date: 16-Nov-2017 13:53 | | Seq: 4312509 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Barium | 100 | 91.02 | 91 | 90-110 | |
| Lead | 100 | 102.379 | 102 | 90-110 | |

**ALS Group USA, Corp** Date: 29-Nov-17

## Form 2 - Initial and Continuing Calibration Verification

**Client:** Bhate Environmental Associates, Inc.
**Project:** Longhorn GW Treatment Plant Monthly Effluent
**WorkOrder:** HS17110493

Run ID: ICPMS05_305556
Instrument: ICPMS05
Method: SW6020

| CCV8 | Date: 16-Nov-2017 13:53 | | Seq: 4312509 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Selenium | 100 | 101.174 | 101 | 90-110 | |
| Silver | 100 | 102.41 | 102 | 90-110 | |

| ICCV9 | Date: 16-Nov-2017 14:17 | | Seq: 4312674 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Barium | 100 | 99.703 | 100 | 90-110 | |
| Lead | 100 | 102.631 | 103 | 90-110 | |
| Selenium | 100 | 99.344 | 99 | 90-110 | |
| Silver | 100 | 105.408 | 105 | 90-110 | |

| CCV10 | Date: 16-Nov-2017 14:35 | | Seq: 4312781 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Barium | 100 | 104.585 | 105 | 90-110 | |
| Lead | 100 | 101.87 | 102 | 90-110 | |
| Selenium | 100 | 97.591 | 98 | 90-110 | |
| Silver | 100 | 104.713 | 105 | 90-110 | |

| CCV11 | Date: 16-Nov-2017 14:59 | | Seq: 4312793 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Barium | 100 | 100.866 | 101 | 90-110 | |
| Lead | 100 | 100.224 | 100 | 90-110 | |
| Selenium | 100 | 102.369 | 102 | 90-110 | |
| Silver | 100 | 104.102 | 104 | 90-110 | |

| CCV12 | Date: 16-Nov-2017 15:23 | | Seq: 4312964 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Barium | 100 | 99.255 | 99 | 90-110 | |
| Lead | 100 | 98.396 | 98 | 90-110 | |
| Selenium | 100 | 100.621 | 101 | 90-110 | |
| Silver | 100 | 104.814 | 105 | 90-110 | |

| CCV13 | Date: 16-Nov-2017 15:48 | | Seq: 4312976 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Barium | 100 | 103.097 | 103 | 90-110 | |
| Lead | 100 | 100.375 | 100 | 90-110 | |
| Selenium | 100 | 101.093 | 101 | 90-110 | |
| Silver | 100 | 100.828 | 101 | 90-110 | |

| CCV14 | Date: 16-Nov-2017 16:22 | | Seq: 4313183 | CCV | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | **Control Limits** | **Flag** |
| Barium | 100 | 105.17 | 105 | 90-110 | |
| Lead | 100 | 103.49 | 103 | 90-110 | |
| Selenium | 100 | 102.966 | 103 | 90-110 | |
| Silver | 100 | 105.881 | 106 | 90-110 | |

## Form 3 - BLANKS

**Client:** Bhate Environmental Associates, Inc.
**Project:** Longhorn GW Treatment Plant Monthly Effluent
**WorkOrder:** HS17110493

Run ID: ICPMS05_305556
Instrument: ICPMS05
Method: SW6020

| ICB | Date: 16-Nov-2017 10:37 | | Seq: 4312164 | ICB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Barium | 4 | 1.9 | 4 | U | |
| Lead | 2 | 0.6 | 2 | U | |
| Selenium | 2 | 1.1 | 2 | U | |
| Silver | 2 | 0.2 | 2 | U | |

| CCB1 | Date: 16-Nov-2017 11:06 | | Seq: 4312178 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Barium | 4 | 1.9 | 4 | U | |
| Lead | 2 | 0.6 | 2 | U | |
| Selenium | 2 | 1.1 | 2 | U | |
| Silver | 2 | 0.2 | 2 | U | |

| CCB2 | Date: 16-Nov-2017 11:30 | | Seq: 4312190 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Barium | 4 | 1.9 | 4 | U | |
| Lead | 2 | 0.6 | 2 | U | |
| Selenium | 2 | 1.1 | 2 | U | |
| Silver | 2 | 0.2 | 2 | U | |

| CCB3 | Date: 16-Nov-2017 11:54 | | Seq: 4312202 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Barium | 4 | 1.9 | 4 | U | |
| Lead | 2 | 0.6 | 2 | U | |
| Selenium | 2 | 1.1 | 2 | U | |
| Silver | 2 | 0.2 | 2 | U | |

| CCB4 | Date: 16-Nov-2017 12:18 | | Seq: 4312236 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Barium | 4 | 1.9 | 4 | U | |
| Lead | 2 | 0.6 | 2 | U | |
| Selenium | 2 | 1.1 | 2 | U | |
| Silver | 2 | 0.2 | 2 | U | |

| CCB5 | Date: 16-Nov-2017 12:42 | | Seq: 4312251 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Barium | 4 | 1.9 | 4 | U | |
| Lead | 2 | 0.6 | 2 | U | |
| Selenium | 2 | 1.1 | 2 | U | |
| Silver | 2 | 0.2 | 2 | U | |

| CCB6 | Date: 16-Nov-2017 13:06 | | Seq: 4312264 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Barium | 4 | 1.9 | 4 | U | |
| Lead | 2 | 0.6 | 2 | U | |
| Selenium | 2 | 1.1 | 2 | U | |
| Silver | 2 | 0.2 | 2 | U | |

| CCB7 | Date: 16-Nov-2017 13:30 | | Seq: 4312454 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Barium | 4 | 1.9 | 4 | U | |
| Lead | 2 | 0.6 | 2 | U | |
| Selenium | 2 | 1.1 | 2 | U | |
| Silver | 2 | 0.2 | 2 | U | |

| CCB8 | Date: 16-Nov-2017 13:55 | | Seq: 4312510 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Barium | 4 | 1.9 | 4 | U | |

## Form 3 - BLANKS

**Client:** Bhate Environmental Associates, Inc.
**Project:** Longhorn GW Treatment Plant Monthly Effluent
**WorkOrder:** HS17110493

Run ID: ICPMS05_305556
Instrument: ICPMS05
Method: SW6020

| CCB8 | Date: 16-Nov-2017 13:55 | | Seq: 4312510 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Lead | 2 | 0.6 | 2 | U | |
| Selenium | 2 | 1.1 | 2 | U | |
| Silver | 2 | 0.2 | 2 | U | |

| ICCB9 | Date: 16-Nov-2017 14:23 | | Seq: 4312677 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Barium | 4 | 1.9 | 4 | U | |
| Lead | 2 | 0.6 | 2 | U | |
| Selenium | 2 | 1.1 | 2 | U | |
| Silver | 2 | 0.2 | 2 | U | |

| MBLK-122183 | Date: 16-Nov-2017 14:27 | | Seq: 4312777 | MBLK | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Barium | 4 | 1.9 | 4 | U | |
| Lead | 2 | 0.6 | 2 | U | |
| Selenium | 2 | 1.1 | 2 | U | |
| Silver | 2 | 0.2 | 2 | U | |

| CCB10 | Date: 16-Nov-2017 14:37 | | Seq: 4312782 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Barium | 4 | 1.9 | 4 | U | |
| Lead | 2 | 0.6 | 2 | U | |
| Selenium | 2 | 1.1 | 2 | U | |
| Silver | 2 | 0.2 | 2 | U | |

| CCB11 | Date: 16-Nov-2017 15:01 | | Seq: 4312794 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Barium | 4 | 1.9 | 4 | U | |
| Lead | 2 | 0.6 | 2 | U | |
| Selenium | 2 | 1.1 | 2 | U | |
| Silver | 2 | 0.2 | 2 | U | |

| CCB12 | Date: 16-Nov-2017 15:25 | | Seq: 4312965 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Barium | 4 | 1.9 | 4 | U | |
| Lead | 2 | 0.6 | 2 | U | |
| Selenium | 2 | 1.1 | 2 | U | |
| Silver | 2 | 0.2 | 2 | U | |

| CCB13 | Date: 16-Nov-2017 15:50 | | Seq: 4312977 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Barium | 4 | 1.9 | 4 | U | |
| Lead | 2 | 0.6 | 2 | U | |
| Selenium | 2 | 1.1 | 2 | U | |
| Silver | 2 | 0.2 | 2 | U | |

| CCB14 | Date: 16-Nov-2017 16:24 | | Seq: 4313184 | CCB | Units: ug/L |
|---|---|---|---|---|---|
| **Analyte** | **Result** | **MDL** | **Report Limit** | **Qual** | |
| Barium | 4 | 1.9 | 4 | U | |
| Lead | 2 | 0.6 | 2 | U | |
| Selenium | 2 | 1.1 | 2 | U | |
| Silver | 2 | 0.2 | 2 | U | |

**ALS Group USA, Corp** Date: 29-Nov-17

## Form 4 - ICP Interference Check Sample

**Client:** Bhate Environmental Associates, Inc. Run ID:ICPMS05_305556

**Project:** Longhorn GW Treatment Plant Monthly Effluent Instrument:ICPMS05

**WorkOrder:** HS17110493 Method:SW6020

| ICSA | Date: 16-Nov-2017 10:39 | Seq: 4312165 | ICSA | Units: ug/L |
|---|---|---|---|---|
| **Analyte** | **True** | **Found** | **%R** | |
| Barium | | 0.028 | 0 | |
| Lead | | 0.097 | 0 | |
| Selenium | | 0.294 | 0 | |
| Silver | | 0.035 | 0 | |
| ICSAB | Date: 16-Nov-2017 10:41 | Seq: 4312166 | ICSAB | Units: ug/L |
| **Analyte** | **True** | **Found** | **%R** | |
| Barium | 100 | 92.17 | 92.2 | |
| Lead | 100 | 94.4 | 94.4 | |
| Selenium | 100 | 92.58 | 92.6 | |
| Silver | 100 | 90.02 | 90.0 | |
| ICSA | Date: 16-Nov-2017 16:32 | Seq: 4313188 | ICSA | Units: ug/L |
| **Analyte** | **True** | **Found** | **%R** | |
| Barium | | 0.111 | 0 | |
| Lead | | 0.097 | 0 | |
| Selenium | | -0.284 | 0 | |
| Silver | | 0.023 | 0 | |
| ICSAB | Date: 16-Nov-2017 16:34 | Seq: 4313189 | ICSAB | Units: ug/L |
| **Analyte** | **True** | **Found** | **%R** | |
| Barium | 100 | 93.87 | 93.9 | |
| Lead | 100 | 93.74 | 93.7 | |
| Selenium | 100 | 97.81 | 97.8 | |
| Silver | 100 | 94.02 | 94.0 | |

**ALS Group USA, Corp** Date: 29-Nov-17

## Form 5A - Matrix Spike/Matrix Spike Duplicate Recovery

**Client:** Bhate Environmental Associates, Inc.
**Project:** Longhorn GW Treatment Plant Monthly Effluent
**WorkOrder:** HS17110493

Date Analyzed: 16-Nov-2017 14:53
Date Extracted: 15-Nov-2017 10:50
Units: ug/L

Matrix Spike: HS17110570-05MS
Client Sample ID:

Analysis Method: SW6020

| Analyte | Sample Result | MS Result | Spike Amount | % Rec | MSD Result | Spike Amount | % Rec | % Rec Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| Barium | 11.84 | 54.69 | 50.00 | 85.7 | 56.34 | 50.00 | 89.0 | 80-120 | 2.98 | 20 |
| Lead | 2.000 | 45.40 | 50.00 | 90.4 | 46.41 | 50.00 | 92.4 | 80-120 | 2.20 | 20 |
| Selenium | 3.083 | 49.43 | 50.00 | 92.7 | 48.78 | 50.00 | 91.4 | 80-120 | 1.31 | 20 |
| Silver | 2.000 | 45.92 | 50.00 | 91.8 | 43.30 | 50.00 | 86.6 | 80-120 | 5.86 | 20 |

**ALS Group USA, Corp** Date: 29-Nov-17

## Form 5B - Post Digest Sample Recovery

**Client:** Bhate Environmental Associates, Inc.
**Project:** Longhorn GW Treatment Plant Monthly Effluent
**WorkOrder:** HS17110493

Date Analyzed: 16-Nov-2017 14:55
Date Extracted: 15-Nov-2017 10:50
Units: ug/L

Lab Sample ID: HS17110570-05PDS
Client Sample ID:

Analysis Method: SW6020

| Analyte | Sample Result | PDS Result | Spike Amount | % Rec | % Rec Limits |
|---|---|---|---|---|---|
| Barium | 11.84 | 102.3 | 100 | 90 | 75-125 |
| Lead | 0 | 91.05 | 100 | 91 | 75-125 |
| Selenium | 3.083 | 98.63 | 100 | 96 | 75-125 |
| Silver | 0 | 89.58 | 100 | 90 | 75-125 |

**ALS Group USA, Corp** Date: 29-Nov-17

**Form 7 - Laboratory Control Sample**

**Client:** Bhate Environmental Associates, Inc.
**Project:** Longhorn GW Treatment Plant Monthly Effluent
**WorkOrder:** HS17110493

Date Analyzed: 16-Nov-2017 14:43
Date Extracted: 15-Nov-2017 10:50
Units: ug/L

Lab Sample ID: LCS-122183 Analysis Method: SW6020

| Analyte | Spike Amount | LCS Result | % Rec | % Rec Limits |
|---|---|---|---|---|
| Barium | 50 | 48.77 | 98 | 80-120 |
| Lead | 50 | 46.63 | 93 | 80-120 |
| Selenium | 50 | 45.07 | 90 | 80-120 |
| Silver | 50 | 47.92 | 96 | 80-120 |

**ALS Group USA, Corp** Date: 29-Nov-17

## Form 8 - ICP Serial Dilutions

**Client:** Bhate Environmental Associates, Inc.
**Project:** Longhorn GW Treatment Plant Monthly Effluent
**WorkOrder:** HS17110493

Date Analyzed: 16-Nov-2017 14:49
Date Extracted: 15-Nov-2017 10:50
Units: ug/L

Lab Sample ID: HS17110570-05SD
Client Sample ID:

Analysis Method: SW6020

| Analyte | Sample Result | C | SD Result | C | RPD | Q |
|---|---|---|---|---|---|---|
| Barium | 11.84 | | 11.43 | J | 3 | |
| Lead | 0 | U | 0 | U | 0 | |
| Selenium | 3.083 | | 0 | U | 0 | |
| Silver | 0 | U | 0 | U | 0 | |

**ALS Group USA, Corp** Date: 29-Nov-17

## Form 11 - INTERNAL STANDARD ASSOCIATION

**Client:** Bhate Environmental Associates, Inc. Instrument:ICPMS05
**Project:** Longhorn GW Treatment Plant Monthly Effluent
**WorkOrder:** HS17110493

| Mass | Analyte | Assoc Int Standard 1 | Assoc Int Standard 2 | Mode |
|---|---|---|---|---|
| 9 | Beryllium | Lithium | | Ar |
| 11 | Boron | Lithium | | Ar |
| 23 | Sodium | Germanium | | Ar |
| 24 | Magnesium | Germanium | | Ar |
| 27 | Aluminum | Germanium | | Ar |
| 39 | Potassium | Germanium | | Ar |
| 44 | Calcium | Germanium | | Ar |
| 47 | Titanium | Germanium | | Ar |
| 51 | Vanadium | Germanium | | ArHe |
| 52 | Chromium | Germanium | | ArHe |
| 55 | Manganese | Germanium | | ArHe |
| 56 | Iron | Germanium | | ArHe |
| 59 | Cobalt | Germanium | | ArHe |
| 60 | Nickel | Germanium | | ArHe |
| 63 | Copper | Germanium | | ArHe |
| 66 | Zinc | Germanium | | ArHe |
| 75 | Arsenic | Germanium | | ArHe |
| 78 | Selenium | Germanium | | ArHe |
| 88 | Strontium | Germanium | | Ar |
| 95 | Molybdenum | Germanium | | Ar |
| 105 | Palladium | Germanium | | Ar |
| 107 | Silver | Germanium | | Ar |
| 114 | Cadmium | Indium | | Ar |
| 118 | Tin | Germanium | | Ar |
| 121 | Antimony | Germanium | | ArHe |
| 137 | Barium | Indium | | Ar |
| 205 | Thallium | Bismuth | | Ar |
| 208 | Lead | Bismuth | | Ar |

**ALS Group USA, Corp** Date: 29-Nov-17

## FORM 12 - PREPARATION LOG

**Client:** Bhate Environmental Associates, Inc.
**Project:** Longhorn GW Treatment Plant Monthly Effluent
**WorkOrder:** HS17110493
Start Date: 15-Nov-2017 10:50 End Date: 15-Nov-2017 15:00

Batch ID: 122183
Prep Code: 3010A
Method: SW3010A
Technician:

| SampID | ClientID | Matrix | Init Wt | Init Vol | FinalVol (mL) | PrepFac |
|---|---|---|---|---|---|---|
| HS17110493-01 | LH18/24-SP650_110917 | Water | | 10 | 10 | 1 |
| HS17110570-05MS | | | | 10 | 10 | 1 |
| HS17110570-05MSD | | | | 10 | 10 | 1 |
| HS17110570-05PDS | | | | 10 | 10 | 1 |
| HS17110570-05SD | | | | 10 | 10 | 1 |
| LCS-122183 | | | | 10 | 10 | 1 |
| MBLK-122183 | | | | 10 | 10 | 1 |

**ALS Group USA, Corp** Date: 29-Nov-17

## FORM 13 - ANALYSIS RUN LOG

**Client:** Bhate Environmental Associates, Inc.
**Project:** Longhorn GW Treatment Plant Monthly Effluent
**WorkOrder:** HS17110493
Start Date: 16-Nov-2017 End Date: 16-Nov-2017

Run ID:ICPMS05_305556
Instrument:ICPMS05
Method:

| Sample No. | D/F | Time | FileID | Analytes |
|---|---|---|---|---|
| ICPMS05_305556_Tune | 1 | 16-Nov-2017 00:00 | ICPMS05_305556_Tune_1 | |
| CAL BLK | 1 | 16-Nov-2017 10:17 | 010CALB.d_4312154 | AG BA PB SE |
| 2/10/200 | 1 | 16-Nov-2017 10:19 | 011CALS.d_4312155 | AG BA PB SE |
| 5/25/500 | 1 | 16-Nov-2017 10:21 | 012CALS.d_4312156 | AG BA PB SE |
| 10/50/1000 | 1 | 16-Nov-2017 10:23 | 013CALS.d_4312157 | AG BA PB SE |
| 100/500/10K | 1 | 16-Nov-2017 10:25 | 014CALS.d_4312158 | AG BA PB SE |
| 200/1000/20K | 1 | 16-Nov-2017 10:27 | 015CALS.d_4312159 | AG BA PB SE |
| ICV | 1 | 16-Nov-2017 10:31 | 017_ICV.d_4312161 | AG BA PB SE |
| LLICV2 | 1 | 16-Nov-2017 10:33 | 018SMPL.d_4312162 | AG BA PB SE |
| LLICV5 | 1 | 16-Nov-2017 10:35 | 019LICV.d_4312163 | AG BA PB SE |
| ICB | 1 | 16-Nov-2017 10:37 | 020_ICB.d_4312164 | AG BA PB SE |
| ICSA | 1 | 16-Nov-2017 10:39 | 021ICSA.d_4312165 | AG BA PB SE |
| ICSAB | 1 | 16-Nov-2017 10:41 | 022ICSB.d_4312166 | AG BA PB SE |
| CCV 1 | 1 | 16-Nov-2017 11:04 | 033_CCV.d_4312177 | AG BA PB SE |
| CCB 1 | 1 | 16-Nov-2017 11:06 | 034_CCB.d_4312178 | AG BA PB SE |
| CCV 2 | 1 | 16-Nov-2017 11:28 | 045_CCV.d_4312189 | AG BA PB SE |
| CCB 2 | 1 | 16-Nov-2017 11:30 | 046_CCB.d_4312190 | AG BA PB SE |
| CCV 3 | 1 | 16-Nov-2017 11:52 | 057_CCV.d_4312201 | AG BA PB SE |
| CCB 3 | 1 | 16-Nov-2017 11:54 | 058_CCB.d_4312202 | AG BA PB SE |
| CCV 4 | 1 | 16-Nov-2017 12:16 | 069_CCV.d_4312235 | AG BA PB SE |
| CCB 4 | 1 | 16-Nov-2017 12:18 | 070_CCB.d_4312236 | AG BA PB SE |
| CCV 5 | 1 | 16-Nov-2017 12:40 | 081_CCV.d_4312250 | AG BA PB SE |
| CCB 5 | 1 | 16-Nov-2017 12:42 | 082_CCB.d_4312251 | AG BA PB SE |
| CCV 6 | 1 | 16-Nov-2017 13:04 | 093_CCV.d_4312263 | AG BA PB SE |
| CCB 6 | 1 | 16-Nov-2017 13:06 | 094_CCB.d_4312264 | AG BA PB SE |
| CCV 7 | 1 | 16-Nov-2017 13:28 | 105_CCV.d_4312453 | AG BA PB SE |
| CCB 7 | 1 | 16-Nov-2017 13:30 | 106_CCB.d_4312454 | AG BA PB SE |
| CCV 8 | 1 | 16-Nov-2017 13:53 | 117_CCV.d_4312509 | AG BA PB SE |
| CCB 8 | 1 | 16-Nov-2017 13:55 | 118_CCB.d_4312510 | AG BA PB SE |
| CAL BLK | 1 | 16-Nov-2017 14:03 | 122CALB.d_4312667 | AG BA PB SE |
| 2/10/200 | 1 | 16-Nov-2017 14:05 | 123CALS.d_4312668 | AG BA PB SE |
| 5/25/500 | 1 | 16-Nov-2017 14:07 | 124CALS.d_4312669 | AG BA PB SE |
| 10/50/1000 | 1 | 16-Nov-2017 14:09 | 125CALS.d_4312670 | AG BA PB SE |
| 100/500/10K | 1 | 16-Nov-2017 14:11 | 126CALS.d_4312671 | AG BA PB SE |
| 200/1000/20K | 1 | 16-Nov-2017 14:13 | 127CALS.d_4312672 | AG BA PB SE |
| ICCV 9 | 1 | 16-Nov-2017 14:17 | 129_ICV.d_4312674 | AG BA PB SE |
| LLCCV2 | 1 | 16-Nov-2017 14:19 | 130SMPL.d_4312675 | AG BA PB SE |
| LLCCV5 | 1 | 16-Nov-2017 14:21 | 131LICV.d_4312676 | AG BA PB SE |
| ICCB 9 | 1 | 16-Nov-2017 14:23 | 132_ICB.d_4312677 | AG BA PB SE |
| MBLK-122183 | 1 | 16-Nov-2017 14:27 | 134SMPL.d_4312777 | AG BA PB SE |
| CCV 10 | 1 | 16-Nov-2017 14:35 | 138_CCV.d_4312781 | AG BA PB SE |
| CCB 10 | 1 | 16-Nov-2017 14:37 | 139_CCB.d_4312782 | AG BA PB SE |
| LCS-122183 | 1 | 16-Nov-2017 14:43 | 142SMPL.d_4312785 | AG BA PB SE |
| ZZZZZZSD | 5 | 16-Nov-2017 14:49 | 145SMPL.d_4312788 | AG BA PB SE |
| ZZZZZZMS | 1 | 16-Nov-2017 14:51 | 146SMPL.d_4312789 | AG BA PB SE |
| ZZZZZZMSD | 1 | 16-Nov-2017 14:53 | 147SMPL.d_4312790 | AG BA PB SE |
| ZZZZZZPDS | 1 | 16-Nov-2017 14:55 | 148SMPL.d_4312791 | AG BA PB SE |
| CCV 11 | 1 | 16-Nov-2017 14:59 | 150_CCV.d_4312793 | AG BA PB SE |
| CCB 11 | 1 | 16-Nov-2017 15:01 | 151_CCB.d_4312794 | AG BA PB SE |
| CCV 12 | 1 | 16-Nov-2017 15:23 | 162_CCV.d_4312964 | AG BA PB SE |
| CCB 12 | 1 | 16-Nov-2017 15:25 | 163_CCB.d_4312965 | AG BA PB SE |
| LH18/24-SP650_110917 | 1 | 16-Nov-2017 15:35 | 168SMPL.d_4312970 | AG BA PB SE |
| CCV 13 | 1 | 16-Nov-2017 15:48 | 174_CCV.d_4312976 | AG BA PB SE |
| 13 | 1 | 16-Nov-2017 15:50 | 175_CCB.d_4312977 | AG BA PB SE |

**ALS Group USA, Corp** Date: 29-Nov-17

## FORM 13 - ANALYSIS RUN LOG

**Client:** Bhate Environmental Associates, Inc.
**Project:** Longhorn GW Treatment Plant Monthly Effluent
**WorkOrder:** HS17110493
Start Date: 16-Nov-2017 End Date: 16-Nov-2017

Run ID:ICPMS05_305556
Instrument:ICPMS05
Method:

| Sample No. | D/F | Time | FileID | Analytes |
|---|---|---|---|---|
| CCV 14 | 1 | 16-Nov-2017 16:22 | 186_CCV.d_4313183 | AG BA PB SE |
| CCB 14 | 1 | 16-Nov-2017 16:24 | 187_CCB.d_4313184 | AG BA PB SE |
| LLCCV5 | 1 | 16-Nov-2017 16:28 | 189LICV.d_4313186 | AG BA PB SE |
| LLCCV2 | 1 | 16-Nov-2017 16:30 | 190SMPL.d_4313187 | AG BA PB SE |
| ICSA | 1 | 16-Nov-2017 16:32 | 191ICSA.d_4313188 | AG BA PB SE |
| ICSAB | 1 | 16-Nov-2017 16:34 | 192ICSB.d_4313189 | AG BA PB SE |

# Tune Report

**Batch Folder** C:\Agilent\ICPMH\1\DATA\111617A.b
**Report Comment**
**Instrument Name** G3281A JP11080910

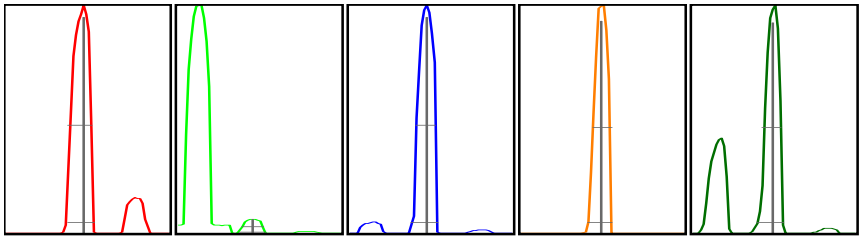
**[nogas]**

| Mass | Range | Count (Actual) | Response (Actual) [cps/ug/l] | Response (Required) [cps/ug/l] | Response (Flag) | Resp Ratio (Actual) | Resp Ratio (Required) | Resp Ratio (Flag) |
|---|---|---|---|---|---|---|---|---|
| 9 | | 6944 | | | | NaN | - | |
| 24 | | 23983 | | | | NaN | - | |
| 59 | | 37109 | | | | NaN | - | |
| 115 | | 43604 | | | | NaN | - | |
| 208 | | 28437 | | | | NaN | - | |

| Mass | RSD% (Actual) | RSD% (Required) | RSD% (Flag) | Background (Actual) | Background (Required) | Background (Flag) |
|---|---|---|---|---|---|---|
| 9 | 1.52 | 5.00 | | | | |
| 24 | 1.28 | 5.00 | | | | |
| 59 | 1.03 | 5.00 | | | | |
| 115 | 1.44 | 5.00 | | | | |
| 208 | 0.78 | 5.00 | | | | |

| Mass | Replicate 1 Count | Replicate 2 Count | Replicate 3 Count | Replicate 4 Count | Replicate 5 Count |
|---|---|---|---|---|---|
| 9 | 6868 | 6909 | 7114 | 6973 | 6857 |
| 24 | 23568 | 23784 | 24044 | 24324 | 24194 |
| 59 | 37263 | 36568 | 37081 | 37014 | 37621 |
| 115 | 43221 | 42780 | 43602 | 44307 | 44108 |
| 208 | 28143 | 28363 | 28416 | 28510 | 28752 |

**Integration Time [sec]** 0.1



| Mass | Peak Height | Axis (Actual) | Axis (Required) | Axis (Flag) | W-50% | W-X% (Actual) | W-X% (Required) | W-X% (Flag) |
|---|---|---|---|---|---|---|---|---|
| 9 | 1773.86 | 8.95 | 8.9 - 9.1 | | 0.40 | 0.494 | 0.750 | |
| 24 | 6309.75 | 23.90 | 23.9 - 24.1 | | 0.39 | 0.490 | 0.750 | |
| 59 | 10357.61 | 58.95 | 58.9 - 59.1 | | 0.37 | 0.466 | 0.750 | |
| 115 | 13132.25 | 115.00 | 114.9 - 115.1 | | 0.33 | 0.451 | 0.750 | |
| 208 | 8560.55 | 208.00 | 207.9 - 208.1 | | 0.32 | 0.495 | 0.750 | |

**X =** 5 **Integration Time [sec]** 0.1 **Acquisition Time [sec]** 168.5 **Y Axis** Linear

**Tune Parameters**
**## Plasma Paramters ##**

| | | | | | |
|---|---|---|---|---|---|
| RF Power | 1600 W | Carrier Gas | 0.35 L/min | S/C Temp | 2 ℃ |
| RF Matching | 1.70 V | Option Gas | 0.0 % | Makeup/Dilution Gas | 0.50 L/min |
| Smpl Depth | 8.0 mm | Nebulizer Pump | 0.10 rps | Gas Switch | Dilution Gas |

**## Lenses Parameters ##**

| | | | | | |
|---|---|---|---|---|---|
| Extract 1 | 0.0 V | Omega Lens | 8.0 V | Deflect | 15.6 V |
| Extract 2 | -200.0 V | Cell Entrance | -38 V | Plate Bias | -50 V |
| Omega Bias | -100 V | Cell Exit | -58 V | | |

**## Cell Parameters ##**

| | | | | | |
|---|---|---|---|---|---|
| OctP Bias | -8.0 V | He Flow | 0.0 mL/min | Energy Discrimination | 5.0 V |
| OctP RF | 190 V | H2 Flow | 0.0 mL/min | | |
| Use Gas | true | 3rd Gas Flow | 0 % | | |

**[He]**

| Mass | Range | Count (Actual) | Response (Actual) [cps/ug/l] | Response (Required) [cps/ug/l] | Response (Flag) | Resp Ratio (Actual) | Resp Ratio (Required) | Resp Ratio (Flag) |
|---|---|---|---|---|---|---|---|---|
| 9 | | 68 | | | | NaN | - | |
| 24 | | 471 | | | | NaN | - | |
| 59 | | 9453 | | | | NaN | - | |

# Tune Report

| Mass | RSD% (Actual) | RSD% (Required) | RSD% (Flag) | Background (Actual) | Background (Required) | Background (Flag) |
|---|---|---|---|---|---|---|
| 9 | 5.81 | 5.00 | [F] | | | |
| 24 | 3.98 | 5.00 | | | | |
| 59 | 1.97 | 5.00 | | | | |

| Mass | Replicate 1 Count | Replicate 2 Count | Replicate 3 Count | Replicate 4 Count | Replicate 5 Count |
|---|---|---|---|---|---|
| 9 | 74 | 69 | 63 | 66 | 67 |
| 24 | 446 | 463 | 485 | 468 | 494 |
| 59 | 9140 | 9437 | 9612 | 9523 | 9552 |

**Integration Time [sec]** 0.1

| Mass | Peak Height | Axis (Actual) | Axis (Required) | Axis (Flag) | W-50% | W-X% (Actual) | W-X% (Required) | W-X% (Flag) |
|---|---|---|---|---|---|---|---|---|
| 9 | 17.04 | 8.90 | 8.9 - 9.1 | | 0.41 | 0.494 | 0.750 | |
| 24 | 124.77 | 23.90 | 23.9 - 24.1 | | 0.39 | 0.488 | 0.750 | |
| 59 | 2746.18 | 58.95 | 58.9 - 59.1 | | 0.35 | 0.445 | 0.750 | |

**X =** 5 **Integration Time [sec]** 0.1 **Acquisition Time [sec]** 100.6 **Y Axis** Linear

**Tune Parameters**

**## Plasma Paramters ##**

| | | | | | |
|---|---|---|---|---|---|
| RF Power | 1600 W | Carrier Gas | 0.35 L/min | S/C Temp | 2 ℃ |
| RF Matching | 1.70 V | Option Gas | 0.0 % | Makeup/Dilution Gas | 0.50 L/min |
| Smpl Depth | 8.0 mm | Nebulizer Pump | 0.10 rps | Gas Switch | Dilution Gas |

**## Lenses Parameters ##**

| | | | | | |
|---|---|---|---|---|---|
| Extract 1 | 0.0 V | Omega Lens | 8.0 V | Deflect | 2.0 V |
| Extract 2 | -200.0 V | Cell Entrance | -32 V | Plate Bias | -60 V |
| Omega Bias | -100 V | Cell Exit | -70 V | | |

**## Cell Parameters ##**

| | | | | | |
|---|---|---|---|---|---|
| OctP Bias | -18.0 V | He Flow | 5.5 mL/min | Energy Discrimination | 5.0 V |
| OctP RF | 190 V | H2 Flow | 0.0 mL/min | | |
| Use Gas | true | 3rd Gas Flow | 0 % | | |

# Calibration Blank Report

**Sample Table**

| | |
|---|---|
| Sample Name | CAL BLK |
| Data File Name | 010CALB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T10:17:55-06:00 |
| Sample Type | CalBlk |
| Level | 1 |
| Dilution | 1 |
| Comment | |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 27 | 324.76 |
| Na | 23 | 1 | nogas | 1507881 | 0.00 |
| Mg | 24 | 1 | nogas | 6569 | 0.22 |
| Al | 27 | 1 | nogas | 10476 | 0.01 |
| K | 39 | 1 | nogas | 4093480 | 0.00 |
| Ti | 47 | 1 | nogas | 340 | 6.53 |
| V | 51 | 1 | nogas | 1487659 | 0.00 |
| Cr | 52 | 1 | nogas | 43254 | 0.01 |
| Mn | 55 | 1 | nogas | 10603 | 0.03 |
| Co | 59 | 1 | nogas | 613 | 3.06 |
| Ni | 60 | 1 | nogas | 1190 | 1.66 |
| Cu | 63 | 1 | nogas | 6908 | 0.08 |
| Zn | 66 | 1 | nogas | 870 | 0.92 |
| As | 75 | 1 | nogas | 249820 | 0.00 |
| Sr | 88 | 1 | nogas | 920 | 1.32 |
| Ag | 107 | 1 | nogas | 260 | 5.92 |
| Cd | 111 | 1 | nogas | 13 | 859.23 |
| Sb | 121 | 1 | nogas | 1830 | 0.52 |
| Tl | 205 | 1 | nogas | 100 | 40.00 |
| Pb | 208 | 1 | nogas | 430 | 3.79 |
| [Pb] | 206 | 1 | nogas | 137 | 30.45 |
| [Pb] | 207 | 1 | nogas | 100 | 10.00 |
| Na | 23 | 2 | He | 42822 | 0.00 |
| Mg | 24 | 2 | He | 260 | 6.45 |
| Al | 27 | 2 | He | 90 | 37.04 |
| K | 39 | 2 | He | 10917 | 0.03 |
| Ca | 43 | 2 | He | 20 | 0.00 |
| Ca | 44 | 2 | He | 100 | 51.96 |
| V | 51 | 2 | He | 681 | 0.48 |
| Cr | 52 | 2 | He | 1707 | 0.83 |
| Mn | 55 | 2 | He | 327 | 8.71 |
| Fe | 56 | 2 | He | 6258 | 0.04 |
| Co | 59 | 2 | He | 130 | 38.80 |
| Ni | 60 | 2 | He | 240 | 10.42 |
| Cu | 63 | 2 | He | 1347 | 1.26 |
| Zn | 66 | 2 | He | 147 | 16.33 |
| As | 75 | 2 | He | 24 | 275.18 |
| Se | 78 | 2 | He | 5 | 1074.04 |
| B | 11 | 1 | nogas | 29159 | 0.01 |
| Si | 28 | 1 | nogas | 762079 | 0.00 |
| Ca | 43 | 1 | nogas | 467 | 1.40 |
| Ca | 44 | 1 | nogas | 123961 | 0.00 |

# Calibration Blank Report

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Fe | 56 | 1 | nogas | 763433 | 0.00 |
| Se | 77 | 1 | nogas | 82051 | 0.01 |
| Se | 82 | 1 | nogas | 393 | 4.59 |
| Mo | 95 | 1 | nogas | 3414 | 0.31 |
| Sn | 118 | 1 | nogas | 647 | 2.27 |
| Ba | 137 | 1 | nogas | 450 | 5.57 |
| Sb | 121 | 2 | He | 237 | 19.67 |
| Li | 7 | 1 | nogas | 22737 | 0.03 |
| P | 31 | 1 | nogas | 39522 | 0.00 |
| La | 139 | 1 | nogas | 133 | 30.98 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 252377 | 1.68 |
| Ge | 72 | 1 | nogas | 1286445 | 3.04 |
| In | 115 | 1 | nogas | 1344417 | 1.88 |
| Bi | 209 | 1 | nogas | 1284048 | 1.93 |
| Ge | 72 | 2 | He | 111777 | 1.53 |

# Calibration Standard Report

**Sample Table**

| | |
|---|---|
| Sample Name | 2/10/200 |
| Data File Name | 011CALS.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T10:19:55-06:00 |
| Sample Type | CalStd |
| Level | 2 |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 010CALB.d |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 4141 | 0.05 |
| Na | 23 | 1 | nogas | 3410812 | 0.00 |
| Mg | 24 | 1 | nogas | 1298559 | 0.00 |
| Al | 27 | 1 | nogas | 28445 | 0.01 |
| K | 39 | 1 | nogas | 5658858 | 0.00 |
| Ti | 47 | 1 | nogas | 1850 | 0.31 |
| V | 51 | 1 | nogas | 1572885 | 0.00 |
| Cr | 52 | 1 | nogas | 62843 | 0.01 |
| Mn | 55 | 1 | nogas | 37639 | 0.00 |
| Co | 59 | 1 | nogas | 24911 | 0.01 |
| Ni | 60 | 1 | nogas | 6435 | 0.06 |
| Cu | 63 | 1 | nogas | 19567 | 0.01 |
| Zn | 66 | 1 | nogas | 5521 | 0.04 |
| As | 75 | 1 | nogas | 259262 | 0.00 |
| Sr | 88 | 1 | nogas | 30236 | 0.01 |
| Ag | 107 | 1 | nogas | 17139 | 0.04 |
| Cd | 111 | 1 | nogas | 3447 | 0.23 |
| Sb | 121 | 1 | nogas | 17860 | 0.00 |
| Tl | 205 | 1 | nogas | 30145 | 0.00 |
| Pb | 208 | 1 | nogas | 43683 | 0.01 |
| [Pb] | 206 | 1 | nogas | 10994 | 0.02 |
| [Pb] | 207 | 1 | nogas | 10037 | 0.03 |
| Na | 23 | 2 | He | 82347 | 0.00 |
| Mg | 24 | 2 | He | 19967 | 0.01 |
| Al | 27 | 2 | He | 127 | 38.08 |
| K | 39 | 2 | He | 21179 | 0.01 |
| Ca | 43 | 2 | He | 37 | 281.60 |
| Ca | 44 | 2 | He | 763 | 2.50 |
| V | 51 | 2 | He | 3004 | 0.01 |
| Cr | 52 | 2 | He | 4914 | 0.22 |
| Mn | 55 | 2 | He | 1543 | 0.35 |
| Fe | 56 | 2 | He | 248771 | 0.00 |
| Co | 59 | 2 | He | 5668 | 0.12 |
| Ni | 60 | 2 | He | 1957 | 0.16 |
| Cu | 63 | 2 | He | 5628 | 0.06 |
| Zn | 66 | 2 | He | 800 | 2.05 |
| As | 75 | 2 | He | 434 | 2.74 |
| Se | 78 | 2 | He | 20 | 50.00 |
| B | 11 | 1 | nogas | 39916 | 0.01 |
| Si | 28 | 1 | nogas | 1240690 | 0.00 |

# Calibration Standard Report

| Ca | 43 | 1 | nogas | 3767 | 0.06 |
|---|---|---|---|---|---|
| Ca | 44 | 1 | nogas | 175986 | 0.00 |
| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
| Fe | 56 | 1 | nogas | 3144986 | 0.00 |
| Se | 77 | 1 | nogas | 85443 | 0.01 |
| Se | 82 | 1 | nogas | 667 | 2.87 |
| Mo | 95 | 1 | nogas | 8952 | 0.03 |
| Sn | 118 | 1 | nogas | 9129 | 0.08 |
| Ba | 137 | 1 | nogas | 5421 | 0.05 |
| Sb | 121 | 2 | He | 2097 | 0.80 |
| P | 31 | 1 | nogas | 44666 | 0.00 |
| La | 139 | 1 | nogas | 67 | 12.99 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 250322 | 3.50 | 252377 | 99.19 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1323967 | 0.79 | 1286445 | 102.92 | 70 | 125 | |
| In | 115 | 1 | nogas | 1322322 | 2.25 | 1344417 | 98.36 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1227697 | 4.29 | 1284048 | 95.61 | 70 | 125 | |
| Ge | 72 | 2 | He | 112618 | 1.96 | 111777 | 100.75 | 70 | 125 | |

# Calibration Standard Report

**Sample Table**

| | |
|---|---|
| Sample Name | 5/25/500 |
| Data File Name | 012CALS.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T10:21:56-06:00 |
| Sample Type | CalStd |
| Level | 3 |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 010CALB.d |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 10707 | 0.03 |
| Na | 23 | 1 | nogas | 6283908 | 0.00 |
| Mg | 24 | 1 | nogas | 3315780 | 0.00 |
| Al | 27 | 1 | nogas | 51812 | 0.00 |
| K | 39 | 1 | nogas | 7883778 | 0.00 |
| Ti | 47 | 1 | nogas | 4041 | 0.17 |
| V | 51 | 1 | nogas | 1719321 | 0.00 |
| Cr | 52 | 1 | nogas | 99695 | 0.00 |
| Mn | 55 | 1 | nogas | 77135 | 0.00 |
| Co | 59 | 1 | nogas | 60491 | 0.01 |
| Ni | 60 | 1 | nogas | 14726 | 0.02 |
| Cu | 63 | 1 | nogas | 39944 | 0.00 |
| Zn | 66 | 1 | nogas | 11814 | 0.04 |
| As | 75 | 1 | nogas | 285673 | 0.00 |
| Sr | 88 | 1 | nogas | 74957 | 0.00 |
| Ag | 107 | 1 | nogas | 44043 | 0.01 |
| Cd | 111 | 1 | nogas | 9086 | 0.04 |
| Sb | 121 | 1 | nogas | 41817 | 0.00 |
| Tl | 205 | 1 | nogas | 74735 | 0.00 |
| Pb | 208 | 1 | nogas | 107719 | 0.00 |
| [Pb] | 206 | 1 | nogas | 26128 | 0.01 |
| [Pb] | 207 | 1 | nogas | 24085 | 0.01 |
| Na | 23 | 2 | He | 143906 | 0.00 |
| Mg | 24 | 2 | He | 48623 | 0.01 |
| Al | 27 | 2 | He | 220 | 5.47 |
| K | 39 | 2 | He | 36576 | 0.01 |
| Ca | 43 | 2 | He | 63 | 51.90 |
| Ca | 44 | 2 | He | 1643 | 0.12 |
| V | 51 | 2 | He | 6525 | 0.08 |
| Cr | 52 | 2 | He | 9463 | 0.04 |
| Mn | 55 | 2 | He | 3350 | 0.22 |
| Fe | 56 | 2 | He | 608305 | 0.00 |
| Co | 59 | 2 | He | 13362 | 0.01 |
| Ni | 60 | 2 | He | 3830 | 0.13 |
| Cu | 63 | 2 | He | 12388 | 0.01 |
| Zn | 66 | 2 | He | 1803 | 0.45 |
| As | 75 | 2 | He | 1123 | 0.65 |
| Se | 78 | 2 | He | 49 | 25.11 |
| B | 11 | 1 | nogas | 59303 | 0.01 |
| Si | 28 | 1 | nogas | 1811179 | 0.00 |

# Calibration Standard Report

| Ca | 43 | 1 | nogas | 8219 | 0.03 |
|---|---|---|---|---|---|
| Ca | 44 | 1 | nogas | 252065 | 0.00 |
| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
| Fe | 56 | 1 | nogas | 6473358 | 0.00 |
| Se | 77 | 1 | nogas | 91686 | 0.00 |
| Se | 82 | 1 | nogas | 1183 | 1.04 |
| Mo | 95 | 1 | nogas | 18403 | 0.03 |
| Sn | 118 | 1 | nogas | 22562 | 0.00 |
| Ba | 137 | 1 | nogas | 13005 | 0.04 |
| Sb | 121 | 2 | He | 4931 | 0.12 |
| P | 31 | 1 | nogas | 53135 | 0.00 |
| La | 139 | 1 | nogas | 80 | 15.63 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 251495 | 2.75 | 252377 | 99.65 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1292186 | 3.69 | 1286445 | 100.45 | 70 | 125 | |
| In | 115 | 1 | nogas | 1293948 | 1.39 | 1344417 | 96.25 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1255523 | 4.48 | 1284048 | 97.78 | 70 | 125 | |
| Ge | 72 | 2 | He | 112845 | 3.02 | 111777 | 100.96 | 70 | 125 | |

# Calibration Standard Report

**Sample Table**

| | |
|---|---|
| Sample Name | 10/50/1000 |
| Data File Name | 013CALS.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T10:23:55-06:00 |
| Sample Type | CalStd |
| Level | 4 |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 010CALB.d |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 21376 | 0.02 |
| Na | 23 | 1 | nogas | 11158698 | 0.00 |
| Mg | 24 | 1 | nogas | 6572611 | 0.00 |
| Al | 27 | 1 | nogas | 88339 | 0.00 |
| K | 39 | 1 | nogas | 11901930 | 0.00 |
| Ti | 47 | 1 | nogas | 8099 | 0.04 |
| V | 51 | 1 | nogas | 1887037 | 0.00 |
| Cr | 52 | 1 | nogas | 151952 | 0.00 |
| Mn | 55 | 1 | nogas | 144935 | 0.00 |
| Co | 59 | 1 | nogas | 120211 | 0.00 |
| Ni | 60 | 1 | nogas | 28423 | 0.01 |
| Cu | 63 | 1 | nogas | 73154 | 0.00 |
| Zn | 66 | 1 | nogas | 23102 | 0.01 |
| As | 75 | 1 | nogas | 323069 | 0.00 |
| Sr | 88 | 1 | nogas | 150769 | 0.00 |
| Ag | 107 | 1 | nogas | 86888 | 0.00 |
| Cd | 111 | 1 | nogas | 18403 | 0.02 |
| Sb | 121 | 1 | nogas | 86474 | 0.00 |
| Tl | 205 | 1 | nogas | 153133 | 0.00 |
| Pb | 208 | 1 | nogas | 219002 | 0.00 |
| [Pb] | 206 | 1 | nogas | 54368 | 0.01 |
| [Pb] | 207 | 1 | nogas | 49372 | 0.01 |
| Na | 23 | 2 | He | 246469 | 0.00 |
| Mg | 24 | 2 | He | 99180 | 0.00 |
| Al | 27 | 2 | He | 287 | 3.72 |
| K | 39 | 2 | He | 63304 | 0.01 |
| Ca | 43 | 2 | He | 223 | 8.10 |
| Ca | 44 | 2 | He | 3317 | 0.11 |
| V | 51 | 2 | He | 12445 | 0.02 |
| Cr | 52 | 2 | He | 17232 | 0.03 |
| Mn | 55 | 2 | He | 6295 | 0.04 |
| Fe | 56 | 2 | He | 1177370 | 0.00 |
| Co | 59 | 2 | He | 28015 | 0.00 |
| Ni | 60 | 2 | He | 8029 | 0.03 |
| Cu | 63 | 2 | He | 22901 | 0.02 |
| Zn | 66 | 2 | He | 3314 | 0.26 |
| As | 75 | 2 | He | 2302 | 0.20 |
| Se | 78 | 2 | He | 101 | 9.74 |
| B | 11 | 1 | nogas | 90202 | 0.00 |
| Si | 28 | 1 | nogas | 2729444 | 0.00 |

# Calibration Standard Report

| Ca | 43 | 1 | nogas | 17158 | 0.01 |
|---|---|---|---|---|---|
| Ca | 44 | 1 | nogas | 391931 | 0.00 |
| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
| Fe | 56 | 1 | nogas | 12378134 | 0.00 |
| Se | 77 | 1 | nogas | 100232 | 0.01 |
| Se | 82 | 1 | nogas | 1703 | 0.78 |
| Mo | 95 | 1 | nogas | 34130 | 0.00 |
| Sn | 118 | 1 | nogas | 45774 | 0.01 |
| Ba | 137 | 1 | nogas | 23970 | 0.02 |
| Sb | 121 | 2 | He | 10080 | 0.02 |
| P | 31 | 1 | nogas | 71937 | 0.00 |
| La | 139 | 1 | nogas | 127 | 9.52 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 253627 | 2.19 | 252377 | 100.50 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1289446 | 3.19 | 1286445 | 100.23 | 70 | 125 | |
| In | 115 | 1 | nogas | 1339917 | 3.20 | 1344417 | 99.67 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1247565 | 1.40 | 1284048 | 97.16 | 70 | 125 | |
| Ge | 72 | 2 | He | 110294 | 1.85 | 111777 | 98.67 | 70 | 125 | |

# Calibration Standard Report

**Sample Table**

| | |
|---|---|
| Sample Name | 100/500/10K |
| Data File Name | 014CALS.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T10:25:53-06:00 |
| Sample Type | CalStd |
| Level | 5 |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 010CALB.d |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 199379 | 0.00 |
| Na | 23 | 1 | nogas | 92897667 | 0.00 |
| Mg | 24 | 1 | nogas | 62579243 | 0.00 |
| Al | 27 | 1 | nogas | 782920 | 0.00 |
| K | 39 | 1 | nogas | 75436587 | 0.00 |
| Ti | 47 | 1 | nogas | 76612 | 0.00 |
| V | 51 | 1 | nogas | 2745776 | 0.00 |
| Cr | 52 | 1 | nogas | 1019642 | 0.00 |
| Mn | 55 | 1 | nogas | 1232973 | 0.00 |
| Co | 59 | 1 | nogas | 1118466 | 0.00 |
| Ni | 60 | 1 | nogas | 256318 | 0.00 |
| Cu | 63 | 1 | nogas | 633973 | 0.00 |
| Zn | 66 | 1 | nogas | 206564 | 0.00 |
| As | 75 | 1 | nogas | 509864 | 0.00 |
| Sr | 88 | 1 | nogas | 1288472 | 0.00 |
| Ag | 107 | 1 | nogas | 823285 | 0.00 |
| Cd | 111 | 1 | nogas | 173207 | 0.00 |
| Sb | 121 | 1 | nogas | 762858 | 0.00 |
| Tl | 205 | 1 | nogas | 1334187 | 0.00 |
| Pb | 208 | 1 | nogas | 2039338 | 0.00 |
| [Pb] | 206 | 1 | nogas | 496742 | 0.00 |
| [Pb] | 207 | 1 | nogas | 454378 | 0.00 |
| Na | 23 | 2 | He | 1919447 | 0.00 |
| Mg | 24 | 2 | He | 888340 | 0.00 |
| Al | 27 | 2 | He | 2604 | 0.44 |
| K | 39 | 2 | He | 500184 | 0.00 |
| Ca | 43 | 2 | He | 1747 | 0.33 |
| Ca | 44 | 2 | He | 28783 | 0.01 |
| V | 51 | 2 | He | 108103 | 0.00 |
| Cr | 52 | 2 | He | 148716 | 0.00 |
| Mn | 55 | 2 | He | 59112 | 0.00 |
| Fe | 56 | 2 | He | 10358588 | 0.00 |
| Co | 59 | 2 | He | 251017 | 0.00 |
| Ni | 60 | 2 | He | 73070 | 0.00 |
| Cu | 63 | 2 | He | 202551 | 0.00 |
| Zn | 66 | 2 | He | 30416 | 0.00 |
| As | 75 | 2 | He | 21389 | 0.02 |
| Se | 78 | 2 | He | 833 | 0.49 |
| B | 11 | 1 | nogas | 650108 | 0.00 |
| Si | 28 | 1 | nogas | 17621215 | 0.00 |

# Calibration Standard Report

| Ca | 43 | 1 | nogas | 152056 | 0.00 |
|---|---|---|---|---|---|
| Ca | 44 | 1 | nogas | 2444938 | 0.00 |
| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
| Fe | 56 | 1 | nogas | 106874004 | 0.00 |
| Se | 77 | 1 | nogas | 103121 | 0.00 |
| Se | 82 | 1 | nogas | 12168 | 0.04 |
| Mo | 95 | 1 | nogas | 297805 | 0.00 |
| Sn | 118 | 1 | nogas | 450923 | 0.00 |
| Ba | 137 | 1 | nogas | 228187 | 0.00 |
| Sb | 121 | 2 | He | 92016 | 0.00 |
| P | 31 | 1 | nogas | 304585 | 0.00 |
| La | 139 | 1 | nogas | 433 | 4.43 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 230581 | 2.23 | 252377 | 91.36 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1236356 | 5.03 | 1286445 | 96.11 | 70 | 125 | |
| In | 115 | 1 | nogas | 1282329 | 0.53 | 1344417 | 95.38 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1307461 | 2.16 | 1284048 | 101.82 | 70 | 125 | |
| Ge | 72 | 2 | He | 110754 | 0.23 | 111777 | 99.08 | 70 | 125 | |

# Calibration Standard Report

**Sample Table**

| | |
|---|---|
| Sample Name | 200/1000/20K |
| Data File Name | 015CALS.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T10:27:54-06:00 |
| Sample Type | CalStd |
| Level | 6 |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 010CALB.d |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 390687 | 0.00 |
| Na | 23 | 1 | nogas | 184999542 | 0.00 |
| Mg | 24 | 1 | nogas | 120384269 | 0.00 |
| Al | 27 | 1 | nogas | 1430936 | 0.00 |
| K | 39 | 1 | nogas | 148819045 | 0.00 |
| Ti | 47 | 1 | nogas | 145148 | 0.00 |
| V | 51 | 1 | nogas | 4006244 | 0.00 |
| Cr | 52 | 1 | nogas | 1870445 | 0.00 |
| Mn | 55 | 1 | nogas | 2422709 | 0.00 |
| Co | 59 | 1 | nogas | 2066313 | 0.00 |
| Ni | 60 | 1 | nogas | 485293 | 0.00 |
| Cu | 63 | 1 | nogas | 1212130 | 0.00 |
| Zn | 66 | 1 | nogas | 406972 | 0.00 |
| As | 75 | 1 | nogas | 781937 | 0.00 |
| Sr | 88 | 1 | nogas | 2598884 | 0.00 |
| Ag | 107 | 1 | nogas | 1561978 | 0.00 |
| Cd | 111 | 1 | nogas | 340995 | 0.00 |
| Sb | 121 | 1 | nogas | 1453933 | 0.00 |
| Tl | 205 | 1 | nogas | 2678813 | 0.00 |
| Pb | 208 | 1 | nogas | 3871310 | 0.00 |
| [Pb] | 206 | 1 | nogas | 983183 | 0.00 |
| [Pb] | 207 | 1 | nogas | 897512 | 0.00 |
| Na | 23 | 2 | He | 3727490 | 0.00 |
| Mg | 24 | 2 | He | 1743377 | 0.00 |
| Al | 27 | 2 | He | 4977 | 0.03 |
| K | 39 | 2 | He | 963133 | 0.00 |
| Ca | 43 | 2 | He | 3237 | 0.24 |
| Ca | 44 | 2 | He | 55868 | 0.00 |
| V | 51 | 2 | He | 215061 | 0.00 |
| Cr | 52 | 2 | He | 288786 | 0.00 |
| Mn | 55 | 2 | He | 113502 | 0.00 |
| Fe | 56 | 2 | He | 20694328 | 0.00 |
| Co | 59 | 2 | He | 489277 | 0.00 |
| Ni | 60 | 2 | He | 141818 | 0.00 |
| Cu | 63 | 2 | He | 402329 | 0.00 |
| Zn | 66 | 2 | He | 60367 | 0.00 |
| As | 75 | 2 | He | 41318 | 0.00 |
| Se | 78 | 2 | He | 1573 | 0.50 |
| B | 11 | 1 | nogas | 1321625 | 0.00 |
| Si | 28 | 1 | nogas | 33093971 | 0.00 |

# Calibration Standard Report

| | | | | | |
|---|---|---|---|---|---|
| Ca | 43 | 1 | nogas | 300886 | 0.00 |
| Ca | 44 | 1 | nogas | 4735924 | 0.00 |
| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
| Fe | 56 | 1 | nogas | 210747376 | 0.00 |
| Se | 77 | 1 | nogas | 128711 | 0.00 |
| Se | 82 | 1 | nogas | 23793 | 0.02 |
| Mo | 95 | 1 | nogas | 581129 | 0.00 |
| Sn | 118 | 1 | nogas | 815513 | 0.00 |
| Ba | 137 | 1 | nogas | 447362 | 0.00 |
| Sb | 121 | 2 | He | 182492 | 0.00 |
| P | 31 | 1 | nogas | 567703 | 0.00 |
| La | 139 | 1 | nogas | 447 | 8.39 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 207782 | 3.50 | 252377 | 82.33 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1232716 | 2.08 | 1286445 | 95.82 | 70 | 125 | |
| In | 115 | 1 | nogas | 1234982 | 5.06 | 1344417 | 91.86 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1230348 | 2.86 | 1284048 | 95.82 | 70 | 125 | |
| Ge | 72 | 2 | He | 104406 | 0.16 | 111777 | 93.41 | 70 | 125 | |

# Initial Calibration Verification (ICV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | ICV |
| Data File Name | 017_ICV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T10:31:52-06:00 |
| Sample Type | ICV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 010CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 93.635 | 2.483 | 198423 | 2.26 | 100 | 93.6 | 90 | 110 | |
| Na | 23 | 1 | nogas | 9839.796 | 2.565 | 92308931 | 1.93 | 10000 | 98.4 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 9985.271 | 3.926 | 60965749 | 2.83 | 10000 | 99.9 | 90 | 110 | |
| Al | 27 | 1 | nogas | 102.500 | 1.438 | 770060 | 1.60 | 100 | 102.5 | 90 | 110 | |
| K | 39 | 1 | nogas | 9589.912 | 3.042 | 75039054 | 1.53 | 10000 | 95.9 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 98.575 | 2.096 | 74277 | 1.24 | 100 | 98.6 | 90 | 110 | |
| V | 51 | 1 | nogas | 88.074 | 6.704 | 2637298 | 1.40 | 100 | 88.1 | 90 | 110 | ICV Main CR1 Failed |
| Cr | 52 | 1 | nogas | 103.434 | 2.352 | 1025488 | 1.35 | 100 | 103.4 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 98.118 | 1.054 | 1227180 | 2.25 | 100 | 98.1 | 90 | 110 | |
| Co | 59 | 1 | nogas | 102.367 | 4.216 | 1102086 | 2.25 | 100 | 102.4 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 100.903 | 4.915 | 254912 | 2.92 | 100 | 100.9 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 98.446 | 4.380 | 619700 | 2.11 | 100 | 98.4 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 97.852 | 3.658 | 205127 | 0.85 | 100 | 97.9 | 90 | 110 | |
| As | 75 | 1 | nogas | 85.783 | 10.298 | 490853 | 2.69 | 100 | 85.8 | 90 | 110 | ICV Main CR1 Failed |
| Sr | 88 | 1 | nogas | 94.961 | 1.575 | 1263585 | 2.17 | 100 | 95.0 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 98.437 | 4.535 | 795957 | 1.88 | 100 | 98.4 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 98.387 | 2.476 | 169141 | 2.51 | 100 | 98.4 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 100.660 | 3.440 | 758182 | 1.26 | 100 | 100.7 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 102.647 | 11.511 | 1375999 | 3.63 | 100 | 102.6 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 103.811 | 9.661 | 2033204 | 1.53 | 100 | 103.8 | 90 | 110 | |
| U | 238 | 1 | nogas | 102.681 | 7.385 | 1937843 | 1.74 | 100 | 102.7 | 90 | 110 | |
| [Pb] | 206 | 1 | nogas | 100.474 | 10.138 | 495695 | 1.93 | 100 | 100.5 | 90 | 110 | |
| [Pb] | 207 | 1 | nogas | 99.455 | 10.716 | 447793 | 2.57 | 100 | 99.5 | 90 | 110 | |
| Na | 23 | 2 | He | 10100.752 | 0.624 | 1891801 | 1.73 | 10000 | 101.0 | 90 | 110 | |
| Mg | 24 | 2 | He | 10151.211 | 1.445 | 880069 | 1.18 | 10000 | 101.5 | 90 | 110 | |
| Al | 27 | 2 | He | 99.663 | 9.516 | 2504 | 9.99 | 100 | 99.7 | 90 | 110 | |
| K | 39 | 2 | He | 9816.233 | 1.978 | 480967 | 1.93 | 10000 | 98.2 | 90 | 110 | |
| Ca | 43 | 2 | He | 9831.581 | 13.622 | 1610 | 14.65 | 10000 | 98.3 | 90 | 110 | |
| Ca | 44 | 2 | He | 10179.569 | 2.710 | 28372 | 1.48 | 10000 | 101.8 | 90 | 110 | |
| V | 51 | 2 | He | 99.442 | 1.591 | 106146 | 1.20 | 100 | 99.4 | 90 | 110 | |
| Cr | 52 | 2 | He | 99.802 | 3.149 | 144197 | 1.70 | 100 | 99.8 | 90 | 110 | |
| Mn | 55 | 2 | He | 100.067 | 4.427 | 56815 | 3.50 | 100 | 100.1 | 90 | 110 | |
| Fe | 56 | 2 | He | 10115.439 | 4.096 | 10375086 | 3.82 | 10000 | 101.2 | 90 | 110 | |
| Co | 59 | 2 | He | 103.880 | 3.206 | 253062 | 2.04 | 100 | 103.9 | 90 | 110 | |
| Ni | 60 | 2 | He | 102.853 | 3.095 | 72702 | 1.75 | 100 | 102.9 | 90 | 110 | |
| Cu | 63 | 2 | He | 102.372 | 1.207 | 204496 | 1.87 | 100 | 102.4 | 90 | 110 | |
| Zn | 66 | 2 | He | 100.814 | 1.283 | 30199 | 2.37 | 100 | 100.8 | 90 | 110 | |
| As | 75 | 2 | He | 100.713 | 5.104 | 20754 | 3.66 | 100 | 100.7 | 90 | 110 | |
| Se | 78 | 2 | He | 96.490 | 8.252 | 763 | 7.21 | 100 | 96.5 | 90 | 110 | |
| B | 11 | 1 | nogas | 456.197 | 3.417 | 661270 | 4.20 | 500 | 91.2 | 90 | 110 | |
| Si | 28 | 1 | nogas | 4968.692 | 5.271 | 17370779 | 2.91 | 5000 | 99.4 | 90 | 110 | |
| Ca | 43 | 1 | nogas | 9572.321 | 5.867 | 148089 | 4.00 | 10000 | 95.7 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 9625.718 | 5.674 | 2402534 | 3.72 | 10000 | 96.3 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 9828.667 | 3.006 | 106718532 | 0.75 | 10000 | 98.3 | 90 | 110 | |
| Se | 77 | 1 | nogas | 70.226 | 32.050 | 98844 | 4.71 | 100 | 70.2 | 90 | 110 | ICV Main CR1 Failed |
| Se | 82 | 1 | nogas | 98.530 | 1.955 | 12234 | 2.48 | 100 | 98.5 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 96.628 | 2.124 | 290742 | 3.71 | 100 | 96.6 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 105.464 | 1.227 | 441252 | 0.61 | 100 | 105.5 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 99.254 | 0.593 | 224270 | 0.45 | 100 | 99.3 | 90 | 110 | |
| Sb | 121 | 2 | He | 97.339 | 3.255 | 88219 | 2.63 | 100 | 97.3 | 90 | 110 | |
| Li | 7 | 1 | nogas | 92.727 | 5.604 | 487378 | 4.97 | 100 | 92.7 | 90 | 110 | |
| P | 31 | 1 | nogas | 483.826 | 4.591 | 301835 | 1.63 | 500 | 96.8 | 90 | 110 | |
| La | 139 | 1 | nogas | 225.592 | 6.241 | 557 | 4.52 | 100 | 225.6 | 90 | 110 | ICV Main CR1 Failed |
| Au | 197 | 1 | nogas | 277.556 | 169.579 | 3 | 173.21 | 100 | 277.6 | 90 | 110 | ICV Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 229066 | 0.94 | 252377 | 90.76 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1264026 | 2.83 | 1286445 | 98.26 | 70 | 125 | |
| In | 115 | 1 | nogas | 1248901 | 0.75 | 1344417 | 92.90 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1252535 | 7.81 | 1284048 | 97.55 | 70 | 125 | |

# Initial Calibration Verification (ICV) Report

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 104641 | 1.40 | 111777 | 93.62 | 70 | 125 | |

# Sample Report

**Sample Table**

| | |
|---|---|
| Sample Name | LLICV2 |
| Data File Name | 018SMPL.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T10:33:49-06:00 |
| Sample Type | Sample |
| Dilution | 1 |
| Comment | |
| ISTD Ref FileName | 010CALB.d |
| Sample QC Pass/Fail | Pass |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 1.969 | 1.969 | 5.86 | 4694 | 0.04 | 2000 | |
| Na | 23 | 1 | nogas | 197.667 | 197.667 | 7.03 | 3296656 | 0.01 | 200000 | |
| Mg | 24 | 1 | nogas | 221.169 | 221.169 | 6.89 | 1361365 | 0.02 | 200000 | |
| Al | 27 | 1 | nogas | 2.780 | 2.780 | 7.12 | 29397 | 0.01 | 2000 | |
| K | 39 | 1 | nogas | 222.140 | 222.140 | 0.39 | 5394460 | 0.00 | 200000 | |
| Ti | 47 | 1 | nogas | 2.304 | 2.304 | 10.39 | 1963 | 0.12 | 2000 | |
| V | 51 | 1 | nogas | 14.571 | 14.571 | 24.92 | 1577287 | 0.00 | 2000 | |
| Cr | 52 | 1 | nogas | 2.354 | 2.354 | 7.69 | 61770 | 0.00 | 2000 | |
| Mn | 55 | 1 | nogas | 2.313 | 2.313 | 2.09 | 37195 | 0.01 | 2000 | |
| Co | 59 | 1 | nogas | 2.381 | 2.381 | 3.30 | 24964 | 0.01 | 2000 | |
| Ni | 60 | 1 | nogas | 1.469 | 1.469 | 12.54 | 6388 | 0.02 | 2000 | |
| Cu | 63 | 1 | nogas | 1.966 | 1.966 | 5.25 | 18123 | 0.01 | 2000 | |
| Zn | 66 | 1 | nogas | 2.253 | 2.253 | 2.43 | 5814 | 0.04 | 2000 | |
| As | 75 | 1 | nogas | 7.781 | 7.781 | 69.77 | 267067 | 0.00 | 2000 | |
| Sr | 88 | 1 | nogas | 2.388 | 2.388 | 1.63 | 31074 | 0.01 | 2000 | |
| Ag | 107 | 1 | nogas | 2.246 | 2.246 | 2.84 | 17529 | 0.01 | 2000 | |
| Cd | 111 | 1 | nogas | 2.031 | 2.031 | 12.79 | 3590 | 0.06 | 2000 | |
| Sb | 121 | 1 | nogas | 2.433 | 2.433 | 3.82 | 19114 | 0.01 | 2000 | |
| Tl | 205 | 1 | nogas | 2.638 | 2.638 | 10.39 | 36184 | 0.01 | 2000 | |
| Pb | 208 | 1 | nogas | 2.189 | 2.189 | 1.21 | 44134 | 0.00 | 2000 | |
| U | 238 | 1 | nogas | 2.398 | 2.398 | 3.28 | 46526 | 0.01 | 2000 | |
| [Pb] | 206 | 1 | nogas | 2.146 | 2.146 | 2.05 | 10931 | 0.02 | 2000 | |
| [Pb] | 207 | 1 | nogas | 2.149 | 2.149 | 5.56 | 9970 | 0.02 | 2000 | |
| Na | 23 | 2 | He | 189.805 | 189.805 | 5.40 | 78049 | 0.24 | 200000 | |
| Mg | 24 | 2 | He | 208.849 | 208.849 | 8.97 | 19087 | 1.09 | 200000 | |
| Al | 27 | 2 | He | 3.544 | 3.544 | 32.34 | 153 | 2.31 | 2000 | |
| K | 39 | 2 | He | 188.594 | 188.594 | 2.34 | 19948 | 0.95 | 200000 | |
| Ca | 43 | 2 | He | 322.821 | 322.821 | 42.76 | 73 | 440.21 | 200000 | |
| Ca | 44 | 2 | He | 202.959 | 202.959 | 10.25 | 687 | 29.56 | 200000 | |
| V | 51 | 2 | He | 2.345 | 2.345 | 1.81 | 2816 | 0.08 | 2000 | |
| Cr | 52 | 2 | He | 1.848 | 1.848 | 2.53 | 4421 | 0.04 | 2000 | |
| Mn | 55 | 2 | He | 1.946 | 1.946 | 5.35 | 1467 | 0.13 | 2000 | |
| Fe | 56 | 2 | He | 224.288 | 224.288 | 4.95 | 245638 | 0.09 | 200000 | |
| Co | 59 | 2 | He | 2.065 | 2.065 | 5.47 | 5368 | 0.04 | 2000 | |
| Ni | 60 | 2 | He | 2.111 | 2.111 | 7.25 | 1650 | 0.13 | 2000 | |
| Cu | 63 | 2 | He | 2.386 | 2.386 | 6.84 | 5351 | 0.04 | 2000 | |
| Zn | 66 | 2 | He | 2.244 | 2.244 | 11.06 | 697 | 0.32 | 2000 | |
| As | 75 | 2 | He | 2.176 | 2.176 | 10.36 | 491 | 0.44 | 2000 | |
| Se | 78 | 2 | He | 1.004 | 1.004 | 105.80 | 16 | 6.28 | 2000 | |
| B | 11 | 1 | nogas | 27.604 | 27.604 | 15.30 | 72546 | 0.04 | 2000 | |

# Sample Report

| Si | 28 | 1 | nogas | 200.487 | 200.487 | 6.04 | 1351328 | 0.01 | 2000 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ca | 43 | 1 | nogas | 222.913 | 222.913 | 0.80 | 3710 | 6.01 | 200000 | |
| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
| Ca | 44 | 1 | nogas | 226.104 | 226.104 | 1.33 | 166961 | 0.14 | 200000 | |
| Fe | 56 | 1 | nogas | 225.869 | 225.869 | 2.15 | 3032245 | 0.01 | 200000 | |
| Se | 77 | 1 | nogas | 42.912 | 42.912 | 40.06 | 87379 | 0.05 | 2000 | |
| Se | 82 | 1 | nogas | 2.398 | 2.398 | 10.62 | 643 | 0.37 | 2000 | |
| Mo | 95 | 1 | nogas | 1.986 | 1.986 | 5.01 | 8809 | 0.02 | 2000 | |
| Sn | 118 | 1 | nogas | 2.080 | 2.080 | 3.56 | 9529 | 0.02 | 2000 | |
| Ba | 137 | 1 | nogas | 2.164 | 2.164 | 8.01 | 5428 | 0.04 | 2000 | |
| Sb | 121 | 2 | He | 2.148 | 2.148 | 18.53 | 2257 | 0.10 | 2000 | |
| La | 139 | 1 | nogas | -27.438 | -27.438 | -88.06 | 73 | -37.42 | 2000 | |
| Au | 197 | 1 | nogas | 549.300 | 549.300 | 0.00 | 0 | #DIV/0! | 2000 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 256429 | 2.31 | 252377 | 101.61 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1202425 | 0.81 | 1286445 | 93.47 | 70 | 125 | |
| In | 115 | 1 | nogas | 1281874 | 3.88 | 1344417 | 95.35 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1270835 | 0.31 | 1284048 | 98.97 | 70 | 125 | |
| Ge | 72 | 2 | He | 109131 | 4.20 | 111777 | 97.63 | 70 | 125 | |

# Low Level Initial Calibration Verification (LLICV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | LLICV5 |
| Data File Name | 019LICV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T10:35:49-06:00 |
| Sample Type | LLICV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 010CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 4.425 | 3.756 | 10396 | 1.37 | 5 | 88.5 | 70 | 130 | |
| Na | 23 | 1 | nogas | 501.784 | 5.416 | 6212334 | 2.10 | 500 | 100.4 | 70 | 130 | |
| Mg | 24 | 1 | nogas | 524.050 | 3.284 | 3270286 | 1.99 | 500 | 104.8 | 70 | 130 | |
| Al | 27 | 1 | nogas | 5.849 | 5.663 | 52093 | 2.21 | 5 | 117.0 | 70 | 130 | |
| K | 39 | 1 | nogas | 522.936 | 4.630 | 7670981 | 0.98 | 500 | 104.6 | 70 | 130 | |
| Ti | 47 | 1 | nogas | 5.154 | 10.041 | 4077 | 6.91 | 5 | 103.1 | 70 | 130 | |
| V | 51 | 1 | nogas | 25.430 | 29.386 | 1749974 | 3.17 | 5 | 508.6 | 70 | 130 | LLICV Main CR1 Failed |
| Cr | 52 | 1 | nogas | 5.837 | 5.655 | 95208 | 1.40 | 5 | 116.7 | 70 | 130 | |
| Mn | 55 | 1 | nogas | 5.504 | 4.190 | 76392 | 1.81 | 5 | 110.1 | 70 | 130 | |
| Co | 59 | 1 | nogas | 5.659 | 6.469 | 59715 | 4.02 | 5 | 113.2 | 70 | 130 | |
| Ni | 60 | 1 | nogas | 4.644 | 3.468 | 14222 | 1.70 | 5 | 92.9 | 70 | 130 | |
| Cu | 63 | 1 | nogas | 5.188 | 3.246 | 37986 | 0.26 | 5 | 103.8 | 70 | 130 | |
| Zn | 66 | 1 | nogas | 5.059 | 3.890 | 11617 | 4.31 | 5 | 101.2 | 70 | 130 | |
| As | 75 | 1 | nogas | 16.142 | 48.161 | 294348 | 4.51 | 5 | 322.8 | 70 | 130 | LLICV Main CR1 Failed |
| Sr | 88 | 1 | nogas | 5.737 | 3.342 | 74951 | 0.92 | 5 | 114.7 | 70 | 130 | |
| Ag | 107 | 1 | nogas | 5.568 | 2.704 | 43989 | 1.10 | 5 | 111.4 | 70 | 130 | |
| Cd | 111 | 1 | nogas | 5.077 | 5.384 | 9056 | 5.35 | 5 | 101.5 | 70 | 130 | |
| Sb | 121 | 1 | nogas | 5.444 | 5.457 | 41473 | 2.84 | 5 | 108.9 | 70 | 130 | |
| Tl | 205 | 1 | nogas | 5.398 | 0.473 | 74819 | 1.27 | 5 | 108.0 | 70 | 130 | |
| Pb | 208 | 1 | nogas | 5.206 | 3.951 | 105562 | 2.28 | 5 | 104.1 | 70 | 130 | |
| U | 238 | 1 | nogas | 5.617 | 1.773 | 109656 | 1.68 | 5 | 112.3 | 70 | 130 | |
| [Pb] | 206 | 1 | nogas | 5.162 | 4.988 | 26398 | 3.33 | 5 | 103.2 | 70 | 130 | |
| [Pb] | 207 | 1 | nogas | 4.936 | 5.424 | 23030 | 4.63 | 5 | 98.7 | 70 | 130 | |
| Na | 23 | 2 | He | 539.151 | 5.781 | 139642 | 2.26 | 500 | 107.8 | 70 | 130 | |
| Mg | 24 | 2 | He | 540.853 | 5.821 | 47371 | 4.96 | 500 | 108.2 | 70 | 130 | |
| Al | 27 | 2 | He | 4.331 | 12.913 | 167 | 9.17 | 5 | 86.6 | 70 | 130 | |
| K | 39 | 2 | He | 518.698 | 1.713 | 35755 | 1.19 | 500 | 103.7 | 70 | 130 | |
| Ca | 43 | 2 | He | 581.296 | 16.241 | 113 | 13.48 | 500 | 116.3 | 70 | 130 | |
| Ca | 44 | 2 | He | 564.056 | 1.354 | 1670 | 3.17 | 500 | 112.8 | 70 | 130 | |
| V | 51 | 2 | He | 5.638 | 3.184 | 6242 | 1.26 | 5 | 112.8 | 70 | 130 | |
| Cr | 52 | 2 | He | 5.254 | 6.283 | 9152 | 3.94 | 5 | 105.1 | 70 | 130 | |
| Mn | 55 | 2 | He | 5.002 | 7.644 | 3147 | 5.23 | 5 | 100.0 | 70 | 130 | |
| Fe | 56 | 2 | He | 581.315 | 1.759 | 605111 | 0.48 | 500 | 116.3 | 70 | 130 | |
| Co | 59 | 2 | He | 5.388 | 3.384 | 13325 | 5.14 | 5 | 107.8 | 70 | 130 | |
| Ni | 60 | 2 | He | 5.772 | 5.937 | 4187 | 5.29 | 5 | 115.4 | 70 | 130 | |
| Cu | 63 | 2 | He | 5.400 | 2.532 | 11207 | 0.57 | 5 | 108.0 | 70 | 130 | |
| Zn | 66 | 2 | He | 5.821 | 18.472 | 1750 | 18.26 | 5 | 116.4 | 70 | 130 | |
| As | 75 | 2 | He | 4.969 | 5.236 | 1052 | 5.67 | 5 | 99.4 | 70 | 130 | |
| Se | 78 | 2 | He | 5.501 | 11.454 | 51 | 8.22 | 5 | 110.0 | 70 | 130 | |
| B | 11 | 1 | nogas | 27.504 | 10.024 | 71582 | 3.94 | 25 | 110.0 | 70 | 130 | |
| Si | 28 | 1 | nogas | 339.753 | 6.858 | 1831785 | 2.50 | 25 | 1359.0 | 70 | 130 | LLICV Main CR1 Failed |
| Ca | 43 | 1 | nogas | 511.719 | 3.759 | 8119 | 3.91 | 500 | 102.3 | 70 | 130 | |
| Ca | 44 | 1 | nogas | 534.524 | 6.840 | 241414 | 1.44 | 500 | 106.9 | 70 | 130 | |
| Fe | 56 | 1 | nogas | 533.139 | 5.285 | 6311780 | 2.38 | 500 | 106.6 | 70 | 130 | |
| Se | 77 | 1 | nogas | 60.943 | 38.511 | 93667 | 4.03 | 5 | 1218.9 | 70 | 130 | LLICV Main CR1 Failed |
| Se | 82 | 1 | nogas | 5.275 | 4.346 | 993 | 4.76 | 5 | 105.5 | 70 | 130 | |
| Mo | 95 | 1 | nogas | 5.020 | 3.924 | 17752 | 1.42 | 5 | 100.4 | 70 | 130 | |
| Sn | 118 | 1 | nogas | 4.800 | 4.511 | 21400 | 3.88 | 5 | 96.0 | 70 | 130 | |
| Ba | 137 | 1 | nogas | 5.019 | 6.087 | 12158 | 5.09 | 5 | 100.4 | 70 | 130 | |
| Sb | 121 | 2 | He | 5.219 | 2.190 | 4967 | 0.58 | 5 | 104.4 | 70 | 130 | |
| Li | 7 | 1 | nogas | 4.607 | 5.436 | 48523 | 5.20 | 5 | 92.1 | 70 | 130 | |
| P | 31 | 1 | nogas | 30.231 | 13.637 | 53693 | 1.68 | 25 | 120.9 | 70 | 130 | |
| La | 139 | 1 | nogas | -27.807 | -56.251 | 73 | 43.83 | 5 | -556.1 | 70 | 130 | LLICV Main CR1 Failed |
| Au | 197 | 1 | nogas | -538.193 | -175.016 | 13 | 86.60 | 5 | -10763.9 | 70 | 130 | LLICV Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 253642 | 4.83 | 252377 | 100.50 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1227893 | 2.44 | 1286445 | 95.45 | 70 | 125 | |
| In | 115 | 1 | nogas | 1294152 | 1.23 | 1344417 | 96.26 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1285924 | 1.66 | 1284048 | 100.15 | 70 | 125 | |

# Low Level Initial Calibration Verification (LLICV) Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 105231 | 1.89 | 111777 | 94.14 | 70 | 125 | |

# Initial Calibration Blank (ICB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | ICB |
| Data File Name | 020_ICB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T10:37:48-06:00 |
| Sample Type | ICB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 010CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.049 | 25.3 | 140 | 18.9 | 1 | |
| Na | 23 | 1 | nogas | -16.674 | -24.5 | 1361381 | 1.7 | 100 | |
| Mg | 24 | 1 | nogas | 1.390 | 34.9 | 15442 | 18.3 | 100 | |
| Al | 27 | 1 | nogas | -0.087 | -117.6 | 9376 | 6.7 | 5 | |
| K | 39 | 1 | nogas | -1.532 | -999.5 | 3898928 | 1.1 | 100 | |
| Ti | 47 | 1 | nogas | -0.120 | -64.1 | 240 | 25.3 | 2.5 | |
| V | 51 | 1 | nogas | 16.694 | 45.8 | 1638049 | 5.0 | 2.5 | ICB Main CR1 Failed |
| Cr | 52 | 1 | nogas | 0.134 | 160.1 | 42579 | 3.2 | 2.5 | |
| Mn | 55 | 1 | nogas | -0.018 | -284.4 | 9903 | 3.8 | 2.5 | |
| Co | 59 | 1 | nogas | 0.005 | 113.0 | 637 | 7.1 | 2.5 | |
| Ni | 60 | 1 | nogas | -0.869 | -0.8 | 850 | 4.2 | 2.5 | |
| Cu | 63 | 1 | nogas | -0.373 | -9.5 | 4347 | 2.5 | 2.5 | |
| Zn | 66 | 1 | nogas | -0.400 | -7.5 | 570 | 10.5 | 2.5 | |
| As | 75 | 1 | nogas | 5.339 | 94.0 | 266359 | 4.2 | 2.5 | ICB Main CR1 Failed |
| Sr | 88 | 1 | nogas | 0.045 | 4.6 | 1460 | 0.7 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.027 | 21.2 | 463 | 8.2 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.017 | 20.3 | 43 | 13.3 | 1 | |
| Sb | 121 | 1 | nogas | -0.073 | -19.5 | 1213 | 7.5 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.088 | 27.2 | 1293 | 26.0 | 1 | |
| Pb | 208 | 1 | nogas | 0.018 | 28.6 | 773 | 16.9 | 2.5 | |
| U | 238 | 1 | nogas | -0.003 | -206.1 | 397 | 27.8 | 2.5 | |
| [Pb] | 206 | 1 | nogas | 0.005 | 105.7 | 157 | 19.5 | 2.5 | |
| [Pb] | 207 | 1 | nogas | 0.023 | 66.9 | 203 | 36.9 | 2.5 | |
| Na | 23 | 2 | He | -10.543 | -95.4 | 39368 | 3.1 | 100 | |
| Mg | 24 | 2 | He | 1.317 | 29.0 | 370 | 11.8 | 100 | |
| Al | 27 | 2 | He | 0.618 | 157.5 | 77 | 30.1 | 5 | |
| K | 39 | 2 | He | -19.155 | -44.2 | 9999 | 4.1 | 100 | |
| Ca | 43 | 2 | He | -53.896 | -199.0 | 10 | 173.2 | 100 | |
| Ca | 44 | 2 | He | 5.644 | 291.9 | 113 | 44.4 | 100 | |
| V | 51 | 2 | He | 0.529 | 7.2 | 789 | 4.5 | 2.5 | |
| Cr | 52 | 2 | He | 0.151 | 69.1 | 1867 | 5.4 | 2.5 | |
| Mn | 55 | 2 | He | -0.033 | -420.4 | 297 | 27.5 | 2.5 | |
| Fe | 56 | 2 | He | 1.012 | 33.9 | 7115 | 4.4 | 100 | |
| Co | 59 | 2 | He | -0.020 | -26.2 | 77 | 19.9 | 2.5 | |
| Ni | 60 | 2 | He | 0.206 | 71.7 | 240 | 41.7 | 2.5 | |
| Cu | 63 | 2 | He | 0.252 | 9.3 | 910 | 3.8 | 2.5 | |
| Zn | 66 | 2 | He | 0.150 | 31.9 | 43 | 35.3 | 2.5 | |
| As | 75 | 2 | He | 0.029 | 182.8 | 30 | 40.1 | 2.5 | |
| Se | 78 | 2 | He | -0.682 | -37.5 | 2 | 100.0 | 2.5 | |
| B | 11 | 1 | nogas | 5.181 | 14.4 | 36809 | 1.9 | 10 | |
| Si | 28 | 1 | nogas | 9.451 | 50.1 | 758606 | 0.7 | 5 | ICB Main CR1 Failed |
| Ca | 43 | 1 | nogas | 2.420 | 419.0 | 483 | 32.5 | 100 | |
| Ca | 44 | 1 | nogas | -37.483 | -33.9 | 109783 | 0.9 | 100 | |
| Fe | 56 | 1 | nogas | -6.679 | -18.5 | 659684 | 0.5 | 100 | |
| Se | 77 | 1 | nogas | 36.037 | 66.4 | 87510 | 6.3 | 2.5 | ICB Main CR1 Failed |
| Se | 82 | 1 | nogas | -0.605 | -49.5 | 307 | 13.2 | 2.5 | |

# Initial Calibration Blank (ICB) Report

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Mo | 95 | 1 | nogas | -0.468 | -9.1 | 1907 | 7.0 | 2.5 | |
| Sn | 118 | 1 | nogas | 0.061 | 71.9 | 913 | 20.6 | 5 | |
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Ba | 137 | 1 | nogas | -0.070 | -9.9 | 277 | 5.5 | 2.5 | |
| Sb | 121 | 2 | He | -0.095 | -46.1 | 140 | 25.8 | 2.5 | |
| P | 31 | 1 | nogas | 1.169 | 182.9 | 38373 | 1.7 | 10 | |
| La | 139 | 1 | nogas | -35.311 | -13.4 | 60 | 16.7 | 2.5 | |
| Au | 197 | 1 | nogas | -1363.555 | -149.5 | 23 | 107.9 | 2.5 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 250413 | 2.14 | 252377 | 99.22 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1228388 | 2.39 | 1286445 | 95.49 | 70 | 125 | |
| In | 115 | 1 | nogas | 1333788 | 0.81 | 1344417 | 99.21 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1254938 | 3.88 | 1284048 | 97.73 | 70 | 125 | |
| Ge | 72 | 2 | He | 108032 | 3.02 | 111777 | 96.65 | 70 | 125 | |

# Interference Check Solution A (ICS-A) Report

**Sample Table**

| | |
|---|---|
| Sample Name | ICSA |
| Data File Name | 021ICSA.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T10:39:50-06:00 |
| Sample Type | ICSA |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 010CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.030 | 30.7 | 90 | 22.2 | 0 | ICSA Main CR1 Failed |
| Na | 23 | 1 | nogas | 104001.355 | 2.5 | 920255554 | 2.0 | 0 | |
| Mg | 24 | 1 | nogas | 105817.716 | 2.4 | 618211730 | 0.6 | 0 | |
| Al | 27 | 1 | nogas | 99127.478 | 2.5 | 693464910 | 3.5 | 0 | |
| K | 39 | 1 | nogas | 102863.007 | 1.4 | 722779916 | 2.2 | 0 | |
| Ti | 47 | 1 | nogas | 2141.535 | 2.5 | 1516530 | 3.6 | 0 | |
| V | 51 | 1 | nogas | -1.950 | -173.3 | 1356234 | 2.4 | 0 | ICSA Main CR1 Failed |
| Cr | 52 | 1 | nogas | 1.447 | 4.4 | 53130 | 1.5 | 0 | ICSA Main CR1 Failed |
| Mn | 55 | 1 | nogas | 0.192 | 13.3 | 12074 | 3.5 | 0 | ICSA Main CR1 Failed |
| Co | 59 | 1 | nogas | 0.101 | 11.6 | 1593 | 6.7 | 0 | ICSA Main CR1 Failed |
| Ni | 60 | 1 | nogas | -0.293 | -27.9 | 2184 | 9.9 | 0 | ICSA Main CR1 Failed |
| Cu | 63 | 1 | nogas | 0.292 | 16.8 | 8129 | 3.2 | 0 | ICSA Main CR1 Failed |
| Zn | 66 | 1 | nogas | 1.489 | 11.4 | 4264 | 7.2 | 0 | ICSA Main CR1 Failed |
| As | 75 | 1 | nogas | -0.821 | -302.9 | 242953 | 1.6 | 0 | ICSA Main CR1 Failed |
| Sr | 88 | 1 | nogas | 0.996 | 4.4 | 13342 | 3.2 | 0 | ICSA Main CR1 Failed |
| Ag | 107 | 1 | nogas | 0.035 | 24.4 | 510 | 11.9 | 0 | ICSA Main CR1 Failed |
| Cd | 111 | 1 | nogas | 1.039 | 3.0 | 1743 | 5.7 | 0 | ICSA Main CR1 Failed |
| Sb | 121 | 1 | nogas | 0.039 | 40.8 | 1973 | 6.4 | 0 | ICSA Main CR1 Failed |
| Tl | 205 | 1 | nogas | 0.037 | 13.7 | 580 | 10.3 | 0 | ICSA Main CR1 Failed |
| Pb | 208 | 1 | nogas | 0.097 | 7.2 | 2277 | 6.6 | 0 | ICSA Main CR1 Failed |
| [Pb] | 206 | 1 | nogas | 0.099 | 16.5 | 613 | 13.9 | 0 | ICSA Main CR1 Failed |
| [Pb] | 207 | 1 | nogas | 0.078 | 8.4 | 440 | 6.0 | 0 | ICSA Main CR1 Failed |
| Na | 23 | 2 | He | 102578.703 | 2.4 | 18337268 | 0.9 | 0 | |
| Mg | 24 | 2 | He | 97573.183 | 3.6 | 8228619 | 1.6 | 0 | |
| Al | 27 | 2 | He | 88825.894 | 3.2 | 2118620 | 1.3 | 0 | |
| K | 39 | 2 | He | 95931.820 | 0.5 | 4604612 | 0.5 | 0 | |
| Ca | 43 | 2 | He | 93805.027 | 2.1 | 14783 | 3.7 | 0 | |
| Ca | 44 | 2 | He | 98233.705 | 1.3 | 265737 | 1.3 | 0 | |
| V | 51 | 2 | He | 0.345 | 18.8 | 555 | 13.5 | 0 | ICSA Main CR1 Failed |
| Cr | 52 | 2 | He | 1.521 | 8.0 | 3670 | 6.4 | 0 | ICSA Main CR1 Failed |
| Mn | 55 | 2 | He | 0.151 | 122.1 | 380 | 25.4 | 0 | ICSA Main CR1 Failed |
| Fe | 56 | 2 | He | 98989.395 | 1.7 | 98767069 | 0.5 | 0 | |
| Co | 59 | 2 | He | -0.014 | -68.9 | 87 | 24.0 | 0 | ICSA Main CR1 Failed |
| Ni | 60 | 2 | He | 0.309 | 35.9 | 300 | 26.5 | 0 | ICSA Main CR1 Failed |
| Cu | 63 | 2 | He | 0.597 | 11.6 | 1530 | 10.2 | 0 | ICSA Main CR1 Failed |
| Zn | 66 | 2 | He | 0.961 | 31.5 | 277 | 30.7 | 0 | ICSA Main CR1 Failed |
| As | 75 | 2 | He | 0.093 | 98.4 | 41 | 46.8 | 0 | ICSA Main CR1 Failed |
| Se | 78 | 2 | He | -0.149 | -461.9 | 6 | 88.2 | 0 | ICSA Main CR1 Failed |
| B | 11 | 1 | nogas | 6.117 | 33.7 | 36075 | 8.1 | 0 | ICSA Main CR1 Failed |
| Si | 28 | 1 | nogas | 140.725 | 1.8 | 1151337 | 1.7 | 0 | |
| Ca | 43 | 1 | nogas | 95640.157 | 2.2 | 1392989 | 1.4 | 0 | |
| Ca | 44 | 1 | nogas | 98122.905 | 2.4 | 22062981 | 1.9 | 0 | |
| Fe | 56 | 1 | nogas | 101167.110 | 3.0 | 1030287490 | 3.4 | 0 | |
| Se | 77 | 1 | nogas | 15.992 | 52.5 | 80099 | 1.8 | 0 | |
| Se | 82 | 1 | nogas | 0.294 | 303.5 | 400 | 26.3 | 0 | ICSA Main CR1 Failed |
| Mo | 95 | 1 | nogas | 2018.589 | 4.1 | 5665009 | 3.0 | 0 | |
| Sn | 118 | 1 | nogas | 0.055 | 46.3 | 807 | 15.0 | 0 | ICSA Main CR1 Failed |
| Ba | 137 | 1 | nogas | 0.028 | 81.3 | 467 | 12.4 | 0 | ICSA Main CR1 Failed |
| Sb | 121 | 2 | He | -0.060 | -67.9 | 163 | 23.2 | 0 | ICSA Main CR1 Failed |

# Interference Check Solution A (ICS-A) Report

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| P | 31 | 1 | nogas | 95791.867 | 0.8 | 49195829 | 1.8 | 0 | |
| La | 139 | 1 | nogas | 122.582 | 29.3 | 347 | 15.9 | 0 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 236214 | 0.15 | 252377 | 93.60 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1192451 | 1.06 | 1286445 | 92.69 | 70 | 125 | |
| In | 115 | 1 | nogas | 1211272 | 4.82 | 1344417 | 90.10 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1229091 | 1.13 | 1284048 | 95.72 | 70 | 125 | |
| Ge | 72 | 2 | He | 101852 | 1.95 | 111777 | 91.12 | 70 | 125 | |

# Interference Check Solution AB (ICS-AB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | ICSAB |
| Data File Name | 022ICSB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T10:41:55-06:00 |
| Sample Type | ICSB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 010CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 88.376 | 1.137 | 186583 | 0.23 | 100 | 88.4 | 80 | 120 | |
| Na | 23 | 1 | nogas | 115889.963 | 3.273 | 996621656 | 4.12 | 100 | 115890.0 | 80 | 120 | |
| Mg | 24 | 1 | nogas | 118397.233 | 5.503 | 672107548 | 4.67 | 100 | 118397.2 | 80 | 120 | ICSB Main CR1 Failed |
| Al | 27 | 1 | nogas | 98913.218 | 3.916 | 708919269 | 0.80 | 100 | 98913.2 | 80 | 120 | ICSB Main CR1 Failed |
| K | 39 | 1 | nogas | 106573.510 | 3.609 | 767238917 | 1.40 | 100 | 106573.5 | 80 | 120 | ICSB Main CR1 Failed |
| Ti | 47 | 1 | nogas | 2139.590 | 4.336 | 1552120 | 1.14 | 100 | 2139.6 | 80 | 120 | ICSB Main CR1 Failed |
| V | 51 | 1 | nogas | 65.904 | 11.178 | 2264754 | 1.65 | 100 | 65.9 | 80 | 120 | ICSB Main CR1 Failed |
| Cr | 52 | 1 | nogas | 95.020 | 5.192 | 914117 | 1.64 | 100 | 95.0 | 80 | 120 | |
| Mn | 55 | 1 | nogas | 92.704 | 3.735 | 1121663 | 1.80 | 100 | 92.7 | 80 | 120 | |
| Co | 59 | 1 | nogas | 92.099 | 4.255 | 959114 | 0.89 | 100 | 92.1 | 80 | 120 | |
| Ni | 60 | 1 | nogas | 89.168 | 3.493 | 218287 | 0.27 | 100 | 89.2 | 80 | 120 | |
| Cu | 63 | 1 | nogas | 89.201 | 5.424 | 543611 | 1.89 | 100 | 89.2 | 80 | 120 | |
| Zn | 66 | 1 | nogas | 92.091 | 4.983 | 186770 | 1.45 | 100 | 92.1 | 80 | 120 | |
| As | 75 | 1 | nogas | 76.964 | 8.904 | 451885 | 1.49 | 100 | 77.0 | 80 | 120 | ICSB Main CR1 Failed |
| Sr | 88 | 1 | nogas | 95.522 | 3.557 | 1228990 | 0.15 | 100 | 95.5 | 80 | 120 | |
| Ag | 107 | 1 | nogas | 90.022 | 3.413 | 704322 | 0.38 | 100 | 90.0 | 80 | 120 | |
| Cd | 111 | 1 | nogas | 91.184 | 5.559 | 152876 | 1.39 | 100 | 91.2 | 80 | 120 | |
| Sb | 121 | 1 | nogas | 93.511 | 4.834 | 681248 | 1.59 | 100 | 93.5 | 80 | 120 | |
| Tl | 205 | 1 | nogas | 96.565 | 3.330 | 1271745 | 1.23 | 100 | 96.6 | 80 | 120 | |
| Pb | 208 | 1 | nogas | 94.402 | 2.897 | 1814916 | 0.56 | 100 | 94.4 | 80 | 120 | |
| U | 238 | 1 | nogas | 98.217 | 1.773 | 1817788 | 2.32 | 100 | 98.2 | 80 | 120 | |
| [Pb] | 206 | 1 | nogas | 91.476 | 3.708 | 443064 | 1.50 | 100 | 91.5 | 80 | 120 | |
| [Pb] | 207 | 1 | nogas | 91.595 | 3.274 | 405015 | 0.92 | 100 | 91.6 | 80 | 120 | |
| Na | 23 | 2 | He | 113821.450 | 3.704 | 20059400 | 1.20 | 100 | 113821.4 | 80 | 120 | |
| Mg | 24 | 2 | He | 108054.377 | 5.090 | 8984856 | 2.42 | 100 | 108054.4 | 80 | 120 | |
| Al | 27 | 2 | He | 92640.163 | 2.657 | 2179520 | 1.04 | 100 | 92640.2 | 80 | 120 | ICSB Main CR1 Failed |
| K | 39 | 2 | He | 100633.413 | 0.696 | 4829747 | 0.69 | 100 | 100633.4 | 80 | 120 | ICSB Main CR1 Failed |
| Ca | 43 | 2 | He | 101604.965 | 3.640 | 15780 | 1.41 | 100 | 101605.0 | 80 | 120 | ICSB Main CR1 Failed |
| Ca | 44 | 2 | He | 104325.257 | 2.463 | 278370 | 2.92 | 100 | 104325.3 | 80 | 120 | ICSB Main CR1 Failed |
| V | 51 | 2 | He | 93.623 | 3.367 | 95914 | 0.78 | 100 | 93.6 | 80 | 120 | |
| Cr | 52 | 2 | He | 92.296 | 4.294 | 128107 | 2.58 | 100 | 92.3 | 80 | 120 | |
| Mn | 55 | 2 | He | 89.877 | 3.746 | 49009 | 1.41 | 100 | 89.9 | 80 | 120 | |
| Fe | 56 | 2 | He | 111989.125 | 4.426 | 110158678 | 1.86 | 100 | 111989.1 | 80 | 120 | ICSB Main CR1 Failed |
| Co | 59 | 2 | He | 95.210 | 4.065 | 222610 | 1.74 | 100 | 95.2 | 80 | 120 | |
| Ni | 60 | 2 | He | 91.060 | 1.087 | 61829 | 3.08 | 100 | 91.1 | 80 | 120 | |
| Cu | 63 | 2 | He | 90.991 | 1.862 | 174513 | 1.84 | 100 | 91.0 | 80 | 120 | |
| Zn | 66 | 2 | He | 91.514 | 1.592 | 26316 | 2.77 | 100 | 91.5 | 80 | 120 | |
| As | 75 | 2 | He | 91.287 | 2.727 | 18063 | 0.36 | 100 | 91.3 | 80 | 120 | |
| Se | 78 | 2 | He | 95.224 | 3.954 | 723 | 1.88 | 100 | 95.2 | 80 | 120 | |
| B | 11 | 1 | nogas | 433.480 | 2.712 | 627186 | 2.66 | 100 | 433.5 | 80 | 120 | |
| Si | 28 | 1 | nogas | 4931.945 | 4.247 | 16690639 | 2.96 | 100 | 4931.9 | 80 | 120 | ICSB Main CR1 Failed |
| Ca | 43 | 1 | nogas | 101917.809 | 2.314 | 1521766 | 1.23 | 100 | 101917.8 | 80 | 120 | ICSB Main CR1 Failed |
| Ca | 44 | 1 | nogas | 102840.298 | 4.455 | 23688625 | 1.52 | 100 | 102840.3 | 80 | 120 | ICSB Main CR1 Failed |
| Fe | 56 | 1 | nogas | 110260.465 | 5.577 | 1150013526 | 2.09 | 100 | 110260.5 | 80 | 120 | |
| Se | 77 | 1 | nogas | 50.989 | 40.282 | 90792 | 3.10 | 100 | 51.0 | 80 | 120 | ICSB Main CR1 Failed |
| Se | 82 | 1 | nogas | 92.579 | 3.183 | 11150 | 5.55 | 100 | 92.6 | 80 | 120 | |
| Mo | 95 | 1 | nogas | 2054.072 | 6.167 | 5905198 | 2.67 | 100 | 2054.1 | 80 | 120 | ICSB Main CR1 Failed |
| Sn | 118 | 1 | nogas | 90.703 | 5.049 | 370277 | 1.58 | 100 | 90.7 | 80 | 120 | |
| Ba | 137 | 1 | nogas | 92.170 | 4.573 | 203196 | 0.41 | 100 | 92.2 | 80 | 120 | |
| Sb | 121 | 2 | He | 91.489 | 2.532 | 79608 | 1.31 | 100 | 91.5 | 80 | 120 | |
| La | 139 | 1 | nogas | 312.053 | 14.761 | 703 | 8.09 | 100 | 312.1 | 80 | 120 | ICSB Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 228215 | 0.93 | 252377 | 90.43 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1222991 | 3.57 | 1286445 | 95.07 | 70 | 125 | |
| In | 115 | 1 | nogas | 1219933 | 4.38 | 1344417 | 90.74 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1223837 | 2.31 | 1284048 | 95.31 | 70 | 125 | |
| Ge | 72 | 2 | He | 100468 | 2.62 | 111777 | 89.88 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 033_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T11:04:06-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 010CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 97.008 | 6.717 | 195808 | 2.52 | 100 | 97.0 | 90 | 110 | |
| Na | 23 | 1 | nogas | 9854.812 | 2.766 | 94286635 | 1.78 | 10000 | 98.5 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 10188.879 | 1.700 | 63464862 | 1.61 | 10000 | 101.9 | 90 | 110 | |
| Al | 27 | 1 | nogas | 105.163 | 2.452 | 775765 | 2.67 | 100 | 105.2 | 90 | 110 | |
| K | 39 | 1 | nogas | 9583.355 | 2.040 | 73666022 | 1.33 | 10000 | 95.8 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 103.241 | 4.088 | 76375 | 2.64 | 100 | 103.2 | 90 | 110 | |
| V | 51 | 1 | nogas | 123.771 | 10.146 | 3056101 | 2.38 | 100 | 123.8 | 90 | 110 | CCV Main CR1-2 Failed |
| Cr | 52 | 1 | nogas | 106.123 | 6.493 | 1031426 | 2.94 | 100 | 106.1 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 100.313 | 5.299 | 1231011 | 2.29 | 100 | 100.3 | 90 | 110 | |
| Co | 59 | 1 | nogas | 101.642 | 4.049 | 1074842 | 2.03 | 100 | 101.6 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 100.340 | 3.281 | 249037 | 0.44 | 100 | 100.3 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 100.505 | 3.128 | 621418 | 1.70 | 100 | 100.5 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 99.804 | 4.733 | 205439 | 2.42 | 100 | 99.8 | 90 | 110 | |
| As | 75 | 1 | nogas | 92.479 | 10.924 | 499748 | 2.57 | 100 | 92.5 | 90 | 110 | |
| Sr | 88 | 1 | nogas | 97.014 | 2.837 | 1268127 | 3.92 | 100 | 97.0 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 102.577 | 4.870 | 814565 | 1.79 | 100 | 102.6 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 95.407 | 1.190 | 170053 | 0.79 | 100 | 95.4 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 103.294 | 4.187 | 763973 | 1.06 | 100 | 103.3 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 101.284 | 5.471 | 1367560 | 1.85 | 100 | 101.3 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 102.372 | 2.438 | 2019200 | 1.39 | 100 | 102.4 | 90 | 110 | |
| U | 238 | 1 | nogas | 101.775 | 1.670 | 1932259 | 2.15 | 100 | 101.8 | 90 | 110 | |
| [Pb] | 206 | 1 | nogas | 100.204 | 2.140 | 498031 | 1.79 | 100 | 100.2 | 90 | 110 | |
| [Pb] | 207 | 1 | nogas | 99.573 | 2.568 | 451735 | 1.42 | 100 | 99.6 | 90 | 110 | |
| Na | 23 | 2 | He | 10068.155 | 0.946 | 1894415 | 0.50 | 10000 | 100.7 | 90 | 110 | |
| Mg | 24 | 2 | He | 9577.274 | 0.515 | 834220 | 0.61 | 10000 | 95.8 | 90 | 110 | |
| Al | 27 | 2 | He | 102.641 | 7.233 | 2587 | 6.59 | 100 | 102.6 | 90 | 110 | |
| K | 39 | 2 | He | 9515.114 | 0.388 | 466548 | 0.38 | 10000 | 95.2 | 90 | 110 | |
| Ca | 43 | 2 | He | 10187.016 | 9.638 | 1673 | 9.61 | 10000 | 101.9 | 90 | 110 | |
| Ca | 44 | 2 | He | 9905.036 | 1.873 | 27744 | 2.26 | 10000 | 99.1 | 90 | 110 | |
| V | 51 | 2 | He | 96.328 | 0.482 | 103312 | 0.67 | 100 | 96.3 | 90 | 110 | |
| Cr | 52 | 2 | He | 96.824 | 2.557 | 140636 | 2.95 | 100 | 96.8 | 90 | 110 | |
| Mn | 55 | 2 | He | 96.044 | 1.074 | 54812 | 1.42 | 100 | 96.0 | 90 | 110 | |
| Fe | 56 | 2 | He | 9675.906 | 1.729 | 9972216 | 2.20 | 10000 | 96.8 | 90 | 110 | |
| Co | 59 | 2 | He | 99.325 | 1.846 | 243164 | 2.30 | 100 | 99.3 | 90 | 110 | |
| Ni | 60 | 2 | He | 97.987 | 1.767 | 69606 | 2.02 | 100 | 98.0 | 90 | 110 | |
| Cu | 63 | 2 | He | 100.011 | 2.678 | 200692 | 2.27 | 100 | 100.0 | 90 | 110 | |
| Zn | 66 | 2 | He | 96.848 | 2.492 | 29140 | 2.10 | 100 | 96.8 | 90 | 110 | |
| As | 75 | 2 | He | 98.323 | 2.256 | 20364 | 1.78 | 100 | 98.3 | 90 | 110 | |
| Se | 78 | 2 | He | 96.069 | 3.997 | 764 | 4.11 | 100 | 96.1 | 90 | 110 | |
| B | 11 | 1 | nogas | 498.420 | 5.502 | 655976 | 0.42 | 500 | 99.7 | 90 | 110 | |
| Si | 28 | 1 | nogas | 5223.820 | 4.162 | 17904657 | 2.70 | 5000 | 104.5 | 90 | 110 | |
| Ca | 43 | 1 | nogas | 9571.319 | 2.860 | 145495 | 1.13 | 10000 | 95.7 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 9697.421 | 2.962 | 2377119 | 0.78 | 10000 | 97.0 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 9927.667 | 5.321 | 105832904 | 3.03 | 10000 | 99.3 | 90 | 110 | |
| Se | 77 | 1 | nogas | 90.731 | 27.601 | 102239 | 3.83 | 100 | 90.7 | 90 | 110 | |
| Se | 82 | 1 | nogas | 103.653 | 5.640 | 12611 | 2.87 | 100 | 103.7 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 98.570 | 3.063 | 291111 | 2.26 | 100 | 98.6 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 101.522 | 2.795 | 440351 | 1.24 | 100 | 101.5 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 96.157 | 4.502 | 225190 | 2.63 | 100 | 96.2 | 90 | 110 | |
| Sb | 121 | 2 | He | 97.919 | 1.872 | 89164 | 1.39 | 100 | 97.9 | 90 | 110 | |
| Li | 7 | 1 | nogas | 100.901 | 6.599 | 493295 | 1.94 | 100 | 100.9 | 90 | 110 | |
| P | 31 | 1 | nogas | 505.262 | 2.760 | 307991 | 0.84 | 500 | 101.1 | 90 | 110 | |
| La | 139 | 1 | nogas | 190.558 | 19.669 | 507 | 12.69 | 100 | 190.6 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | -293.141 | -11.004 | 10 | 0.00 | 100 | -293.1 | 90 | 110 | CCV Main CR1-2 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 233975 | 4.95 | 252377 | 92.71 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1241634 | 3.24 | 1286445 | 96.52 | 70 | 125 | |
| In | 115 | 1 | nogas | 1295036 | 1.92 | 1344417 | 96.33 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1255834 | 3.82 | 1284048 | 97.80 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 105123 | 0.48 | 111777 | 94.05 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 034_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T11:06:04-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 010CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.108 | 66.6 | 267 | 60.3 | 1 | |
| Na | 23 | 1 | nogas | 31.934 | 8.9 | 1791883 | 2.4 | 100 | |
| Mg | 24 | 1 | nogas | 13.899 | 59.4 | 93843 | 56.9 | 100 | |
| Al | 27 | 1 | nogas | 0.823 | 12.3 | 16114 | 1.6 | 5 | |
| K | 39 | 1 | nogas | 0.292 | 11205.4 | 3953953 | 0.4 | 100 | |
| Ti | 47 | 1 | nogas | 0.267 | 65.8 | 533 | 31.2 | 2.5 | |
| V | 51 | 1 | nogas | 34.282 | 44.6 | 1882721 | 4.8 | 2.5 | CCB Main CR1 Failed |
| Cr | 52 | 1 | nogas | 0.196 | 158.9 | 43611 | 1.5 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.126 | 18.5 | 11787 | 4.7 | 2.5 | |
| Co | 59 | 1 | nogas | 0.096 | 70.8 | 1643 | 51.6 | 2.5 | |
| Ni | 60 | 1 | nogas | -0.564 | -10.7 | 1617 | 15.7 | 2.5 | |
| Cu | 63 | 1 | nogas | -0.096 | -5.8 | 6104 | 6.6 | 2.5 | |
| Zn | 66 | 1 | nogas | -0.137 | -87.8 | 1127 | 28.7 | 2.5 | |
| As | 75 | 1 | nogas | 6.727 | 144.3 | 272498 | 3.4 | 2.5 | CCB Main CR1 Failed |
| Sr | 88 | 1 | nogas | 0.154 | 37.3 | 2934 | 32.6 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.065 | 39.2 | 777 | 33.1 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.123 | 74.4 | 230 | 72.4 | 1 | |
| Sb | 121 | 1 | nogas | 0.130 | 68.7 | 2757 | 30.5 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.615 | 54.6 | 8313 | 55.2 | 1 | |
| Pb | 208 | 1 | nogas | 0.122 | 65.1 | 2787 | 56.7 | 2.5 | |
| U | 238 | 1 | nogas | 0.160 | 74.4 | 3451 | 66.2 | 2.5 | |
| [Pb] | 206 | 1 | nogas | 0.120 | 76.1 | 723 | 63.5 | 2.5 | |
| [Pb] | 207 | 1 | nogas | 0.115 | 57.0 | 613 | 49.4 | 2.5 | |
| Na | 23 | 2 | He | 38.560 | 25.1 | 48292 | 3.5 | 100 | |
| Mg | 24 | 2 | He | 4.079 | 63.4 | 610 | 36.3 | 100 | |
| Al | 27 | 2 | He | 0.360 | 291.9 | 70 | 37.8 | 5 | |
| K | 39 | 2 | He | -2.369 | -427.3 | 10803 | 4.5 | 100 | |
| Ca | 43 | 2 | He | 4.988 | 34.7 | 20 | 0.0 | 100 | |
| Ca | 44 | 2 | He | 28.816 | 96.5 | 177 | 43.2 | 100 | |
| V | 51 | 2 | He | 0.679 | 7.8 | 947 | 6.6 | 2.5 | |
| Cr | 52 | 2 | He | -0.062 | -93.5 | 1543 | 5.9 | 2.5 | |
| Mn | 55 | 2 | He | -0.071 | -198.3 | 273 | 31.1 | 2.5 | |
| Fe | 56 | 2 | He | 4.388 | 21.6 | 10603 | 9.0 | 100 | |
| Co | 59 | 2 | He | 0.024 | 69.7 | 187 | 24.2 | 2.5 | |
| Ni | 60 | 2 | He | 0.298 | 10.9 | 307 | 7.5 | 2.5 | |
| Cu | 63 | 2 | He | 0.516 | 6.1 | 1443 | 5.8 | 2.5 | |
| Zn | 66 | 2 | He | 0.391 | 27.2 | 117 | 27.6 | 2.5 | |
| As | 75 | 2 | He | 0.100 | 18.6 | 44 | 8.7 | 2.5 | |
| Se | 78 | 2 | He | -0.518 | -55.6 | 3 | 69.3 | 2.5 | |
| B | 11 | 1 | nogas | 12.296 | 28.9 | 46728 | 9.2 | 10 | CCB Main CR1 Failed |
| Si | 28 | 1 | nogas | 118.696 | 16.3 | 1129309 | 9.3 | 5 | CCB Main CR1 Failed |
| Ca | 43 | 1 | nogas | 25.746 | 20.1 | 847 | 15.9 | 100 | |
| Ca | 44 | 1 | nogas | -120.760 | -17.7 | 91593 | 1.0 | 100 | |
| Fe | 56 | 1 | nogas | 16.794 | 27.6 | 919664 | 11.8 | 100 | |
| Se | 77 | 1 | nogas | 40.589 | 90.3 | 89443 | 4.4 | 2.5 | CCB Main CR1 Failed |
| Se | 82 | 1 | nogas | -0.388 | -127.0 | 337 | 19.8 | 2.5 | |
| Mo | 95 | 1 | nogas | -0.488 | -18.0 | 1880 | 20.0 | 2.5 | |
| Sn | 118 | 1 | nogas | 0.279 | 41.8 | 1807 | 29.6 | 5 | |

# Continuing Calibration Blank (CCB) Report

| Ba | 137 | 1 | nogas | 0.014 | 734.7 | 457 | 51.4 | 2.5 | |
|---|---|---|---|---|---|---|---|---|---|
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Sb | 121 | 2 | He | 0.028 | 143.8 | 253 | 16.0 | 2.5 | |
| P | 31 | 1 | nogas | -0.148 | -2857.0 | 38085 | 1.8 | 10 | |
| La | 139 | 1 | nogas | -23.652 | -57.0 | 80 | 33.1 | 2.5 | |
| Au | 197 | 1 | nogas | -12.044 | -8073.0 | 7 | 173.2 | 2.5 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 257085 | 3.19 | 252377 | 101.87 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1244166 | 6.31 | 1286445 | 96.71 | 70 | 125 | |
| In | 115 | 1 | nogas | 1272936 | 2.50 | 1344417 | 94.68 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1237236 | 1.55 | 1284048 | 96.35 | 70 | 125 | |
| Ge | 72 | 2 | He | 107159 | 1.43 | 111777 | 95.87 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 045_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T11:28:22-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 010CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 92.960 | 6.847 | 189860 | 0.15 | 100 | 93.0 | 90 | 110 | |
| Na | 23 | 1 | nogas | 10303.491 | 7.779 | 94119075 | 3.27 | 10000 | 103.0 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 9912.417 | 8.451 | 58970037 | 4.19 | 10000 | 99.1 | 90 | 110 | |
| Al | 27 | 1 | nogas | 102.850 | 4.843 | 750665 | 1.57 | 100 | 102.8 | 90 | 110 | |
| K | 39 | 1 | nogas | 9681.468 | 8.166 | 73502981 | 2.69 | 10000 | 96.8 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 100.274 | 7.025 | 73349 | 1.70 | 100 | 100.3 | 90 | 110 | |
| V | 51 | 1 | nogas | 107.199 | 18.076 | 2807789 | 5.29 | 100 | 107.2 | 90 | 110 | |
| Cr | 52 | 1 | nogas | 102.073 | 3.646 | 984272 | 2.01 | 100 | 102.1 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 101.129 | 4.536 | 1229237 | 4.62 | 100 | 101.1 | 90 | 110 | |
| Co | 59 | 1 | nogas | 99.425 | 5.696 | 1040220 | 2.54 | 100 | 99.4 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 98.149 | 6.564 | 240956 | 1.52 | 100 | 98.1 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 95.940 | 6.506 | 586844 | 1.49 | 100 | 95.9 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 98.418 | 3.500 | 200610 | 2.29 | 100 | 98.4 | 90 | 110 | |
| As | 75 | 1 | nogas | 76.995 | 19.924 | 453577 | 4.53 | 100 | 77.0 | 90 | 110 | CCV Main CR1-2 Failed |
| Sr | 88 | 1 | nogas | 104.786 | 5.445 | 1354199 | 1.80 | 100 | 104.8 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 99.648 | 4.459 | 783306 | 0.83 | 100 | 99.6 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 95.461 | 2.889 | 166671 | 0.83 | 100 | 95.5 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 101.358 | 6.983 | 741360 | 1.65 | 100 | 101.4 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 97.640 | 8.397 | 1293211 | 3.83 | 100 | 97.6 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 100.329 | 2.617 | 1943121 | 2.33 | 100 | 100.3 | 90 | 110 | |
| U | 238 | 1 | nogas | 97.847 | 5.106 | 1823054 | 3.72 | 100 | 97.8 | 90 | 110 | |
| [Pb] | 206 | 1 | nogas | 97.391 | 3.072 | 475173 | 1.65 | 100 | 97.4 | 90 | 110 | |
| [Pb] | 207 | 1 | nogas | 96.755 | 2.813 | 431021 | 2.60 | 100 | 96.8 | 90 | 110 | |
| Na | 23 | 2 | He | 10648.916 | 3.105 | 1889173 | 2.09 | 10000 | 106.5 | 90 | 110 | |
| Mg | 24 | 2 | He | 9509.970 | 1.972 | 781944 | 0.80 | 10000 | 95.1 | 90 | 110 | |
| Al | 27 | 2 | He | 95.351 | 4.631 | 2274 | 4.85 | 100 | 95.4 | 90 | 110 | |
| K | 39 | 2 | He | 9009.277 | 1.874 | 442326 | 1.83 | 10000 | 90.1 | 90 | 110 | |
| Ca | 43 | 2 | He | 9703.403 | 9.519 | 1507 | 10.59 | 10000 | 97.0 | 90 | 110 | |
| Ca | 44 | 2 | He | 9577.584 | 0.908 | 25328 | 0.44 | 10000 | 95.8 | 90 | 110 | |
| V | 51 | 2 | He | 98.281 | 1.096 | 99508 | 1.16 | 100 | 98.3 | 90 | 110 | |
| Cr | 52 | 2 | He | 94.997 | 2.475 | 130288 | 2.61 | 100 | 95.0 | 90 | 110 | |
| Mn | 55 | 2 | He | 93.783 | 3.006 | 50527 | 2.14 | 100 | 93.8 | 90 | 110 | |
| Fe | 56 | 2 | He | 9608.123 | 3.717 | 9345729 | 2.55 | 10000 | 96.1 | 90 | 110 | |
| Co | 59 | 2 | He | 101.815 | 2.869 | 235261 | 1.78 | 100 | 101.8 | 90 | 110 | |
| Ni | 60 | 2 | He | 99.718 | 2.893 | 66859 | 1.79 | 100 | 99.7 | 90 | 110 | |
| Cu | 63 | 2 | He | 97.534 | 2.342 | 184779 | 1.54 | 100 | 97.5 | 90 | 110 | |
| Zn | 66 | 2 | He | 96.996 | 2.509 | 27551 | 1.68 | 100 | 97.0 | 90 | 110 | |
| As | 75 | 2 | He | 100.235 | 3.500 | 19595 | 2.39 | 100 | 100.2 | 90 | 110 | |
| Se | 78 | 2 | He | 87.931 | 5.667 | 661 | 5.29 | 100 | 87.9 | 90 | 110 | CCV Main CR1-2 Failed |
| B | 11 | 1 | nogas | 493.854 | 7.547 | 657567 | 0.65 | 500 | 98.8 | 90 | 110 | |
| Si | 28 | 1 | nogas | 6515.483 | 4.151 | 21926096 | 3.05 | 5000 | 130.3 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 43 | 1 | nogas | 10197.249 | 7.003 | 153211 | 1.70 | 10000 | 102.0 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 9743.530 | 11.282 | 2357780 | 5.51 | 10000 | 97.4 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 9916.908 | 3.259 | 104727586 | 4.05 | 10000 | 99.2 | 90 | 110 | |
| Se | 77 | 1 | nogas | 45.644 | 87.066 | 89744 | 6.55 | 100 | 45.6 | 90 | 110 | CCV Main CR1-2 Failed |
| Se | 82 | 1 | nogas | 95.814 | 7.181 | 11561 | 2.75 | 100 | 95.8 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 95.508 | 7.125 | 278923 | 2.05 | 100 | 95.5 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 102.961 | 1.575 | 437647 | 1.45 | 100 | 103.0 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 94.564 | 2.596 | 217036 | 0.31 | 100 | 94.6 | 90 | 110 | |
| Sb | 121 | 2 | He | 97.062 | 2.184 | 83436 | 1.01 | 100 | 97.1 | 90 | 110 | |
| Li | 7 | 1 | nogas | 99.219 | 1.422 | 492406 | 5.67 | 100 | 99.2 | 90 | 110 | |
| P | 31 | 1 | nogas | 512.266 | 7.393 | 308221 | 1.73 | 500 | 102.5 | 90 | 110 | |
| La | 139 | 1 | nogas | 171.841 | 32.539 | 460 | 22.90 | 100 | 171.8 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | -606.714 | -165.426 | 13 | 86.60 | 100 | -606.7 | 90 | 110 | CCV Main CR1-2 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 237015 | 7.08 | 252377 | 93.91 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1229673 | 5.13 | 1286445 | 95.59 | 70 | 125 | |
| In | 115 | 1 | nogas | 1268951 | 2.41 | 1344417 | 94.39 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1233215 | 4.41 | 1284048 | 96.04 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 99247 | 1.18 | 111777 | 88.79 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 046_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T11:30:21-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 010CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.108 | 76.6 | 273 | 65.5 | 1 | |
| Na | 23 | 1 | nogas | 308.119 | 2.8 | 4247634 | 0.7 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 1 | nogas | 20.386 | 44.6 | 129634 | 44.3 | 100 | |
| Al | 27 | 1 | nogas | 0.939 | 7.2 | 16865 | 3.2 | 5 | |
| K | 39 | 1 | nogas | 23.334 | 30.7 | 4102213 | 1.0 | 100 | |
| Ti | 47 | 1 | nogas | 2.722 | 10.3 | 2324 | 8.7 | 2.5 | CCB Main CR1 Failed |
| V | 51 | 1 | nogas | 43.617 | 13.2 | 1998838 | 3.3 | 2.5 | CCB Main CR1 Failed |
| Cr | 52 | 1 | nogas | 0.090 | 105.8 | 42422 | 1.6 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.346 | 7.9 | 14379 | 2.7 | 2.5 | |
| Co | 59 | 1 | nogas | 0.112 | 80.8 | 1767 | 54.1 | 2.5 | |
| Ni | 60 | 1 | nogas | 0.369 | 25.2 | 3877 | 6.1 | 2.5 | |
| Cu | 63 | 1 | nogas | 0.033 | 349.8 | 6845 | 10.5 | 2.5 | |
| Zn | 66 | 1 | nogas | 0.380 | 27.3 | 2160 | 10.0 | 2.5 | |
| As | 75 | 1 | nogas | 6.869 | 59.7 | 271966 | 3.6 | 2.5 | CCB Main CR1 Failed |
| Sr | 88 | 1 | nogas | 0.624 | 10.8 | 8999 | 10.1 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.076 | 45.3 | 850 | 32.2 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.103 | 61.3 | 197 | 58.9 | 1 | |
| Sb | 121 | 1 | nogas | 0.109 | 57.4 | 2557 | 18.3 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.532 | 53.6 | 7512 | 56.2 | 1 | |
| Pb | 208 | 1 | nogas | 0.116 | 63.0 | 2794 | 56.6 | 2.5 | |
| U | 238 | 1 | nogas | 0.159 | 59.4 | 3564 | 55.1 | 2.5 | |
| [Pb] | 206 | 1 | nogas | 0.112 | 61.6 | 710 | 53.2 | 2.5 | |
| [Pb] | 207 | 1 | nogas | 0.122 | 47.7 | 670 | 43.3 | 2.5 | |
| Na | 23 | 2 | He | 360.547 | 3.5 | 102715 | 1.1 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 2 | He | 12.518 | 22.0 | 1287 | 19.0 | 100 | |
| Al | 27 | 2 | He | 2.524 | 96.2 | 117 | 47.2 | 5 | |
| K | 39 | 2 | He | 20.199 | 60.5 | 11884 | 4.9 | 100 | |
| Ca | 43 | 2 | He | -31.623 | -230.6 | 13 | 86.6 | 100 | |
| Ca | 44 | 2 | He | 49.566 | 30.2 | 223 | 18.1 | 100 | |
| V | 51 | 2 | He | 0.821 | 8.6 | 1041 | 4.8 | 2.5 | |
| Cr | 52 | 2 | He | 0.130 | 33.0 | 1723 | 2.2 | 2.5 | |
| Mn | 55 | 2 | He | 0.252 | 18.0 | 433 | 3.5 | 2.5 | |
| Fe | 56 | 2 | He | 6.070 | 3.2 | 11687 | 1.3 | 100 | |
| Co | 59 | 2 | He | -0.013 | -151.1 | 87 | 52.0 | 2.5 | |
| Ni | 60 | 2 | He | 0.601 | 12.3 | 497 | 8.1 | 2.5 | |
| Cu | 63 | 2 | He | 0.385 | 12.7 | 1110 | 6.2 | 2.5 | |
| Zn | 66 | 2 | He | 0.323 | 49.2 | 90 | 48.4 | 2.5 | |
| As | 75 | 2 | He | 0.056 | 133.6 | 33 | 45.8 | 2.5 | |
| Se | 78 | 2 | He | -0.325 | -166.3 | 5 | 89.2 | 2.5 | |
| B | 11 | 1 | nogas | 25.289 | 16.7 | 67320 | 5.6 | 10 | CCB Main CR1 Failed |
| Si | 28 | 1 | nogas | 1053.722 | 1.1 | 4179851 | 1.1 | 5 | CCB Main CR1 Failed |
| Ca | 43 | 1 | nogas | 48.853 | 39.5 | 1187 | 24.9 | 100 | |
| Ca | 44 | 1 | nogas | -159.812 | -5.2 | 82096 | 2.7 | 100 | |
| Fe | 56 | 1 | nogas | 22.686 | 47.8 | 973363 | 12.1 | 100 | |
| Se | 77 | 1 | nogas | 41.444 | 27.6 | 89395 | 2.8 | 2.5 | CCB Main CR1 Failed |
| Se | 82 | 1 | nogas | 0.038 | 1393.5 | 383 | 15.7 | 2.5 | |
| Mo | 95 | 1 | nogas | -0.539 | -30.4 | 1710 | 28.2 | 2.5 | |
| Sn | 118 | 1 | nogas | 0.301 | 37.8 | 1917 | 27.5 | 5 | |

# Continuing Calibration Blank (CCB) Report

| Ba | 137 | 1 | nogas | 0.029 | 303.1 | 497 | 42.4 | 2.5 | |
|---|---|---|---|---|---|---|---|---|---|
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Sb | 121 | 2 | He | -0.035 | -181.1 | 183 | 28.0 | 2.5 | |
| P | 31 | 1 | nogas | 8.697 | 24.5 | 42602 | 2.5 | 10 | |
| La | 139 | 1 | nogas | -15.791 | -97.1 | 97 | 33.3 | 2.5 | |
| Au | 197 | 1 | nogas | 267.340 | 182.7 | 3 | 173.2 | 2.5 | CCB Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 267444 | 3.31 | 252377 | 105.97 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1235230 | 0.45 | 1286445 | 96.02 | 70 | 125 | |
| In | 115 | 1 | nogas | 1283202 | 2.57 | 1344417 | 95.45 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1280163 | 3.35 | 1284048 | 99.70 | 70 | 125 | |
| Ge | 72 | 2 | He | 101245 | 2.15 | 111777 | 90.58 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 057_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T11:52:36-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 010CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 90.645 | 3.676 | 196065 | 1.85 | 100 | 90.6 | 90 | 110 | |
| Na | 23 | 1 | nogas | 10504.811 | 2.676 | 96587731 | 3.28 | 10000 | 105.0 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 10111.317 | 2.488 | 60575335 | 2.94 | 10000 | 101.1 | 90 | 110 | |
| Al | 27 | 1 | nogas | 104.211 | 1.701 | 734486 | 0.55 | 100 | 104.2 | 90 | 110 | |
| K | 39 | 1 | nogas | 10254.127 | 0.779 | 75057827 | 1.84 | 10000 | 102.5 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 102.396 | 4.154 | 72382 | 3.02 | 100 | 102.4 | 90 | 110 | |
| V | 51 | 1 | nogas | 141.423 | 4.936 | 3142577 | 1.65 | 100 | 141.4 | 90 | 110 | CCV Main CR1-2 Failed |
| Cr | 52 | 1 | nogas | 105.310 | 1.711 | 979158 | 1.21 | 100 | 105.3 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 105.319 | 2.479 | 1235418 | 3.09 | 100 | 105.3 | 90 | 110 | |
| Co | 59 | 1 | nogas | 102.560 | 0.723 | 1036624 | 0.57 | 100 | 102.6 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 100.098 | 3.681 | 237402 | 2.60 | 100 | 100.1 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 98.952 | 3.574 | 584657 | 2.40 | 100 | 99.0 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 102.877 | 4.320 | 202348 | 3.33 | 100 | 102.9 | 90 | 110 | |
| As | 75 | 1 | nogas | 99.557 | 7.172 | 495641 | 2.53 | 100 | 99.6 | 90 | 110 | |
| Sr | 88 | 1 | nogas | 100.760 | 3.735 | 1257897 | 3.11 | 100 | 100.8 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 103.123 | 2.123 | 782862 | 1.08 | 100 | 103.1 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 96.856 | 3.029 | 167946 | 1.45 | 100 | 96.9 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 107.522 | 2.566 | 760058 | 1.64 | 100 | 107.5 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 97.524 | 1.657 | 1325226 | 2.16 | 100 | 97.5 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 100.294 | 3.148 | 1989076 | 2.67 | 100 | 100.3 | 90 | 110 | |
| U | 238 | 1 | nogas | 98.318 | 3.264 | 1876675 | 3.21 | 100 | 98.3 | 90 | 110 | |
| [Pb] | 206 | 1 | nogas | 96.698 | 2.210 | 483228 | 1.89 | 100 | 96.7 | 90 | 110 | |
| [Pb] | 207 | 1 | nogas | 95.755 | 4.040 | 436794 | 3.55 | 100 | 95.8 | 90 | 110 | |
| Na | 23 | 2 | He | 10454.182 | 5.061 | 1851380 | 2.12 | 10000 | 104.5 | 90 | 110 | |
| Mg | 24 | 2 | He | 9703.419 | 3.604 | 796391 | 1.88 | 10000 | 97.0 | 90 | 110 | |
| Al | 27 | 2 | He | 92.732 | 5.660 | 2210 | 7.11 | 100 | 92.7 | 90 | 110 | |
| K | 39 | 2 | He | 8460.867 | 0.969 | 416065 | 0.94 | 10000 | 84.6 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 43 | 2 | He | 8191.967 | 5.616 | 1273 | 8.25 | 10000 | 81.9 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 44 | 2 | He | 8825.601 | 2.347 | 23305 | 0.78 | 10000 | 88.3 | 90 | 110 | CCV Main CR1-2 Failed |
| V | 51 | 2 | He | 98.205 | 3.063 | 99240 | 0.46 | 100 | 98.2 | 90 | 110 | |
| Cr | 52 | 2 | He | 97.201 | 1.563 | 133063 | 2.04 | 100 | 97.2 | 90 | 110 | |
| Mn | 55 | 2 | He | 92.644 | 1.646 | 49845 | 1.97 | 100 | 92.6 | 90 | 110 | |
| Fe | 56 | 2 | He | 9523.176 | 1.743 | 9252316 | 3.04 | 10000 | 95.2 | 90 | 110 | |
| Co | 59 | 2 | He | 100.763 | 4.141 | 232380 | 1.53 | 100 | 100.8 | 90 | 110 | |
| Ni | 60 | 2 | He | 98.139 | 5.334 | 65661 | 2.69 | 100 | 98.1 | 90 | 110 | |
| Cu | 63 | 2 | He | 100.193 | 4.972 | 189402 | 2.45 | 100 | 100.2 | 90 | 110 | |
| Zn | 66 | 2 | He | 98.664 | 1.208 | 27995 | 3.86 | 100 | 98.7 | 90 | 110 | |
| As | 75 | 2 | He | 99.834 | 3.309 | 19483 | 0.85 | 100 | 99.8 | 90 | 110 | |
| Se | 78 | 2 | He | 93.992 | 3.867 | 705 | 6.57 | 100 | 94.0 | 90 | 110 | |
| B | 11 | 1 | nogas | 509.100 | 7.901 | 716380 | 4.04 | 500 | 101.8 | 90 | 110 | |
| Si | 28 | 1 | nogas | 5345.185 | 1.446 | 17495186 | 2.29 | 5000 | 106.9 | 90 | 110 | |
| Ca | 43 | 1 | nogas | 10019.724 | 3.276 | 145512 | 2.32 | 10000 | 100.2 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 9680.304 | 3.941 | 2267406 | 2.61 | 10000 | 96.8 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 10344.333 | 1.644 | 105391092 | 1.15 | 10000 | 103.4 | 90 | 110 | |
| Se | 77 | 1 | nogas | 104.021 | 26.449 | 100935 | 5.48 | 100 | 104.0 | 90 | 110 | |
| Se | 82 | 1 | nogas | 99.906 | 3.627 | 11634 | 2.88 | 100 | 99.9 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 99.609 | 2.079 | 281048 | 0.95 | 100 | 99.6 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 104.088 | 1.607 | 439355 | 0.73 | 100 | 104.1 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 94.592 | 3.622 | 215611 | 2.70 | 100 | 94.6 | 90 | 110 | |
| Sb | 121 | 2 | He | 93.517 | 4.752 | 80231 | 2.28 | 100 | 93.5 | 90 | 110 | |
| Li | 7 | 1 | nogas | 97.081 | 3.102 | 509463 | 1.50 | 100 | 97.1 | 90 | 110 | |
| P | 31 | 1 | nogas | 491.452 | 4.025 | 287232 | 2.91 | 500 | 98.3 | 90 | 110 | |
| La | 139 | 1 | nogas | 196.765 | 19.235 | 507 | 15.95 | 100 | 196.8 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | -2524.900 | -116.977 | 37 | 95.78 | 100 | -2524.9 | 90 | 110 | CCV Main CR1-2 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 250452 | 4.52 | 252377 | 99.24 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1185945 | 1.13 | 1286445 | 92.19 | 70 | 125 | |
| In | 115 | 1 | nogas | 1260062 | 1.56 | 1344417 | 93.73 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1262071 | 0.50 | 1284048 | 98.29 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 99108 | 2.80 | 111777 | 88.67 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 058_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T11:54:34-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 010CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.151 | 74.4 | 393 | 68.9 | 1 | |
| Na | 23 | 1 | nogas | 202.127 | 8.3 | 3358465 | 2.7 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 1 | nogas | 18.540 | 57.8 | 120016 | 52.6 | 100 | |
| Al | 27 | 1 | nogas | 0.618 | 26.1 | 14783 | 4.1 | 5 | |
| K | 39 | 1 | nogas | 5.390 | 546.7 | 4041093 | 1.5 | 100 | |
| Ti | 47 | 1 | nogas | 1.007 | 29.4 | 1087 | 21.2 | 2.5 | |
| V | 51 | 1 | nogas | 47.457 | 10.6 | 2086601 | 3.8 | 2.5 | CCB Main CR1 Failed |
| Cr | 52 | 1 | nogas | 0.158 | 157.6 | 43809 | 2.5 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.187 | 60.0 | 12651 | 7.0 | 2.5 | |
| Co | 59 | 1 | nogas | 0.118 | 80.5 | 1843 | 50.8 | 2.5 | |
| Ni | 60 | 1 | nogas | 0.114 | 30.3 | 3317 | 5.7 | 2.5 | |
| Cu | 63 | 1 | nogas | -0.107 | -71.8 | 6094 | 4.1 | 2.5 | |
| Zn | 66 | 1 | nogas | 0.127 | 53.3 | 1673 | 4.8 | 2.5 | |
| As | 75 | 1 | nogas | 2.754 | 93.0 | 265921 | 3.3 | 2.5 | CCB Main CR1 Failed |
| Sr | 88 | 1 | nogas | 0.217 | 43.2 | 3737 | 29.1 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.092 | 55.7 | 983 | 37.5 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.137 | 72.2 | 260 | 69.6 | 1 | |
| Sb | 121 | 1 | nogas | 0.141 | 81.0 | 2830 | 26.7 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.617 | 53.5 | 8713 | 54.4 | 1 | |
| Pb | 208 | 1 | nogas | 0.163 | 58.7 | 3757 | 53.7 | 2.5 | |
| U | 238 | 1 | nogas | 0.162 | 81.2 | 3637 | 72.6 | 2.5 | |
| [Pb] | 206 | 1 | nogas | 0.168 | 60.6 | 1000 | 54.0 | 2.5 | |
| [Pb] | 207 | 1 | nogas | 0.144 | 56.4 | 773 | 50.8 | 2.5 | |
| Na | 23 | 2 | He | 287.010 | 1.0 | 87570 | 1.1 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 2 | He | 7.580 | 13.8 | 850 | 8.5 | 100 | |
| Al | 27 | 2 | He | 0.307 | 448.9 | 63 | 50.8 | 5 | |
| K | 39 | 2 | He | 6.616 | 109.0 | 11234 | 3.1 | 100 | |
| Ca | 43 | 2 | He | -6.595 | -578.4 | 17 | 34.6 | 100 | |
| Ca | 44 | 2 | He | 11.008 | 78.8 | 117 | 17.8 | 100 | |
| V | 51 | 2 | He | 0.848 | 8.0 | 1044 | 7.4 | 2.5 | |
| Cr | 52 | 2 | He | -0.006 | -1632.6 | 1500 | 9.2 | 2.5 | |
| Mn | 55 | 2 | He | 0.046 | 279.2 | 313 | 20.8 | 2.5 | |
| Fe | 56 | 2 | He | 6.214 | 20.0 | 11557 | 11.3 | 100 | |
| Co | 59 | 2 | He | 0.040 | 126.0 | 207 | 54.4 | 2.5 | |
| Ni | 60 | 2 | He | 0.562 | 22.0 | 460 | 19.3 | 2.5 | |
| Cu | 63 | 2 | He | 0.264 | 16.8 | 857 | 9.4 | 2.5 | |
| Zn | 66 | 2 | He | 0.317 | 35.8 | 87 | 37.1 | 2.5 | |
| As | 75 | 2 | He | 0.113 | 98.5 | 43 | 48.0 | 2.5 | |
| Se | 78 | 2 | He | 0.053 | 1546.5 | 7 | 83.3 | 2.5 | |
| B | 11 | 1 | nogas | 26.043 | 9.5 | 71321 | 4.7 | 10 | CCB Main CR1 Failed |
| Si | 28 | 1 | nogas | 246.715 | 13.4 | 1565377 | 3.3 | 5 | CCB Main CR1 Failed |
| Ca | 43 | 1 | nogas | 35.094 | 24.3 | 997 | 14.1 | 100 | |
| Ca | 44 | 1 | nogas | -204.044 | -11.3 | 73046 | 3.5 | 100 | |
| Fe | 56 | 1 | nogas | 26.007 | 56.5 | 1023156 | 11.5 | 100 | |
| Se | 77 | 1 | nogas | 31.628 | 40.6 | 88548 | 5.2 | 2.5 | CCB Main CR1 Failed |
| Se | 82 | 1 | nogas | -0.469 | -84.5 | 330 | 15.2 | 2.5 | |
| Mo | 95 | 1 | nogas | -0.486 | -35.0 | 1887 | 22.8 | 2.5 | |
| Sn | 118 | 1 | nogas | 0.357 | 36.8 | 2190 | 27.4 | 5 | |

# Continuing Calibration Blank (CCB) Report

| Ba | 137 | 1 | nogas | 0.043 | 257.1 | 540 | 50.1 | 2.5 | |
|---|---|---|---|---|---|---|---|---|---|
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Sb | 121 | 2 | He | -0.027 | -148.6 | 187 | 17.2 | 2.5 | |
| P | 31 | 1 | nogas | -1.835 | -163.3 | 37655 | 1.0 | 10 | |
| La | 139 | 1 | nogas | -36.227 | -17.1 | 57 | 20.4 | 2.5 | |
| Au | 197 | 1 | nogas | -263.862 | -305.2 | 10 | 100.0 | 2.5 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 278339 | 0.90 | 252377 | 110.29 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1258304 | 3.85 | 1286445 | 97.81 | 70 | 125 | |
| In | 115 | 1 | nogas | 1303827 | 1.45 | 1344417 | 96.98 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1288743 | 1.63 | 1284048 | 100.37 | 70 | 125 | |
| Ge | 72 | 2 | He | 98846 | 1.56 | 111777 | 88.43 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 069_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T12:16:42-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 010CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 82.842 | 2.041 | 196805 | 2.10 | 100 | 82.8 | 90 | 110 | CCV Main CR1-2 Failed |
| Na | 23 | 1 | nogas | 10379.450 | 5.320 | 93961083 | 3.30 | 10000 | 103.8 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 10378.700 | 6.823 | 61196747 | 4.89 | 10000 | 103.8 | 90 | 110 | |
| Al | 27 | 1 | nogas | 108.338 | 2.944 | 787193 | 2.38 | 100 | 108.3 | 90 | 110 | |
| K | 39 | 1 | nogas | 9728.403 | 9.137 | 73489543 | 3.83 | 10000 | 97.3 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 98.698 | 5.250 | 71927 | 0.28 | 100 | 98.7 | 90 | 110 | |
| V | 51 | 1 | nogas | 97.273 | 12.825 | 2669503 | 2.74 | 100 | 97.3 | 90 | 110 | |
| Cr | 52 | 1 | nogas | 104.700 | 4.379 | 1003949 | 2.17 | 100 | 104.7 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 105.898 | 5.252 | 1279953 | 1.10 | 100 | 105.9 | 90 | 110 | |
| Co | 59 | 1 | nogas | 100.866 | 7.403 | 1049843 | 2.44 | 100 | 100.9 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 98.363 | 7.695 | 240336 | 2.96 | 100 | 98.4 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 96.555 | 6.791 | 587935 | 2.13 | 100 | 96.6 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 100.661 | 4.846 | 204140 | 0.49 | 100 | 100.7 | 90 | 110 | |
| As | 75 | 1 | nogas | 70.991 | 17.169 | 436090 | 2.89 | 100 | 71.0 | 90 | 110 | CCV Main CR1-2 Failed |
| Sr | 88 | 1 | nogas | 100.019 | 6.086 | 1286643 | 1.66 | 100 | 100.0 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 102.076 | 3.361 | 799156 | 1.69 | 100 | 102.1 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 97.225 | 2.710 | 172523 | 3.09 | 100 | 97.2 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 106.187 | 8.159 | 772924 | 3.60 | 100 | 106.2 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 101.764 | 2.839 | 1351526 | 1.75 | 100 | 101.8 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 103.779 | 3.704 | 2011329 | 0.61 | 100 | 103.8 | 90 | 110 | |
| U | 238 | 1 | nogas | 103.759 | 2.912 | 1935578 | 0.52 | 100 | 103.8 | 90 | 110 | |
| [Pb] | 206 | 1 | nogas | 100.413 | 3.596 | 490363 | 0.90 | 100 | 100.4 | 90 | 110 | |
| [Pb] | 207 | 1 | nogas | 99.472 | 3.679 | 443432 | 0.66 | 100 | 99.5 | 90 | 110 | |
| Na | 23 | 2 | He | 10592.096 | 1.366 | 1862387 | 0.29 | 10000 | 105.9 | 90 | 110 | |
| Mg | 24 | 2 | He | 9673.142 | 1.749 | 788157 | 1.10 | 10000 | 96.7 | 90 | 110 | |
| Al | 27 | 2 | He | 84.379 | 8.239 | 2000 | 8.26 | 100 | 84.4 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 2 | He | 8545.509 | 1.197 | 420118 | 1.17 | 10000 | 85.5 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 43 | 2 | He | 8150.501 | 10.144 | 1257 | 10.80 | 10000 | 81.5 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 44 | 2 | He | 8844.968 | 2.643 | 23182 | 1.70 | 10000 | 88.4 | 90 | 110 | CCV Main CR1-2 Failed |
| V | 51 | 2 | He | 99.186 | 1.553 | 99509 | 1.61 | 100 | 99.2 | 90 | 110 | |
| Cr | 52 | 2 | He | 99.976 | 1.278 | 135794 | 1.76 | 100 | 100.0 | 90 | 110 | |
| Mn | 55 | 2 | He | 89.323 | 1.800 | 47702 | 0.72 | 100 | 89.3 | 90 | 110 | CCV Main CR1-2 Failed |
| Fe | 56 | 2 | He | 9429.173 | 2.467 | 9089922 | 2.03 | 10000 | 94.3 | 90 | 110 | |
| Co | 59 | 2 | He | 103.742 | 2.664 | 237553 | 2.23 | 100 | 103.7 | 90 | 110 | |
| Ni | 60 | 2 | He | 102.624 | 1.363 | 68194 | 1.72 | 100 | 102.6 | 90 | 110 | |
| Cu | 63 | 2 | He | 103.194 | 1.607 | 193717 | 1.38 | 100 | 103.2 | 90 | 110 | |
| Zn | 66 | 2 | He | 98.437 | 1.188 | 27708 | 0.62 | 100 | 98.4 | 90 | 110 | |
| As | 75 | 2 | He | 101.019 | 2.435 | 19573 | 2.45 | 100 | 101.0 | 90 | 110 | |
| Se | 78 | 2 | He | 92.532 | 4.009 | 689 | 4.21 | 100 | 92.5 | 90 | 110 | |
| B | 11 | 1 | nogas | 456.831 | 2.120 | 709955 | 1.24 | 500 | 91.4 | 90 | 110 | |
| Si | 28 | 1 | nogas | 5361.634 | 4.668 | 18086615 | 1.72 | 5000 | 107.2 | 90 | 110 | |
| Ca | 43 | 1 | nogas | 9657.897 | 7.402 | 144479 | 2.59 | 10000 | 96.6 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 9334.836 | 7.292 | 2257050 | 2.81 | 10000 | 93.3 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 10241.789 | 3.542 | 107608107 | 1.82 | 10000 | 102.4 | 90 | 110 | |
| Se | 77 | 1 | nogas | 13.640 | 221.174 | 81442 | 5.79 | 100 | 13.6 | 90 | 110 | CCV Main CR1-2 Failed |
| Se | 82 | 1 | nogas | 100.413 | 5.950 | 12048 | 1.27 | 100 | 100.4 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 96.704 | 7.976 | 281046 | 2.96 | 100 | 96.7 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 101.121 | 2.707 | 436702 | 2.51 | 100 | 101.1 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 94.656 | 1.451 | 220764 | 1.11 | 100 | 94.7 | 90 | 110 | |
| Sb | 121 | 2 | He | 94.811 | 3.729 | 80768 | 3.39 | 100 | 94.8 | 90 | 110 | |
| Li | 7 | 1 | nogas | 91.686 | 4.367 | 529844 | 4.68 | 100 | 91.7 | 90 | 110 | |
| P | 31 | 1 | nogas | 492.798 | 6.906 | 296696 | 2.22 | 500 | 98.6 | 90 | 110 | |
| La | 139 | 1 | nogas | 185.961 | 32.697 | 497 | 24.85 | 100 | 186.0 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | -2038.804 | -125.267 | 30 | 100.00 | 100 | -2038.8 | 90 | 110 | CCV Main CR1-2 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 274808 | 1.19 | 252377 | 108.89 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1224256 | 5.11 | 1286445 | 95.17 | 70 | 125 | |
| In | 115 | 1 | nogas | 1289014 | 0.67 | 1344417 | 95.88 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1234147 | 3.07 | 1284048 | 96.11 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 98343 | 1.08 | 111777 | 87.98 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 070_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T12:18:41-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 010CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.125 | 54.7 | 340 | 48.1 | 1 | |
| Na | 23 | 1 | nogas | 148.978 | 2.1 | 2907727 | 1.3 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 1 | nogas | 18.613 | 58.1 | 123296 | 56.0 | 100 | |
| Al | 27 | 1 | nogas | 0.935 | 12.4 | 17275 | 4.1 | 5 | |
| K | 39 | 1 | nogas | -21.855 | -37.4 | 3874329 | 0.8 | 100 | |
| Ti | 47 | 1 | nogas | 0.425 | 17.7 | 657 | 7.8 | 2.5 | |
| V | 51 | 1 | nogas | 10.599 | 42.5 | 1609949 | 3.6 | 2.5 | CCB Main CR1 Failed |
| Cr | 52 | 1 | nogas | -0.372 | -9.2 | 39145 | 0.7 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.099 | 172.5 | 11674 | 17.5 | 2.5 | |
| Co | 59 | 1 | nogas | 0.127 | 88.3 | 1970 | 60.5 | 2.5 | |
| Ni | 60 | 1 | nogas | 0.218 | 33.9 | 3600 | 4.4 | 2.5 | |
| Cu | 63 | 1 | nogas | 0.059 | 126.5 | 7188 | 5.7 | 2.5 | |
| Zn | 66 | 1 | nogas | -0.027 | -475.0 | 1367 | 19.7 | 2.5 | |
| As | 75 | 1 | nogas | -16.429 | -22.6 | 216117 | 4.8 | 2.5 | |
| Sr | 88 | 1 | nogas | 0.221 | 42.4 | 3844 | 31.6 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.094 | 54.2 | 1020 | 39.8 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.142 | 100.6 | 277 | 96.3 | 1 | |
| Sb | 121 | 1 | nogas | 0.173 | 64.0 | 3104 | 26.2 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.607 | 58.1 | 8083 | 57.8 | 1 | |
| Pb | 208 | 1 | nogas | 0.168 | 58.5 | 3637 | 52.4 | 2.5 | |
| U | 238 | 1 | nogas | 0.179 | 73.8 | 3751 | 65.7 | 2.5 | |
| [Pb] | 206 | 1 | nogas | 0.187 | 55.3 | 1033 | 48.7 | 2.5 | |
| [Pb] | 207 | 1 | nogas | 0.144 | 67.1 | 733 | 58.8 | 2.5 | |
| Na | 23 | 2 | He | 243.260 | 6.5 | 80319 | 1.1 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 2 | He | 7.936 | 8.2 | 883 | 4.3 | 100 | |
| Al | 27 | 2 | He | 1.972 | 96.8 | 103 | 45.7 | 5 | |
| K | 39 | 2 | He | -1.044 | -932.6 | 10867 | 4.3 | 100 | |
| Ca | 43 | 2 | He | -94.839 | -38.3 | 3 | 173.2 | 100 | |
| Ca | 44 | 2 | He | 38.931 | 45.6 | 190 | 21.1 | 100 | |
| V | 51 | 2 | He | 0.560 | 5.3 | 757 | 0.4 | 2.5 | |
| Cr | 52 | 2 | He | 0.286 | 24.5 | 1903 | 6.8 | 2.5 | |
| Mn | 55 | 2 | He | -0.038 | -151.1 | 270 | 9.8 | 2.5 | |
| Fe | 56 | 2 | He | 6.910 | 18.6 | 12261 | 7.5 | 100 | |
| Co | 59 | 2 | He | 0.032 | 98.5 | 190 | 39.7 | 2.5 | |
| Ni | 60 | 2 | He | 0.628 | 24.2 | 503 | 16.7 | 2.5 | |
| Cu | 63 | 2 | He | 0.380 | 12.4 | 1080 | 8.1 | 2.5 | |
| Zn | 66 | 2 | He | 0.302 | 23.6 | 83 | 27.7 | 2.5 | |
| As | 75 | 2 | He | 0.060 | 79.1 | 33 | 26.5 | 2.5 | |
| Se | 78 | 2 | He | 0.226 | 296.4 | 9 | 58.1 | 2.5 | |
| B | 11 | 1 | nogas | 15.779 | 13.9 | 57972 | 4.0 | 10 | CCB Main CR1 Failed |
| Si | 28 | 1 | nogas | 111.650 | 19.9 | 1126478 | 6.8 | 5 | CCB Main CR1 Failed |
| Ca | 43 | 1 | nogas | 18.107 | 79.8 | 740 | 29.3 | 100 | |
| Ca | 44 | 1 | nogas | -175.842 | -7.7 | 80429 | 3.3 | 100 | |
| Fe | 56 | 1 | nogas | 10.997 | 115.6 | 871700 | 15.0 | 100 | |
| Se | 77 | 1 | nogas | -39.032 | -24.5 | 70935 | 3.7 | 2.5 | |
| Se | 82 | 1 | nogas | -0.687 | -83.1 | 307 | 23.6 | 2.5 | |
| Mo | 95 | 1 | nogas | -0.575 | -26.5 | 1647 | 27.0 | 2.5 | |
| Sn | 118 | 1 | nogas | 0.361 | 25.1 | 2277 | 18.0 | 5 | |

# Continuing Calibration Blank (CCB) Report

| Ba | 137 | 1 | nogas | 0.031 | 241.1 | 527 | 35.1 | 2.5 | |
|---|---|---|---|---|---|---|---|---|---|
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Sb | 121 | 2 | He | -0.031 | -306.9 | 183 | 40.9 | 2.5 | |
| P | 31 | 1 | nogas | -5.684 | -58.2 | 35871 | 4.3 | 10 | |
| La | 139 | 1 | nogas | -25.992 | -31.9 | 80 | 21.7 | 2.5 | |
| Au | 197 | 1 | nogas | 549.300 | 0.0 | 0 | #DIV/0! | 2.5 | CCB Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 288885 | 2.00 | 252377 | 114.47 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1267805 | 1.05 | 1286445 | 98.55 | 70 | 125 | |
| In | 115 | 1 | nogas | 1349721 | 2.55 | 1344417 | 100.39 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1221521 | 0.38 | 1284048 | 95.13 | 70 | 125 | |
| Ge | 72 | 2 | He | 99318 | 3.53 | 111777 | 88.85 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 081_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T12:40:45-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 010CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 86.353 | 1.436 | 195096 | 2.68 | 100 | 86.4 | 90 | 110 | CCV Main CR1-2 Failed |
| Na | 23 | 1 | nogas | 10026.321 | 3.785 | 93097429 | 3.74 | 10000 | 100.3 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 9731.575 | 2.338 | 58839739 | 2.70 | 10000 | 97.3 | 90 | 110 | |
| Al | 27 | 1 | nogas | 98.206 | 4.137 | 726219 | 2.98 | 100 | 98.2 | 90 | 110 | |
| K | 39 | 1 | nogas | 9598.763 | 2.931 | 73904964 | 1.62 | 10000 | 96.0 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 95.324 | 5.077 | 70662 | 3.41 | 100 | 95.3 | 90 | 110 | |
| V | 51 | 1 | nogas | 84.655 | 11.870 | 2549361 | 3.13 | 100 | 84.7 | 90 | 110 | CCV Main CR1-2 Failed |
| Cr | 52 | 1 | nogas | 96.876 | 4.744 | 947485 | 2.99 | 100 | 96.9 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 96.769 | 4.746 | 1190476 | 3.29 | 100 | 96.8 | 90 | 110 | |
| Co | 59 | 1 | nogas | 96.959 | 4.514 | 1027179 | 2.73 | 100 | 97.0 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 94.140 | 5.192 | 234204 | 2.99 | 100 | 94.1 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 94.375 | 4.207 | 584867 | 2.10 | 100 | 94.4 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 96.608 | 4.175 | 199284 | 1.82 | 100 | 96.6 | 90 | 110 | |
| As | 75 | 1 | nogas | 66.980 | 13.688 | 433040 | 3.24 | 100 | 67.0 | 90 | 110 | CCV Main CR1-2 Failed |
| Sr | 88 | 1 | nogas | 98.958 | 5.583 | 1294693 | 3.38 | 100 | 99.0 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 95.436 | 3.755 | 759996 | 4.73 | 100 | 95.4 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 97.029 | 4.439 | 168532 | 3.29 | 100 | 97.0 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 103.718 | 4.177 | 768577 | 2.03 | 100 | 103.7 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 100.133 | 9.241 | 1322658 | 6.83 | 100 | 100.1 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 103.843 | 2.243 | 2004511 | 1.16 | 100 | 103.8 | 90 | 110 | |
| U | 238 | 1 | nogas | 101.628 | 2.274 | 1888418 | 3.04 | 100 | 101.6 | 90 | 110 | |
| [Pb] | 206 | 1 | nogas | 101.347 | 5.685 | 492566 | 2.57 | 100 | 101.3 | 90 | 110 | |
| [Pb] | 207 | 1 | nogas | 100.742 | 3.293 | 447198 | 0.80 | 100 | 100.7 | 90 | 110 | |
| Na | 23 | 2 | He | 10028.976 | 4.450 | 1733864 | 4.58 | 10000 | 100.3 | 90 | 110 | |
| Mg | 24 | 2 | He | 9487.623 | 3.677 | 759018 | 2.59 | 10000 | 94.9 | 90 | 110 | |
| Al | 27 | 2 | He | 81.559 | 5.652 | 1900 | 5.57 | 100 | 81.6 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 2 | He | 8411.359 | 0.030 | 413695 | 0.03 | 10000 | 84.1 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 43 | 2 | He | 9454.073 | 8.141 | 1427 | 6.28 | 10000 | 94.5 | 90 | 110 | |
| Ca | 44 | 2 | He | 8785.597 | 3.947 | 22608 | 2.14 | 10000 | 87.9 | 90 | 110 | CCV Main CR1-2 Failed |
| V | 51 | 2 | He | 97.446 | 1.839 | 96000 | 0.94 | 100 | 97.4 | 90 | 110 | |
| Cr | 52 | 2 | He | 97.989 | 0.165 | 130741 | 1.92 | 100 | 98.0 | 90 | 110 | |
| Mn | 55 | 2 | He | 89.947 | 2.073 | 47168 | 0.28 | 100 | 89.9 | 90 | 110 | CCV Main CR1-2 Failed |
| Fe | 56 | 2 | He | 9347.592 | 2.923 | 8848119 | 1.58 | 10000 | 93.5 | 90 | 110 | |
| Co | 59 | 2 | He | 101.175 | 5.594 | 227403 | 3.84 | 100 | 101.2 | 90 | 110 | |
| Ni | 60 | 2 | He | 101.340 | 4.934 | 66103 | 3.62 | 100 | 101.3 | 90 | 110 | |
| Cu | 63 | 2 | He | 101.691 | 2.520 | 187441 | 1.02 | 100 | 101.7 | 90 | 110 | |
| Zn | 66 | 2 | He | 95.956 | 2.484 | 26536 | 4.34 | 100 | 96.0 | 90 | 110 | |
| As | 75 | 2 | He | 99.928 | 2.943 | 19009 | 1.07 | 100 | 99.9 | 90 | 110 | |
| Se | 78 | 2 | He | 93.881 | 1.154 | 686 | 1.01 | 100 | 93.9 | 90 | 110 | |
| B | 11 | 1 | nogas | 497.853 | 2.910 | 732873 | 0.85 | 500 | 99.6 | 90 | 110 | |
| Si | 28 | 1 | nogas | 4870.888 | 5.996 | 16773465 | 4.54 | 5000 | 97.4 | 90 | 110 | |
| Ca | 43 | 1 | nogas | 9584.140 | 5.122 | 145919 | 3.42 | 10000 | 95.8 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 9491.380 | 4.402 | 2333490 | 3.31 | 10000 | 94.9 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 9738.585 | 3.679 | 104044629 | 1.48 | 10000 | 97.4 | 90 | 110 | |
| Se | 77 | 1 | nogas | 8.006 | 328.931 | 81418 | 5.87 | 100 | 8.0 | 90 | 110 | CCV Main CR1-2 Failed |
| Se | 82 | 1 | nogas | 95.506 | 2.601 | 11677 | 0.28 | 100 | 95.5 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 96.432 | 5.670 | 285233 | 3.39 | 100 | 96.4 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 105.234 | 5.054 | 445010 | 5.15 | 100 | 105.2 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 93.960 | 3.977 | 214579 | 3.76 | 100 | 94.0 | 90 | 110 | |
| Sb | 121 | 2 | He | 92.395 | 1.886 | 77301 | 1.24 | 100 | 92.4 | 90 | 110 | |
| Li | 7 | 1 | nogas | 94.530 | 2.787 | 519150 | 6.08 | 100 | 94.5 | 90 | 110 | |
| P | 31 | 1 | nogas | 453.134 | 4.060 | 280616 | 1.52 | 500 | 90.6 | 90 | 110 | |
| La | 139 | 1 | nogas | 174.497 | 17.548 | 463 | 12.27 | 100 | 174.5 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | -15.653 | -6251.210 | 7 | 173.21 | 100 | -15.7 | 90 | 110 | CCV Main CR1-2 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 261400 | 3.47 | 252377 | 103.58 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1243709 | 2.46 | 1286445 | 96.68 | 70 | 125 | |
| In | 115 | 1 | nogas | 1262239 | 1.19 | 1344417 | 93.89 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1228853 | 3.21 | 1284048 | 95.70 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 96584 | 1.93 | 111777 | 86.41 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 082_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T12:42:44-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 010CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.225 | 47.5 | 597 | 47.8 | 1 | |
| Na | 23 | 1 | nogas | 173.669 | 6.7 | 3083173 | 1.9 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 1 | nogas | 23.200 | 39.7 | 148673 | 36.6 | 100 | |
| Al | 27 | 1 | nogas | 0.707 | 23.7 | 15153 | 4.9 | 5 | |
| K | 39 | 1 | nogas | 1.512 | 1752.5 | 3938441 | 1.9 | 100 | |
| Ti | 47 | 1 | nogas | 0.235 | 99.5 | 503 | 36.1 | 2.5 | |
| V | 51 | 1 | nogas | 12.199 | 32.9 | 1588189 | 3.1 | 2.5 | CCB Main CR1 Failed |
| Cr | 52 | 1 | nogas | -0.195 | -116.3 | 39720 | 2.9 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.105 | 116.0 | 11440 | 12.8 | 2.5 | |
| Co | 59 | 1 | nogas | 0.188 | 42.8 | 2567 | 32.9 | 2.5 | |
| Ni | 60 | 1 | nogas | 0.076 | 62.1 | 3160 | 4.2 | 2.5 | |
| Cu | 63 | 1 | nogas | -0.060 | -315.3 | 6271 | 17.7 | 2.5 | |
| Zn | 66 | 1 | nogas | 0.010 | 578.2 | 1403 | 5.0 | 2.5 | |
| As | 75 | 1 | nogas | -12.153 | -39.5 | 221641 | 5.5 | 2.5 | |
| Sr | 88 | 1 | nogas | 0.300 | 32.0 | 4771 | 25.5 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.149 | 31.9 | 1427 | 26.3 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.206 | 45.2 | 377 | 44.5 | 1 | |
| Sb | 121 | 1 | nogas | 0.278 | 33.9 | 3794 | 17.3 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.596 | 62.9 | 8096 | 60.8 | 1 | |
| Pb | 208 | 1 | nogas | 0.213 | 48.5 | 4590 | 43.0 | 2.5 | |
| U | 238 | 1 | nogas | 0.227 | 55.6 | 4728 | 49.5 | 2.5 | |
| [Pb] | 206 | 1 | nogas | 0.216 | 64.8 | 1190 | 56.2 | 2.5 | |
| [Pb] | 207 | 1 | nogas | 0.185 | 50.2 | 930 | 43.9 | 2.5 | |
| Na | 23 | 2 | He | 242.191 | 1.4 | 78792 | 1.4 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 2 | He | 13.776 | 9.4 | 1340 | 6.6 | 100 | |
| Al | 27 | 2 | He | 2.368 | 109.9 | 110 | 55.3 | 5 | |
| K | 39 | 2 | He | -3.343 | -241.0 | 10757 | 3.6 | 100 | |
| Ca | 43 | 2 | He | -72.068 | -105.2 | 7 | 173.2 | 100 | |
| Ca | 44 | 2 | He | 33.304 | 34.0 | 173 | 17.6 | 100 | |
| V | 51 | 2 | He | 0.583 | 9.0 | 767 | 6.0 | 2.5 | |
| Cr | 52 | 2 | He | 0.319 | 14.9 | 1913 | 2.5 | 2.5 | |
| Mn | 55 | 2 | He | 0.035 | 212.1 | 303 | 11.6 | 2.5 | |
| Fe | 56 | 2 | He | 11.618 | 3.8 | 16568 | 1.6 | 100 | |
| Co | 59 | 2 | He | 0.073 | 22.6 | 280 | 12.9 | 2.5 | |
| Ni | 60 | 2 | He | 0.759 | 13.4 | 583 | 12.2 | 2.5 | |
| Cu | 63 | 2 | He | 0.428 | 6.3 | 1150 | 4.0 | 2.5 | |
| Zn | 66 | 2 | He | 0.322 | 53.9 | 87 | 54.5 | 2.5 | |
| As | 75 | 2 | He | 0.137 | 49.2 | 48 | 28.2 | 2.5 | |
| Se | 78 | 2 | He | -0.292 | -195.5 | 5 | 89.2 | 2.5 | |
| B | 11 | 1 | nogas | 33.339 | 6.2 | 85543 | 5.8 | 10 | CCB Main CR1 Failed |
| Si | 28 | 1 | nogas | 68.761 | 27.7 | 955419 | 3.8 | 5 | CCB Main CR1 Failed |
| Ca | 43 | 1 | nogas | 38.072 | 41.9 | 1017 | 20.2 | 100 | |
| Ca | 44 | 1 | nogas | -189.585 | -8.2 | 75077 | 1.2 | 100 | |
| Fe | 56 | 1 | nogas | 14.170 | 84.7 | 880951 | 12.5 | 100 | |
| Se | 77 | 1 | nogas | -24.571 | -77.9 | 72685 | 6.2 | 2.5 | |
| Se | 82 | 1 | nogas | -0.327 | -57.0 | 340 | 2.9 | 2.5 | |
| Mo | 95 | 1 | nogas | -0.419 | -30.6 | 2050 | 15.1 | 2.5 | |
| Sn | 118 | 1 | nogas | 0.460 | 24.2 | 2587 | 18.9 | 5 | |

# Continuing Calibration Blank (CCB) Report

| Ba | 137 | 1 | nogas | 0.106 | 66.3 | 673 | 24.7 | 2.5 | |
|---|---|---|---|---|---|---|---|---|---|
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Sb | 121 | 2 | He | 0.201 | 39.4 | 377 | 17.7 | 2.5 | |
| P | 31 | 1 | nogas | -3.089 | -51.4 | 36309 | 2.4 | 10 | |
| La | 139 | 1 | nogas | -18.813 | -25.8 | 90 | 11.1 | 2.5 | |
| Au | 197 | 1 | nogas | 549.300 | 0.0 | 0 | #DIV/0! | 2.5 | CCB Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 289162 | 2.62 | 252377 | 114.58 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1234996 | 4.31 | 1286445 | 96.00 | 70 | 125 | |
| In | 115 | 1 | nogas | 1279697 | 0.88 | 1344417 | 95.19 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1250427 | 5.74 | 1284048 | 97.38 | 70 | 125 | |
| Ge | 72 | 2 | He | 97582 | 1.13 | 111777 | 87.30 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 093_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T13:04:54-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 010CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 92.255 | 2.312 | 199499 | 1.59 | 100 | 92.3 | 90 | 110 | |
| Na | 23 | 1 | nogas | 10310.071 | 0.317 | 96819742 | 3.45 | 10000 | 103.1 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 10095.633 | 1.780 | 61732056 | 1.69 | 10000 | 101.0 | 90 | 110 | |
| Al | 27 | 1 | nogas | 104.281 | 2.045 | 757943 | 2.02 | 100 | 104.3 | 90 | 110 | |
| K | 39 | 1 | nogas | 9769.423 | 8.316 | 73813514 | 4.58 | 10000 | 97.7 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 99.458 | 3.065 | 72503 | 0.59 | 100 | 99.5 | 90 | 110 | |
| V | 51 | 1 | nogas | 92.466 | 13.963 | 2606593 | 3.07 | 100 | 92.5 | 90 | 110 | |
| Cr | 52 | 1 | nogas | 103.142 | 5.875 | 988987 | 2.74 | 100 | 103.1 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 102.746 | 7.397 | 1241645 | 4.74 | 100 | 102.7 | 90 | 110 | |
| Co | 59 | 1 | nogas | 100.299 | 7.194 | 1044115 | 3.91 | 100 | 100.3 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 98.447 | 5.720 | 240671 | 2.91 | 100 | 98.4 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 97.335 | 4.878 | 592930 | 2.60 | 100 | 97.3 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 100.372 | 3.570 | 203614 | 2.45 | 100 | 100.4 | 90 | 110 | |
| As | 75 | 1 | nogas | 70.583 | 14.017 | 435159 | 2.63 | 100 | 70.6 | 90 | 110 | CCV Main CR1-2 Failed |
| Sr | 88 | 1 | nogas | 98.391 | 8.723 | 1264817 | 5.55 | 100 | 98.4 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 102.422 | 2.808 | 801670 | 0.89 | 100 | 102.4 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 97.447 | 1.535 | 169652 | 1.56 | 100 | 97.4 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 107.340 | 6.572 | 781684 | 3.31 | 100 | 107.3 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 95.824 | 1.982 | 1307952 | 0.74 | 100 | 95.8 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 100.847 | 0.236 | 2009599 | 1.09 | 100 | 100.8 | 90 | 110 | |
| U | 238 | 1 | nogas | 100.230 | 3.533 | 1921602 | 2.24 | 100 | 100.2 | 90 | 110 | |
| [Pb] | 206 | 1 | nogas | 96.034 | 0.867 | 482153 | 0.42 | 100 | 96.0 | 90 | 110 | |
| [Pb] | 207 | 1 | nogas | 97.688 | 0.828 | 447760 | 1.48 | 100 | 97.7 | 90 | 110 | |
| Na | 23 | 2 | He | 10658.516 | 5.040 | 1867989 | 4.03 | 10000 | 106.6 | 90 | 110 | |
| Mg | 24 | 2 | He | 9609.409 | 2.602 | 780618 | 1.39 | 10000 | 96.1 | 90 | 110 | |
| Al | 27 | 2 | He | 88.402 | 8.819 | 2087 | 8.97 | 100 | 88.4 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 2 | He | 8858.193 | 0.298 | 435091 | 0.29 | 10000 | 88.6 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 43 | 2 | He | 10388.332 | 10.498 | 1590 | 9.14 | 10000 | 103.9 | 90 | 110 | |
| Ca | 44 | 2 | He | 9394.683 | 3.732 | 24547 | 3.37 | 10000 | 93.9 | 90 | 110 | |
| V | 51 | 2 | He | 98.874 | 3.068 | 98886 | 1.65 | 100 | 98.9 | 90 | 110 | |
| Cr | 52 | 2 | He | 100.748 | 0.782 | 136433 | 1.40 | 100 | 100.7 | 90 | 110 | |
| Mn | 55 | 2 | He | 92.225 | 0.431 | 49109 | 1.75 | 100 | 92.2 | 90 | 110 | |
| Fe | 56 | 2 | He | 9465.767 | 1.388 | 9098775 | 0.32 | 10000 | 94.7 | 90 | 110 | |
| Co | 59 | 2 | He | 102.413 | 0.729 | 233848 | 0.66 | 100 | 102.4 | 90 | 110 | |
| Ni | 60 | 2 | He | 100.643 | 3.017 | 66669 | 1.73 | 100 | 100.6 | 90 | 110 | |
| Cu | 63 | 2 | He | 101.972 | 2.267 | 190872 | 2.07 | 100 | 102.0 | 90 | 110 | |
| Zn | 66 | 2 | He | 97.309 | 1.202 | 27311 | 0.41 | 100 | 97.3 | 90 | 110 | |
| As | 75 | 2 | He | 99.942 | 3.963 | 19303 | 2.57 | 100 | 99.9 | 90 | 110 | |
| Se | 78 | 2 | He | 92.149 | 2.981 | 684 | 4.13 | 100 | 92.1 | 90 | 110 | |
| B | 11 | 1 | nogas | 571.974 | 5.804 | 801267 | 2.07 | 500 | 114.4 | 90 | 110 | CCV Main CR1-2 Failed |
| Si | 28 | 1 | nogas | 5084.298 | 1.217 | 17195384 | 2.20 | 5000 | 101.7 | 90 | 110 | |
| Ca | 43 | 1 | nogas | 9727.364 | 5.957 | 145580 | 3.13 | 10000 | 97.3 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 9487.817 | 5.554 | 2293346 | 3.66 | 10000 | 94.9 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 10053.500 | 7.049 | 105524098 | 3.80 | 10000 | 100.5 | 90 | 110 | |
| Se | 77 | 1 | nogas | 15.188 | 199.693 | 81814 | 5.96 | 100 | 15.2 | 90 | 110 | CCV Main CR1-2 Failed |
| Se | 82 | 1 | nogas | 99.990 | 4.499 | 12011 | 5.14 | 100 | 100.0 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 97.122 | 5.935 | 282439 | 3.04 | 100 | 97.1 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 104.345 | 4.597 | 442166 | 4.84 | 100 | 104.3 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 97.470 | 6.983 | 222808 | 4.00 | 100 | 97.5 | 90 | 110 | |
| Sb | 121 | 2 | He | 97.675 | 3.263 | 82951 | 2.20 | 100 | 97.7 | 90 | 110 | |
| Li | 7 | 1 | nogas | 99.145 | 1.886 | 520101 | 5.26 | 100 | 99.1 | 90 | 110 | |
| P | 31 | 1 | nogas | 484.531 | 5.388 | 292430 | 2.48 | 500 | 96.9 | 90 | 110 | |
| La | 139 | 1 | nogas | 164.270 | 23.486 | 443 | 13.78 | 100 | 164.3 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | -286.933 | -289.884 | 10 | 100.00 | 100 | -286.9 | 90 | 110 | CCV Main CR1-2 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 250275 | 3.65 | 252377 | 99.17 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1223316 | 3.37 | 1286445 | 95.09 | 70 | 125 | |
| In | 115 | 1 | nogas | 1265129 | 3.01 | 1344417 | 94.10 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1267993 | 1.29 | 1284048 | 98.75 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 98061 | 1.38 | 111777 | 87.73 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 094_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T13:06:53-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 010CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.145 | 31.8 | 390 | 30.2 | 1 | |
| Na | 23 | 1 | nogas | 276.529 | 2.2 | 4081780 | 1.1 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 1 | nogas | 21.776 | 48.9 | 141974 | 47.1 | 100 | |
| Al | 27 | 1 | nogas | 0.682 | 15.1 | 15146 | 4.3 | 5 | |
| K | 39 | 1 | nogas | 9.344 | 49.2 | 4039287 | 1.2 | 100 | |
| Ti | 47 | 1 | nogas | 0.300 | 27.9 | 553 | 10.6 | 2.5 | |
| V | 51 | 1 | nogas | 11.812 | 49.6 | 1599901 | 5.4 | 2.5 | CCB Main CR1 Failed |
| Cr | 52 | 1 | nogas | -0.410 | -14.1 | 38146 | 2.1 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.067 | 169.9 | 11094 | 12.2 | 2.5 | |
| Co | 59 | 1 | nogas | 0.129 | 73.7 | 1960 | 51.2 | 2.5 | |
| Ni | 60 | 1 | nogas | -0.042 | -392.5 | 2900 | 14.2 | 2.5 | |
| Cu | 63 | 1 | nogas | -0.108 | -147.3 | 6044 | 15.8 | 2.5 | |
| Zn | 66 | 1 | nogas | -0.092 | -114.8 | 1210 | 17.7 | 2.5 | |
| As | 75 | 1 | nogas | -11.094 | -35.7 | 226800 | 5.0 | 2.5 | |
| Sr | 88 | 1 | nogas | 0.353 | 19.2 | 5524 | 15.8 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.087 | 85.8 | 947 | 62.7 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.155 | 52.5 | 290 | 49.7 | 1 | |
| Sb | 121 | 1 | nogas | 0.245 | 49.0 | 3594 | 24.7 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.574 | 63.9 | 8009 | 63.6 | 1 | |
| Pb | 208 | 1 | nogas | 0.153 | 73.4 | 3500 | 64.8 | 2.5 | |
| U | 238 | 1 | nogas | 0.175 | 84.6 | 3837 | 74.8 | 2.5 | |
| [Pb] | 206 | 1 | nogas | 0.139 | 78.1 | 840 | 65.9 | 2.5 | |
| [Pb] | 207 | 1 | nogas | 0.160 | 79.0 | 840 | 70.0 | 2.5 | |
| Na | 23 | 2 | He | 336.300 | 3.1 | 99401 | 0.9 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 2 | He | 9.552 | 10.9 | 1047 | 7.7 | 100 | |
| Al | 27 | 2 | He | 2.161 | 56.5 | 110 | 27.3 | 5 | |
| K | 39 | 2 | He | 2.437 | 189.2 | 11033 | 2.0 | 100 | |
| Ca | 43 | 2 | He | 74.336 | 225.3 | 30 | 88.2 | 100 | |
| Ca | 44 | 2 | He | 41.256 | 39.7 | 203 | 22.7 | 100 | |
| V | 51 | 2 | He | 0.519 | 9.2 | 737 | 5.7 | 2.5 | |
| Cr | 52 | 2 | He | 0.049 | 294.4 | 1627 | 11.3 | 2.5 | |
| Mn | 55 | 2 | He | 0.013 | 910.1 | 307 | 22.2 | 2.5 | |
| Fe | 56 | 2 | He | 6.123 | 10.1 | 11854 | 4.3 | 100 | |
| Co | 59 | 2 | He | 0.015 | 230.0 | 157 | 54.3 | 2.5 | |
| Ni | 60 | 2 | He | 0.473 | 27.4 | 413 | 21.7 | 2.5 | |
| Cu | 63 | 2 | He | 0.317 | 23.9 | 990 | 15.1 | 2.5 | |
| Zn | 66 | 2 | He | 0.262 | 50.0 | 73 | 51.6 | 2.5 | |
| As | 75 | 2 | He | 0.088 | 94.9 | 40 | 41.7 | 2.5 | |
| Se | 78 | 2 | He | -0.324 | -46.6 | 5 | 24.7 | 2.5 | |
| B | 11 | 1 | nogas | 57.239 | 5.9 | 121649 | 3.8 | 10 | CCB Main CR1 Failed |
| Si | 28 | 1 | nogas | 57.442 | 17.1 | 928756 | 2.9 | 5 | CCB Main CR1 Failed |
| Ca | 43 | 1 | nogas | 40.312 | 22.0 | 1067 | 12.2 | 100 | |
| Ca | 44 | 1 | nogas | -222.291 | -3.4 | 68258 | 2.5 | 100 | |
| Fe | 56 | 1 | nogas | 16.335 | 77.2 | 914500 | 14.3 | 100 | |
| Se | 77 | 1 | nogas | -19.980 | -79.5 | 74633 | 5.9 | 2.5 | |
| Se | 82 | 1 | nogas | -0.331 | -63.7 | 343 | 6.7 | 2.5 | |
| Mo | 95 | 1 | nogas | -0.539 | -25.1 | 1727 | 22.7 | 2.5 | |
| Sn | 118 | 1 | nogas | 0.344 | 34.5 | 2117 | 24.2 | 5 | |

# Continuing Calibration Blank (CCB) Report

| Ba | 137 | 1 | nogas | 0.076 | 124.3 | 610 | 35.5 | 2.5 | |
|---|---|---|---|---|---|---|---|---|---|
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Sb | 121 | 2 | He | 0.056 | 88.1 | 267 | 16.9 | 2.5 | |
| P | 31 | 1 | nogas | 0.424 | 714.1 | 38563 | 3.6 | 10 | |
| La | 139 | 1 | nogas | -5.946 | -224.9 | 117 | 21.6 | 2.5 | |
| Au | 197 | 1 | nogas | 273.215 | 175.0 | 3 | 173.2 | 2.5 | CCB Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 286487 | 3.22 | 252377 | 113.52 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1247034 | 0.72 | 1286445 | 96.94 | 70 | 125 | |
| In | 115 | 1 | nogas | 1298032 | 1.45 | 1344417 | 96.55 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1271411 | 5.99 | 1284048 | 99.02 | 70 | 125 | |
| Ge | 72 | 2 | He | 102245 | 1.15 | 111777 | 91.47 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 105_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T13:28:56-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 010CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 90.585 | 3.550 | 195846 | 1.26 | 100 | 90.6 | 90 | 110 | |
| Na | 23 | 1 | nogas | 9827.936 | 4.006 | 89767462 | 1.73 | 10000 | 98.3 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 9835.445 | 1.556 | 58497991 | 0.79 | 10000 | 98.4 | 90 | 110 | |
| Al | 27 | 1 | nogas | 98.858 | 5.666 | 711938 | 1.74 | 100 | 98.9 | 90 | 110 | |
| K | 39 | 1 | nogas | 9454.494 | 7.955 | 70892820 | 2.31 | 10000 | 94.5 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 96.655 | 5.062 | 69799 | 0.48 | 100 | 96.7 | 90 | 110 | |
| V | 51 | 1 | nogas | 53.804 | 22.898 | 2088062 | 2.81 | 100 | 53.8 | 90 | 110 | CCV Main CR1-2 Failed |
| Cr | 52 | 1 | nogas | 97.804 | 6.353 | 931163 | 1.53 | 100 | 97.8 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 96.113 | 7.951 | 1150744 | 2.76 | 100 | 96.1 | 90 | 110 | |
| Co | 59 | 1 | nogas | 94.986 | 4.682 | 980527 | 1.40 | 100 | 95.0 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 94.487 | 3.850 | 229132 | 1.54 | 100 | 94.5 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 95.863 | 5.321 | 578631 | 0.67 | 100 | 95.9 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 98.703 | 6.160 | 198256 | 0.85 | 100 | 98.7 | 90 | 110 | |
| As | 75 | 1 | nogas | 46.797 | 24.169 | 369460 | 2.75 | 100 | 46.8 | 90 | 110 | CCV Main CR1-2 Failed |
| Sr | 88 | 1 | nogas | 98.651 | 6.024 | 1257259 | 0.90 | 100 | 98.7 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 98.736 | 7.141 | 764874 | 2.10 | 100 | 98.7 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 94.425 | 2.286 | 163047 | 1.94 | 100 | 94.4 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 102.757 | 7.375 | 741234 | 2.30 | 100 | 102.8 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 97.603 | 3.602 | 1287454 | 3.01 | 100 | 97.6 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 100.562 | 2.742 | 1936140 | 1.27 | 100 | 100.6 | 90 | 110 | |
| U | 238 | 1 | nogas | 97.546 | 3.694 | 1807257 | 2.33 | 100 | 97.5 | 90 | 110 | |
| [Pb] | 206 | 1 | nogas | 97.280 | 2.813 | 471917 | 1.49 | 100 | 97.3 | 90 | 110 | |
| [Pb] | 207 | 1 | nogas | 97.175 | 2.453 | 430350 | 1.03 | 100 | 97.2 | 90 | 110 | |
| Na | 23 | 2 | He | 10287.868 | 3.748 | 1700173 | 2.37 | 10000 | 102.9 | 90 | 110 | |
| Mg | 24 | 2 | He | 9444.048 | 2.412 | 722901 | 1.20 | 10000 | 94.4 | 90 | 110 | |
| Al | 27 | 2 | He | 81.294 | 8.875 | 1813 | 9.89 | 100 | 81.3 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 2 | He | 7835.882 | 3.781 | 386138 | 3.67 | 10000 | 78.4 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 43 | 2 | He | 8672.506 | 11.393 | 1253 | 9.98 | 10000 | 86.7 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 44 | 2 | He | 8971.701 | 4.649 | 22090 | 4.11 | 10000 | 89.7 | 90 | 110 | CCV Main CR1-2 Failed |
| V | 51 | 2 | He | 97.230 | 3.050 | 91634 | 1.95 | 100 | 97.2 | 90 | 110 | |
| Cr | 52 | 2 | He | 100.672 | 1.539 | 128459 | 1.85 | 100 | 100.7 | 90 | 110 | |
| Mn | 55 | 2 | He | 90.202 | 1.247 | 45266 | 2.39 | 100 | 90.2 | 90 | 110 | |
| Fe | 56 | 2 | He | 9603.659 | 2.220 | 8699216 | 2.53 | 10000 | 96.0 | 90 | 110 | |
| Co | 59 | 2 | He | 103.680 | 2.787 | 223095 | 3.27 | 100 | 103.7 | 90 | 110 | |
| Ni | 60 | 2 | He | 101.083 | 4.601 | 63100 | 4.20 | 100 | 101.1 | 90 | 110 | |
| Cu | 63 | 2 | He | 100.123 | 4.907 | 176537 | 3.69 | 100 | 100.1 | 90 | 110 | |
| Zn | 66 | 2 | He | 99.718 | 5.207 | 26366 | 4.48 | 100 | 99.7 | 90 | 110 | |
| As | 75 | 2 | He | 98.833 | 0.424 | 17992 | 1.06 | 100 | 98.8 | 90 | 110 | |
| Se | 78 | 2 | He | 87.739 | 10.242 | 613 | 9.02 | 100 | 87.7 | 90 | 110 | CCV Main CR1-2 Failed |
| B | 11 | 1 | nogas | 503.407 | 2.468 | 709238 | 0.27 | 500 | 100.7 | 90 | 110 | |
| Si | 28 | 1 | nogas | 4862.299 | 7.466 | 16300650 | 1.90 | 5000 | 97.2 | 90 | 110 | |
| Ca | 43 | 1 | nogas | 10025.119 | 3.710 | 148762 | 2.03 | 10000 | 100.3 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 10059.022 | 3.004 | 2403714 | 2.67 | 10000 | 100.6 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 9552.313 | 5.542 | 99417075 | 1.01 | 10000 | 95.5 | 90 | 110 | |
| Se | 77 | 1 | nogas | -53.919 | -48.353 | 63953 | 4.88 | 100 | -53.9 | 90 | 110 | CCV Main CR1-2 Failed |
| Se | 82 | 1 | nogas | 91.120 | 11.574 | 10847 | 6.68 | 100 | 91.1 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 95.512 | 5.451 | 275340 | 2.13 | 100 | 95.5 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 99.475 | 2.743 | 418028 | 1.23 | 100 | 99.5 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 94.045 | 1.750 | 213463 | 1.15 | 100 | 94.0 | 90 | 110 | |
| Sb | 121 | 2 | He | 95.644 | 3.683 | 76535 | 2.43 | 100 | 95.6 | 90 | 110 | |
| Li | 7 | 1 | nogas | 99.695 | 4.796 | 522196 | 2.36 | 100 | 99.7 | 90 | 110 | |
| P | 31 | 1 | nogas | 464.735 | 8.598 | 279179 | 2.54 | 500 | 92.9 | 90 | 110 | |
| La | 139 | 1 | nogas | 185.821 | 28.087 | 483 | 21.73 | 100 | 185.8 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | -1175.611 | -127.018 | 20 | 86.60 | 100 | -1175.6 | 90 | 110 | CCV Main CR1-2 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 250230 | 2.48 | 252377 | 99.15 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1213070 | 5.39 | 1286445 | 94.30 | 70 | 125 | |
| In | 115 | 1 | nogas | 1254658 | 2.09 | 1344417 | 93.32 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1225414 | 1.48 | 1284048 | 95.43 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 92398 | 1.32 | 111777 | 82.66 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 106_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T13:30:57-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 010CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.153 | 54.5 | 413 | 50.4 | 1 | |
| Na | 23 | 1 | nogas | 137.457 | 4.6 | 2678870 | 3.4 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 1 | nogas | 20.273 | 52.2 | 128283 | 51.1 | 100 | |
| Al | 27 | 1 | nogas | 0.695 | 14.5 | 14519 | 2.7 | 5 | |
| K | 39 | 1 | nogas | 7.503 | 166.2 | 3835868 | 0.1 | 100 | |
| Ti | 47 | 1 | nogas | 1.251 | 14.5 | 1200 | 12.8 | 2.5 | |
| V | 51 | 1 | nogas | -15.259 | -64.4 | 1183331 | 8.3 | 2.5 | |
| Cr | 52 | 1 | nogas | -1.029 | -14.8 | 30809 | 2.4 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.054 | 184.3 | 10446 | 13.5 | 2.5 | |
| Co | 59 | 1 | nogas | 0.143 | 82.8 | 2030 | 61.9 | 2.5 | |
| Ni | 60 | 1 | nogas | -0.098 | -27.5 | 2634 | 4.2 | 2.5 | |
| Cu | 63 | 1 | nogas | -0.142 | -24.0 | 5564 | 5.9 | 2.5 | |
| Zn | 66 | 1 | nogas | -0.069 | -194.3 | 1203 | 24.3 | 2.5 | |
| As | 75 | 1 | nogas | -29.352 | -16.3 | 169655 | 5.1 | 2.5 | |
| Sr | 88 | 1 | nogas | 0.495 | 13.4 | 7048 | 14.1 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.099 | 38.5 | 997 | 31.6 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.134 | 27.4 | 247 | 27.0 | 1 | |
| Sb | 121 | 1 | nogas | 0.180 | 46.3 | 2970 | 22.2 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.600 | 61.3 | 8296 | 61.6 | 1 | |
| Pb | 208 | 1 | nogas | 0.160 | 70.4 | 3617 | 63.2 | 2.5 | |
| U | 238 | 1 | nogas | 0.195 | 60.0 | 4191 | 54.7 | 2.5 | |
| [Pb] | 206 | 1 | nogas | 0.147 | 85.7 | 873 | 73.6 | 2.5 | |
| [Pb] | 207 | 1 | nogas | 0.168 | 58.5 | 867 | 53.0 | 2.5 | |
| Na | 23 | 2 | He | 214.797 | 6.0 | 71922 | 1.8 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 2 | He | 9.686 | 10.1 | 980 | 6.7 | 100 | |
| Al | 27 | 2 | He | 2.386 | 72.5 | 107 | 35.5 | 5 | |
| K | 39 | 2 | He | -16.229 | -59.0 | 10140 | 4.5 | 100 | |
| Ca | 43 | 2 | He | 44.837 | 319.1 | 23 | 89.2 | 100 | |
| Ca | 44 | 2 | He | 57.937 | 8.1 | 230 | 4.3 | 100 | |
| V | 51 | 2 | He | 0.431 | 8.0 | 599 | 6.5 | 2.5 | |
| Cr | 52 | 2 | He | 0.221 | 33.5 | 1730 | 4.0 | 2.5 | |
| Mn | 55 | 2 | He | -0.106 | -145.4 | 223 | 36.5 | 2.5 | |
| Fe | 56 | 2 | He | 8.176 | 12.4 | 12881 | 5.8 | 100 | |
| Co | 59 | 2 | He | 0.051 | 36.6 | 223 | 18.1 | 2.5 | |
| Ni | 60 | 2 | He | 0.732 | 39.3 | 547 | 32.1 | 2.5 | |
| Cu | 63 | 2 | He | 0.334 | 25.1 | 947 | 15.3 | 2.5 | |
| Zn | 66 | 2 | He | 0.293 | 62.2 | 77 | 64.3 | 2.5 | |
| As | 75 | 2 | He | 0.014 | 448.5 | 23 | 49.5 | 2.5 | |
| Se | 78 | 2 | He | -0.366 | -79.1 | 4 | 50.0 | 2.5 | |
| B | 11 | 1 | nogas | 33.953 | 5.8 | 86225 | 2.4 | 10 | CCB Main CR1 Failed |
| Si | 28 | 1 | nogas | 32.702 | 9.7 | 807470 | 2.6 | 5 | CCB Main CR1 Failed |
| Ca | 43 | 1 | nogas | 54.673 | 16.5 | 1227 | 12.0 | 100 | |
| Ca | 44 | 1 | nogas | -197.427 | -2.1 | 70620 | 3.6 | 100 | |
| Fe | 56 | 1 | nogas | 13.256 | 71.4 | 842117 | 13.7 | 100 | |
| Se | 77 | 1 | nogas | -79.707 | -21.9 | 56582 | 5.8 | 2.5 | |
| Se | 82 | 1 | nogas | -0.134 | -187.8 | 350 | 10.3 | 2.5 | |
| Mo | 95 | 1 | nogas | -0.507 | -35.3 | 1743 | 31.2 | 2.5 | |
| Sn | 118 | 1 | nogas | 0.320 | 45.8 | 1970 | 32.5 | 5 | |

# Continuing Calibration Blank (CCB) Report

| Ba | 137 | 1 | nogas | 0.082 | 140.5 | 613 | 44.2 | 2.5 | |
|---|---|---|---|---|---|---|---|---|---|
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Sb | 121 | 2 | He | -0.029 | -279.8 | 177 | 36.4 | 2.5 | |
| P | 31 | 1 | nogas | 3.208 | 33.7 | 38179 | 0.9 | 10 | |
| La | 139 | 1 | nogas | -28.508 | -33.2 | 70 | 24.7 | 2.5 | |
| Au | 197 | 1 | nogas | -4.915 | -9765.4 | 7 | 86.6 | 2.5 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 288446 | 1.79 | 252377 | 114.29 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1188601 | 2.25 | 1286445 | 92.39 | 70 | 125 | |
| In | 115 | 1 | nogas | 1266373 | 1.36 | 1344417 | 94.20 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1262978 | 1.28 | 1284048 | 98.36 | 70 | 125 | |
| Ge | 72 | 2 | He | 94727 | 1.54 | 111777 | 84.75 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 117_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T13:53:15-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 010CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 82.430 | 7.407 | 189860 | 4.37 | 100 | 82.4 | 90 | 110 | CCV Main CR1-2 Failed |
| Na | 23 | 1 | nogas | 10153.045 | 1.770 | 90437467 | 1.45 | 10000 | 101.5 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 10059.063 | 2.173 | 58360264 | 2.76 | 10000 | 100.6 | 90 | 110 | |
| Al | 27 | 1 | nogas | 107.205 | 6.409 | 742370 | 3.84 | 100 | 107.2 | 90 | 110 | |
| K | 39 | 1 | nogas | 10022.394 | 2.876 | 72250358 | 3.55 | 10000 | 100.2 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 97.672 | 3.999 | 67912 | 1.26 | 100 | 97.7 | 90 | 110 | |
| V | 51 | 1 | nogas | 66.102 | 11.595 | 2163787 | 2.90 | 100 | 66.1 | 90 | 110 | CCV Main CR1-2 Failed |
| Cr | 52 | 1 | nogas | 103.234 | 3.350 | 944983 | 3.30 | 100 | 103.2 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 107.135 | 7.952 | 1234571 | 5.64 | 100 | 107.1 | 90 | 110 | |
| Co | 59 | 1 | nogas | 101.584 | 3.477 | 1009705 | 2.13 | 100 | 101.6 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 98.830 | 4.943 | 230476 | 1.51 | 100 | 98.8 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 96.369 | 2.581 | 560255 | 1.01 | 100 | 96.4 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 100.063 | 0.273 | 193758 | 3.62 | 100 | 100.1 | 90 | 110 | |
| As | 75 | 1 | nogas | 53.978 | 11.045 | 374108 | 3.48 | 100 | 54.0 | 90 | 110 | CCV Main CR1-2 Failed |
| Sr | 88 | 1 | nogas | 102.729 | 6.539 | 1260488 | 3.98 | 100 | 102.7 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 102.410 | 4.120 | 764393 | 1.10 | 100 | 102.4 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 95.470 | 3.266 | 167625 | 2.57 | 100 | 95.5 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 105.738 | 1.950 | 735288 | 1.50 | 100 | 105.7 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 100.818 | 6.616 | 1308099 | 5.01 | 100 | 100.8 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 102.379 | 4.415 | 1939250 | 2.21 | 100 | 102.4 | 90 | 110 | |
| U | 238 | 1 | nogas | 103.426 | 1.426 | 1886378 | 2.03 | 100 | 103.4 | 90 | 110 | |
| [Pb] | 206 | 1 | nogas | 98.356 | 6.474 | 469214 | 3.71 | 100 | 98.4 | 90 | 110 | |
| [Pb] | 207 | 1 | nogas | 98.038 | 4.253 | 427125 | 1.60 | 100 | 98.0 | 90 | 110 | |
| Na | 23 | 2 | He | 10496.704 | 0.231 | 1731781 | 1.03 | 10000 | 105.0 | 90 | 110 | |
| Mg | 24 | 2 | He | 9616.489 | 0.521 | 735089 | 1.24 | 10000 | 96.2 | 90 | 110 | |
| Al | 27 | 2 | He | 85.313 | 6.324 | 1897 | 6.96 | 100 | 85.3 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 2 | He | 7914.357 | 0.372 | 389896 | 0.36 | 10000 | 79.1 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 43 | 2 | He | 8403.388 | 17.191 | 1213 | 16.37 | 10000 | 84.0 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 44 | 2 | He | 9020.056 | 1.557 | 22180 | 2.44 | 10000 | 90.2 | 90 | 110 | |
| V | 51 | 2 | He | 97.362 | 0.874 | 91631 | 0.62 | 100 | 97.4 | 90 | 110 | |
| Cr | 52 | 2 | He | 99.470 | 3.121 | 126725 | 2.48 | 100 | 99.5 | 90 | 110 | |
| Mn | 55 | 2 | He | 91.365 | 1.607 | 45767 | 1.24 | 100 | 91.4 | 90 | 110 | |
| Fe | 56 | 2 | He | 9612.320 | 0.691 | 8692931 | 0.32 | 10000 | 96.1 | 90 | 110 | |
| Co | 59 | 2 | He | 104.276 | 1.782 | 224031 | 2.66 | 100 | 104.3 | 90 | 110 | |
| Ni | 60 | 2 | He | 103.179 | 0.637 | 64317 | 1.39 | 100 | 103.2 | 90 | 110 | |
| Cu | 63 | 2 | He | 100.606 | 2.504 | 177154 | 1.63 | 100 | 100.6 | 90 | 110 | |
| Zn | 66 | 2 | He | 95.498 | 2.549 | 25214 | 1.94 | 100 | 95.5 | 90 | 110 | |
| As | 75 | 2 | He | 98.958 | 2.234 | 17989 | 3.07 | 100 | 99.0 | 90 | 110 | |
| Se | 78 | 2 | He | 93.675 | 7.139 | 654 | 7.44 | 100 | 93.7 | 90 | 110 | |
| B | 11 | 1 | nogas | 463.460 | 5.268 | 698259 | 2.07 | 500 | 92.7 | 90 | 110 | |
| Si | 28 | 1 | nogas | 5228.812 | 6.703 | 16834966 | 4.41 | 5000 | 104.6 | 90 | 110 | |
| Ca | 43 | 1 | nogas | 10126.100 | 3.224 | 144635 | 1.73 | 10000 | 101.3 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 9819.632 | 3.495 | 2261013 | 2.65 | 10000 | 98.2 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 10225.906 | 3.194 | 102480113 | 2.60 | 10000 | 102.3 | 90 | 110 | |
| Se | 77 | 1 | nogas | -42.291 | -35.405 | 64484 | 5.30 | 100 | -42.3 | 90 | 110 | CCV Main CR1-2 Failed |
| Se | 82 | 1 | nogas | 101.174 | 0.225 | 11591 | 3.61 | 100 | 101.2 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 97.921 | 1.947 | 271856 | 2.30 | 100 | 97.9 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 100.557 | 2.977 | 429816 | 3.18 | 100 | 100.6 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 91.020 | 0.607 | 210129 | 1.58 | 100 | 91.0 | 90 | 110 | |
| Sb | 121 | 2 | He | 97.145 | 1.286 | 77629 | 0.67 | 100 | 97.1 | 90 | 110 | |
| Li | 7 | 1 | nogas | 91.062 | 4.943 | 510567 | 1.72 | 100 | 91.1 | 90 | 110 | |
| P | 31 | 1 | nogas | 487.439 | 5.912 | 280381 | 2.89 | 500 | 97.5 | 90 | 110 | |
| La | 139 | 1 | nogas | 155.212 | 41.039 | 430 | 28.29 | 100 | 155.2 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | -1517.279 | -92.990 | 23 | 65.47 | 100 | -1517.3 | 90 | 110 | CCV Main CR1-2 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 266832 | 3.31 | 252377 | 105.73 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1166939 | 3.48 | 1286445 | 90.71 | 70 | 125 | |
| In | 115 | 1 | nogas | 1275725 | 0.99 | 1344417 | 94.89 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1206232 | 3.10 | 1284048 | 93.94 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 92251 | 0.88 | 111777 | 82.53 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 118_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T13:55:14-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 010CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.114 | 70.2 | 317 | 64.4 | 1 | |
| Na | 23 | 1 | nogas | 159.798 | 10.9 | 2850902 | 2.5 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 1 | nogas | 16.984 | 57.9 | 107398 | 56.6 | 100 | |
| Al | 27 | 1 | nogas | 0.261 | 35.2 | 12144 | 6.8 | 5 | |
| K | 39 | 1 | nogas | -27.706 | -69.5 | 3789442 | 1.9 | 100 | |
| Ti | 47 | 1 | nogas | 0.441 | 17.8 | 663 | 13.0 | 2.5 | |
| V | 51 | 1 | nogas | -25.736 | -39.3 | 1108323 | 7.0 | 2.5 | |
| Cr | 52 | 1 | nogas | -1.521 | -7.8 | 27875 | 2.1 | 2.5 | |
| Mn | 55 | 1 | nogas | -0.069 | -104.6 | 9526 | 14.0 | 2.5 | |
| Co | 59 | 1 | nogas | 0.109 | 86.1 | 1797 | 62.8 | 2.5 | |
| Ni | 60 | 1 | nogas | -0.299 | -9.1 | 2287 | 8.7 | 2.5 | |
| Cu | 63 | 1 | nogas | -0.171 | -45.2 | 5684 | 4.8 | 2.5 | |
| Zn | 66 | 1 | nogas | -0.213 | -67.9 | 980 | 36.5 | 2.5 | |
| As | 75 | 1 | nogas | -35.374 | -18.5 | 162623 | 5.6 | 2.5 | |
| Sr | 88 | 1 | nogas | 0.264 | 20.6 | 4401 | 21.0 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.076 | 51.1 | 873 | 41.5 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.111 | 73.3 | 203 | 70.3 | 1 | |
| Sb | 121 | 1 | nogas | 0.212 | 22.8 | 3380 | 15.9 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.589 | 61.2 | 7979 | 60.5 | 1 | |
| Pb | 208 | 1 | nogas | 0.119 | 76.4 | 2737 | 64.9 | 2.5 | |
| U | 238 | 1 | nogas | 0.152 | 71.2 | 3301 | 61.8 | 2.5 | |
| [Pb] | 206 | 1 | nogas | 0.130 | 71.1 | 770 | 59.0 | 2.5 | |
| [Pb] | 207 | 1 | nogas | 0.125 | 91.1 | 657 | 77.8 | 2.5 | |
| Na | 23 | 2 | He | 228.073 | 0.4 | 74807 | 0.8 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 2 | He | 7.199 | 21.5 | 793 | 16.5 | 100 | |
| Al | 27 | 2 | He | 0.099 | 1432.8 | 57 | 56.7 | 5 | |
| K | 39 | 2 | He | -13.374 | -50.0 | 10276 | 3.1 | 100 | |
| Ca | 43 | 2 | He | -70.833 | -55.0 | 7 | 86.6 | 100 | |
| Ca | 44 | 2 | He | 47.891 | 26.3 | 207 | 15.6 | 100 | |
| V | 51 | 2 | He | 0.365 | 10.8 | 539 | 7.4 | 2.5 | |
| Cr | 52 | 2 | He | 0.100 | 186.7 | 1587 | 14.6 | 2.5 | |
| Mn | 55 | 2 | He | -0.154 | -21.1 | 200 | 8.7 | 2.5 | |
| Fe | 56 | 2 | He | 4.639 | 10.4 | 9696 | 5.1 | 100 | |
| Co | 59 | 2 | He | 0.016 | 188.2 | 147 | 45.4 | 2.5 | |
| Ni | 60 | 2 | He | 0.437 | 12.5 | 363 | 9.7 | 2.5 | |
| Cu | 63 | 2 | He | 0.267 | 9.1 | 833 | 5.5 | 2.5 | |
| Zn | 66 | 2 | He | 0.169 | 33.8 | 43 | 35.3 | 2.5 | |
| As | 75 | 2 | He | 0.060 | 103.5 | 32 | 36.3 | 2.5 | |
| Se | 78 | 2 | He | -0.372 | -150.9 | 4 | 100.0 | 2.5 | |
| B | 11 | 1 | nogas | 36.126 | 3.4 | 89781 | 2.8 | 10 | CCB Main CR1 Failed |
| Si | 28 | 1 | nogas | 17.827 | 42.7 | 802834 | 3.6 | 5 | CCB Main CR1 Failed |
| Ca | 43 | 1 | nogas | 39.456 | 37.5 | 1070 | 27.5 | 100 | |
| Ca | 44 | 1 | nogas | -256.798 | -2.4 | 60555 | 3.3 | 100 | |
| Fe | 56 | 1 | nogas | 4.580 | 170.1 | 798080 | 16.1 | 100 | |
| Se | 77 | 1 | nogas | -103.682 | -21.3 | 53489 | 6.1 | 2.5 | |
| Se | 82 | 1 | nogas | -0.225 | -204.7 | 357 | 11.3 | 2.5 | |
| Mo | 95 | 1 | nogas | -0.631 | -17.3 | 1477 | 27.3 | 2.5 | |
| Sn | 118 | 1 | nogas | 0.267 | 37.2 | 1720 | 25.4 | 5 | |

# Continuing Calibration Blank (CCB) Report

| Ba | 137 | 1 | nogas | -0.017 | -429.3 | 380 | 45.7 | 2.5 | |
|---|---|---|---|---|---|---|---|---|---|
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Sb | 121 | 2 | He | 0.073 | 162.7 | 263 | 37.5 | 2.5 | |
| P | 31 | 1 | nogas | -3.405 | -83.9 | 36713 | 1.4 | 10 | |
| La | 139 | 1 | nogas | -10.849 | -237.5 | 103 | 48.7 | 2.5 | |
| Au | 197 | 1 | nogas | -580.173 | -222.8 | 13 | 114.6 | 2.5 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 288905 | 1.79 | 252377 | 114.47 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1255773 | 5.74 | 1286445 | 97.62 | 70 | 125 | |
| In | 115 | 1 | nogas | 1250610 | 1.88 | 1344417 | 93.02 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1243292 | 0.49 | 1284048 | 96.83 | 70 | 125 | |
| Ge | 72 | 2 | He | 95574 | 0.95 | 111777 | 85.50 | 70 | 125 | |

# Calibration Blank Report

**Sample Table**

| | |
|---|---|
| Sample Name | CAL BLK |
| Data File Name | 122CALB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T14:03:18-06:00 |
| Sample Type | CalBlk |
| Level | 1 |
| Dilution | 1 |
| Comment | |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 60 | 27.78 |
| Na | 23 | 1 | nogas | 2389593 | 0.00 |
| Mg | 24 | 1 | nogas | 18746 | 0.03 |
| Al | 27 | 1 | nogas | 10106 | 0.02 |
| K | 39 | 1 | nogas | 3753762 | 0.00 |
| Ti | 47 | 1 | nogas | 607 | 3.96 |
| V | 51 | 1 | nogas | 1239093 | 0.00 |
| Cr | 52 | 1 | nogas | 30706 | 0.01 |
| Mn | 55 | 1 | nogas | 7528 | 0.05 |
| Co | 59 | 1 | nogas | 293 | 3.55 |
| Ni | 60 | 1 | nogas | 2013 | 0.47 |
| Cu | 63 | 1 | nogas | 4664 | 0.05 |
| Zn | 66 | 1 | nogas | 743 | 1.79 |
| As | 75 | 1 | nogas | 175056 | 0.00 |
| Sr | 88 | 1 | nogas | 1440 | 0.84 |
| Ag | 107 | 1 | nogas | 283 | 8.29 |
| Cd | 111 | 1 | nogas | 13 | 324.76 |
| Sb | 121 | 1 | nogas | 1057 | 1.63 |
| Tl | 205 | 1 | nogas | 193 | 10.13 |
| Pb | 208 | 1 | nogas | 273 | 3.37 |
| [Pb] | 206 | 1 | nogas | 60 | 48.11 |
| [Pb] | 207 | 1 | nogas | 70 | 40.82 |
| Na | 23 | 2 | He | 67011 | 0.00 |
| Mg | 24 | 2 | He | 327 | 5.16 |
| Al | 27 | 2 | He | 103 | 60.93 |
| K | 39 | 2 | He | 9919 | 0.03 |
| Ca | 43 | 2 | He | 7 | 2598.08 |
| Ca | 44 | 2 | He | 117 | 22.45 |
| V | 51 | 2 | He | 484 | 1.52 |
| Cr | 52 | 2 | He | 1677 | 0.98 |
| Mn | 55 | 2 | He | 190 | 14.39 |
| Fe | 56 | 2 | He | 6401 | 0.05 |
| Co | 59 | 2 | He | 57 | 89.90 |
| Ni | 60 | 2 | He | 443 | 3.89 |
| Cu | 63 | 2 | He | 817 | 1.86 |
| Zn | 66 | 2 | He | 80 | 71.60 |
| As | 75 | 2 | He | 31 | 71.72 |
| Se | 78 | 2 | He | 2 | 8660.25 |
| B | 11 | 1 | nogas | 57901 | 0.00 |
| Si | 28 | 1 | nogas | 636348 | 0.00 |
| Ca | 43 | 1 | nogas | 630 | 2.15 |
| Ca | 44 | 1 | nogas | 56077 | 0.00 |

# Calibration Blank Report

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Fe | 56 | 1 | nogas | 658953 | 0.00 |
| Se | 77 | 1 | nogas | 57996 | 0.01 |
| Se | 82 | 1 | nogas | 367 | 3.82 |
| Mo | 95 | 1 | nogas | 933 | 1.19 |
| Sn | 118 | 1 | nogas | 537 | 1.97 |
| Ba | 137 | 1 | nogas | 327 | 4.43 |
| Sb | 121 | 2 | He | 87 | 40.67 |
| Li | 7 | 1 | nogas | 26198 | 0.02 |
| P | 31 | 1 | nogas | 37093 | 0.01 |
| La | 139 | 1 | nogas | 183 | 25.65 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 296893 | 2.79 |
| Ge | 72 | 1 | nogas | 1226431 | 3.39 |
| In | 115 | 1 | nogas | 1308607 | 4.61 |
| Bi | 209 | 1 | nogas | 1207116 | 2.43 |
| Ge | 72 | 2 | He | 95588 | 2.86 |

# Calibration Standard Report

**Sample Table**

| | |
|---|---|
| Sample Name | 2/10/200 |
| Data File Name | 123CALS.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T14:05:19-06:00 |
| Sample Type | CalStd |
| Level | 2 |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 122CALB.d |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 4394 | 0.16 |
| Na | 23 | 1 | nogas | 4209589 | 0.00 |
| Mg | 24 | 1 | nogas | 1333198 | 0.00 |
| Al | 27 | 1 | nogas | 27294 | 0.01 |
| K | 39 | 1 | nogas | 5216119 | 0.00 |
| Ti | 47 | 1 | nogas | 2060 | 0.19 |
| V | 51 | 1 | nogas | 1287138 | 0.00 |
| Cr | 52 | 1 | nogas | 49590 | 0.01 |
| Mn | 55 | 1 | nogas | 34065 | 0.01 |
| Co | 59 | 1 | nogas | 21890 | 0.01 |
| Ni | 60 | 1 | nogas | 6661 | 0.06 |
| Cu | 63 | 1 | nogas | 16221 | 0.02 |
| Zn | 66 | 1 | nogas | 5421 | 0.18 |
| As | 75 | 1 | nogas | 182647 | 0.00 |
| Sr | 88 | 1 | nogas | 30413 | 0.00 |
| Ag | 107 | 1 | nogas | 16748 | 0.02 |
| Cd | 111 | 1 | nogas | 3357 | 0.11 |
| Sb | 121 | 1 | nogas | 17089 | 0.02 |
| Tl | 205 | 1 | nogas | 29828 | 0.02 |
| Pb | 208 | 1 | nogas | 41835 | 0.01 |
| [Pb] | 206 | 1 | nogas | 10197 | 0.05 |
| [Pb] | 207 | 1 | nogas | 9276 | 0.07 |
| Na | 23 | 2 | He | 101247 | 0.00 |
| Mg | 24 | 2 | He | 16164 | 0.02 |
| Al | 27 | 2 | He | 147 | 9.68 |
| K | 39 | 2 | He | 18810 | 0.03 |
| Ca | 43 | 2 | He | 33 | 137.48 |
| Ca | 44 | 2 | He | 623 | 0.54 |
| V | 51 | 2 | He | 2472 | 0.29 |
| Cr | 52 | 2 | He | 4464 | 0.15 |
| Mn | 55 | 2 | He | 1300 | 0.65 |
| Fe | 56 | 2 | He | 206470 | 0.00 |
| Co | 59 | 2 | He | 5034 | 0.08 |
| Ni | 60 | 2 | He | 1847 | 0.28 |
| Cu | 63 | 2 | He | 4667 | 0.23 |
| Zn | 66 | 2 | He | 733 | 1.14 |
| As | 75 | 2 | He | 386 | 3.25 |
| Se | 78 | 2 | He | 19 | 231.97 |
| B | 11 | 1 | nogas | 70140 | 0.01 |
| Si | 28 | 1 | nogas | 973915 | 0.00 |

# Calibration Standard Report

| Ca | 43 | 1 | nogas | 3500 | 0.11 |
|---|---|---|---|---|---|
| Ca | 44 | 1 | nogas | 106288 | 0.00 |
| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
| Fe | 56 | 1 | nogas | 2944159 | 0.00 |
| Se | 77 | 1 | nogas | 57411 | 0.01 |
| Se | 82 | 1 | nogas | 580 | 3.13 |
| Mo | 95 | 1 | nogas | 6685 | 0.06 |
| Sn | 118 | 1 | nogas | 9396 | 0.04 |
| Ba | 137 | 1 | nogas | 5071 | 0.12 |
| Sb | 121 | 2 | He | 1783 | 0.83 |
| P | 31 | 1 | nogas | 43497 | 0.00 |
| La | 139 | 1 | nogas | 77 | 35.42 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 299892 | 0.94 | 296893 | 101.01 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1218304 | 2.69 | 1226431 | 99.34 | 70 | 125 | |
| In | 115 | 1 | nogas | 1281110 | 5.08 | 1308607 | 97.90 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1219545 | 3.72 | 1207116 | 101.03 | 70 | 125 | |
| Ge | 72 | 2 | He | 94968 | 1.38 | 95588 | 99.35 | 70 | 125 | |

# Calibration Standard Report

**Sample Table**

| | |
|---|---|
| Sample Name | 5/25/500 |
| Data File Name | 124CALS.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T14:07:20-06:00 |
| Sample Type | CalStd |
| Level | 3 |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 122CALB.d |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 10570 | 0.03 |
| Na | 23 | 1 | nogas | 7152639 | 0.00 |
| Mg | 24 | 1 | nogas | 3304047 | 0.00 |
| Al | 27 | 1 | nogas | 48988 | 0.01 |
| K | 39 | 1 | nogas | 7444487 | 0.00 |
| Ti | 47 | 1 | nogas | 4601 | 0.11 |
| V | 51 | 1 | nogas | 1393000 | 0.00 |
| Cr | 52 | 1 | nogas | 81470 | 0.00 |
| Mn | 55 | 1 | nogas | 72681 | 0.00 |
| Co | 59 | 1 | nogas | 54572 | 0.00 |
| Ni | 60 | 1 | nogas | 14022 | 0.03 |
| Cu | 63 | 1 | nogas | 35545 | 0.01 |
| Zn | 66 | 1 | nogas | 11801 | 0.01 |
| As | 75 | 1 | nogas | 196680 | 0.00 |
| Sr | 88 | 1 | nogas | 70928 | 0.00 |
| Ag | 107 | 1 | nogas | 42198 | 0.01 |
| Cd | 111 | 1 | nogas | 8766 | 0.04 |
| Sb | 121 | 1 | nogas | 41193 | 0.01 |
| Tl | 205 | 1 | nogas | 74112 | 0.00 |
| Pb | 208 | 1 | nogas | 104278 | 0.00 |
| [Pb] | 206 | 1 | nogas | 26198 | 0.01 |
| [Pb] | 207 | 1 | nogas | 22926 | 0.01 |
| Na | 23 | 2 | He | 153429 | 0.00 |
| Mg | 24 | 2 | He | 39562 | 0.00 |
| Al | 27 | 2 | He | 177 | 19.58 |
| K | 39 | 2 | He | 31109 | 0.00 |
| Ca | 43 | 2 | He | 87 | 20.34 |
| Ca | 44 | 2 | He | 1137 | 0.82 |
| V | 51 | 2 | He | 5561 | 0.01 |
| Cr | 52 | 2 | He | 8926 | 0.04 |
| Mn | 55 | 2 | He | 2714 | 0.06 |
| Fe | 56 | 2 | He | 500592 | 0.00 |
| Co | 59 | 2 | He | 12391 | 0.03 |
| Ni | 60 | 2 | He | 3817 | 0.17 |
| Cu | 63 | 2 | He | 10597 | 0.02 |
| Zn | 66 | 2 | He | 1480 | 0.32 |
| As | 75 | 2 | He | 917 | 0.24 |
| Se | 78 | 2 | He | 41 | 68.77 |
| B | 11 | 1 | nogas | 89735 | 0.00 |
| Si | 28 | 1 | nogas | 1593973 | 0.00 |

# Calibration Standard Report

| Ca | 43 | 1 | nogas | 8292 | 0.08 |
|---|---|---|---|---|---|
| Ca | 44 | 1 | nogas | 182191 | 0.00 |
| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
| Fe | 56 | 1 | nogas | 6273194 | 0.00 |
| Se | 77 | 1 | nogas | 62487 | 0.01 |
| Se | 82 | 1 | nogas | 990 | 1.02 |
| Mo | 95 | 1 | nogas | 15440 | 0.01 |
| Sn | 118 | 1 | nogas | 22048 | 0.01 |
| Ba | 137 | 1 | nogas | 11861 | 0.04 |
| Sb | 121 | 2 | He | 4034 | 0.15 |
| P | 31 | 1 | nogas | 52503 | 0.00 |
| La | 139 | 1 | nogas | 57 | 95.14 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 292906 | 2.46 | 296893 | 98.66 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1258587 | 2.53 | 1226431 | 102.62 | 70 | 125 | |
| In | 115 | 1 | nogas | 1253598 | 1.92 | 1308607 | 95.80 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1240820 | 1.52 | 1207116 | 102.79 | 70 | 125 | |
| Ge | 72 | 2 | He | 95804 | 0.92 | 95588 | 100.23 | 70 | 125 | |

# Calibration Standard Report

**Sample Table**

| | |
|---|---|
| Sample Name | 10/50/1000 |
| Data File Name | 125CALS.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T14:09:20-06:00 |
| Sample Type | CalStd |
| Level | 4 |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 122CALB.d |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 21960 | 0.01 |
| Na | 23 | 1 | nogas | 12434642 | 0.00 |
| Mg | 24 | 1 | nogas | 6611697 | 0.00 |
| Al | 27 | 1 | nogas | 87598 | 0.00 |
| K | 39 | 1 | nogas | 11421311 | 0.00 |
| Ti | 47 | 1 | nogas | 8535 | 0.08 |
| V | 51 | 1 | nogas | 1512710 | 0.00 |
| Cr | 52 | 1 | nogas | 133098 | 0.00 |
| Mn | 55 | 1 | nogas | 142413 | 0.00 |
| Co | 59 | 1 | nogas | 107409 | 0.00 |
| Ni | 60 | 1 | nogas | 25809 | 0.02 |
| Cu | 63 | 1 | nogas | 65712 | 0.00 |
| Zn | 66 | 1 | nogas | 22321 | 0.02 |
| As | 75 | 1 | nogas | 222383 | 0.00 |
| Sr | 88 | 1 | nogas | 144415 | 0.00 |
| Ag | 107 | 1 | nogas | 83934 | 0.00 |
| Cd | 111 | 1 | nogas | 17686 | 0.03 |
| Sb | 121 | 1 | nogas | 82006 | 0.00 |
| Tl | 205 | 1 | nogas | 148668 | 0.00 |
| Pb | 208 | 1 | nogas | 213229 | 0.00 |
| [Pb] | 206 | 1 | nogas | 52863 | 0.00 |
| [Pb] | 207 | 1 | nogas | 47253 | 0.00 |
| Na | 23 | 2 | He | 247148 | 0.00 |
| Mg | 24 | 2 | He | 83113 | 0.00 |
| Al | 27 | 2 | He | 243 | 5.43 |
| K | 39 | 2 | He | 50796 | 0.01 |
| Ca | 43 | 2 | He | 93 | 43.46 |
| Ca | 44 | 2 | He | 2414 | 0.25 |
| V | 51 | 2 | He | 10556 | 0.01 |
| Cr | 52 | 2 | He | 15440 | 0.01 |
| Mn | 55 | 2 | He | 4811 | 0.06 |
| Fe | 56 | 2 | He | 1012374 | 0.00 |
| Co | 59 | 2 | He | 24931 | 0.00 |
| Ni | 60 | 2 | He | 7582 | 0.05 |
| Cu | 63 | 2 | He | 20342 | 0.01 |
| Zn | 66 | 2 | He | 2854 | 0.21 |
| As | 75 | 2 | He | 2009 | 0.11 |
| Se | 78 | 2 | He | 65 | 49.66 |
| B | 11 | 1 | nogas | 124493 | 0.00 |
| Si | 28 | 1 | nogas | 2469072 | 0.00 |

# Calibration Standard Report

| | | | | | |
|---|---|---|---|---|---|
| Ca | 43 | 1 | nogas | 16548 | 0.01 |
| Ca | 44 | 1 | nogas | 314961 | 0.00 |
| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
| Fe | 56 | 1 | nogas | 11914399 | 0.00 |
| Se | 77 | 1 | nogas | 65909 | 0.01 |
| Se | 82 | 1 | nogas | 1540 | 0.78 |
| Mo | 95 | 1 | nogas | 30233 | 0.01 |
| Sn | 118 | 1 | nogas | 44774 | 0.00 |
| Ba | 137 | 1 | nogas | 22992 | 0.01 |
| Sb | 121 | 2 | He | 8179 | 0.07 |
| P | 31 | 1 | nogas | 66363 | 0.00 |
| La | 139 | 1 | nogas | 83 | 8.31 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 294923 | 3.00 | 296893 | 99.34 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1253131 | 3.53 | 1226431 | 102.18 | 70 | 125 | |
| In | 115 | 1 | nogas | 1297549 | 3.34 | 1308607 | 99.15 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1255611 | 0.16 | 1207116 | 104.02 | 70 | 125 | |
| Ge | 72 | 2 | He | 94464 | 2.77 | 95588 | 98.82 | 70 | 125 | |

# Calibration Standard Report

**Sample Table**

| | |
|---|---|
| Sample Name | 100/500/10K |
| Data File Name | 126CALS.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T14:11:19-06:00 |
| Sample Type | CalStd |
| Level | 5 |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 122CALB.d |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 203476 | 0.00 |
| Na | 23 | 1 | nogas | 93544388 | 0.00 |
| Mg | 24 | 1 | nogas | 59870389 | 0.00 |
| Al | 27 | 1 | nogas | 743004 | 0.00 |
| K | 39 | 1 | nogas | 72477850 | 0.00 |
| Ti | 47 | 1 | nogas | 70692 | 0.00 |
| V | 51 | 1 | nogas | 2407819 | 0.00 |
| Cr | 52 | 1 | nogas | 970954 | 0.00 |
| Mn | 55 | 1 | nogas | 1194546 | 0.00 |
| Co | 59 | 1 | nogas | 1012267 | 0.00 |
| Ni | 60 | 1 | nogas | 236273 | 0.00 |
| Cu | 63 | 1 | nogas | 568547 | 0.00 |
| Zn | 66 | 1 | nogas | 198218 | 0.00 |
| As | 75 | 1 | nogas | 407459 | 0.00 |
| Sr | 88 | 1 | nogas | 1284834 | 0.00 |
| Ag | 107 | 1 | nogas | 773885 | 0.00 |
| Cd | 111 | 1 | nogas | 165646 | 0.00 |
| Sb | 121 | 1 | nogas | 759435 | 0.00 |
| Tl | 205 | 1 | nogas | 1320217 | 0.00 |
| Pb | 208 | 1 | nogas | 1982483 | 0.00 |
| [Pb] | 206 | 1 | nogas | 481930 | 0.00 |
| [Pb] | 207 | 1 | nogas | 438435 | 0.00 |
| Na | 23 | 2 | He | 1749188 | 0.00 |
| Mg | 24 | 2 | He | 758986 | 0.00 |
| Al | 27 | 2 | He | 2060 | 0.11 |
| K | 39 | 2 | He | 391274 | 0.00 |
| Ca | 43 | 2 | He | 1250 | 1.06 |
| Ca | 44 | 2 | He | 22411 | 0.01 |
| V | 51 | 2 | He | 95359 | 0.00 |
| Cr | 52 | 2 | He | 128756 | 0.00 |
| Mn | 55 | 2 | He | 46155 | 0.00 |
| Fe | 56 | 2 | He | 8785055 | 0.00 |
| Co | 59 | 2 | He | 228528 | 0.00 |
| Ni | 60 | 2 | He | 65933 | 0.00 |
| Cu | 63 | 2 | He | 183464 | 0.00 |
| Zn | 66 | 2 | He | 26409 | 0.02 |
| As | 75 | 2 | He | 17944 | 0.02 |
| Se | 78 | 2 | He | 641 | 1.70 |
| B | 11 | 1 | nogas | 717426 | 0.00 |
| Si | 28 | 1 | nogas | 16839737 | 0.00 |

# Calibration Standard Report

| | | | | | |
|---|---|---|---|---|---|
| Ca | 43 | 1 | nogas | 147170 | 0.00 |
| Ca | 44 | 1 | nogas | 2391646 | 0.00 |
| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
| Fe | 56 | 1 | nogas | 105899802 | 0.00 |
| Se | 77 | 1 | nogas | 75115 | 0.01 |
| Se | 82 | 1 | nogas | 11767 | 0.04 |
| Mo | 95 | 1 | nogas | 274915 | 0.00 |
| Sn | 118 | 1 | nogas | 421874 | 0.00 |
| Ba | 137 | 1 | nogas | 218725 | 0.00 |
| Sb | 121 | 2 | He | 76696 | 0.00 |
| P | 31 | 1 | nogas | 284429 | 0.00 |
| La | 139 | 1 | nogas | 400 | 4.37 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 269959 | 5.21 | 296893 | 90.93 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1165218 | 2.91 | 1226431 | 95.01 | 70 | 125 | |
| In | 115 | 1 | nogas | 1241731 | 6.19 | 1308607 | 94.89 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1232931 | 1.77 | 1207116 | 102.14 | 70 | 125 | |
| Ge | 72 | 2 | He | 90412 | 5.91 | 95588 | 94.59 | 70 | 125 | |

# Calibration Standard Report

**Sample Table**

| | |
|---|---|
| Sample Name | 200/1000/20K |
| Data File Name | 127CALS.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T14:13:18-06:00 |
| Sample Type | CalStd |
| Level | 6 |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 122CALB.d |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 387377 | 0.00 |
| Na | 23 | 1 | nogas | 180949346 | 0.00 |
| Mg | 24 | 1 | nogas | 118090369 | 0.00 |
| Al | 27 | 1 | nogas | 1366073 | 0.00 |
| K | 39 | 1 | nogas | 137780757 | 0.00 |
| Ti | 47 | 1 | nogas | 137516 | 0.00 |
| V | 51 | 1 | nogas | 3389310 | 0.00 |
| Cr | 52 | 1 | nogas | 1800859 | 0.00 |
| Mn | 55 | 1 | nogas | 2384023 | 0.00 |
| Co | 59 | 1 | nogas | 1890671 | 0.00 |
| Ni | 60 | 1 | nogas | 440083 | 0.00 |
| Cu | 63 | 1 | nogas | 1085789 | 0.00 |
| Zn | 66 | 1 | nogas | 387041 | 0.00 |
| As | 75 | 1 | nogas | 625132 | 0.00 |
| Sr | 88 | 1 | nogas | 2508964 | 0.00 |
| Ag | 107 | 1 | nogas | 1447737 | 0.00 |
| Cd | 111 | 1 | nogas | 323204 | 0.00 |
| Sb | 121 | 1 | nogas | 1491930 | 0.00 |
| Tl | 205 | 1 | nogas | 2609232 | 0.00 |
| Pb | 208 | 1 | nogas | 3858733 | 0.00 |
| [Pb] | 206 | 1 | nogas | 953137 | 0.00 |
| [Pb] | 207 | 1 | nogas | 882784 | 0.00 |
| Na | 23 | 2 | He | 3356067 | 0.00 |
| Mg | 24 | 2 | He | 1422335 | 0.00 |
| Al | 27 | 2 | He | 3707 | 0.15 |
| K | 39 | 2 | He | 772983 | 0.00 |
| Ca | 43 | 2 | He | 2260 | 0.35 |
| Ca | 44 | 2 | He | 42853 | 0.01 |
| V | 51 | 2 | He | 186495 | 0.00 |
| Cr | 52 | 2 | He | 246274 | 0.00 |
| Mn | 55 | 2 | He | 86772 | 0.00 |
| Fe | 56 | 2 | He | 16963663 | 0.00 |
| Co | 59 | 2 | He | 444497 | 0.00 |
| Ni | 60 | 2 | He | 127927 | 0.00 |
| Cu | 63 | 2 | He | 361869 | 0.00 |
| Zn | 66 | 2 | He | 51396 | 0.00 |
| As | 75 | 2 | He | 35894 | 0.00 |
| Se | 78 | 2 | He | 1200 | 0.38 |
| B | 11 | 1 | nogas | 1415758 | 0.00 |
| Si | 28 | 1 | nogas | 30573565 | 0.00 |

# Calibration Standard Report

| | | | | | |
|---|---|---|---|---|---|
| Ca | 43 | 1 | nogas | 286088 | 0.00 |
| Ca | 44 | 1 | nogas | 4484381 | 0.00 |
| Name | Mass | Tune Step | Tune Mode | CPS | %RSD |
| Fe | 56 | 1 | nogas | 208679000 | 0.00 |
| Se | 77 | 1 | nogas | 88742 | 0.00 |
| Se | 82 | 1 | nogas | 21847 | 0.01 |
| Mo | 95 | 1 | nogas | 544706 | 0.00 |
| Sn | 118 | 1 | nogas | 816303 | 0.00 |
| Ba | 137 | 1 | nogas | 427704 | 0.00 |
| Sb | 121 | 2 | He | 149961 | 0.00 |
| P | 31 | 1 | nogas | 507226 | 0.00 |
| La | 139 | 1 | nogas | 397 | 1.32 |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 239920 | 2.87 | 296893 | 80.81 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1183160 | 1.29 | 1226431 | 96.47 | 70 | 125 | |
| In | 115 | 1 | nogas | 1238472 | 1.25 | 1308607 | 94.64 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1203693 | 0.62 | 1207116 | 99.72 | 70 | 125 | |
| Ge | 72 | 2 | He | 88763 | 2.72 | 95588 | 92.86 | 70 | 125 | |

# Initial Calibration Verification (ICV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | ICCV |
| Data File Name | 129_ICV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T14:17:20-06:00 |
| Sample Type | ICV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 122CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 99.915 | 6.320 | 197681 | 1.30 | 100 | 99.9 | 90 | 110 | |
| Na | 23 | 1 | nogas | 9620.729 | 0.835 | 91375315 | 1.53 | 10000 | 96.2 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 9804.200 | 1.329 | 59893260 | 1.78 | 10000 | 98.0 | 90 | 110 | |
| Al | 27 | 1 | nogas | 105.571 | 0.949 | 730868 | 1.26 | 100 | 105.6 | 90 | 110 | |
| K | 39 | 1 | nogas | 10307.341 | 2.048 | 72471297 | 0.28 | 10000 | 103.1 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 102.527 | 4.178 | 70489 | 3.47 | 100 | 102.5 | 90 | 110 | |
| V | 51 | 1 | nogas | 99.369 | 10.300 | 2290948 | 4.23 | 100 | 99.4 | 90 | 110 | |
| Cr | 52 | 1 | nogas | 104.008 | 4.764 | 953528 | 3.34 | 100 | 104.0 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 100.838 | 2.185 | 1195132 | 3.33 | 100 | 100.8 | 90 | 110 | |
| Co | 59 | 1 | nogas | 105.021 | 1.997 | 998167 | 2.02 | 100 | 105.0 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 101.063 | 1.290 | 225131 | 0.85 | 100 | 101.1 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 103.278 | 2.104 | 562635 | 1.10 | 100 | 103.3 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 101.738 | 3.386 | 196775 | 2.56 | 100 | 101.7 | 90 | 110 | |
| As | 75 | 1 | nogas | 96.413 | 3.184 | 390859 | 2.41 | 100 | 96.4 | 90 | 110 | |
| Sr | 88 | 1 | nogas | 104.798 | 3.905 | 1309530 | 1.99 | 100 | 104.8 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 105.408 | 3.821 | 766582 | 2.18 | 100 | 105.4 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 100.855 | 0.991 | 166870 | 1.74 | 100 | 100.9 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 103.939 | 1.950 | 771674 | 1.59 | 100 | 103.9 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 97.737 | 3.404 | 1297551 | 4.25 | 100 | 97.7 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 102.631 | 2.317 | 2020212 | 1.23 | 100 | 102.6 | 90 | 110 | |
| U | 238 | 1 | nogas | 105.431 | 1.468 | 1957601 | 2.94 | 100 | 105.4 | 90 | 110 | |
| [Pb] | 206 | 1 | nogas | 99.916 | 3.167 | 484301 | 2.55 | 100 | 99.9 | 90 | 110 | |
| [Pb] | 207 | 1 | nogas | 100.811 | 2.509 | 450951 | 2.06 | 100 | 100.8 | 90 | 110 | |
| Na | 23 | 2 | He | 9923.803 | 1.988 | 1734569 | 0.58 | 10000 | 99.2 | 90 | 110 | |
| Mg | 24 | 2 | He | 10020.036 | 0.322 | 735345 | 1.95 | 10000 | 100.2 | 90 | 110 | |
| Al | 27 | 2 | He | 97.259 | 4.369 | 1913 | 3.15 | 100 | 97.3 | 90 | 110 | |
| K | 39 | 2 | He | 9985.412 | 2.734 | 390940 | 2.66 | 10000 | 99.9 | 90 | 110 | |
| Ca | 43 | 2 | He | 10921.572 | 10.894 | 1283 | 10.17 | 10000 | 109.2 | 90 | 110 | |
| Ca | 44 | 2 | He | 10179.840 | 2.056 | 22434 | 3.14 | 10000 | 101.8 | 90 | 110 | |
| V | 51 | 2 | He | 96.675 | 2.773 | 92369 | 1.24 | 100 | 96.7 | 90 | 110 | |
| Cr | 52 | 2 | He | 98.056 | 1.364 | 124657 | 0.32 | 100 | 98.1 | 90 | 110 | |
| Mn | 55 | 2 | He | 100.302 | 0.386 | 44932 | 1.54 | 100 | 100.3 | 90 | 110 | |
| Fe | 56 | 2 | He | 9892.947 | 2.109 | 8606052 | 2.38 | 10000 | 98.9 | 90 | 110 | |
| Co | 59 | 2 | He | 99.132 | 1.567 | 225504 | 1.36 | 100 | 99.1 | 90 | 110 | |
| Ni | 60 | 2 | He | 97.954 | 0.388 | 64384 | 2.00 | 100 | 98.0 | 90 | 110 | |
| Cu | 63 | 2 | He | 99.032 | 0.669 | 183124 | 0.99 | 100 | 99.0 | 90 | 110 | |
| Zn | 66 | 2 | He | 97.224 | 2.433 | 25598 | 0.94 | 100 | 97.2 | 90 | 110 | |
| As | 75 | 2 | He | 98.321 | 2.635 | 17963 | 1.95 | 100 | 98.3 | 90 | 110 | |
| Se | 78 | 2 | He | 97.203 | 5.529 | 605 | 6.36 | 100 | 97.2 | 90 | 110 | |
| B | 11 | 1 | nogas | 526.630 | 8.626 | 730796 | 2.94 | 500 | 105.3 | 90 | 110 | |
| Si | 28 | 1 | nogas | 5309.459 | 1.552 | 16640581 | 0.60 | 5000 | 106.2 | 90 | 110 | |
| Ca | 43 | 1 | nogas | 10179.940 | 1.691 | 145435 | 2.81 | 10000 | 101.8 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 10171.633 | 0.356 | 2312161 | 1.90 | 10000 | 101.7 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 9878.221 | 2.641 | 102691215 | 2.21 | 10000 | 98.8 | 90 | 110 | |
| Se | 77 | 1 | nogas | 89.231 | 26.963 | 70567 | 5.71 | 100 | 89.2 | 90 | 110 | ICV Main CR1 Failed |
| Se | 82 | 1 | nogas | 99.344 | 1.290 | 11067 | 3.01 | 100 | 99.3 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 102.557 | 5.177 | 277740 | 5.56 | 100 | 102.6 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 100.849 | 1.772 | 422312 | 0.99 | 100 | 100.8 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 99.703 | 4.074 | 218310 | 3.38 | 100 | 99.7 | 90 | 110 | |
| Sb | 121 | 2 | He | 99.634 | 2.279 | 76391 | 1.29 | 100 | 99.6 | 90 | 110 | |
| Li | 7 | 1 | nogas | 99.397 | 5.309 | 529721 | 0.85 | 100 | 99.4 | 90 | 110 | |
| P | 31 | 1 | nogas | 514.206 | 1.484 | 278442 | 1.84 | 500 | 102.8 | 90 | 110 | |
| La | 139 | 1 | nogas | 58.798 | 31.920 | 253 | 9.93 | 100 | 58.8 | 90 | 110 | ICV Main CR1 Failed |
| Au | 197 | 1 | nogas | 568.386 | 201.576 | 20 | 132.29 | 100 | 568.4 | 90 | 110 | ICV Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 262437 | 4.96 | 296893 | 88.39 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1168762 | 2.02 | 1226431 | 95.30 | 70 | 125 | |
| In | 115 | 1 | nogas | 1261639 | 0.79 | 1308607 | 96.41 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1227353 | 2.07 | 1207116 | 101.68 | 70 | 125 | |

# Initial Calibration Verification (ICV) Report

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 90597 | 1.63 | 95588 | 94.78 | 70 | 125 | |

# Sample Report

**Sample Table**

| | |
|---|---|
| Sample Name | LLCCV2 |
| Data File Name | 130SMPL.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T14:19:20-06:00 |
| Sample Type | Sample |
| Dilution | 1 |
| Comment | |
| ISTD Ref FileName | 122CALB.d |
| Sample QC Pass/Fail | Pass |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 2.005 | 2.005 | 7.38 | 4377 | 0.05 | 2000 | |
| Na | 23 | 1 | nogas | 180.587 | 180.587 | 9.46 | 4052464 | 0.00 | 200000 | |
| Mg | 24 | 1 | nogas | 222.220 | 222.220 | 2.41 | 1391863 | 0.02 | 200000 | |
| Al | 27 | 1 | nogas | 2.537 | 2.537 | 5.75 | 27915 | 0.01 | 2000 | |
| K | 39 | 1 | nogas | 188.002 | 188.002 | 7.66 | 5000368 | 0.00 | 200000 | |
| Ti | 47 | 1 | nogas | 2.049 | 2.049 | 17.21 | 2043 | 0.10 | 2000 | |
| V | 51 | 1 | nogas | -0.666 | -0.666 | -938.85 | 1214315 | 0.00 | 2000 | |
| Cr | 52 | 1 | nogas | 2.238 | 2.238 | 2.68 | 50877 | 0.00 | 2000 | |
| Mn | 55 | 1 | nogas | 2.250 | 2.250 | 4.57 | 34857 | 0.01 | 2000 | |
| Co | 59 | 1 | nogas | 2.275 | 2.275 | 2.34 | 22658 | 0.01 | 2000 | |
| Ni | 60 | 1 | nogas | 1.255 | 1.255 | 7.19 | 6861 | 0.02 | 2000 | |
| Cu | 63 | 1 | nogas | 2.111 | 2.111 | 5.40 | 16398 | 0.01 | 2000 | |
| Zn | 66 | 1 | nogas | 1.715 | 1.715 | 13.60 | 5431 | 0.03 | 2000 | |
| As | 75 | 1 | nogas | 0.713 | 0.713 | 809.47 | 182252 | 0.00 | 2000 | |
| Sr | 88 | 1 | nogas | 2.205 | 2.205 | 4.10 | 29879 | 0.01 | 2000 | |
| Ag | 107 | 1 | nogas | 2.241 | 2.241 | 1.13 | 17142 | 0.01 | 2000 | |
| Cd | 111 | 1 | nogas | 2.222 | 2.222 | 11.80 | 3677 | 0.06 | 2000 | |
| Sb | 121 | 1 | nogas | 2.101 | 2.101 | 2.15 | 17159 | 0.01 | 2000 | |
| Tl | 205 | 1 | nogas | 2.850 | 2.850 | 13.33 | 39423 | 0.01 | 2000 | |
| Pb | 208 | 1 | nogas | 2.204 | 2.204 | 3.47 | 45252 | 0.00 | 2000 | |
| U | 238 | 1 | nogas | 2.319 | 2.319 | 2.09 | 44741 | 0.01 | 2000 | |
| [Pb] | 206 | 1 | nogas | 2.203 | 2.203 | 1.19 | 11131 | 0.02 | 2000 | |
| [Pb] | 207 | 1 | nogas | 2.125 | 2.125 | 3.39 | 9927 | 0.02 | 2000 | |
| Na | 23 | 2 | He | 170.723 | 170.723 | 16.27 | 97712 | 0.17 | 200000 | |
| Mg | 24 | 2 | He | 207.652 | 207.652 | 6.39 | 16447 | 1.26 | 200000 | |
| Al | 27 | 2 | He | 0.044 | 0.044 | 746.50 | 100 | 0.04 | 2000 | |
| K | 39 | 2 | He | 196.000 | 196.000 | 4.35 | 17398 | 1.13 | 200000 | |
| Ca | 43 | 2 | He | 28.545 | 28.545 | 279.83 | 10 | 285.45 | 200000 | |
| Ca | 44 | 2 | He | 170.985 | 170.985 | 8.69 | 513 | 33.31 | 200000 | |
| V | 51 | 2 | He | 1.844 | 1.844 | 6.45 | 2429 | 0.08 | 2000 | |
| Cr | 52 | 2 | He | 2.036 | 2.036 | 6.21 | 4391 | 0.05 | 2000 | |
| Mn | 55 | 2 | He | 2.104 | 2.104 | 20.17 | 1187 | 0.18 | 2000 | |
| Fe | 56 | 2 | He | 213.832 | 213.832 | 3.54 | 203297 | 0.11 | 200000 | |
| Co | 59 | 2 | He | 2.016 | 2.016 | 5.52 | 4911 | 0.04 | 2000 | |
| Ni | 60 | 2 | He | 1.578 | 1.578 | 19.73 | 1683 | 0.09 | 2000 | |
| Cu | 63 | 2 | He | 1.958 | 1.958 | 6.74 | 4641 | 0.04 | 2000 | |
| Zn | 66 | 2 | He | 1.612 | 1.612 | 21.91 | 587 | 0.27 | 2000 | |
| As | 75 | 2 | He | 1.924 | 1.924 | 1.98 | 403 | 0.48 | 2000 | |
| Se | 78 | 2 | He | 0.856 | 0.856 | 47.27 | 13 | 6.76 | 2000 | |
| B | 11 | 1 | nogas | 32.140 | 32.140 | 6.51 | 100863 | 0.03 | 2000 | |

# Sample Report

| Si | 28 | 1 | nogas | 182.813 | 182.813 | 6.89 | 1197877 | 0.02 | 2000 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ca | 43 | 1 | nogas | 212.378 | 212.378 | 11.90 | 3754 | 5.66 | 200000 | |
| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
| Ca | 44 | 1 | nogas | 240.105 | 240.105 | 10.55 | 110422 | 0.22 | 200000 | |
| Fe | 56 | 1 | nogas | 209.279 | 209.279 | 1.68 | 2886333 | 0.01 | 200000 | |
| Se | 77 | 1 | nogas | 5.067 | 5.067 | 485.29 | 58080 | 0.01 | 2000 | |
| Se | 82 | 1 | nogas | 1.693 | 1.693 | 18.59 | 550 | 0.31 | 2000 | |
| Mo | 95 | 1 | nogas | 2.247 | 2.247 | 8.79 | 7192 | 0.03 | 2000 | |
| Sn | 118 | 1 | nogas | 2.285 | 2.285 | 6.79 | 10066 | 0.02 | 2000 | |
| Ba | 137 | 1 | nogas | 2.109 | 2.109 | 10.75 | 4917 | 0.04 | 2000 | |
| Sb | 121 | 2 | He | 1.900 | 1.900 | 9.57 | 1627 | 0.12 | 2000 | |
| La | 139 | 1 | nogas | -67.892 | -67.892 | -3.61 | 83 | -81.47 | 2000 | |
| Au | 197 | 1 | nogas | -18.578 | -18.578 | -2663.73 | 7 | -278.67 | 2000 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 285277 | 0.44 | 296893 | 96.09 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1208730 | 2.83 | 1226431 | 98.56 | 70 | 125 | |
| In | 115 | 1 | nogas | 1261028 | 3.30 | 1308607 | 96.36 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1271669 | 1.62 | 1207116 | 105.35 | 70 | 125 | |
| Ge | 72 | 2 | He | 96020 | 3.66 | 95588 | 100.45 | 70 | 125 | |

# Low Level Initial Calibration Verification (LLICV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | LLCCV5 |
| Data File Name | 131LICV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T14:21:21-06:00 |
| Sample Type | LLICV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 122CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 4.720 | 7.861 | 10646 | 3.16 | 5 | 94.4 | 70 | 130 | |
| Na | 23 | 1 | nogas | 480.219 | 3.472 | 6851631 | 2.73 | 500 | 96.0 | 70 | 130 | |
| Mg | 24 | 1 | nogas | 514.331 | 0.462 | 3193241 | 2.51 | 500 | 102.9 | 70 | 130 | |
| Al | 27 | 1 | nogas | 5.652 | 3.664 | 49543 | 3.35 | 5 | 113.0 | 70 | 130 | |
| K | 39 | 1 | nogas | 527.893 | 4.106 | 7297467 | 1.77 | 500 | 105.6 | 70 | 130 | |
| Ti | 47 | 1 | nogas | 5.243 | 4.603 | 4264 | 1.33 | 5 | 104.9 | 70 | 130 | |
| V | 51 | 1 | nogas | 7.803 | 42.315 | 1304091 | 4.33 | 5 | 156.1 | 70 | 130 | LLICV Main CR1 Failed |
| Cr | 52 | 1 | nogas | 5.261 | 1.850 | 78111 | 2.62 | 5 | 105.2 | 70 | 130 | |
| Mn | 55 | 1 | nogas | 5.384 | 1.376 | 72486 | 2.02 | 5 | 107.7 | 70 | 130 | |
| Co | 59 | 1 | nogas | 5.390 | 2.559 | 52857 | 1.06 | 5 | 107.8 | 70 | 130 | |
| Ni | 60 | 1 | nogas | 4.364 | 4.996 | 13792 | 1.51 | 5 | 87.3 | 70 | 130 | |
| Cu | 63 | 1 | nogas | 5.337 | 6.601 | 34156 | 2.56 | 5 | 106.7 | 70 | 130 | |
| Zn | 66 | 1 | nogas | 4.517 | 4.110 | 10893 | 1.21 | 5 | 90.3 | 70 | 130 | |
| As | 75 | 1 | nogas | 6.836 | 41.242 | 195306 | 4.88 | 5 | 136.7 | 70 | 130 | LLICV Main CR1 Failed |
| Sr | 88 | 1 | nogas | 5.554 | 2.559 | 72594 | 0.66 | 5 | 111.1 | 70 | 130 | |
| Ag | 107 | 1 | nogas | 5.495 | 5.793 | 41272 | 2.98 | 5 | 109.9 | 70 | 130 | |
| Cd | 111 | 1 | nogas | 5.065 | 6.623 | 8325 | 4.47 | 5 | 101.3 | 70 | 130 | |
| Sb | 121 | 1 | nogas | 5.159 | 3.283 | 40311 | 2.93 | 5 | 103.2 | 70 | 130 | |
| Tl | 205 | 1 | nogas | 5.547 | 1.960 | 74474 | 1.03 | 5 | 110.9 | 70 | 130 | |
| Pb | 208 | 1 | nogas | 5.234 | 1.385 | 104235 | 1.54 | 5 | 104.7 | 70 | 130 | |
| U | 238 | 1 | nogas | 5.420 | 4.321 | 101618 | 2.99 | 5 | 108.4 | 70 | 130 | |
| [Pb] | 206 | 1 | nogas | 5.268 | 1.342 | 25827 | 1.12 | 5 | 105.4 | 70 | 130 | |
| [Pb] | 207 | 1 | nogas | 5.220 | 6.705 | 23638 | 7.36 | 5 | 104.4 | 70 | 130 | |
| Na | 23 | 2 | He | 496.070 | 6.332 | 148658 | 1.37 | 500 | 99.2 | 70 | 130 | |
| Mg | 24 | 2 | He | 531.776 | 2.139 | 39742 | 0.47 | 500 | 106.4 | 70 | 130 | |
| Al | 27 | 2 | He | 3.133 | 52.947 | 153 | 18.83 | 5 | 62.7 | 70 | 130 | LLICV Main CR1 Failed |
| K | 39 | 2 | He | 520.243 | 4.790 | 29771 | 3.19 | 500 | 104.0 | 70 | 130 | |
| Ca | 43 | 2 | He | 566.467 | 21.986 | 73 | 20.83 | 500 | 113.3 | 70 | 130 | |
| Ca | 44 | 2 | He | 518.171 | 7.409 | 1260 | 6.92 | 500 | 103.6 | 70 | 130 | |
| V | 51 | 2 | He | 4.918 | 1.491 | 5274 | 2.62 | 5 | 98.4 | 70 | 130 | |
| Cr | 52 | 2 | He | 5.458 | 0.903 | 8532 | 2.23 | 5 | 109.2 | 70 | 130 | |
| Mn | 55 | 2 | He | 5.327 | 3.865 | 2584 | 2.64 | 5 | 106.5 | 70 | 130 | |
| Fe | 56 | 2 | He | 553.115 | 3.130 | 492118 | 1.18 | 500 | 110.6 | 70 | 130 | |
| Co | 59 | 2 | He | 5.309 | 3.377 | 12258 | 1.84 | 5 | 106.2 | 70 | 130 | |
| Ni | 60 | 2 | He | 4.761 | 10.660 | 3704 | 9.04 | 5 | 95.2 | 70 | 130 | |
| Cu | 63 | 2 | He | 5.144 | 2.166 | 10360 | 4.05 | 5 | 102.9 | 70 | 130 | |
| Zn | 66 | 2 | He | 4.427 | 1.175 | 1307 | 1.17 | 5 | 88.5 | 70 | 130 | |
| As | 75 | 2 | He | 5.382 | 8.681 | 1022 | 8.15 | 5 | 107.6 | 70 | 130 | |
| Se | 78 | 2 | He | 5.330 | 9.428 | 40 | 10.00 | 5 | 106.6 | 70 | 130 | |
| B | 11 | 1 | nogas | 31.232 | 23.257 | 103588 | 5.75 | 25 | 124.9 | 70 | 130 | |
| Si | 28 | 1 | nogas | 324.318 | 3.765 | 1628277 | 1.00 | 25 | 1297.3 | 70 | 130 | LLICV Main CR1 Failed |
| Ca | 43 | 1 | nogas | 516.748 | 2.240 | 8165 | 2.19 | 500 | 103.3 | 70 | 130 | |
| Ca | 44 | 1 | nogas | 566.111 | 4.946 | 183890 | 0.37 | 500 | 113.2 | 70 | 130 | |
| Fe | 56 | 1 | nogas | 516.400 | 1.430 | 6124811 | 2.90 | 500 | 103.3 | 70 | 130 | |
| Se | 77 | 1 | nogas | 25.293 | 40.841 | 61293 | 4.62 | 5 | 505.9 | 70 | 130 | LLICV Main CR1 Failed |
| Se | 82 | 1 | nogas | 4.116 | 9.018 | 813 | 1.88 | 5 | 82.3 | 70 | 130 | |
| Mo | 95 | 1 | nogas | 5.440 | 3.798 | 15981 | 0.44 | 5 | 108.8 | 70 | 130 | |
| Sn | 118 | 1 | nogas | 5.153 | 0.468 | 21917 | 2.72 | 5 | 103.1 | 70 | 130 | |
| Ba | 137 | 1 | nogas | 5.195 | 2.203 | 11594 | 2.99 | 5 | 103.9 | 70 | 130 | |
| Sb | 121 | 2 | He | 5.054 | 8.128 | 3994 | 5.79 | 5 | 101.1 | 70 | 130 | |
| Li | 7 | 1 | nogas | 4.949 | 1.244 | 54920 | 4.52 | 5 | 99.0 | 70 | 130 | |
| P | 31 | 1 | nogas | 32.635 | 9.335 | 52163 | 0.67 | 25 | 130.5 | 70 | 130 | LLICV Main CR1 Failed |
| La | 139 | 1 | nogas | -72.143 | -23.931 | 77 | 27.15 | 5 | -1442.9 | 70 | 130 | LLICV Main CR1 Failed |
| Au | 197 | 1 | nogas | 134.662 | 323.160 | 10 | 100.00 | 5 | 2693.2 | 70 | 130 | LLICV Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 297751 | 5.10 | 296893 | 100.29 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1200188 | 3.12 | 1226431 | 97.86 | 70 | 125 | |

# Low Level Initial Calibration Verification (LLICV) Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| In | 115 | 1 | nogas | 1252888 | 2.84 | 1308607 | 95.74 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1238368 | 1.32 | 1207116 | 102.59 | 70 | 125 | |
| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
| Ge | 72 | 2 | He | 91604 | 2.21 | 95588 | 95.83 | 70 | 125 | |

# Initial Calibration Blank (ICB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | ICCB |
| Data File Name | 132_ICB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T14:23:24-06:00 |
| Sample Type | ICB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 122CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.010 | 107.3 | 83 | 27.7 | 1 | |
| Na | 23 | 1 | nogas | -34.070 | -7.4 | 2090507 | 0.9 | 100 | |
| Mg | 24 | 1 | nogas | 0.996 | 43.3 | 25222 | 10.1 | 100 | |
| Al | 27 | 1 | nogas | 0.024 | 321.7 | 10043 | 3.9 | 5 | |
| K | 39 | 1 | nogas | -7.784 | -39.9 | 3614101 | 1.6 | 100 | |
| Ti | 47 | 1 | nogas | -0.056 | -239.7 | 553 | 15.4 | 2.5 | |
| V | 51 | 1 | nogas | 1.055 | 500.8 | 1224546 | 6.5 | 2.5 | |
| Cr | 52 | 1 | nogas | 0.021 | 136.5 | 30215 | 0.8 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.059 | 62.9 | 8072 | 4.4 | 2.5 | |
| Co | 59 | 1 | nogas | 0.029 | 31.0 | 567 | 15.9 | 2.5 | |
| Ni | 60 | 1 | nogas | -0.981 | -3.6 | 1780 | 6.1 | 2.5 | |
| Cu | 63 | 1 | nogas | -0.143 | -58.1 | 3767 | 13.0 | 2.5 | |
| Zn | 66 | 1 | nogas | -0.699 | -5.8 | 640 | 11.8 | 2.5 | |
| As | 75 | 1 | nogas | -1.665 | -128.8 | 175372 | 4.4 | 2.5 | |
| Sr | 88 | 1 | nogas | -0.002 | -590.0 | 1377 | 11.2 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.019 | 54.3 | 423 | 19.8 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.023 | 29.2 | 50 | 20.0 | 1 | |
| Sb | 121 | 1 | nogas | -0.027 | -95.5 | 833 | 23.3 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.080 | 41.5 | 1260 | 37.0 | 1 | |
| Pb | 208 | 1 | nogas | 0.017 | 23.2 | 613 | 14.2 | 2.5 | |
| U | 238 | 1 | nogas | 0.015 | 49.7 | 403 | 38.1 | 2.5 | |
| [Pb] | 206 | 1 | nogas | 0.022 | 28.9 | 167 | 12.5 | 2.5 | |
| [Pb] | 207 | 1 | nogas | 0.016 | 46.1 | 143 | 24.5 | 2.5 | |
| Na | 23 | 2 | He | -37.407 | -38.8 | 60352 | 4.0 | 100 | |
| Mg | 24 | 2 | He | 0.013 | 11200.5 | 327 | 33.9 | 100 | |
| Al | 27 | 2 | He | -2.958 | -52.0 | 40 | 75.0 | 5 | |
| K | 39 | 2 | He | 0.962 | 1240.2 | 9956 | 4.6 | 100 | |
| Ca | 43 | 2 | He | 1.751 | 2692.0 | 7 | 86.6 | 100 | |
| Ca | 44 | 2 | He | -16.958 | -66.6 | 77 | 32.8 | 100 | |
| V | 51 | 2 | He | -0.041 | -108.9 | 532 | 9.8 | 2.5 | |
| Cr | 52 | 2 | He | -0.002 | -4526.2 | 1670 | 8.4 | 2.5 | |
| Mn | 55 | 2 | He | 0.079 | 144.7 | 227 | 25.1 | 2.5 | |
| Fe | 56 | 2 | He | 0.487 | 95.2 | 6845 | 7.0 | 100 | |
| Co | 59 | 2 | He | 0.014 | 54.0 | 90 | 19.2 | 2.5 | |
| Ni | 60 | 2 | He | -0.373 | -46.9 | 337 | 35.4 | 2.5 | |
| Cu | 63 | 2 | He | -0.006 | -236.0 | 800 | 4.3 | 2.5 | |
| Zn | 66 | 2 | He | -0.349 | -16.1 | 43 | 35.3 | 2.5 | |
| As | 75 | 2 | He | -0.016 | -376.7 | 28 | 42.1 | 2.5 | |
| Se | 78 | 2 | He | 0.248 | 382.8 | 9 | 70.5 | 2.5 | |
| B | 11 | 1 | nogas | 3.504 | 29.9 | 63078 | 3.3 | 10 | |
| Si | 28 | 1 | nogas | 5.610 | 72.4 | 638896 | 0.3 | 5 | ICB Main CR1 Failed |
| Ca | 43 | 1 | nogas | 0.687 | 348.3 | 627 | 4.0 | 100 | |
| Ca | 44 | 1 | nogas | 14.701 | 90.1 | 58120 | 3.8 | 100 | |
| Fe | 56 | 1 | nogas | -5.768 | -37.4 | 582595 | 2.3 | 100 | |

# Initial Calibration Blank (ICB) Report

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Se | 77 | 1 | nogas | 0.815 | 1371.3 | 56892 | 5.0 | 2.5 | |
| Se | 82 | 1 | nogas | -0.793 | -78.1 | 270 | 25.9 | 2.5 | |
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Mo | 95 | 1 | nogas | 0.004 | 1455.5 | 920 | 16.4 | 2.5 | |
| Sn | 118 | 1 | nogas | 0.098 | 22.8 | 917 | 10.8 | 5 | |
| Ba | 137 | 1 | nogas | 0.000 | 77922.4 | 313 | 8.0 | 2.5 | |
| Sb | 121 | 2 | He | 0.020 | 251.3 | 103 | 39.1 | 2.5 | |
| P | 31 | 1 | nogas | 4.857 | 40.4 | 38610 | 1.1 | 10 | |
| La | 139 | 1 | nogas | -97.558 | -24.3 | 43 | 74.2 | 2.5 | |
| Au | 197 | 1 | nogas | 449.478 | 158.2 | 17 | 91.7 | 2.5 | ICB Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 297056 | 2.12 | 296893 | 100.05 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1197410 | 1.62 | 1226431 | 97.63 | 70 | 125 | |
| In | 115 | 1 | nogas | 1249249 | 1.94 | 1308607 | 95.46 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1234136 | 5.47 | 1207116 | 102.24 | 70 | 125 | |
| Ge | 72 | 2 | He | 95515 | 1.34 | 95588 | 99.92 | 70 | 125 | |

# Sample Report

**Sample Table**

| | |
|---|---|
| Sample Name | MBLK-122183 |
| Data File Name | 134SMPL.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T14:27:24-06:00 |
| Sample Type | Sample |
| Dilution | 1 |
| Comment | B122183 TW |
| ISTD Ref FileName | 122CALB.d |
| Sample QC Pass/Fail | Pass |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | -0.011 | -0.011 | -63.34 | 37 | -0.03 | 2000 | |
| Na | 23 | 1 | nogas | -44.123 | -44.123 | -15.22 | 2020712 | 0.00 | 200000 | |
| Mg | 24 | 1 | nogas | 9.768 | 9.768 | 1.62 | 81789 | 0.01 | 200000 | |
| Al | 27 | 1 | nogas | 4.612 | 4.612 | 2.29 | 43945 | 0.01 | 2000 | |
| K | 39 | 1 | nogas | -20.065 | -20.065 | -36.85 | 3679070 | 0.00 | 200000 | |
| Ti | 47 | 1 | nogas | -0.259 | -0.259 | -44.78 | 430 | -0.06 | 2000 | |
| V | 51 | 1 | nogas | -19.089 | -19.089 | -24.37 | 1035347 | 0.00 | 2000 | |
| Cr | 52 | 1 | nogas | -0.486 | -0.486 | -26.45 | 26676 | 0.00 | 2000 | |
| Mn | 55 | 1 | nogas | -0.015 | -0.015 | -220.40 | 7478 | 0.00 | 2000 | |
| Co | 59 | 1 | nogas | 0.011 | 0.011 | 87.84 | 410 | 0.00 | 2000 | |
| Ni | 60 | 1 | nogas | -1.101 | -1.101 | -1.30 | 1573 | -0.07 | 2000 | |
| Cu | 63 | 1 | nogas | -0.232 | -0.232 | -15.39 | 3410 | -0.01 | 2000 | |
| Zn | 66 | 1 | nogas | -0.528 | -0.528 | -13.08 | 1017 | -0.05 | 2000 | |
| As | 75 | 1 | nogas | -12.934 | -12.934 | -34.28 | 155724 | -0.01 | 2000 | |
| Sr | 88 | 1 | nogas | -0.031 | -0.031 | -8.10 | 1057 | 0.00 | 2000 | |
| Ag | 107 | 1 | nogas | 0.009 | 0.009 | 98.29 | 357 | 0.00 | 2000 | |
| Cd | 111 | 1 | nogas | 0.005 | 0.005 | 163.63 | 23 | 0.02 | 2000 | |
| Sb | 121 | 1 | nogas | -0.018 | -0.018 | -62.41 | 940 | 0.00 | 2000 | |
| Tl | 205 | 1 | nogas | 0.009 | 0.009 | 100.98 | 330 | 0.00 | 2000 | |
| Pb | 208 | 1 | nogas | 0.008 | 0.008 | 50.94 | 453 | 0.00 | 2000 | |
| U | 238 | 1 | nogas | 0.004 | 0.004 | 82.24 | 210 | 0.00 | 2000 | |
| [Pb] | 206 | 1 | nogas | 0.013 | 0.013 | 74.05 | 130 | 0.01 | 2000 | |
| [Pb] | 207 | 1 | nogas | 0.002 | 0.002 | 160.22 | 83 | 0.00 | 2000 | |
| Na | 23 | 2 | He | -33.241 | -33.241 | -8.60 | 61216 | -0.05 | 200000 | |
| Mg | 24 | 2 | He | 8.487 | 8.487 | 35.21 | 983 | 0.86 | 200000 | |
| Al | 27 | 2 | He | 2.473 | 2.473 | 118.40 | 147 | 1.69 | 2000 | |
| K | 39 | 2 | He | -12.324 | -12.324 | -67.48 | 9449 | -0.13 | 200000 | |
| Ca | 43 | 2 | He | -25.356 | -25.356 | -186.73 | 3 | -760.69 | 200000 | |
| Ca | 44 | 2 | He | 13.008 | 13.008 | 161.35 | 147 | 8.87 | 200000 | |
| V | 51 | 2 | He | -0.110 | -0.110 | -36.35 | 463 | -0.02 | 2000 | |
| Cr | 52 | 2 | He | -0.051 | -0.051 | -177.13 | 1607 | 0.00 | 2000 | |
| Mn | 55 | 2 | He | 0.229 | 0.229 | 33.42 | 297 | 0.08 | 2000 | |
| Fe | 56 | 2 | He | -0.070 | -0.070 | -402.47 | 6341 | 0.00 | 200000 | |
| Co | 59 | 2 | He | -0.003 | -0.003 | -137.59 | 50 | -0.01 | 2000 | |
| Ni | 60 | 2 | He | -0.365 | -0.365 | -17.05 | 343 | -0.11 | 2000 | |
| Cu | 63 | 2 | He | -0.072 | -0.072 | -95.15 | 673 | -0.01 | 2000 | |
| Zn | 66 | 2 | He | 0.001 | 0.001 | 10359.08 | 140 | 0.00 | 2000 | |
| As | 75 | 2 | He | -0.005 | -0.005 | -1395.82 | 30 | -0.02 | 2000 | |
| Se | 78 | 2 | He | -0.075 | -0.075 | -1173.53 | 7 | -1.13 | 2000 | |
| B | 11 | 1 | nogas | -3.355 | -3.355 | -13.74 | 53141 | -0.01 | 2000 | |

# Sample Report

| Si | 28 | 1 | nogas | 22.848 | 22.848 | 6.21 | 721615 | 0.00 | 2000 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ca | 43 | 1 | nogas | -4.158 | -4.158 | -37.20 | 580 | -0.72 | 200000 | |
| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
| Ca | 44 | 1 | nogas | -4.731 | -4.731 | -42.31 | 55997 | -0.01 | 200000 | |
| Fe | 56 | 1 | nogas | -8.332 | -8.332 | -18.20 | 579107 | 0.00 | 200000 | |
| Se | 77 | 1 | nogas | -48.413 | -48.413 | -40.54 | 50303 | -0.10 | 2000 | |
| Se | 82 | 1 | nogas | -0.687 | -0.687 | -91.12 | 293 | -0.23 | 2000 | |
| Mo | 95 | 1 | nogas | -0.065 | -0.065 | -74.63 | 760 | -0.01 | 2000 | |
| Sn | 118 | 1 | nogas | -0.001 | -0.001 | -855.52 | 553 | 0.00 | 2000 | |
| Ba | 137 | 1 | nogas | -0.047 | -0.047 | -71.96 | 230 | -0.02 | 2000 | |
| Sb | 121 | 2 | He | 0.004 | 0.004 | 994.11 | 90 | 0.00 | 2000 | |
| La | 139 | 1 | nogas | -93.192 | -93.192 | -14.96 | 53 | -174.74 | 2000 | |
| Au | 197 | 1 | nogas | -29.011 | -29.011 | -822.02 | 7 | -435.16 | 2000 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 297689 | 1.01 | 296893 | 100.27 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1248006 | 0.60 | 1226431 | 101.76 | 70 | 125 | |
| In | 115 | 1 | nogas | 1359829 | 3.09 | 1308607 | 103.91 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1307680 | 2.25 | 1207116 | 108.33 | 70 | 125 | |
| Ge | 72 | 2 | He | 95682 | 2.46 | 95588 | 100.10 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 138_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T14:35:29-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 122CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 102.601 | 1.172 | 208337 | 1.20 | 100 | 102.6 | 90 | 110 | |
| Na | 23 | 1 | nogas | 10319.294 | 4.053 | 102020644 | 3.32 | 10000 | 103.2 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 10391.243 | 2.039 | 66196214 | 1.38 | 10000 | 103.9 | 90 | 110 | |
| Al | 27 | 1 | nogas | 104.443 | 1.943 | 776720 | 0.94 | 100 | 104.4 | 90 | 110 | |
| K | 39 | 1 | nogas | 9846.310 | 3.546 | 74519473 | 0.51 | 10000 | 98.5 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 101.460 | 4.169 | 74942 | 3.82 | 100 | 101.5 | 90 | 110 | |
| V | 51 | 1 | nogas | 108.811 | 10.949 | 2573387 | 4.07 | 100 | 108.8 | 90 | 110 | |
| Cr | 52 | 1 | nogas | 102.366 | 2.622 | 1008891 | 2.32 | 100 | 102.4 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 97.597 | 1.228 | 1243036 | 3.75 | 100 | 97.6 | 90 | 110 | |
| Co | 59 | 1 | nogas | 101.511 | 2.547 | 1036163 | 0.48 | 100 | 101.5 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 100.506 | 2.514 | 240483 | 0.68 | 100 | 100.5 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 103.682 | 4.683 | 606416 | 1.81 | 100 | 103.7 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 100.519 | 3.599 | 208843 | 2.23 | 100 | 100.5 | 90 | 110 | |
| As | 75 | 1 | nogas | 103.114 | 10.226 | 435692 | 4.06 | 100 | 103.1 | 90 | 110 | |
| Sr | 88 | 1 | nogas | 101.961 | 3.456 | 1368702 | 1.49 | 100 | 102.0 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 104.713 | 0.970 | 818448 | 2.60 | 100 | 104.7 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 103.677 | 4.746 | 170585 | 1.39 | 100 | 103.7 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 100.054 | 3.891 | 797690 | 1.77 | 100 | 100.1 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 99.910 | 3.973 | 1399190 | 2.06 | 100 | 99.9 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 101.870 | 3.503 | 2116063 | 1.17 | 100 | 101.9 | 90 | 110 | |
| U | 238 | 1 | nogas | 104.088 | 2.570 | 2039532 | 2.56 | 100 | 104.1 | 90 | 110 | |
| [Pb] | 206 | 1 | nogas | 100.023 | 3.956 | 511597 | 1.94 | 100 | 100.0 | 90 | 110 | |
| [Pb] | 207 | 1 | nogas | 100.494 | 3.657 | 474371 | 1.96 | 100 | 100.5 | 90 | 110 | |
| Na | 23 | 2 | He | 10142.406 | 3.258 | 1861462 | 2.03 | 10000 | 101.4 | 90 | 110 | |
| Mg | 24 | 2 | He | 10379.305 | 2.404 | 800275 | 0.98 | 10000 | 103.8 | 90 | 110 | |
| Al | 27 | 2 | He | 105.901 | 7.529 | 2180 | 5.86 | 100 | 105.9 | 90 | 110 | |
| K | 39 | 2 | He | 10626.039 | 0.556 | 415384 | 0.54 | 10000 | 106.3 | 90 | 110 | |
| Ca | 43 | 2 | He | 11725.022 | 13.037 | 1447 | 11.59 | 10000 | 117.3 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 44 | 2 | He | 10566.923 | 4.216 | 24457 | 2.85 | 10000 | 105.7 | 90 | 110 | |
| V | 51 | 2 | He | 96.845 | 2.850 | 97244 | 1.42 | 100 | 96.8 | 90 | 110 | |
| Cr | 52 | 2 | He | 99.931 | 4.479 | 133445 | 3.16 | 100 | 99.9 | 90 | 110 | |
| Mn | 55 | 2 | He | 102.601 | 2.786 | 48290 | 2.14 | 100 | 102.6 | 90 | 110 | |
| Fe | 56 | 2 | He | 10102.244 | 1.795 | 9234379 | 0.53 | 10000 | 101.0 | 90 | 110 | |
| Co | 59 | 2 | He | 99.250 | 1.612 | 237288 | 1.98 | 100 | 99.2 | 90 | 110 | |
| Ni | 60 | 2 | He | 97.013 | 1.572 | 67013 | 1.93 | 100 | 97.0 | 90 | 110 | |
| Cu | 63 | 2 | He | 99.467 | 1.161 | 193283 | 0.54 | 100 | 99.5 | 90 | 110 | |
| Zn | 66 | 2 | He | 98.504 | 3.788 | 27254 | 2.96 | 100 | 98.5 | 90 | 110 | |
| As | 75 | 2 | He | 99.503 | 2.031 | 19105 | 0.63 | 100 | 99.5 | 90 | 110 | |
| Se | 78 | 2 | He | 101.482 | 4.792 | 663 | 3.39 | 100 | 101.5 | 90 | 110 | |
| B | 11 | 1 | nogas | 530.686 | 0.913 | 755818 | 0.45 | 500 | 106.1 | 90 | 110 | |
| Si | 28 | 1 | nogas | 5290.130 | 3.629 | 17808345 | 1.90 | 5000 | 105.8 | 90 | 110 | |
| Ca | 43 | 1 | nogas | 9802.186 | 3.513 | 150391 | 2.38 | 10000 | 98.0 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 9966.174 | 4.421 | 2433248 | 2.13 | 10000 | 99.7 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 9637.830 | 1.340 | 107655644 | 1.98 | 10000 | 96.4 | 90 | 110 | |
| Se | 77 | 1 | nogas | 119.379 | 17.793 | 81284 | 3.06 | 100 | 119.4 | 90 | 110 | CCV Main CR1-2 Failed |
| Se | 82 | 1 | nogas | 97.591 | 3.603 | 11677 | 0.67 | 100 | 97.6 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 98.873 | 6.417 | 287348 | 3.51 | 100 | 98.9 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 103.149 | 1.387 | 429991 | 3.10 | 100 | 103.1 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 104.585 | 5.298 | 227736 | 1.76 | 100 | 104.6 | 90 | 110 | |
| Sb | 121 | 2 | He | 101.763 | 0.838 | 82006 | 1.10 | 100 | 101.8 | 90 | 110 | |
| Li | 7 | 1 | nogas | 100.818 | 3.981 | 550713 | 2.58 | 100 | 100.8 | 90 | 110 | |
| P | 31 | 1 | nogas | 513.405 | 2.812 | 298633 | 1.41 | 500 | 102.7 | 90 | 110 | |
| La | 139 | 1 | nogas | 103.156 | 68.147 | 310 | 28.12 | 100 | 103.2 | 90 | 110 | |
| Au | 197 | 1 | nogas | 665.314 | 129.332 | 23 | 89.21 | 100 | 665.3 | 90 | 110 | CCV Main CR1-2 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 268796 | 1.25 | 296893 | 90.54 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1255627 | 2.81 | 1226431 | 102.38 | 70 | 125 | |
| In | 115 | 1 | nogas | 1256077 | 3.57 | 1308607 | 95.99 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1295554 | 2.37 | 1207116 | 107.33 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 95210 | 1.42 | 95588 | 99.60 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 139_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T14:37:27-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 122CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.157 | 81.4 | 407 | 66.7 | 1 | |
| Na | 23 | 1 | nogas | 26.472 | 16.6 | 2751315 | 2.8 | 100 | |
| Mg | 24 | 1 | nogas | 16.987 | 71.0 | 131498 | 63.5 | 100 | |
| Al | 27 | 1 | nogas | 0.295 | 67.2 | 12678 | 11.1 | 5 | |
| K | 39 | 1 | nogas | -8.273 | -185.0 | 3834501 | 1.3 | 100 | |
| Ti | 47 | 1 | nogas | -0.356 | -26.0 | 367 | 20.1 | 2.5 | |
| V | 51 | 1 | nogas | 5.650 | 110.1 | 1355511 | 5.0 | 2.5 | CCB Main CR1 Failed |
| Cr | 52 | 1 | nogas | 0.089 | 98.8 | 32743 | 1.4 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.174 | 60.5 | 10036 | 12.4 | 2.5 | |
| Co | 59 | 1 | nogas | 0.151 | 67.3 | 1867 | 57.1 | 2.5 | |
| Ni | 60 | 1 | nogas | -0.702 | -6.6 | 2557 | 6.7 | 2.5 | |
| Cu | 63 | 1 | nogas | 0.009 | 1792.8 | 4891 | 18.3 | 2.5 | |
| Zn | 66 | 1 | nogas | -0.645 | -16.7 | 793 | 28.9 | 2.5 | |
| As | 75 | 1 | nogas | -0.840 | -458.0 | 188204 | 4.5 | 2.5 | |
| Sr | 88 | 1 | nogas | 0.237 | 47.1 | 4711 | 32.8 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.086 | 62.0 | 977 | 44.2 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.166 | 93.2 | 297 | 92.5 | 1 | |
| Sb | 121 | 1 | nogas | 0.107 | 90.5 | 1967 | 40.5 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.741 | 60.3 | 10892 | 61.0 | 1 | |
| Pb | 208 | 1 | nogas | 0.136 | 74.4 | 3214 | 69.2 | 2.5 | |
| U | 238 | 1 | nogas | 0.184 | 67.9 | 3841 | 67.2 | 2.5 | |
| [Pb] | 206 | 1 | nogas | 0.140 | 78.0 | 807 | 73.2 | 2.5 | |
| [Pb] | 207 | 1 | nogas | 0.131 | 82.2 | 713 | 74.9 | 2.5 | |
| Na | 23 | 2 | He | 22.181 | 74.4 | 71167 | 3.1 | 100 | |
| Mg | 24 | 2 | He | 6.492 | 32.1 | 830 | 18.7 | 100 | |
| Al | 27 | 2 | He | -0.601 | -572.9 | 87 | 78.5 | 5 | |
| K | 39 | 2 | He | 1.398 | 797.7 | 9973 | 4.3 | 100 | |
| Ca | 43 | 2 | He | 0.984 | 9445.1 | 7 | 173.2 | 100 | |
| Ca | 44 | 2 | He | 4.479 | 349.6 | 127 | 27.7 | 100 | |
| V | 51 | 2 | He | 0.099 | 53.4 | 674 | 6.9 | 2.5 | |
| Cr | 52 | 2 | He | -0.128 | -97.6 | 1510 | 11.3 | 2.5 | |
| Mn | 55 | 2 | He | -0.091 | -86.5 | 147 | 25.8 | 2.5 | |
| Fe | 56 | 2 | He | 3.269 | 15.3 | 9423 | 4.1 | 100 | |
| Co | 59 | 2 | He | 0.029 | 58.2 | 127 | 32.9 | 2.5 | |
| Ni | 60 | 2 | He | -0.259 | -45.0 | 417 | 20.1 | 2.5 | |
| Cu | 63 | 2 | He | -0.024 | -207.2 | 767 | 12.3 | 2.5 | |
| Zn | 66 | 2 | He | -0.362 | -9.8 | 40 | 25.0 | 2.5 | |
| As | 75 | 2 | He | -0.035 | -185.2 | 24 | 51.6 | 2.5 | |
| Se | 78 | 2 | He | -0.483 | -219.9 | 4 | 173.2 | 2.5 | |
| B | 11 | 1 | nogas | 13.741 | 52.5 | 77888 | 10.8 | 10 | CCB Main CR1 Failed |
| Si | 28 | 1 | nogas | 31.412 | 33.0 | 763437 | 3.8 | 5 | CCB Main CR1 Failed |
| Ca | 43 | 1 | nogas | 12.275 | 95.7 | 843 | 19.9 | 100 | |
| Ca | 44 | 1 | nogas | 5.619 | 240.9 | 59572 | 5.5 | 100 | |
| Fe | 56 | 1 | nogas | 15.549 | 80.1 | 858727 | 16.4 | 100 | |
| Se | 77 | 1 | nogas | 6.453 | 237.5 | 61444 | 4.1 | 2.5 | CCB Main CR1 Failed |
| Se | 82 | 1 | nogas | -0.224 | -100.9 | 353 | 7.1 | 2.5 | |

# Continuing Calibration Blank (CCB) Report

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Mo | 95 | 1 | nogas | 0.259 | 58.7 | 1727 | 26.2 | 2.5 | |
| Sn | 118 | 1 | nogas | 0.316 | 36.1 | 1870 | 29.5 | 5 | |
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Ba | 137 | 1 | nogas | 0.102 | 85.1 | 550 | 38.9 | 2.5 | |
| Sb | 121 | 2 | He | 0.007 | 421.6 | 93 | 27.0 | 2.5 | |
| P | 31 | 1 | nogas | -0.155 | -1765.7 | 38430 | 1.7 | 10 | |
| La | 139 | 1 | nogas | -92.507 | -29.5 | 50 | 72.1 | 2.5 | |
| Au | 197 | 1 | nogas | 931.666 | 153.1 | 30 | 115.5 | 2.5 | CCB Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 297050 | 2.65 | 296893 | 100.05 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1272172 | 2.56 | 1226431 | 103.73 | 70 | 125 | |
| In | 115 | 1 | nogas | 1274737 | 3.63 | 1308607 | 97.41 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1322845 | 2.05 | 1207116 | 109.59 | 70 | 125 | |
| Ge | 72 | 2 | He | 95844 | 0.99 | 95588 | 100.27 | 70 | 125 | |

# Sample Report

**Sample Table**

| | |
|---|---|
| Sample Name | LCS-122183 |
| Data File Name | 142SMPL.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T14:43:31-06:00 |
| Sample Type | Sample |
| Dilution | 1 |
| Comment | B122183 TW |
| ISTD Ref FileName | 122CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 49.578 | 49.578 | 6.44 | 106954 | 0.05 | 2000 | |
| Na | 23 | 1 | nogas | 4486.022 | 4486.022 | 1.48 | 49851313 | 0.01 | 200000 | |
| Mg | 24 | 1 | nogas | 4759.947 | 4759.947 | 0.70 | 33067333 | 0.01 | 200000 | |
| Al | 27 | 1 | nogas | 98.701 | 98.701 | 3.15 | 789961 | 0.01 | 2000 | |
| K | 39 | 1 | nogas | 4586.740 | 4586.740 | 6.06 | 39526435 | 0.01 | 200000 | |
| Ti | 47 | 1 | nogas | 139.611 | 139.611 | 2.33 | 110664 | 0.13 | 2000 | |
| V | 51 | 1 | nogas | 33.004 | 33.004 | 35.98 | 1788742 | 0.00 | 2000 | |
| Cr | 52 | 1 | nogas | 45.985 | 45.985 | 4.12 | 505868 | 0.01 | 2000 | |
| Mn | 55 | 1 | nogas | 46.189 | 46.189 | 5.08 | 636328 | 0.01 | 2000 | |
| Co | 59 | 1 | nogas | 47.394 | 47.394 | 4.99 | 520204 | 0.01 | 2000 | |
| Ni | 60 | 1 | nogas | 45.484 | 45.484 | 4.17 | 119468 | 0.04 | 2000 | |
| Cu | 63 | 1 | nogas | 46.592 | 46.592 | 4.18 | 295939 | 0.02 | 2000 | |
| Zn | 66 | 1 | nogas | 45.902 | 45.902 | 1.64 | 103849 | 0.04 | 2000 | |
| As | 75 | 1 | nogas | 30.458 | 30.458 | 27.36 | 280400 | 0.01 | 2000 | |
| Sr | 88 | 1 | nogas | 97.888 | 97.888 | 3.09 | 1413536 | 0.01 | 2000 | |
| Ag | 107 | 1 | nogas | 47.922 | 47.922 | 3.39 | 402837 | 0.01 | 2000 | |
| Cd | 111 | 1 | nogas | 47.150 | 47.150 | 0.23 | 84594 | 0.06 | 2000 | |
| Sb | 121 | 1 | nogas | 46.381 | 46.381 | 5.28 | 398183 | 0.01 | 2000 | |
| Tl | 205 | 1 | nogas | 47.233 | 47.233 | 5.46 | 711167 | 0.01 | 2000 | |
| Pb | 208 | 1 | nogas | 46.626 | 46.626 | 2.76 | 1041847 | 0.00 | 2000 | |
| U | 238 | 1 | nogas | 90.400 | 90.400 | 3.78 | 1904821 | 0.00 | 2000 | |
| [Pb] | 206 | 1 | nogas | 46.086 | 46.086 | 4.45 | 253480 | 0.02 | 2000 | |
| [Pb] | 207 | 1 | nogas | 46.372 | 46.372 | 2.77 | 235458 | 0.02 | 2000 | |
| Na | 23 | 2 | He | 4503.858 | 4503.858 | 0.68 | 909924 | 0.49 | 200000 | |
| Mg | 24 | 2 | He | 4909.129 | 4909.129 | 1.78 | 398928 | 1.23 | 200000 | |
| Al | 27 | 2 | He | 81.568 | 81.568 | 17.17 | 1793 | 4.55 | 2000 | |
| K | 39 | 2 | He | 5217.494 | 5217.494 | 1.72 | 209007 | 2.50 | 200000 | |
| Ca | 43 | 2 | He | 5687.635 | 5687.635 | 31.38 | 743 | 765.13 | 200000 | |
| Ca | 44 | 2 | He | 5003.079 | 5003.079 | 1.22 | 12264 | 40.79 | 200000 | |
| V | 51 | 2 | He | 45.140 | 45.140 | 0.64 | 48071 | 0.09 | 2000 | |
| Cr | 52 | 2 | He | 46.647 | 46.647 | 1.45 | 66567 | 0.07 | 2000 | |
| Mn | 55 | 2 | He | 46.531 | 46.531 | 1.09 | 23178 | 0.20 | 2000 | |
| Fe | 56 | 2 | He | 4603.984 | 4603.984 | 1.58 | 4436819 | 0.10 | 200000 | |
| Co | 59 | 2 | He | 46.009 | 46.009 | 1.42 | 115889 | 0.04 | 2000 | |
| Ni | 60 | 2 | He | 45.385 | 45.385 | 0.73 | 33351 | 0.14 | 2000 | |
| Cu | 63 | 2 | He | 46.212 | 46.212 | 1.08 | 95044 | 0.05 | 2000 | |
| Zn | 66 | 2 | He | 47.238 | 47.238 | 1.96 | 13845 | 0.34 | 2000 | |
| As | 75 | 2 | He | 46.190 | 46.190 | 4.65 | 9359 | 0.49 | 2000 | |
| Se | 78 | 2 | He | 56.790 | 56.790 | 5.03 | 394 | 14.41 | 2000 | |
| B | 11 | 1 | nogas | 487.785 | 487.785 | 6.46 | 742506 | 0.07 | 2000 | |
| Si | 28 | 1 | nogas | 4735.482 | 4735.482 | 1.49 | 17227806 | 0.03 | 2000 | >LDR |
| Ca | 43 | 1 | nogas | 4877.034 | 4877.034 | 1.64 | 80856 | 6.03 | 200000 | |
| Ca | 44 | 1 | nogas | 4836.322 | 4836.322 | 2.98 | 1303589 | 0.37 | 200000 | |
| Fe | 56 | 1 | nogas | 4368.864 | 4368.864 | 6.31 | 52825607 | 0.01 | 200000 | |

# Sample Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Se | 77 | 1 | nogas | -12.948 | -12.948 | -189.64 | 61320 | -0.02 | 2000 | |
| Se | 82 | 1 | nogas | 45.070 | 45.070 | 2.85 | 6024 | 0.75 | 2000 | |
| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
| Mo | 95 | 1 | nogas | 44.563 | 44.563 | 4.10 | 139910 | 0.03 | 2000 | |
| Sn | 118 | 1 | nogas | 101.385 | 101.385 | 4.18 | 460208 | 0.02 | 2000 | |
| Ba | 137 | 1 | nogas | 48.774 | 48.774 | 2.72 | 115961 | 0.04 | 2000 | |
| Sb | 121 | 2 | He | 47.075 | 47.075 | 4.91 | 40003 | 0.12 | 2000 | |
| La | 139 | 1 | nogas | -47.528 | -47.528 | -43.58 | 120 | -39.61 | 2000 | |
| Au | 197 | 1 | nogas | 2450.747 | 2450.747 | 30.67 | 70 | 3501.07 | 2000 | >LDR |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 286169 | 5.67 | 296893 | 96.39 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1350854 | 4.01 | 1226431 | 110.15 | 70 | 125 | |
| In | 115 | 1 | nogas | 1368036 | 2.48 | 1308607 | 104.54 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1393456 | 3.18 | 1207116 | 115.44 | 70 | 125 | |
| Ge | 72 | 2 | He | 100276 | 0.19 | 95588 | 104.90 | 70 | 125 | |

# Sample Report

**Sample Table**

| | |
|---|---|
| Sample Name | HS17110570-05SD |
| Data File Name | 145SMPL.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T14:49:33-06:00 |
| Sample Type | Sample |
| Dilution | 5 |
| Comment | B122183 TW |
| ISTD Ref FileName | 122CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.000 | -0.001 | -8824.52 | 57 | 0.00 | 2000 | |
| Na | 23 | 1 | nogas | 176316.867 | 881584.333 | 0.29 | 1679272504 | 0.01 | 200000 | |
| Mg | 24 | 1 | nogas | 55991.090 | 279955.449 | 2.32 | 351327566 | 0.02 | 200000 | |
| Al | 27 | 1 | nogas | 2.825 | 14.125 | 7.15 | 30993 | 0.01 | 2000 | |
| K | 39 | 1 | nogas | 218.740 | 1093.701 | 4.43 | 5400680 | 0.00 | 200000 | |
| Ti | 47 | 1 | nogas | -0.334 | -1.670 | -34.50 | 377 | -0.09 | 2000 | |
| V | 51 | 1 | nogas | -22.525 | -112.627 | -13.94 | 997785 | 0.00 | 2000 | |
| Cr | 52 | 1 | nogas | -0.796 | -3.979 | -18.36 | 23819 | 0.00 | 2000 | |
| Mn | 55 | 1 | nogas | 760.394 | 3801.969 | 0.76 | 9603058 | 0.01 | 2000 | |
| Co | 59 | 1 | nogas | 0.296 | 1.478 | 9.81 | 3307 | 0.01 | 2000 | |
| Ni | 60 | 1 | nogas | 0.995 | 4.973 | 5.04 | 6495 | 0.02 | 2000 | |
| Cu | 63 | 1 | nogas | 0.564 | 2.820 | 3.75 | 8035 | 0.01 | 2000 | |
| Zn | 66 | 1 | nogas | 1.764 | 8.822 | 6.22 | 5724 | 0.03 | 2000 | |
| As | 75 | 1 | nogas | -23.081 | -115.407 | -12.20 | 131904 | -0.02 | 2000 | |
| Sr | 88 | 1 | nogas | 1831.169 | 9155.844 | 2.78 | 24492780 | 0.01 | 2000 | >LDR |
| Ag | 107 | 1 | nogas | 0.004 | 0.019 | 12.44 | 320 | 0.00 | 2000 | |
| Cd | 111 | 1 | nogas | -0.004 | -0.019 | -87.99 | 7 | -0.06 | 2000 | |
| Sb | 121 | 1 | nogas | -0.050 | -0.251 | -22.97 | 683 | -0.01 | 2000 | |
| Tl | 205 | 1 | nogas | 0.001 | 0.006 | 237.78 | 220 | 0.00 | 2000 | |
| Pb | 208 | 1 | nogas | 0.035 | 0.174 | 3.65 | 990 | 0.00 | 2000 | |
| U | 238 | 1 | nogas | 5.255 | 26.275 | 4.59 | 100357 | 0.01 | 2000 | |
| [Pb] | 206 | 1 | nogas | 0.036 | 0.181 | 9.64 | 243 | 0.01 | 2000 | |
| [Pb] | 207 | 1 | nogas | 0.027 | 0.137 | 28.29 | 200 | 0.01 | 2000 | |
| Na | 23 | 2 | He | 167962.277 | 839811.387 | 2.46 | 30948165 | 0.54 | 200000 | |
| Mg | 24 | 2 | He | 52706.531 | 263532.655 | 3.52 | 4219801 | 1.25 | 200000 | |
| Al | 27 | 2 | He | 0.047 | 0.234 | 3818.51 | 103 | 0.05 | 2000 | |
| K | 39 | 2 | He | 237.712 | 1188.560 | 7.19 | 18990 | 1.25 | 200000 | |
| Ca | 43 | 2 | He | 121114.960 | 605574.798 | 1.71 | 15480 | 782.39 | 200000 | |
| Ca | 44 | 2 | He | 105390.030 | 526950.150 | 1.54 | 252404 | 41.75 | 200000 | |
| V | 51 | 2 | He | 0.350 | 1.748 | 9.39 | 955 | 0.04 | 2000 | |
| Cr | 52 | 2 | He | -0.103 | -0.515 | -138.30 | 1593 | -0.01 | 2000 | |
| Mn | 55 | 2 | He | 780.173 | 3900.866 | 0.50 | 380301 | 0.21 | 2000 | |
| Fe | 56 | 2 | He | 155.215 | 776.075 | 1.91 | 153919 | 0.10 | 200000 | |
| Co | 59 | 2 | He | 0.218 | 1.091 | 5.15 | 600 | 0.04 | 2000 | |
| Ni | 60 | 2 | He | 0.145 | 0.725 | 70.62 | 717 | 0.02 | 2000 | |
| Cu | 63 | 2 | He | 0.259 | 1.294 | 19.39 | 1360 | 0.02 | 2000 | |
| Zn | 66 | 2 | He | 0.509 | 2.544 | 21.84 | 290 | 0.18 | 2000 | |
| As | 75 | 2 | He | 0.896 | 4.481 | 21.89 | 211 | 0.42 | 2000 | |
| Se | 78 | 2 | He | 0.306 | 1.532 | 318.69 | 9 | 3.28 | 2000 | |
| B | 11 | 1 | nogas | 308.577 | 1542.883 | 4.24 | 487623 | 0.06 | 2000 | |
| Si | 28 | 1 | nogas | 2583.273 | 12916.367 | 5.00 | 9003739 | 0.03 | 2000 | >LDR |
| Ca | 43 | 1 | nogas | 97877.649 | 489388.245 | 3.76 | 1492136 | 6.56 | 200000 | |
| Ca | 44 | 1 | nogas | 98778.695 | 493893.476 | 4.11 | 23553920 | 0.42 | 200000 | |
| Fe | 56 | 1 | nogas | 170.567 | 852.833 | 0.93 | 2561594 | 0.01 | 200000 | |

# Sample Report

| Se | 77 | 1 | nogas | -82.598 | -412.990 | -17.79 | 44237 | -0.19 | 2000 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Se | 82 | 1 | nogas | -0.148 | -0.742 | -136.99 | 357 | -0.04 | 2000 | |
| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
| Mo | 95 | 1 | nogas | 2.824 | 14.121 | 2.55 | 9116 | 0.03 | 2000 | |
| Sn | 118 | 1 | nogas | -0.002 | -0.009 | -1689.05 | 530 | 0.00 | 2000 | |
| Ba | 137 | 1 | nogas | 2.286 | 11.428 | 2.94 | 5524 | 0.04 | 2000 | |
| Sb | 121 | 2 | He | 0.024 | 0.118 | 86.82 | 110 | 0.02 | 2000 | |
| La | 139 | 1 | nogas | -12.844 | -64.221 | -121.92 | 163 | -7.86 | 2000 | |
| Au | 197 | 1 | nogas | 572.381 | 2861.905 | 153.21 | 20 | 2861.91 | 2000 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 284129 | 1.51 | 296893 | 95.70 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1252087 | 1.98 | 1226431 | 102.09 | 70 | 125 | |
| In | 115 | 1 | nogas | 1311709 | 1.92 | 1308607 | 100.24 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1261880 | 2.44 | 1207116 | 104.54 | 70 | 125 | |
| Ge | 72 | 2 | He | 98919 | 2.02 | 95588 | 103.49 | 70 | 125 | |

# Sample Report

**Sample Table**

| | |
|---|---|
| Sample Name | HS17110570-05MS |
| Data File Name | 146SMPL.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T14:51:35-06:00 |
| Sample Type | Sample |
| Dilution | 1 |
| Comment | B122183 TW |
| ISTD Ref FileName | 122CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 54.975 | 54.975 | 3.95 | 94959 | 0.06 | 2000 | |
| Na | 23 | 1 | nogas | OR | OR | #VALUE! | OR | #VALUE! | 200000 | |
| Mg | 24 | 1 | nogas | 247062.401 | 247062.401 | 5.69 | 1595744436 | 0.02 | 200000 | >LDR |
| Al | 27 | 1 | nogas | 106.920 | 106.920 | 7.16 | 764787 | 0.01 | 2000 | |
| K | 39 | 1 | nogas | 5539.121 | 5539.121 | 5.78 | 41983828 | 0.01 | 200000 | |
| Ti | 47 | 1 | nogas | 148.663 | 148.663 | 4.24 | 105448 | 0.14 | 2000 | |
| V | 51 | 1 | nogas | 33.878 | 33.878 | 30.88 | 1612645 | 0.00 | 2000 | |
| Cr | 52 | 1 | nogas | 46.028 | 46.028 | 5.87 | 453331 | 0.01 | 2000 | |
| Mn | 55 | 1 | nogas | 3603.690 | 3603.690 | 6.98 | 43876133 | 0.01 | 2000 | >LDR |
| Co | 59 | 1 | nogas | 48.857 | 48.857 | 6.11 | 480155 | 0.01 | 2000 | |
| Ni | 60 | 1 | nogas | 51.097 | 51.097 | 6.84 | 119627 | 0.04 | 2000 | |
| Cu | 63 | 1 | nogas | 49.319 | 49.319 | 6.14 | 280155 | 0.02 | 2000 | |
| Zn | 66 | 1 | nogas | 52.631 | 52.631 | 5.52 | 106234 | 0.05 | 2000 | |
| As | 75 | 1 | nogas | 30.010 | 30.010 | 20.57 | 250232 | 0.01 | 2000 | |
| Sr | 88 | 1 | nogas | 8814.512 | 8814.512 | 6.23 | 113771708 | 0.01 | 2000 | >LDR |
| Ag | 107 | 1 | nogas | 45.920 | 45.920 | 5.53 | 345526 | 0.01 | 2000 | |
| Cd | 111 | 1 | nogas | 44.285 | 44.285 | 2.93 | 75324 | 0.06 | 2000 | |
| Sb | 121 | 1 | nogas | 47.451 | 47.451 | 4.92 | 364852 | 0.01 | 2000 | |
| Tl | 205 | 1 | nogas | 47.565 | 47.565 | 5.07 | 637410 | 0.01 | 2000 | |
| Pb | 208 | 1 | nogas | 45.402 | 45.402 | 3.68 | 902656 | 0.01 | 2000 | |
| U | 238 | 1 | nogas | 116.433 | 116.433 | 4.43 | 2182476 | 0.01 | 2000 | |
| [Pb] | 206 | 1 | nogas | 44.978 | 44.978 | 4.82 | 220126 | 0.02 | 2000 | |
| [Pb] | 207 | 1 | nogas | 44.340 | 44.340 | 3.02 | 200350 | 0.02 | 2000 | |
| Na | 23 | 2 | He | 802803.313 | 802803.313 | 1.90 | 144300288 | 0.56 | 200000 | >LDR |
| Mg | 24 | 2 | He | 250869.435 | 250869.435 | 0.62 | 19633951 | 1.28 | 200000 | >LDR |
| Al | 27 | 2 | He | 84.633 | 84.633 | 0.96 | 1790 | 4.73 | 2000 | |
| K | 39 | 2 | He | 5899.317 | 5899.317 | 2.29 | 235024 | 2.51 | 200000 | |
| Ca | 43 | 2 | He | 570476.768 | 570476.768 | 3.08 | 71214 | 801.08 | 200000 | >LDR |
| Ca | 44 | 2 | He | 490868.825 | 490868.825 | 1.37 | 1148484 | 42.74 | 200000 | >LDR |
| V | 51 | 2 | He | 47.525 | 47.525 | 0.63 | 48757 | 0.10 | 2000 | |
| Cr | 52 | 2 | He | 45.797 | 45.797 | 0.88 | 63038 | 0.07 | 2000 | |
| Mn | 55 | 2 | He | 3726.397 | 3726.397 | 2.60 | 1773685 | 0.21 | 2000 | >LDR |
| Fe | 56 | 2 | He | 5116.858 | 5116.858 | 1.89 | 4751666 | 0.11 | 200000 | |
| Co | 59 | 2 | He | 44.758 | 44.758 | 3.67 | 108638 | 0.04 | 2000 | |
| Ni | 60 | 2 | He | 43.581 | 43.581 | 2.72 | 30900 | 0.14 | 2000 | |
| Cu | 63 | 2 | He | 43.196 | 43.196 | 1.98 | 85685 | 0.05 | 2000 | |
| Zn | 66 | 2 | He | 45.377 | 45.377 | 3.35 | 12821 | 0.35 | 2000 | |
| As | 75 | 2 | He | 51.219 | 51.219 | 2.74 | 9998 | 0.51 | 2000 | |
| Se | 78 | 2 | He | 50.001 | 50.001 | 6.62 | 335 | 14.91 | 2000 | |
| B | 11 | 1 | nogas | 2200.611 | 2200.611 | 8.66 | 2520916 | 0.09 | 2000 | >LDR |
| Si | 28 | 1 | nogas | 17310.020 | 17310.020 | 5.99 | 54670814 | 0.03 | 2000 | >LDR |
| Ca | 43 | 1 | nogas | 477349.332 | 477349.332 | 5.02 | 7022721 | 6.80 | 200000 | >LDR |
| Ca | 44 | 1 | nogas | 487465.367 | 487465.367 | 4.63 | 111980518 | 0.44 | 200000 | >LDR |
| Fe | 56 | 1 | nogas | 5106.590 | 5106.590 | 6.39 | 55187870 | 0.01 | 200000 | |
| Se | 77 | 1 | nogas | -36.802 | -36.802 | -60.35 | 50728 | -0.07 | 2000 | |
| Se | 82 | 1 | nogas | 49.428 | 49.428 | 4.32 | 5874 | 0.84 | 2000 | |

# Sample Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Mo | 95 | 1 | nogas | 60.807 | 60.807 | 5.58 | 170586 | 0.04 | 2000 | |
| Sn | 118 | 1 | nogas | 97.788 | 97.788 | 3.69 | 420954 | 0.02 | 2000 | |
| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
| Ba | 137 | 1 | nogas | 54.691 | 54.691 | 5.51 | 123211 | 0.04 | 2000 | |
| Sb | 121 | 2 | He | 45.919 | 45.919 | 1.41 | 37624 | 0.12 | 2000 | |
| La | 139 | 1 | nogas | 399.675 | 399.675 | 11.36 | 730 | 54.75 | 2000 | |
| Au | 197 | 1 | nogas | 140.619 | 140.619 | 313.09 | 10 | 1406.19 | 2000 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 228938 | 5.75 | 296893 | 77.11 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1209785 | 3.79 | 1226431 | 98.64 | 70 | 125 | |
| In | 115 | 1 | nogas | 1297749 | 3.35 | 1308607 | 99.17 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1240057 | 3.28 | 1207116 | 102.73 | 70 | 125 | |
| Ge | 72 | 2 | He | 96664 | 1.71 | 95588 | 101.13 | 70 | 125 | |

# Sample Report

**Sample Table**

| | |
|---|---|
| Sample Name | HS17110570-05MSD |
| Data File Name | 147SMPL.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T14:53:35-06:00 |
| Sample Type | Sample |
| Dilution | 1 |
| Comment | B122183 TW |
| ISTD Ref FileName | 122CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 53.066 | 53.066 | 4.97 | 92501 | 0.06 | 2000 | |
| Na | 23 | 1 | nogas | OR | OR | #VALUE! | OR | #VALUE! | 200000 | |
| Mg | 24 | 1 | nogas | 256293.391 | 256293.391 | 2.58 | 1627965770 | 0.02 | 200000 | >LDR |
| Al | 27 | 1 | nogas | 99.993 | 99.993 | 5.23 | 747213 | 0.01 | 2000 | |
| K | 39 | 1 | nogas | 5232.518 | 5232.518 | 6.16 | 41583059 | 0.01 | 200000 | |
| Ti | 47 | 1 | nogas | 139.344 | 139.344 | 3.69 | 103161 | 0.14 | 2000 | |
| V | 51 | 1 | nogas | 28.135 | 28.135 | 28.96 | 1613892 | 0.00 | 2000 | |
| Cr | 52 | 1 | nogas | 44.454 | 44.454 | 6.19 | 457763 | 0.01 | 2000 | |
| Mn | 55 | 1 | nogas | 3615.114 | 3615.114 | 2.69 | 45966211 | 0.01 | 2000 | >LDR |
| Co | 59 | 1 | nogas | 46.969 | 46.969 | 3.16 | 481911 | 0.01 | 2000 | |
| Ni | 60 | 1 | nogas | 49.122 | 49.122 | 7.11 | 120133 | 0.04 | 2000 | |
| Cu | 63 | 1 | nogas | 46.225 | 46.225 | 5.61 | 274272 | 0.02 | 2000 | |
| Zn | 66 | 1 | nogas | 49.509 | 49.509 | 6.74 | 104349 | 0.05 | 2000 | |
| As | 75 | 1 | nogas | 24.156 | 24.156 | 27.91 | 246858 | 0.01 | 2000 | |
| Sr | 88 | 1 | nogas | 8627.497 | 8627.497 | 3.56 | 116249935 | 0.01 | 2000 | >LDR |
| Ag | 107 | 1 | nogas | 43.304 | 43.304 | 2.98 | 340152 | 0.01 | 2000 | |
| Cd | 111 | 1 | nogas | 44.719 | 44.719 | 1.55 | 74860 | 0.06 | 2000 | |
| Sb | 121 | 1 | nogas | 44.466 | 44.466 | 3.89 | 356823 | 0.01 | 2000 | |
| Tl | 205 | 1 | nogas | 48.065 | 48.065 | 2.66 | 631901 | 0.01 | 2000 | |
| Pb | 208 | 1 | nogas | 46.412 | 46.412 | 3.40 | 904751 | 0.01 | 2000 | |
| U | 238 | 1 | nogas | 117.001 | 117.001 | 6.64 | 2148761 | 0.01 | 2000 | |
| [Pb] | 206 | 1 | nogas | 45.441 | 45.441 | 2.93 | 218181 | 0.02 | 2000 | |
| [Pb] | 207 | 1 | nogas | 45.857 | 45.857 | 3.62 | 203124 | 0.02 | 2000 | |
| Na | 23 | 2 | He | 830040.601 | 830040.601 | 1.43 | 145648281 | 0.57 | 200000 | >LDR |
| Mg | 24 | 2 | He | 261578.763 | 261578.763 | 0.71 | 19982294 | 1.31 | 200000 | >LDR |
| Al | 27 | 2 | He | 102.402 | 102.402 | 6.03 | 2094 | 4.89 | 2000 | |
| K | 39 | 2 | He | 6015.005 | 6015.005 | 4.09 | 239438 | 2.51 | 200000 | |
| Ca | 43 | 2 | He | 604155.059 | 604155.059 | 2.33 | 73630 | 820.53 | 200000 | >LDR |
| Ca | 44 | 2 | He | 517727.931 | 517727.931 | 3.77 | 1182358 | 43.79 | 200000 | >LDR |
| V | 51 | 2 | He | 47.289 | 47.289 | 2.12 | 47354 | 0.10 | 2000 | |
| Cr | 52 | 2 | He | 45.819 | 45.819 | 2.51 | 61550 | 0.07 | 2000 | |
| Mn | 55 | 2 | He | 3886.874 | 3886.874 | 1.88 | 1806248 | 0.22 | 2000 | >LDR |
| Fe | 56 | 2 | He | 5297.265 | 5297.265 | 1.09 | 4802038 | 0.11 | 200000 | |
| Co | 59 | 2 | He | 45.547 | 45.547 | 1.34 | 107938 | 0.04 | 2000 | |
| Ni | 60 | 2 | He | 44.547 | 44.547 | 3.19 | 30810 | 0.14 | 2000 | |
| Cu | 63 | 2 | He | 45.327 | 45.327 | 1.31 | 87724 | 0.05 | 2000 | |
| Zn | 66 | 2 | He | 45.729 | 45.729 | 1.77 | 12615 | 0.36 | 2000 | |
| As | 75 | 2 | He | 51.781 | 51.781 | 0.43 | 9868 | 0.52 | 2000 | |
| Se | 78 | 2 | He | 50.848 | 50.848 | 2.64 | 333 | 15.29 | 2000 | |
| B | 11 | 1 | nogas | 2207.230 | 2207.230 | 3.51 | 2556251 | 0.09 | 2000 | >LDR |
| Si | 28 | 1 | nogas | 16533.792 | 16533.792 | 6.08 | 54503088 | 0.03 | 2000 | >LDR |
| Ca | 43 | 1 | nogas | 467160.650 | 467160.650 | 4.38 | 7169663 | 6.52 | 200000 | >LDR |
| Ca | 44 | 1 | nogas | 477051.356 | 477051.356 | 5.77 | 114288312 | 0.42 | 200000 | >LDR |
| Fe | 56 | 1 | nogas | 4927.970 | 4927.970 | 3.03 | 55630020 | 0.01 | 200000 | |
| Se | 77 | 1 | nogas | -50.366 | -50.366 | -44.78 | 50423 | -0.10 | 2000 | |
| Se | 82 | 1 | nogas | 48.785 | 48.785 | 4.30 | 6054 | 0.81 | 2000 | |

# Sample Report

| Mo | 95 | 1 | nogas | 57.601 | 57.601 | 4.53 | 168677 | 0.03 | 2000 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sn | 118 | 1 | nogas | 98.609 | 98.609 | 2.92 | 417745 | 0.02 | 2000 | |
| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
| Ba | 137 | 1 | nogas | 56.343 | 56.343 | 2.41 | 124963 | 0.05 | 2000 | |
| Sb | 121 | 2 | He | 46.009 | 46.009 | 1.41 | 36789 | 0.13 | 2000 | |
| La | 139 | 1 | nogas | 340.796 | 340.796 | 19.55 | 640 | 53.25 | 2000 | |
| Au | 197 | 1 | nogas | -9.123 | -9.123 | -2803.76 | 7 | -136.85 | 2000 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 230843 | 2.45 | 296893 | 77.75 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1262048 | 3.67 | 1226431 | 102.90 | 70 | 125 | |
| In | 115 | 1 | nogas | 1276652 | 1.96 | 1308607 | 97.56 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1215742 | 3.16 | 1207116 | 100.71 | 70 | 125 | |
| Ge | 72 | 2 | He | 94346 | 0.11 | 95588 | 98.70 | 70 | 125 | |

# Sample Report

**Sample Table**

| | |
|---|---|
| Sample Name | HS17110570-05PDS |
| Data File Name | 148SMPL.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T14:55:35-06:00 |
| Sample Type | Sample |
| Dilution | 1 |
| Comment | B122183 TW |
| ISTD Ref FileName | 122CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 92.075 | 92.075 | 3.33 | 178208 | 0.05 | 2000 | |
| Na | 23 | 1 | nogas | OR | OR | #VALUE! | OR | #VALUE! | 200000 | |
| Mg | 24 | 1 | nogas | 259751.672 | 259751.672 | 3.24 | 1624629703 | 0.02 | 200000 | >LDR |
| Al | 27 | 1 | nogas | 104.201 | 104.201 | 1.61 | 732579 | 0.01 | 2000 | |
| K | 39 | 1 | nogas | 10155.018 | 10155.018 | 5.59 | 72527070 | 0.01 | 200000 | |
| Ti | 47 | 1 | nogas | 98.195 | 98.195 | 5.86 | 68549 | 0.14 | 2000 | |
| V | 51 | 1 | nogas | 86.142 | 86.142 | 8.92 | 2175991 | 0.00 | 2000 | |
| Cr | 52 | 1 | nogas | 93.768 | 93.768 | 1.75 | 876027 | 0.01 | 2000 | |
| Mn | 55 | 1 | nogas | 3742.090 | 3742.090 | 0.88 | 44763623 | 0.01 | 2000 | >LDR |
| Co | 59 | 1 | nogas | 95.239 | 95.239 | 0.81 | 919125 | 0.01 | 2000 | |
| Ni | 60 | 1 | nogas | 98.906 | 98.906 | 2.29 | 223772 | 0.04 | 2000 | |
| Cu | 63 | 1 | nogas | 95.763 | 95.763 | 4.85 | 529856 | 0.02 | 2000 | |
| Zn | 66 | 1 | nogas | 97.810 | 97.810 | 4.48 | 192115 | 0.05 | 2000 | |
| As | 75 | 1 | nogas | 73.423 | 73.423 | 7.92 | 344423 | 0.02 | 2000 | |
| Sr | 88 | 1 | nogas | 8853.514 | 8853.514 | 3.15 | 112229982 | 0.01 | 2000 | >LDR |
| Ag | 107 | 1 | nogas | 89.580 | 89.580 | 1.79 | 661665 | 0.01 | 2000 | |
| Cd | 111 | 1 | nogas | 90.843 | 90.843 | 3.87 | 147974 | 0.06 | 2000 | |
| Sb | 121 | 1 | nogas | 86.543 | 86.543 | 3.22 | 652419 | 0.01 | 2000 | |
| Tl | 205 | 1 | nogas | 95.345 | 95.345 | 1.44 | 1216531 | 0.01 | 2000 | |
| Pb | 208 | 1 | nogas | 91.048 | 91.048 | 4.33 | 1721707 | 0.01 | 2000 | |
| U | 238 | 1 | nogas | 25.665 | 25.665 | 5.97 | 457580 | 0.01 | 2000 | |
| [Pb] | 206 | 1 | nogas | 91.018 | 91.018 | 4.47 | 423790 | 0.02 | 2000 | |
| [Pb] | 207 | 1 | nogas | 89.340 | 89.340 | 5.31 | 383797 | 0.02 | 2000 | |
| Na | 23 | 2 | He | 809959.122 | 809959.122 | 1.77 | 142395085 | 0.57 | 200000 | >LDR |
| Mg | 24 | 2 | He | 256041.897 | 256041.897 | 0.38 | 19597444 | 1.31 | 200000 | >LDR |
| Al | 27 | 2 | He | 90.967 | 90.967 | 5.57 | 1873 | 4.86 | 2000 | |
| K | 39 | 2 | He | 10498.426 | 10498.426 | 1.66 | 410515 | 2.56 | 200000 | |
| Ca | 43 | 2 | He | 587310.304 | 587310.304 | 3.66 | 71692 | 819.21 | 200000 | >LDR |
| Ca | 44 | 2 | He | 520714.054 | 520714.054 | 2.45 | 1191275 | 43.71 | 200000 | >LDR |
| V | 51 | 2 | He | 92.787 | 92.787 | 0.73 | 92546 | 0.10 | 2000 | |
| Cr | 52 | 2 | He | 87.901 | 87.901 | 2.02 | 116768 | 0.08 | 2000 | |
| Mn | 55 | 2 | He | 3770.456 | 3770.456 | 3.04 | 1755246 | 0.21 | 2000 | >LDR |
| Fe | 56 | 2 | He | 9536.035 | 9536.035 | 3.93 | 8653506 | 0.11 | 200000 | |
| Co | 59 | 2 | He | 88.763 | 88.763 | 3.11 | 210669 | 0.04 | 2000 | |
| Ni | 60 | 2 | He | 89.763 | 89.763 | 3.03 | 61591 | 0.15 | 2000 | |
| Cu | 63 | 2 | He | 86.037 | 86.037 | 1.43 | 166106 | 0.05 | 2000 | |
| Zn | 66 | 2 | He | 90.136 | 90.136 | 3.37 | 24774 | 0.36 | 2000 | |
| As | 75 | 2 | He | 96.616 | 96.616 | 1.69 | 18419 | 0.52 | 2000 | |
| Se | 78 | 2 | He | 97.243 | 97.243 | 7.35 | 631 | 15.42 | 2000 | |
| B | 11 | 1 | nogas | 2509.548 | 2509.548 | 2.82 | 3220972 | 0.08 | 2000 | >LDR |
| Si | 28 | 1 | nogas | 12967.674 | 12967.674 | 1.63 | 40377724 | 0.03 | 2000 | >LDR |
| Ca | 43 | 1 | nogas | 486288.674 | 486288.674 | 4.57 | 7021326 | 6.93 | 200000 | >LDR |
| Ca | 44 | 1 | nogas | 498332.879 | 498332.879 | 3.81 | 112362128 | 0.44 | 200000 | >LDR |
| Fe | 56 | 1 | nogas | 9389.608 | 9389.608 | 1.31 | 99163606 | 0.01 | 200000 | |
| Se | 77 | 1 | nogas | -6.498 | -6.498 | -202.71 | 55070 | -0.01 | 2000 | |
| Se | 82 | 1 | nogas | 98.634 | 98.634 | 3.34 | 11154 | 0.88 | 2000 | |

# Sample Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Mo | 95 | 1 | nogas | 107.211 | 107.211 | 2.07 | 294676 | 0.04 | 2000 | |
| Sn | 118 | 1 | nogas | 0.193 | 0.193 | 48.77 | 1307 | 0.01 | 2000 | |
| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
| Ba | 137 | 1 | nogas | 102.286 | 102.286 | 3.13 | 220584 | 0.05 | 2000 | |
| Sb | 121 | 2 | He | 86.023 | 86.023 | 1.09 | 68846 | 0.12 | 2000 | |
| La | 139 | 1 | nogas | 365.512 | 365.512 | 24.66 | 653 | 55.94 | 2000 | |
| Au | 197 | 1 | nogas | 459.159 | 459.159 | 149.39 | 17 | 2754.96 | 2000 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 256313 | 2.28 | 296893 | 86.33 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1186674 | 1.76 | 1226431 | 96.76 | 70 | 125 | |
| In | 115 | 1 | nogas | 1242811 | 2.15 | 1308607 | 94.97 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1180150 | 4.20 | 1207116 | 97.77 | 70 | 125 | |
| Ge | 72 | 2 | He | 94530 | 1.42 | 95588 | 98.89 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 150_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T14:59:34-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 122CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 102.650 | 3.540 | 201467 | 2.75 | 100 | 102.6 | 90 | 110 | |
| Na | 23 | 1 | nogas | 10739.815 | 0.378 | 101878871 | 1.17 | 10000 | 107.4 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 10475.097 | 1.857 | 64081081 | 1.93 | 10000 | 104.8 | 90 | 110 | |
| Al | 27 | 1 | nogas | 104.833 | 5.175 | 752030 | 1.46 | 100 | 104.8 | 90 | 110 | |
| K | 39 | 1 | nogas | 10252.287 | 5.911 | 74702195 | 1.05 | 10000 | 102.5 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 103.202 | 6.737 | 73497 | 3.07 | 100 | 103.2 | 90 | 110 | |
| V | 51 | 1 | nogas | 158.535 | 9.899 | 3057729 | 2.48 | 100 | 158.5 | 90 | 110 | CCV Main CR1-2 Failed |
| Cr | 52 | 1 | nogas | 104.565 | 3.588 | 993974 | 2.14 | 100 | 104.6 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 100.985 | 5.620 | 1240926 | 5.92 | 100 | 101.0 | 90 | 110 | |
| Co | 59 | 1 | nogas | 102.933 | 4.967 | 1013682 | 1.01 | 100 | 102.9 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 101.860 | 5.947 | 235024 | 1.75 | 100 | 101.9 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 102.727 | 6.299 | 579716 | 1.75 | 100 | 102.7 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 104.022 | 3.714 | 208530 | 1.23 | 100 | 104.0 | 90 | 110 | |
| As | 75 | 1 | nogas | 108.980 | 8.267 | 434148 | 1.31 | 100 | 109.0 | 90 | 110 | |
| Sr | 88 | 1 | nogas | 100.543 | 6.860 | 1301575 | 2.32 | 100 | 100.5 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 104.102 | 3.815 | 784984 | 1.38 | 100 | 104.1 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 103.454 | 2.540 | 167552 | 2.93 | 100 | 103.5 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 100.976 | 4.742 | 776884 | 0.96 | 100 | 101.0 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 98.641 | 3.606 | 1298238 | 2.00 | 100 | 98.6 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 100.224 | 1.927 | 1956918 | 1.23 | 100 | 100.2 | 90 | 110 | |
| U | 238 | 1 | nogas | 102.264 | 2.362 | 1883184 | 3.03 | 100 | 102.3 | 90 | 110 | |
| [Pb] | 206 | 1 | nogas | 98.585 | 3.514 | 473899 | 2.12 | 100 | 98.6 | 90 | 110 | |
| [Pb] | 207 | 1 | nogas | 98.009 | 3.759 | 434737 | 1.99 | 100 | 98.0 | 90 | 110 | |
| Na | 23 | 2 | He | 9949.445 | 2.718 | 1831512 | 2.75 | 10000 | 99.5 | 90 | 110 | |
| Mg | 24 | 2 | He | 9938.099 | 2.349 | 767982 | 2.31 | 10000 | 99.4 | 90 | 110 | |
| Al | 27 | 2 | He | 95.944 | 7.413 | 1990 | 7.50 | 100 | 95.9 | 90 | 110 | |
| K | 39 | 2 | He | 10635.373 | 3.089 | 415741 | 3.02 | 10000 | 106.4 | 90 | 110 | |
| Ca | 43 | 2 | He | 11933.318 | 13.691 | 1477 | 13.55 | 10000 | 119.3 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 44 | 2 | He | 10031.026 | 0.253 | 23278 | 0.95 | 10000 | 100.3 | 90 | 110 | |
| V | 51 | 2 | He | 96.239 | 0.700 | 96859 | 0.30 | 100 | 96.2 | 90 | 110 | |
| Cr | 52 | 2 | He | 96.704 | 1.840 | 129519 | 2.73 | 100 | 96.7 | 90 | 110 | |
| Mn | 55 | 2 | He | 98.488 | 1.579 | 46462 | 1.39 | 100 | 98.5 | 90 | 110 | |
| Fe | 56 | 2 | He | 9816.642 | 2.051 | 8992472 | 1.54 | 10000 | 98.2 | 90 | 110 | |
| Co | 59 | 2 | He | 94.910 | 3.128 | 227349 | 2.48 | 100 | 94.9 | 90 | 110 | |
| Ni | 60 | 2 | He | 95.251 | 4.870 | 65923 | 3.83 | 100 | 95.3 | 90 | 110 | |
| Cu | 63 | 2 | He | 95.338 | 2.749 | 185660 | 1.80 | 100 | 95.3 | 90 | 110 | |
| Zn | 66 | 2 | He | 95.843 | 2.923 | 26580 | 2.53 | 100 | 95.8 | 90 | 110 | |
| As | 75 | 2 | He | 98.323 | 4.839 | 18919 | 4.67 | 100 | 98.3 | 90 | 110 | |
| Se | 78 | 2 | He | 103.975 | 3.766 | 680 | 3.12 | 100 | 104.0 | 90 | 110 | |
| B | 11 | 1 | nogas | 575.764 | 5.834 | 787856 | 2.82 | 500 | 115.2 | 90 | 110 | CCV Main CR1-2 Failed |
| Si | 28 | 1 | nogas | 5284.929 | 4.181 | 17170847 | 0.84 | 5000 | 105.7 | 90 | 110 | |
| Ca | 43 | 1 | nogas | 9979.667 | 4.866 | 147716 | 0.45 | 10000 | 99.8 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 9975.539 | 5.005 | 2350878 | 2.73 | 10000 | 99.8 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 9844.066 | 4.795 | 106081696 | 3.26 | 10000 | 98.4 | 90 | 110 | |
| Se | 77 | 1 | nogas | 149.194 | 31.366 | 83581 | 5.26 | 100 | 149.2 | 90 | 110 | CCV Main CR1-2 Failed |
| Se | 82 | 1 | nogas | 102.369 | 4.507 | 11804 | 0.29 | 100 | 102.4 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 102.398 | 7.373 | 287087 | 2.89 | 100 | 102.4 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 102.678 | 5.845 | 420601 | 3.43 | 100 | 102.7 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 100.866 | 4.499 | 216090 | 1.35 | 100 | 100.9 | 90 | 110 | |
| Sb | 121 | 2 | He | 97.862 | 1.032 | 79029 | 1.05 | 100 | 97.9 | 90 | 110 | |
| Li | 7 | 1 | nogas | 101.834 | 3.550 | 537522 | 1.89 | 100 | 101.8 | 90 | 110 | |
| P | 31 | 1 | nogas | 512.072 | 4.171 | 287560 | 1.40 | 500 | 102.4 | 90 | 110 | |
| La | 139 | 1 | nogas | 133.220 | 40.632 | 347 | 22.41 | 100 | 133.2 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | 444.341 | 59.840 | 17 | 34.64 | 100 | 444.3 | 90 | 110 | CCV Main CR1-2 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 259903 | 2.80 | 296893 | 87.54 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1212585 | 4.43 | 1226431 | 98.87 | 70 | 125 | |
| In | 115 | 1 | nogas | 1235914 | 4.88 | 1308607 | 94.44 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1217418 | 2.27 | 1207116 | 100.85 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 95404 | 0.98 | 95588 | 99.81 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 151_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T15:01:33-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 122CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.185 | 33.4 | 463 | 31.2 | 1 | |
| Na | 23 | 1 | nogas | 200.801 | 7.8 | 4303142 | 2.9 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 1 | nogas | 23.629 | 47.7 | 167473 | 44.1 | 100 | |
| Al | 27 | 1 | nogas | 0.291 | 35.4 | 12531 | 8.4 | 5 | |
| K | 39 | 1 | nogas | 0.631 | 1600.8 | 3857600 | 1.7 | 100 | |
| Ti | 47 | 1 | nogas | -0.339 | -42.2 | 377 | 31.1 | 2.5 | |
| V | 51 | 1 | nogas | 41.600 | 22.8 | 1771543 | 4.4 | 2.5 | CCB Main CR1 Failed |
| Cr | 52 | 1 | nogas | 0.201 | 5.8 | 33477 | 3.0 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.410 | 20.8 | 12961 | 11.2 | 2.5 | |
| Co | 59 | 1 | nogas | 0.149 | 76.5 | 1840 | 66.5 | 2.5 | |
| Ni | 60 | 1 | nogas | -0.037 | -569.1 | 4101 | 14.0 | 2.5 | |
| Cu | 63 | 1 | nogas | 0.032 | 224.5 | 4981 | 10.6 | 2.5 | |
| Zn | 66 | 1 | nogas | -0.091 | -98.0 | 1927 | 10.3 | 2.5 | |
| As | 75 | 1 | nogas | 3.795 | 170.0 | 197142 | 5.5 | 2.5 | CCB Main CR1 Failed |
| Sr | 88 | 1 | nogas | 0.375 | 38.7 | 6548 | 32.9 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.088 | 91.8 | 990 | 67.5 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.154 | 64.1 | 280 | 63.5 | 1 | |
| Sb | 121 | 1 | nogas | 0.224 | 39.3 | 2887 | 27.3 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.825 | 62.4 | 11062 | 62.2 | 1 | |
| Pb | 208 | 1 | nogas | 0.144 | 72.6 | 3094 | 67.1 | 2.5 | |
| U | 238 | 1 | nogas | 0.204 | 74.2 | 3887 | 72.9 | 2.5 | |
| [Pb] | 206 | 1 | nogas | 0.138 | 63.3 | 723 | 58.7 | 2.5 | |
| [Pb] | 207 | 1 | nogas | 0.140 | 85.1 | 693 | 77.4 | 2.5 | |
| Na | 23 | 2 | He | 213.785 | 7.9 | 104682 | 1.2 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 2 | He | 15.515 | 14.0 | 1520 | 8.9 | 100 | |
| Al | 27 | 2 | He | -0.352 | -952.0 | 90 | 69.4 | 5 | |
| K | 39 | 2 | He | -0.438 | -958.8 | 9903 | 1.6 | 100 | |
| Ca | 43 | 2 | He | 81.896 | 53.6 | 17 | 34.6 | 100 | |
| Ca | 44 | 2 | He | 41.179 | 44.3 | 210 | 17.2 | 100 | |
| V | 51 | 2 | He | 0.337 | 11.4 | 908 | 4.9 | 2.5 | |
| Cr | 52 | 2 | He | -0.127 | -50.7 | 1503 | 8.3 | 2.5 | |
| Mn | 55 | 2 | He | 0.203 | 30.5 | 283 | 7.3 | 2.5 | |
| Fe | 56 | 2 | He | 3.695 | 23.2 | 9763 | 8.7 | 100 | |
| Co | 59 | 2 | He | 0.032 | 23.6 | 133 | 15.6 | 2.5 | |
| Ni | 60 | 2 | He | -0.044 | -352.7 | 560 | 17.6 | 2.5 | |
| Cu | 63 | 2 | He | 0.033 | 19.7 | 873 | 3.3 | 2.5 | |
| Zn | 66 | 2 | He | -0.373 | -14.5 | 37 | 41.7 | 2.5 | |
| As | 75 | 2 | He | 0.065 | 70.4 | 43 | 20.4 | 2.5 | |
| Se | 78 | 2 | He | -0.680 | -28.4 | 3 | 43.3 | 2.5 | |
| B | 11 | 1 | nogas | 36.307 | 7.3 | 108062 | 5.3 | 10 | CCB Main CR1 Failed |
| Si | 28 | 1 | nogas | 30.883 | 14.2 | 753772 | 3.5 | 5 | CCB Main CR1 Failed |
| Ca | 43 | 1 | nogas | 21.903 | 43.7 | 987 | 17.9 | 100 | |
| Ca | 44 | 1 | nogas | -6.467 | -89.0 | 56058 | 4.3 | 100 | |
| Fe | 56 | 1 | nogas | 29.488 | 45.8 | 1006926 | 17.4 | 100 | |
| Se | 77 | 1 | nogas | 22.422 | 118.8 | 63641 | 5.1 | 2.5 | CCB Main CR1 Failed |
| Se | 82 | 1 | nogas | -0.480 | -23.4 | 320 | 5.4 | 2.5 | |

# Continuing Calibration Blank (CCB) Report

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Mo | 95 | 1 | nogas | 0.133 | 43.0 | 1343 | 13.4 | 2.5 | |
| Sn | 118 | 1 | nogas | 0.321 | 41.1 | 1930 | 32.3 | 5 | |
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Ba | 137 | 1 | nogas | 0.099 | 132.8 | 557 | 56.7 | 2.5 | |
| Sb | 121 | 2 | He | 0.129 | 71.8 | 190 | 36.8 | 2.5 | |
| P | 31 | 1 | nogas | -2.480 | -136.1 | 36820 | 2.0 | 10 | |
| La | 139 | 1 | nogas | -93.883 | -20.5 | 50 | 52.9 | 2.5 | |
| Au | 197 | 1 | nogas | 292.392 | 230.8 | 13 | 114.6 | 2.5 | CCB Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 288746 | 2.08 | 296893 | 97.26 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1258376 | 2.87 | 1226431 | 102.60 | 70 | 125 | |
| In | 115 | 1 | nogas | 1303333 | 2.50 | 1308607 | 99.60 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1217944 | 2.52 | 1207116 | 100.90 | 70 | 125 | |
| Ge | 72 | 2 | He | 95311 | 3.08 | 95588 | 99.71 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 162_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T15:23:53-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 122CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 97.198 | 4.514 | 196051 | 3.47 | 100 | 97.2 | 90 | 110 | |
| Na | 23 | 1 | nogas | 9832.483 | 3.144 | 92008433 | 2.63 | 10000 | 98.3 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 9856.377 | 2.513 | 59353055 | 1.39 | 10000 | 98.6 | 90 | 110 | |
| Al | 27 | 1 | nogas | 104.846 | 0.425 | 740143 | 1.03 | 100 | 104.8 | 90 | 110 | |
| K | 39 | 1 | nogas | 9971.530 | 2.004 | 71622018 | 2.81 | 10000 | 99.7 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 99.560 | 1.027 | 69825 | 1.94 | 100 | 99.6 | 90 | 110 | |
| V | 51 | 1 | nogas | 70.611 | 5.225 | 2009200 | 2.15 | 100 | 70.6 | 90 | 110 | CCV Main CR1-2 Failed |
| Cr | 52 | 1 | nogas | 101.845 | 1.345 | 952982 | 1.76 | 100 | 101.8 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 101.309 | 2.372 | 1224174 | 3.33 | 100 | 101.3 | 90 | 110 | |
| Co | 59 | 1 | nogas | 104.983 | 2.184 | 1017539 | 3.22 | 100 | 105.0 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 103.651 | 1.374 | 235356 | 2.38 | 100 | 103.7 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 102.113 | 1.499 | 567321 | 1.84 | 100 | 102.1 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 99.537 | 2.209 | 196343 | 1.30 | 100 | 99.5 | 90 | 110 | |
| As | 75 | 1 | nogas | 77.547 | 2.907 | 355423 | 2.26 | 100 | 77.5 | 90 | 110 | CCV Main CR1-2 Failed |
| Sr | 88 | 1 | nogas | 99.655 | 2.726 | 1270402 | 3.43 | 100 | 99.7 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 104.814 | 1.099 | 777447 | 0.95 | 100 | 104.8 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 101.650 | 1.474 | 165876 | 1.93 | 100 | 101.6 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 99.789 | 2.403 | 755419 | 2.14 | 100 | 99.8 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 96.032 | 2.445 | 1297224 | 1.19 | 100 | 96.0 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 98.396 | 2.800 | 1971442 | 1.83 | 100 | 98.4 | 90 | 110 | |
| U | 238 | 1 | nogas | 101.283 | 4.103 | 1913165 | 2.64 | 100 | 101.3 | 90 | 110 | |
| [Pb] | 206 | 1 | nogas | 97.053 | 2.997 | 478754 | 0.61 | 100 | 97.1 | 90 | 110 | |
| [Pb] | 207 | 1 | nogas | 95.347 | 3.405 | 434010 | 0.94 | 100 | 95.3 | 90 | 110 | |
| Na | 23 | 2 | He | 9323.667 | 4.435 | 1700372 | 4.60 | 10000 | 93.2 | 90 | 110 | |
| Mg | 24 | 2 | He | 9486.060 | 2.398 | 724501 | 2.99 | 10000 | 94.9 | 90 | 110 | |
| Al | 27 | 2 | He | 84.510 | 0.926 | 1743 | 0.33 | 100 | 84.5 | 90 | 110 | CCV Main CR1-2 Failed |
| K | 39 | 2 | He | 10034.549 | 1.047 | 392814 | 1.02 | 10000 | 100.3 | 90 | 110 | |
| Ca | 43 | 2 | He | 10887.469 | 20.711 | 1333 | 21.22 | 10000 | 108.9 | 90 | 110 | |
| Ca | 44 | 2 | He | 9307.416 | 3.808 | 21349 | 3.22 | 10000 | 93.1 | 90 | 110 | |
| V | 51 | 2 | He | 93.184 | 0.849 | 92697 | 0.88 | 100 | 93.2 | 90 | 110 | |
| Cr | 52 | 2 | He | 95.783 | 0.754 | 126772 | 1.03 | 100 | 95.8 | 90 | 110 | |
| Mn | 55 | 2 | He | 96.351 | 2.094 | 44922 | 1.82 | 100 | 96.4 | 90 | 110 | |
| Fe | 56 | 2 | He | 9588.755 | 0.720 | 8680736 | 0.42 | 10000 | 95.9 | 90 | 110 | |
| Co | 59 | 2 | He | 96.112 | 2.534 | 227540 | 2.48 | 100 | 96.1 | 90 | 110 | |
| Ni | 60 | 2 | He | 95.885 | 0.810 | 65592 | 0.10 | 100 | 95.9 | 90 | 110 | |
| Cu | 63 | 2 | He | 94.984 | 0.421 | 182823 | 1.02 | 100 | 95.0 | 90 | 110 | |
| Zn | 66 | 2 | He | 97.291 | 1.185 | 26664 | 1.48 | 100 | 97.3 | 90 | 110 | |
| As | 75 | 2 | He | 96.375 | 1.629 | 18327 | 1.60 | 100 | 96.4 | 90 | 110 | |
| Se | 78 | 2 | He | 103.887 | 8.048 | 672 | 8.40 | 100 | 103.9 | 90 | 110 | |
| B | 11 | 1 | nogas | 497.483 | 6.103 | 707030 | 4.70 | 500 | 99.5 | 90 | 110 | |
| Si | 28 | 1 | nogas | 5207.232 | 0.775 | 16654245 | 1.72 | 5000 | 104.1 | 90 | 110 | |
| Ca | 43 | 1 | nogas | 9843.395 | 1.713 | 143388 | 2.25 | 10000 | 98.4 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 9834.147 | 0.478 | 2280850 | 1.00 | 10000 | 98.3 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 9865.908 | 1.072 | 104591269 | 2.07 | 10000 | 98.7 | 90 | 110 | |
| Se | 77 | 1 | nogas | -1.157 | -909.588 | 56257 | 3.89 | 100 | -1.2 | 90 | 110 | CCV Main CR1-2 Failed |
| Se | 82 | 1 | nogas | 100.621 | 3.686 | 11424 | 4.33 | 100 | 100.6 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 100.020 | 2.034 | 276190 | 2.78 | 100 | 100.0 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 100.363 | 0.965 | 414543 | 0.88 | 100 | 100.4 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 99.255 | 1.977 | 214399 | 2.30 | 100 | 99.3 | 90 | 110 | |
| Sb | 121 | 2 | He | 94.229 | 0.934 | 75202 | 1.15 | 100 | 94.2 | 90 | 110 | |
| Li | 7 | 1 | nogas | 97.718 | 2.494 | 531233 | 2.44 | 100 | 97.7 | 90 | 110 | |
| P | 31 | 1 | nogas | 500.226 | 1.968 | 277184 | 2.69 | 500 | 100.0 | 90 | 110 | |
| La | 139 | 1 | nogas | 137.023 | 41.739 | 353 | 21.24 | 100 | 137.0 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | 288.855 | 239.773 | 13 | 114.56 | 100 | 288.9 | 90 | 110 | CCV Main CR1-2 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 267071 | 1.03 | 296893 | 89.96 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1191544 | 1.04 | 1226431 | 97.16 | 70 | 125 | |
| In | 115 | 1 | nogas | 1244327 | 0.46 | 1308607 | 95.09 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1249501 | 3.05 | 1207116 | 103.51 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 94278 | 0.74 | 95588 | 98.63 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 163_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T15:25:53-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 122CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.169 | 38.8 | 430 | 33.5 | 1 | |
| Na | 23 | 1 | nogas | -2.397 | -62.5 | 2401100 | 4.2 | 100 | |
| Mg | 24 | 1 | nogas | 17.855 | 48.0 | 133457 | 44.7 | 100 | |
| Al | 27 | 1 | nogas | 1.163 | 18.1 | 18229 | 6.6 | 5 | |
| K | 39 | 1 | nogas | -23.024 | -55.6 | 3552973 | 1.3 | 100 | |
| Ti | 47 | 1 | nogas | -0.236 | -43.6 | 433 | 14.8 | 2.5 | |
| V | 51 | 1 | nogas | -36.299 | -7.7 | 806644 | 3.5 | 2.5 | |
| Cr | 52 | 1 | nogas | -0.879 | -2.1 | 22297 | 1.6 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.173 | 47.4 | 9563 | 10.3 | 2.5 | |
| Co | 59 | 1 | nogas | 0.154 | 79.0 | 1810 | 65.8 | 2.5 | |
| Ni | 60 | 1 | nogas | 0.217 | 56.3 | 4521 | 6.0 | 2.5 | |
| Cu | 63 | 1 | nogas | 0.117 | 80.9 | 5274 | 9.9 | 2.5 | |
| Zn | 66 | 1 | nogas | -0.434 | -42.0 | 1177 | 31.1 | 2.5 | |
| As | 75 | 1 | nogas | -22.431 | -7.8 | 129221 | 2.3 | 2.5 | |
| Sr | 88 | 1 | nogas | 0.140 | 88.9 | 3230 | 49.2 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.087 | 74.9 | 937 | 52.0 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.116 | 95.6 | 213 | 89.1 | 1 | |
| Sb | 121 | 1 | nogas | 0.073 | 118.3 | 1607 | 40.7 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.658 | 65.5 | 9224 | 63.7 | 1 | |
| Pb | 208 | 1 | nogas | 0.147 | 79.4 | 3280 | 72.1 | 2.5 | |
| U | 238 | 1 | nogas | 0.164 | 73.2 | 3271 | 70.0 | 2.5 | |
| [Pb] | 206 | 1 | nogas | 0.152 | 85.1 | 827 | 78.2 | 2.5 | |
| [Pb] | 207 | 1 | nogas | 0.162 | 96.8 | 823 | 87.7 | 2.5 | |
| Na | 23 | 2 | He | 21.354 | 63.5 | 68434 | 1.9 | 100 | |
| Mg | 24 | 2 | He | 10.104 | 9.2 | 1070 | 4.9 | 100 | |
| Al | 27 | 2 | He | 0.954 | 255.0 | 113 | 40.8 | 5 | |
| K | 39 | 2 | He | -12.935 | -112.4 | 9426 | 5.9 | 100 | |
| Ca | 43 | 2 | He | -52.692 | 0.0 | 0 | #DIV/0! | 100 | |
| Ca | 44 | 2 | He | 21.454 | 58.6 | 160 | 16.5 | 100 | |
| V | 51 | 2 | He | -0.166 | -9.0 | 393 | 5.3 | 2.5 | |
| Cr | 52 | 2 | He | -0.118 | -60.3 | 1467 | 4.6 | 2.5 | |
| Mn | 55 | 2 | He | 0.068 | 115.8 | 213 | 15.1 | 2.5 | |
| Fe | 56 | 2 | He | 6.456 | 8.9 | 11907 | 4.7 | 100 | |
| Co | 59 | 2 | He | 0.044 | 24.5 | 157 | 14.7 | 2.5 | |
| Ni | 60 | 2 | He | 0.533 | 19.9 | 927 | 6.6 | 2.5 | |
| Cu | 63 | 2 | He | -0.002 | -2825.0 | 780 | 13.5 | 2.5 | |
| Zn | 66 | 2 | He | -0.306 | -29.5 | 53 | 43.3 | 2.5 | |
| As | 75 | 2 | He | 0.024 | 33.3 | 34 | 5.6 | 2.5 | |
| Se | 78 | 2 | He | -0.452 | -125.6 | 4 | 86.6 | 2.5 | |
| B | 11 | 1 | nogas | 13.547 | 24.9 | 76303 | 4.4 | 10 | CCB Main CR1 Failed |
| Si | 28 | 1 | nogas | 5.297 | 143.3 | 645893 | 2.8 | 5 | CCB Main CR1 Failed |
| Ca | 43 | 1 | nogas | 15.359 | 72.3 | 850 | 18.1 | 100 | |
| Ca | 44 | 1 | nogas | 20.287 | 57.4 | 60143 | 3.3 | 100 | |
| Fe | 56 | 1 | nogas | 2.302 | 583.2 | 676486 | 21.0 | 100 | |
| Se | 77 | 1 | nogas | -83.623 | -14.9 | 42644 | 4.2 | 2.5 | |
| Se | 82 | 1 | nogas | -0.287 | -242.2 | 330 | 23.7 | 2.5 | |

# Continuing Calibration Blank (CCB) Report

| Mo | 95 | 1 | nogas | 0.238 | 68.4 | 1587 | 28.3 | 2.5 | |
|---|---|---|---|---|---|---|---|---|---|
| Sn | 118 | 1 | nogas | 0.322 | 35.2 | 1933 | 26.1 | 5 | |
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Ba | 137 | 1 | nogas | 0.056 | 227.2 | 457 | 63.5 | 2.5 | |
| Sb | 121 | 2 | He | 0.020 | 111.3 | 100 | 17.3 | 2.5 | |
| P | 31 | 1 | nogas | -5.692 | -96.4 | 33901 | 6.3 | 10 | |
| La | 139 | 1 | nogas | -82.030 | -5.2 | 67 | 8.7 | 2.5 | |
| Au | 197 | 1 | nogas | 125.806 | 344.1 | 10 | 100.0 | 2.5 | CCB Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 291661 | 2.91 | 296893 | 98.24 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1212563 | 2.34 | 1226431 | 98.87 | 70 | 125 | |
| In | 115 | 1 | nogas | 1307636 | 2.28 | 1308607 | 99.93 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1269306 | 1.05 | 1207116 | 105.15 | 70 | 125 | |
| Ge | 72 | 2 | He | 92363 | 1.67 | 95588 | 96.63 | 70 | 125 | |

# Sample Report

**Sample Table**

| | |
|---|---|
| Sample Name | HS17110493-01 |
| Data File Name | 168SMPL.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T15:35:58-06:00 |
| Sample Type | Sample |
| Dilution | 1 |
| Comment | B122183 TW |
| ISTD Ref FileName | 122CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.002 | 0.002 | 566.86 | 60 | 0.00 | 2000 | |
| Na | 23 | 1 | nogas | 382181.123 | 382181.123 | 2.07 | 3593347014 | 0.01 | 200000 | >LDR |
| Mg | 24 | 1 | nogas | 25240.386 | 25240.386 | 3.28 | 156479383 | 0.02 | 200000 | |
| Al | 27 | 1 | nogas | 6.768 | 6.768 | 5.62 | 58426 | 0.01 | 2000 | |
| K | 39 | 1 | nogas | 1582.864 | 1582.864 | 3.98 | 14800364 | 0.01 | 200000 | |
| Ti | 47 | 1 | nogas | 1.436 | 1.436 | 7.93 | 1630 | 0.09 | 2000 | |
| V | 51 | 1 | nogas | -40.781 | -40.781 | -13.94 | 760350 | -0.01 | 2000 | |
| Cr | 52 | 1 | nogas | -0.872 | -0.872 | -9.99 | 22527 | 0.00 | 2000 | |
| Mn | 55 | 1 | nogas | 60.260 | 60.260 | 2.59 | 749416 | 0.01 | 2000 | |
| Co | 59 | 1 | nogas | 0.427 | 0.427 | 11.16 | 4537 | 0.01 | 2000 | |
| Ni | 60 | 1 | nogas | 1.374 | 1.374 | 22.04 | 7198 | 0.02 | 2000 | |
| Cu | 63 | 1 | nogas | 0.405 | 0.405 | 22.58 | 6941 | 0.01 | 2000 | |
| Zn | 66 | 1 | nogas | 6.328 | 6.328 | 1.00 | 14723 | 0.04 | 2000 | |
| As | 75 | 1 | nogas | -30.719 | -30.719 | -12.17 | 110772 | -0.03 | 2000 | |
| Sr | 88 | 1 | nogas | 319.520 | 319.520 | 2.95 | 4171816 | 0.01 | 2000 | |
| Ag | 107 | 1 | nogas | -0.003 | -0.003 | -340.38 | 263 | 0.00 | 2000 | |
| Cd | 111 | 1 | nogas | 0.023 | 0.023 | 54.58 | 53 | 0.04 | 2000 | |
| Sb | 121 | 1 | nogas | 0.114 | 0.114 | 9.75 | 1940 | 0.01 | 2000 | |
| Tl | 205 | 1 | nogas | -0.002 | -0.002 | -153.25 | 163 | 0.00 | 2000 | |
| Pb | 208 | 1 | nogas | 0.016 | 0.016 | 45.04 | 593 | 0.00 | 2000 | |
| U | 238 | 1 | nogas | 0.089 | 0.089 | 7.38 | 1743 | 0.01 | 2000 | |
| [Pb] | 206 | 1 | nogas | 0.021 | 0.021 | 58.76 | 157 | 0.01 | 2000 | |
| [Pb] | 207 | 1 | nogas | 0.013 | 0.013 | 66.83 | 127 | 0.01 | 2000 | |
| Na | 23 | 2 | He | 374752.686 | 374752.686 | 1.96 | 65510834 | 0.57 | 200000 | >LDR |
| Mg | 24 | 2 | He | 25158.599 | 25158.599 | 1.57 | 1914076 | 1.31 | 200000 | |
| Al | 27 | 2 | He | 8.584 | 8.584 | 39.03 | 263 | 3.26 | 2000 | |
| K | 39 | 2 | He | 1670.492 | 1670.492 | 1.43 | 73662 | 2.27 | 200000 | |
| Ca | 43 | 2 | He | 15690.841 | 15690.841 | 10.19 | 1910 | 821.45 | 200000 | |
| Ca | 44 | 2 | He | 13631.409 | 13631.409 | 4.20 | 31103 | 43.83 | 200000 | |
| V | 51 | 2 | He | -0.074 | -0.074 | -53.41 | 491 | -0.02 | 2000 | |
| Cr | 52 | 2 | He | 0.252 | 0.252 | 40.41 | 1973 | 0.01 | 2000 | |
| Mn | 55 | 2 | He | 60.654 | 60.654 | 2.50 | 28249 | 0.21 | 2000 | |
| Fe | 56 | 2 | He | 31.551 | 31.551 | 3.44 | 34730 | 0.09 | 200000 | |
| Co | 59 | 2 | He | 0.340 | 0.340 | 19.40 | 857 | 0.04 | 2000 | |
| Ni | 60 | 2 | He | 1.205 | 1.205 | 5.48 | 1397 | 0.09 | 2000 | |
| Cu | 63 | 2 | He | 0.050 | 0.050 | 88.20 | 893 | 0.01 | 2000 | |
| Zn | 66 | 2 | He | 6.365 | 6.365 | 8.98 | 1867 | 0.34 | 2000 | |
| As | 75 | 2 | He | 0.414 | 0.414 | 21.09 | 109 | 0.38 | 2000 | |
| Se | 78 | 2 | He | -0.572 | -0.572 | -31.93 | 3 | -17.17 | 2000 | |
| B | 11 | 1 | nogas | 44.049 | 44.049 | 3.28 | 112641 | 0.04 | 2000 | |
| Si | 28 | 1 | nogas | 15766.297 | 15766.297 | 2.51 | 50414761 | 0.03 | 2000 | >LDR |
| Ca | 43 | 1 | nogas | 13357.355 | 13357.355 | 2.86 | 199241 | 6.70 | 200000 | |
| Ca | 44 | 1 | nogas | 13146.184 | 13146.184 | 1.19 | 3107564 | 0.42 | 200000 | |
| Fe | 56 | 1 | nogas | 25.483 | 25.483 | 8.10 | 932108 | 0.00 | 200000 | |

# Sample Report

| Se | 77 | 1 | nogas | -121.009 | -121.009 | -15.56 | 36300 | -0.33 | 2000 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Se | 82 | 1 | nogas | 0.046 | 0.046 | 541.26 | 370 | 0.01 | 2000 | |
| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
| Mo | 95 | 1 | nogas | 0.081 | 0.081 | 28.69 | 1157 | 0.01 | 2000 | |
| Sn | 118 | 1 | nogas | 0.109 | 0.109 | 12.98 | 1000 | 0.01 | 2000 | |
| Ba | 137 | 1 | nogas | 165.459 | 165.459 | 4.23 | 371686 | 0.04 | 2000 | |
| Sb | 121 | 2 | He | 0.165 | 0.165 | 24.32 | 217 | 0.08 | 2000 | |
| La | 139 | 1 | nogas | -52.688 | -52.688 | -18.46 | 107 | -49.40 | 2000 | |
| Au | 197 | 1 | nogas | 154.179 | 154.179 | 310.73 | 10 | 1541.79 | 2000 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 273211 | 1.81 | 296893 | 92.02 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1221819 | 1.58 | 1226431 | 99.62 | 70 | 125 | |
| In | 115 | 1 | nogas | 1295581 | 2.10 | 1308607 | 99.00 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1209604 | 6.72 | 1207116 | 100.21 | 70 | 125 | |
| Ge | 72 | 2 | He | 93943 | 0.59 | 95588 | 98.28 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 174_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T15:48:09-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 122CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 95.873 | 2.032 | 204948 | 0.65 | 100 | 95.9 | 90 | 110 | |
| Na | 23 | 1 | nogas | 10219.245 | 0.989 | 99711806 | 0.68 | 10000 | 102.2 | 90 | 110 | |
| Mg | 24 | 1 | nogas | 10057.956 | 3.190 | 63202741 | 1.75 | 10000 | 100.6 | 90 | 110 | |
| Al | 27 | 1 | nogas | 100.164 | 2.737 | 757756 | 1.90 | 100 | 100.2 | 90 | 110 | |
| K | 39 | 1 | nogas | 9772.640 | 3.263 | 75237756 | 1.69 | 10000 | 97.7 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 96.204 | 2.354 | 72276 | 0.84 | 100 | 96.2 | 90 | 110 | |
| V | 51 | 1 | nogas | 104.458 | 12.462 | 2563375 | 4.84 | 100 | 104.5 | 90 | 110 | |
| Cr | 52 | 1 | nogas | 98.369 | 3.344 | 986773 | 1.93 | 100 | 98.4 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 95.927 | 1.576 | 1241803 | 1.65 | 100 | 95.9 | 90 | 110 | |
| Co | 59 | 1 | nogas | 100.016 | 3.193 | 1037964 | 1.86 | 100 | 100.0 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 97.340 | 2.611 | 236962 | 2.11 | 100 | 97.3 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 97.750 | 2.238 | 581841 | 1.23 | 100 | 97.7 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 99.398 | 2.507 | 210077 | 3.33 | 100 | 99.4 | 90 | 110 | |
| As | 75 | 1 | nogas | 89.258 | 7.050 | 409222 | 2.52 | 100 | 89.3 | 90 | 110 | CCV Main CR1-2 Failed |
| Sr | 88 | 1 | nogas | 99.346 | 1.498 | 1356274 | 0.25 | 100 | 99.3 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 100.828 | 1.107 | 801205 | 2.23 | 100 | 100.8 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 103.925 | 1.406 | 172194 | 2.69 | 100 | 103.9 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 95.581 | 2.473 | 774986 | 0.96 | 100 | 95.6 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 97.665 | 3.632 | 1336030 | 1.73 | 100 | 97.7 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 100.375 | 2.331 | 2037286 | 2.27 | 100 | 100.4 | 90 | 110 | |
| U | 238 | 1 | nogas | 102.929 | 1.372 | 1969919 | 1.11 | 100 | 102.9 | 90 | 110 | |
| [Pb] | 206 | 1 | nogas | 98.419 | 1.674 | 491849 | 0.68 | 100 | 98.4 | 90 | 110 | |
| [Pb] | 207 | 1 | nogas | 98.135 | 2.775 | 452593 | 2.50 | 100 | 98.1 | 90 | 110 | |
| Na | 23 | 2 | He | 10510.321 | 0.846 | 1919513 | 0.68 | 10000 | 105.1 | 90 | 110 | |
| Mg | 24 | 2 | He | 10053.445 | 2.237 | 772210 | 1.22 | 10000 | 100.5 | 90 | 110 | |
| Al | 27 | 2 | He | 92.468 | 13.239 | 1910 | 12.71 | 100 | 92.5 | 90 | 110 | |
| K | 39 | 2 | He | 10433.804 | 1.152 | 408049 | 1.12 | 10000 | 104.3 | 90 | 110 | |
| Ca | 43 | 2 | He | 12303.403 | 4.201 | 1513 | 3.82 | 10000 | 123.0 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 44 | 2 | He | 10140.236 | 4.053 | 23392 | 4.18 | 10000 | 101.4 | 90 | 110 | |
| V | 51 | 2 | He | 96.400 | 2.533 | 96441 | 2.17 | 100 | 96.4 | 90 | 110 | |
| Cr | 52 | 2 | He | 99.646 | 2.807 | 132588 | 2.15 | 100 | 99.6 | 90 | 110 | |
| Mn | 55 | 2 | He | 99.423 | 1.933 | 46629 | 2.54 | 100 | 99.4 | 90 | 110 | |
| Fe | 56 | 2 | He | 10004.789 | 1.442 | 9112610 | 2.66 | 10000 | 100.0 | 90 | 110 | |
| Co | 59 | 2 | He | 97.515 | 2.426 | 232208 | 1.56 | 100 | 97.5 | 90 | 110 | |
| Ni | 60 | 2 | He | 96.824 | 2.065 | 66615 | 0.60 | 100 | 96.8 | 90 | 110 | |
| Cu | 63 | 2 | He | 96.553 | 1.962 | 186912 | 0.97 | 100 | 96.6 | 90 | 110 | |
| Zn | 66 | 2 | He | 99.417 | 0.891 | 27408 | 2.08 | 100 | 99.4 | 90 | 110 | |
| As | 75 | 2 | He | 100.227 | 3.352 | 19167 | 1.89 | 100 | 100.2 | 90 | 110 | |
| Se | 78 | 2 | He | 100.797 | 2.282 | 656 | 2.74 | 100 | 100.8 | 90 | 110 | |
| B | 11 | 1 | nogas | 514.402 | 1.547 | 773079 | 1.51 | 500 | 102.9 | 90 | 110 | |
| Si | 28 | 1 | nogas | 5039.772 | 0.883 | 17285448 | 0.91 | 5000 | 100.8 | 90 | 110 | |
| Ca | 43 | 1 | nogas | 9580.824 | 3.477 | 149469 | 2.40 | 10000 | 95.8 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 9805.507 | 3.298 | 2435769 | 2.49 | 10000 | 98.1 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 9528.854 | 2.933 | 108198382 | 1.77 | 10000 | 95.3 | 90 | 110 | |
| Se | 77 | 1 | nogas | 64.793 | 31.562 | 72514 | 4.93 | 100 | 64.8 | 90 | 110 | CCV Main CR1-2 Failed |
| Se | 82 | 1 | nogas | 101.093 | 2.838 | 12288 | 1.75 | 100 | 101.1 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 96.680 | 3.921 | 285873 | 2.48 | 100 | 96.7 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 102.152 | 2.964 | 428255 | 1.32 | 100 | 102.2 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 103.097 | 1.974 | 226086 | 2.46 | 100 | 103.1 | 90 | 110 | |
| Sb | 121 | 2 | He | 98.276 | 1.994 | 78885 | 0.76 | 100 | 98.3 | 90 | 110 | |
| Li | 7 | 1 | nogas | 98.385 | 1.723 | 566567 | 1.15 | 100 | 98.4 | 90 | 110 | |
| P | 31 | 1 | nogas | 499.246 | 2.463 | 296316 | 0.66 | 500 | 99.8 | 90 | 110 | |
| La | 139 | 1 | nogas | 157.768 | 2.401 | 387 | 1.49 | 100 | 157.8 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | 126.730 | 7.060 | 10 | 0.00 | 100 | 126.7 | 90 | 110 | CCV Main CR1-2 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 283061 | 2.64 | 296893 | 95.34 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1276370 | 1.50 | 1226431 | 104.07 | 70 | 125 | |
| In | 115 | 1 | nogas | 1263397 | 1.67 | 1308607 | 96.55 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1265392 | 2.06 | 1207116 | 104.83 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 94844 | 1.47 | 95588 | 99.22 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 175_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T15:50:08-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 122CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.130 | 79.4 | 357 | 66.0 | 1 | |
| Na | 23 | 1 | nogas | 155.606 | 2.3 | 4012244 | 2.5 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 1 | nogas | 23.780 | 49.6 | 175009 | 46.7 | 100 | |
| Al | 27 | 1 | nogas | 0.390 | 47.8 | 13495 | 9.4 | 5 | |
| K | 39 | 1 | nogas | -8.862 | -139.0 | 3862705 | 1.6 | 100 | |
| Ti | 47 | 1 | nogas | -0.381 | -22.7 | 350 | 17.4 | 2.5 | |
| V | 51 | 1 | nogas | 6.625 | 69.2 | 1379343 | 4.7 | 2.5 | CCB Main CR1 Failed |
| Cr | 52 | 1 | nogas | -0.275 | -72.1 | 29460 | 5.4 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.223 | 36.8 | 10763 | 8.9 | 2.5 | |
| Co | 59 | 1 | nogas | 0.158 | 74.3 | 1950 | 61.5 | 2.5 | |
| Ni | 60 | 1 | nogas | -0.174 | -58.0 | 3844 | 6.4 | 2.5 | |
| Cu | 63 | 1 | nogas | 0.058 | 220.0 | 5221 | 13.3 | 2.5 | |
| Zn | 66 | 1 | nogas | -0.337 | -40.8 | 1443 | 18.7 | 2.5 | |
| As | 75 | 1 | nogas | -7.877 | -29.2 | 172508 | 3.4 | 2.5 | |
| Sr | 88 | 1 | nogas | 0.207 | 58.2 | 4334 | 37.0 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.110 | 75.7 | 1170 | 55.5 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.126 | 89.1 | 237 | 85.8 | 1 | |
| Sb | 121 | 1 | nogas | 0.078 | 145.9 | 1740 | 52.1 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.742 | 65.8 | 10565 | 63.8 | 1 | |
| Pb | 208 | 1 | nogas | 0.154 | 75.9 | 3477 | 68.9 | 2.5 | |
| U | 238 | 1 | nogas | 0.191 | 76.3 | 3847 | 73.1 | 2.5 | |
| [Pb] | 206 | 1 | nogas | 0.162 | 69.1 | 890 | 63.4 | 2.5 | |
| [Pb] | 207 | 1 | nogas | 0.145 | 86.2 | 757 | 77.0 | 2.5 | |
| Na | 23 | 2 | He | 155.568 | 13.0 | 99365 | 2.1 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 2 | He | 12.497 | 7.4 | 1357 | 3.5 | 100 | |
| Al | 27 | 2 | He | -0.178 | -487.6 | 100 | 20.0 | 5 | |
| K | 39 | 2 | He | -2.185 | -228.4 | 9836 | 1.9 | 100 | |
| Ca | 43 | 2 | He | 48.680 | 237.7 | 13 | 114.6 | 100 | |
| Ca | 44 | 2 | He | 40.161 | 58.7 | 220 | 27.6 | 100 | |
| V | 51 | 2 | He | 0.030 | 225.1 | 632 | 9.7 | 2.5 | |
| Cr | 52 | 2 | He | -0.272 | -69.0 | 1383 | 20.7 | 2.5 | |
| Mn | 55 | 2 | He | 0.085 | 141.3 | 240 | 23.2 | 2.5 | |
| Fe | 56 | 2 | He | 3.712 | 23.1 | 10286 | 6.7 | 100 | |
| Co | 59 | 2 | He | 0.026 | 54.2 | 123 | 26.1 | 2.5 | |
| Ni | 60 | 2 | He | 0.003 | 6838.8 | 623 | 19.1 | 2.5 | |
| Cu | 63 | 2 | He | -0.053 | -84.3 | 743 | 10.1 | 2.5 | |
| Zn | 66 | 2 | He | -0.206 | -61.2 | 87 | 40.5 | 2.5 | |
| As | 75 | 2 | He | -0.045 | -66.6 | 23 | 24.7 | 2.5 | |
| Se | 78 | 2 | He | -0.413 | -105.8 | 5 | 65.5 | 2.5 | |
| B | 11 | 1 | nogas | 22.199 | 19.5 | 91617 | 6.6 | 10 | CCB Main CR1 Failed |
| Si | 28 | 1 | nogas | 5.284 | 122.3 | 683250 | 2.2 | 5 | CCB Main CR1 Failed |
| Ca | 43 | 1 | nogas | 17.024 | 77.1 | 927 | 22.1 | 100 | |
| Ca | 44 | 1 | nogas | -7.339 | -182.4 | 56887 | 4.5 | 100 | |
| Fe | 56 | 1 | nogas | 18.015 | 78.5 | 892962 | 16.9 | 100 | |
| Se | 77 | 1 | nogas | -27.825 | -47.9 | 55575 | 5.4 | 2.5 | |
| Se | 82 | 1 | nogas | -0.480 | -115.9 | 327 | 21.5 | 2.5 | |

# Continuing Calibration Blank (CCB) Report

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Mo | 95 | 1 | nogas | 0.197 | 65.6 | 1557 | 23.6 | 2.5 | |
| Sn | 118 | 1 | nogas | 0.280 | 41.6 | 1797 | 31.0 | 5 | |
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Ba | 137 | 1 | nogas | 0.060 | 93.9 | 477 | 29.7 | 2.5 | |
| Sb | 121 | 2 | He | 0.042 | 156.1 | 127 | 43.5 | 2.5 | |
| P | 31 | 1 | nogas | -1.183 | -106.2 | 38229 | 1.2 | 10 | |
| La | 139 | 1 | nogas | -82.777 | -35.6 | 67 | 60.6 | 2.5 | |
| Au | 197 | 1 | nogas | 398.361 | 61.5 | 17 | 34.6 | 2.5 | CCB Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 300927 | 1.30 | 296893 | 101.36 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1282580 | 1.31 | 1226431 | 104.58 | 70 | 125 | |
| In | 115 | 1 | nogas | 1335716 | 2.21 | 1308607 | 102.07 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1294362 | 0.66 | 1207116 | 107.23 | 70 | 125 | |
| Ge | 72 | 2 | He | 100347 | 2.16 | 95588 | 104.98 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCV |
| Data File Name | 186_CCV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T16:22:29-06:00 |
| Sample Type | CCV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 122CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High2 | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 104.460 | 4.060 | 210972 | 3.37 | 100 | 104.5 | 90 | 110 | |
| Na | 23 | 1 | nogas | 11322.099 | 5.176 | 117731294 | 6.62 | 10000 | 113.2 | 90 | 110 | CCV Main CR1-2 Failed |
| Mg | 24 | 1 | nogas | 10107.947 | 4.105 | 67817241 | 3.78 | 10000 | 101.1 | 90 | 110 | |
| Al | 27 | 1 | nogas | 104.543 | 3.307 | 791836 | 2.86 | 100 | 104.5 | 90 | 110 | |
| K | 39 | 1 | nogas | 9953.034 | 0.890 | 76709377 | 1.47 | 10000 | 99.5 | 90 | 110 | |
| Ti | 47 | 1 | nogas | 103.169 | 2.571 | 77600 | 1.57 | 100 | 103.2 | 90 | 110 | |
| V | 51 | 1 | nogas | 67.205 | 12.105 | 2113343 | 2.88 | 100 | 67.2 | 90 | 110 | CCV Main CR1-2 Failed |
| Cr | 52 | 1 | nogas | 103.035 | 3.590 | 1033771 | 1.65 | 100 | 103.0 | 90 | 110 | |
| Mn | 55 | 1 | nogas | 101.711 | 3.149 | 1318140 | 1.32 | 100 | 101.7 | 90 | 110 | |
| Co | 59 | 1 | nogas | 102.181 | 0.919 | 1062545 | 1.30 | 100 | 102.2 | 90 | 110 | |
| Ni | 60 | 1 | nogas | 100.989 | 0.744 | 246142 | 1.27 | 100 | 101.0 | 90 | 110 | |
| Cu | 63 | 1 | nogas | 102.730 | 2.209 | 612292 | 0.89 | 100 | 102.7 | 90 | 110 | |
| Zn | 66 | 1 | nogas | 103.131 | 2.005 | 218203 | 0.16 | 100 | 103.1 | 90 | 110 | |
| As | 75 | 1 | nogas | 72.277 | 12.229 | 368199 | 4.05 | 100 | 72.3 | 90 | 110 | CCV Main CR1-2 Failed |
| Sr | 88 | 1 | nogas | 100.026 | 1.911 | 1367870 | 0.35 | 100 | 100.0 | 90 | 110 | |
| Ag | 107 | 1 | nogas | 105.881 | 1.758 | 842624 | 0.09 | 100 | 105.9 | 90 | 110 | |
| Cd | 111 | 1 | nogas | 107.378 | 3.410 | 180081 | 3.11 | 100 | 107.4 | 90 | 110 | |
| Sb | 121 | 1 | nogas | 99.787 | 2.897 | 810407 | 1.06 | 100 | 99.8 | 90 | 110 | |
| Tl | 205 | 1 | nogas | 100.835 | 9.629 | 1393668 | 5.44 | 100 | 100.8 | 90 | 110 | |
| Pb | 208 | 1 | nogas | 103.490 | 5.397 | 2123906 | 1.22 | 100 | 103.5 | 90 | 110 | |
| U | 238 | 1 | nogas | 102.458 | 4.860 | 1983296 | 1.99 | 100 | 102.5 | 90 | 110 | |
| [Pb] | 206 | 1 | nogas | 102.334 | 5.293 | 517166 | 1.17 | 100 | 102.3 | 90 | 110 | |
| [Pb] | 207 | 1 | nogas | 101.530 | 5.906 | 473420 | 1.72 | 100 | 101.5 | 90 | 110 | |
| Na | 23 | 2 | He | 10416.630 | 1.210 | 2010140 | 1.15 | 10000 | 104.2 | 90 | 110 | |
| Mg | 24 | 2 | He | 9965.861 | 3.370 | 808419 | 1.37 | 10000 | 99.7 | 90 | 110 | |
| Al | 27 | 2 | He | 98.595 | 9.086 | 2143 | 8.01 | 100 | 98.6 | 90 | 110 | |
| K | 39 | 2 | He | 11060.464 | 2.216 | 431961 | 2.16 | 10000 | 110.6 | 90 | 110 | CCV Main CR1-2 Failed |
| Ca | 43 | 2 | He | 10219.571 | 4.680 | 1330 | 6.56 | 10000 | 102.2 | 90 | 110 | |
| Ca | 44 | 2 | He | 10007.345 | 1.727 | 24383 | 0.34 | 10000 | 100.1 | 90 | 110 | |
| V | 51 | 2 | He | 96.229 | 2.264 | 101682 | 0.81 | 100 | 96.2 | 90 | 110 | |
| Cr | 52 | 2 | He | 97.806 | 1.601 | 137501 | 0.50 | 100 | 97.8 | 90 | 110 | |
| Mn | 55 | 2 | He | 102.302 | 5.356 | 50641 | 3.34 | 100 | 102.3 | 90 | 110 | |
| Fe | 56 | 2 | He | 10125.739 | 3.337 | 9737242 | 1.35 | 10000 | 101.3 | 90 | 110 | |
| Co | 59 | 2 | He | 97.481 | 2.660 | 245172 | 0.75 | 100 | 97.5 | 90 | 110 | |
| Ni | 60 | 2 | He | 96.719 | 3.556 | 70279 | 1.92 | 100 | 96.7 | 90 | 110 | |
| Cu | 63 | 2 | He | 95.194 | 1.787 | 194675 | 1.14 | 100 | 95.2 | 90 | 110 | |
| Zn | 66 | 2 | He | 96.029 | 0.331 | 27969 | 1.81 | 100 | 96.0 | 90 | 110 | |
| As | 75 | 2 | He | 100.228 | 2.720 | 20247 | 0.99 | 100 | 100.2 | 90 | 110 | |
| Se | 78 | 2 | He | 101.246 | 2.679 | 696 | 3.20 | 100 | 101.2 | 90 | 110 | |
| B | 11 | 1 | nogas | 547.151 | 2.541 | 773471 | 0.71 | 500 | 109.4 | 90 | 110 | |
| Si | 28 | 1 | nogas | 5130.359 | 3.276 | 17612632 | 2.47 | 5000 | 102.6 | 90 | 110 | |
| Ca | 43 | 1 | nogas | 9927.082 | 0.821 | 155167 | 1.99 | 10000 | 99.3 | 90 | 110 | |
| Ca | 44 | 1 | nogas | 10165.250 | 0.727 | 2528086 | 2.06 | 10000 | 101.7 | 90 | 110 | |
| Fe | 56 | 1 | nogas | 9774.956 | 4.925 | 111136815 | 3.12 | 10000 | 97.7 | 90 | 110 | |
| Se | 77 | 1 | nogas | -22.456 | -105.825 | 56337 | 6.02 | 100 | -22.5 | 90 | 110 | CCV Main CR1-2 Failed |
| Se | 82 | 1 | nogas | 102.966 | 2.373 | 12531 | 1.78 | 100 | 103.0 | 90 | 110 | |
| Mo | 95 | 1 | nogas | 100.522 | 2.828 | 297736 | 1.01 | 100 | 100.5 | 90 | 110 | |
| Sn | 118 | 1 | nogas | 103.944 | 3.351 | 441168 | 2.05 | 100 | 103.9 | 90 | 110 | |
| Ba | 137 | 1 | nogas | 105.170 | 4.156 | 233397 | 2.81 | 100 | 105.2 | 90 | 110 | |
| Sb | 121 | 2 | He | 101.106 | 3.058 | 85744 | 3.62 | 100 | 101.1 | 90 | 110 | |
| Li | 7 | 1 | nogas | 101.674 | 2.303 | 552401 | 1.65 | 100 | 101.7 | 90 | 110 | |
| P | 31 | 1 | nogas | 512.272 | 1.445 | 303629 | 1.85 | 500 | 102.5 | 90 | 110 | |
| La | 139 | 1 | nogas | 134.776 | 29.378 | 360 | 14.43 | 100 | 134.8 | 90 | 110 | CCV Main CR1-2 Failed |
| Au | 197 | 1 | nogas | 251.419 | 253.946 | 13 | 114.56 | 100 | 251.4 | 90 | 110 | CCV Main CR1-2 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 267419 | 2.06 | 296893 | 90.07 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1278651 | 1.84 | 1226431 | 104.26 | 70 | 125 | |
| In | 115 | 1 | nogas | 1279073 | 1.65 | 1308607 | 97.74 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1281178 | 4.08 | 1207116 | 106.14 | 70 | 125 | |

# Continuing Calibration Verification (CCV) Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ge | 72 | 2 | He | 100190 | 2.07 | 95588 | 104.82 | 70 | 125 | |

# Continuing Calibration Blank (CCB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | CCB |
| Data File Name | 187_CCB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T16:24:26-06:00 |
| Sample Type | CCB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 122CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.161 | 97.5 | 440 | 83.3 | 1 | |
| Na | 23 | 1 | nogas | 227.232 | 5.8 | 4956042 | 3.0 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 1 | nogas | 18.259 | 69.9 | 146120 | 61.6 | 100 | |
| Al | 27 | 1 | nogas | 0.351 | 37.8 | 13835 | 7.0 | 5 | |
| K | 39 | 1 | nogas | -10.786 | -94.9 | 4030734 | 1.5 | 100 | |
| Ti | 47 | 1 | nogas | -0.381 | -68.6 | 367 | 55.4 | 2.5 | |
| V | 51 | 1 | nogas | -23.851 | -23.9 | 1053443 | 6.9 | 2.5 | |
| Cr | 52 | 1 | nogas | -0.587 | -5.6 | 27681 | 1.3 | 2.5 | |
| Mn | 55 | 1 | nogas | 0.181 | 64.9 | 10710 | 14.5 | 2.5 | |
| Co | 59 | 1 | nogas | 0.167 | 75.9 | 2144 | 64.1 | 2.5 | |
| Ni | 60 | 1 | nogas | -0.083 | -104.0 | 4254 | 5.2 | 2.5 | |
| Cu | 63 | 1 | nogas | 0.113 | 80.4 | 5814 | 9.2 | 2.5 | |
| Zn | 66 | 1 | nogas | -0.474 | -24.7 | 1213 | 20.9 | 2.5 | |
| As | 75 | 1 | nogas | -19.370 | -15.8 | 151074 | 5.3 | 2.5 | |
| Sr | 88 | 1 | nogas | 0.188 | 71.5 | 4264 | 44.7 | 2.5 | |
| Ag | 107 | 1 | nogas | 0.090 | 84.1 | 1060 | 59.0 | 2.5 | |
| Cd | 111 | 1 | nogas | 0.163 | 70.3 | 317 | 69.4 | 1 | |
| Sb | 121 | 1 | nogas | 0.043 | 155.5 | 1530 | 37.2 | 2.5 | |
| Tl | 205 | 1 | nogas | 0.758 | 56.0 | 11182 | 59.2 | 1 | |
| Pb | 208 | 1 | nogas | 0.168 | 78.0 | 3927 | 75.9 | 2.5 | |
| U | 238 | 1 | nogas | 0.213 | 68.6 | 4454 | 70.7 | 2.5 | |
| [Pb] | 206 | 1 | nogas | 0.163 | 69.4 | 930 | 68.3 | 2.5 | |
| [Pb] | 207 | 1 | nogas | 0.142 | 87.6 | 777 | 82.8 | 2.5 | |
| Na | 23 | 2 | He | 221.988 | 5.5 | 115242 | 0.6 | 100 | CCB Main CR1 Failed |
| Mg | 24 | 2 | He | 5.803 | 12.8 | 840 | 9.5 | 100 | |
| Al | 27 | 2 | He | -1.561 | -44.6 | 73 | 20.8 | 5 | |
| K | 39 | 2 | He | 13.025 | 109.0 | 10416 | 5.2 | 100 | |
| Ca | 43 | 2 | He | -27.200 | -162.3 | 3 | 173.2 | 100 | |
| Ca | 44 | 2 | He | -4.977 | -31.3 | 113 | 5.1 | 100 | |
| V | 51 | 2 | He | -0.066 | -24.4 | 549 | 2.1 | 2.5 | |
| Cr | 52 | 2 | He | -0.230 | -9.4 | 1483 | 3.3 | 2.5 | |
| Mn | 55 | 2 | He | -0.068 | -39.4 | 170 | 5.9 | 2.5 | |
| Fe | 56 | 2 | He | 3.511 | 21.2 | 10423 | 8.8 | 100 | |
| Co | 59 | 2 | He | 0.047 | 10.1 | 183 | 6.3 | 2.5 | |
| Ni | 60 | 2 | He | -0.234 | -48.2 | 467 | 15.8 | 2.5 | |
| Cu | 63 | 2 | He | -0.077 | -6.3 | 717 | 3.5 | 2.5 | |
| Zn | 66 | 2 | He | -0.183 | -30.1 | 97 | 15.8 | 2.5 | |
| As | 75 | 2 | He | -0.007 | -687.7 | 32 | 33.3 | 2.5 | |
| Se | 78 | 2 | He | -0.530 | -51.5 | 4 | 50.0 | 2.5 | |
| B | 11 | 1 | nogas | 10.611 | 26.6 | 76782 | 5.3 | 10 | CCB Main CR1 Failed |
| Si | 28 | 1 | nogas | -8.379 | -96.7 | 668201 | 3.9 | 5 | |
| Ca | 43 | 1 | nogas | 8.673 | 123.0 | 833 | 20.4 | 100 | |
| Ca | 44 | 1 | nogas | -29.969 | -34.0 | 53824 | 4.6 | 100 | |
| Fe | 56 | 1 | nogas | 15.549 | 86.7 | 906665 | 17.3 | 100 | |
| Se | 77 | 1 | nogas | -67.761 | -24.9 | 50363 | 6.5 | 2.5 | |
| Se | 82 | 1 | nogas | 0.048 | 1069.8 | 407 | 15.0 | 2.5 | |

# Continuing Calibration Blank (CCB) Report

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Mo | 95 | 1 | nogas | 0.344 | 44.1 | 2087 | 22.1 | 2.5 | |
| Sn | 118 | 1 | nogas | 0.305 | 37.3 | 1997 | 27.6 | 5 | |
| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
| Ba | 137 | 1 | nogas | 0.047 | 234.7 | 470 | 59.9 | 2.5 | |
| Sb | 121 | 2 | He | 0.007 | 478.1 | 100 | 26.5 | 2.5 | |
| P | 31 | 1 | nogas | 0.491 | 119.9 | 40948 | 0.8 | 10 | |
| La | 139 | 1 | nogas | -91.993 | -30.0 | 57 | 73.5 | 2.5 | |
| Au | 197 | 1 | nogas | 98.916 | 399.8 | 10 | 100.0 | 2.5 | CCB Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 310417 | 0.80 | 296893 | 104.55 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1343157 | 0.53 | 1226431 | 109.52 | 70 | 125 | |
| In | 115 | 1 | nogas | 1402647 | 2.76 | 1308607 | 107.19 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1316680 | 4.31 | 1207116 | 109.08 | 70 | 125 | |
| Ge | 72 | 2 | He | 103462 | 2.11 | 95588 | 108.24 | 70 | 125 | |

# Low Level Initial Calibration Verification (LLICV) Report

**Sample Table**

| | |
|---|---|
| Sample Name | LLCCV5 |
| Data File Name | 189LICV.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T16:28:26-06:00 |
| Sample Type | LLICV |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 122CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 4.951 | 5.270 | 11514 | 6.85 | 5 | 99.0 | 70 | 130 | |
| Na | 23 | 1 | nogas | 634.870 | 3.077 | 8918727 | 0.67 | 500 | 127.0 | 70 | 130 | |
| Mg | 24 | 1 | nogas | 530.724 | 0.700 | 3541220 | 1.80 | 500 | 106.1 | 70 | 130 | |
| Al | 27 | 1 | nogas | 5.387 | 2.185 | 53196 | 2.68 | 5 | 107.7 | 70 | 130 | |
| K | 39 | 1 | nogas | 491.513 | 5.059 | 7861449 | 1.99 | 500 | 98.3 | 70 | 130 | |
| Ti | 47 | 1 | nogas | 4.595 | 7.280 | 4251 | 5.24 | 5 | 91.9 | 70 | 130 | |
| V | 51 | 1 | nogas | -0.915 | -937.649 | 1342116 | 7.26 | 5 | -18.3 | 70 | 130 | LLICV Main CR1 Failed |
| Cr | 52 | 1 | nogas | 4.923 | 4.096 | 83666 | 1.52 | 5 | 98.5 | 70 | 130 | |
| Mn | 55 | 1 | nogas | 5.159 | 1.729 | 77812 | 1.02 | 5 | 103.2 | 70 | 130 | |
| Co | 59 | 1 | nogas | 5.247 | 1.906 | 57417 | 0.97 | 5 | 104.9 | 70 | 130 | |
| Ni | 60 | 1 | nogas | 4.613 | 4.633 | 16011 | 2.42 | 5 | 92.3 | 70 | 130 | |
| Cu | 63 | 1 | nogas | 4.955 | 3.500 | 35766 | 2.52 | 5 | 99.1 | 70 | 130 | |
| Zn | 66 | 1 | nogas | 4.853 | 4.418 | 12891 | 3.13 | 5 | 97.1 | 70 | 130 | |
| As | 75 | 1 | nogas | -4.045 | -113.854 | 189779 | 5.32 | 5 | -80.9 | 70 | 130 | LLICV Main CR1 Failed |
| Sr | 88 | 1 | nogas | 5.170 | 3.293 | 75505 | 2.87 | 5 | 103.4 | 70 | 130 | |
| Ag | 107 | 1 | nogas | 5.292 | 3.359 | 44376 | 2.45 | 5 | 105.8 | 70 | 130 | |
| Cd | 111 | 1 | nogas | 5.192 | 2.011 | 9246 | 2.79 | 5 | 103.8 | 70 | 130 | |
| Sb | 121 | 1 | nogas | 4.871 | 2.467 | 42526 | 3.17 | 5 | 97.4 | 70 | 130 | |
| Tl | 205 | 1 | nogas | 5.577 | 5.666 | 78051 | 0.60 | 5 | 111.5 | 70 | 130 | |
| Pb | 208 | 1 | nogas | 5.390 | 4.507 | 111942 | 1.73 | 5 | 107.8 | 70 | 130 | |
| U | 238 | 1 | nogas | 5.598 | 5.333 | 109443 | 1.67 | 5 | 112.0 | 70 | 130 | |
| [Pb] | 206 | 1 | nogas | 5.432 | 4.257 | 27784 | 4.08 | 5 | 108.6 | 70 | 130 | |
| [Pb] | 207 | 1 | nogas | 5.274 | 4.853 | 24896 | 1.75 | 5 | 105.5 | 70 | 130 | |
| Na | 23 | 2 | He | 599.711 | 0.719 | 187747 | 1.88 | 500 | 119.9 | 70 | 130 | |
| Mg | 24 | 2 | He | 505.728 | 4.915 | 42659 | 3.67 | 500 | 101.1 | 70 | 130 | |
| Al | 27 | 2 | He | 1.089 | 294.535 | 130 | 53.29 | 5 | 21.8 | 70 | 130 | LLICV Main CR1 Failed |
| K | 39 | 2 | He | 581.405 | 2.027 | 32104 | 1.40 | 500 | 116.3 | 70 | 130 | |
| Ca | 43 | 2 | He | 696.144 | 21.067 | 100 | 20.00 | 500 | 139.2 | 70 | 130 | LLICV Main CR1 Failed |
| Ca | 44 | 2 | He | 490.860 | 10.868 | 1353 | 9.84 | 500 | 98.2 | 70 | 130 | |
| V | 51 | 2 | He | 4.750 | 5.846 | 5766 | 3.83 | 5 | 95.0 | 70 | 130 | |
| Cr | 52 | 2 | He | 4.719 | 1.588 | 8569 | 0.29 | 5 | 94.4 | 70 | 130 | |
| Mn | 55 | 2 | He | 4.828 | 9.757 | 2660 | 7.85 | 5 | 96.6 | 70 | 130 | |
| Fe | 56 | 2 | He | 539.796 | 1.293 | 542342 | 2.43 | 500 | 108.0 | 70 | 130 | |
| Co | 59 | 2 | He | 4.997 | 2.935 | 13025 | 2.31 | 5 | 99.9 | 70 | 130 | |
| Ni | 60 | 2 | He | 4.727 | 4.016 | 4154 | 2.05 | 5 | 94.5 | 70 | 130 | |
| Cu | 63 | 2 | He | 4.544 | 4.791 | 10426 | 4.80 | 5 | 90.9 | 70 | 130 | |
| Zn | 66 | 2 | He | 5.186 | 17.185 | 1700 | 14.92 | 5 | 103.7 | 70 | 130 | |
| As | 75 | 2 | He | 4.865 | 10.830 | 1046 | 10.06 | 5 | 97.3 | 70 | 130 | |
| Se | 78 | 2 | He | 4.324 | 26.598 | 38 | 21.05 | 5 | 86.5 | 70 | 130 | |
| B | 11 | 1 | nogas | 18.875 | 11.151 | 88158 | 1.67 | 25 | 75.5 | 70 | 130 | |
| Si | 28 | 1 | nogas | 261.341 | 2.921 | 1598641 | 0.83 | 25 | 1045.4 | 70 | 130 | LLICV Main CR1 Failed |
| Ca | 43 | 1 | nogas | 476.226 | 2.589 | 8449 | 2.98 | 500 | 95.2 | 70 | 130 | |
| Ca | 44 | 1 | nogas | 486.913 | 5.197 | 185033 | 2.55 | 500 | 97.4 | 70 | 130 | |
| Fe | 56 | 1 | nogas | 499.187 | 3.523 | 6626347 | 2.71 | 500 | 99.8 | 70 | 130 | |
| Se | 77 | 1 | nogas | -20.258 | -114.660 | 59427 | 6.74 | 5 | -405.2 | 70 | 130 | LLICV Main CR1 Failed |
| Se | 82 | 1 | nogas | 5.344 | 10.139 | 1060 | 7.12 | 5 | 106.9 | 70 | 130 | |
| Mo | 95 | 1 | nogas | 5.062 | 4.320 | 16661 | 3.21 | 5 | 101.2 | 70 | 130 | |
| Sn | 118 | 1 | nogas | 4.976 | 4.881 | 22922 | 4.26 | 5 | 99.5 | 70 | 130 | |
| Ba | 137 | 1 | nogas | 5.122 | 5.009 | 12368 | 0.53 | 5 | 102.4 | 70 | 130 | |
| Sb | 121 | 2 | He | 5.047 | 4.425 | 4507 | 5.78 | 5 | 100.9 | 70 | 130 | |
| Li | 7 | 1 | nogas | 5.228 | 1.381 | 58140 | 2.75 | 5 | 104.6 | 70 | 130 | |
| P | 31 | 1 | nogas | 24.551 | 3.626 | 53824 | 0.13 | 25 | 98.2 | 70 | 130 | |
| La | 139 | 1 | nogas | -62.566 | -42.242 | 97 | 36.33 | 5 | -1251.3 | 70 | 130 | LLICV Main CR1 Failed |
| Au | 197 | 1 | nogas | 266.023 | 103.403 | 13 | 43.30 | 5 | 5320.5 | 70 | 130 | LLICV Main CR1 Failed |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 306106 | 2.07 | 296893 | 103.10 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1338385 | 0.95 | 1226431 | 109.13 | 70 | 125 | |

# Low Level Initial Calibration Verification (LLICV) Report

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| In | 115 | 1 | nogas | 1356808 | 4.53 | 1308607 | 103.68 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1293327 | 5.30 | 1207116 | 107.14 | 70 | 125 | |
| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
| Ge | 72 | 2 | He | 103361 | 1.53 | 95588 | 108.13 | 70 | 125 | |

# Sample Report

**Sample Table**

| | |
|---|---|
| Sample Name | LLCCV2 |
| Data File Name | 190SMPL.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T16:30:26-06:00 |
| Sample Type | Sample |
| Dilution | 1 |
| Comment | |
| ISTD Ref FileName | 122CALB.d |
| Sample QC Pass/Fail | Pass |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 1.789 | 1.789 | 8.94 | 4264 | 0.04 | 2000 | |
| Na | 23 | 1 | nogas | 277.816 | 277.816 | 1.14 | 5348694 | 0.01 | 200000 | |
| Mg | 24 | 1 | nogas | 220.416 | 220.416 | 4.84 | 1486599 | 0.01 | 200000 | |
| Al | 27 | 1 | nogas | 2.364 | 2.364 | 6.32 | 29484 | 0.01 | 2000 | |
| K | 39 | 1 | nogas | 179.969 | 179.969 | 13.20 | 5468029 | 0.00 | 200000 | |
| Ti | 47 | 1 | nogas | 1.225 | 1.225 | 20.80 | 1613 | 0.08 | 2000 | |
| V | 51 | 1 | nogas | -2.533 | -2.533 | -75.06 | 1321071 | 0.00 | 2000 | |
| Cr | 52 | 1 | nogas | 1.659 | 1.659 | 5.17 | 50402 | 0.00 | 2000 | |
| Mn | 55 | 1 | nogas | 2.018 | 2.018 | 7.65 | 35374 | 0.01 | 2000 | |
| Co | 59 | 1 | nogas | 2.124 | 2.124 | 2.96 | 23402 | 0.01 | 2000 | |
| Ni | 60 | 1 | nogas | 1.335 | 1.335 | 12.43 | 7782 | 0.02 | 2000 | |
| Cu | 63 | 1 | nogas | 1.850 | 1.850 | 3.98 | 16531 | 0.01 | 2000 | |
| Zn | 66 | 1 | nogas | 1.602 | 1.602 | 7.10 | 5751 | 0.03 | 2000 | |
| As | 75 | 1 | nogas | -6.472 | -6.472 | -13.97 | 183514 | 0.00 | 2000 | |
| Sr | 88 | 1 | nogas | 2.110 | 2.110 | 3.09 | 31695 | 0.01 | 2000 | |
| Ag | 107 | 1 | nogas | 2.187 | 2.187 | 1.96 | 18503 | 0.01 | 2000 | |
| Cd | 111 | 1 | nogas | 2.097 | 2.097 | 5.85 | 3750 | 0.06 | 2000 | |
| Sb | 121 | 1 | nogas | 1.928 | 1.928 | 2.64 | 17509 | 0.01 | 2000 | |
| Tl | 205 | 1 | nogas | 2.189 | 2.189 | 6.08 | 31090 | 0.01 | 2000 | |
| Pb | 208 | 1 | nogas | 2.106 | 2.106 | 7.93 | 44335 | 0.00 | 2000 | |
| U | 238 | 1 | nogas | 2.257 | 2.257 | 4.27 | 44710 | 0.01 | 2000 | |
| [Pb] | 206 | 1 | nogas | 1.988 | 1.988 | 8.30 | 10303 | 0.02 | 2000 | |
| [Pb] | 207 | 1 | nogas | 2.102 | 2.102 | 6.67 | 10073 | 0.02 | 2000 | |
| Na | 23 | 2 | He | 280.814 | 280.814 | 1.84 | 124577 | 0.23 | 200000 | |
| Mg | 24 | 2 | He | 212.199 | 212.199 | 2.25 | 17839 | 1.19 | 200000 | |
| Al | 27 | 2 | He | 0.538 | 0.538 | 444.69 | 117 | 0.46 | 2000 | |
| K | 39 | 2 | He | 217.161 | 217.161 | 12.88 | 18206 | 1.19 | 200000 | |
| Ca | 43 | 2 | He | 378.180 | 378.180 | 61.02 | 57 | 667.38 | 200000 | |
| Ca | 44 | 2 | He | 180.051 | 180.051 | 28.50 | 567 | 31.77 | 200000 | |
| V | 51 | 2 | He | 1.832 | 1.832 | 6.69 | 2567 | 0.07 | 2000 | |
| Cr | 52 | 2 | He | 2.035 | 2.035 | 7.42 | 4657 | 0.04 | 2000 | |
| Mn | 55 | 2 | He | 1.931 | 1.931 | 7.87 | 1170 | 0.16 | 2000 | |
| Fe | 56 | 2 | He | 218.243 | 218.243 | 3.18 | 220055 | 0.10 | 200000 | |
| Co | 59 | 2 | He | 1.892 | 1.892 | 3.16 | 4894 | 0.04 | 2000 | |
| Ni | 60 | 2 | He | 2.002 | 2.002 | 8.48 | 2097 | 0.10 | 2000 | |
| Cu | 63 | 2 | He | 1.870 | 1.870 | 5.74 | 4737 | 0.04 | 2000 | |
| Zn | 66 | 2 | He | 1.903 | 1.903 | 13.02 | 710 | 0.27 | 2000 | |
| As | 75 | 2 | He | 1.908 | 1.908 | 4.25 | 424 | 0.45 | 2000 | |
| Se | 78 | 2 | He | 1.213 | 1.213 | 61.00 | 16 | 7.58 | 2000 | |
| B | 11 | 1 | nogas | 2.520 | 2.520 | 41.27 | 64543 | 0.00 | 2000 | |

# Sample Report

| Si | 28 | 1 | nogas | 75.646 | 75.646 | 13.79 | 954841 | 0.01 | 2000 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ca | 43 | 1 | nogas | 200.222 | 200.222 | 5.52 | 3944 | 5.08 | 200000 | |
| Name | Mass | Tune Step | Tune Mode | Conc | FinalConc | Conc %RSD | CPS | %RSD | LDR | QC Flag |
| Ca | 44 | 1 | nogas | 173.839 | 173.839 | 11.94 | 105253 | 0.17 | 200000 | |
| Fe | 56 | 1 | nogas | 195.792 | 195.792 | 7.40 | 3029806 | 0.01 | 200000 | |
| Se | 77 | 1 | nogas | -21.875 | -21.875 | -13.11 | 59106 | -0.04 | 2000 | |
| Se | 82 | 1 | nogas | 0.946 | 0.946 | 92.14 | 513 | 0.18 | 2000 | |
| Mo | 95 | 1 | nogas | 2.025 | 2.025 | 5.46 | 7262 | 0.03 | 2000 | |
| Sn | 118 | 1 | nogas | 2.088 | 2.088 | 5.67 | 9963 | 0.02 | 2000 | |
| Ba | 137 | 1 | nogas | 2.169 | 2.169 | 7.11 | 5448 | 0.04 | 2000 | |
| Sb | 121 | 2 | He | 2.054 | 2.054 | 9.49 | 1860 | 0.11 | 2000 | |
| La | 139 | 1 | nogas | -93.272 | -93.272 | -21.18 | 53 | -174.89 | 2000 | |
| Au | 197 | 1 | nogas | -33.749 | -33.749 | -694.46 | 7 | -506.24 | 2000 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 311164 | 2.60 | 296893 | 104.81 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1337387 | 4.07 | 1226431 | 109.05 | 70 | 125 | |
| In | 115 | 1 | nogas | 1361476 | 5.34 | 1308607 | 104.04 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1307212 | 5.09 | 1207116 | 108.29 | 70 | 125 | |
| Ge | 72 | 2 | He | 101825 | 1.32 | 95588 | 106.53 | 70 | 125 | |

# Interference Check Solution A (ICS-A) Report

**Sample Table**

| | |
|---|---|
| Sample Name | ICSA |
| Data File Name | 191ICSA.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T16:32:26-06:00 |
| Sample Type | ICSA |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 122CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Upper Limit | QC Flag |
|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 0.024 | 109.0 | 103 | 47.7 | 0 | ICSA Main CR1 Failed |
| Na | 23 | 1 | nogas | 106092.776 | 2.8 | 940037354 | 2.3 | 0 | |
| Mg | 24 | 1 | nogas | 104220.175 | 5.5 | 607399880 | 1.5 | 0 | |
| Al | 27 | 1 | nogas | 98955.631 | 2.4 | 689463990 | 2.3 | 0 | |
| K | 39 | 1 | nogas | 101326.429 | 7.4 | 693481666 | 3.2 | 0 | |
| Ti | 47 | 1 | nogas | 2106.668 | 8.9 | 1463719 | 5.9 | 0 | |
| V | 51 | 1 | nogas | -24.970 | -11.6 | 923209 | 7.1 | 0 | ICSA Main CR1 Failed |
| Cr | 52 | 1 | nogas | 1.137 | 18.4 | 40164 | 1.6 | 0 | ICSA Main CR1 Failed |
| Mn | 55 | 1 | nogas | 0.204 | 12.0 | 9776 | 1.5 | 0 | ICSA Main CR1 Failed |
| Co | 59 | 1 | nogas | 0.068 | 12.9 | 947 | 10.4 | 0 | ICSA Main CR1 Failed |
| Ni | 60 | 1 | nogas | -0.232 | -110.1 | 3430 | 12.4 | 0 | ICSA Main CR1 Failed |
| Cu | 63 | 1 | nogas | 0.390 | 41.0 | 6668 | 9.0 | 0 | ICSA Main CR1 Failed |
| Zn | 66 | 1 | nogas | 1.186 | 9.1 | 4317 | 2.8 | 0 | ICSA Main CR1 Failed |
| As | 75 | 1 | nogas | -4.872 | -27.4 | 167301 | 5.0 | 0 | ICSA Main CR1 Failed |
| Sr | 88 | 1 | nogas | 0.969 | 6.4 | 13732 | 1.8 | 0 | ICSA Main CR1 Failed |
| Ag | 107 | 1 | nogas | 0.023 | 74.5 | 443 | 25.4 | 0 | ICSA Main CR1 Failed |
| Cd | 111 | 1 | nogas | 0.934 | 9.0 | 1473 | 9.1 | 0 | ICSA Main CR1 Failed |
| Sb | 121 | 1 | nogas | -0.018 | -132.5 | 897 | 19.6 | 0 | ICSA Main CR1 Failed |
| Tl | 205 | 1 | nogas | 0.015 | 120.3 | 400 | 63.1 | 0 | ICSA Main CR1 Failed |
| Pb | 208 | 1 | nogas | 0.097 | 3.8 | 2190 | 2.1 | 0 | ICSA Main CR1 Failed |
| [Pb] | 206 | 1 | nogas | 0.100 | 15.5 | 543 | 12.3 | 0 | ICSA Main CR1 Failed |
| [Pb] | 207 | 1 | nogas | 0.092 | 13.7 | 483 | 11.4 | 0 | ICSA Main CR1 Failed |
| Na | 23 | 2 | He | 98875.877 | 2.4 | 16874544 | 2.7 | 0 | |
| Mg | 24 | 2 | He | 97570.259 | 0.4 | 7224886 | 0.2 | 0 | |
| Al | 27 | 2 | He | 91444.258 | 1.7 | 1728145 | 2.0 | 0 | |
| K | 39 | 2 | He | 100861.661 | 0.8 | 3858566 | 0.8 | 0 | |
| Ca | 43 | 2 | He | 102081.228 | 4.5 | 12064 | 4.5 | 0 | |
| Ca | 44 | 2 | He | 95384.287 | 4.0 | 211225 | 3.9 | 0 | |
| V | 51 | 2 | He | -0.152 | -1.0 | 402 | 0.0 | 0 | ICSA Main CR1 Failed |
| Cr | 52 | 2 | He | 1.464 | 12.5 | 3457 | 6.4 | 0 | ICSA Main CR1 Failed |
| Mn | 55 | 2 | He | -0.039 | -86.6 | 163 | 9.4 | 0 | ICSA Main CR1 Failed |
| Fe | 56 | 2 | He | 97896.801 | 1.7 | 85914065 | 1.7 | 0 | |
| Co | 59 | 2 | He | 0.010 | 91.0 | 77 | 27.2 | 0 | ICSA Main CR1 Failed |
| Ni | 60 | 2 | He | -0.254 | -51.7 | 400 | 21.4 | 0 | ICSA Main CR1 Failed |
| Cu | 63 | 2 | He | 0.052 | 82.1 | 873 | 9.3 | 0 | ICSA Main CR1 Failed |
| Zn | 66 | 2 | He | 0.414 | 38.8 | 243 | 17.1 | 0 | ICSA Main CR1 Failed |
| As | 75 | 2 | He | 0.056 | 167.8 | 40 | 43.3 | 0 | ICSA Main CR1 Failed |
| Se | 78 | 2 | He | -0.559 | -119.8 | 3 | 124.9 | 0 | ICSA Main CR1 Failed |
| B | 11 | 1 | nogas | -2.623 | -46.9 | 49181 | 1.1 | 0 | ICSA Main CR1 Failed |
| Si | 28 | 1 | nogas | 39.085 | 28.7 | 738650 | 0.6 | 0 | |
| Ca | 43 | 1 | nogas | 96928.840 | 6.2 | 1405743 | 3.9 | 0 | |
| Ca | 44 | 1 | nogas | 95816.155 | 6.6 | 21733348 | 4.3 | 0 | |
| Fe | 56 | 1 | nogas | 95896.048 | 5.5 | 1010327723 | 1.7 | 0 | |
| Se | 77 | 1 | nogas | -10.514 | -91.6 | 54709 | 6.9 | 0 | ICSA Main CR1 Failed |
| Se | 82 | 1 | nogas | -0.284 | -253.5 | 323 | 22.4 | 0 | ICSA Main CR1 Failed |
| Mo | 95 | 1 | nogas | 2075.014 | 0.8 | 5715388 | 3.7 | 0 | |
| Sn | 118 | 1 | nogas | 0.039 | 89.6 | 643 | 21.0 | 0 | ICSA Main CR1 Failed |
| Ba | 137 | 1 | nogas | 0.111 | 51.1 | 530 | 23.2 | 0 | ICSA Main CR1 Failed |
| Sb | 121 | 2 | He | 0.021 | 216.4 | 100 | 36.1 | 0 | ICSA Main CR1 Failed |

# Interference Check Solution A (ICS-A) Report

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| P | 31 | 1 | nogas | 99865.933 | 6.5 | 48130578 | 3.9 | 0 | |
| La | 139 | 1 | nogas | 111.662 | 9.9 | 307 | 3.8 | 0 | |

**QC ISTD Table**

| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 270275 | 4.00 | 296893 | 91.03 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1192488 | 3.98 | 1226431 | 97.23 | 70 | 125 | |
| In | 115 | 1 | nogas | 1193489 | 1.61 | 1308607 | 91.20 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1225072 | 2.42 | 1207116 | 101.49 | 70 | 125 | |
| Ge | 72 | 2 | He | 91450 | 0.35 | 95588 | 95.67 | 70 | 125 | |

# Interference Check Solution AB (ICS-AB) Report

**Sample Table**

| | |
|---|---|
| Sample Name | ICSAB |
| Data File Name | 192ICSB.d |
| Data Path Name | C:\Agilent\ICPMH\1\DATA\111 |
| Acq Date Time | 2017-11-16T16:34:33-06:00 |
| Sample Type | ICSB |
| Dilution | 1 |
| Comment | |
| ISTD Ref File Name | 122CALB.d |
| Sample QC Pass/Fail | Fail |
| ISTD Pass/Fail | Pass |

**QC Analyte Table**

| Name | Mass | Tune Step | Tune Mode | Conc | Conc %RSD | CPS | CPS %RSD | Exp Value | %Rec | %Low | %High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 9 | 1 | nogas | 92.949 | 2.748 | 187347 | 0.69 | 100 | 92.9 | 80 | 120 | |
| Na | 23 | 1 | nogas | 114169.260 | 0.701 | 999777122 | 2.76 | 100 | 114169.3 | 80 | 120 | |
| Mg | 24 | 1 | nogas | 116235.211 | 4.710 | 669732148 | 2.86 | 100 | 116235.2 | 80 | 120 | ICSB Main CR1 Failed |
| Al | 27 | 1 | nogas | 98971.471 | 3.928 | 673559003 | 2.63 | 100 | 98971.5 | 80 | 120 | ICSB Main CR1 Failed |
| K | 39 | 1 | nogas | 112800.203 | 2.529 | 755084000 | 3.49 | 100 | 112800.2 | 80 | 120 | |
| Ti | 47 | 1 | nogas | 2249.159 | 2.251 | 1529269 | 3.10 | 100 | 2249.2 | 80 | 120 | ICSB Main CR1 Failed |
| V | 51 | 1 | nogas | 59.708 | 3.191 | 1842901 | 3.09 | 100 | 59.7 | 80 | 120 | |
| Cr | 52 | 1 | nogas | 94.805 | 2.608 | 868893 | 2.00 | 100 | 94.8 | 80 | 120 | |
| Mn | 55 | 1 | nogas | 88.602 | 7.435 | 1045632 | 3.65 | 100 | 88.6 | 80 | 120 | |
| Co | 59 | 1 | nogas | 95.302 | 2.236 | 902811 | 3.38 | 100 | 95.3 | 80 | 120 | |
| Ni | 60 | 1 | nogas | 95.227 | 0.975 | 211669 | 2.99 | 100 | 95.2 | 80 | 120 | |
| Cu | 63 | 1 | nogas | 94.981 | 0.887 | 516175 | 3.11 | 100 | 95.0 | 80 | 120 | |
| Zn | 66 | 1 | nogas | 96.702 | 1.281 | 186544 | 2.91 | 100 | 96.7 | 80 | 120 | |
| As | 75 | 1 | nogas | 76.379 | 3.779 | 344734 | 2.16 | 100 | 76.4 | 80 | 120 | |
| Sr | 88 | 1 | nogas | 94.691 | 1.752 | 1179725 | 2.30 | 100 | 94.7 | 80 | 120 | |
| Ag | 107 | 1 | nogas | 94.019 | 5.367 | 681016 | 1.80 | 100 | 94.0 | 80 | 120 | |
| Cd | 111 | 1 | nogas | 95.306 | 0.889 | 153693 | 0.88 | 100 | 95.3 | 80 | 120 | |
| Sb | 121 | 1 | nogas | 96.800 | 4.117 | 716185 | 3.92 | 100 | 96.8 | 80 | 120 | |
| Tl | 205 | 1 | nogas | 92.772 | 3.778 | 1230721 | 3.72 | 100 | 92.8 | 80 | 120 | |
| Pb | 208 | 1 | nogas | 93.741 | 1.326 | 1844502 | 1.12 | 100 | 93.7 | 80 | 120 | |
| U | 238 | 1 | nogas | 100.917 | 4.159 | 1871890 | 2.93 | 100 | 100.9 | 80 | 120 | |
| [Pb] | 206 | 1 | nogas | 93.475 | 2.078 | 452849 | 0.68 | 100 | 93.5 | 80 | 120 | |
| [Pb] | 207 | 1 | nogas | 91.771 | 1.174 | 410337 | 1.29 | 100 | 91.8 | 80 | 120 | |
| Na | 23 | 2 | He | 109719.082 | 3.404 | 18402657 | 2.61 | 100 | 109719.1 | 80 | 120 | |
| Mg | 24 | 2 | He | 108015.717 | 2.694 | 7868268 | 4.30 | 100 | 108015.7 | 80 | 120 | |
| Al | 27 | 2 | He | 93078.156 | 3.513 | 1729637 | 3.39 | 100 | 93078.2 | 80 | 120 | ICSB Main CR1 Failed |
| K | 39 | 2 | He | 109779.691 | 2.565 | 4198857 | 2.56 | 100 | 109779.7 | 80 | 120 | |
| Ca | 43 | 2 | He | 116040.330 | 4.194 | 13485 | 4.26 | 100 | 116040.3 | 80 | 120 | ICSB Main CR1 Failed |
| Ca | 44 | 2 | He | 106629.345 | 1.568 | 232177 | 0.70 | 100 | 106629.3 | 80 | 120 | |
| V | 51 | 2 | He | 91.986 | 1.173 | 87293 | 1.31 | 100 | 92.0 | 80 | 120 | |
| Cr | 52 | 2 | He | 94.101 | 2.186 | 118818 | 1.40 | 100 | 94.1 | 80 | 120 | |
| Mn | 55 | 2 | He | 95.135 | 1.653 | 42313 | 1.58 | 100 | 95.1 | 80 | 120 | |
| Fe | 56 | 2 | He | 110667.543 | 6.061 | 95441145 | 4.04 | 100 | 110667.5 | 80 | 120 | ICSB Main CR1 Failed |
| Co | 59 | 2 | He | 90.977 | 4.743 | 205350 | 2.66 | 100 | 91.0 | 80 | 120 | |
| Ni | 60 | 2 | He | 88.982 | 4.437 | 58076 | 2.25 | 100 | 89.0 | 80 | 120 | |
| Cu | 63 | 2 | He | 88.815 | 1.586 | 163099 | 0.68 | 100 | 88.8 | 80 | 120 | |
| Zn | 66 | 2 | He | 92.061 | 4.599 | 24093 | 6.75 | 100 | 92.1 | 80 | 120 | |
| As | 75 | 2 | He | 96.120 | 1.541 | 17435 | 1.24 | 100 | 96.1 | 80 | 120 | |
| Se | 78 | 2 | He | 94.716 | 7.575 | 585 | 6.79 | 100 | 94.7 | 80 | 120 | |
| B | 11 | 1 | nogas | 478.790 | 3.911 | 681881 | 1.59 | 100 | 478.8 | 80 | 120 | |
| Si | 28 | 1 | nogas | 4950.819 | 4.398 | 15494541 | 0.31 | 100 | 4950.8 | 80 | 120 | ICSB Main CR1 Failed |
| Ca | 43 | 1 | nogas | 105233.854 | 2.306 | 1492320 | 2.58 | 100 | 105233.9 | 80 | 120 | |
| Ca | 44 | 1 | nogas | 109108.435 | 4.740 | 24179018 | 2.14 | 100 | 109108.4 | 80 | 120 | ICSB Main CR1 Failed |
| Fe | 56 | 1 | nogas | 107130.902 | 5.758 | 1102761525 | 2.90 | 100 | 107130.9 | 80 | 120 | |
| Se | 77 | 1 | nogas | 25.016 | 2.621 | 59444 | 3.72 | 100 | 25.0 | 80 | 120 | ICSB Main CR1 Failed |
| Se | 82 | 1 | nogas | 97.810 | 4.487 | 10863 | 5.29 | 100 | 97.8 | 80 | 120 | |
| Mo | 95 | 1 | nogas | 2209.941 | 1.666 | 5945169 | 2.35 | 100 | 2209.9 | 80 | 120 | ICSB Main CR1 Failed |
| Sn | 118 | 1 | nogas | 93.056 | 1.595 | 379885 | 1.28 | 100 | 93.1 | 80 | 120 | |
| Ba | 137 | 1 | nogas | 93.874 | 1.137 | 200403 | 1.09 | 100 | 93.9 | 80 | 120 | |
| Sb | 121 | 2 | He | 94.901 | 2.608 | 72284 | 4.81 | 100 | 94.9 | 80 | 120 | |
| La | 139 | 1 | nogas | 374.570 | 14.639 | 660 | 10.93 | 100 | 374.6 | 80 | 120 | ICSB Main CR1 Failed |

**QC ISTD Table**

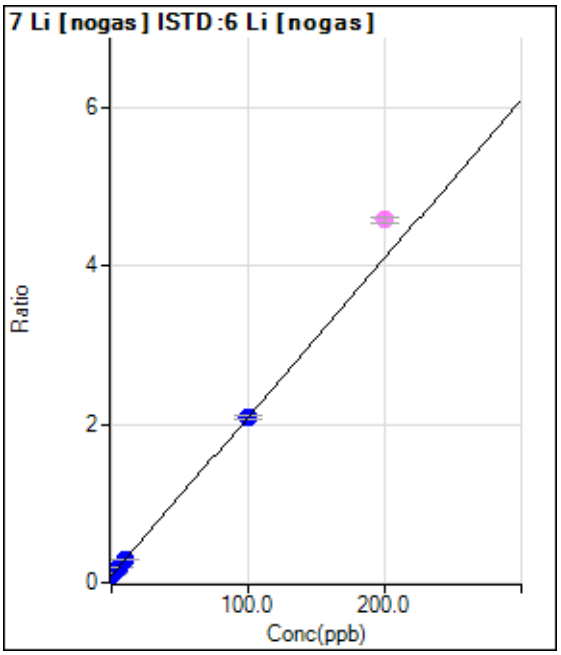
| Name | Mass | Tune Step | Tune Mode | CPS | %RSD | Ref CPS | %Rec | %QC Low | %QC High | QC Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| Li | 6 | 1 | nogas | 266896 | 2.10 | 296893 | 89.90 | 70 | 125 | |
| Ge | 72 | 1 | nogas | 1165079 | 3.90 | 1226431 | 95.00 | 70 | 125 | |
| In | 115 | 1 | nogas | 1229730 | 0.31 | 1308607 | 93.97 | 70 | 125 | |
| Bi | 209 | 1 | nogas | 1226689 | 1.83 | 1207116 | 101.62 | 70 | 125 | |
| Ge | 72 | 2 | He | 89943 | 2.24 | 95588 | 94.10 | 70 | 125 | |

Calibration for 017_ICV.d

Batch Folder: C:\Agilent\ICPMH\1\DATA\111617A.b\
Analysis File: 111617A.batch.bin
DA Date-Time: 2017-11-16 16:20:17
Calibration Title:
Calibration Method: External Calibration
VIS Interpolation Fit:

| Level | Standard Data File | Sample Name | Acq. Date-Time |
|---|---|---|---|
| 1 | 010CALB.d | CAL BLK | 2017-11-16 10:17:55 |
| 2 | 011CALS.d | 2/10/200 | 2017-11-16 10:19:55 |
| 3 | 012CALS.d | 5/25/500 | 2017-11-16 10:21:56 |
| 4 | 013CALS.d | 10/50/1000 | 2017-11-16 10:23:55 |
| 5 | 014CALS.d | 100/500/10K | 2017-11-16 10:25:53 |
| 6 | 015CALS.d | 200/1000/20K | 2017-11-16 10:27:54 |
| 7 | | | |

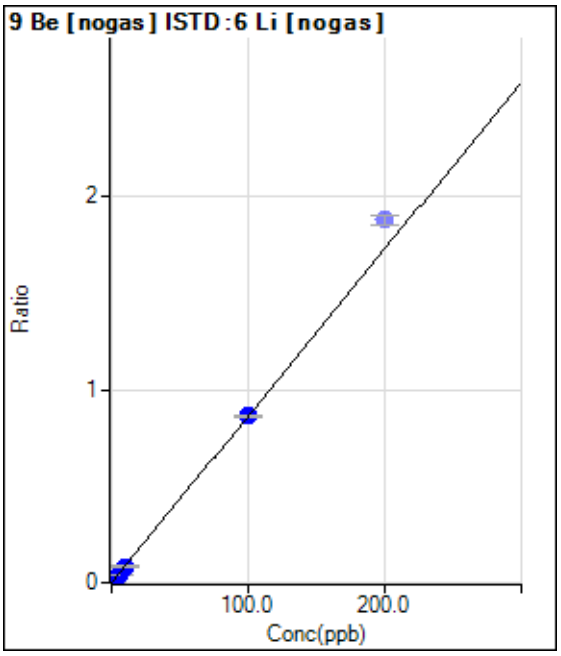
Calibration for 017_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 22737.34 | 0.0901 | P | 4.9 |
| 2 | ☐ | 2.000 | 2.078 | 32962.42 | 0.1317 | P | 2.8 |
| 3 | ☐ | 5.000 | 5.183 | 48774.21 | 0.1940 | P | 0.7 |
| 4 | ☐ | 10.000 | 10.477 | 76107.23 | 0.3001 | P | 0.7 |
| 5 | ☐ | 100.000 | 99.942 | 482661.95 | 2.0933 | P | 2.2 |
| 6 | ☑ | 200.000 | | 952041.11 | 4.5836 | M | 1.6 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0200 * x + 0.0901
R = 1.0000
DL = 0.6541
BEC = 4.494

Weight: <None>
Min Conc: <None>

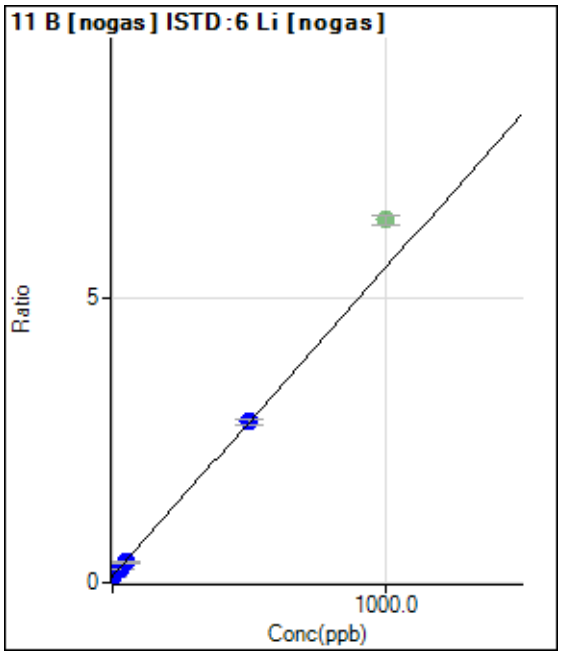



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 26.67 | 0.0001 | P | 86.6 |
| 2 | ☐ | 2.000 | 1.904 | 4140.53 | 0.0166 | P | 5.4 |
| 3 | ☐ | 5.000 | 4.913 | 10706.56 | 0.0426 | P | 3.1 |
| 4 | ☐ | 10.000 | 9.741 | 21375.74 | 0.0843 | P | 4.4 |
| 5 | ☐ | 100.000 | 100.032 | 199378.56 | 0.8648 | P | 1.7 |
| 6 | ☑ | 200.000 | | 390687.20 | 1.8809 | P | 2.5 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0086 * x + 1.0636E-004
R = 1.0000
DL = 0.03198
BEC = 0.0123

Weight: <None>
Min Conc: <None>

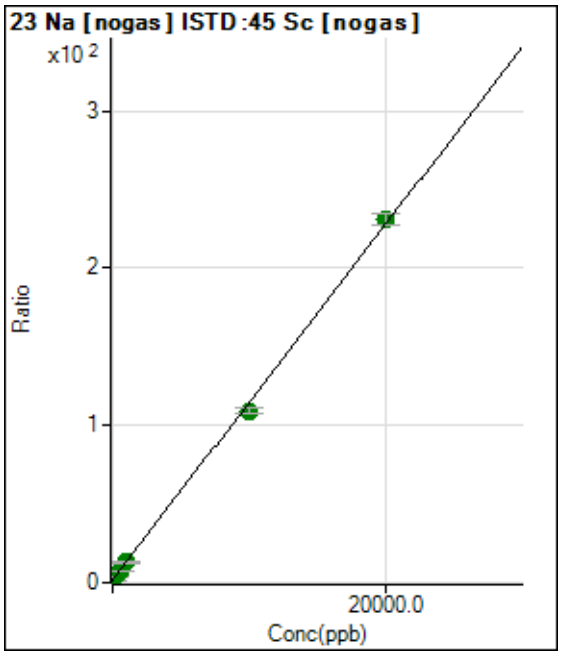
Calibration for 017_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 29159.49 | 0.1156 | P | 3.9 |
| 2 | ☐ | 10.000 | 8.168 | 39915.55 | 0.1597 | P | 7.4 |
| 3 | ☐ | 25.000 | 22.281 | 59302.83 | 0.2360 | P | 4.9 |
| 4 | ☐ | 50.000 | 44.468 | 90201.56 | 0.3558 | P | 4.0 |
| 5 | ☐ | 500.000 | 500.726 | 650108.23 | 2.8210 | P | 3.7 |
| 6 | ☑ | 1000.000 | | 1321624.75 | 6.3588 | A | 2.6 |
| 7 | ☐ | 5.000 | | | | | |

y = 0.0054 * x + 0.1156
R = 1.0000
DL = 2.513
BEC = 21.39

Weight: <None>
Min Conc: <None>

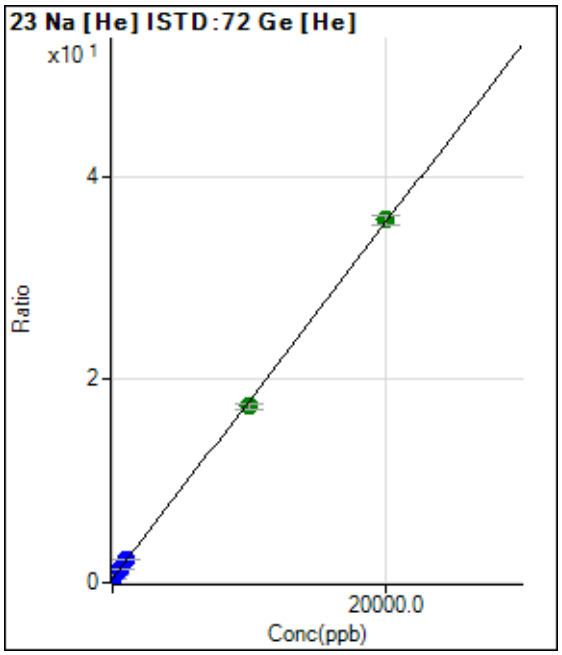



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1507880.90 | 1.7849 | A | 3.8 |
| 2 | ☐ | 200.000 | 201.285 | 3410811.80 | 4.0589 | A | 2.7 |
| 3 | ☐ | 500.000 | 498.137 | 6283908.08 | 7.4125 | A | 1.0 |
| 4 | ☐ | 1000.000 | 992.690 | 11158698.17 | 12.9996 | A | 3.0 |
| 5 | ☐ | 10000.00 | 9481.930 | 92897666.66 | 108.904 | A | 3.3 |
| 6 | ☐ | 20000.00 | 20259.434 | 184999541.6 | 230.661 | A | 3.2 |
| 7 | ☐ | 100.000 | | | | | |

y = 0.0113 * x + 1.7849
R = 0.9995
DL = 17.77
BEC = 158

Weight: <None>
Min Conc: <None>

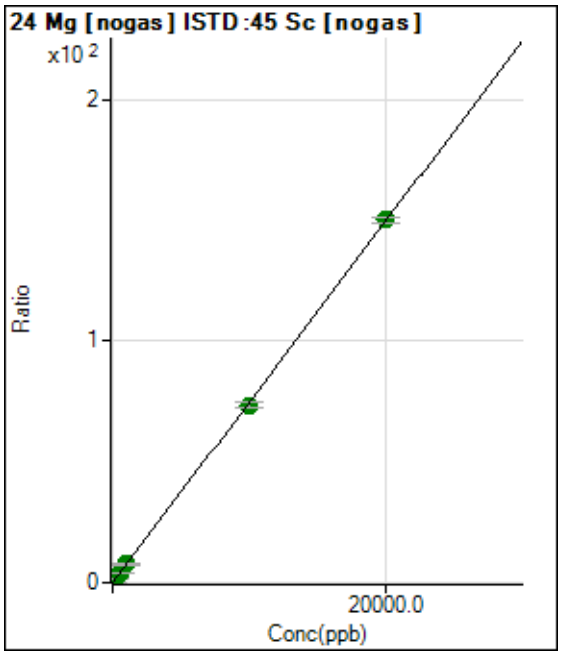
Calibration for 017_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 42821.97 | 0.3832 | P | 1.9 |
| 2 | ☐ | 200.000 | 198.721 | 82347.36 | 0.7313 | P | 1.0 |
| 3 | ☐ | 500.000 | 509.708 | 143906.10 | 1.2761 | P | 3.4 |
| 4 | ☐ | 1000.000 | 1057.502 | 246468.97 | 2.2358 | P | 4.2 |
| 5 | ☐ | 10000.00 | 9673.818 | 1919447.42 | 17.3307 | A | 2.7 |
| 6 | ☐ | 20000.00 | 20159.986 | 3727489.95 | 35.7013 | A | 2.4 |
| 7 | ☐ | 100.000 | | | | | |

y = 0.0018 * x + 0.3832
R = 0.9998
DL = 12.39
BEC = 218.7

Weight: <None>
Min Conc: <None>

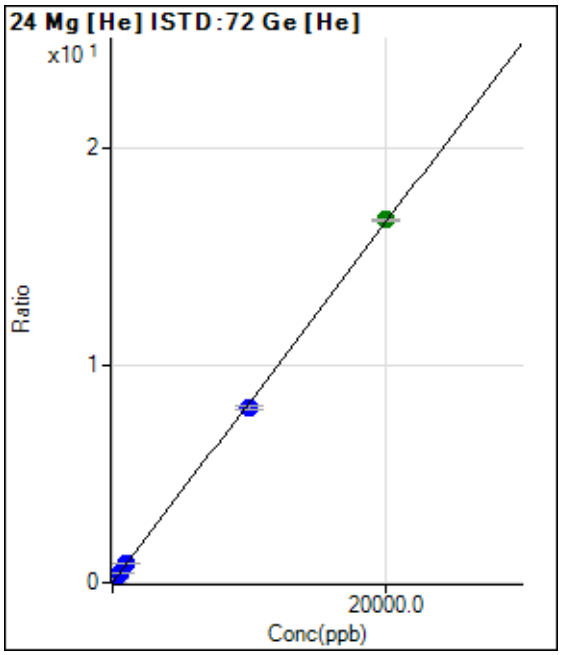



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 6568.97 | 0.0078 | P | 11.8 |
| 2 | ☐ | 200.000 | 205.757 | 1298558.82 | 1.5450 | A | 1.4 |
| 3 | ☐ | 500.000 | 522.525 | 3315779.63 | 3.9116 | A | 1.4 |
| 4 | ☐ | 1000.000 | 1024.288 | 6572610.95 | 7.6603 | A | 5.6 |
| 5 | ☐ | 10000.00 | 9818.991 | 62579243.06 | 73.3665 | A | 3.7 |
| 6 | ☐ | 20000.00 | 20088.669 | 120384269.3 | 150.092 | A | 1.5 |
| 7 | ☐ | 100.000 | | | | | |

y = 0.0075 * x + 0.0078
R = 0.9999
DL = 0.3686
BEC = 1.038

Weight: <None>
Min Conc: <None>

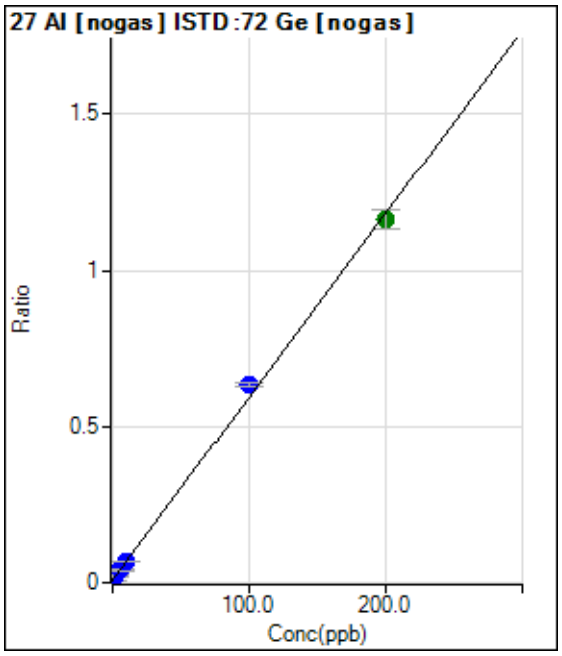
Calibration for 017_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 260.01 | 0.0023 | P | 17.8 |
| 2 | ☐ | 200.000 | 211.326 | 19967.49 | 0.1774 | P | 3.5 |
| 3 | ☐ | 500.000 | 517.390 | 48622.78 | 0.4309 | P | 1.3 |
| 4 | ☐ | 1000.000 | 1083.419 | 99180.02 | 0.8998 | P | 5.6 |
| 5 | ☐ | 10000.00 | 9680.199 | 888340.32 | 8.0210 | P | 2.1 |
| 6 | ☐ | 20000.00 | 20155.181 | 1743376.80 | 16.6980 | A | 0.3 |
| 7 | ☐ | 100.000 | | | | | |

y = 8.2836E-004 * x + 0.0023
R = 0.9998
DL = 1.498
BEC = 2.812

Weight: <None>
Min Conc: <None>

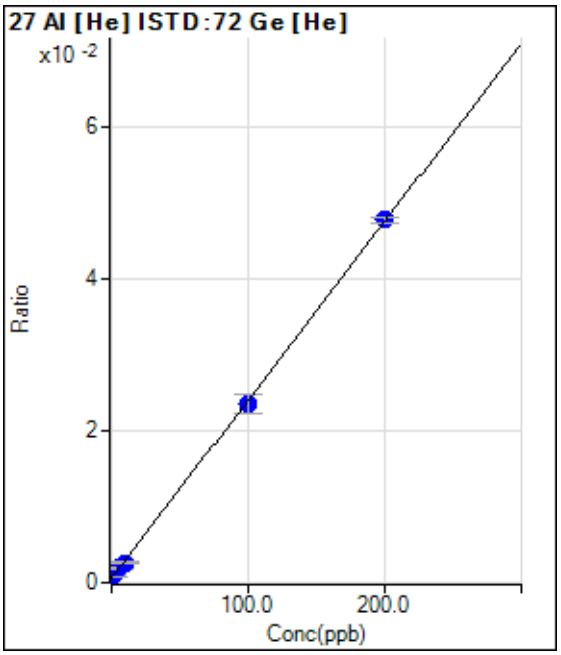



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 10476.43 | 0.0081 | P | 1.9 |
| 2 | ☐ | 2.000 | 2.274 | 28445.19 | 0.0215 | P | 2.6 |
| 3 | ☐ | 5.000 | 5.455 | 51811.67 | 0.0401 | P | 4.5 |
| 4 | ☐ | 10.000 | 10.299 | 88338.69 | 0.0686 | P | 3.1 |
| 5 | ☐ | 100.000 | 106.634 | 782919.75 | 0.6336 | P | 1.8 |
| 6 | ☐ | 200.000 | 196.654 | 1430935.97 | 1.1616 | A | 5.2 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0059 * x + 0.0081
R = 0.9992
DL = 0.08117
BEC = 1.389

Weight: <None>
Min Conc: <None>

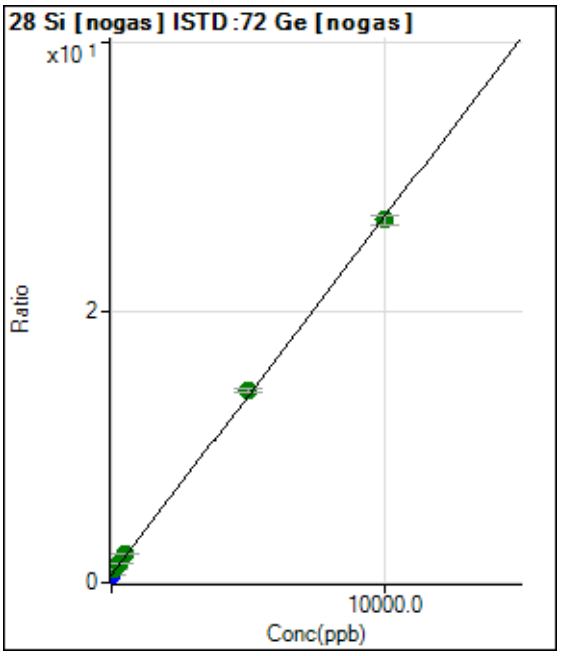
Calibration for 017_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.999 | 90.00 | 0.0008 | P | 32.0 |
| 2 | ☐ | 2.000 | 2.391 | 126.67 | 0.0011 | P | 48.6 |
| 3 | ☐ | 5.000 | 5.919 | 220.01 | 0.0020 | P | 14.7 |
| 4 | ☐ | 10.000 | 8.684 | 286.68 | 0.0026 | P | 12.5 |
| 5 | ☐ | 100.000 | 97.936 | 2603.55 | 0.0235 | P | 11.6 |
| 6 | ☐ | 200.000 | 201.071 | 4977.41 | 0.0477 | P | 1.6 |
| 7 | ☐ | 1.000 | | | | | |

y = 2.3427E-004 * x + 5.6861E-004
R = 0.9999
DL = 3.284
BEC = 2.427

Weight: <None>
Min Conc: <None>

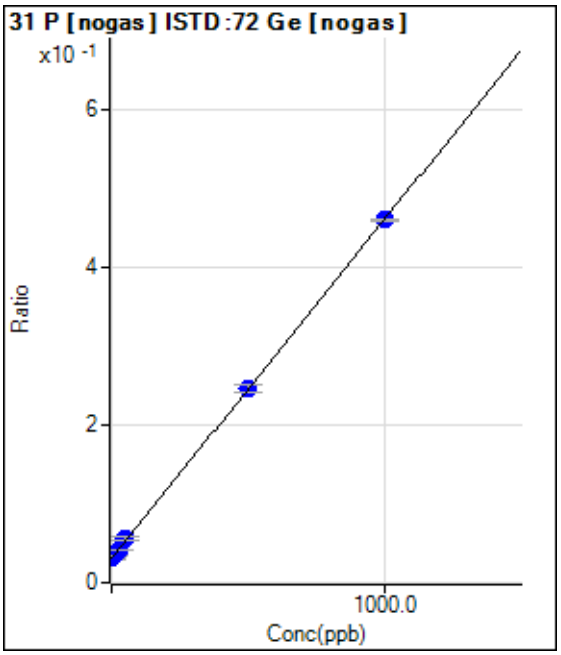



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 762078.77 | 0.5927 | P | 2.9 |
| 2 | ☐ | 100.000 | 130.033 | 1240690.24 | 0.9372 | A | 1.3 |
| 3 | ☐ | 250.000 | 305.822 | 1811178.98 | 1.4028 | A | 3.4 |
| 4 | ☐ | 500.000 | 576.188 | 2729444.23 | 2.1189 | A | 5.1 |
| 5 | ☐ | 5000.000 | 5159.491 | 17621215.15 | 14.2592 | A | 1.4 |
| 6 | ☐ | 10000.00 | 9914.749 | 33093971.17 | 26.8550 | A | 2.7 |
| 7 | ☐ | 5.000 | | | | | |

y = 0.0026 * x + 0.5927
R = 0.9998
DL = 19.28
BEC = 223.8

Weight: <None>
Min Conc: <None>

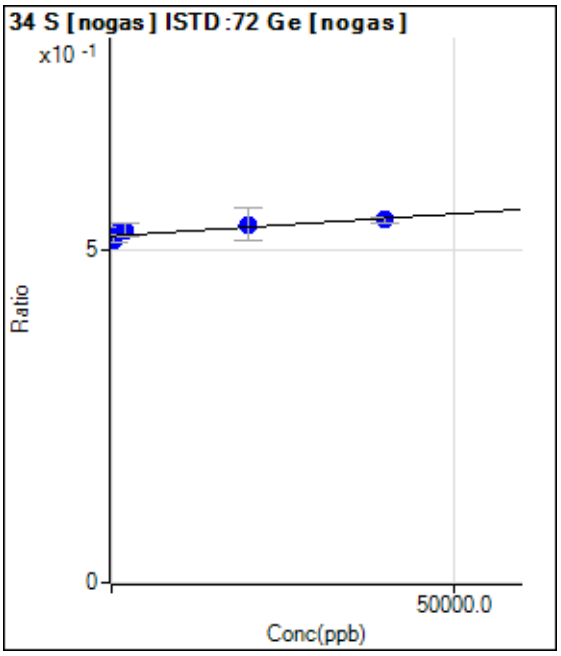
Calibration for 017_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 39521.51 | 0.0307 | P | 4.1 |
| 2 | ☐ | 10.000 | 6.955 | 44666.37 | 0.0337 | P | 2.0 |
| 3 | ☐ | 25.000 | 24.183 | 53135.10 | 0.0412 | P | 3.7 |
| 4 | ☐ | 50.000 | 58.354 | 71937.49 | 0.0559 | P | 5.9 |
| 5 | ☐ | 500.000 | 501.606 | 304584.83 | 0.2466 | P | 3.1 |
| 6 | ☐ | 1000.000 | 998.830 | 567702.74 | 0.4606 | P | 0.9 |
| 7 | ☐ | 5.000 | | | | | |

y = 4.3034E-004 * x + 0.0307
R = 1.0000
DL = 8.854
BEC = 71.45

Weight: <None>
Min Conc: <None>

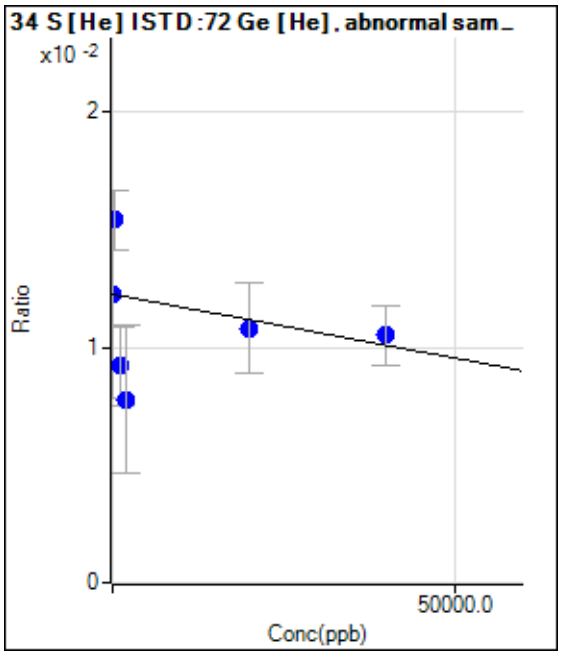



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 668561.52 | 0.5201 | P | 3.7 |
| 2 | ☐ | 400.000 | -8995.916 | 680613.38 | 0.5141 | P | 1.7 |
| 3 | ☐ | 1000.000 | 10000.261 | 680273.29 | 0.5267 | P | 2.1 |
| 4 | ☐ | 2000.000 | 13390.316 | 681556.30 | 0.5289 | P | 3.4 |
| 5 | ☐ | 20000.00 | 25884.585 | 662124.38 | 0.5372 | P | 9.4 |
| 6 | ☐ | 40000.00 | 36357.144 | 670684.24 | 0.5442 | P | 1.8 |
| 7 | ☐ | 100.000 | | | | | |

y = 6.6248E-007 * x + 0.5201
R = 0.8828
DL = 8.815E+04
BEC = 7.85E+05

Weight: <None>
Min Conc: <None>

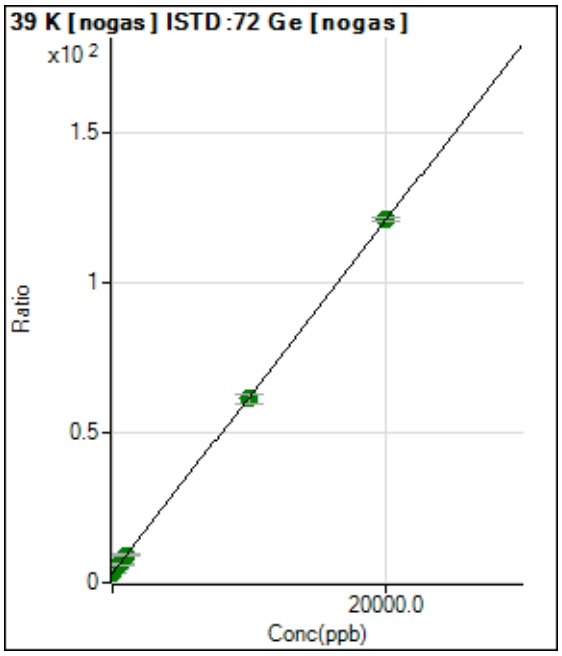
Calibration for 017_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1366.99 | 0.0123 | P | 71.8 |
| 2 | ☐ | 400.000 | -58267.911 | 1733.74 | 0.0154 | P | 16.5 |
| 3 | ☐ | 1000.000 | 56251.547 | 1033.64 | 0.0092 | P | 36.3 |
| 4 | ☐ | 2000.000 | 82587.471 | 866.85 | 0.0078 | P | 80.3 |
| 5 | ☐ | 20000.00 | 26460.279 | 1200.27 | 0.0108 | P | 36.2 |
| 6 | ☐ | 40000.00 | 31945.878 | 1100.24 | 0.0105 | P | 24.0 |
| 7 | ☐ | 100.000 | | | | | |

y = -5.4214E-008 * x + 0.0123
R = -0.1347
DL = -4.877E+05
BEC = -2.263E+05

Weight: <None>
Min Conc: <None>

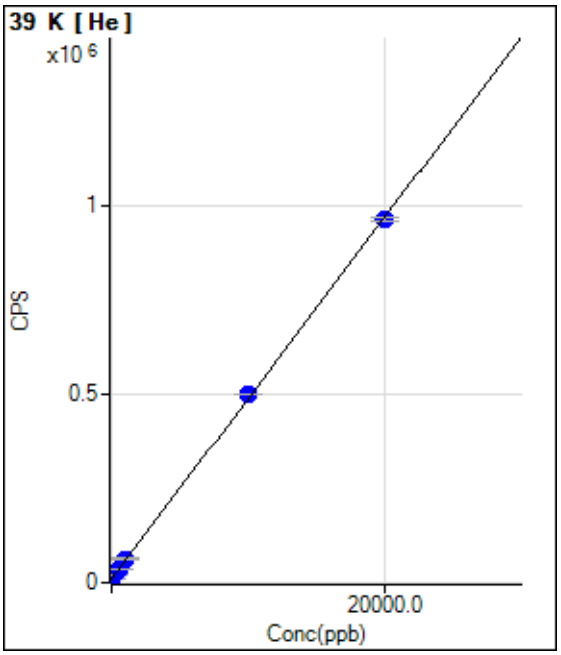



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 4093479.65 | 3.1843 | A | 3.7 |
| 2 | ☐ | 200.000 | 186.029 | 5658857.94 | 4.2747 | A | 2.3 |
| 3 | ☐ | 500.000 | 498.734 | 7883778.04 | 6.1075 | A | 4.4 |
| 4 | ☐ | 1000.000 | 1033.051 | 11901929.69 | 9.2393 | A | 4.7 |
| 5 | ☐ | 10000.00 | 9886.802 | 75436587.10 | 61.1332 | A | 5.8 |
| 6 | ☐ | 20000.00 | 20055.118 | 148819044.9 | 120.732 | A | 0.9 |
| 7 | ☐ | 100.000 | | | | | |

y = 0.0059 * x + 3.1843
R = 1.0000
DL = 59.55
BEC = 543.3

Weight: <None>
Min Conc: <None>

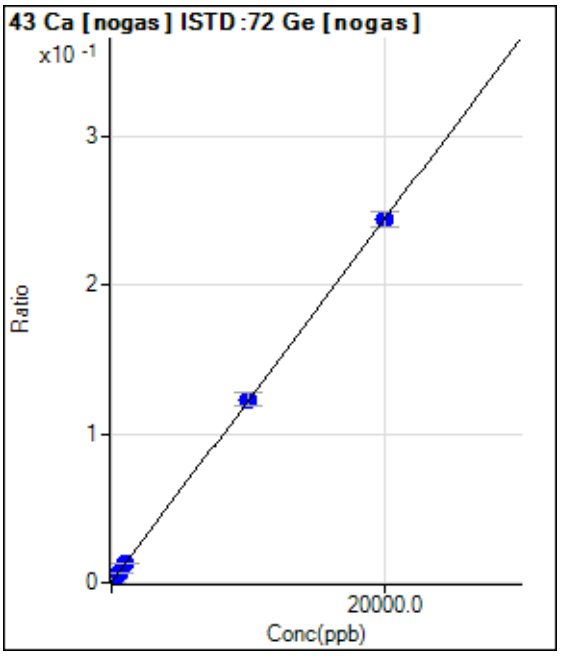
Calibration for 017_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 10916.71 | | P | 3.3 |
| 2 | ☐ | 200.000 | 214.309 | 21178.90 | | P | 1.9 |
| 3 | ☐ | 500.000 | 535.853 | 36576.02 | | P | 5.0 |
| 4 | ☐ | 1000.000 | 1094.026 | 63304.14 | | P | 3.6 |
| 5 | ☐ | 10000.00 | 10217.541 | 500183.63 | | P | 0.7 |
| 6 | ☐ | 20000.00 | 19885.489 | 963133.29 | | P | 1.0 |
| 7 | ☐ | 100.000 | | | | | |

y = 47.8850 * x + 10916.7067
R = 0.9999
DL = 22.71
BEC = 228

Weight: <None>
Min Conc: <None>

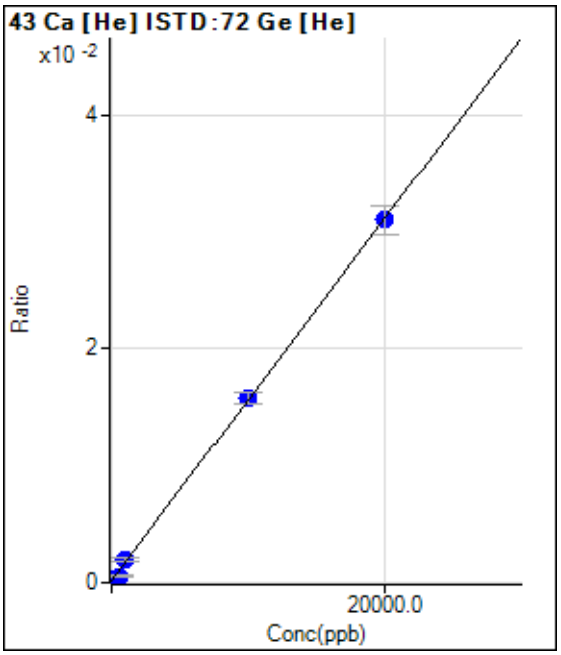



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 466.68 | 0.0004 | P | 9.7 |
| 2 | ☐ | 200.000 | 203.258 | 3767.12 | 0.0028 | P | 2.8 |
| 3 | ☐ | 500.000 | 491.230 | 8218.65 | 0.0064 | P | 1.7 |
| 4 | ☐ | 1000.000 | 1060.536 | 17158.22 | 0.0133 | P | 3.3 |
| 5 | ☐ | 10000.00 | 10065.389 | 152056.26 | 0.1233 | P | 7.2 |
| 6 | ☐ | 20000.00 | 19964.465 | 300886.02 | 0.2442 | P | 4.1 |
| 7 | ☐ | 100.000 | | | | | |

y = 1.2212E-005 * x + 3.6348E-004
R = 1.0000
DL = 8.64
BEC = 29.76

Weight: <None>
Min Conc: <None>

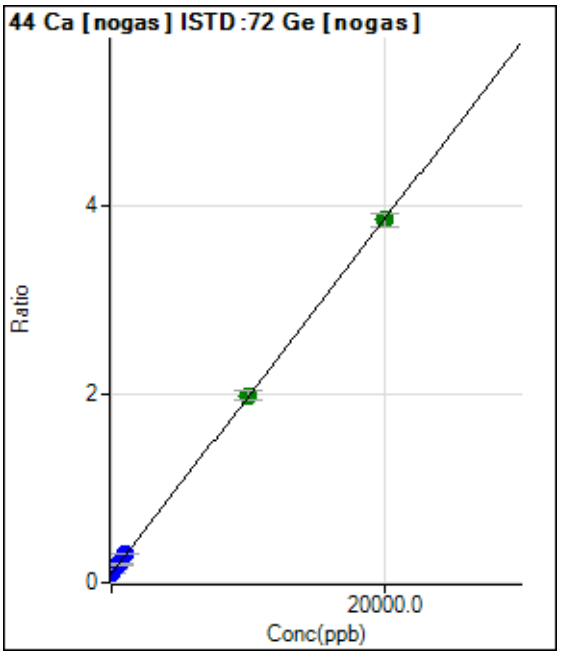
Calibration for 017_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 20.00 | 0.0002 | P | 1.5 |
| 2 | ☐ | 200.000 | 97.457 | 36.67 | 0.0003 | P | 104. |
| 3 | ☐ | 500.000 | 247.247 | 63.33 | 0.0006 | P | 33.0 |
| 4 | ☐ | 1000.000 | 1192.459 | 223.34 | 0.0020 | P | 16.6 |
| 5 | ☐ | 10000.00 | 10091.319 | 1746.78 | 0.0158 | P | 5.6 |
| 6 | ☐ | 20000.00 | 19952.062 | 3237.01 | 0.0310 | P | 7.9 |
| 7 | ☐ | 100.000 | | | | | |

y = 1.5450E-006 * x + 1.7896E-004
R = 0.9998
DL = 5.334
BEC = 115.8

Weight: <None>
Min Conc: <None>

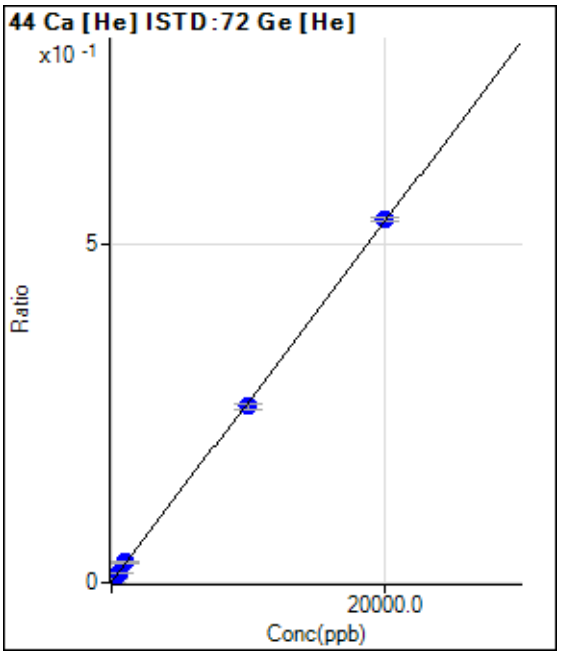



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 123960.57 | 0.0964 | P | 4.1 |
| 2 | ☐ | 200.000 | 194.507 | 175986.12 | 0.1329 | P | 0.8 |
| 3 | ☐ | 500.000 | 527.160 | 252064.78 | 0.1953 | P | 5.5 |
| 4 | ☐ | 1000.000 | 1107.400 | 391931.18 | 0.3042 | P | 3.8 |
| 5 | ☐ | 10000.00 | 10046.310 | 2444937.57 | 1.9811 | A | 5.4 |
| 6 | ☐ | 20000.00 | 19970.851 | 4735923.78 | 3.8429 | A | 3.4 |
| 7 | ☐ | 100.000 | | | | | |

y = 1.8760E-004 * x + 0.0964
R = 1.0000
DL = 63.7
BEC = 514.1

Weight: <None>
Min Conc: <None>

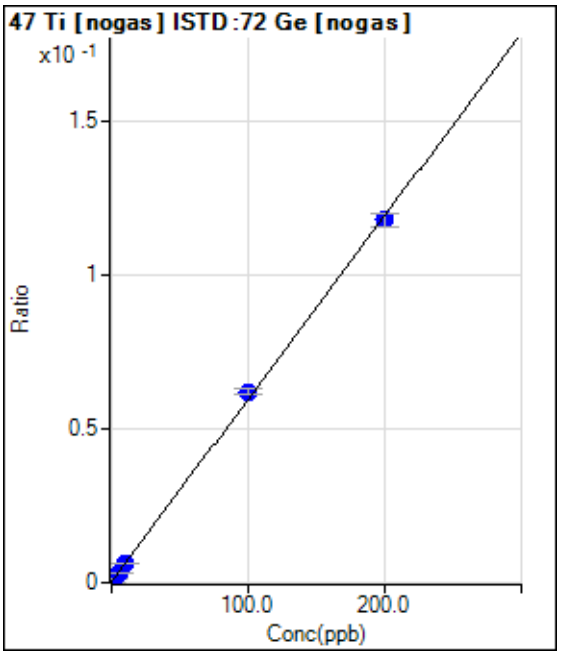
Calibration for 017_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 100.00 | 0.0009 | P | 51.2 |
| 2 | ☐ | 200.000 | 222.381 | 763.36 | 0.0068 | P | 20.8 |
| 3 | ☐ | 500.000 | 515.036 | 1643.43 | 0.0146 | P | 1.1 |
| 4 | ☐ | 1000.000 | 1099.006 | 3317.02 | 0.0301 | P | 3.1 |
| 5 | ☐ | 10000.00 | 9752.864 | 28782.86 | 0.2599 | P | 2.9 |
| 6 | ☐ | 20000.00 | 20118.018 | 55867.97 | 0.5351 | P | 1.2 |
| 7 | ☐ | 100.000 | | | | | |

y = 2.6554E-005 * x + 8.9040E-004
R = 0.9999
DL = 51.53
BEC = 33.53

Weight: <None>
Min Conc: <None>

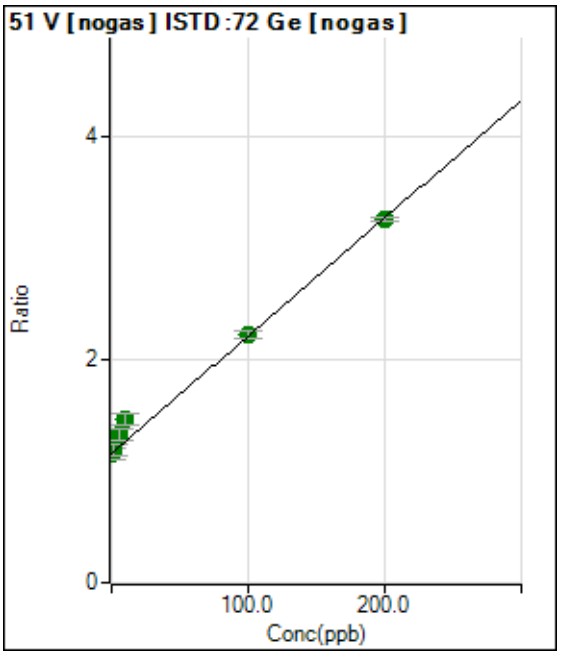



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 340.01 | 0.0003 | P | 25.3 |
| 2 | ☐ | 2.000 | 1.907 | 1850.12 | 0.0014 | P | 5.7 |
| 3 | ☐ | 5.000 | 4.823 | 4040.53 | 0.0031 | P | 7.3 |
| 4 | ☐ | 10.000 | 10.142 | 8098.67 | 0.0063 | P | 5.0 |
| 5 | ☐ | 100.000 | 104.053 | 76612.15 | 0.0620 | P | 3.7 |
| 6 | ☐ | 200.000 | 197.972 | 145148.44 | 0.1178 | P | 3.4 |
| 7 | ☐ | 1.000 | | | | | |

y = 5.9364E-004 * x + 2.6566E-004
R = 0.9997
DL = 0.3401
BEC = 0.4475

Weight: <None>
Min Conc: <None>

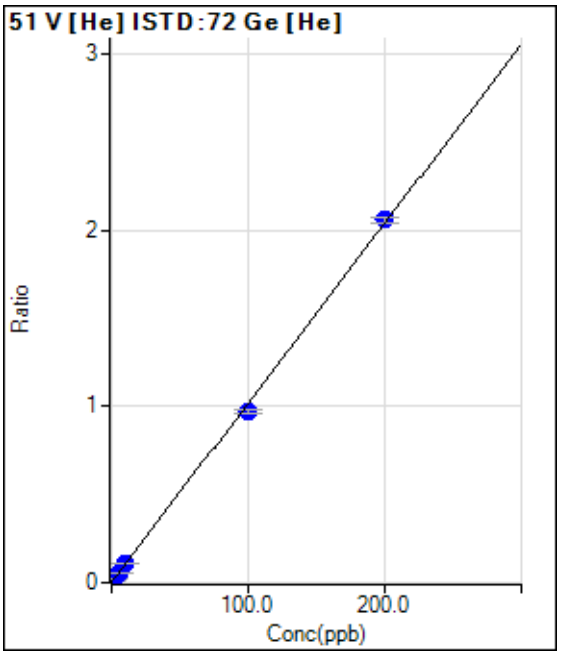
Calibration for 017_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1487658.98 | 1.1581 | A | 8.3 |
| 2 | ☐ | 2.000 | 2.792 | 1572884.64 | 1.1876 | A | 7.7 |
| 3 | ☐ | 5.000 | 16.560 | 1719320.91 | 1.3329 | A | 7.7 |
| 4 | ☐ | 10.000 | 29.098 | 1887036.76 | 1.4652 | A | 6.0 |
| 5 | ☐ | 100.000 | 100.936 | 2745776.10 | 2.2232 | A | 3.7 |
| 6 | ☐ | 200.000 | 198.280 | 4006243.58 | 3.2504 | A | 1.1 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0106 * x + 1.1581
R = 0.9956
DL = 27.38
BEC = 109.8

Weight: <None>
Min Conc: <None>

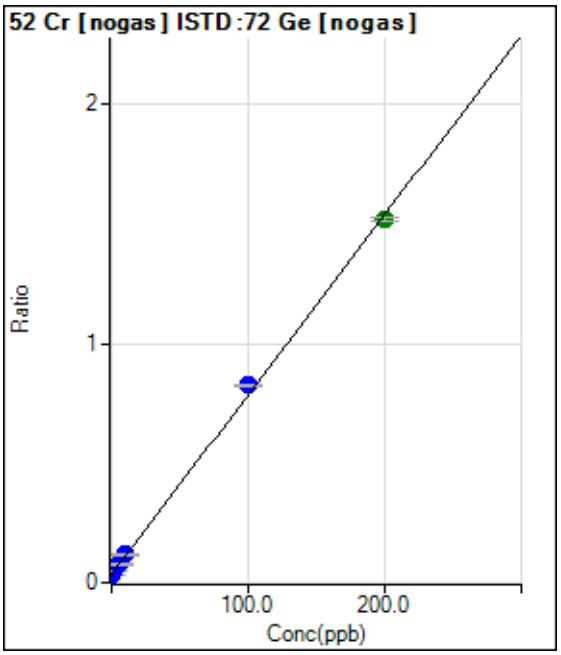



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.410 | 681.35 | 0.0061 | P | 4.6 |
| 2 | ☐ | 2.000 | 2.431 | 3003.58 | 0.0267 | P | 1.7 |
| 3 | ☐ | 5.000 | 5.491 | 6524.51 | 0.0578 | P | 5.5 |
| 4 | ☐ | 10.000 | 10.895 | 12444.86 | 0.1129 | P | 2.8 |
| 5 | ☐ | 100.000 | 95.672 | 108102.95 | 0.9761 | P | 2.4 |
| 6 | ☐ | 200.000 | 202.103 | 215061.49 | 2.0598 | P | 1.3 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0102 * x + 0.0019
R = 0.9996
DL = 0.08262
BEC = 0.1893

Weight: <None>
Min Conc: <None>

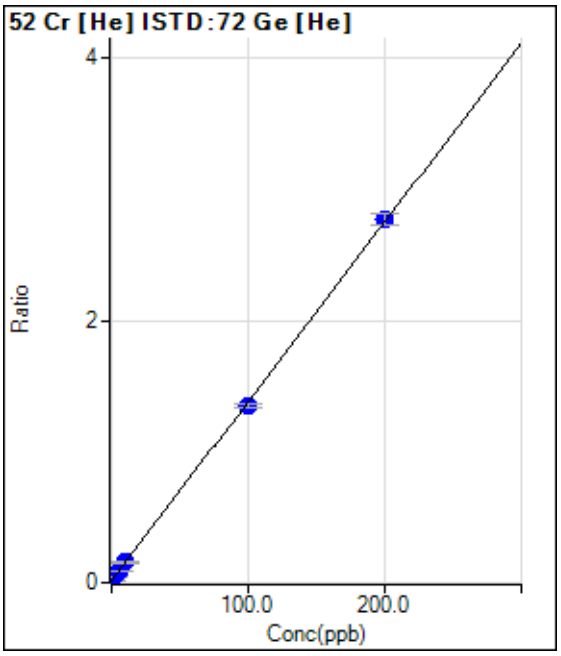
Calibration for 017_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 43254.03 | 0.0337 | P | 7.3 |
| 2 | ☐ | 2.000 | 1.834 | 62843.33 | 0.0475 | P | 3.3 |
| 3 | ☐ | 5.000 | 5.792 | 99694.74 | 0.0772 | P | 4.3 |
| 4 | ☐ | 10.000 | 11.207 | 151951.90 | 0.1180 | P | 4.9 |
| 5 | ☐ | 100.000 | 105.241 | 1019641.73 | 0.8252 | P | 1.7 |
| 6 | ☐ | 200.000 | 197.301 | 1870444.55 | 1.5176 | A | 1.1 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0075 * x + 0.0337
R = 0.9995
DL = 0.9804
BEC = 4.477

Weight: <None>
Min Conc: <None>

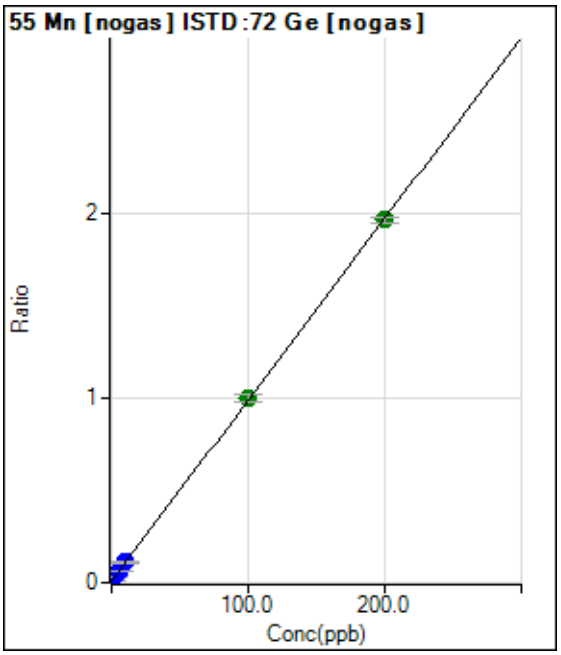



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1706.78 | 0.0152 | P | 12.7 |
| 2 | ☐ | 2.000 | 2.081 | 4914.08 | 0.0437 | P | 11.7 |
| 3 | ☐ | 5.000 | 5.022 | 9462.60 | 0.0838 | P | 0.7 |
| 4 | ☐ | 10.000 | 10.321 | 17231.56 | 0.1562 | P | 4.0 |
| 5 | ☐ | 100.000 | 97.195 | 148716.28 | 1.3428 | P | 2.0 |
| 6 | ☐ | 200.000 | 201.385 | 288786.37 | 2.7659 | P | 3.0 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0137 * x + 0.0152
R = 0.9999
DL = 0.4255
BEC = 1.117

Weight: <None>
Min Conc: <None>

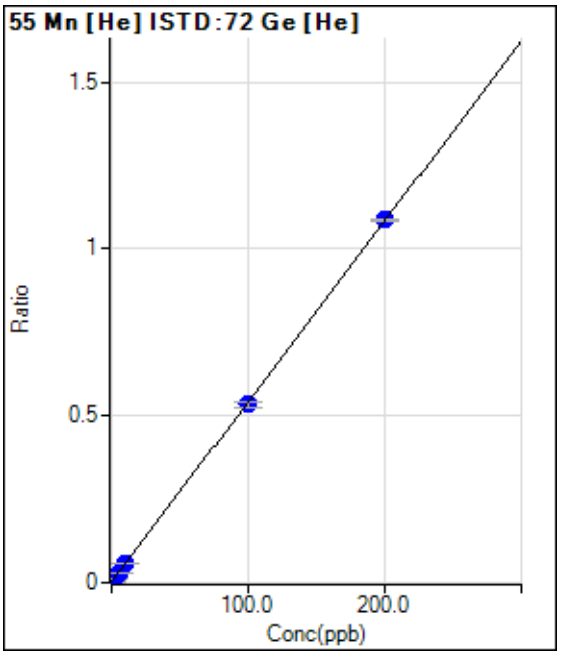
Calibration for 017_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 10603.23 | 0.0082 | P | 3.2 |
| 2 | ☐ | 2.000 | 2.057 | 37638.94 | 0.0284 | P | 1.5 |
| 3 | ☐ | 5.000 | 5.248 | 77135.26 | 0.0597 | P | 3.4 |
| 4 | ☐ | 10.000 | 10.633 | 144935.12 | 0.1126 | P | 7.4 |
| 5 | ☐ | 100.000 | 100.962 | 1232972.87 | 0.9989 | A | 4.9 |
| 6 | ☐ | 200.000 | 199.480 | 2422708.97 | 1.9656 | A | 1.5 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0098 * x + 0.0082
R = 1.0000
DL = 0.07971
BEC = 0.8402

Weight: <None>
Min Conc: <None>

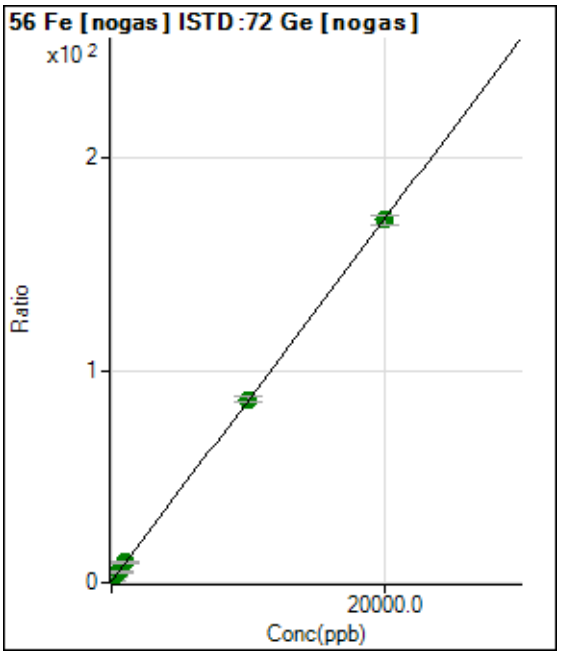



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 326.68 | 0.0029 | P | 28.9 |
| 2 | ☐ | 2.000 | 1.996 | 1543.43 | 0.0137 | P | 3.9 |
| 3 | ☐ | 5.000 | 4.966 | 3350.37 | 0.0297 | P | 9.5 |
| 4 | ☐ | 10.000 | 10.035 | 6294.53 | 0.0571 | P | 3.8 |
| 5 | ☐ | 100.000 | 98.323 | 59112.49 | 0.5337 | P | 2.7 |
| 6 | ☐ | 200.000 | 200.838 | 113502.39 | 1.0871 | P | 0.8 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0054 * x + 0.0029
R = 1.0000
DL = 0.469
BEC = 0.5418

Weight: <None>
Min Conc: <None>

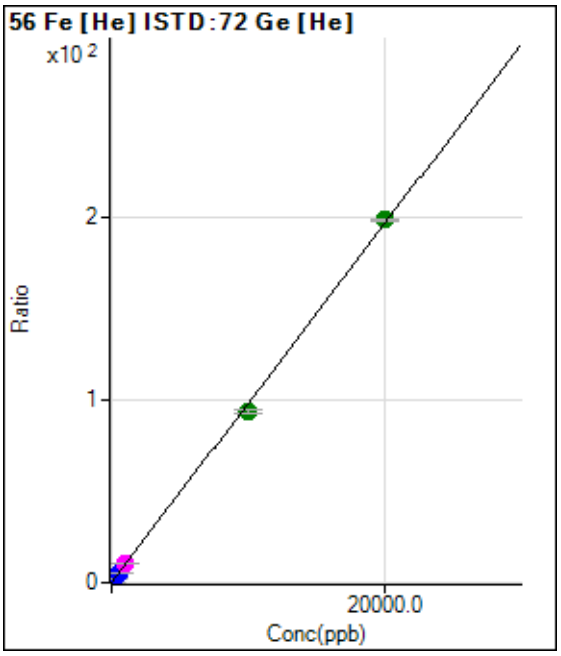
Calibration for 017_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 763433.41 | 0.5942 | P | 6.6 |
| 2 | ☐ | 200.000 | 208.766 | 3144986.00 | 2.3758 | A | 3.5 |
| 3 | ☐ | 500.000 | 518.043 | 6473357.70 | 5.0153 | A | 4.6 |
| 4 | ☐ | 1000.000 | 1057.059 | 12378133.61 | 9.6153 | A | 7.9 |
| 5 | ☐ | 10000.00 | 10066.356 | 106874004.4 | 86.5022 | A | 2.5 |
| 6 | ☐ | 20000.00 | 19963.430 | 210747375.5 | 170.965 | A | 2.8 |
| 7 | ☐ | 100.000 | | | | | |

y = 0.0085 * x + 0.5942
R = 1.0000
DL = 13.74
BEC = 69.63

Weight: <None>
Min Conc: <None>

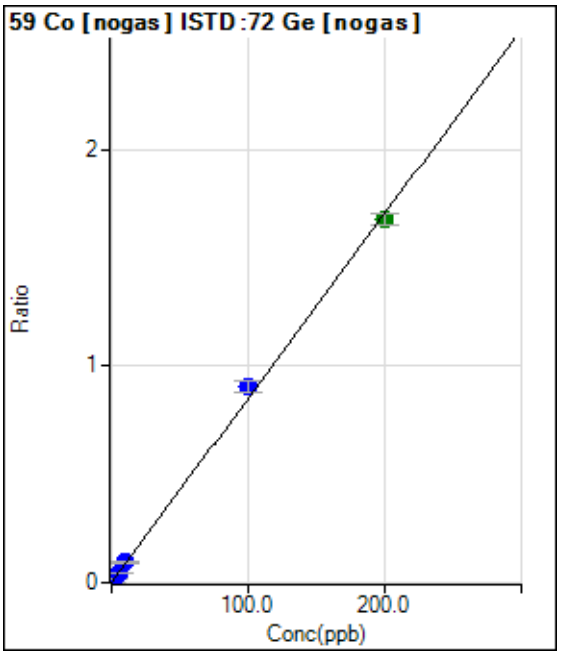



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 6257.83 | 0.0560 | P | 1.6 |
| 2 | ☐ | 200.000 | 219.731 | 248771.22 | 2.2088 | P | 0.7 |
| 3 | ☐ | 500.000 | 544.850 | 608305.33 | 5.3943 | P | 3.9 |
| 4 | ☐ | 1000.000 | 1083.913 | 1177369.91 | 10.6758 | M | 4.3 |
| 5 | ☐ | 10000.00 | 9539.878 | 10358587.55 | 93.5248 | A | 2.8 |
| 6 | ☐ | 20000.00 | 20224.547 | 20694328.02 | 198.209 | A | 0.6 |
| 7 | ☐ | 100.000 | | | | | |

y = 0.0098 * x + 0.0560
R = 0.9996
DL = 0.2763
BEC = 5.714

Weight: <None>
Min Conc: <None>

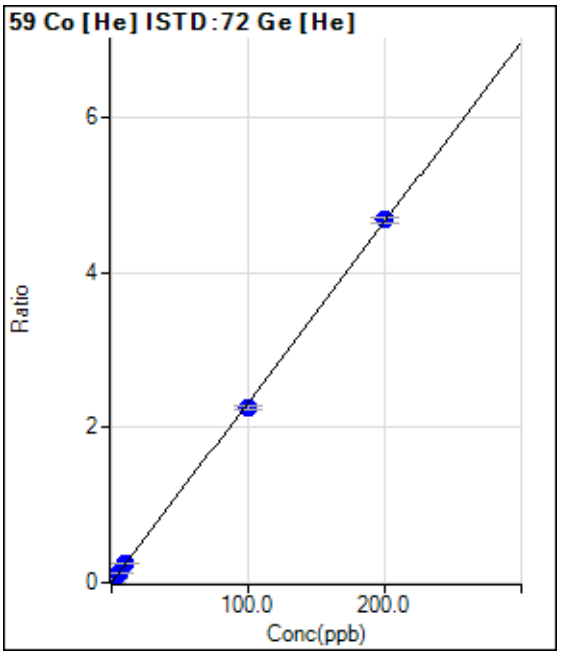
Calibration for 017_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 613.36 | 0.0005 | P | 17.9 |
| 2 | ☐ | 2.000 | 2.153 | 24910.87 | 0.0188 | P | 3.8 |
| 3 | ☐ | 5.000 | 5.448 | 60490.99 | 0.0469 | P | 6.7 |
| 4 | ☐ | 10.000 | 10.901 | 120211.06 | 0.0933 | P | 5.5 |
| 5 | ☐ | 100.000 | 106.368 | 1118466.28 | 0.9066 | P | 6.4 |
| 6 | ☐ | 200.000 | 196.758 | 2066312.89 | 1.6766 | A | 3.2 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0085 * x + 4.7658E-004
R = 0.9993
DL = 0.03
BEC = 0.05595

Weight: <None>
Min Conc: <None>

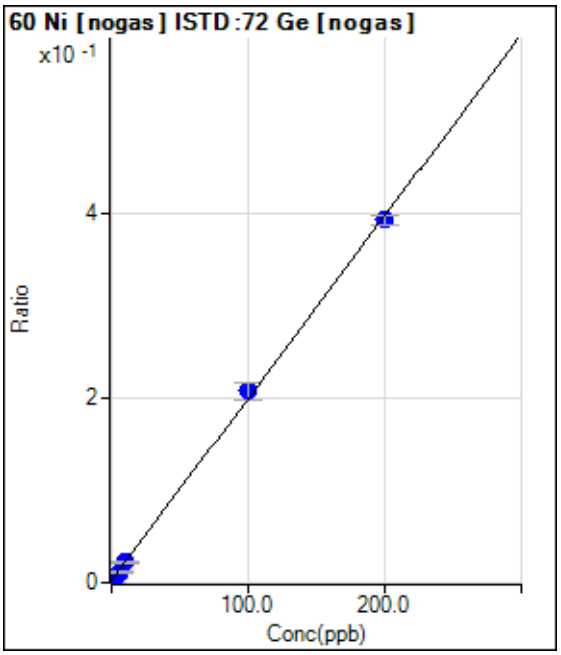



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 130.00 | 0.0012 | P | 51.9 |
| 2 | ☐ | 2.000 | 2.113 | 5667.63 | 0.0503 | P | 7.3 |
| 3 | ☐ | 5.000 | 5.041 | 13361.77 | 0.1185 | P | 3.8 |
| 4 | ☐ | 10.000 | 10.866 | 28015.07 | 0.2541 | P | 2.9 |
| 5 | ☐ | 100.000 | 97.323 | 251017.41 | 2.2664 | P | 2.7 |
| 6 | ☐ | 200.000 | 201.293 | 489277.30 | 4.6864 | P | 1.8 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0233 * x + 0.0012
R = 0.9999
DL = 0.07818
BEC = 0.05023

Weight: <None>
Min Conc: <None>

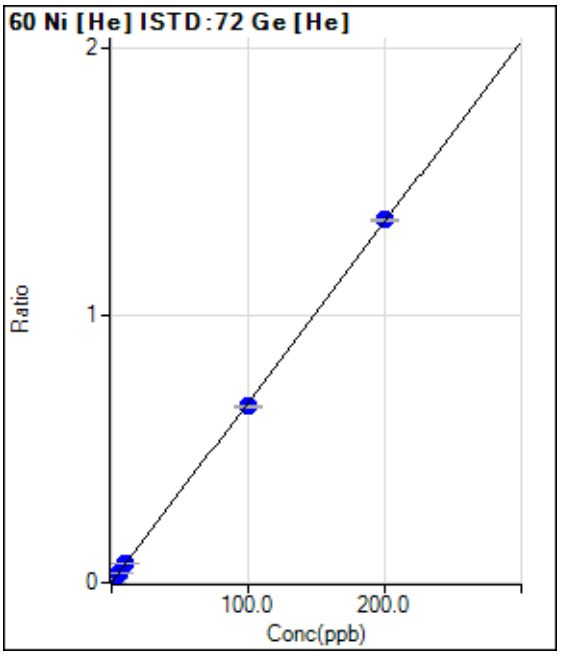
Calibration for 017_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | -0.749 | 1190.07 | 0.0009 | P | 23.0 |
| 2 | ☐ | 2.000 | 1.241 | 6434.58 | 0.0049 | P | 4.8 |
| 3 | ☐ | 5.000 | 4.557 | 14726.19 | 0.0114 | P | 6.6 |
| 4 | ☐ | 10.000 | 9.947 | 28422.70 | 0.0221 | P | 5.1 |
| 5 | ☐ | 100.000 | 103.966 | 256317.62 | 0.2079 | P | 8.6 |
| 6 | ☐ | 200.000 | 198.038 | 485293.35 | 0.3938 | P | 2.7 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0020 * x + 0.0024
R = 0.9997
DL = 0.3249
BEC = 1.219

Weight: <None>
Min Conc: <None>

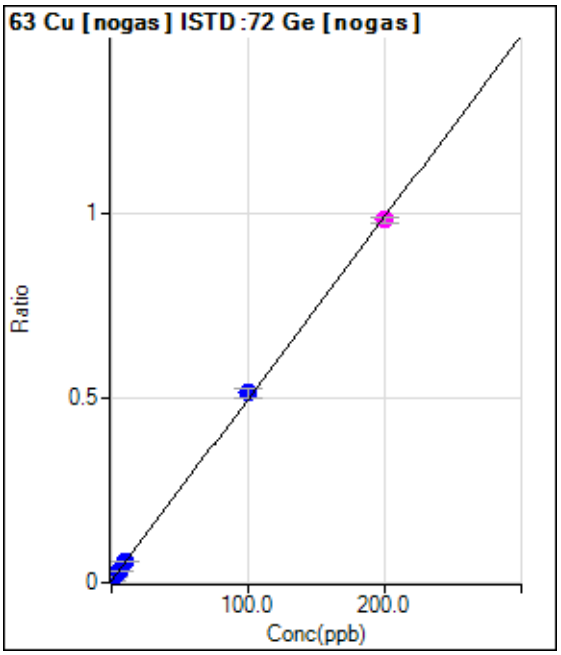



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.193 | 240.01 | 0.0022 | P | 26.5 |
| 2 | ☐ | 2.000 | 2.450 | 1956.81 | 0.0174 | P | 5.1 |
| 3 | ☐ | 5.000 | 4.911 | 3830.48 | 0.0340 | P | 7.9 |
| 4 | ☐ | 10.000 | 10.665 | 8028.54 | 0.0728 | P | 4.2 |
| 5 | ☐ | 100.000 | 97.633 | 73070.11 | 0.6597 | P | 1.8 |
| 6 | ☐ | 200.000 | 201.148 | 141817.81 | 1.3583 | P | 0.3 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0067 * x + 8.5301E-004
R = 0.9999
DL = 0.2535
BEC = 0.1264

Weight: <None>
Min Conc: <None>

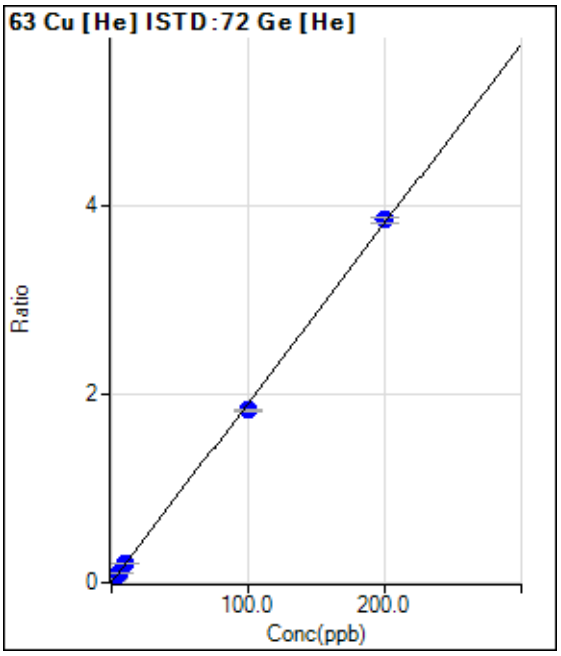
Calibration for 017_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 6908.06 | 0.0054 | P | 8.7 |
| 2 | ☐ | 2.000 | 1.907 | 19567.44 | 0.0148 | P | 2.5 |
| 3 | ☐ | 5.000 | 5.184 | 39944.08 | 0.0309 | P | 2.9 |
| 4 | ☐ | 10.000 | 10.424 | 73154.31 | 0.0568 | P | 2.6 |
| 5 | ☐ | 100.000 | 103.083 | 633972.90 | 0.5135 | P | 4.1 |
| 6 | ☐ | 200.000 | 198.434 | 1212130.03 | 0.9835 | M | 1.5 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0049 * x + 0.0054
R = 0.9998
DL = 0.2839
BEC = 1.091

Weight: <None>
Min Conc: <None>

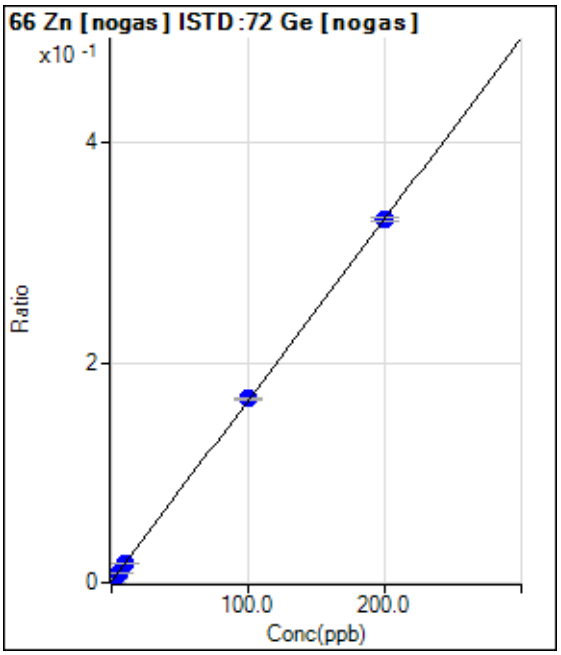



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.443 | 1346.75 | 0.0121 | P | 18.5 |
| 2 | ☐ | 2.000 | 2.432 | 5627.61 | 0.0500 | P | 3.2 |
| 3 | ☐ | 5.000 | 5.575 | 12387.76 | 0.1099 | P | 3.7 |
| 4 | ☐ | 10.000 | 10.709 | 22901.32 | 0.2077 | P | 3.9 |
| 5 | ☐ | 100.000 | 95.791 | 202551.07 | 1.8289 | P | 1.0 |
| 6 | ☐ | 200.000 | 202.050 | 402329.23 | 3.8536 | P | 1.6 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0191 * x + 0.0036
R = 0.9997
DL = 0.351
BEC = 0.1908

Weight: <None>
Min Conc: <None>

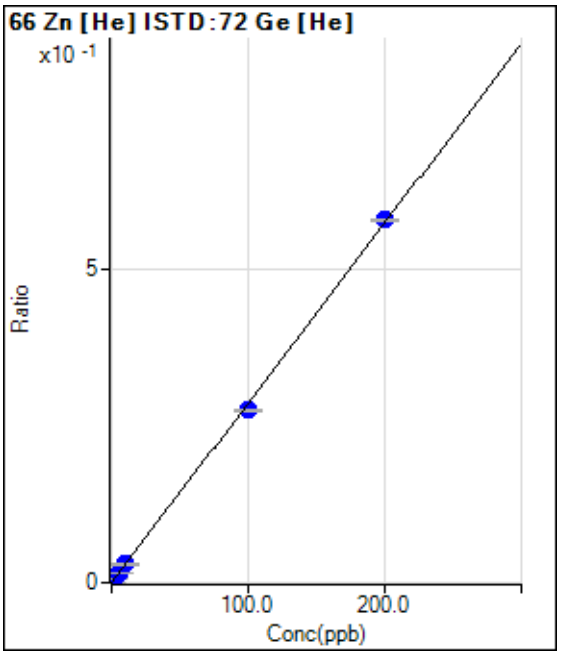
Calibration for 017_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | -0.270 | 870.05 | 0.0007 | P | 10.1 |
| 2 | ☐ | 2.000 | 1.849 | 5520.94 | 0.0042 | P | 1.6 |
| 3 | ☐ | 5.000 | 4.877 | 11814.04 | 0.0092 | P | 8.0 |
| 4 | ☐ | 10.000 | 10.190 | 23101.70 | 0.0179 | P | 1.1 |
| 5 | ☐ | 100.000 | 100.719 | 206564.39 | 0.1671 | P | 1.1 |
| 6 | ☐ | 200.000 | 199.636 | 406971.67 | 0.3301 | P | 1.2 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0016 * x + 0.0011
R = 1.0000
DL = 0.124
BEC = 0.6813

Weight: <None>
Min Conc: <None>

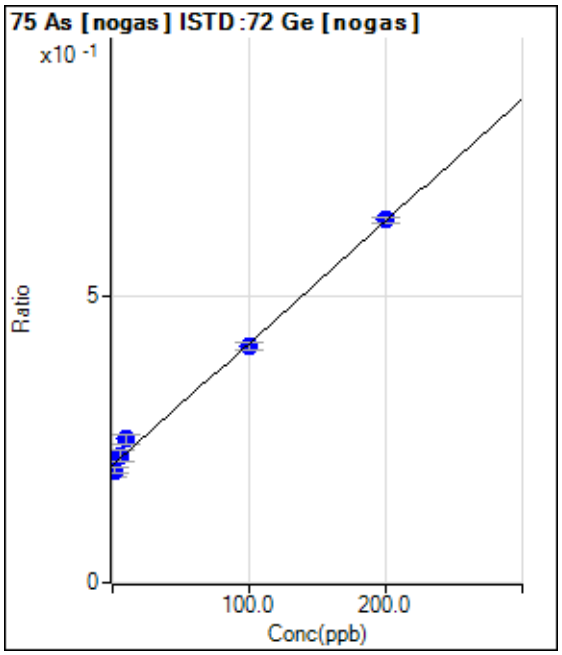



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.468 | 146.67 | 0.0013 | P | 23.4 |
| 2 | ☐ | 2.000 | 2.490 | 800.03 | 0.0071 | P | 15.6 |
| 3 | ☐ | 5.000 | 5.600 | 1803.46 | 0.0160 | P | 9.9 |
| 4 | ☐ | 10.000 | 10.516 | 3313.69 | 0.0301 | P | 10.0 |
| 5 | ☐ | 100.000 | 95.943 | 30415.73 | 0.2746 | P | 1.4 |
| 6 | ☐ | 200.000 | 201.983 | 60367.04 | 0.5782 | P | 0.4 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0029 * x - 2.9285E-005
R = 0.9997
DL = 0.321
BEC = -0.01023

Weight: <None>
Min Conc: <None>

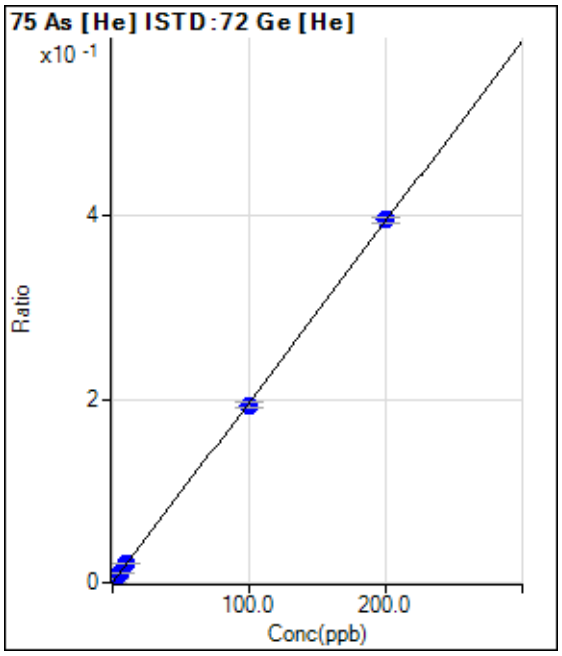
Calibration for 017_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | -5.161 | 249819.93 | 0.1945 | P | 8.4 |
| 2 | ☐ | 2.000 | -4.570 | 259262.46 | 0.1958 | P | 4.5 |
| 3 | ☐ | 5.000 | 7.483 | 285672.76 | 0.2215 | P | 8.1 |
| 4 | ☐ | 10.000 | 21.265 | 323068.78 | 0.2509 | P | 7.5 |
| 5 | ☐ | 100.000 | 97.085 | 509864.34 | 0.4128 | P | 3.1 |
| 6 | ☐ | 200.000 | 200.898 | 781936.89 | 0.6344 | P | 1.2 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0021 * x + 0.2055
R = 0.9968
DL = 22.99
BEC = 96.29

Weight: <None>
Min Conc: <None>

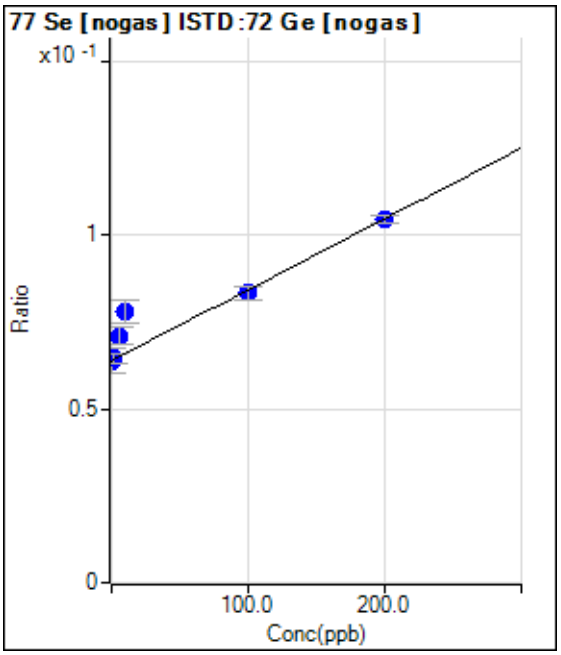



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 24.44 | 0.0002 | P | 67.1 |
| 2 | ☐ | 2.000 | 1.847 | 434.45 | 0.0039 | P | 10.5 |
| 3 | ☐ | 5.000 | 4.951 | 1123.38 | 0.0100 | P | 8.2 |
| 4 | ☐ | 10.000 | 10.493 | 2302.38 | 0.0209 | P | 3.2 |
| 5 | ☐ | 100.000 | 98.012 | 21389.30 | 0.1931 | P | 3.2 |
| 6 | ☐ | 200.000 | 200.972 | 41317.83 | 0.3957 | P | 1.8 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0020 * x + 2.1868E-004
R = 0.9999
DL = 0.2235
BEC = 0.1111

Weight: <None>
Min Conc: <None>

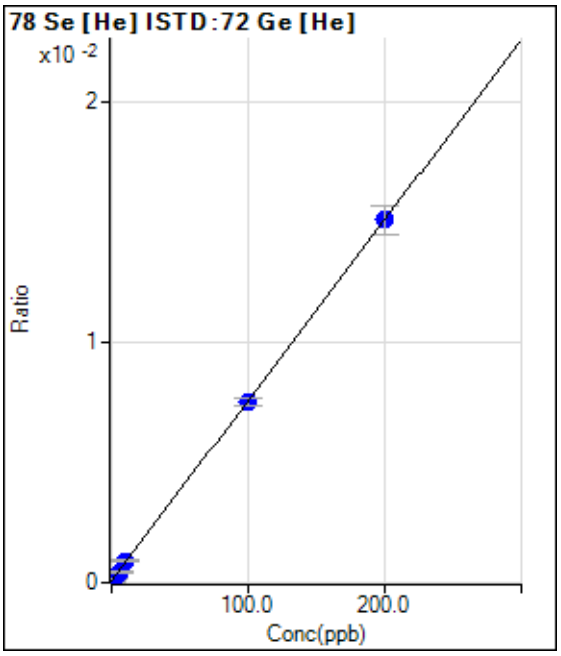
Calibration for 017_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 82051.50 | 0.0639 | P | 10.8 |
| 2 | ☐ | 2.000 | 2.961 | 85443.20 | 0.0645 | P | 4.4 |
| 3 | ☐ | 5.000 | 35.042 | 91686.35 | 0.0711 | P | 7.2 |
| 4 | ☐ | 10.000 | 68.345 | 100231.50 | 0.0779 | P | 8.5 |
| 5 | ☐ | 100.000 | 95.879 | 103120.60 | 0.0835 | P | 4.6 |
| 6 | ☐ | 200.000 | 198.383 | 128711.14 | 0.1044 | P | 2.1 |
| 7 | ☐ | 1.000 | | | | | |

y = 2.0414E-004 * x + 0.0639
R = 0.9524
DL = 101.8
BEC = 313.1

Weight: <None>
Min Conc: <None>

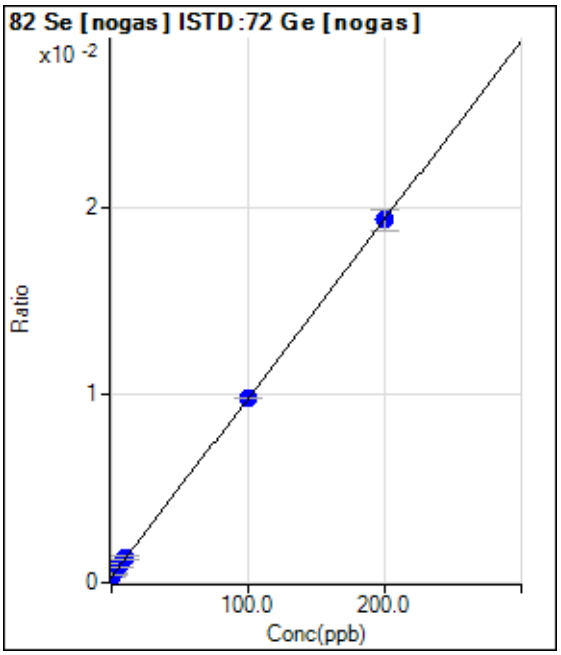



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | -0.297 | 5.33 | 0.0000 | P | 56.7 |
| 2 | ☐ | 2.000 | 1.440 | 20.00 | 0.0002 | P | 11.4 |
| 3 | ☐ | 5.000 | 4.918 | 49.33 | 0.0004 | P | 14.9 |
| 4 | ☐ | 10.000 | 11.242 | 100.67 | 0.0009 | P | 8.6 |
| 5 | ☐ | 100.000 | 99.503 | 833.36 | 0.0075 | P | 4.3 |
| 6 | ☐ | 200.000 | 200.194 | 1573.41 | 0.0151 | P | 7.8 |
| 7 | ☐ | 1.000 | | | | | |

y = 7.4923E-005 * x + 6.9893E-005
R = 1.0000
DL = 1.082
BEC = 0.9329

Weight: <None>
Min Conc: <None>

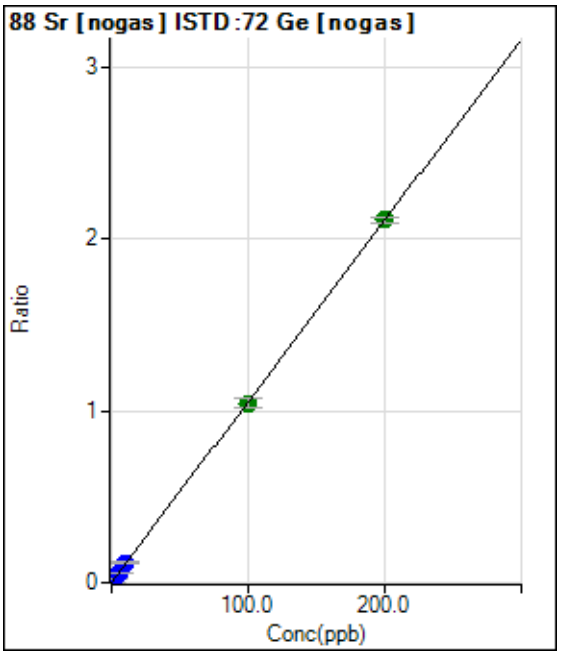
Calibration for 017_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 393.35 | 0.0003 | P | 20.9 |
| 2 | ☐ | 2.000 | 2.067 | 666.69 | 0.0005 | P | 19.1 |
| 3 | ☐ | 5.000 | 6.418 | 1183.40 | 0.0009 | P | 14.1 |
| 4 | ☐ | 10.000 | 10.700 | 1703.46 | 0.0013 | P | 15.7 |
| 5 | ☐ | 100.000 | 100.220 | 12167.65 | 0.0098 | P | 0.1 |
| 6 | ☐ | 200.000 | 199.819 | 23792.71 | 0.0193 | P | 5.9 |
| 7 | ☐ | 1.000 | | | | | |

y = 9.5136E-005 * x + 3.0688E-004
R = 1.0000
DL = 2.02
BEC = 3.226

Weight: <None>
Min Conc: <None>

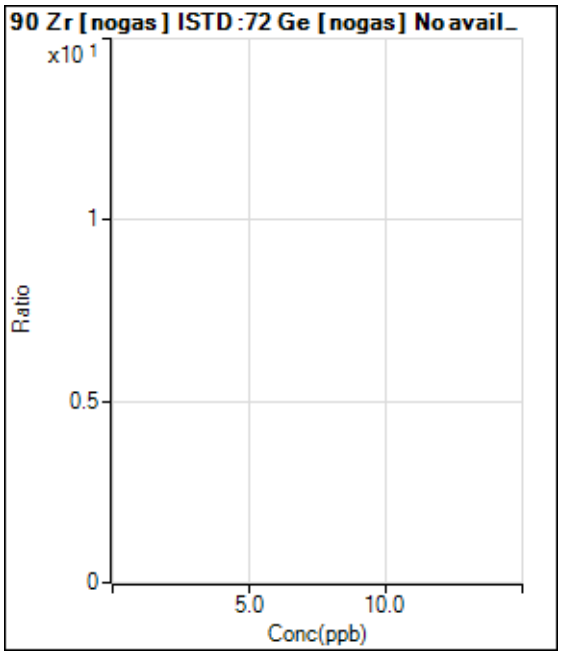



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 920.04 | 0.0007 | P | 9.2 |
| 2 | ☐ | 2.000 | 2.103 | 30236.02 | 0.0228 | P | 4.8 |
| 3 | ☐ | 5.000 | 5.453 | 74957.25 | 0.0581 | P | 5.4 |
| 4 | ☐ | 10.000 | 11.053 | 150768.98 | 0.1170 | P | 3.2 |
| 5 | ☐ | 100.000 | 99.175 | 1288471.96 | 1.0442 | A | 5.8 |
| 6 | ☐ | 200.000 | 200.348 | 2598884.33 | 2.1087 | A | 1.4 |
| 7 | ☐ | 1.000 | | | | | |

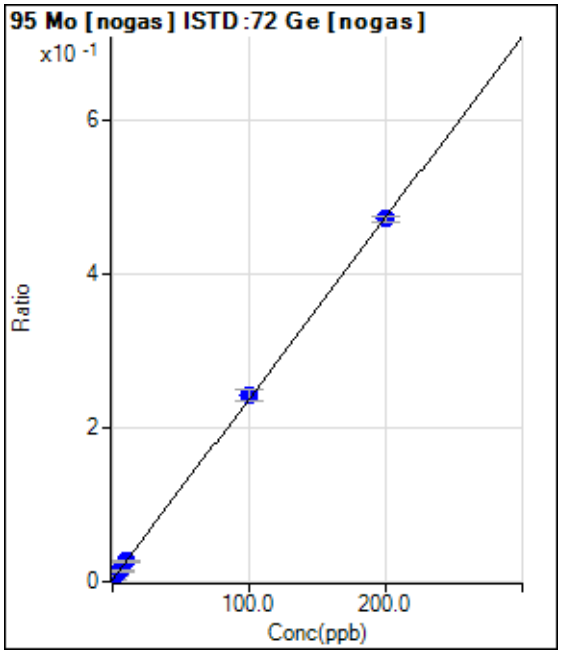
y = 0.0105 * x + 7.1386E-004
R = 1.0000
DL = 0.01871
BEC = 0.06785

Weight: <None>
Min Conc: <None>

Calibration for 017_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | | | | | |
| 2 | ☐ | 2.000 | | | | | |
| 3 | ☐ | 5.000 | | | | | |
| 4 | ☐ | 10.000 | | | | | |
| 5 | ☐ | 100.000 | | | | | |
| 6 | ☐ | 200.000 | | | | | |
| 7 | ☐ | 1.000 | | | | | |

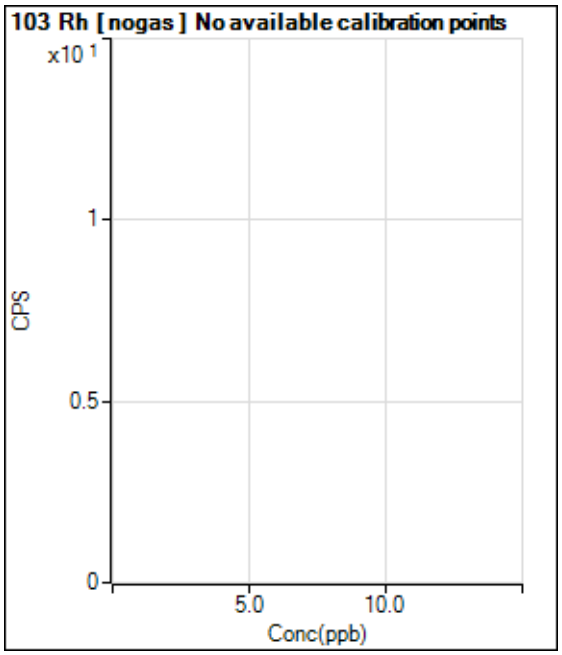



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 3413.73 | 0.0027 | P | 9.5 |
| 2 | ☐ | 2.000 | 1.746 | 8952.40 | 0.0068 | P | 1.8 |
| 3 | ☐ | 5.000 | 4.939 | 18403.19 | 0.0143 | P | 9.4 |
| 4 | ☐ | 10.000 | 10.132 | 34130.05 | 0.0265 | P | 4.1 |
| 5 | ☐ | 100.000 | 101.456 | 297804.88 | 0.2414 | P | 6.0 |
| 6 | ☐ | 200.000 | 199.269 | 581128.62 | 0.4715 | P | 1.5 |
| 7 | ☐ | 1.000 | | | | | |

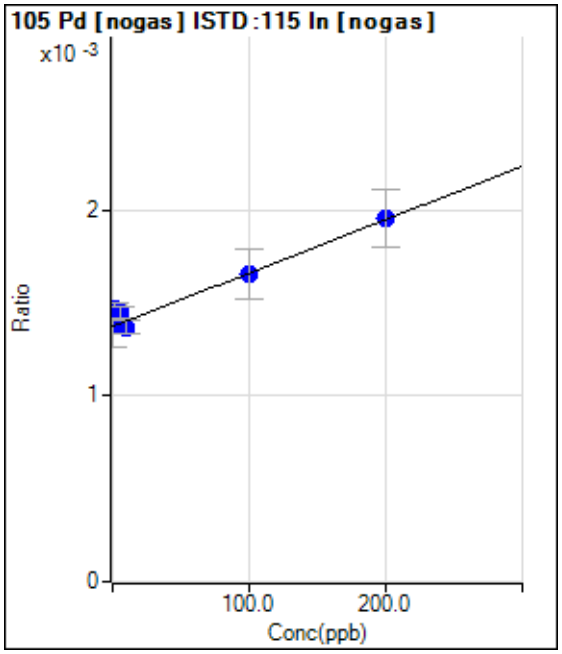
y = 0.0024 * x + 0.0027
R = 1.0000
DL = 0.3202
BEC = 1.127

Weight: <None>
Min Conc: <None>

Calibration for 017_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | | | 86.67 | | P | 35.3 |
| 2 | ☐ | | | 103.33 | | P | 5.6 |
| 3 | ☐ | | | 120.00 | | P | 33.3 |
| 4 | ☐ | | | 76.67 | | P | 61.6 |
| 5 | ☐ | | | 216.67 | | P | 22.8 |
| 6 | ☐ | | | 200.00 | | P | 39.7 |
| 7 | ☐ | | | | | | |

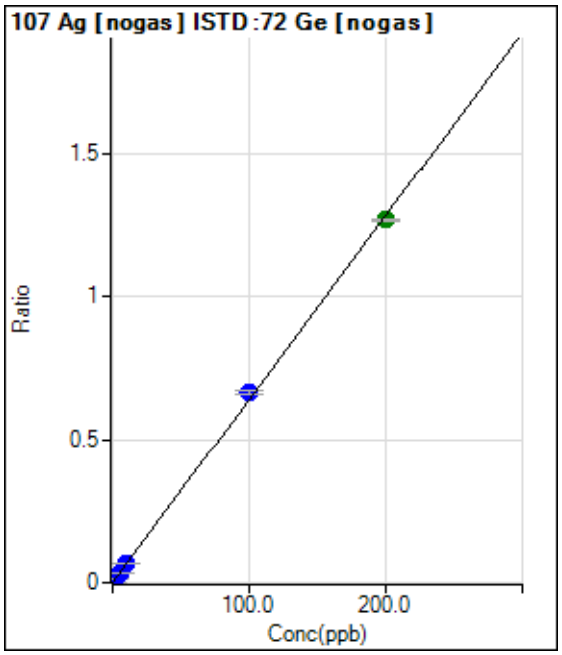



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1843.47 | 0.0014 | P | 16.5 |
| 2 | ☐ | 2.000 | 33.670 | 1943.48 | 0.0015 | P | 3.5 |
| 3 | ☐ | 5.000 | 26.807 | 1876.80 | 0.0014 | P | 4.5 |
| 4 | ☐ | 10.000 | -1.453 | 1833.46 | 0.0014 | P | 5.8 |
| 5 | ☐ | 100.000 | 97.006 | 2116.84 | 0.0017 | P | 16.2 |
| 6 | ☐ | 200.000 | 201.208 | 2396.88 | 0.0020 | P | 15.9 |
| 7 | ☐ | 1.000 | | | | | |

y = 2.8741E-006 * x + 0.0014
R = 0.9799
DL = 236
BEC = 477.7

Weight: <None>
Min Conc: <None>

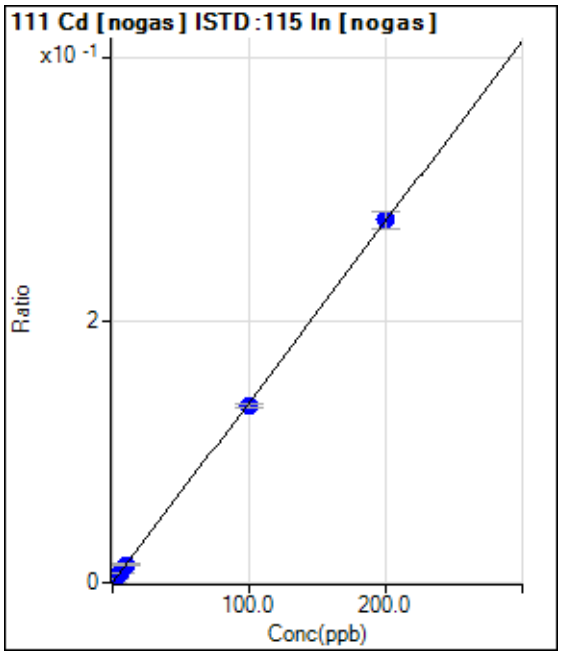
Calibration for 017_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 260.01 | 0.0002 | P | 18.4 |
| 2 | ☐ | 2.000 | 1.991 | 17138.66 | 0.0129 | P | 5.9 |
| 3 | ☐ | 5.000 | 5.298 | 44042.57 | 0.0341 | P | 4.2 |
| 4 | ☐ | 10.000 | 10.504 | 86888.41 | 0.0674 | P | 3.5 |
| 5 | ☐ | 100.000 | 104.072 | 823284.57 | 0.6663 | P | 1.9 |
| 6 | ☐ | 200.000 | 197.931 | 1561977.63 | 1.2670 | A | 0.6 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0064 * x + 2.0286E-004
R = 0.9997
DL = 0.01749
BEC = 0.03169

Weight: <None>
Min Conc: <None>

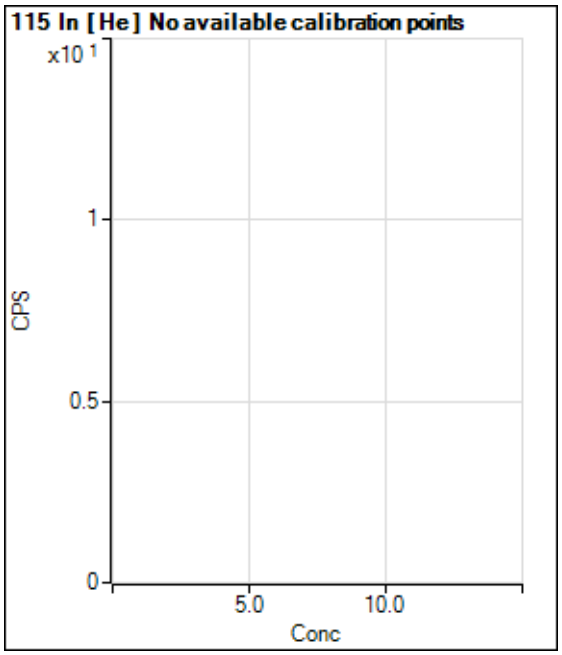



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 13.33 | 0.0000 | P | 113. |
| 2 | ☐ | 2.000 | 1.890 | 3447.07 | 0.0026 | P | 10.1 |
| 3 | ☐ | 5.000 | 5.094 | 9085.84 | 0.0070 | P | 2.5 |
| 4 | ☐ | 10.000 | 9.974 | 18403.23 | 0.0137 | P | 3.8 |
| 5 | ☐ | 100.000 | 98.131 | 173207.40 | 0.1351 | P | 1.8 |
| 6 | ☐ | 200.000 | 200.934 | 340995.31 | 0.2766 | P | 5.0 |
| 7 | ☐ | 1.000 | | | | | |

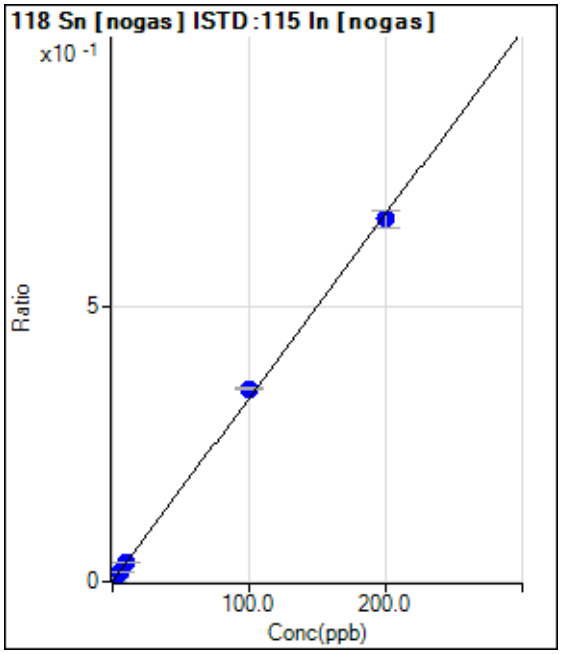
y = 0.0014 * x + 9.7853E-006
R = 0.9999
DL = 0.02418
BEC = 0.007109

Weight: <None>
Min Conc: <None>

Calibration for 017_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | | | 136008.28 | | P | 1.8 |
| 2 | ☐ | | | 132248.41 | | P | 1.1 |
| 3 | ☐ | | | 139097.93 | | P | 0.4 |
| 4 | ☐ | | | 132894.72 | | P | 3.4 |
| 5 | ☐ | | | 129768.07 | | P | 2.5 |
| 6 | ☐ | | | 126546.91 | | P | 1.4 |
| 7 | ☐ | | | | | | |

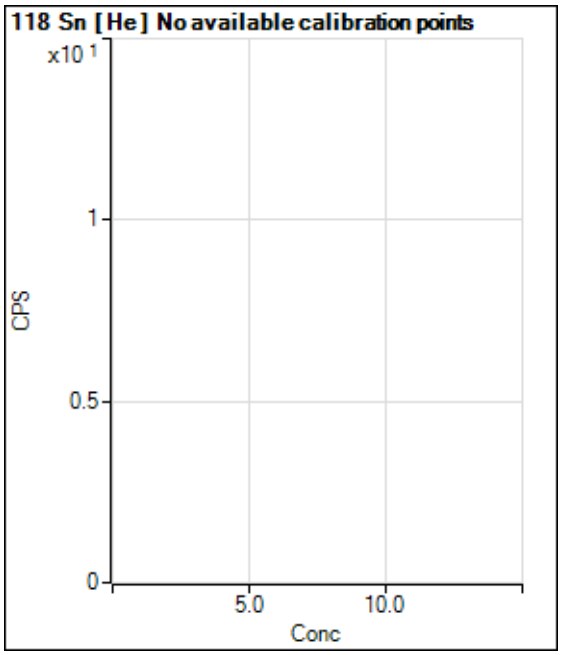



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 646.69 | 0.0005 | P | 14.8 |
| 2 | ☐ | 2.000 | 1.918 | 9129.19 | 0.0069 | P | 4.7 |
| 3 | ☐ | 5.000 | 5.069 | 22561.54 | 0.0174 | P | 2.5 |
| 4 | ☐ | 10.000 | 10.069 | 45773.81 | 0.0342 | P | 1.6 |
| 5 | ☐ | 100.000 | 104.960 | 450922.65 | 0.3516 | P | 0.7 |
| 6 | ☐ | 200.000 | 197.516 | 815513.27 | 0.6613 | P | 4.5 |
| 7 | ☐ | 1.000 | | | | | |

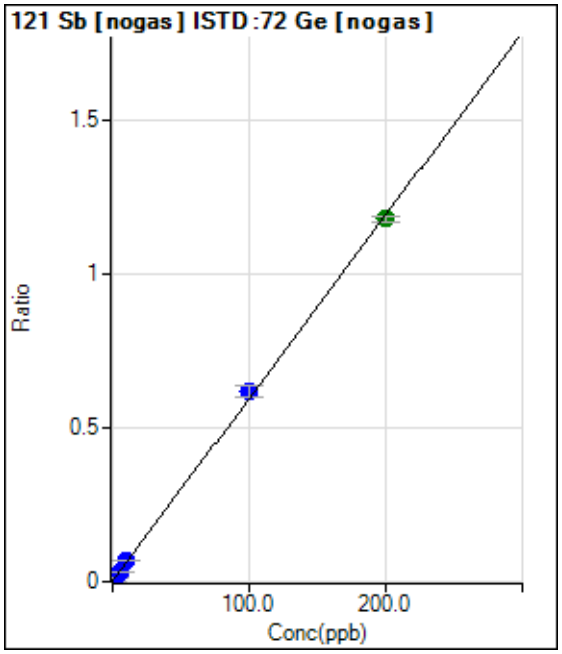
y = 0.0033 * x + 4.8107E-004
R = 0.9996
DL = 0.06405
BEC = 0.1438

Weight: <None>
Min Conc: <None>

Calibration for 017_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | | | 46.67 | | P | 12.4 |
| 2 | ☐ | | | 1046.72 | | P | 5.5 |
| 3 | ☐ | | | 3143.67 | | P | 7.5 |
| 4 | ☐ | | | 6044.52 | | P | 4.1 |
| 5 | ☐ | | | 58856.24 | | P | 0.5 |
| 6 | ☐ | | | 107633.74 | | P | 2.3 |
| 7 | ☐ | | | | | | |

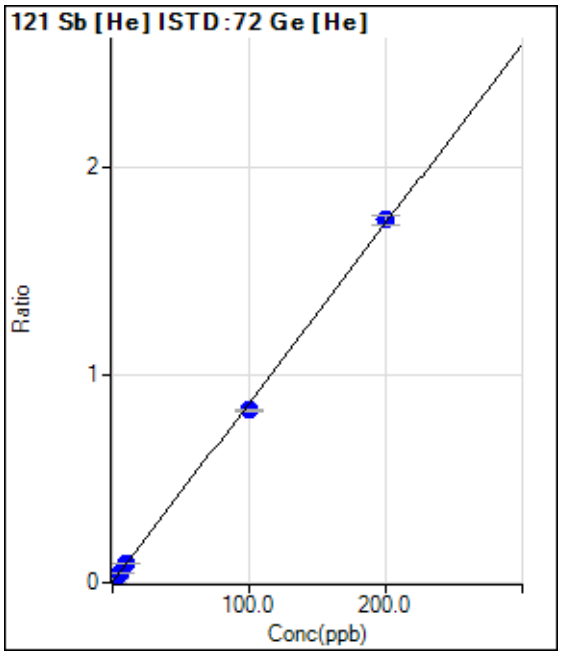



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1830.14 | 0.0014 | P | 8.8 |
| 2 | ☐ | 2.000 | 2.029 | 17859.50 | 0.0135 | P | 1.7 |
| 3 | ☐ | 5.000 | 5.205 | 41817.07 | 0.0324 | P | 3.1 |
| 4 | ☐ | 10.000 | 11.043 | 86473.73 | 0.0671 | P | 3.4 |
| 5 | ☐ | 100.000 | 103.695 | 762858.40 | 0.6182 | P | 6.1 |
| 6 | ☐ | 200.000 | 198.095 | 1453932.90 | 1.1797 | A | 1.9 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0059 * x + 0.0014
R = 0.9998
DL = 0.06299
BEC = 0.2391

Weight: <None>
Min Conc: <None>

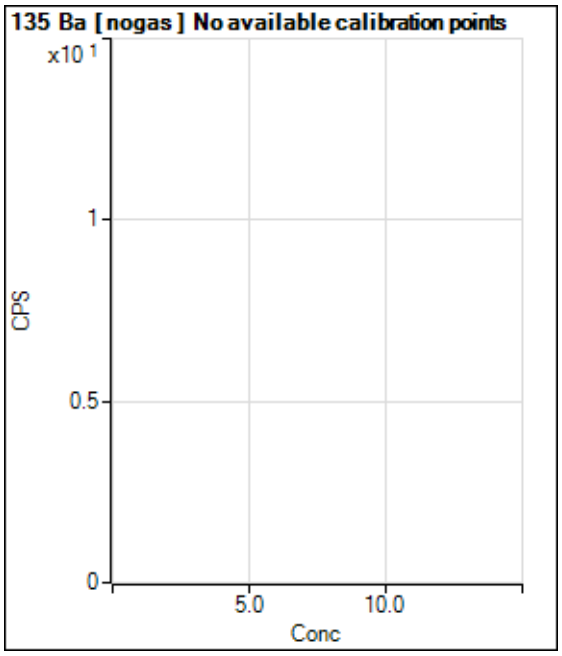
Calibration for 017_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 236.67 | 0.0021 | P | 46.6 |
| 2 | ☐ | 2.000 | 1.906 | 2096.83 | 0.0186 | P | 14.9 |
| 3 | ☐ | 5.000 | 4.810 | 4930.80 | 0.0437 | P | 4.3 |
| 4 | ☐ | 10.000 | 10.336 | 10079.78 | 0.0914 | P | 3.9 |
| 5 | ☐ | 100.000 | 95.904 | 92016.26 | 0.8308 | P | 1.3 |
| 6 | ☐ | 200.000 | 202.037 | 182491.77 | 1.7479 | P | 2.4 |
| 7 | ☐ | 1.000 | | | | | |

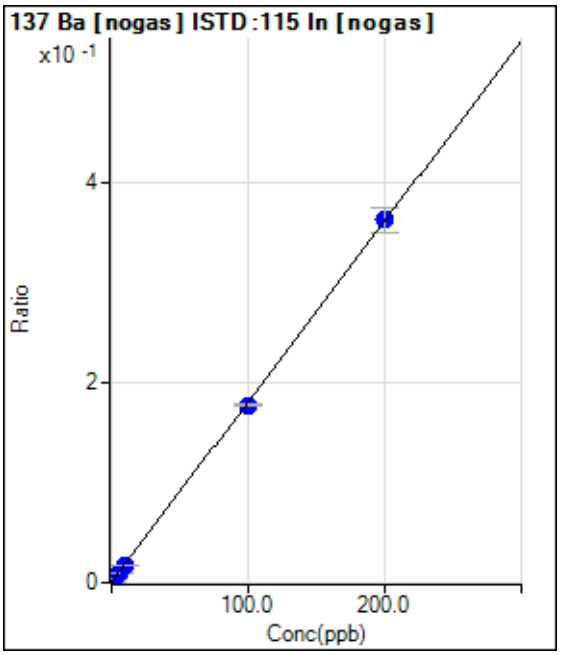
y = 0.0086 * x + 0.0021
R = 0.9997
DL = 0.3435
BEC = 0.2455

Weight: <None>
Min Conc: <None>




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | | | 246.67 | | P | 27.6 |
| 2 | ☐ | | | 2866.95 | | P | 6.6 |
| 3 | ☐ | | | 7081.56 | | P | 6.2 |
| 4 | ☐ | | | 14589.74 | | P | 3.0 |
| 5 | ☐ | | | 130117.60 | | P | 1.8 |
| 6 | ☐ | | | 251165.86 | | P | 1.7 |
| 7 | ☐ | | | | | | |

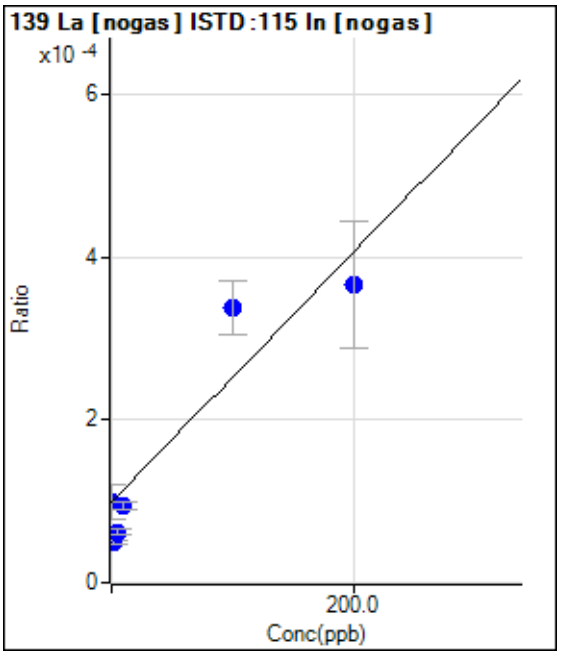
Calibration for 017_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 450.02 | 0.0003 | P | 23.0 |
| 2 | ☐ | 2.000 | 2.086 | 5420.96 | 0.0041 | P | 3.3 |
| 3 | ☐ | 5.000 | 5.380 | 13005.16 | 0.0100 | P | 5.0 |
| 4 | ☐ | 10.000 | 9.722 | 23970.43 | 0.0179 | P | 3.9 |
| 5 | ☐ | 100.000 | 98.353 | 228187.07 | 0.1780 | P | 0.6 |
| 6 | ☐ | 200.000 | 200.827 | 447361.67 | 0.3630 | P | 6.8 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0018 * x + 3.3377E-004
R = 0.9999
DL = 0.1275
BEC = 0.1848

Weight: <None>
Min Conc: <None>

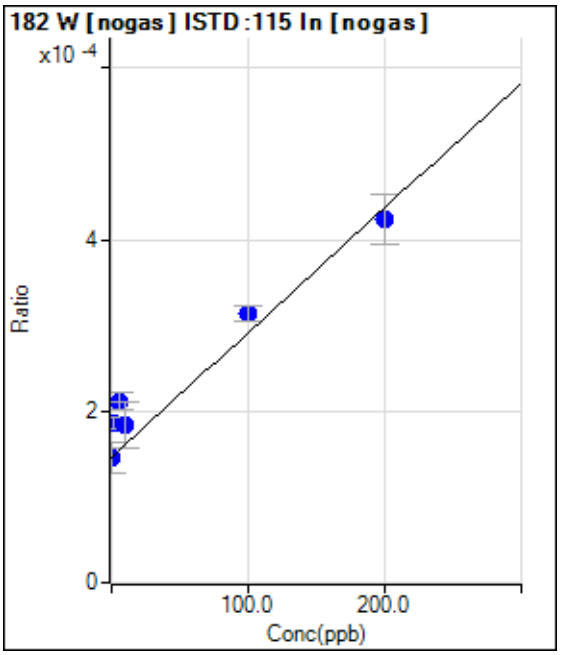



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 133.33 | 0.0001 | P | 41.8 |
| 2 | ☐ | 2.000 | -31.763 | 66.67 | 0.0001 | P | 8.1 |
| 3 | ☐ | 5.000 | -24.350 | 80.00 | 0.0001 | P | 11.8 |
| 4 | ☐ | 10.000 | -3.129 | 126.67 | 0.0001 | P | 9.8 |
| 5 | ☐ | 100.000 | 155.512 | 433.35 | 0.0003 | P | 19.6 |
| 6 | ☐ | 200.000 | 173.972 | 446.68 | 0.0004 | P | 42.6 |
| 7 | ☐ | 100.000 | | | | | |

y = 1.5363E-006 * x + 9.9207E-005
R = 0.9366
DL = 80.99
BEC = 64.57

Weight: <None>
Min Conc: <None>

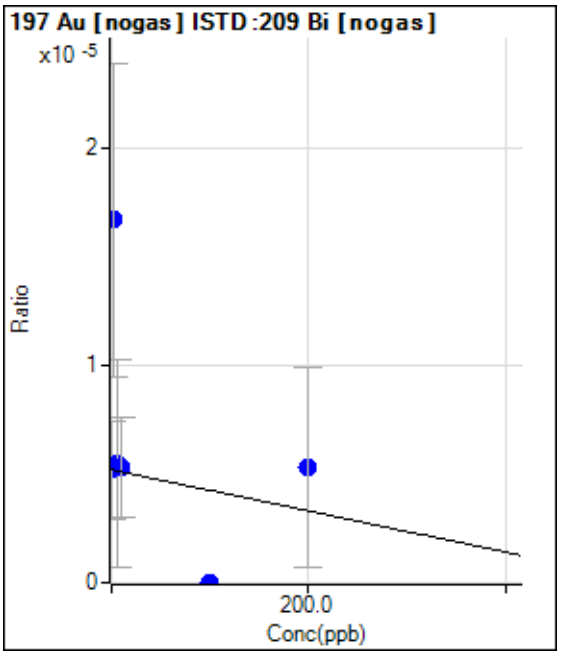
Calibration for 017_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 196.67 | 0.0001 | P | 24.6 |
| 2 | ☐ | 2.000 | 27.406 | 246.68 | 0.0002 | P | 6.3 |
| 3 | ☐ | 5.000 | 44.400 | 273.34 | 0.0002 | P | 9.5 |
| 4 | ☐ | 10.000 | 25.519 | 246.67 | 0.0002 | P | 29.1 |
| 5 | ☐ | 100.000 | 115.580 | 403.34 | 0.0003 | P | 5.5 |
| 6 | ☐ | 200.000 | 190.195 | 520.02 | 0.0004 | P | 14.0 |
| 7 | ☐ | 1.000 | | | | | |

y = 1.4538E-006 * x + 1.4655E-004
R = 0.9820
DL = 74.41
BEC = 100.8

Weight: <None>
Min Conc: <None>

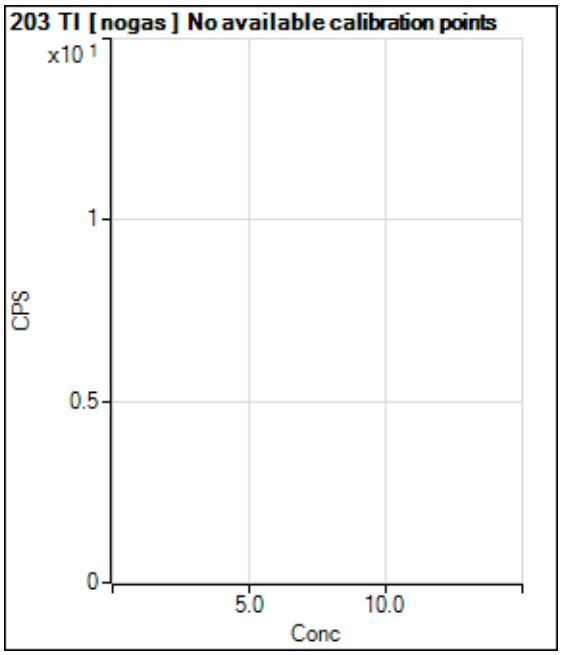



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 6.67 | 0.0000 | P | 86.7 |
| 2 | ☐ | 2.000 | -1215.867 | 20.00 | 0.0000 | P | 86.6 |
| 3 | ☐ | 5.000 | -32.520 | 6.67 | 0.0000 | P | 173. |
| 4 | ☐ | 10.000 | -10.986 | 6.67 | 0.0000 | P | 86.6 |
| 5 | ☐ | 100.000 | 549.300 | 0.00 | 0.0000 | P | |
| 6 | ☐ | 200.000 | -10.484 | 6.67 | 0.0000 | P | 173. |
| 7 | ☐ | 100.000 | | | | | |

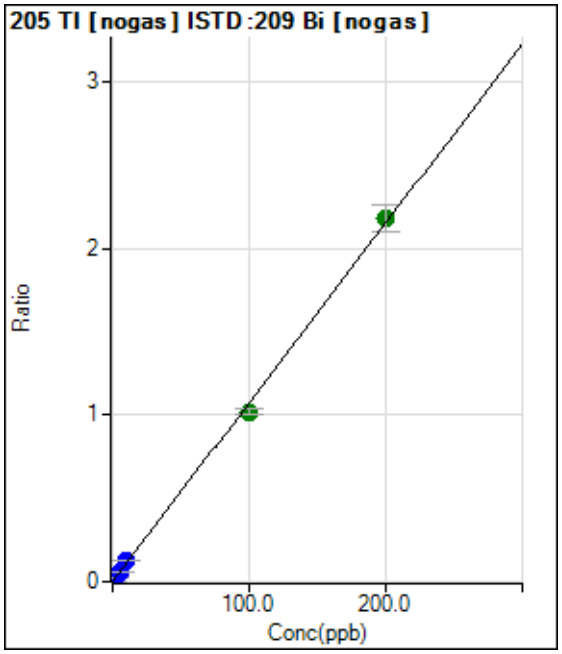
y = -9.4613E-009 * x + 5.1971E-006
R = -0.3708
DL = -1428
BEC = -549.3

Weight: <None>
Min Conc: <None>

Calibration for 017_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | | | 56.67 | | P | 10.2 |
| 2 | ☐ | | | 12451.63 | | P | 5.0 |
| 3 | ☐ | | | 31514.07 | | P | 2.1 |
| 4 | ☐ | | | 62523.74 | | P | 2.0 |
| 5 | ☐ | | | 600101.91 | | P | 1.9 |
| 6 | ☐ | | | 1177923.03 | | P | 3.8 |
| 7 | ☐ | | | | | | |

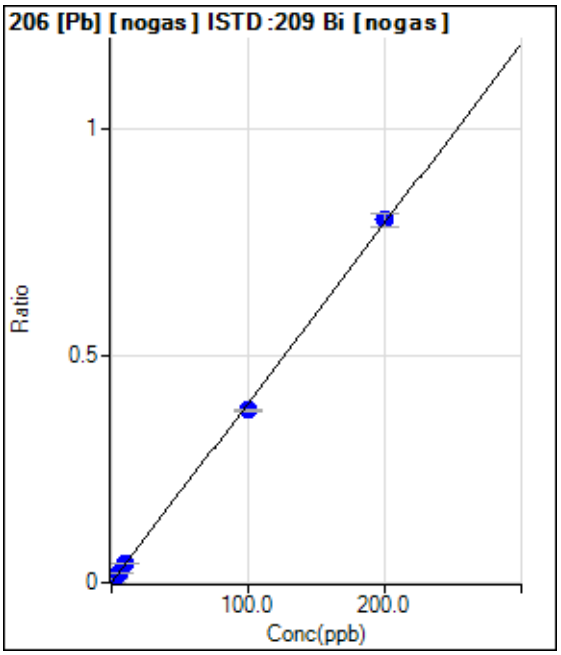



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 100.00 | 0.0001 | P | 40.4 |
| 2 | ☐ | 2.000 | 2.276 | 30145.00 | 0.0246 | P | 3.9 |
| 3 | ☐ | 5.000 | 5.527 | 74735.05 | 0.0596 | P | 2.9 |
| 4 | ☐ | 10.000 | 11.394 | 153132.50 | 0.1227 | P | 0.8 |
| 5 | ☐ | 100.000 | 94.833 | 1334186.72 | 1.0210 | A | 3.9 |
| 6 | ☐ | 200.000 | 202.498 | 2678813.14 | 2.1801 | A | 7.3 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0108 * x + 7.8075E-005
R = 0.9995
DL = 0.008787
BEC = 0.007252

Weight: <None>
Min Conc: <None>

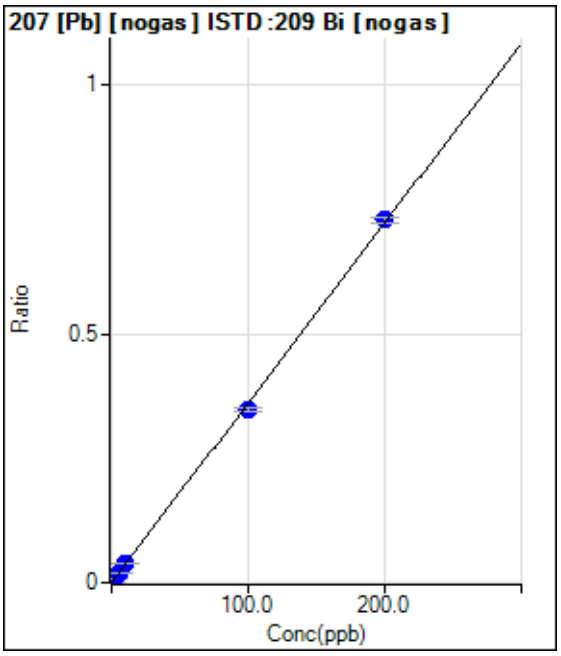
Calibration for 017_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 136.67 | 0.0001 | P | 39.8 |
| 2 | ☐ | 2.000 | 2.239 | 10993.93 | 0.0090 | P | 6.4 |
| 3 | ☐ | 5.000 | 5.238 | 26128.06 | 0.0208 | P | 5.6 |
| 4 | ☐ | 10.000 | 10.982 | 54367.88 | 0.0436 | P | 2.5 |
| 5 | ☐ | 100.000 | 95.954 | 496741.81 | 0.3800 | P | 0.6 |
| 6 | ☐ | 200.000 | 201.966 | 983182.67 | 0.7996 | P | 3.4 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0040 * x + 1.0592E-004
R = 0.9997
DL = 0.03193
BEC = 0.02676

Weight: <None>
Min Conc: <None>

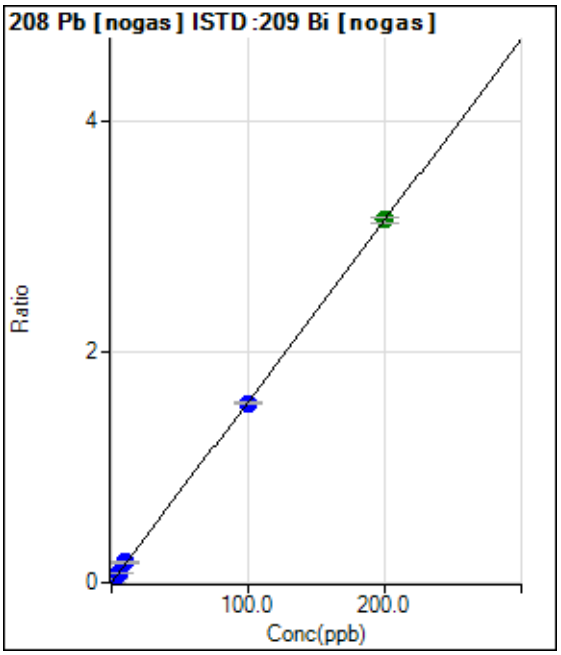



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 100.00 | 0.0001 | P | 10.9 |
| 2 | ☐ | 2.000 | 2.245 | 10036.59 | 0.0082 | P | 6.8 |
| 3 | ☐ | 5.000 | 5.292 | 24084.77 | 0.0192 | P | 3.4 |
| 4 | ☐ | 10.000 | 10.929 | 49372.23 | 0.0396 | P | 3.1 |
| 5 | ☐ | 100.000 | 96.144 | 454378.33 | 0.3475 | P | 1.9 |
| 6 | ☐ | 200.000 | 201.872 | 897512.17 | 0.7296 | P | 1.3 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0036 * x + 7.7942E-005
R = 0.9997
DL = 0.007037
BEC = 0.02157

Weight: <None>
Min Conc: <None>

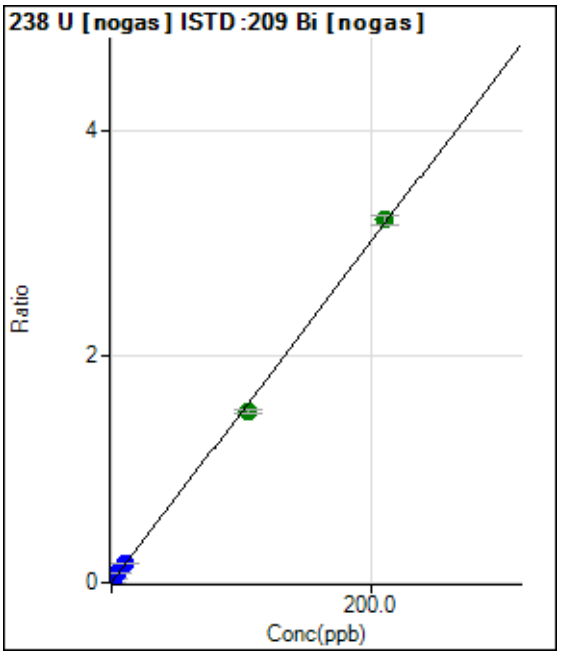
Calibration for 017_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 430.01 | 0.0003 | P | 14.5 |
| 2 | ☐ | 2.000 | 2.248 | 43683.23 | 0.0357 | P | 7.9 |
| 3 | ☐ | 5.000 | 5.443 | 107718.50 | 0.0859 | P | 2.5 |
| 4 | ☐ | 10.000 | 11.152 | 219001.77 | 0.1756 | P | 1.9 |
| 5 | ☐ | 100.000 | 99.250 | 2039337.99 | 1.5598 | P | 1.8 |
| 6 | ☐ | 200.000 | 200.304 | 3871309.81 | 3.1476 | A | 1.8 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0157 * x + 3.3433E-004
R = 1.0000
DL = 0.009236
BEC = 0.02128

Weight: <None>
Min Conc: <None>

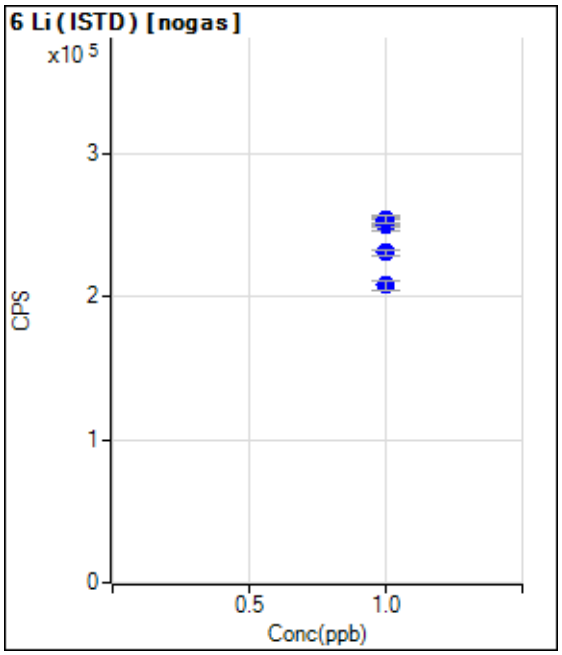



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 453.35 | 0.0004 | P | 22.4 |
| 2 | ☐ | 2.000 | 2.284 | 42768.36 | 0.0349 | P | 6.9 |
| 3 | ☐ | 5.000 | 5.718 | 108871.99 | 0.0868 | P | 3.7 |
| 4 | ☐ | 10.000 | 11.529 | 217928.49 | 0.1747 | P | 1.1 |
| 5 | ☐ | 105.000 | 100.197 | 1981258.56 | 1.5154 | A | 2.1 |
| 6 | ☐ | 210.000 | 212.309 | 3949509.42 | 3.2107 | A | 2.9 |
| 7 | ☐ | 1.000 | | | | | |

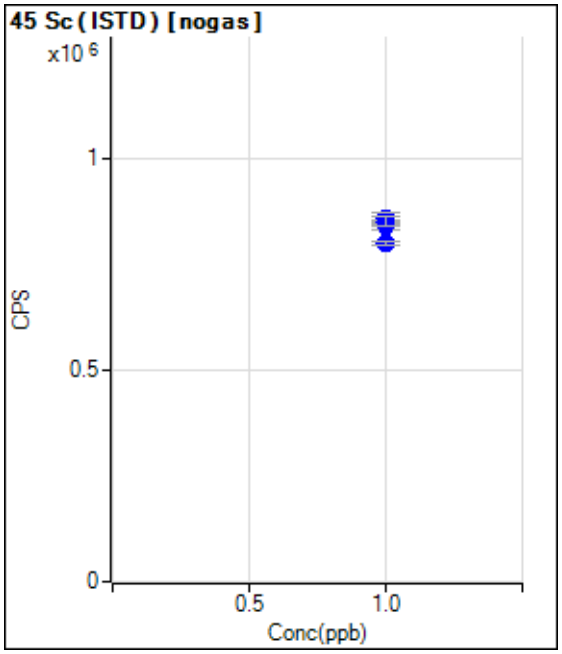
y = 0.0151 * x + 3.5223E-004
R = 0.9996
DL = 0.01569
BEC = 0.02329

Weight: <None>
Min Conc: <None>

Calibration for 017_ICV.d

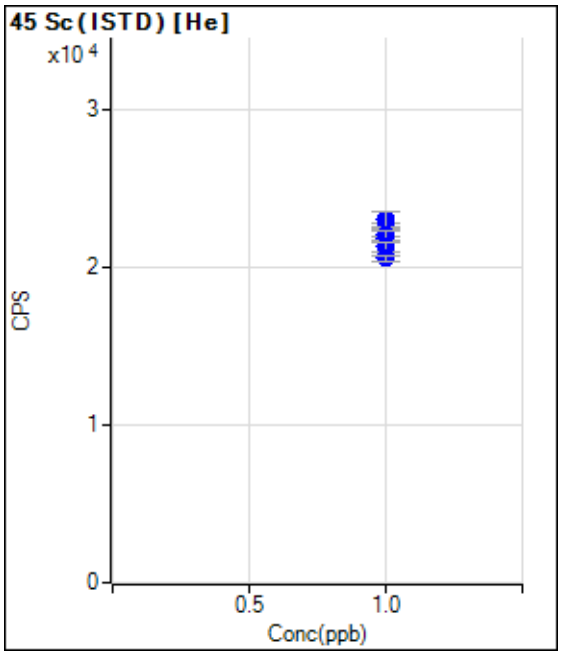



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 252377.07 | | P | 1.7 |
| 2 | ☐ | 1.000 | | 250322.05 | | P | 3.5 |
| 3 | ☐ | 1.000 | | 251495.13 | | P | 2.8 |
| 4 | ☐ | 1.000 | | 253626.74 | | P | 2.2 |
| 5 | ☐ | 1.000 | | 230580.63 | | P | 2.2 |
| 6 | ☐ | 1.000 | | 207781.70 | | P | 3.5 |
| 7 | ☐ | 1.000 | | | | | |

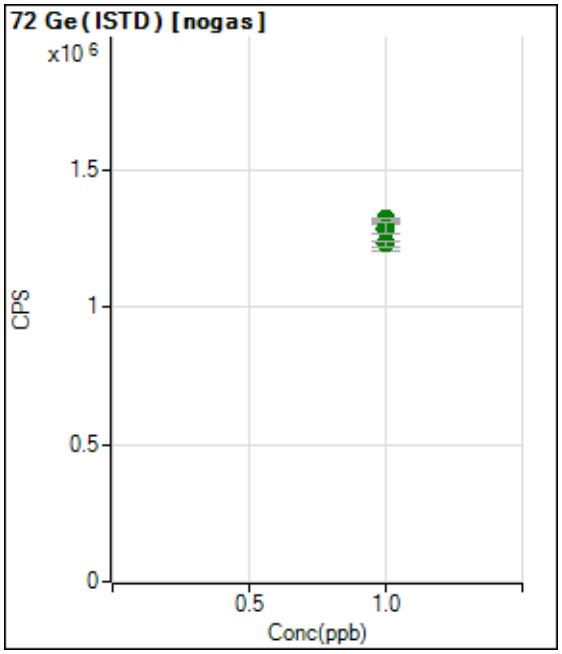



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 845172.44 | | P | 2.8 |
| 2 | ☐ | 1.000 | | 840397.85 | | P | 1.5 |
| 3 | ☐ | 1.000 | | 847760.43 | | P | 1.3 |
| 4 | ☐ | 1.000 | | 858897.51 | | P | 3.1 |
| 5 | ☐ | 1.000 | | 853479.70 | | P | 2.5 |
| 6 | ☐ | 1.000 | | 802134.23 | | P | 0.8 |
| 7 | ☐ | 1.000 | | | | | |

Calibration for 017_ICV.d

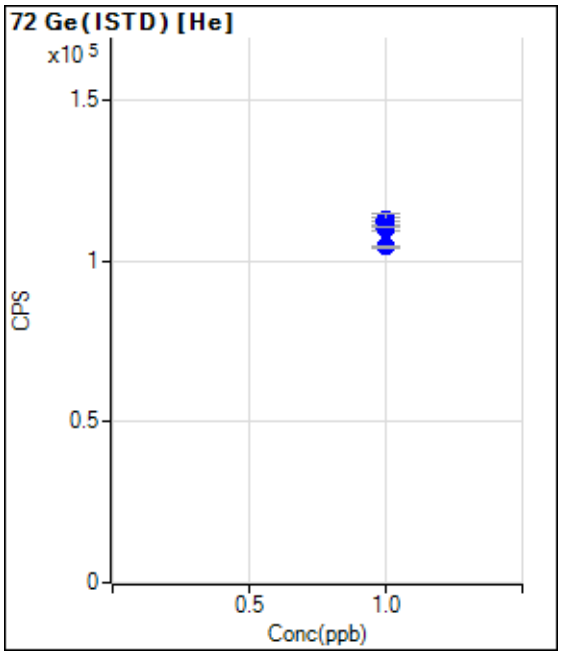



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 22647.42 | | P | 1.9 |
| 2 | ☐ | 1.000 | | 23041.33 | | P | 4.2 |
| 3 | ☐ | 1.000 | | 21883.19 | | P | 1.3 |
| 4 | ☐ | 1.000 | | 22070.10 | | P | 2.7 |
| 5 | ☐ | 1.000 | | 21319.33 | | P | 3.0 |
| 6 | ☐ | 1.000 | | 20618.49 | | P | 1.8 |
| 7 | ☐ | 1.000 | | | | | |

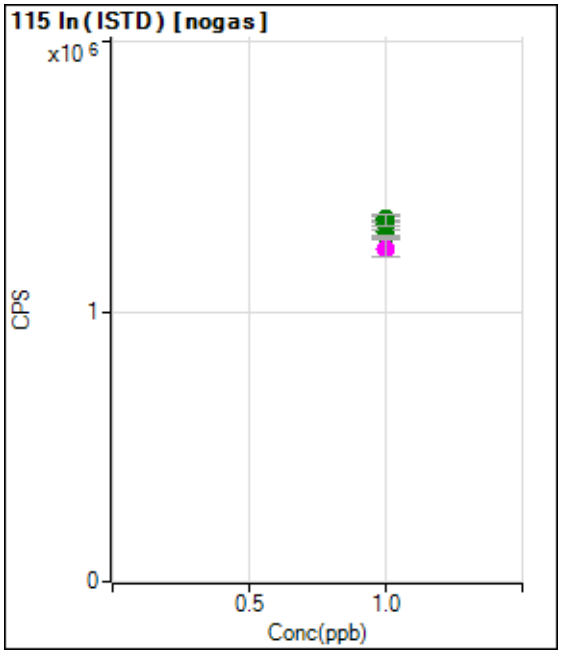



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 1286444.67 | | A | 3.0 |
| 2 | ☐ | 1.000 | | 1323967.43 | | A | 0.8 |
| 3 | ☐ | 1.000 | | 1292185.71 | | M | 3.7 |
| 4 | ☐ | 1.000 | | 1289445.53 | | A | 3.2 |
| 5 | ☐ | 1.000 | | 1236355.87 | | A | 5.0 |
| 6 | ☐ | 1.000 | | 1232715.95 | | A | 2.1 |
| 7 | ☐ | 1.000 | | | | | |

Calibration for 017_ICV.d

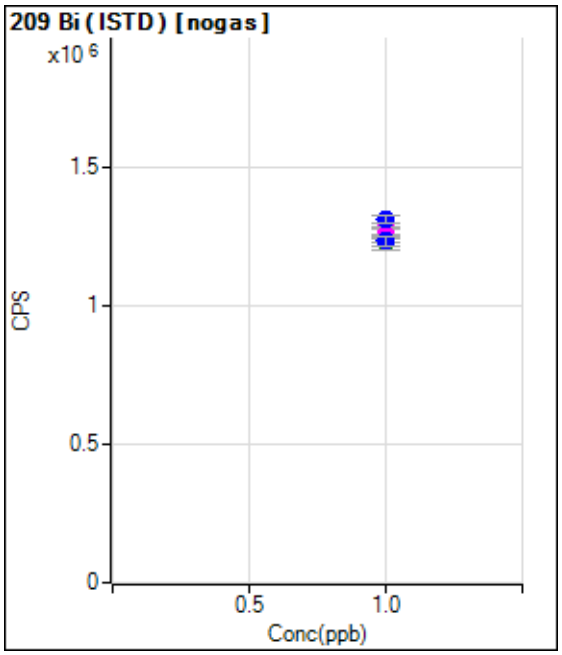



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 111776.72 | | P | 1.5 |
| 2 | ☐ | 1.000 | | 112618.20 | | P | 2.0 |
| 3 | ☐ | 1.000 | | 112844.67 | | P | 3.0 |
| 4 | ☐ | 1.000 | | 110294.04 | | P | 1.9 |
| 5 | ☐ | 1.000 | | 110753.83 | | P | 0.2 |
| 6 | ☐ | 1.000 | | 104406.13 | | P | 0.2 |
| 7 | ☐ | 1.000 | | | | | |




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 1344416.55 | | A | 1.9 |
| 2 | ☐ | 1.000 | | 1322321.60 | | A | 2.2 |
| 3 | ☐ | 1.000 | | 1293947.82 | | A | 1.4 |
| 4 | ☐ | 1.000 | | 1339916.99 | | A | 3.2 |
| 5 | ☐ | 1.000 | | 1282328.63 | | A | 0.5 |
| 6 | ☐ | 1.000 | | 1234982.38 | | M | 5.1 |
| 7 | ☐ | 1.000 | | | | | |

Calibration for 017_ICV.d



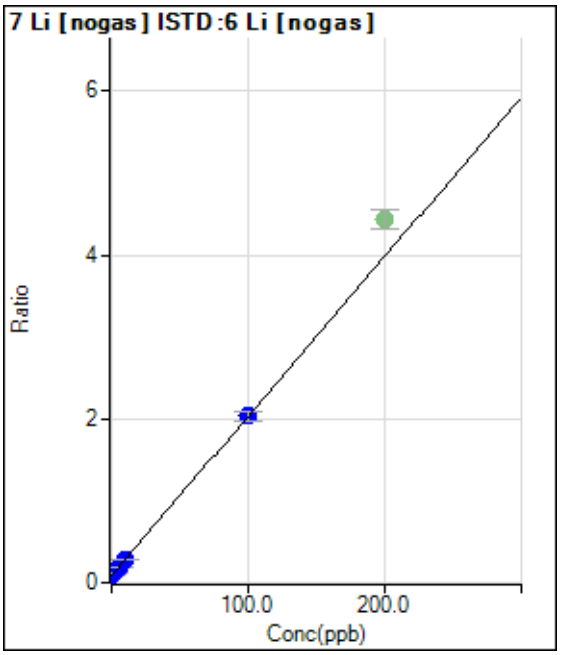

| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 1284048.11 | | M | 1.9 |
| 2 | ☐ | 1.000 | | 1227696.57 | | A | 4.3 |
| 3 | ☐ | 1.000 | | 1255522.90 | | M | 4.5 |
| 4 | ☐ | 1.000 | | 1247565.22 | | M | 1.4 |
| 5 | ☐ | 1.000 | | 1307461.28 | | P | 2.2 |
| 6 | ☐ | 1.000 | | 1230348.34 | | P | 2.9 |
| 7 | ☐ | 1.000 | | | | | |

Calibration for 129_ICV.d

Batch Folder: C:\Agilent\ICPMH\1\DATA\111617A.b\
Analysis File: 111617A.batch.bin
DA Date-Time: 2017-11-16 16:20:18
Calibration Title:
Calibration Method: External Calibration
VIS Interpolation Fit:

| Level | Standard Data File | Sample Name | Acq. Date-Time |
|---|---|---|---|
| 1 | 122CALB.d | CAL BLK | 2017-11-16 14:03:18 |
| 2 | 123CALS.d | 2/10/200 | 2017-11-16 14:05:19 |
| 3 | 124CALS.d | 5/25/500 | 2017-11-16 14:07:20 |
| 4 | 125CALS.d | 10/50/1000 | 2017-11-16 14:09:20 |
| 5 | 126CALS.d | 100/500/10K | 2017-11-16 14:11:19 |
| 6 | 127CALS.d | 200/1000/20K | 2017-11-16 14:13:18 |
| 7 | | | |

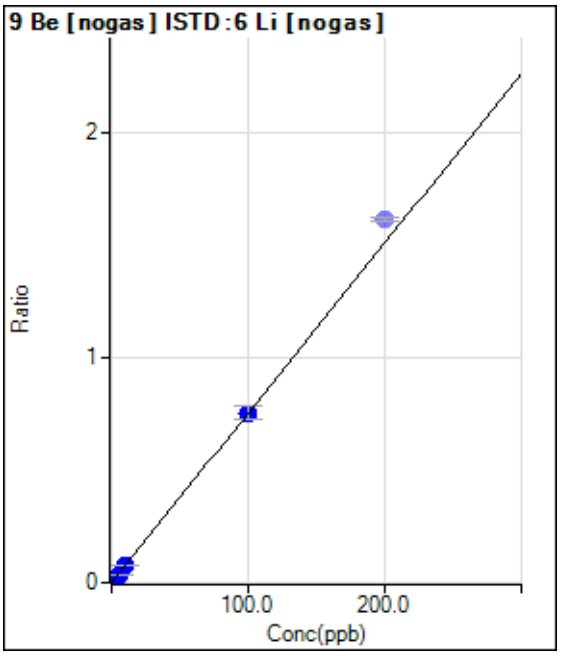
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 26198.41 | 0.0882 | P | 3.5 |
| 2 | ☐ | 2.000 | 2.015 | 38215.72 | 0.1274 | P | 3.1 |
| 3 | ☐ | 5.000 | 4.979 | 54198.20 | 0.1851 | P | 1.7 |
| 4 | ☐ | 10.000 | 9.916 | 82926.36 | 0.2811 | P | 1.6 |
| 5 | ☐ | 100.000 | 100.009 | 548166.40 | 2.0337 | P | 5.1 |
| 6 | ☑ | 200.000 | | 1061113.50 | 4.4271 | A | 5.4 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0195 * x + 0.0882
R = 1.0000
DL = 0.4784
BEC = 4.535

Weight: <None>
Min Conc: <None>

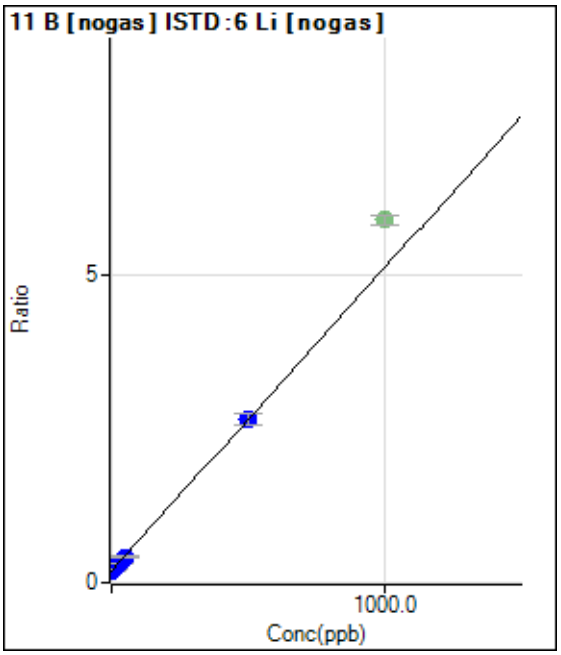



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 60.00 | 0.0002 | P | 19.4 |
| 2 | ☐ | 2.000 | 1.913 | 4393.92 | 0.0146 | P | 6.4 |
| 3 | ☐ | 5.000 | 4.756 | 10569.86 | 0.0361 | P | 6.0 |
| 4 | ☐ | 10.000 | 9.837 | 21959.70 | 0.0745 | P | 3.8 |
| 5 | ☐ | 100.000 | 100.030 | 203476.36 | 0.7557 | P | 7.7 |
| 6 | ☑ | 200.000 | | 387377.37 | 1.6148 | P | 1.0 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0076 * x + 2.0281E-004
R = 1.0000
DL = 0.01565
BEC = 0.02685

Weight: <None>
Min Conc: <None>

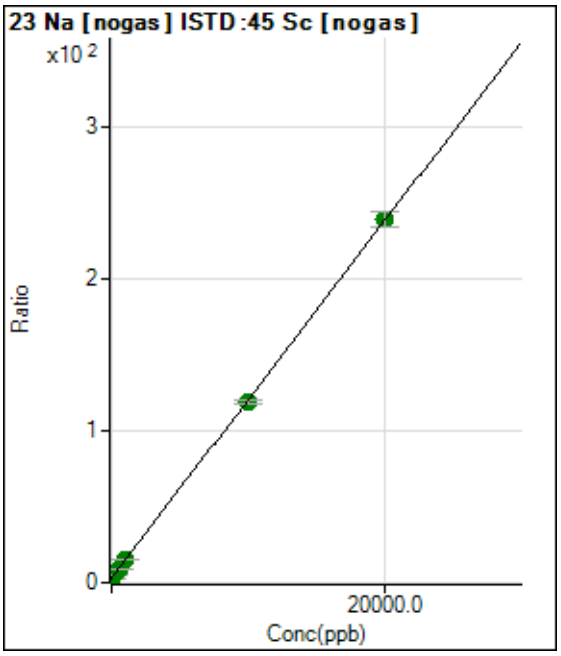
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 57901.37 | 0.1951 | P | 1.0 |
| 2 | ☐ | 10.000 | 7.877 | 70139.75 | 0.2339 | P | 3.8 |
| 3 | ☐ | 25.000 | 22.599 | 89734.88 | 0.3065 | P | 3.1 |
| 4 | ☐ | 50.000 | 46.107 | 124492.68 | 0.4224 | P | 4.1 |
| 5 | ☐ | 500.000 | 500.552 | 717425.51 | 2.6635 | P | 6.6 |
| 6 | ☑ | 1000.000 | | 1415757.95 | 5.9037 | A | 2.7 |
| 7 | ☐ | 5.000 | | | | | |

y = 0.0049 * x + 0.1951
R = 1.0000
DL = 1.218
BEC = 39.56

Weight: <None>
Min Conc: <None>

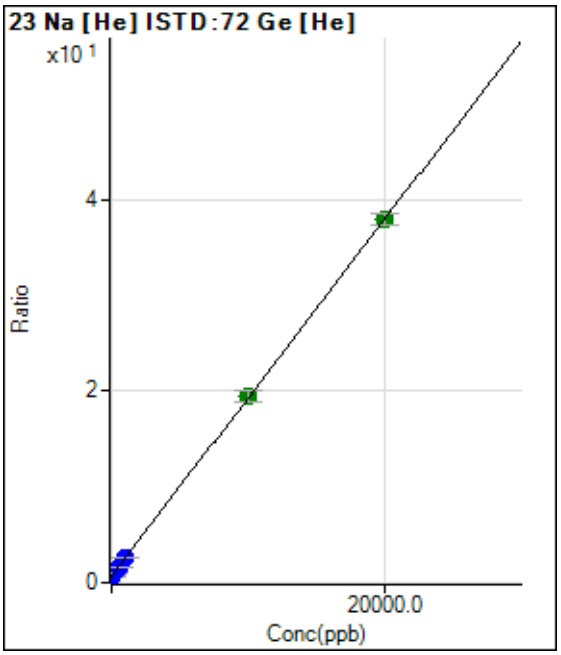



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 2389592.50 | 2.9656 | A | 4.1 |
| 2 | ☐ | 200.000 | 187.232 | 4209589.42 | 5.1661 | A | 4.4 |
| 3 | ☐ | 500.000 | 493.200 | 7152639.48 | 8.7619 | A | 1.3 |
| 4 | ☐ | 1000.000 | 1055.403 | 12434642.21 | 15.3691 | A | 4.3 |
| 5 | ☐ | 10000.00 | 9869.991 | 93544387.51 | 118.961 | A | 1.4 |
| 6 | ☐ | 20000.00 | 20062.532 | 180949345.7 | 238.747 | A | 4.1 |
| 7 | ☐ | 100.000 | | | | | |

y = 0.0118 * x + 2.9656
R = 1.0000
DL = 31.14
BEC = 252.3

Weight: <None>
Min Conc: <None>

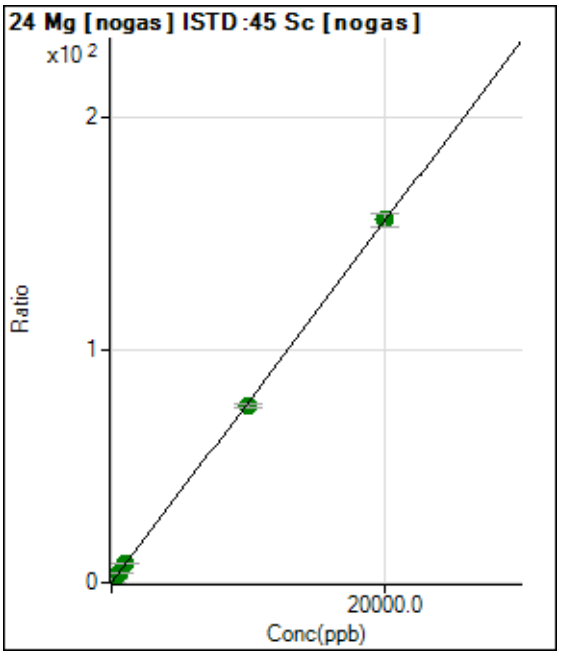
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 67011.45 | 0.7015 | P | 3.4 |
| 2 | ☐ | 200.000 | 196.315 | 101246.88 | 1.0664 | P | 3.3 |
| 3 | ☐ | 500.000 | 484.145 | 153428.77 | 1.6015 | P | 0.5 |
| 4 | ☐ | 1000.000 | 1030.587 | 247148.46 | 2.6174 | P | 2.3 |
| 5 | ☐ | 10000.00 | 10053.026 | 1749188.41 | 19.3901 | A | 6.2 |
| 6 | ☐ | 20000.00 | 19972.391 | 3356067.34 | 37.8303 | A | 3.1 |
| 7 | ☐ | 100.000 | | | | | |

y = 0.0019 * x + 0.7015
R = 1.0000
DL = 38.87
BEC = 377.3

Weight: <None>
Min Conc: <None>

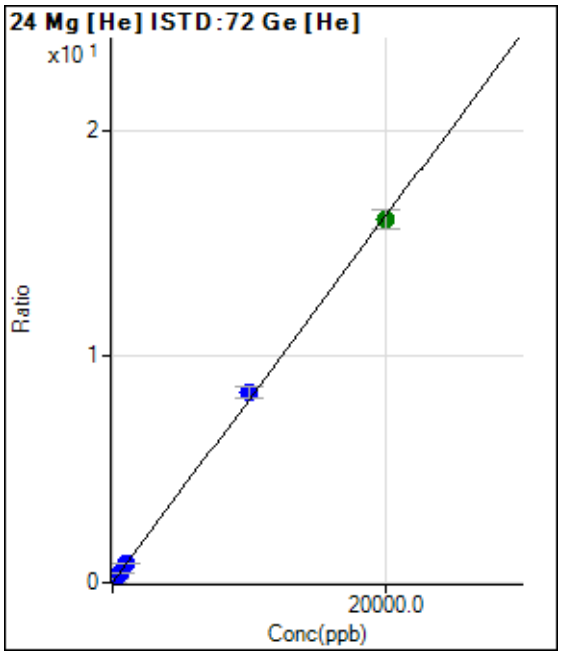



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 18746.07 | 0.0232 | P | 4.4 |
| 2 | ☐ | 200.000 | 207.974 | 1333198.37 | 1.6361 | A | 4.6 |
| 3 | ☐ | 500.000 | 519.054 | 3304046.62 | 4.0485 | A | 3.4 |
| 4 | ☐ | 1000.000 | 1050.429 | 6611696.76 | 8.1694 | A | 3.8 |
| 5 | ☐ | 10000.00 | 9817.032 | 59870388.84 | 76.1549 | A | 2.0 |
| 6 | ☐ | 20000.00 | 20088.406 | 118090369.3 | 155.809 | A | 4.0 |
| 7 | ☐ | 100.000 | | | | | |

y = 0.0078 * x + 0.0232
R = 0.9999
DL = 0.3925
BEC = 2.997

Weight: <None>
Min Conc: <None>

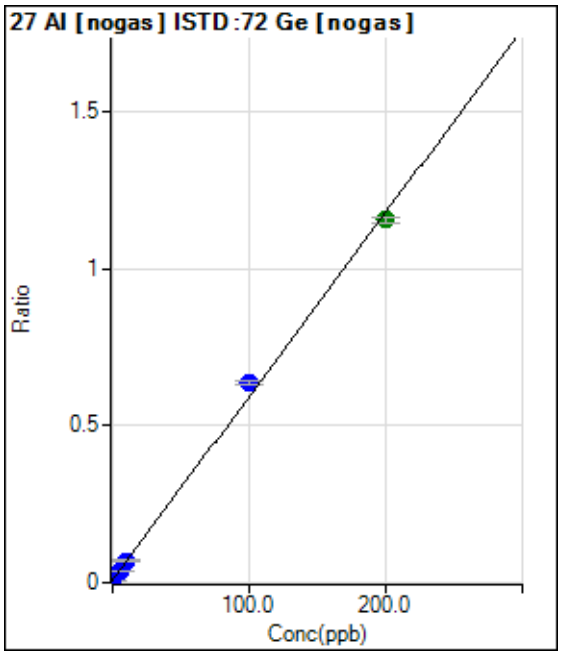
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 326.68 | 0.0034 | P | 14.8 |
| 2 | ☐ | 200.000 | 206.006 | 16163.98 | 0.1702 | P | 3.3 |
| 3 | ☐ | 500.000 | 505.830 | 39561.69 | 0.4130 | P | 1.6 |
| 4 | ☐ | 1000.000 | 1082.510 | 83112.80 | 0.8799 | P | 1.0 |
| 5 | ☐ | 10000.00 | 10389.172 | 758986.03 | 8.4153 | P | 6.3 |
| 6 | ☐ | 20000.00 | 19801.083 | 1422334.87 | 16.0359 | A | 5.1 |
| 7 | ☐ | 100.000 | | | | | |

y = 8.0968E-004 * x + 0.0034
R = 0.9997
DL = 1.875
BEC = 4.214

Weight: <None>
Min Conc: <None>

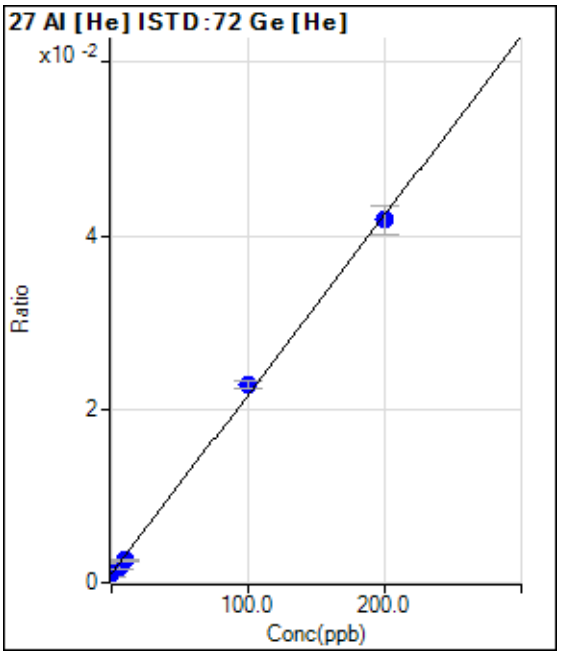



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 10106.49 | 0.0083 | P | 5.2 |
| 2 | ☐ | 2.000 | 2.424 | 27293.60 | 0.0224 | P | 4.8 |
| 3 | ☐ | 5.000 | 5.246 | 48988.19 | 0.0389 | P | 1.3 |
| 4 | ☐ | 10.000 | 10.557 | 87597.95 | 0.0700 | P | 3.6 |
| 5 | ☐ | 100.000 | 107.692 | 743004.13 | 0.6378 | P | 1.6 |
| 6 | ☐ | 200.000 | 196.116 | 1366072.69 | 1.1547 | A | 1.6 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0058 * x + 0.0083
R = 0.9990
DL = 0.2218
BEC = 1.411

Weight: <None>
Min Conc: <None>

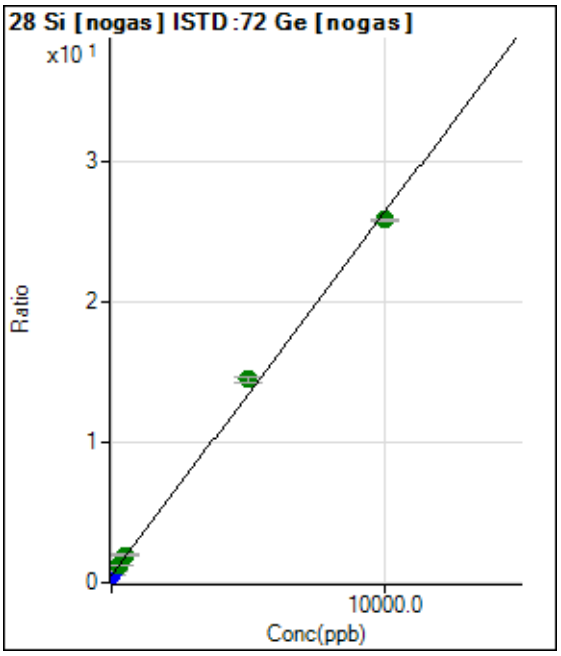
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.205 | 103.33 | 0.0011 | P | 62.3 |
| 2 | ☐ | 2.000 | 2.496 | 146.67 | 0.0015 | P | 15.6 |
| 3 | ☐ | 5.000 | 3.943 | 176.67 | 0.0018 | P | 34.7 |
| 4 | ☐ | 10.000 | 7.486 | 243.34 | 0.0026 | P | 13.7 |
| 5 | ☐ | 100.000 | 105.444 | 2060.15 | 0.0228 | P | 3.7 |
| 6 | ☐ | 200.000 | 197.425 | 3707.10 | 0.0418 | P | 8.2 |
| 7 | ☐ | 1.000 | | | | | |

y = 2.0663E-004 * x + 0.0010
R = 0.9993
DL = 9.713
BEC = 4.989

Weight: <None>
Min Conc: <None>

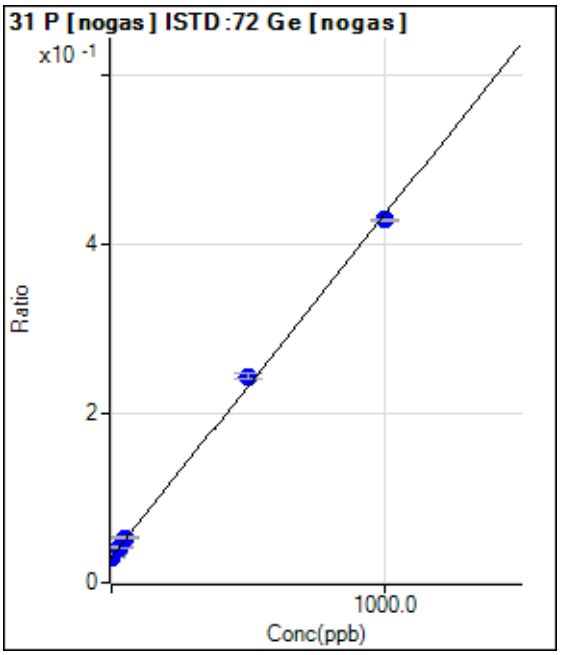



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 636347.96 | 0.5192 | P | 2.7 |
| 2 | ☐ | 100.000 | 108.592 | 973914.67 | 0.7998 | P | 2.9 |
| 3 | ☐ | 250.000 | 289.247 | 1593972.94 | 1.2667 | A | 1.0 |
| 4 | ☐ | 500.000 | 562.260 | 2469072.05 | 1.9722 | A | 4.2 |
| 5 | ☐ | 5000.000 | 5394.275 | 16839736.83 | 14.4598 | A | 2.8 |
| 6 | ☐ | 10000.00 | 9798.683 | 30573565.38 | 25.8423 | A | 0.8 |
| 7 | ☐ | 5.000 | | | | | |

y = 0.0026 * x + 0.5192
R = 0.9989
DL = 16.57
BEC = 200.9

Weight: <None>
Min Conc: <None>

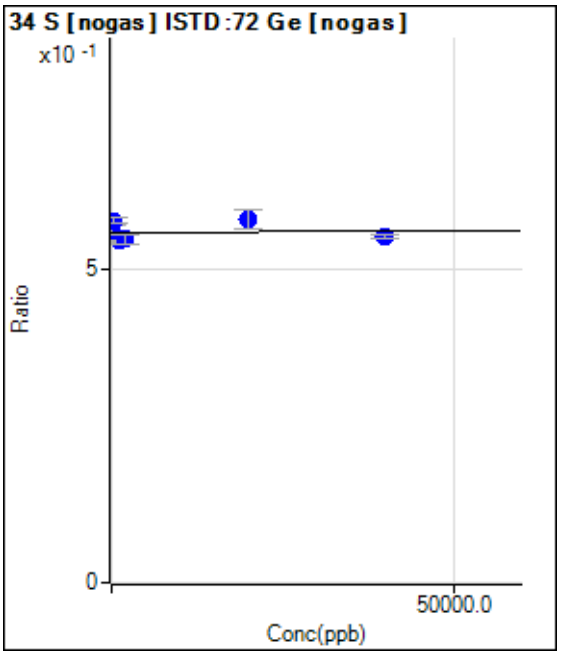
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 37093.45 | 0.0303 | P | 6.4 |
| 2 | ☐ | 10.000 | 13.455 | 43497.16 | 0.0357 | P | 4.4 |
| 3 | ☐ | 25.000 | 28.315 | 52503.10 | 0.0417 | P | 3.8 |
| 4 | ☐ | 50.000 | 56.173 | 66363.04 | 0.0530 | P | 4.0 |
| 5 | ☐ | 500.000 | 528.880 | 284429.16 | 0.2442 | P | 2.0 |
| 6 | ☐ | 1000.000 | 985.134 | 507226.49 | 0.4287 | P | 0.4 |
| 7 | ☐ | 5.000 | | | | | |

y = 4.0444E-004 * x + 0.0303
R = 0.9994
DL = 14.28
BEC = 74.89

Weight: <None>
Min Conc: <None>

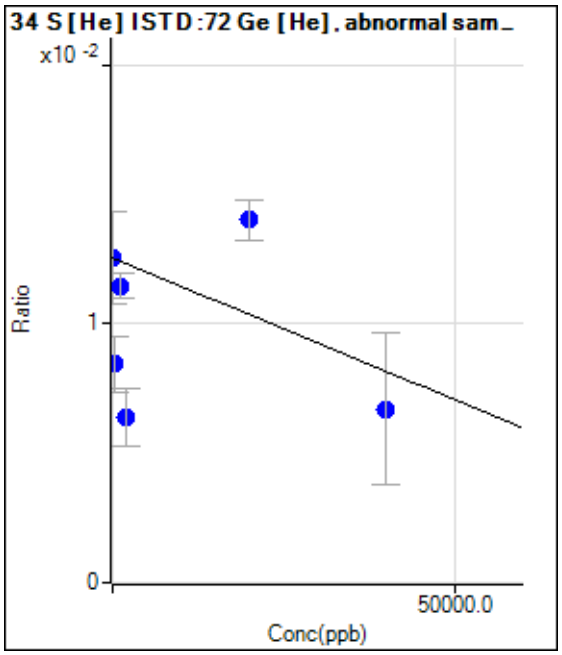



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 683210.50 | 0.5576 | P | 4.4 |
| 2 | ☐ | 400.000 | 493281.60 | 702253.13 | 0.5765 | P | 1.2 |
| 3 | ☐ | 1000.000 | -376143.61 | 683590.67 | 0.5431 | P | 0.8 |
| 4 | ☐ | 2000.000 | -296138.74 | 684020.10 | 0.5462 | P | 2.7 |
| 5 | ☐ | 20000.00 | 512310.88 | 671998.81 | 0.5773 | P | 5.3 |
| 6 | ☐ | 40000.00 | -186748.72 | 651156.31 | 0.5504 | P | 1.1 |
| 7 | ☐ | 100.000 | | | | | |

y = 3.8451E-008 * x + 0.5576
R = 0.0143
DL = 1.913E+06
BEC = 1.45E+07

Weight: <None>
Min Conc: <None>

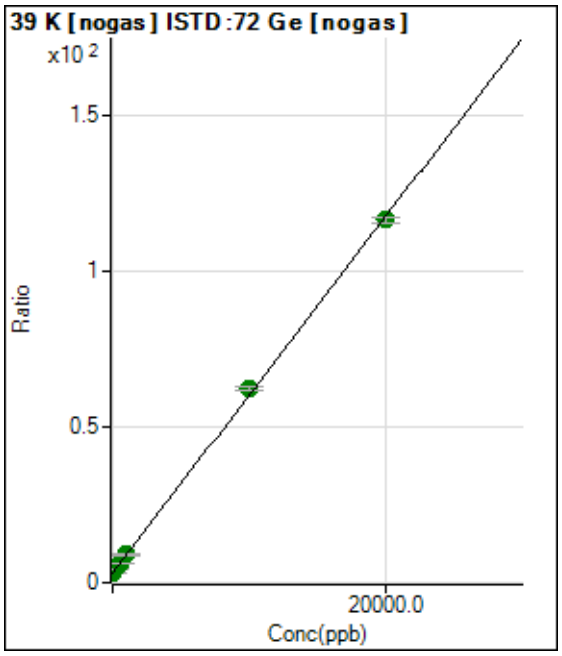
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1200.25 | 0.0125 | P | 28.3 |
| 2 | ☐ | 400.000 | 37568.485 | 800.22 | 0.0084 | P | 26.1 |
| 3 | ☐ | 1000.000 | 9781.928 | 1100.25 | 0.0115 | P | 8.2 |
| 4 | ☐ | 2000.000 | 56385.062 | 600.14 | 0.0064 | P | 34.7 |
| 5 | ☐ | 20000.00 | -13434.263 | 1266.95 | 0.0140 | P | 11.0 |
| 6 | ☐ | 40000.00 | 53406.645 | 600.13 | 0.0067 | P | 87.6 |
| 7 | ☐ | 100.000 | | | | | |

y = -1.0936E-007 * x + 0.0125
R = -0.2036
DL = -9.739E+04
BEC = -1.147E+05

Weight: <None>
Min Conc: <None>

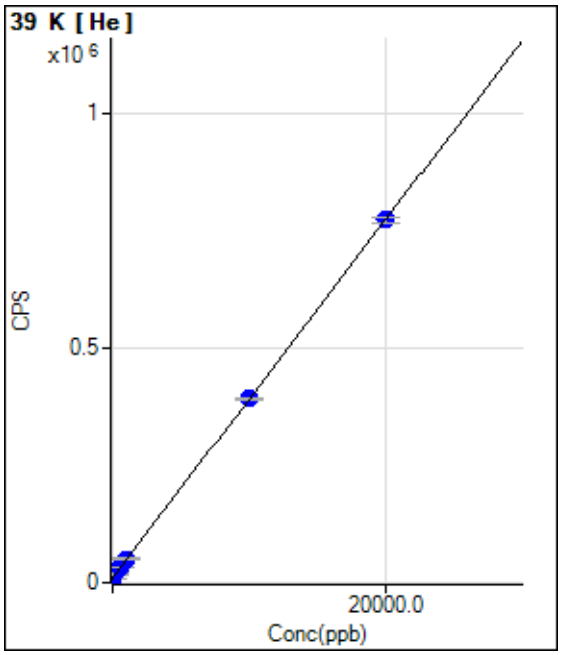



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 3753761.54 | 3.0628 | A | 3.0 |
| 2 | ☐ | 200.000 | 213.371 | 5216118.61 | 4.2833 | A | 2.5 |
| 3 | ☐ | 500.000 | 498.848 | 7444486.63 | 5.9163 | A | 1.5 |
| 4 | ☐ | 1000.000 | 1059.342 | 11421310.67 | 9.1225 | A | 4.0 |
| 5 | ☐ | 10000.00 | 10342.963 | 72477849.53 | 62.2268 | A | 2.1 |
| 6 | ☐ | 20000.00 | 19825.446 | 137780757.2 | 116.468 | A | 1.7 |
| 7 | ☐ | 100.000 | | | | | |

y = 0.0057 * x + 3.0628
R = 0.9998
DL = 48.95
BEC = 535.4

Weight: <None>
Min Conc: <None>

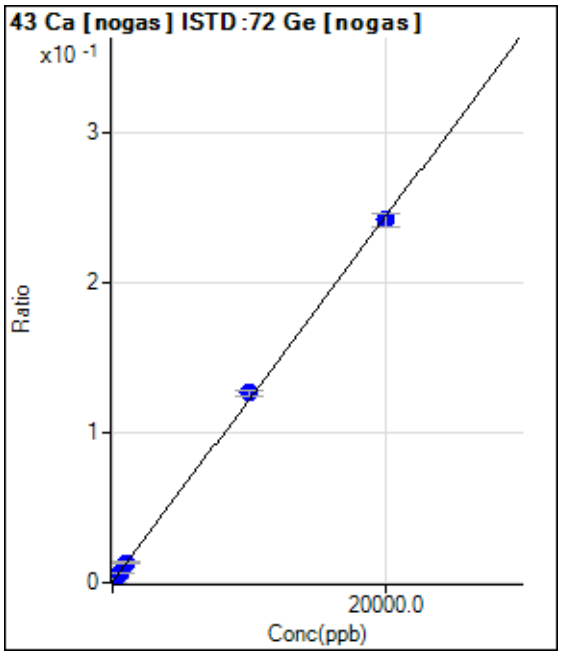
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 9919.44 | | P | 3.3 |
| 2 | ☐ | 200.000 | 232.989 | 18809.74 | | P | 6.1 |
| 3 | ☐ | 500.000 | 555.328 | 31109.45 | | P | 0.4 |
| 4 | ☐ | 1000.000 | 1071.250 | 50795.86 | | P | 2.7 |
| 5 | ☐ | 10000.00 | 9994.170 | 391273.72 | | P | 0.6 |
| 6 | ☐ | 20000.00 | 19997.639 | 772982.83 | | P | 1.5 |
| 7 | ☐ | 100.000 | | | | | |

y = 38.1577 * x + 9919.4367
R = 1.0000
DL = 25.64
BEC = 260

Weight: <None>
Min Conc: <None>

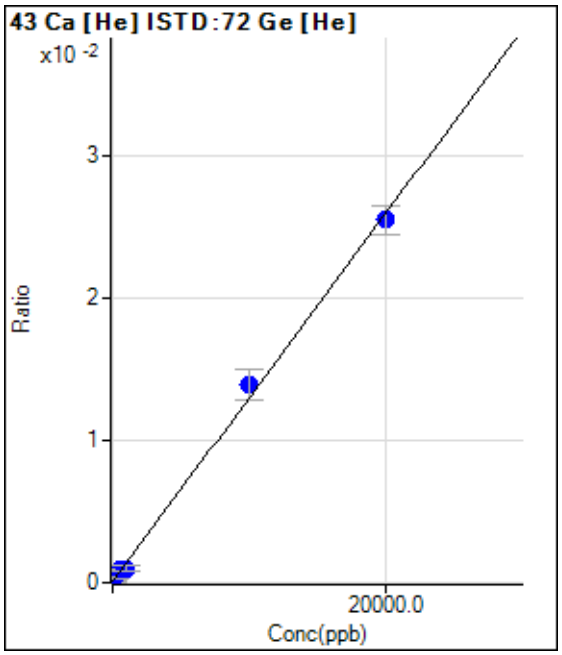



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 630.02 | 0.0005 | P | 16.2 |
| 2 | ☐ | 200.000 | 193.727 | 3500.41 | 0.0029 | P | 3.3 |
| 3 | ☐ | 500.000 | 499.191 | 8291.98 | 0.0066 | P | 7.1 |
| 4 | ☐ | 1000.000 | 1043.692 | 16547.74 | 0.0132 | P | 5.0 |
| 5 | ☐ | 10000.00 | 10338.858 | 147169.74 | 0.1264 | P | 2.9 |
| 6 | ☐ | 20000.00 | 19828.469 | 286088.39 | 0.2419 | P | 3.8 |
| 7 | ☐ | 100.000 | | | | | |

y = 1.2173E-005 * x + 5.1531E-004
R = 0.9998
DL = 20.52
BEC = 42.33

Weight: <None>
Min Conc: <None>

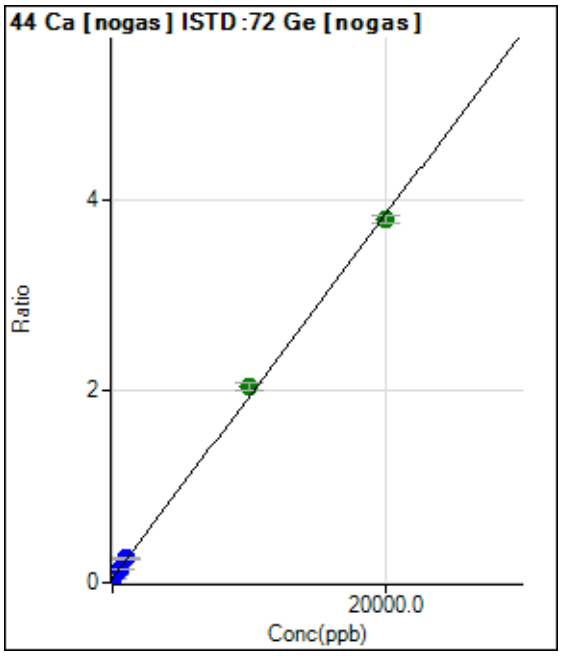
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 6.67 | 0.0001 | P | 173. |
| 2 | ☐ | 200.000 | 218.525 | 33.33 | 0.0004 | P | 44.9 |
| 3 | ☐ | 500.000 | 647.706 | 86.67 | 0.0009 | P | 17.6 |
| 4 | ☐ | 1000.000 | 712.116 | 93.33 | 0.0010 | P | 40.8 |
| 5 | ☐ | 10000.00 | 10686.593 | 1250.06 | 0.0139 | P | 15.2 |
| 6 | ☐ | 20000.00 | 19667.220 | 2260.18 | 0.0255 | P | 7.9 |
| 7 | ☐ | 100.000 | | | | | |

y = 1.2917E-006 * x + 6.8060E-005
R = 0.9990
DL = 273.8
BEC = 52.69

Weight: <None>
Min Conc: <None>

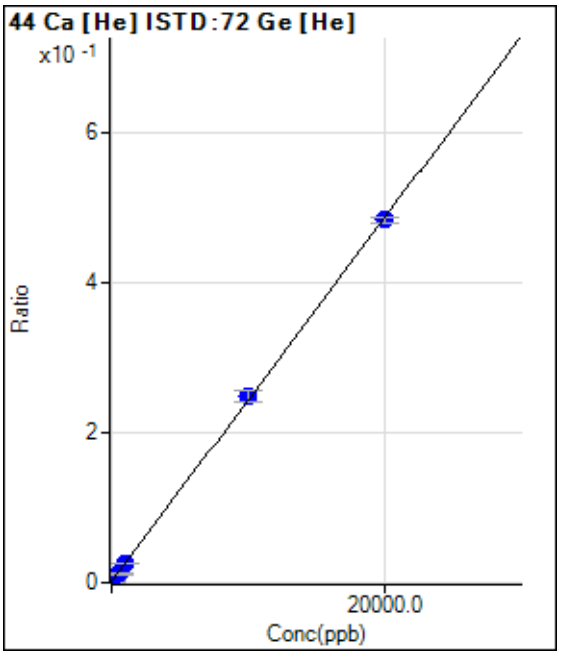



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 56077.35 | 0.0458 | P | 4.7 |
| 2 | ☐ | 200.000 | 218.488 | 106287.95 | 0.0873 | P | 2.6 |
| 3 | ☐ | 500.000 | 521.264 | 182191.38 | 0.1448 | P | 2.0 |
| 4 | ☐ | 1000.000 | 1082.931 | 314961.32 | 0.2515 | P | 3.2 |
| 5 | ☐ | 10000.00 | 10570.616 | 2391646.48 | 2.0541 | A | 4.2 |
| 6 | ☐ | 20000.00 | 19709.829 | 4484381.39 | 3.7906 | A | 2.1 |
| 7 | ☐ | 100.000 | | | | | |

y = 1.9000E-004 * x + 0.0458
R = 0.9994
DL = 33.66
BEC = 240.9

Weight: <None>
Min Conc: <None>

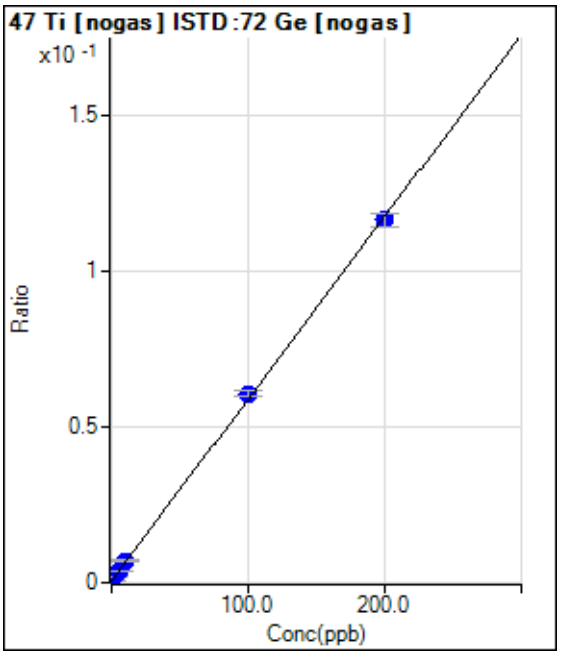
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 116.67 | 0.0012 | P | 23.6 |
| 2 | ☐ | 200.000 | 220.941 | 623.35 | 0.0066 | P | 2.3 |
| 3 | ☐ | 500.000 | 440.053 | 1136.72 | 0.0119 | P | 9.4 |
| 4 | ☐ | 1000.000 | 1006.127 | 2413.54 | 0.0256 | P | 7.0 |
| 5 | ☐ | 10000.00 | 10212.454 | 22410.64 | 0.2484 | P | 6.3 |
| 6 | ☐ | 20000.00 | 19894.756 | 42853.23 | 0.4827 | P | 1.8 |
| 7 | ☐ | 100.000 | | | | | |

y = 2.4203E-005 * x + 0.0012
R = 0.9999
DL = 35.53
BEC = 50.22

Weight: <None>
Min Conc: <None>

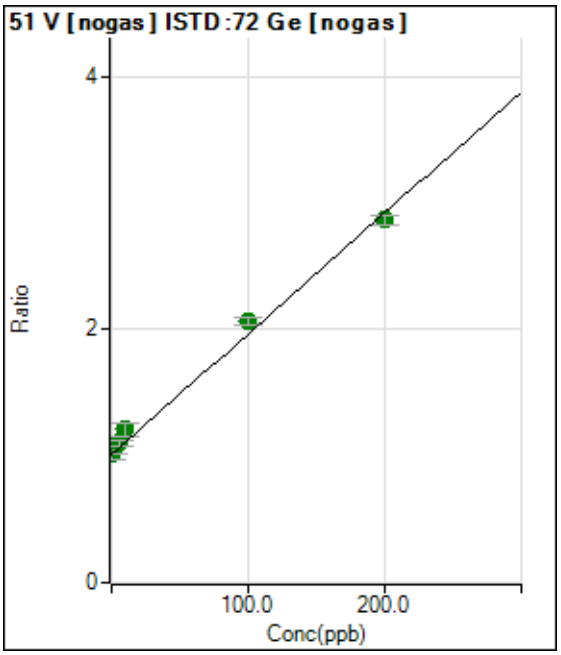



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 606.69 | 0.0005 | P | 25.3 |
| 2 | ☐ | 2.000 | 2.051 | 2060.15 | 0.0017 | P | 5.7 |
| 3 | ☐ | 5.000 | 5.415 | 4600.66 | 0.0037 | P | 4.8 |
| 4 | ☐ | 10.000 | 10.838 | 8535.47 | 0.0068 | P | 8.7 |
| 5 | ☐ | 100.000 | 103.149 | 70692.03 | 0.0607 | P | 3.3 |
| 6 | ☐ | 200.000 | 198.372 | 137515.72 | 0.1163 | P | 3.5 |
| 7 | ☐ | 1.000 | | | | | |

y = 5.8358E-004 * x + 4.9569E-004
R = 0.9998
DL = 0.6459
BEC = 0.8494

Weight: <None>
Min Conc: <None>

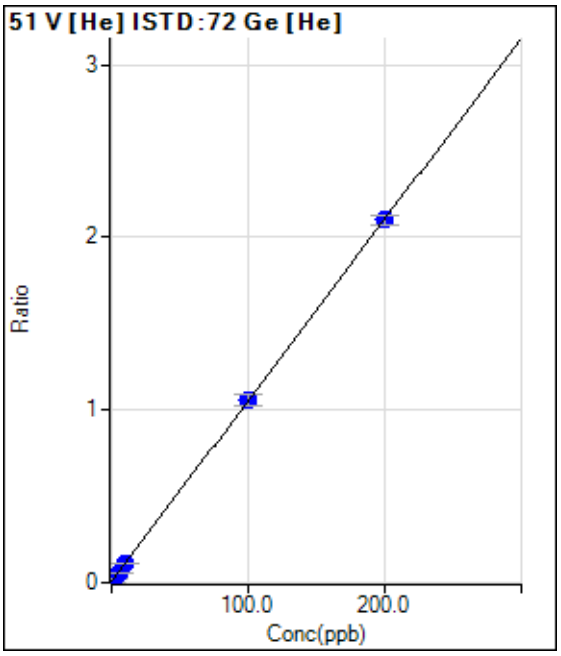
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1239092.51 | 1.0120 | A | 9.0 |
| 2 | ☐ | 2.000 | 4.730 | 1287138.37 | 1.0572 | A | 6.3 |
| 3 | ☐ | 5.000 | 9.904 | 1393000.48 | 1.1066 | A | 4.0 |
| 4 | ☐ | 10.000 | 20.660 | 1512710.16 | 1.2093 | A | 8.5 |
| 5 | ☐ | 100.000 | 110.497 | 2407819.39 | 2.0671 | A | 2.8 |
| 6 | ☐ | 200.000 | 194.069 | 3389309.71 | 2.8651 | A | 2.3 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0095 * x + 1.0120
R = 0.9974
DL = 28.6
BEC = 106

Weight: <None>
Min Conc: <None>

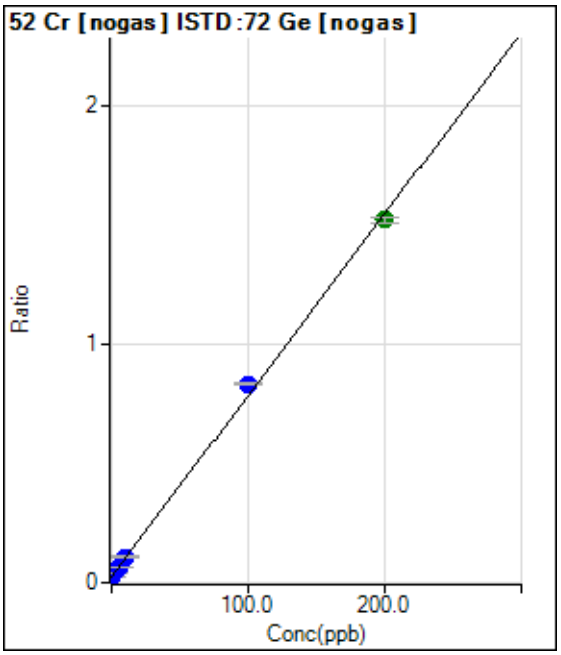



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | -0.089 | 484.01 | 0.0051 | P | 5.0 |
| 2 | ☐ | 2.000 | 1.909 | 2471.51 | 0.0260 | P | 5.8 |
| 3 | ☐ | 5.000 | 4.963 | 5560.85 | 0.0580 | P | 0.2 |
| 4 | ☐ | 10.000 | 10.087 | 10556.36 | 0.1118 | P | 1.6 |
| 5 | ☐ | 100.000 | 100.264 | 95359.48 | 1.0575 | P | 6.7 |
| 6 | ☐ | 200.000 | 199.865 | 186495.27 | 2.1020 | P | 2.8 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0105 * x + 0.0060
R = 1.0000
DL = 0.07179
BEC = 0.5715

Weight: <None>
Min Conc: <None>

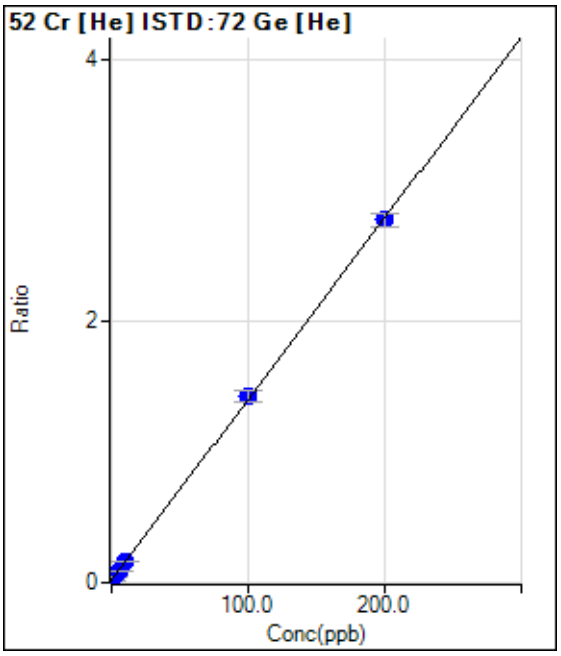
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 30705.73 | 0.0251 | P | 6.6 |
| 2 | ☐ | 2.000 | 2.060 | 49589.93 | 0.0407 | P | 5.7 |
| 3 | ☐ | 5.000 | 5.215 | 81469.88 | 0.0647 | P | 1.6 |
| 4 | ☐ | 10.000 | 10.690 | 133097.78 | 0.1064 | P | 7.2 |
| 5 | ☐ | 100.000 | 106.272 | 970954.44 | 0.8335 | P | 1.1 |
| 6 | ☐ | 200.000 | 196.824 | 1800859.30 | 1.5223 | A | 1.5 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0076 * x + 0.0251
R = 0.9993
DL = 0.6506
BEC = 3.296

Weight: <None>
Min Conc: <None>

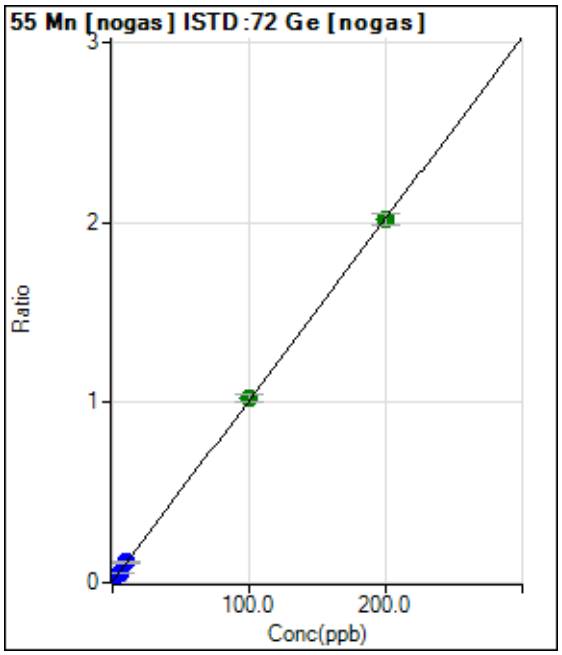



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1676.78 | 0.0175 | P | 15.0 |
| 2 | ☐ | 2.000 | 2.127 | 4463.94 | 0.0470 | P | 6.1 |
| 3 | ☐ | 5.000 | 5.458 | 8925.61 | 0.0932 | P | 2.7 |
| 4 | ☐ | 10.000 | 10.540 | 15440.08 | 0.1636 | P | 4.0 |
| 5 | ☐ | 100.000 | 101.750 | 128756.23 | 1.4273 | P | 5.8 |
| 6 | ☐ | 200.000 | 199.086 | 246274.37 | 2.7760 | P | 3.6 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0139 * x + 0.0175
R = 0.9999
DL = 0.5687
BEC = 1.265

Weight: <None>
Min Conc: <None>

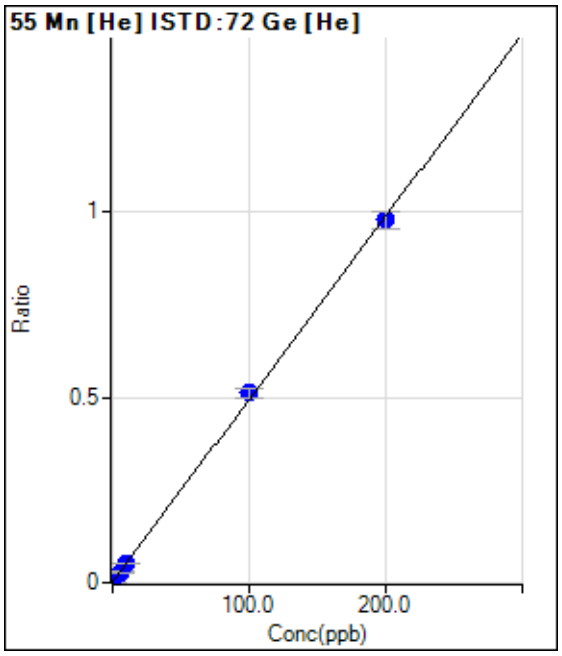
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 7528.32 | 0.0061 | P | 7.1 |
| 2 | ☐ | 2.000 | 2.167 | 34065.25 | 0.0280 | P | 5.9 |
| 3 | ☐ | 5.000 | 5.120 | 72680.54 | 0.0578 | P | 1.7 |
| 4 | ☐ | 10.000 | 10.680 | 142412.99 | 0.1138 | P | 6.0 |
| 5 | ☐ | 100.000 | 101.203 | 1194546.36 | 1.0262 | A | 5.0 |
| 6 | ☐ | 200.000 | 199.360 | 2384023.40 | 2.0155 | A | 3.3 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0101 * x + 0.0061
R = 1.0000
DL = 0.1293
BEC = 0.61

Weight: <None>
Min Conc: <None>

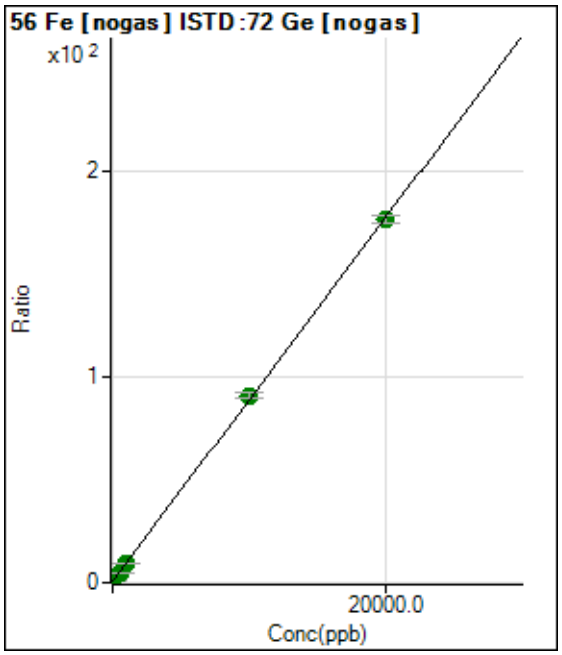



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 190.01 | 0.0020 | P | 25.2 |
| 2 | ☐ | 2.000 | 2.379 | 1300.07 | 0.0137 | P | 8.9 |
| 3 | ☐ | 5.000 | 5.350 | 2713.59 | 0.0283 | P | 2.4 |
| 4 | ☐ | 10.000 | 9.946 | 4810.72 | 0.0510 | P | 4.8 |
| 5 | ☐ | 100.000 | 103.486 | 46155.10 | 0.5116 | P | 5.7 |
| 6 | ☐ | 200.000 | 198.247 | 86771.92 | 0.9783 | P | 4.5 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0049 * x + 0.0020
R = 0.9998
DL = 0.3036
BEC = 0.4018

Weight: <None>
Min Conc: <None>

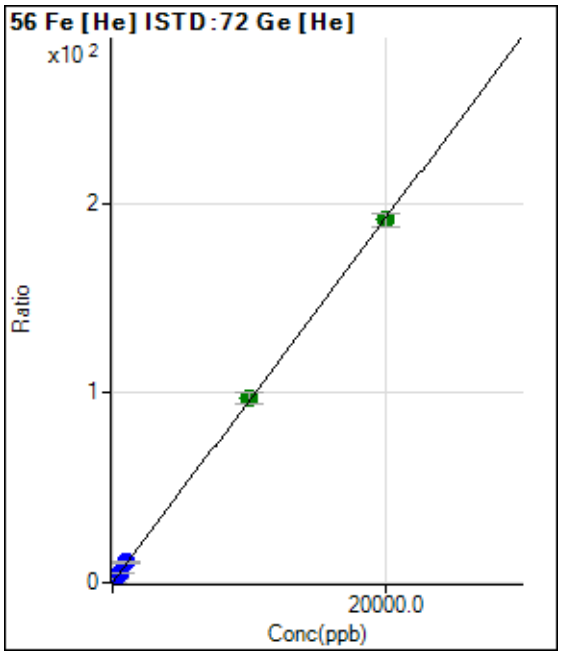
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 658952.57 | 0.5378 | P | 3.9 |
| 2 | ☐ | 200.000 | 212.546 | 2944158.98 | 2.4171 | A | 1.2 |
| 3 | ☐ | 500.000 | 503.062 | 6273194.41 | 4.9858 | A | 2.0 |
| 4 | ☐ | 1000.000 | 1015.747 | 11914399.23 | 9.5190 | A | 5.0 |
| 5 | ☐ | 10000.00 | 10222.819 | 105899802.3 | 90.9277 | A | 3.0 |
| 6 | ☐ | 20000.00 | 19887.601 | 208679000.5 | 176.383 | A | 2.0 |
| 7 | ☐ | 100.000 | | | | | |

y = 0.0088 * x + 0.5378
R = 0.9999
DL = 7.161
BEC = 60.82

Weight: <None>
Min Conc: <None>

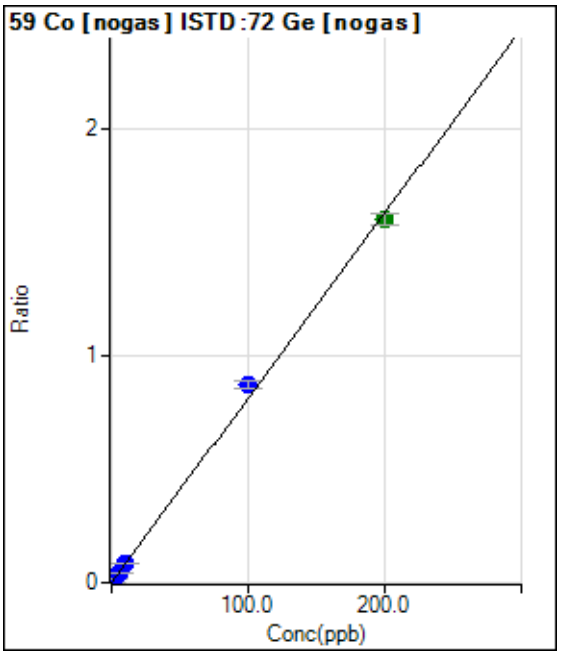



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 6401.19 | 0.0670 | P | 1.8 |
| 2 | ☐ | 200.000 | 219.626 | 206469.97 | 2.1745 | P | 1.8 |
| 3 | ☐ | 500.000 | 537.609 | 500591.68 | 5.2257 | P | 1.9 |
| 4 | ☐ | 1000.000 | 1110.671 | 1012374.05 | 10.7247 | P | 4.3 |
| 5 | ☐ | 10000.00 | 10141.065 | 8785055.49 | 97.3785 | A | 5.5 |
| 6 | ☐ | 20000.00 | 19922.797 | 16963663.50 | 191.241 | A | 3.8 |
| 7 | ☐ | 100.000 | | | | | |

y = 0.0096 * x + 0.0670
R = 1.0000
DL = 0.3726
BEC = 6.979

Weight: <None>
Min Conc: <None>

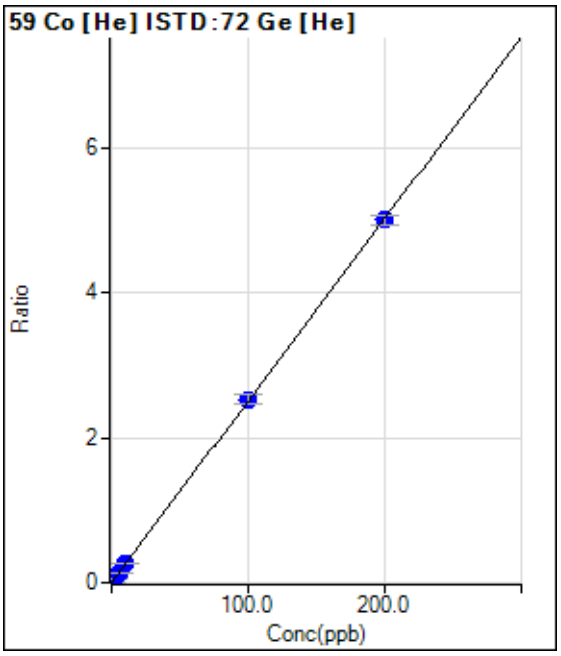
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 293.34 | 0.0002 | P | 10.4 |
| 2 | ☐ | 2.000 | 2.182 | 21890.17 | 0.0180 | P | 3.0 |
| 3 | ☐ | 5.000 | 5.303 | 54571.88 | 0.0434 | P | 0.5 |
| 4 | ☐ | 10.000 | 10.520 | 107408.58 | 0.0858 | P | 3.2 |
| 5 | ☐ | 100.000 | 106.887 | 1012266.62 | 0.8693 | P | 4.0 |
| 6 | ☐ | 200.000 | 196.521 | 1890671.48 | 1.5981 | A | 3.1 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0081 * x + 2.3924E-004
R = 0.9992
DL = 0.009182
BEC = 0.02942

Weight: <None>
Min Conc: <None>

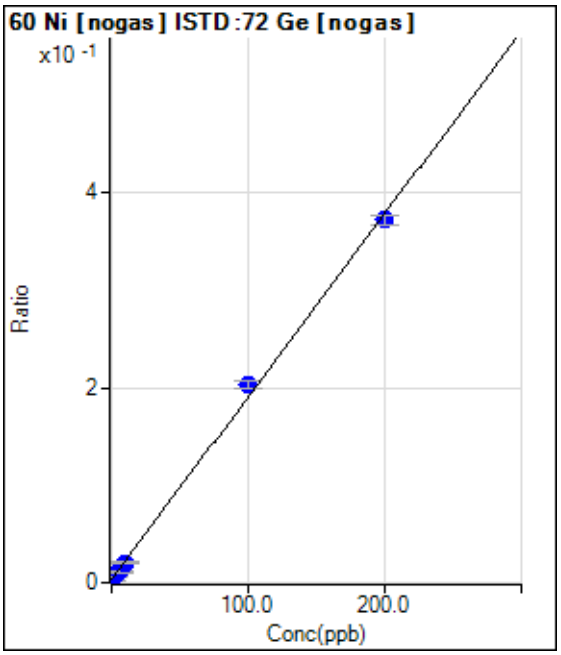



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 56.67 | 0.0006 | P | 48.5 |
| 2 | ☐ | 2.000 | 2.089 | 5034.12 | 0.0530 | P | 5.5 |
| 3 | ☐ | 5.000 | 5.130 | 12391.14 | 0.1294 | P | 5.1 |
| 4 | ☐ | 10.000 | 10.493 | 24930.58 | 0.2640 | P | 2.4 |
| 5 | ☐ | 100.000 | 100.894 | 228527.87 | 2.5336 | P | 6.0 |
| 6 | ☐ | 200.000 | 199.524 | 444496.60 | 5.0098 | P | 2.6 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0251 * x + 5.8884E-004
R = 1.0000
DL = 0.03416
BEC = 0.02345

Weight: <None>
Min Conc: <None>

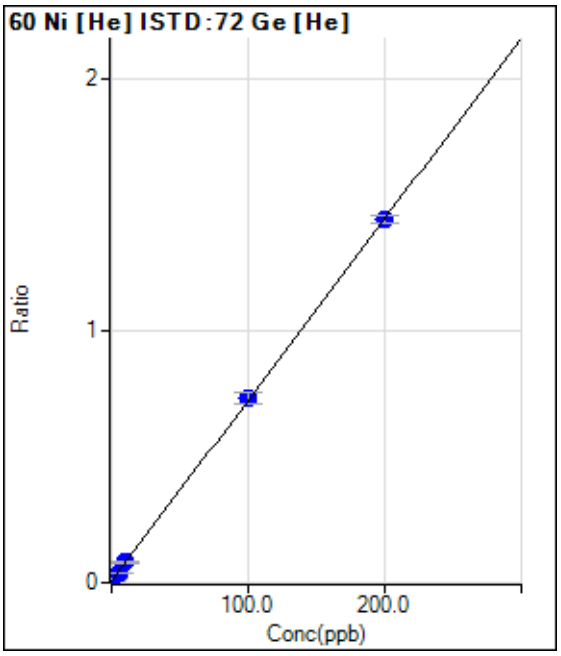
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | -0.895 | 2013.48 | 0.0016 | P | 12.5 |
| 2 | ☐ | 2.000 | 1.146 | 6661.36 | 0.0055 | P | 4.2 |
| 3 | ☐ | 5.000 | 4.179 | 14022.24 | 0.0112 | P | 6.0 |
| 4 | ☐ | 10.000 | 9.233 | 25808.63 | 0.0206 | P | 6.2 |
| 5 | ☐ | 100.000 | 106.541 | 236273.44 | 0.2029 | P | 4.0 |
| 6 | ☐ | 200.000 | 196.797 | 440083.21 | 0.3720 | P | 2.4 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0019 * x + 0.0033
R = 0.9992
DL = 0.3291
BEC = 1.774

Weight: <None>
Min Conc: <None>

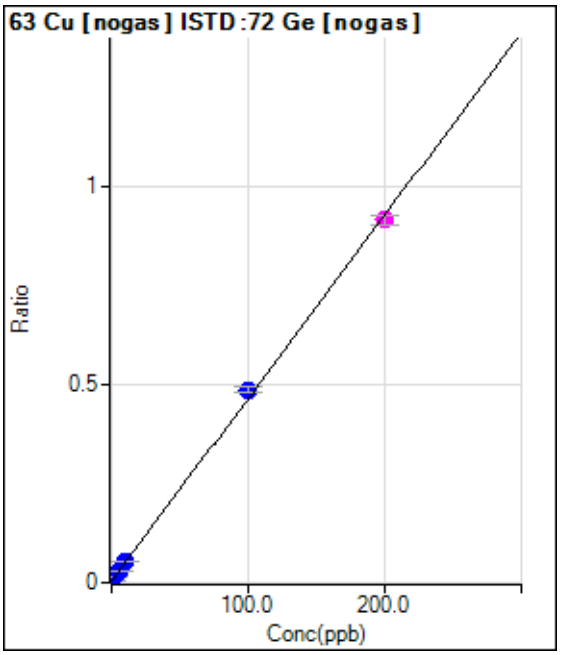



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | -0.220 | 443.34 | 0.0046 | P | 14.6 |
| 2 | ☐ | 2.000 | 1.842 | 1846.79 | 0.0195 | P | 6.1 |
| 3 | ☐ | 5.000 | 4.676 | 3817.15 | 0.0398 | P | 5.4 |
| 4 | ☐ | 10.000 | 10.309 | 7581.70 | 0.0803 | P | 6.3 |
| 5 | ☐ | 100.000 | 100.795 | 65932.74 | 0.7311 | P | 6.3 |
| 6 | ☐ | 200.000 | 199.597 | 127926.76 | 1.4416 | P | 2.1 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0072 * x + 0.0062
R = 1.0000
DL = 0.2808
BEC = 0.8627

Weight: <None>
Min Conc: <None>

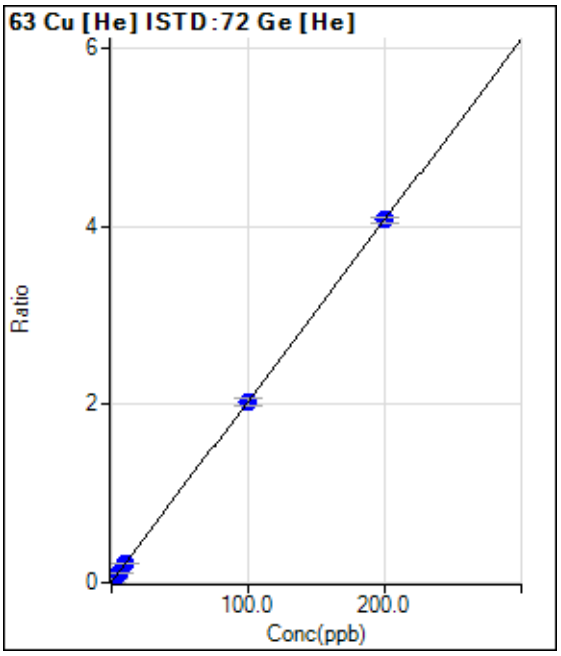
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 4663.99 | 0.0038 | P | 5.4 |
| 2 | ☐ | 2.000 | 2.055 | 16220.88 | 0.0133 | P | 1.6 |
| 3 | ☐ | 5.000 | 5.285 | 35545.04 | 0.0283 | P | 3.9 |
| 4 | ☐ | 10.000 | 10.519 | 65712.05 | 0.0525 | P | 3.2 |
| 5 | ☐ | 100.000 | 104.719 | 568546.74 | 0.4882 | P | 2.8 |
| 6 | ☐ | 200.000 | 197.607 | 1085788.58 | 0.9178 | M | 2.3 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0046 * x + 0.0038
R = 0.9996
DL = 0.1332
BEC = 0.8232

Weight: <None>
Min Conc: <None>

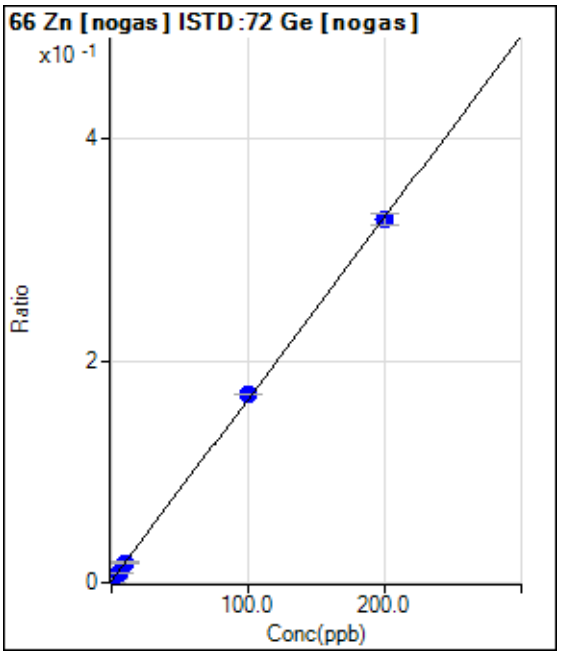



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.004 | 816.70 | 0.0086 | P | 18.1 |
| 2 | ☐ | 2.000 | 1.998 | 4667.34 | 0.0491 | P | 9.7 |
| 3 | ☐ | 5.000 | 5.024 | 10596.62 | 0.1106 | P | 2.6 |
| 4 | ☐ | 10.000 | 10.182 | 20341.61 | 0.2155 | P | 4.1 |
| 5 | ☐ | 100.000 | 99.605 | 183464.12 | 2.0331 | P | 4.9 |
| 6 | ☐ | 200.000 | 200.188 | 361869.41 | 4.0776 | P | 1.5 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0203 * x + 0.0085
R = 1.0000
DL = 0.2296
BEC = 0.4182

Weight: <None>
Min Conc: <None>

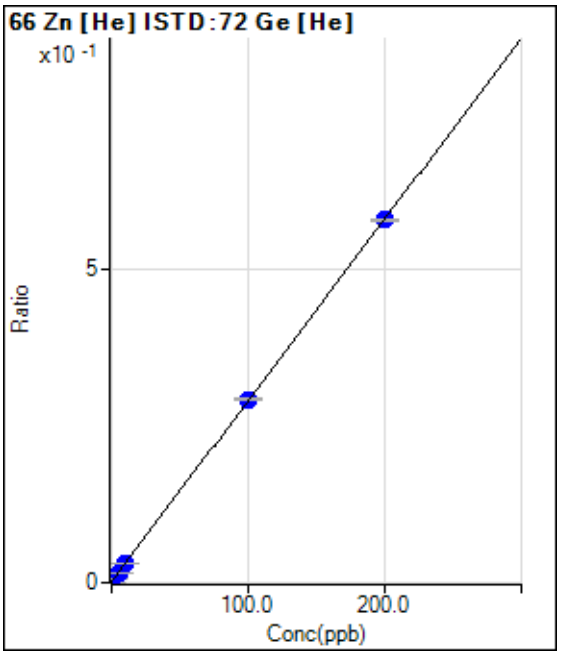
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | -0.655 | 743.36 | 0.0006 | P | 12.4 |
| 2 | ☐ | 2.000 | 1.696 | 5420.89 | 0.0045 | P | 12.4 |
| 3 | ☐ | 5.000 | 4.698 | 11800.70 | 0.0094 | P | 2.1 |
| 4 | ☐ | 10.000 | 9.863 | 22320.69 | 0.0178 | P | 8.2 |
| 5 | ☐ | 100.000 | 102.762 | 198217.92 | 0.1701 | P | 0.8 |
| 6 | ☐ | 200.000 | 198.636 | 387041.44 | 0.3272 | P | 3.3 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0016 * x + 0.0017
R = 0.9998
DL = 0.1376
BEC = 1.025

Weight: <None>
Min Conc: <None>

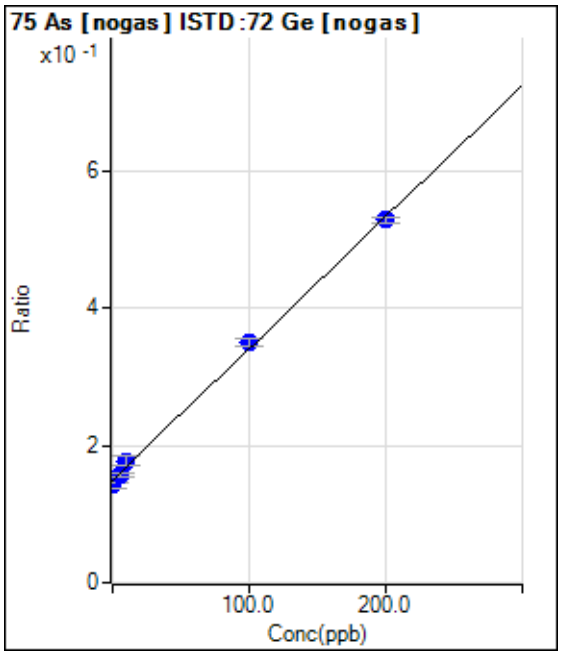



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | -0.214 | 80.00 | 0.0008 | P | 60.0 |
| 2 | ☐ | 2.000 | 2.163 | 733.36 | 0.0077 | P | 7.7 |
| 3 | ☐ | 5.000 | 4.838 | 1480.09 | 0.0155 | P | 5.6 |
| 4 | ☐ | 10.000 | 9.934 | 2853.61 | 0.0302 | P | 3.3 |
| 5 | ☐ | 100.000 | 100.546 | 26409.45 | 0.2922 | P | 1.4 |
| 6 | ☐ | 200.000 | 199.733 | 51396.04 | 0.5791 | P | 0.6 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0029 * x + 0.0015
R = 1.0000
DL = 0.5274
BEC = 0.5063

Weight: <None>
Min Conc: <None>

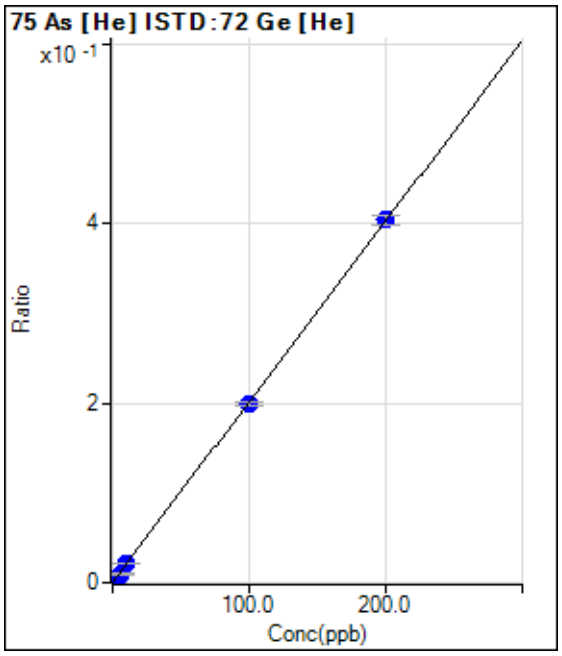
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | -3.434 | 175056.36 | 0.1430 | P | 9.0 |
| 2 | ☐ | 2.000 | 0.238 | 182646.96 | 0.1501 | P | 7.4 |
| 3 | ☐ | 5.000 | 3.479 | 196679.65 | 0.1563 | P | 4.1 |
| 4 | ☐ | 10.000 | 14.678 | 222382.90 | 0.1777 | P | 7.4 |
| 5 | ☐ | 100.000 | 104.436 | 407458.76 | 0.3498 | P | 3.5 |
| 6 | ☐ | 200.000 | 197.604 | 625131.96 | 0.5284 | P | 1.7 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0019 * x + 0.1496
R = 0.9990
DL = 20.19
BEC = 78.04

Weight: <None>
Min Conc: <None>

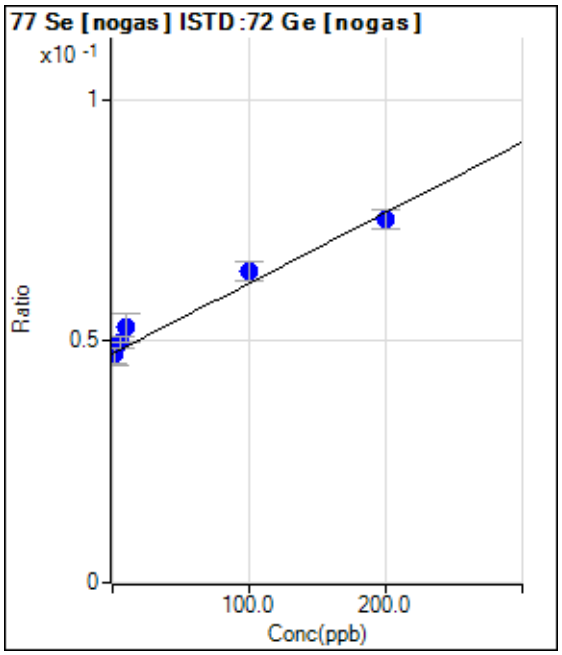



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 31.11 | 0.0003 | P | 20.3 |
| 2 | ☐ | 2.000 | 1.858 | 385.56 | 0.0041 | P | 13.9 |
| 3 | ☐ | 5.000 | 4.591 | 916.69 | 0.0096 | P | 3.1 |
| 4 | ☐ | 10.000 | 10.409 | 2009.01 | 0.0213 | P | 4.7 |
| 5 | ☐ | 100.000 | 98.494 | 17944.42 | 0.1987 | P | 2.4 |
| 6 | ☐ | 200.000 | 200.744 | 35894.33 | 0.4046 | P | 2.6 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0020 * x + 3.2445E-004
R = 1.0000
DL = 0.09836
BEC = 0.1611

Weight: <None>
Min Conc: <None>

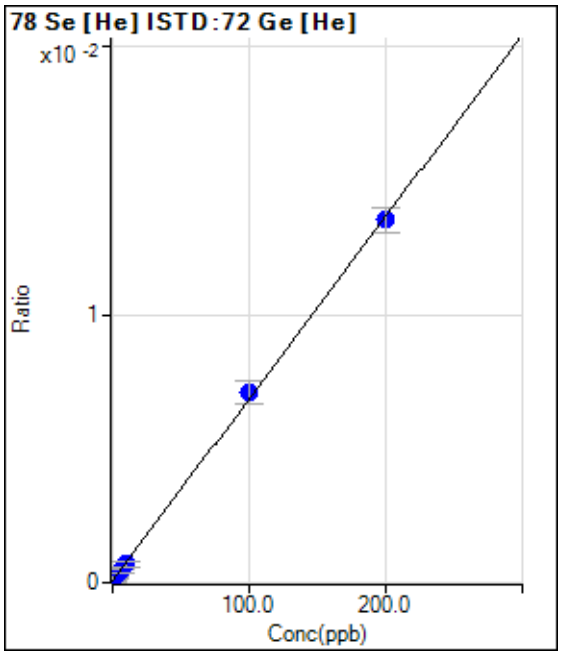
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 57995.97 | 0.0474 | P | 8.5 |
| 2 | ☐ | 2.000 | -1.328 | 57411.24 | 0.0472 | P | 9.4 |
| 3 | ☐ | 5.000 | 15.413 | 62487.29 | 0.0496 | P | 4.7 |
| 4 | ☐ | 10.000 | 36.582 | 65909.40 | 0.0527 | P | 11.3 |
| 5 | ☐ | 100.000 | 117.530 | 75114.72 | 0.0645 | P | 5.8 |
| 6 | ☐ | 200.000 | 189.679 | 88741.99 | 0.0750 | P | 5.1 |
| 7 | ☐ | 1.000 | | | | | |

y = 1.4580E-004 * x + 0.0474
R = 0.9862
DL = 82.93
BEC = 324.9

Weight: <None>
Min Conc: <None>

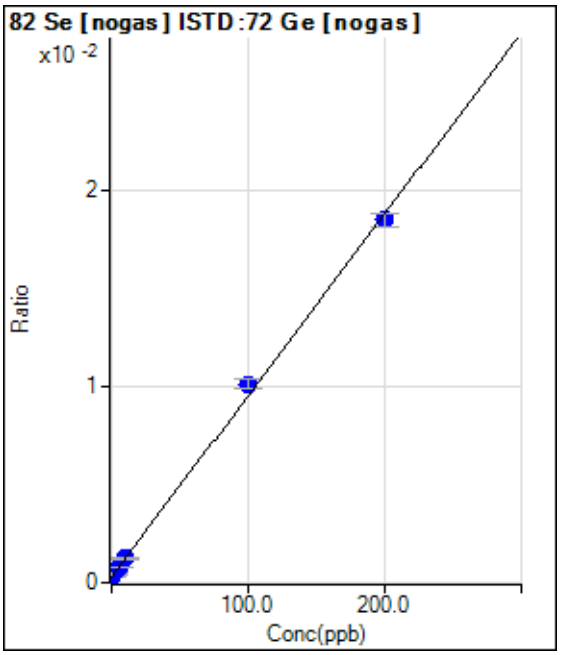



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | -0.789 | 2.00 | 0.0000 | P | 173. |
| 2 | ☐ | 2.000 | 1.789 | 18.67 | 0.0002 | P | 42.2 |
| 3 | ☐ | 5.000 | 5.147 | 40.67 | 0.0004 | P | 27.2 |
| 4 | ☐ | 10.000 | 9.052 | 65.33 | 0.0007 | P | 30.1 |
| 5 | ☐ | 100.000 | 103.511 | 640.68 | 0.0071 | P | 12.3 |
| 6 | ☐ | 200.000 | 198.290 | 1200.04 | 0.0135 | P | 6.9 |
| 7 | ☐ | 1.000 | | | | | |

y = 6.7883E-005 * x + 7.4360E-005
R = 0.9997
DL = 1.591
BEC = 1.095

Weight: <None>
Min Conc: <None>

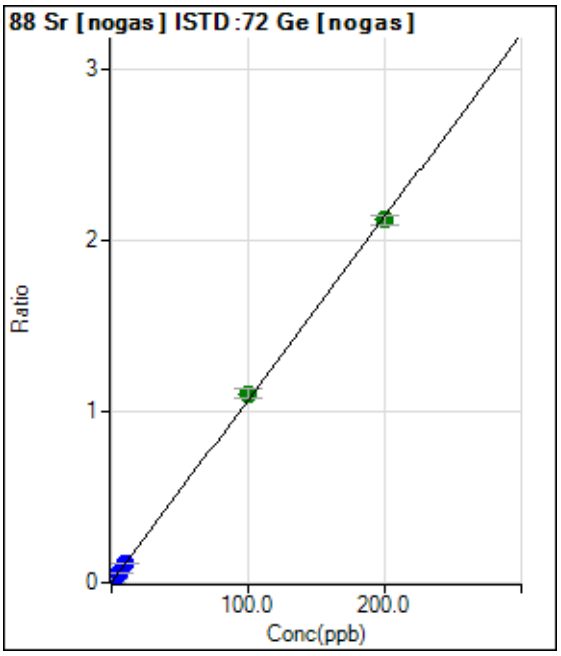
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 366.68 | 0.0003 | P | 11.9 |
| 2 | ☐ | 2.000 | 1.937 | 580.02 | 0.0005 | P | 20.3 |
| 3 | ☐ | 5.000 | 5.278 | 990.05 | 0.0008 | P | 7.7 |
| 4 | ☐ | 10.000 | 10.094 | 1540.10 | 0.0012 | P | 12.5 |
| 5 | ☐ | 100.000 | 106.222 | 11767.37 | 0.0101 | P | 5.0 |
| 6 | ☐ | 200.000 | 196.878 | 21846.88 | 0.0185 | P | 3.4 |
| 7 | ☐ | 1.000 | | | | | |

y = 9.2299E-005 * x + 2.9855E-004
R = 0.9993
DL = 1.158
BEC = 3.235

Weight: <None>
Min Conc: <None>

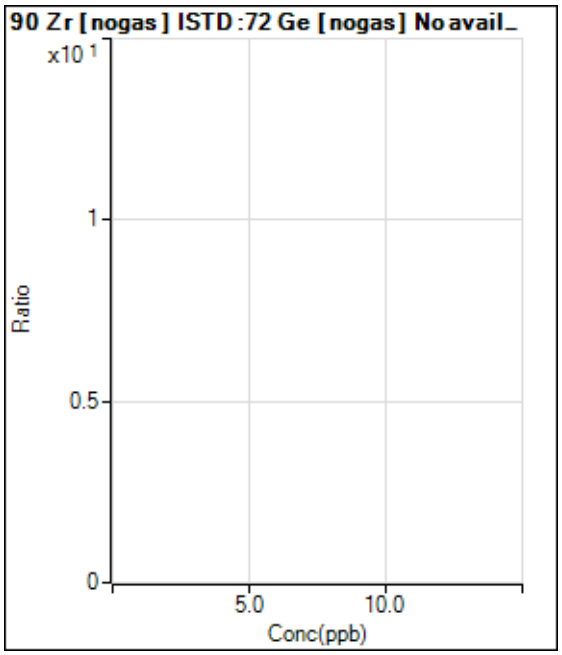



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1440.08 | 0.0012 | P | 11.1 |
| 2 | ☐ | 2.000 | 2.227 | 30413.17 | 0.0250 | P | 2.4 |
| 3 | ☐ | 5.000 | 5.165 | 70928.31 | 0.0564 | P | 1.5 |
| 4 | ☐ | 10.000 | 10.687 | 144414.90 | 0.1154 | P | 4.6 |
| 5 | ☐ | 100.000 | 103.171 | 1284834.31 | 1.1036 | A | 5.3 |
| 6 | ☐ | 200.000 | 198.374 | 2508963.82 | 2.1209 | A | 2.3 |
| 7 | ☐ | 1.000 | | | | | |

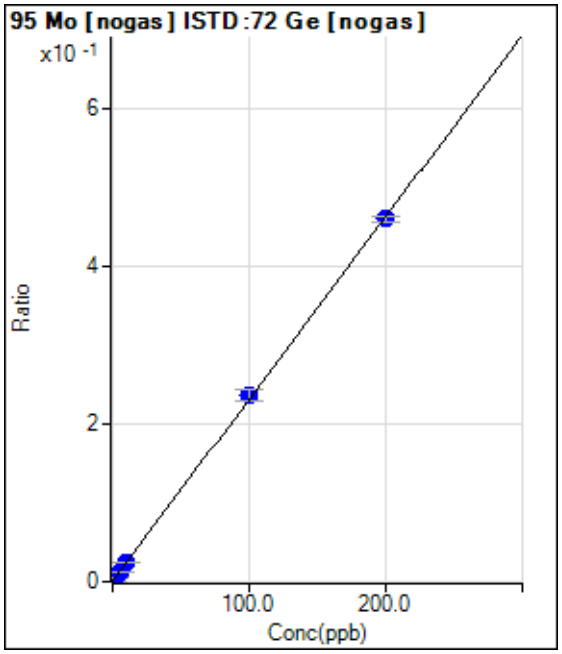
y = 0.0107 * x + 0.0012
R = 0.9998
DL = 0.03641
BEC = 0.1098

Weight: <None>
Min Conc: <None>

Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | | | | | |
| 2 | ☐ | 2.000 | | | | | |
| 3 | ☐ | 5.000 | | | | | |
| 4 | ☐ | 10.000 | | | | | |
| 5 | ☐ | 100.000 | | | | | |
| 6 | ☐ | 200.000 | | | | | |
| 7 | ☐ | 1.000 | | | | | |

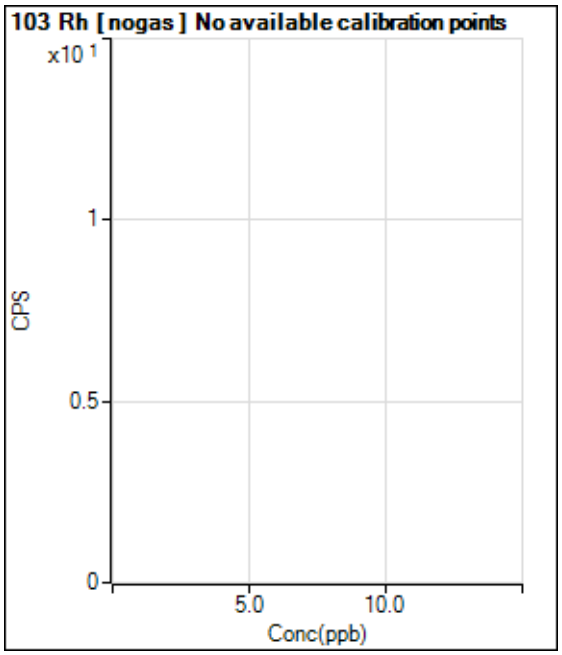



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 933.38 | 0.0008 | P | 7.8 |
| 2 | ☐ | 2.000 | 2.047 | 6684.70 | 0.0055 | P | 4.6 |
| 3 | ☐ | 5.000 | 4.985 | 15440.35 | 0.0123 | P | 3.4 |
| 4 | ☐ | 10.000 | 10.120 | 30232.86 | 0.0241 | P | 1.6 |
| 5 | ☐ | 100.000 | 101.927 | 274915.22 | 0.2362 | P | 6.0 |
| 6 | ☐ | 200.000 | 199.030 | 544706.20 | 0.4605 | P | 1.9 |
| 7 | ☐ | 1.000 | | | | | |

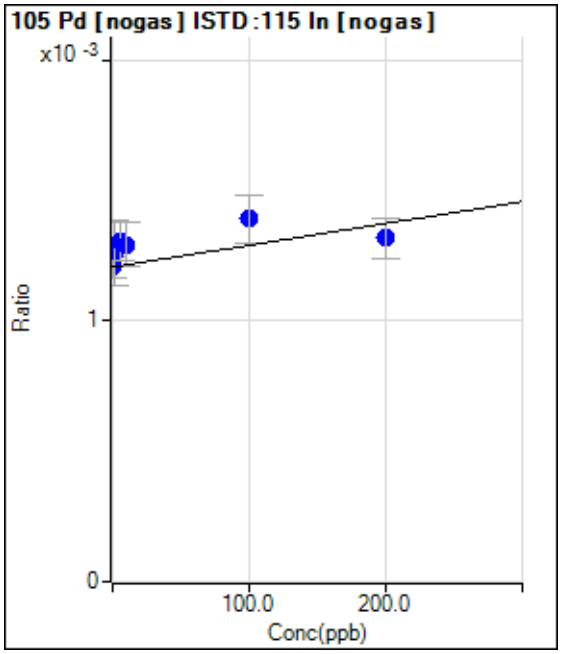
y = 0.0023 * x + 7.5978E-004
R = 0.9999
DL = 0.0767
BEC = 0.329

Weight: <None>
Min Conc: <None>

Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | | | 30.00 | | P | 33.3 |
| 2 | ☐ | | | 23.33 | | P | 65.5 |
| 3 | ☐ | | | 46.67 | | P | 68.9 |
| 4 | ☐ | | | 30.00 | | P | 88.2 |
| 5 | ☐ | | | 63.33 | | P | 18.2 |
| 6 | ☐ | | | 143.33 | | P | 10.7 |
| 7 | ☐ | | | | | | |

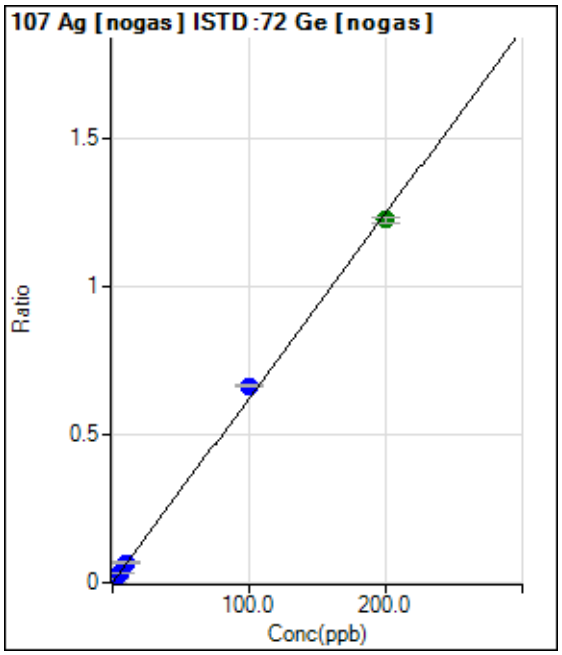



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1576.77 | 0.0012 | P | 7.0 |
| 2 | ☐ | 2.000 | 62.615 | 1603.44 | 0.0013 | P | 19.7 |
| 3 | ☐ | 5.000 | 121.274 | 1643.45 | 0.0013 | P | 11.2 |
| 4 | ☐ | 10.000 | 102.614 | 1673.45 | 0.0013 | P | 13.1 |
| 5 | ☐ | 100.000 | 220.552 | 1720.11 | 0.0014 | P | 12.9 |
| 6 | ☐ | 200.000 | 131.580 | 1633.44 | 0.0013 | P | 11.4 |
| 7 | ☐ | 1.000 | | | | | |

y = 8.3780E-007 * x + 0.0012
R = 0.5445
DL = 304.3
BEC = 1441

Weight: <None>
Min Conc: <None>

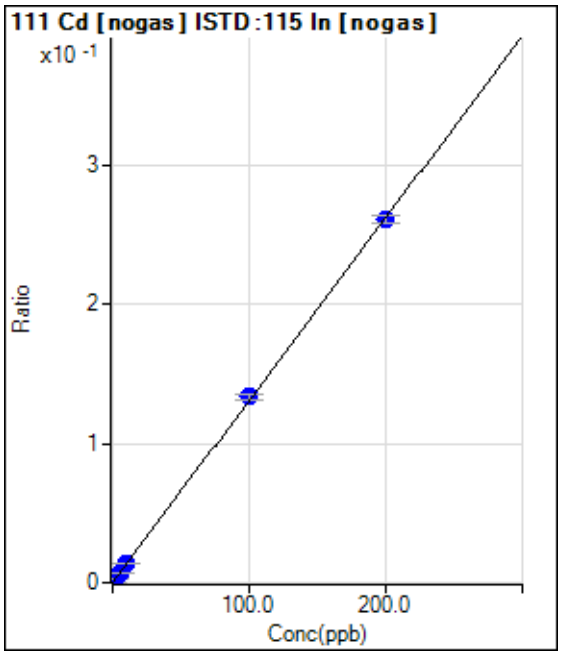
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 283.34 | 0.0002 | P | 25.5 |
| 2 | ☐ | 2.000 | 2.172 | 16748.26 | 0.0137 | P | 1.0 |
| 3 | ☐ | 5.000 | 5.351 | 42198.01 | 0.0335 | P | 2.4 |
| 4 | ☐ | 10.000 | 10.734 | 83933.52 | 0.0670 | P | 4.1 |
| 5 | ☐ | 100.000 | 106.690 | 773885.38 | 0.6642 | P | 0.8 |
| 6 | ☐ | 200.000 | 196.608 | 1447736.80 | 1.2237 | A | 1.5 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0062 * x + 2.3185E-004
R = 0.9992
DL = 0.02846
BEC = 0.03726

Weight: <None>
Min Conc: <None>

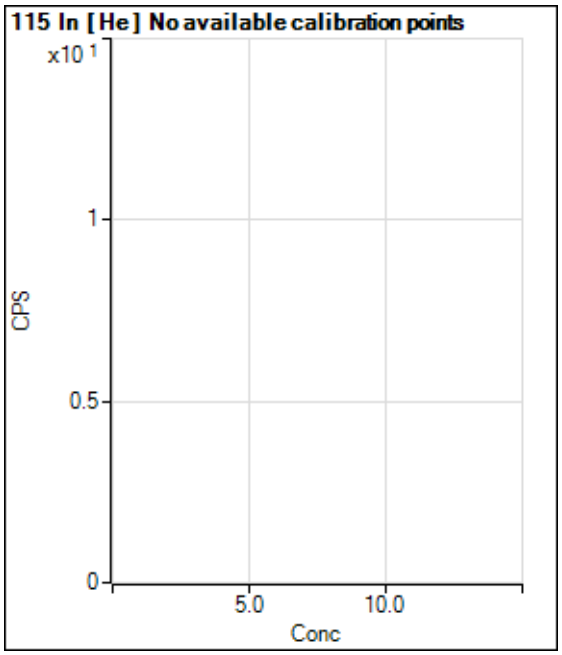



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 13.33 | 0.0000 | P | 42.8 |
| 2 | ☐ | 2.000 | 1.996 | 3357.06 | 0.0026 | P | 8.4 |
| 3 | ☐ | 5.000 | 5.325 | 8765.68 | 0.0070 | P | 3.8 |
| 4 | ☐ | 10.000 | 10.386 | 17685.81 | 0.0136 | P | 3.0 |
| 5 | ☐ | 100.000 | 101.850 | 165645.67 | 0.1336 | P | 3.1 |
| 6 | ☐ | 200.000 | 199.047 | 323204.32 | 0.2610 | P | 2.0 |
| 7 | ☐ | 1.000 | | | | | |

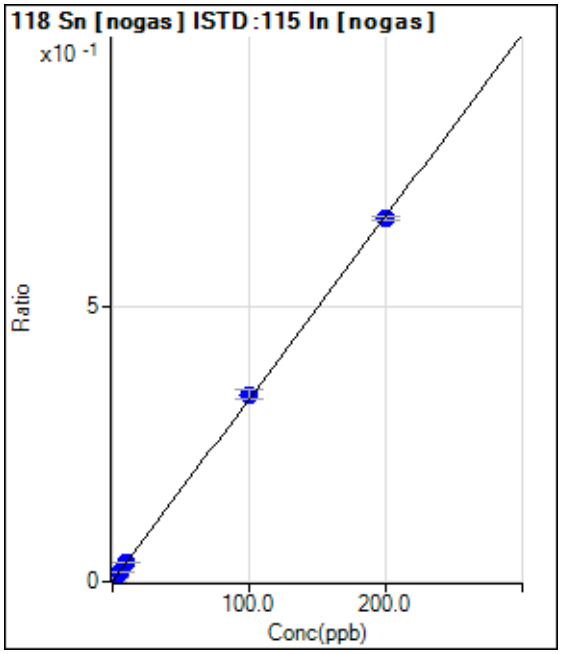
y = 0.0013 * x + 1.0186E-005
R = 0.9999
DL = 0.009971
BEC = 0.007768

Weight: <None>
Min Conc: <None>

Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | | | 110145.80 | | P | 2.9 |
| 2 | ☐ | | | 107414.22 | | P | 1.2 |
| 3 | ☐ | | | 107724.19 | | P | 2.6 |
| 4 | ☐ | | | 105248.53 | | P | 2.6 |
| 5 | ☐ | | | 102095.80 | | P | 4.0 |
| 6 | ☐ | | | 99973.07 | | P | 2.0 |
| 7 | ☐ | | | | | | |

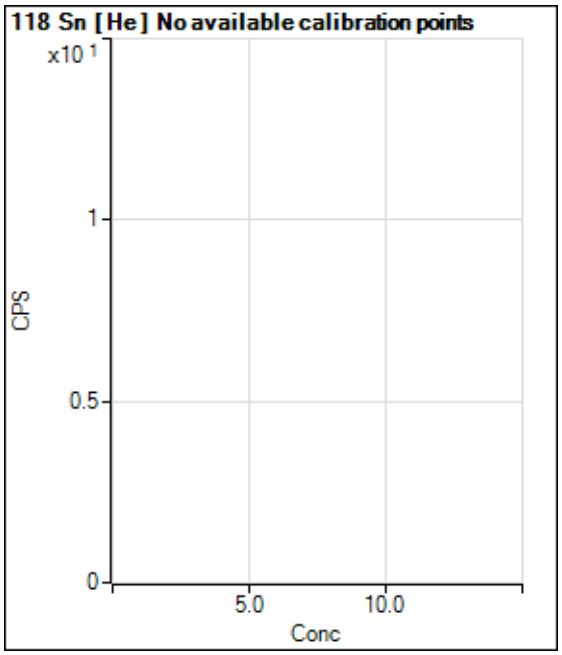



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 536.68 | 0.0004 | P | 8.3 |
| 2 | ☐ | 2.000 | 2.090 | 9396.03 | 0.0073 | P | 2.8 |
| 3 | ☐ | 5.000 | 5.184 | 22047.51 | 0.0176 | P | 3.6 |
| 4 | ☐ | 10.000 | 10.291 | 44774.21 | 0.0345 | P | 3.1 |
| 5 | ☐ | 100.000 | 102.566 | 421874.24 | 0.3405 | P | 5.5 |
| 6 | ☐ | 200.000 | 198.697 | 816303.34 | 0.6592 | P | 1.2 |
| 7 | ☐ | 1.000 | | | | | |

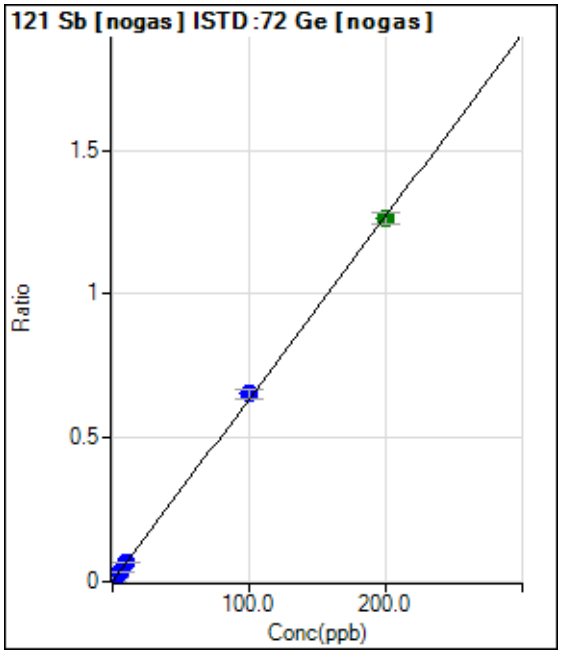
y = 0.0033 * x + 4.0988E-004
R = 0.9999
DL = 0.03095
BEC = 0.1236

Weight: <None>
Min Conc: <None>

Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | | | 53.33 | | P | 60.3 |
| 2 | ☐ | | | 1026.72 | | P | 10.2 |
| 3 | ☐ | | | 4995.67 | | P | 83.5 |
| 4 | ☐ | | | 5074.17 | | P | 1.8 |
| 5 | ☐ | | | 45840.70 | | P | 3.1 |
| 6 | ☐ | | | 89509.36 | | P | 2.2 |
| 7 | ☐ | | | | | | |

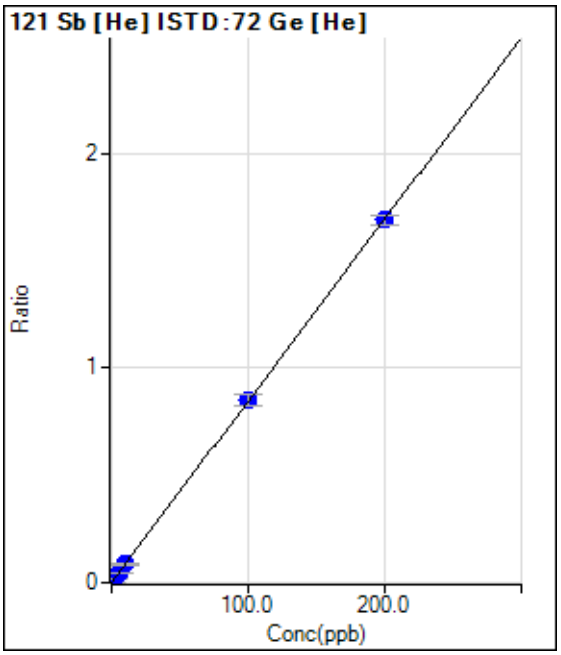



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1056.72 | 0.0009 | P | 19.7 |
| 2 | ☐ | 2.000 | 2.076 | 17088.64 | 0.0140 | P | 4.3 |
| 3 | ☐ | 5.000 | 5.023 | 41192.60 | 0.0327 | P | 3.9 |
| 4 | ☐ | 10.000 | 10.180 | 82006.31 | 0.0655 | P | 1.8 |
| 5 | ☐ | 100.000 | 102.676 | 759434.73 | 0.6524 | P | 5.1 |
| 6 | ☐ | 200.000 | 198.652 | 1491930.45 | 1.2613 | A | 3.2 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0063 * x + 8.6465E-004
R = 0.9999
DL = 0.08042
BEC = 0.1363

Weight: <None>
Min Conc: <None>

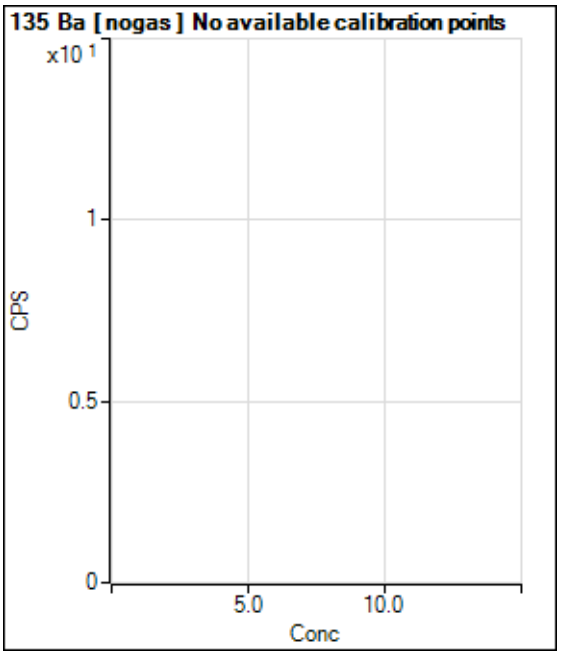
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 86.67 | 0.0009 | P | 38.0 |
| 2 | ☐ | 2.000 | 2.114 | 1783.46 | 0.0188 | P | 15.0 |
| 3 | ☐ | 5.000 | 4.874 | 4033.88 | 0.0421 | P | 7.0 |
| 4 | ☐ | 10.000 | 10.136 | 8178.73 | 0.0866 | P | 6.4 |
| 5 | ☐ | 100.000 | 100.452 | 76695.89 | 0.8503 | P | 6.0 |
| 6 | ☐ | 200.000 | 199.769 | 149960.88 | 1.6901 | P | 2.6 |
| 7 | ☐ | 1.000 | | | | | |

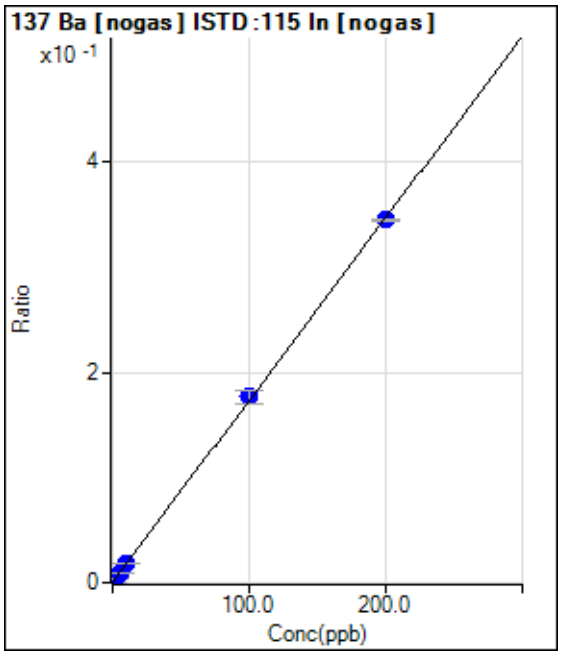
y = 0.0085 * x + 9.1209E-004
R = 1.0000
DL = 0.1228
BEC = 0.1079

Weight: <None>
Min Conc: <None>




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | | | 196.67 | | P | 7.8 |
| 2 | ☐ | | | 3006.98 | | P | 6.5 |
| 3 | ☐ | | | 6831.44 | | P | 1.0 |
| 4 | ☐ | | | 12935.08 | | P | 4.9 |
| 5 | ☐ | | | 123662.22 | | P | 1.6 |
| 6 | ☐ | | | 249349.80 | | P | 0.5 |
| 7 | ☐ | | | | | | |

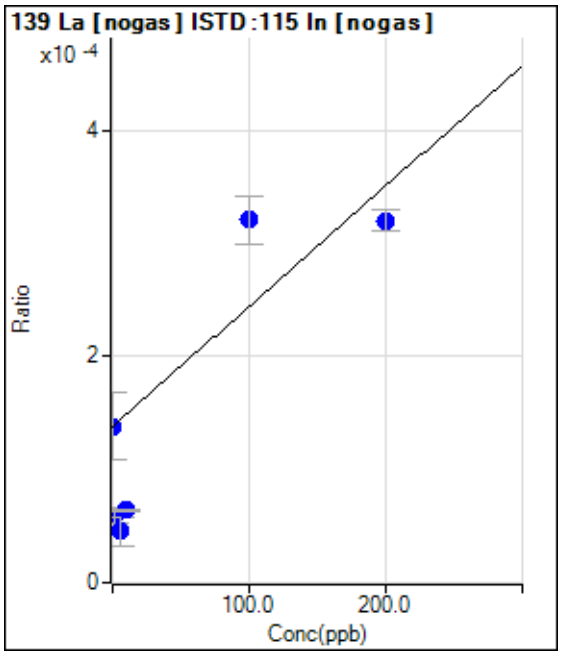
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 326.68 | 0.0003 | P | 19.2 |
| 2 | ☐ | 2.000 | 2.146 | 5070.86 | 0.0040 | P | 10.2 |
| 3 | ☐ | 5.000 | 5.313 | 11860.97 | 0.0095 | P | 4.5 |
| 4 | ☐ | 10.000 | 10.081 | 22992.32 | 0.0177 | P | 1.8 |
| 5 | ☐ | 100.000 | 101.781 | 218725.32 | 0.1767 | P | 7.4 |
| 6 | ☐ | 200.000 | 199.096 | 427704.00 | 0.3454 | P | 0.4 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0017 * x + 2.5110E-004
R = 0.9999
DL = 0.08356
BEC = 0.1449

Weight: <None>
Min Conc: <None>

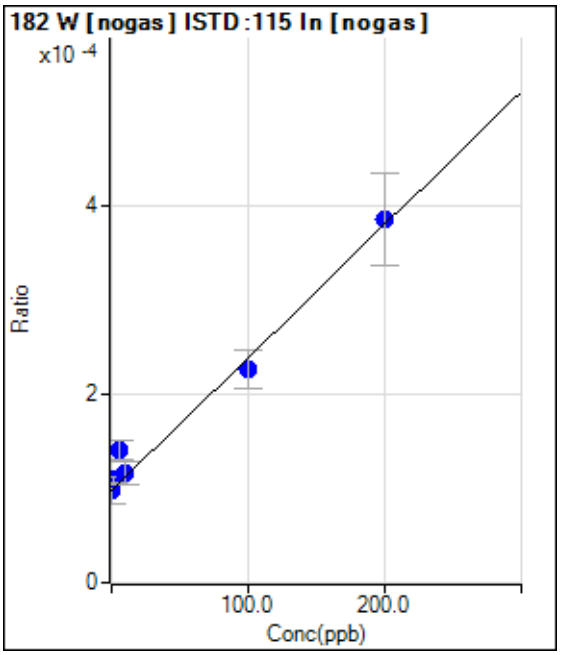



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 183.34 | 0.0001 | P | 43.6 |
| 2 | ☐ | 2.000 | -74.128 | 76.67 | 0.0001 | P | 21.8 |
| 3 | ☐ | 5.000 | -87.447 | 56.67 | 0.0000 | P | 53.6 |
| 4 | ☐ | 10.000 | -69.646 | 83.33 | 0.0001 | P | 3.5 |
| 5 | ☐ | 100.000 | 171.657 | 400.01 | 0.0003 | P | 12.9 |
| 6 | ☐ | 200.000 | 171.226 | 396.68 | 0.0003 | P | 6.0 |
| 7 | ☐ | 100.000 | | | | | |

y = 1.0637E-006 * x + 1.3826E-004
R = 0.8857
DL = 170
BEC = 130

Weight: <None>
Min Conc: <None>

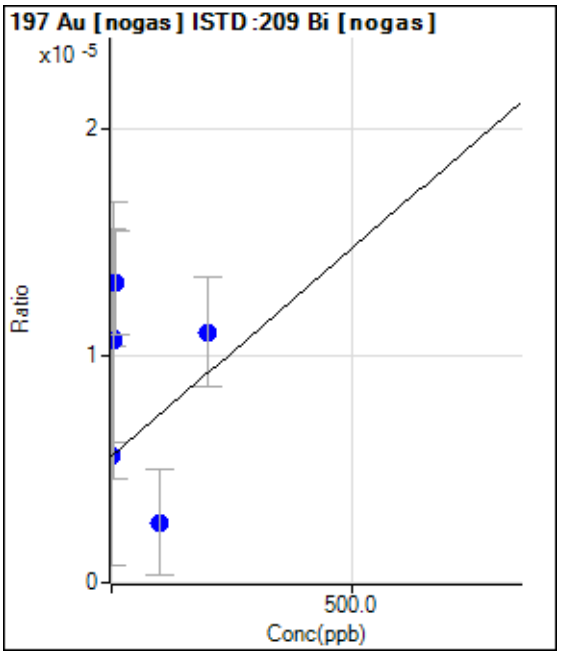
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 126.67 | 0.0001 | P | 28.2 |
| 2 | ☐ | 2.000 | 8.504 | 140.00 | 0.0001 | P | 5.0 |
| 3 | ☐ | 5.000 | 30.696 | 176.67 | 0.0001 | P | 14.9 |
| 4 | ☐ | 10.000 | 13.137 | 150.00 | 0.0001 | P | 20.0 |
| 5 | ☐ | 100.000 | 91.309 | 280.01 | 0.0002 | P | 17.2 |
| 6 | ☐ | 200.000 | 203.481 | 476.68 | 0.0004 | P | 25.3 |
| 7 | ☐ | 1.000 | | | | | |

y = 1.4099E-006 * x + 9.7476E-005
R = 0.9907
DL = 58.58
BEC = 69.14

Weight: <None>
Min Conc: <None>

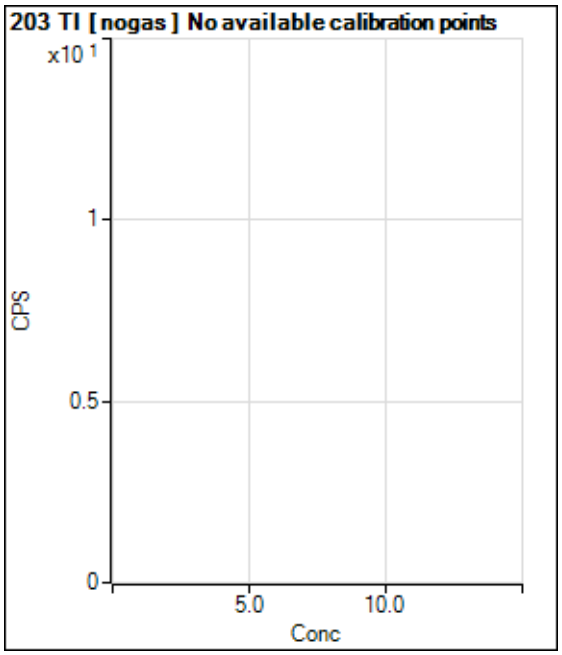



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 6.67 | 0.0000 | P | 173. |
| 2 | ☐ | 2.000 | 288.992 | 13.33 | 0.0000 | P | 86.8 |
| 3 | ☐ | 5.000 | 277.716 | 13.33 | 0.0000 | P | 114. |
| 4 | ☐ | 10.000 | 419.304 | 16.67 | 0.0000 | P | 34.6 |
| 5 | ☐ | 100.000 | -158.753 | 3.33 | 0.0000 | P | 173. |
| 6 | ☐ | 200.000 | 299.224 | 13.33 | 0.0000 | P | 43.0 |
| 7 | ☐ | 100.000 | | | | | |

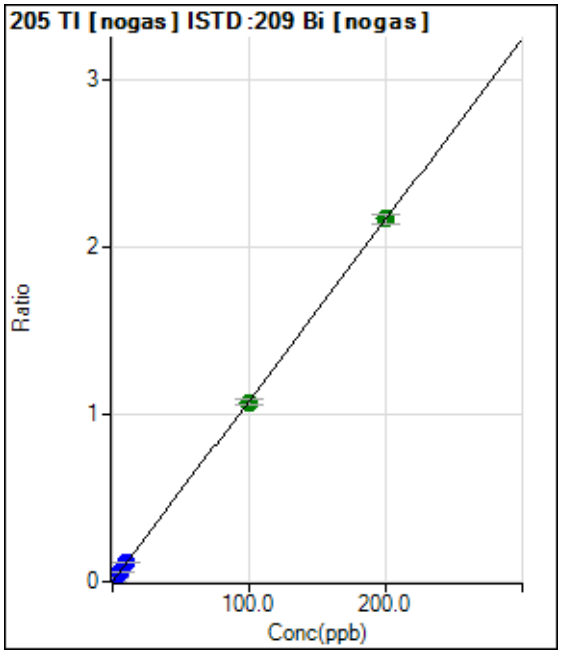
y = 1.8340E-008 * x + 5.5807E-006
R = -0.1049
DL = 1581
BEC = 304.3

Weight: <None>
Min Conc: <None>

Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | | | 70.00 | | P | 62.3 |
| 2 | ☐ | | | 12364.89 | | P | 2.2 |
| 3 | ☐ | | | 30265.07 | | P | 3.2 |
| 4 | ☐ | | | 61068.72 | | P | 1.4 |
| 5 | ☐ | | | 591472.74 | | P | 2.4 |
| 6 | ☐ | | | 1135126.23 | | P | 1.6 |
| 7 | ☐ | | | | | | |

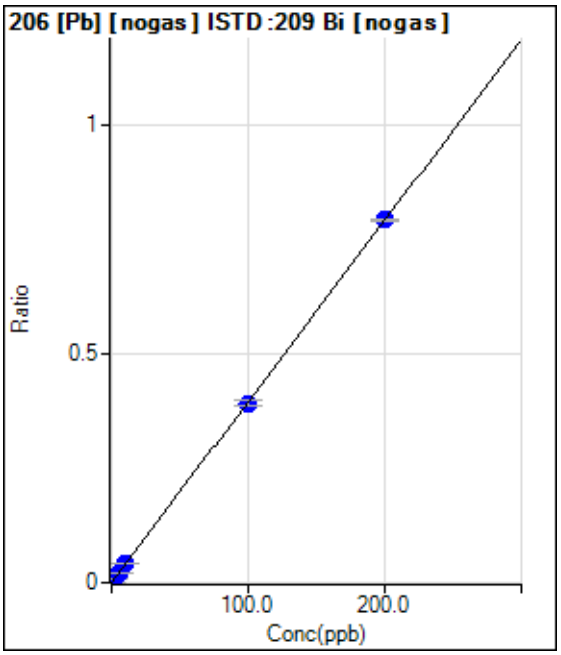



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 193.33 | 0.0002 | P | 18.6 |
| 2 | ☐ | 2.000 | 2.249 | 29827.91 | 0.0245 | P | 6.7 |
| 3 | ☐ | 5.000 | 5.509 | 74111.99 | 0.0597 | P | 1.1 |
| 4 | ☐ | 10.000 | 10.934 | 148668.17 | 0.1184 | P | 0.7 |
| 5 | ☐ | 100.000 | 99.037 | 1320216.54 | 1.0712 | A | 3.2 |
| 6 | ☐ | 200.000 | 200.420 | 2609231.99 | 2.1675 | A | 2.5 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0108 * x + 1.5998E-004
R = 1.0000
DL = 0.008268
BEC = 0.01479

Weight: <None>
Min Conc: <None>

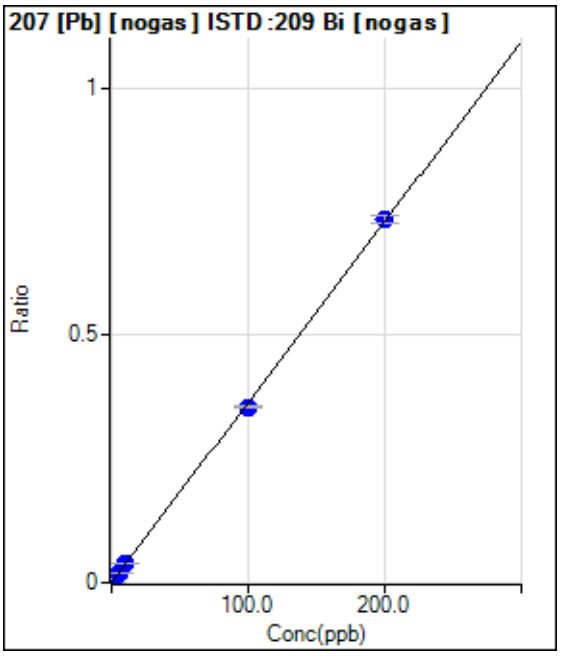
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 60.00 | 0.0000 | P | 28.3 |
| 2 | ☐ | 2.000 | 2.104 | 10196.72 | 0.0084 | P | 1.6 |
| 3 | ☐ | 5.000 | 5.335 | 26198.18 | 0.0211 | P | 3.1 |
| 4 | ☐ | 10.000 | 10.647 | 52862.70 | 0.0421 | P | 0.6 |
| 5 | ☐ | 100.000 | 98.985 | 481930.16 | 0.3910 | P | 2.9 |
| 6 | ☐ | 200.000 | 200.466 | 953136.84 | 0.7918 | P | 0.9 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0039 * x + 4.9641E-005
R = 1.0000
DL = 0.01067
BEC = 0.01257

Weight: <None>
Min Conc: <None>

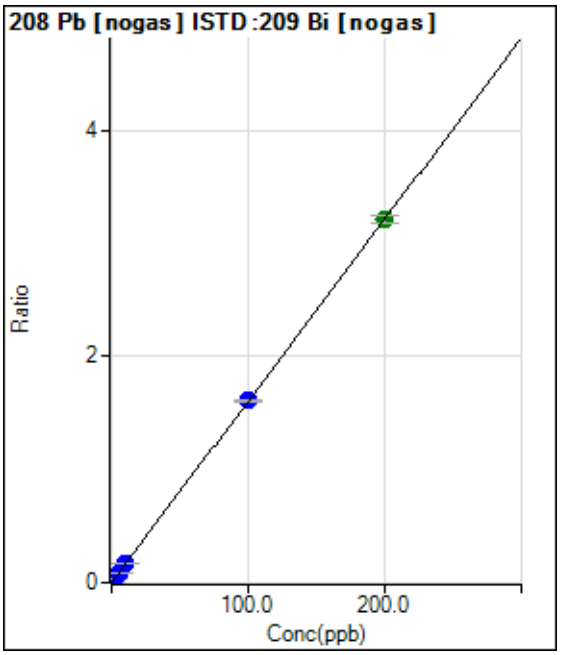



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 70.00 | 0.0001 | P | 30.5 |
| 2 | ☐ | 2.000 | 2.070 | 9276.12 | 0.0076 | P | 3.2 |
| 3 | ☐ | 5.000 | 5.053 | 22926.44 | 0.0185 | P | 0.2 |
| 4 | ☐ | 10.000 | 10.309 | 47252.55 | 0.0376 | P | 2.3 |
| 5 | ☐ | 100.000 | 97.565 | 438435.12 | 0.3557 | P | 1.6 |
| 6 | ☐ | 200.000 | 201.200 | 882783.79 | 0.7334 | P | 2.2 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0036 * x + 5.8259E-005
R = 0.9999
DL = 0.01464
BEC = 0.01598

Weight: <None>
Min Conc: <None>

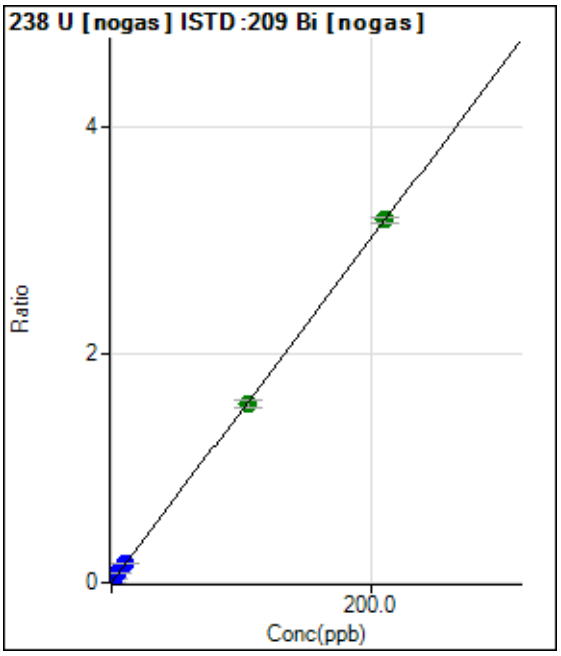
Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 273.33 | 0.0002 | P | 7.2 |
| 2 | ☐ | 2.000 | 2.125 | 41835.27 | 0.0343 | P | 2.0 |
| 3 | ☐ | 5.000 | 5.226 | 104278.36 | 0.0841 | P | 1.3 |
| 4 | ☐ | 10.000 | 10.573 | 213228.81 | 0.1698 | P | 2.2 |
| 5 | ☐ | 100.000 | 100.246 | 1982482.80 | 1.6082 | P | 1.3 |
| 6 | ☐ | 200.000 | 199.841 | 3858733.09 | 3.2057 | A | 2.0 |
| 7 | ☐ | 1.000 | | | | | |

y = 0.0160 * x + 2.2624E-004
R = 1.0000
DL = 0.003051
BEC = 0.0141

Weight: <None>
Min Conc: <None>

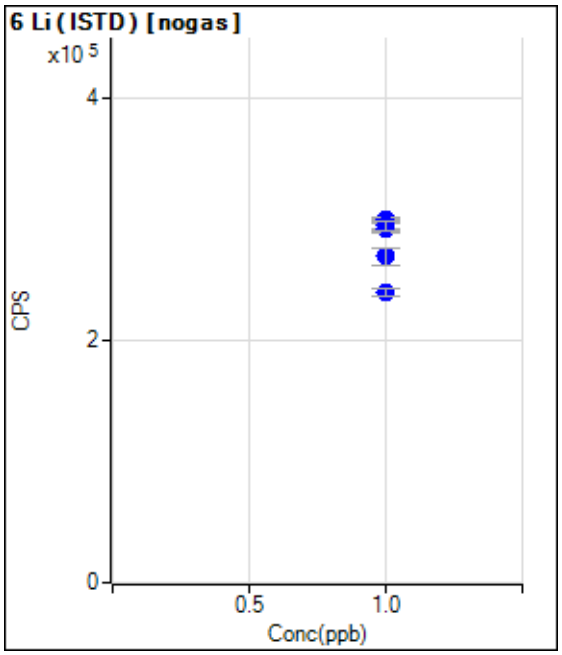



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 120.00 | 0.0001 | P | 47.0 |
| 2 | ☐ | 2.000 | 2.233 | 41304.50 | 0.0339 | P | 1.3 |
| 3 | ☐ | 5.000 | 5.532 | 103938.81 | 0.0838 | P | 1.5 |
| 4 | ☐ | 10.000 | 11.232 | 213455.78 | 0.1700 | P | 1.6 |
| 5 | ☐ | 105.000 | 103.862 | 1937176.54 | 1.5711 | A | 3.9 |
| 6 | ☐ | 210.000 | 210.496 | 3832785.36 | 3.1841 | A | 1.3 |
| 7 | ☐ | 1.000 | | | | | |

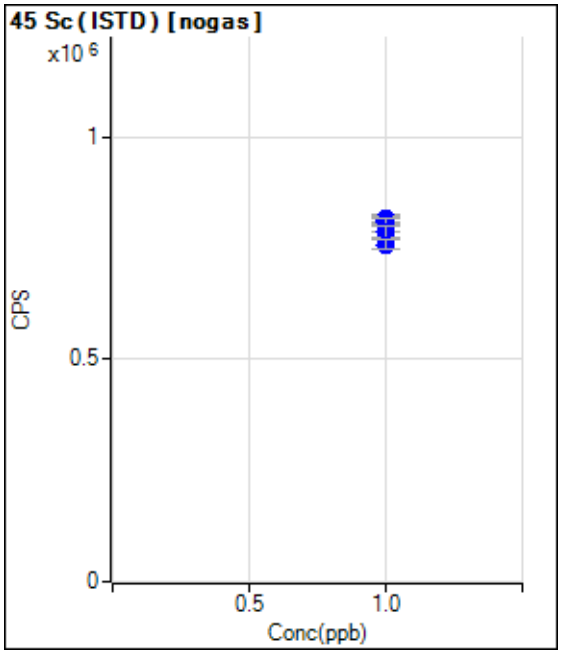
y = 0.0151 * x + 9.9445E-005
R = 1.0000
DL = 0.009277
BEC = 0.006574

Weight: <None>
Min Conc: <None>

Calibration for 129_ICV.d

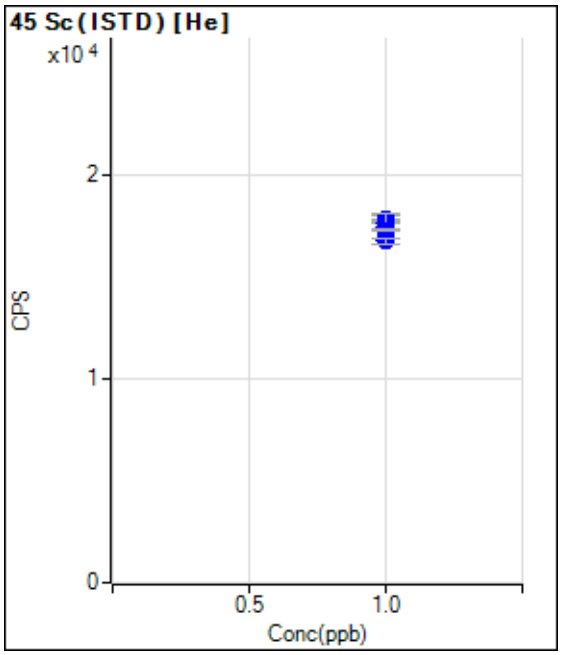



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 296893.18 | | P | 2.8 |
| 2 | ☐ | 1.000 | | 299892.37 | | P | 0.9 |
| 3 | ☐ | 1.000 | | 292905.93 | | P | 2.5 |
| 4 | ☐ | 1.000 | | 294923.01 | | P | 3.0 |
| 5 | ☐ | 1.000 | | 269959.32 | | P | 5.2 |
| 6 | ☐ | 1.000 | | 239919.58 | | P | 2.9 |
| 7 | ☐ | 1.000 | | | | | |

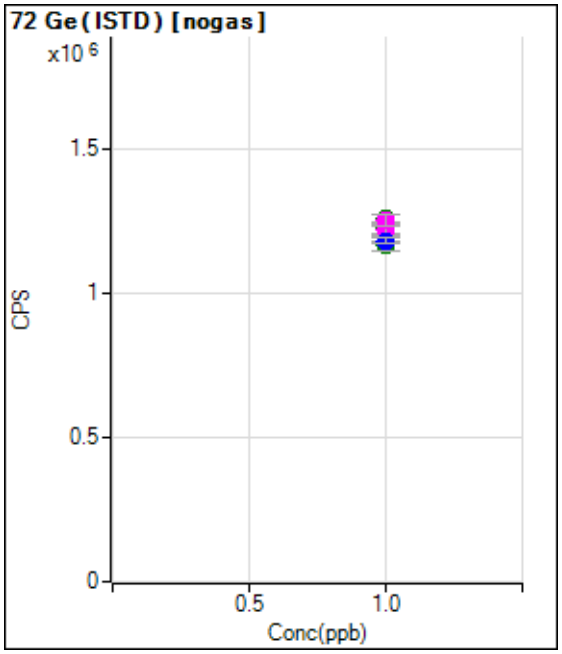



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 806828.97 | | P | 4.8 |
| 2 | ☐ | 1.000 | | 815454.67 | | P | 2.6 |
| 3 | ☐ | 1.000 | | 816399.60 | | P | 1.7 |
| 4 | ☐ | 1.000 | | 809538.84 | | P | 2.1 |
| 5 | ☐ | 1.000 | | 786486.71 | | P | 3.3 |
| 6 | ☐ | 1.000 | | 758521.06 | | P | 3.0 |
| 7 | ☐ | 1.000 | | | | | |

Calibration for 129_ICV.d

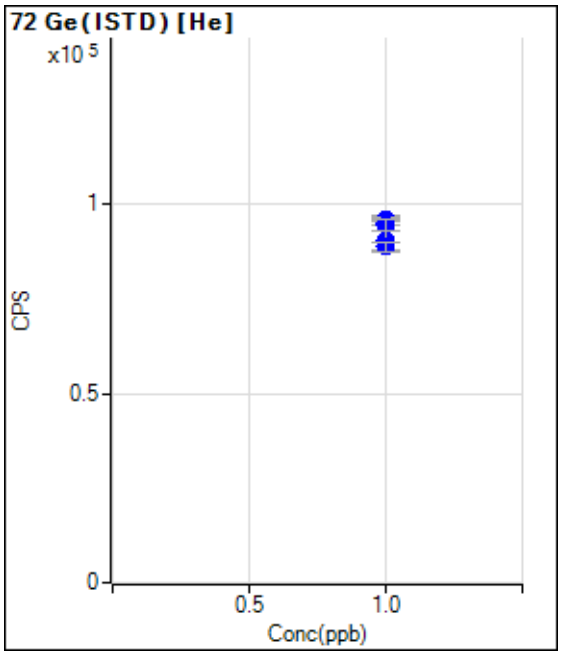



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 17705.49 | | P | 4.4 |
| 2 | ☐ | 1.000 | | 17828.82 | | P | 0.9 |
| 3 | ☐ | 1.000 | | 17495.16 | | P | 2.4 |
| 4 | ☐ | 1.000 | | 17692.02 | | P | 4.6 |
| 5 | ☐ | 1.000 | | 17335.13 | | P | 0.2 |
| 6 | ☐ | 1.000 | | 16794.57 | | P | 1.5 |
| 7 | ☐ | 1.000 | | | | | |

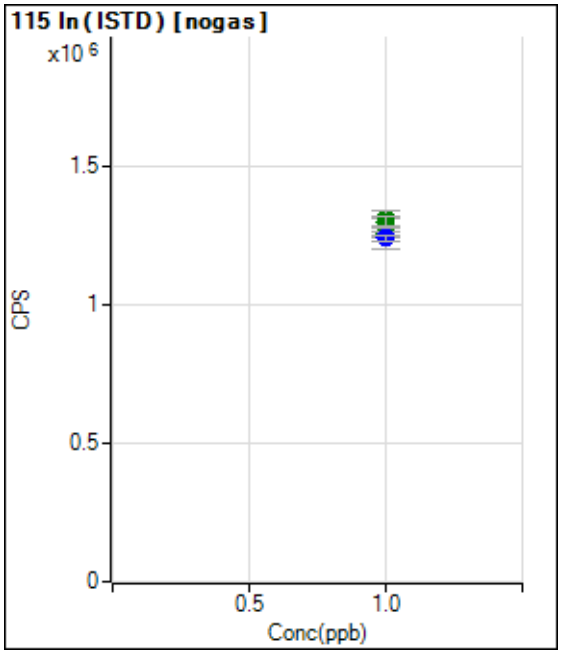



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 1226431.26 | | A | 3.4 |
| 2 | ☐ | 1.000 | | 1218303.73 | | M | 2.7 |
| 3 | ☐ | 1.000 | | 1258587.35 | | A | 2.5 |
| 4 | ☐ | 1.000 | | 1253130.97 | | M | 3.5 |
| 5 | ☐ | 1.000 | | 1165218.11 | | A | 2.9 |
| 6 | ☐ | 1.000 | | 1183159.80 | | P | 1.3 |
| 7 | ☐ | 1.000 | | | | | |

Calibration for 129_ICV.d

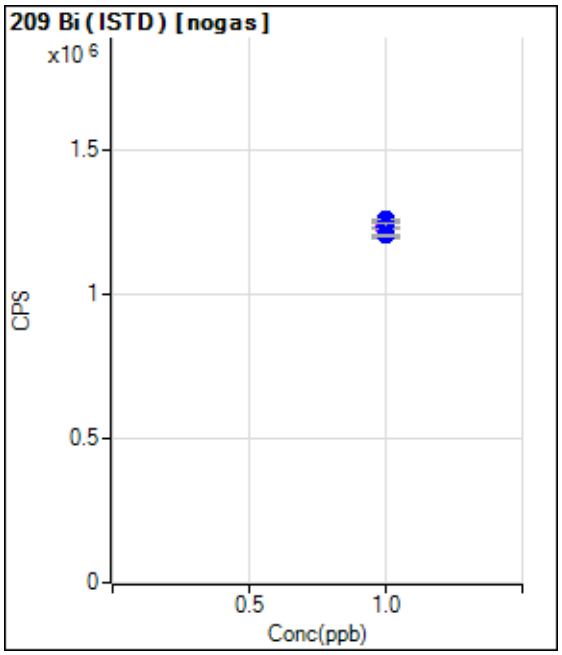



| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 95587.80 | | P | 2.9 |
| 2 | ☐ | 1.000 | | 94967.57 | | P | 1.4 |
| 3 | ☐ | 1.000 | | 95803.63 | | P | 0.9 |
| 4 | ☐ | 1.000 | | 94464.43 | | P | 2.8 |
| 5 | ☐ | 1.000 | | 90412.21 | | P | 5.9 |
| 6 | ☐ | 1.000 | | 88763.49 | | P | 2.7 |
| 7 | ☐ | 1.000 | | | | | |




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 1308607.23 | | A | 4.6 |
| 2 | ☐ | 1.000 | | 1281109.71 | | A | 5.1 |
| 3 | ☐ | 1.000 | | 1253598.43 | | A | 1.9 |
| 4 | ☐ | 1.000 | | 1297548.51 | | A | 3.3 |
| 5 | ☐ | 1.000 | | 1241731.45 | | M | 6.2 |
| 6 | ☐ | 1.000 | | 1238472.10 | | P | 1.2 |
| 7 | ☐ | 1.000 | | | | | |

Calibration for 129_ICV.d




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD |
|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 1207115.68 | | A | 2.4 |
| 2 | ☐ | 1.000 | | 1219545.11 | | M | 3.7 |
| 3 | ☐ | 1.000 | | 1240819.72 | | M | 1.5 |
| 4 | ☐ | 1.000 | | 1255611.23 | | P | 0.2 |
| 5 | ☐ | 1.000 | | 1232930.63 | | P | 1.8 |
| 6 | ☐ | 1.000 | | 1203692.69 | | P | 0.6 |
| 7 | ☐ | 1.000 | | | | | |

# Hexavalent Chromium Raw Data

## Bhate Environmental Associates, Inc.

Project: Longhorn GW Treatment Plant Monthly Effluent

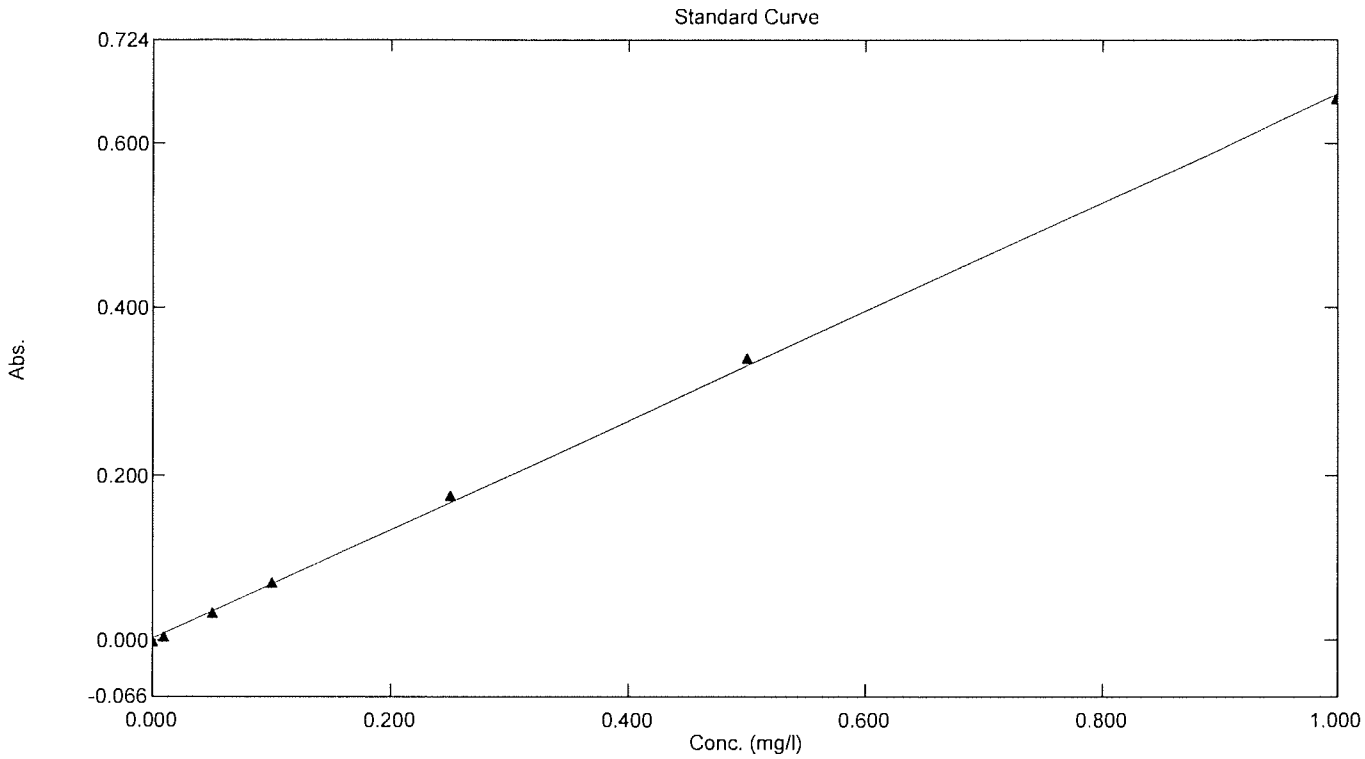
ALS WO# HS17110493

MS1711049 3

# Standard Table Report

12/04/2017 06:03:07 PM

File Name: Q:\UVProbe\CR6+_UNKNOWN\171110_CR6_W.pho




Correlation Coefficient r2 = 0.99935

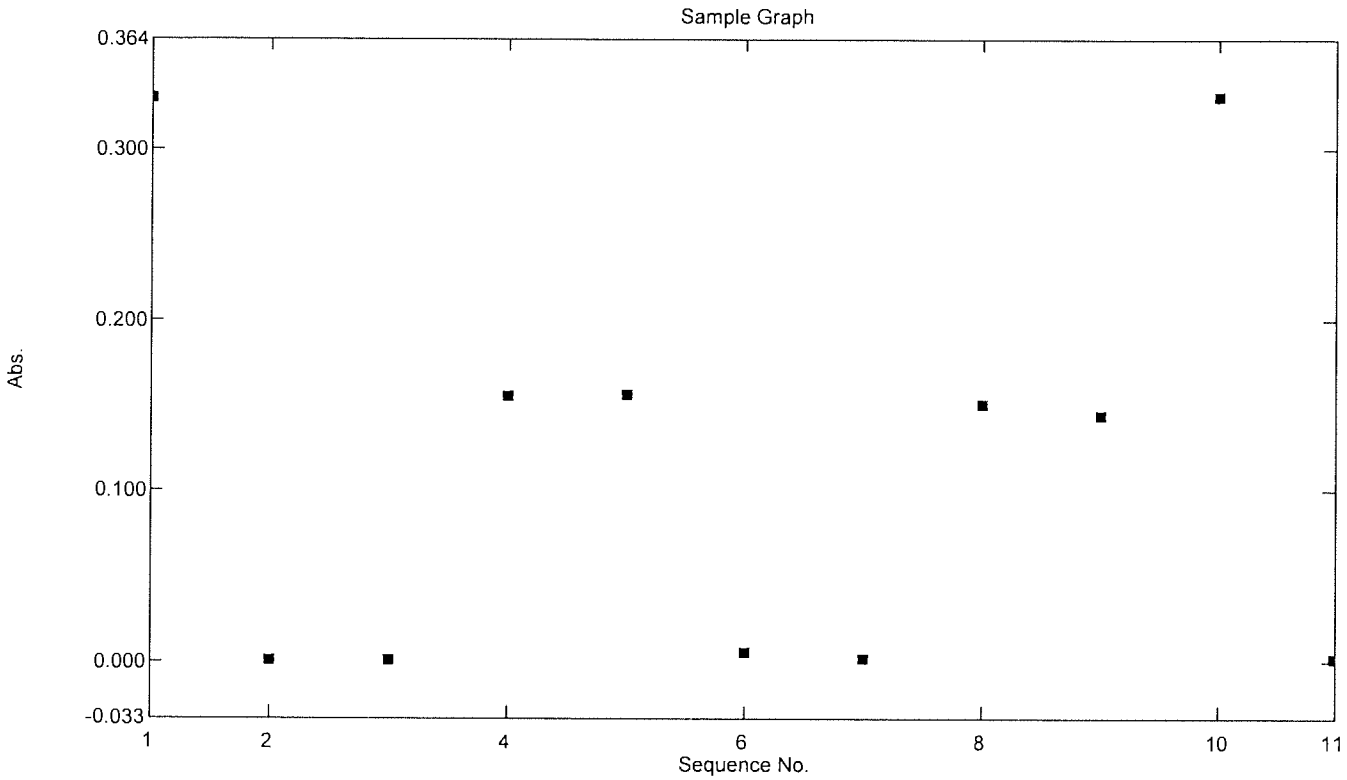
Standard Table

| | Sample ID | Type | Ex | Conc | WL540.0 | Wgt.Factor | Comments |
|---|---|---|---|---|---|---|---|
| 1 | STD1 | Standard | | 0.000 | -0.000 | 1.000 | |
| 2 | STD2 | Standard | | 0.010 | 0.005 | 1.000 | |
| 3 | STD3 | Standard | | 0.050 | 0.033 | 1.000 | |
| 4 | STD4 | Standard | | 0.100 | 0.069 | 1.000 | |
| 5 | STD5 | Standard | | 0.250 | 0.174 | 1.000 | |
| 6 | STD6 | Standard | | 0.500 | 0.340 | 1.000 | |
| 7 | STD7 | Standard | | 1.000 | 0.652 | 1.000 | |
| 8 | | | | | | | |

# Sample Table Report

12/04/2017 06:03:09 PM

File Name: Q:\UVProbe\CR6+_UNKNOWN\171110_CR6_W.pho




Sample Table

| | Sample ID | Type | Ex | Conc | WL540.0 | Comments |
|---|---|---|---|---|---|---|
| 1 | CCV | Unknown | | 0.498 | 0.330 | |
| 2 | CCB | Unknown | | -0.004 | 0.000 | |
| 3 | MBLK | Unknown | | -0.004 | 0.000 | |
| 4 | LCS | Unknown | | 0.232 | 0.155 | |
| 5 | LCSD | Unknown | | 0.233 | 0.156 | |
| 6 | 17110493.01 | Unknown | | 0.003 | 0.005 | 12:32PM |
| 7 | 17110496.01 | Unknown | | -0.002 | 0.002 | 12:33PM |
| 8 | 17110496.01MS | Unknown | | 0.225 | 0.150 | |
| 9 | 17110496.01MSD | Unknown | | 0.215 | 0.144 | |
| 10 | CCV2 | Unknown | | 0.501 | 0.331 | |
| 11 | CCB2 | Unknown | | -0.003 | 0.001 | |
| 12 | | | | | | |

# Sub Contract Data

## Bhate Environmental Associates, Inc.

Project: Longhorn GW Treatment Plant Monthly Effluent

ALS WO# HS17110493

# Case Narrative

**Method:** 6850
**Analysis:** Perchlorate
**Analysis SOP:** LC-MS-CLO4
**ALS WO ID(s):** 1731766; 1731771; 1731772; 1732090

**Client:** ALS Laboratories (Houston, TX)
**Matrix:** Water
**ELMS Batch (HBN):** 1999 (203403)

**General Set Information:** There were ten 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:** Sample 1732090001 was re-analyzed and reported at a 1 in 100 dilution. Samples 1731766001 and 1732090002/04 were re-analyzed and reported at a 1 in 1,000 dilutions. The reporting limits have been adjusted accordingly.

**Method QC data:** The method blank (LMB 575296) was less than 1/2 the CRDL. The recovery for the LCS (575297) was within acceptable parameters.

**MS/MSD Analysis:** The matrix spike and matrix spike duplicate (MS/MSD) was performed on samples 1732090006/07 (Client ID: 50WW08-111317). 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):** None were required for this set.

**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 5.0. Manual Integrations were performed for the Initial Calibration analyses (datafiles: 21AUGP01-03) along with datafiles 21NOVP02/03/10/19.

Thomas Bosch November 28, 2017
Date

# ANALYTICAL REPORT

Report Date: November 28, 2017

Sonia West
ALS Environmental
10450 Stancliff Rd.
Suite 210
Houston, TX 77099

Phone: (281) 530-5656

E-mail: Sonia.West@alsglobal.com

Workorder: **34-1731771**
Project ID: HA17110493-01 110917
Purchase Order: HS17110493
Project Manager Kevin W. Griffiths

| Client Sample ID | Lab ID | Collect Date | Receive Date | Sampling Site |
|---|---|---|---|---|
| LH18/24-SP650_110917 | 1731771001 | 11/09/17 | 11/11/17 | |

# ANALYTICAL REPORT

**Workorder:** 34-1731771
**Client:** ALS Environmental (Houston)
**Project Manager:** Kevin W. Griffiths

## Analytical Results

| | | |
|---|---|---|
| Sample ID: **LH18/24-SP650_110917** | Sampling Site: NA | Collected: 11/09/2017 |
| Lab ID: 1731771001 | Media: 500 mL Nalgene | Received: 11/11/2017 |
| 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/1999 (HBN: 203403) | **Percent Solid:** NA |
| | **Analyzed:** 11/21/2017 10:49 | **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 |

## 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>11/27/2017 16:49 | /S/ Christopher Winter<br>11/28/2017 13:08 |

## 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

# ANALYTICAL REPORT

**Workorder:** 34-1731771
**Client:** ALS Environmental (Houston)
**Project Manager:** Kevin W. Griffiths

## 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 (Standard) | Certificate Number | Website |
|---|---|---|---|
| Environmental | ANAB (DoD ELAP) | ADE-1420 | http://www.anab.org/accredited-organizations/ |
| | Utah (NELAC) | DATA1 | http://health.utah.gov/lab/labimp/ |
| | Nevada | UT00009 | http://ndep.nv.gov/bsdw/labservice.htm |
| | Oklahoma | UT00009 | http://www.deq.state.ok.us/CSDnew/ |
| | Iowa | IA# 376 | http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx |
| | Texas (TNI) | T104704456-11-1 | http://www.tceq.texas.gov/field/qa/lab_accred_certif.html |
| | Washington | C596-16 | http://www.ecy.wa.gov/programs/eap/labs/index.html |
| | Kansas | E-10416 | http://www.kdheks.gov/lipo/index.html |
| Industrial Hygiene | AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP) | 101574 | http://www.aihaaccreditedlabs.org |
| | Washington | C596-16 | http://www.ecy.wa.gov/programs/eap/labs/index.html |
| Lead Testing: | | | |
| CPSC | ANAB (ISO 17025, CPSC) | ADE-1420 | http://www.anab.org/accredited-organizations/ |
| Soil, Dust, Paint ,Air | AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP) | 101574 | http://www.aihaaccreditedlabs.org |
| Dietary Supplements | ACLASS (ISO 17025) | ADE-1420 | http://www.aclasscorp.com |

# ANALYTICAL REPORT

**Workorder:** 34-1731771
**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:** 1731771

| | | | | | |
|---|---|---|---|---|---|
| **Limits:** | Client SOW/Contract Specified | **Preparation:** | NA | **Analysis:** | EPA 6850 |
| **Basis:** | DoD QSM | **Batch:** | NA | **Batch:** | ELMS/1999 (HBN: 203403) |
| | | **Prepared By:** | NA | **Analyzed By:** | Thomas Bosch |

### Blank

**LMB:** 575296
**Analyzed:** 11/21/2017 09:50
**Units:** ug/L

| Analyte | Result | MDL | RL |
|---|---|---|---|
| Perchlorate | ND | 1 | 2.00 |

### Laboratory Control Sample

**LCS:** 575297
**Analyzed:** 11/21/2017 10:09
**Dilution:** 1
**Units:** ug/L

| Analyte | Result | Target | % Rec | QC Limits | |
|---|---|---|---|---|---|
| Perchlorate | 5.02 | 5.00 | 100 | 78.8 | 123.8 |

### Matrix Spike - Matrix Spike Duplicate

| | | | |
|---|---|---|---|
| **Sample:** 1732090005 | **MS:** 1732090006 | **MSD:** 1732090007 |
| **Analyzed:** 11/21/2017 12:45 | **Analyzed:** 11/21/2017 13:06 | **Analyzed:** 11/21/2017 13:25 |
| **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 | 27.0 | 33 | 5 | 110 | 78.8 | 123.8 | 33 | 111 | 0.197 | 0.0 | 20.0 |

### Continuing Calibration Verification

| | | |
|---|---|---|
| **CCV:** 575293 | **CCV:** 575298 | **CCV:** 575300 |
| **Analyzed:** 11/21/2017 08:50 | **Analyzed:** 11/21/2017 14:23 | **Analyzed:** 11/21/2017 16:20 |
| **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 | 26.7 | 25.0 | 107 | 25.7 | 25.0 | 103 | 26.7 | 25.0 | 107 |

### Interference Check Sample

**ICSA:** 575295
**Analyzed:** 11/21/2017 09:30
**Units:** ug/L
**Criteria:** ± 30%

| Analyte | Result | Target | % Rec. |
|---|---|---|---|
| Perchlorate | 1.13 | 1.00 | 113 |

### Limit of Detection Verification

| | | |
|---|---|---|
| **LODV:** 575294 | **LODV:** 575299 | **LODV:** 575301 |
| **Analyzed:** 11/21/2017 09:11 | **Analyzed:** 11/21/2017 14:43 | **Analyzed:** 11/21/2017 16:39 |
| **Units:** ug/L | **Units:** ug/L | **Units:** ug/L |
| **Criteria:** ± 50% | **Criteria:** ± 50% | **Criteria:** ± 50% |

| Analyte | Result | Target | % Rec. | Result | Target | % Rec. | Result | Target | % Rec. |
|---|---|---|---|---|---|---|---|---|---|
| Perchlorate | 0.922 | 1.00 | 92.2 | 0.903 | 1.00 | 90.3 | 0.964 | 1.00 | 96.4 |

# Quality Control Sample
# Batch Report

## Analysis Information

**Workorder:** **1731771**

| | | | | | |
|---|---|---|---|---|---|
| **Limits:** | Client SOW/Contract Specified | **Preparation:** | NA | **Analysis:** | EPA 6850 |
| **Basis:** | DoD QSM | **Batch:** | NA | **Batch:** | ELMS/1999 (HBN: 203403) |
| | | **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/ Christopher Winter |
| 11/27/2017 16:49 | 11/28/2017 13:08 |

## 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

1731771

00877389

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

18698/#2

# Subcontract Chain of Custody

**COC ID: 8019**

**SUBCONTRACT TO:**

ALS Laboratory Group
960 LeVoy Dr
Salt Lake City, UT 84123

**Phone:** +1 801 266 7700

**CUSTOMER INFORMATION:**

| | |
|---|---|
| **Company:** | ALS Houston |
| **Contact:** | Sonia West |
| **Address:** | 10450 Stancliff Rd, Ste 210 |
| **Phone:** | +1 281 530 5656 |
| **Email:** | Sonia.West@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:** | HS17110493 |
| **TSR:** | Danielle Winnings |

| | LAB SAMPLE ID | CLIENT SAMPLE ID | MATRIX | COLLECT DATE |
|---|---|---|---|---|
| | ANALYSIS REQUESTED | | | DUE DATE |
| **1.** | **HS17110493-01** | **LH18/24-SP650_110917** | **Water** | **09 Nov 2017 14:00** |
| | SUB_Perch-6850 | | | 28 Nov 2017 |

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

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

Relinquished By: J. Mwaikambo Date/Time: 11/10/17 18:00

Received By: Meriel Schaff Date/Time: 11/11/17 855

Cooler ID(s): FOX Temperature(s): 2°

ROCKET SOLUTIONS | RIGHT PARTNER

00877390

# ALS Environmental

## CHAIN-OF-CUSTODY

| | | | |
|---|---|---|---|
| **Project / Job / Task:** HS17110493 | ***Split:*** | **Workorder ID:** 1731771 | **Level:** ENV_LVL4 |
| **Client:** ALS Environmental (Houston) | | **Account:** 8101 | **Type:** 500Poly |
| **Comments:** | | | **Preservatives** |

| Item | Collect Date/Time | Sample ID | Lab ID | QC | Matrix | Containers ID(s) | Containers Count | Requested Analysis: EPA 6850, DoD QSM |
|---|---|---|---|---|---|---|---|---|
| 1 | 11/09/2017 14:00 | LH18/24-SP650_110917 | 1731771001 | | Water | A | 1 | A |
| 2 | | | | | | | | |
| 3 | | | | | | | | |
| 4 | | | | | | | | |
| 5 | | | | | | | | |
| 6 | | | | | | | | |
| 7 | | | | | | | | |
| 8 | | | | | | | | |
| 9 | | | | | | | | |
| 10 | | | | | | | | |

430 of 544

## ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

| Relinquished By: (Signature) | Date / Time | Received By: (Signature) | Reason for Transfer / Storage Location |
|---|---|---|---|
| Hill, Desiree | 11/11/2017 08:55 | ALS Sample Receiving | Sample Login |
| Desiree Hill | 11/13/17 14:30 | SC | Storage |
| R.33.1 | 11/21.17/08:05 | T. Booth | 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 |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

# ALS - Salt Lake City-Related Information Report (CRIR)

## Cooler or Container Information Checklist (Fill In or Circle)

Client Name: ALS Houston

Project/Task/Site: 173771

Date/Time of Receipt: 11/11/17 0855

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: | Cooler/Between Samples |
| | | Are all temperatures within project specific guidelines? | Yes/No/NA |
| Container Custody Seals: | Present/Absent/NA<br>Intact/Broken/NA | VOA Headspace Present? | Yes/No/NA |
| Ice Present: | Yes/No/NA<br>Frozen/Melted/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 | TOC Preserved | Yes/No/NA |

| Cooler Received | ALS Cooler No. | Temp. | Cooler Received | ALS Cooler No. | Temp. | Cooler Received | ALSL Cooler No. | Temp. |
|---|---|---|---|---|---|---|---|---|
| 1 | C17- 8008 | 2 °C | 4 | C17- | °C | 7 | C17- | °C |
| 2 | C17- | °C | 5 | C17- | °C | 8 | C17- | °C |
| 3 | C17- | °C | 6 | C17- | °C | 9 | C17- | °C |

Taken By: Meredith Edens (Signature) Meredith Edens (Printed Name) 11/11/17 (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:

E-mailed to Client? Yes ☐ No ☐

**Response Required Within 24 Hours**

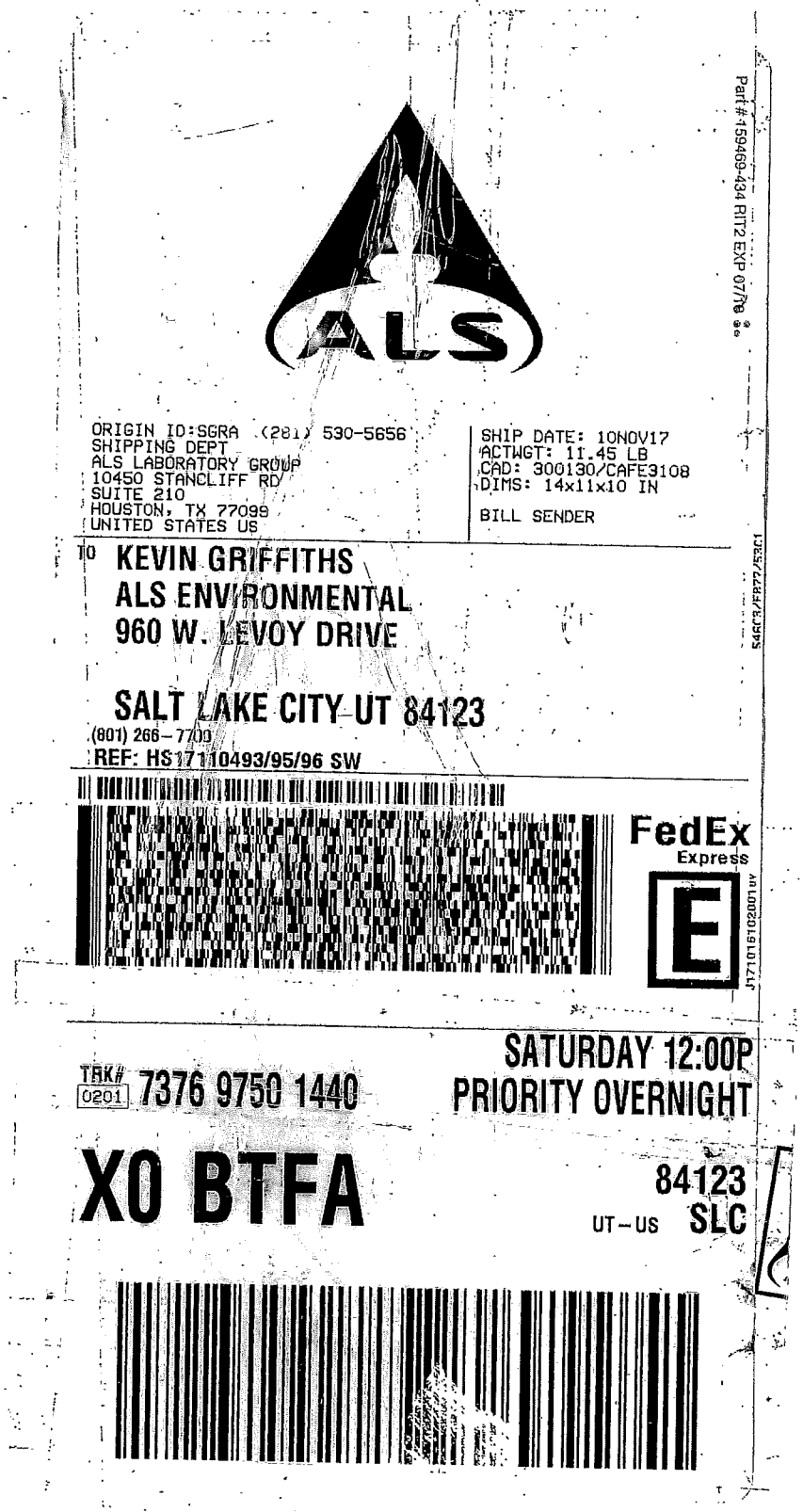
## Project Management

Project Manager Comments:

ALS Project Manager: _____ (Printed Name) Returned to Sample Receipt by: _____ (Signature) Date: _____

CRIR.dot

Revised 1/1/15



Part #159469-434 RIT2 EXP 07/18

ORIGIN ID:SGRA (281) 530-5656
SHIPPING DEPT
ALS LABORATORY GROUP
10450 STANCLIFF RD
SUITE 210
HOUSTON, TX 77099
UNITED STATES US

SHIP DATE: 10NOV17
ACTWGT: 11.45 LB
CAD: 300130/CAFE3108
DIMS: 14x11x10 IN

BILL SENDER

TO KEVIN GRIFFITHS
ALS ENVIRONMENTAL
960 W. LEVOY DRIVE

SALT LAKE CITY UT 84123
(801) 266-7709
REF: HS17110493/95/96 SW

FedEx Express

TRK# 0201 7376 9750 1440

SATURDAY 12:00P
PRIORITY OVERNIGHT

XO BTFA

84123
UT-US SLC

# atch Worklist

**Batch:** ELMS/ 1999 **Created:** 11/21/2017 08:30 **Instrument:** **HBN:** 203403

**Rule:** EPA 6850, DoD QSM Water **Analyst:** T. Bosch **Status:** WP

**Workorder:** 1731766 [ENV_LVL4]
**Workorder:** 1731771 [ENV_LVL4]
**Workorder:** 1731772 [ENV_LVL4]
**Workorder:** 1732090 [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 | 575293 | CCV for HBN 203403 [ELMS/1999] | | | | CCV | 3 | | E685041C3Q | 5311 | | 11/28/2017 | |
| 2 | 575294 | LODV for HBN 203403 [ELMS/1999 | | | | LODV | 3 | | E6850..D3Q | 5311 | | 11/28/2017 | |
| 3 | 575295 | ICS for HBN 203403 [ELMS/1999] | | | | ICS | 3 | | E6850..D3Q | 5311 | | 11/28/2017 | |
| 4 | 575296 | LMB for HBN 203403 [ELMS/1999] | | | | LMB | 3 | | E6850Q413Q | 5311 | | 11/28/2017 | |
| 5 | 575297 | LCS for HBN 203403 [ELMS/1999] | | | | LCS | 3 | | E6850Q413Q | 5311 | | 11/28/2017 | |
| 6 | 1731766001 | LH18/24-SP140_110917 | | | | SAMPLE | 3 | 1731766001-A | E6850Q41.3 | 5480 | 12/7/2017 | 11/28/2017 | |
| 7 | 1731771001 | LH18/24-SP650_110917 | | | | SAMPLE | 3 | 1731771001-A | E6850Q41.3 | 5480 | 12/7/2017 | 11/28/2017 | |
| 8 | 1731772001 | LH18/24-SP650_110917 | | | | SAMPLE | 3 | 1731772001-A | E6850Q41.3 | 5480 | 12/7/2017 | 11/29/2017 | |
| 9 | 1732090001 | 50WW06-111317 | | | | SAMPLE | 3 | 1732090001-A | E6850Q41.3 | 5480 | 12/11/2017 | 12/4/2017 | |
| 10 | 1732090002 | 50WW11-111317 | | | | SAMPLE | 3 | 1732090002-A | E6850Q41.3 | 5480 | 12/11/2017 | 12/4/2017 | |
| 11 | 1732090003 | 50WW14-111317 | | | | SAMPLE | 3 | 1732090003-A | E6850Q41.3 | 5480 | 12/11/2017 | 12/4/2017 | |
| 12 | 1732090004 | 50WW13-111317 | | | | SAMPLE | 3 | 1732090004-A | E6850Q41.3 | 5480 | 12/11/2017 | 12/4/2017 | |
| 13 | 575298 | CCV for HBN 203403 [ELMS/1999] | | | | CCV | 3 | | E685041C3Q | 5311 | | 11/28/2017 | |
| 14 | 575299 | LODV for HBN 203403 [ELMS/1999 | | | | LODV | 3 | | E6850..D3Q | 5311 | | 11/28/2017 | |
| 15 | 1732090005 | 50WW08-111317 | | | | SAMPLE | 3 | 1732090005-A | E6850Q41.3 | 5480 | 12/11/2017 | 12/4/2017 | |
| 16 | 1732090006 | 50WW08-111317MS | | | | MS | 3 | 1732090006-A | E6850Q413Q | 5480 | | 11/28/2017 | |
| 17 | 1732090007 | 50WW08-111317MSD | | | | MSD | 3 | 1732090007-A | E6850Q413Q | 5480 | | 11/28/2017 | |
| 18 | 1732090008 | 50WW08-111317-FD | | | | FLDDUP | 3 | 1732090008-A | E6850Q41.3 | 5480 | 12/11/2017 | 12/4/2017 | |
| 19 | 1732090009 | 50WW22-111317 | | | | SAMPLE | 3 | 1732090009-A | E6850Q41.3 | 5480 | 12/11/2017 | 12/5/2017 | |
| 20 | 575300 | CCV for HBN 203403 [ELMS/1999] | | | | CCV | 3 | | E685041C3Q | 5311 | | 11/28/2017 | |
| 21 | 575301 | LODV for HBN 203403 [ELMS/1999 | | | | LODV | 3 | | E6850..D3Q | 5311 | | 11/28/2017 | |





BWL-V3.1

00877393

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

# Analytical Documentation

ALS Work Order #'s & Sample #( )'s: 1731766 (001); 1731771 (001); 1731772 (001); 1732090 (001-09)
ELMS Batch/HBN ID: 1999 (203403)
Prep Date: 11/21/2017 Analysis Date: 11/21/2017 Analyst: T. Bosch
Analyte: **Perchlorate** Matrix: **Water** Method: **6850**
Sequence:\\HPCHEM\1\SEQUENCE\CLO4\2017\NOV\21NOV17P.s
Reported DL: **1.0µg/L** Reported LOD: **2.0µg/L** Reported LOQ: **4.0µg/L**

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**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 DI735)/0.1% glacial acetic acid (JT-Baker Lot 04802).
Eluent B1: 95% ACN (B&J Lot DI735)/ 5% ASTM Type II water (ALS)/0.1% glacial acetic acid (JT-Baker Lot 04802).

**STANDARDS:** Internal Standard Spiking Solution Horizon# 38780. Dilutions of Working Standard Solution ID 32373 used for CCV's, LODV's, RLVS and IPC.

**CALIBRATION CURVE:** Used curve from 08/21/2017, sequence 21AUG17P.s Offline Quantitation Method: CLO4-PR3.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: 8 Injection Volume: 35µL
Column: KP-RPPX C8 separator, 250mm Mobile Phase: 70% Eluent A1; 30% Eluent B1

**FLOW GRADIENT:**

| Time (min.) | Flow (mL/min) |
|---|---|
| 0 | 0.60 |
| 4.0 | 0.60 |
| 5.0 | 0.25 |
| 14.5 | 0.25 |
| 15.0 | 0.60 |
| 17.5 | 0.60 |

**QC DATA:** 5.0µL of QC Solution Horizon ID 36749 was used for LCS 575297; Target = 5.0µg/L. ASTM type II water was used for LMB 575296.

**MS/MSD:** MS/MSD was performed on samples 1732090006/07 (Client ID: 50WW08-111317). 5.0µl of Working Standard Solution Horizon ID 36735 was added to 10.0mL of sample preparation. Spike target = 5.0µg/L.

**COMMENTS:**
1) Results reported in µg/L. Sample 1732090001 was re-analyzed and reported at a 1 in 100 dilution. Samples 1731766001 and 1732090002/04 were re-analyzed and reported at a 1 in 1,000 dilutions. The reporting limits have been adjusted accordingly.
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\2017\NOV\HBN# or through NuGenesis\Tree\PrintData\LCMS\DefaultView.
4) Due to limitations of the Chemstation Software, many of the chromatographic peaks require manual integration. Manual Integrations were performed for some of the Initial Calibration analyses (datafiles: 21AUGP01-03) along with datafiles 21NOVP02/03/10/19.
5) Notebook: \\alsltws013\ORGANIC\BOSCH\LCMS\Perchlorates\Waters\2017\CLO4-203403-DOD-ALS-HSTN or through \\ALSLTWS013\DATAREVIEW\HBN#

# STANDARD REPORT

## Working Standard - CLO4 WRK

**CLO4 WRK** — **Description - 6850 WKG Std 100.ug/L**

Standard: 36735
MFG: ALS/SLC
MFG Lot: TNB: 05/10/17
Part ID:

Created By: T. Bosch
Create Date: 05/10/2017
Lab Lot: CLO4 WRK

Amount: 10 mL
Expires: 05/10/2018
Usable: Yes

| 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 |
| 36734 | CLO4 INT | 6850 Intermdt AccStd 10.ug/mL | CLO4 INT | 0.1 mL | 05/10/2018 |

# STANDARD REPORT

## Constituent

## Stock Standard - CLO4 STOCK

| CLO4 STOCK | Description - 6850 Stock AccStd 1,000ug/mL |
|---|---|

Standard: 36733
MFG: AccuStandard
MFG Lot: 216095148
Part ID: IC-PER-10X-1

Created By: T. Bosch
Create Date: 5/10/2017
Lab Lot: CLO4 STOCK

Amount: 100 mL
Expires: 10/4/2018
Usable: Yes

| Pos. | Analyte | Name | Concentration |
|---|---|---|---|
| 1 | 14797-73-0 | Perchlorate | 1000 ug/mL |

# 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: 10/6/2005 | Expires: 11/7/2025 | |
| MFG Lot: | Lab Lot: LAB 109 | Usable: Yes | |
| Part ID: | | | |

| Pos. | Analyte | Name | Concentration |
|---|---|---|---|
| Solvent - Analyte(s) not applicable | | | |

# STANDARD REPORT

## Constituent

## Working Standard - CLO4 INT

| CLO4 INT | | Description - 6850 Intermdt AccStd 10.ug/mL |
|---|---|---|
| Standard: 36734 | Created By: T. Bosch | Amount: 10 mL |
| MFG: ALS/SLC | Create Date: 05/10/2017 | Expires: 05/10/2018 |
| MFG Lot: TNB: 05/10/17 | Lab Lot: CLO4 INT | Usable: Yes |
| Part ID: | | |

| 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 |
| 36733 | CLO4 STOCK | 6850 Stock AccStd 1,000ug/mL | CLO4 STOCK | 0.1 mL | 10/04/2018 |

# STANDARD REPORT

## Working Standard - CLO4 QC WRK

| CLO4 QC WRK | | Description - 6850 QC WKG STD 100ug/L |
|---|---|---|
| Standard: 36750 | Created By: T. Bosch | Amount: 10 mL |
| MFG: ALS/SLC | Create Date: 05/11/2017 | Expires: 05/11/2018 |
| MFG Lot: TNB: 05/11/17 | Lab Lot: CLO4 QC WRK 100.ug/L | Usable: Yes |
| Part ID: | | |

| 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 |
| 36749 | CLO4 QC INT | 6850 QC Intrmdt Std-QC 10ug/mL | CLO4 QC INT 10.ug/mL | 0.1 mL | 05/11/2018 |

# STANDARD REPORT

## Constituent

## Working Standard - CLO4 QC INT

**CLO4 QC INT** — Description - 6850 QC Intrmdt Std-QC 10ug/mL

Standard: 36749 | Created By: T. Bosch | Amount: 10 mL
MFG: ALS/SLC | Create Date: 05/11/2017 | Expires: 05/11/2018
MFG Lot: TNB: 05/11/2017 | Lab Lot: CLO4 QC INT 10.ug/mL | Usable: Yes
Part ID:

| 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 |

# 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: 10/6/2005 | Expires: 11/7/2025 |
| MFG Lot: | Lab Lot: LAB 109 | Usable: Yes |
| Part ID: | | |

| Pos. | Analyte | Name | Concentration |
|---|---|---|---|
| Solvent - Analyte(s) not applicable | | | |

# STANDARD REPORT

## Constituent

## Stock Standard - CLO4 QCSTOCK

| CLO4 QCSTOCK | Description - 6850 QC Stock STD 1,000ug/mL |
|---|---|

| | | |
|---|---|---|
| Standard: 36748 | Created By: T. Bosch | Amount: 100 mL |
| MFG: Ultra Scientific | Create Date: 5/11/2017 | Expires: 3/31/2020 |
| MFG Lot: CP-0860 | Lab Lot: CLO4 QC STOCK | Usable: Yes |
| Part ID: ICC-013 | | |

| Pos. | Analyte | Name | Concentration |
|---|---|---|---|
| 1 | 14797-73-0 | Perchlorate | 1000 ug/mL |

# STANDARD REPORT

## Working Standard - CLO4ISTDWRK

| CLO4ISTDWRK | | Description - Perchlorate ISTD Wrk 1,000ug/L |
|---|---|---|
| Standard: 38780 | Created By: Thomas Bosch | Amount: 10 mL |
| MFG: ALS/SLC | Create Date: 10/09/2017 01:10PM | Expires: 10/09/2018 |
| MFG Lot: TNB: 10/09/17 | 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 |
|---|---|---|---|---|---|
| 23118 | CLO4ISTDSTK | Perchlorate ISTD Stock | CLO4ISTDSTK | 0.1 mL | 02/27/2024 |

# STANDARD REPORT

## Constituent

## Stock Standard - CLO4ISTDSTK

| CLO4ISTDSTK | | | Description - Perchlorate ISTD Stock |
|---|---|---|---|
| Standard: 23118 | Created By: Thomas Bosch | Amount: 1 mL | |
| MFG: Cambridge Isotope | Create Date: 04/04/2014 03:04PM | Expires: 02/27/2024 | |
| MFG Lot: SDDG-013 | Verified By: Thomas Bosch | Usable: Yes | |
| Part ID: OLM-7310-S | Verify Date: 02/05/2009 12:02AM | 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.

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER
ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY

ULTRA SCIENTIFIC
Analytical Solutions

# Certificate of Analysis

TRIPLE ISO CERTIFICATION · ISO 9001 · ISO GUIDE 34 · ISO/IEC 17025 · ULTRA

## ISO Guide 34 Reference Material

Product Number: ICC-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

ANAB ACCREDITED ISO GUIDE 34 REFERENCE MATERIAL PRODUCER

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY



ALS

125 Market Street
New Haven, CT 06513
USA

AccuStandard® Inc.

Tel (203)786-5290
Fax (203)786-5287
www.AccuStandard.com

# CERTIFICATE OF ANALYSIS

## AccuTrace™ Reference Standard

Catalog No: IC-PER-10X-1
Description: Perchlorate Standard
Element: Perchlorate ($ClO_4$)
SRM: Ind. Std.
Lot: 216095148
Matrix: Water
Hazards: *Refer to SDS for complete safety information*

Signal Word: Warning

Date Certified: Oct 4, 2016
Expiration: Oct 4, 2018
Sample Size: 100 mL
Components: 1
Storage Condition: Ambient (>5 °C)
Included on ISO/IEC 17025 Scope of Accreditation: Yes
Included on ISO Guide 34 Scope of Accreditation: Yes

| Component | | SRM # | Prepared Concentration (µg/mL) |
|---|---|---|---|
| $ClO_4$ | Perchlorate | Ind. Std. | 1000 |

The gravimetric uncertainty for this product is ±0.2%. See reverse side for details.

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 Guide 34, ISO/IEC 17025 and certified to ISO 9001**

OR-ORG/INO-001
Rev. 5/16

Cambridge Isotope Laboratories, Inc.

# Certificate of Analysis

Quality Standards:
ISO Guide 34 • ISO/IEC 17025 • ISO 13485 • cGMP

23118

| | |
|---|---|
| **Product Name:** (Isotopic Label & Enrichment Specification) | PERCHLORIC ACID, SODIUM SALT (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% |
| LC/MS for Concentration | 109.4 ± 2.8 µg/mL (k=2) |



ALS

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

# Raw Data

Batch Report: C:\HPCHEM\1\DATA\21NOV17P\21NOV17P.B

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-PR3.M

['#' ==> Run has not been reprocessed with Batch Review Method
'*' ==> Run has been saved with batch file]

| # | * | Sample | Location | Inj | SampleType | Run | CLO4-89-ISTD Area | CLO4-89-ISTD RT | CLO4-89-ISTD Amount |
|---|---|---|---|---|---|---|---|---|---|
| | * | 575293 | CCV@25 | Vial 71 | 1 | Control | 1 | 4.95752e5 | 11.659 | 5.00000 |
| | * | 575294 | LODV@1. | Vial 72 | 1 | Control | 2 | 6.33978e5 | 11.580 | 5.00000 |
| | * | 575295 | ICS@1. | Vial 73 | 1 | Control | 3 | 3.43353e5 | 11.530 | 5.00000 |
| | * | 575296 | LMB | Vial 74 | 1 | Control | 4 | 6.34762e5 | 11.752 | 5.00000 |
| | * | 575297 | LCS@5. | Vial 75 | 1 | Control | 5 | 4.73999e5 | 11.723 | 5.00000 |
| | * | 1731766001 | | Vial 76 | 1 | Sample | 6 | 2.91336e5 | 9.304 | 5.00000 |
| | * | 1731771001 | | Vial 77 | 1 | Sample | 7 | 3.98980e5 | 11.846 | 5.00000 |
| | * | 1731772001 | | Vial 78 | 1 | Sample | 8 | 4.15472e5 | 11.853 | 5.00000 |
| | * | 1732090001 | | Vial 79 | 1 | Sample | 9 | 4.02188e5 | 10.818 | 5.00000 |
| | * | 1732090002 | | Vial 80 | 1 | Sample | 10 | 0.00000 | 0.000 | 0.00000 |
| | * | 1732090003 | | Vial 81 | 1 | Sample | 11 | 4.24561e5 | 11.110 | 5.00000 |
| | * | 1732090004 | | Vial 82 | 1 | Sample | 12 | 0.00000 | 0.000 | 0.00000 |
| | * | 1732090005 | | Vial 83 | 1 | Sample | 13 | 4.01470e5 | 11.041 | 5.00000 |
| | * | 1732090006 | MS | Vial 84 | 1 | Sample | 14 | 3.91759e5 | 11.043 | 5.00000 |
| | * | 1732090007 | MSD | Vial 85 | 1 | Sample | 15 | 4.26155e5 | 11.041 | 5.00000 |
| | * | 1732090008 | | Vial 86 | 1 | Sample | 16 | 4.30250e5 | 11.039 | 5.00000 |
| | * | 1732090009 | | Vial 87 | 1 | Sample | 17 | 3.84880e5 | 10.977 | 5.00000 |
| | * | 575298 | CCV@25 | Vial 71 | 1 | Control | 18 | 4.38394e5 | 11.758 | 5.00000 |
| | * | 575299 | LODV@1. | Vial 72 | 1 | Control | 19 | 5.63443e5 | 11.637 | 5.00000 |
| | * | 1731766001 | 1K | Vial 88 | 1 | Sample | 20 | 5.34179e5 | 11.831 | 5000.00000 |
| | * | 1732090001 | 100 | Vial 89 | 1 | Sample | 21 | 5.57597e5 | 11.953 | 500.00000 |
| | * | 1732090002 | 1K | Vial 90 | 1 | Sample | 22 | 5.58494e5 | 12.002 | 5000.00000 |
| | * | 1732090004 | 1K | Vial 91 | 1 | Sample | 23 | 5.66247e5 | 11.984 | 5000.00000 |
| | * | 575300 | CCV@25 | Vial 71 | 1 | Control | 24 | 4.88376e5 | 11.995 | 5.00000 |
| | * | 575301 | LODV@1. | Vial 72 | 1 | Control | 25 | 6.26703e5 | 11.836 | 5.00000 |

| # | * | Sample | Location | Inj | SampleType | Run | Perchlorate Area | Perchlorate RT | Perchlorate Amount |
|---|---|---|---|---|---|---|---|---|---|
| | * | 575293 | CCV@25 | Vial 71 | 1 | Control | 1 | 3.43968e6 | 11.639 | 26.71551 |
| | * | 575294 | LODV@1. | Vial 72 | 1 | Control | 2 | 1.25845e5 | 11.573 | 9.22270e-1 |
| | * | 575295 | ICS@1. | Vial 73 | 1 | Control | 3 | 8.39472e4 | 11.536 | 1.13244 |
| | * | 575296 | LMB | Vial 74 | 1 | Control | 4 | 0.00000 | 0.000 | 0.00000 |
| | * | 575297 | LCS@5. | Vial 75 | 1 | Control | 5 | 5.31685e5 | 11.701 | 5.02013 |
| | * | 1731766001 | | Vial 76 | 1 | Sample | 6 | 9.39364e8 | 9.475 | 1330.32766 |
| | * | 1731771001 | | Vial 77 | 1 | Sample | 7 | 0.00000 | 0.000 | 0.00000 |
| | * | 1731772001 | | Vial 78 | 1 | Sample | 8 | 0.00000 | 0.000 | 0.00000 |
| | * | 1732090001 | | Vial 79 | 1 | Sample | 9 | 1.48823e8 | 10.804 | 411.69118 |
| | * | 1732090002 | | Vial 80 | 1 | Sample | 10 | 0.00000 | 0.000 | 0.00000 |
| | * | 1732090003 | | Vial 81 | 1 | Sample | 11 | 0.00000 | 0.000 | 0.00000 |
| | * | 1732090004 | | Vial 82 | 1 | Sample | 12 | 9.57682e8 | 9.027 | 7.38340e-3 |
| | * | 1732090005 | | Vial 83 | 1 | Sample | 13 | 2.88037e6 | 11.018 | 27.48906 |
| | * | 1732090006 | MS | Vial 84 | 1 | Sample | 14 | 3.49021e6 | 11.020 | 32.98147 |
| | * | 1732090007 | MSD | Vial 85 | 1 | Sample | 15 | 3.80569e6 | 11.019 | 33.04679 |
| | * | 1732090008 | | Vial 86 | 1 | Sample | 16 | 2.82168e6 | 11.028 | 25.45707 |
| | * | 1732090009 | | Vial 87 | 1 | Sample | 17 | 5.14831e4 | 10.947 | 6.25305e-1 |
| | * | 575298 | CCV@25 | Vial 71 | 1 | Control | 18 | 2.90531e6 | 11.750 | 25.68660 |
| | * | 575299 | LODV@1. | Vial 72 | 1 | Control | 19 | 1.09492e5 | 11.598 | 9.03165e-1 |
| | * | 1731766001 | 1K | Vial 88 | 1 | Sample | 20 | 1.20628e6 | 11.805 | 9756.42567 |
| | * | 1732090001 | 100 | Vial 89 | 1 | Sample | 21 | 1.22754e6 | 11.924 | 952.72687 |
| | * | 1732090002 | 1K | Vial 90 | 1 | Sample | 22 | 2.70142e6 | 11.981 | 1.95236e4 |
| | * | 1732090004 | 1K | Vial 91 | 1 | Sample | 23 | 1.78892e6 | 11.960 | 1.33080e4 |
| | * | 575300 | CCV@25 | Vial 71 | 1 | Control | 24 | 3.38694e6 | 11.970 | 26.70499 |
| | * | 575301 | LODV@1. | Vial 72 | 1 | Control | 25 | 1.30116e5 | 11.806 | 9.64000e-1 |

| # | * | Sample | Location | Inj | SampleType | Run | CLO4-85 Area | CLO4-85 RT | CLO4-85 Amount |
|---|---|---|---|---|---|---|---|---|---|
| | * | 575293 | CCV@25 | Vial 71 | 1 | Control | 1 | 1.02829e6 | 11.652 | 26.09816 |
| | * | 575294 | LODV@1. | Vial 72 | 1 | Control | 2 | 4.79999e4 | 11.562 | 1.06340 |

Batch Report: C:\HPCHEM\1\DATA\21NOV17P\21NOV17P.B

| #* | Sample | Location | Inj | SampleType | Run | CLO4-85 Area | CLO4-85 RT | CLO4-85 Amount |
|---|---|---|---|---|---|---|---|---|
| * | 575295 ICS@1. | Vial 73 | 1 | Control | 3 | 2.69436e4 | 11.502 | 1.10196 |
| * | 575296 LMB | Vial 74 | 1 | Control | 4 | 0.00000 | 0.000 | 0.00000 |
| * | 575297 LCS@5. | Vial 75 | 1 | Control | 5 | 1.79069e5 | 11.704 | 5.20589 |
| * | 1731766001 | Vial 76 | 1 | Sample | 6 | 3.65188e8 | 9.301 | 1842.78769 |
| * | 1731771001 | Vial 77 | 1 | Sample | 7 | 0.00000 | 0.000 | 0.00000 |
| * | 1731772001 | Vial 78 | 1 | Sample | 8 | 0.00000 | 0.000 | 0.00000 |
| * | 1732090001 | Vial 79 | 1 | Sample | 9 | 5.18884e7 | 10.818 | 526.61797 |
| * | 1732090002 | Vial 80 | 1 | Sample | 10 | 0.00000 | 10.935 | 0.00000 |
| * | 1732090003 | Vial 81 | 1 | Sample | 11 | 0.00000 | 0.000 | 0.00000 |
| * | 1732090004 | Vial 82 | 1 | Sample | 12 | 0.00000 | 0.000 | 0.00000 |
| * | 1732090005 | Vial 83 | 1 | Sample | 13 | 8.67168e5 | 11.030 | 27.06822 |
| * | 1732090006 MS | Vial 84 | 1 | Sample | 14 | 1.04043e6 | 11.042 | 32.54319 |
| * | 1732090007 MSD | Vial 85 | 1 | Sample | 15 | 1.14152e6 | 11.038 | 32.79040 |
| * | 1732090008 | Vial 86 | 1 | Sample | 16 | 8.50148e5 | 11.055 | 24.97821 |
| * | 1732090009 | Vial 87 | 1 | Sample | 17 | 2.15920e4 | 10.973 | 7.88952e-1 |
| * | 575298 CCV@25 | Vial 71 | 1 | Control | 18 | 8.98143e5 | 11.759 | 25.80855 |
| * | 575299 LODV@1. | Vial 72 | 1 | Control | 19 | 4.61070e4 | 11.612 | 1.14888 |
| * | 1731766001 1K | Vial 88 | 1 | Sample | 20 | 3.94066e5 | 11.819 | 9950.51827 |
| * | 1732090001 100 | Vial 89 | 1 | Sample | 21 | 3.93937e5 | 11.946 | 954.66974 |
| * | 1732090002 1K | Vial 90 | 1 | Sample | 22 | 8.38230e5 | 11.986 | 1.94238e4 |
| * | 1732090004 1K | Vial 91 | 1 | Sample | 23 | 5.74994e5 | 11.979 | 1.34843e4 |
| * | 575300 CCV@25 | Vial 71 | 1 | Control | 24 | 1.03655e6 | 11.987 | 26.64453 |
| * | 575301 LODV@1. | Vial 72 | 1 | Control | 25 | 5.02385e4 | 11.799 | 1.12559 |

*** End of Report ***

Sequence Table:

Method and Injection Info Part:

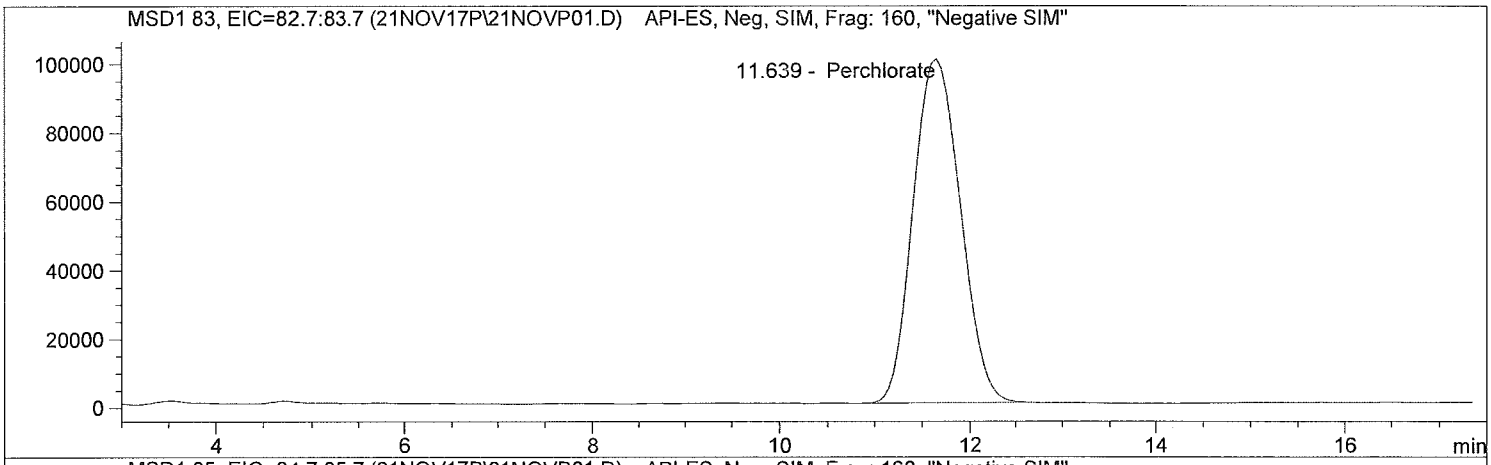
| Line | Location | SampleName | | Method | Inj | SampleType | InjVolume | DataFile |
|---|---|---|---|---|---|---|---|---|
| 1 | Vial 71 | 575293 | CCV@25 | CLO4-AQN | 1 | Ctrl Samp | | |
| 2 | Vial 72 | 575294 | LODV@1. | CLO4-AQN | 1 | Ctrl Samp | | |
| 3 | Vial 73 | 575295 | ICS@1. | CLO4-AQN | 1 | Ctrl Samp | | |
| 4 | Vial 74 | 575296 | LMB | CLO4-AQN | 1 | Ctrl Samp | | |
| 5 | Vial 75 | 575297 | LCS@5. | CLO4-AQN | 1 | Ctrl Samp | | |
| 6 | Vial 76 | 1731766001 | | CLO4-AQN | 1 | Sample | | |
| 7 | Vial 77 | 1731771001 | | CLO4-AQN | 1 | Sample | | |
| 8 | Vial 78 | 1731772001 | | CLO4-AQN | 1 | Sample | | |
| 9 | Vial 79 | 1732090001 | | CLO4-AQN | 1 | Sample | | |
| 10 | Vial 80 | 1732090002 | | CLO4-AQN | 1 | Sample | | |
| 11 | Vial 81 | 1732090003 | | CLO4-AQN | 1 | Sample | | |
| 12 | Vial 82 | 1732090004 | | CLO4-AQN | 1 | Sample | | |
| 13 | Vial 83 | 1732090005 | | CLO4-AQN | 1 | Sample | | |
| 14 | Vial 84 | 1732090006 | MS | CLO4-AQN | 1 | Sample | | |
| 15 | Vial 85 | 1732090007 | MSD | CLO4-AQN | 1 | Sample | | |
| 16 | Vial 86 | 1732090008 | | CLO4-AQN | 1 | Sample | | |
| 17 | Vial 87 | 1732090009 | | CLO4-AQN | 1 | Sample | | |
| 18 | Vial 71 | 575298 | CCV@25 | CLO4-AQN | 1 | Ctrl Samp | | |
| 19 | Vial 72 | 575299 | LODV@1. | CLO4-AQN | 1 | Ctrl Samp | | |
| 20 | Vial 88 | 1731766001 | 1K | CLO4-AQN | 1 | Sample | | |
| 21 | Vial 89 | 1732090001 | 100 | CLO4-AQN | 1 | Sample | | |
| 22 | Vial 90 | 1732090002 | 1K | CLO4-AQN | 1 | Sample | | |
| 23 | Vial 91 | 1732090004 | 1K | CLO4-AQN | 1 | Sample | | |
| 24 | Vial 71 | 575300 | CCV@25 | CLO4-AQN | 1 | Ctrl Samp | | |
| 25 | Vial 72 | 575301 | LODV@1. | CLO4-AQN | 1 | Ctrl Samp | | |

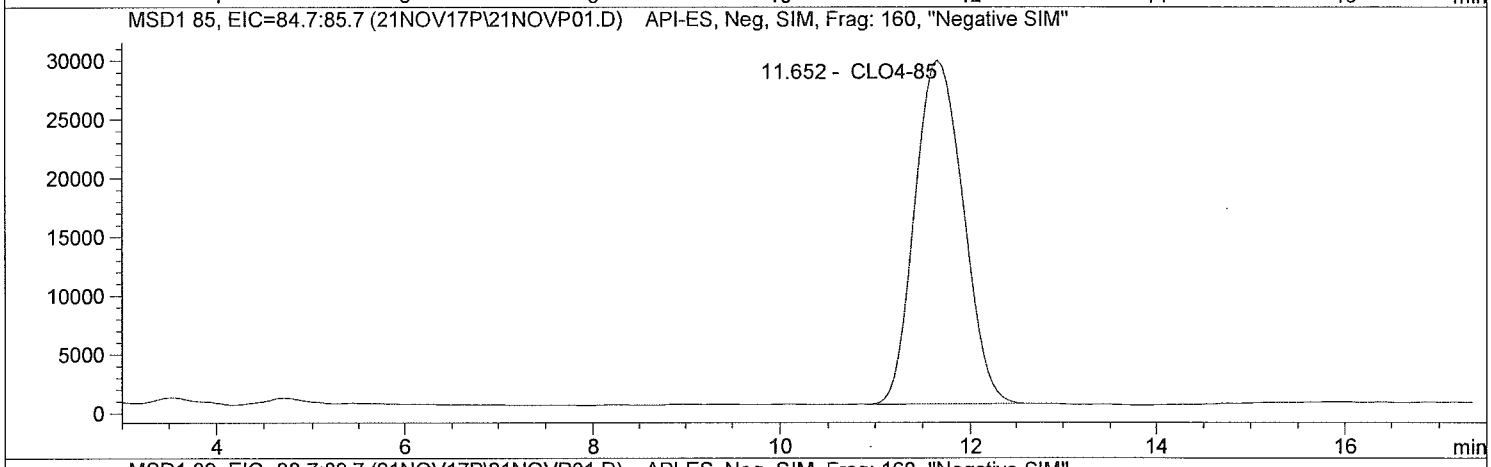
Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP01.D  Sample Name: 575293  CCV@25

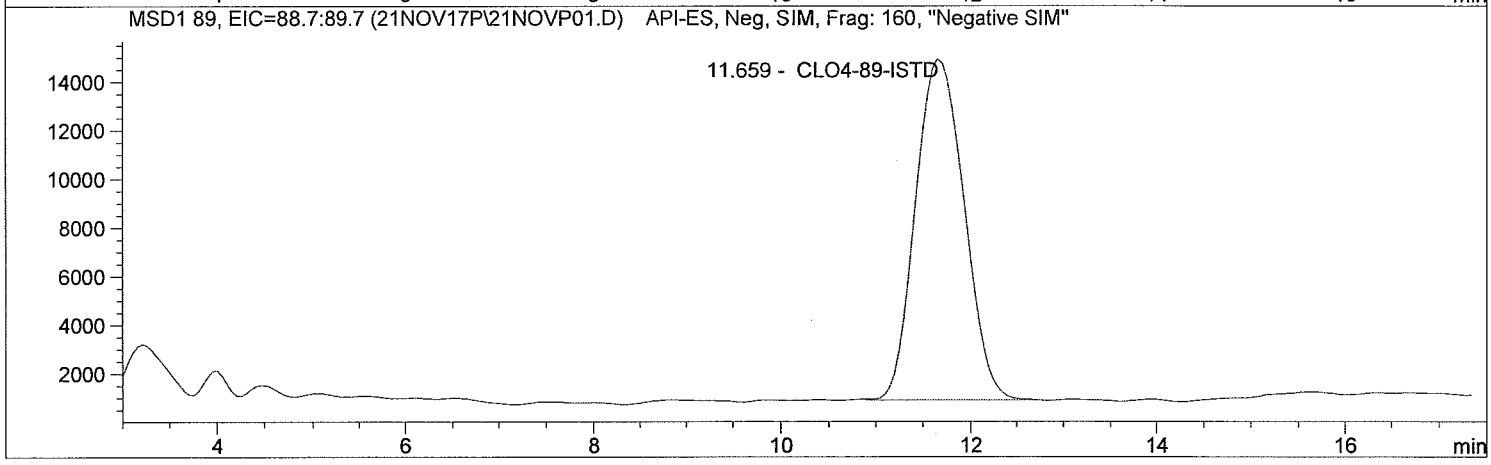
| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 08:50:46 | Seq Line: | 1 |
| Sample Name: | 575293 CCV@25 | Location: | Vial 71 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP01.D  Sample Name: 575293  CCV@25

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 08:50:46 | Seq Line: | 1 |
| Sample Name: | 575293 CCV@25 | Location: | Vial 71 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 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 |
|---|---|---|---|---|
| 11.639 | PBA | 3439680.5 | 26.7155 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.652 | BBA | 1028288.7 | 26.0982 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.659 | BBA | 495751.6 | 5.0000 | CLO4-89-ISTD |

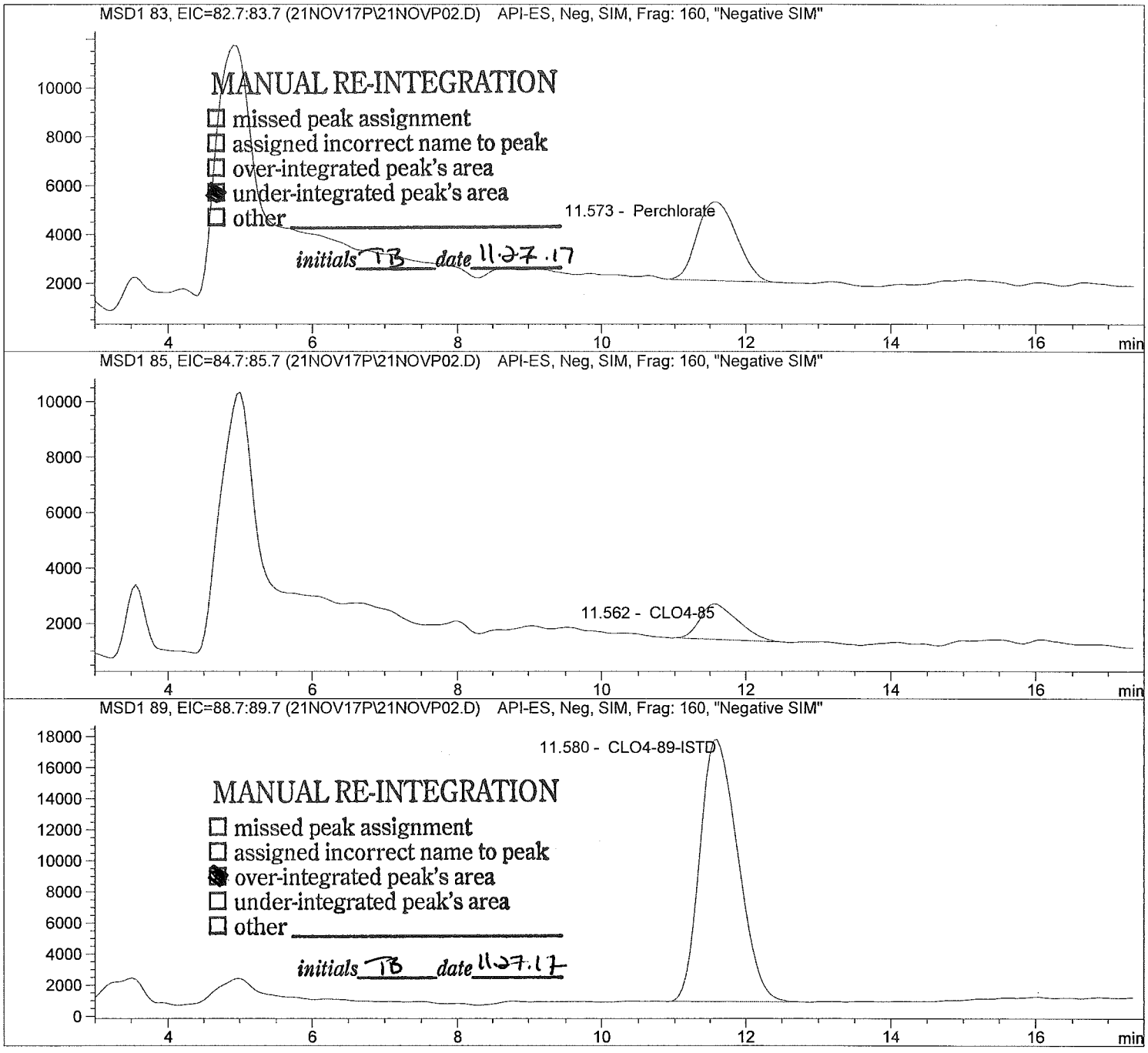
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP02.D  Sample Name: 575294  LODV@1.

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 09:11:16 | Seq Line: | 2 |
| Sample Name: | 575294 LODV@1. | Location: | Vial 72 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP02.D Sample Name: 575294 LODV@1.

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 09:11:16 | Seq Line: | 2 |
| Sample Name: | 575294 LODV@1. | Location: | Vial 72 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 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 |
|---|---|---|---|---|
| 11.573 | MM | 125844.8 | 0.9223 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.562 | PBA | 47999.9 | 1.0634 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.580 | MM | 633977.8 | 5.0000 | CLO4-89-ISTD |

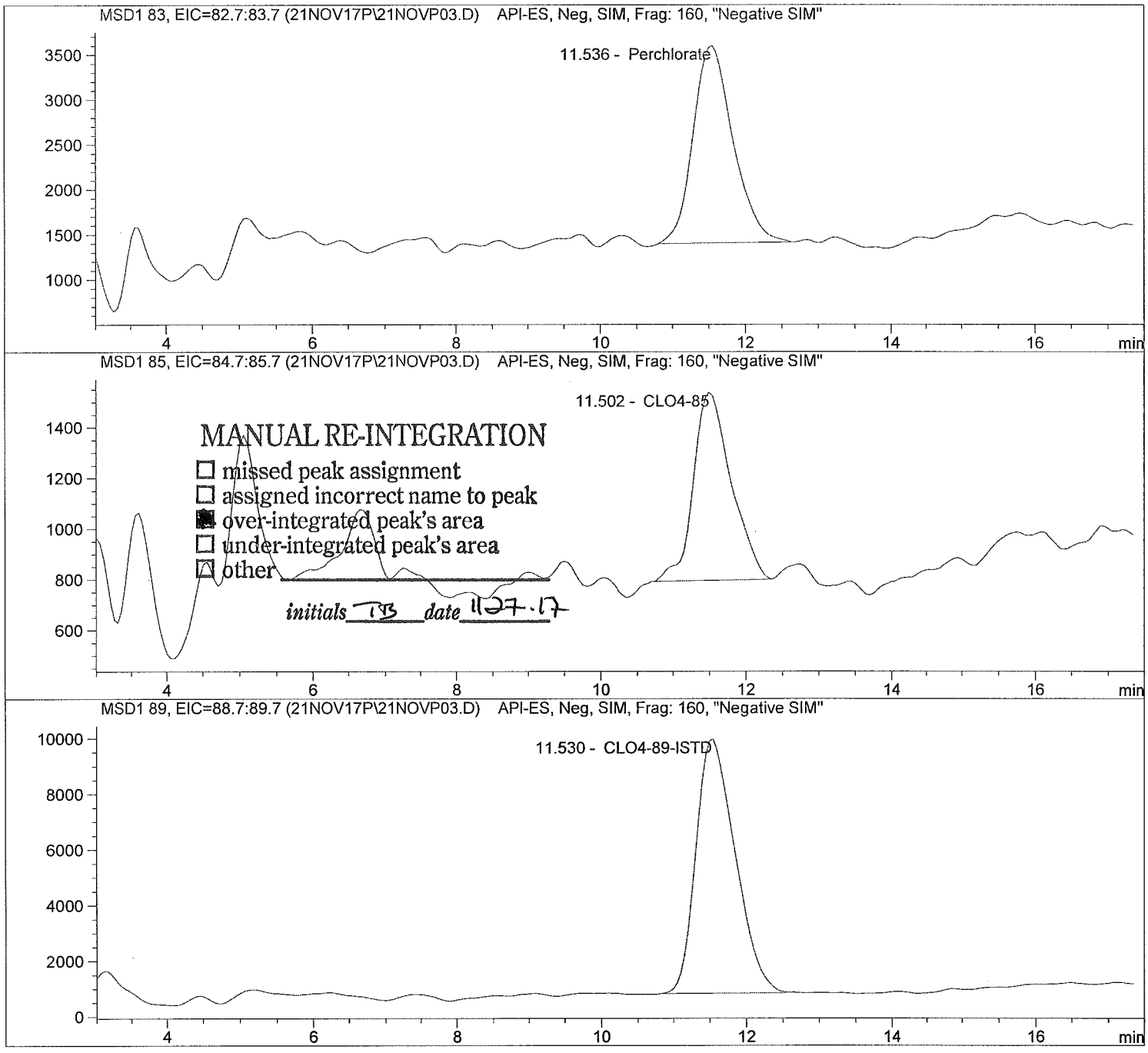
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP03.D  Sample Name: 575295  ICS@1.

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 09:30:38 | Seq Line: | 3 |
| Sample Name: | 575295 ICS@1. | Location: | Vial 73 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP03.D  Sample Name: 575295  ICS@1.

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 09:30:38 | Seq Line: | 3 |
| Sample Name: | 575295 ICS@1. | Location: | Vial 73 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 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 |
|---|---|---|---|---|
| 11.536 | PBA | 83947.2 | 1.1324 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.502 | MM | 26943.6 | 1.1020 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.530 | PBA | 343352.6 | 5.0000 | CLO4-89-ISTD |

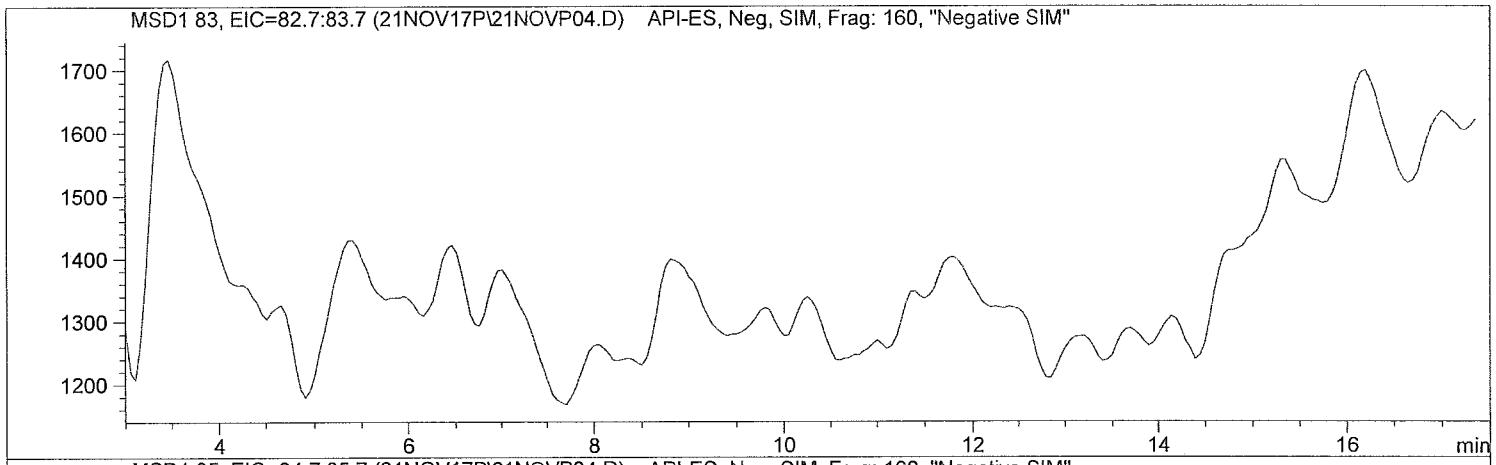
*** End of Report ***

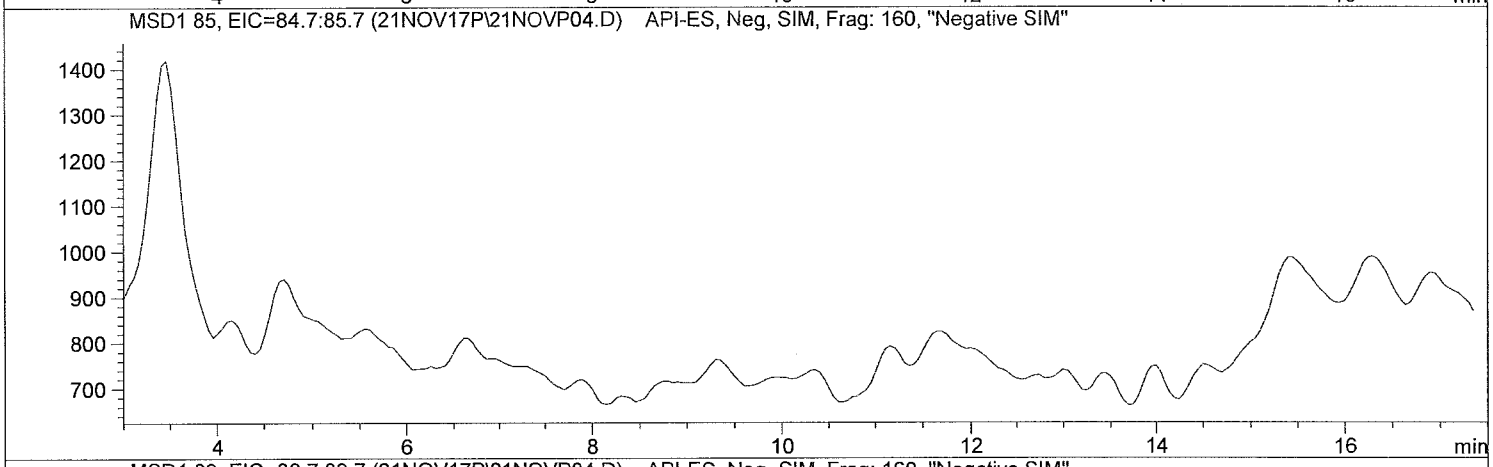
Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP04.D  Sample Name: 575296  LMB

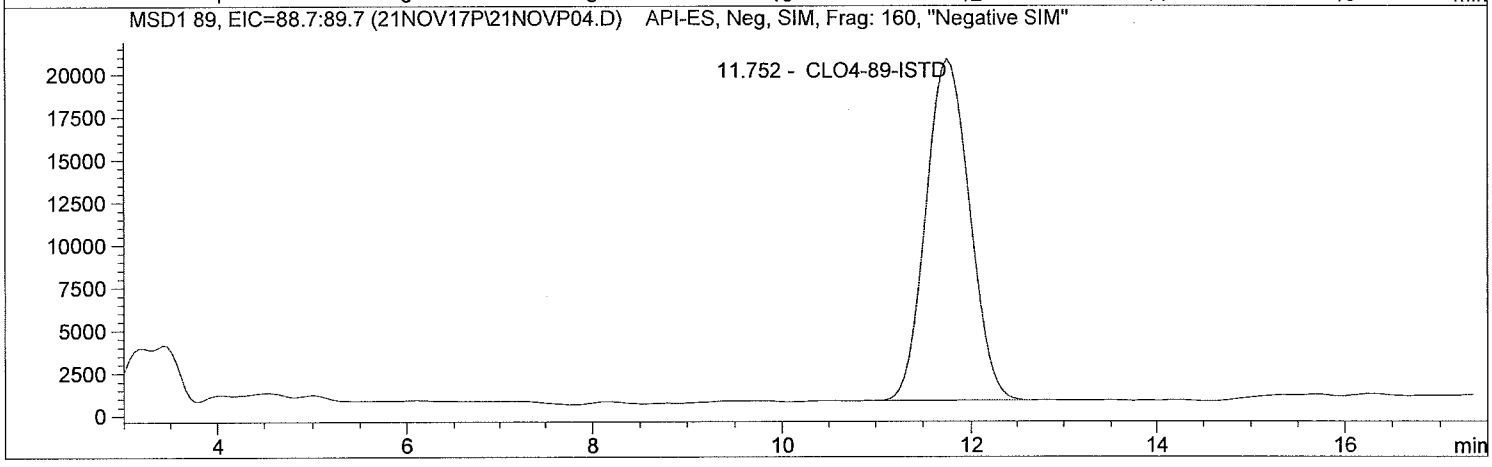
| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 09:50:03 | Seq Line: | 4 |
| Sample Name: | 575296 LMB | Location: | Vial 74 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP04.D  Sample Name: 575296  LMB

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 09:50:03 | Seq Line: | 4 |
| Sample Name: | 575296 LMB | Location: | Vial 74 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

| | |
|---|---|
| Acq. Method: | CLO4-AQN.M |
| Analysis Method: | C:\HPCHEM\1\METHODS\CLO4-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 11.752 | BBA | 634761.6 | 5.0000 | CLO4-89-ISTD |

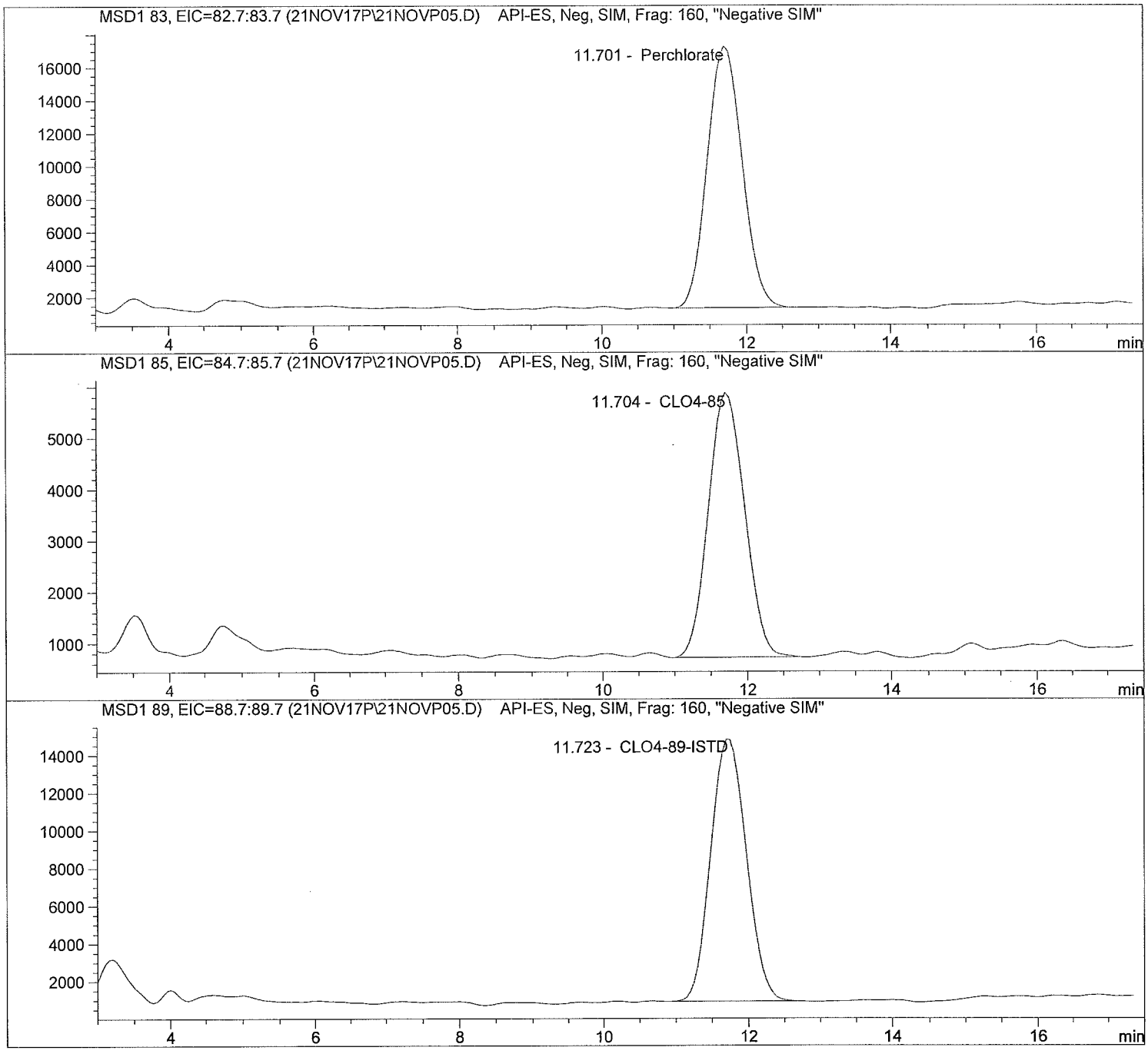
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP05.D Sample Name: 575297 LCS@5.

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 10:09:26 | Seq Line: | 5 |
| Sample Name: | 575297 LCS@5. | Location: | Vial 75 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP05.D Sample Name: 575297 LCS@5.

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 10:09:26 | Seq Line: | 5 |
| Sample Name: | 575297 LCS@5. | Location: | Vial 75 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

| | |
|---|---|
| Acq. Method: | CLO4-AQN.M |
| Analysis Method: | C:\HPCHEM\1\METHODS\CLO4-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 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 |
|---|---|---|---|---|
| 11.701 | PBA | 531684.6 | 5.0201 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.704 | PBA | 179068.8 | 5.2059 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.723 | PBA | 473999.5 | 5.0000 | CLO4-89-ISTD |

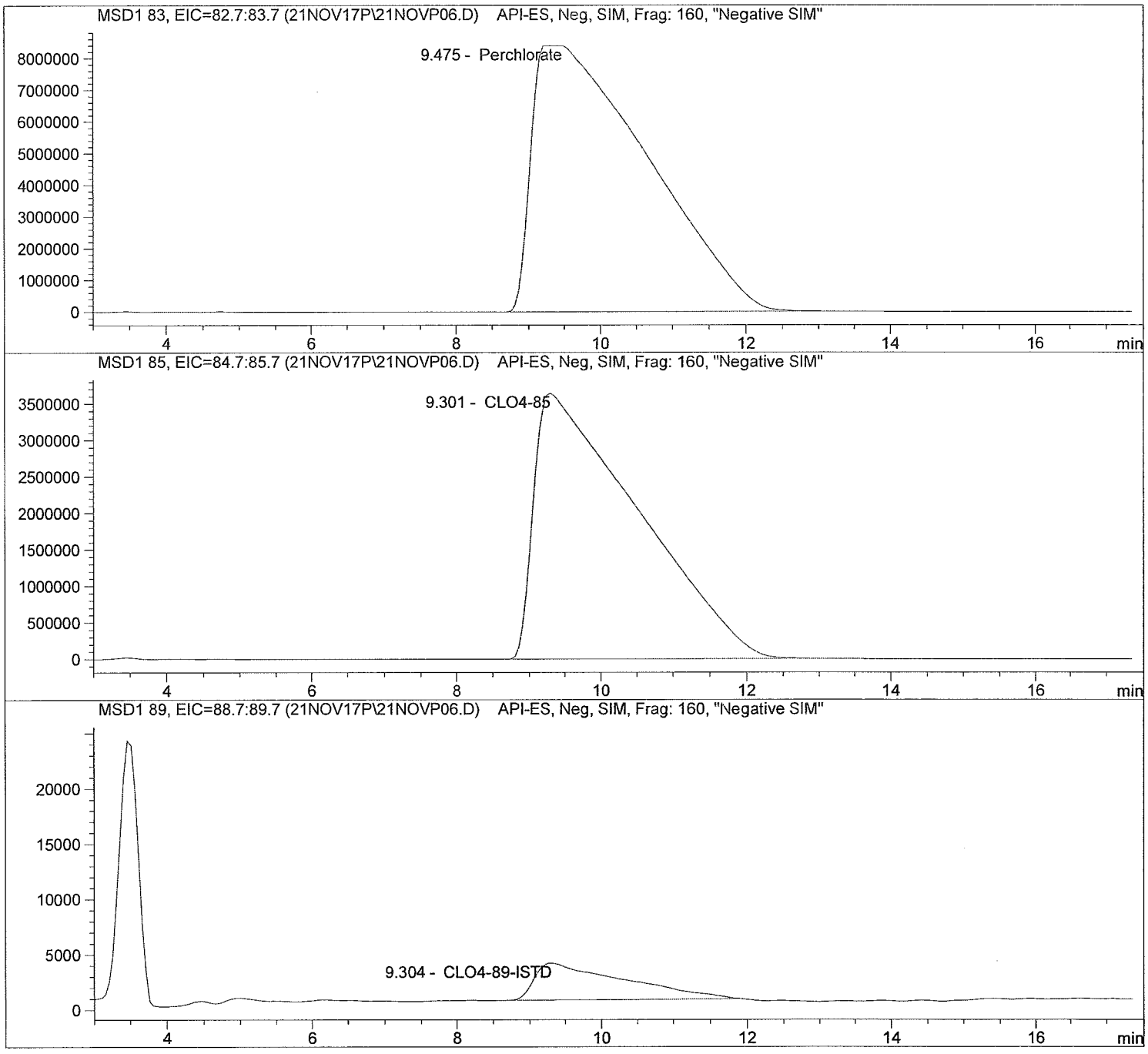
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP06.D Sample Name: 1731766001

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 10:29:55 | Seq Line: | 6 |
| Sample Name: | 1731766001 | Location: | Vial 76 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP06.D  Sample Name: 1731766001

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 10:29:55 | Seq Line: | 6 |
| Sample Name: | 1731766001 | Location: | Vial 76 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

| | |
|---|---|
| Acq. Method: | CLO4-AQN.M |
| Analysis Method: | C:\HPCHEM\1\METHODS\CLO4-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 9.475 | PBA | 939363840.0 | 1330.3277 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.301 | PBA | 365188320.0 | 1842.7877 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.304 | PBA | 291335.5 | 5.0000 | CLO4-89-ISTD |

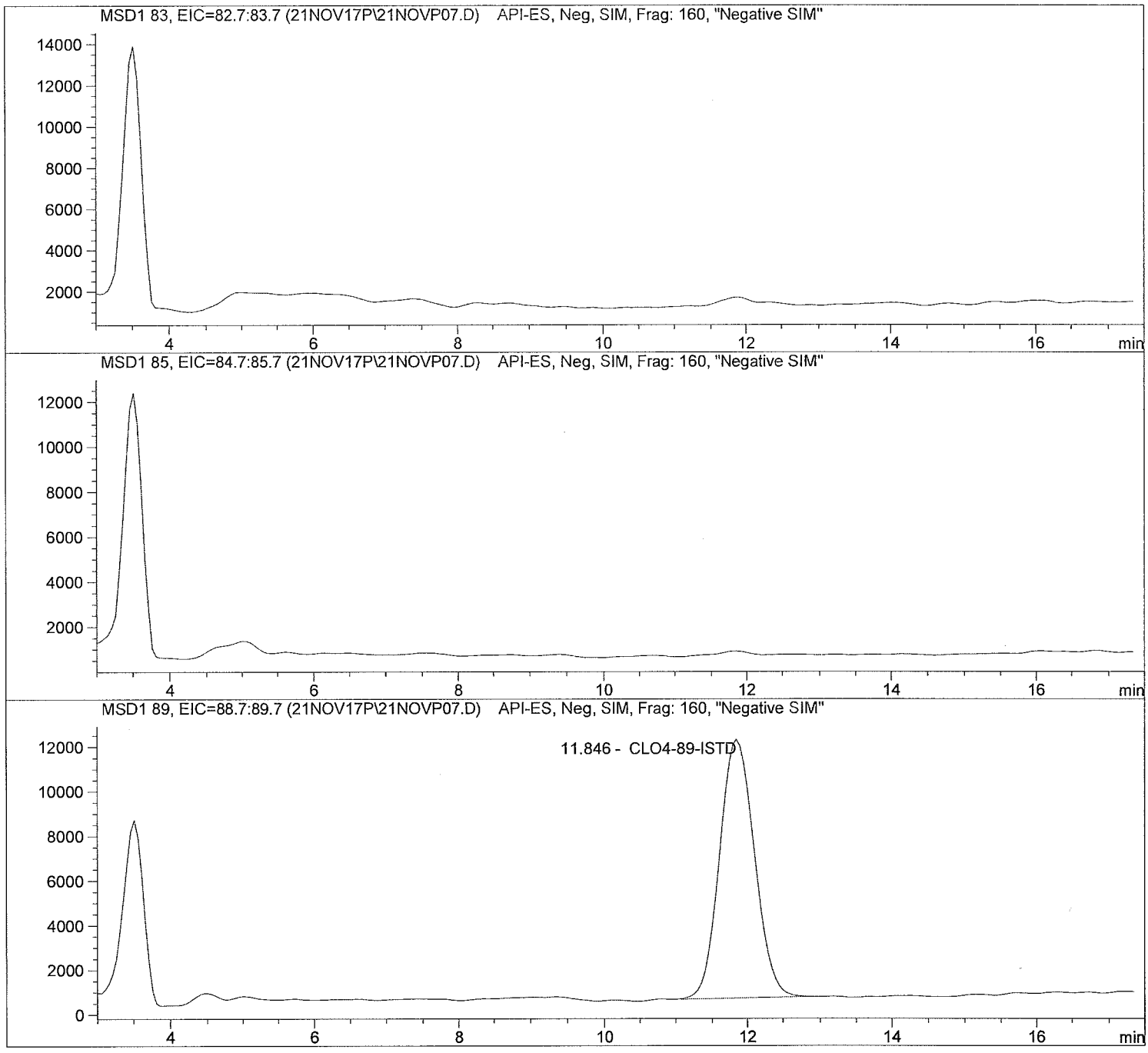
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP07.D  Sample Name: 1731771001

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 10:49:18 | Seq Line: | 7 |
| Sample Name: | 1731771001 | Location: | Vial 77 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP07.D  Sample Name: 1731771001

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 10:49:18 | Seq Line: | 7 |
| Sample Name: | 1731771001 | Location: | Vial 77 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

| | |
|---|---|
| Acq. Method: | CLO4-AQN.M |
| Analysis Method: | C:\HPCHEM\1\METHODS\CLO4-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 11.846 | BBA | 398980.5 | 5.0000 | CLO4-89-ISTD |

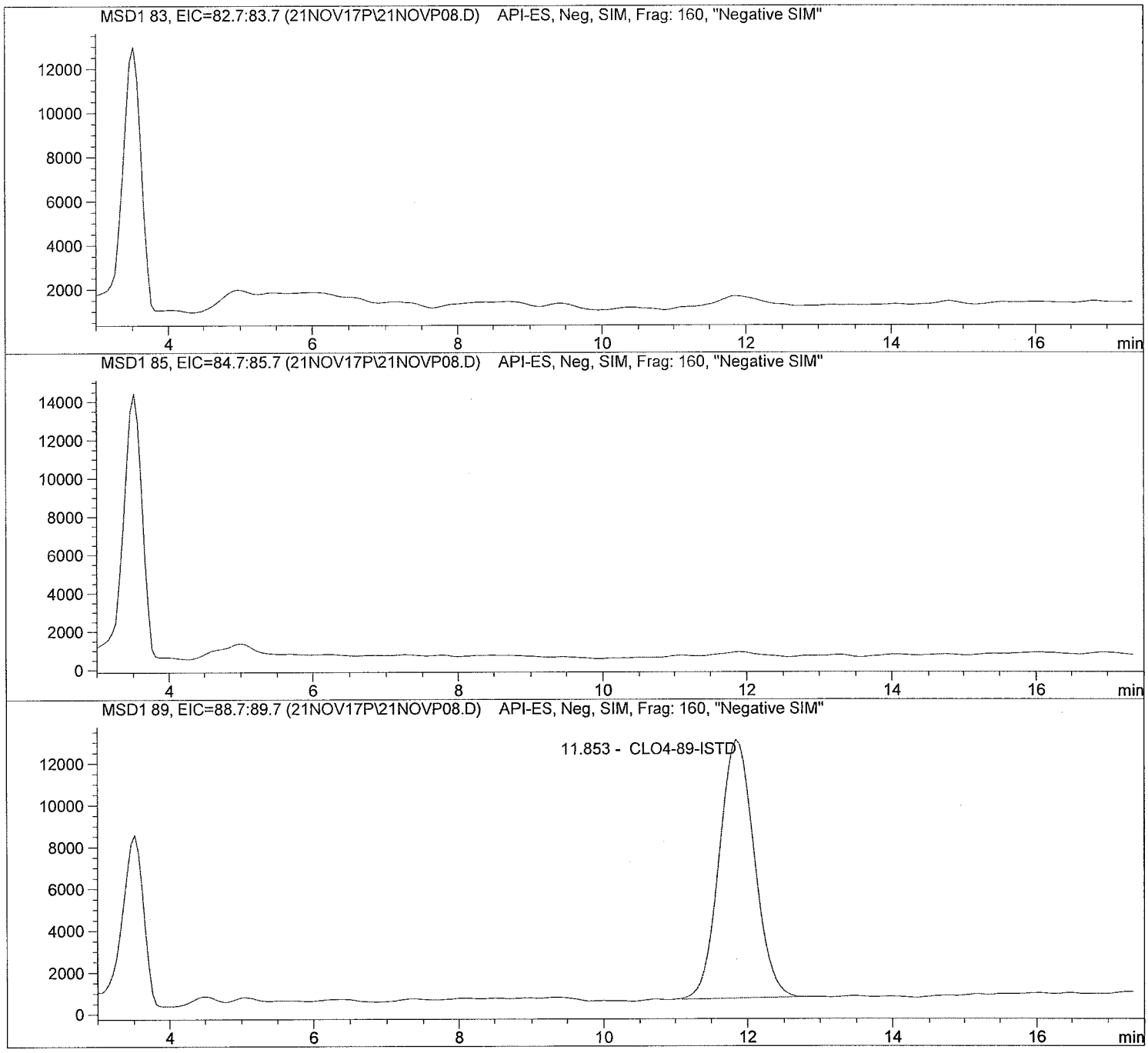
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP08.D  Sample Name: 1731772001

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 11:08:41 | Seq Line: | 8 |
| Sample Name: | 1731772001 | Location: | Vial 78 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP08.D  Sample Name: 1731772001

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 11:08:41 | Seq Line: | 8 |
| Sample Name: | 1731772001 | Location: | Vial 78 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 11.853 | BBA | 415472.4 | 5.0000 | CLO4-89-ISTD |

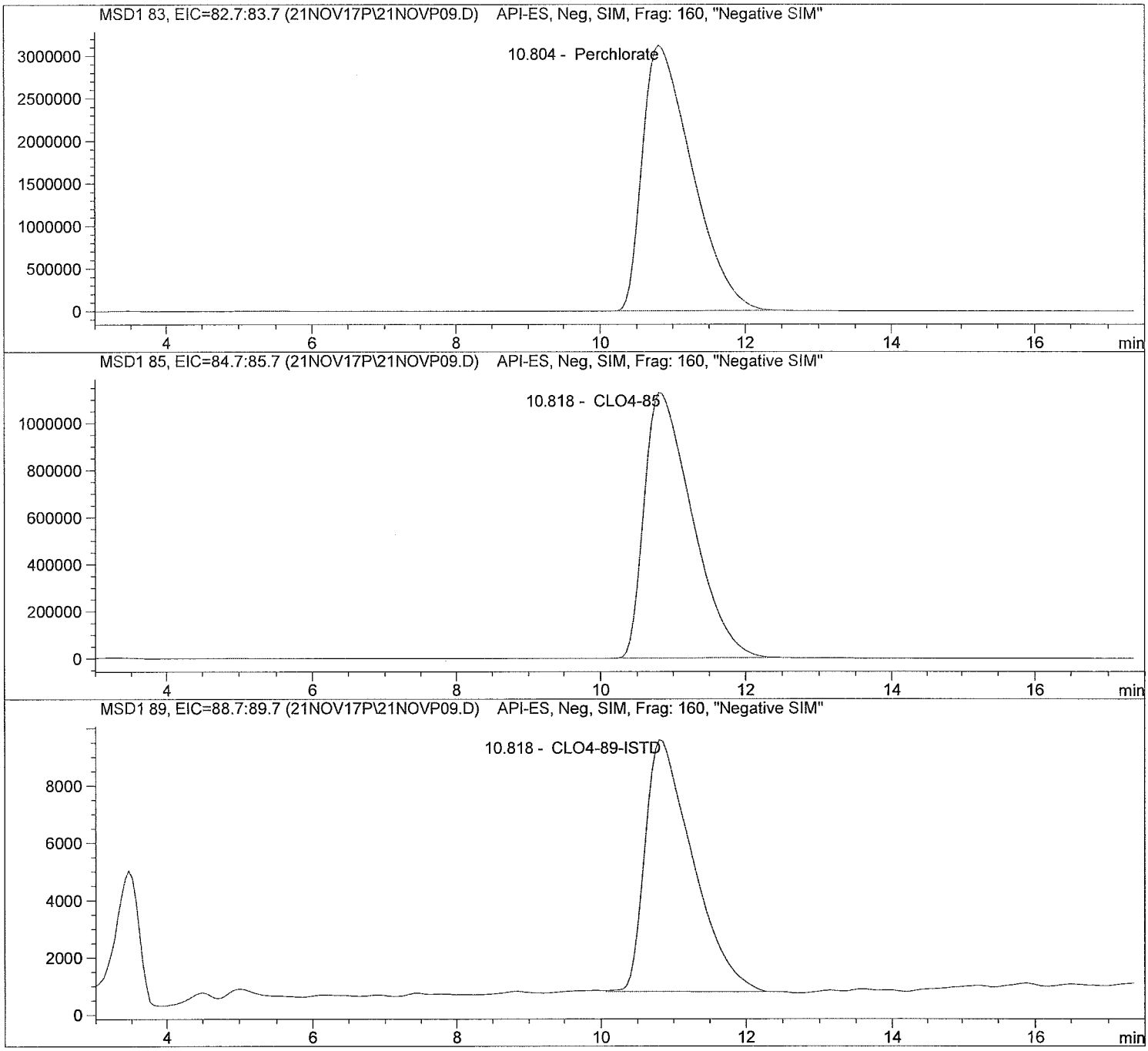
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP09.D  Sample Name: 1732090001

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 11:28:02 | Seq Line: | 9 |
| Sample Name: | 1732090001 | Location: | Vial 79 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP09.D  Sample Name: 1732090001

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 11:28:02 | Seq Line: | 9 |
| Sample Name: | 1732090001 | Location: | Vial 79 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

| | |
|---|---|
| Acq. Method: | CLO4-AQN.M |
| Analysis Method: | C:\HPCHEM\1\METHODS\CLO4-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 10.804 | PBA | 148822752.0 | 411.6912 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 10.818 | PBA | 51888372.0 | 526.6180 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 10.818 | BBA | 402187.9 | 5.0000 | CLO4-89-ISTD |

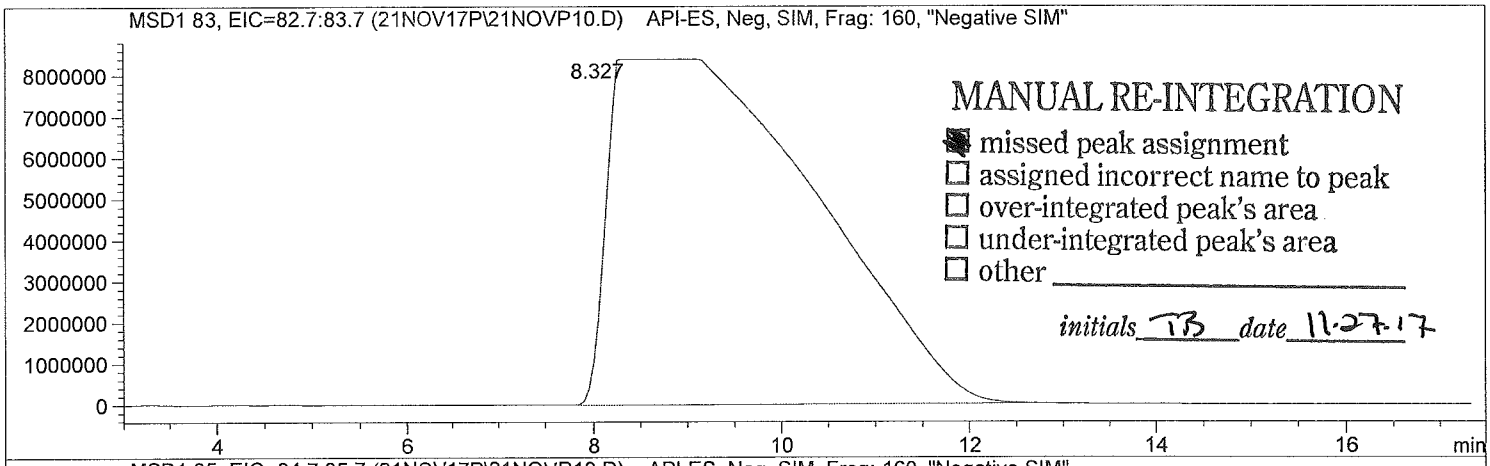
*** End of Report ***

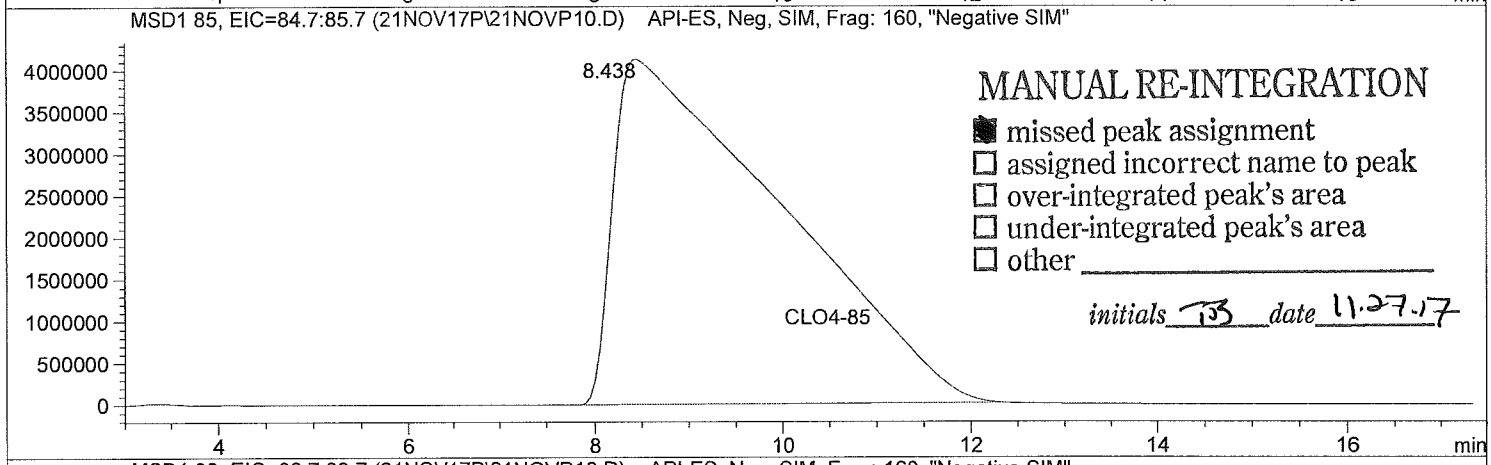
Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP10.D  Sample Name: 1732090002

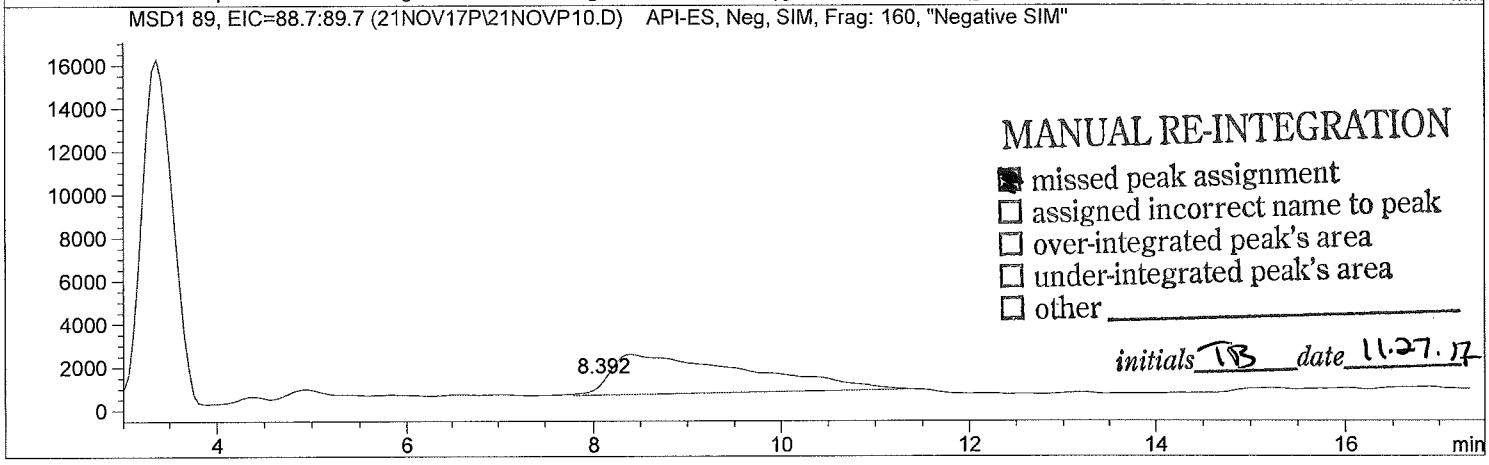
| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 11:47:26 | Seq Line: | 10 |
| Sample Name: | 1732090002 | Location: | Vial 80 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP10.D  Sample Name: 1732090002

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 11:47:26 | Seq Line: | 10 |
| Sample Name: | 1732090002 | Location: | Vial 80 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 8.327 | MM | 1274844416.0 | 0.0000 | |
| 0.000 | | 0.0 | 0.0000 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 8.438 | MM | 512512704.0 | 0.0000 | |
| 9.070 | Rsho | 0.0 | 0.0000 | |
| 9.678 | Rsho | 0.0 | 0.0000 | |
| 10.377 | Rsho | 0.0 | 0.0000 | |
| 10.935 | Rsho | 0.0 | 0.0000 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 8.392 | MM | 188436.4 | 0.0000 | |
| 0.000 | | 0.0 | 0.0000 | CLO4-89-ISTD |

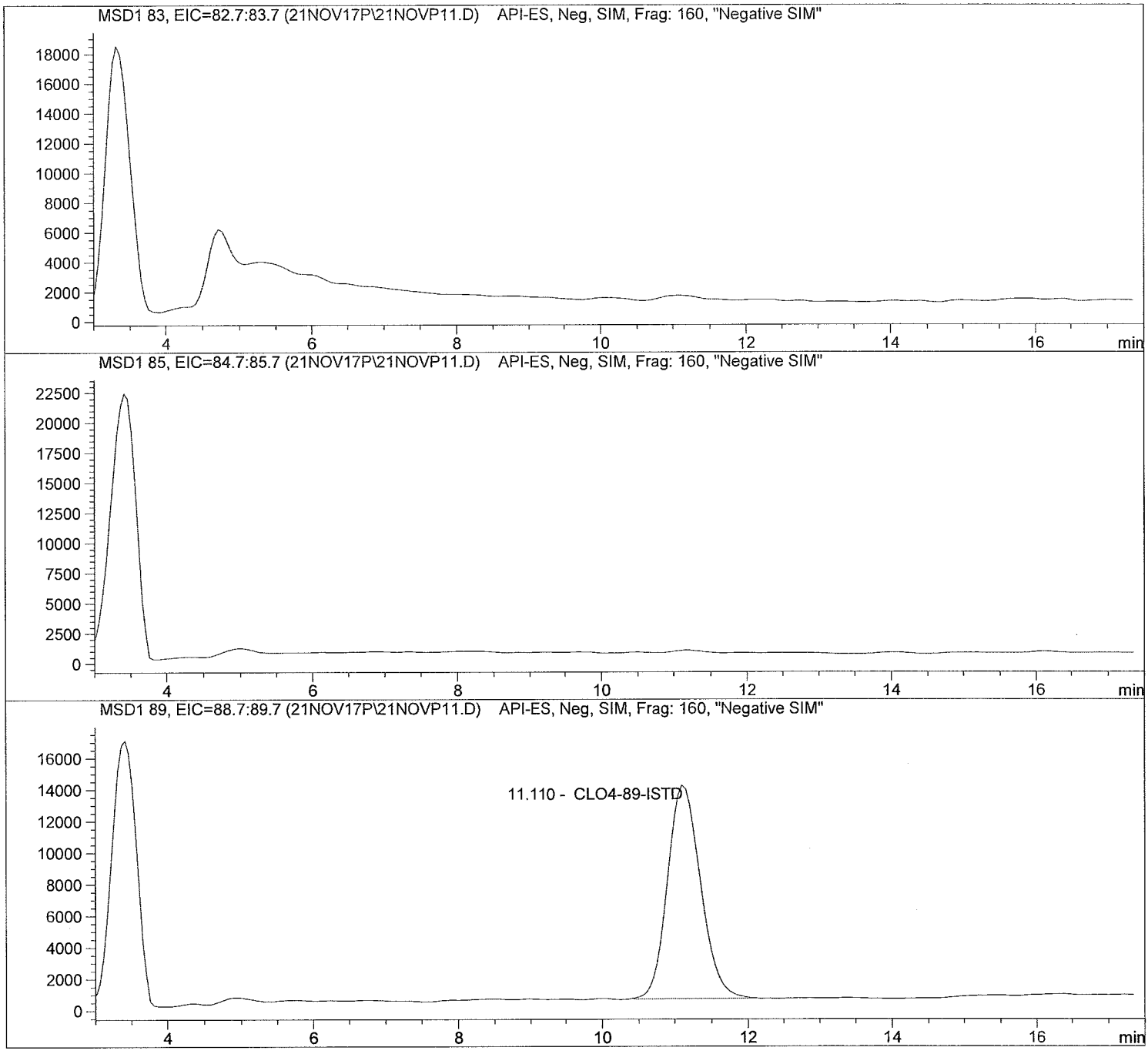
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP11.D  Sample Name: 1732090003

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 12:06:49 | Seq Line: | 11 |
| Sample Name: | 1732090003 | Location: | Vial 81 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP11.D  Sample Name: 1732090003

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 12:06:49 | Seq Line: | 11 |
| Sample Name: | 1732090003 | Location: | Vial 81 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

Sorted By: Signal
Calib. Data Modified: Thu, 26. Oct. 2017,08:21:56 am
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 |
|---|---|---|---|---|
| 11.110 | BBA | 424561.1 | 5.0000 | CLO4-89-ISTD |

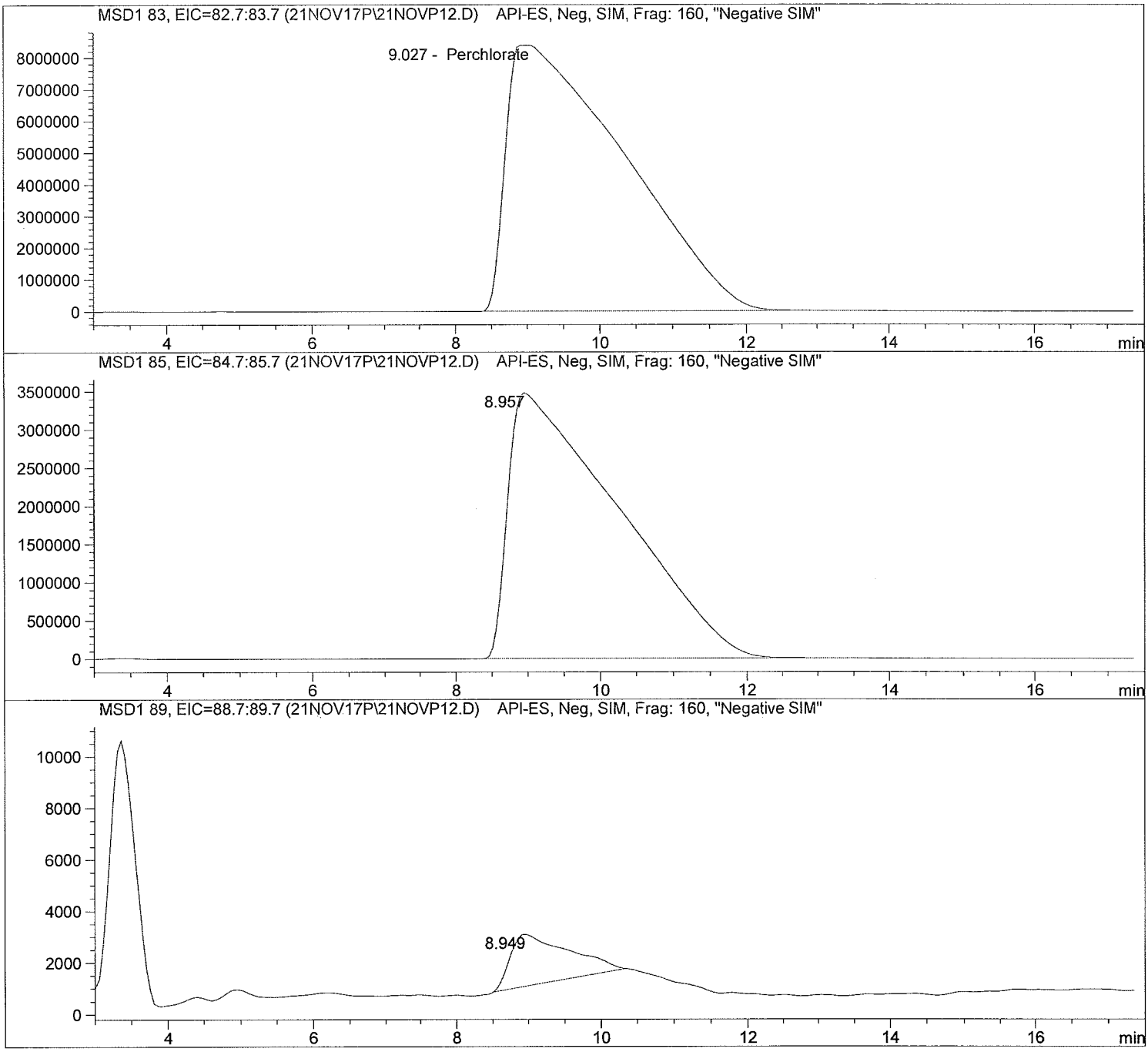
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP12.D  Sample Name: 1732090004

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 12:26:10 | Seq Line: | 12 |
| Sample Name: | 1732090004 | Location: | Vial 82 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP12.D  Sample Name: 1732090004

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 12:26:10 | Seq Line: | 12 |
| Sample Name: | 1732090004 | Location: | Vial 82 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 9.027 | PBA | 957681984.0 | 0.0074 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 8.957 | PBA | 367310848.0 | 0.0000 | |
| 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 |
|---|---|---|---|---|
| 8.949 | PBA | 111870.4 | 0.0000 | |
| 0.000 | | 0.0 | 0.0000 | CLO4-89-ISTD |

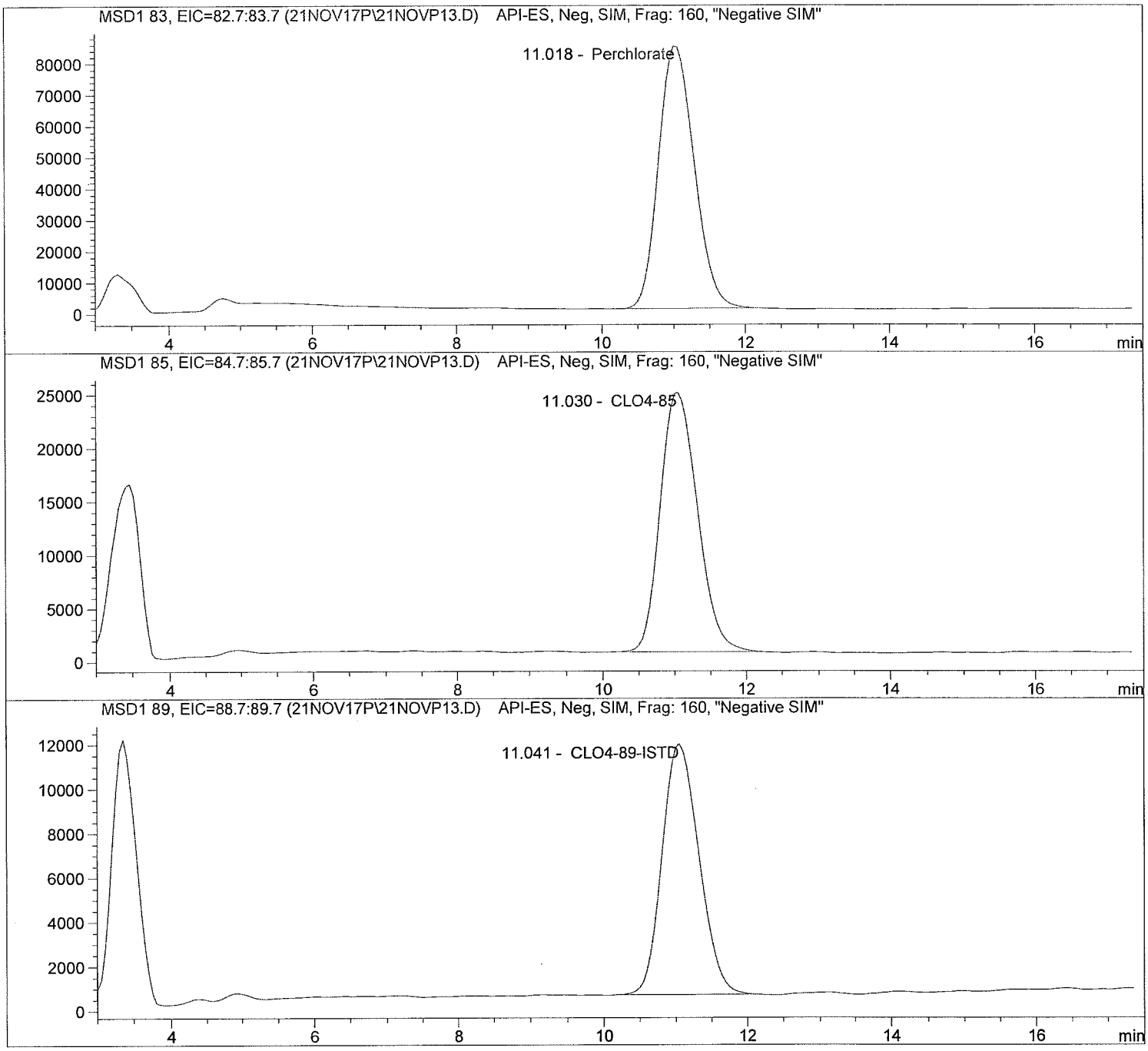
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP13.D  Sample Name: 1732090005

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 12:45:30 | Seq Line: | 13 |
| Sample Name: | 1732090005 | Location: | Vial 83 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP13.D Sample Name: 1732090005

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 12:45:30 | Seq Line: | 13 |
| Sample Name: | 1732090005 | Location: | Vial 83 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 11.018 | PBA | 2880371.0 | 27.4891 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.030 | BBA | 867168.2 | 27.0682 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.041 | BBA | 401470.2 | 5.0000 | CLO4-89-ISTD |

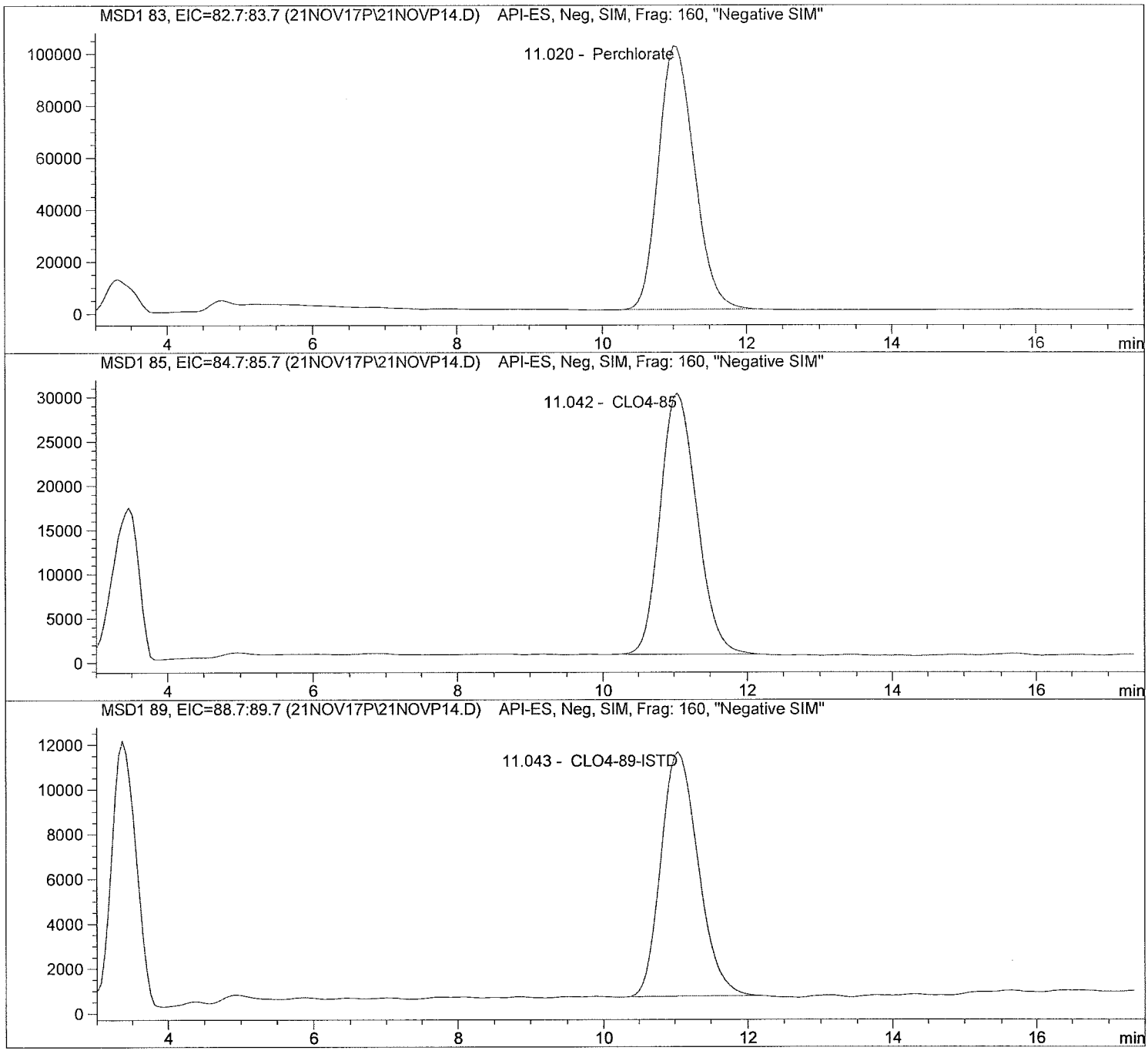
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP14.D  Sample Name: 1732090006  MS

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 13:06:15 | Seq Line: | 14 |
| Sample Name: | 1732090006 MS | Location: | Vial 84 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP14.D  Sample Name: 1732090006  MS

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 13:06:15 | Seq Line: | 14 |
| Sample Name: | 1732090006 MS | Location: | Vial 84 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 11.020 | BBA | 3490214.3 | 32.9815 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.042 | BBA | 1040430.4 | 32.5432 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.043 | PBA | 391759.4 | 5.0000 | CLO4-89-ISTD |

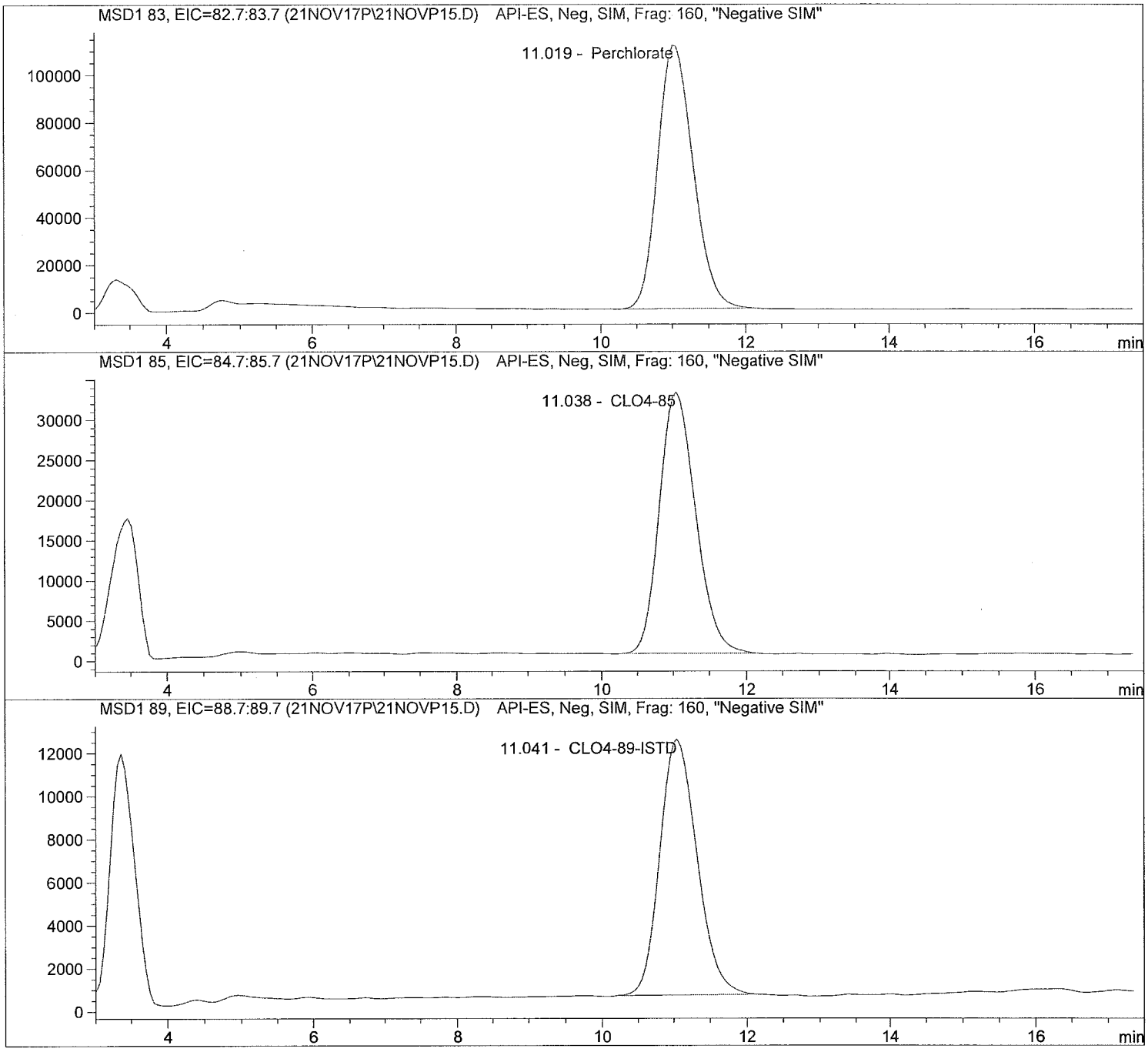
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP15.D  Sample Name: 1732090007  MSD

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 13:25:37 | Seq Line: | 15 |
| Sample Name: | 1732090007 MSD | Location: | Vial 85 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP15.D  Sample Name: 1732090007  MSD

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 13:25:37 | Seq Line: | 15 |
| Sample Name: | 1732090007 MSD | Location: | Vial 85 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 11.019 | PBA | 3805693.3 | 33.0468 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.038 | PBA | 1141517.7 | 32.7904 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.041 | BBA | 426154.9 | 5.0000 | CLO4-89-ISTD |

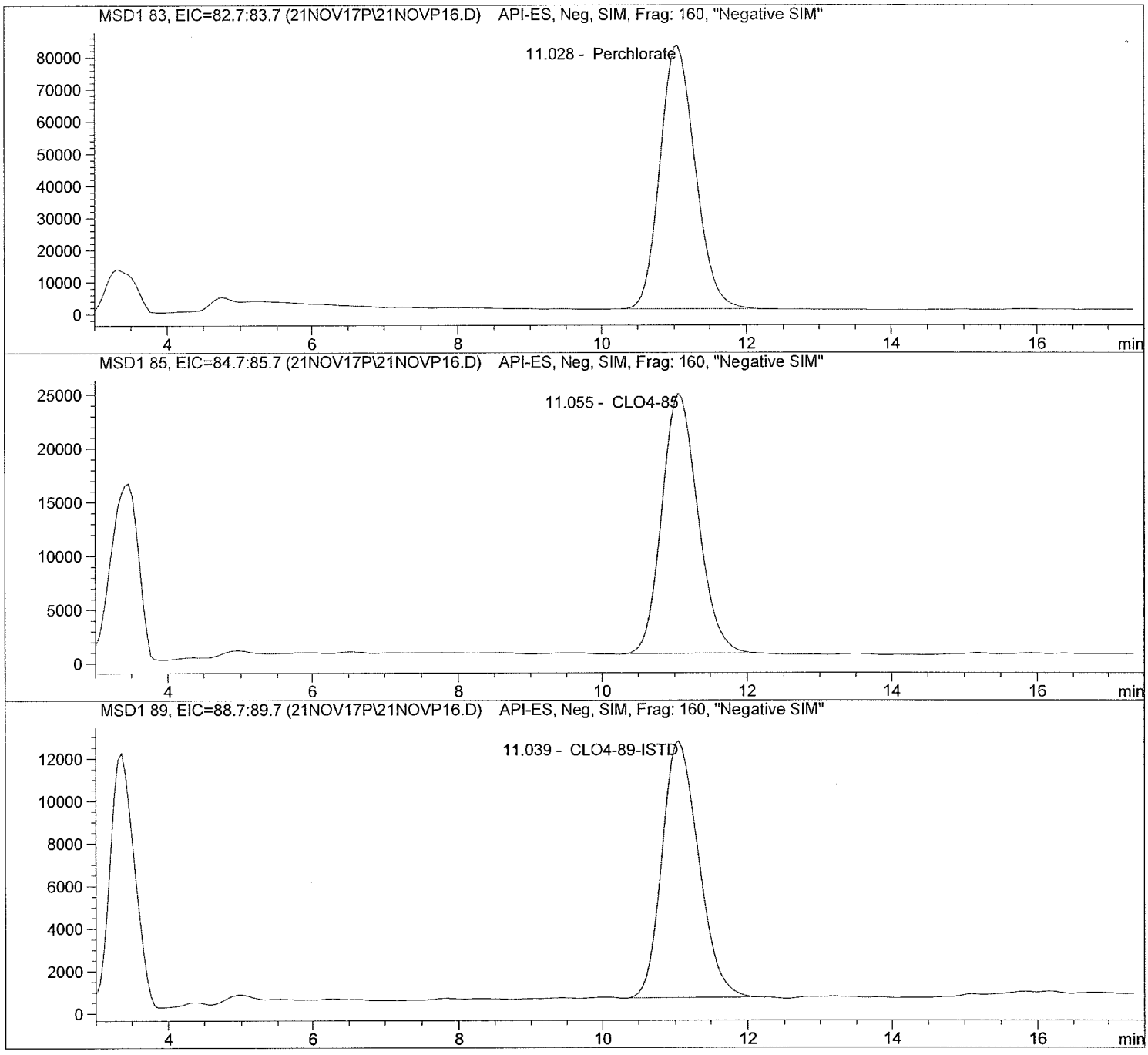
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP16.D  Sample Name: 1732090008

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 13:45:00 | Seq Line: | 16 |
| Sample Name: | 1732090008 | Location: | Vial 86 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP16.D Sample Name: 1732090008

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 13:45:00 | Seq Line: | 16 |
| Sample Name: | 1732090008 | Location: | Vial 86 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 11.028 | BBA | 2821677.0 | 25.4571 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.055 | PBA | 850148.0 | 24.9782 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.039 | PBA | 430249.8 | 5.0000 | CLO4-89-ISTD |

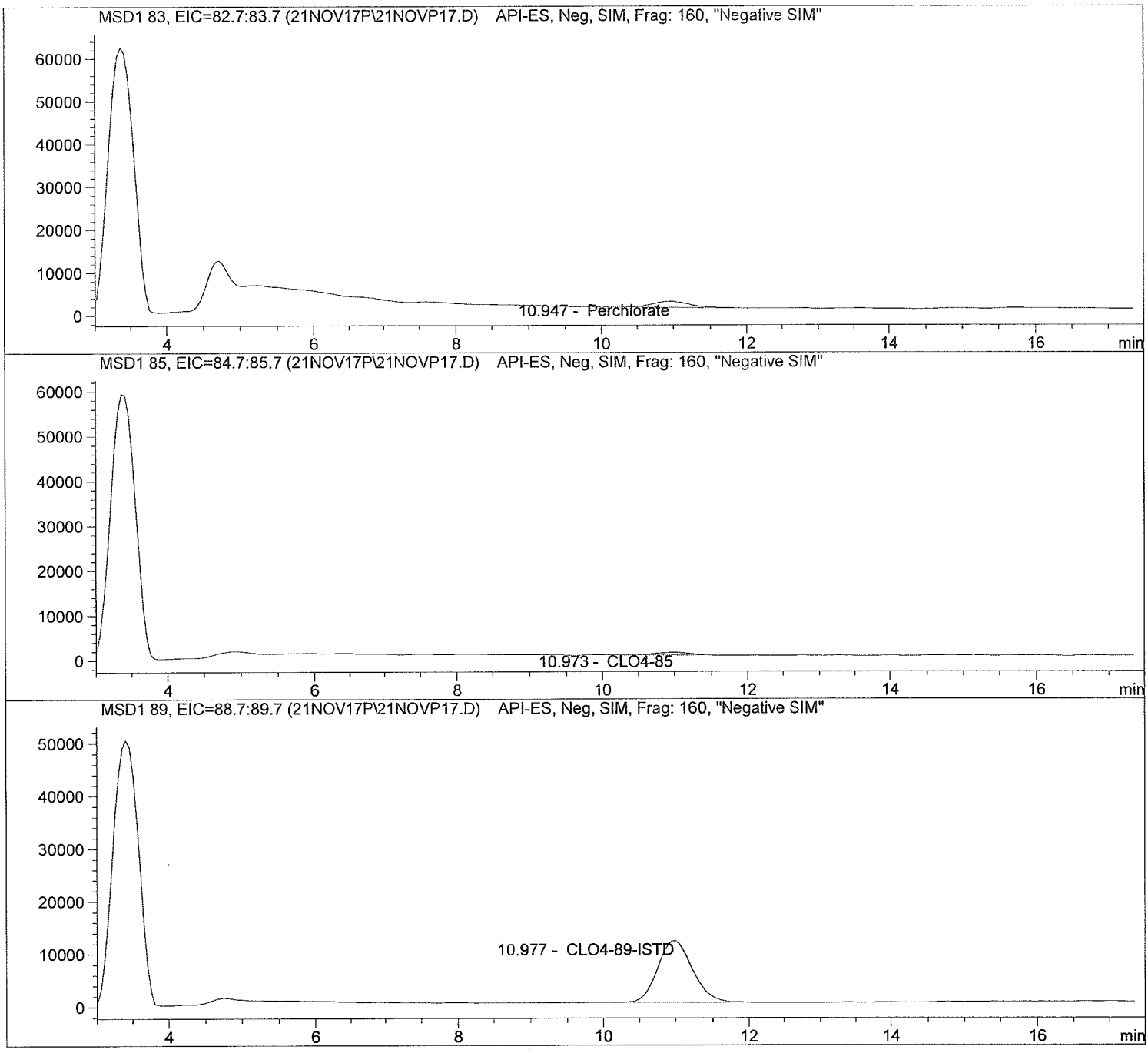
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP17.D  Sample Name: 1732090009

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 14:04:23 | Seq Line: | 17 |
| Sample Name: | 1732090009 | Location: | Vial 87 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP17.D Sample Name: 1732090009

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 14:04:23 | Seq Line: | 17 |
| Sample Name: | 1732090009 | Location: | Vial 87 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 10.947 | BBA | 51483.1 | 0.6253 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 10.973 | PBA | 21592.0 | 0.7890 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 10.977 | BBA | 384879.7 | 5.0000 | CLO4-89-ISTD |

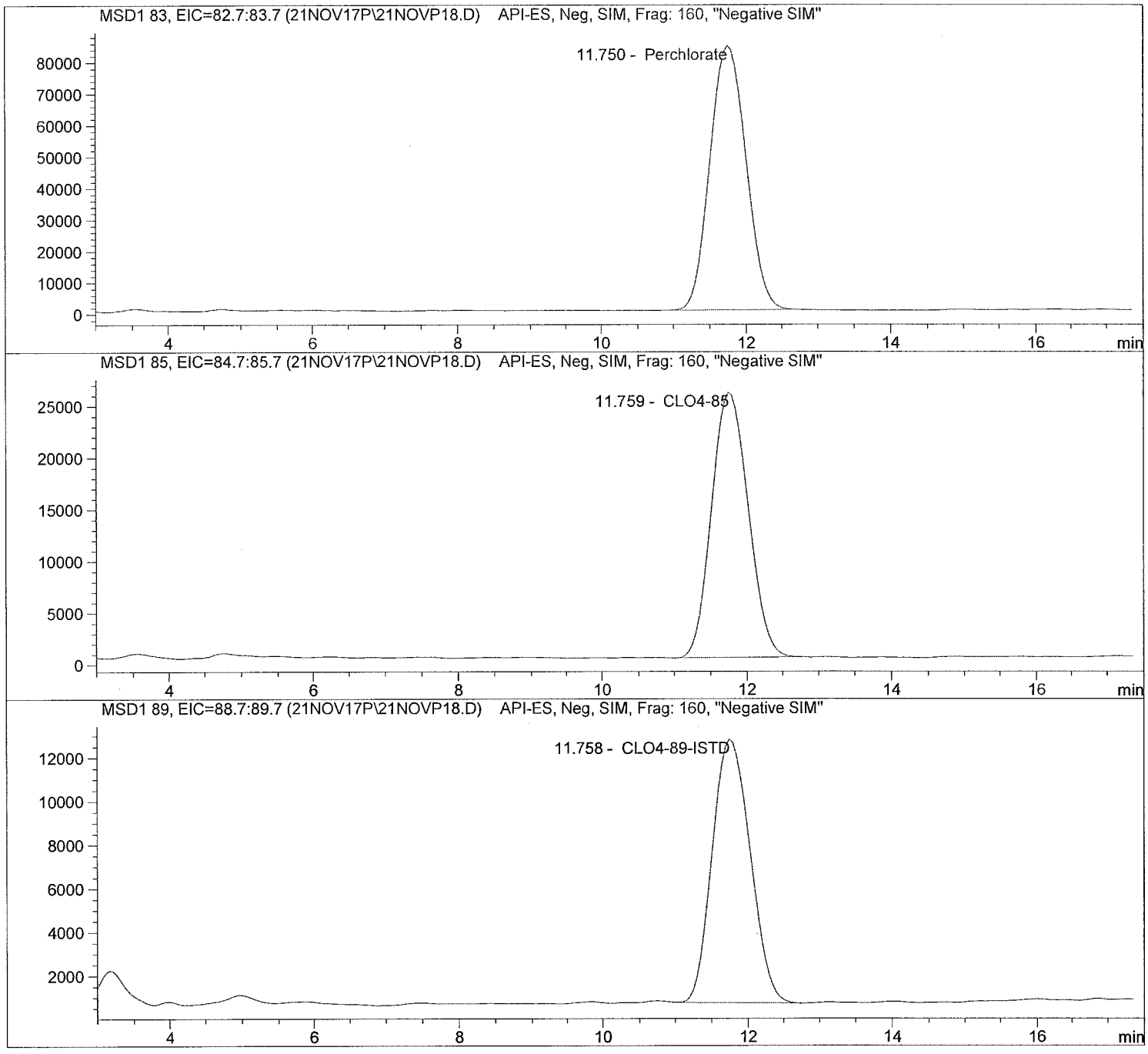
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP18.D  Sample Name: 575298  CCV@25

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 14:23:47 | Seq Line: | 18 |
| Sample Name: | 575298 CCV@25 | Location: | Vial 71 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP18.D  Sample Name: 575298  CCV@25

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 14:23:47 | Seq Line: | 18 |
| Sample Name: | 575298 CCV@25 | Location: | Vial 71 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 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 |
|---|---|---|---|---|
| 11.750 | BBA | 2905307.0 | 25.6866 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.759 | PBA | 898143.1 | 25.8086 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.758 | BBA | 438393.9 | 5.0000 | CLO4-89-ISTD |

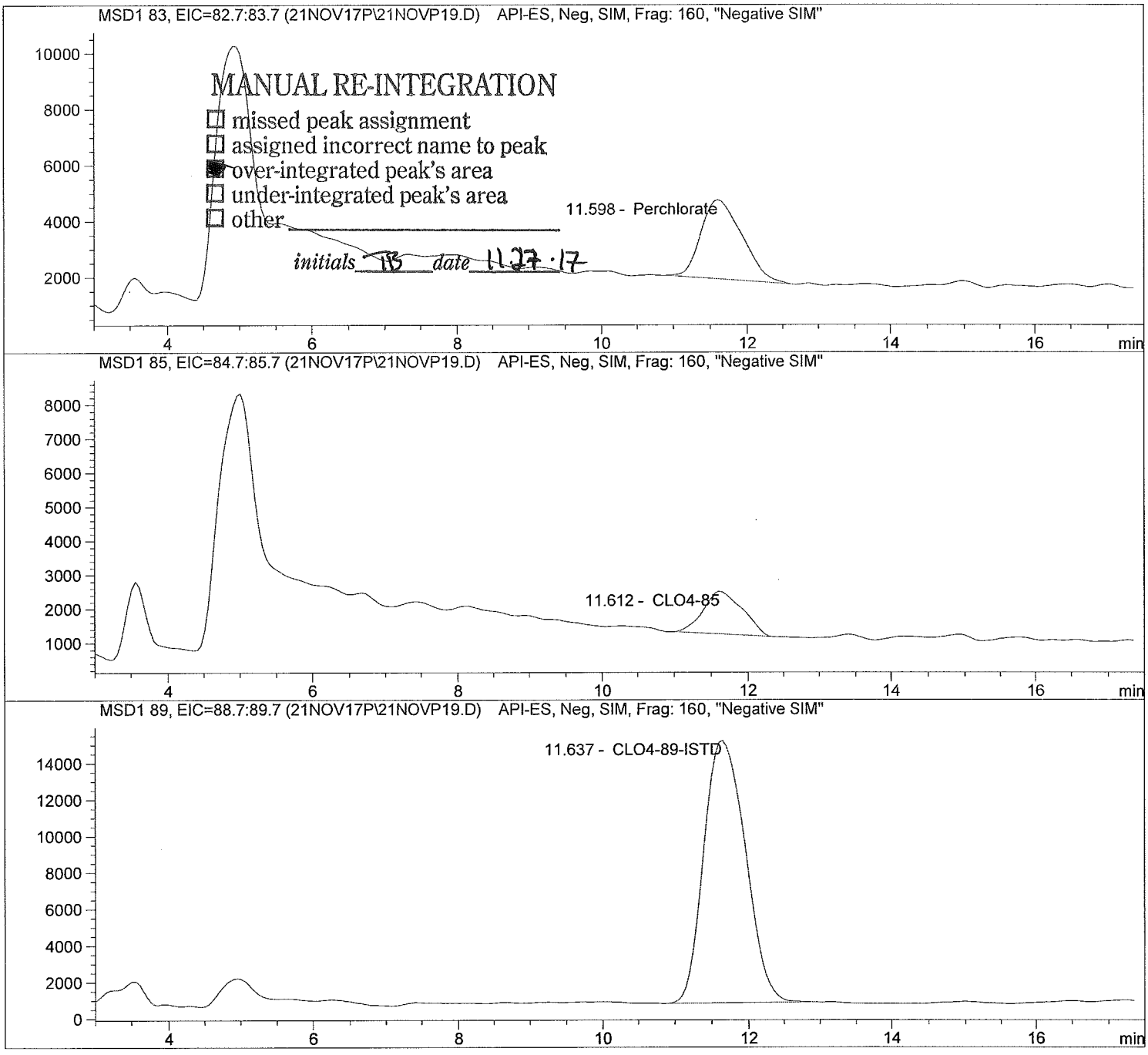
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP19.D  Sample Name: 575299  LODV@1.

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 14:43:09 | Seq Line: | 19 |
| Sample Name: | 575299 LODV@1. | Location: | Vial 72 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP19.D  Sample Name: 575299  LODV@1.

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 14:43:09 | Seq Line: | 19 |
| Sample Name: | 575299 LODV@1. | Location: | Vial 72 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 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 |
|---|---|---|---|---|
| 11.598 | MM | 109492.1 | 0.9032 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.612 | PBA | 46107.0 | 1.1489 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.637 | PBA | 563443.1 | 5.0000 | CLO4-89-ISTD |

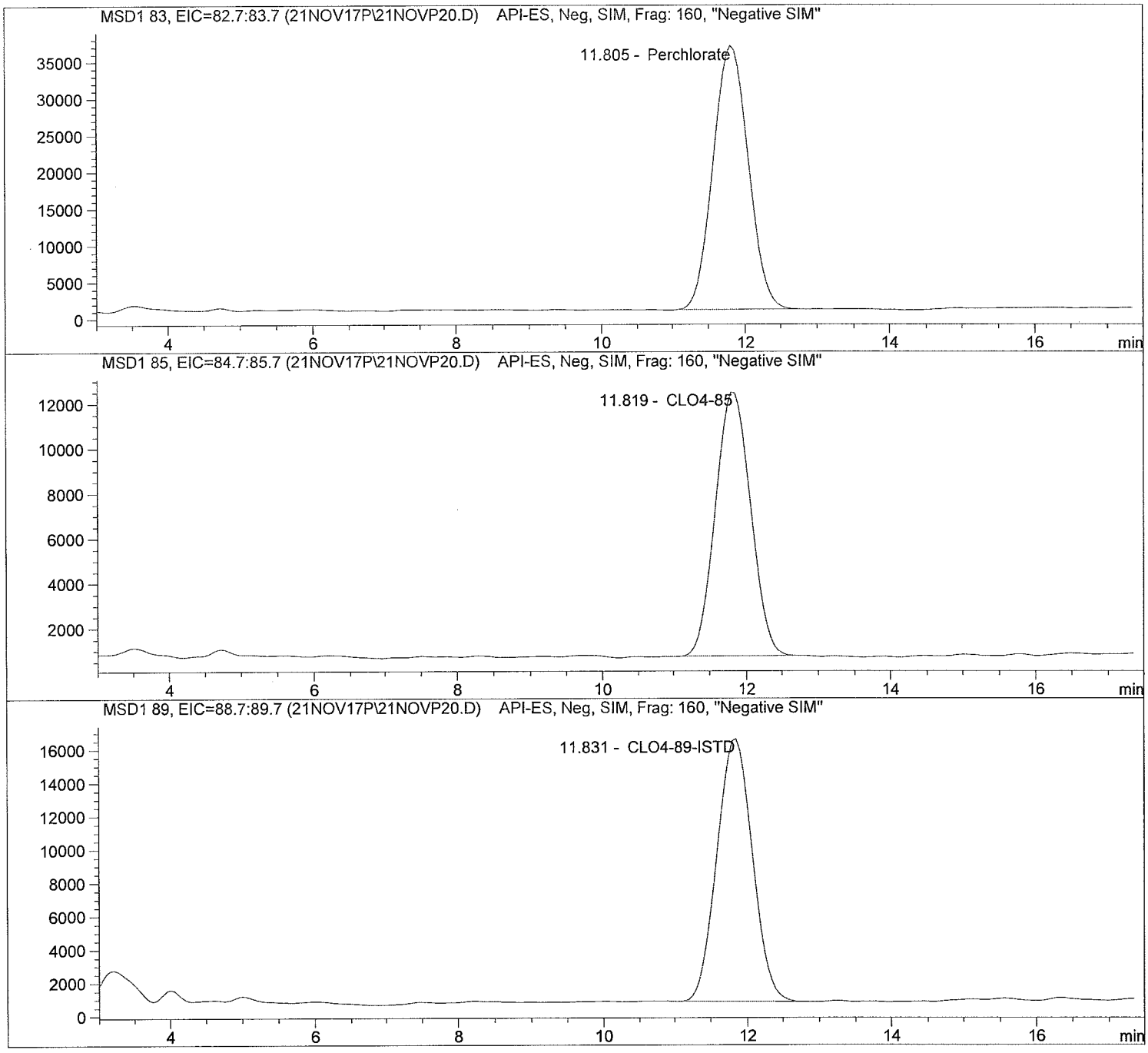
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP20.D  Sample Name: 1731766001  1K

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 15:02:33 | Seq Line: | 20 |
| Sample Name: | 1731766001 1K | Location: | Vial 88 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP20.D  Sample Name: 1731766001  1K

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 15:02:33 | Seq Line: | 20 |
| Sample Name: | 1731766001 1K | Location: | Vial 88 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 11.805 | PBA | 1206275.2 | 9756.4257 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.819 | PBA | 394066.1 | 9950.5183 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.831 | PBA | 534179.2 | 5000.0000 | CLO4-89-ISTD |

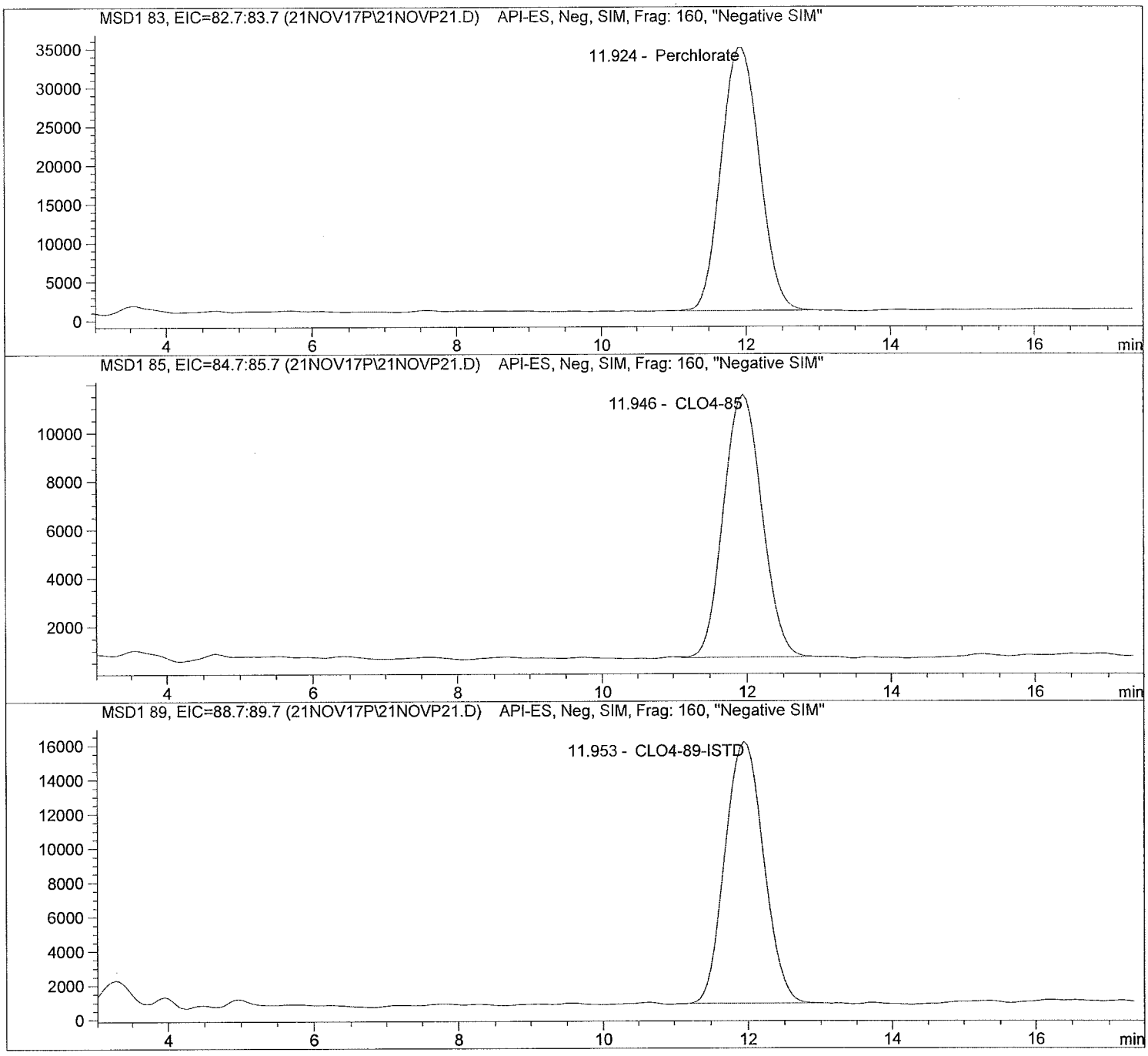
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP21.D  Sample Name: 1732090001  100

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 15:21:57 | Seq Line: | 21 |
| Sample Name: | 1732090001 100 | Location: | Vial 89 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP21.D  Sample Name: 1732090001  100

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 15:21:57 | Seq Line: | 21 |
| Sample Name: | 1732090001 100 | Location: | Vial 89 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 11.924 | BBA | 1227540.0 | 952.7269 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.946 | BBA | 393937.0 | 954.6697 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.953 | PBA | 557596.7 | 500.0000 | CLO4-89-ISTD |

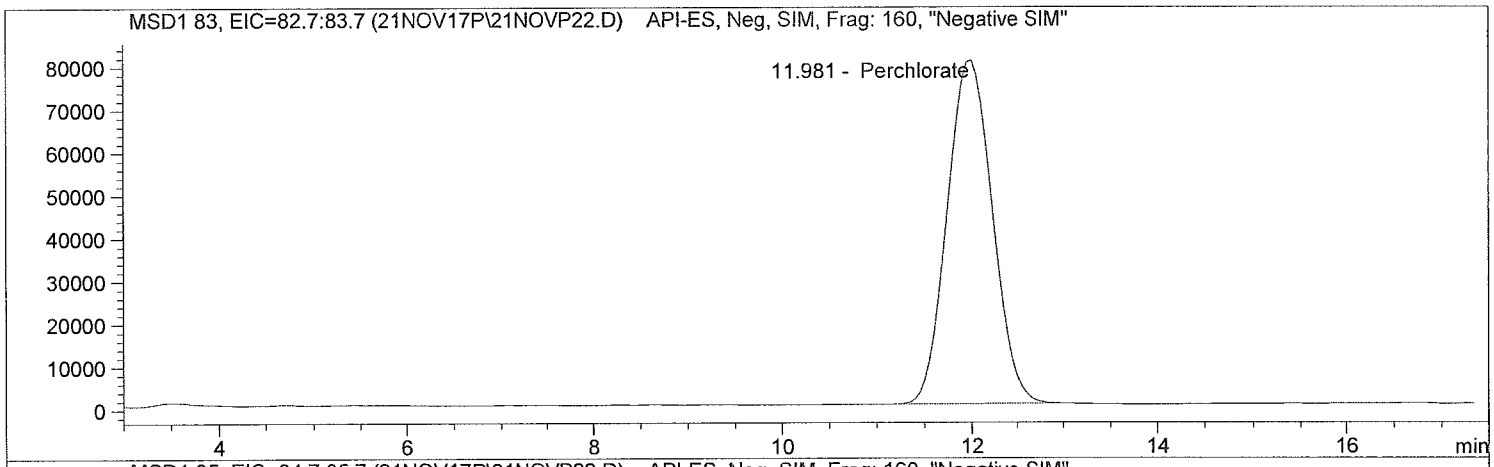
*** End of Report ***

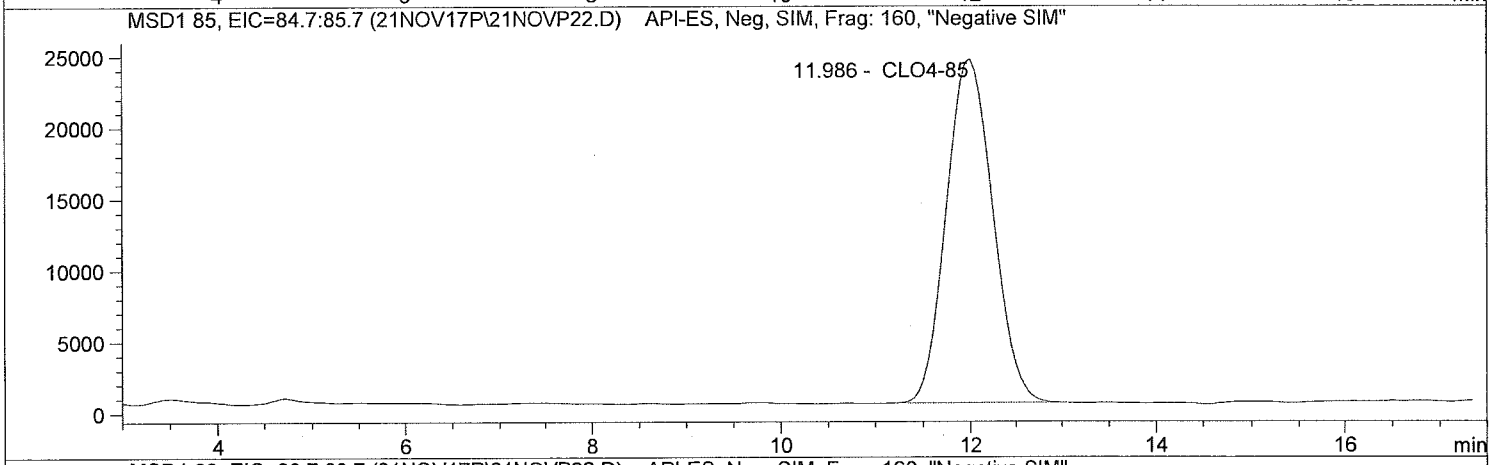
Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP22.D  Sample Name: 1732090002  1K

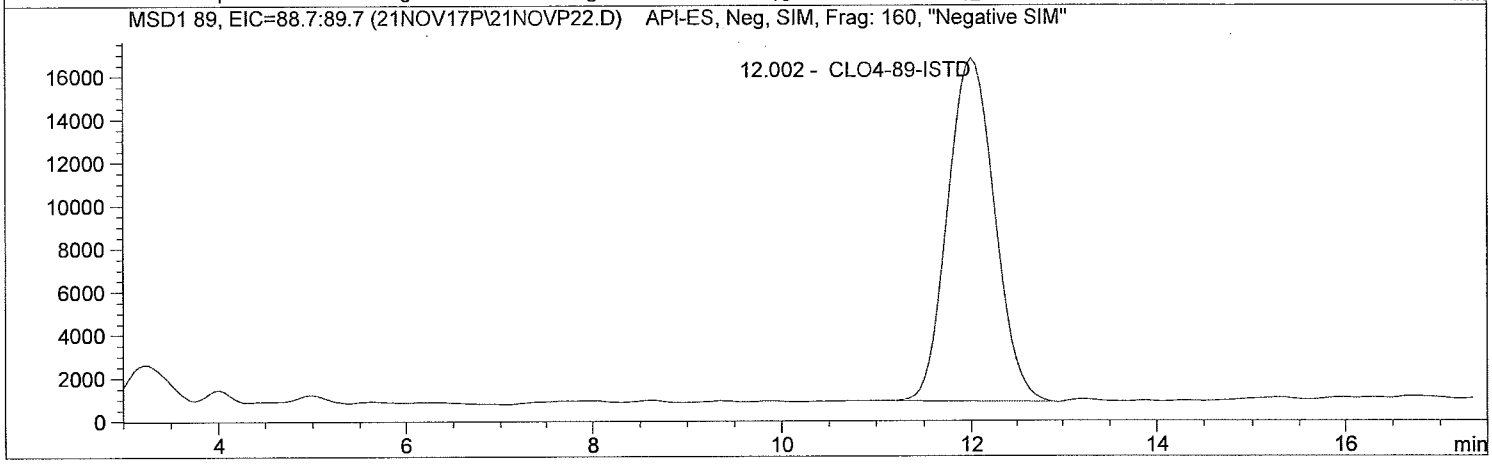
| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 15:41:21 | Seq Line: | 22 |
| Sample Name: | 1732090002 1K | Location: | Vial 90 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP22.D  Sample Name: 1732090002  1K

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 15:41:21 | Seq Line: | 22 |
| Sample Name: | 1732090002 1K | Location: | Vial 90 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 11.981 | BBA | 2701421.3 | 19523.5581 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.986 | BBA | 838229.5 | 19423.8152 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.002 | BBA | 558493.8 | 5000.0000 | CLO4-89-ISTD |

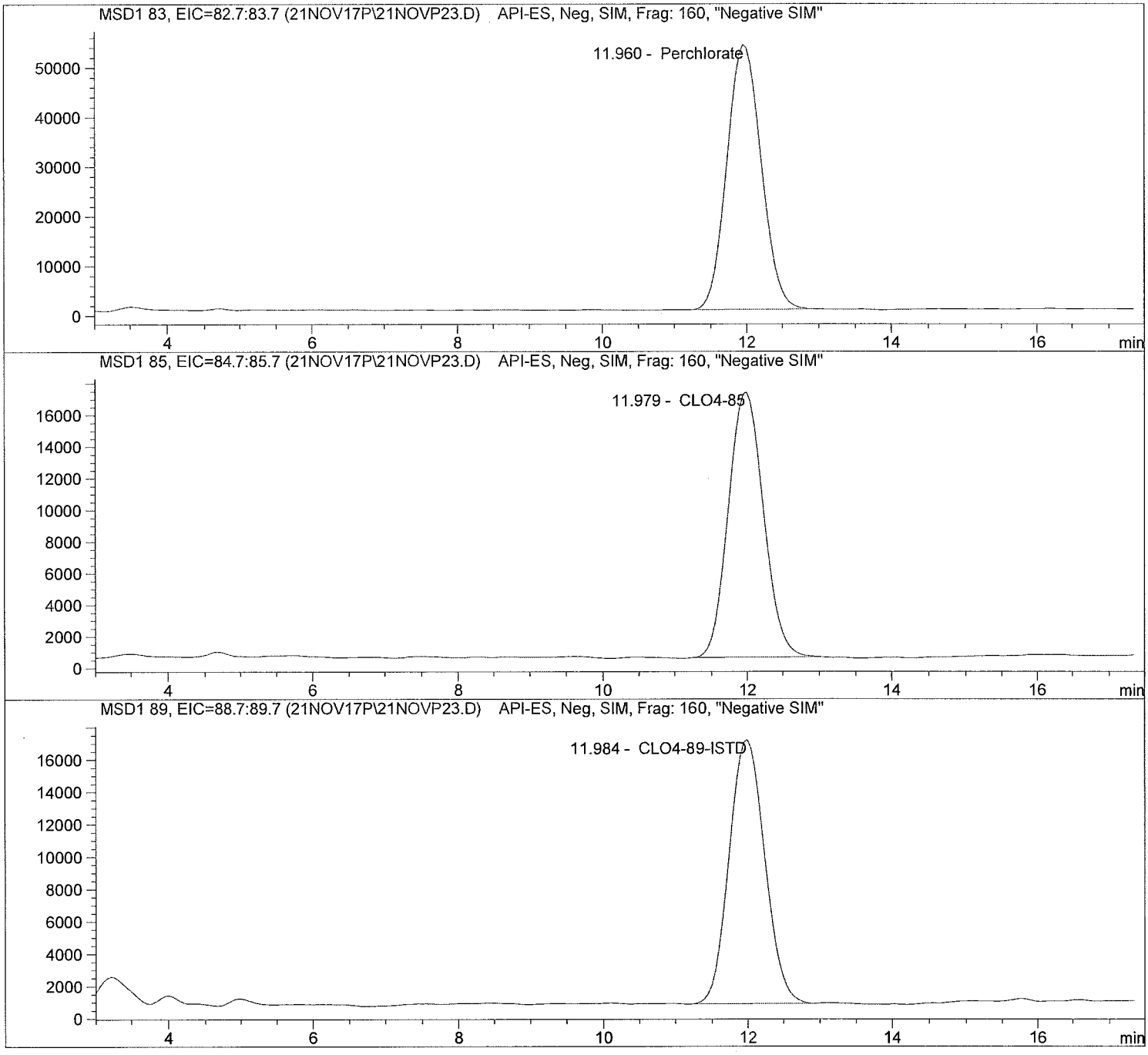
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP23.D  Sample Name: 1732090004  1K

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 16:00:47 | Seq Line: | 23 |
| Sample Name: | 1732090004 1K | Location: | Vial 91 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP23.D  Sample Name: 1732090004  1K

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 16:00:47 | Seq Line: | 23 |
| Sample Name: | 1732090004 1K | Location: | Vial 91 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 11.960 | PBA | 1788923.6 | 13308.0292 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.979 | PBA | 574994.3 | 13484.3199 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.984 | PBA | 566247.3 | 5000.0000 | CLO4-89-ISTD |

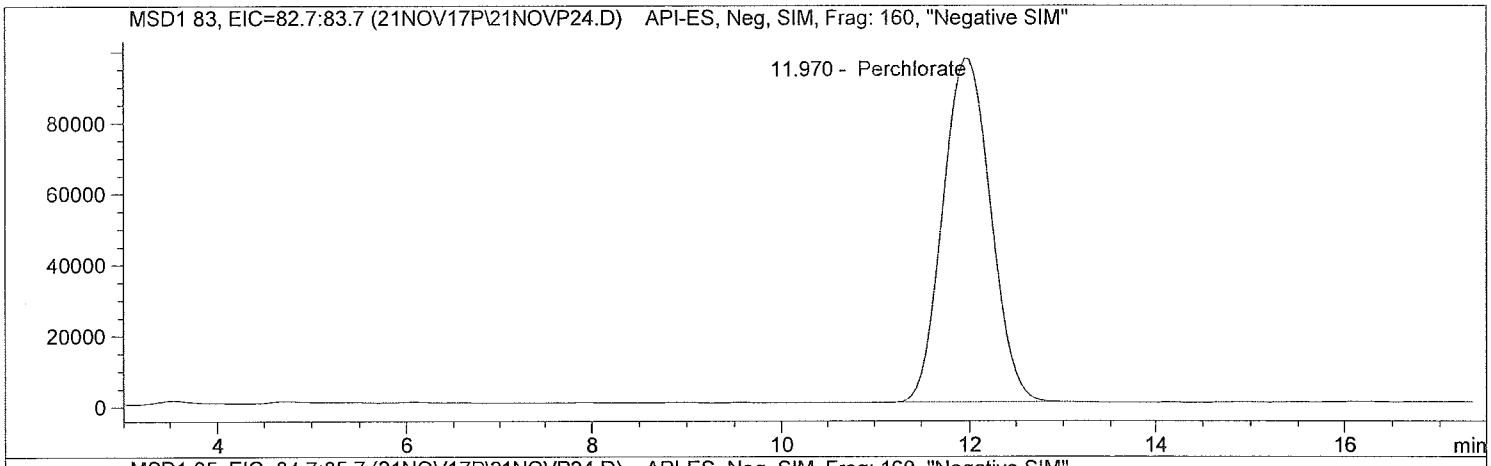
*** End of Report ***

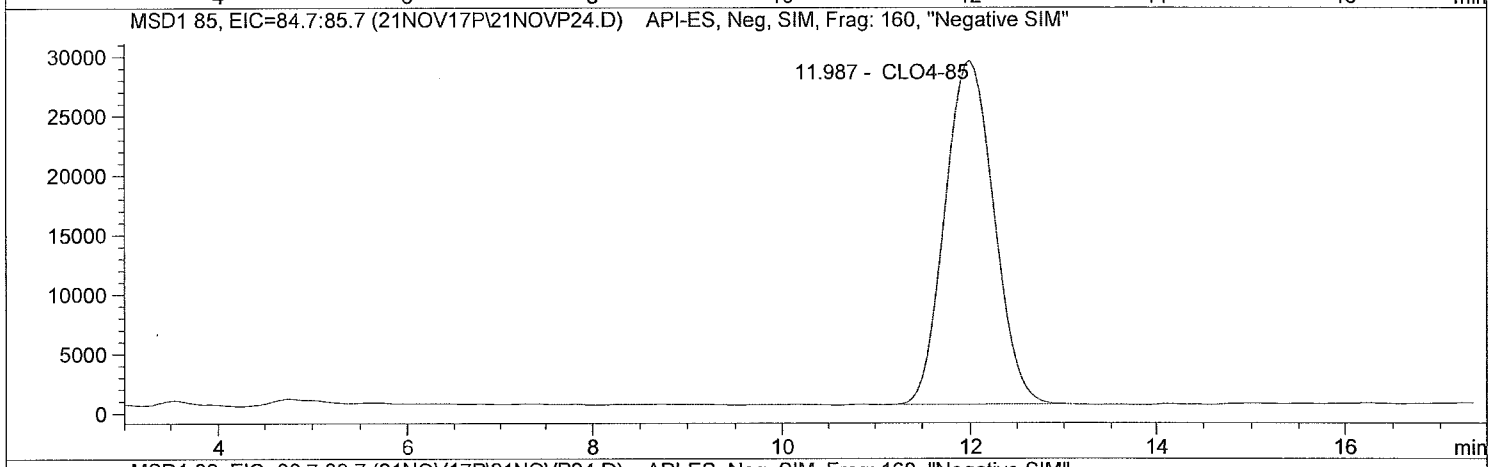
Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP24.D  Sample Name: 575300  CCV@25

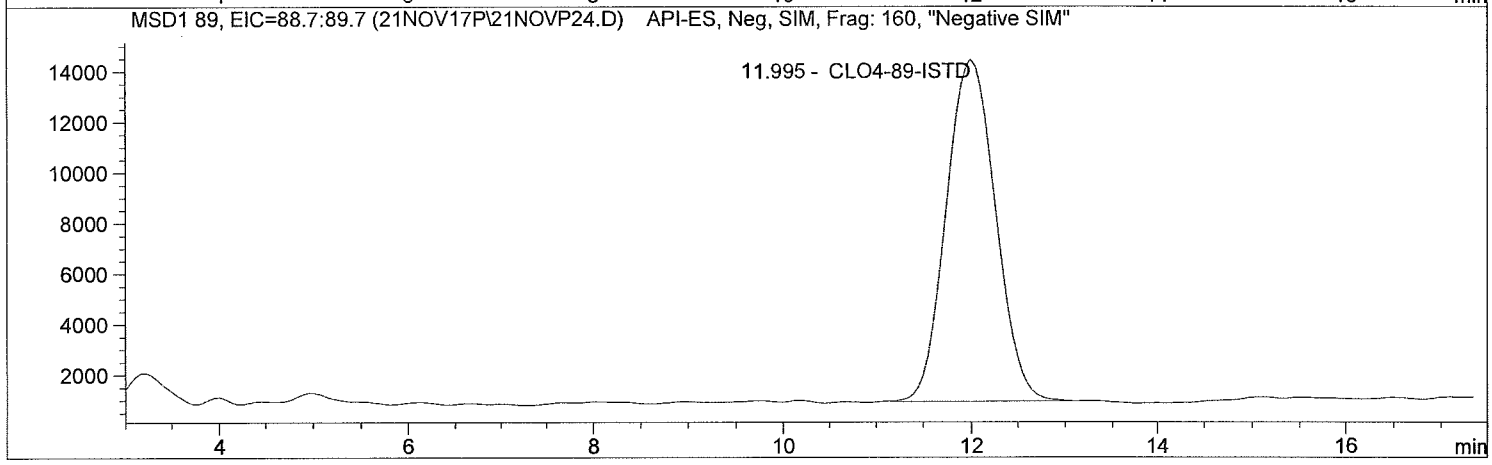
| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 16:20:10 | Seq Line: | 24 |
| Sample Name: | 575300 CCV@25 | Location: | Vial 71 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP24.D  Sample Name: 575300  CCV@25

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 16:20:10 | Seq Line: | 24 |
| Sample Name: | 575300 CCV@25 | Location: | Vial 71 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 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 |
|---|---|---|---|---|
| 11.970 | BBA | 3386944.5 | 26.7050 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.987 | BBA | 1036548.5 | 26.6445 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.995 | BBA | 488376.1 | 5.0000 | CLO4-89-ISTD |

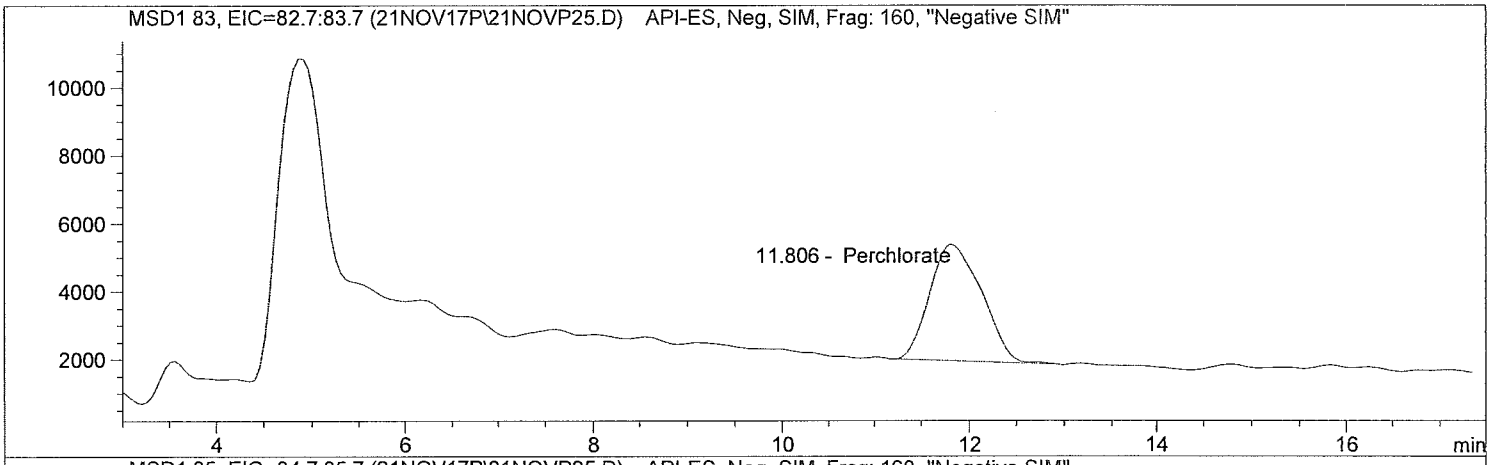
*** End of Report ***

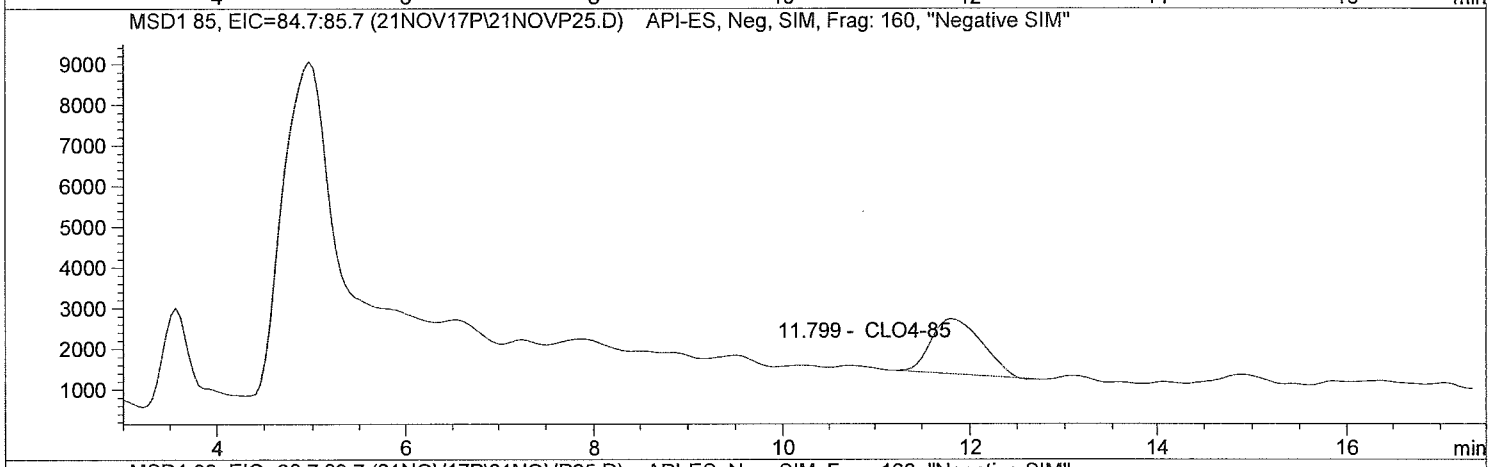
Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP25.D  Sample Name: 575301  LODV@1.

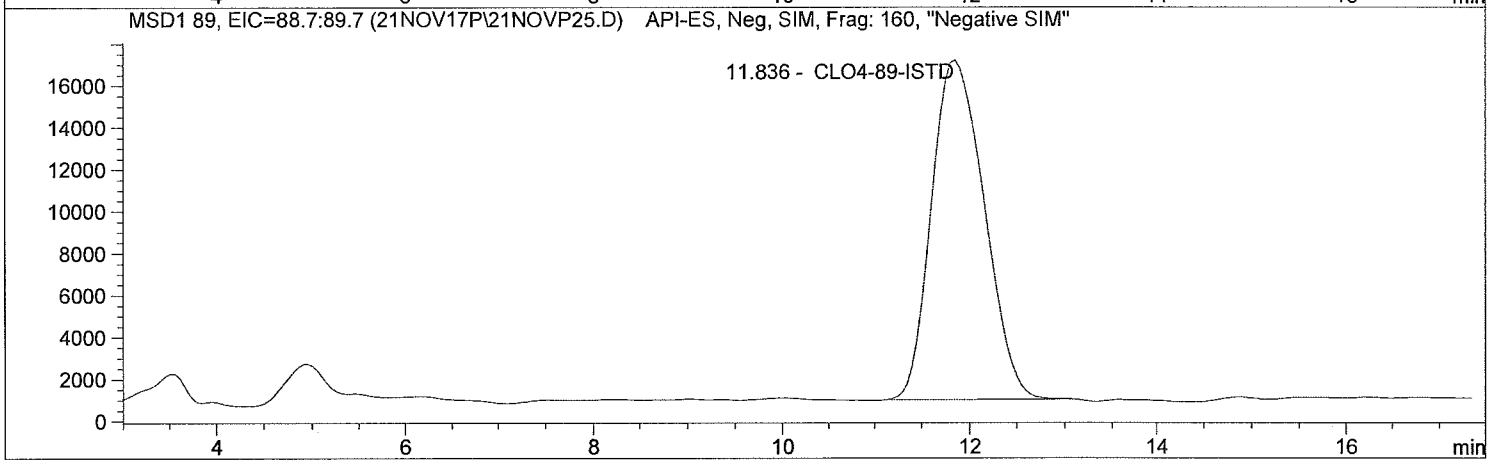
| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 16:39:31 | Seq Line: | 25 |
| Sample Name: | 575301 LODV@1. | Location: | Vial 72 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP25.D  Sample Name: 575301  LODV@1.

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 16:39:31 | Seq Line: | 25 |
| Sample Name: | 575301 LODV@1. | Location: | Vial 72 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 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 |
|---|---|---|---|---|
| 11.806 | PBA | 130116.4 | 0.9640 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.799 | PBA | 50238.5 | 1.1256 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.836 | PBA | 626702.6 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

# Raw Data

## Initial Calibration

Batch Report: C:\HPCHEM\1\DATA\21AUG17P\21AUG17P.B

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-PR3.M

['#' ==> Run has not been reprocessed with Batch Review Method
'*' ==> Run has been saved with batch file]

| #* | Sample | Location | Inj | SampleType | Run | CLO4-85 Area | CLO4-85 RT | CLO4-85 Amount |
|---|---|---|---|---|---|---|---|---|
| * | ICAL1@ .05ug/L | Vial 71 | 1 | Control | 1 | 4365.90820 | 12.226 | 9.14000e-2 |
| * | ICAL2@ .10ug/L | Vial 72 | 1 | Control | 2 | 9514.03027 | 12.210 | 2.01141e-1 |
| * | ICAL3@ .20ug/L | Vial 73 | 1 | Control | 3 | 1.35331e4 | 12.236 | 2.88584e-1 |
| * | ICAL4@ 0.5ug/L | Vial 74 | 1 | Control | 4 | 2.76171e4 | 12.161 | 5.95393e-1 |
| * | ICAL5@ 1.0ug/L | Vial 75 | 1 | Control | 5 | 4.75097e4 | 12.226 | 1.01731 |
| * | ICAL6@ 5.0ug/L | Vial 76 | 1 | Control | 6 | 2.30426e5 | 12.209 | 5.01082 |
| * | ICAL7@ 10.ug/L | Vial 77 | 1 | Control | 7 | 4.46570e5 | 12.212 | 9.64041 |
| * | ICAL8@ 25.ug/L | Vial 78 | 1 | Control | 8 | 1.19993e6 | 12.134 | 25.19412 |
| * | ICAL9@ 50.ug/L | Vial 79 | 1 | Control | 9 | 2.60933e6 | 12.150 | 49.96977 |
| * | ICAL Verf@10ug/L | Vial 80 | 1 | Control | 10 | 4.49703e5 | 12.232 | 9.41499 |

| #* | Sample | Location | Inj | SampleType | Run | Perchlorate Area | Perchlorate RT | Perchlorate Amount |
|---|---|---|---|---|---|---|---|---|
| * | ICAL1@ .05ug/L | Vial 71 | 1 | Control | 1 | 8930.38184 | 12.237 | 6.88583e-2 |
| * | ICAL2@ .10ug/L | Vial 72 | 1 | Control | 2 | 1.15052e4 | 12.248 | 8.73938e-2 |
| * | ICAL3@ .20ug/L | Vial 73 | 1 | Control | 3 | 2.62111e4 | 12.238 | 1.91166e-1 |
| * | ICAL4@ 0.5ug/L | Vial 74 | 1 | Control | 4 | 6.28912e4 | 12.159 | 4.52946e-1 |
| * | ICAL5@ 1.0ug/L | Vial 75 | 1 | Control | 5 | 1.30706e5 | 12.231 | 9.25591e-1 |
| * | ICAL6@ 5.0ug/L | Vial 76 | 1 | Control | 6 | 6.80205e5 | 12.200 | 4.80762 |
| * | ICAL7@ 10.ug/L | Vial 77 | 1 | Control | 7 | 1.41057e6 | 12.196 | 9.74126 |
| * | ICAL8@ 25.ug/L | Vial 78 | 1 | Control | 8 | 4.00474e6 | 12.118 | 25.78802 |
| * | ICAL9@ 50.ug/L | Vial 79 | 1 | Control | 9 | 8.85683e6 | 12.137 | 49.73658 |
| * | ICAL Verf@10ug/L | Vial 80 | 1 | Control | 10 | 1.36065e6 | 12.218 | 9.14332 |

| #* | Sample | Location | Inj | SampleType | Run | CLO4-89-ISTD Area | CLO4-89-ISTD RT | CLO4-89-ISTD Amount |
|---|---|---|---|---|---|---|---|---|
| * | ICAL1@ .05ug/L | Vial 71 | 1 | Control | 1 | 6.73943e5 | 12.272 | 5.00000 |
| * | ICAL2@ .10ug/L | Vial 72 | 1 | Control | 2 | 6.67016e5 | 12.250 | 5.00000 |
| * | ICAL3@ .20ug/L | Vial 73 | 1 | Control | 3 | 6.61031e5 | 12.267 | 5.00000 |
| * | ICAL4@ 0.5ug/L | Vial 74 | 1 | Control | 4 | 6.52904e5 | 12.190 | 5.00000 |
| * | ICAL5@ 1.0ug/L | Vial 75 | 1 | Control | 5 | 6.56071e5 | 12.242 | 5.00000 |
| * | ICAL6@ 5.0ug/L | Vial 76 | 1 | Control | 6 | 6.34251e5 | 12.221 | 5.00000 |
| * | ICAL7@ 10.ug/L | Vial 77 | 1 | Control | 7 | 6.25689e5 | 12.216 | 5.00000 |
| * | ICAL8@ 25.ug/L | Vial 78 | 1 | Control | 8 | 6.01523e5 | 12.141 | 5.00000 |
| * | ICAL9@ 50.ug/L | Vial 79 | 1 | Control | 9 | 5.97661e5 | 12.156 | 5.00000 |
| * | ICAL Verf@10ug/L | Vial 80 | 1 | Control | 10 | 6.45815e5 | 12.234 | 5.00000 |

*** End of Report ***

Method C:\HPCHEM\1\METHODS\CLO4-PR3.M

## Calibration Table

Perchlorate

Calib. Data Modified : 8/21/2017 2:55:52 PM

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 |
|---|---|---|---|---|---|---|---|---|
| 12.226 | 2 | 1 | 5.00000e-2 | 4365.90820 | 1.14524e-5 | | 1 | CLO4-85 |
| | | 2 | 1.00000e-1 | 9514.03027 | 1.05108e-5 | | | |
| | | 3 | 2.00000e-1 | 1.35331e4 | 1.47786e-5 | | | |
| | | 4 | 5.00000e-1 | 2.76171e4 | 1.81047e-5 | | | |
| | | 5 | 1.00000 | 4.75097e4 | 2.10483e-5 | | | |
| | | 6 | 5.00000 | 2.30426e5 | 2.16990e-5 | | | |
| | | 7 | 10.00000 | 4.46570e5 | 2.23929e-5 | | | |
| | | 8 | 25.00000 | 1.19993e6 | 2.08345e-5 | | | |
| | | 9 | 50.00000 | 2.60933e6 | 1.91620e-5 | | | |
| 12.237 | 1 | 1 | 5.00000e-2 | 8930.38184 | 5.59886e-6 | | 1 | Perchlorate |
| | | 2 | 1.00000e-1 | 1.15052e4 | 8.69173e-6 | | | |
| | | 3 | 2.00000e-1 | 2.62111e4 | 7.63037e-6 | | | |
| | | 4 | 5.00000e-1 | 6.28912e4 | 7.95024e-6 | | | |
| | | 5 | 1.00000 | 1.30706e5 | 7.65074e-6 | | | |
| | | 6 | 5.00000 | 6.80205e5 | 7.35073e-6 | | | |
| | | 7 | 10.00000 | 1.41057e6 | 7.08933e-6 | | | |
| | | 8 | 25.00000 | 4.00474e6 | 6.24259e-6 | | | |
| | | 9 | 50.00000 | 8.85683e6 | 5.64536e-6 | | | |
| 12.272 | 3 | 1 | 5.00000 | 6.73943e5 | 7.41903e-6 | +I1 | | CLO4-89-ISTD |
| | | 2 | 5.00000 | 6.67016e5 | 7.49607e-6 | | | |

| RetTime [min] | Lvl | Amount | Area | Amt/Area | Ref | Grp | Name |
|---|---|---|---|---|---|---|---|
| | 3 | 5.00000 | 6.61031e5 | 7.56394e-6 | | | |
| | 4 | 5.00000 | 6.52904e5 | 7.65809e-6 | | | |
| | 5 | 5.00000 | 6.56071e5 | 7.62113e-6 | | | |
| | 6 | 5.00000 | 6.34251e5 | 7.88331e-6 | | | |
| | 7 | 5.00000 | 6.25689e5 | 7.99119e-6 | | | |
| | 8 | 5.00000 | 6.01523e5 | 8.31223e-6 | | | |
| | 9 | 5.00000 | 5.97661e5 | 8.36594e-6 | | | |

More compound-specific settings:

Compound: CLO4-85
- Time Window : From 10.676 min To 13.166 min
- Curve Type : Quadratic
- Origin : Forced
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 1
  - Level 3 : 1
  - Level 4 : 1
  - Level 5 : 1
  - Level 6 : 1
  - Level 7 : 1
  - Level 8 : 1
  - Level 9 : 1

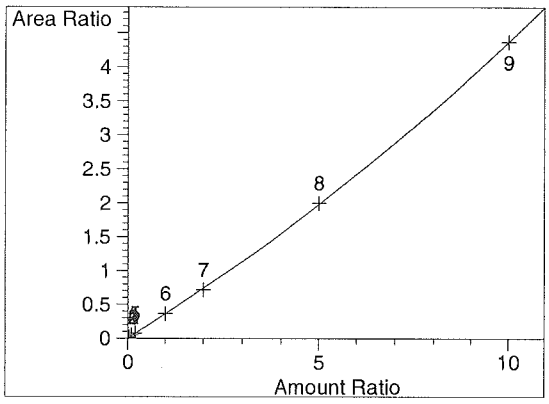
Compound: Perchlorate
- Time Window : From 10.737 min To 13.198 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 0.5
  - Level 3 : 0.25
  - Level 4 : 0.1
  - Level 5 : 0.05
  - Level 6 : 0.01
  - Level 7 : 0.005
  - Level 8 : 0.002
  - Level 9 : 0.001

Compound: CLO4-89-ISTD
- Time Window : From 10.704 min To 13.272 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
  - Level 8 : 1
  - Level 9 : 1

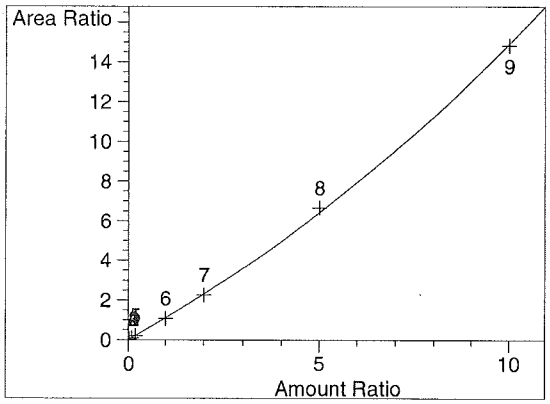
Peak Sum Table

***No Entries in table***

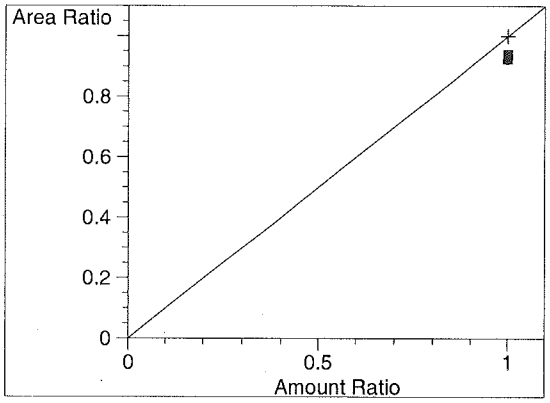
Calibration Curves




CLO4-85 at exp. RT: 12.226
MSD1 85, EIC=84.7:85.7
Correlation: 0.99997
Residual Std. Dev.: 0.01235
Formula: $y = ax^2 + bx$
a: 8.26698e-3
b: 3.54234e-1
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
Level 8 : 1
Level 9 : 1




Perchlorate at exp. RT: 12.237
MSD1 83, EIC=82.7:83.7
Correlation: 0.99970
Residual Std. Dev.: 0.10168
Formula: $y = ax^2 + bx + c$
a: 4.14991e-2
b: 1.07712
c: -1.59065e-3
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.5
Level 3 : 0.25
Level 4 : 0.1
Level 5 : 0.05
Level 6 : 0.01
Level 7 : 0.005
Level 8 : 0.002
Level 9 : 0.001




CLO4-89-ISTD at exp. RT: 12.272
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
Level 8 : 1
Level 9 : 1

Sequence Table:

Method and Injection Info Part:

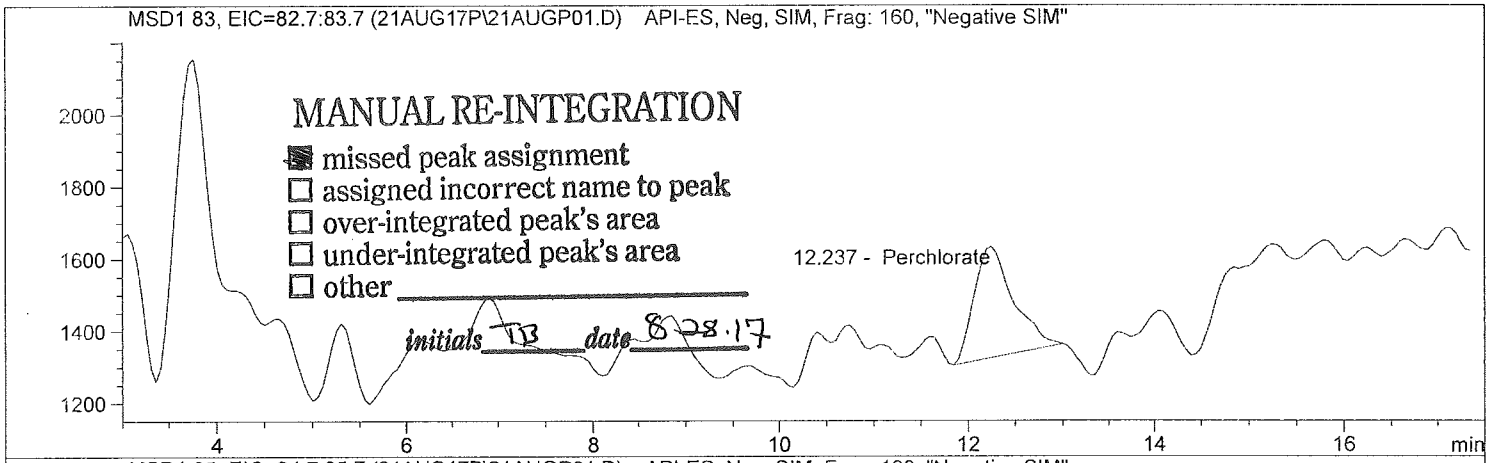
| Line | Location | SampleName | Method | Inj | SampleType | InjVolume | DataFile |
|---|---|---|---|---|---|---|---|
| 1 | Vial 71 | ICAL1@ .05ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 2 | Vial 72 | ICAL2@ .10ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 3 | Vial 73 | ICAL3@ .20ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 4 | Vial 74 | ICAL4@ 0.5ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 5 | Vial 75 | ICAL5@ 1.0ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 6 | Vial 76 | ICAL6@ 5.0ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 7 | Vial 77 | ICAL7@ 10.ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 8 | Vial 78 | ICAL8@ 25.ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 9 | Vial 79 | ICAL9@ 50.ug/L | CLO4-AQN | 1 | Ctrl Samp | | |
| 10 | Vial 80 | ICAL Verf@10ug/L | CLO4-AQN | 1 | Ctrl Samp | | |

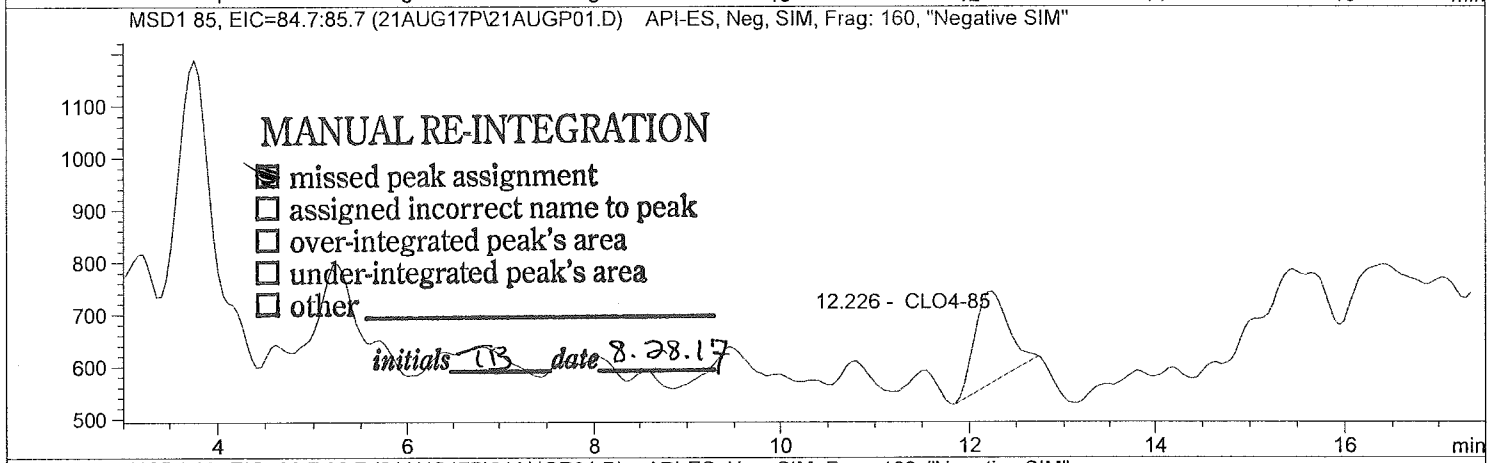
Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP01.D  Sample Name: ICAL1@ .05ug/L

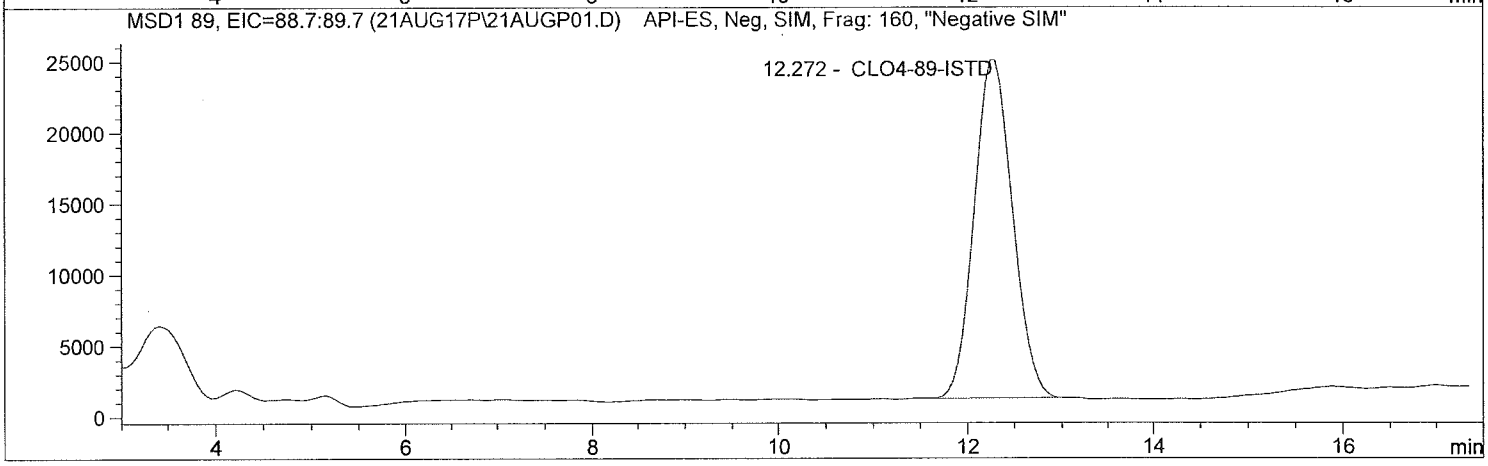
| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 09:42:32 | Seq Line: | 1 |
| Sample Name: | ICAL1@ .05ug/L | Location: | Vial 71 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP01.D  Sample Name: ICAL1@ .05ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 09:42:32 | Seq Line: | 1 |
| Sample Name: | ICAL1@ .05ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis

## Sample Information

Sorted By: Signal
Calib. Data Modified: Mon, 21. Aug. 2017,02:55:52 pm
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.050

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.237 | MM | 8930.4 | 0.0689 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.226 | MM | 4365.9 | 0.0914 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.272 | BBA | 673942.9 | 5.0000 | CLO4-89-ISTD |

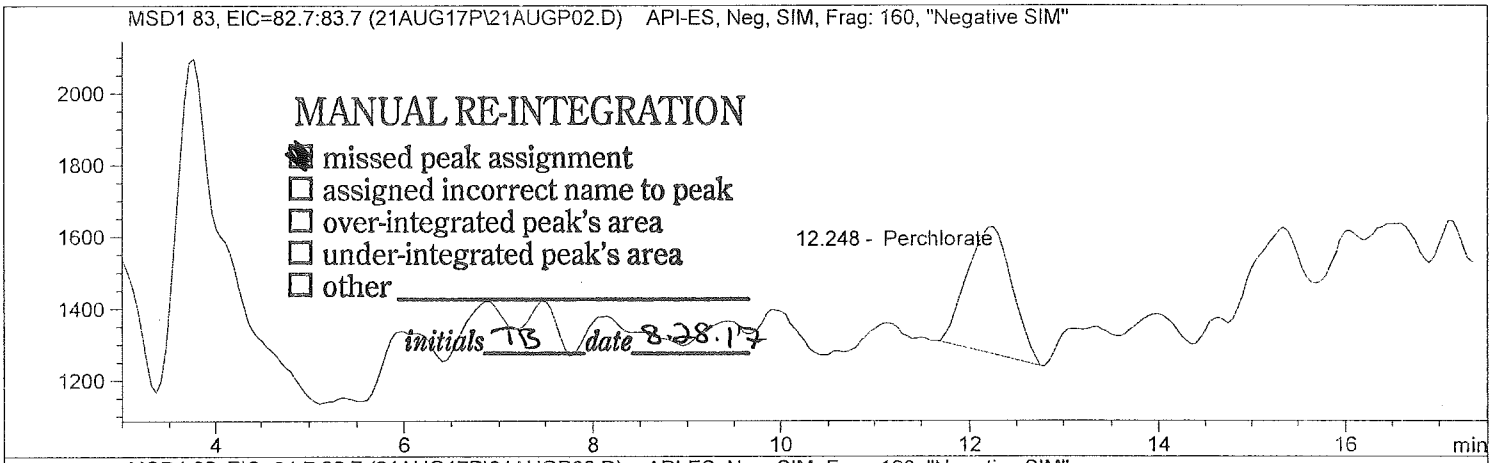
*** End of Report ***

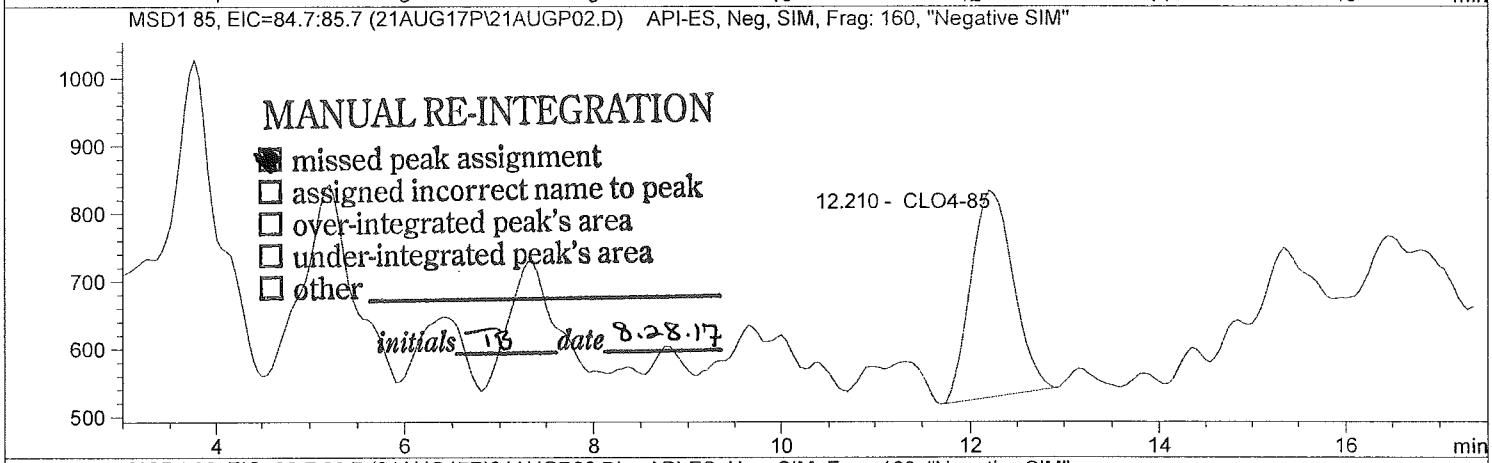
Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP02.D  Sample Name: ICAL2@ .10ug/L

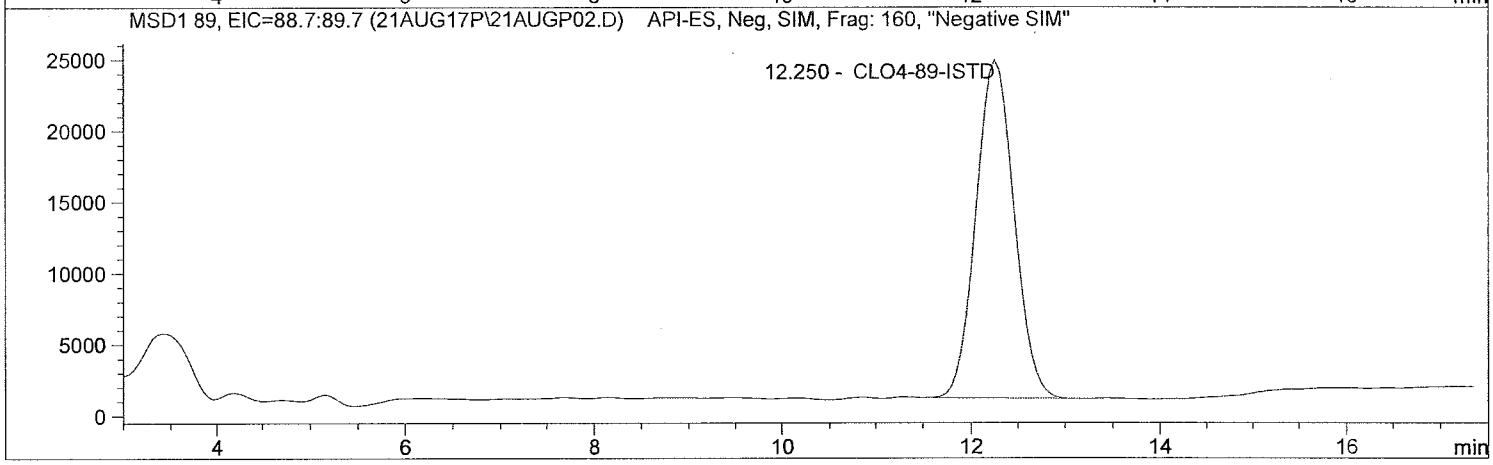
| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:01:47 | Seq Line: | 2 |
| Sample Name: | ICAL2@ .10ug/L | Location: | Vial 72 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP02.D  Sample Name: ICAL2@ .10ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:01:47 | Seq Line: | 2 |
| Sample Name: | ICAL2@ .10ug/L | 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-PR3.M |
| Last Changed: | 8/21/2017 14:55:53 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.100 |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.248 | MM | 11505.2 | 0.0874 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.210 | MM | 9514.0 | 0.2011 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.250 | BBA | 667016.3 | 5.0000 | CLO4-89-ISTD |

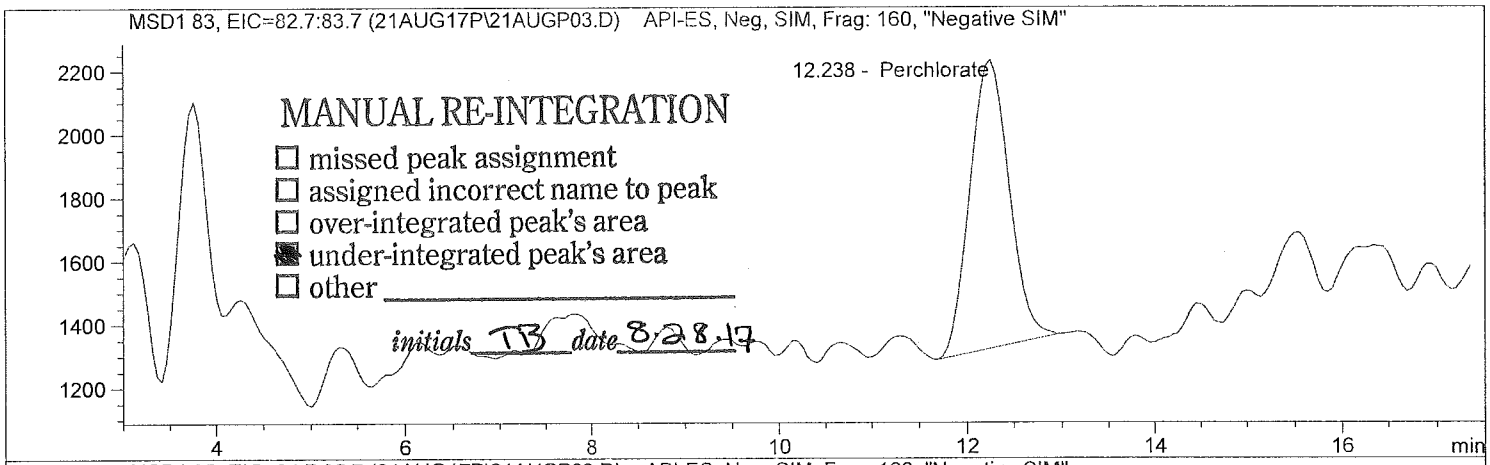
*** End of Report ***

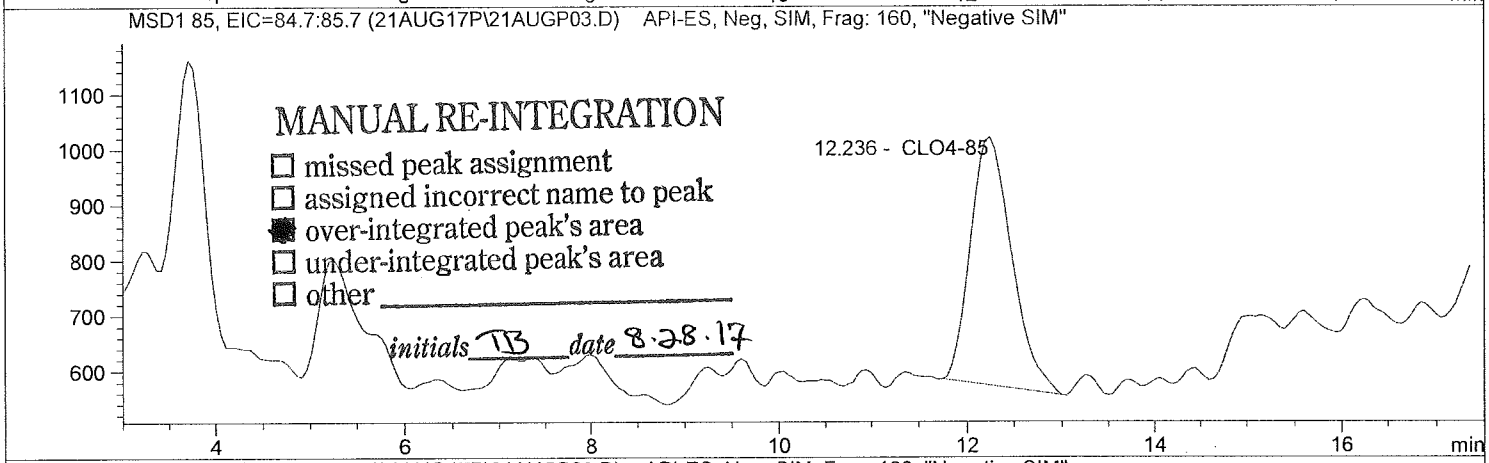
Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP03.D  Sample Name: ICAL3@ .20ug/L

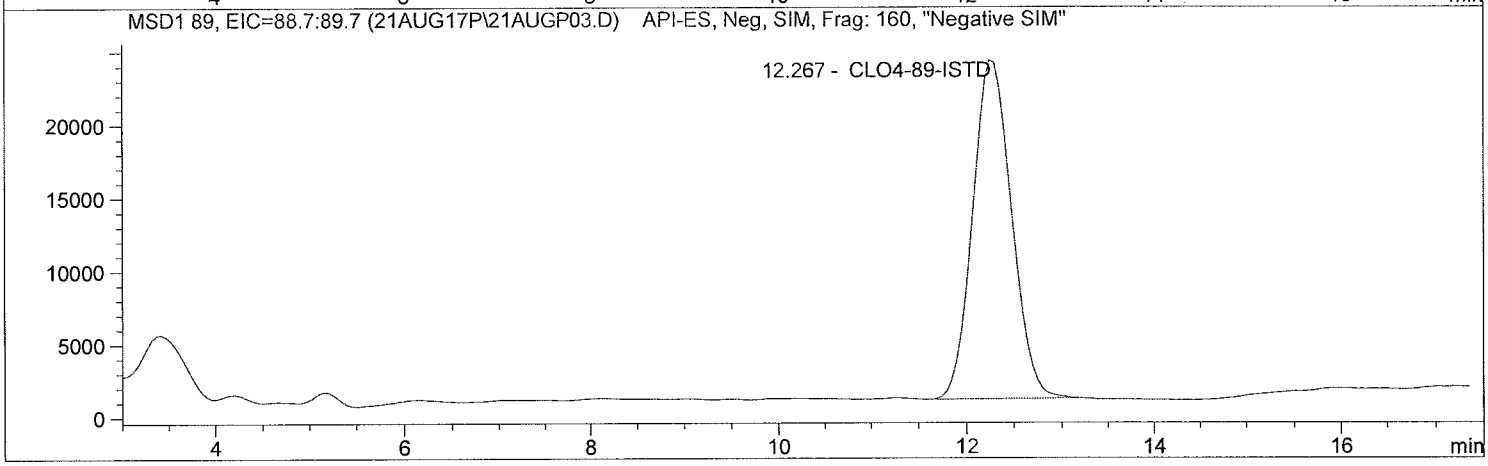
| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:21:02 | Seq Line: | 3 |
| Sample Name: | ICAL3@ .20ug/L | Location: | Vial 73 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP03.D  Sample Name: ICAL3@ .20ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:21:02 | Seq Line: | 3 |
| Sample Name: | ICAL3@ .20ug/L | 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-PR3.M |
| Last Changed: | 8/21/2017 14:55:53 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.200 |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.238 | MM | 26211.1 | 0.1912 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.236 | MM | 13533.1 | 0.2886 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.267 | PBA | 661030.8 | 5.0000 | CLO4-89-ISTD |

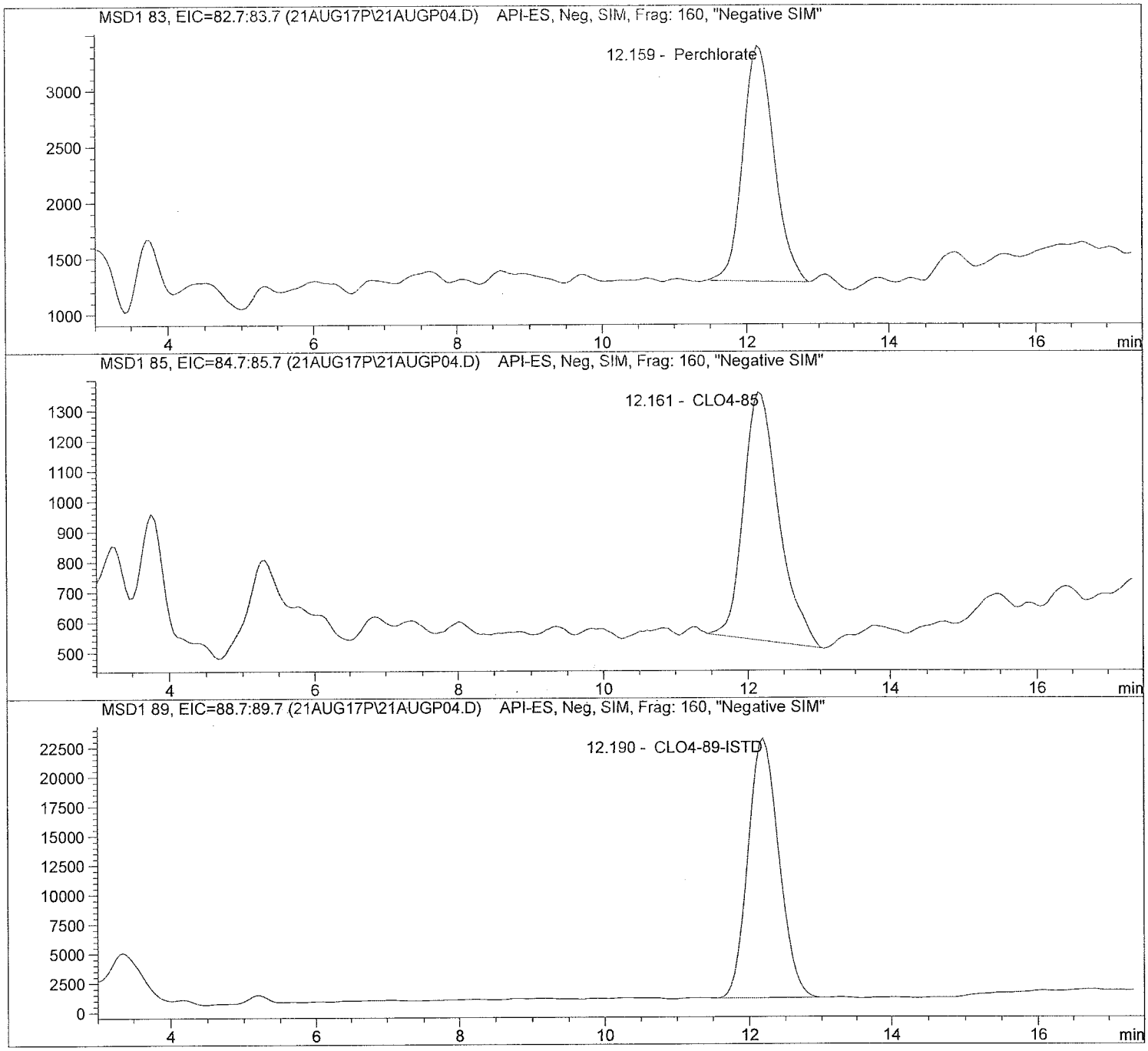
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP04.D  Sample Name: ICAL4@ 0.5ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:40:22 | Seq Line: | 4 |
| Sample Name: | ICAL4@ 0.5ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP04.D Sample Name: ICAL4@ 0.5ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:40:22 | Seq Line: | 4 |
| Sample Name: | ICAL4@ 0.5ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.500 |

## LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.159 | BBA | 62891.2 | 0.4529 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.161 | PBA | 27617.1 | 0.5954 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.190 | PBA | 652904.1 | 5.0000 | CLO4-89-ISTD |

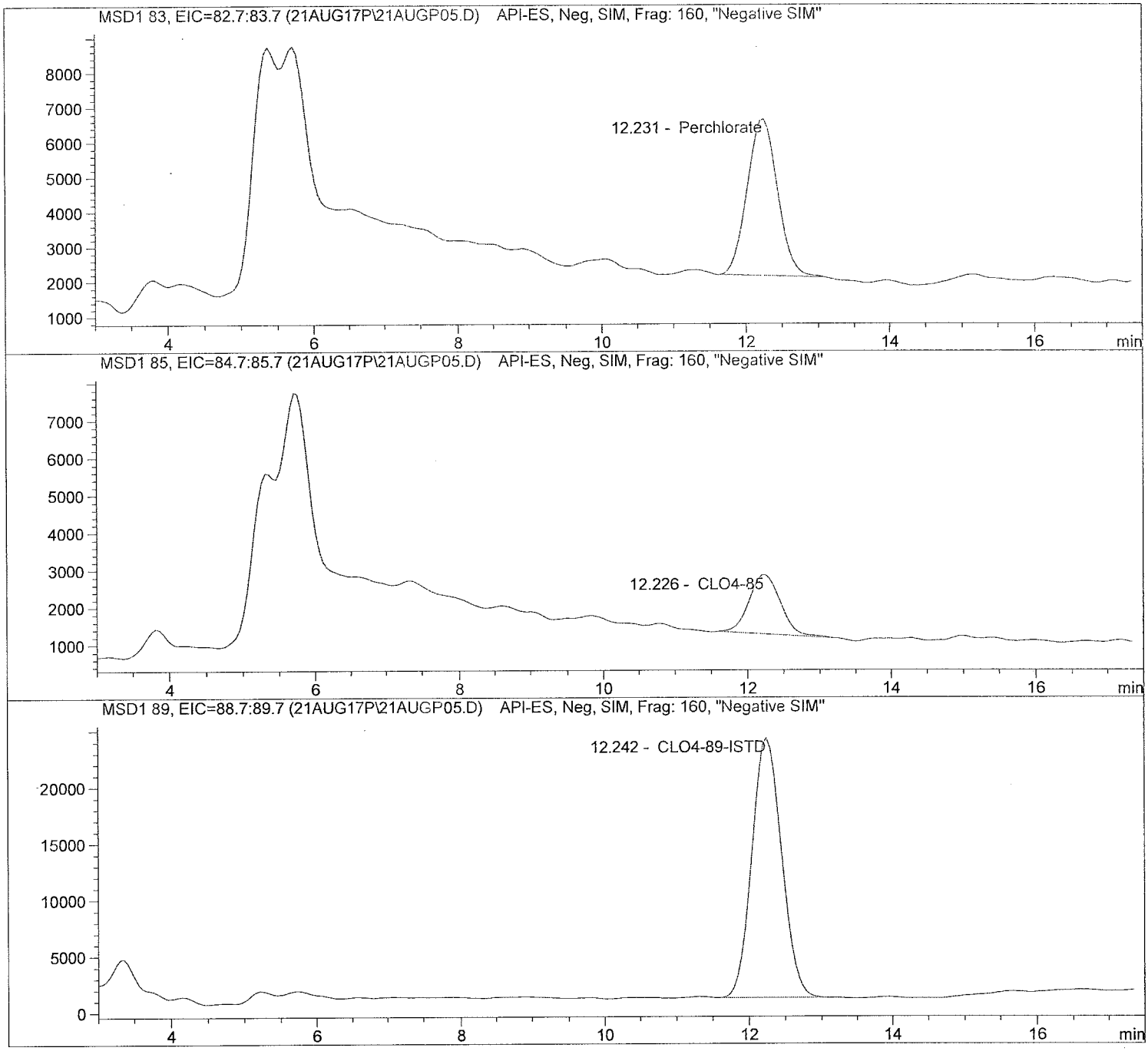
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP05.D  Sample Name: ICAL5@ 1.0ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:59:36 | Seq Line: | 5 |
| Sample Name: | ICAL5@ 1.0ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP05.D  Sample Name: ICAL5@ 1.0ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:59:36 | Seq Line: | 5 |
| Sample Name: | ICAL5@ 1.0ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| 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 |
|---|---|---|---|---|
| 12.231 | PBA | 130706.3 | 0.9256 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.226 | PBA | 47509.7 | 1.0173 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.242 | PBA | 656070.7 | 5.0000 | CLO4-89-ISTD |

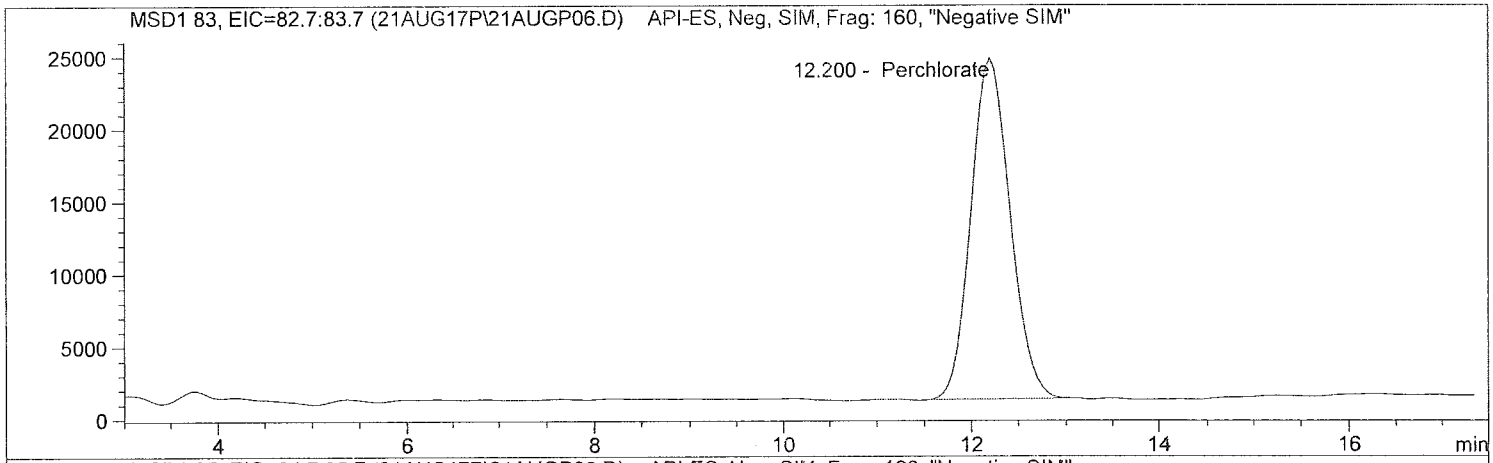
*** End of Report ***

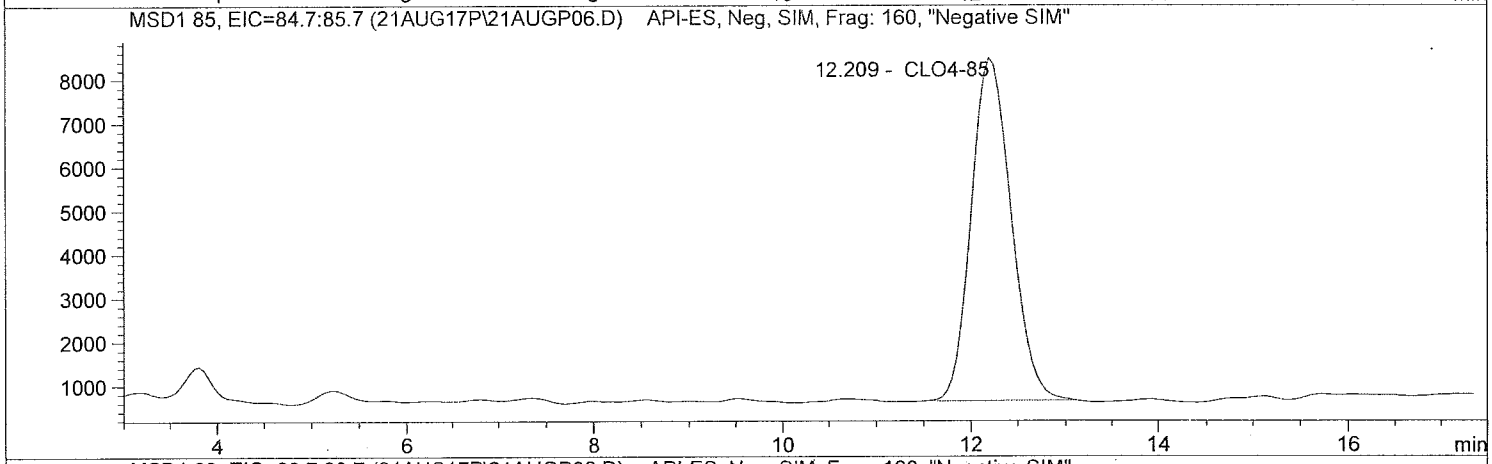
Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP06.D  Sample Name: ICAL6@ 5.0ug/L

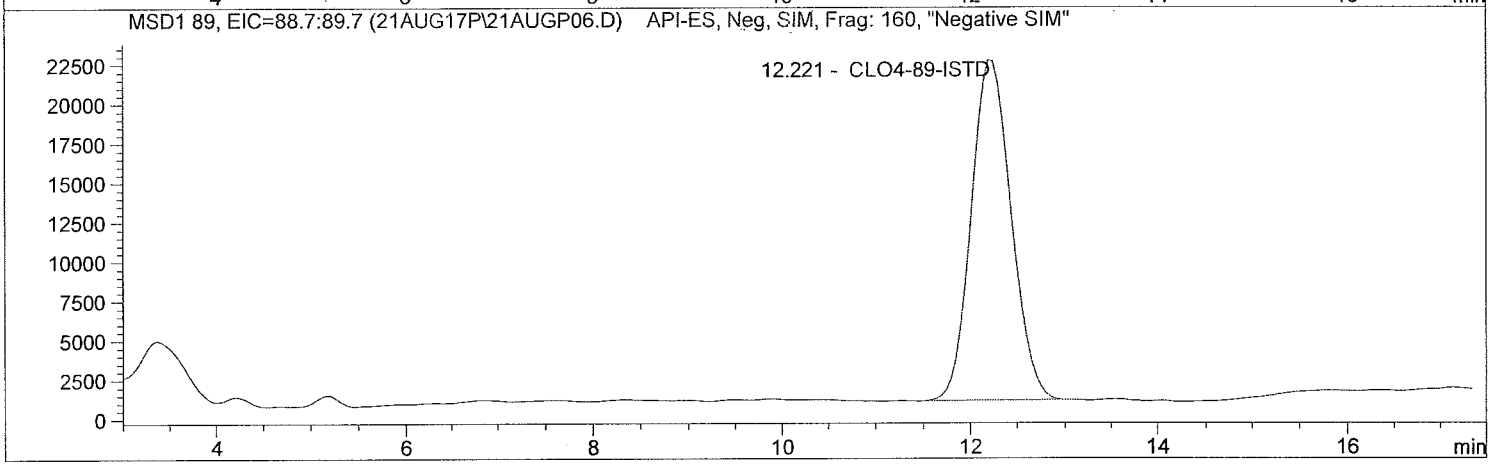
| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 11:18:53 | Seq Line: | 6 |
| Sample Name: | ICAL6@ 5.0ug/L | Location: | Vial 76 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP06.D  Sample Name: ICAL6@ 5.0ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 11:18:53 | Seq Line: | 6 |
| Sample Name: | ICAL6@ 5.0ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| 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 |
|---|---|---|---|---|
| 12.200 | PBA | 680204.6 | 4.8076 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.209 | BBA | 230425.8 | 5.0108 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.221 | BBA | 634251.4 | 5.0000 | CLO4-89-ISTD |

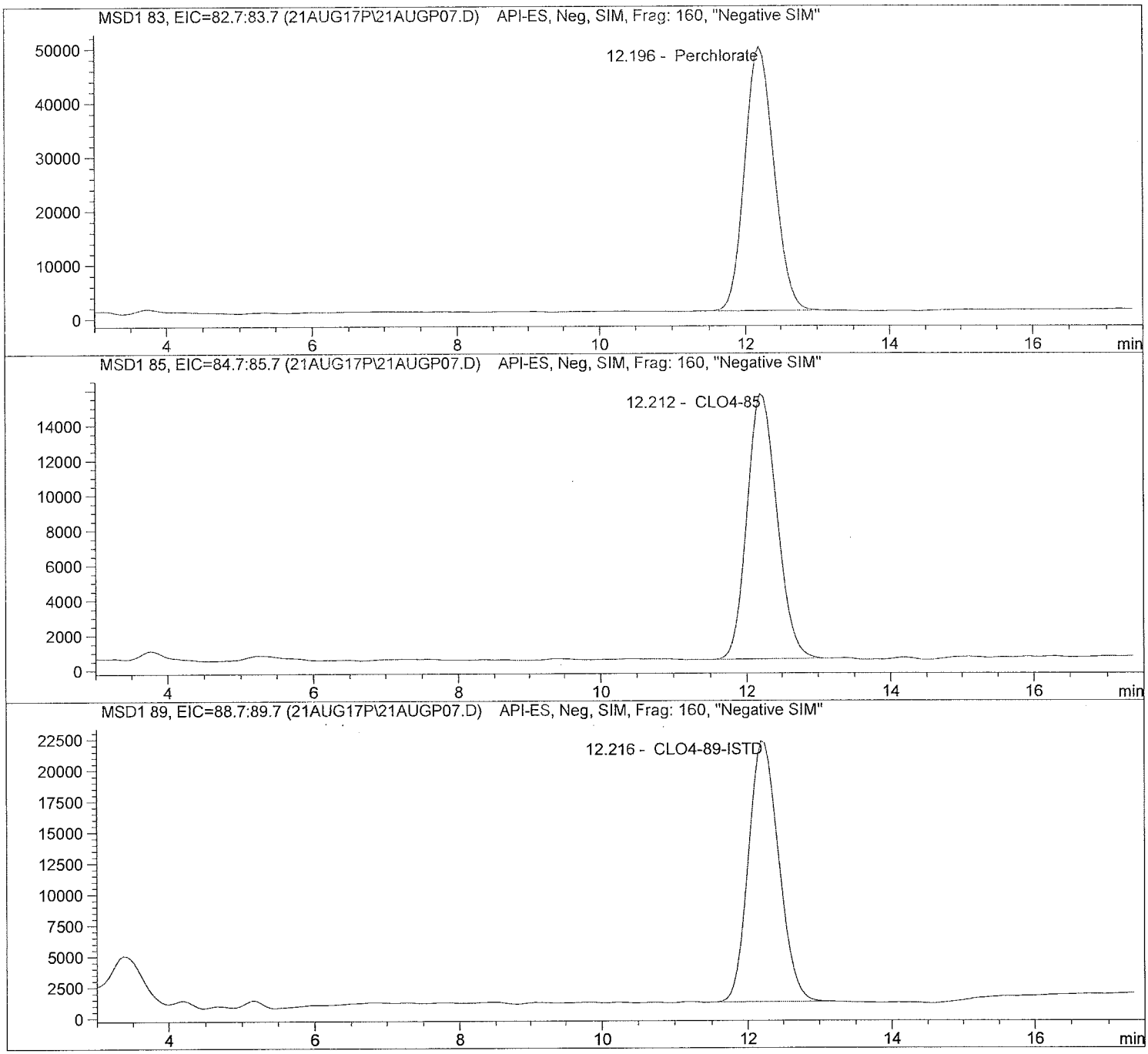
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP07.D  Sample Name: ICAL7@ 10.ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 11:38:12 | Seq Line: | 7 |
| Sample Name: | ICAL7@ 10.ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP07.D  Sample Name: ICAL7@ 10.ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 11:38:12 | Seq Line: | 7 |
| Sample Name: | ICAL7@ 10.ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| 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 |
|---|---|---|---|---|
| 12.196 | BBA | 1410569.9 | 9.7413 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.212 | PBA | 446569.7 | 9.6404 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.216 | PBA | 625689.1 | 5.0000 | CLO4-89-ISTD |

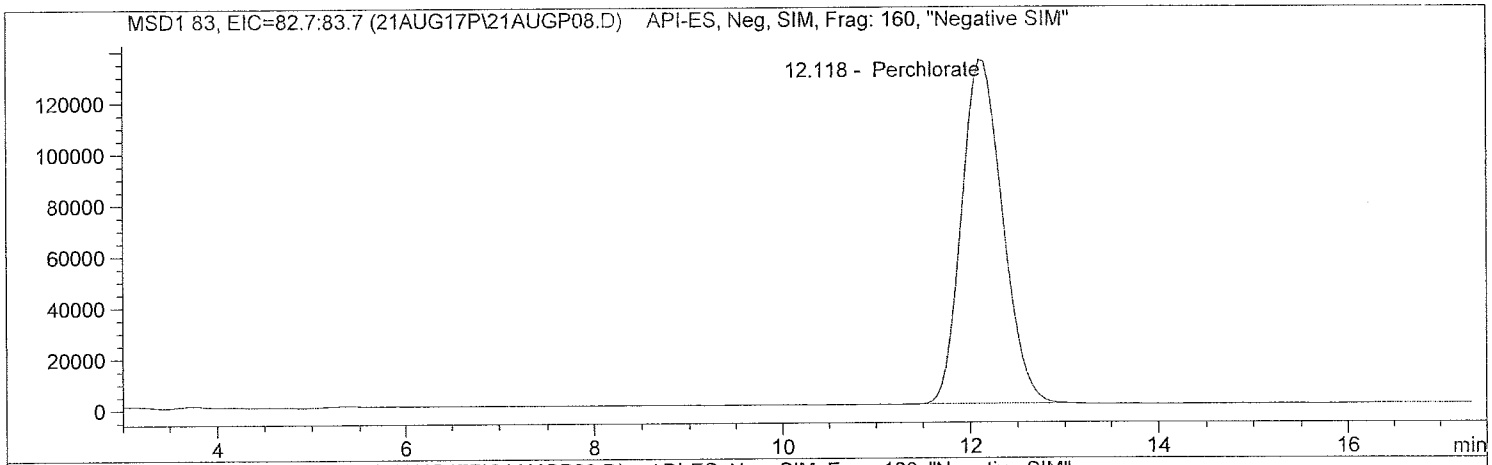
*** End of Report ***

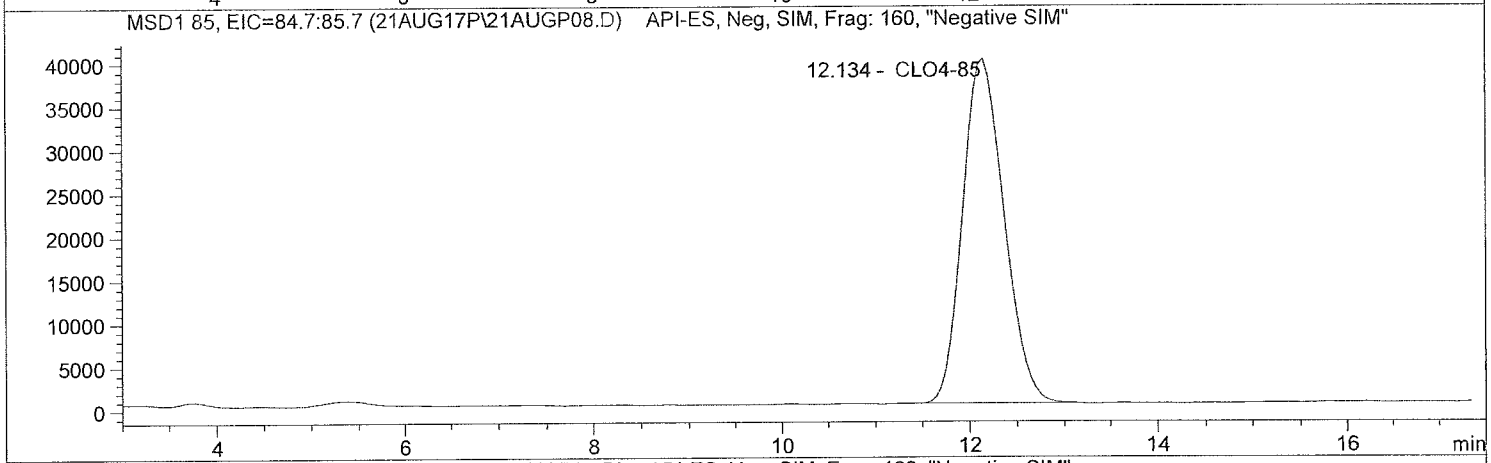
Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP08.D Sample Name: ICAL8@ 25.ug/L

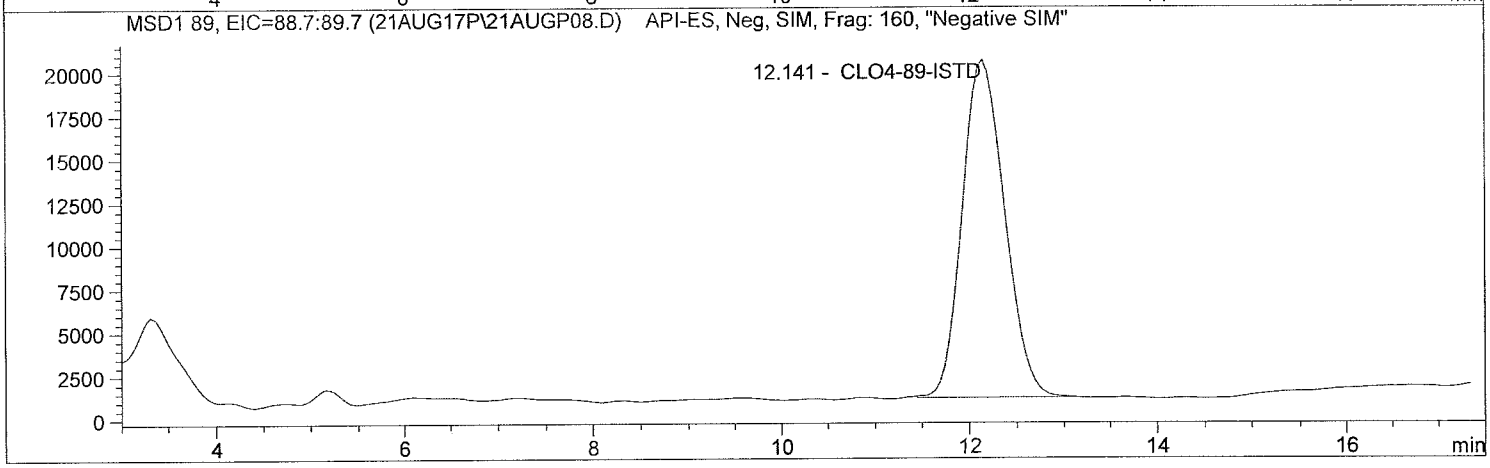
| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 13:12:50 | Seq Line: | 8 |
| Sample Name: | ICAL8@ 25.ug/L | Location: | Vial 78 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP08.D  Sample Name: ICAL8@ 25.ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 13:12:50 | Seq Line: | 8 |
| Sample Name: | ICAL8@ 25.ug/L | 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-PR3.M |
| Last Changed: | 8/21/2017 14:55:53 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 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 |
|---|---|---|---|---|
| 12.118 | BBA | 4004745.0 | 25.7880 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.134 | BBA | 1199930.0 | 25.1941 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.141 | BBA | 601523.1 | 5.0000 | CLO4-89-ISTD |

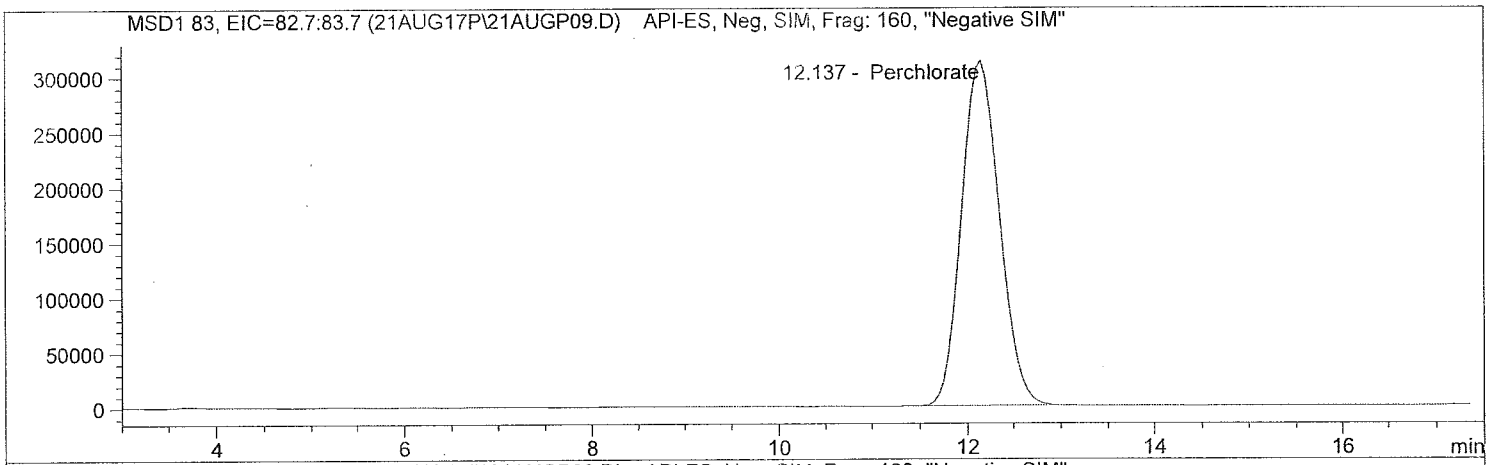
*** End of Report ***

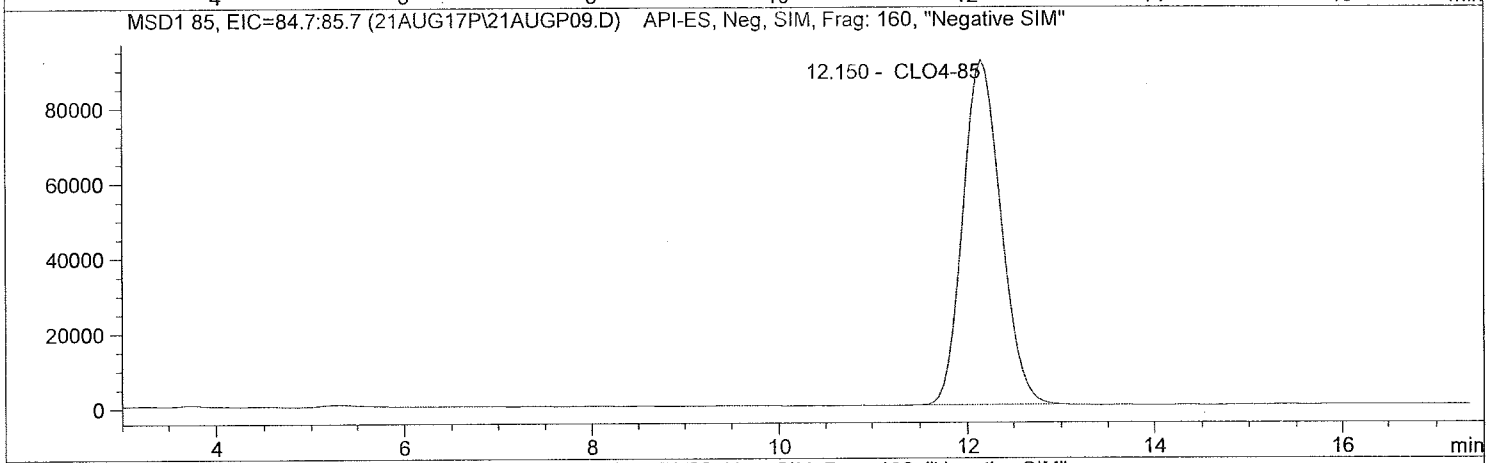
Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP09.D  Sample Name: ICAL9@ 50.ug/L

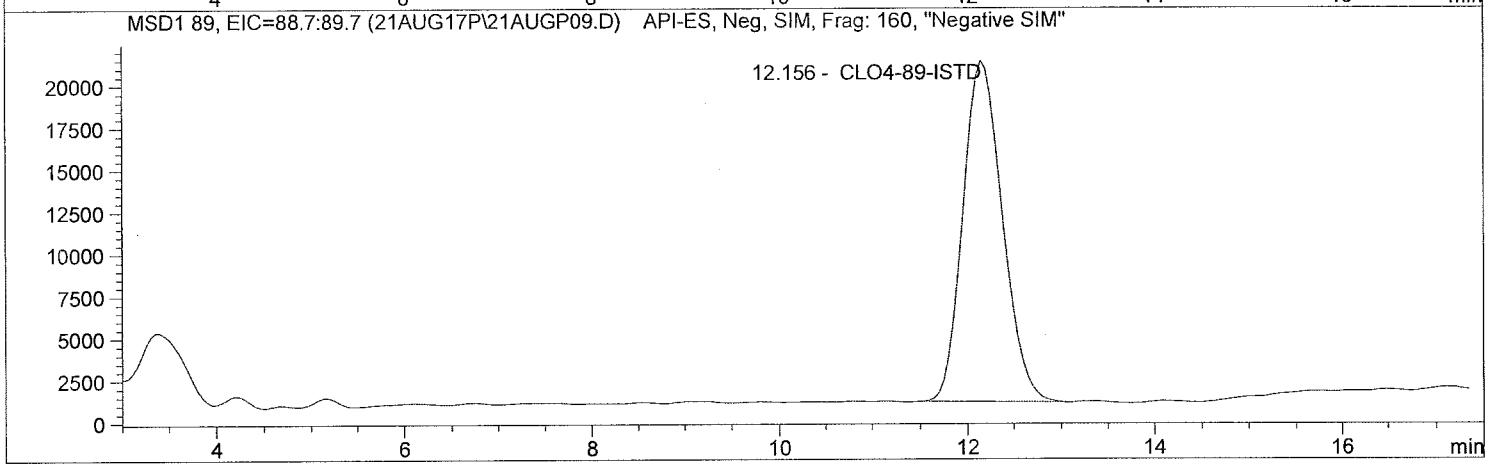
| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 13:32:10 | Seq Line: | 9 |
| Sample Name: | ICAL9@ 50.ug/L | Location: | Vial 79 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP09.D  Sample Name: ICAL9@ 50.ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 13:32:10 | Seq Line: | 9 |
| Sample Name: | ICAL9@ 50.ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| 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 |
|---|---|---|---|---|
| 12.137 | PBA | 8856831.0 | 49.7366 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.150 | BBA | 2609327.3 | 49.9698 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.156 | BBA | 597661.2 | 5.0000 | CLO4-89-ISTD |

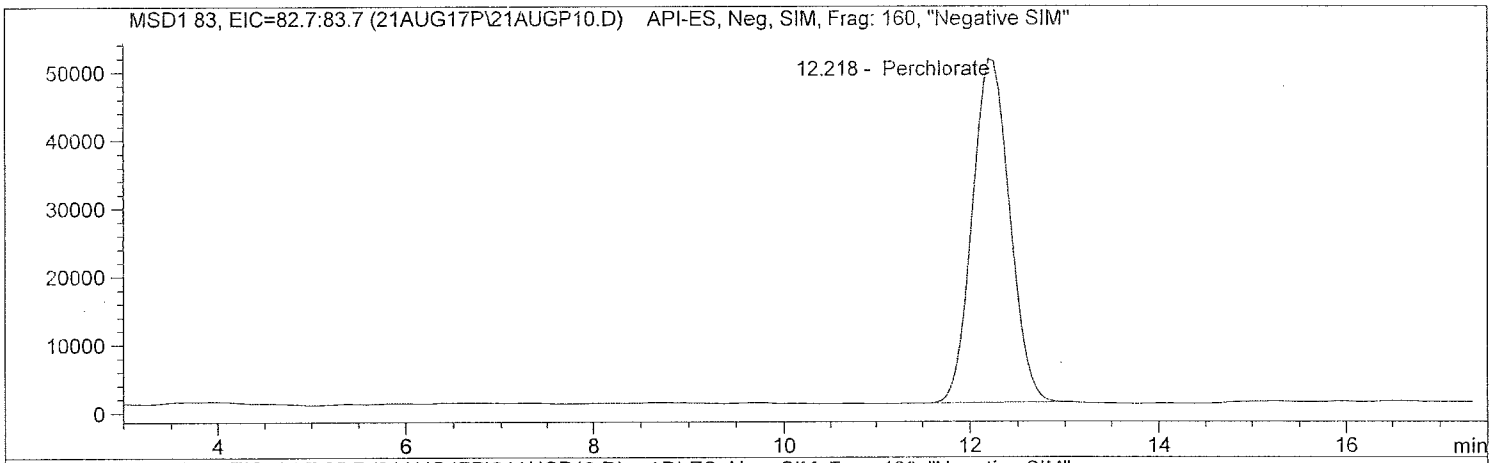
*** End of Report ***

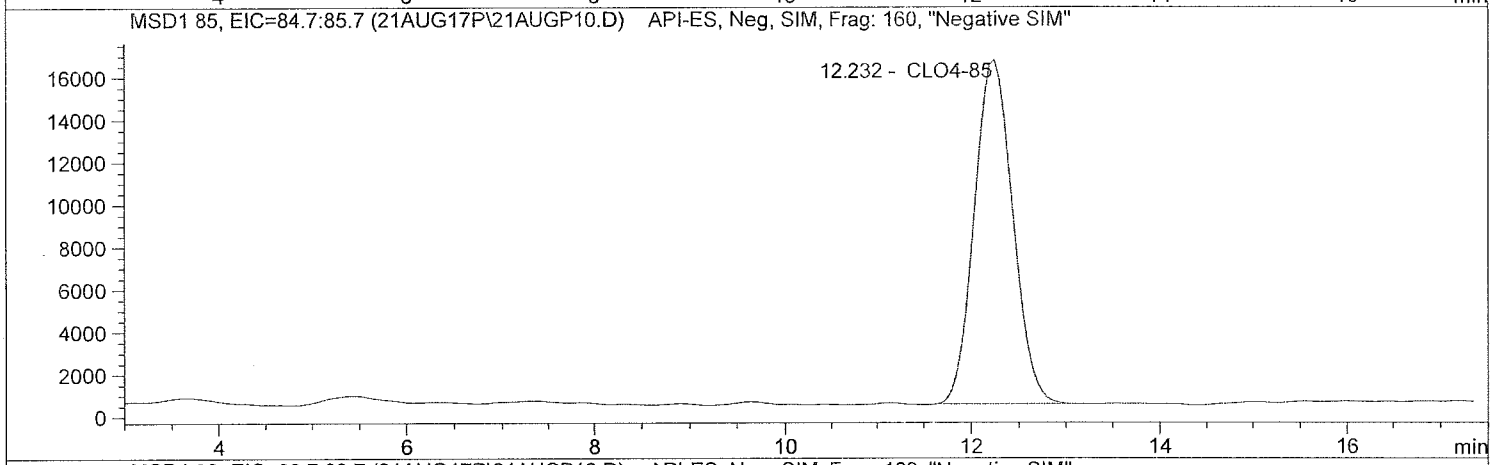
Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP10.D Sample Name: ICAL Verf@10ug/L

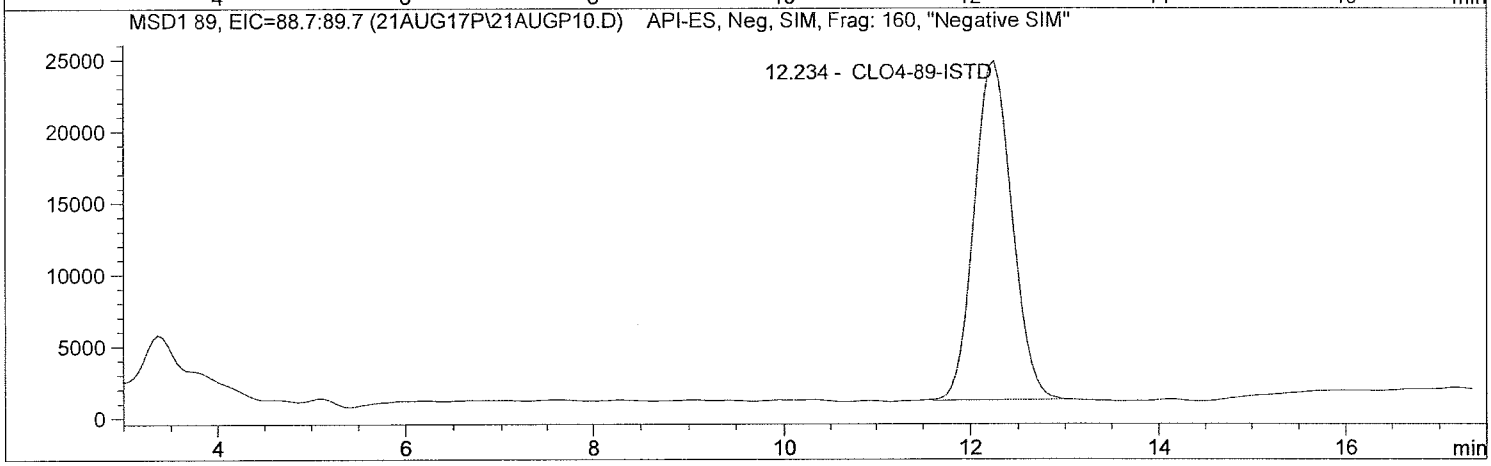
| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 13:51:27 | Seq Line: | 10 |
| Sample Name: | ICAL Verf@10ug/L | Location: | Vial 80 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP10.D  Sample Name: ICAL Verf@10ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 13:51:27 | Seq Line: | 10 |
| Sample Name: | ICAL Verf@10ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| 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 |
|---|---|---|---|---|
| 12.218 | BBA | 1360649.7 | 9.1433 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.232 | PBA | 449703.0 | 9.4150 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.234 | BBA | 645815.0 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

# Raw Data

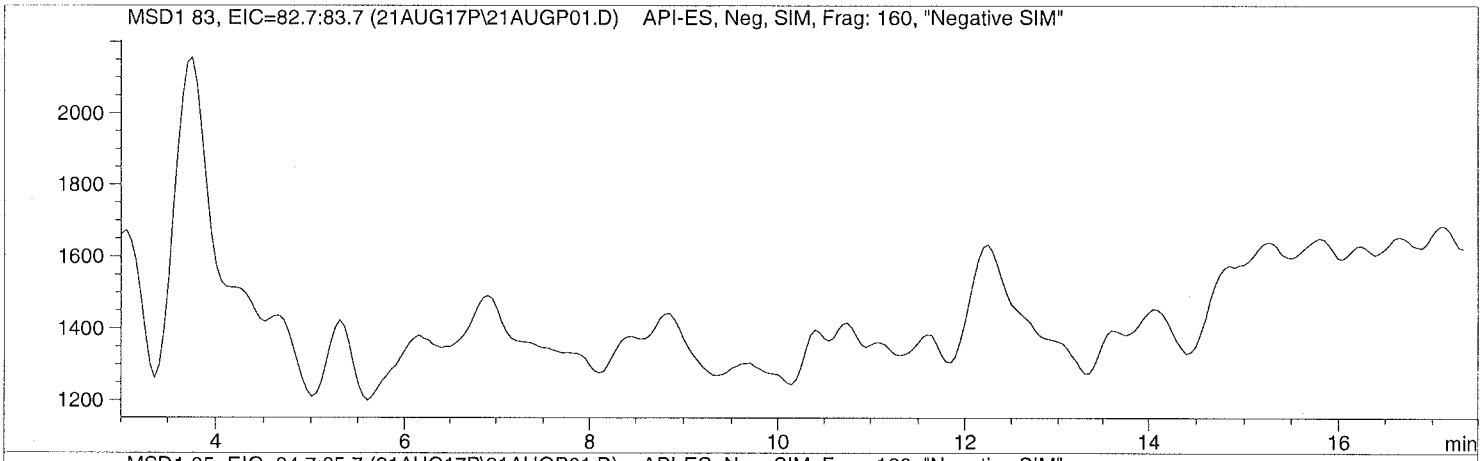
## Unmodified

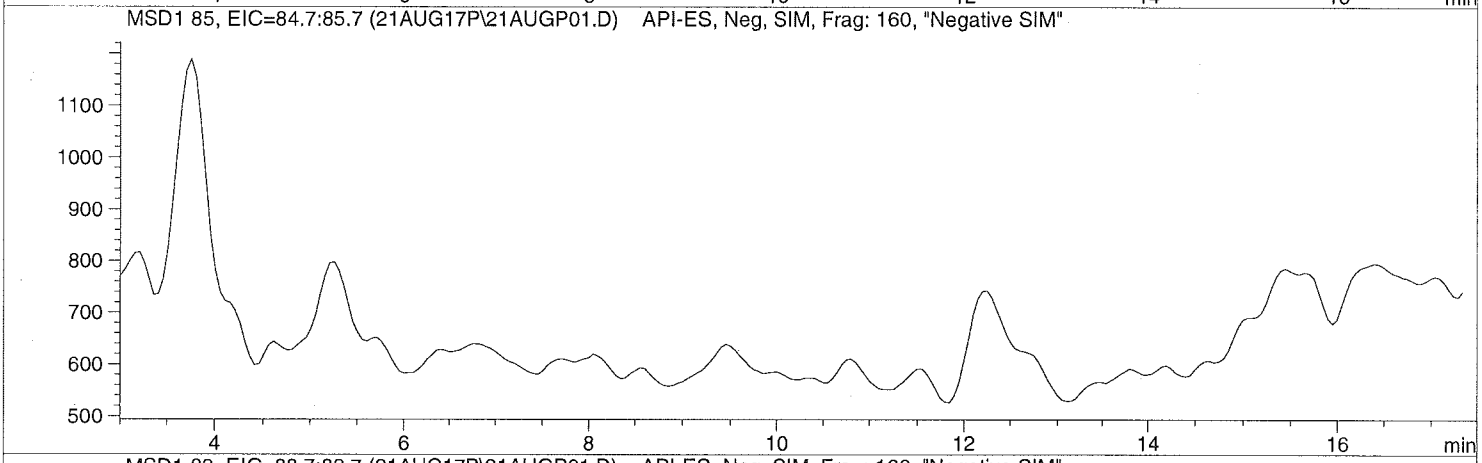
Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP01.D  Sample Name: ICAL1@ .05ug/L

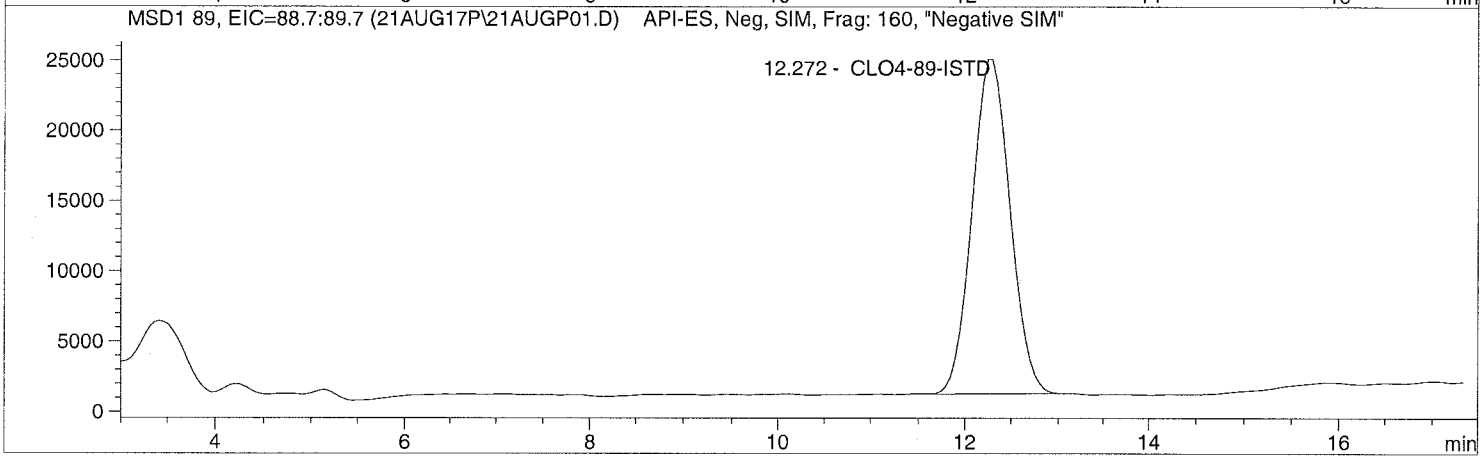
| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 09:42:32 | Seq Line: | 1 |
| Sample Name: | ICAL1@ .05ug/L | Location: | Vial 71 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP01.D  Sample Name: ICAL1@ .05ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 09:42:32 | Seq Line: | 1 |
| Sample Name: | ICAL1@ .05ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.050 |

## 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 |
|---|---|---|---|---|
| 12.272 | BBA | 673942.9 | 5.0000 | CLO4-89-ISTD |

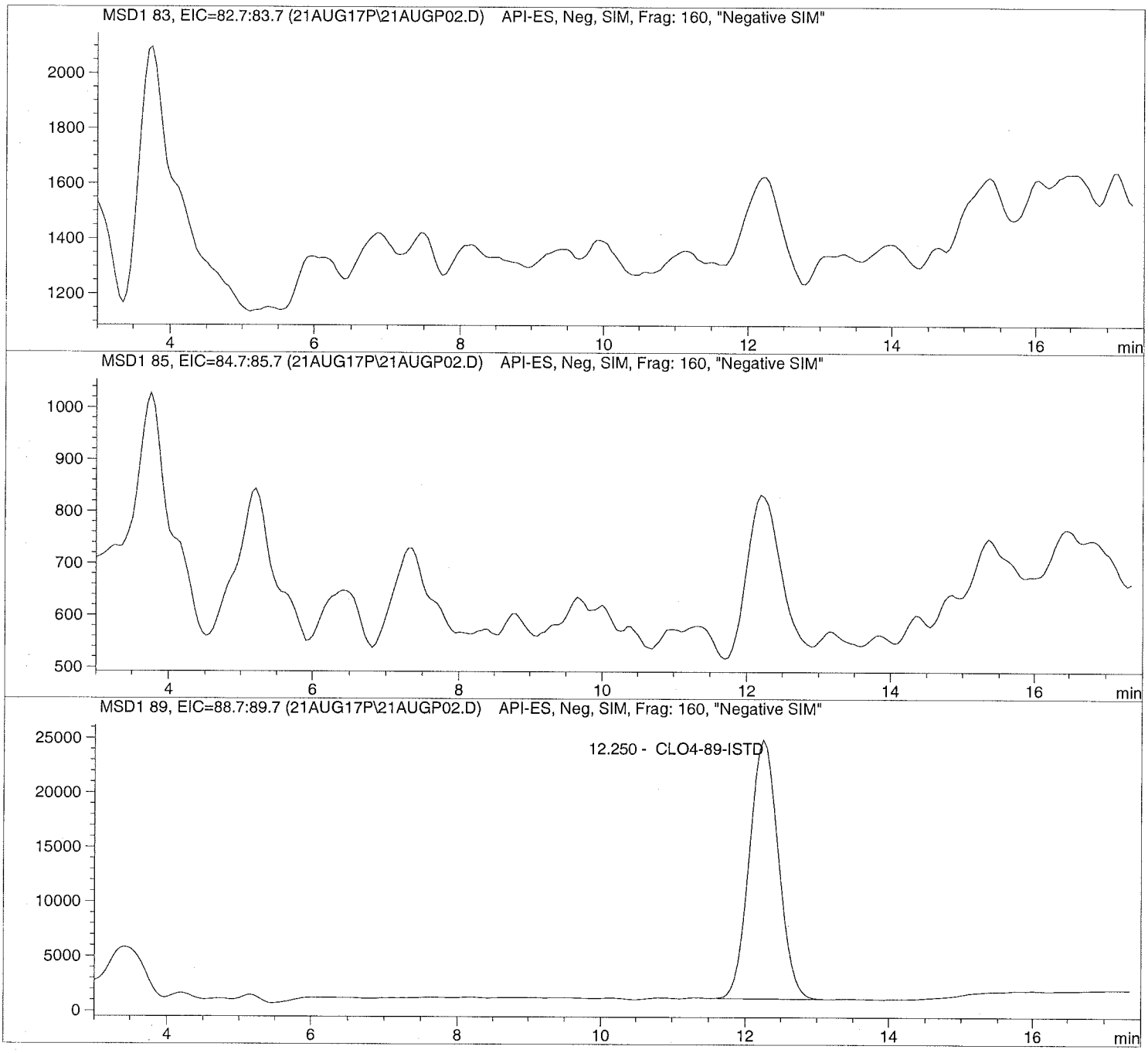
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP02.D  Sample Name: ICAL2@ .10ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:01:47 | Seq Line: | 2 |
| Sample Name: | ICAL2@ .10ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP02.D Sample Name: ICAL2@ .10ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:01:47 | Seq Line: | 2 |
| Sample Name: | ICAL2@ .10ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.100 |

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 |
|---|---|---|---|---|
| 12.250 | BBA | 667016.3 | 5.0000 | CLO4-89-ISTD |

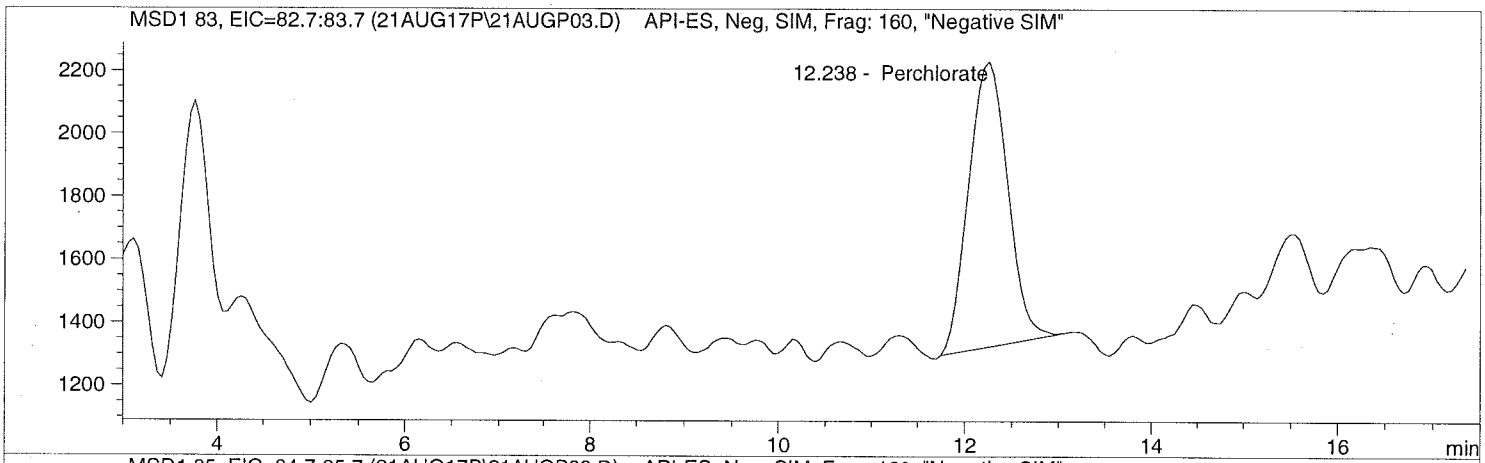
*** End of Report ***

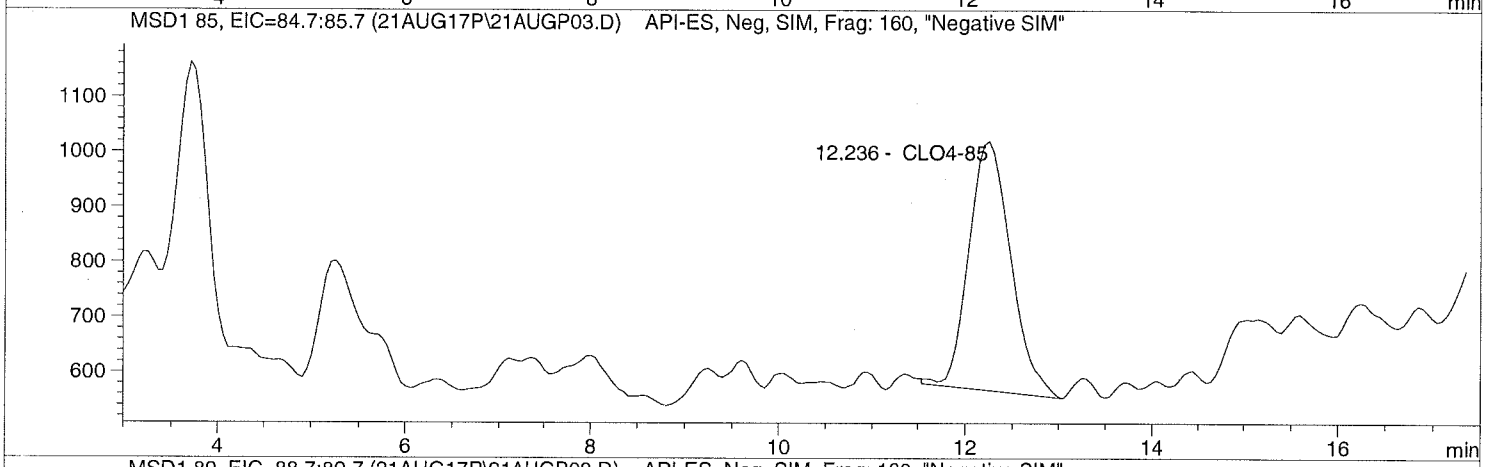
Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP03.D  Sample Name: ICAL3@ .20ug/L

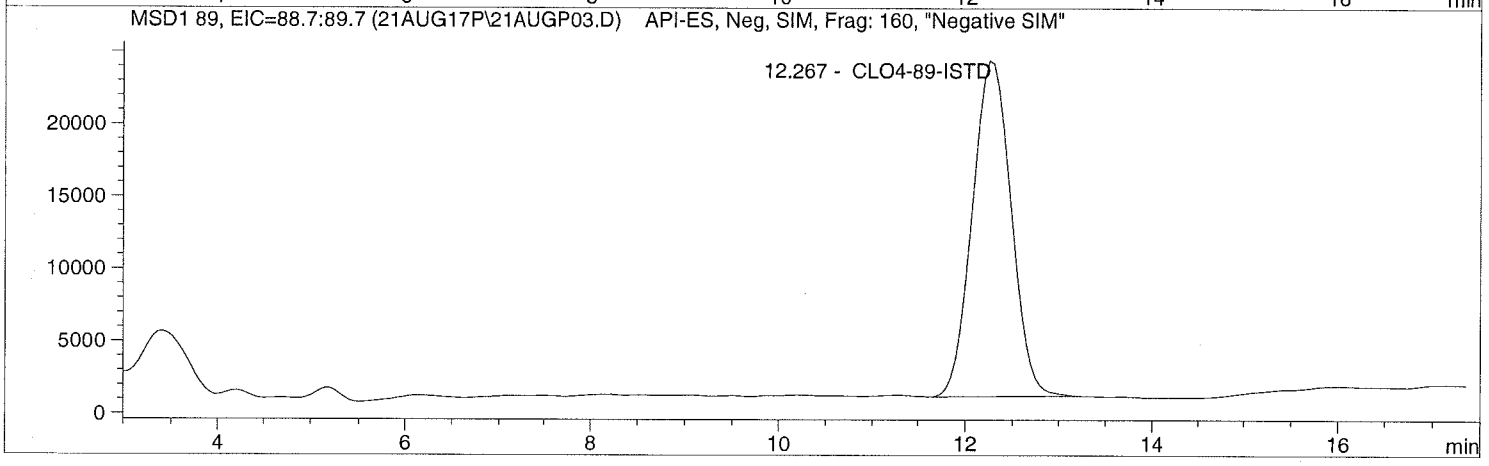
| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:21:02 | Seq Line: | 3 |
| Sample Name: | ICAL3@ .20ug/L | Location: | Vial 73 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 30 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21AUG17P\21AUGP03.D Sample Name: ICAL3@ .20ug/L

| | | | |
|---|---|---|---|
| Injection Date: | 8/21/2017 10:21:02 | Seq Line: | 3 |
| Sample Name: | ICAL3@ .20ug/L | 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-PR3.M
Last Changed: 8/21/2017 14:55:53

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Mon, 21. Aug. 2017,02:55:52 pm |
| Multiplier: | 1.000000 |
| Dilution: | 1.000000 |
| Sample Amount: | 0.200 |

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.238 | PBA | 26023.7 | 0.1899 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.236 | BBA | 13974.8 | 0.2980 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 12.267 | PBA | 661030.8 | 5.0000 | CLO4-89-ISTD |

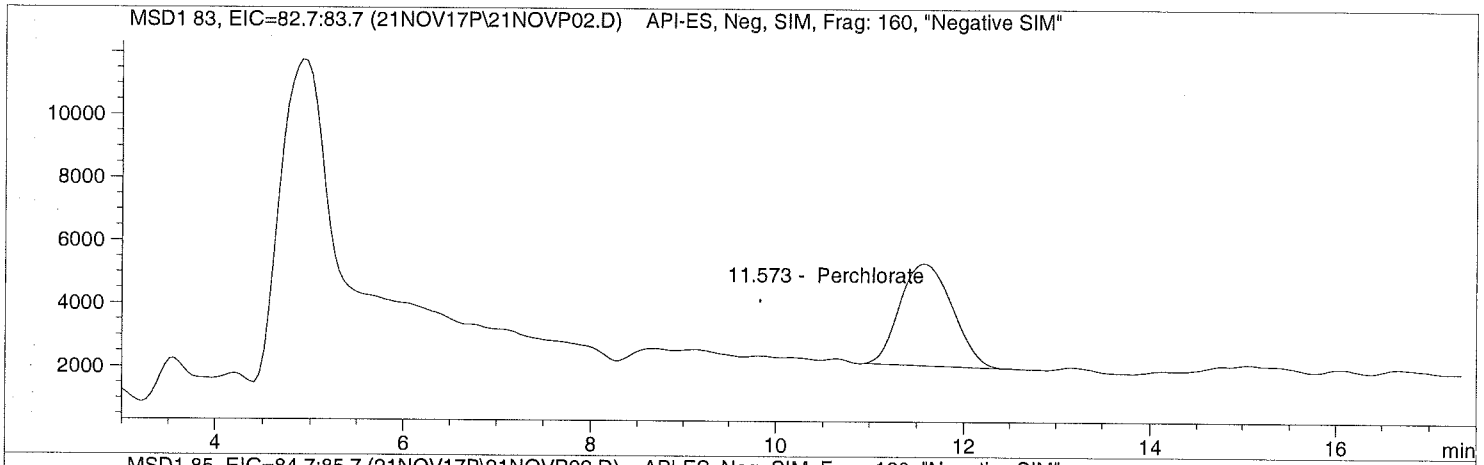
*** End of Report ***

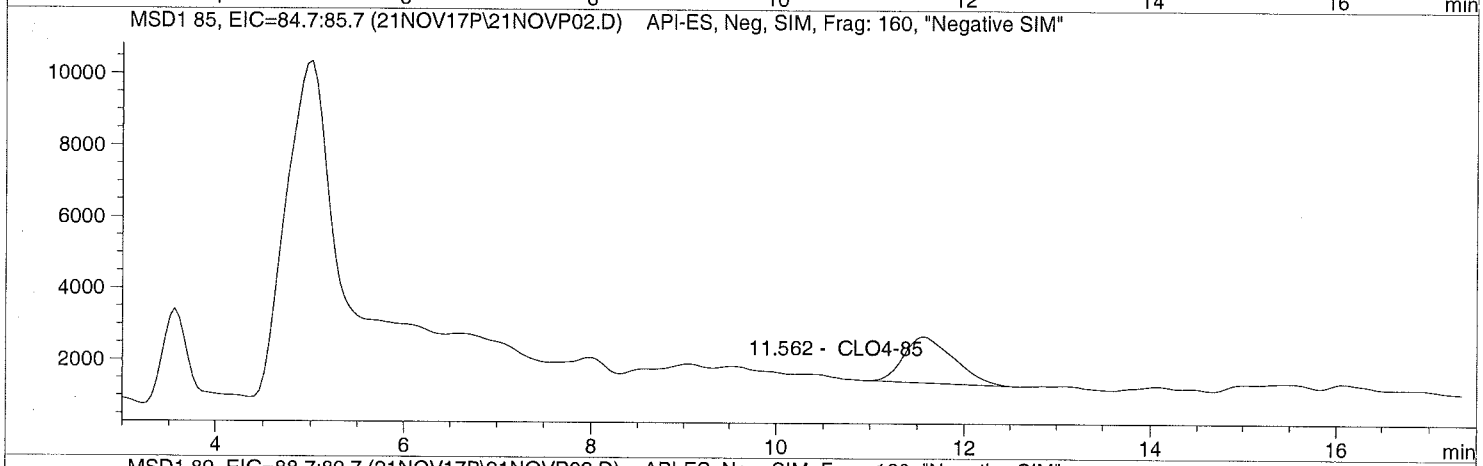
Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP02.D  Sample Name: 575294  LODV@1.

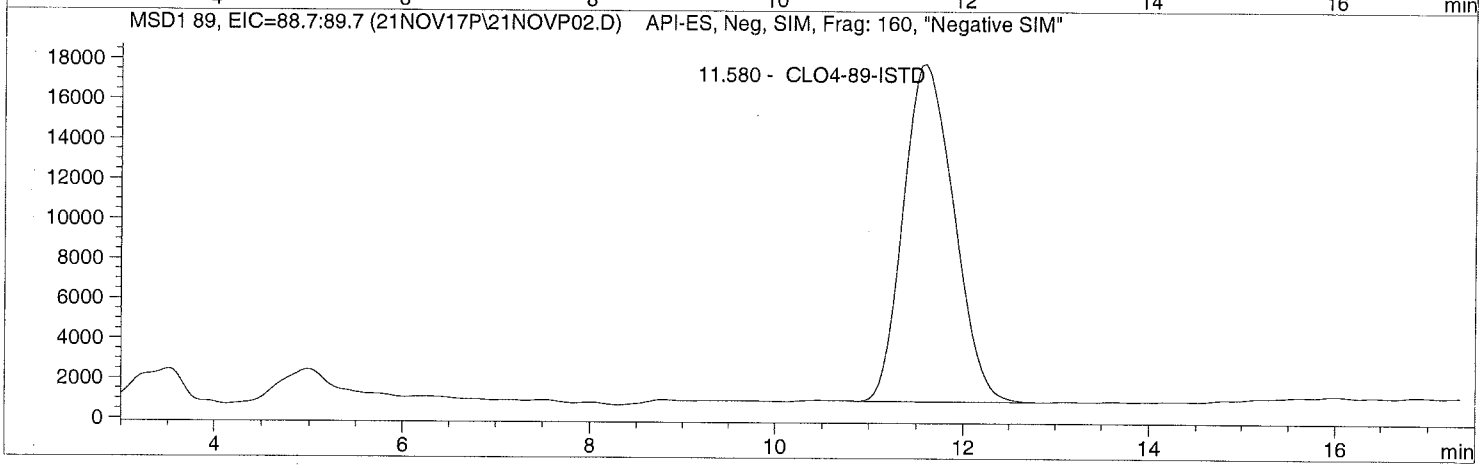
| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 09:11:16 | Seq Line: | 2 |
| Sample Name: | 575294 LODV@1. | Location: | Vial 72 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP02.D Sample Name: 575294 LODV@1.

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 09:11:16 | Seq Line: | 2 |
| Sample Name: | 575294 LODV@1. | Location: | Vial 72 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 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 |
|---|---|---|---|---|
| 11.573 | PBA | 125210.5 | 0.9161 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.562 | PBA | 47999.9 | 1.0616 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.580 | BBA | 635086.8 | 5.0000 | CLO4-89-ISTD |

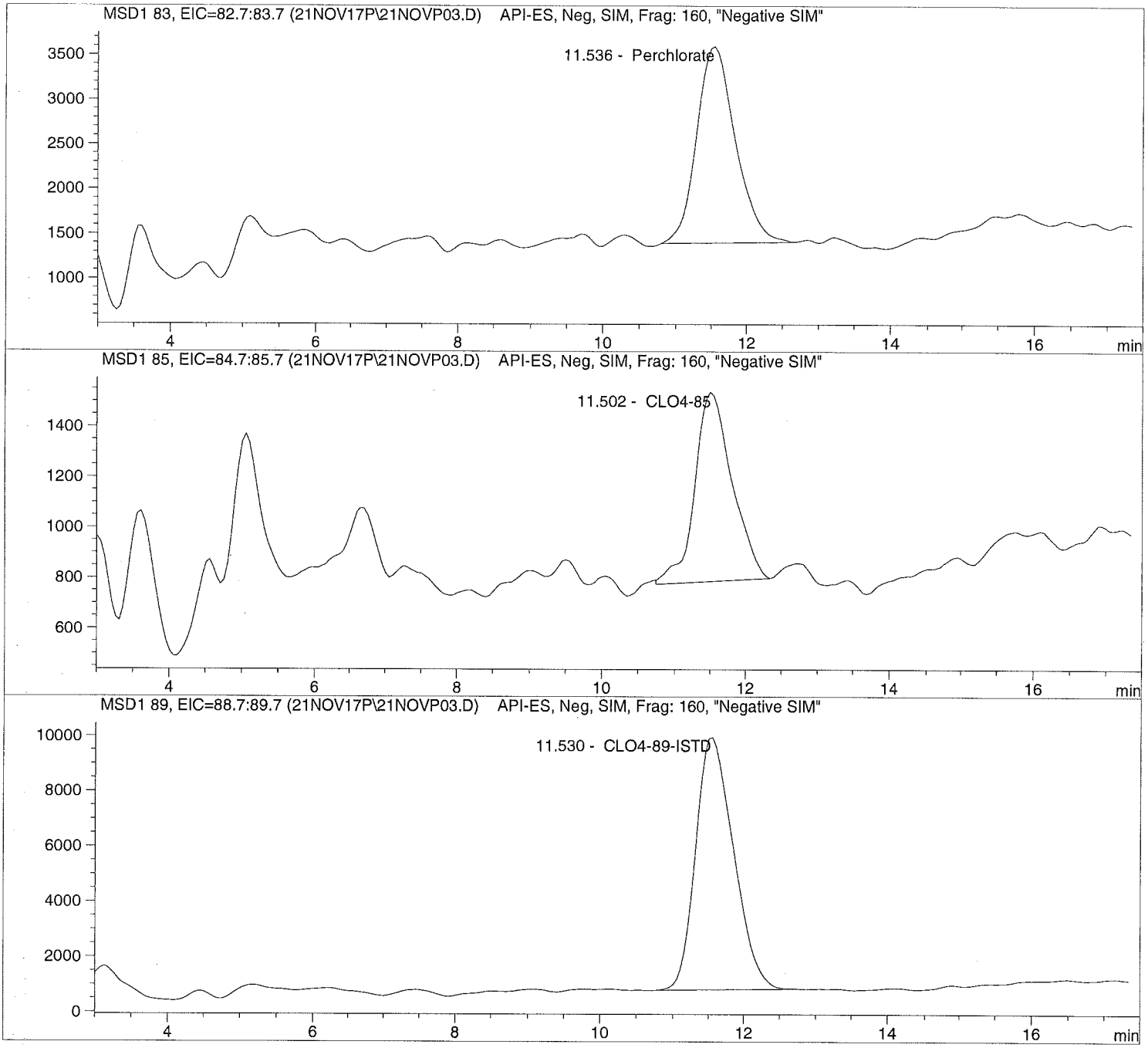
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP03.D  Sample Name: 575295  ICS@1.

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 09:30:38 | Seq Line: | 3 |
| Sample Name: | 575295 ICS@1. | Location: | Vial 73 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP03.D Sample Name: 575295 ICS@1.

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 09:30:38 | Seq Line: | 3 |
| Sample Name: | 575295 ICS@1. | Location: | Vial 73 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 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 |
|---|---|---|---|---|
| 11.536 | PBA | 83947.2 | 1.1324 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.502 | BBA | 27699.4 | 1.1327 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.530 | PBA | 343352.6 | 5.0000 | CLO4-89-ISTD |

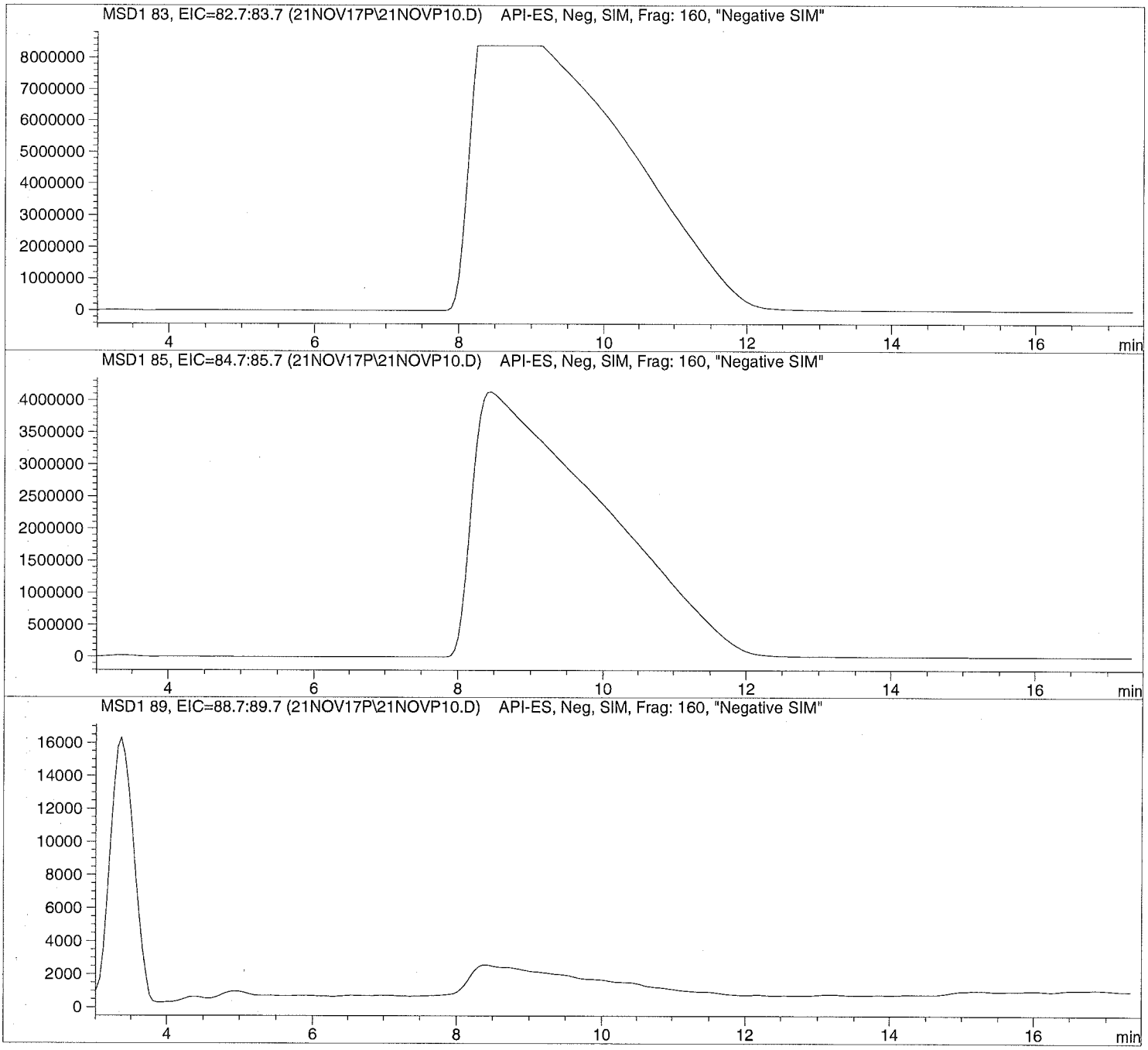
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP10.D  Sample Name: 1732090002

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 11:47:26 | Seq Line: | 10 |
| Sample Name: | 1732090002 | Location: | Vial 80 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP10.D Sample Name: 1732090002

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 11:47:26 | Seq Line: | 10 |
| Sample Name: | 1732090002 | Location: | Vial 80 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 0.000 | | 0.0 | 0.0000 | CLO4-89-ISTD |

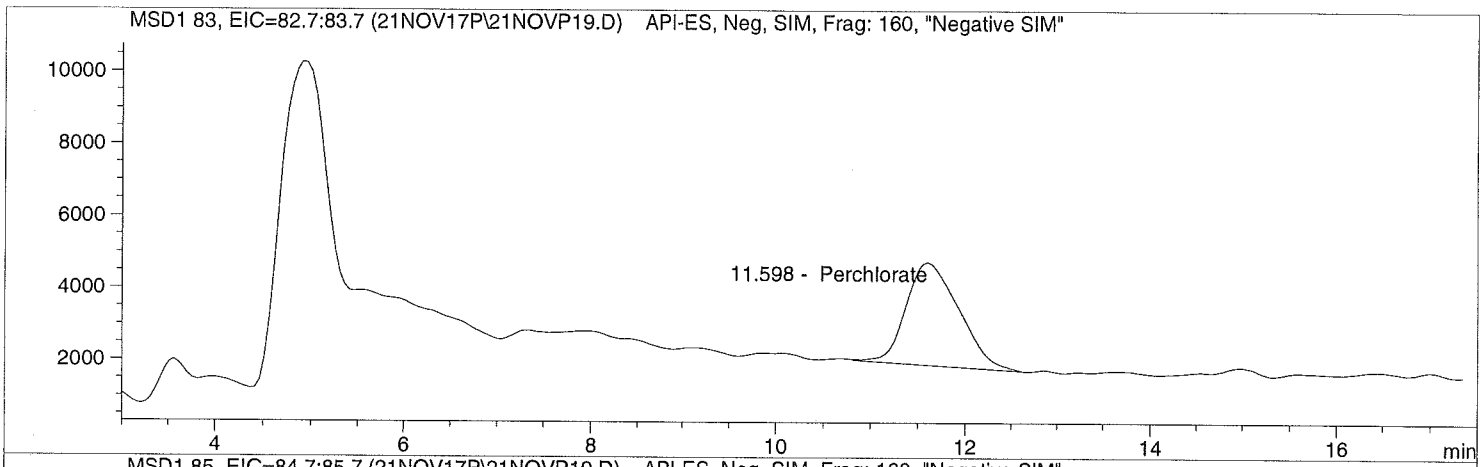
*** End of Report ***

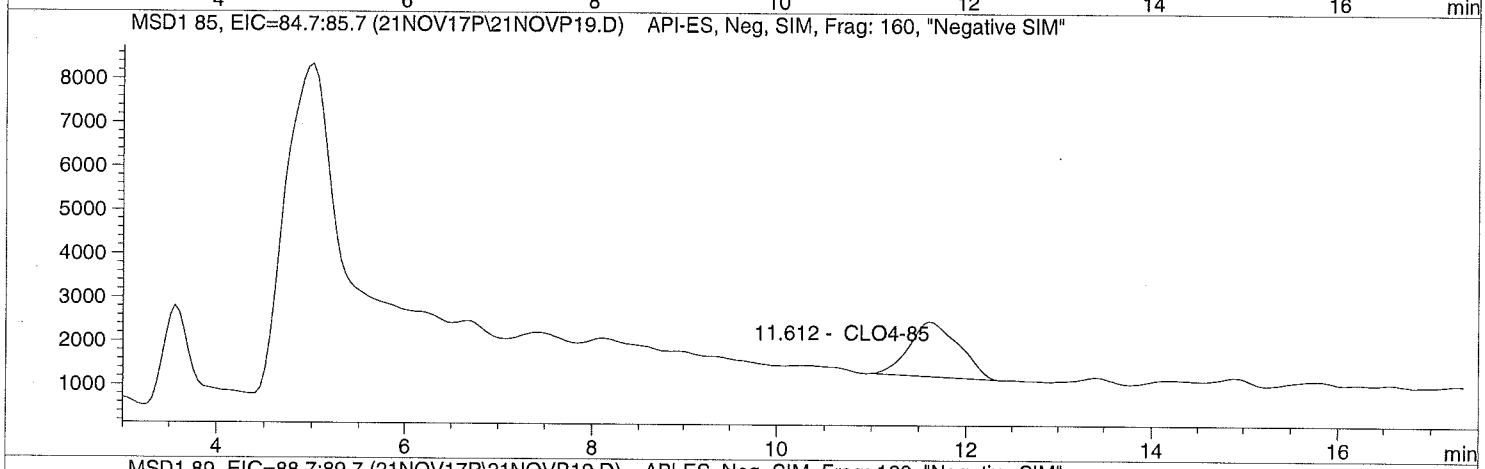
Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP19.D Sample Name: 575299 LODV@1.

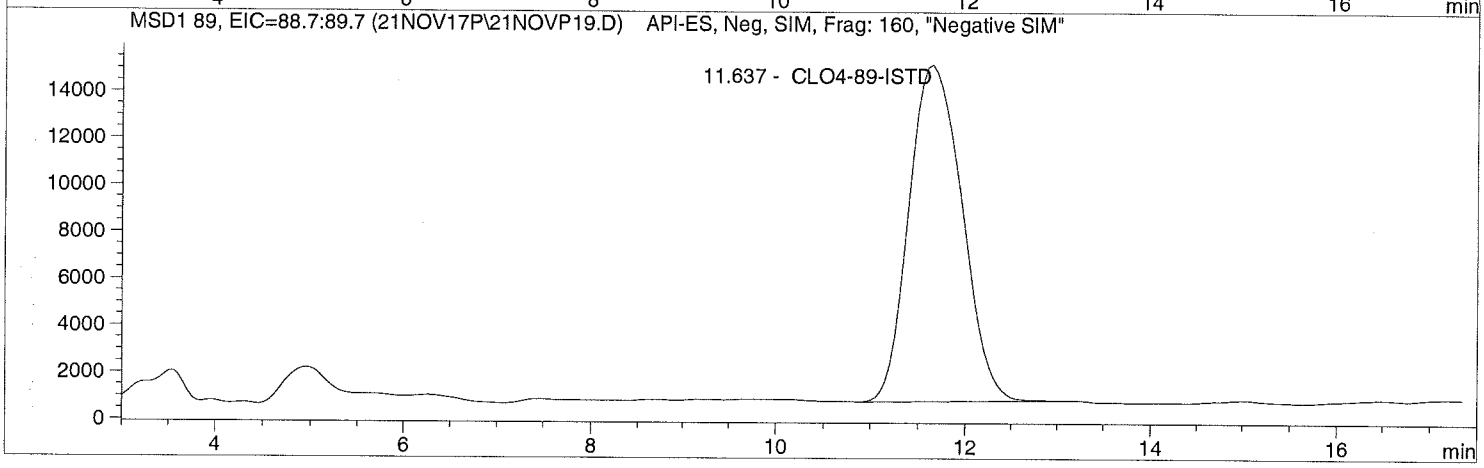
| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 14:43:09 | Seq Line: | 19 |
| Sample Name: | 575299 LODV@1. | Location: | Vial 72 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP19.D Sample Name: 575299 LODV@1.

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 14:43:09 | Seq Line: | 19 |
| Sample Name: | 575299 LODV@1. | Location: | Vial 72 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 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 |
|---|---|---|---|---|
| 11.598 | BBA | 111562.0 | 0.9200 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.612 | PBA | 46107.0 | 1.1489 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.637 | PBA | 563443.1 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***

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

# WorkOrder: HS17110495

## Longhorn GW Treatment Plant Weekly Samples

## Bhate Environmental Associates, Inc.

Marcia Olive
445 Union Blvd Ste 129
Lakewood CO 80228

**20-Dec-2017**

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

November 28, 2017

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd Ste 129
Lakewood, CO 80228

Work Order: **HS17110495**

Laboratory Results for: **Longhorn GW Treatment Plant Weekly Samples**

Dear Marcia,

ALS Environmental received 1 sample(s) on Nov 10, 2017 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,

Sonia West

**Generated By: Jumoke.Lawal**
Sonia West
Project Manager

**ALS Group USA, Corp** Date: 28-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Longhorn GW Treatment Plant Weekly Samples
**Work Order:** HS17110495

## SAMPLE SUMMARY

| Lab Samp ID | Client Sample ID | Matrix | TagNo | Collection Date | Date Received | Hold |
|---|---|---|---|---|---|---|
| HS17110495-01 | LH18/24-SP650_110917 | Water | | 09-Nov-2017 14:00 | 10-Nov-2017 08:45 | ☐ |

**ALS Group USA, Corp** Date: 28-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Longhorn GW Treatment Plant Weekly Samples
**Work Order:** HS17110495

**CASE NARRATIVE**

## Work Order Comments

- The analysis for Perchlorate was subcontracted to ALS Environmental in Salt Lake City UT Final report attached.

## WetChemistry by Method E350.3

### Batch ID: R305777

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

## WetChemistry by Method E415.1

### Batch ID: R305420

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

## WetChemistry by Method E365.3

### Batch ID: R305312

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

**ALS Group USA, Corp** Date: 28-Nov-17

Client: Bhate Environmental Associates, Inc.
**ANALYTICAL REPORT**
Project: Longhorn GW Treatment Plant Weekly Samples
WorkOrder:HS17110495
Sample ID: LH18/24-SP650_110917
Lab ID:HS17110495-01
Collection Date: 09-Nov-2017 14:00
Matrix:Water

| ANALYSES | RESULT | QUAL | DL | LOD | LOQ | UNITS | DILUTION FACTOR | DATE ANALYZED |
|---|---|---|---|---|---|---|---|---|
| **AMMONIA AS N BY E350.3(ISE)** | | **Method:E350.3** | | | | | | Analyst: KMU |
| **Nitrogen, Ammonia (As N)** | **8.6** | | **0.20** | **0.20** | **0.20** | **mg/L** | 1 | 20-Nov-2017 13:15 |
| **ORTHO PHOSPHATE (PO4) AS P BY E365.3** | | **Method:E365.3** | | | | | | Analyst: JHD |
| **Phosphorus, Total Orthophosphate (As P)** | **1.24** | | **0.100** | **0.125** | **0.250** | **mg/L** | 10 | 10-Nov-2017 19:14 |
| **TOTAL ORGANIC CARBON BY E415.1** | | **Method:E415.1** | | | | | | Analyst: KMU |
| **Organic Carbon, Total** | **34.8** | | **2.50** | **2.50** | **5.00** | **mg/L** | 5 | 14-Nov-2017 11:42 |
| **SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)** | | **Method:NA** | | | | | | Analyst: SUB |
| Subcontract Analysis | See Attached | | 0 | 0 | | | 1 | 28-Nov-2017 16:53 |

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 28-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Longhorn GW Treatment Plant Weekly Samples
**WorkOrder:** HS17110495

**DATES REPORT**

| Sample ID | Client Samp ID | Collection Date | TCLP Date | Prep Date | Analysis Date | DF |
|---|---|---|---|---|---|---|
| **Batch ID** R305312 | **Test Name :** ORTHO PHOSPHATE (PO4) AS P BY E365.3 | | | **Matrix:** Water | | |
| HS17110495-01 | LH18/24-SP650_110917 | 09 Nov 2017 14:00 | | | 10 Nov 2017 19:14 | 10 |
| **Batch ID** R305420 | **Test Name :** TOTAL ORGANIC CARBON BY E415.1 | | | **Matrix:** Water | | |
| HS17110495-01 | LH18/24-SP650_110917 | 09 Nov 2017 14:00 | | | 14 Nov 2017 11:42 | 5 |
| **Batch ID** R305777 | **Test Name :** AMMONIA AS N BY E350.3(ISE) | | | **Matrix:** Water | | |
| HS17110495-01 | LH18/24-SP650_110917 | 09 Nov 2017 14:00 | | | 20 Nov 2017 13:15 | 1 |
| **Batch ID** R306179 | **Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850) | | | **Matrix:** Water | | |
| HS17110495-01 | LH18/24-SP650_110917 | 09 Nov 2017 14:00 | | | 28 Nov 2017 16:53 | 1 |

**ALS Group USA, Corp** Date: 28-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Longhorn GW Treatment Plant Weekly Samples
**WorkOrder:** HS17110495

**QC BATCH REPORT**

**Batch ID: R305312** **Instrument: UV-2450** **Method: E365.3**

**MBLK** Sample ID: **MBLK-305312** Units: **mg/L** Analysis Date: **10-Nov-2017 19:14**
Client ID: Run ID: **UV-2450_305312** SeqNo: **4306257** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Phosphorus, Total Orthophosphate (As P) | 0.0125 | 0.0250 | | | | | | | | U |

**LCS** Sample ID: **LCS-305312** Units: **mg/L** Analysis Date: **10-Nov-2017 19:14**
Client ID: Run ID: **UV-2450_305312** SeqNo: **4306258** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Phosphorus, Total Orthophosphate (As P) | 0.276 | 0.0250 | 0.25 | 0 | 110 | 80 - 120 | | | | |

**LCSD** Sample ID: **LCSD-305312** Units: **mg/L** Analysis Date: **10-Nov-2017 19:14**
Client ID: Run ID: **UV-2450_305312** SeqNo: **4306259** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Phosphorus, Total Orthophosphate (As P) | 0.274 | 0.0250 | 0.25 | 0 | 110 | 80 - 120 | 0.276 | 0.727 | 20 | |

**MS** Sample ID: **HS17110495-01MS** Units: **mg/L** Analysis Date: **10-Nov-2017 19:14**
Client ID: **LH18/24-SP650_110917** Run ID: **UV-2450_305312** SeqNo: **4306261** PrepDate: DF: **10**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Phosphorus, Total Orthophosphate (As P) | 3.48 | 0.250 | 2.5 | 1.24 | 89.6 | 80 - 120 | | | | |

**MSD** Sample ID: **HS17110495-01MSD** Units: **mg/L** Analysis Date: **10-Nov-2017 19:14**
Client ID: **LH18/24-SP650_110917** Run ID: **UV-2450_305312** SeqNo: **4306262** PrepDate: DF: **10**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Phosphorus, Total Orthophosphate (As P) | 3.55 | 0.250 | 2.5 | 1.24 | 92.4 | 80 - 120 | 3.48 | 1.99 | 20 | |

**The following samples were analyzed in this batch:** HS17110495-01

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 28-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Longhorn GW Treatment Plant Weekly Samples
**WorkOrder:** HS17110495

**QC BATCH REPORT**

**Batch ID: R305420** **Instrument: TOC_02** **Method: E415.1**

**MBLK** Sample ID: **WBLKW1-111417** Units: **mg/L** Analysis Date: **14-Nov-2017 10:01**
Client ID: Run ID: **TOC_02_305420** SeqNo: **4308917** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Organic Carbon, Total | 0.500 | 1.00 | | | | | | | | U |

**LCS** Sample ID: **WLCSW1-111417** Units: **mg/L** Analysis Date: **14-Nov-2017 10:14**
Client ID: Run ID: **TOC_02_305420** SeqNo: **4308918** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Organic Carbon, Total | 10.57 | 1.00 | 10 | 0 | 106 | 80 - 120 | | | | |

**MS** Sample ID: **HS17110315-01MS** Units: **mg/L** Analysis Date: **14-Nov-2017 10:43**
Client ID: Run ID: **TOC_02_305420** SeqNo: **4308920** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Organic Carbon, Total | 12.13 | 1.00 | 10 | 2.57 | 95.6 | 80 - 120 | | | | |

**MSD** Sample ID: **HS17110315-01MSD** Units: **mg/L** Analysis Date: **14-Nov-2017 10:58**
Client ID: Run ID: **TOC_02_305420** SeqNo: **4308921** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Organic Carbon, Total | 12.17 | 1.00 | 10 | 2.57 | 96.0 | 80 - 120 | 12.13 | 0.329 | 20 | |

**The following samples were analyzed in this batch:** HS17110495-01

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 28-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Longhorn GW Treatment Plant Weekly Samples
**WorkOrder:** HS17110495

**QC BATCH REPORT**

**Batch ID: R305777** **Instrument: WetChem_HS** **Method: E350.3**

**MBLK** Sample ID: **MBLK-R305777** Units: **mg/L** Analysis Date: **20-Nov-2017 13:15**
Client ID: Run ID: **WetChem_HS_305777** SeqNo: **4317370** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, Ammonia (As N) | 0.20 | 0.20 | | | | | | | | U |

**LCS** Sample ID: **LCS-R305777** Units: **mg/L** Analysis Date: **20-Nov-2017 13:15**
Client ID: Run ID: **WetChem_HS_305777** SeqNo: **4317369** PrepDate: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, Ammonia (As N) | 9.897 | 0.20 | 10 | 0 | 99.0 | 80 - 120 | | | | |

**MS** Sample ID: **HS17110777-04MS** Units: **mg/L** Analysis Date: **20-Nov-2017 13:15**
Client ID: Run ID: **WetChem_HS_305777** SeqNo: **4317372** PrepDate: DF: **2**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, Ammonia (As N) | 55.26 | 0.40 | 20 | 35.8 | 97.3 | 80 - 120 | | | | |

**MSD** Sample ID: **HS17110777-04MSD** Units: **mg/L** Analysis Date: **20-Nov-2017 13:15**
Client ID: Run ID: **WetChem_HS_305777** SeqNo: **4317371** PrepDate: DF: **2**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, Ammonia (As N) | 55.94 | 0.40 | 20 | 35.8 | 101 | 80 - 120 | 55.26 | 1.22 | 20 | |

**The following samples were analyzed in this batch:** HS17110495-01

Note: See Qualifiers Page for a list of qualifiers and their explanation.

**ALS Group USA, Corp** Date: 28-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Longhorn GW Treatment Plant Weekly Samples
**WorkOrder:** **HS17110495**

**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 |

## CERTIFICATIONS,ACCREDITATIONS & LICENSES

| Agency | Number | Expire Date |
|---|---|---|
| Arkansas | 17-027-0 | 27-Mar-2018 |
| California | 2919 2016-2018 | 31-Jul-2018 |
| Illinois | 004112 | 09-May-2018 |
| Kentucky | 123043 | 30-Apr-2018 |
| Louisiana | 03087 2017-2017 | 30-Jun-2018 |
| North Carolina | 624-2017 | 31-Dec-2017 |
| North Dakota | R193 2017-2017 | 30-Apr-2018 |
| Oklahoma | 2017-088 | 31-Aug-2018 |
| Texas | T104704231-17-19 | 30-Apr-2018 |

**ALS Group USA, Corp** Date: 28-Nov-17

**Client:** Bhate Environmental Associates, Inc.
**Project:** Longhorn GW Treatment Plant Weekly Samples
**Work Order:** HS17110495

**SAMPLE TRACKING**

| Lab Samp ID | Client Sample ID | Action | Date | Person | New Location |
|---|---|---|---|---|---|
| HS17110495-01 | LH18/24-SP650_110917 | Login | 11/10/2017 10:59:44 AM | JRM | EXT132 |
| HS17110495-01 | LH18/24-SP650_110917 | Login | 11/10/2017 10:59:44 AM | JRM | WET196 |
| HS17110495-01 | LH18/24-SP650_110917 | Login | 11/10/2017 10:59:44 AM | JRM | Sub |
| HS17110495-01 | LH18/24-SP650_110917 | Login | 11/10/2017 10:59:44 AM | JRM | MET002 |
| HS17110495-01 | LH18/24-SP650_110917 | Login | 11/10/2017 10:59:44 AM | JRM | VOA118 |

**ALS Group USA, Corp** Date: 28-Nov-17

## Sample Receipt Checklist

Client Name: Bhate Environmental
Work Order: HS17110495
Date/Time Received: **10-Nov-2017 08:45**
Received by: **JRM**

Checklist completed by: *Jared R. Makan* eSignature 10-Nov-2017 Date
Reviewed by: *Sonia West* eSignature 13-Nov-2017 Date

Matrices: **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 ☑ |
| Chain of custody present? | Yes ☑ | No ☐ | |
| Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | |
| Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | |
| Samples in proper container/bottle? | Yes ☑ | No ☐ | |
| Sample containers intact? | Yes ☑ | No ☐ | |
| TX1005 solids received in hermetically sealed vials? | Yes ☐ | No ☐ | N/A ☑ |
| 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): | 1.6c/1.9c UC/C | IR30 | |
| Cooler(s)/Kit(s): | 24028 | | |
| Date/Time sample(s) sent to storage: | 11/10/2017 10:55 | | |
| 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:

# CHAIN OF CUSTODY

Name Of Lab Shipping To: ALS 10450 Stancliff Rd. Suite 210 Houston, TX. 77099 (281) 530-5656 ATTN: SONIA WEST



**Project:** BHATE
LONGHORN ARMY AMMN. PLANT (LHAAP)
GROUNDWATER TREATMENT PLANT (GWTP)
KARNACK, TEXAS

**Project No.** NWO1312.0150.0 16.0001

**Job:** GROUNDWATER TREATMENT PLANT WEEKLY SAMPLES

**Prepared By:** Scott Beesinger

**P.O. Number**

| Field Sample I.D. | Sample Matrix | Date / Time | MS / MSD | No. OF CONTAINERS | Analyses: AMMONIA-N | TOTAL ORGANIC CARBON | ORTHO-PHOSPHATE | PERCHLORATE | Remarks (Preservatives, etc.) | Lab I.D.# |
|---|---|---|---|---|---|---|---|---|---|---|
| LH18/24-SP650_110917 | Water | 11/09/17 / 14:00 | | 2 | X | X | | | H2SO4 | |
| LH18/24-SP650_110917 | Water | 11/09/17 / 14:00 | | 2 | | | X | X | NONE | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Additional Remarks: **Standard TAT on all parameters**

| Relinquished By: | Date | Time | Received By: | Date | Time | Relinquished By: | Date | Time | Received By: | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Scott Beesinger | 11/09/17 | 14:30 | JM | 11/10/17 | 08:45 | | | | | | |

**For Lab Use Only**

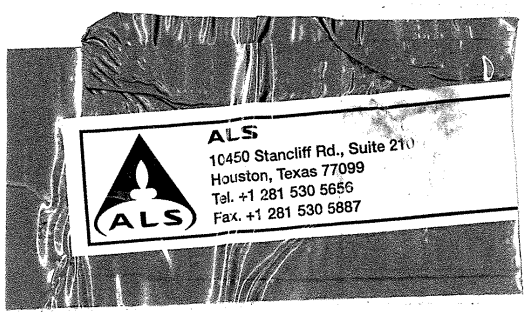
| Received At Lab By: | Date | Time | Airbill No. | Opened By: | Date | Time | Temp of Container | Seal No. | Condition |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |

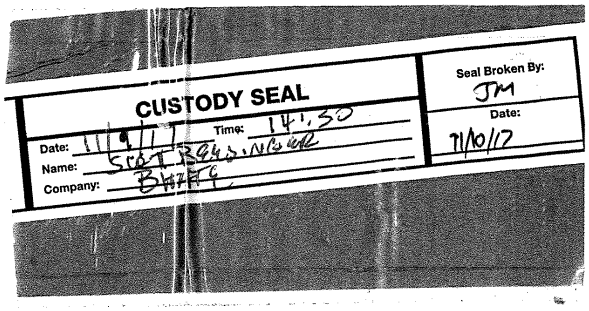
Remarks: Cooler - 24028 1430
Temp 1.6 CF:0.3

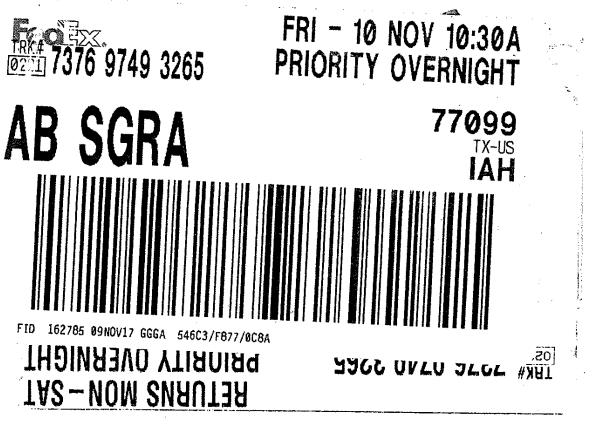
**HS17110495**

Bhate Environmental Associates, Inc.
Longhorn GW Treatment Plant

(Word) S:\1-ces\Forms\Chain of Custody - BiWeekly


ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887


CUSTODY SEAL
Date:
Time:
Name:
Company:
Seal Broken By:
JM
Date:
11/10/17


FedEx
TRK#
7376 9749 3265
FRI - 10 NOV 10:30A
PRIORITY OVERNIGHT
AB SGRA
77099
TX-US
IAH
FID 162705 09NOV17 GGGA 546C3/FB77/0C8A
RETURNS MON-SAT
PRIORITY OVERNIGHT
TRK#

# Wet Chemistry Raw Data

Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
ALS WO# HS17110495

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

HS17110495

# Ion Selective Electrode Logbook

| | | | |
|---|---|---|---|
| Analyst: KMH | | Date: 11/20/17 @ 1:15pm | |
| Method: SM4500NH3-D or SM4500 F⁻ C or SW9214 F⁻ or 351.3/4500NH3 | | SOP: WC-027 or WC-004 or WC-007 or WC-033 | |
| Probe Calibration | Cal Std ID: | Probe ID: SR1-15910 | |
| Cal Std ID#s: 304.149 : 0003-007 | | | |
| Std Level | mV | Conc., mg/L: | |
| STD 1 (mg/L): 0.2 | 114.9 | 0.1898 | |
| STD 2 (mg/L): 1.0 | 79.0 | 1.000 | |
| STD 3 (mg/L): 5.0 | 39.8 | 5.015 | |

Matrix: Water / Soil (1: 10 -- soil -gm : DI Water -ml)

| Std Level | mV | Conc., mg/L: |
|---|---|---|
| STD 4 (mg/L): 10 | 22.1 | 10.01 |
| STD 5 (mg/L): 50 | -17.2 | 49.92 |

LSC / MS Spike ID: 297-020-4006 / ICV Std ID# ~~304.149~~ 304.149.008 KMH

Ical Slope: 95.6 / -56.9 mV Ical Date: 11/20/17

| WO # / SX # | Bottle # | Initial g or ml | Final Vol. ml | Dilution Factor | Initial Conc. mg/L | Final Conc. mg/L | Comments |
|---|---|---|---|---|---|---|---|
| ICV | | 50 | 50 | 1 | 10.19 | 10.19 | Nit-Amm-W-E350.3-ISE |
| ICB/CCB-1 | | | | | 0.04189 | 0.04189 | |
| WBLKW1-112017 | | | | | 0.03729 | 0.03729 | |
| WLCSW1-112017 | | | | | 9.897 | 9.897 | |
| HS1711077701 | 1 / 1 | 25mL | | 2 | 0.02255 | | tCl2 - treated w DF due to Cl2 |
| 777-02 | 1 / 1 | 25mL | | 2 | 0.1439 | | tCl2 - treated w |
| 777-03 | 1 / 1 | 50mL | | 1 | 6.734 | 6.734 | -Cl2 |
| 777-04 | 1 / 1 | 25mL | | 2 | 17.90 | | -Cl2 |
| 777-04MS | 1 / 1 | | | 2 | 27.63 | | |
| 777-04MSD | 1 / 1 | | | 2 | 27.97 | | |
| 495-01 | 1 / 1 | 50 | | 1 | 8.592 | 8.592 | - ODOR |
| CCV-2 | | | | 1 | 10.54 | 10.54 | |
| CCB-2 | | | | 1 | 0.03796 | 0.03796 | |
| HS1711048401 | | 2mL | 50 | 25 KMH 11/24/17 | ~~20.22~~ 21.38 | | int.: 21.38 |
| 484-02 | | 50 | | 1 | 0.9342 | 0.9342 | |
| 484-03 | | 50 | | 1 | 0.03412 | 0.03412 | |
| 484-04 | | 50 | | 1 | 0.02706 | 0.02706 | |
| 484-05 | | 50 | | 1 | 0.02762 | 0.02762 | |
| 484-06 | | 50 | | 1 | 0.02233 | 0.02233 | |
| CCV-3 | | 50 | | 1 | 10.89 | 10.89 | |
| CCB-3 | | 50 | | 1 | 0.04972 | 0.04972 | |
| HS1711052101 | 1 / 1 | 50 | | 1 | 0.04127 | 0.04127 | |
| 688-01 | 1 / 1 | 50 | | 1 | 0.05891 | 0.05891 | |
| CCV-4 | | 50 | | 1 | 10.71 | 10.71 | |
| CCB-4 | | 50 | | 1 | 0.05477 | 0.05477 | |

| | | | |
|---|---|---|---|
| Batch ID: ISE 350.3 RH 305777 / Nit-Amm-W-ISE RH 305780 | | Reported By: KMH | Reviewed By: |


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C:\TOC3201\Data\2017_11_14_001.t32

HS17110495

| | Analys | Sample Name | Sample ID | Origin | Result | Status | Date / Time | Vial |
|---|---|---|---|---|---|---|---|---|
| 1 | NPOC | CCV | 304.149.001 | 10-16-2017_W | NPOC:26.48mg/L | Completed | 11/14/2017 9:39:13 AM | 1 |
| 2 | NPOC | CCB | Untitled | 10-16-2017_W | NPOC:0.2904mg/L | Completed | 11/14/2017 9:52:26 AM | 2 |
| 3 | NPOC | WBLKW1-111417 | 5310B | 10-16-2017_W | NPOC:0.2440mg/L | Completed | 11/14/2017 10:05:39 AM | 3 |
| 4 | NPOC | WLCSW1-111417 | 297.020.4418 | 10-16-2017_W | NPOC:10.57mg/L | Completed | 11/14/2017 10:18:53 AM | 4 |
| 5 | NPOC | HS17110315-01 | 1/6 TOC_W | 10-16-2017_W | NPOC:2.570mg/L | Completed | 11/14/2017 10:34:11 AM | 5 |
| 6 | NPOC | HS17110315-01MS | 2/6 TOC_W | 10-16-2017_W | NPOC:12.13mg/L | Completed | 11/14/2017 10:49:24 AM | 6 |
| 7 | NPOC | HS17110315-01MSD | 3/6 TOC_W | 10-16-2017_W | NPOC:12.17mg/L | Completed | 11/14/2017 11:02:32 AM | 7 |
| 8 | NPOC | HS17110315-02 | 1/2 TOC_W | 10-16-2017_W | NPOC:12.74mg/L | Completed | 11/14/2017 11:17:50 AM | 8 |
| 9 | NPOC | HS17110315-03 | 1/2 TOC_W | 10-16-2017_W | NPOC:14.22mg/L | Completed | 11/14/2017 11:33:03 AM | 9 |
| 10 | NPOC | HS17110495-01DF5 | 1/1 ODOR | 10-16-2017_W | NPOC:6.964mg/L | Completed | 11/14/2017 11:48:16 AM | 10 |
| 11 | NPOC | HS17110354-01 | 1/2 | 10-16-2017_W | NPOC:4.068mg/L | Completed | 11/14/2017 12:03:29 PM | 11 |
| 12 | NPOC | HS17110360-01 | 1/2 | 10-16-2017_W | NPOC:4.142mg/L | Completed | 11/14/2017 12:18:42 PM | 12 |
| 13 | NPOC | CCV | Untitled | 10-16-2017_W | NPOC:25.19mg/L | Completed | 11/14/2017 12:31:59 PM | 13 |
| 14 | NPOC | CCB | Untitled | 10-16-2017_W | NPOC:0.2937mg/L | Completed | 11/14/2017 12:47:17 PM | 14 |
| 15 | NPOC | HS17110361-01 | 1/2 | 10-16-2017_W | NPOC:5.190mg/L | Completed | 11/14/2017 1:00:25 PM | 15 |
| 16 | NPOC | HS17110618-01DF50 | 1/1 TOC_W | 10-16-2017_W | NPOC:11.95mg/L | Completed | 11/14/2017 1:13:38 PM | 16 |
| 17 | NPOC | HS17110618-02DF50 | 1/1 TOC_W | 10-16-2017_W | NPOC:13.57mg/L | Completed | 11/14/2017 1:28:56 PM | 17 |
| 18 | NPOC | HS17110341-01 | 1/2 TOC_W | 10-16-2017_W | NPOC:4.357mg/L | Completed | 11/14/2017 1:50:09 PM | 18 |
| 19 | NPOC | CCV | Untitled | 10-16-2017_W | NPOC:25.92mg/L | Completed | 11/14/2017 2:03:30 PM | 19 |
| 20 | NPOC | CCB | Untitled | 10-16-2017_W | NPOC:0.3467mg/L | Completed | 11/14/2017 2:16:43 PM | 20 |
| 21 | NPOC | WBLKW2-111417 | 5310B | 10-16-2017_W | NPOC:0.2627mg/L | Completed | 11/14/2017 5:35:20 PM | 21 |
| 22 | NPOC | WLCSW2-111417 | Untitled | 10-16-2017_W | NPOC:10.57mg/L | Completed | 11/14/2017 5:48:42 PM | 22 |
| 23 | NPOC | WLCSDW2-111417 | Untitled | 10-16-2017_W | NPOC:10.58mg/L | Completed | 11/14/2017 6:02:16 PM | 23 |
| 24 | NPOC | HS17110538-01 | 1/2 TOC_W | 10-16-2017_W | NPOC:11.84mg/L | Completed | 11/14/2017 6:15:29 PM | 24 |
| 25 | NPOC | HS17110390-01 | 1/2 | 10-16-2017_W | NPOC:12.83mg/L | Completed | 11/14/2017 6:30:47 PM | 25 |
| 26 | NPOC | HS17110391-01 | 1/2 | 10-16-2017_W | NPOC:8.453mg/L | Completed | 11/14/2017 6:46:00 PM | 26 |
| 27 | NPOC | HS17110391-01MS | 1/2 | 10-16-2017_W | NPOC:17.64mg/L | Completed | 11/14/2017 6:59:08 PM | 27 |
| 28 | NPOC | HS17110437-01 | 1/2 | 10-16-2017_W | NPOC:3.094mg/L | Completed | 11/14/2017 7:14:27 PM | 28 |
| 29 | NPOC | HS17110437-02 | 1/2 | 10-16-2017_W | NPOC:5.326mg/L | Completed | 11/14/2017 7:27:36 PM | 29 |
| 30 | NPOC | HS17110365-01 | 1/2 | 10-16-2017_W | NPOC:1.974mg/L | Completed | 11/14/2017 7:42:55 PM | 30 |
| 31 | NPOC | CCV | Untitled | 10-16-2017_W | NPOC:25.24mg/L | Completed | 11/14/2017 7:56:04 PM | 31 |
| 32 | NPOC | CCB | Untitled | 10-16-2017_W | NPOC:0.3757mg/L | Completed | 11/14/2017 8:11:23 PM | 32 |
| 33 | NPOC | HS17110365-03 | 1/2 | 10-16-2017_W | NPOC:2.333mg/L | Completed | 11/14/2017 8:24:32 PM | 33 |
| 34 | NPOC | HS17110365-04 | 1/2 | 10-16-2017_W | NPOC:1.646mg/L | Completed | 11/14/2017 8:39:51 PM | 34 |
| 35 | NPOC | HS17110365-05 | 1/2 | 10-16-2017_W | NPOC:1.857mg/L | Completed | 11/14/2017 8:55:05 PM | 35 |
| 36 | NPOC | HS17110365-06 | 1/2 | 10-16-2017_W | NPOC:2.676mg/L | Completed | 11/14/2017 9:10:19 PM | 36 |
| 37 | NPOC | CCV | Untitled | 10-16-2017_W | NPOC:24.94mg/L | Completed | 11/14/2017 9:25:56 PM | 37 |
| 38 | NPOC | CCB | Untitled | 10-16-2017_W | NPOC:0.3255mg/L | Completed | 11/14/2017 9:41:10 PM | 38 |

Instr.Information

| | |
|---|---|
| System | TOC csh with asi |
| Instrument Options | TOC/ASI/IC Unit/ |
| Catalyst | Regular Sensitivity |

Cal. Curve

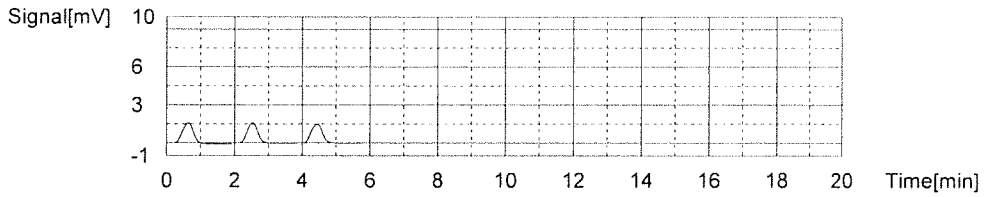
| | |
|---|---|
| Sample Name: | CAL |
| Sample ID: | 304146903 |
| Cal. Curve: | 10-16-2017_W.2017_10_16_17_39_41.cal |
| Status | Completed |

| Type | Anal. |
|---|---|
| Standard | NPOC |

Conc: 1.000mg/L

| No. | Area | Inj. Vol. | Aut. Dil. | Rem. | Ex. | Date / Time |
|---|---|---|---|---|---|---|
| 1 | 3.430 | 50uL | 1 | ******* | | 10/16/2017 5:48:58 PM |
| 2 | 3.301 | 50uL | 1 | ******* | | 10/16/2017 5:51:03 PM |
| 3 | 3.288 | 50uL | 1 | ******* | | 10/16/2017 5:53:08 PM |

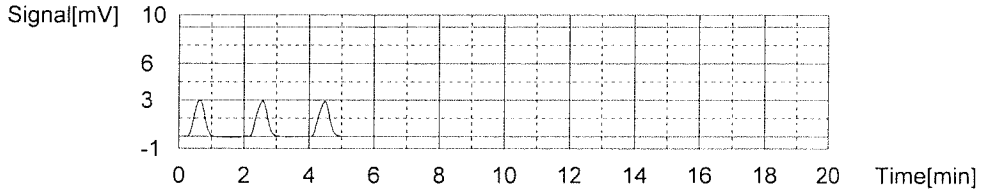
Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 3.340




Conc: 2.000mg/L

| No. | Area | Inj. Vol. | Aut. Dil. | Rem. | Ex. | Date / Time |
|---|---|---|---|---|---|---|
| 1 | 6.550 | 50uL | 1 | ******* | | 10/16/2017 6:02:20 PM |
| 2 | 6.642 | 50uL | 1 | ******* | | 10/16/2017 6:04:25 PM |
| 3 | 6.460 | 50uL | 1 | ******* | | 10/16/2017 6:06:30 PM |

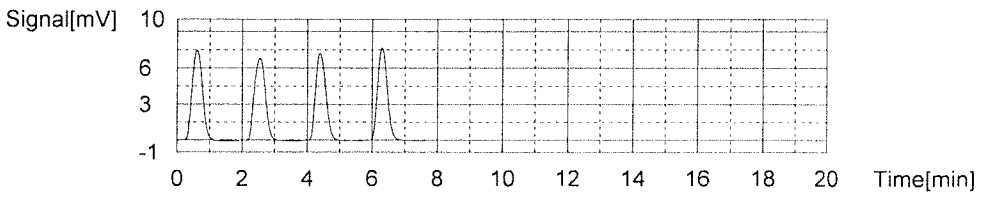
Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 6.551




Conc: 5.000mg/L

| No. | Area | Inj. Vol. | Aut. Dil. | Rem. | Ex. | Date / Time |
|---|---|---|---|---|---|---|
| 1 | 16.40 | 50uL | 1 | ******* | E | 10/16/2017 6:15:42 PM |
| 2 | 16.13 | 50uL | 1 | ******* | | 10/16/2017 6:17:47 PM |
| 3 | 15.62 | 50uL | 1 | ******* | | 10/16/2017 6:19:52 PM |
| 4 | 15.82 | 50uL | 1 | ******* | | 10/16/2017 6:21:57 PM |

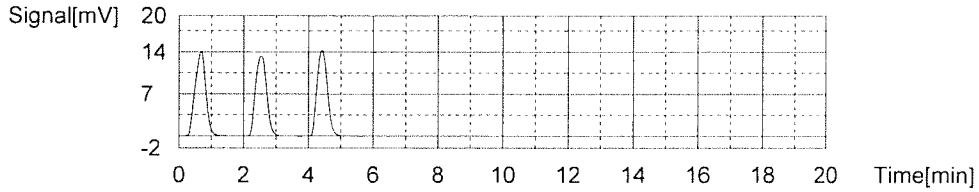
Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 15.86




Conc: 10.00mg/L

| No. | Area | Inj. Vol. | Aut. Dil. | Rem. | Ex. | Date / Time |
|---|---|---|---|---|---|---|
| 1 | 31.78 | 50uL | 1 | ******* | | 10/16/2017 6:30:55 PM |
| 2 | 31.39 | 50uL | 1 | ******* | | 10/16/2017 6:33:00 PM |
| 3 | 31.59 | 50uL | 1 | ******* | | 10/16/2017 6:35:05 PM |

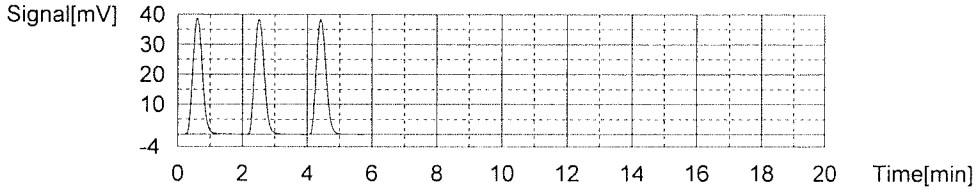
Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 31.59




Conc: 25.00mg/L

| No. | Area | Inj. Vol. | Aut. Dil. | Rem. | Ex. | Date / Time |
|---|---|---|---|---|---|---|
| 1 | 78.26 | 50uL | 1 | ******* | | 10/16/2017 6:44:18 PM |
| 2 | 78.67 | 50uL | 1 | ******* | | 10/16/2017 6:46:23 PM |
| 3 | 79.38 | 50uL | 1 | ******* | | 10/16/2017 6:48:28 PM |

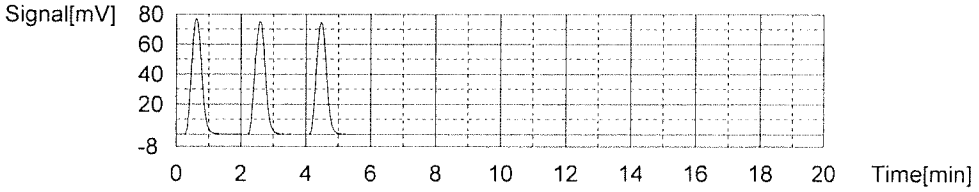
Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 78.77



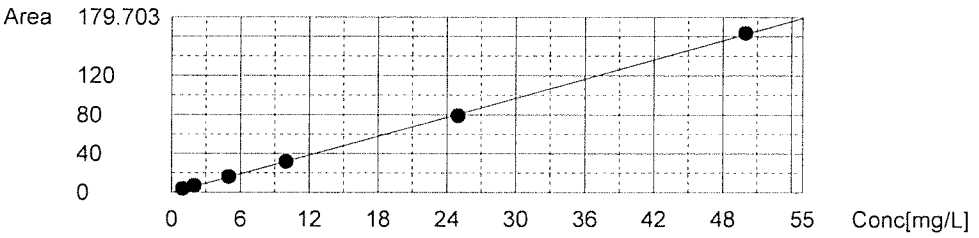

Conc: 50.00mg/L

| No. | Area | Inj. Vol. | Aut. Dil. | Rem. | Ex. | Date / Time |
|---|---|---|---|---|---|---|
| 1 | 164.9 | 50uL | 1 | ******* | | 10/16/2017 6:57:42 PM |
| 2 | 164.9 | 50uL | 1 | ******* | | 10/16/2017 6:59:47 PM |
| 3 | 160.3 | 50uL | 1 | ******* | | 10/16/2017 7:01:52 PM |

Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 163.4




Slope: 3.257
Intercept -0.5787
r^2 0.9997
r 0.9998
Zero Shift No




Sample

Sample Name: ICV
Sample ID: 304147002
Origin: 10-16-2017_W.cal
Status Completed
Chk. Result

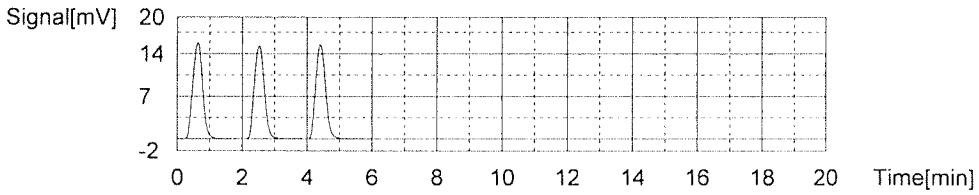
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:10.16mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 32.84 | 10.26mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 10/16/2017 7:58:36 PM |
| 2 | 32.50 | 10.15mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 10/16/2017 8:00:41 PM |
| 3 | 32.24 | 10.07mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 10/16/2017 8:02:46 PM |

Mean Area 32.53
Mean Conc. 10.16mg/L




Sample

Sample Name: ICB
Sample ID: Untitled
Origin: 10-16-2017_W.cal
Status Completed
Chk. Result

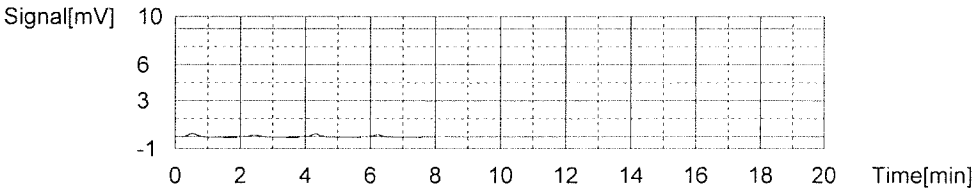
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:0.2618mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 0.4693 | 0.3217mg/L | 50uL | 1 | E | 10-16-2017_W.2017_10_16_17_39_41.cal | 10/16/2017 8:11:49 PM |
| 2 | 0.2438 | 0.2525mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 10/16/2017 8:13:54 PM |
| 3 | 0.3477 | 0.2844mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 10/16/2017 8:15:59 PM |
| 4 | 0.2307 | 0.2485mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 10/16/2017 8:18:04 PM |

Mean Area 0.2741
Mean Conc. 0.2618mg/L



Instr.Information

| | |
|---|---|
| System | TOC csh with asi |
| Instrument Options | TOC/ASI/IC Unit/ |
| Catalyst | Regular Sensitivity |

Sample

| | |
|---|---|
| Sample Name: | CCV |
| Sample ID: | 304.149.001 |
| Origin: | 10-16-2017_W.cal |
| Status | Completed |
| Chk. Result | |

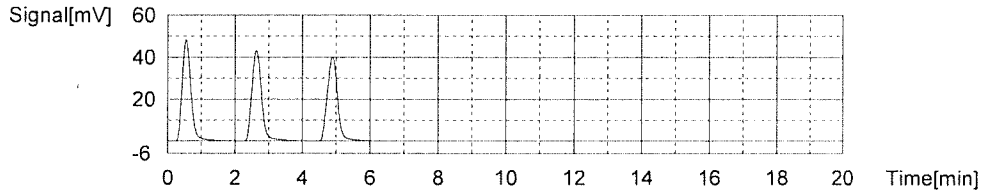
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:26.48mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 86.33 | 26.68mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/14/2017 9:34:30 AM |
| 2 | 85.90 | 26.55mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/14/2017 9:36:54 AM |
| 3 | 84.79 | 26.21mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/14/2017 9:39:13 AM |

| | |
|---|---|
| Mean Area | 85.67 |
| Mean Conc. | 26.48mg/L |




Sample

| | |
|---|---|
| Sample Name: | CCB |
| Sample ID: | Untitled |
| Origin: | 10-16-2017_W.cal |
| Status | Completed |
| Chk. Result | |

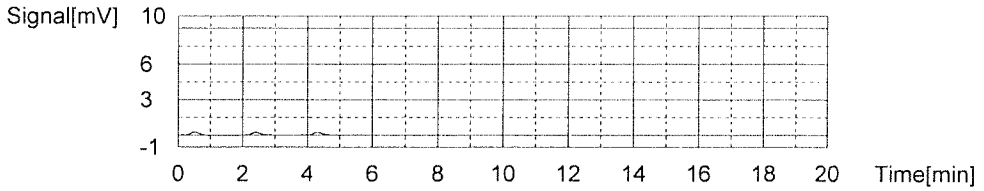
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:0.2904mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 0.3871 | 0.2965mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/14/2017 9:48:16 AM |
| 2 | 0.3677 | 0.2905mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/14/2017 9:50:21 AM |
| 3 | 0.3470 | 0.2842mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/14/2017 9:52:26 AM |

| | |
|---|---|
| Mean Area | 0.3673 |
| Mean Conc. | 0.2904mg/L |



Sample

Sample Name: WBLKW1-111417
Sample ID: 5310B
Origin: 10-16-2017_W.cal
Status Completed
Chk. Result

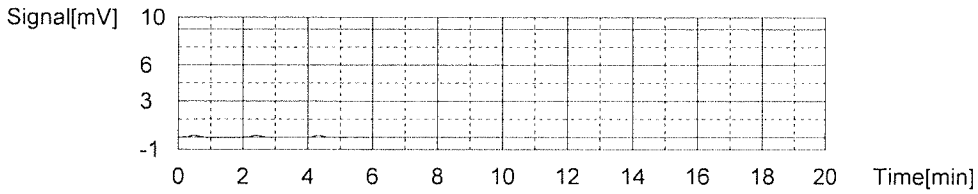
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:0.2440mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 0.2084 | 0.2416mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/14/2017 10:01:29 AM |
| 2 | 0.2389 | 0.2510mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/14/2017 10:03:34 AM |
| 3 | 0.2014 | 0.2395mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/14/2017 10:05:39 AM |

Mean Area 0.2162
Mean Conc. 0.2440mg/L




Sample

Sample Name: WLCSW1-111417
Sample ID: 297.020.4418
Origin: 10-16-2017_W.cal
Status Completed
Chk. Result

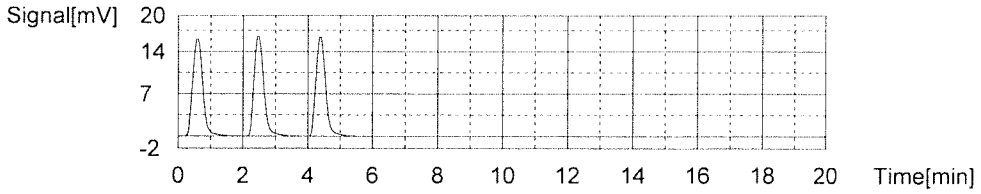
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:10.57mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 33.93 | 10.59mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/14/2017 10:14:42 AM |
| 2 | 33.85 | 10.57mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/14/2017 10:16:47 AM |
| 3 | 33.80 | 10.55mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/14/2017 10:18:53 AM |

Mean Area 33.86
Mean Conc. 10.57mg/L




Sample

Sample Name: HS17110315-01
Sample ID: 1/6 TOC_W
Origin: 10-16-2017_W.cal
Status Completed
Chk. Result

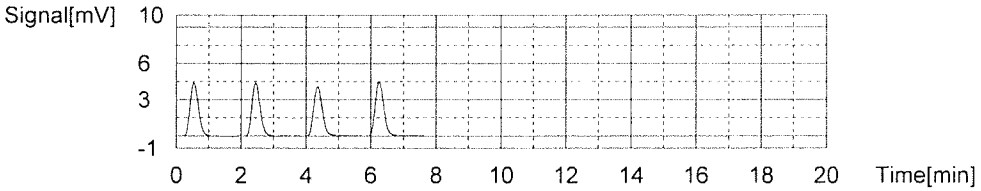
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:2.570mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 7.692 | 2.539mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/14/2017 10:27:56 AM |
| 2 | 7.704 | 2.543mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/14/2017 10:30:01 AM |
| 3 | 7.397 | 2.448mg/L | 50uL | 1 | E | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/14/2017 10:32:06 AM |
| 4 | 7.981 | 2.628mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/14/2017 10:34:11 AM |

Mean Area 7.792
Mean Conc. 2.570mg/L




Sample

Sample Name: HS17110315-01MS
Sample ID: 2/6 TOC_W
Origin: 10-16-2017_W.cal
Status Completed
Chk. Result

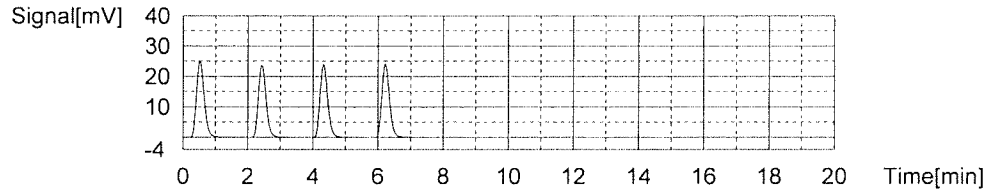
| Type | Anal. | Manual Dilution | Result |
|---|---|---|---|
| Unknown | NPOC | 1.000 | NPOC:12.13mg/L |

1. Det

Anal.: NPOC

| No. | Area | Conc. | Inj. Vol. | Aut. Dil. | Ex. | Cal. Curve | Date / Time |
|---|---|---|---|---|---|---|---|
| 1 | 41.18 | 12.82mg/L | 50uL | 1 | E | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/14/2017 10:43:09 AM |
| 2 | 39.13 | 12.19mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/14/2017 10:45:14 AM |
| 3 | 38.66 | 12.05mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/14/2017 10:47:19 AM |
| 4 | 39.05 | 12.17mg/L | 50uL | 1 | | 10-16-2017_W.2017_10_16_17_39_41.cal | 11/14/2017 10:49:24 AM |

Mean Area 38.95
Mean Conc. 12.13mg/L



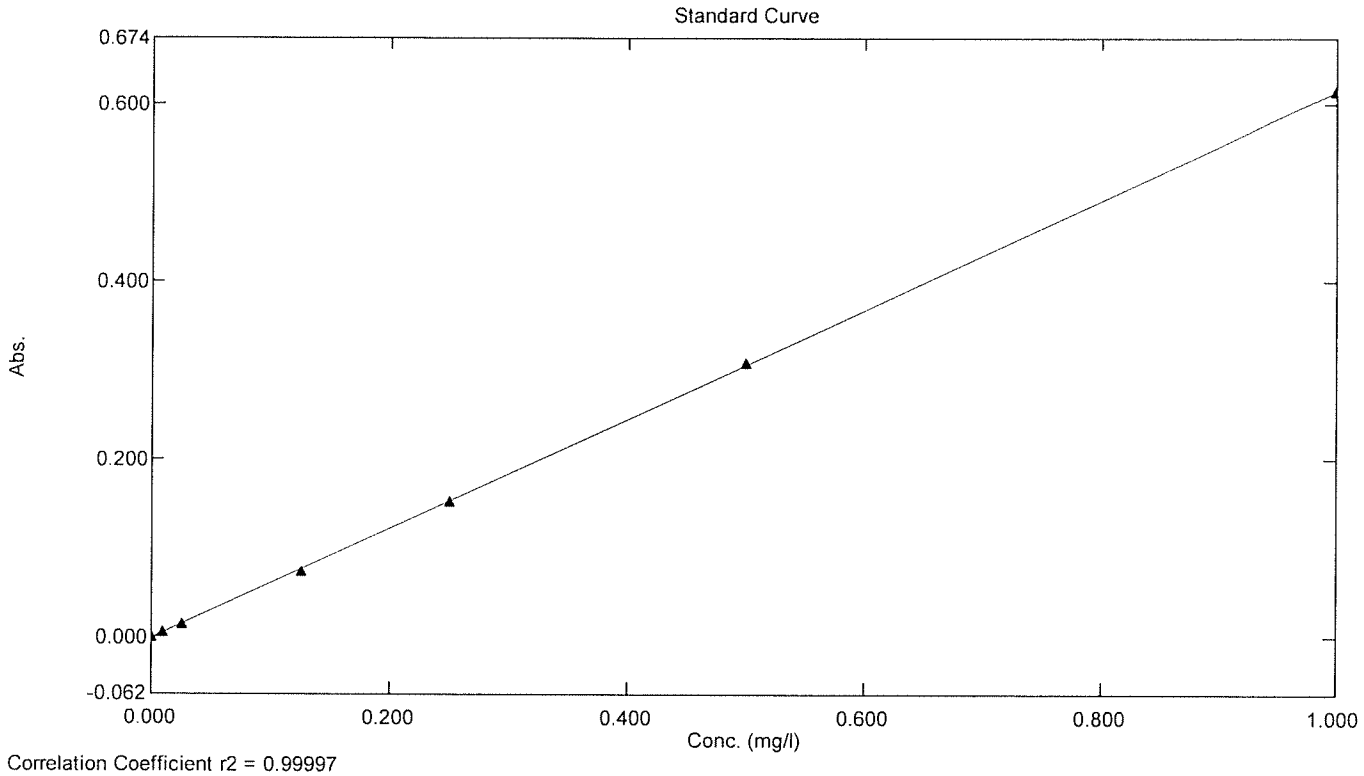

Sample

HS17110495

# Standard Table Report

12/05/2017 08:53:21 AM

File Name: Q:\UVProbe\O_PO4_UNKNOWN\171110_P_ORTHO_W.pho




Correlation Coefficient r2 = 0.99997

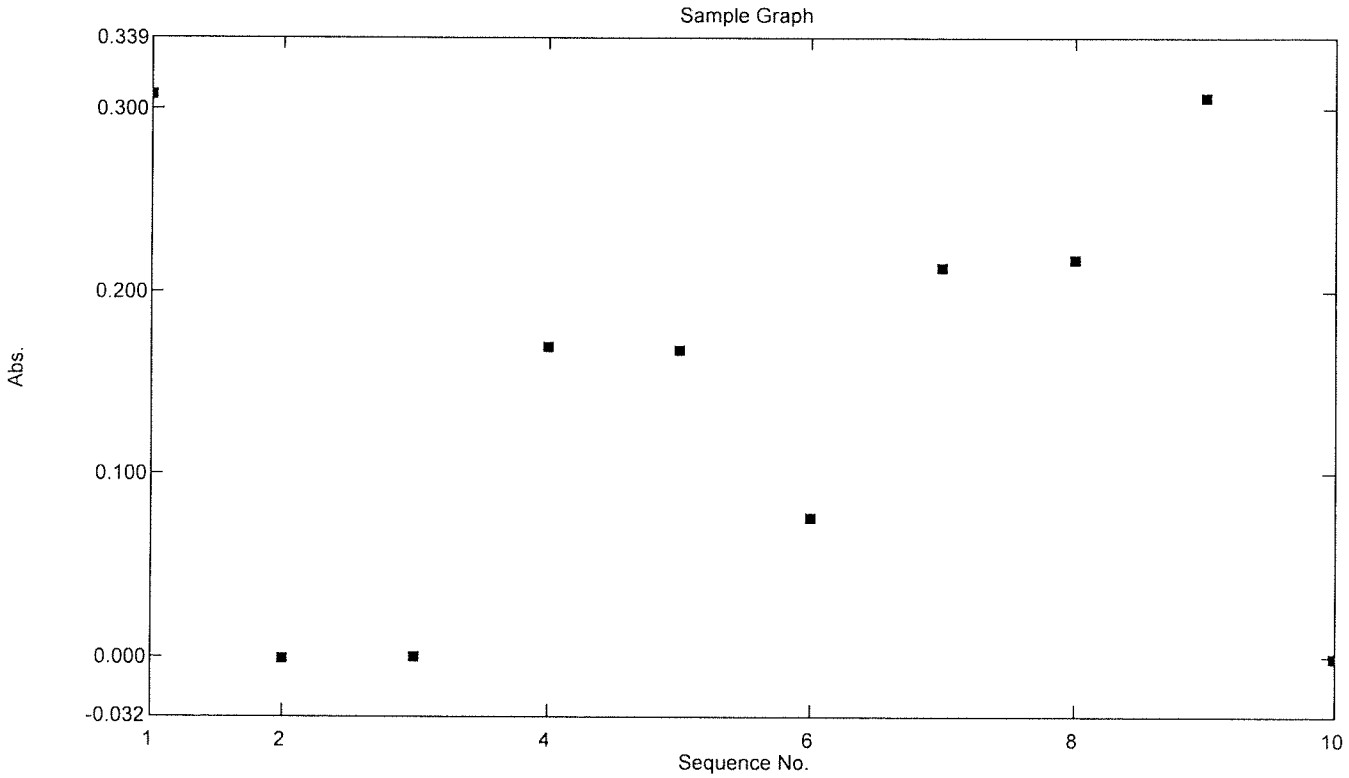
Standard Table

| | Sample ID | Type | Ex | Conc | WL880.0 | Wgt.Facto | Comments |
|---|---|---|---|---|---|---|---|
| 1 | STD1 | Standard | | 0.000 | 0.000 | 1.000 | |
| 2 | STD2 | Standard | | 0.010 | 0.006 | 1.000 | |
| 3 | STD3 | Standard | | 0.025 | 0.015 | 1.000 | |
| 4 | STD4 | Standard | | 0.125 | 0.074 | 1.000 | |
| 5 | STD5 | Standard | | 0.250 | 0.152 | 1.000 | |
| 6 | STD6 | Standard | | 0.500 | 0.308 | 1.000 | |
| 7 | STD7 | Standard | | 1.000 | 0.613 | 1.000 | |
| 8 | | | | | | | |

# Sample Table Report

12/05/2017 08:53:18 AM

File Name: Q:\UVProbe\O_PO4_UNKNOWN\171110_P_ORTHO_W.pho




Sample Table

| | Sample ID | Type | Ex | Conc | WL880.0 | Comments |
|---|---|---|---|---|---|---|
| 1 | CCV | Unknown | | 0.502 | 0.308 | |
| 2 | CCB | Unknown | | -0.000 | -0.001 | |
| 3 | MBLK | Unknown | | 0.001 | -0.000 | |
| 4 | LCS | Unknown | | 0.276 | 0.169 | |
| 5 | LCSD | Unknown | | 0.274 | 0.168 | |
| 6 | 17110495.01. | Unknown | | 0.124 | 0.076 | 10X |
| 7 | 17110495.01MS. | Unknown | | 0.348 | 0.213 | 10X |
| 8 | 17110495.01MSD. | Unknown | | 0.355 | 0.218 | 10X |
| 9 | CCV2 | Unknown | | 0.498 | 0.305 | |
| 10 | CCB2 | Unknown | | -0.001 | -0.001 | |
| 11 | | | | | | |

# Sub Contract Data

Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
ALS WO# HS17110495

# Case Narrative

**Method:** 6850
**Analysis:** Perchlorate
**Analysis SOP:** LC-MS-CLO4
**ALS WO ID(s):** 1731766; 1731771; 1731772; 1732090

**Client:** ALS Laboratories (Houston, TX)
**Matrix:** Water
**ELMS Batch (HBN):** 1999 (203403)

**General Set Information:** There were ten 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:** Sample 1732090001 was re-analyzed and reported at a 1 in 100 dilution. Samples 1731766001 and 1732090002/04 were re-analyzed and reported at a 1 in 1,000 dilutions. The reporting limits have been adjusted accordingly.

**Method QC data:** The method blank (LMB 575296) was less than 1/2 the CRDL. The recovery for the LCS (575297) was within acceptable parameters.

**MS/MSD Analysis:** The matrix spike and matrix spike duplicate (MS/MSD) was performed on samples 1732090006/07 (Client ID: 50WW08-111317). 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):** None were required for this set.

**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 5.0. Manual Integrations were performed for the Initial Calibration analyses (datafiles: 21AUGP01-03) along with datafiles 21NOVP02/03/10/19.

Thomas Bosch November 28, 2017
Date

# ANALYTICAL REPORT

Report Date: November 28, 2017

Sonia West
ALS Environmental
10450 Stancliff Rd.
Suite 210
Houston, TX 77099

Phone: (281) 530-5656

E-mail: Sonia.West@alsglobal.com

Workorder: **34-1731772**
Project ID: HS17110495-01 110917
Purchase Order: HS17110495
Project Manager Kevin W. Griffiths

| Client Sample ID | Lab ID | Collect Date | Receive Date | Sampling Site |
|---|---|---|---|---|
| LH18/24-SP650_110917 | 1731772001 | 11/09/17 | 11/13/17 | |

# ANALYTICAL REPORT

**Workorder:** 34-1731772
**Client:** ALS Environmental (Houston)
**Project Manager:** Kevin W. Griffiths

## Analytical Results

| | | |
|---|---|---|
| Sample ID: **LH18/24-SP650_110917** | Sampling Site: NA | Collected: 11/09/2017 |
| Lab ID: 1731772001 | Media: 500 mL Nalgene | Received: 11/13/2017 |
| 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/1999 (HBN: 203403) | **Percent Solid:** NA |
| | **Analyzed:** 11/21/2017 11:08 | **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 |

## 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>11/27/2017 16:49 | /S/ Christopher Winter<br>11/28/2017 13:08 |

## 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

# ANALYTICAL REPORT

**Workorder:** 34-1731772
**Client:** ALS Environmental (Houston)
**Project Manager:** Kevin W. Griffiths

## 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 (Standard) | Certificate Number | Website |
|---|---|---|---|
| Environmental | ANAB (DoD ELAP) | ADE-1420 | http://www.anab.org/accredited-organizations/ |
| | Utah (NELAC) | DATA1 | http://health.utah.gov/lab/labimp/ |
| | Nevada | UT00009 | http://ndep.nv.gov/bsdw/labservice.htm |
| | Oklahoma | UT00009 | http://www.deq.state.ok.us/CSDnew/ |
| | Iowa | IA# 376 | http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx |
| | Texas (TNI) | T104704456-11-1 | http://www.tceq.texas.gov/field/qa/lab_accred_certif.html |
| | Washington | C596-16 | http://www.ecy.wa.gov/programs/eap/labs/index.html |
| | Kansas | E-10416 | http://www.kdheks.gov/lipo/index.html |
| Industrial Hygiene | AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP) | 101574 | http://www.aihaaccreditedlabs.org |
| | Washington | C596-16 | http://www.ecy.wa.gov/programs/eap/labs/index.html |
| Lead Testing: | | | |
| CPSC | ANAB (ISO 17025, CPSC) | ADE-1420 | http://www.anab.org/accredited-organizations/ |
| Soil, Dust, Paint ,Air | AIHA LAP LLC (ISO 17025 & IHLAP/ELLAP) | 101574 | http://www.aihaaccreditedlabs.org |
| Dietary Supplements | ACLASS (ISO 17025) | ADE-1420 | http://www.aclasscorp.com |

# ANALYTICAL REPORT

**Workorder:** 34-1731772
**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:** 1731772

| | | | | | |
|---|---|---|---|---|---|
| **Limits:** | Client SOW/Contract Specified | **Preparation:** | NA | **Analysis:** | EPA 6850 |
| **Basis:** | DoD QSM | **Batch:** | NA | **Batch:** | ELMS/1999 (HBN: 203403) |
| | | **Prepared By:** | NA | **Analyzed By:** | Thomas Bosch |

### Blank

**LMB:** 575296
**Analyzed:** 11/21/2017 09:50
**Units:** ug/L

| Analyte | Result | MDL | RL |
|---|---|---|---|
| Perchlorate | ND | 1 | 2.00 |

### Laboratory Control Sample

**LCS:** 575297
**Analyzed:** 11/21/2017 10:09
**Dilution:** 1
**Units:** ug/L

| Analyte | Result | Target | % Rec | QC Limits | |
|---|---|---|---|---|---|
| Perchlorate | 5.02 | 5.00 | 100 | 78.8 | 123.8 |

### Matrix Spike - Matrix Spike Duplicate

| | | | |
|---|---|---|---|
| **Sample:** 1732090005 | **MS:** 1732090006 | **MSD:** 1732090007 |
| **Analyzed:** 11/21/2017 12:45 | **Analyzed:** 11/21/2017 13:06 | **Analyzed:** 11/21/2017 13:25 |
| **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 | 27.0 | 33 | 5 | 110 | 78.8 | 123.8 | 33 | 111 | 0.197 | 0.0 | 20.0 |

### Continuing Calibration Verification

| | | |
|---|---|---|
| **CCV:** 575293 | **CCV:** 575298 | **CCV:** 575300 |
| **Analyzed:** 11/21/2017 08:50 | **Analyzed:** 11/21/2017 14:23 | **Analyzed:** 11/21/2017 16:20 |
| **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 | 26.7 | 25.0 | 107 | 25.7 | 25.0 | 103 | 26.7 | 25.0 | 107 |

### Interference Check Sample

**ICSA:** 575295
**Analyzed:** 11/21/2017 09:30
**Units:** ug/L
**Criteria:** ± 30%

| Analyte | Result | Target | % Rec. |
|---|---|---|---|
| Perchlorate | 1.13 | 1.00 | 113 |

### Limit of Detection Verification

| | | |
|---|---|---|
| **LODV:** 575294 | **LODV:** 575299 | **LODV:** 575301 |
| **Analyzed:** 11/21/2017 09:11 | **Analyzed:** 11/21/2017 14:43 | **Analyzed:** 11/21/2017 16:39 |
| **Units:** ug/L | **Units:** ug/L | **Units:** ug/L |
| **Criteria:** ± 50% | **Criteria:** ± 50% | **Criteria:** ± 50% |

| Analyte | Result | Target | % Rec. | Result | Target | % Rec. | Result | Target | % Rec. |
|---|---|---|---|---|---|---|---|---|---|
| Perchlorate | 0.922 | 1.00 | 92.2 | 0.903 | 1.00 | 90.3 | 0.964 | 1.00 | 96.4 |

# Quality Control Sample
# Batch Report

## Analysis Information

**Workorder:** **1731772**

| | | | | | |
|---|---|---|---|---|---|
| **Limits:** | Client SOW/Contract Specified | **Preparation:** | NA | **Analysis:** | EPA 6850 |
| **Basis:** | DoD QSM | **Batch:** | NA | **Batch:** | ELMS/1999 (HBN: 203403) |
| | | **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/ Christopher Winter |
| 11/27/2017 16:49 | 11/28/2017 13:08 |

## 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

00877540

1731772

1731772

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

18698 #2

# Subcontract Chain of Custody

**COC ID: 8020**

**SUBCONTRACT TO:**

ALS Laboratory Group
960 LeVoy Dr
Salt Lake City, UT 84123

**Phone:** +1 801 266 7700

**CUSTOMER INFORMATION:**

| | |
|---|---|
| **Company:** | ALS Houston |
| **Contact:** | Sonia West |
| **Address:** | 10450 Stancliff Rd, Ste 210 |
| **Phone:** | +1 281 530 5656 |
| **Email:** | Sonia.West@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:** | HS17110495 |
| **TSR:** | Danielle Winnings |

| | LAB SAMPLE ID | CLIENT SAMPLE ID | MATRIX | COLLECT DATE |
|---|---|---|---|---|
| | ANALYSIS REQUESTED | | | DUE DATE |
| **1.** | **HS17110495-01** | **LH18/24-SP650_110917** | **Water** | **09 Nov 2017 14:00** |
| | SUB_Perch-6850 | | | 28 Nov 2017 |

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

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

Relinquished By: J. Hernandez Date/Time: 11/10/17 18:00

Received By: [signature] Date/Time: 11/11/17 / 855

Cooler ID(s): 8008 Temperature(s): 2°

00877541

# ALS Environmental

## CHAIN-OF-CUSTODY

| | | | |
|---|---|---|---|
| **Project / Job / Task:** HS17110495 | ***Split:*** | **Workorder ID:** 1731772 | **Level:** ENV_LVL4 |
| **Client:** ALS Environmental (Houston) | | **Account:** 8101 | **Type:** 500Poly |
| **Comments:** | | | **Preservatives** |

| Item | Collect Date/Time | Sample ID | Lab ID | QC | Matrix | Containers ID(s) | Containers Count | Requested Analysis: EPA 6850, DoD QSM |
|---|---|---|---|---|---|---|---|---|
| 1 | 11/09/2017 14:00 | LH18/24-SP650_110917 | 1731772001 | | Water | A | 1 | A |
| 2 | | | | | | | | |
| 3 | | | | | | | | |
| 4 | | | | | | | | |
| 5 | | | | | | | | |
| 6 | | | | | | | | |
| 7 | | | | | | | | |
| 8 | | | | | | | | |
| 9 | | | | | | | | |
| 10 | | | | | | | | |

COOL

37 of 151

## ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

| Relinquished By: (Signature) | Date / Time | Received By: (Signature) | Reason for Transfer / Storage Location |
|---|---|---|---|
| Hill, Desiree | 11/13/2017 08:55 | ALS Sample Receiving | Sample Login |
| [signature] | 11/13/17 14:30 | 15C | Storage |
| R.33.1 | 11.21.17/08:05 | T. Burd | 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 |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

# ALS - Salt Lake City-Related Information Report (CRIR)

## Cooler or Container Information Checklist (Fill In or Circle)

Client Name: ALS Houston

Project/Task/Site: 173772

Date/Time of Receipt: 11/11/17 | 855

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 | TOC Preserved | Yes/No/NA |

| Cooler Received | ALS Cooler No. | Temp. | Cooler Received | ALS Cooler No. | Temp. | Cooler Received | ALSL Cooler No. | Temp. |
|---|---|---|---|---|---|---|---|---|
| 1 | C17- 8008 | 2 °C | 4 | C17- | °C | 7 | C17- | °C |
| 2 | C17- | °C | 5 | C17- | °C | 8 | C17- | °C |
| 3 | C17- | °C | 6 | C17- | °C | 9 | C17- | °C |

Taken By: Meredith Edwards (Signature) Meredith Edwards (Printed Name) 11/11/17 (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:

E-mailed to Client? Yes ☐ No ☐

**Response Required Within 24 Hours**

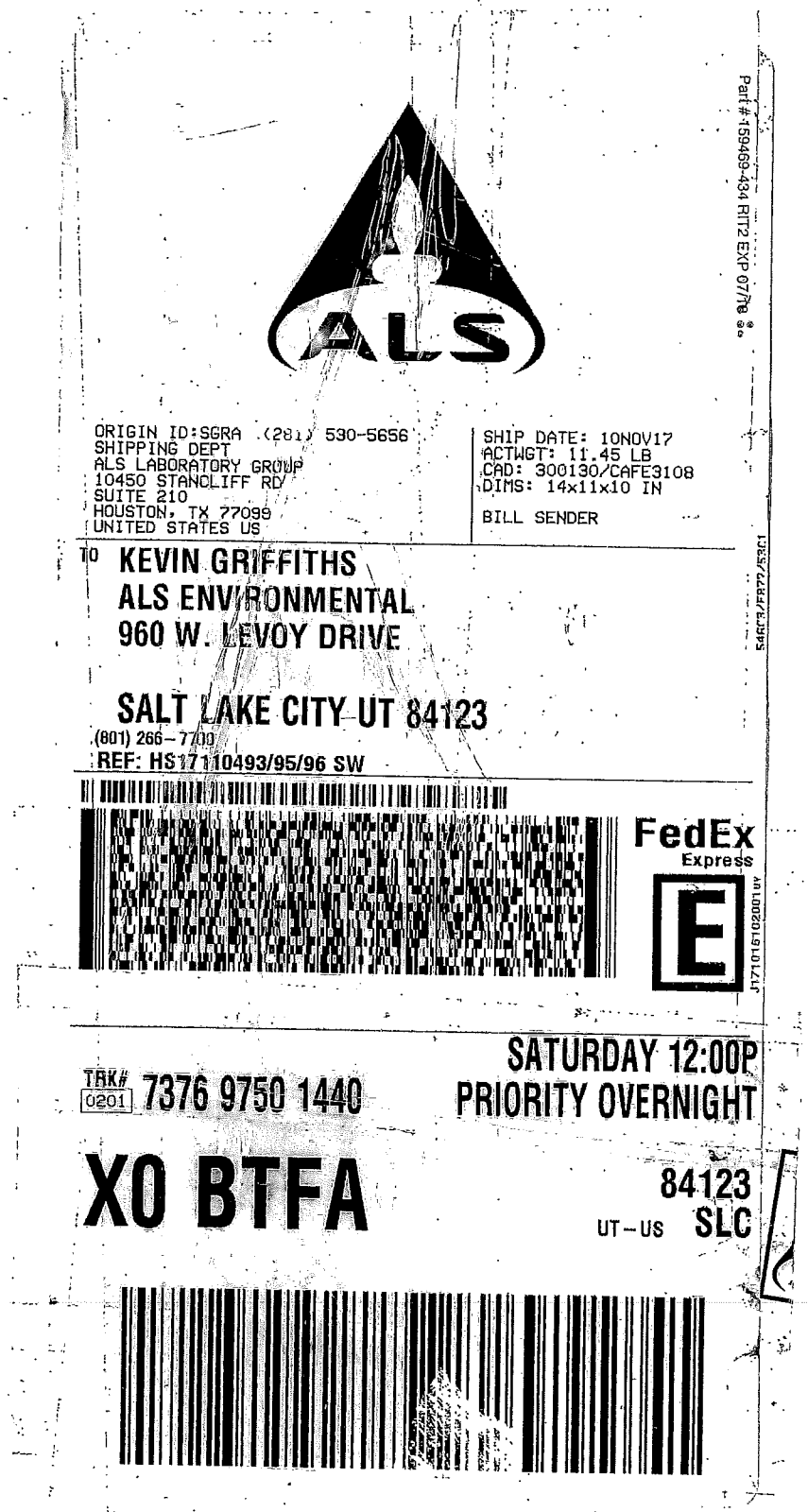
## Project Management

Project Manager Comments:

ALS Project Manager: _____ (Printed Name) Returned to Sample Receipt by: _____ (Signature) Date: _____

CRIR.dot

Revised 1/1/15



Part # 159469-434 RITZ EXP 07/18

ORIGIN ID:SGRA (281) 530-5656
SHIPPING DEPT
ALS LABORATORY GROUP
10450 STANCLIFF RD
SUITE 210
HOUSTON, TX 77099
UNITED STATES US

SHIP DATE: 10NOV17
ACTWGT: 11.45 LB
CAD: 300130/CAFE3108
DIMS: 14x11x10 IN

BILL SENDER

TO KEVIN GRIFFITHS
ALS ENVIRONMENTAL
960 W. LEVOY DRIVE

SALT LAKE CITY UT 84123
(801) 266-7700
REF: HS17110493/95/96 SW

FedEx Express

J171016102001uv

TRK# 0201 7376 9750 1440

SATURDAY 12:00P
PRIORITY OVERNIGHT

XO BTFA

84123
UT-US SLC

# Batch Worklist

**Batch:** ELMS/ 1999 **Created:** 11/21/2017 08:30 **Instrument:** **HBN:** 203403

**Rule:** EPA 6850, DoD QSM Water **Analyst:** T. Bosch **Status:** WP

**Workorder:** 1731766 [ENV_LVL4]
**Workorder:** 1731771 [ENV_LVL4]
**Workorder:** 1731772 [ENV_LVL4]
**Workorder:** 1732090 [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 | 575293 | CCV for HBN 203403 [ELMS/1999] | | | | CCV | 3 | | E685041C3Q | 5311 | | 11/28/2017 | |
| 2 | 575294 | LODV for HBN 203403 [ELMS/1999 | | | | LODV | 3 | | E6850..D3Q | 5311 | | 11/28/2017 | |
| 3 | 575295 | ICS for HBN 203403 [ELMS/1999] | | | | ICS | 3 | | E6850..D3Q | 5311 | | 11/28/2017 | |
| 4 | 575296 | LMB for HBN 203403 [ELMS/1999] | | | | LMB | 3 | | E6850Q413Q | 5311 | | 11/28/2017 | |
| 5 | 575297 | LCS for HBN 203403 [ELMS/1999] | | | | LCS | 3 | | E6850Q413Q | 5311 | | 11/28/2017 | |
| 6 | 1731766001 | LH18/24-SP140_110917 | | | | SAMPLE | 3 | 1731766001-A | E6850Q41.3 | 5480 | 12/7/2017 | 11/28/2017 | |
| 7 | 1731771001 | LH18/24-SP650_110917 | | | | SAMPLE | 3 | 1731771001-A | E6850Q41.3 | 5480 | 12/7/2017 | 11/28/2017 | |
| 8 | 1731772001 | LH18/24-SP650_110917 | | | | SAMPLE | 3 | 1731772001-A | E6850Q41.3 | 5480 | 12/7/2017 | 11/29/2017 | |
| 9 | 1732090001 | 50WW06-111317 | | | | SAMPLE | 3 | 1732090001-A | E6850Q41.3 | 5480 | 12/11/2017 | 12/4/2017 | |
| 10 | 1732090002 | 50WW11-111317 | | | | SAMPLE | 3 | 1732090002-A | E6850Q41.3 | 5480 | 12/11/2017 | 12/4/2017 | |
| 11 | 1732090003 | 50WW14-111317 | | | | SAMPLE | 3 | 1732090003-A | E6850Q41.3 | 5480 | 12/11/2017 | 12/4/2017 | |
| 12 | 1732090004 | 50WW13-111317 | | | | SAMPLE | 3 | 1732090004-A | E6850Q41.3 | 5480 | 12/11/2017 | 12/4/2017 | |
| 13 | 575298 | CCV for HBN 203403 [ELMS/1999] | | | | CCV | 3 | | E685041C3Q | 5311 | | 11/28/2017 | |
| 14 | 575299 | LODV for HBN 203403 [ELMS/1999 | | | | LODV | 3 | | E6850..D3Q | 5311 | | 11/28/2017 | |
| 15 | 1732090005 | 50WW08-111317 | | | | SAMPLE | 3 | 1732090005-A | E6850Q41.3 | 5480 | 12/11/2017 | 12/4/2017 | |
| 16 | 1732090006 | 50WW08-111317MS | | | | MS | 3 | 1732090006-A | E6850Q413Q | 5480 | | 11/28/2017 | |
| 17 | 1732090007 | 50WW08-111317MSD | | | | MSD | 3 | 1732090007-A | E6850Q413Q | 5480 | | 11/28/2017 | |
| 18 | 1732090008 | 50WW08-111317-FD | | | | FLDDUP | 3 | 1732090008-A | E6850Q41.3 | 5480 | 12/11/2017 | 12/4/2017 | |
| 19 | 1732090009 | 50WW22-111317 | | | | SAMPLE | 3 | 1732090009-A | E6850Q41.3 | 5480 | 12/11/2017 | 12/5/2017 | |
| 20 | 575300 | CCV for HBN 203403 [ELMS/1999] | | | | CCV | 3 | | E685041C3Q | 5311 | | 11/28/2017 | |
| 21 | 575301 | LODV for HBN 203403 [ELMS/1999 | | | | LODV | 3 | | E6850..D3Q | 5311 | | 11/28/2017 | |





BWL-V3.1

00877544

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

# Analytical Documentation

ALS Work Order #'s & Sample #( )'s: 1731766 (001); 1731771 (001); 1731772 (001); 1732090 (001-09)
ELMS Batch/HBN ID: 1999 (203403)
Prep Date: 11/21/2017 Analysis Date: 11/21/2017 Analyst: T. Bosch
Analyte: **Perchlorate** Matrix: **Water** Method: **6850**
Sequence:\\HPCHEM\1\SEQUENCE\CLO4\2017\NOV\21NOV17P.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 DI735)/0.1% glacial acetic acid (JT-Baker Lot 04802).
Eluent B1: 95% ACN (B&J Lot DI735)/ 5% ASTM Type II water (ALS)/0.1% glacial acetic acid (JT-Baker Lot 04802).

**STANDARDS:** Internal Standard Spiking Solution Horizon# 38780. Dilutions of Working Standard Solution ID 32373 used for CCV's, LODV's, RLVS and IPC.

**CALIBRATION CURVE:** Used curve from 08/21/2017, sequence 21AUG17P.s Offline Quantitation Method: CLO4-PR3.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: 8 Injection Volume: 35µL
Column: KP-RPPX C8 separator, 250mm Mobile Phase: 70% Eluent A1; 30% Eluent B1

**FLOW GRADIENT:**

| Time (min.) | Flow (mL/min) |
|---|---|
| 0 | 0.60 |
| 4.0 | 0.60 |
| 5.0 | 0.25 |
| 14.5 | 0.25 |
| 15.0 | 0.60 |
| 17.5 | 0.60 |

**QC DATA:** 5.0µL of QC Solution Horizon ID 36749 was used for LCS 575297; Target = 5.0µg/L. ASTM type II water was used for LMB 575296.

**MS/MSD:** MS/MSD was performed on samples 1732090006/07 (Client ID: 50WW08-111317). 5.0µl of Working Standard Solution Horizon ID 36735 was added to 10.0mL of sample preparation. Spike target = 5.0µg/L.

**COMMENTS:**
1) Results reported in µg/L. Sample 1732090001 was re-analyzed and reported at a 1 in 100 dilution. Samples 1731766001 and 1732090002/04 were re-analyzed and reported at a 1 in 1,000 dilutions. The reporting limits have been adjusted accordingly.
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\2017\NOV\HBN# or through NuGenesis\Tree\PrintData\LCMS\DefaultView.
4) Due to limitations of the Chemstation Software, many of the chromatographic peaks require manual integration. Manual Integrations were performed for some of the Initial Calibration analyses (datafiles: 21AUGP01-03) along with datafiles 21NOVP02/03/10/19.
5) Notebook: \\alsltws013\ORGANIC\BOSCH\LCMS\Perchlorates\Waters\2017\CLO4-203403-DOD-ALS-HSTN or through \\ALSLTWS013\DATAREVIEW\HBN#

# STANDARD REPORT

## Working Standard - CLO4 WRK

**CLO4 WRK** — **Description - 6850 WKG Std 100.ug/L**

Standard: 36735
MFG: ALS/SLC
MFG Lot: TNB: 05/10/17
Part ID:

Created By: T. Bosch
Create Date: 05/10/2017
Lab Lot: CLO4 WRK

Amount: 10 mL
Expires: 05/10/2018
Usable: Yes

| 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 |
| 36734 | CLO4 INT | 6850 Intermdt AccStd 10.ug/mL | CLO4 INT | 0.1 mL | 05/10/2018 |

# STANDARD REPORT

## Constituent

## Stock Standard - CLO4 STOCK

| CLO4 STOCK | Description - 6850 Stock AccStd 1,000ug/mL |
|---|---|

| | | |
|---|---|---|
| Standard: 36733 | Created By: T. Bosch | Amount: 100 mL |
| MFG: AccuStandard | Create Date: 5/10/2017 | Expires: 10/4/2018 |
| MFG Lot: 216095148 | Lab Lot: CLO4 STOCK | Usable: Yes |
| Part ID: IC-PER-10X-1 | | |

| Pos. | Analyte | Name | Concentration |
|---|---|---|---|
| 1 | 14797-73-0 | Perchlorate | 1000 ug/mL |

# 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: 10/6/2005 | Expires: 11/7/2025 | |
| MFG Lot: | Lab Lot: LAB 109 | Usable: Yes | |
| Part ID: | | | |

| Pos. | Analyte | Name | Concentration |
|---|---|---|---|
| Solvent - Analyte(s) not applicable | | | |

# STANDARD REPORT

## Constituent

## Working Standard - CLO4 INT

| CLO4 INT | | Description - 6850 Intermdt AccStd 10.ug/mL |
|---|---|---|
| Standard: 36734 | Created By: T. Bosch | Amount: 10 mL |
| MFG: ALS/SLC | Create Date: 05/10/2017 | Expires: 05/10/2018 |
| MFG Lot: TNB: 05/10/17 | Lab Lot: CLO4 INT | Usable: Yes |
| Part ID: | | |

| 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 |
| 36733 | CLO4 STOCK | 6850 Stock AccStd 1,000ug/mL | CLO4 STOCK | 0.1 mL | 10/04/2018 |

# STANDARD REPORT

## Working Standard - CLO4 QC WRK

| CLO4 QC WRK | | Description - 6850 QC WKG STD 100ug/L |
|---|---|---|
| Standard: 36750 | Created By: T. Bosch | Amount: 10 mL |
| MFG: ALS/SLC | Create Date: 05/11/2017 | Expires: 05/11/2018 |
| MFG Lot: TNB: 05/11/17 | Lab Lot: CLO4 QC WRK 100.ug/L | Usable: Yes |
| Part ID: | | |

| 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 |
| 36749 | CLO4 QC INT | 6850 QC Intrmdt Std-QC 10ug/mL | CLO4 QC INT 10.ug/mL | 0.1 mL | 05/11/2018 |

# STANDARD REPORT

## Constituent

## Working Standard - CLO4 QC INT

**CLO4 QC INT** — Description - 6850 QC Intrmdt Std-QC 10ug/mL

Standard: 36749 | Created By: T. Bosch | Amount: 10 mL
MFG: ALS/SLC | Create Date: 05/11/2017 | Expires: 05/11/2018
MFG Lot: TNB: 05/11/2017 | Lab Lot: CLO4 QC INT 10.ug/mL | Usable: Yes
Part ID:

| 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 |

# 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: 10/6/2005 | Expires: 11/7/2025 | |
| MFG Lot: | Lab Lot: LAB 109 | Usable: Yes | |
| Part ID: | | | |

| Pos. | Analyte | Name | Concentration |
|---|---|---|---|
| Solvent - Analyte(s) not applicable | | | |

# STANDARD REPORT

## Constituent

## Stock Standard - CLO4 QCSTOCK

| CLO4 QCSTOCK | Description - 6850 QC Stock STD 1,000ug/mL |
|---|---|

Standard: 36748
MFG: Ultra Scientific
MFG Lot: CP-0860
Part ID: ICC-013

Created By: T. Bosch
Create Date: 5/11/2017
Lab Lot: CLO4 QC STOCK

Amount: 100 mL
Expires: 3/31/2020
Usable: Yes

| Pos. | Analyte | Name | Concentration |
|---|---|---|---|
| 1 | 14797-73-0 | Perchlorate | 1000 ug/mL |

# STANDARD REPORT

## Working Standard - CLO4ISTDWRK

| CLO4ISTDWRK | | Description - Perchlorate ISTD Wrk 1,000ug/L |
|---|---|---|
| Standard: 38780 | Created By: Thomas Bosch | Amount: 10 mL |
| MFG: ALS/SLC | Create Date: 10/09/2017 01:10PM | Expires: 10/09/2018 |
| MFG Lot: TNB: 10/09/17 | 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 |
|---|---|---|---|---|---|
| 23118 | CLO4ISTDSTK | Perchlorate ISTD Stock | CLO4ISTDSTK | 0.1 mL | 02/27/2024 |

# STANDARD REPORT

## Constituent

## Stock Standard - CLO4ISTDSTK

| CLO4ISTDSTK | | Description - Perchlorate ISTD Stock |
|---|---|---|
| Standard: 23118 | Created By: Thomas Bosch | Amount: 1 mL |
| MFG: Cambridge Isotope | Create Date: 04/04/2014 03:04PM | Expires: 02/27/2024 |
| MFG Lot: SDDG-013 | Verified By: Thomas Bosch | Usable: Yes |
| Part ID: OLM-7310-S | Verify Date: 02/05/2009 12:02AM | 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

TRIPLE ISO CERTIFICATION · ISO 9001 · ISO GUIDE 34 · ISO/IEC 17025 · ULTRA

## ISO Guide 34 Reference Material

Product Number: ICC-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

125 Market Street
New Haven, CT 06513
USA

AccuStandard® Inc.

Tel (203)786-5290
Fax (203)786-5287
www.AccuStandard.com

# CERTIFICATE OF ANALYSIS

## AccuTrace™ Reference Standard

Catalog No: IC-PER-10X-1
Description: Perchlorate Standard
Element: Perchlorate ($ClO_4$)
SRM: Ind. Std.
Lot: 216095148
Matrix: Water
Hazards: *Refer to SDS for complete safety information*

Signal Word: Warning

Date Certified: Oct 4, 2016
Expiration: Oct 4, 2018
Sample Size: 100 mL
Components: 1
Storage Condition: Ambient (>5 °C)

Included on ISO/IEC 17025 Scope of Accreditation: Yes

Included on ISO Guide 34 Scope of Accreditation: Yes

| Component | | SRM # | Prepared Concentration (µg/mL) |
|---|---|---|---|
| $ClO_4$ | Perchlorate | Ind. Std. | 1000 |

The gravimetric uncertainty for this product is ±0.2%. See reverse side for details.

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 Guide 34, ISO/IEC 17025 and certified to ISO 9001**

Cambridge Isotope Laboratories, Inc.

# Certificate of Analysis

Quality Standards:
ISO Guide 34 • ISO/IEC 17025 • ISO 13485 • cGMP

23118

| | |
|---|---|
| **Product Name:** (Isotopic Label & Enrichment Specification) | PERCHLORIC ACID, SODIUM SALT (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% |
| LC/MS for Concentration | 109.4 ± 2.8 µg/mL (k=2) |



ALS

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

# Raw Data

Batch Report: C:\HPCHEM\1\DATA\21NOV17P\21NOV17P.B

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-PR3.M

['#' ==> Run has not been reprocessed with Batch Review Method
'*' ==> Run has been saved with batch file]

| # | Sample | Location | Inj | SampleType | Run | CLO4-89-ISTD Area | CLO4-89-ISTD RT | CLO4-89-ISTD Amount |
|---|---|---|---|---|---|---|---|---|
| * | 575293 CCV@25 | Vial 71 | 1 | Control | 1 | 4.95752e5 | 11.659 | 5.00000 |
| * | 575294 LODV@1. | Vial 72 | 1 | Control | 2 | 6.33978e5 | 11.580 | 5.00000 |
| * | 575295 ICS@1. | Vial 73 | 1 | Control | 3 | 3.43353e5 | 11.530 | 5.00000 |
| * | 575296 LMB | Vial 74 | 1 | Control | 4 | 6.34762e5 | 11.752 | 5.00000 |
| * | 575297 LCS@5. | Vial 75 | 1 | Control | 5 | 4.73999e5 | 11.723 | 5.00000 |
| * | 1731766001 | Vial 76 | 1 | Sample | 6 | 2.91336e5 | 9.304 | 5.00000 |
| * | 1731771001 | Vial 77 | 1 | Sample | 7 | 3.98980e5 | 11.846 | 5.00000 |
| * | 1731772001 | Vial 78 | 1 | Sample | 8 | 4.15472e5 | 11.853 | 5.00000 |
| * | 1732090001 | Vial 79 | 1 | Sample | 9 | 4.02188e5 | 10.818 | 5.00000 |
| * | 1732090002 | Vial 80 | 1 | Sample | 10 | 0.00000 | 0.000 | 0.00000 |
| * | 1732090003 | Vial 81 | 1 | Sample | 11 | 4.24561e5 | 11.110 | 5.00000 |
| * | 1732090004 | Vial 82 | 1 | Sample | 12 | 0.00000 | 0.000 | 0.00000 |
| * | 1732090005 | Vial 83 | 1 | Sample | 13 | 4.01470e5 | 11.041 | 5.00000 |
| * | 1732090006 MS | Vial 84 | 1 | Sample | 14 | 3.91759e5 | 11.043 | 5.00000 |
| * | 1732090007 MSD | Vial 85 | 1 | Sample | 15 | 4.26155e5 | 11.041 | 5.00000 |
| * | 1732090008 | Vial 86 | 1 | Sample | 16 | 4.30250e5 | 11.039 | 5.00000 |
| * | 1732090009 | Vial 87 | 1 | Sample | 17 | 3.84880e5 | 10.977 | 5.00000 |
| * | 575298 CCV@25 | Vial 71 | 1 | Control | 18 | 4.38394e5 | 11.758 | 5.00000 |
| * | 575299 LODV@1. | Vial 72 | 1 | Control | 19 | 5.63443e5 | 11.637 | 5.00000 |
| * | 1731766001 1K | Vial 88 | 1 | Sample | 20 | 5.34179e5 | 11.831 | 5000.00000 |
| * | 1732090001 100 | Vial 89 | 1 | Sample | 21 | 5.57597e5 | 11.953 | 500.00000 |
| * | 1732090002 1K | Vial 90 | 1 | Sample | 22 | 5.58494e5 | 12.002 | 5000.00000 |
| * | 1732090004 1K | Vial 91 | 1 | Sample | 23 | 5.66247e5 | 11.984 | 5000.00000 |
| * | 575300 CCV@25 | Vial 71 | 1 | Control | 24 | 4.88376e5 | 11.995 | 5.00000 |
| * | 575301 LODV@1. | Vial 72 | 1 | Control | 25 | 6.26703e5 | 11.836 | 5.00000 |

| # | Sample | Location | Inj | SampleType | Run | Perchlorate Area | Perchlorate RT | Perchlorate Amount |
|---|---|---|---|---|---|---|---|---|
| * | 575293 CCV@25 | Vial 71 | 1 | Control | 1 | 3.43968e6 | 11.639 | 26.71551 |
| * | 575294 LODV@1. | Vial 72 | 1 | Control | 2 | 1.25845e5 | 11.573 | 9.22270e-1 |
| * | 575295 ICS@1. | Vial 73 | 1 | Control | 3 | 8.39472e4 | 11.536 | 1.13244 |
| * | 575296 LMB | Vial 74 | 1 | Control | 4 | 0.00000 | 0.000 | 0.00000 |
| * | 575297 LCS@5. | Vial 75 | 1 | Control | 5 | 5.31685e5 | 11.701 | 5.02013 |
| * | 1731766001 | Vial 76 | 1 | Sample | 6 | 9.39364e8 | 9.475 | 1330.32766 |
| * | 1731771001 | Vial 77 | 1 | Sample | 7 | 0.00000 | 0.000 | 0.00000 |
| * | 1731772001 | Vial 78 | 1 | Sample | 8 | 0.00000 | 0.000 | 0.00000 |
| * | 1732090001 | Vial 79 | 1 | Sample | 9 | 1.48823e8 | 10.804 | 411.69118 |
| * | 1732090002 | Vial 80 | 1 | Sample | 10 | 0.00000 | 0.000 | 0.00000 |
| * | 1732090003 | Vial 81 | 1 | Sample | 11 | 0.00000 | 0.000 | 0.00000 |
| * | 1732090004 | Vial 82 | 1 | Sample | 12 | 9.57682e8 | 9.027 | 7.38340e-3 |
| * | 1732090005 | Vial 83 | 1 | Sample | 13 | 2.88037e6 | 11.018 | 27.48906 |
| * | 1732090006 MS | Vial 84 | 1 | Sample | 14 | 3.49021e6 | 11.020 | 32.98147 |
| * | 1732090007 MSD | Vial 85 | 1 | Sample | 15 | 3.80569e6 | 11.019 | 33.04679 |
| * | 1732090008 | Vial 86 | 1 | Sample | 16 | 2.82168e6 | 11.028 | 25.45707 |
| * | 1732090009 | Vial 87 | 1 | Sample | 17 | 5.14831e4 | 10.947 | 6.25305e-1 |
| * | 575298 CCV@25 | Vial 71 | 1 | Control | 18 | 2.90531e6 | 11.750 | 25.68660 |
| * | 575299 LODV@1. | Vial 72 | 1 | Control | 19 | 1.09492e5 | 11.598 | 9.03165e-1 |
| * | 1731766001 1K | Vial 88 | 1 | Sample | 20 | 1.20628e6 | 11.805 | 9756.42567 |
| * | 1732090001 100 | Vial 89 | 1 | Sample | 21 | 1.22754e6 | 11.924 | 952.72687 |
| * | 1732090002 1K | Vial 90 | 1 | Sample | 22 | 2.70142e6 | 11.981 | 1.95236e4 |
| * | 1732090004 1K | Vial 91 | 1 | Sample | 23 | 1.78892e6 | 11.960 | 1.33080e4 |
| * | 575300 CCV@25 | Vial 71 | 1 | Control | 24 | 3.38694e6 | 11.970 | 26.70499 |
| * | 575301 LODV@1. | Vial 72 | 1 | Control | 25 | 1.30116e5 | 11.806 | 9.64000e-1 |

| # | Sample | Location | Inj | SampleType | Run | CLO4-85 Area | CLO4-85 RT | CLO4-85 Amount |
|---|---|---|---|---|---|---|---|---|
| * | 575293 CCV@25 | Vial 71 | 1 | Control | 1 | 1.02829e6 | 11.652 | 26.09816 |
| * | 575294 LODV@1. | Vial 72 | 1 | Control | 2 | 4.79999e4 | 11.562 | 1.06340 |

| #* | Sample | Location | Inj | SampleType | Run | CLO4-85 Area | CLO4-85 RT | CLO4-85 Amount |
|---|---|---|---|---|---|---|---|---|
| * | 575295 ICS@1. | Vial 73 | 1 | Control | 3 | 2.69436e4 | 11.502 | 1.10196 |
| * | 575296 LMB | Vial 74 | 1 | Control | 4 | 0.00000 | 0.000 | 0.00000 |
| * | 575297 LCS@5. | Vial 75 | 1 | Control | 5 | 1.79069e5 | 11.704 | 5.20589 |
| * | 1731766001 | Vial 76 | 1 | Sample | 6 | 3.65188e8 | 9.301 | 1842.78769 |
| * | 1731771001 | Vial 77 | 1 | Sample | 7 | 0.00000 | 0.000 | 0.00000 |
| * | 1731772001 | Vial 78 | 1 | Sample | 8 | 0.00000 | 0.000 | 0.00000 |
| * | 1732090001 | Vial 79 | 1 | Sample | 9 | 5.18884e7 | 10.818 | 526.61797 |
| * | 1732090002 | Vial 80 | 1 | Sample | 10 | 0.00000 | 10.935 | 0.00000 |
| * | 1732090003 | Vial 81 | 1 | Sample | 11 | 0.00000 | 0.000 | 0.00000 |
| * | 1732090004 | Vial 82 | 1 | Sample | 12 | 0.00000 | 0.000 | 0.00000 |
| * | 1732090005 | Vial 83 | 1 | Sample | 13 | 8.67168e5 | 11.030 | 27.06822 |
| * | 1732090006 MS | Vial 84 | 1 | Sample | 14 | 1.04043e6 | 11.042 | 32.54319 |
| * | 1732090007 MSD | Vial 85 | 1 | Sample | 15 | 1.14152e6 | 11.038 | 32.79040 |
| * | 1732090008 | Vial 86 | 1 | Sample | 16 | 8.50148e5 | 11.055 | 24.97821 |
| * | 1732090009 | Vial 87 | 1 | Sample | 17 | 2.15920e4 | 10.973 | 7.88952e-1 |
| * | 575298 CCV@25 | Vial 71 | 1 | Control | 18 | 8.98143e5 | 11.759 | 25.80855 |
| * | 575299 LODV@1. | Vial 72 | 1 | Control | 19 | 4.61070e4 | 11.612 | 1.14888 |
| * | 1731766001 1K | Vial 88 | 1 | Sample | 20 | 3.94066e5 | 11.819 | 9950.51827 |
| * | 1732090001 100 | Vial 89 | 1 | Sample | 21 | 3.93937e5 | 11.946 | 954.66974 |
| * | 1732090002 1K | Vial 90 | 1 | Sample | 22 | 8.38230e5 | 11.986 | 1.94238e4 |
| * | 1732090004 1K | Vial 91 | 1 | Sample | 23 | 5.74994e5 | 11.979 | 1.34843e4 |
| * | 575300 CCV@25 | Vial 71 | 1 | Control | 24 | 1.03655e6 | 11.987 | 26.64453 |
| * | 575301 LODV@1. | Vial 72 | 1 | Control | 25 | 5.02385e4 | 11.799 | 1.12559 |

*** End of Report ***

Sequence Table:

Method and Injection Info Part:

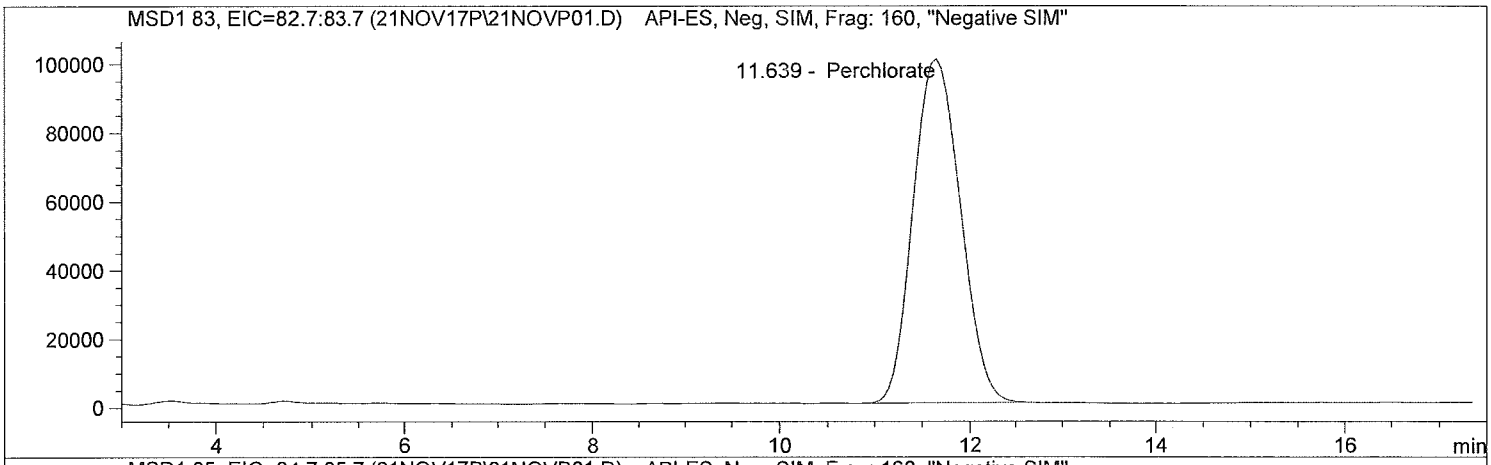
| Line | Location | SampleName | Method | Inj | SampleType | InjVolume | DataFile |
|---|---|---|---|---|---|---|---|
| 1 | Vial 71 | 575293 CCV@25 | CLO4-AQN | 1 | Ctrl Samp | | |
| 2 | Vial 72 | 575294 LODV@1. | CLO4-AQN | 1 | Ctrl Samp | | |
| 3 | Vial 73 | 575295 ICS@1. | CLO4-AQN | 1 | Ctrl Samp | | |
| 4 | Vial 74 | 575296 LMB | CLO4-AQN | 1 | Ctrl Samp | | |
| 5 | Vial 75 | 575297 LCS@5. | CLO4-AQN | 1 | Ctrl Samp | | |
| 6 | Vial 76 | 1731766001 | CLO4-AQN | 1 | Sample | | |
| 7 | Vial 77 | 1731771001 | CLO4-AQN | 1 | Sample | | |
| 8 | Vial 78 | 1731772001 | CLO4-AQN | 1 | Sample | | |
| 9 | Vial 79 | 1732090001 | CLO4-AQN | 1 | Sample | | |
| 10 | Vial 80 | 1732090002 | CLO4-AQN | 1 | Sample | | |
| 11 | Vial 81 | 1732090003 | CLO4-AQN | 1 | Sample | | |
| 12 | Vial 82 | 1732090004 | CLO4-AQN | 1 | Sample | | |
| 13 | Vial 83 | 1732090005 | CLO4-AQN | 1 | Sample | | |
| 14 | Vial 84 | 1732090006 MS | CLO4-AQN | 1 | Sample | | |
| 15 | Vial 85 | 1732090007 MSD | CLO4-AQN | 1 | Sample | | |
| 16 | Vial 86 | 1732090008 | CLO4-AQN | 1 | Sample | | |
| 17 | Vial 87 | 1732090009 | CLO4-AQN | 1 | Sample | | |
| 18 | Vial 71 | 575298 CCV@25 | CLO4-AQN | 1 | Ctrl Samp | | |
| 19 | Vial 72 | 575299 LODV@1. | CLO4-AQN | 1 | Ctrl Samp | | |
| 20 | Vial 88 | 1731766001 1K | CLO4-AQN | 1 | Sample | | |
| 21 | Vial 89 | 1732090001 100 | CLO4-AQN | 1 | Sample | | |
| 22 | Vial 90 | 1732090002 1K | CLO4-AQN | 1 | Sample | | |
| 23 | Vial 91 | 1732090004 1K | CLO4-AQN | 1 | Sample | | |
| 24 | Vial 71 | 575300 CCV@25 | CLO4-AQN | 1 | Ctrl Samp | | |
| 25 | Vial 72 | 575301 LODV@1. | CLO4-AQN | 1 | Ctrl Samp | | |

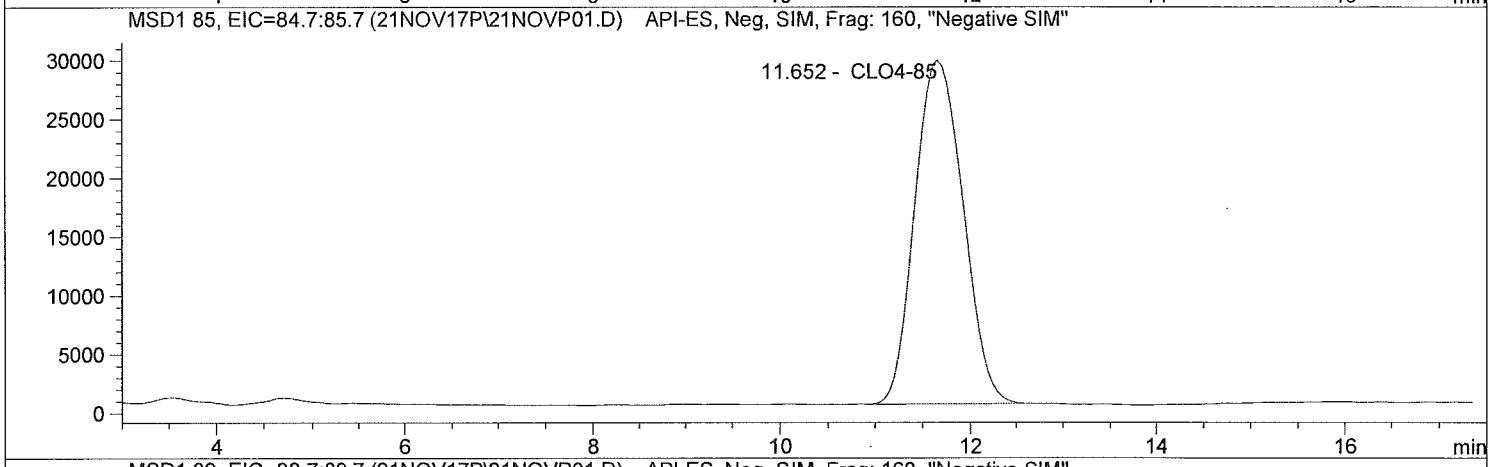
Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP01.D  Sample Name: 575293  CCV@25

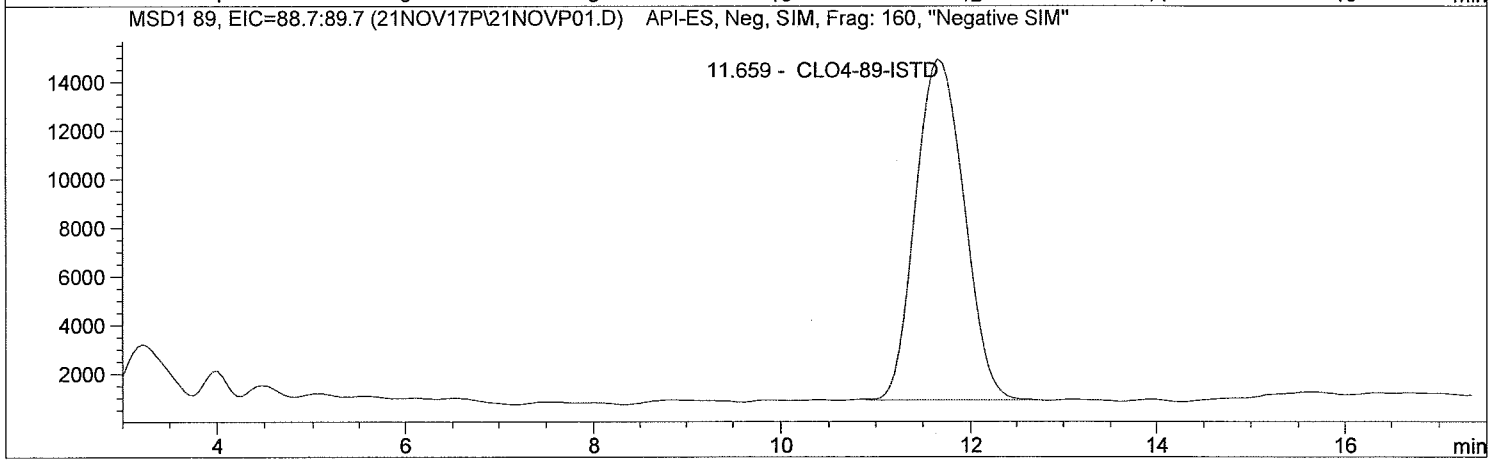
| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 08:50:46 | Seq Line: | 1 |
| Sample Name: | 575293 CCV@25 | Location: | Vial 71 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP01.D  Sample Name: 575293  CCV@25

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 08:50:46 | Seq Line: | 1 |
| Sample Name: | 575293 CCV@25 | Location: | Vial 71 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 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 |
|---|---|---|---|---|
| 11.639 | PBA | 3439680.5 | 26.7155 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.652 | BBA | 1028288.7 | 26.0982 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.659 | BBA | 495751.6 | 5.0000 | CLO4-89-ISTD |

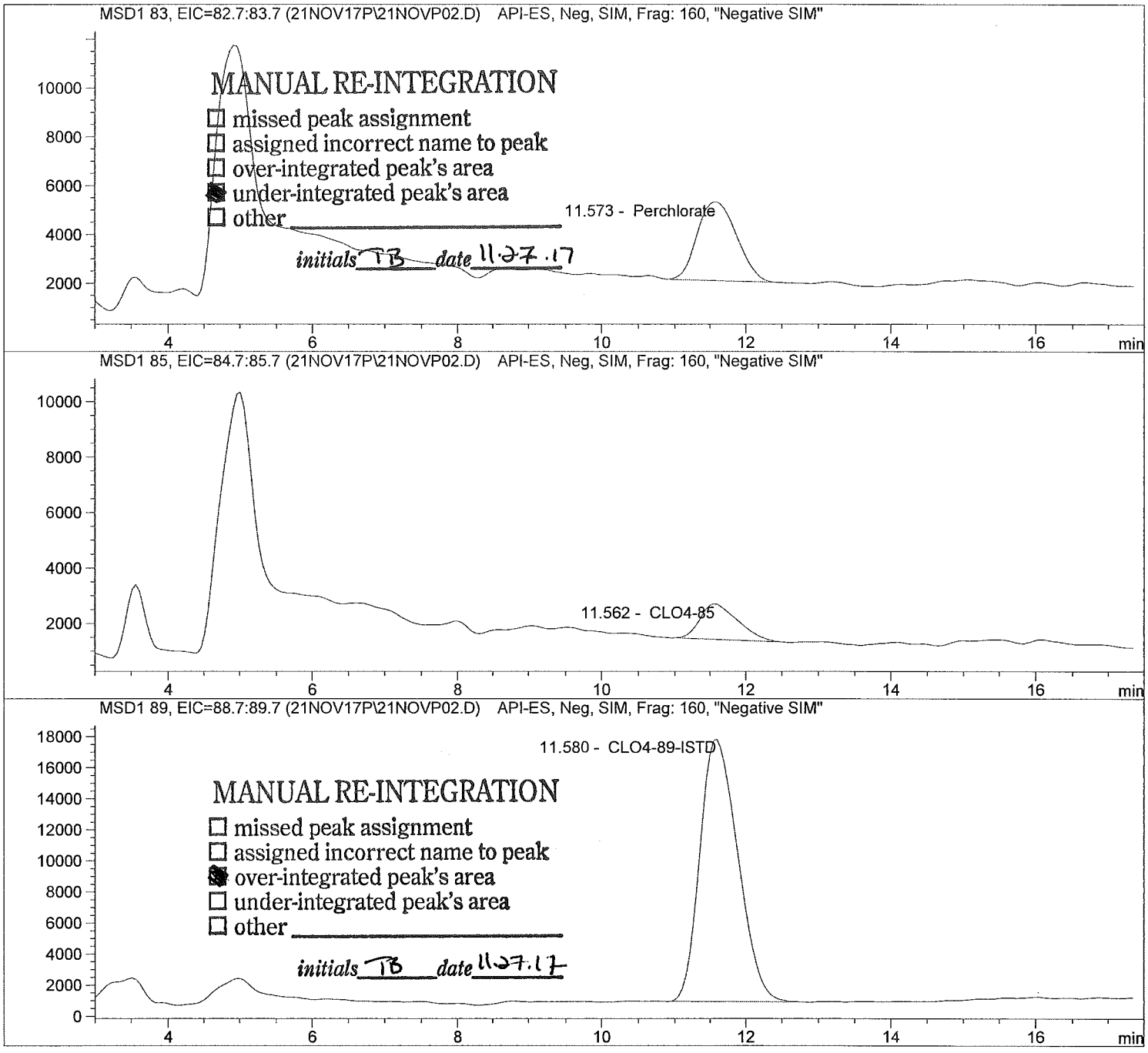
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP02.D  Sample Name: 575294  LODV@1.

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 09:11:16 | Seq Line: | 2 |
| Sample Name: | 575294 LODV@1. | Location: | Vial 72 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP02.D Sample Name: 575294 LODV@1.

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 09:11:16 | Seq Line: | 2 |
| Sample Name: | 575294 LODV@1. | Location: | Vial 72 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 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 |
|---|---|---|---|---|
| 11.573 | MM | 125844.8 | 0.9223 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.562 | PBA | 47999.9 | 1.0634 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.580 | MM | 633977.8 | 5.0000 | CLO4-89-ISTD |

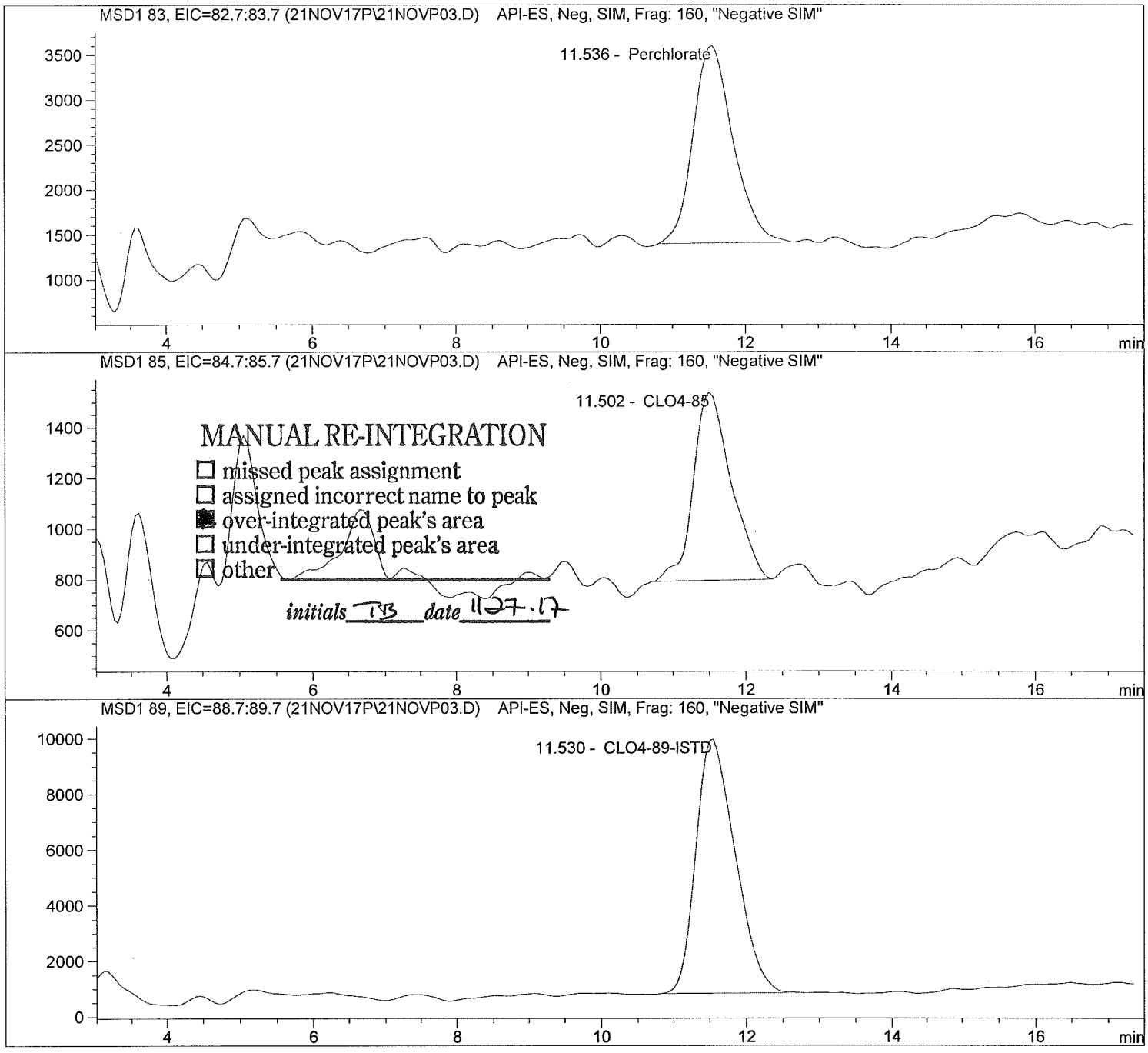
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP03.D  Sample Name: 575295  ICS@1.

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 09:30:38 | Seq Line: | 3 |
| Sample Name: | 575295 ICS@1. | Location: | Vial 73 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP03.D  Sample Name: 575295  ICS@1.

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 09:30:38 | Seq Line: | 3 |
| Sample Name: | 575295 ICS@1. | Location: | Vial 73 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 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 |
|---|---|---|---|---|
| 11.536 | PBA | 83947.2 | 1.1324 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.502 | MM | 26943.6 | 1.1020 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.530 | PBA | 343352.6 | 5.0000 | CLO4-89-ISTD |

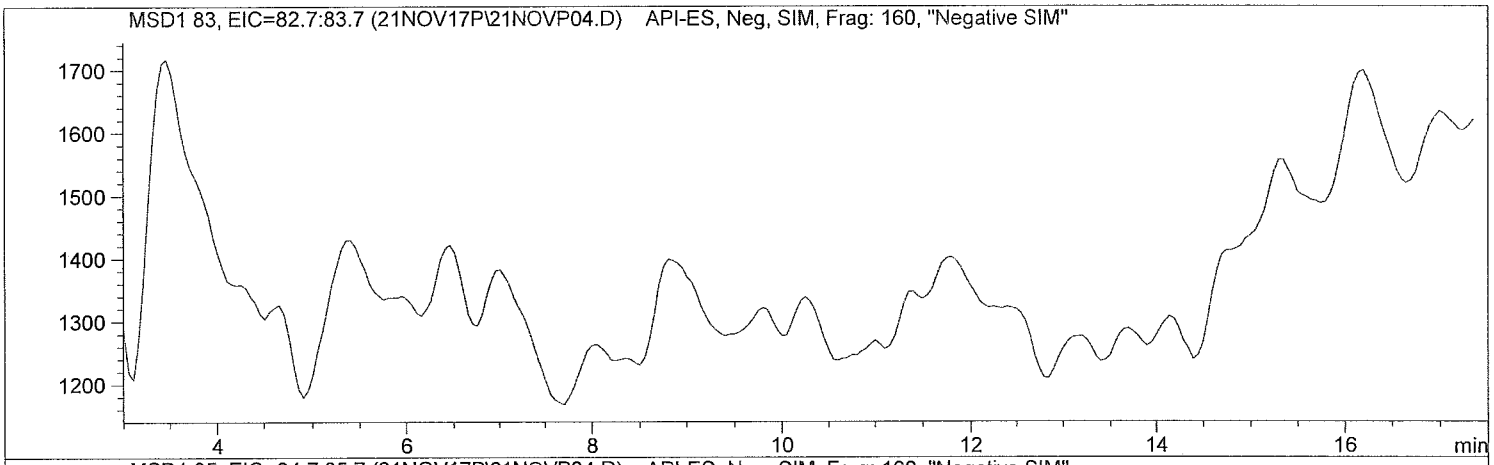
*** End of Report ***

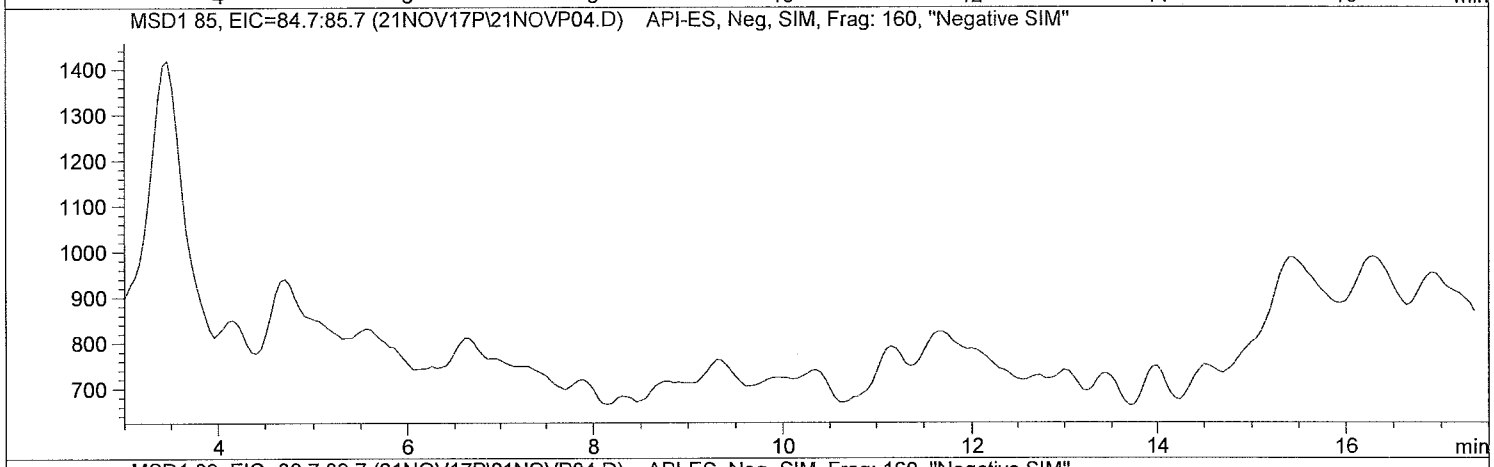
Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP04.D  Sample Name: 575296  LMB

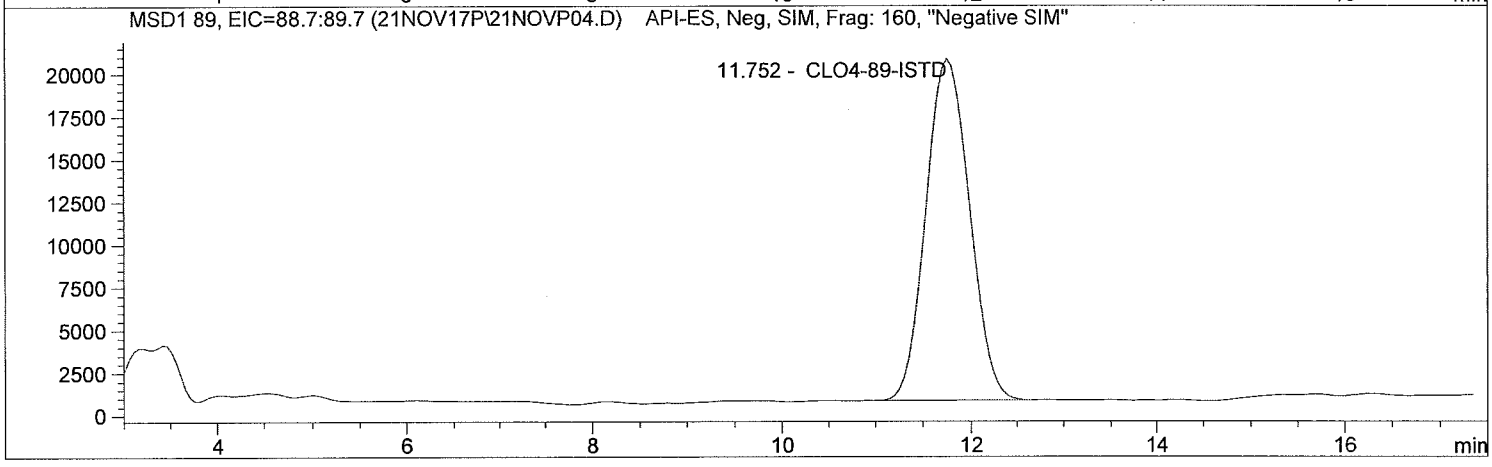
| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 09:50:03 | Seq Line: | 4 |
| Sample Name: | 575296 LMB | Location: | Vial 74 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP04.D  Sample Name: 575296  LMB

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 09:50:03 | Seq Line: | 4 |
| Sample Name: | 575296 LMB | Location: | Vial 74 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 11.752 | BBA | 634761.6 | 5.0000 | CLO4-89-ISTD |

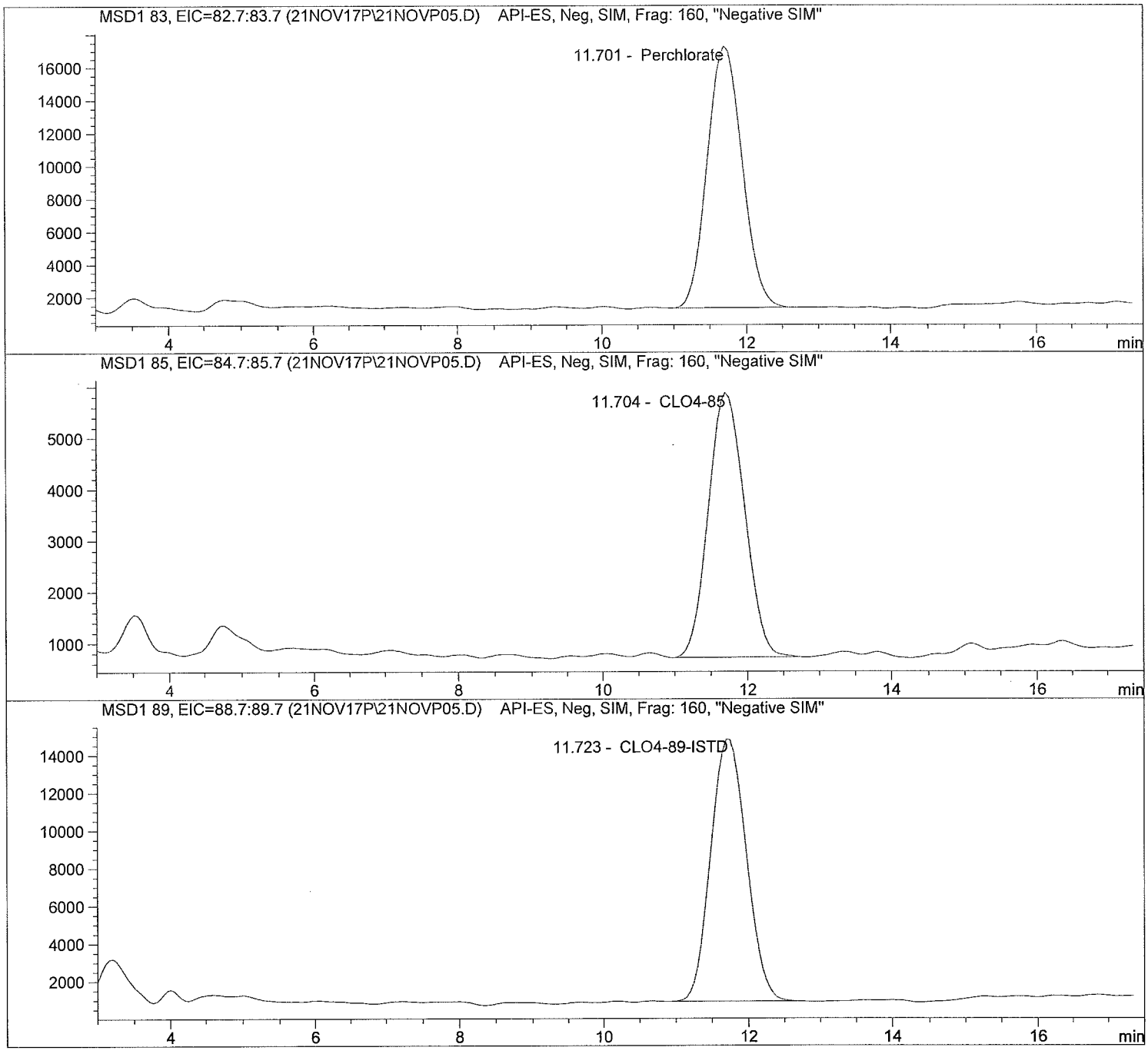
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP05.D  Sample Name: 575297  LCS@5.

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 10:09:26 | Seq Line: | 5 |
| Sample Name: | 575297 LCS@5. | Location: | Vial 75 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP05.D Sample Name: 575297 LCS@5.

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 10:09:26 | Seq Line: | 5 |
| Sample Name: | 575297 LCS@5. | Location: | Vial 75 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 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 |
|---|---|---|---|---|
| 11.701 | PBA | 531684.6 | 5.0201 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.704 | PBA | 179068.8 | 5.2059 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.723 | PBA | 473999.5 | 5.0000 | CLO4-89-ISTD |

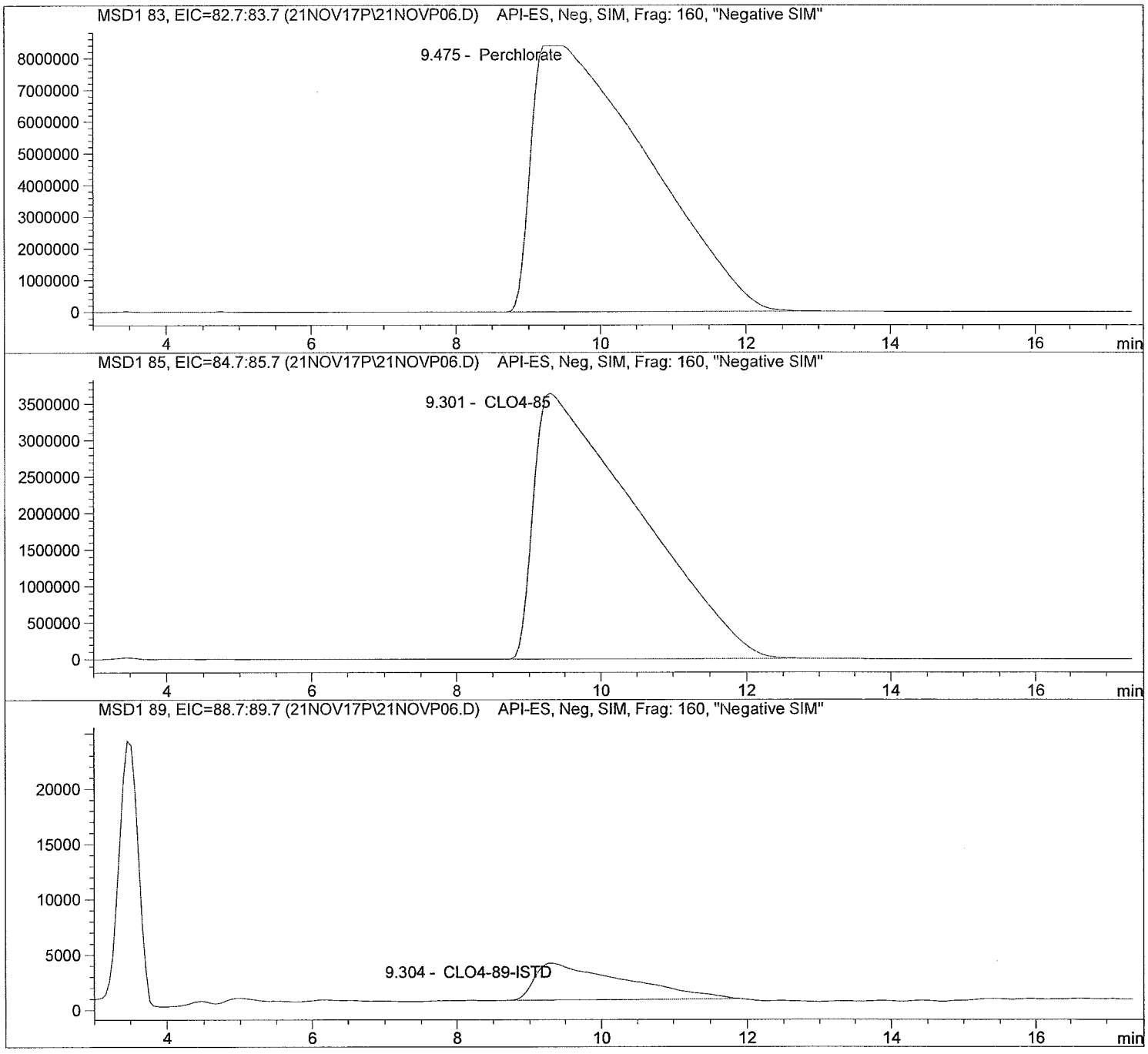
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP06.D Sample Name: 1731766001

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 10:29:55 | Seq Line: | 6 |
| Sample Name: | 1731766001 | Location: | Vial 76 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP06.D  Sample Name: 1731766001

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 10:29:55 | Seq Line: | 6 |
| Sample Name: | 1731766001 | Location: | Vial 76 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

| | |
|---|---|
| Acq. Method: | CLO4-AQN.M |
| Analysis Method: | C:\HPCHEM\1\METHODS\CLO4-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 9.475 | PBA | 939363840.0 | 1330.3277 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.301 | PBA | 365188320.0 | 1842.7877 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 9.304 | PBA | 291335.5 | 5.0000 | CLO4-89-ISTD |

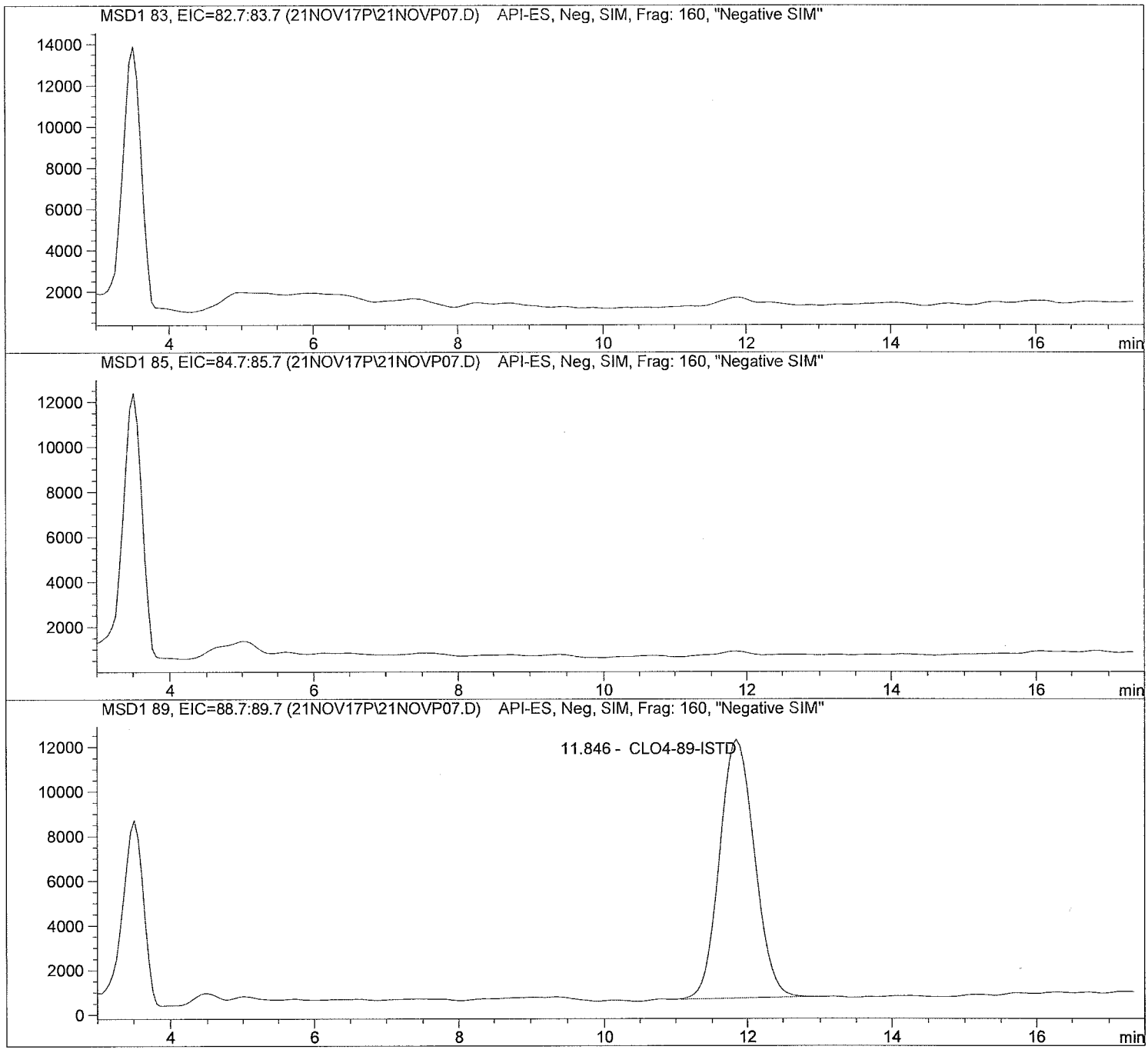
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP07.D  Sample Name: 1731771001

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 10:49:18 | Seq Line: | 7 |
| Sample Name: | 1731771001 | Location: | Vial 77 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP07.D  Sample Name: 1731771001

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 10:49:18 | Seq Line: | 7 |
| Sample Name: | 1731771001 | Location: | Vial 77 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

| | |
|---|---|
| Acq. Method: | CLO4-AQN.M |
| Analysis Method: | C:\HPCHEM\1\METHODS\CLO4-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 11.846 | BBA | 398980.5 | 5.0000 | CLO4-89-ISTD |

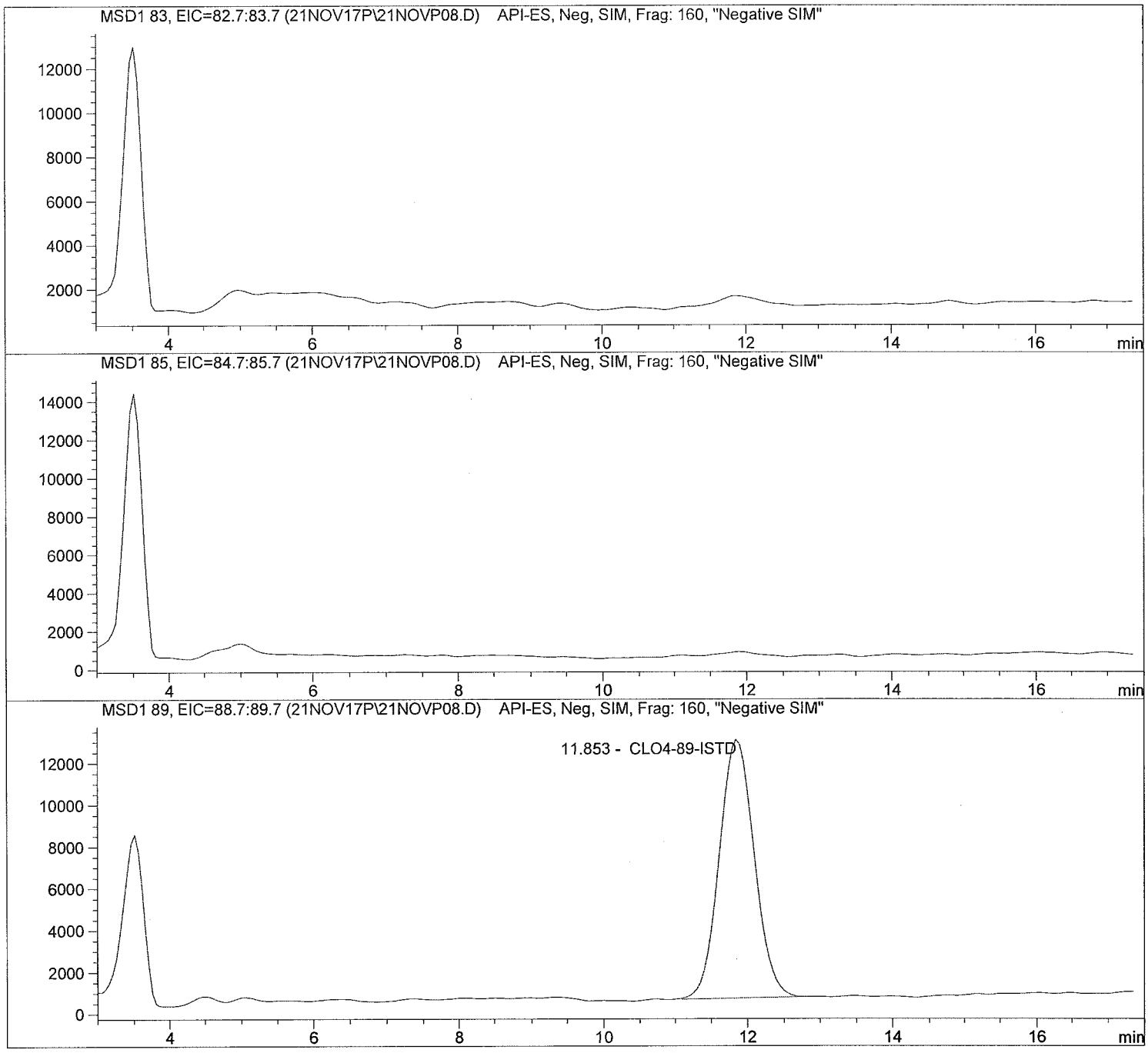
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP08.D  Sample Name: 1731772001

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 11:08:41 | Seq Line: | 8 |
| Sample Name: | 1731772001 | Location: | Vial 78 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP08.D  Sample Name: 1731772001

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 11:08:41 | Seq Line: | 8 |
| Sample Name: | 1731772001 | Location: | Vial 78 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 11.853 | BBA | 415472.4 | 5.0000 | CLO4-89-ISTD |

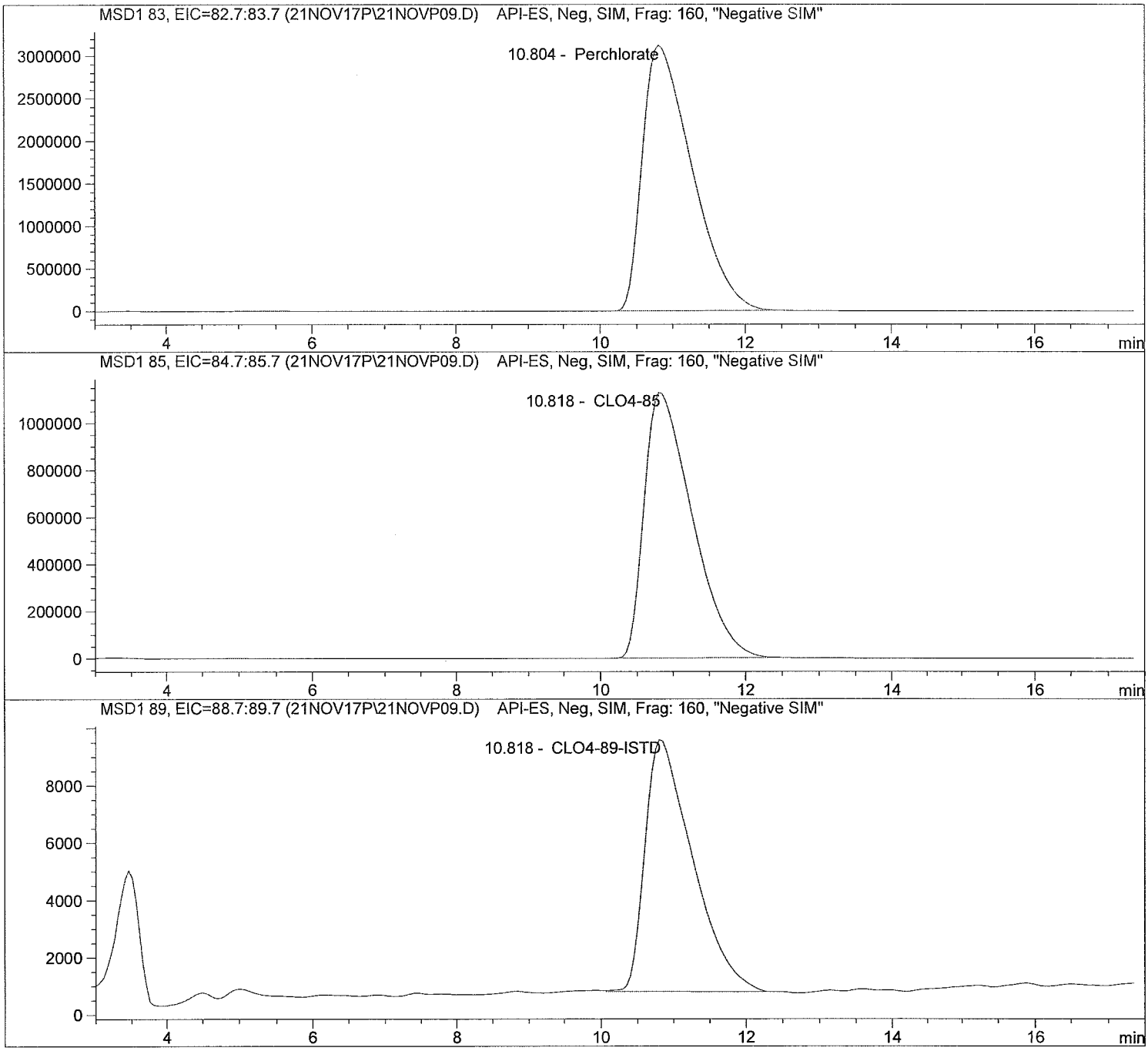
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP09.D Sample Name: 1732090001

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 11:28:02 | Seq Line: | 9 |
| Sample Name: | 1732090001 | Location: | Vial 79 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP09.D  Sample Name: 1732090001

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 11:28:02 | Seq Line: | 9 |
| Sample Name: | 1732090001 | Location: | Vial 79 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

| | |
|---|---|
| Acq. Method: | CLO4-AQN.M |
| Analysis Method: | C:\HPCHEM\1\METHODS\CLO4-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 10.804 | PBA | 148822752.0 | 411.6912 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 10.818 | PBA | 51888372.0 | 526.6180 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 10.818 | BBA | 402187.9 | 5.0000 | CLO4-89-ISTD |

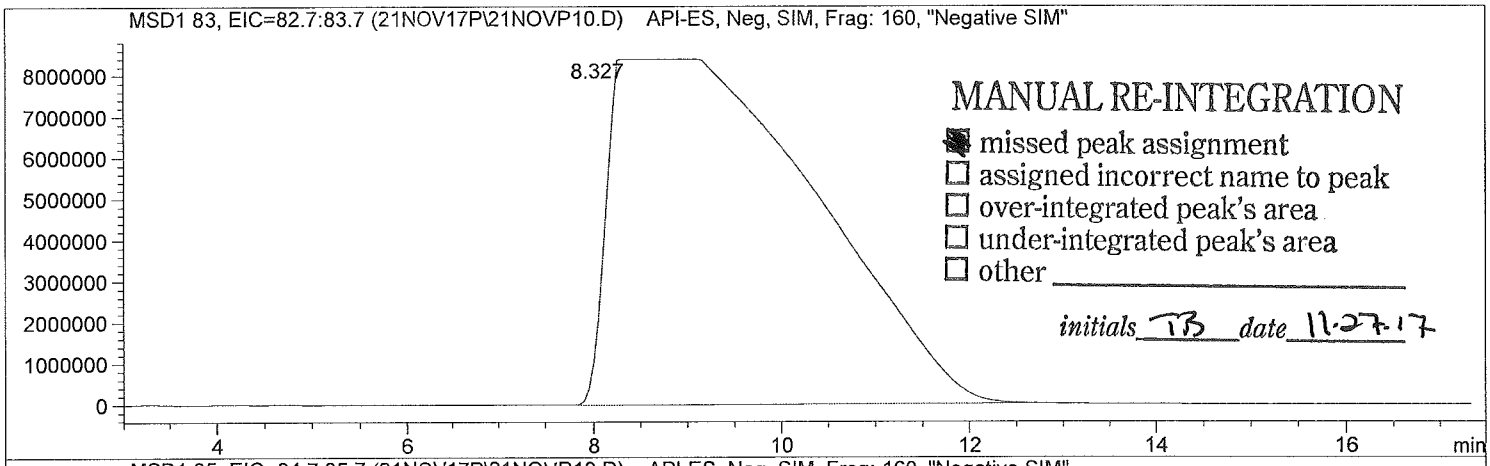
*** End of Report ***

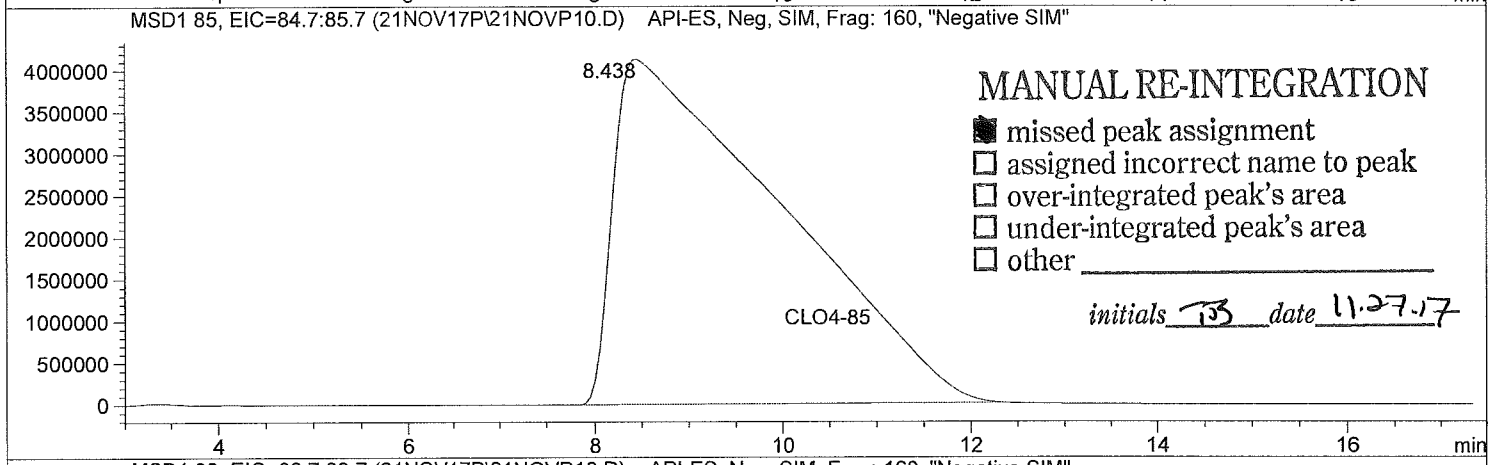
Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP10.D  Sample Name: 1732090002

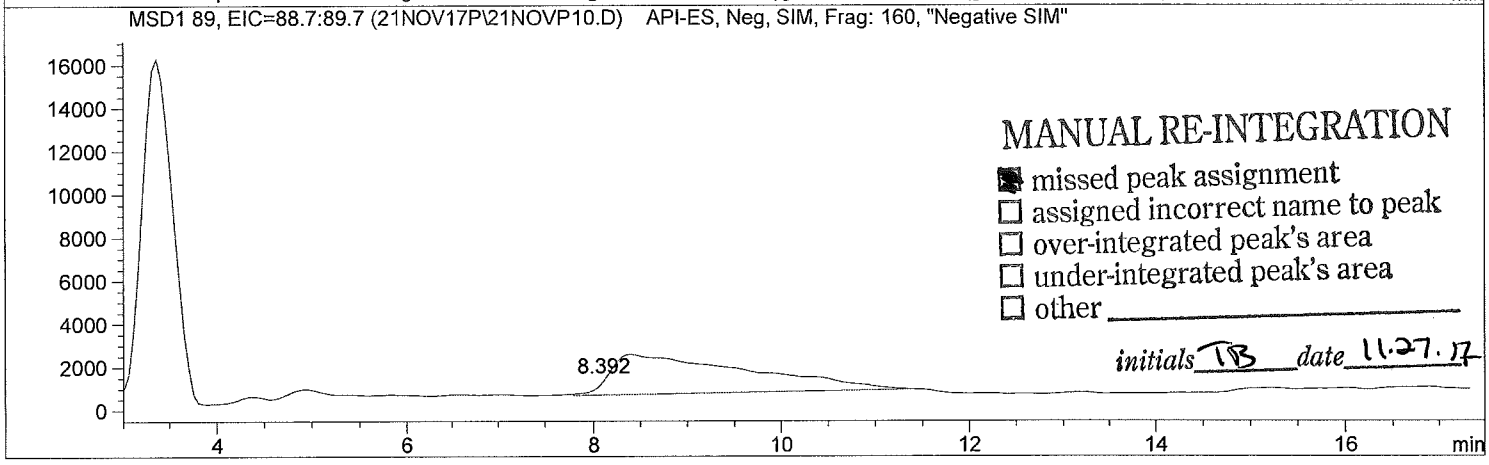
| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 11:47:26 | Seq Line: | 10 |
| Sample Name: | 1732090002 | Location: | Vial 80 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP10.D  Sample Name: 1732090002

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 11:47:26 | Seq Line: | 10 |
| Sample Name: | 1732090002 | Location: | Vial 80 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 8.327 | MM | 1274844416.0 | 0.0000 | |
| 0.000 | | 0.0 | 0.0000 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 8.438 | MM | 512512704.0 | 0.0000 | |
| 9.070 | Rsho | 0.0 | 0.0000 | |
| 9.678 | Rsho | 0.0 | 0.0000 | |
| 10.377 | Rsho | 0.0 | 0.0000 | |
| 10.935 | Rsho | 0.0 | 0.0000 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 8.392 | MM | 188436.4 | 0.0000 | |
| 0.000 | | 0.0 | 0.0000 | CLO4-89-ISTD |

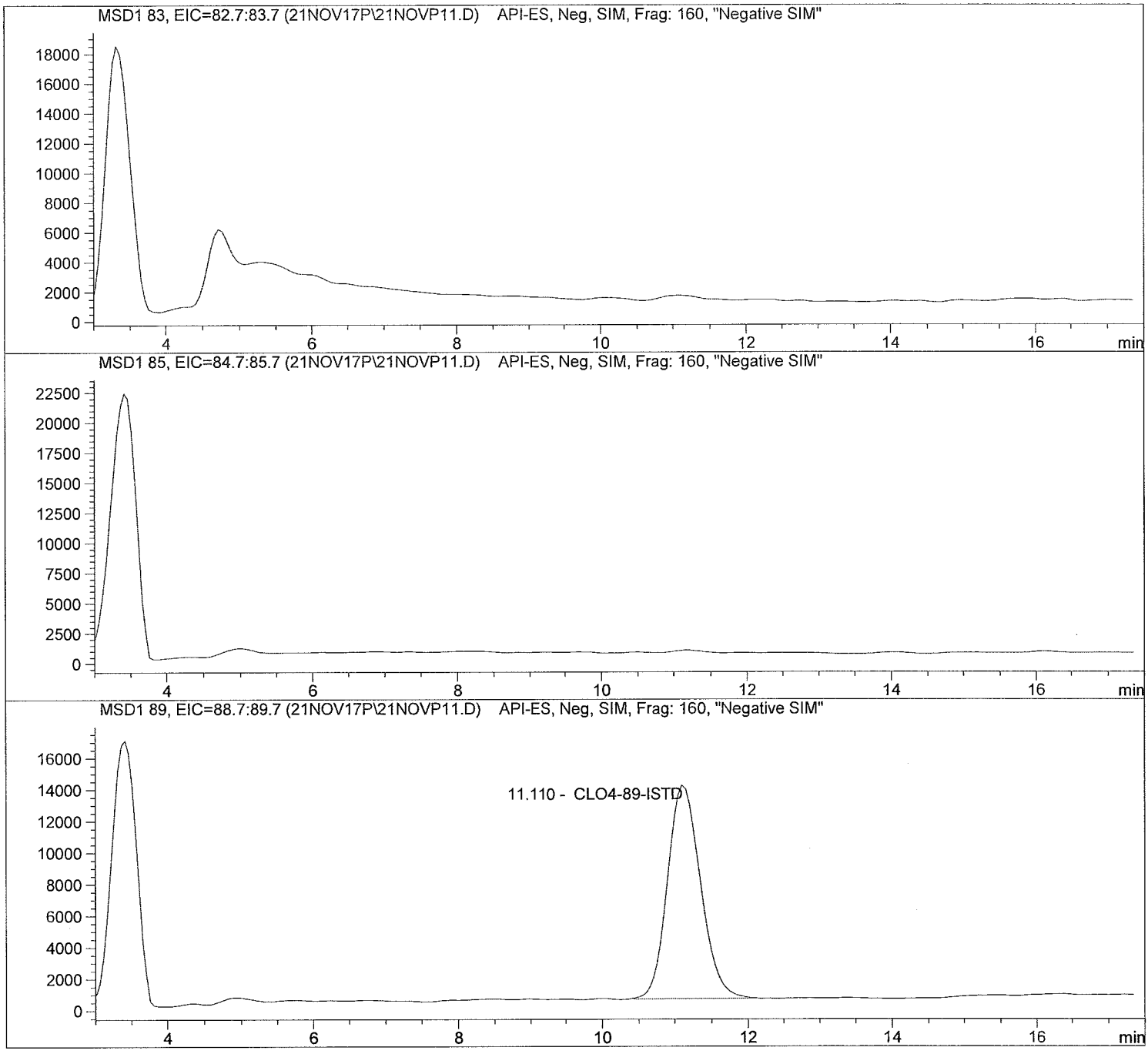
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP11.D  Sample Name: 1732090003

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 12:06:49 | Seq Line: | 11 |
| Sample Name: | 1732090003 | Location: | Vial 81 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP11.D  Sample Name: 1732090003

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 12:06:49 | Seq Line: | 11 |
| Sample Name: | 1732090003 | Location: | Vial 81 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

Sorted By: Signal
Calib. Data Modified: Thu, 26. Oct. 2017,08:21:56 am
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 |
|---|---|---|---|---|
| 11.110 | BBA | 424561.1 | 5.0000 | CLO4-89-ISTD |

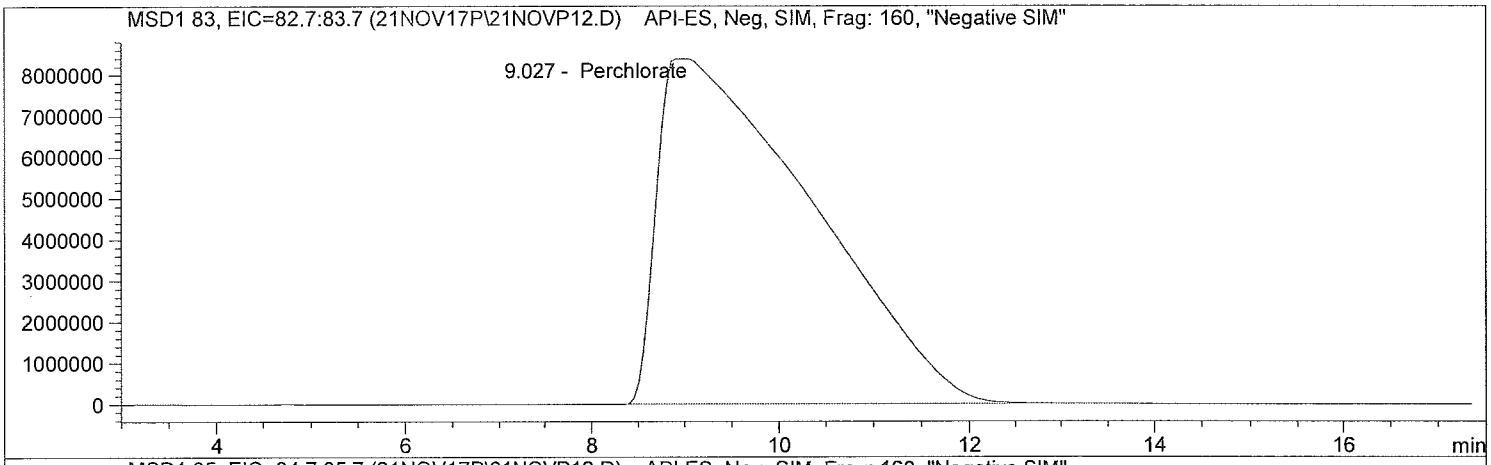
*** End of Report ***

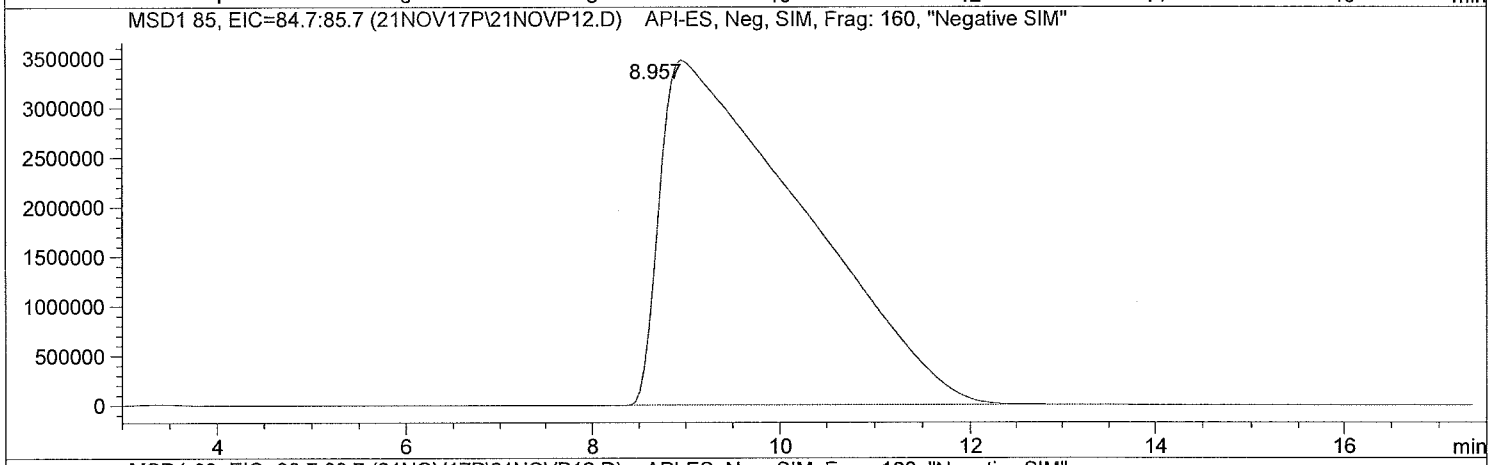
Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP12.D  Sample Name: 1732090004

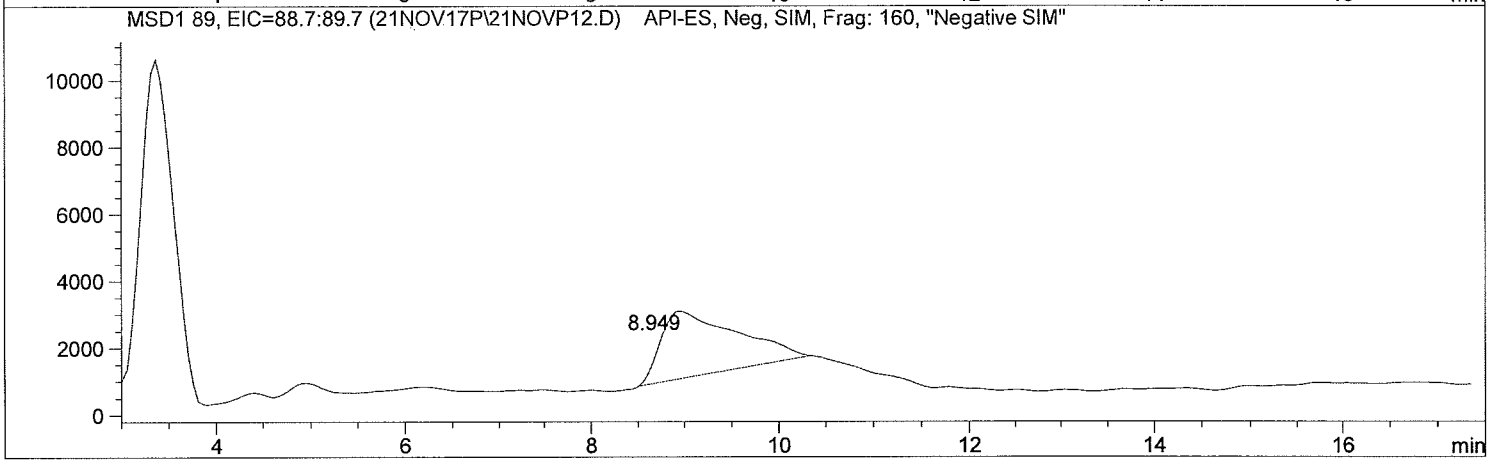
| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 12:26:10 | Seq Line: | 12 |
| Sample Name: | 1732090004 | Location: | Vial 82 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP12.D  Sample Name: 1732090004

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 12:26:10 | Seq Line: | 12 |
| Sample Name: | 1732090004 | Location: | Vial 82 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 9.027 | PBA | 957681984.0 | 0.0074 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 8.957 | PBA | 367310848.0 | 0.0000 | |
| 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 |
|---|---|---|---|---|
| 8.949 | PBA | 111870.4 | 0.0000 | |
| 0.000 | | 0.0 | 0.0000 | CLO4-89-ISTD |

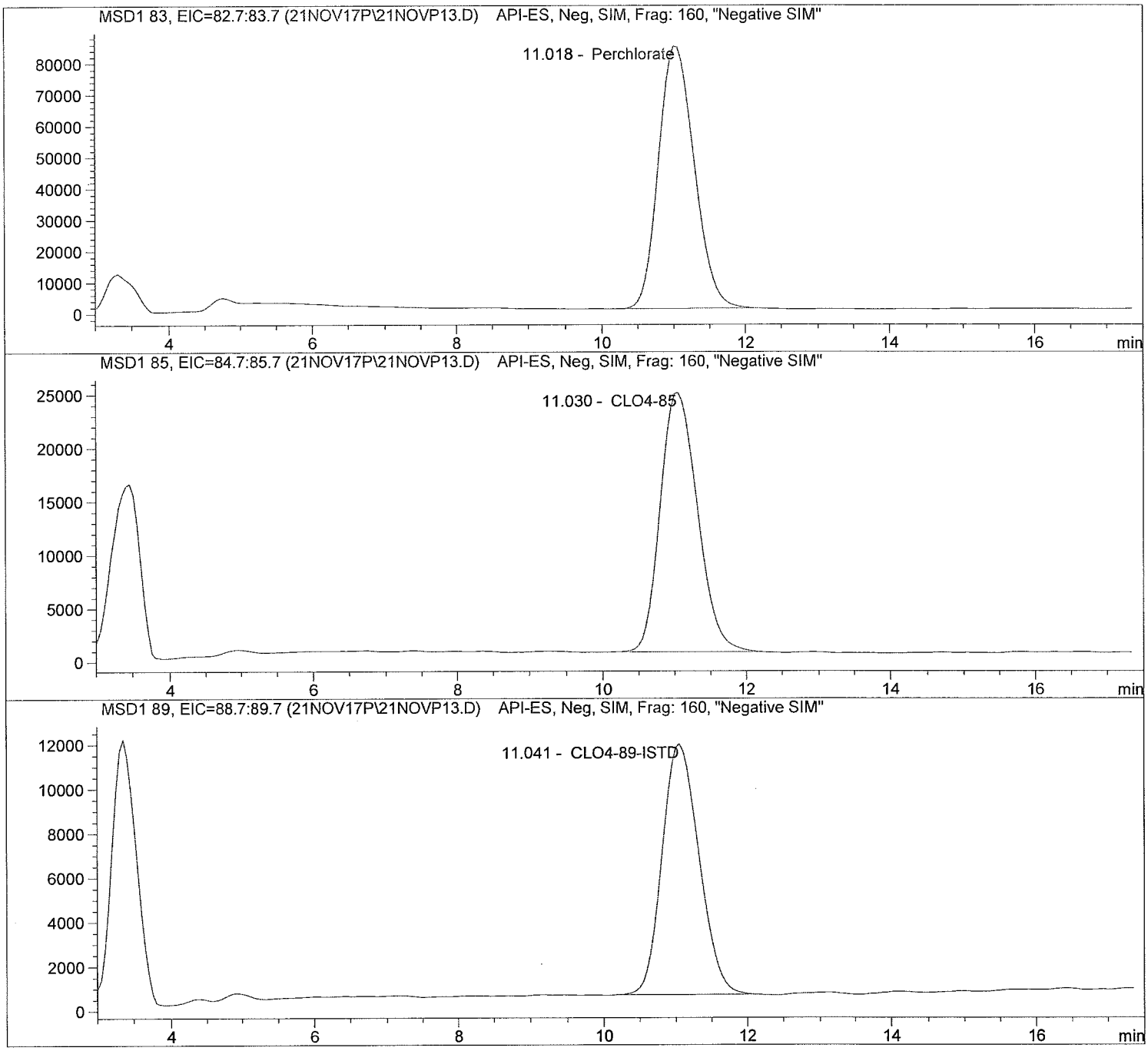
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP13.D  Sample Name: 1732090005

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 12:45:30 | Seq Line: | 13 |
| Sample Name: | 1732090005 | Location: | Vial 83 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP13.D  Sample Name: 1732090005

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 12:45:30 | Seq Line: | 13 |
| Sample Name: | 1732090005 | Location: | Vial 83 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

| | |
|---|---|
| Acq. Method: | CLO4-AQN.M |
| Analysis Method: | C:\HPCHEM\1\METHODS\CLO4-PR3.M |
| Last Changed: | 10/26/2017 08:21:59 |

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 11.018 | PBA | 2880371.0 | 27.4891 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.030 | BBA | 867168.2 | 27.0682 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.041 | BBA | 401470.2 | 5.0000 | CLO4-89-ISTD |

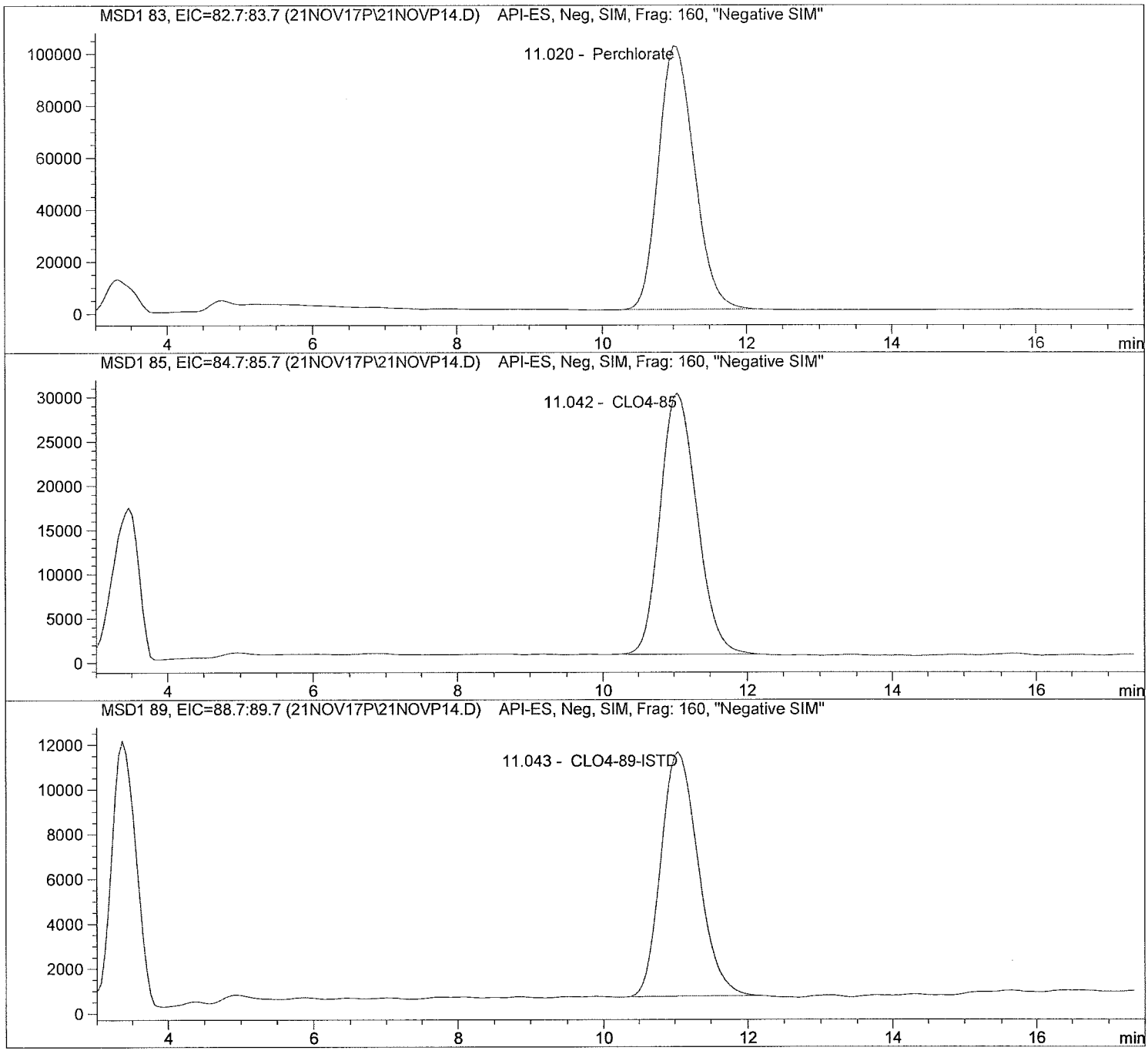
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP14.D  Sample Name: 1732090006  MS

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 13:06:15 | Seq Line: | 14 |
| Sample Name: | 1732090006 MS | Location: | Vial 84 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21NOV17P\21NOVP14.D  Sample Name: 1732090006  MS

| | | | |
|---|---|---|---|
| Injection Date: | 11/21/2017 13:06:15 | Seq Line: | 14 |
| Sample Name: | 1732090006 MS | Location: | Vial 84 |
| Acq Operator: | TNB | Inj. No.: | 1 |
| | | Inj. Vol.: | 35 µl |

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR3.M
Last Changed: 10/26/2017 08:21:59

Perchlorate analysis

## Sample Information

| | |
|---|---|
| Sorted By: | Signal |
| Calib. Data Modified: | Thu, 26. Oct. 2017,08:21:56 am |
| 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 |
|---|---|---|---|---|
| 11.020 | BBA | 3490214.3 | 32.9815 | Perchlorate |

Signal2: MSD1 85, EIC=84.7:85.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.042 | BBA | 1040430.4 | 32.5432 | CLO4-85 |

Signal3: MSD1 89, EIC=88.7:89.7

| RT [min] | Type | Area | Amount [ug/sample] | Compound Name |
|---|---|---|---|---|
| 11.043 | PBA | 391759.4 | 5.0000 | CLO4-89-ISTD |

*** End of Report ***